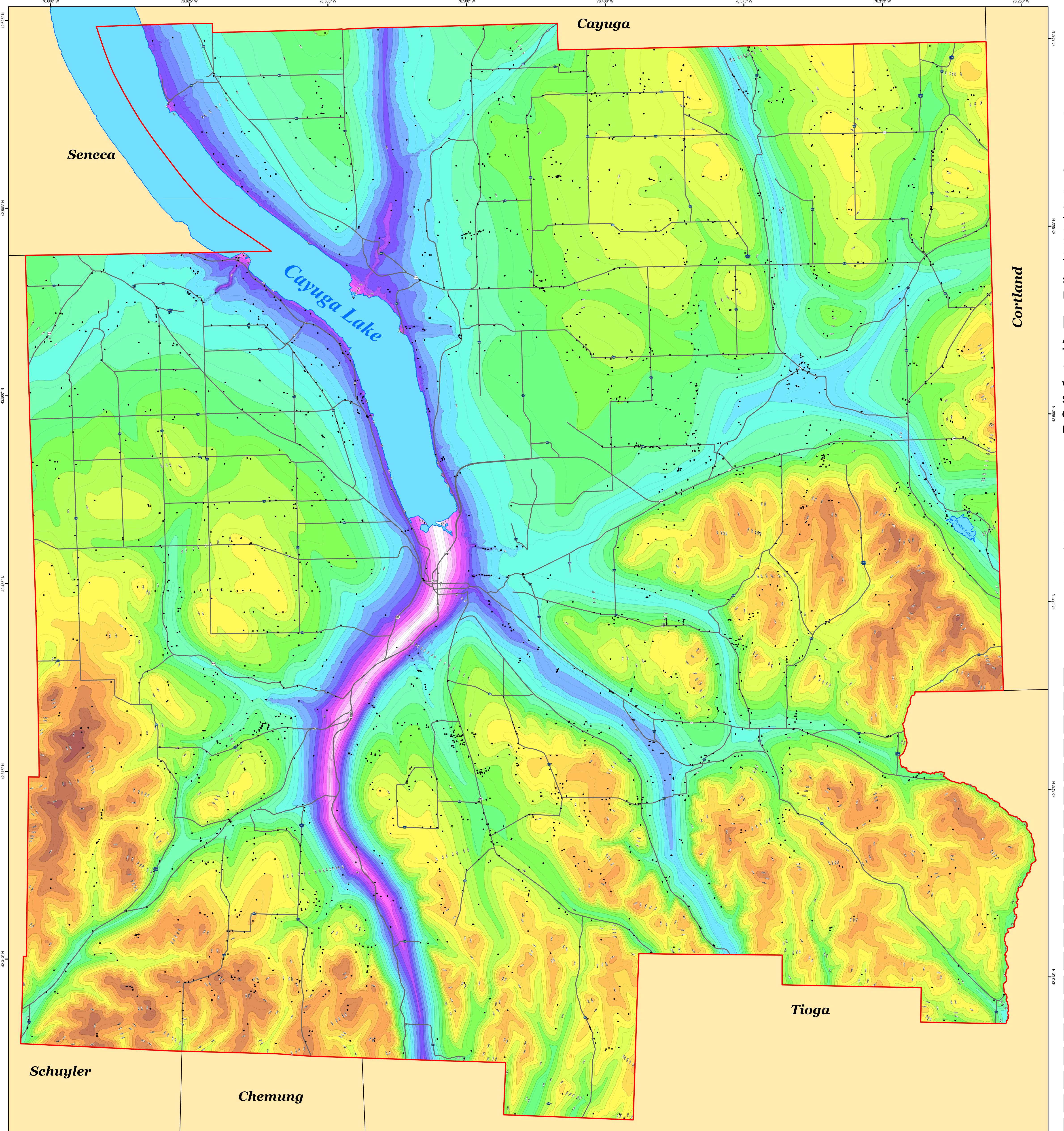


# BEDROCK TOPOGRAPHY OF TOMPKINS COUNTY, NEW YORK

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## Introduction

Beginning in 2019, under the guidance and funding provided by the United States Geological Survey - Great Lakes Geological Mapping Coalition (award G20AC00401), the New York State Museum - Geological Survey began a statewide effort to conduct geologic mapping of bedrock elevations throughout New York. Tompkins County, of Central New York, lies within the Allegheny Plateau physiographic province. The county is bounded by Schuyler, Chemung, Tioga, Cortland, Cayuga and Seneca Counties. Tompkins County is also dissected Cayuga Lake in the central portion of the county. Surficial and subsurface bedrock point data and maps were compiled from publicly available sources, vetted, and organized into a comprehensive geospatial database. A technical workflow was developed to categorize the overall geology and differentiate between the underlying bedrock and overlying unconsolidated sediments. The resulting bedrock elevation map provides a detailed representation of bedrock topography across Tompkins County. This map is useful for various applications, including geological studies, engineering and construction, natural resource management (such as water or mineral resources), and environmental studies.

## Methodology

A total of 2,835 bedrock control points were used to delineate bedrock topography in Tompkins County. These points consisted of 2,403 water wells, 278 bedrock outcrops, 118 waterfall locations, 32 engineering boreholes, and four oil and gas wells. These data were compiled from a variety of public sources and imported into ESRI's ArcMap 10.8 software platform. Ground surface elevations for all control points were extracted from a compilation of three separate digital elevation models (DEM) which were resampled to match a 1-meter LIDAR DEM cell size. Bedrock elevations were calculated at each

# Explanation

- Data Point
-  50ft Bedrock Topography Contour
-  100ft Bedrock Topography Contour
-  Highway
-  Tompkins County Line
-  Adjacent County
-  Water Body

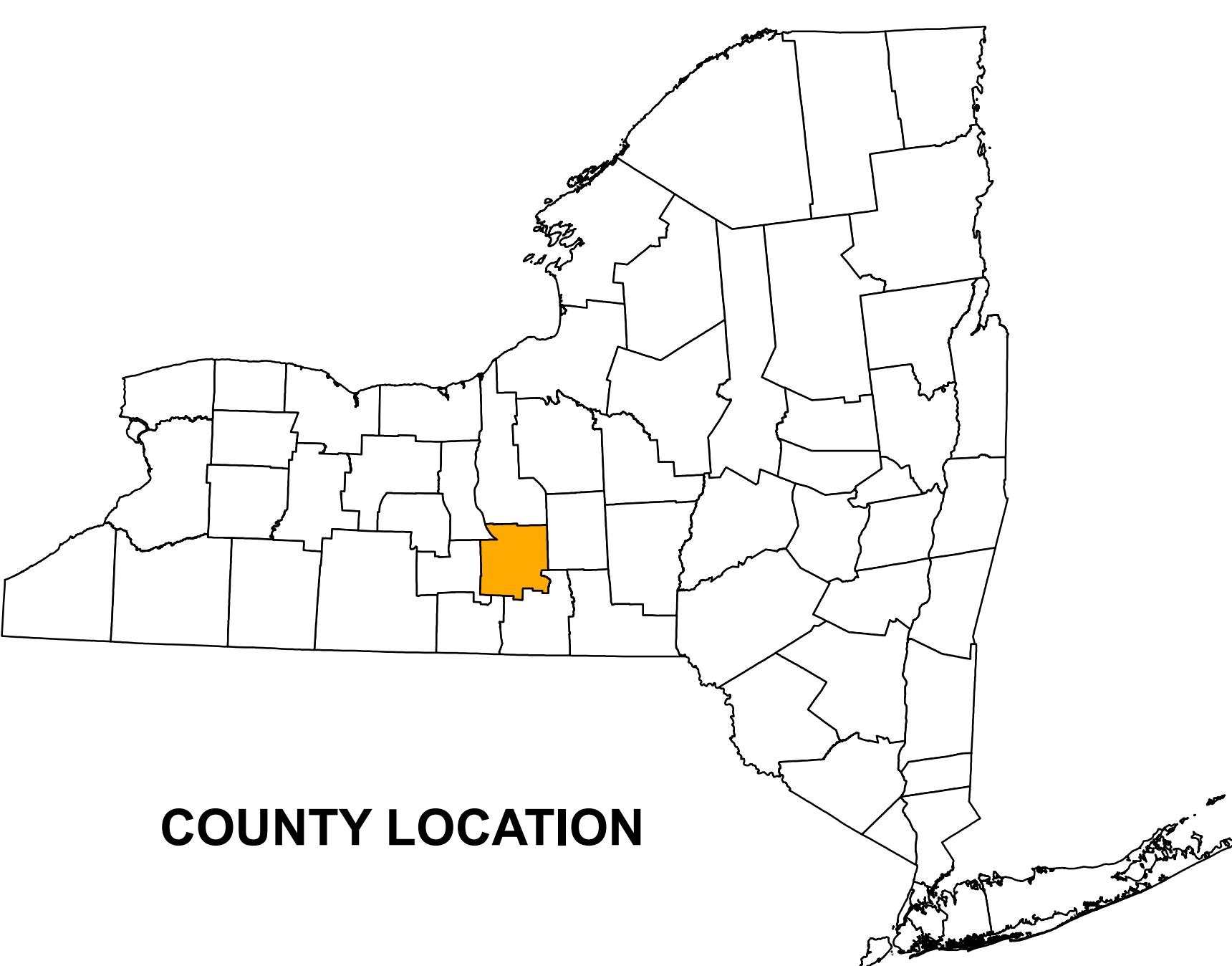
## Bedrock Topography

Feet-above sea level

Color Range	Feet-above sea level
White	-200 - -100
Light pink	-100 - 0
Bright pink	0 - 100
Magenta	100 - 200
Purple	200 - 300
Dark purple	300 - 400
Blue-purple	400 - 500
Blue	500 - 600
Light blue	600 - 700
Cyan	700 - 800
Light cyan	800 - 900
Light green	900 - 1,000
Bright green	1,000 - 1,100
Lime green	1,100 - 1,200
Yellow-green	1,200 - 1,300
Yellow	1,300 - 1,400
Pale yellow	1,400 - 1,500
Orange	1,500 - 1,600
Bright orange	1,600 - 1,700
Dark orange	1,700 - 1,800
Brown-orange	1,800 - 1,900
Dark brown	1,900 - 2,000
Dark red	2,000 - 2,100

## Summary

The New York State Museum – Geological Survey has developed a detailed Bedrock Topography Map for Tompkins County. This map represents a compilation of various surficial and subsurface bedrock data sources, analytical methods, and quality control procedures. The resulting bedrock elevations reveal a range of distinct geological features including a variety of Paleozoic bedrock erosional profiles, and evidence of past glaciation. These characteristics are likely the result of a variety of functions including bedrock stratigraphy, structural deformation, and erosional processes such as past glaciation and fluvial geomorphology. This map is significant for applications in geological research, engineering, natural resource management, and environmental studies. Continued research and work on subsurface geology will provide additional data and insight and enhance the geologic framework of bedrock geology throughout New York State.



## COUNTY LOCATION