

# Finding and Using Vermont Lidar Data

An Introduction

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[geodata.vermont.gov/pages/elevation](http://geodata.vermont.gov/pages/elevation)

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# WHAT VCGI DOES

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## BUILD

Foundational  
Datasets.  
Lidar one of many.



## LEAD

Development and  
use of Statewide  
Geographic Information  
System (GIS) and the  
Coordination it requires



## EMPOWER

Data access,  
visualization and use

# Overview

**1**

## What is Lidar?

Point clouds  
Derivatives  
Resolution

**3**

## Accessing Lidar

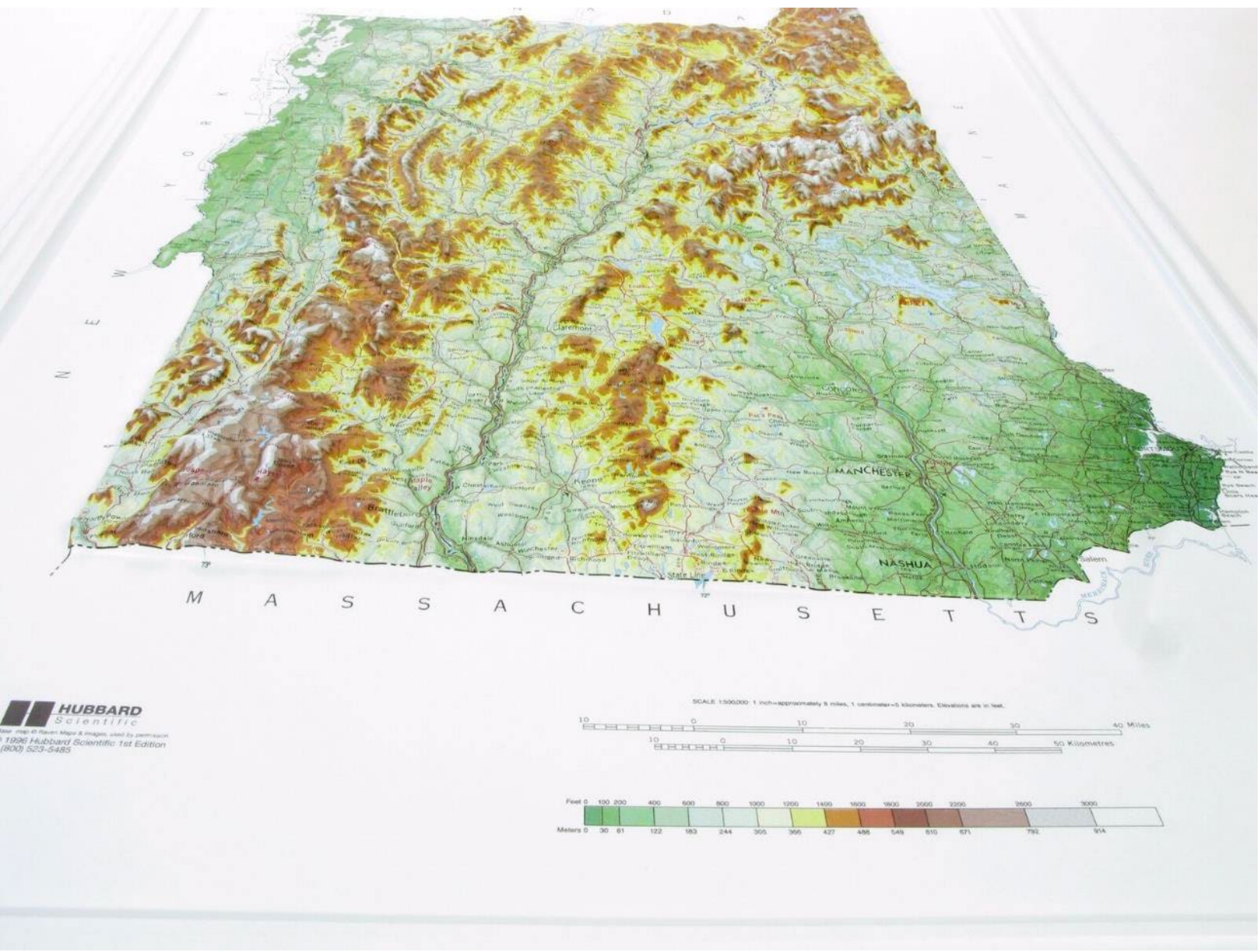
Applications  
Raw Data  
Resources

**2**

## Who uses Lidar?

And what for?

# Analog Relief



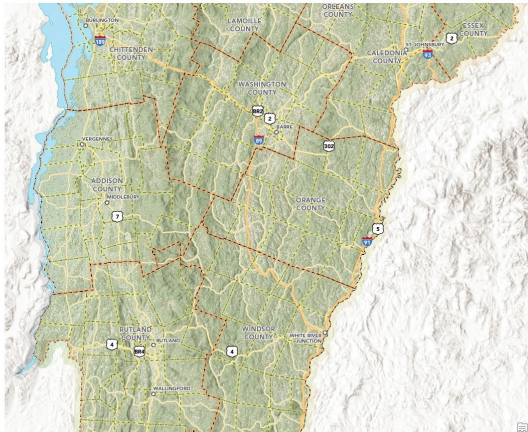
# Digital Relief



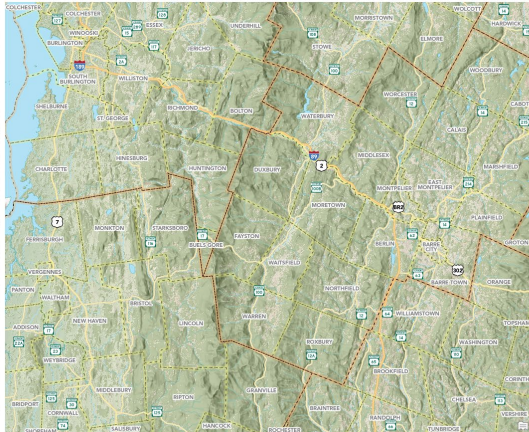
Aren't y'all done mapping yet...?



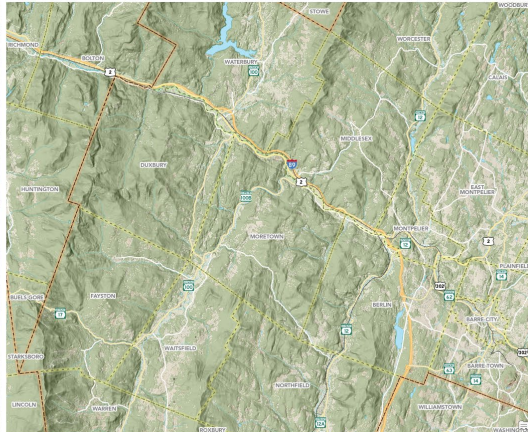
Level 9  
1:1,155,581



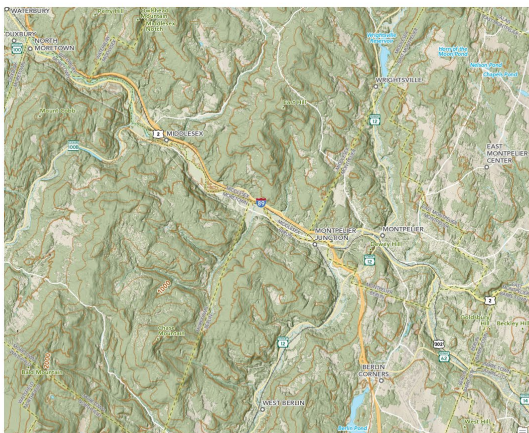
Level 10  
1:577,790



Level 11 (8pt Towns)  
1:288,895



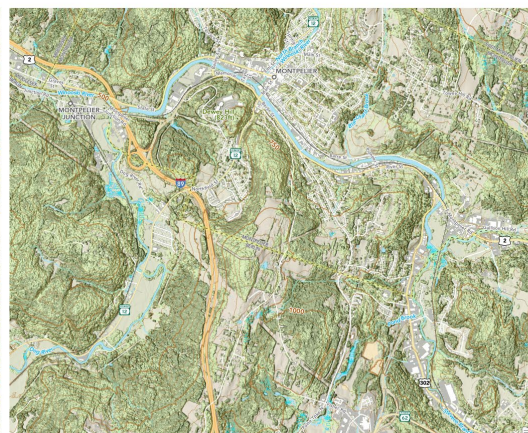
Level 12  
1:144,447



Level 13  
1:72,223



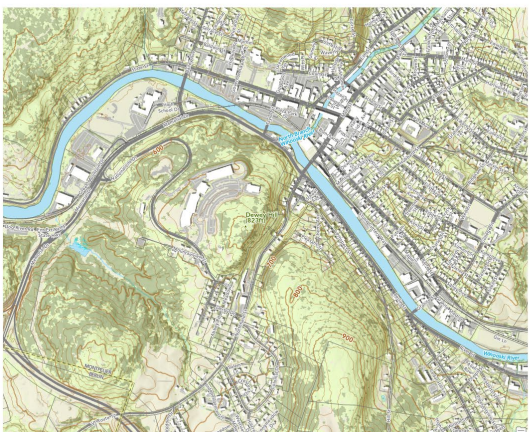
Level 14  
1:36,112



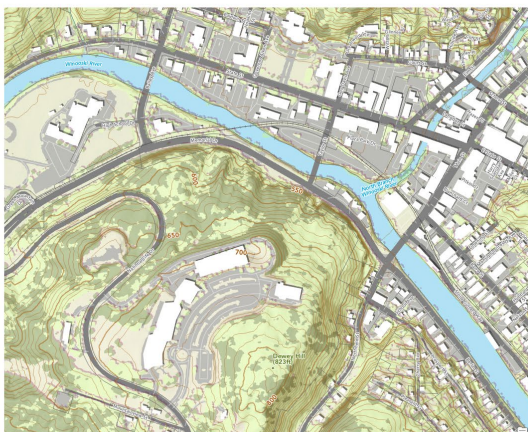
Level 15  
1:18,055



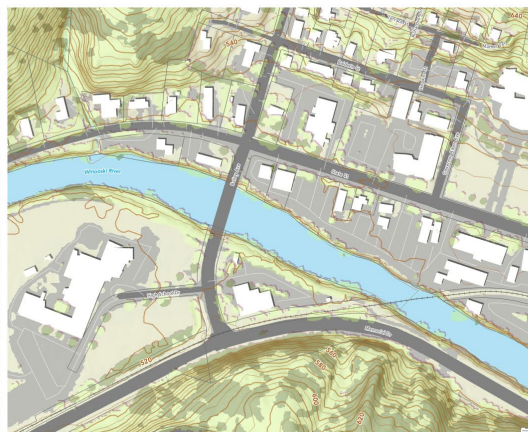
Level 16  
1:9,027



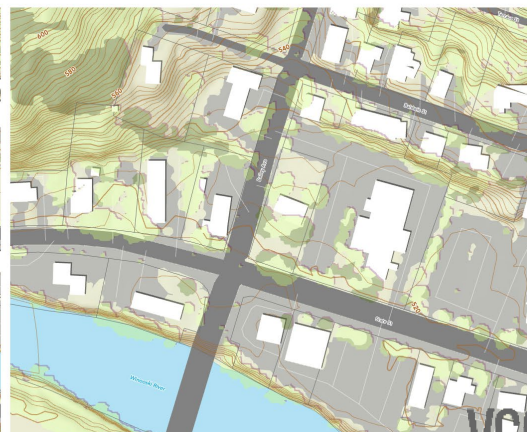
Level 17  
1:4,513



Level 18  
1:2,256



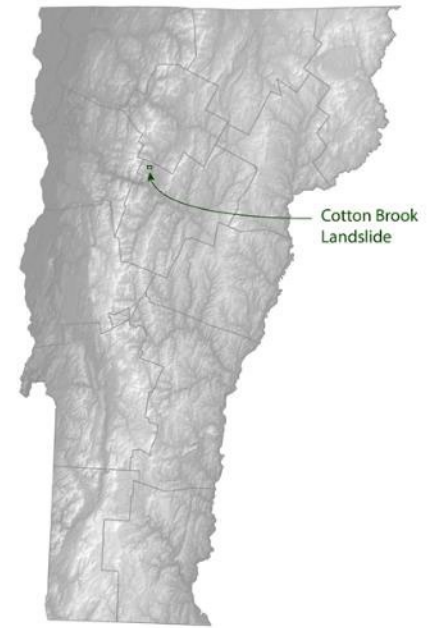
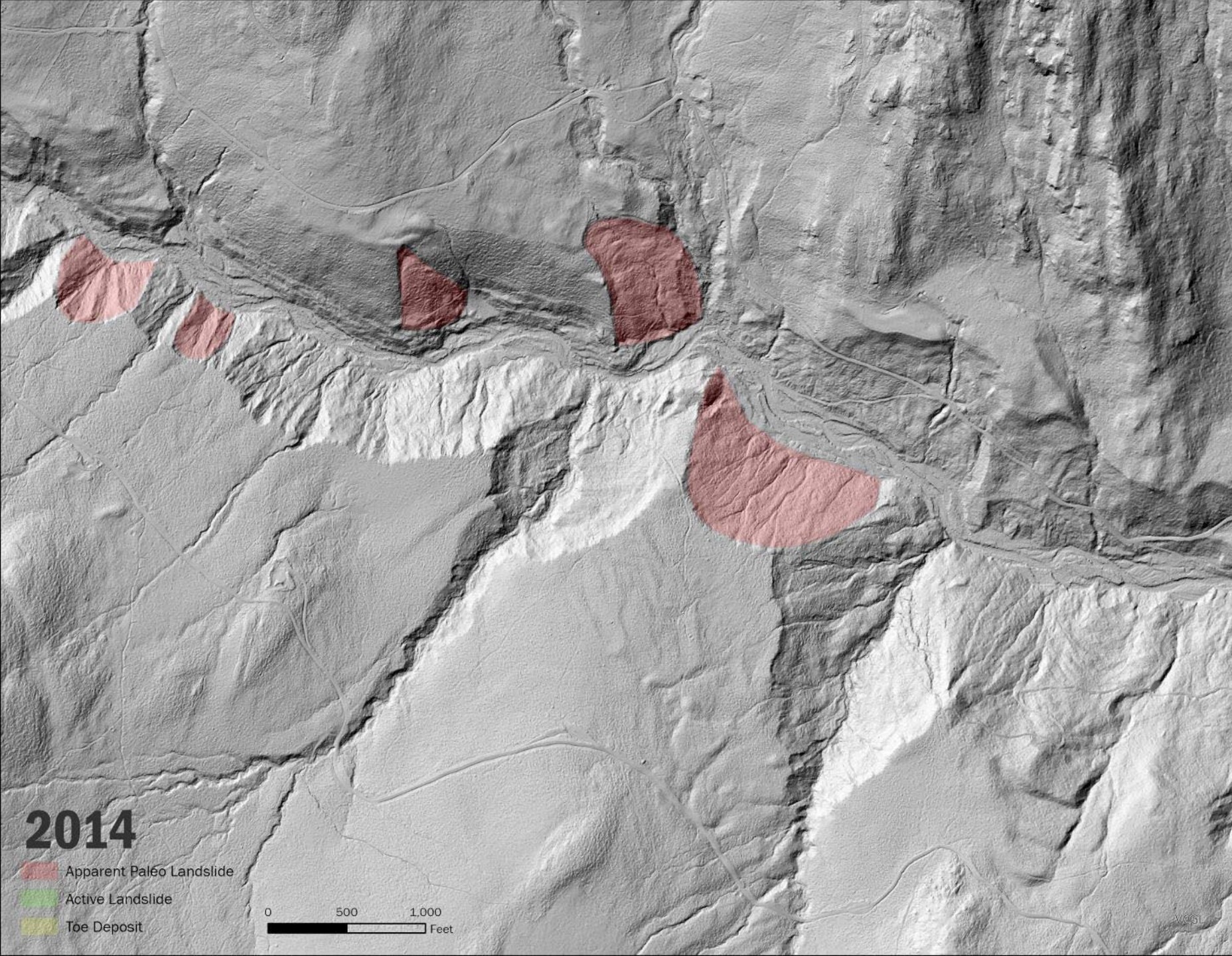
Level 19  
1:1,128

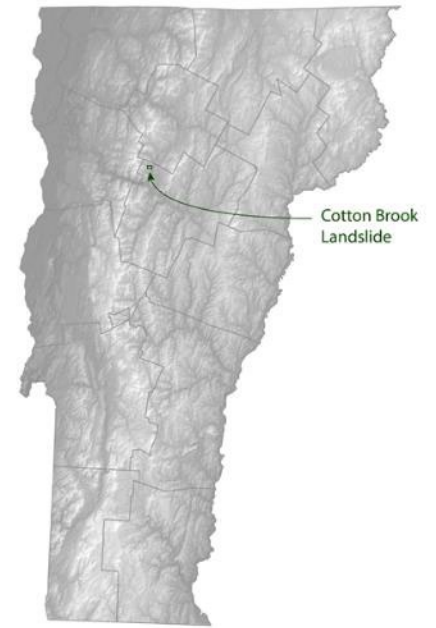
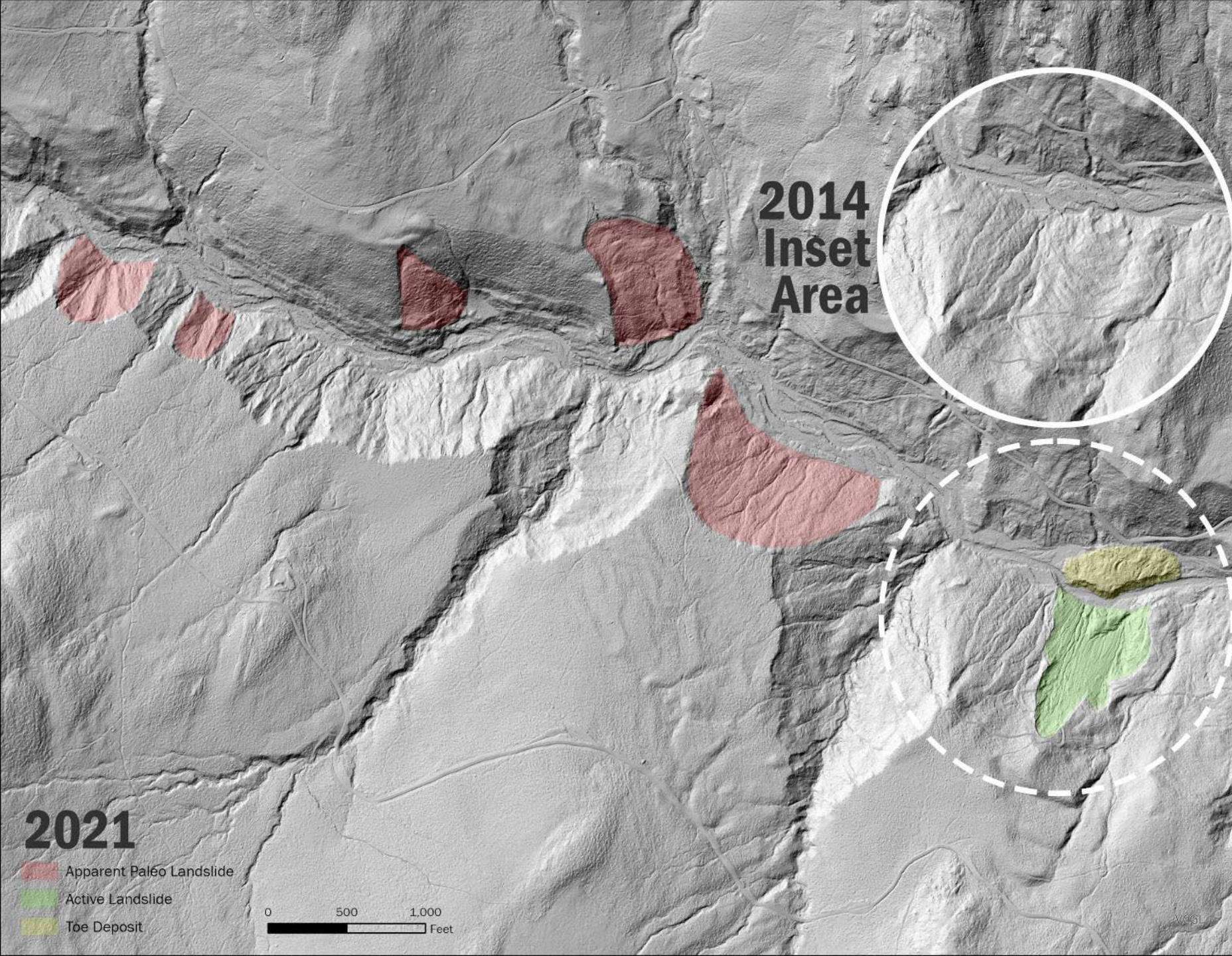


Level 20  
1:564

Changing In  
Space





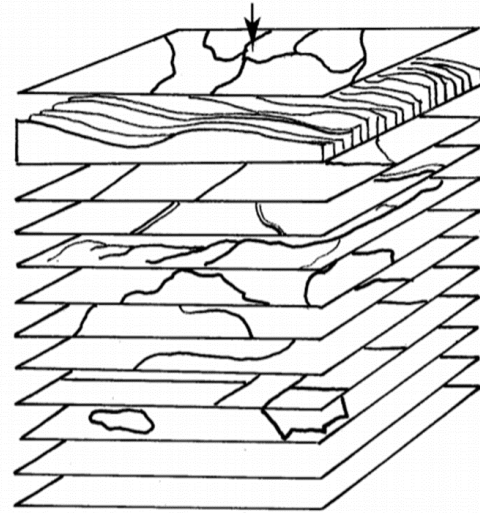


The Creation of the  
Vermont State Data Base

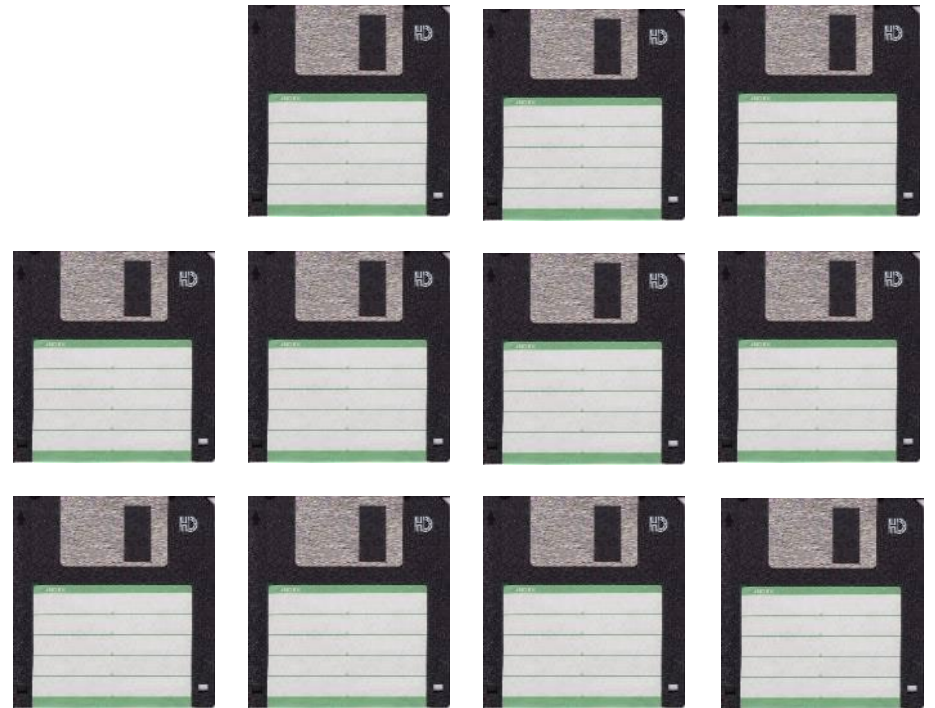
A Program of Work  
April 1983

School of Natural Resources  
University of Vermont

## A GEOGRAPHIC INFORMATION SYSTEM for VERMONT



- SOILS
- TOPOGRAPHY  
slope, aspect, elevation
- POLITICAL BOUNDARIES
- TRANSPORTATION
- STREAM COURSES, WATERSHEDS
- LAND COVER/USE
- GROUND WATER
- GEOLOGY
- SOCIO-ECONOMIC FACTORS
- HISTORICAL/ARCHAEOLOGY
- FUTURE EXPANSION
- FUTURE EXPANSION



**1983**



MB

**1992**

Changing With  
Technology



TODAY



APPS



DATA DOWNLOAD



SERVICES

> 17 ~~MB~~ TB

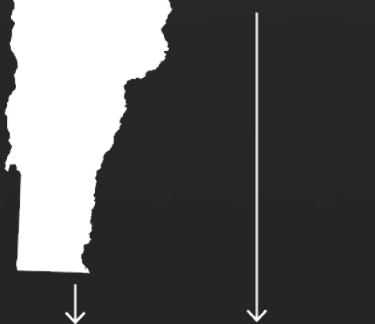
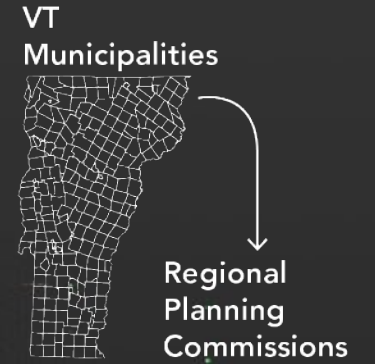


Photo Credit: Taylor Vick

From  
**2020** -

**It is now possible to construct  
a Virtual Vermont for reference.  
No floppies needed.**



Examples of Lidar-Derived  
Data Products

**BARE EARTH HILLSHADE**  
LIT FROM NORTHWEST



**1' CONTOURS  
PARCELS**



**3D Buildings, Topography  
Hydrography  
Orthoimagery  
Land Cover**



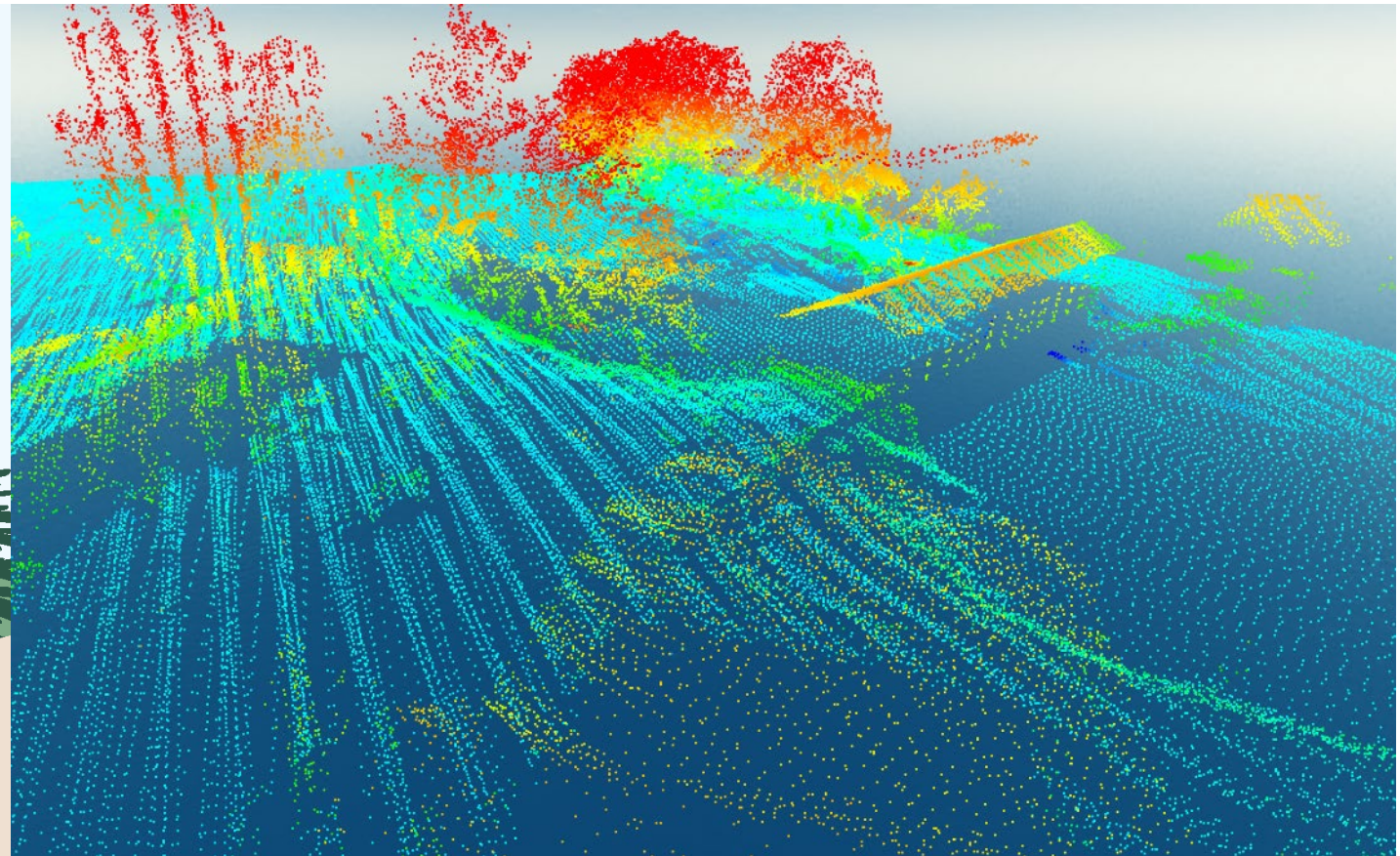
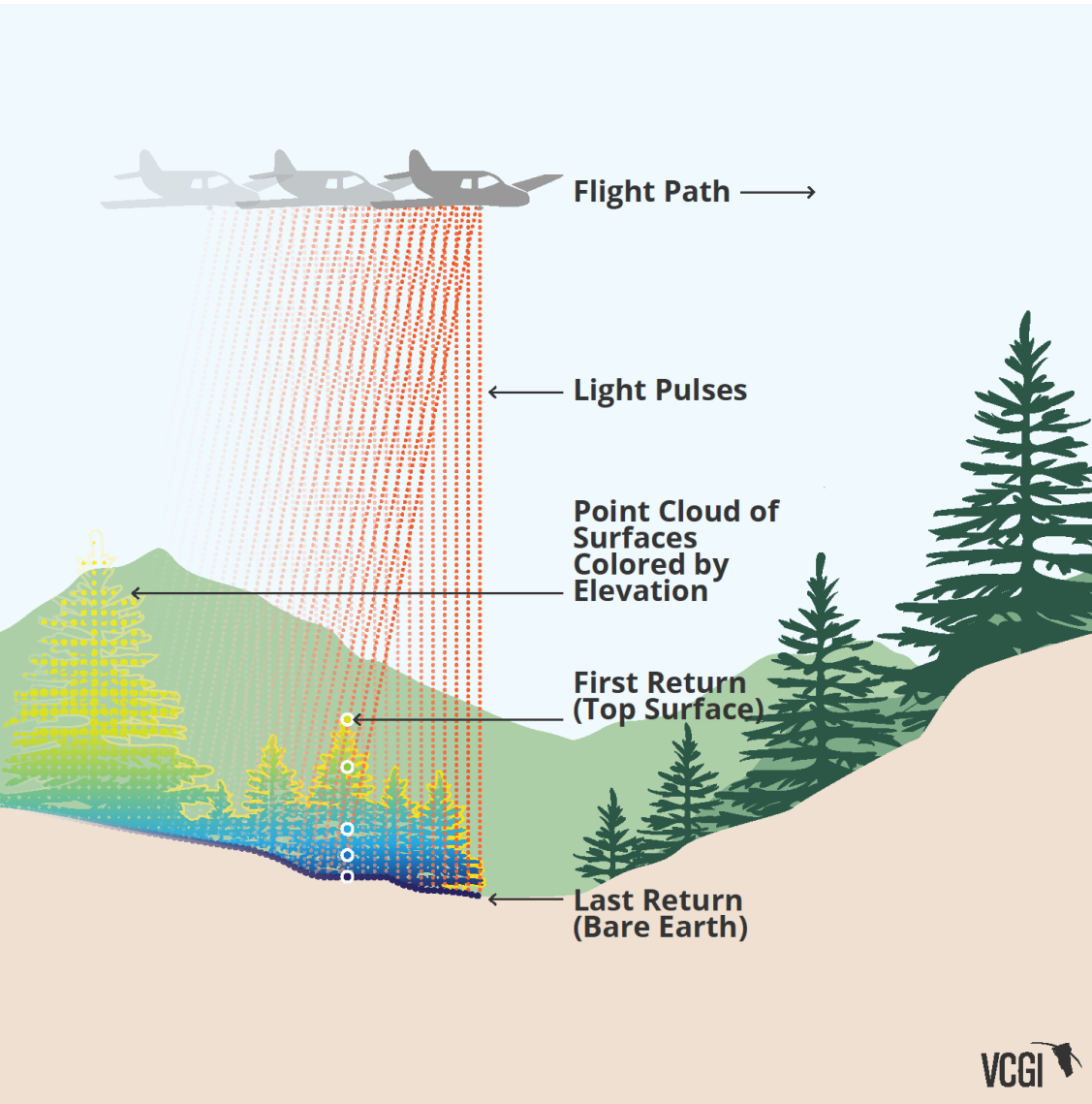


# What is Lidar?

Point clouds  
Derivatives  
Resolution









# Shooting lasers at the Earth. Getting points in return. Making useful data products from them.




Quality Levels	Data Source	Horizontal Resolution	Vertical Accuracy	
		Point Density	RMSEz in Open Terrain	Equivalent Contour Accuracy
QL 1	LiDAR	8 points/m <sup>2</sup>	9.25 cm	1 foot
QL 2	LiDAR	2 points/m <sup>2</sup>	9.25 cm	1 foot

# AT-A-GLANCE COMPARISON OF GEOSPATIAL SOLUTIONS BASED ON SIZE OF PROJECT

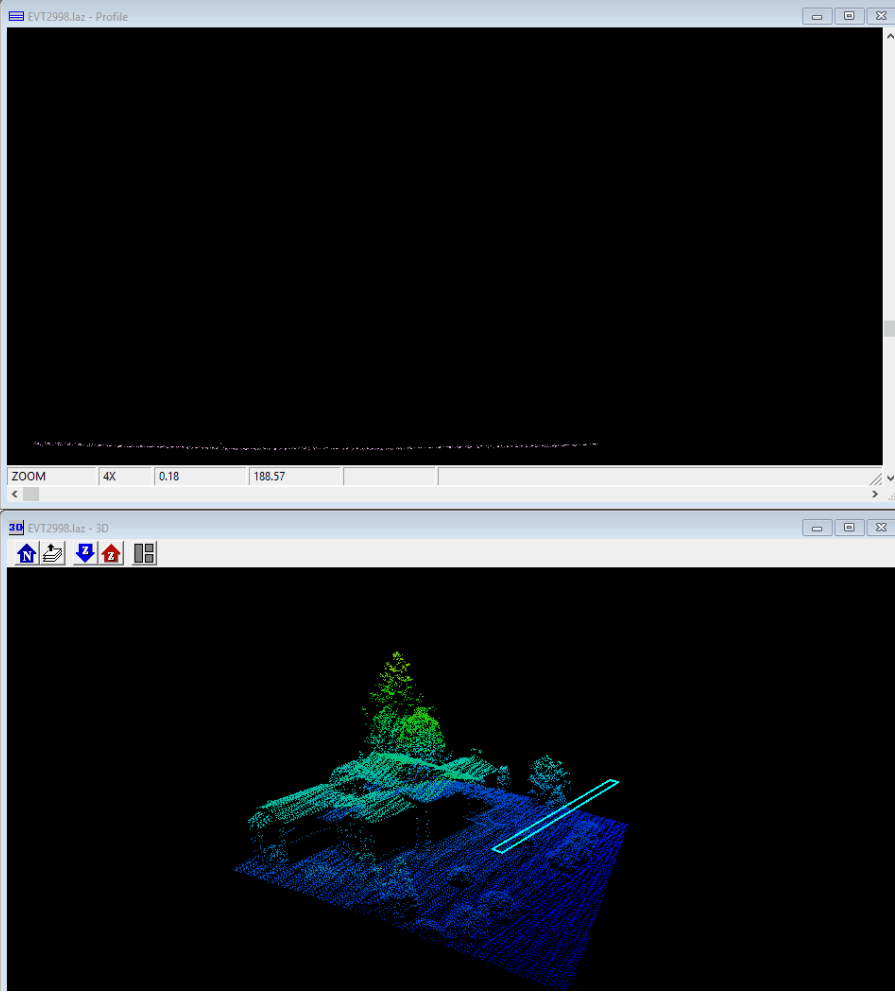
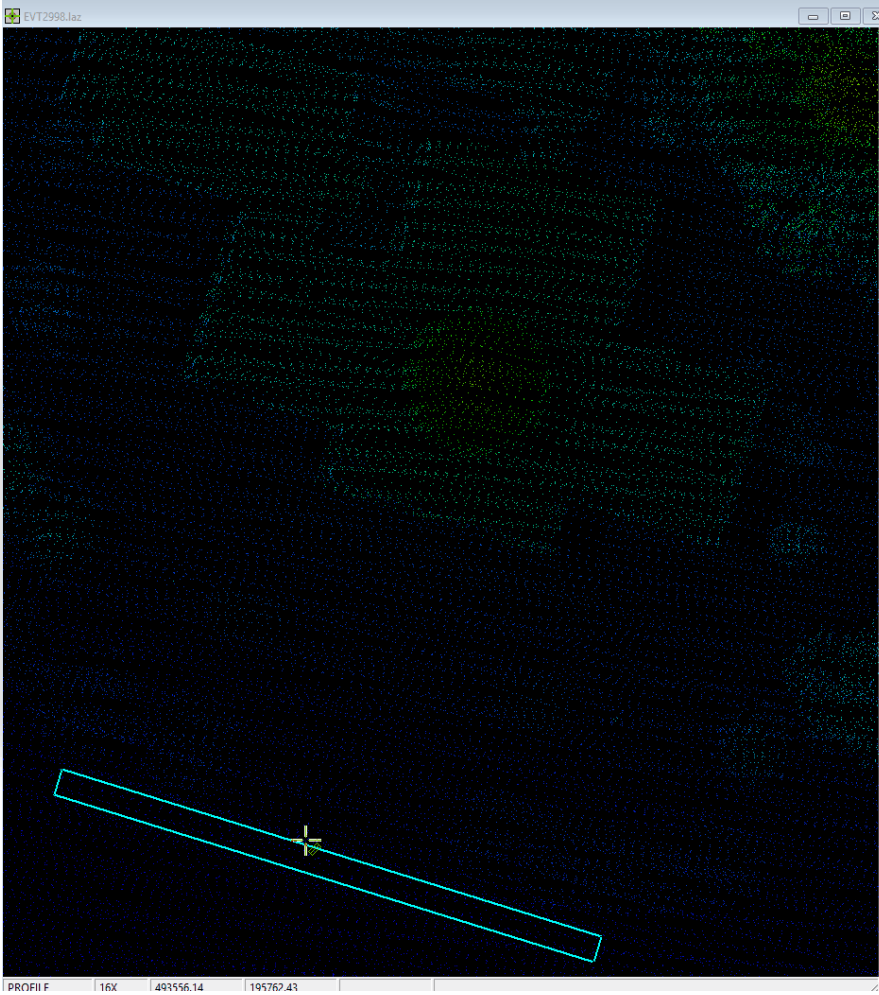
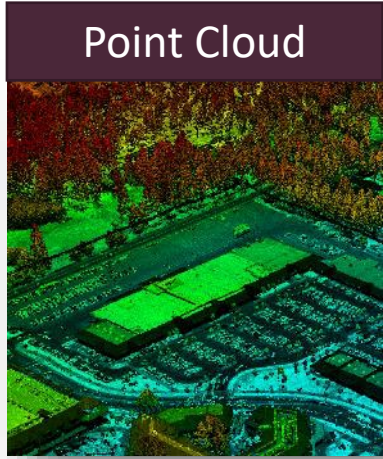
						
	SATELLITE Imagery	FIXED-WING LiDAR/Imagery	HELICOPTER LiDAR/Imagery	UAS LiDAR/Imagery	MOBILE LiDAR/Imagery	STATIC LiDAR
Large Regional Mapping (i.e. Country)	Best	✓				
Medium Regional Mapping (i.e. Large City or County)	✓	Best	✓			
Large Site (500+ Acres)		✓	✓	Best		
Medium Site (100-500 Acres)		✓	✓	Best		✓
Small Site ( <100 Acres)				Best		✓
Large Corridors ( 20+ Miles)		✓	Best Off-Road	✓	Best Roadway	
Medium Corridors ( 1-20 Miles)		✓	✓	Best Off-Road	Best Roadway	✓
Small Corridors ( <1 Mile)				Best	✓	✓
Remote Sites		✓	✓	Best		
Structural (i.e. Bridges, Dams, etc)				✓	✓	Best
Indoor (i.e. Mechanical, Architectural)						Best

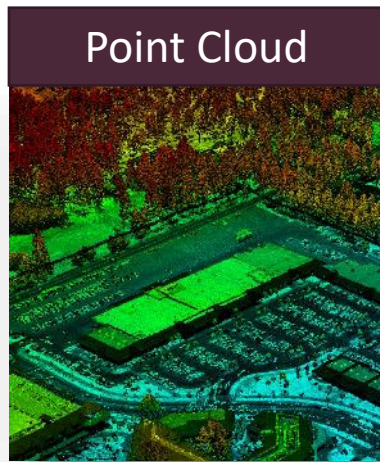
### Technology Comparison

	Linear LiDAR	Geiger LiDAR
Swath	3,300 ft.	16,000 ft.

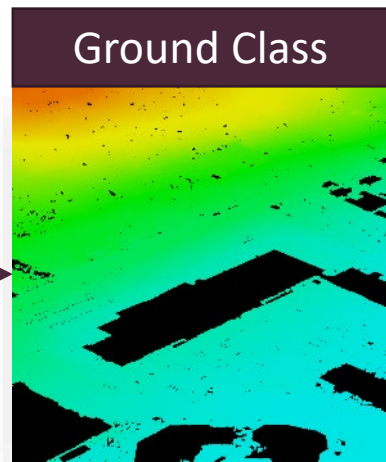


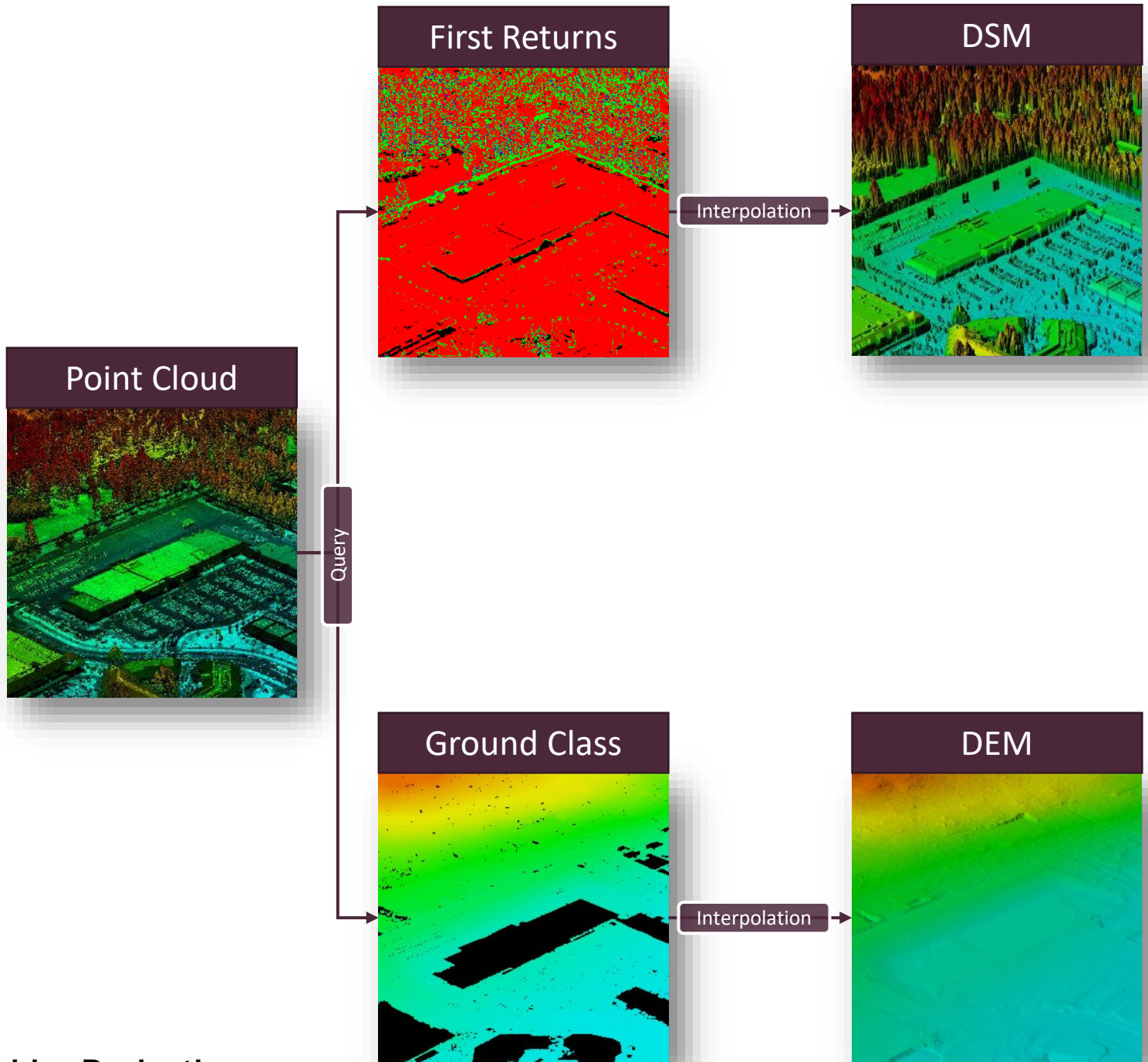
Swath 3,300 ft. Swath 16,000 ft.



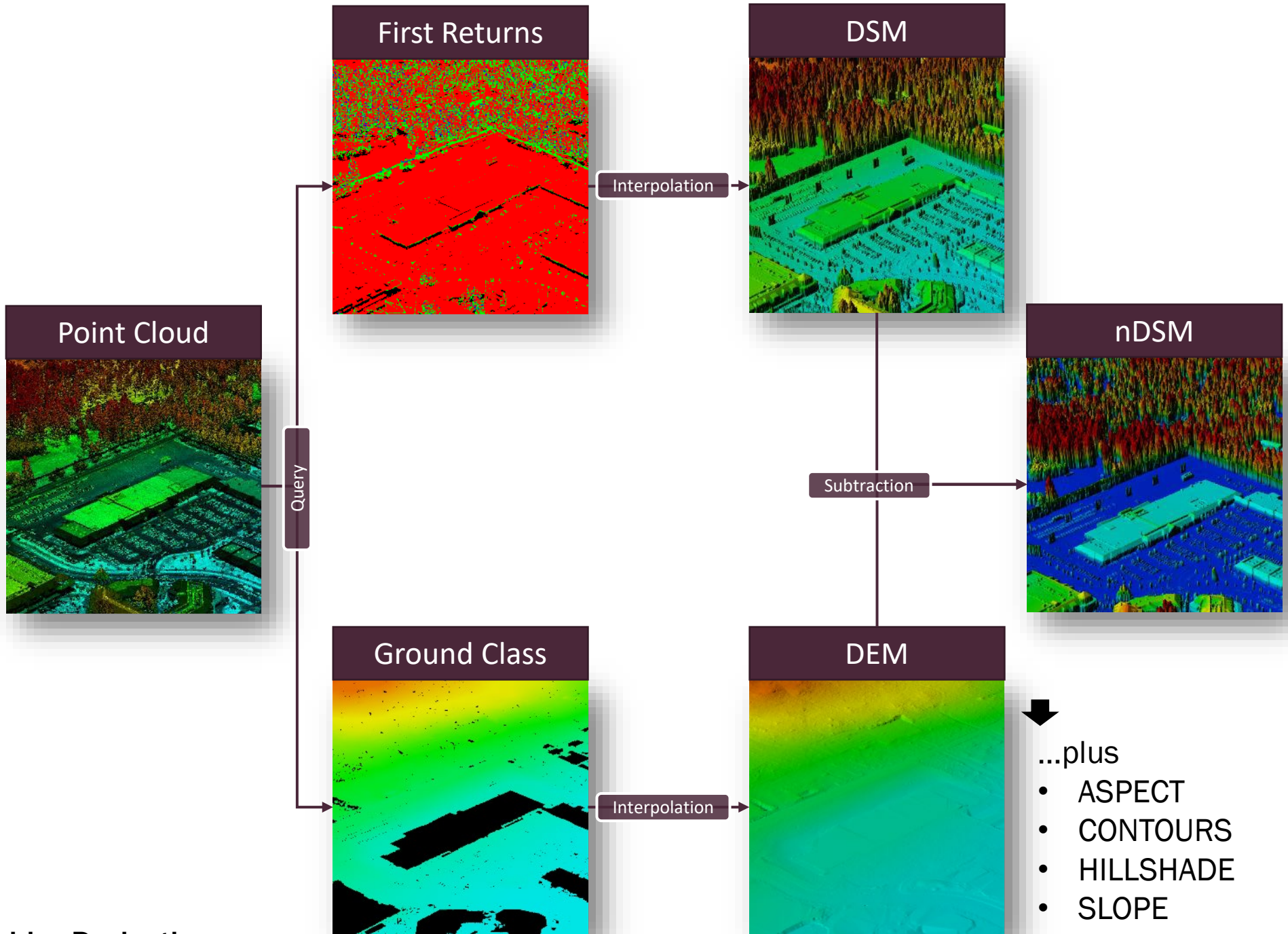


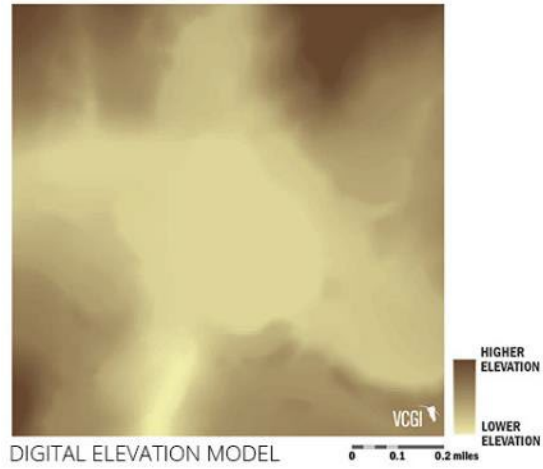
Query



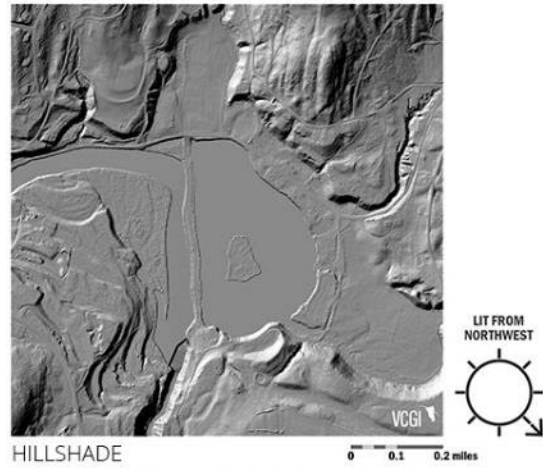




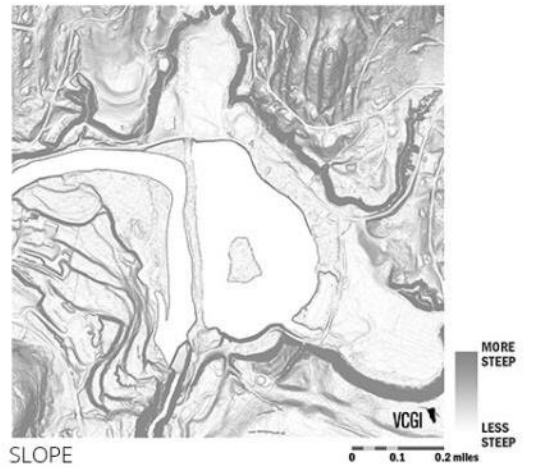




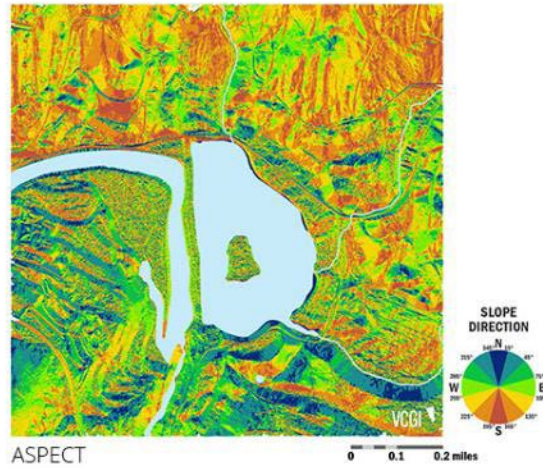
DIGITAL ELEVATION MODEL 0 0.1 0.2 miles



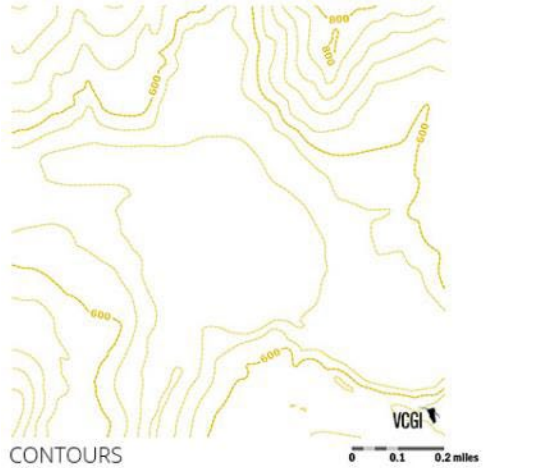
HILLSHADE 0 0.1 0.2 miles



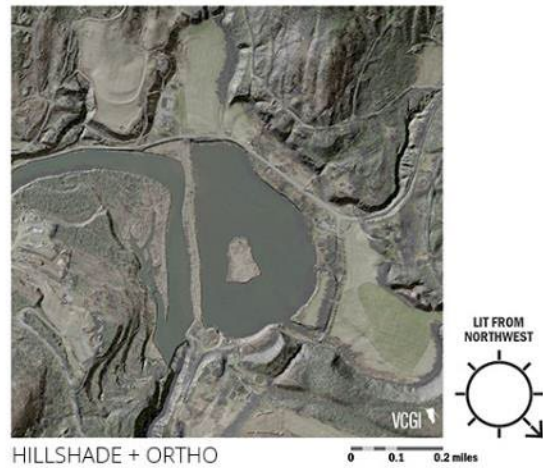
SLOPE 0 0.1 0.2 miles



ASPECT 0 0.1 0.2 miles



CONTOURS 0 0.1 0.2 miles



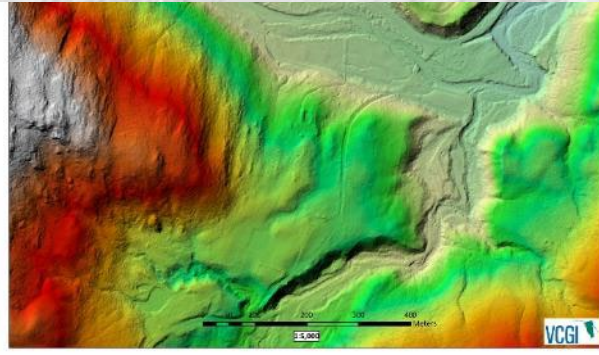
HILLSHADE + ORTHO 0 0.1 0.2 miles

# Understanding Lidar Derivatives

# ONE LOCATION, MANY PRODUCTS



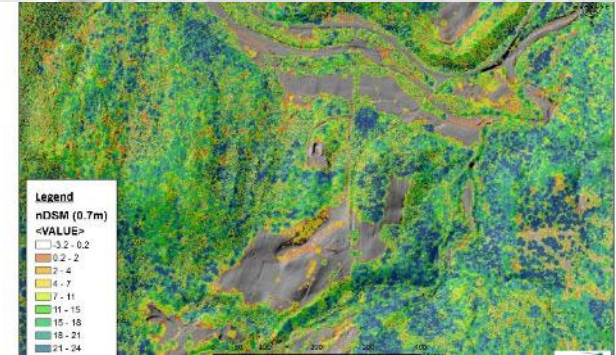
**MARLBORO, VT**



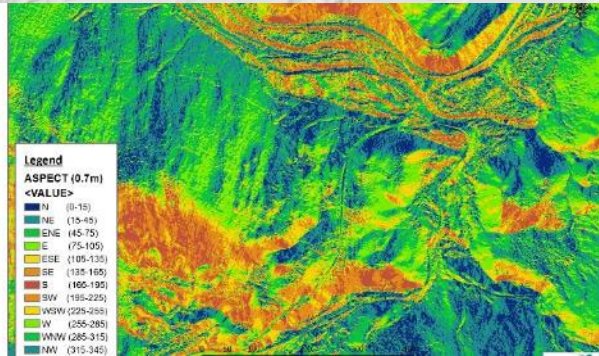
**DIGITAL ELEVATION MODEL (DEM)**



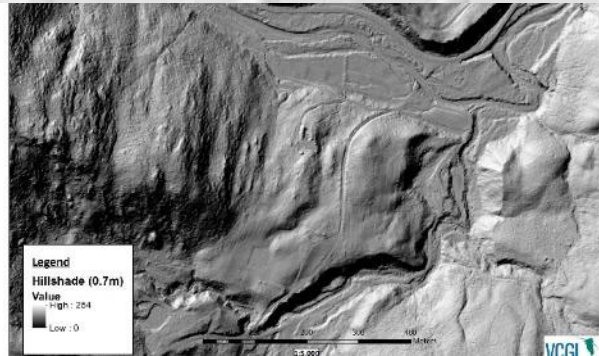
**DIGITAL SURFACE MODEL (DSM)**



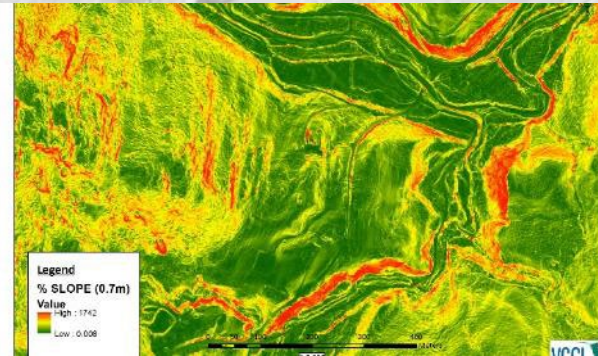
**NORMALIZED DSM (nDSM)**



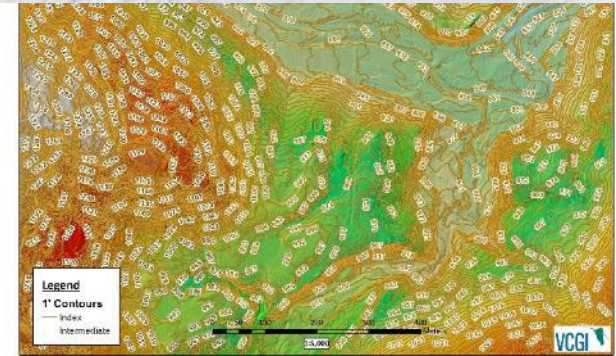
**ASPECT (AZIMUTH)**



**“BARE EARTH” HILLSHADE**



**SLOPE**

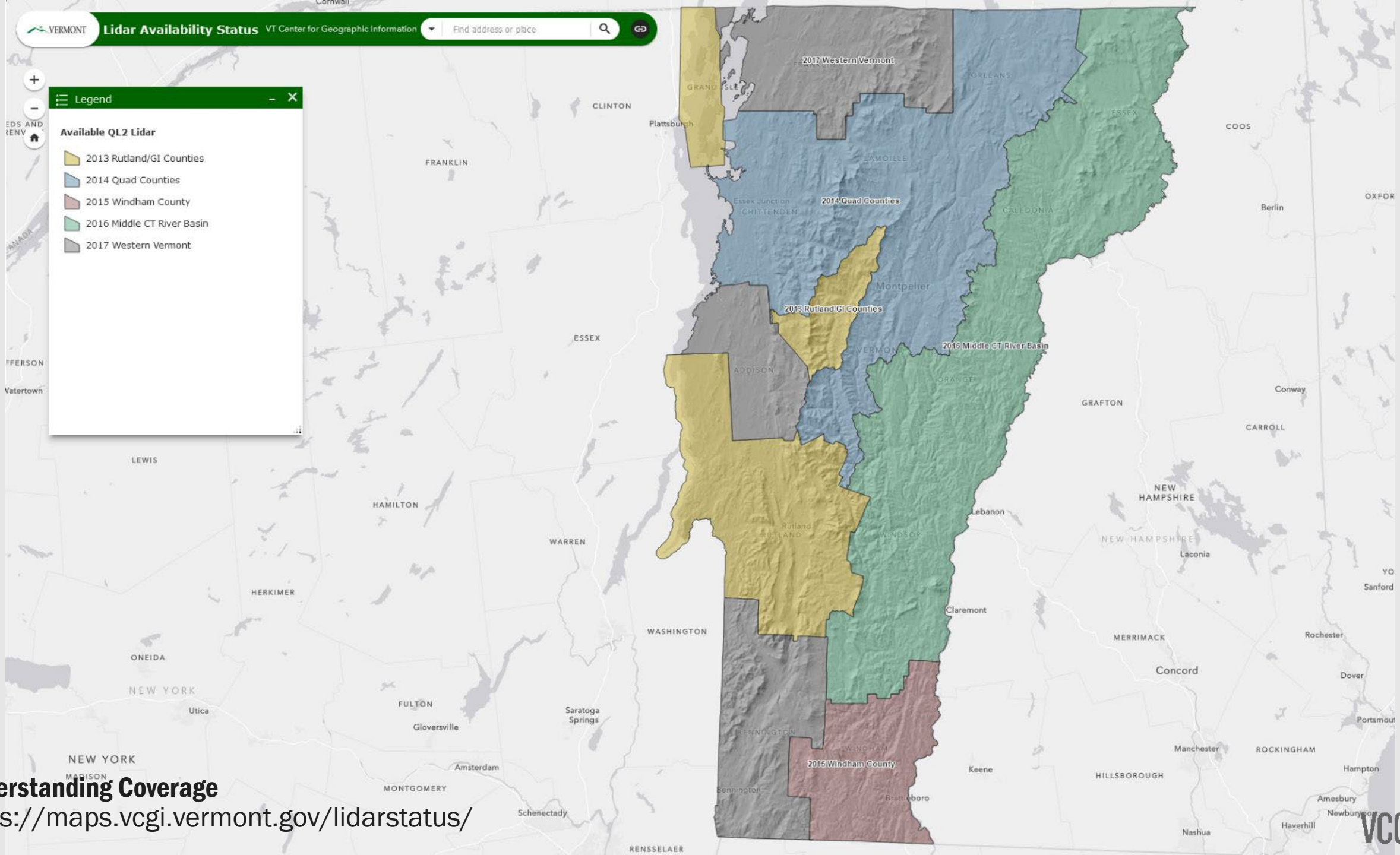


**1 FOOT CONTOURS**

**Legend**

**Available QL2 Lidar**

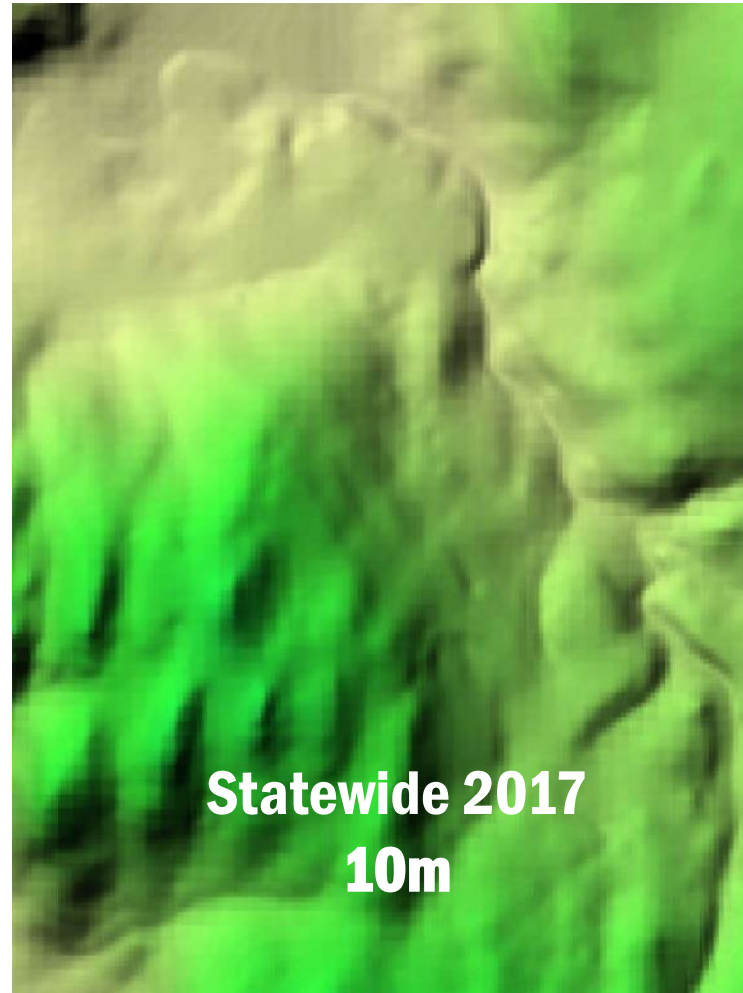
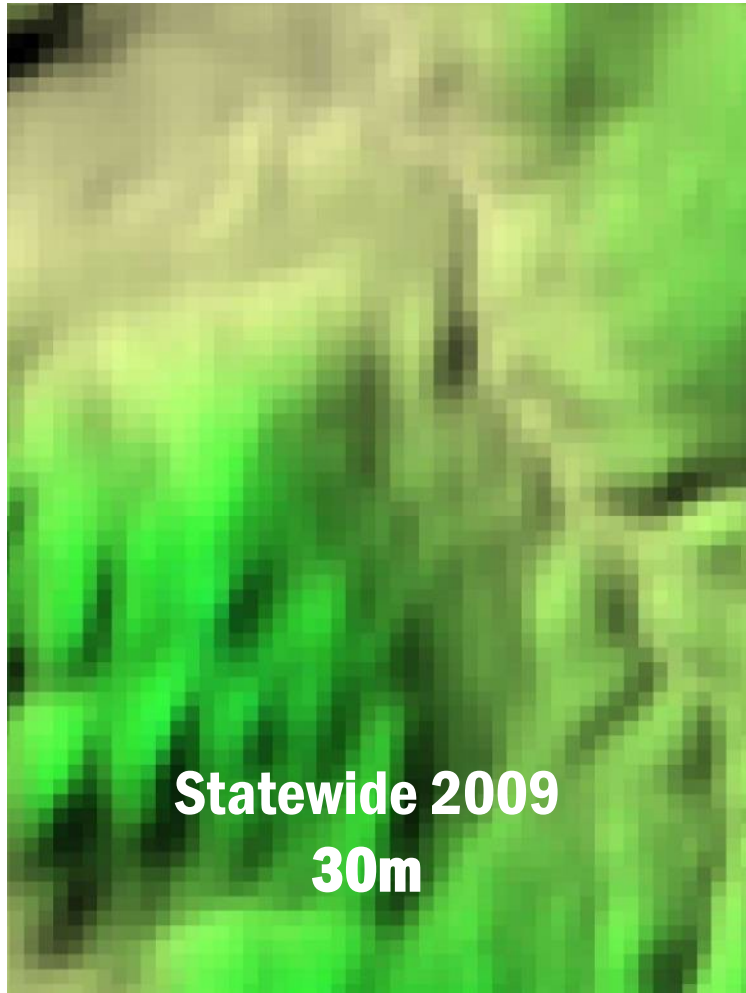
- 2013 Rutland/Gl Counties
- 2014 Quad Counties
- 2015 Windham County
- 2016 Middle CT River Basin
- 2017 Western Vermont



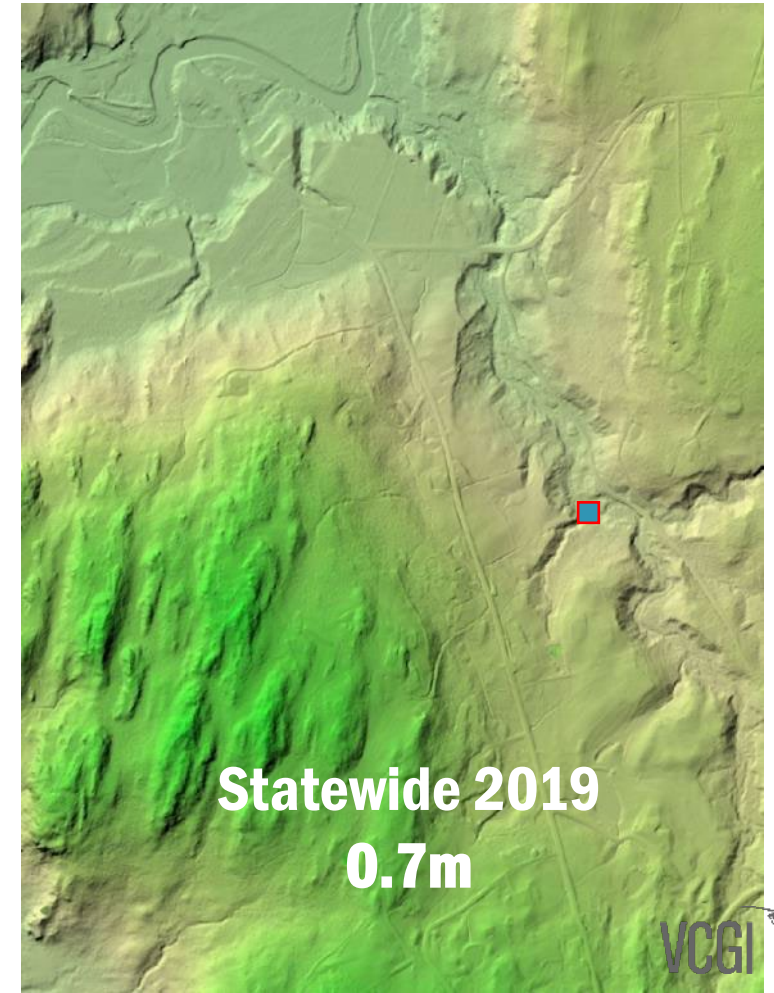
**Understanding Coverage**  
<https://maps.vcgi.vermont.gov/lidarstatus/>

# Understanding Lidar Resolution

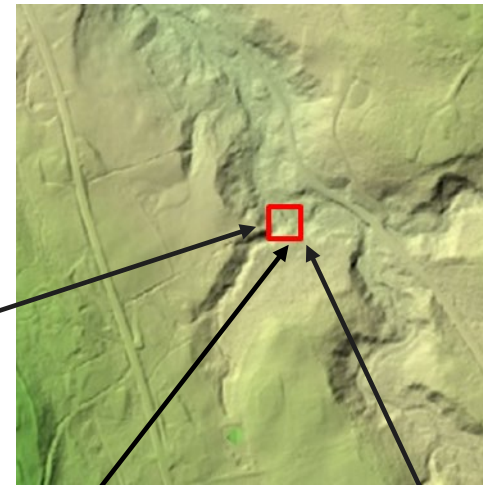
**National Elevation Dataset: Reported vertical accuracy= 8 ft.**



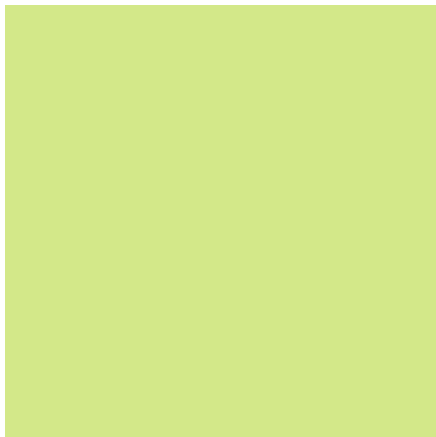
**LIDAR QL2: Vertical accuracy= 3.6 in.**



# Understanding Lidar Resolution



Cell size 9688 sq ft



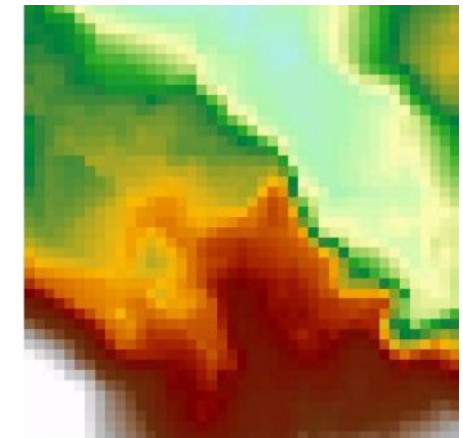
**2009  
30m DEM**

Cell size 1078 sq ft



**Statewide 2017  
10m DEM**

Cell size 5.27 sq ft



**2019  
0.7m DEM**  
1836x more detail

**Understanding Lidar  
Resolution:  
What's Next?**

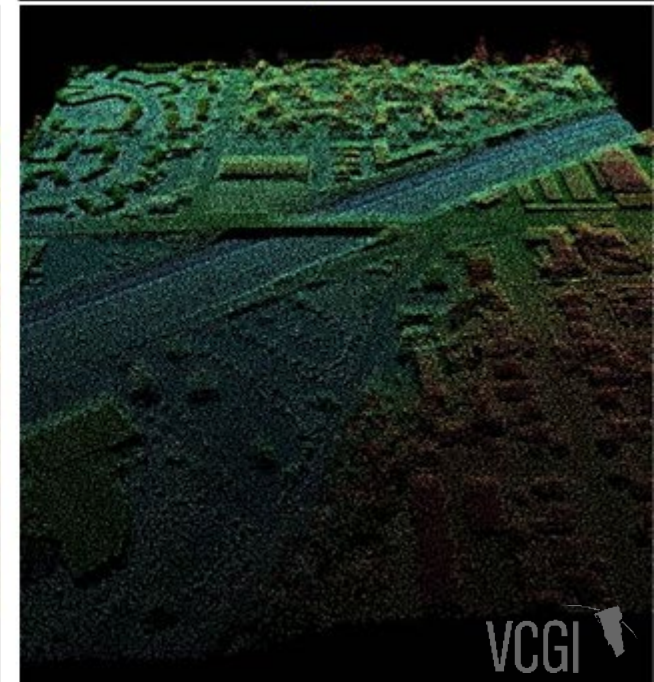
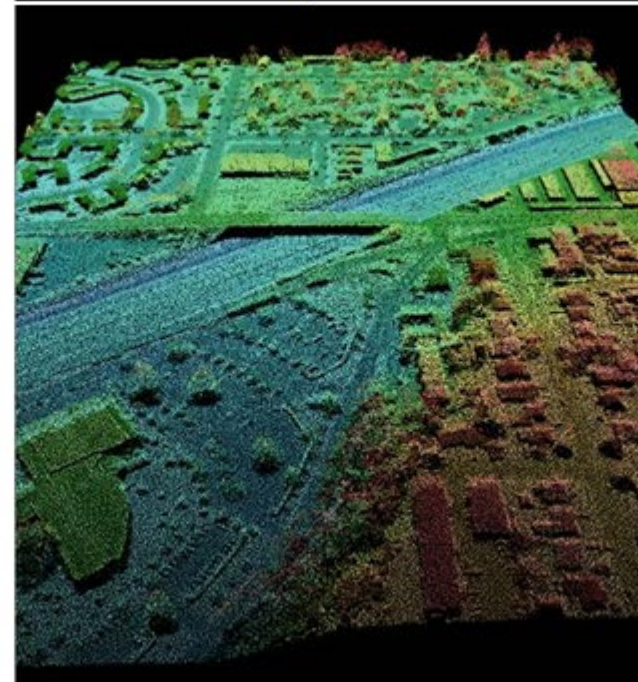
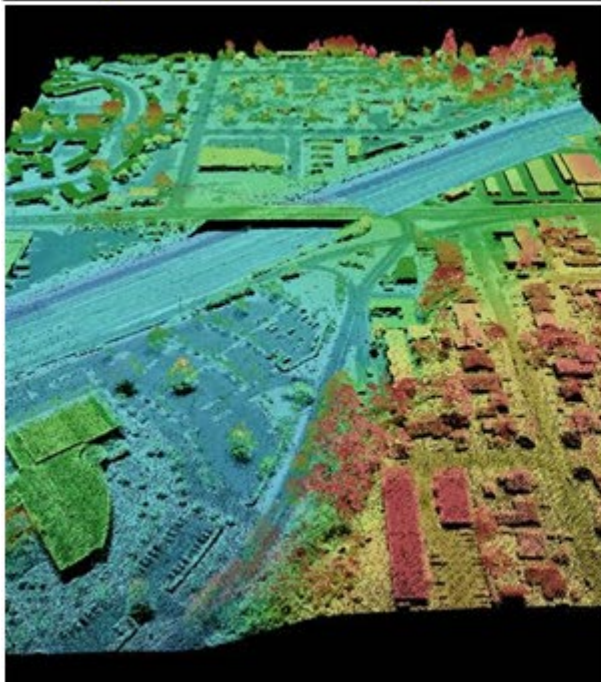
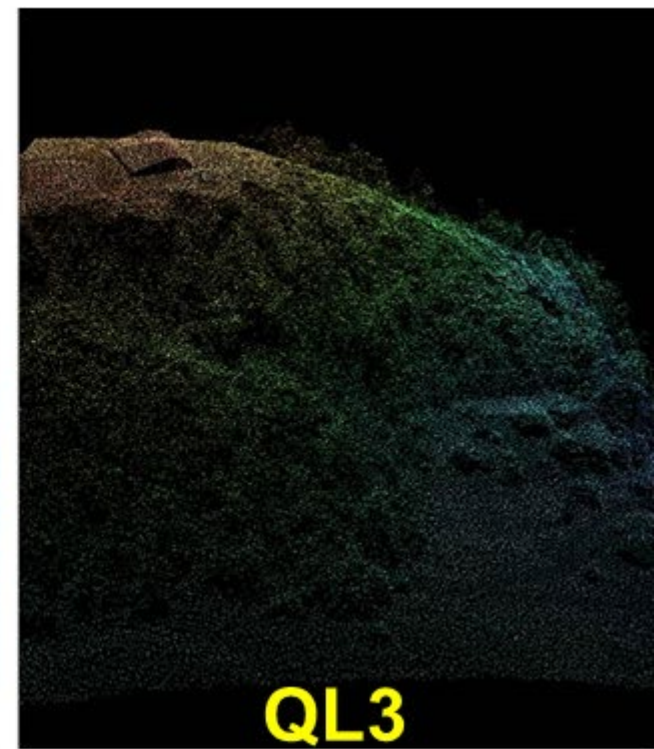
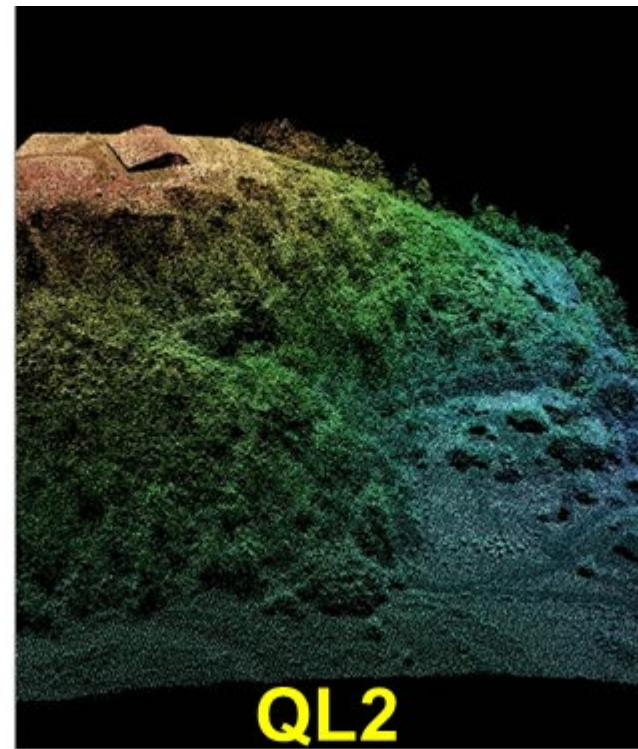
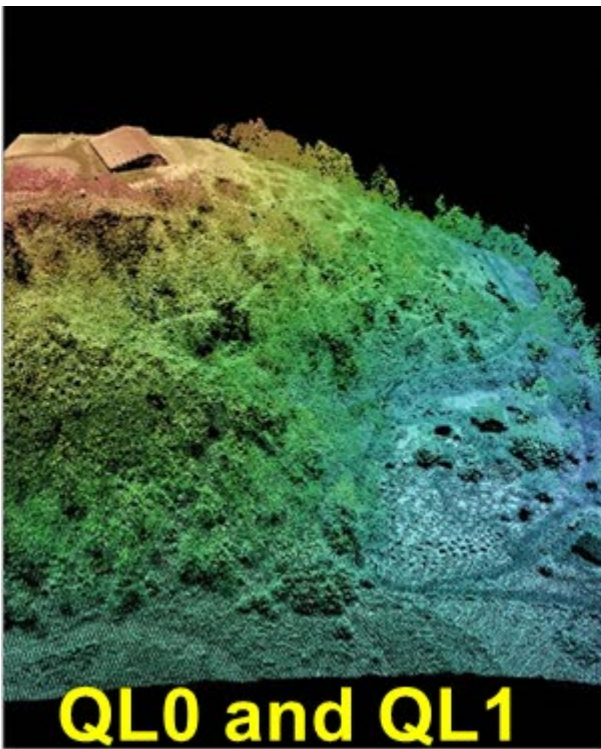


Image: USGS



# Who uses Lidar?

And what for?

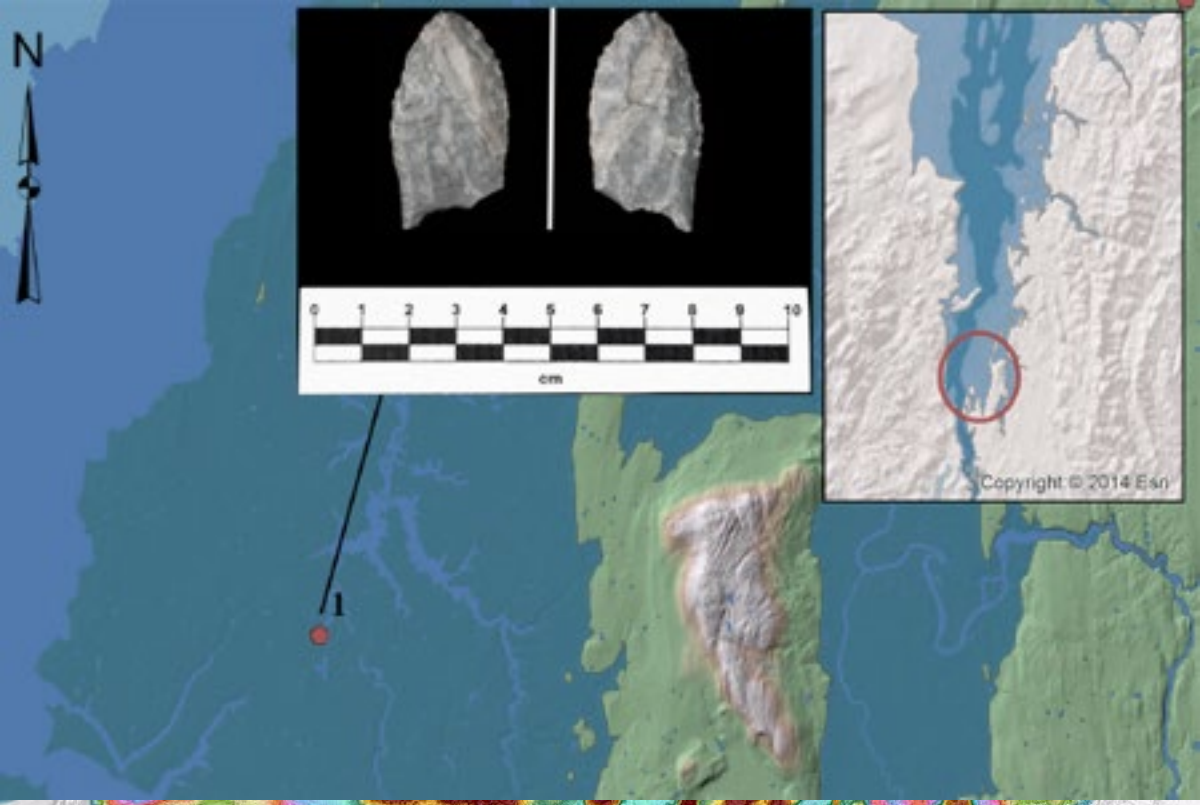




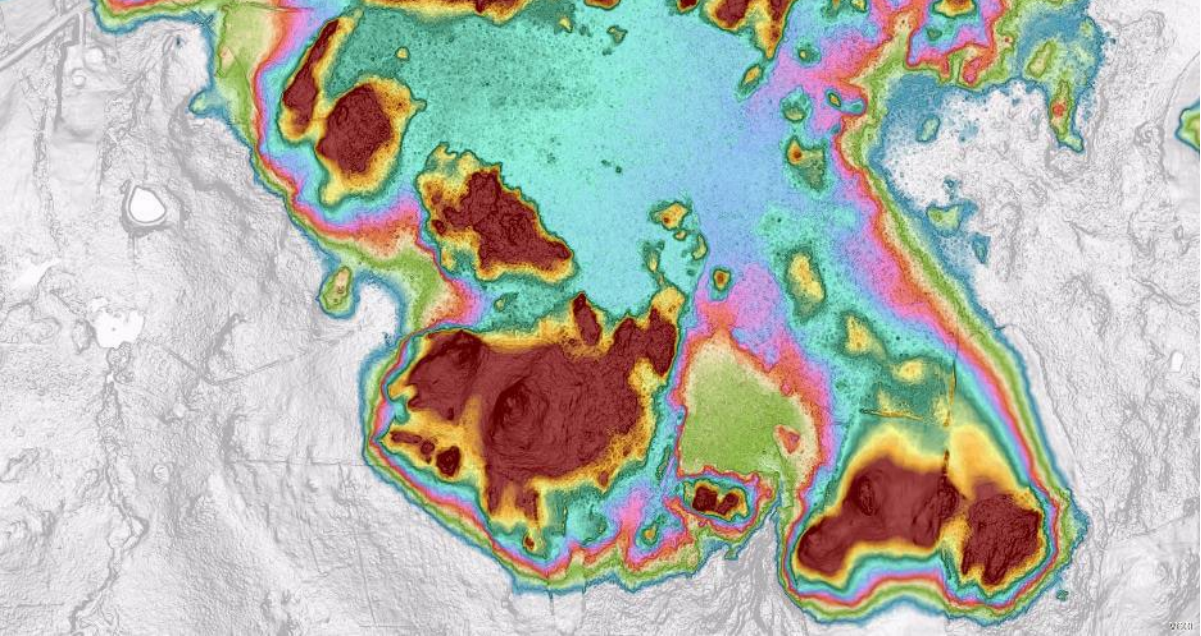
A topographic map showing terrain elevation with a color gradient from green (low) to brown and purple (high). A blue line representing a river or stream flows through the landscape.

# Example Uses

- Agriculture
- Archeology & Historic Preservation
- Construction
- Dam Management
- Design
- Emergency Planning
- Energy/Communications Planning
- Erosion Assessment and Mitigation
- Evacuation Planning
- Farm-to-Plate Initiative
- Fire Fuel Models
- Flood plain Mapping
- Flow Analysis
- Forestry, Biomass, & Vegetation Management
- Gully Detection
- Habitat Analysis
- Hazardous Spill Analysis
- Ice Jam Potential
- Land Cover Mapping
- Landslide Potential
- Line of Sight and Viewshed Analysis
- Riparian Buffer Mapping and Protection
- Shoreline Erosion
- Soils Mapping
- Solar and Wind Energy Suitability
- Stormwater analysis and design
- Timber Volume
- Town Planning
- Transportation Infrastructure
- Updating FIRM to DFIRM
- ...and more



Archaeology

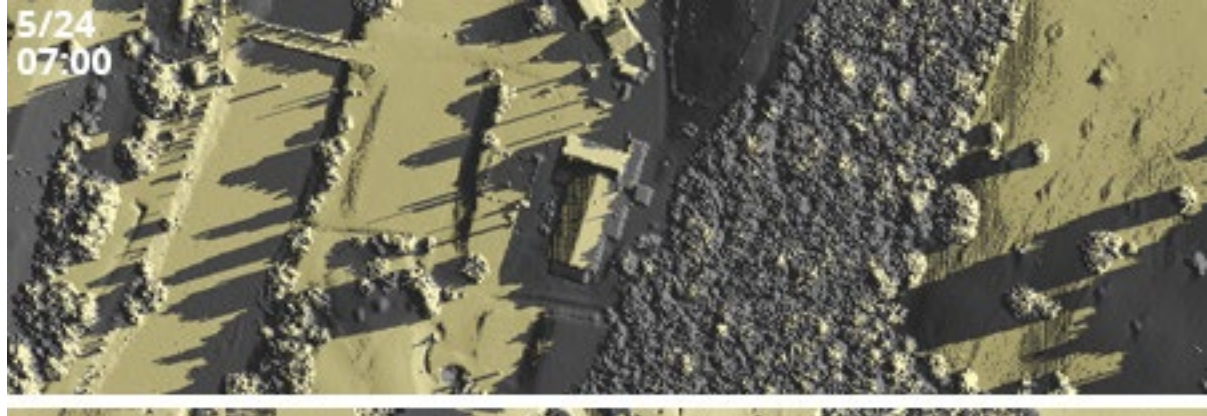
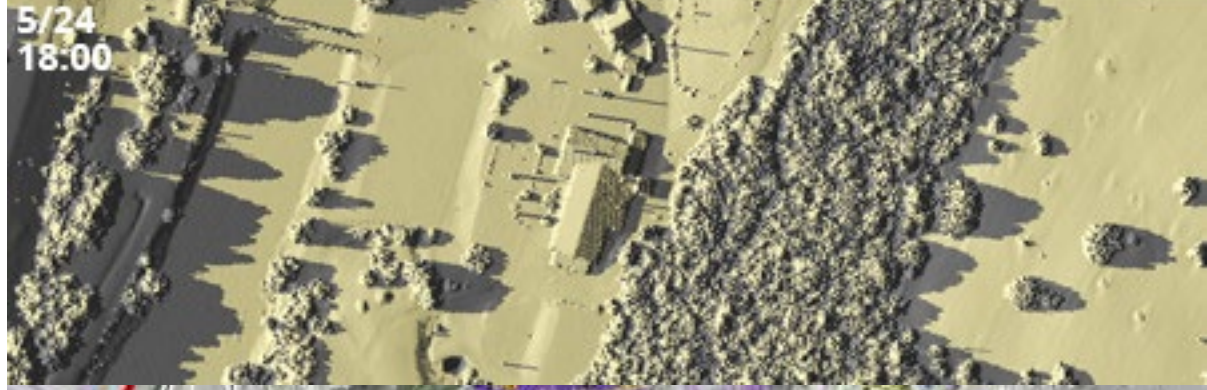


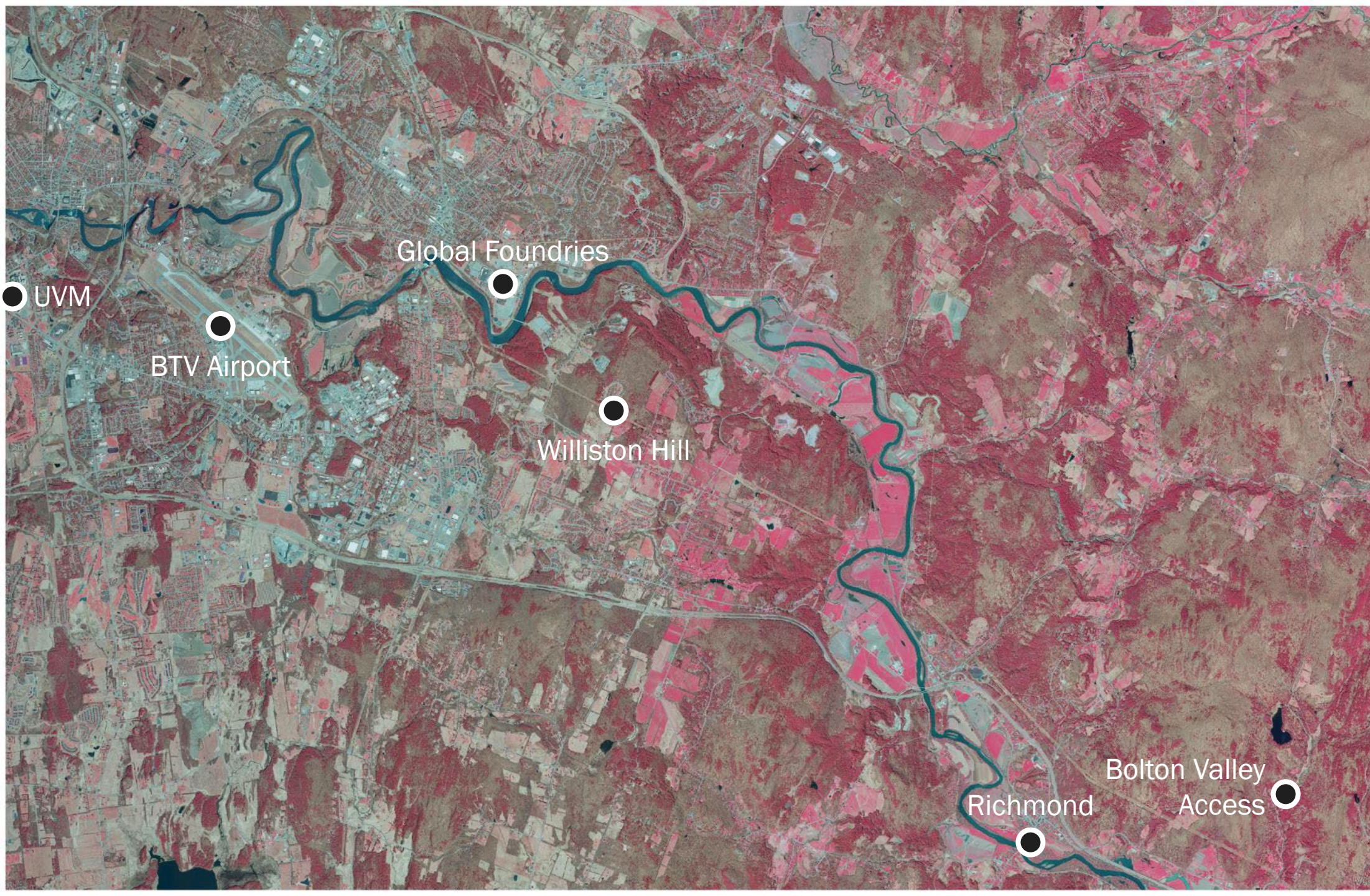
Wetlands Assessment

Site Suitability

Archaeology

Solar Assessment





GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

CIR Imagery

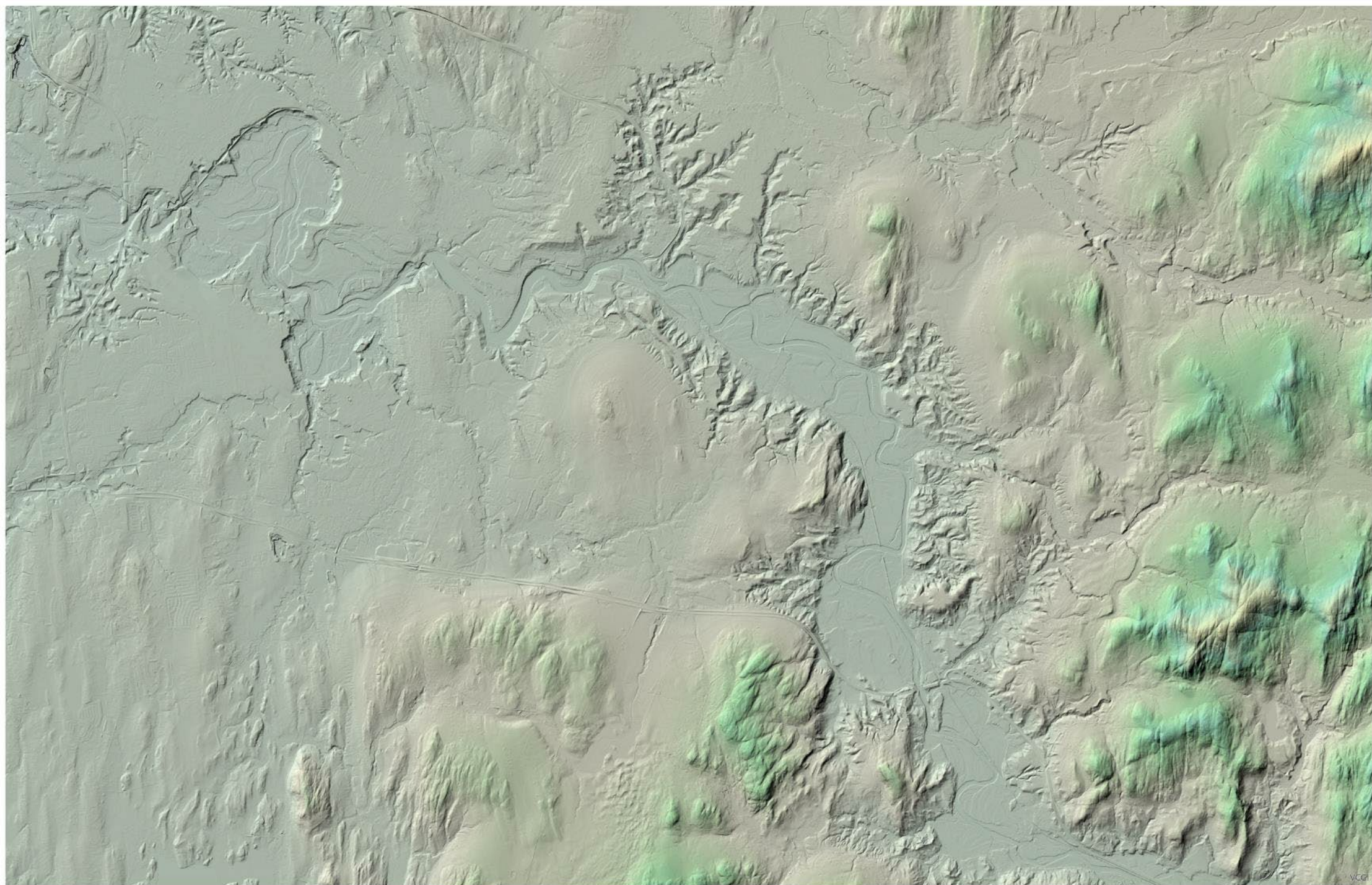




GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

CLR Imagery +  
Lidar Hillshade

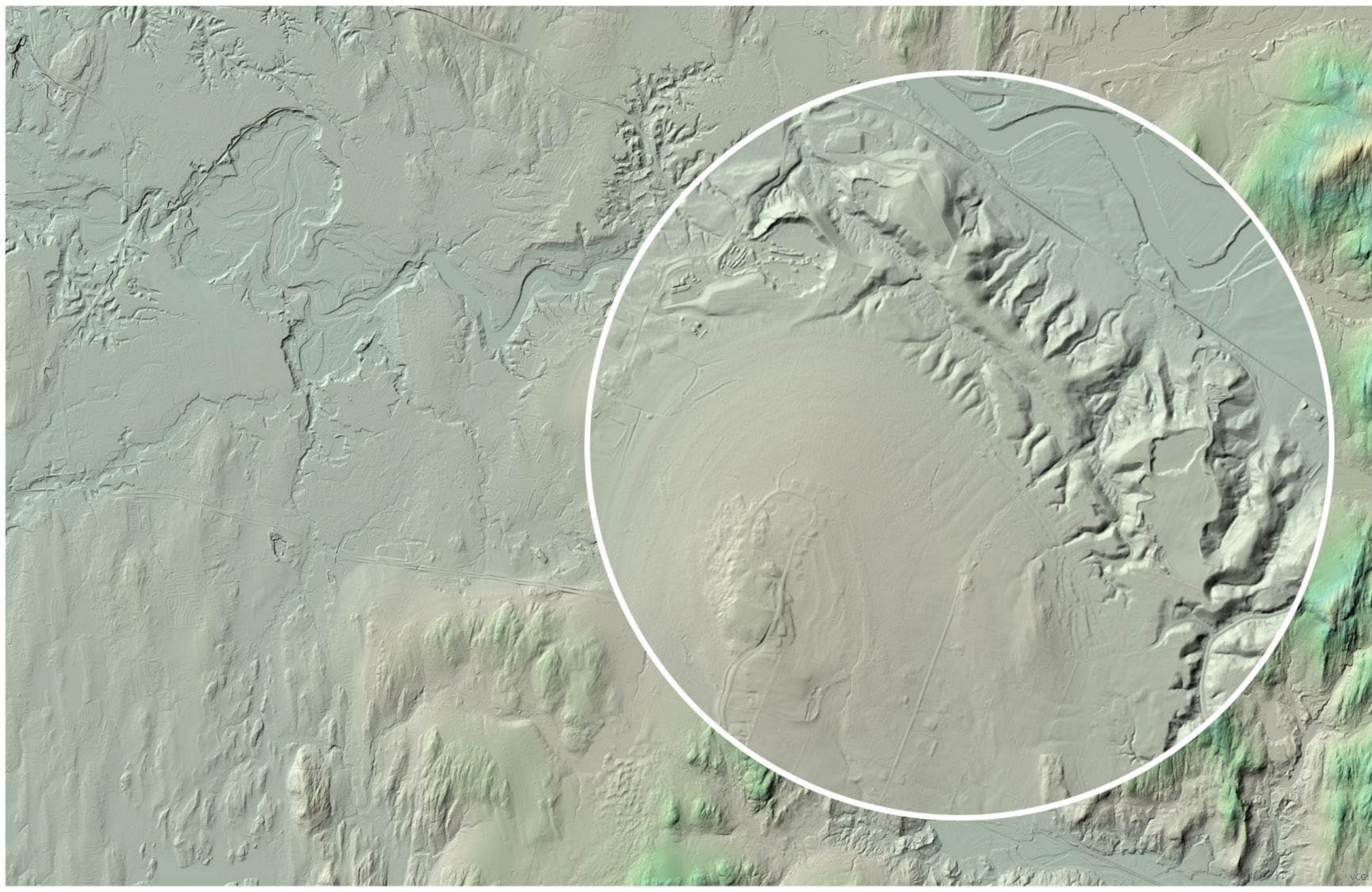




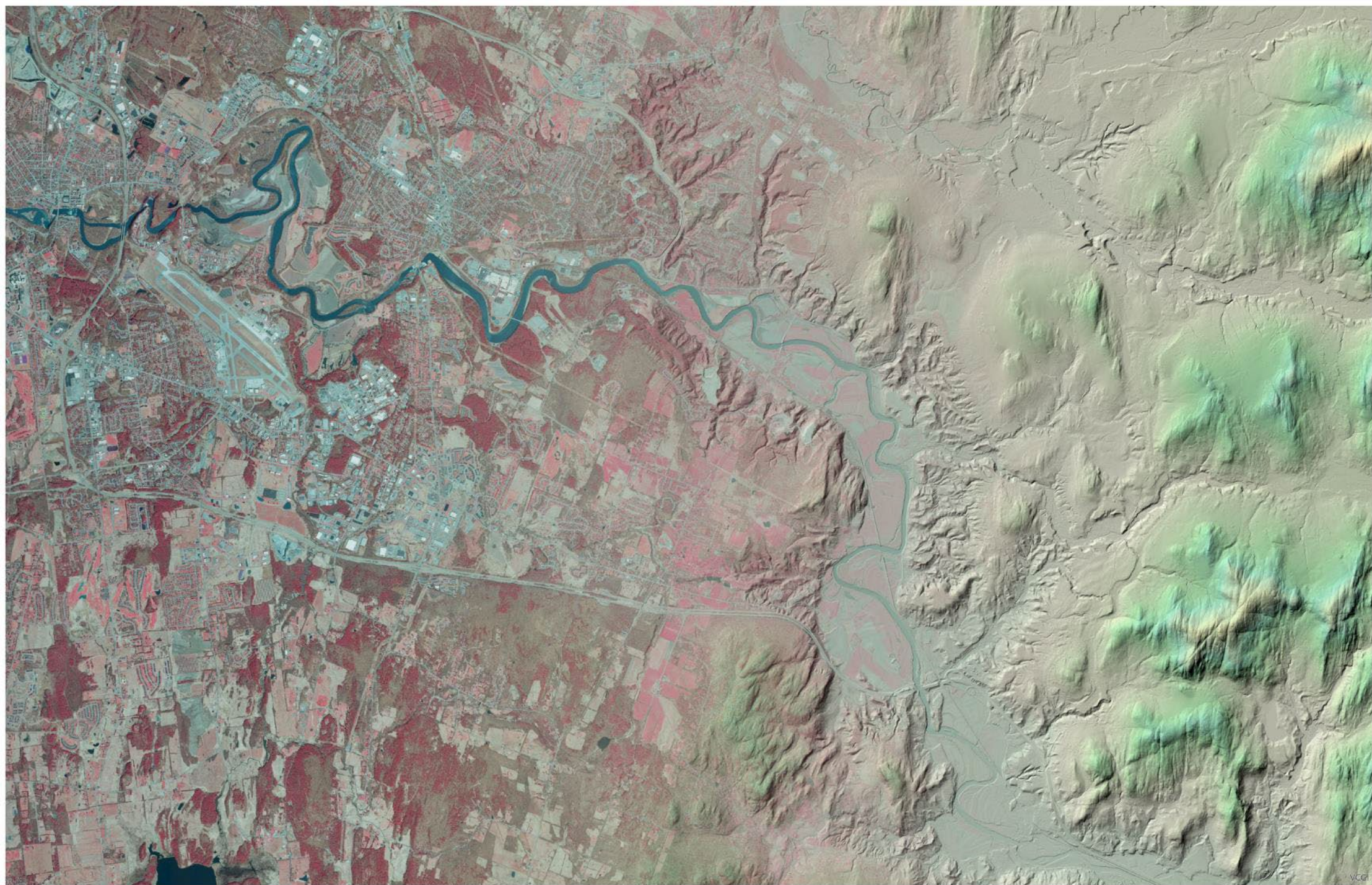
GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

DEM - Shaded  
Relief

GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

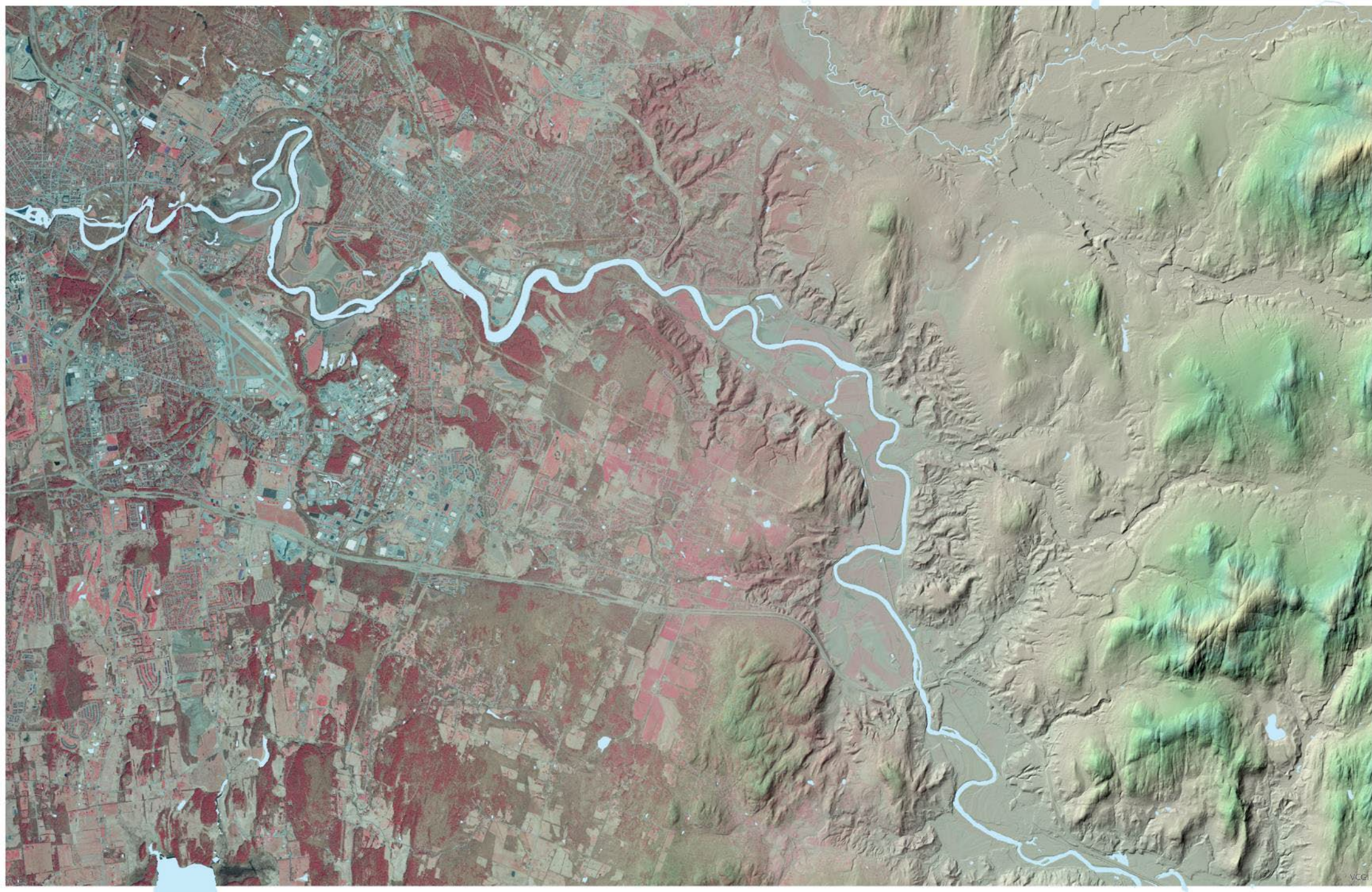


DEM - Shaded  
Relief; Detail



GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

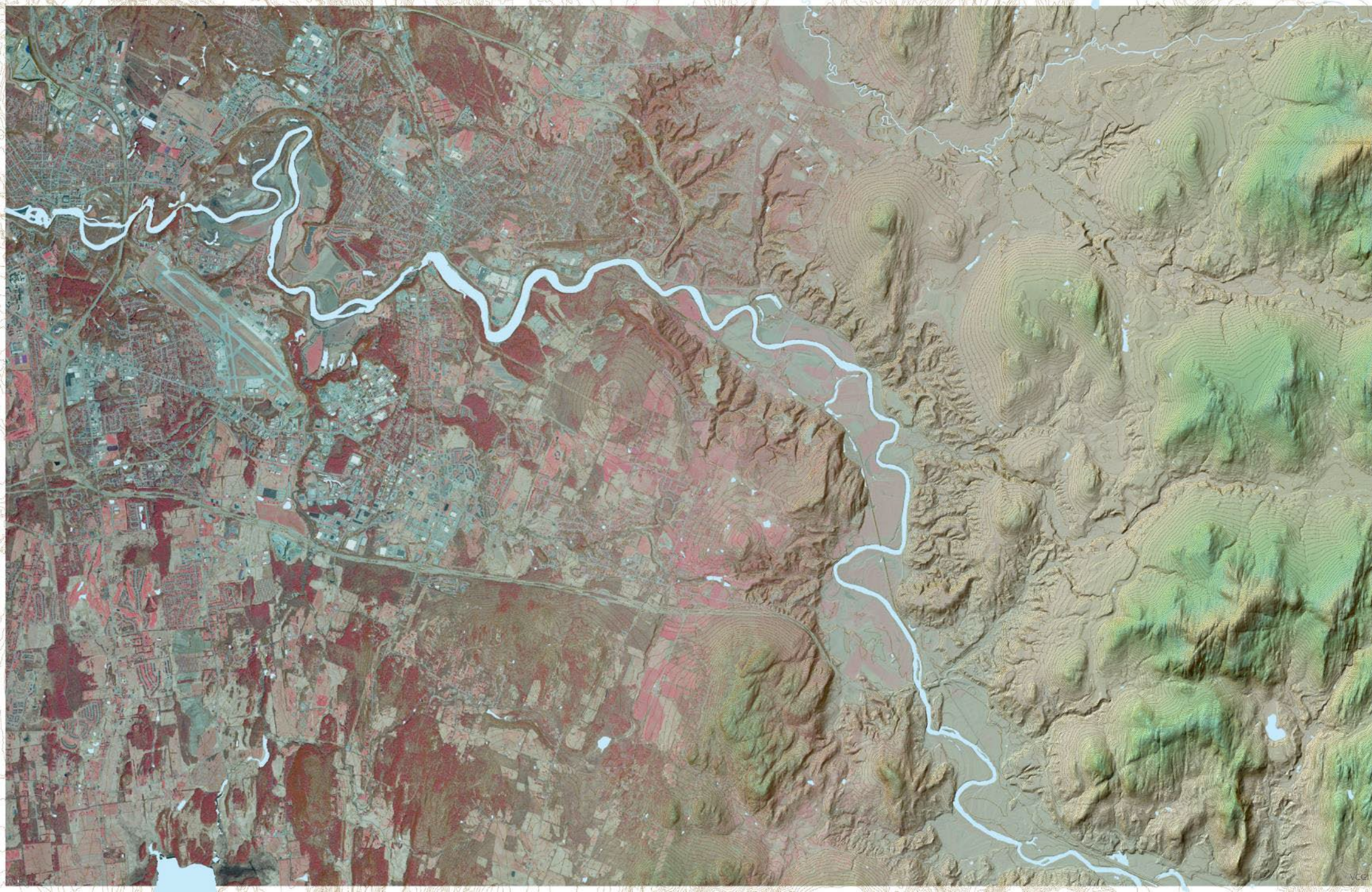
CIR + DEM



GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

CIR + DEM +  
Hydro

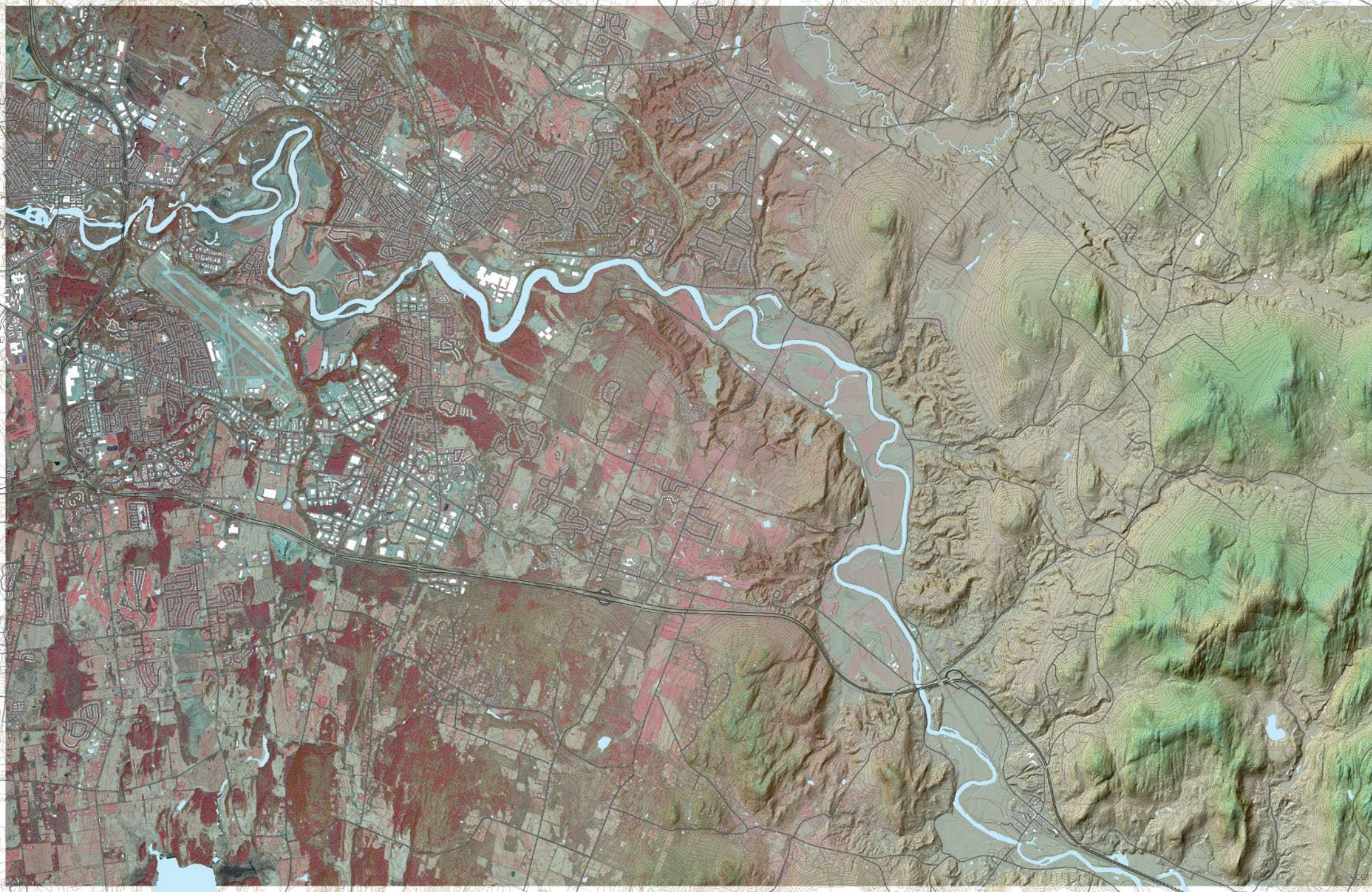




GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

CIR + DEM +  
Hydro + Contours

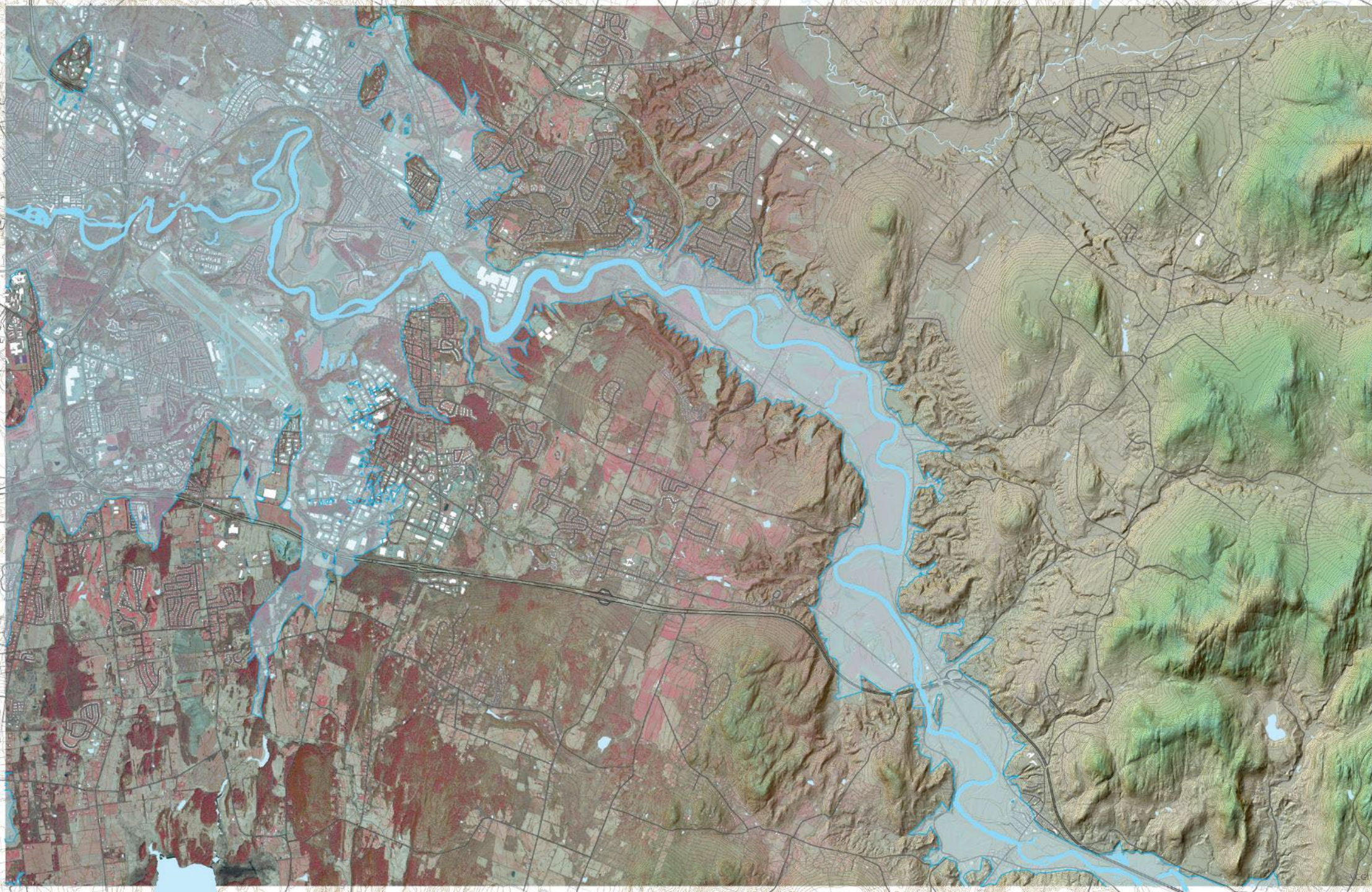




GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

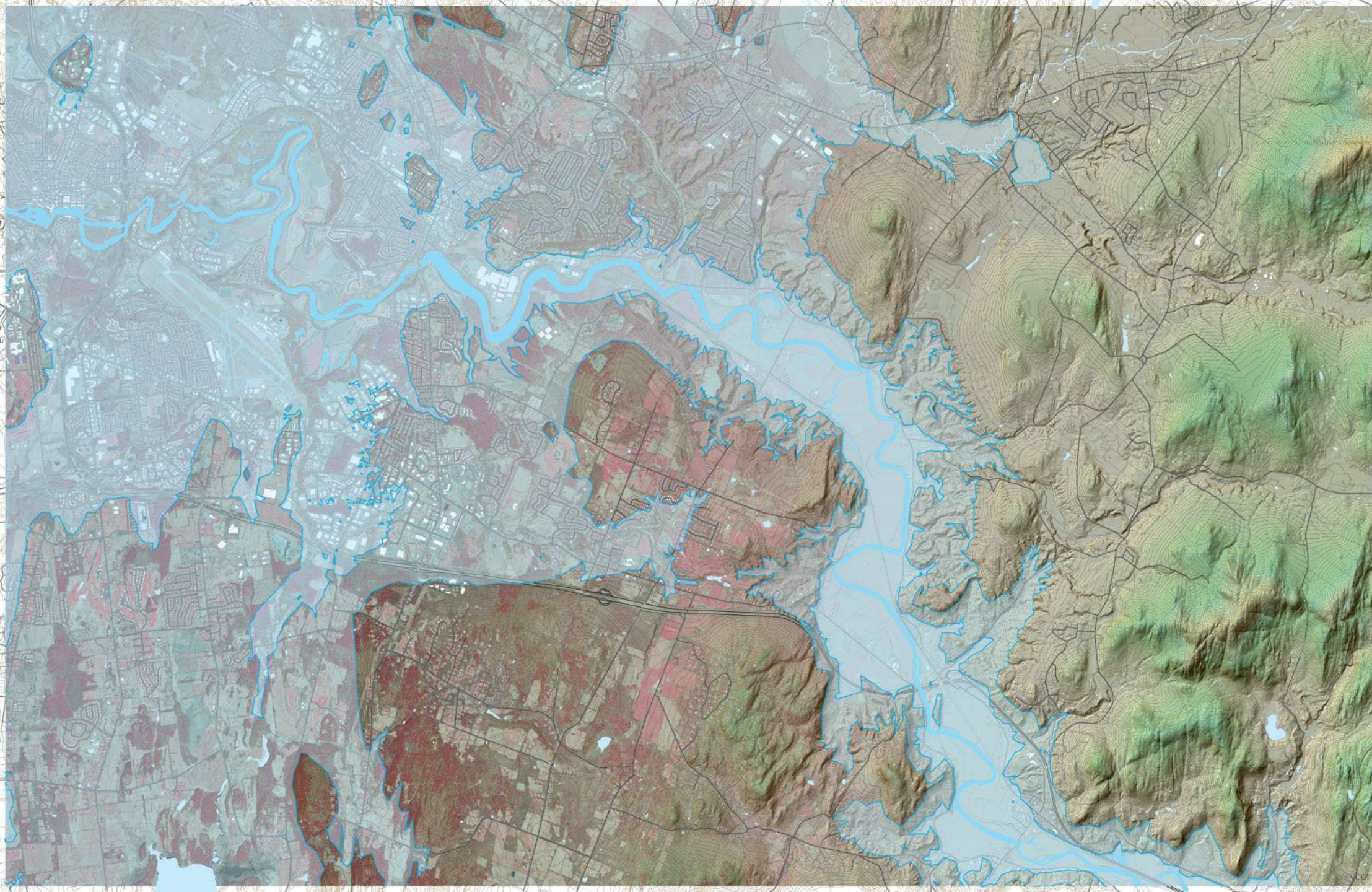
CIR + DEM +  
Hydro + Contours  
+ Infrastructure





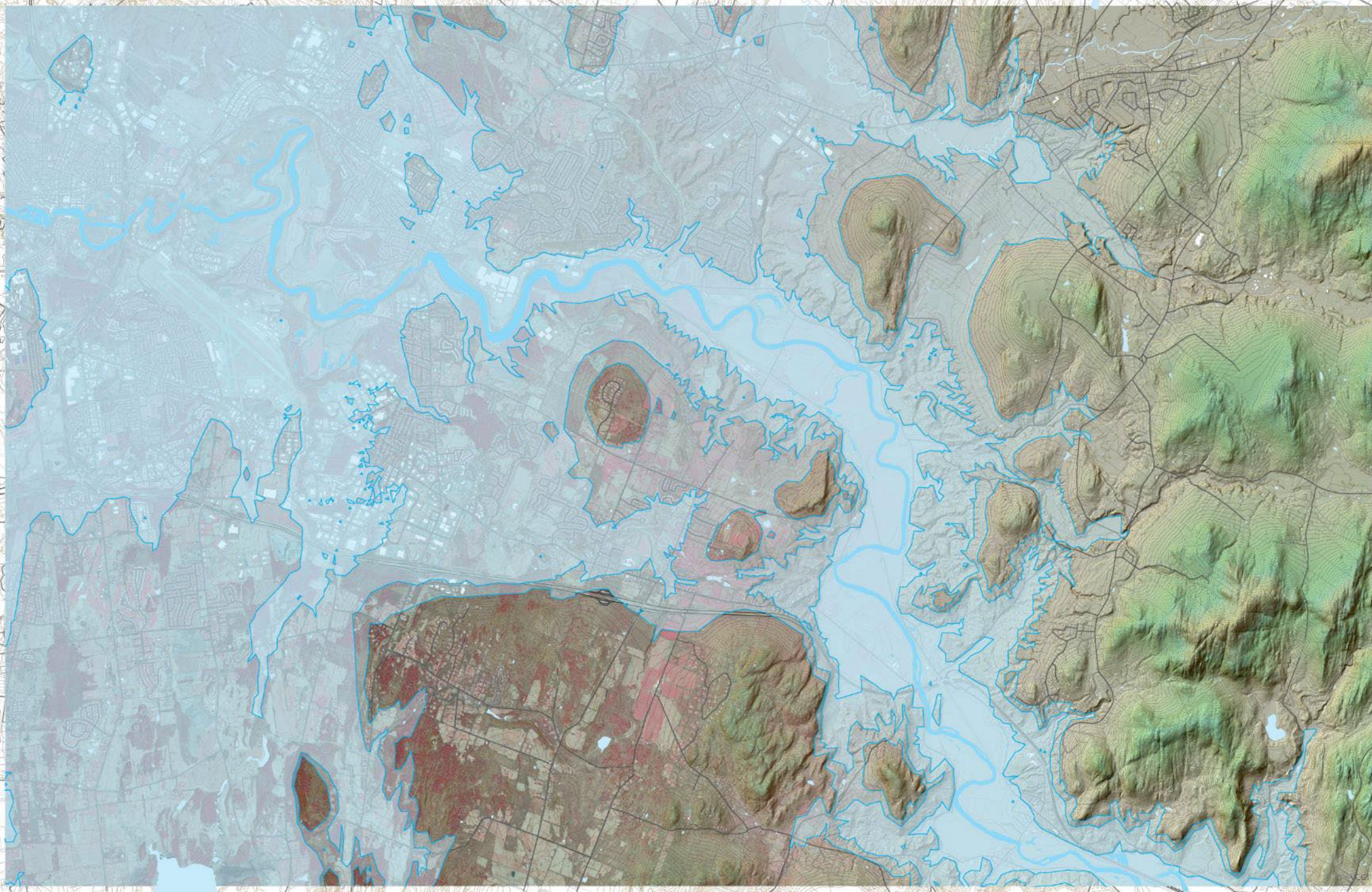
GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

Former Extent  
Champlain Sea



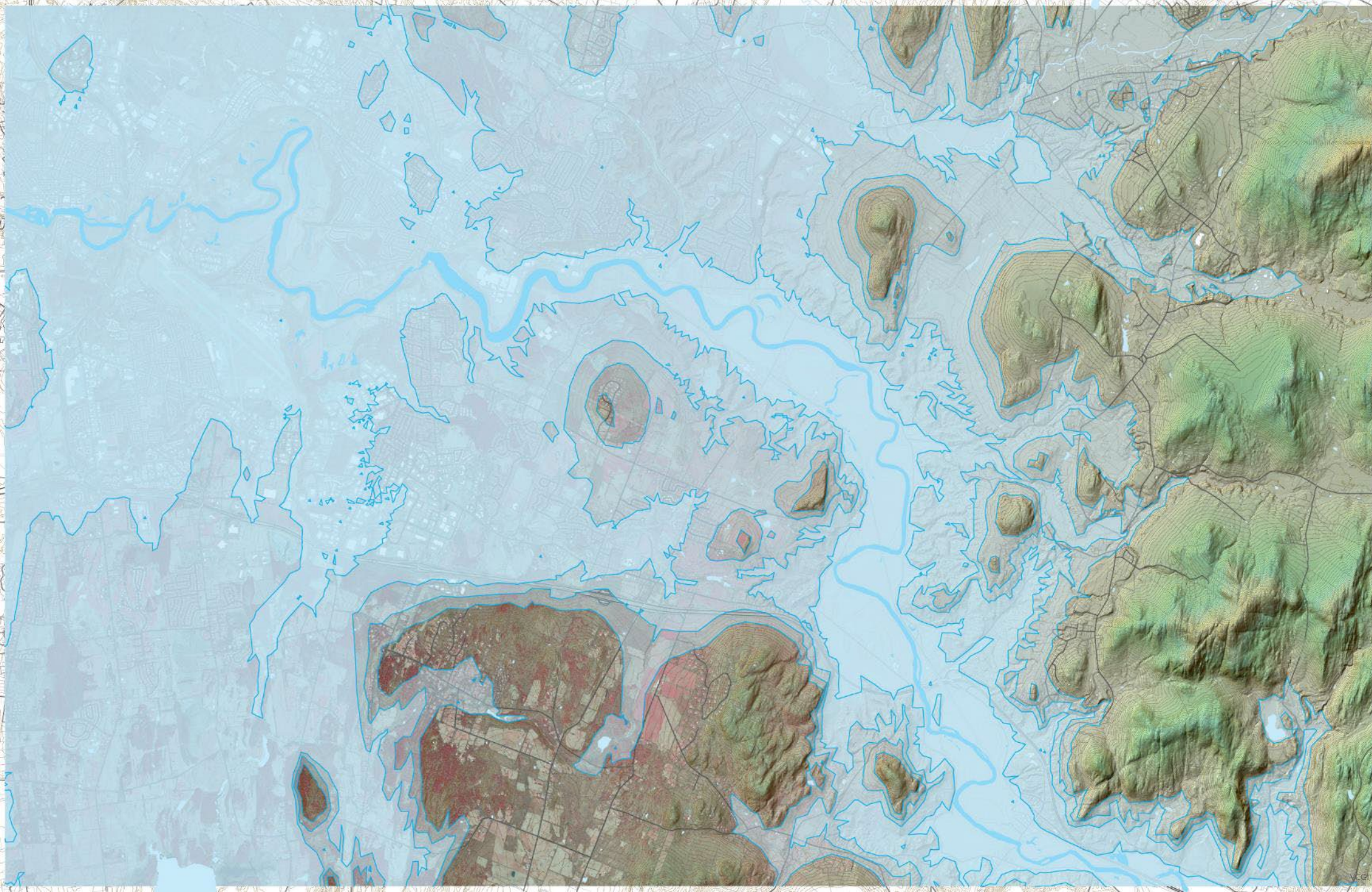
GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

Former Extent  
Lower Fort Ann



GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

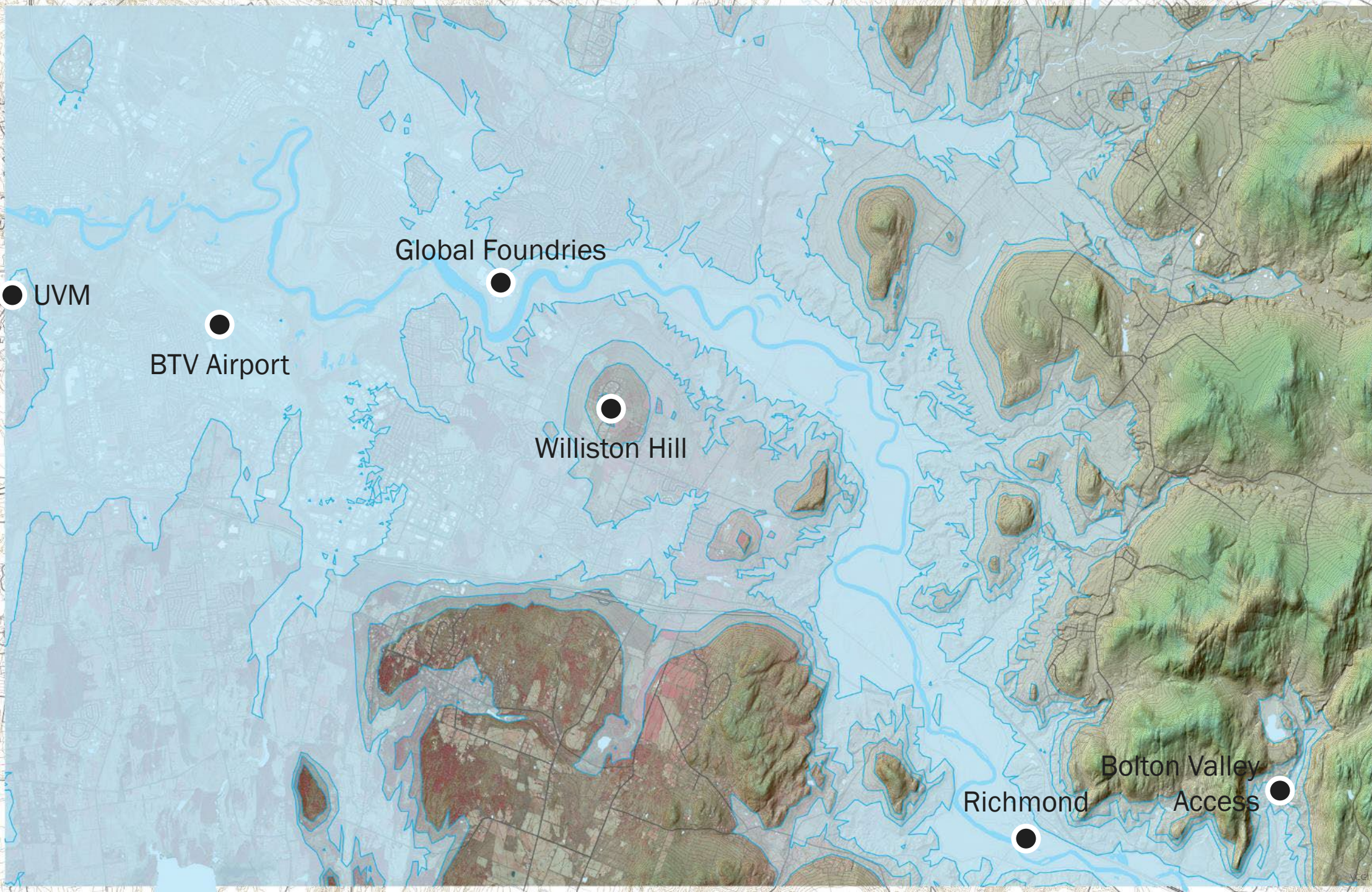
Former Extent  
Upper Fort Ann



GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

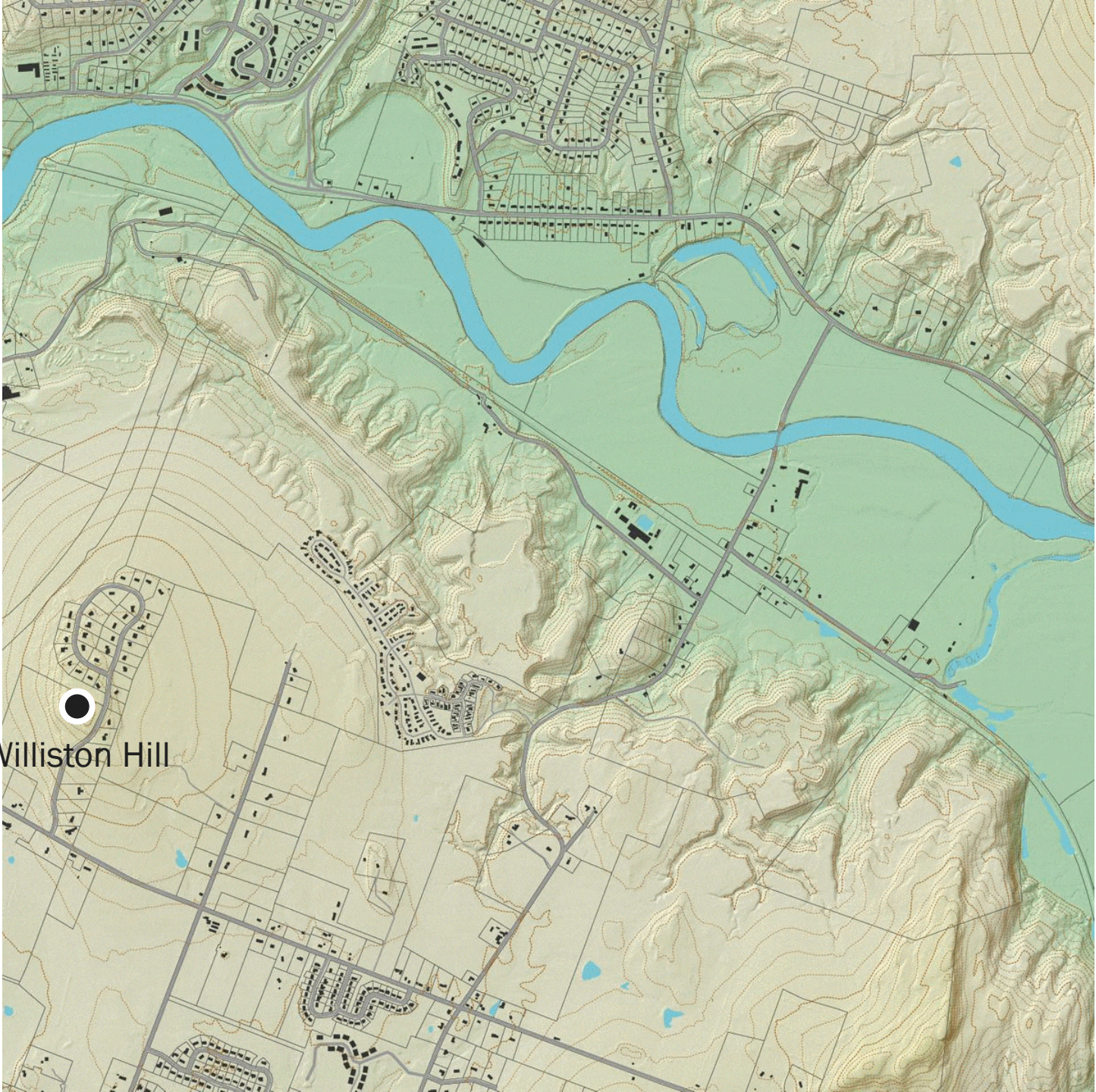
Former Extent  
Lake Coveville





**GEOLOGY:**  
Glacial Lakes  
And the  
Champlain  
Sea

Former Extent  
Lake Champlain



Williston Hill

GEOLOGY:  
Glacial Lakes  
And the  
Champlain  
Sea

Champlain Sea  
through  
Lake Coveville





[About](#)
[Content](#)
[Legend](#)

Contents

Glacial Lakes and the Champlain Sea - Glacial Lakes

- Champlain Sea
- Glacial Lake Hitchcock
- Glacial Lake Mansfield 1
- Glacial Lake Mansfield 2, Early Phase
- Glacial Lake Mansfield 2, Late Phase
- Glacial Lake Vermont, Coveville Phase
- Glacial Lake Vermont, Lower Fort Ann Phase
- Glacial Lake Vermont, Upper Fort Ann Phase
- Glacial Lake Winooski

Terrain with Labels

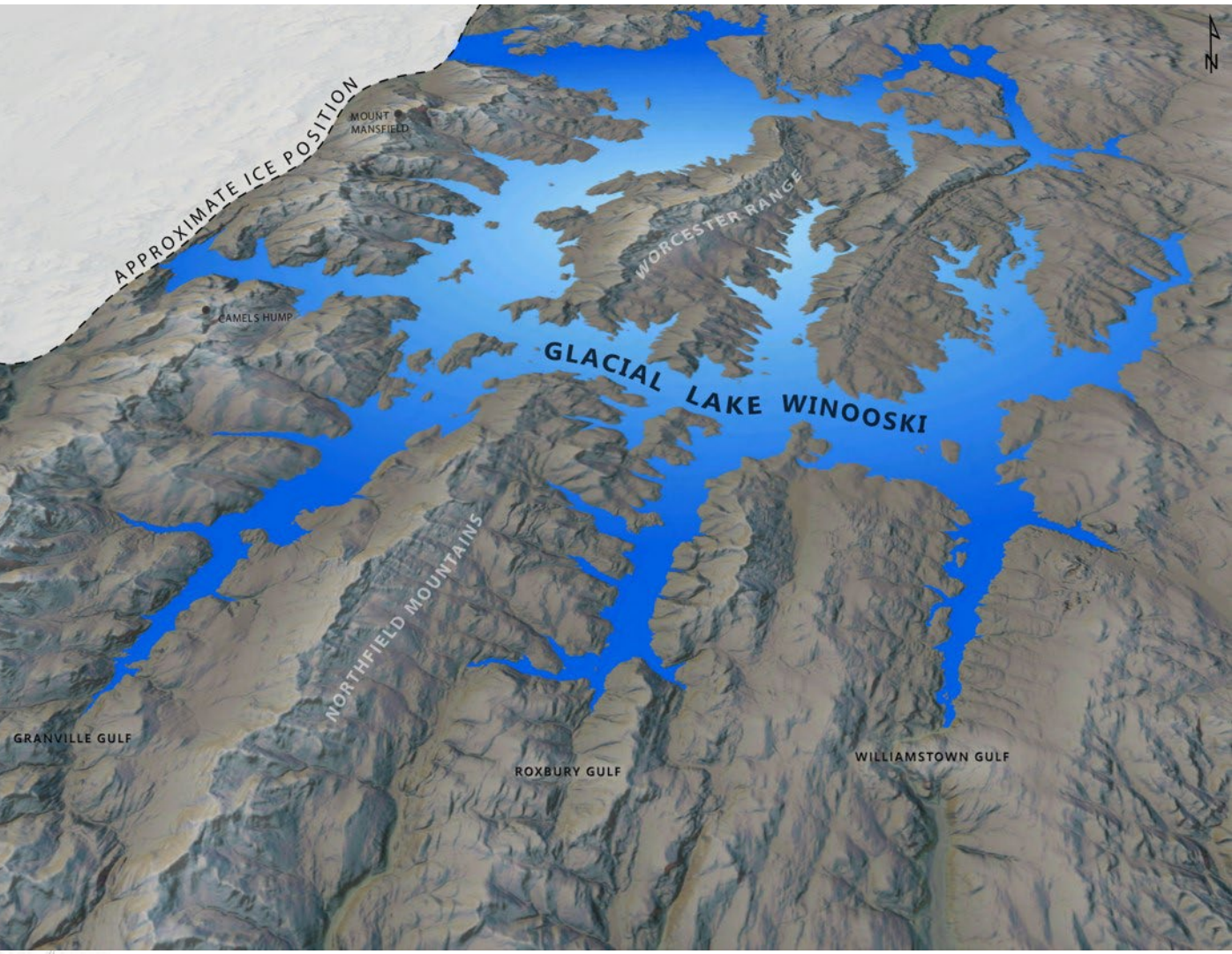
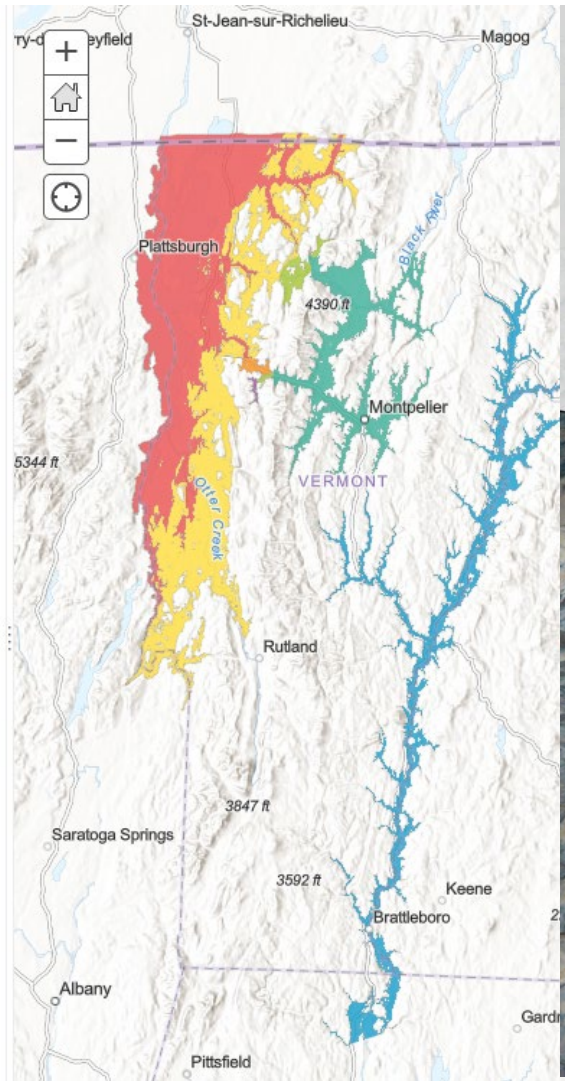


IMAGE: COLIN DOWEY, ANR

<https://geodata.vermont.gov/datasets/VTANR::glacial-lakes-and-the-champlain-sea/about>



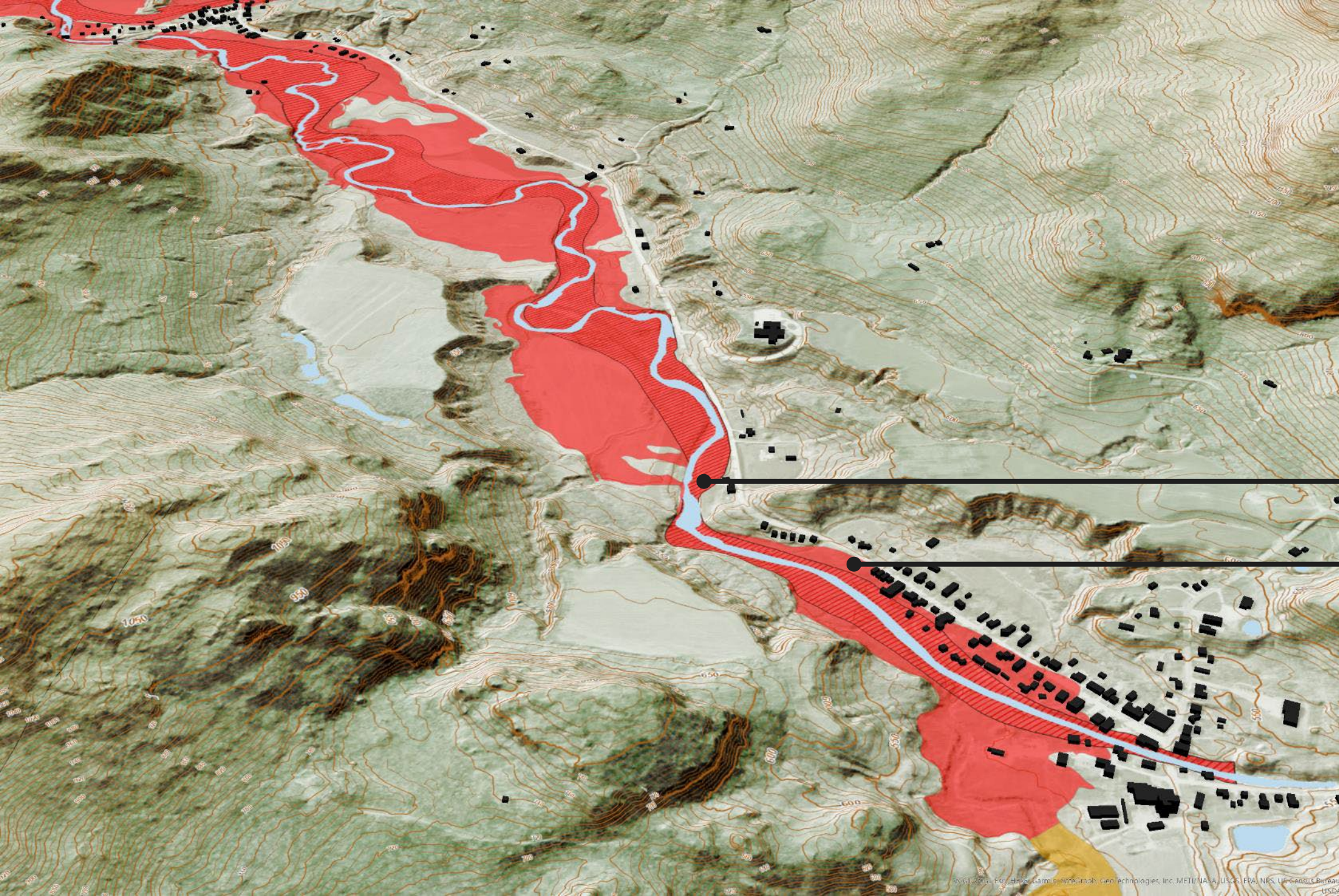
FLOODING:  
Managing Risk  
Exposure



FLOODING:  
Managing Risk  
Exposure



© 2012 VCGI, Esri, Garmin, GeoEye, Geotechnologies, Inc., MITI, NGA, USGS, EPA, NPS, U.S. Census Bureau, USDA



FLOODING:  
Managing Risk  
Exposure

FEMA's  
NFHL (DFIRM's)

Regulatory  
Floodway Zone AE

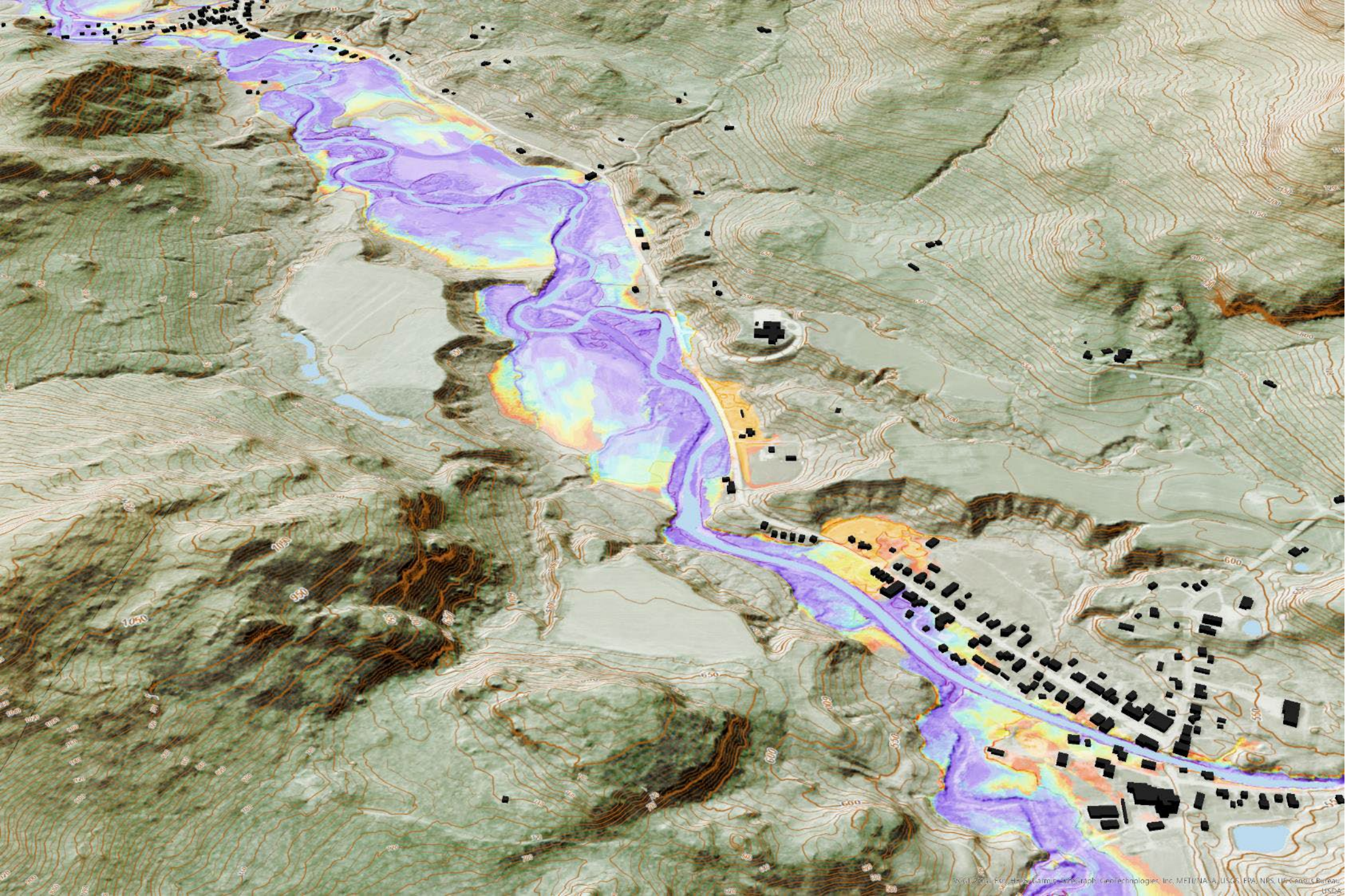
1% Annual Chance  
Flood - Zone AE

0.2% Annual  
Chance Flood -  
Zone X  
(not shown)

# FLOODING: Managing Risk Exposure

## UVM's Lidar-aided Flood Inundation Layer (2022)

- 2-year flood zone (50% annual exceedance)
- 5-year flood zone (20% annual exceedance)
- 10-year flood zone (10% annual exceedance)
- 25-year flood zone (4% annual exceedance)
- 50-year flood zone (2% annual exceedance)
- 100-year flood zone (1% annual exceedance)
- 200-year flood zone (.05% annual exceedance)
- 500-year flood zone (.02% annual exceedance)



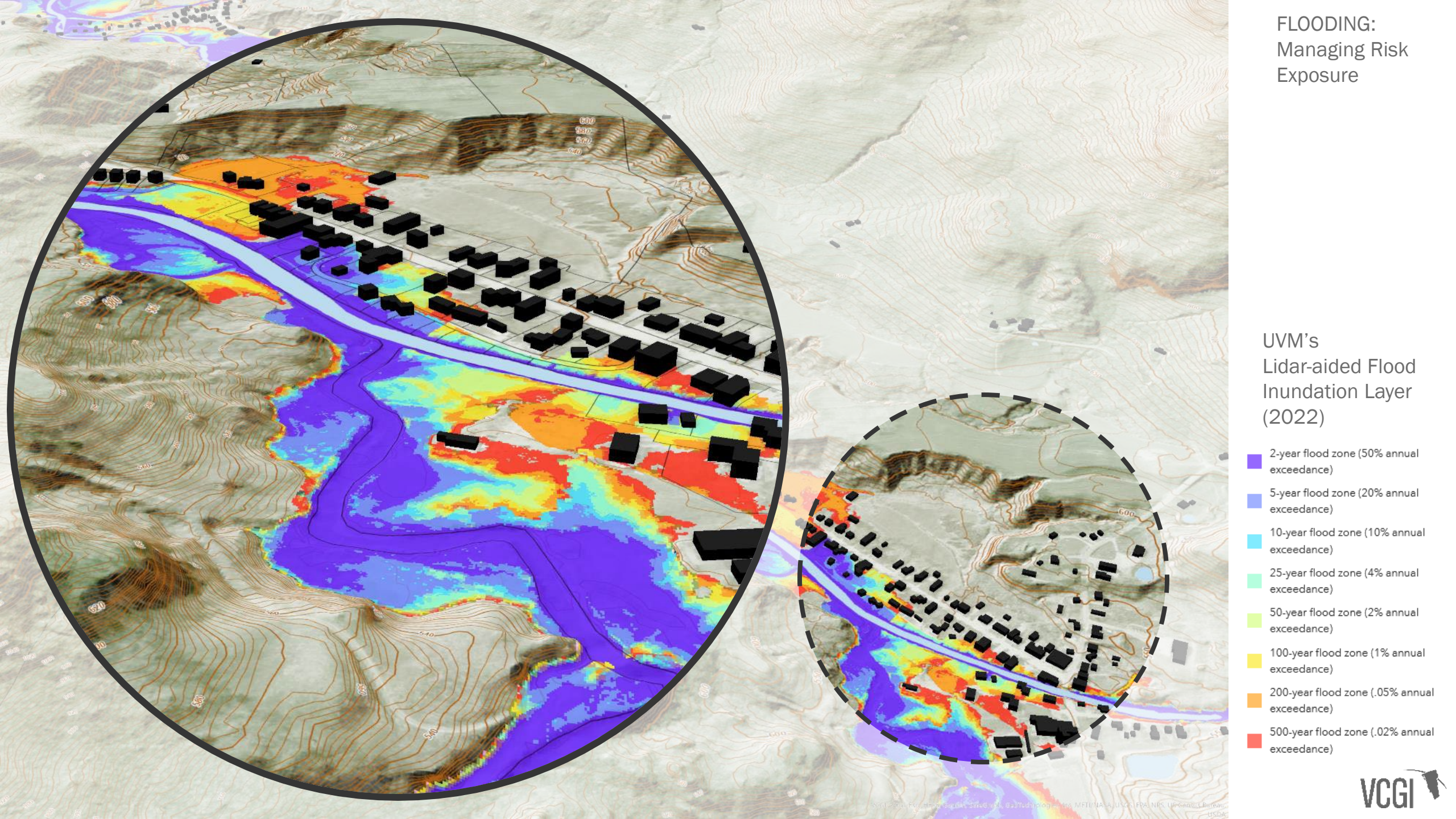
© 2022 VCGI. All rights reserved. VCGI is a registered trademark of VCGI, Inc. METI/NA/A, USGS, EPA, NPS, US Census Bureau, USDA



# FLOODING: Managing Risk Exposure

## UVM's Lidar-aided Flood Inundation Layer (2022)

- 2-year flood zone (50% annual exceedance)
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- 100-year flood zone (1% annual exceedance)
- 200-year flood zone (.05% annual exceedance)
- 500-year flood zone (.02% annual exceedance)

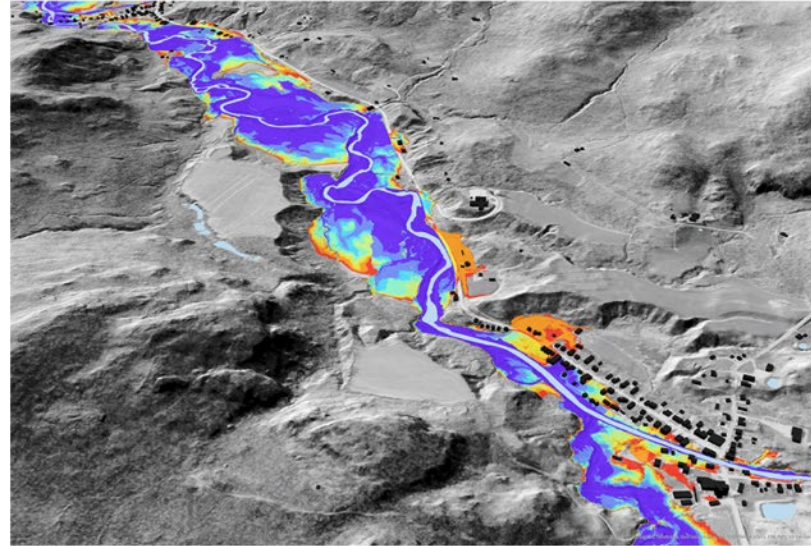


- Data and Programs
- Resources
- Maps
- Partners
- About VCGI

DATA RELEASE

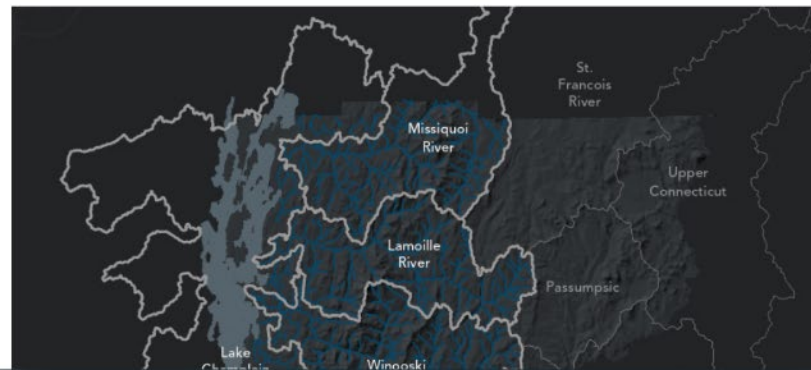
LAKE CHAMPLAIN BASIN LIDAR-INFORMED FLOOD INUNDATION LAYER NOW AVAILABLE

23 MAY 2022



The new flooding layer as seen above with other QL2 lidar data at the Trout River between Montgomery and Montgomery Center in Franklin County, VT. (View Image at Full Size)

VCGI is pleased to announce the availability of a detailed flood inundation layer for the Vermont portion of the Lake Champlain Basin. The product is informed by Vermont's statewide QL2, 0.7-meter resolution lidar collections performed between 2013 and 2017 and depicts the lateral extent of flooding at 8 modeled storm sizes of recurrence intervals ranging from 2 to 500 years for rivers that drain more than 2 square miles.



FLOODING:  
Managing Risk  
Exposure

UVM's  
Lidar-aided Flood  
Inundation Layer  
(2022)

- 2-year flood zone (50% annual exceedance)
- 5-year flood zone (20% annual exceedance)
- 10-year flood zone (10% annual exceedance)
- 25-year flood zone (4% annual exceedance)
- 50-year flood zone (2% annual exceedance)
- 100-year flood zone (1% annual exceedance)
- 200-year flood zone (.05% annual exceedance)
- 500-year flood zone (.02% annual exceedance)

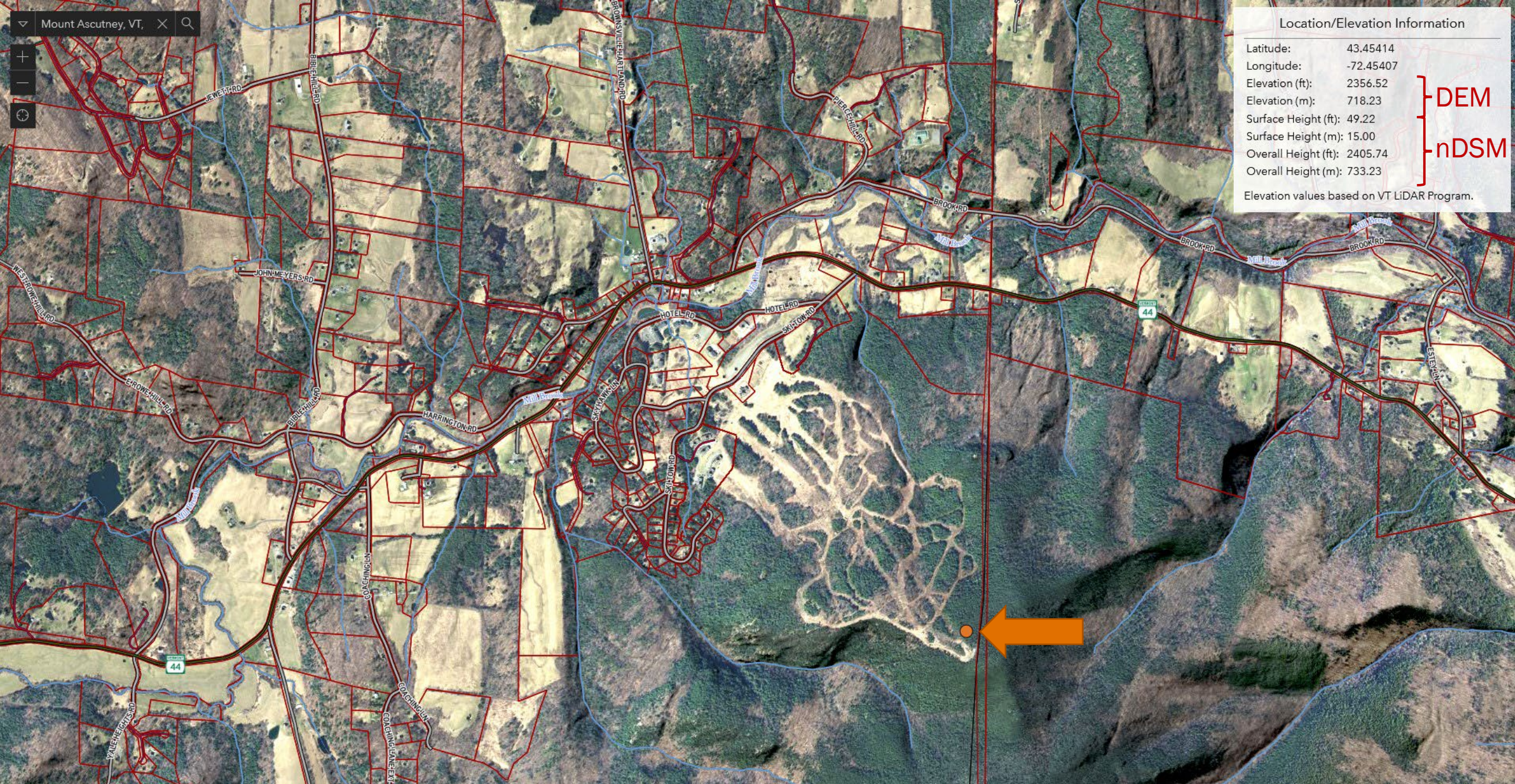


<https://vcgi.vermont.gov/data-release/lake-champlain-basin-lidar-informed-flood-inundation-layer-now-available>

FORESTRY & NATURAL RESOURCES  
nDSM for Elevation







Location/Elevation Information	
Latitude:	43.45414
Longitude:	-72.45407
Elevation (ft):	2356.52
Elevation (m):	718.23
Surface Height (ft):	49.22
Surface Height (m):	15.00
Overall Height (ft):	2405.74
Overall Height (m):	733.23

Elevation values based on VT LIDAR Program.

} DEM  
} nDSM



Location/Elevation Information	
Latitude:	43.45495
Longitude:	-72.45480
Elevation (ft):	2176.39
Elevation (m):	663.33
Surface Height (ft):	32.81
Surface Height (m):	10.00
Overall Height (ft):	2209.2
Overall Height (m):	673.33

Elevation values based on VT LiDAR Program.

DEM  
nDSM



“[because you] have statewide lidar...”

“...a test that covers just over a 1,000 square miles out of Vermont’s 9,616 mi<sup>2</sup>, it’s over 54 million trees. The U.S. Forest Service estimates Vermont has about 3.4 billion live trees that are at least 1 inch in diameter...”

FORESTRY & NATURAL RESOURCES  
DSM/nDSM for 3D Feature Extraction/Creation (Trees)



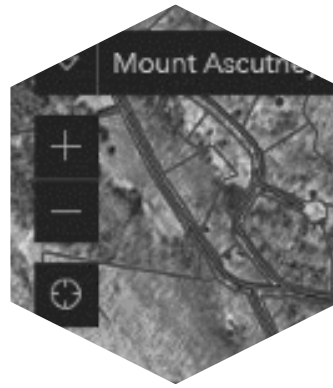


# Accessing Lidar

Applications  
Raw Data  
Resources

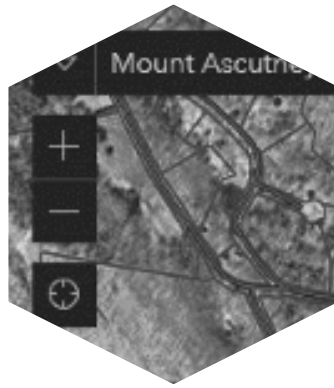


# Types of Apps



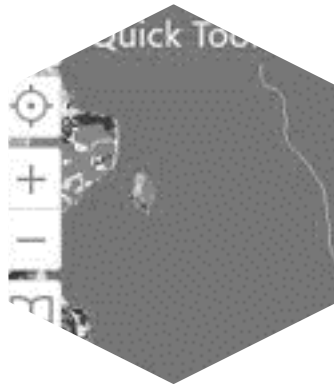
What's My  
Elevation?  
Beneath the Trees

# Types of Apps



Theme/  
Task

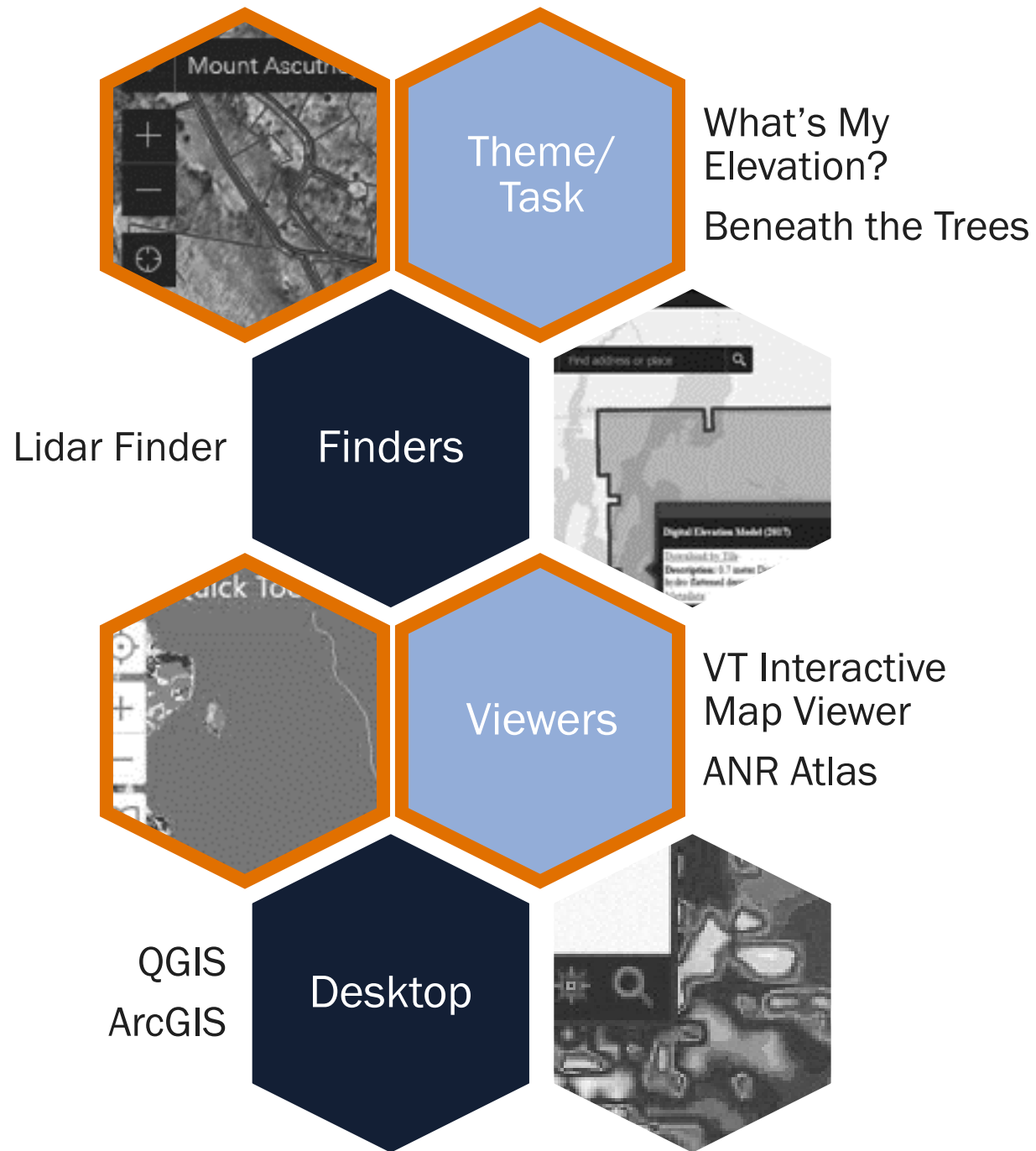
What's My  
Elevation?  
Beneath the Trees



Viewers

VT Interactive  
Map Viewer  
ANR Atlas

# Types of Apps





Find address or place







Pan  Zoom In  Zoom Out  Zoom to Town  Full Extent  Previous Extent  Bookmarks  Google Street View

Layers



Quick Tools

Filter Layers...



Filter

Base Maps

Operational Layers

Popular layers

Building points

Buildings Address Labels

Building footprints

Parcels

Contours (1 foot)

Contours (20 foot)

Soils

Wetlands

Agriculture



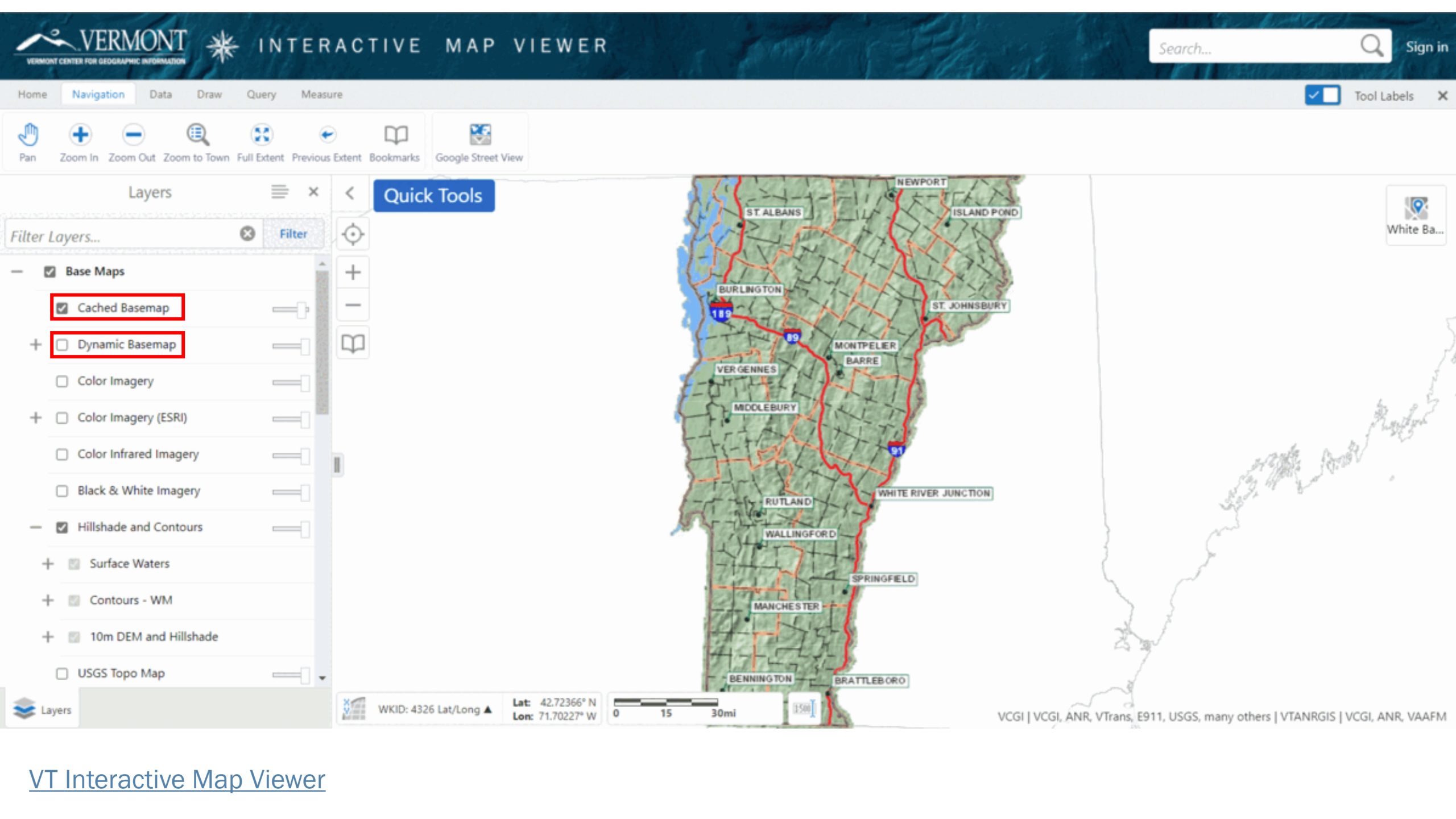
Layers



WKID: 4326 Lat/Long ▲

Lat: 42.63886° N  
Lon: 71.07605° W





[VT Interactive Map Viewer](#)

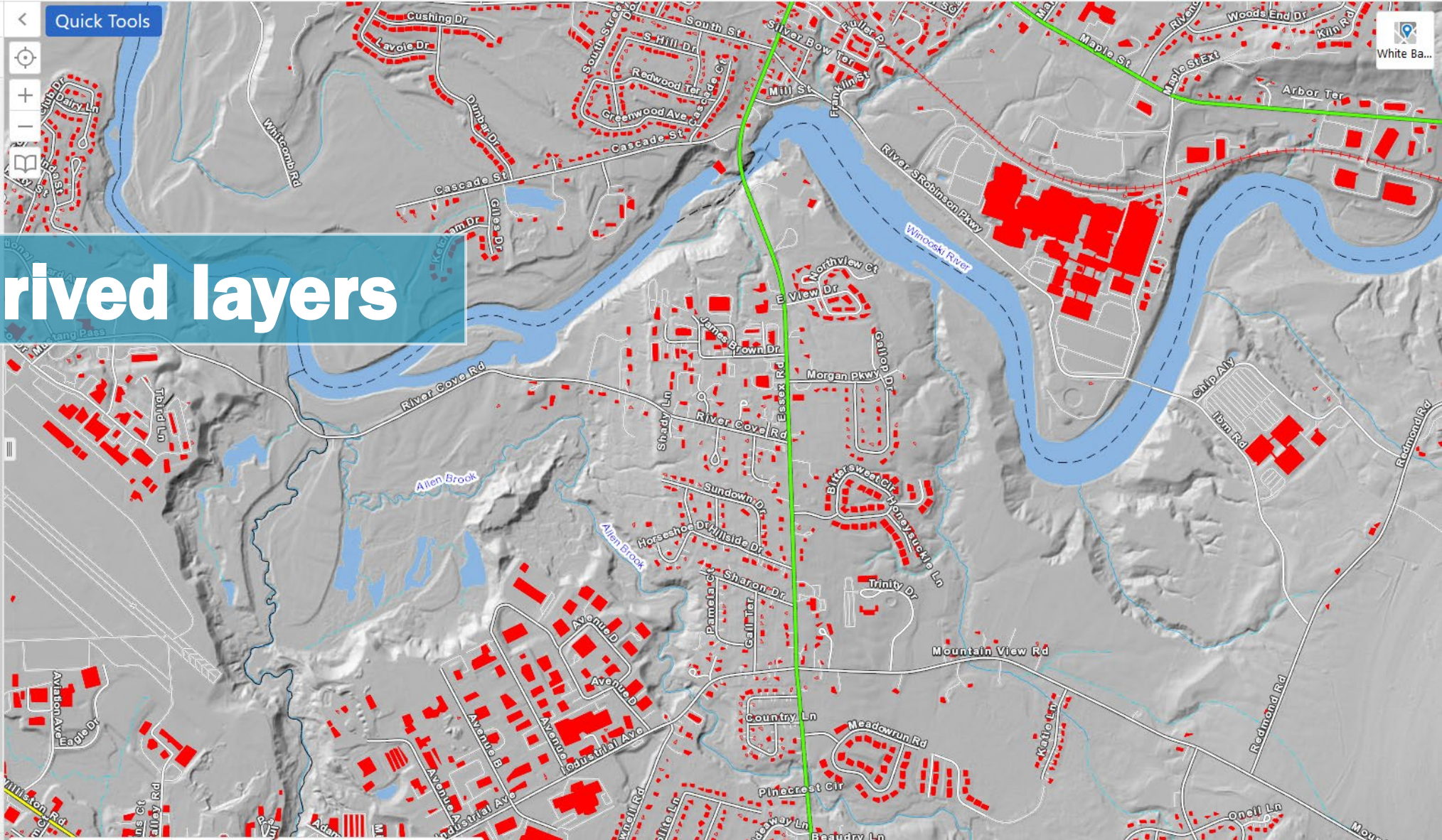
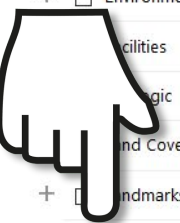


Layers

Filter Layers... Filter

- Boundaries
- Cadastral (Property Ownership)
- Climate
- Demographic
- Economic
- Lidar
  - Digital Surface Model - lidar
  - Hillshade - lidar
  - Surface Aspect - lidar (compass direction)
  - Slope Angle - lidar (percent slope)
- Environment
- Facilities
- Geologic
- Land Cover/Use
- Landmarks
- Recreation
- Transportation
- Utilities

# lidar-derived layers

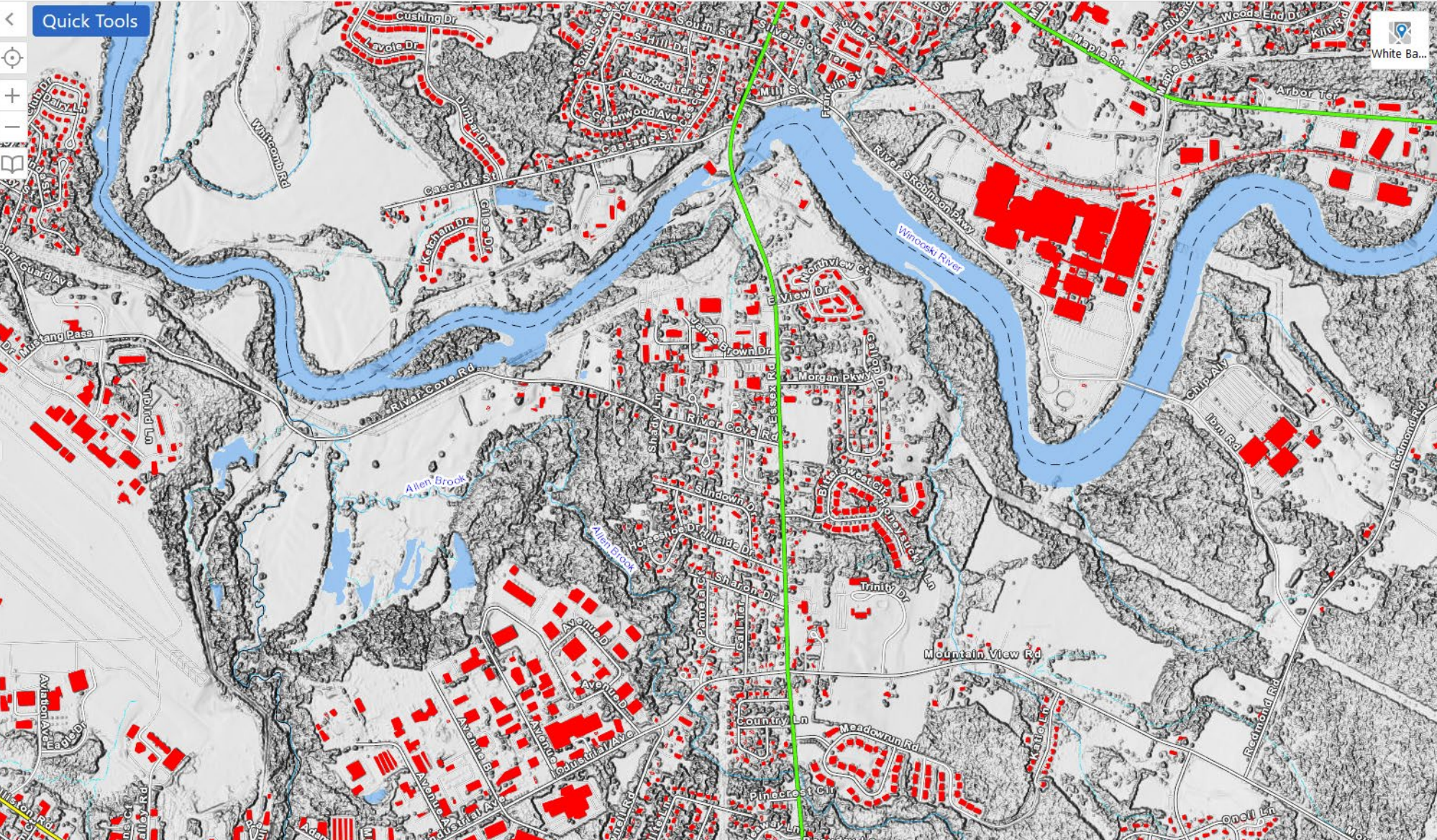




Layers

Filter Layers...

- Boundaries
- Cadastral (Property Ownership)
- Climate
- Demographic
- Economic
- Elevation
- Emergency
- Environment
- Facilities
- Geology
- Land Use
- Landmarks
- Lidar
- Digital Surface Model - lidar
- Hillshade - lidar
- Surface Aspect - lidar  
(compass direction)
- Slope Angle - lidar (percent slope)
- Recreation
- Transportation
- Utilities





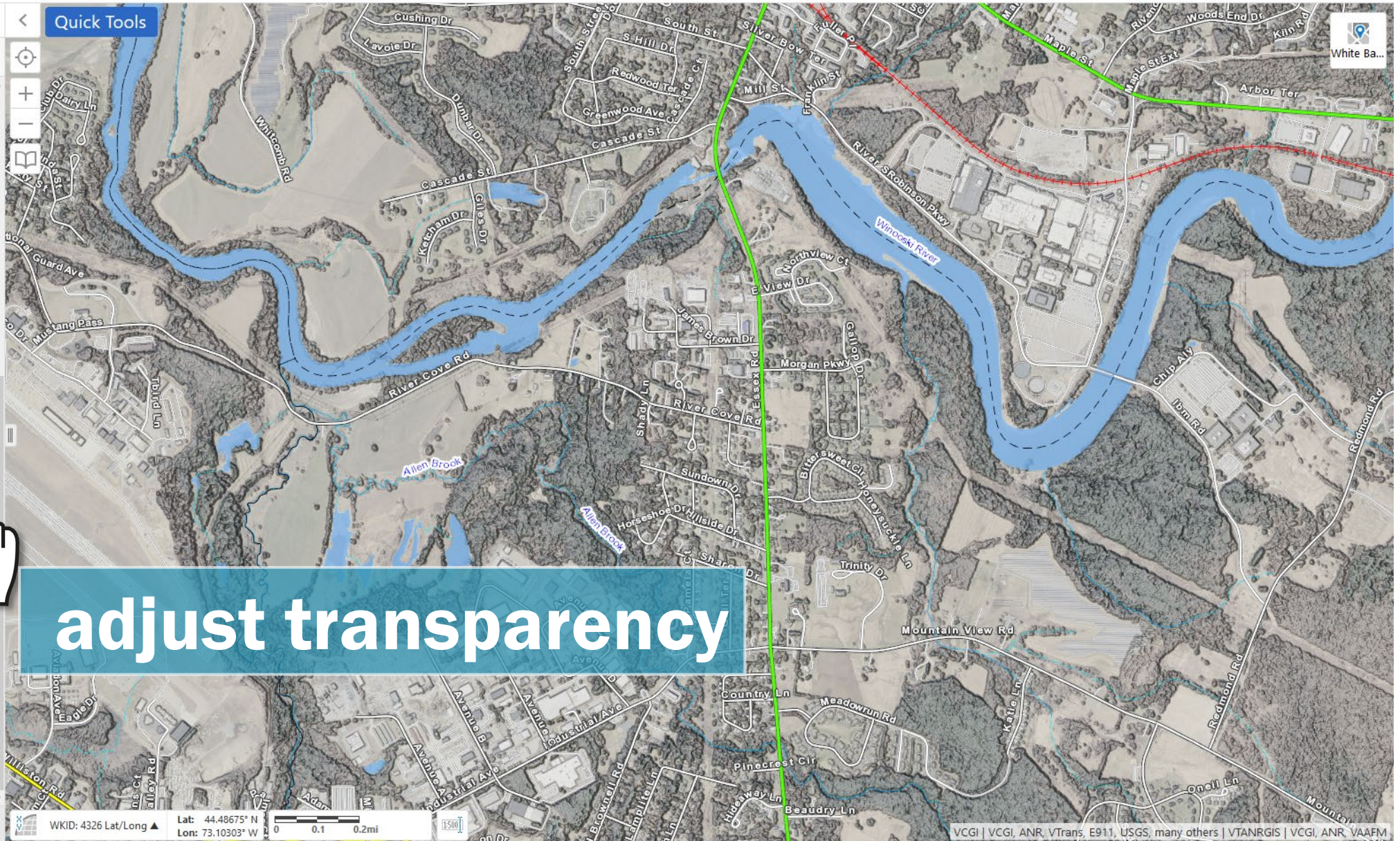
Layers

Filter Layers... Filter

- Climate
- Demographic
- Economic
- Elevation
- Emergency
- Environment
- Facilities
- Geologic
- Land Cover/Use
- Landmarks
- Lidar
  - Digital Surface Model - lidar
  - Hillshade - lidar
  - Surface Aspect - lidar (compass direction)
  - Slope Angle - lidar (percent slope)
- Recreation
- Transportation
- Utilities
- Water Resources
- All Imagery



adjust transparency





- Layers
- Filter Layers...  Filter
- Emergency
  - Environment
  - Facilities
  - Geologic
  - Land Cover/Use
    - 0.5 meter Land Cover
      - Agricultural land cover
      - Impervious surfaces (2016)
      - Suburblands (2016)
      - Tree Canopy (2016)
      - Wetlands - modeled (2016)
      - Land Cover (2016)
      - 30 meter Land Cover
    - Landmarks
  - Lidar
    - Digital Surface Model - lidar
    - Hillshade - lidar
    - Surface Aspect - lidar (compass direction)
    - Slope Angle - lidar (percent slope)
  - Recreation

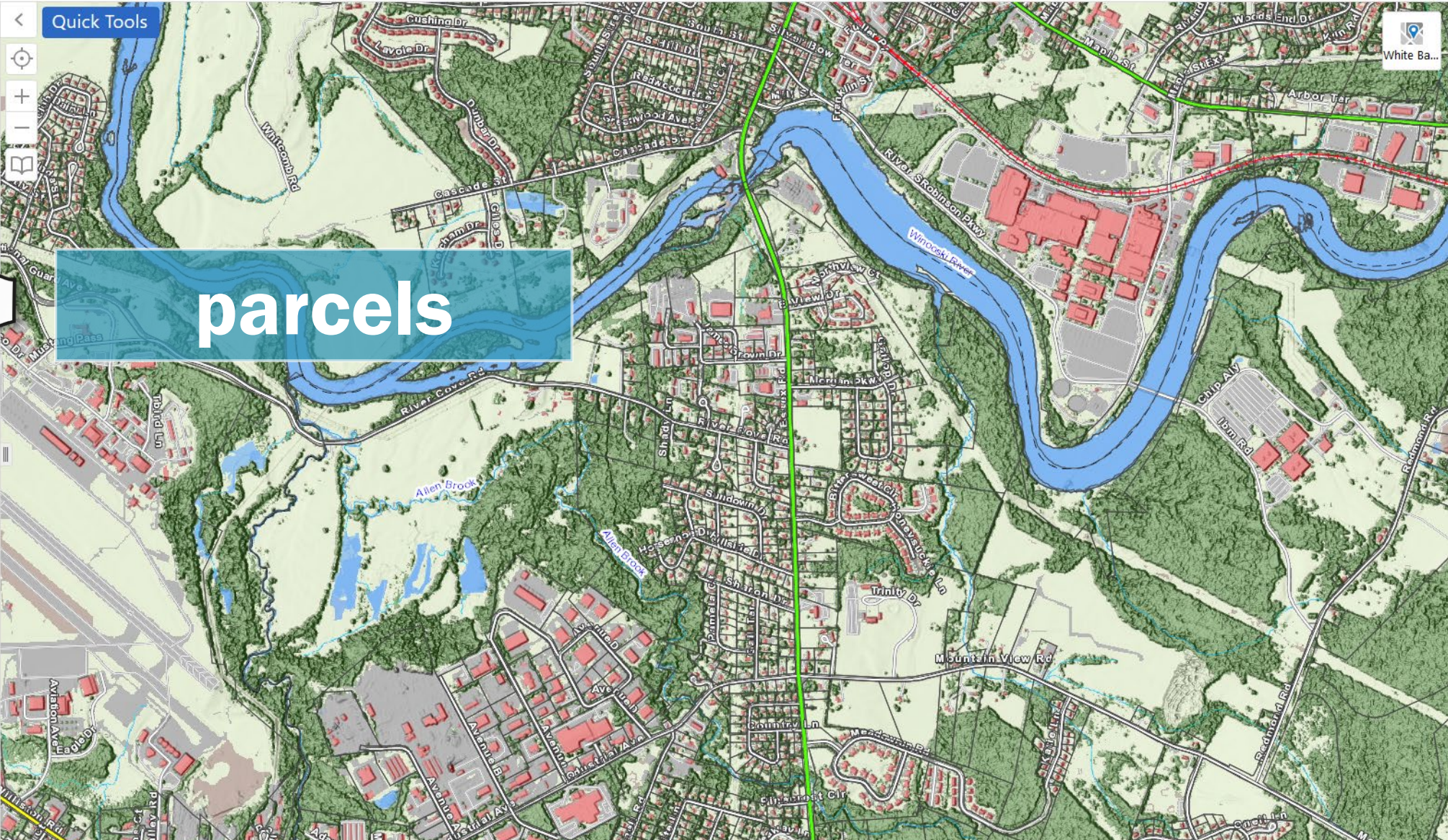
high resolution land cover



- Layers
- Filter Layers...  Filter
- Base Maps
  - Operational Layers
  - Popular layers
    - Building points
    - Buildings Address Labels
  - Building footprints
  - Parcels
    - Parcels (standardized)
      - Parcel lines
      - Parcel polygons
      - Inactive parcels
      - Parcels (non-standardized)
    - Contours (1 foot)
    - Contours (20 foot)
  - Soils
  - Wetlands
  - Agriculture
  - Boundaries
  - Cadastral (Property Ownership)



Quick Tools



parcels

**So I can toggle layers  
on and off.**

**Is that it?**



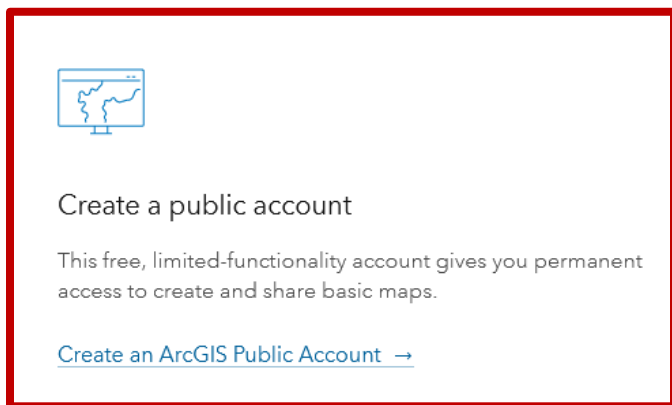
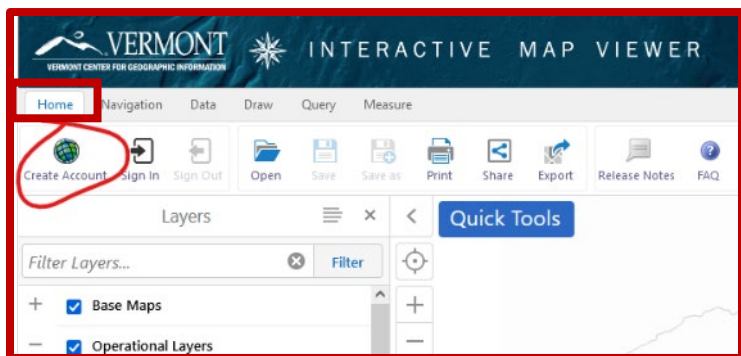


[Back to Top](#)

## Create a public account using an ArcGIS login

An ArcGIS public account is a free account that is available for individuals to create and share content with limits on usage. Follow the steps below to create an ArcGIS public account using an ArcGIS login:

- 1 From the website, click the **Sign In** link at the top of the site or access the sign in page directly from <https://www.arcgis.com/home/signin.html>.
- 2 Click **Create an account**.
- 3 Under **Create a free public account**, click **Create an ArcGIS Public Account**.
- 4 Type your first name, last name, and email address. Retype your email address to confirm.
- 5 Read the ArcGIS Online terms of use and privacy policy. Check the boxes to agree to the terms and policy and click **Next**.  
  
ArcGIS Online sends you an email with a link to continue the creation of your account.
- 6 Open the email and click the link provided, or copy it to your browser's address bar and press Enter.
- 7 Provide a username that contains 6 to 128 alphanumeric characters. You can also use the following special characters: . (dot), \_ (underscore), - (hyphen), and @ (at sign). Other special characters, nonalphanumeric characters, and spaces are not allowed. Your username cannot be the same as



Projects Choose a previously saved project to restore the saved state

Filter Projects... Filter

Show my projects only Sort By...

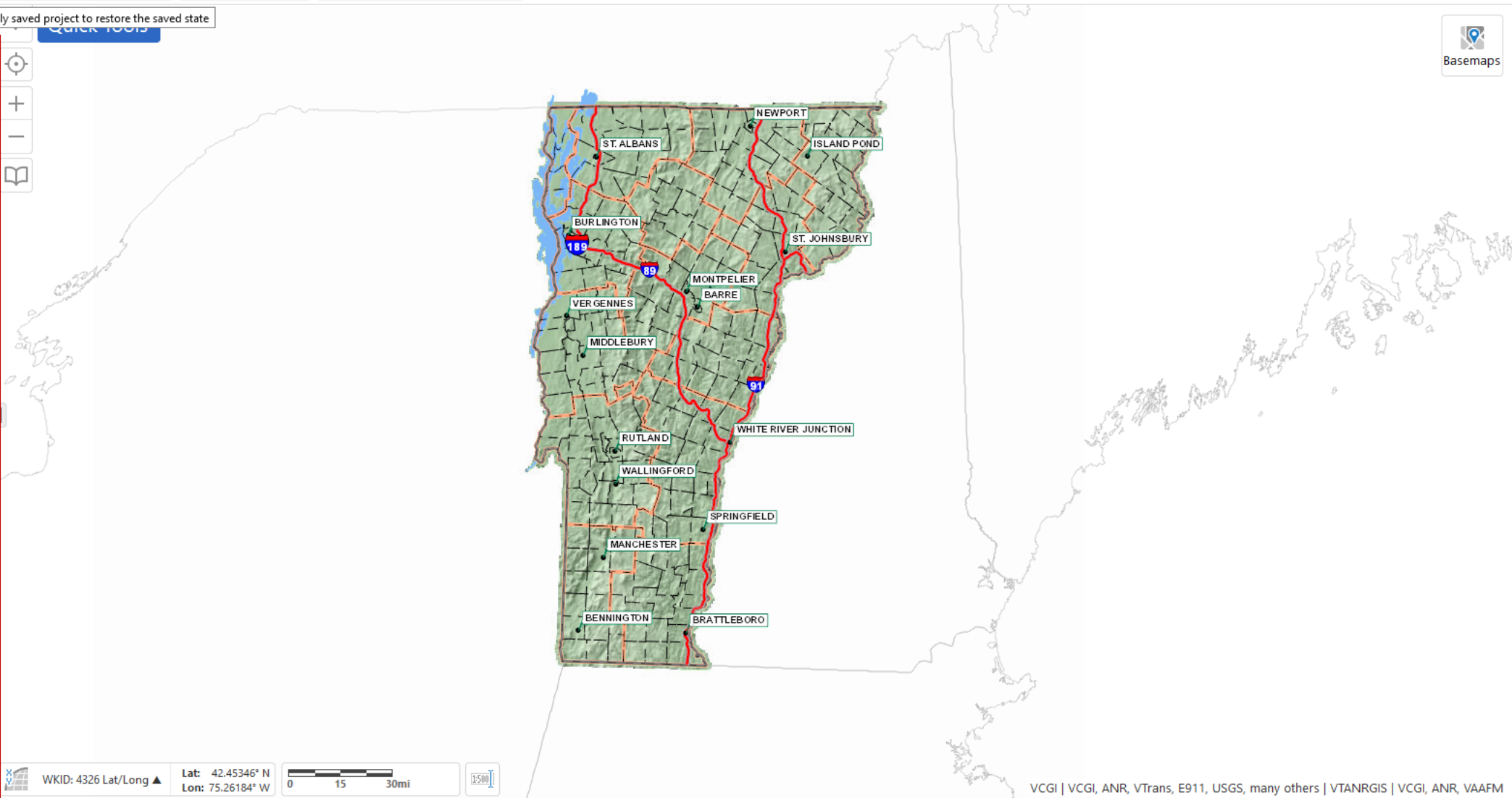
- Tree Map Example**  
Last modified by: Tim Terway 7 months ago  
Created by: Tim Terway 7 months ago
- October 2021 Ad Hoc**
  - Building Points and Labels Test 02**  
Last modified by: Tim Terway a year ago  
Created by: Tim Terway a year ago
  - Only Parcels and 1' contours toggled on, test to see if building points load without being toggled
- Building Points and Labels Test**  
Last modified by: Tim Terway a year ago  
Created by: Tim Terway a year ago
- toggled off by default, then toggled on, then saved
- Montpelier Basemap**  
Last modified by: Tim Terway 3 years ago  
Created by: Tim Terway 3 years ago
- Newfane-2015 Color Infrared**  
Last modified by: Tim Terway 4 years ago  
Created by: Tim Terway 4 years ago
- Stormwater Map**  
Last modified by: Tim Terway 4 years ago  
Created by: Tim Terway 4 years ago
- Montpelier Confluence-Stormwater**  
Last modified by: Tim Terway 4 years ago  
Created by: Tim Terway 4 years ago

ANR Stormwater Data

Displaying 1 - 7 (Total: 7)

Page 1 of 1

Layers Projects





Create Account



Sign In



Sign Out



Open



Save



Save as



Print



Share



Export



Release Notes



FAQ



Contact Us



Disclaimer



Life Cycle Policy

Projects

Quick Tools

Filter Projects...

Filter

Show my projects only

Sort By...

**Historic Society IMV Demo**

Last modified by: Steve Fugate a few seconds ago

Created by: Steve Fugate 19 days ago

This web map is used to demonstrate how the VT Interactive Map Viewer can be used to support the id...

[More](#)

Displaying 1 - 1 (Total: 1)

Page 1 of 1

Layers

Projects



WKID: 4326 Lat/Long ▲

Lat: 43.11788° N  
Lon: 73.83911° W

0 15 30mi

1:500



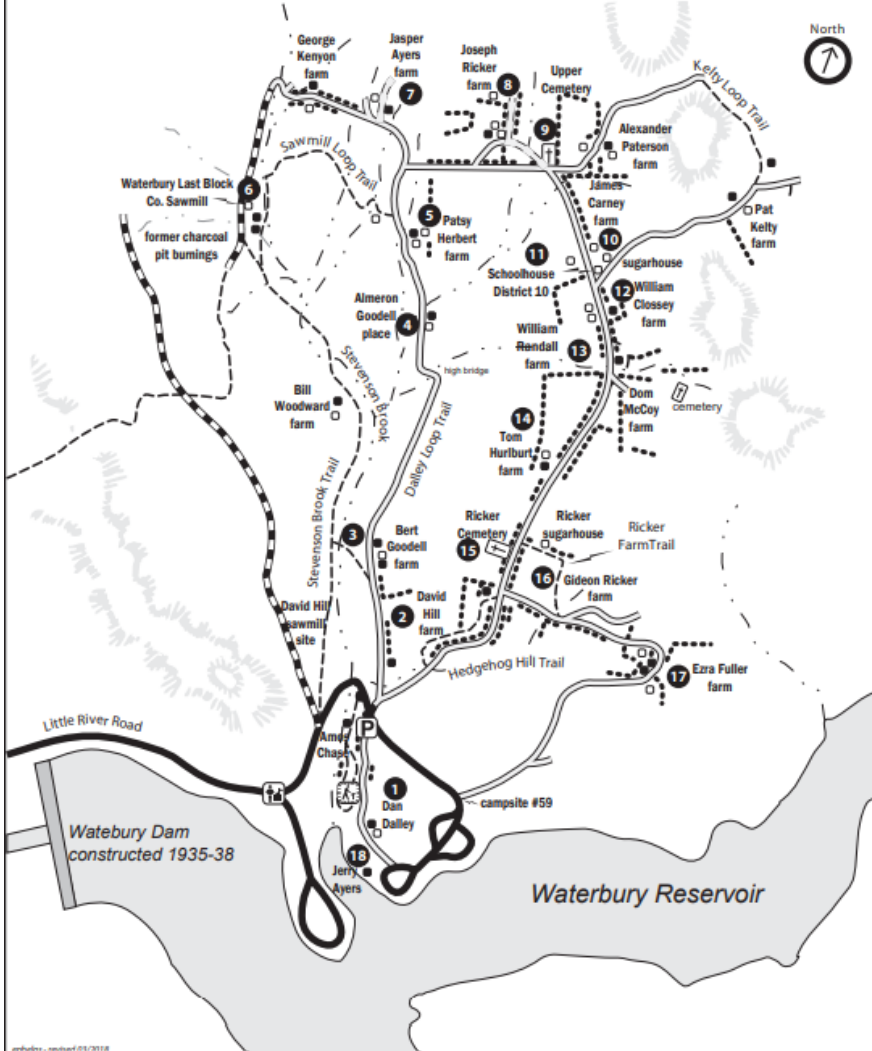
Basemaps

# LITTLE RIVER HISTORY HIKE

## Historical Settlements and Modern Trails



- ### Legend
- Multi-use trails
  - Walking trails/Historical road location (some sections may be logging roads)
  - Historical road - impassable
  - Trail
  - Stream
  - Stone wall
  - House site/foundation
  - Barn or outbuilding site/foundation
  - Park office
  - Parking
  - Self-guided nature trail



### VERMONT INTERACTIVE MAP VIEWER

VERMONT CENTER FOR GEOGRAPHIC INFORMATION

Search...  Sign in

Home Navigation Data Draw Query Measure

Pan Zoom In Zoom Out Zoom to Town Full Extent Previous Extent Bookmarks Google Street View

#### Layers

Filter Layers...  Filter

- Lidar
  - Normalized Digital Surface Model (nDSM) - lidar
  - Digital Surface Model - lidar
  - Hillshade - lidar
  - Surface Aspect - lidar (compass direction)
  - Slope Angle - lidar (percent slope)
- Recreation
  - Alpine ski lifts
  - Outdoor recreation sites
- Trails - E911 database

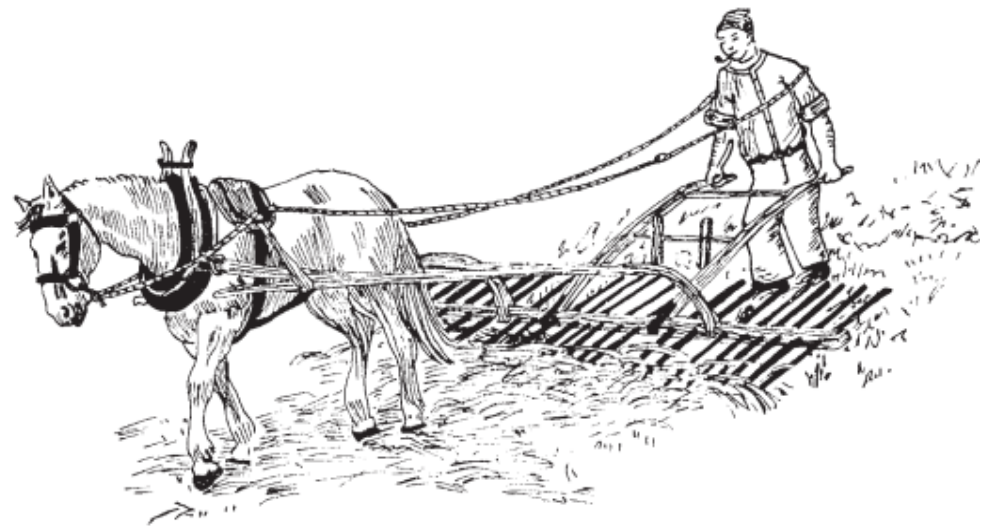
#### Quick Tools

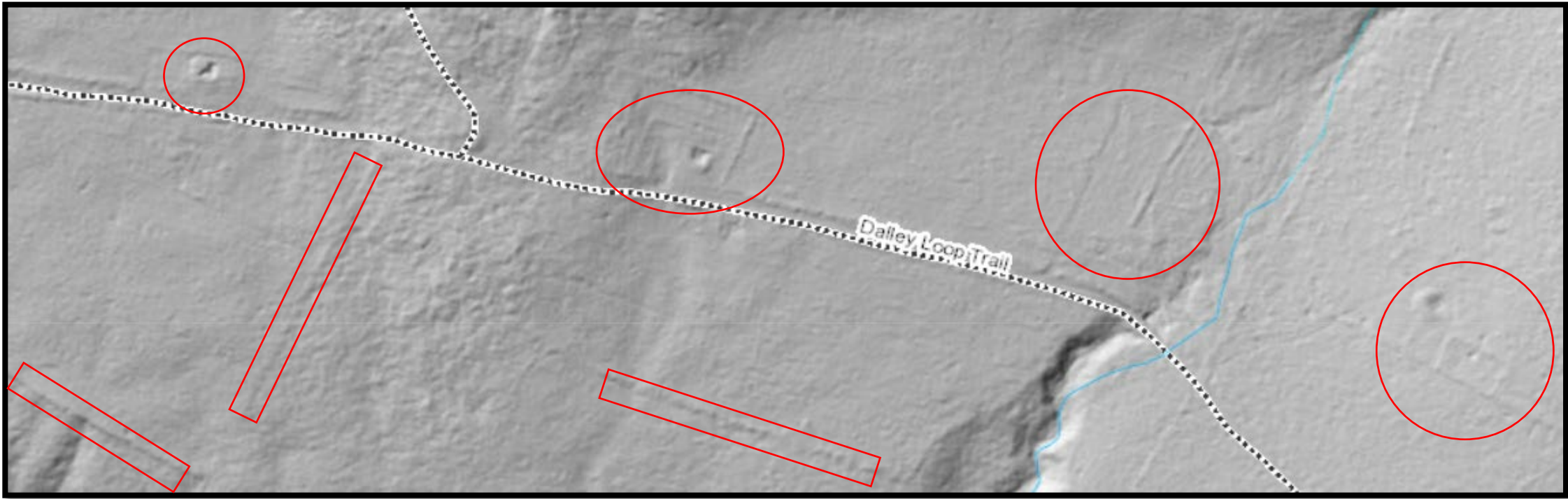
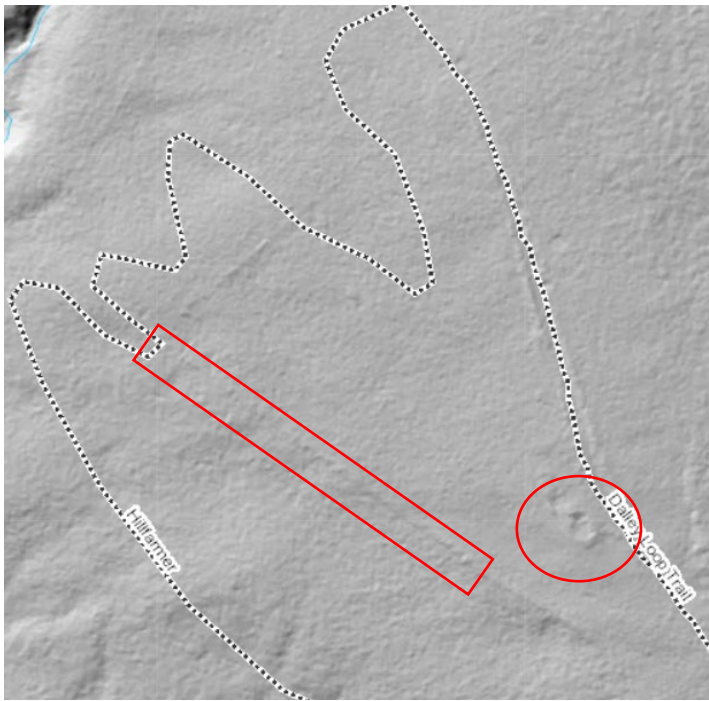
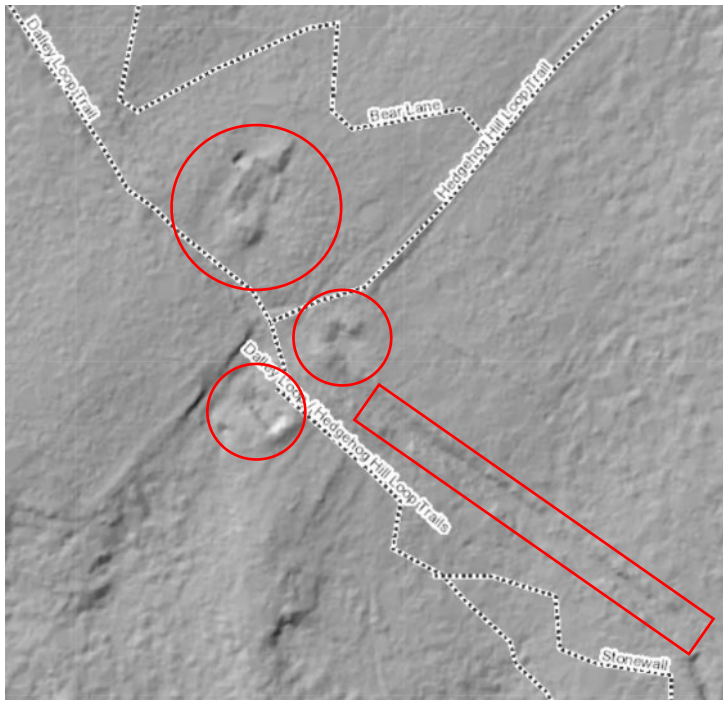
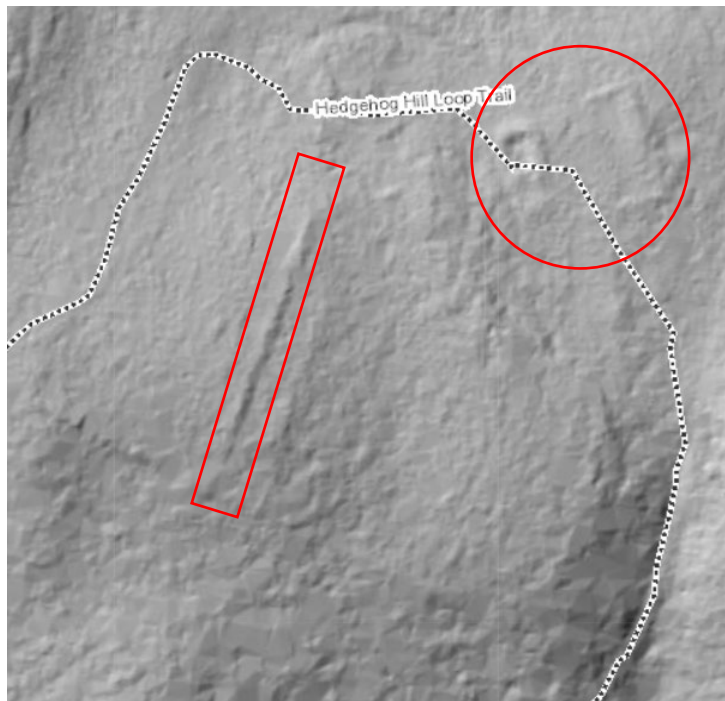
Layers

WKID: 4326 Lat/Long ▲ Lat: 44.41273° N Lon: 72.79524° W

0 0.2 0.4mi

VCGI | VCGI, ANR, VTrans, E911, USGS, many others | VTANRGIS | VCGI, ANR, VAAFM







Layers

Click or tap locations along the map to create a line. Double click/tap to finish.

Filter Layers... **Filter**

- Lidar
  - Normalized Digital Surface Model (nDSM) - lidar
  - Digital Surface Model - lidar
  - Hillshade - lidar
  - Surface Aspect - lidar (compass direction)
  - Slope Angle - lidar (percent slope)
- Recreation
  - Alpine ski lifts
  - Outdoor recreation sites
  - Trails - E911 database

**Quick Tools**



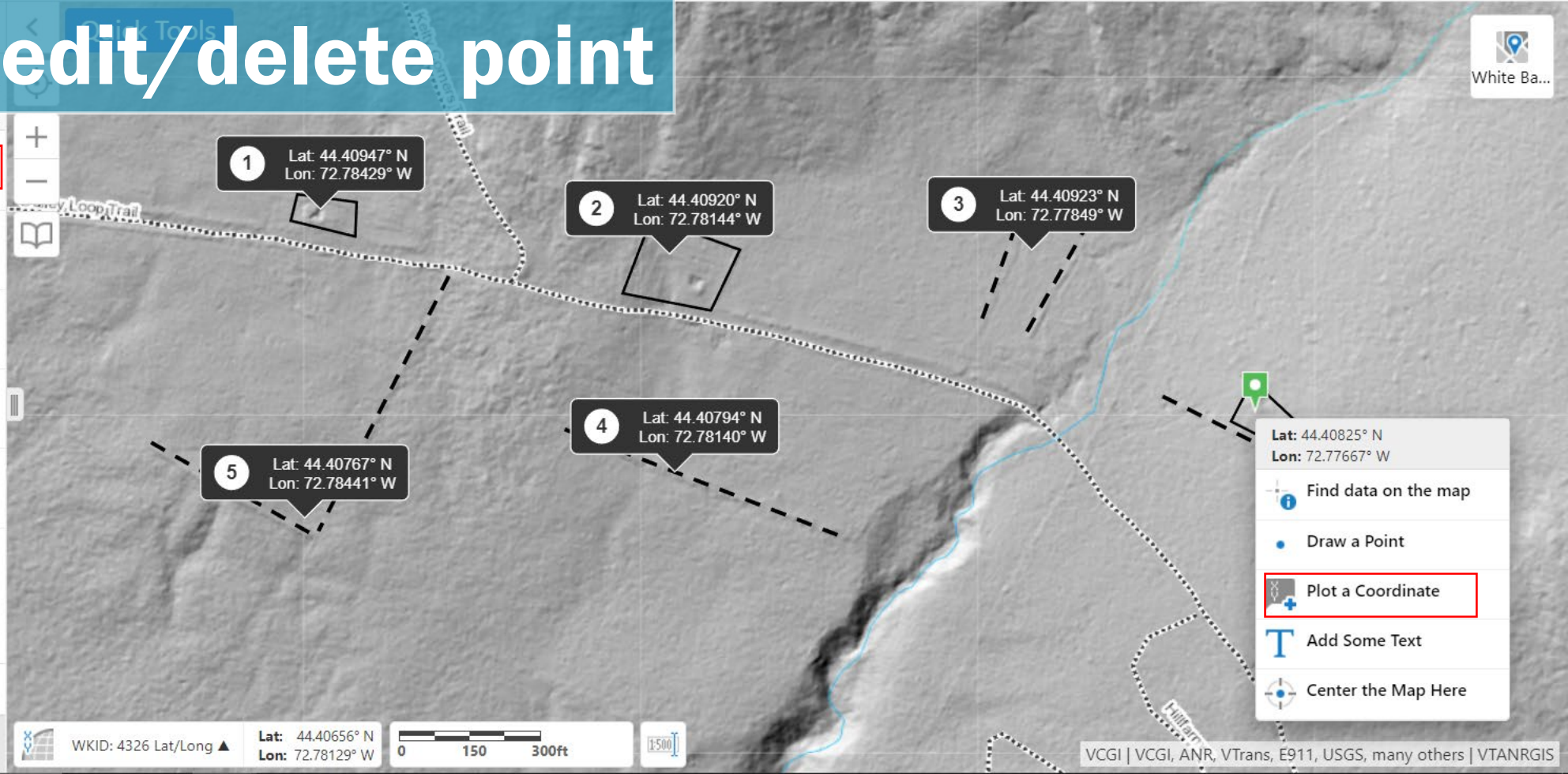
# edit/delete point

Plot Coordinates

Coordinate System:  
WKID: 4326 Lat/Long

1	Lat 44.40947° N Lon 72.78429° W	...
2	Lat 44.40920° N Lon 72.78144° W	...
3	Lat 44.40923° N Lon 72.77849° W	...
4	Lat 44.40794° N Lon 72.78140° W	...
5	Lat 44.40767° N Lon 72.78441° W	...

+ Add Another Coordinate



Lat: 44.40825° N  
Lon: 72.77667° W

- Find data on the map
- Draw a Point
- Plot a Coordinate**
- Add Some Text
- Center the Map Here



Plot Coordinates

Coordinate System:  
32145: State Plane Meters

1	X 477356.81398 Y 212175.39852	...
2	X 477583.16981 Y 212145.66102	...
3	X 477818.18039 Y 212147.41232	...
4	X 477586.10507 Y 212005.12991	...
5	X 477345.86716 Y 211976.15211	...
6	X 477976.74167 Y 212032.75514	...

Quick Tools

White Ba...

WKID: 4326 Lat/Long  
32145: State Plane Meters  
4326: Degrees Minutes Seconds

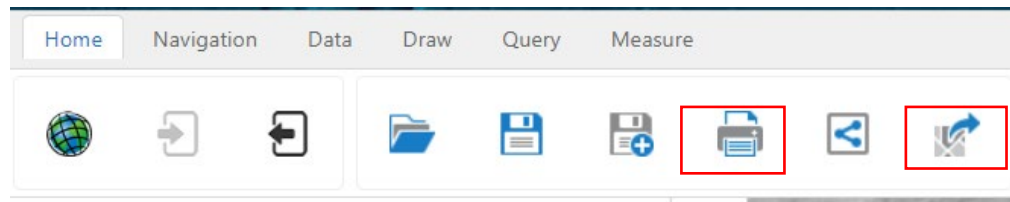
select coordinate system

32145: State Plane Meters X 477736.71869 Y 211815.54466

0 150 300ft

VCGI | VCGI, ANR, VTrans, E911, USGS, many others | VTANRGIS





printable version

map image

**VT Interactive Map Viewer**  
Vermont Center for Geographic Information

vermont.gov

**LEGEND**

- + Airports
- Rail Lines
- Town Boundaries
- County Boundaries
- Buildings
- Village Boundaries
- Trails - E911 database
- VT State Boundary

**NOTES**

This map was created with the VT Interactive Map Viewer.

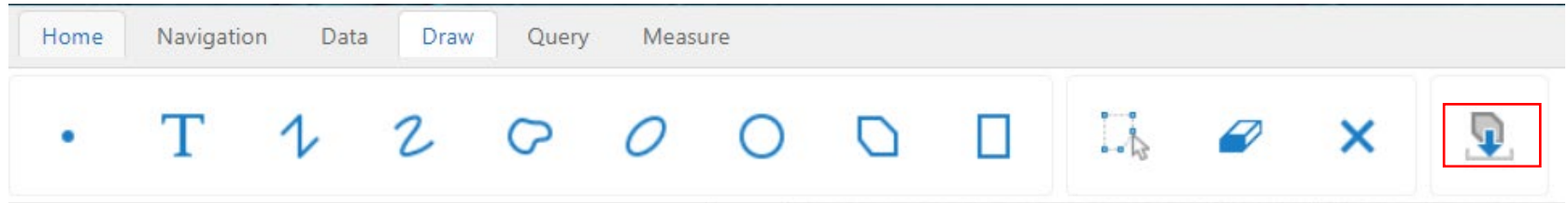
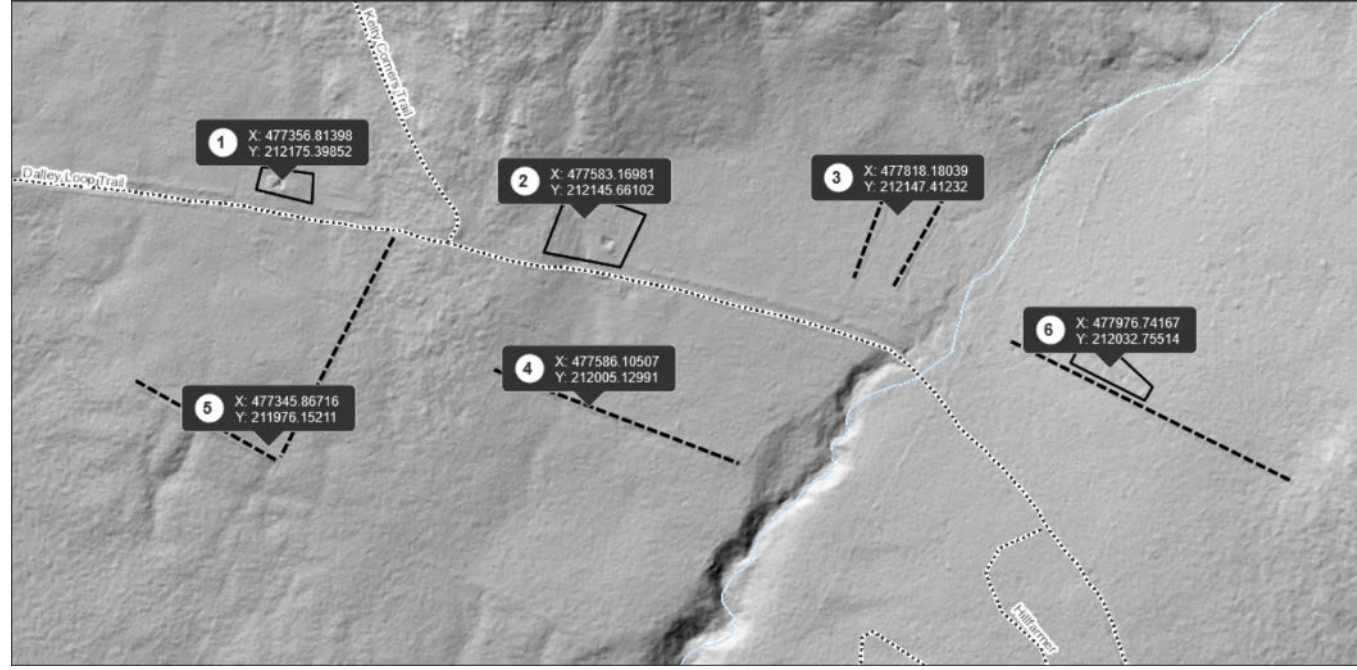
1: 5,045  
May 25, 2022

0.16 0 0.08 0.16 Miles

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
© Vermont Center For Geographic Information

THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. VCGI and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.



shapefile



- Create Account
- Sign In
- Sign Out
- Open
- Save
- Save as
- Print
- Share
- Export
- Release Notes
- FAQ
- Contact Us

Layers Quick Tools  
**under home tab – select share**

- 0.5 meter Land Cover
  - Agricultural land cover (2016)
  - Impervious surfaces (2016)
  - Shrublands (2016)
  - Tree Canopy (2016)
  - Wetlands - modeled (2016)
  - Land Cover (2016)
- 30 meter Land Cover
- Landmarks
- Lidar
  - Digital Surface Model - lidar
  - Hillshade - lidar
  - Surface Aspect - lidar (compass direction)
  - Slope Angle - lidar (percent slope)
- Recreation

Share

- [Facebook](#)
- [Twitter](#)
- [Linkedin](#)
- [Google+](#)
- [Email](#)



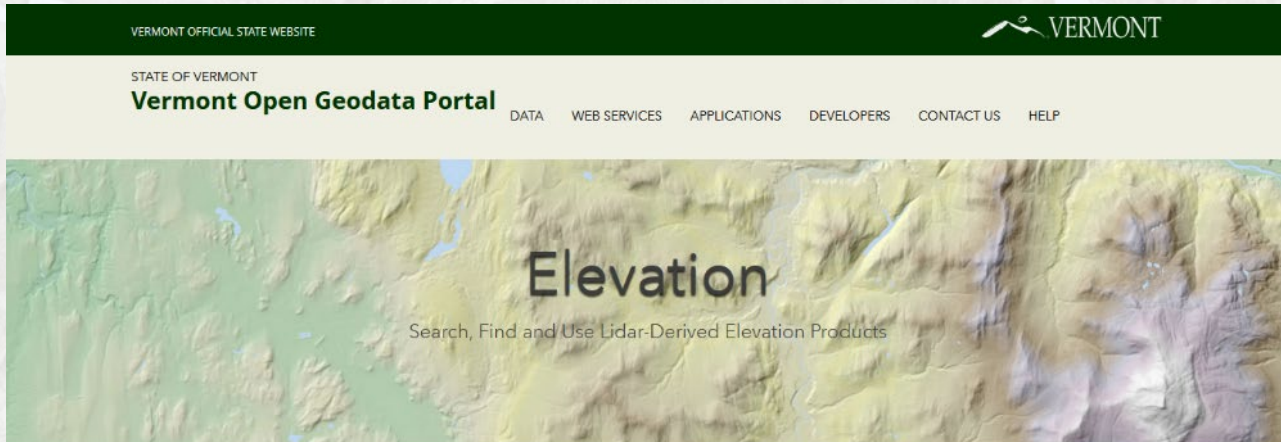
**get a link that will open to your map**

# IMV Caveats

- It's a viewer. Not a full-fledged GIS solution.
  - Not really a digitization platform
  - Or Cartographic platform
  - Or Geoprocessing/analytic platform
  - Or Data management platform...
- Kitchen sink app. That has pros/cons.
- Layers mostly pre-loaded. Custom use lends itself to other applications, including—gasp!—desktop GIS.
- Suited for trial/error: you won't break anything!

# Raw Data Products

[geodata.vermont.gov/pages/elevation](https://geodata.vermont.gov/pages/elevation)



Datasets Services Applications Documentation



## Datasets

Download Lidar-Derived Elevation Products

Datasets are downloadable and contain the available georeferenced lidar-derived elevation products we have collected statewide to date.

Use the Lidar Finder to search lidar-



### Vermont Lidar Finder

The Lidar Finder allows you to search and download the available georeferenced lidar-derived elevation products we have collected statewide to date through a map interface. Available lidar products are searchable by type (e.g. aspect, digital elevation model, hillshade), quality level, year, and extent.

## Services

Stream Elevation Products

# Linked Resources

- [Vermont Lidar Program](#)
- [Lidar FAQ's](#)
- [VT Interactive Map Viewer](#)
- [ANR Natural Resources Atlas](#)
- [Beneath the Trees App](#)
- [What's My Elevation App](#)
- [VT Open Geodata Portal Elevation Page \(Raw Data Access\)](#)
- [VT Lidar Status App](#)
- [VT Lidar Finder App](#)
- [VCGI News and Announcements](#) (e.g., new data release notice)
- [Learning Resources](#) (for going further on your own)



**Elevation**



**Imagery**



**Parcels**

# Finding and Using Vermont Lidar Data

An Introduction

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