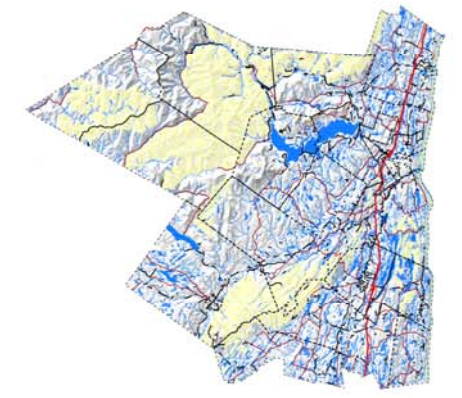
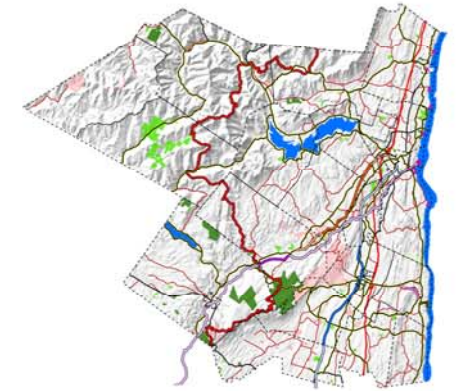
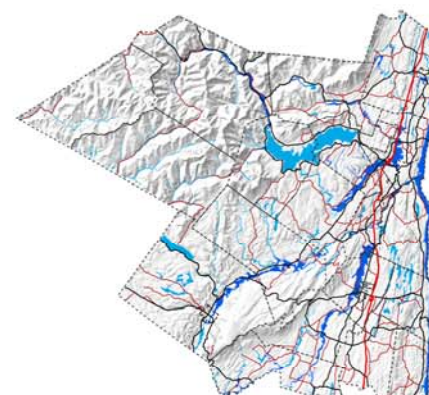
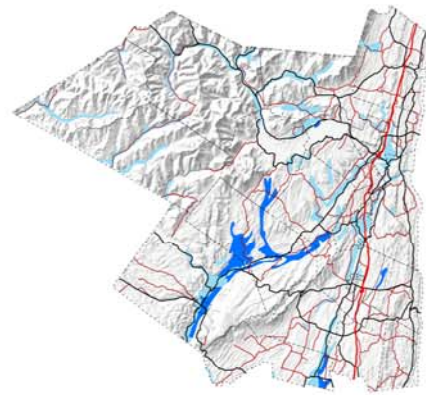
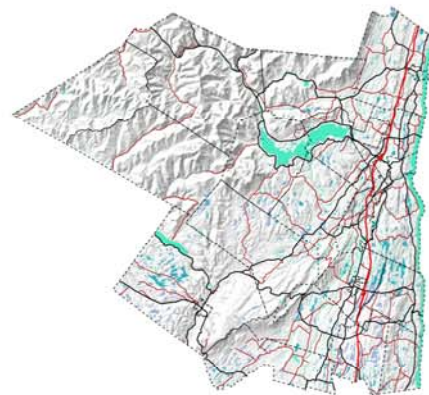


Ulster County Open Space Plan



Executive Summary and Map Book, 2nd edition (2009)



Contents

Executive Summary

Resource Area Exhibits and Maps

I. Protected Open Space

2. Water Resources

2a. Watersheds

2b. Wetlands

2c. Aquifers

2d. Surface Waters

2e. Floodplains

3. Working Landscapes

4. Landforms and Natural Features

4a. Geology - Bedrock

5. Ecological Communities

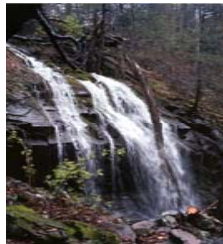
6. Historic and Cultural Resources

7. Recreation Resources

The Ulster County Open Space Plan (2007) was developed collaboratively by the Ulster County Environmental Management Council and the Ulster County Planning Board.

This second edition of the Map Book was created in 2009 based on the updated Natural Resources Inventory for Ulster County.

For more information about the Plan, contact (845)340-3340 or planning@co.ulster.ny.us. Visit the Plan website at: <http://www.co.ulster.ny.us/planning/open.html>



Ulster County Open Space Plan

Executive Summary

Ulster County has a long history of open space protection.

The environmental conservation movement has its roots here. With our “forever wild” Catskill Forest Preserve and Minnewaska State Park we have two of the most significant open spaces in the region.

Each community in the county has valuable open space resources. Abundant and critical

water resources, rich biodiversity, renowned recreational and historic sites, and valuable, productive agricultural lands are all part of Ulster County’s open space landscape. These contribute to the well-being of the region’s environment, economy and quality of life.



Spring Clove, G. Steve Jordan



The postwar development pattern of sprawl has negative impacts on the protection of open space (above).

Alternative patterns exist, even for rural development, such as the example provided by Dutchess County’s Greenway Connections (below).



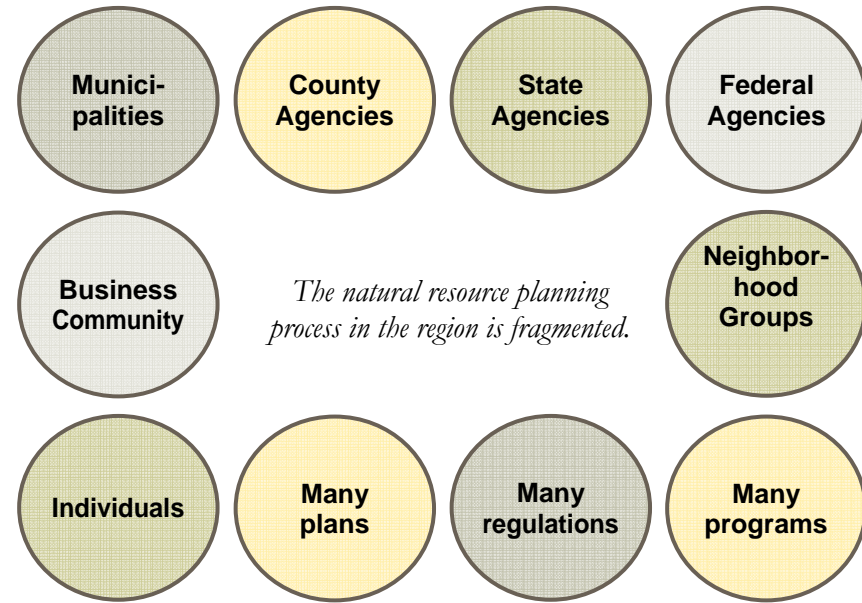
However, these resources are still at risk.

Much is already protected, but current development activity and existing regulatory controls foster a pattern of intrusion into our open spaces. Limited availability of water and sewer infrastructure is also a barrier in preventing a more compact land use pattern. These issues have become increasingly important as development proposals continue to accelerate in Ulster County.

We need to face the future with a **pro-active regional approach** – one that embraces scientific, legal, financial, and participatory tools to determine where and how we grow. Overwhelming evidence points to the benefits of preserving open space and growing “smart.” Communities that plan ahead to protect open spaces, preserve their natural resources while creating a vision for accommodating sustainable and compact development are likeliest to succeed economically.

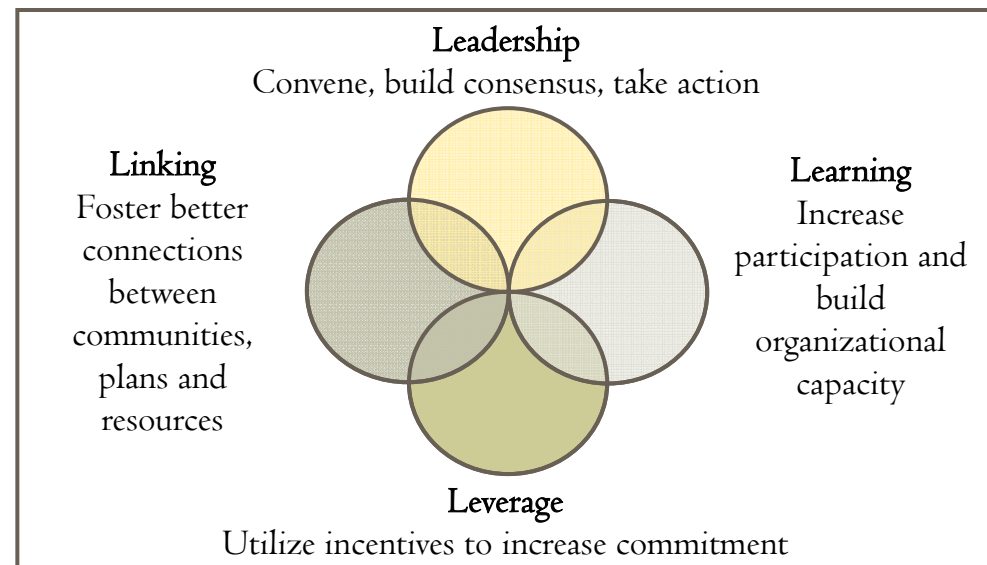
The current planning environment

Ulster County is nearly the size of Rhode Island. Within it are 20 towns, 3 villages, and one city. “Home Rule” in New York State, makes each municipality responsible for its own land use future. There are numerous non-profit organizations with missions to protect natural, cultural, and historic resources. Finally, dozens of State and Federal programs and regulations exist to protect particular segments of the environment. These entities and the public, all compete for access, funding, and consideration of their issues in land use decisions. This backdrop presents an extremely **fragmented planning process**, as well as one that is often contentious.



How can the County help?

The focus of this Plan is a framework for coordinated management and protection of natural resources. By putting the power of existing organizations together, we can focus our financial and human resources to protect our open spaces as we grow. The Plan recommends that the County use this management framework to coordinate and support the many efforts to protect open space resources in Ulster County. The key recommendations of the Plan are presented in the pages that follow.



This plan recommends a strategic approach to open space resource management

Leadership:

Convene, build consensus, and take action

We have already begun this process, which involves bringing together stakeholders—including government, agriculture/forestry groups, environmental groups, land trusts, economic development organizations, community organizations, and educational organization—to identify open space issues and areas of concern in Ulster County.

The Plan establishes an ongoing partnership with these stakeholders. In this leadership role, we will work together to recommend policies and actions to protect open space in the County, educate the public regarding open space protection, report regularly to County leaders, coordinate open space protection activities at the municipal, County and State levels, and establish cooperative relationships with all interest groups.

Linking:

Foster better connections between communities, organizations, plans and resources

To improve coordination of the many initiatives and open space resources in the county, the plan recommends creating linkages by:

- Continuing to convene stakeholders throughout the county to identify county-wide priorities for open space protection and work with communities to coordinate plans, provide technical assistance for capacity building and planning.
- Developing an open space database and clearinghouse with information and maps about the county’s natural resources inventory, grants, regulations, and planning tools and concepts.
- Supporting “inter-municipal agreements” between communities to plan and implement shared open space goals

Learning:

Increase participation and build organizational capacity

To implement the goals of this plan, we will:

- Build capacity of our own staff and decision-makers to manage an open space protection program.
- Foster stewardship of the County’s own sites, such as a County parks plan.
- Create an educational program to help municipalities strengthen their own planning and stewardship efforts.

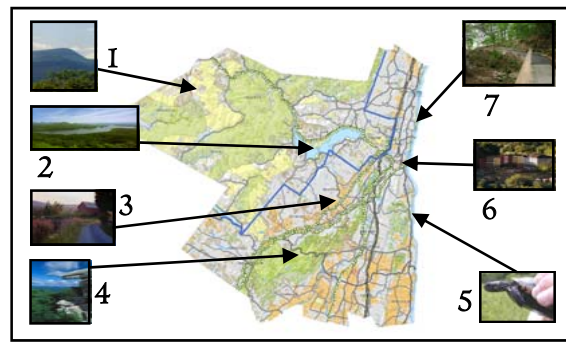
Leverage:

Utilize incentives to increase commitment to open space goals and policies

This strategy asks recipients to match the County support to show their commitment to the plan by:

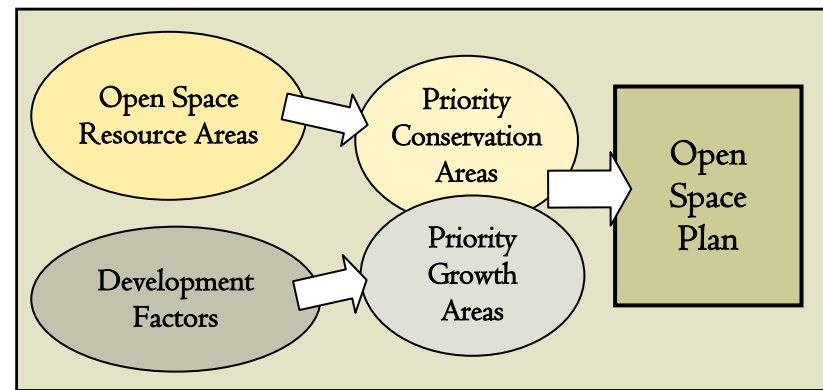
- Working with the Hudson Valley Greenway program and Ulster County municipalities to become a “Greenway Compact” county. This offers incentives to communities in the form of funds and technical assistance for planning in accordance with Greenway Principles, which this plan supports.
- Creating a dedicated Open Space Fund which requires commitments from its beneficiaries in order to leverage those funds.

What are we protecting?



See the map on the following pages for the seven resource areas of the Plan.

What is Integrated Planning for Open Space?



See next page for integrated planning strategies.

Principles of the Open Space Plan

The recommendations of the plan are based upon the following principles:

- 1: Identify critical natural resource “systems.”
- 2: Preserve and protect open space, unique natural areas and heritage areas and sites, wetlands, water and woodland resources, scenic views, areas of natural beauty, and the rural character of Ulster County.
- 3: Integrate and link planning, development and environmental goals and efforts by creating a coordinated policy and management framework.
- 4: Integrate considerations of community well-being, economic prosperity, and ecological integrity.
- 5: Protect water resources and the critical watershed areas of the county.
- 6: Enhance the viability of existing farming operations and agricultural businesses, and encourage new ones to be formed.
- 7: Protect and enhance the county’s most valuable open space landforms and natural features with coordinated planning and safeguard policies.
- 8: Safeguard priority biological diversity areas by promoting biologically-sensitive land use and increasing research and understanding.
- 9: Create, preserve, enhance and provide managed access to parks, hiking trails, active and passive recreation facilities, and historic resources.
- 10: Balance consideration of present and future generations through sustainable development (i.e., development that meets the needs of the present without compromising the ability of future generations to meet their own needs.)

Integrated Planning Strategies for Open Space Protection

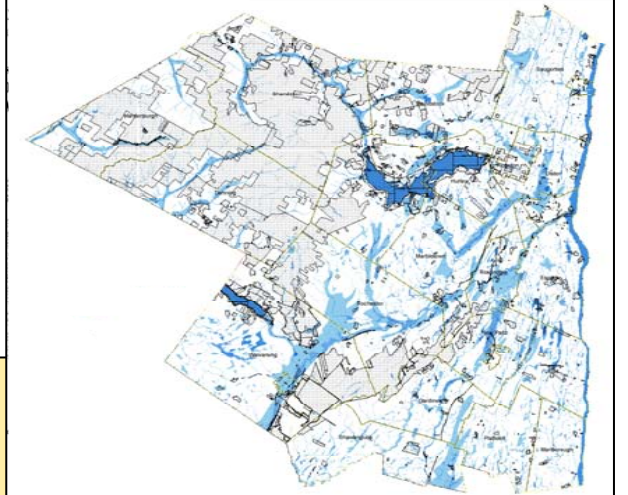
Natural Resources Inventory (NRI)

The EMC and Planning are compiling an extensive NRI for Ulster County that contains the locations and extent of natural resources including protected open space, water resources such as wetlands and aquifers, agricultural land, landforms and natural features, historic and cultural resources, and recreation areas.

An NRI allows us to utilize sound scientific data, tools, and techniques in the decision making process.

Identify “Priority Conservation Areas”

Priority Conservation Areas contain high concentrations of natural resources and/or indicate development limitations for public safety reasons (flood plains, potential water resource contamination, steep slopes with unstable soils, etc). Priority Conservation Areas are identified by comparing where critical natural resources are mapped.



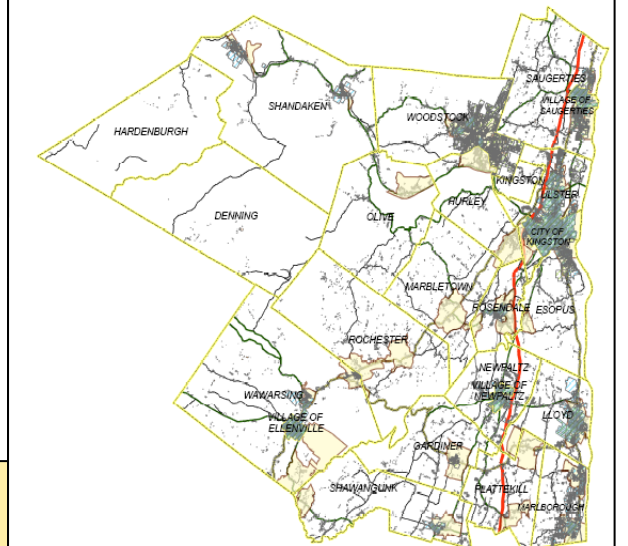
This map showing water resources and protected open space demonstrates how examining different resources together helps identify areas that may be a priority for conservation and protection.

Open Space Database and Clearinghouse

The Planning Board has compiled extensive information on planning tools, concepts, financial and legal resources, and “Best Management Practices” for open space protection. By linking this set of tools to a capacity building and educational program for individuals, communities, and decision-makers, the County will provide access to more consistent, standardized methods for a coordinated approach for development and conservation among our communities. This “toolbox” will provide guidance to local leaders and others for decisions regarding development that supports “Priority Growth Areas” while protecting open space.

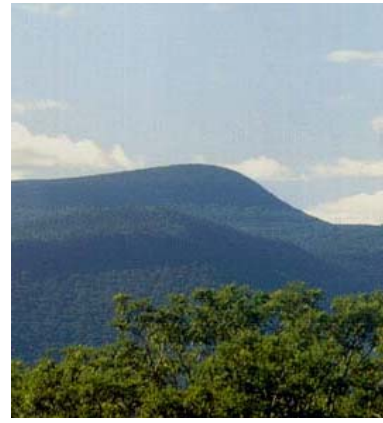
Identify “Priority Growth Areas”

“Priority Growth Areas” are places where the community identifies potential for focused development in and around existing centers, rather than encouraging new construction on outlying open space or farmland. Priority Growth Areas also help us take best advantage of existing infrastructure. They are identified by mapping where development potential is most feasible based on infrastructure, zoning, population densities, and vacant parcels.



This map identifies development in and around existing centers to help make decisions about achieving a more compact land-use pattern.

Ulster County Open Space Resources



I. Protected Open Space:
areas already legally protected
(e.g., Catskill Forest Preserve)









2. Water Resources:
surface, ground, watersheds, aquifers,
aquifer recharge areas, floodplains, wetlands
and vernal pools (e.g., Ashokan Reservoir)

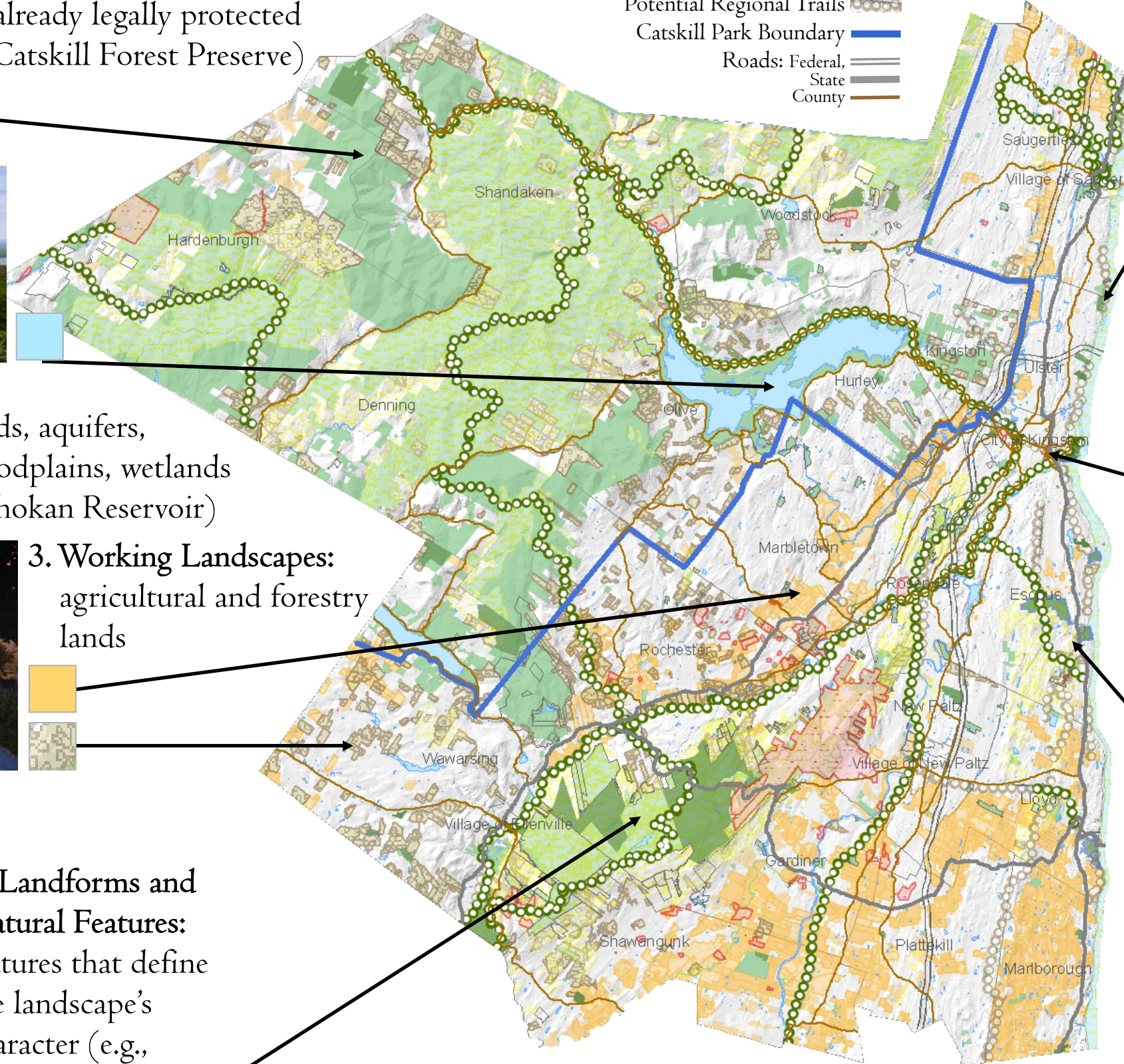


3. Working Landscapes:
agricultural and forestry
lands



**4. Landforms and
Natural Features:**
features that define
the landscape's
character (e.g.,
Shawangunk Ridge)

Existing Regional Trails 
Potential Regional Trails 
Catskill Park Boundary 
Roads: Federal, 
State 
County 



7. Recreation Resources: rural and
urban parks, shorelines, fishing and
hunting, trails, and tourism sites
(e.g., Ulster Landing Park)



6. Cultural and Historic Resources
Federal, State and locally designated
structures, sites and districts
(e.g., Kingston Rondout Waterfront)



5. Ecological Communities: diversity
of species and ecosystems, exceptional
forest or plant community, unique and
wildlife habitats,
wetlands,
shorelines
(e.g., Black
Creek)



Ulster County, New York Open Space Plan

1. Protected Open Space

This map displays "Protected Open Space" found in Ulster County, New York. Protected open space is defined here as those lands which are protected from development through use restrictions and conservation easements. For example, New York State-owned lands in the Catskill Forest Preserve are preserved forever, through legislation, as open space for the use of New York's citizens and are part of the protected open space data layer. Another example of the type of data use to create this composite layer comes from not-for-profit organizations that hold title to lands with deeds that restrict certain development on those lands, with the expressed intent of preserving them as open space in perpetuity.

Protected Open Space Layer Source Data Explained

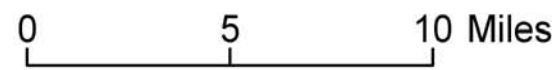
The source data used to create the Protected Open Space composite displayed on this map came from the sources listed in the table below.

Protected Open Space Source Data	Where Acquired	Description of Data
<i>Shawangunk Grasslands NWR</i>	Ulster County EMC tax parcel query (4/05)	Parcel ownership confirmed by UC EMC in phone conversation with refuge manager
<i>New York State Campgrounds, New York State Recreation Lands, Ulster County Recreation Land, Town-Village-owned Recreation Land</i>	<i>New York State Campgrounds, New York State Recreation Lands, Ulster County Recreation Land, Town-Village-owned Recreation Land</i>	Lands owned by the State of New York in Ulster County and recreation lands owned by Ulster County and other Ulster County municipalities
<i>Catskill Forest Preserve, Other New York State DEC Lands</i>	obtained (12/04) from New York State DEC Bureau of State Land Management, Division of Lands and Forests (data last updated 1/04)	Lands owned by the State of New York in Ulster County
<i>Ulster County-owned Land, Town-Village-owned Land</i>	obtained from Ulster County Information Services tax parcel query (11/04)	Lands owned by municipalities in Ulster County
<i>New York City-owned Land</i>	obtained from NYC DEP (DEP version 5 updated 3/03 – check for updates)	Lands owned by the City of New York in Ulster County
<i>New York City (land acquisition program – fee), New York City (land acquisition – easements)</i>	obtained from NYC DEP (DEP version dates 7/04 – data updated twice yearly)	Lands (new acquired) owned or lands with conservation easements held by the City of New York
<i>Ulster Land Trust Preserves, Scenic Hudson Easements, Rondout Esopus Land Trust Easements, Catskill Center Easements, Wallkill Valley Land Trust</i>	obtained from Catskill Center for Conservation and Development (9/04)	Lands owned or lands with conservation easements held by non-profit organizations
<i>Open Space Institute Lands</i>	Obtained from the Open Space Institute ()	Lands owned or lands with conservation easements held by a non-profit organization
<i>Lower Esopus River Watch Lands</i>	Obtained from Lower Esopus River Watch (11/04)	Lands owned by a non-profit conservation organization
<i>Municipal Boundaries, Tax Parcels, Roads</i>	Ulster County Information Services	Base map data provided by UCIS

Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Surface Water
- Protected Open Space

MUNICIPALITY	TOTAL ACREAGE	PROTECTED OPEN SPACE ACREAGE	% IN PROTECTED OPEN SPACE
City of Kingston	5,625	381	7%
Town of Denning	64,932	43,487	67%
Town of Esopus	26,868	1,444	5%
Town of Gardiner	28,418	3,184	11%
Town of Hardenburg	51,189	27,918	55%
Town of Hurley	22,649	6,837	30%
Town of Kingston	4,772	1,764	37%
Town of Lloyd	21,357	851	4%
Town of Marbletown	35,669	3,163	9%
Town of Marlborough	16,993	299	2%
Town of New Paltz	20,707	2,299	11%
Town of Olive	42,045	17,830	42%
Town of Plattekill	22,856	348	2%
Town of Rochester	57,109	16,296	29%
Town of Rosendale	12,738	1,413	11%
Town of Saugerties	36,286	2,307	6%
Town of Shandaken	79,781	55,739	70%
Town of Shawangunk	36,286	1,544	4%
Town of Ulster	18,774	504	3%
Town of Wawarsing	84,971	26,558	31%
Town of Woodstock	43,818	12,803	29%
Village of Ellenville	1,231	147	12%
Village of New Paltz	1,088	57	5%
Village of Saugerties	1,437	118	8%
Total Ulster County	742,769	236,499	32%



This map is for informational purposes and was not prepared for legal, engineering, or surveying purposes. Users of this information should consult the primary data and information sources to ascertain the usability of the information.



Ulster County Planning Board
244 Fair Street
PO Box 1800
Kingston, NY 12401
845-340-3340

Datum and Projection: NAD27, UTM 18
Map Date: June 2009

Ulster County, New York Open Space Plan

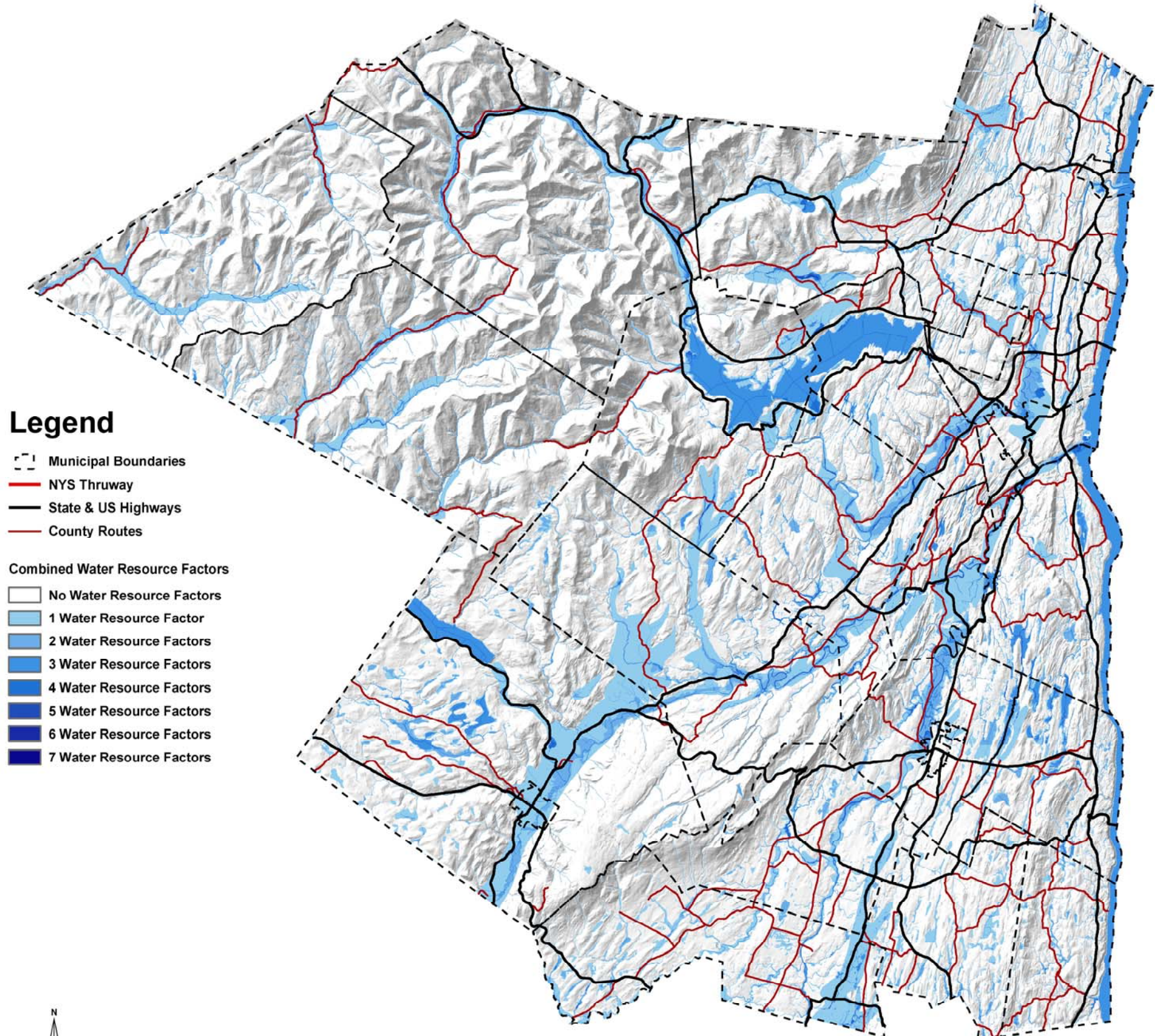
2. Water Resources Composite

Through the display of the "Combined Water Resource Factors" data layer in shades ranging from light blue to darker blue, this map shows relative density of the distribution of water resources in Ulster County. To interpret the map, areas that are darker blue represent areas where more than one water resource factor is found at that location or area.

Combined Water Resource Factors Data Explained

Seven data layers, available in digital format, were chosen as inputs to create the Combined Water Resource Factors data layer. These data layers were chosen for their relationship to water as a resource for human and non-human uses. The following table provides a description of the source data used for these seven data layers.

Factor	Where Acquired	Description of Data
Aquifers (polygon)	New York State Department of Health (1989 data)	Aquifer data taken from 5 USGS Water Resource Investigation maps. Data displays all aquifers from those investigations that are greater than 1 square mile in size.
Floodplains (polygon)	Federal Emergency Management Agency	Unofficial digital version of official NFIP Flood Insurance Rate Maps
Streams (line)	New York State DEC, Division of Water	Streams of New York State as taken from USGS "blue line separation" from 1:24,000 scale topographic map series. Data has been edited by NYS DEC to include additional stream segments
Surface Waters (polygon)	New York State DEC, Division of Water	Surface waters of New York State as taken from USGS "blue line separation" from 1:24,000 scale topographic map series.
Wetlands (New York State DEC, polygon)	New York State DEC Wetlands Data, from CORNELL CUGIR website	New York State regulated wetlands.
Wetlands (NWI, polygon)	United States Fish and Wildlife Service	Federal National Wetlands Inventory wetlands.
Wetlands (NWI, linear)	United States Fish and Wildlife Service	Federal National Wetlands Inventory wetlands.



Legend

- Municipal Boundaries
 - NYS Thruway
 - State & US Highways
 - County Routes
- Combined Water Resource Factors
- No Water Resource Factors
 - 1 Water Resource Factor
 - 2 Water Resource Factors
 - 3 Water Resource Factors
 - 4 Water Resource Factors
 - 5 Water Resource Factors
 - 6 Water Resource Factors
 - 7 Water Resource Factors



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0 5 10 Miles

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Ulster County, New York Open Space Plan

2.a Major Drainage Basins, Subbasins, and Watersheds

This map displays drainage basins, subbasins, and watersheds found in Ulster County, New York. Ulster County lands are drained by two major drainage basins: the Hudson River Drainage Basin and the Delaware River Drainage Basin. The thick orange line on this map shows the drainage divide between these two river basins.

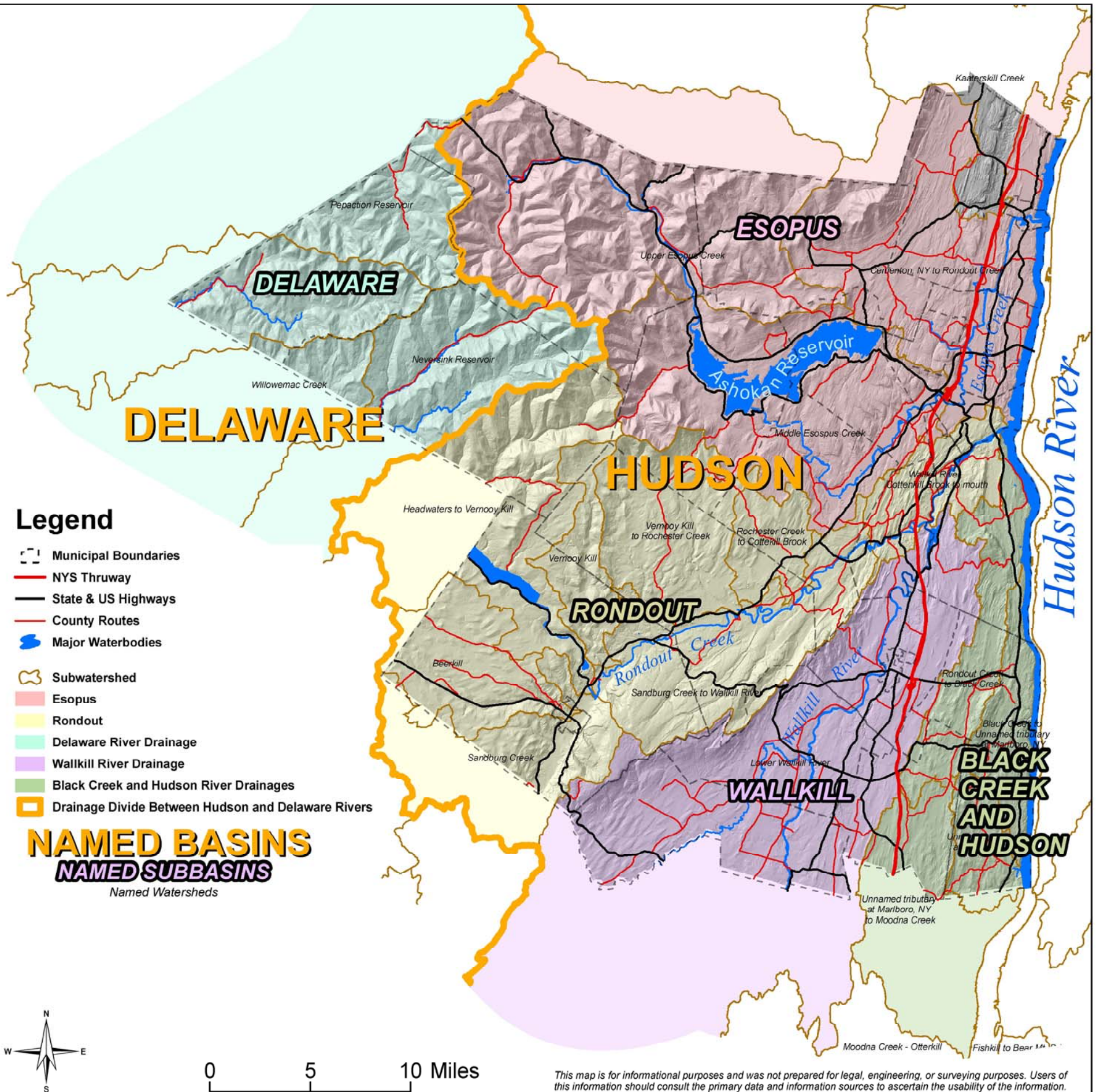
Several smaller drainage basins, referred to here as subbasins, further divide Ulster County into drainage areas. These subbasins include the Esopus Creek, the Wallkill River, the Rondout Creek, the Black Creek and Hudson River tributaries along the southeastern edge of the county, and the Neversink, Beaverkill, Willowemoc, and Dry Brook watercourses located in the northwestern corner of the county, and collectively referred to as the Delaware subbasin. Subbasins are shown in different colors.

Lastly, the smallest division of drainage areas shown on this map is the watershed. Watersheds are divided by thin black lines on the map and represent drainage areas of between 60 and 400 square miles. These are defined by Federal government agencies.

Basin, Subbasin, and Watershed Source Data Explained

The data used to display the surface waters on this map came from the sources listed in the table below.

Source Data	Where Acquired	Description of Data (excerpted from metadata)
Basins	Draft data acquired from NYS Department of Environmental Conservation, Division of Water (2005).	This dataset represents the 6 digit level of the Federal Hydrologic Unit Code (HUC). At this level, the United States is divided into 352 basins for water management purposes.
Subbasins	Subbasins were defined by Ulster County EMC/WOMA using drainage basin data acquired from NYS Department of Environmental Conservation, Division of Water (2005).	Note: These subbasins are not the same as HUC subbasins denoted by the 8 digit Hydrologic Unit Code. These subbasins simplify HUC data for Ulster County mapping and management purposes.
Watersheds. 11-digit Hydrologic Unit Boundary, New York State	Watersheds were defined by source data from the USDA NRCS and were provided by the NYS DEC through the Cornell CUGIR website.	This geospatial dataset is a hydrologic unit boundary layer of New York State that is at the Subwatershed (12-digit) level. This data set consists of geo-referenced digital map data and associated attributes. The watershed and subwatershed hydrologic unit boundaries provide a uniquely identified and uniform method of subdividing large drainage areas. These smaller sized hydrologic units (up to 250,000 acres) are useful in many programs supported by the NRCS and others. This data set is intended as a tool for water-resource management and planning activities, particularly for site-specific and localized studies, which require the amount of detail provided by a large-scale map.



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Ulster County, New York Open Space Plan

2b. Wetlands

This map displays New York State regulated freshwater wetlands and Federal National Wetlands Inventory wetlands (polygons) found in Ulster County, New York.

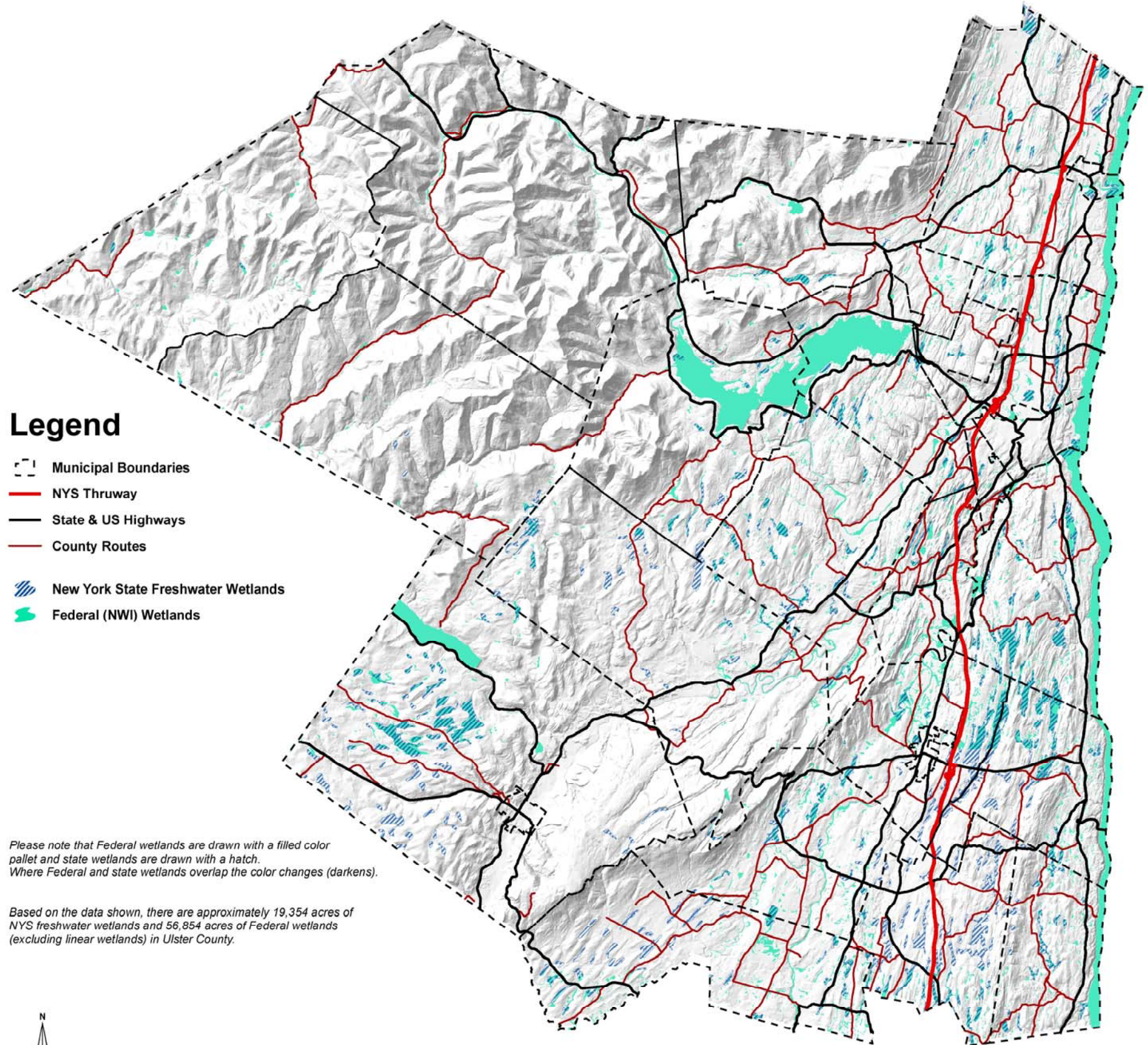
Please note that Federal wetlands are drawn with a filled color palette and state wetlands are drawn with a hatch. Where Federal and state wetlands overlap the color changes (darkens).

Based on the data shown, there are approximately 19,354 acres of NYS freshwater wetlands and 56,854 acres of Federal wetlands (excluding linear wetlands) in Ulster County.

Wetlands Source Data Explained

The data used to display the wetlands on this map came from the sources listed in the table below.

Wetlands Source Data	Where Acquired	Description of Data (excerpted from metadata)
<i>New York State Regulatory Freshwater Wetlands for Ulster County</i>	New York State DEC data, 2001 Downloaded from Cornell Mann Library CUGIR, online linkage: < http://cugir.mannlib.com/ell.edu/Isite/CUGIR_DATA/111fwa.tar.gz > (8/05)	These data are a set of ARC/INFO coverages composed of polygonal and linear features. Coverages are based on official New York State Freshwater Wetlands Maps as described in Article 24-0301 of the Environmental Conservation Law. Coverages are not, however, a legal substitute for the official maps. Coverages are available on a county basis for all areas of New York State outside the Adirondack Park. Purpose: To provide a faithful representation of official New York State regulatory freshwater wetlands maps for GIS resource analysis at scales equal to the 1 to 24,000 scale of original mapping or smaller scales (e.g., 1 to 100,000 scale).
<i>National Wetlands Inventory</i>	US Fish and Wildlife Service, Hadley, MA	Abstract: National Wetlands Inventory dataset for 33 quads in Ulster County New York. Includes polygonal data based on NWI aerial photo interpretation using the Cowardin classification method. Also included are the Region 5 Hydro geomorphic codes. This data is parsed out in tables. Purpose: Provide digital data which describes vegetation and their location of wetlands. This information can be used to describe the best functions of specific wetlands based on location and/or what type of vegetation exists there. Note: 5 additional quadrangle-based NWI datasets are included from geodatabases produced by the U.S. Fish and Wildlife Service.



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- New York State Freshwater Wetlands
- Federal (NWI) Wetlands

Please note that Federal wetlands are drawn with a filled color pallet and state wetlands are drawn with a hatch. Where Federal and state wetlands overlap the color changes (darkens).

Based on the data shown, there are approximately 19,354 acres of NYS freshwater wetlands and 56,854 acres of Federal wetlands (excluding linear wetlands) in Ulster County.



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0 5 10 Miles

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Ulster County, New York Open Space Plan

2c. Aquifers

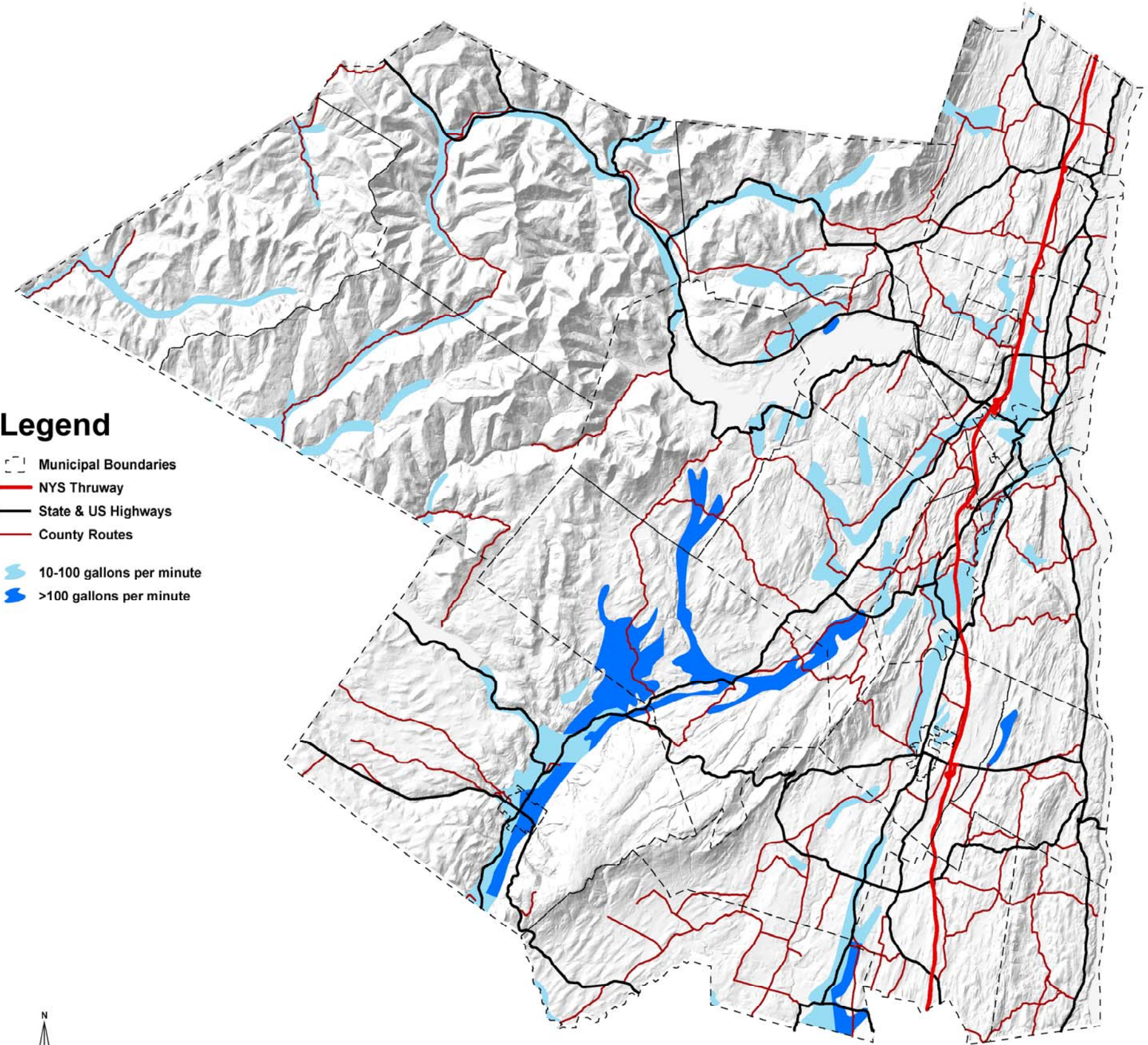
This map displays New York State aquifers found in Ulster County, New York.

Based on the data shown, there are approximately 64,595 acres of unconsolidated aquifer in Ulster County. It is very important to note that this figure does not include aquifer smaller than 1 square mile in size.

Aquifer Source Data Explained

The data used to display the aquifers on this map came from the sources listed in the table below.

Aquifer Source Data	Where Acquired	Description of Data (excerpted from metadata)
New York State Aquifers	Published by the NYS Department of Health, Bureau of Public Water Supply Protection in 2001. online linkage: http://www.nysgis.state.ny.us/ (8/05)	<p>The data set consists of aquifer polygons or regions depicting unconsolidated aquifers in New York State, excluding Long Island. Aquifers are separated by and include attributes for potential yield ranges and confinement indicator.</p> <p>Aquifer boundaries and yield ranges are derived from USGS [water resource investigation] paper maps (5 WRIs: 87-4122, 87-4274, 87-4275, 87-4276, and 88-4076) produced for the low level radioactivity [LLRW] siting board (4/89).</p> <p>Original vector linework representing composited aquifer limits were available from the LLRW which was digitized over USGS Topographic Maps at a scale of 1:250,000.</p> <p>Aquifers presented in this data set do not include all aquifers in New York State. Omissions include aquifers on Long Island, and aquifers below the original LLRW minimum mapping unit criterion of less than 1 square mile that was applied to the initial digital capture of features shown on the USGS maps.</p>



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- 10-100 gallons per minute
- >100 gallons per minute



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Map Date: June 2009



0 5 10 Miles

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Ulster County, New York Open Space Plan

2d. Surface Waters

This map displays surface waters found in Ulster County, New York.

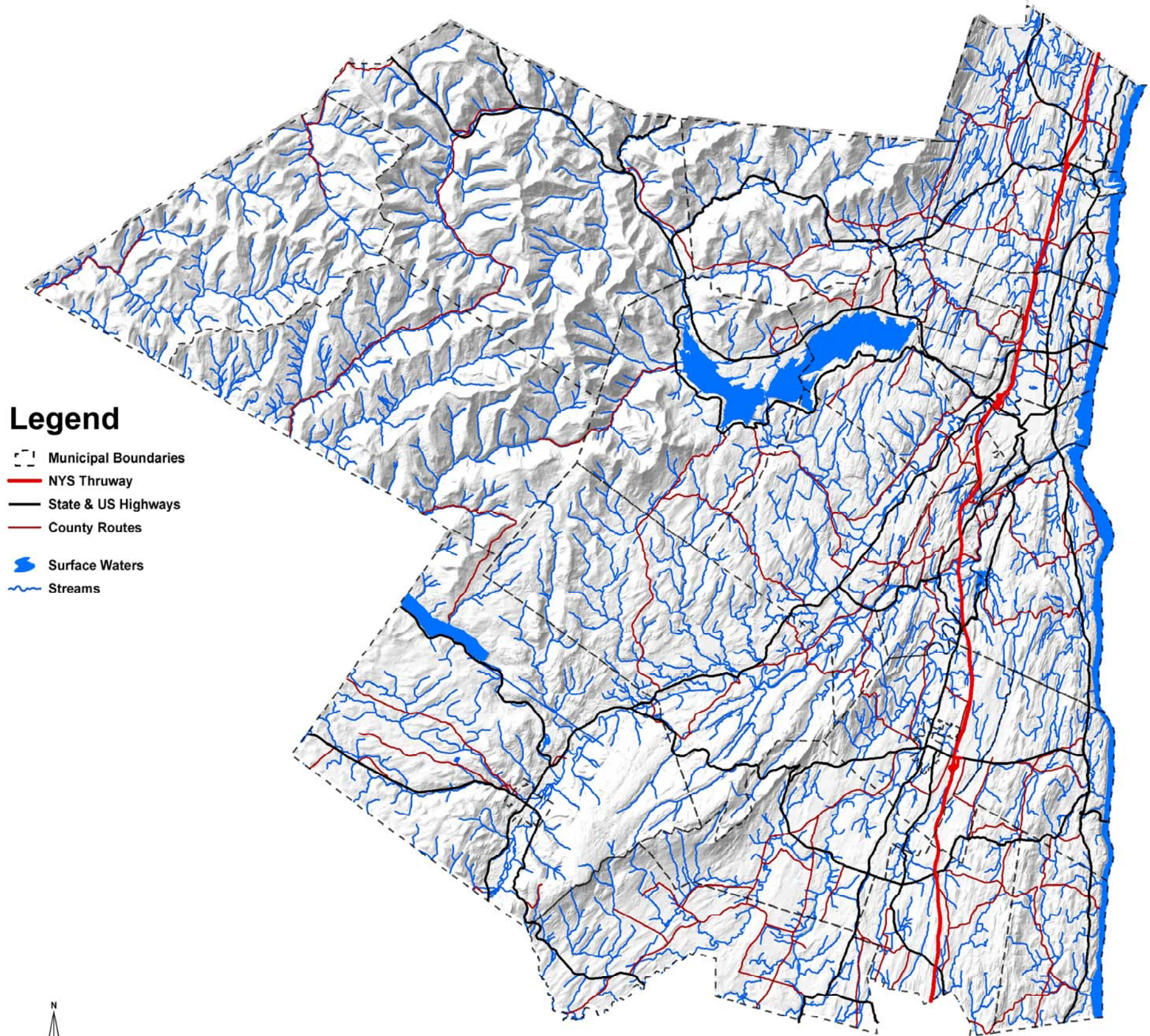
According to the U.S. Geological Survey, there are approximately 34.28 square miles of water area in Ulster County (<http://ny.cf.er.usgs.gov/nywin/county.cfm?countyCode=111>).

In addition, according to the New York State data displayed on this map, there are approximately 2,147 miles of stream in Ulster County.

Surface Water Source Data Explained

The data used to display the surface waters on this map came from the sources listed in the table below.

Surface Waters Source Data	Where Acquired	Description of Data (excerpted from metadata)
<i>Ulster County Streams</i>	Draft data acquired from NYS Department of Environmental Conservation, Division of Water (2005).	Both streams and surface waters derived from the New York State 1:24,000 Hydrography Network Coverages Description: Water features (streams, rivers, lakes, wetlands, etc.) from U.S. Geological Survey 1:24,000 Quadrangle Maps. Data sets available by HUC Cataloging Unit. Each HUC Cataloging Unit consists of three ARC/Info coverages; a linear network coverage, a surface water coverage, and a wetland coverage. Source of Information: Source 1:24,000 Hydrography Digital Line Graph (DLG) data for New York State. DLG data created by NYS-DEC DOW, and US Geological Survey - National Mapping Division. Development History: Hydrography source is USGS 1:24,000 Hydrography DLG Quadrangles. DLG source is USGS Blue Line Separates developed in 1941-1985 (USGS Quadrangle Maps). DLG data digitized and attributed by NYS-DEC DOW. DLG quality control by NYS-DEC DOW and US Geological Survey - National Mapping Division.
<i>Ulster County Surface Waters</i>	Draft data acquired from NYS Department of Environmental Conservation, Division of Water (2005).	



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Surface Waters
- Streams



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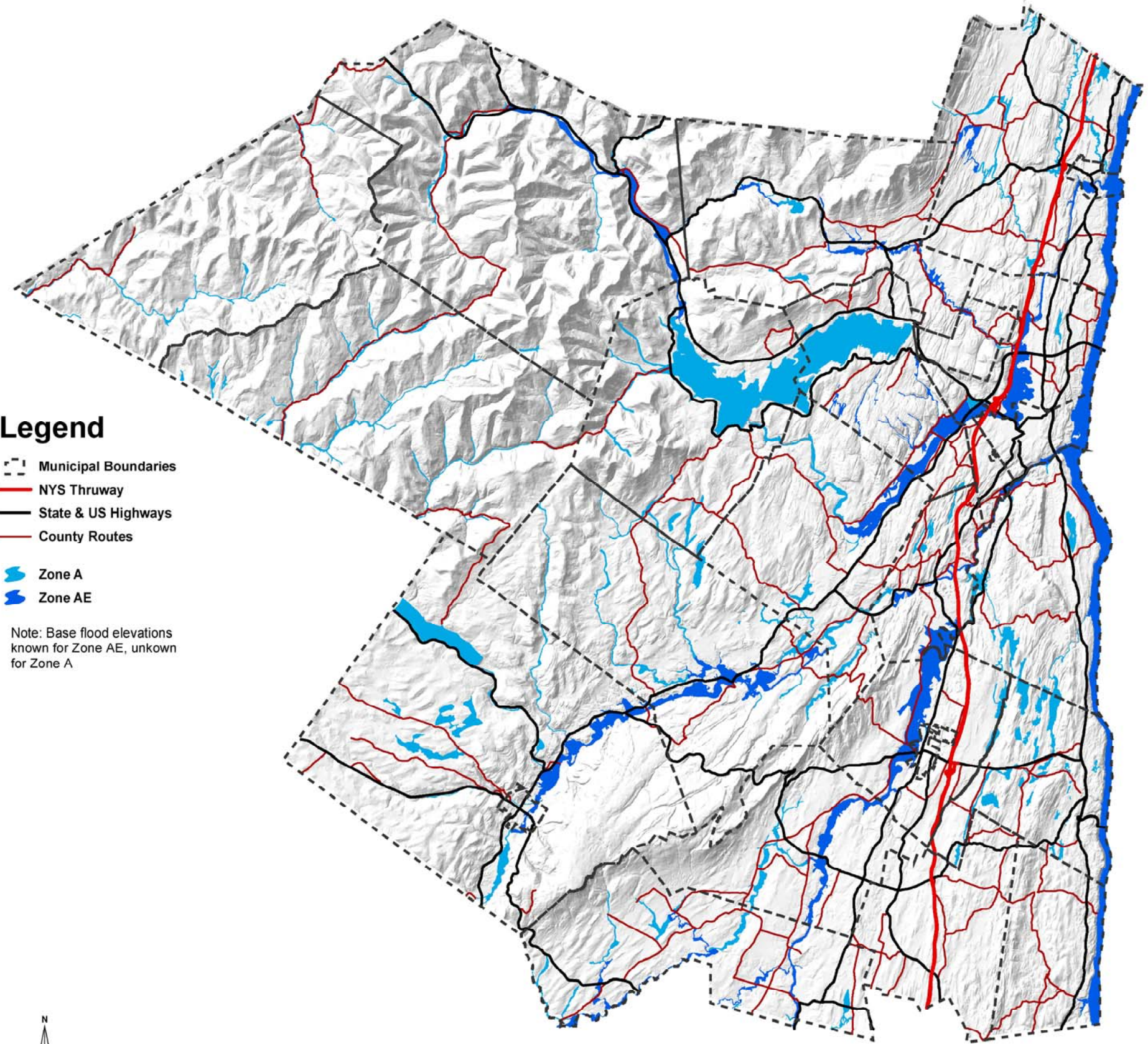
2e. Floodplains

This map displays Federal Emergency Management Agency floodplains found in Ulster County, New York.

Floodplain Source Data Explained

The data used to display the floodplains on this map came from the sources listed in the table below.

Floodplain Source Data	Where Acquired	Description of Data (excerpted from metadata)
FEMA Digital Q3 Flood Data	Floodplains extracted from FEMA digital Q3 floodplain map product downloaded from http://msc.fema.gov/	<p>Digital Q3 Flood Data are developed by scanning the existing FIRM hardcopy, vectorizing a thematic overlay of flood risks. Vector Q3 Flood Data files contain only certain features from the existing FIRM hardcopy. Q3 vector data are contained in one single countywide file, including all incorporated and unincorporated areas of a county.</p> <p>Digital Q3 Flood Data do not replace the existing FIRM hardcopy or, if one exists, DFIRM product. The product is designed to support planning activities, some Community Rating System activities, insurance marketing, and mortgage portfolio reviews. It does not provide base flood elevation information; thus, it has limited application for engineering analysis, particularly for site design or rating flood insurance policies for properties located within Special Flood Hazard Areas (SFHAs).</p> <p>Digital Q3 Flood Data are not tied to a base map, are not used to produce a new version of the FIRM hardcopy, and are not subjected to community review. The digital Q3 Flood Data are designed to provide guidance and a general proximity of the location of Special Flood Hazard Areas.</p> <p>The digital Q3 Flood Data product can be a valuable tool in screening property addresses within a Geographic Information System to determine flood risks. However, since the geographic processing performed to develop digital Q3 Flood Data may introduce differences with the FIRM hardcopy source, users must apply considerable care and judgment in the application of this product. For instance, digital Q3 Flood Data may be overlaid on highly detailed large-scale community base mapping data, but, if parcel level determinations are made, they must be prefaced with information about the accuracy of the data from which they are derived.</p> <p>Contents of Q3 Data The vectorized features contained in digital Q3 Flood Data files include: -- Annual chance floodplain areas of 1 and 0.2 percent, including Zone V areas, certain floodway areas, and zone designations -- Political areas, including community identification numbers -- FIRM panel areas, including panel number and suffix -- 7.5-minute quadrangle areas -- Mapable Letters of Map Change (LOMCs)</p>



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Zone A
- Zone AE

Note: Base flood elevations known for Zone AE, unknown for Zone A



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Ulster County, New York Open Space Plan

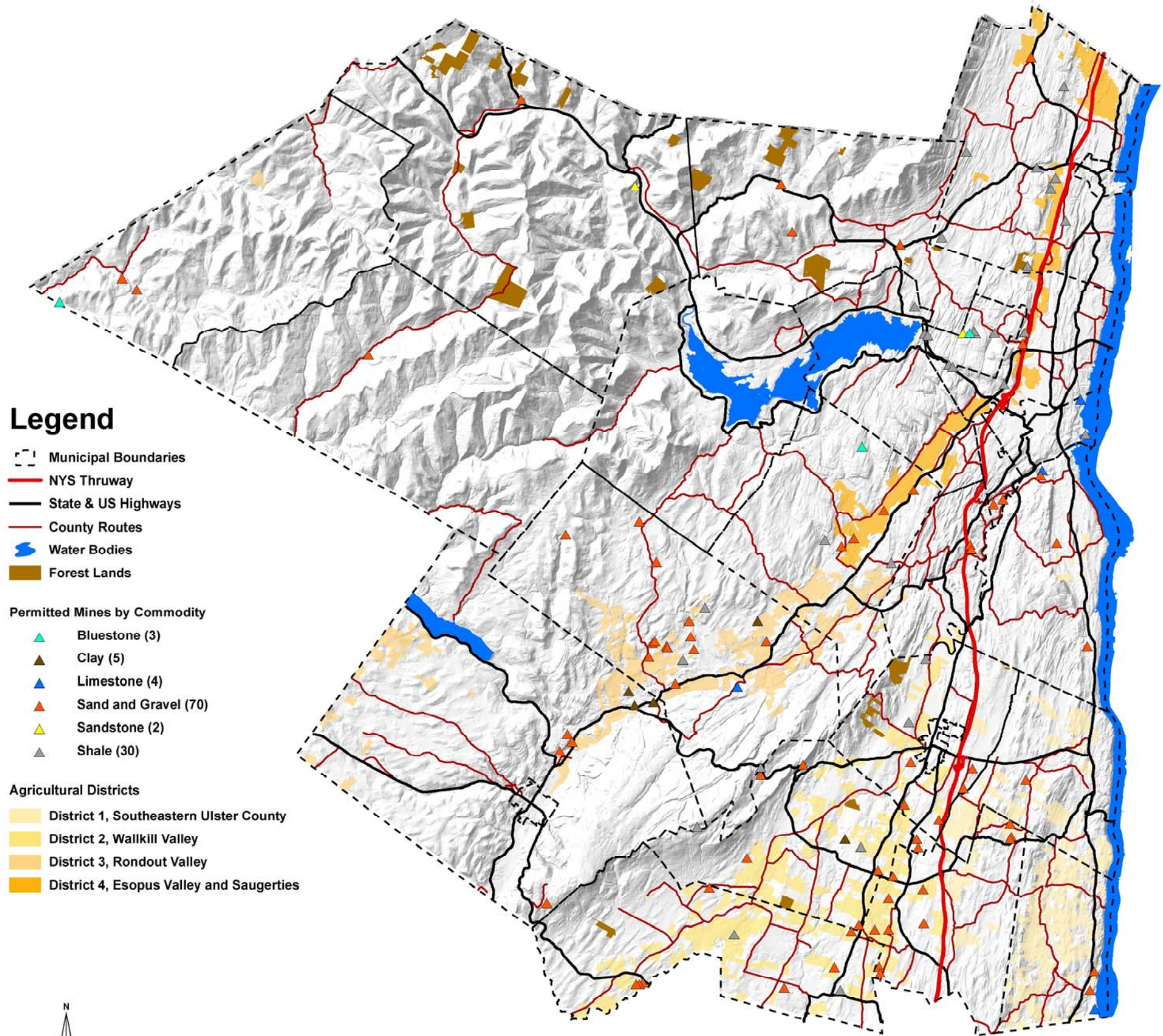
3. Working Landscapes

This map displays working landscapes by showing where agricultural districts, permitted mines, and private wild and forest lands are found in Ulster County, New York.

Working Landscapes Source Data Explained

The source data used to create the Protected Open Space composite displayed on this map came from the sources listed in the table below.

Working Landscapes Source Data	Where Acquired	Description of Data
Private Wild and Forest Lands	Ulster County EMC tax parcel query (8/05)	Digital tax parcel data for Ulster County was queried to extract the property class code for "Private Wild and Forest Lands" (code 910). This includes lands that fall under Sections 480 and 480a of the New York State Real Property Tax Laws; also known as The Forest Tax Laws.
Permitted Mines	New York State DEC Division of Mineral Resources (11/04) webpage http://www.dec.state.ny.us/website/dmn/minedata.htm	This data layer shows the location of permitted mines in Ulster County. The data layer is maintained by the New York State DEC, Division of Mineral Resources.
Agricultural Districts	Obtained from the Ulster County Planning Board	Lands recognized by the Ulster County Agricultural and Farmland Protection Board as being eligible for farmland protection funding.



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Water Bodies
- Forest Lands

Permitted Mines by Commodity

- Bluestone (3)
- Clay (5)
- Limestone (4)
- Sand and Gravel (70)
- Sandstone (2)
- Shale (30)

Agricultural Districts

- District 1, Southeastern Ulster County
- District 2, Wallkill Valley
- District 3, Rondout Valley
- District 4, Esopus Valley and Saugerties



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Ulster County, New York Open Space Plan

4. Landforms and Natural Features

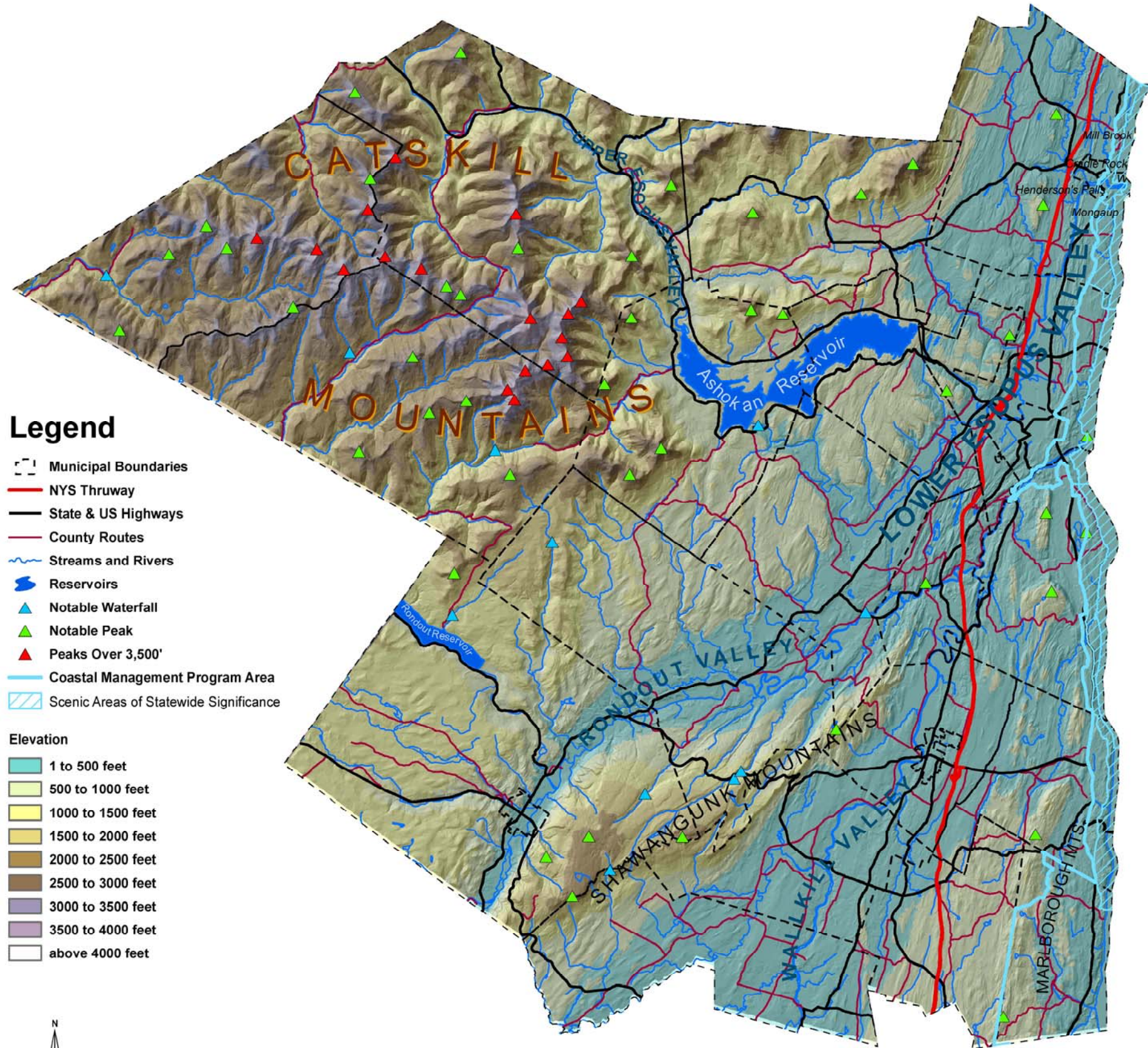
This map displays the locations of significant peaks and prominences, notable waterfalls, and reservoirs. It also displays large physical regions such as the Catskill Mountains, Shawangunk Mountains, and larger river valleys. In the background, a shaded-relief of elevations throughout Ulster County further illustrates where river and stream valleys occur as well as the location of hills and mountains.

Landforms and Natural Features Data Explained

The shaded-relief background image was created by modeling differences in elevation using a digital elevation model (DEM). A color range was applied to this image to show the range in elevation in Ulster County – from sea-level (blue) to the area around Slide Mountain, which at 4,180' is the highest location in the County. Other data displayed on the map includes peaks above 3,500', and other peaks of significance. An effort was also made to note the location of some of the County's waterfalls.

Data Sources

Landforms and Natural Features Data	Where Acquired	Description of Data
Waterfalls (points)	Digitized by Ulster County EMC (5/05)	Waterfall locations were located based on those noted on USGS topographic maps as well as from
Elevation (raster)	Model based on New York State 10 m digital elevation models (DEM) downloaded from Cornell University CUGR website.	A hillshaded relief model of continuous elevation for Ulster County.
Notable Peaks (points)	Digitized by Ulster County EMC (5/05)	Notable peaks were located on digital USGS topographic maps. An original listing of notable peaks was provided by the Ulster County Planning Board.
Hydrography (line)	Created by UCEMC (1997)	Streams of Ulster County modeled from USGS digital elevation models (DEM).
Reservoirs (polygon)	Obtained from New York City DEP, Division of Water	Surface waters of New York State as taken from USGS "blue line separation" from 1:24,000 scale topographic map series.
Coastal Management Program Area (line)	Obtained from New York State Department of State (2003)	Inland extent of the coastal Management Program.
Scenic Areas of Statewide Significance (polygon)	Obtained from New York State Department of State (1995)	Scenic area designations in the Hudson River Valley region of the state.



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Streams and Rivers
- Reservoirs
- Notable Waterfall
- Notable Peak
- Peaks Over 3,500'
- Coastal Management Program Area
- Scenic Areas of Statewide Significance

Elevation

- 1 to 500 feet
- 500 to 1000 feet
- 1000 to 1500 feet
- 1500 to 2000 feet
- 2000 to 2500 feet
- 2500 to 3000 feet
- 3000 to 3500 feet
- 3500 to 4000 feet
- above 4000 feet



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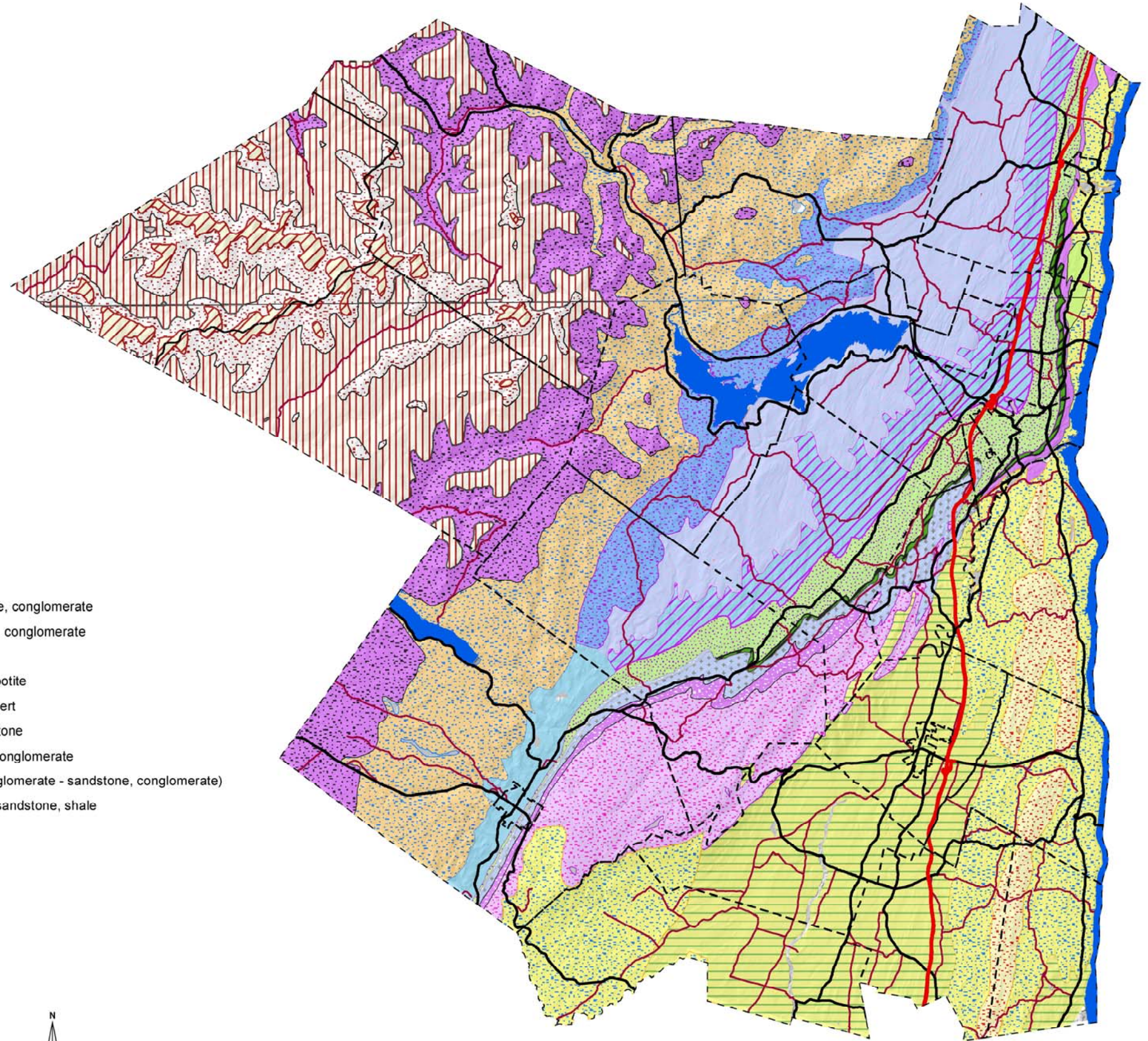
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Ulster County, New York Open Space Plan

4a. Bedrock Geology

Data Sources:

Bedrock Geology downloaded from NYS Museum <http://www.nysm.nysed.gov/gis.htm>. Data corresponds to the "Statewide Bedrock Geology" map (NYS Geological Survey Map & Chart Series Number 15) published by the NYS Museum Publications Department. Map symbolization created by UC EMC and is based on the above mentioned map. Original map was published at a scale of 1:060,000 and was intended for small scale use.



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Water Bodies

Bedrock Geology

- | | |
|---|--|
| Port Ewen thru Manlius Limestone, Rondout Dolostone | Honesdale Formation - shale, sandstone |
| Glenerie Formation - limestone, chert | Slide Mountain Formation - shale, sandstone, conglomerate |
| Undifferentiated Hamilton Group - shale, sandstone | Upper Walton Formation - shale, sandstone, conglomerate |
| Port Ewen Formation | Austin Glen Formation - graywacke, shale |
| Undifferentiated Lower Hamilton Group - shale sandstone | Manhattan Formation - pelitic shists, amphibotite |
| Plattekill Formation - shale, sandstone | Mount Merino Formation - shale, argillite, chert |
| Onondaga Limestone | Normanskill Formation - shale, argillite, siltstone |
| Cashaqua Shale - shale, sandstone, conglomerate | Quassaic Quartzite - quartzite, sandstone, conglomerate |
| Moscow Formation - shale, sandstone | Bloomsburg Formation - (Sahwangunk Conglomerate - sandstone, conglomerate) |
| Oneonta Formation - shale, sandstone | Rondout Formation - dolostone, limestone, sandstone, shale |
| Lower Walton Formation - shale, sandstone, conglomerate | |



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Ulster County, New York Open Space Plan

5. Significant Ecological Communities

Through the display of six data layers related to ecological communities, a shade range from white to pale yellow to darker yellow has been created. This range shows where significant ecological communities occur. Darker yellow shades suggest areas that are more valuable for the preservation and conservation of ecological communities of significance than are white areas or paler yellow areas.

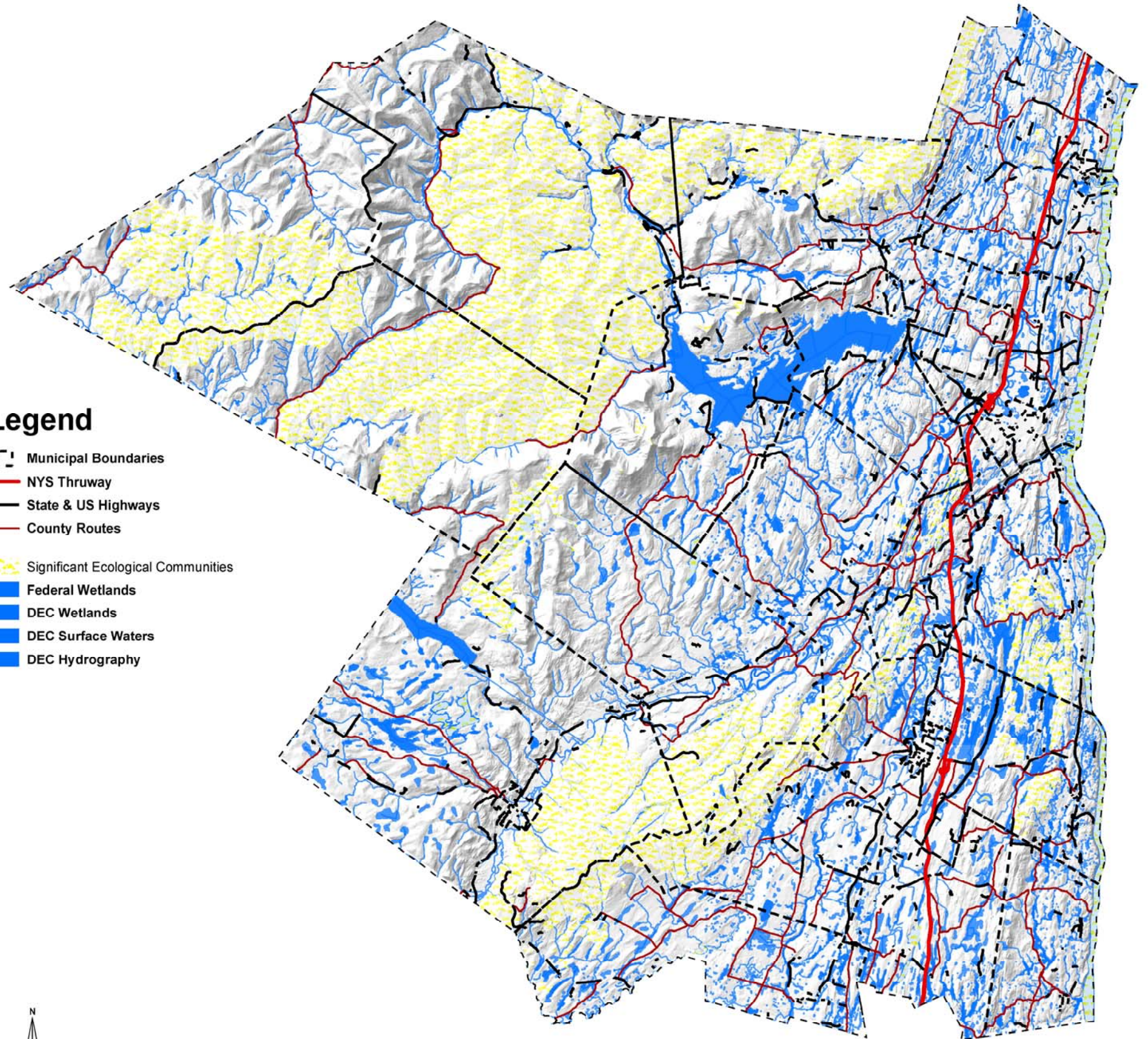
Significant Ecological Communities Data Explained

Six data layers, available in digital format, were chosen as inputs to create a shade range that begins to show where significant ecological communities occur. An additional data processing step was used in this mapping effort; 45-meter buffers were added to the hydrography and wetlands layers. These buffers are based on research by scientists interested in maintaining various ecological functions along riparian (stream) corridors. In an article by Ralph Tiner of the U.S. Fish and Wildlife Service¹, several riparian buffers are given for these various ecological functions.

Buffer Function	Purpose	Buffer Width
Migratory bird habitat	Maintain a vegetated buffer along stream corridor for nesting and cover	100 meters wide
Stream temperature	Maintain a forested buffer along streams vital to certain fish species	10 to 30 meters wide
Amphibian habitat (also a proxy for other wildlife)	Maintain wildlife habitat for mole salamanders	164 meters wide
Sediment and pollutant adsorption	Filter pollutant from upland sources before they reach streams and waterbodies	45 meters wide

Data Sources

Significant Ecological Communities Source Data	Where Acquired	Description of Data
Wetlands (NWI, polygon)	United States Fish and Wildlife Service	Federal National Wetlands Inventory wetlands.
Significant Ecological Communities (polygon)	Obtained from the New York State DEC, Natural Heritage Program	Contains records of significant ecological communities occurring or partly occurring in Ulster County. These are based on information and maps from field surveys, museum specimens, and project reports, the location and boundaries of an element occurrence are determined as precisely as the available information allows.
Unfragmented Forests > 15,000 Acres (polygon)	Acquired from the Hudson River Estuary Program (1/05); used by permission of The Nature Conservancy	The Forest data is from The Nature Conservancy's Eastern NY Office. The Data are in UTM 18, NAD 83. The polygons represent areas of relatively unfragmented forest of 15,000 acres or greater.
DEC Hydrography (line)	New York State DEC, Division of Water	Streams of New York State as taken from USGS "blue line separation" from 1:24,000 scale topographic map series. Data has been edited by NYS DEC to include additional stream segments
Surface Waters (polygon)	New York State DEC, Division of Water	Surface waters of New York State as taken from USGS "blue line separation" from 1:24,000 scale topographic map series.
Wetlands (New York State DEC, polygon)	New York State DEC Wetlands Data, from CORNELL CUGIR website	New York State regulated wetlands.



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Significant Ecological Communities
- Federal Wetlands
- DEC Wetlands
- DEC Surface Waters
- DEC Hydrography



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¹ Tiner, R. *Remotely-sensed indicators for monitoring the general condition of "natural habitats" in watersheds: an application for Delaware's Nanticoke River watershed.* Ecological Indicators 4 (2004) 227-243.

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6. Historic and Cultural Resources

Through the display of the "Historic Resources" data layer this map shows properties and districts designated for preservation as historic places by Federal, State, and Local entities.

Historical Resources Data Explained

Four data layers, available in digital format, were chosen as inputs to create the Historic Resources Data Layer. The layers were chosen for their ability to indicate location and types of historic sites within Ulster County. The following table provides a description of the source data used for the data layers.

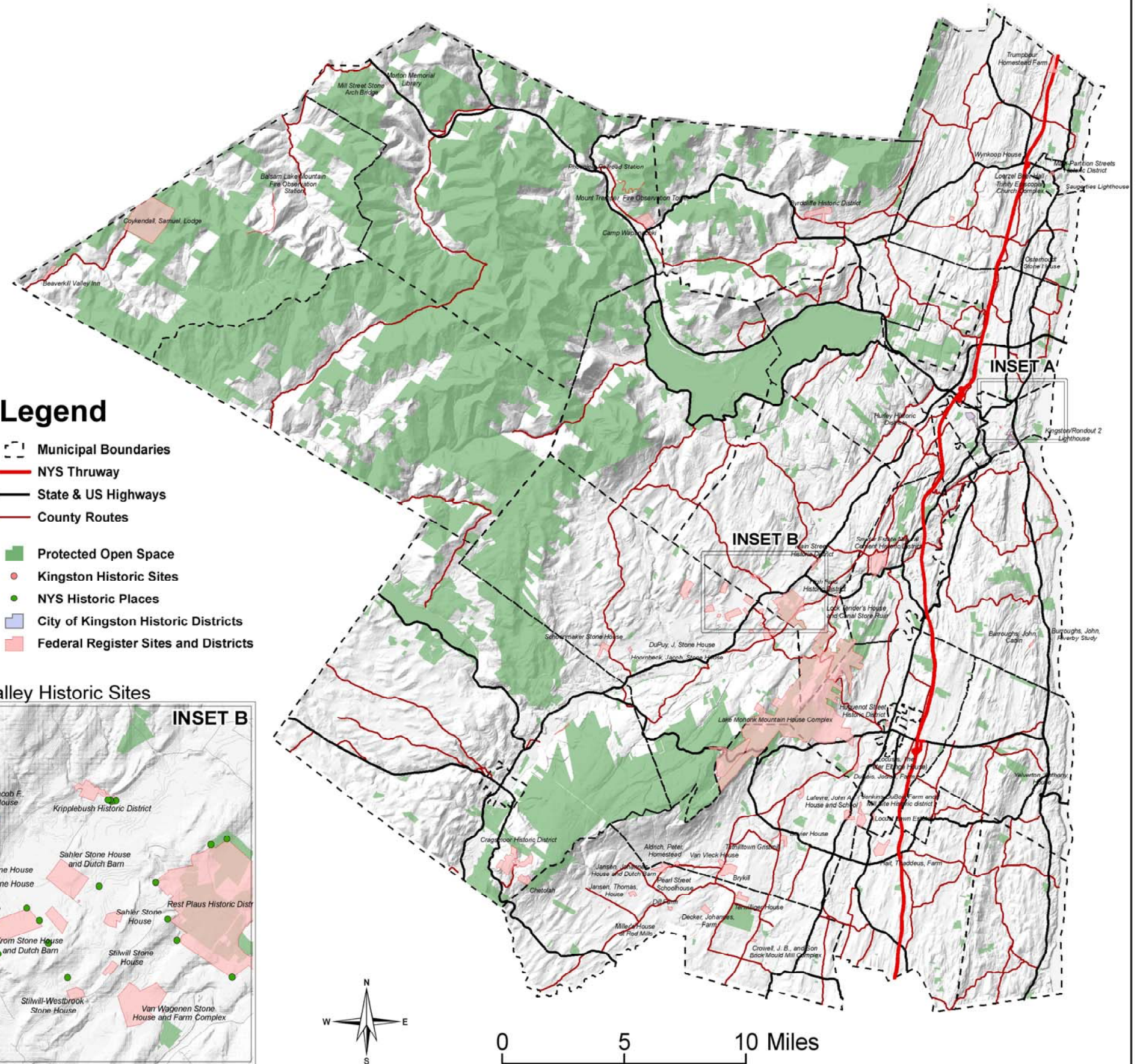
Factor	Where Acquired	Description of Data
City of Kingston Historic Districts (Rondout, Stockade, Chestnut, Fair Street) (Polygon)	Ulster County UCIS (2004 Data)	Digitized Maps from the City of Kingston's Historic Commission
NYS Historic Places (Point)	NYS Historic Preservation Office (NYSHPO)	New York State Historic Designated Places
Federal Register (Polygon Data)	NYS Historic Preservation Office (NYSHPO)	Federal Register of Historic Places
City of Kingston Historic Places (Point)	Ulster County UCIS (2004 Data)	Digitized Maps from the City of Kingston's Historic Commission



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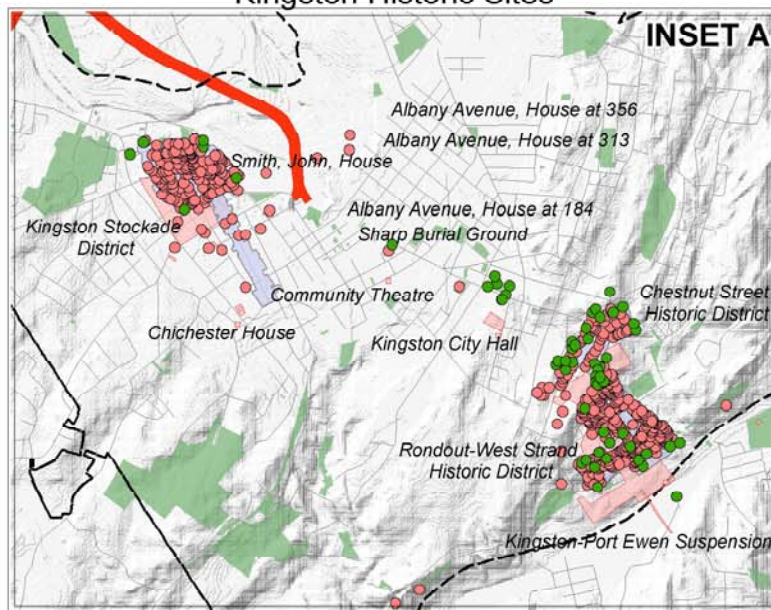
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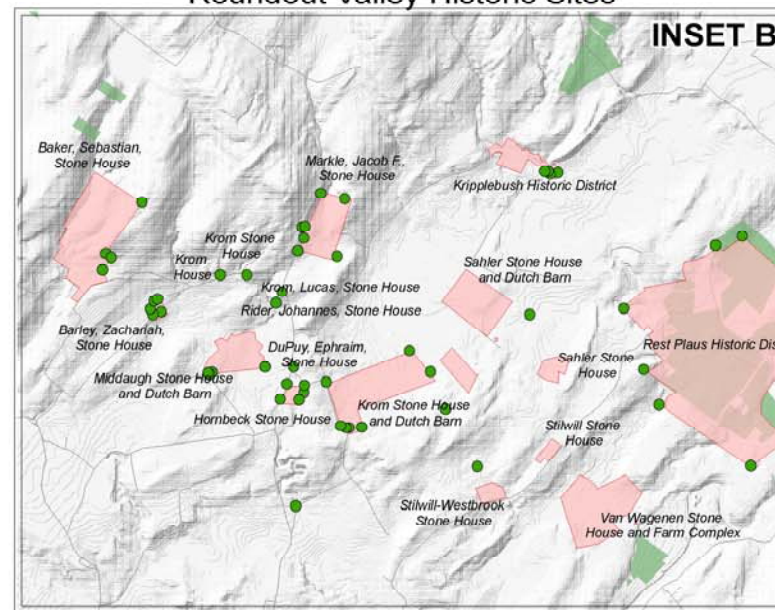
Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Protected Open Space
- Kingston Historic Sites
- NYS Historic Places
- City of Kingston Historic Districts
- Federal Register Sites and Districts

Kingston Historic Sites



Roundout Valley Historic Sites



Ulster County, New York Open Space Plan

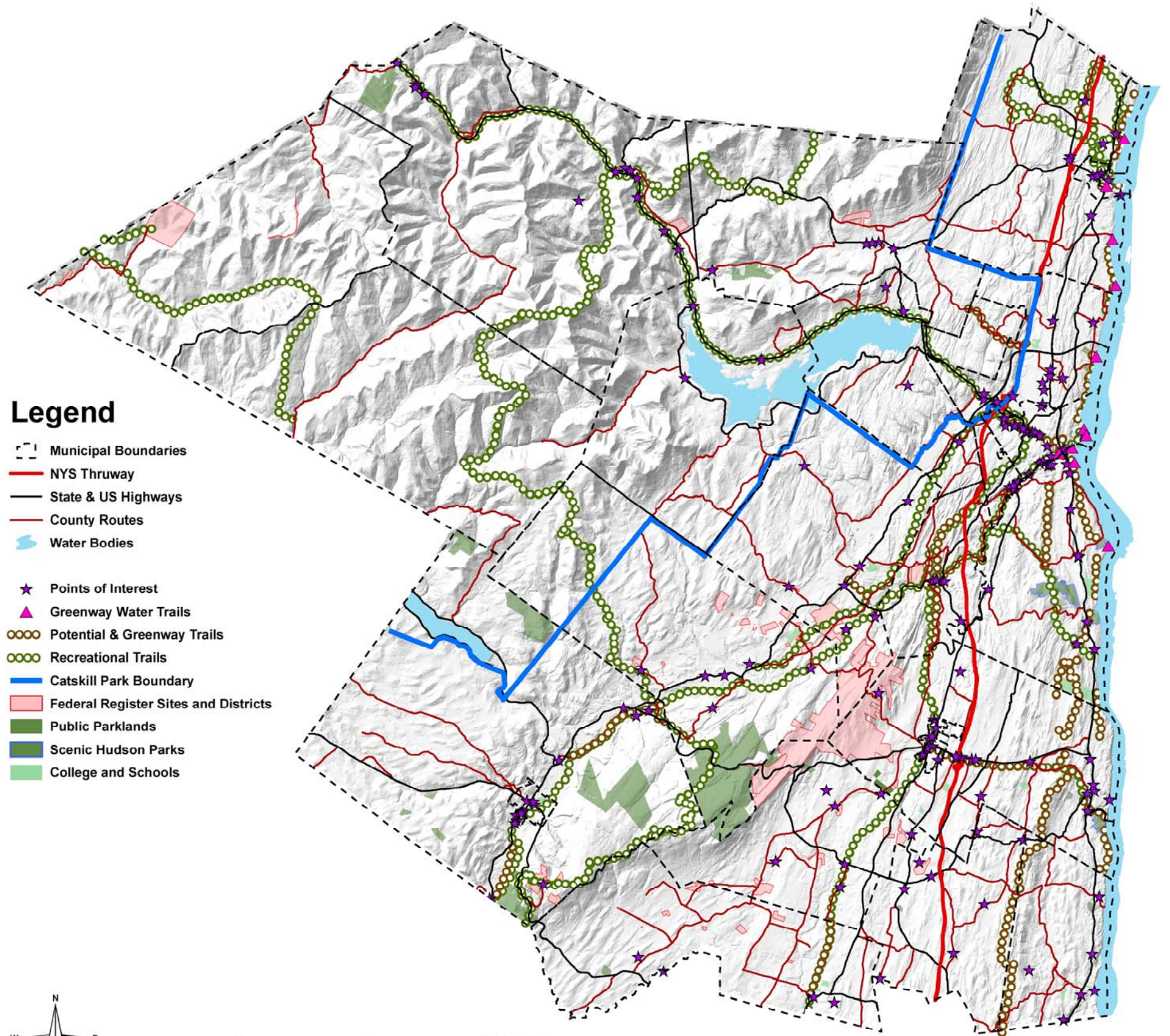
7. Recreation Land

Through the display of the "Recreational Lands" data layer in shades ranging from light green to darker green, this map shows land used for recreational purposes as owned by public, educational, private, and non-profit uses in Ulster County.

Recreational Land Factors Data Explained

One data layer, available in digital format, was chosen as inputs to create the Recreational Lands Data Layer. The layer was chosen for its ability to indicate ownership and location of recreational lands in the County. The following table provides a description of the source data used for the data layers.

Layers	Where Acquired	Description of Data
Public Parkland College and Schools Private/Non Profit Parkland	Ulster County UCIS (2005 Data)	Ulster County's Parcel Data. A series of queries designed to pick out recreational lands by ORPS Property Class code were used to create this map.



Legend

- Municipal Boundaries
- NYS Thruway
- State & US Highways
- County Routes
- Water Bodies
- Points of Interest
- Greenway Water Trails
- Potential & Greenway Trails
- Recreational Trails
- Catskill Park Boundary
- Federal Register Sites and Districts
- Public Parklands
- Scenic Hudson Parks
- College and Schools



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