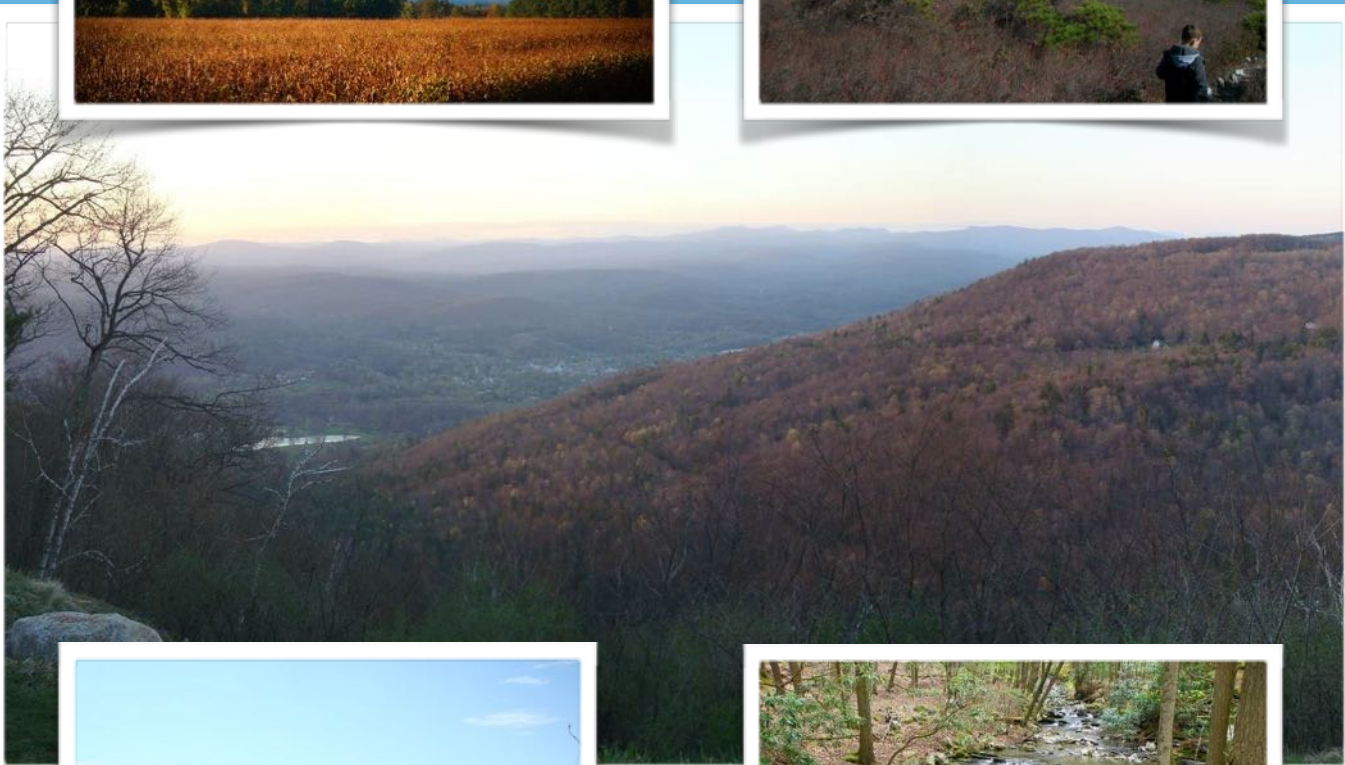


OPEN SPACE INVENTORY

Town of Wawarsing, Ulster County, New York



March 2014

PREPARED BY:

TACONIC SITE DESIGN & LANDSCAPE ARCHITECTURE

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Acknowledgments

PROJECT SPONSOR



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Preface

Open space is an important element in the character and quality of life of the Town of Wawarsing as well as a critical factor in the town's future economic engine. This open space resource inventory, through the use of maps and narratives, highlights the important landscape and environmental resources that exist within the Town of Wawarsing. In other words, the inventory provides a Town-wide blueprint of the natural, agricultural and cultural systems that shape the Town and provide residents (both human and non-human) with clean air, clean drinking water and food production assets.



View of the Shawangunk Mountains from NYS Route 209 (looking east)

What is Open Space?

New York State Conservation Law defines an "open area" as "any area characterized by natural scenic beauty or whose existing openness, natural condition or present state of use, if preserved, would enhance the present or potential value of abutting or surrounding development or would establish a desirable pattern of development or would offer substantial conformance with the planning objectives of the municipality or would maintain or enhance the conservation of natural or scenic resources."

The New York State Open Space Conservation Plan defines open space as "land that is not intensively developed for residential, commercial, industrial or institutional use." It serves many purposes, whether it is publicly or privately owned. It includes agricultural and forest land, undeveloped shorelines, undeveloped scenic lands, public parks and preserves. It also includes water bodies such as lakes and bays. (Source: 2007 Ulster County Open Space Plan)

What is Open Space Planning?

What is defined as open space depends in part on its surroundings.

Open space planning is an ongoing process by which communities decide how to protect and utilize open space resources to provide the best possible and most sustainable environment. It is more than the acquisition of undeveloped land for its protection. Rather, it is an endeavor that involves the entire community in thinking about the importance of its current and future conservation, use, and development of the natural and built environments. This means that planning for open space and development go hand-in-hand. Identifying open space resources also involves identifying areas that can support appropriate development and then managing them together for the

environmental as well as the economic and social well-being of the community. (Source: 2007 Ulster County Open Space Plan)

The maps in this inventory are especially helpful for locating important resources at the Town-wide scale and helping display how these resources are interconnected not only within the Town, but also to the regional resource network. This information will be very helpful for future planning efforts for:

- Reference material used by the Planning Board, property owners, developers, design professionals, and residents when planning, designing, reviewing, and permitting land development projects and to help guide the identification of conservation and development areas within a land development project;
- Supporting documentation for use by Town staff, Boards and Committees for grant submissions, such as applications to such agencies as the NYSDEC and New York State Farmland Protection Programs;
- Use by the Town Board when developing updates to the Town's Comprehensive Plan and to guide the feasibility of Town investment in open space conservation;
- By the State of New York, Ulster County, and other municipalities surrounding Wawarsing to help coordinate potential inter-municipal efforts such as watershed protection and development of trails.

It is important to note that the maps included as part of this Open Space Inventory were created in a geographic information system, or GIS, and are not final documents; they will change over time as conditions change and data is further developed and improved. The developed maps illustrate the most current information available by the governmental agencies and other organizations that are responsible for developing the data. These maps simply provide a useful way to visualize the overall and interconnection natural and man-made features and patterns in Town of Wawarsing. It is always important to check with regulatory agencies for any more current updates and/or site-specific information at the time that such data is needed to inform a decision or action. None of the maps in this inventory are intended to replace the requirement to consult with local, state, and federal regulatory agencies or process an action through SEQRA.

I. Project Description and Process

In late 2012, the Town of Wawarsing received a grant from the NYSDEC Hudson River Estuary Program to develop an inventory of open space resources. In August 2013, the Town of Wawarsing retained the services of Taconic Site Design & Landscape Architecture (TSD) from Pleasant Valley, NY to provide professional planning and GIS mapping services for the project and to guide the Town's Open Space Committee through the resource inventory process.

The open space inventory was overseen by an appointed Open Space Committee with representatives from the Environmental Conservation Commission, the Planning Board, the Historic Preservation Commission, several resident volunteers and the Town's Code Enforcement Officer. The committee and TSD met once a month (on average) from August 2013 to January 2014 to review, discuss and forward the inventory process. This input directed the data collection trajectory and individual resource map themes.

Scope of Work

For this project, primary tasks have included obtaining and processing the most current GIS data available from various governmental agencies and other organizational entities, creation of supplemental information based on committee input and field observations, holding regular working meetings with the Open Space Committee, and developing an organized digital information database and series of graphic inventory maps of the Town's existing open space conditions.

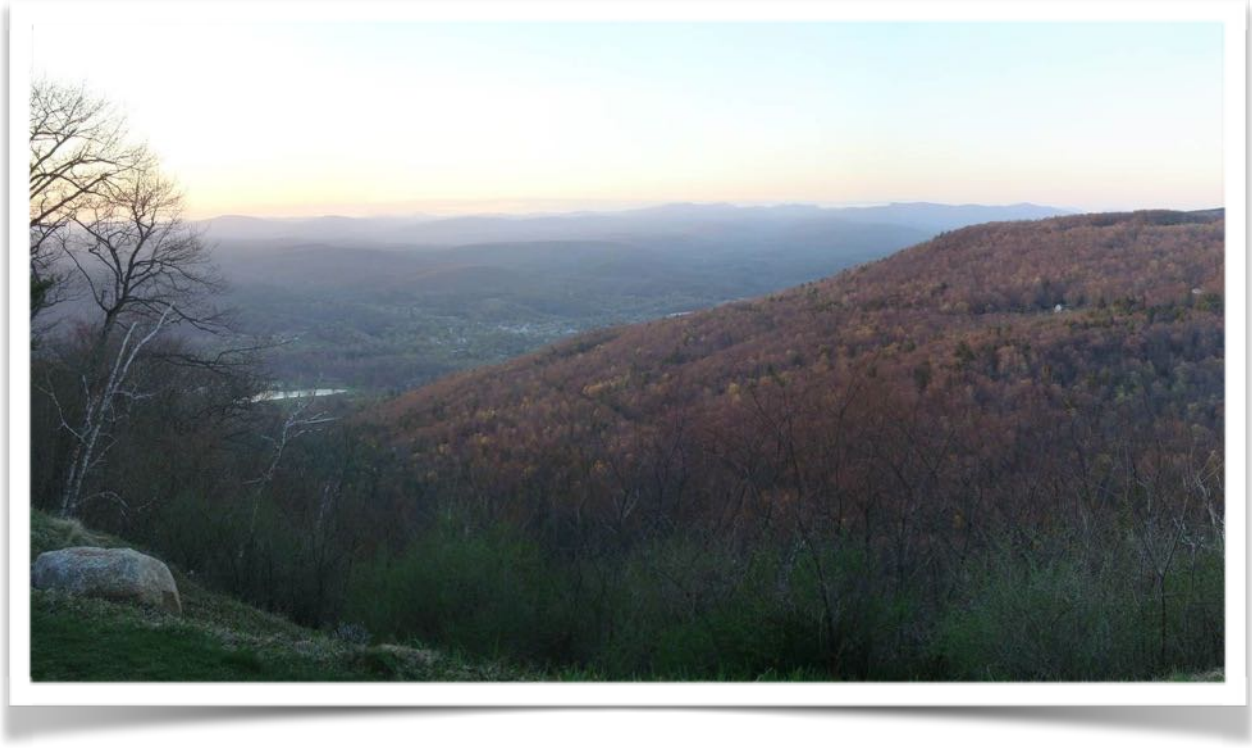
GIS Data Collection

The project team reviewed and obtained the most current available GIS datasets* to build a complete digital base map of the entire Town and surrounding areas. GIS data was then edited to conform to observed field conditions where necessary. Important waypoints and tracks were collected in the field using a handheld GPS unit and all developed maps for the project were coordinated and projected using ESRI ArcGIS10 for ease in data management and use during project meetings.

** GIS Information on the maps comes from different sources, produced at different times and scales, and for different purposes. It is often collected or developed from remote sensing data (i.e., aerial photographs, satellite imagery) or derived from paper maps. For these reasons, GIS data often contains inaccuracies. Therefore, maps created in GIS are approximate and best used for large scale planning purposes. They should not be substituted for individual site specific surveys. All resources shown on a map should be verified on the ground for legal purposes, including environmental review, at the time development is being considered.*

Field Reconnaissance

On October 14th, 2013, the Open Space Committee and TSD conducted a vehicle tour of the Town of Wawarsing to experience first-hand the different areas of Town and the quality of open spaces. During this 2-leg tour, a total of 117+ miles were traveled and approximately 120 waypoints were collected.



View from Shawangunk Mountains (Cragmoor Stone Church) overlooking Wawarsing

Open Space Committee Meetings

A total of six (6) Open Space Committee meetings were held between August 2013 and January 2014 at the Town of Wawarsing Town Hall. Committee meetings were led by TSD. All meetings included the presentation of graphic information meant to direct the conversation with the committee to identify critical resource themes and extract local knowledge not evident in the available resource documents. Minutes of these regular committee meetings are assembled in Appendix E.

Town Board Presentation

On January 27, 2014, the draft inventory maps were presented to the Town of Wawarsing Town Board in a work-session setting. The intent of this preliminary presentation was to inform the Town Board on the project progress and to entertain feedback in the form of comments and questions on the data and maps developed to date. Relevant comments and input received from the Town Board has been incorporated into the final inventory maps and this final report.

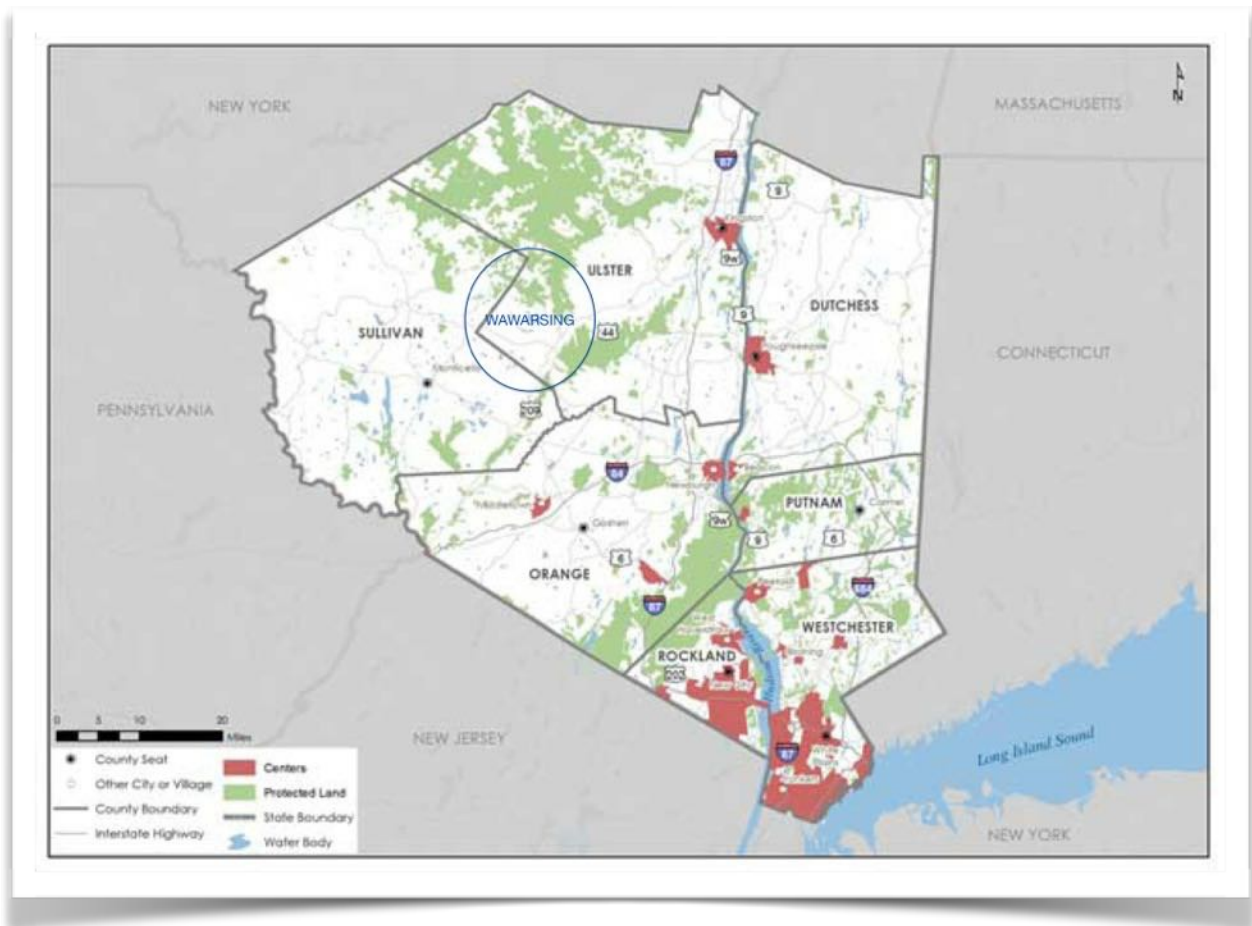
Open Space Inventory Maps and Report

The final maps and report were submitted to the Town of Wawarsing Open Space Committee in early March 2014.

II. Physical Setting

Regional Context

The Town of Wawarsing is a rural town of the beautiful Hudson Valley, abundant in natural splendor. Founded in 1806, the Town is located in the southern reaches of Ulster County between the Shawangunk Mountains and Catskill Mountain range, providing a most picturesque setting. The large regional landforms of the Catskill Mountains and Shawangunk Mountains are partially located within the Town and help to define and organize existing landscape patterns. The name "Wawarsing" is based on a Native American term with several interpretations including "blackbird's nest" and "a place where the stream bends" with both certainly a reflection of the natural elements that make the area so spectacular. Outside of the town's hamlets and other developed areas, the landscape of Wawarsing is primarily forested with a diverse mixture of farms, streams, wetlands, and many other natural communities.



Regional Context Map (Source: Mid-Hudson Regional Sustainability Plan)

In Wawarsing, many of the most significant resources cross both Town and County boundaries. Although the purpose of this inventory is to document resources within the Town boundary, it is important to understand and consider the regional context. In other words, the natural environment does not

suddenly end at the political boundary and awareness of the larger regional context not only informs decision making at the town level but enables the Town of Wawarsing, as it already does in many instances, to play an informed role in the regional conversations and partnerships that will ultimately be needed to protect these defining regional resources.

Wawarsing has a long agricultural, industrial and manufacturing history. Ample streams flowing from the Catskill Mountains and ‘drowned lands’ provided hydro-power to drive mills and other industrial operations. The D&H Canal provided transportation of raw materials from Pennsylvania and points south to New York City (through Kingston via the Hudson River). Later, the O&W Railroad provided similar services along with improved access for tourism.

Today, the Town surrounds the incorporated Village of Ellenville and is comprised of the hamlets of Kerhonkson, East Wawarsing, Port Ben, Napanoch, Cragsmoor, Greenfield Park, Dairyland, Ulster Heights (formerly known as “Drowned Lands”), and Spring Glen. Wawarsing has also become a regional hot-spot for outdoor recreation activities and includes over 10,000 acres of state forest and parkland for hiking and biking, fishing, and even more adventurous alpine activities such as hang-gliding.



View of Shawangunk Mountains from Route 209 (South of Ellenville)

Town Description

The Town of Wawarsing is one of 21 incorporated municipalities (Cities, Towns, and Villages) that comprise Ulster County. Wawarsing defines part of the southern edge of Ulster County and is bordered by the Ulster County Towns of Shawangunk, Gardiner, and Rochester and the Sullivan County Towns of Denning, Neversink, Fallsburg, and Mamakating.

Consisting of approximately 133 square miles, the Town of Wawarsing is the largest municipality in Ulster County and wholly encompasses the Village of Ellenville. The Town also contains several smaller hamlets that define distinct areas of the Town as follows:

At just under 9 square miles, the *Village of Ellenville* is an incorporated Village completely surrounded by the Town of Wawarsing and contains a high density of development. Ellenville is located at the

confluence of the Sandburg Creek and the Beer Kill Creek and has a rich industrial history connected to the D&H Canal and the Shawangunk Mountains.

At just over 1 square mile, *Napanoch* is old industrial center at the junction of Route 209 and Route 55. Located along the Rondout Creek, Napanoch has deep connections to the D&H Canal and O&W Railroad and includes some notable features such as Honk Falls and the Hoornbeek Store Complex, a national historic site.

At just over 5 square miles, *Kerhonkson* is a less dense hamlet with a commercial core between the Route 209 and Route 44/55 junction and the Town of Rochester. Kerhonkson is located at the base of the Shawangunk Mountains and was also heavily shaped by the old canal and railroad.

Smaller hamlets within and distinct to the Town include:

East Wawarsing - small, more modern grouping of commercial and residential properties along Route 209.

Port Ben - a small, historic grouping of residential and agricultural properties along the Rondout Creek including the old Port Ben train station, a national historic site.

Cragmoor - a small, mostly residential community located atop the Shawangunk Mountains just below Sam's Point. Most of the developed area in Cragmoor is a listed National Historic District.

Greenfield Park - A small agricultural hamlet along Route 52 in the western part of Town.

Dairyland - A small agricultural hamlet along Route 52 to the west of Greenfield Park.

Ulster Heights - A small residential and agricultural hamlet in the western part of Town south of the Rondout Reservoir.

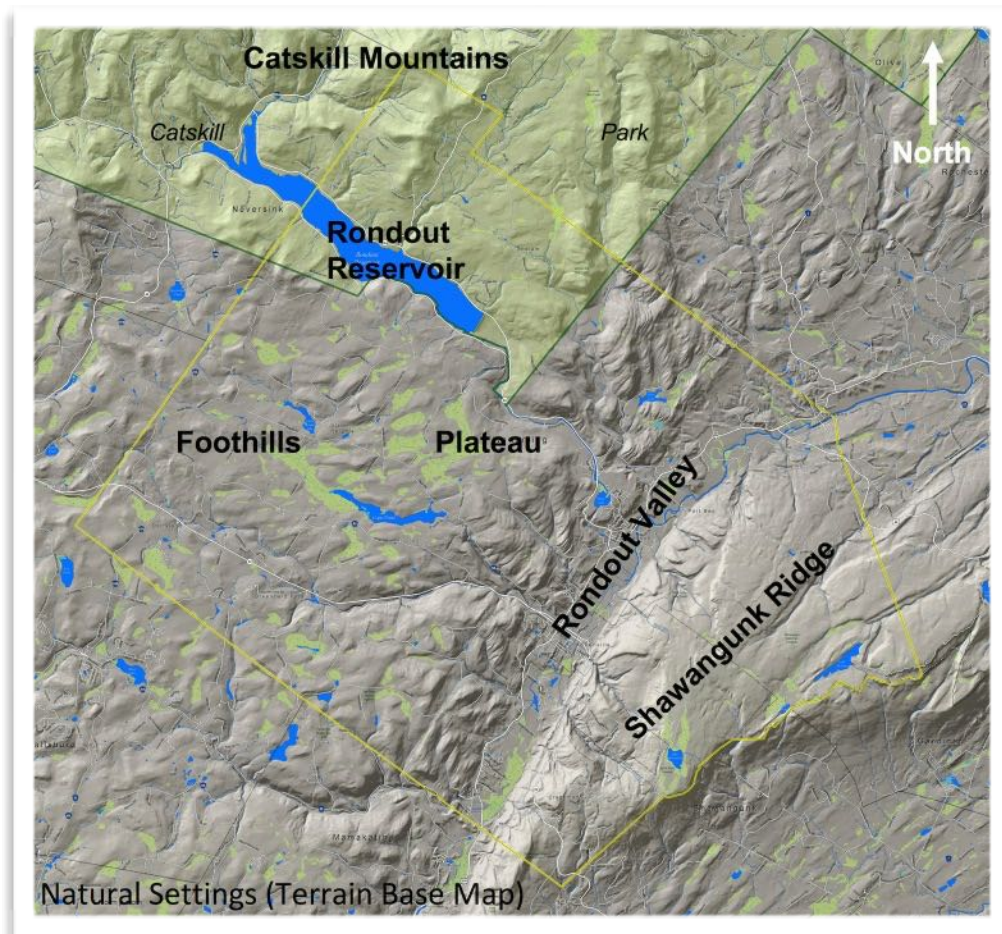
Spring Glen - A small residential hamlet located south of Ellenville along Route 209 adjacent to the Town of Mamakating.

The areas radiating outward from these core developed hamlets are very rural largely consisting of post-agriculture forests intermingled with agricultural and residential development crossing a variety of natural systems, landforms and land patterns. Wawarsing also has the most extensive road network in Ulster County (165 miles +/-), surpassing the next closest Town by approximately over 50 miles.

Major Physical Features

Topographically, Wawarsing has some very extreme conditions that contain some extremely important natural features and sensitive areas.

Three distinct topographic features help form the Wawarsing's genius loci or 'sense of place' including the Catskill Mountains and Foothills Plateau, the Rondout Reservoir, and the Rondout Valley and the Shawangunk Mountains.



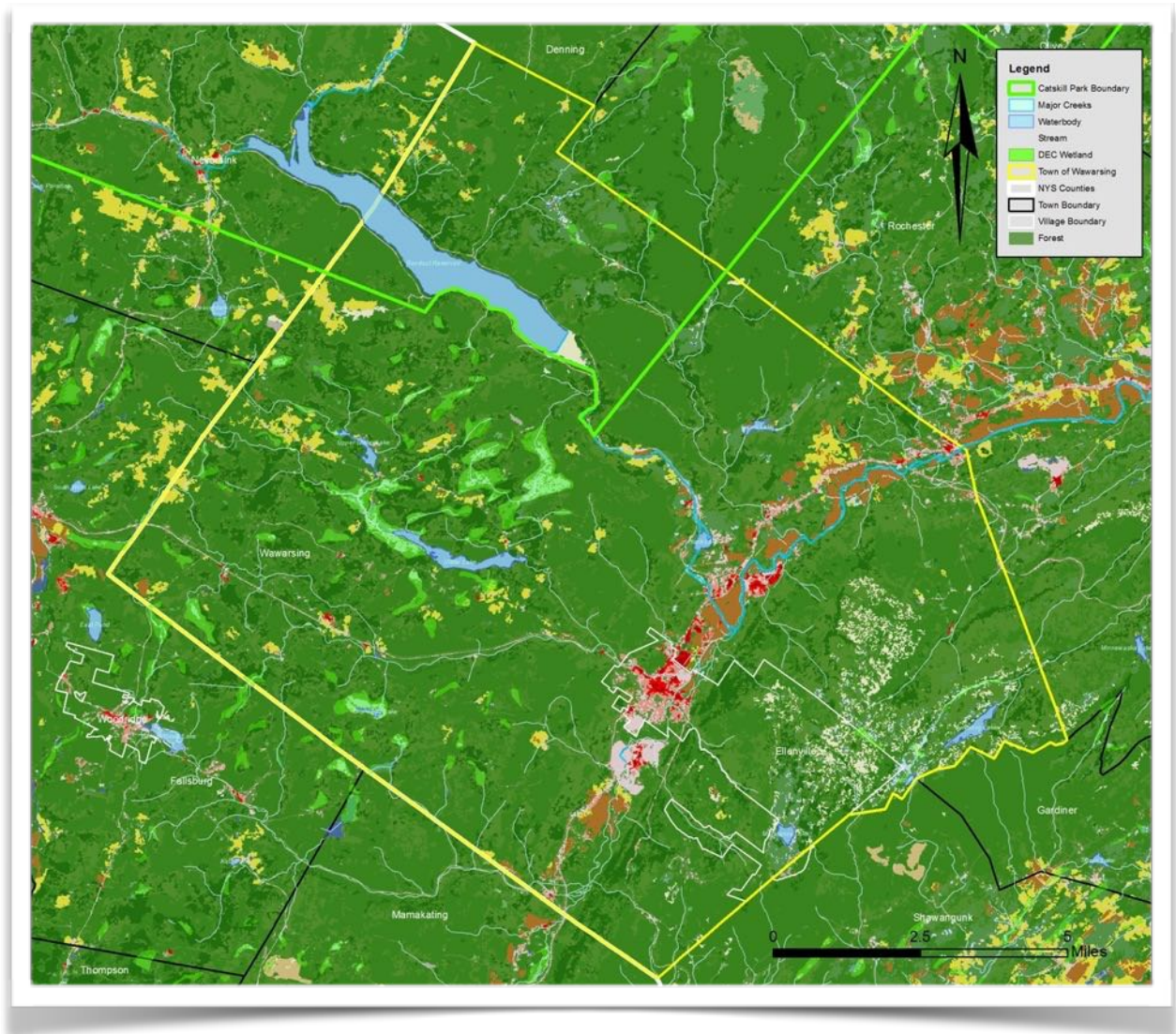
Natural Settings Map

The southeastern corner of the **Catskill Mountains** reaches into the northern corner of Wawarsing. As an extension of the mountains, a large, flat **Foothills Plateau** continues south across the entire western half of the Town and into Sullivan County.

The **Rondout Reservoir**, a 6-mile impounded New York City water supply reservoir, extends northwest into Sullivan County. Discharging into and out of the reservoir is the Rondout Creek, a 63-mile major tributary of the Hudson River.

The **Rondout Valley** (including the Rondout Creek and Sandburg Creek) forms a low flat swath approximately one-mile wide (from southwest to northeast) through the Town bordered by the Foothills Plateau to the west and the Shawangunk Mountains to the east.

The **Shawangunk Mountains**, flanks the eastern side of the Town and contains the highest point along the Mountains at High Point (within Sam’s Point Preserve) approximately 2,300 feet.



Land Cover Map

Map Color Guide: Blue - Water, Dark Green - Forest, Light Green - Wetland, Yellow - Meadow, Brown - Active Farmland, White - Exposed Bedrock, Pink - Light Development, Red - Heavy Developed

III. Resource Inventory

In order to most accurately assess and account for the variety of landscape patterns that contribute to “Open Space”, the inventory has been grouped and inventoried in the following, over-arching landscape categories:

Existing Protected Lands - The existing state of conserved lands within and surrounding the Town including state forests, state parks, town parks and other privately conserved land.

Natural Systems - Physical features that define the Town’s landscape including geology, topography, water resources (waterbodies, streams, wetlands, floodplains)

Recreation, Scenic and Historic Resources - These resources highlight the recreational and cultural landscape layers of Wawarsing and summarize the locations of non-motorized traveled ways, outdoor recreation nodes, viewpoints with scenic quality and national, state and local historic sites.

Agricultural Landscapes - Land that is currently used for agriculture or contains the physical characteristics to support viable agricultural practices specifically defined by soil types.

Biodiversity and Connectivity - Wawarsing contains some very high quality and rare habitat zones and two (2) very large NYSDEC Significant Biodiversity Areas and the closest point between them.

Land Parcel Sizes - An assessment of the distribution of land parcel sizes throughout the Town highlighting the continuity of large open parcels of land.

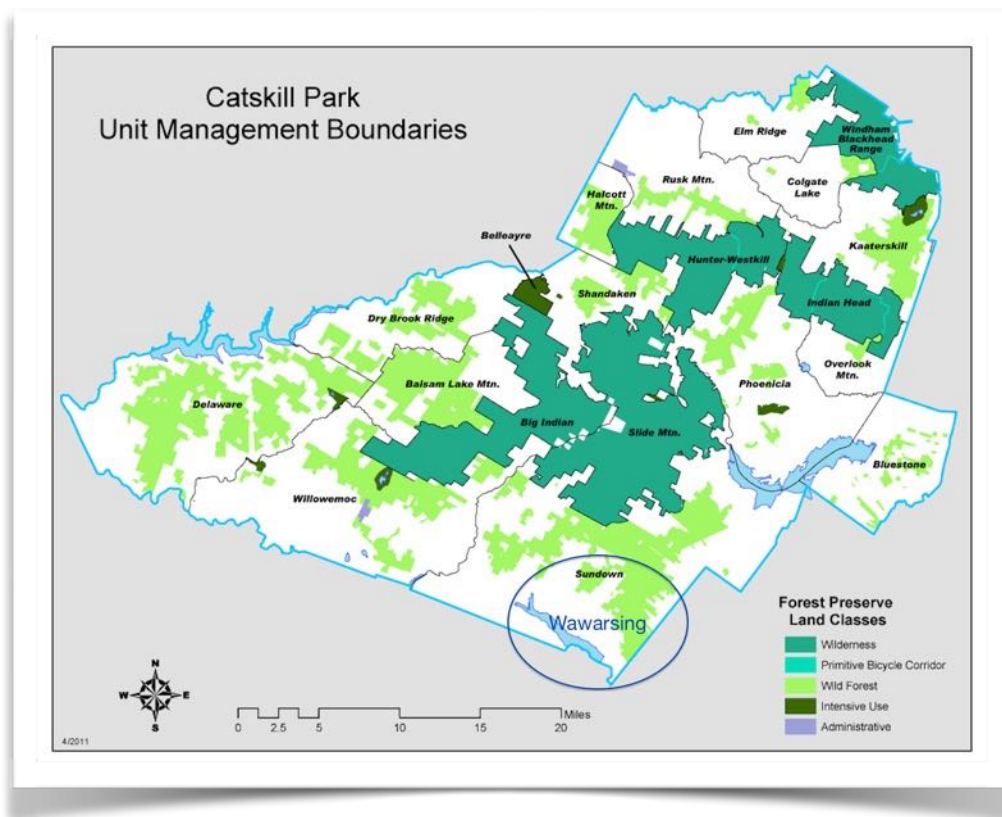
Existing Protected Lands

Currently, there is a significant portion of the Town that has been protected from development. In fact, the largest land owner in the Town of Wawarsing is the State of New York (in the form of State Forests and State Parks), and is closely followed by the New York City Bureau of Water.

Existing open spaces in Wawarsing include a variety of landscape types including riparian areas, farms, and large, contiguous forests. Currently, of the approximately 85,000 acres that comprise the Town of Wawarsing, there are about 26,500 acres (or 31% of the Town) that is either publicly owned property or permanently protected/conserved land as open space. Most of the publicly owned and conserved land lies along the Shawangunk Mountains, to the north of Napanoch and surrounding the Rondout Reservoir.

These existing protected lands are summarized as follows:

The Catskill Park is a mountainous region of public and private lands in Southeastern New York's Ulster, Greene, Delaware and Sullivan Counties. Evidence of the area's unique natural history can be seen in the impressive skyline formed by the ninety-eight peaks over 3,000 feet in elevation. Human activities such as logging, quarrying, tanning, trapping, and fishing have also shaped the Park's more recent history. Today, tourism and recreation play a prominent role in both supporting the region's economy and creating an awareness of the Catskills' ecological significance. (Source: NYSDEC website)



Catskill Park Map (2011) (Source: <http://www.dec.ny.gov/lands/46629.html>)

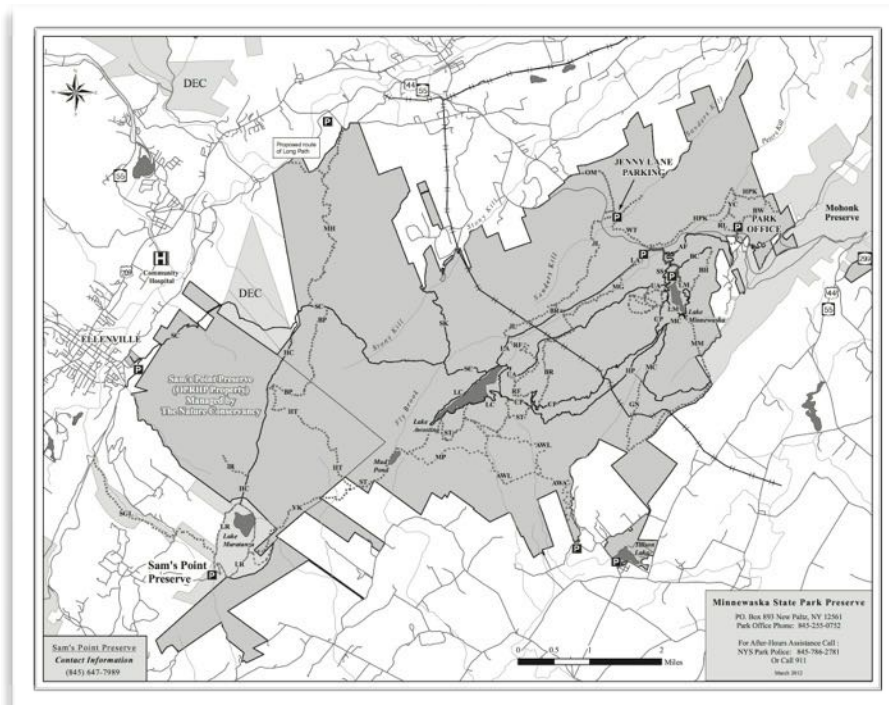
The Catskill Park boundary overlays the entire northwest corner of the Town of Wawarsing including the Rondout Reservoir and the Sundown Wild Forest.

Lands owned by the State of New York located within the Catskill Park are also referenced as the Catskill Forest Preserve. At approximately 287,500 acres of land, *these public lands are primarily forested, but also include meadows, lakes, rivers, wetlands, waterfalls, cliffs, and many species of fish, wildlife, and plant life. Afforded Constitutional protections that prevent the removal of timber, lands within New York's Forest Preserve provide an abundance of both recreational opportunity and plant and wildlife habitat. Depending on park-wide land classifications and specific unit management plans, there are a variety of opportunities for public enjoyment of the Forest Preserve, including hiking, camping, hunting, fishing, skiing, mountain biking, rock climbing, canoeing, and snowmobiling.* (Source: <http://www.dec.ny.gov/lands/5265.html>)

Within the Town of Wawarsing, the Catskill Forest Preserve includes a portion of the Sundown Wild Forest.

State Owned Lands

Minnewaska State Park Preserve consists of over 21,000 acres of forested lands and lakes located along the Shawangunk Mountain Range (the Shawangunks) in Ulster County, New York. Minnewaska was designated a Park Preserve in 1993 under Article 20 of New York's Parks, Recreation and Historic Preservation Law and in 2006, a significant portion of Minnewaska was designated as a Bird Conservation Area.



Minnewaska State Park Preserve Trail Map (2012) (Source: <http://nysparks.com/parks/attachments/MinnewaskaParkMap.pdf>)

The topography of the Preserve is a combination of vertical cliff faces, steep talus slopes and a relatively flat Mountains top. The soils within the Preserve are generally acidic, shallow and nutrient poor. Shale mines have historically been located in the Preserve and provide surfacing material for the carriage road system.

Thirty-two distinct natural community types were identified within the Preserve, twelve of which are considered “Significant Natural Communities” by New York’s Natural Heritage Program. Talus slope woodland, high bush blueberry bog thicket, dwarf shrub bog, Pitch Pine-Oak heath rocky summits and vernal pools are the largest of these communities. The largest tract of Chestnut Oak forest in New York State is the dominant forest type within the Preserve. The Preserve has at least twenty- eight populations of nine rare animals including the timber rattlesnake and the peregrine falcon.

The Preserve provides outstanding bird habitat. The large intact forest landscape along the Shawangunk Mountains is a significant resting point for migratory birds. Many of the bird species supported by the forests of Minnewaska have been listed as Species of Greatest Conservation Need. The unique bird community has been recognized through designation as both an Important Bird Area by Audubon NY, and as a Bird Conservation Area by OPRHP/PIPC.

The recreational activities currently permitted in the Preserve take advantage of the spectacular lakes, topography, and overall wilderness character. The Preserve is open year round and provides a variety of seasonal day use activities. One of the most significant aspects of the Preserve, and a primary historic feature, is the network of carriage roads or carriageways. These roads provide a network of historic and scenic paths that wind for miles from the Lake Minnewaska area to the most remote areas in the Preserve.

(Source: Minnewaska State Park Preserve Master Plan, Executive Summary dated June 2, 2010)

Sam’s Point Preserve* *lies within Ulster County, in the Town of Wawarsing and the Village of Ellenville.*

At almost 5,000 acres, Sam’s Point Preserve is at the highest point of the Shawangunk Mountains, with an elevation of 2,255 feet. The quartzite cliffs running northwest and northeast from Sam’s Point delineate the edge of a broad plateau. The northeastern portion of this elevated area runs into Minnewaska State Park Preserve, where it gradually loses elevation approaching Lake Awosting. The Preserve was designated a National Natural Landmark in 1967 by the National Park Service due to its distinctive geologic features and rare plant populations. The Preserve is accessed through the community of Cragmoor, off Route 52, and at Berme Road Park in Ellenville, at the entrance to the Smiley Carriage road.

** During the time of this inventory, Sam’s Point Preserve has been absorbed by the State of New York as an extension and distinct part of Minnewaska State Park Preserve.*



Sam's Point looking west

The Village of Ellenville acquired ownership of the property to protect the watershed of Lake Maratanza, which served as a water supply for the community. The lake was dredged and dammed in the 1950's, converting it from the smallest lake in the Shawangunks to the second largest, after Lake Awosting.



Lake Maratanza and National Natural Landmark Plaque

The landscape at Sam's Point is defined by the dramatic cliffs, talus and slab rock that are all part of the high flat plateau that makes up the Preserve. The top of the plateau is dominated by unique dwarf pitch pine barrens, and is considered one of the world's best examples of this globally rare plant community. The term "barrens" is generally used to describe natural communities made up of species adapted to periodic wildfire. This rare plant community occurs on the shallow, nutrient poor soils found on the upper elevations of the preserve. The flanks of the plateau support deeper, richer soils that support oak forest and some hemlock ravines. The Preserve supports 5 rare plant communities (including the dwarf pitch pine barrens), eight rare plant and five rare animal species, and notably is an important refuge for the threatened Timber rattlesnake. Sam's Point Preserve is considered to be the most

biologically unique area of the entire Mountains, and of all the protected natural areas of the Shawangunks, is the least fragmented by hiking trails and carriage roads. In addition to the unique pine barrens vegetation, Sam's Point Preserve is well-known for the presence of ice caves on the property. Crevice caves, located generally in the talus slopes below the cliffs, retain ice and snow into the late spring and early summer months and are a cool and popular destination for hikers.

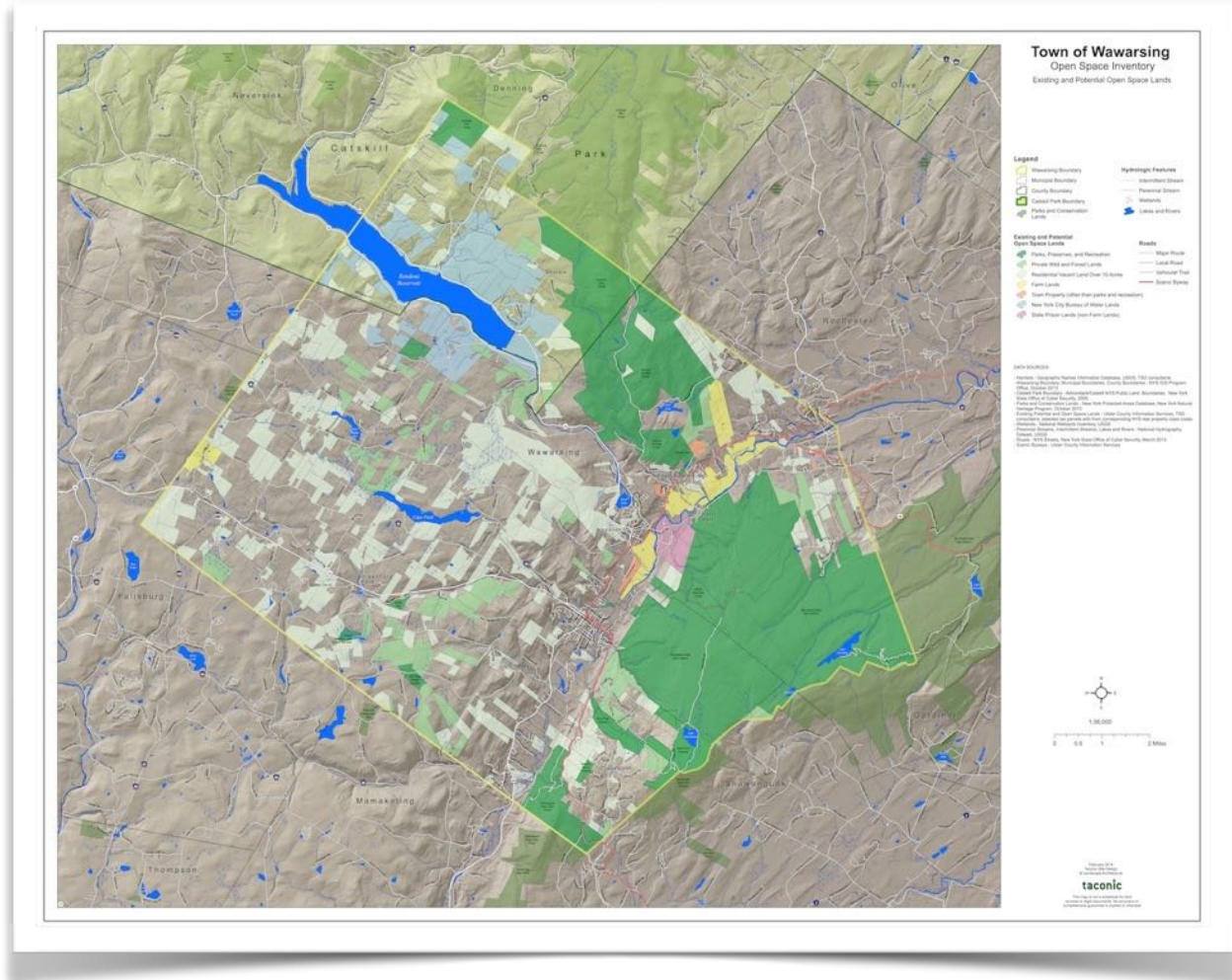
Sam's Point Preserve is open to the public year round for passive recreation including hiking, educational activities, snow-shoeing and skiing. The Preserve has a total of approximately sixteen miles of carriage roads and trails. Popular destinations for hikers include Lake Maratanza, Sam's Point, Indian Rock, High Point, the Ice Caves and Verkeerderkill Falls.

(Source: Minnewaska State Park Preserve Master Plan, Appendix F-1 dated June 2, 2010)

The **Vernooy Kill State Forest** and the **Sundown Wild Forest** are managed as by the NYSDEC Sundown Wild Forest - Vernooy Kill State Forest Unit. This forest management unit manages the southeastern corner of the Catskill Park and encompasses approximately 32,000 acres of contiguous Forest Preserve and reforestation lands located in the Towns of Wawarsing, Rochester, Denning and Olive in Ulster County, and the Town of Neversink in Sullivan County. It was one of the largest acquisitions of open space in the Catskills since the creation of the Catskill Forest Preserve in the 1880's. This exceptional forested river valley permanently protects more than six miles of the Vernooy Kill, a quality cold water trout stream.

This area is formerly known as the Lundy Estate and historically home to the Vernooy Mill where local farmers brought their grain to be milled. Only a tall stonewall remnant remains of the old mill. Today, access and management in this area includes a small parking area and trailhead on Lundy Road, along with opportunities for hiking, hunting, fishing, and other outdoor activities.

Refer to the 2008 Catskill Park State Land Master Plan at <http://www.dec.ny.gov/lands/43013.html> for more information.



Existing Conserved Lands Map

The northern half of the **Shawangunk Ridge State Forest** (approximately 865 acres of the forests 1,400 acres) extends into the Town of Wawarsing from Sullivan County and is roughly bound by the Shawangunk town line, NYS Route 52 and Lewis Road. These lands are managed by the NYSDEC Shawangunk Mountains Unit. This forest management unit manages approximately 6,100 acres (contained within 11 distinct areas) of NYSDEC owned lands along the Shawangunk Mountains in Ulster, Sullivan and Orange Counties along with an interconnected Mountains trail network.

Today, access and management in this area includes a small parking area and trailhead on Route 52, a portion of the Shawangunk Mountains Trail and several other trail connections providing opportunities for hiking, hunting, and other outdoor activities. Hang-gliding is also popular in this area of Town.

Refer to the Draft Shawangunk Mountains Unit Management Plan at http://www.dec.ny.gov/docs/lands_forests_pdf/srdraftump.pdf for more information.

The **Witch's Hole State Forest** (at approximately 590 acres) is a relatively small state forest property located on the western side of the Shawangunk Mountains, contiguous to a much larger Minnewaska State Park Preserve. This property is a very steep, forested, north facing slope containing three protected Class "AA" streams that flow in a northwesterly direction, draining the areas below Napanoch Point and High Point. The three streams come together just before leaving the property and continuing through Department of Corrections lands and eventually into the Rondout Creek. Access to this property is from the Village of Ellenville via the Smiley Carriageway.

Refer to the Draft Shawangunk Mountains Unit Management Plan at http://www.dec.ny.gov/docs/lands_forests_pdf/srdraftump.pdf for more information.

The NYSDEC also owns and operates four (4) **Multiple Use Areas** totaling approximately 350 acres of land within or directly adjacent to the Town of Wawarsing as follows:

- Oak Mountains MUA - 95 acres located at the intersection of Otens Road and Roberts Road
- Cranberry Lake MUA - 57 acres surrounding Cranberry Lake located off of Cranberry Road.
- Painter Hill MUA - 104 acres straddling Painter Hill Road in the Town of Mamakating.
- Sullivan Detached Parcel - 98 acres bordering the Town of Wawarsing in the Town of Fallsburg located south of Ulster Heights Road. Parcel contains a high point at elevation 1,385 feet.

City of New York

The **City of New York** owns and operates the Rondout Reservoir, the major waterbody in the Town of Wawarsing. The reservoir *straddles the Ulster/Sullivan County border along the southern edge of the Catskill Park, approximately 6 miles northwest of the Village of Ellenville. The Rondout is one of four reservoirs in the City's Delaware system where it serves as the central collecting reservoir for the Delaware system. Since the Delaware system supplies approximately 50% of New York City's water, the Rondout plays a critical role in the City's overall water supply system. The Rondout Reservoir's watershed drainage basin is 95 square miles and takes in parts of seven towns: Denning, Olive, Rochester, Shandaken and Wawarsing in Ulster County, and Fallsburg and Neversink in Sullivan County.* (Source: http://www.nyc.gov/html/dep/html/watershed_protection/rondout.shtml)

The reservoir was formed by the damming of Rondout Creek, which continues east to the Shawangunk Mountains then northeastward along the west side of the Shawangunk Mountains, eventually draining into the Hudson River at Kingston. Placed into service in 1950, the reservoir consists of a single basin (over 6 miles long) holding almost 50 billion gallons of water at full capacity.

Water for the City's drinking water supply drains from the Rondout and heads southeast within the Delaware Aqueduct, which tunnels below the Shawangunk Mountains and the Hudson River before entering the larger City water supply distribution system.

Next to the State of New York, the City of New York is the second largest landholder in the Town. At the time of this inventory, the City of New York owns approximately 63 tax parcels (including the Rondout Reservoir) totaling approximately 6,000 acres of high quality undeveloped land, mostly within the Catskill Park.



View of Rondout Reservoir looking west

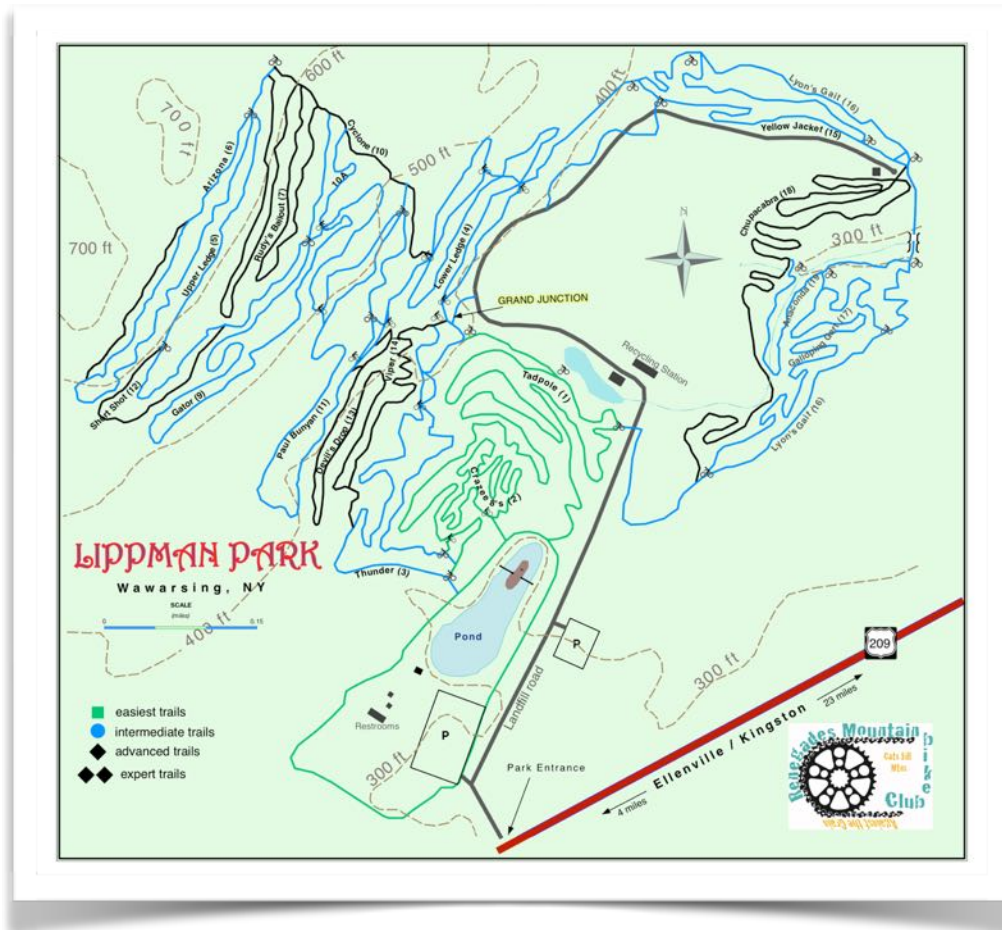
(Source: http://www.nyc.gov/html/dep/html/watershed_protection/rondout.shtml)

Town-Owned Lands

Lippman Park (and the adjoining landfill parcel) comprise an approximately 175-acre recreational complex owned and operated by the Town of Wawarsing. Lippman Park is a beautiful and very accessible town park containing both open fields and woodland areas while providing residents with both active and passive recreation opportunities. Active recreation types include mountain biking, soccer,

basketball, softball, handball, and a children's playground. Passive recreation types include pavilions, picnic areas, and trails.

With stewardship by the Renegades Mountain Bike Club, Lippman Park has become one of the premier mountain biking destinations in the Hudson Valley with over 14 miles of single track mountain bike trails of varying difficulty. The park also hosts community and mountain biking events several times a year.



Lippman Park Trail Map

(Source: <http://renegadesmtbcom.ipage.com/lippman-park-map-12014.png>)

Kanfer Park is a 44-acre parcel located along the southern edge of the West Branch Beer Kill just east of the Greenfield Park hamlet. The park is a steep, forested, north facing slope with road frontage along Old Greenfield Road. Although remnants of an access driveway are visible, the property is currently undeveloped.

The Town of Wawarsing also owns several outlying parcels of land throughout the Town including:

- The Napanoch Rural Cemetery (a local historic landmark) at the intersection of Hill and McBride Streets and the One-room Schoolhouse and Quaker Meeting House in the hamlet of Greenfield Park (all local historic landmarks)

- Old Landfill Site adjunct to Lippman Park
- The Joseph Y. Resnick Airport just north of Ellenville
- Three parcels surrounding the hamlet of Kerhonkson including the Kerhonkson Reservoir, Sewer Treatment Plant and Water Supply property off Clay Hill Road
- The Town Highway Garage on NYS Route 209 (just south of Jenny Brook Road)
- An undeveloped parcel located on NYS Route 52, adjacent to Kanfer Park

Other Open Space Lands

The **Cragsmoor Conservancy, Inc.**, a local non-profit land trust and volunteer organization working creatively with the community to preserve the distinctive natural and cultural resources of Cragsmoor. Cragsmoor, a national historic district, is a small hamlet located in the Northern Shawangunk Mountains and the only residential community sited on the Shawangunk Mountains.

The Cragsmoor Conservancy also owns several properties within the historic hamlet, including parcels at the intersection of Henry, Otis, and Schyler Roads and on Dellenbaugh Road. In addition, the conservancy holds a 37-acre *conservation easement** also located within the historic hamlet of Cragsmoor.

** These properties are not specifically identified as part of the resource inventory to protect the privacy of those property owners.*



View from Bear Hill looking southwest

(Source: <http://forums.steves-digicams.com/landscape-photos/179532-bear-hill-preserve-cragsmoor-ny.html>)

Bear Hill Nature Preserve is a 50-acre parcel occupying a prominent high point on the western edge of the Shawangunk Mountains. At an elevation of 1,950 feet, the preserve contains sheer white cliffs with spectacular views to the south. The property also contains some unmarked and somewhat dangerous crevices. The property is owned by the Cragmoor Free Library and is open to the public with parking available on Dellenbaugh Road leading to an approximately 1-mile trail managed by Cragmoor Association, Inc.

There are also a substantial amount of parcels classified as **Private Wild and Forest Lands** that exist within the Town of Wawarsing, concentrations of which exist in the following locations:

- Several scattered parcels northeast of Ulster Heights Lake and Cape Pond;
- Several contiguous parcels south of NYS Route 52 to the west of Ellenville;
- Several contiguous parcels surrounding the Oak Mountains MUA (west of the hamlet of Spring Glen);
- On the western slope of the Shawangunk Mountains directly northwest of the Sam's Point Preserve and north of Foordmore Road (these lands are owned by Open Space Conservancy, Inc.);
- Directly north of Lippman Park.

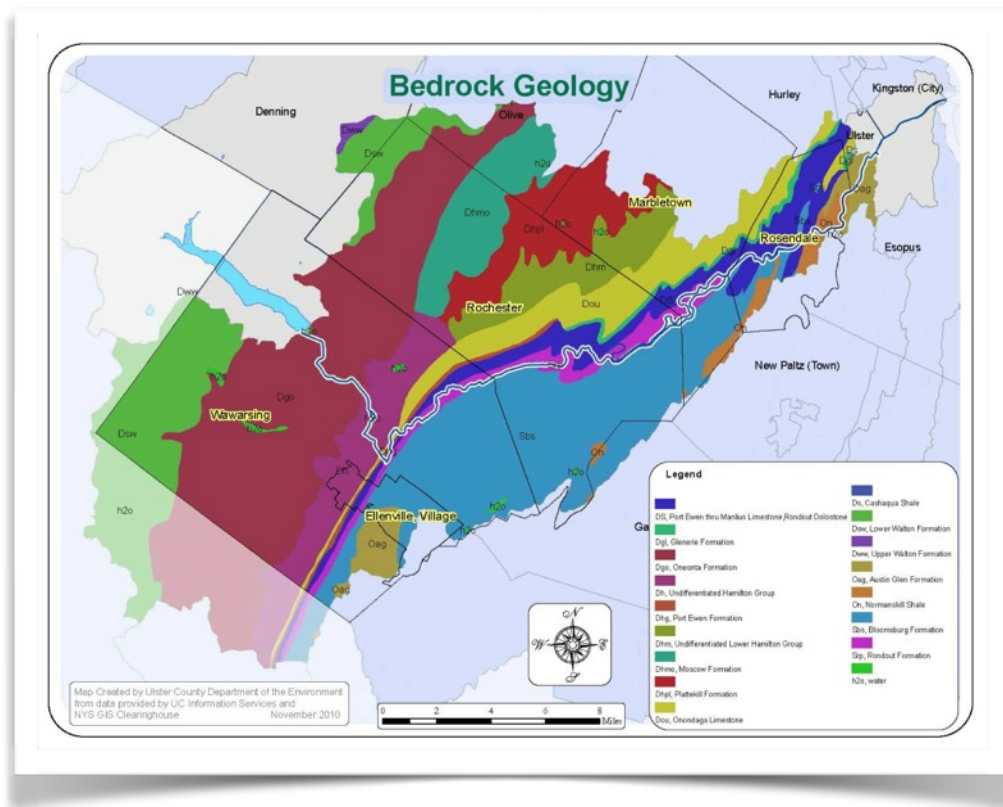
It is unknown if any or all of these parcels contain any level of conservation.

Natural Systems

Everything in the natural world is connected, and it is these inter-connections that define our environment. Understanding the individual layers of an ecosystem can help define appropriate areas for development and the more critical areas worthy of conservation. In Wawarsing, there are some very clearly defined environmental aspects that define the Town's place in the larger ecosystem including the following:

Geology and Topography

Close scrutiny of the Rondout Creek Watershed reveals a complex story of the inter-relationships of bedrock control of drainage from millions of years of sedimentary rock deposition, episodic processes of tectonic uplift and deformation by folding and faulting, eons of erosion of ancient mountains, and more recent glacial action and soil development.



Bedrock Geology Map

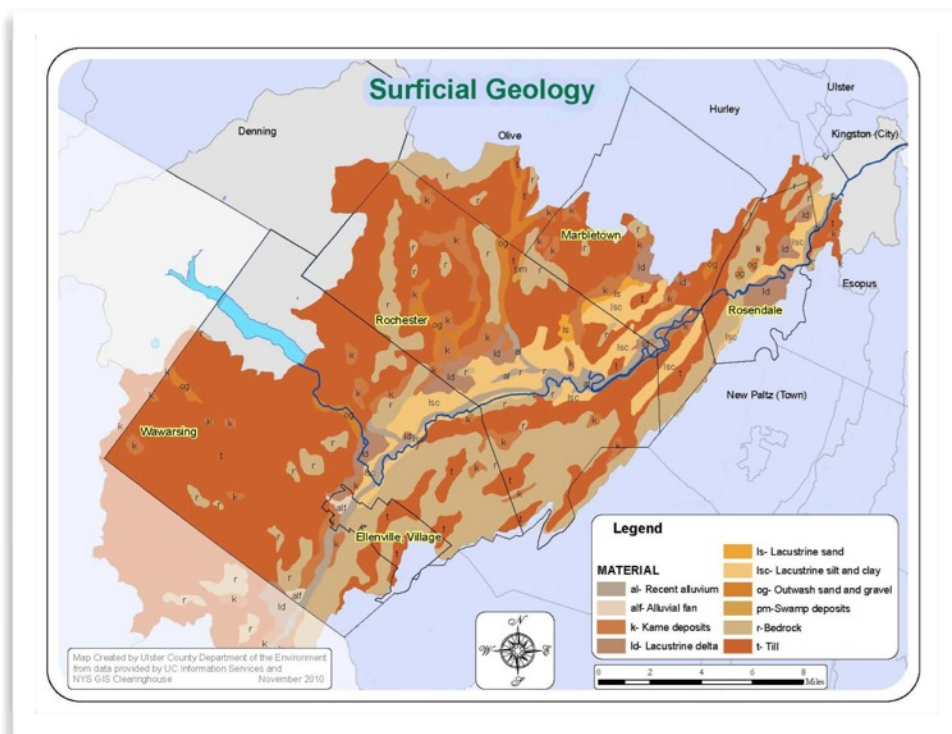
The topography of the watershed has developed over millions of years. Four main periods of bedrock deposition are recorded in the rock record:

Late Ordovician Flysch (Austin Glen, Normanskill) Marine Trough - The oldest sedimentary bedrock units in the basin are the Late Middle Ordovician gray fine-grain thin-bedded siltstone, shale and sandstone deposits named Austin Glen and Normanskill Formations.

Silurian Shawangunk Conglomerate Beach - The Shawangunk Mountains are a Mountains composed of huge slabs of quartzite conglomerate interleaved with thrust slabs of Ordovician Martinsburg (Hudson River Beds of Austin Glen and Normanskill Formations). The conglomerate consists of beds of sandstone and quartz pebbles, which were deposited on a beach.

Late Silurian and Early Devonian Carbonates in warm shallow seas - The folded carbonate belt of Eastern New York includes the Upper Silurian Rondout Formation and the overlying Lower Devonian Helderberg Group. Carbonate rocks are those made up of limestone and dolostone. The chief mineral of limestone is calcite (calcium carbonate) and of dolostone is dolomite (magnesium-calcium carbonate).

Devonian Catskill Delta - Estimates indicate that the 7000 to 9000 feet of sediment were deposited as the Catskill Delta on the edge of a sinking shallow sea. The sediments were eroded from the ancient Taconic Mountains and transported westward to the shallow marine environment.

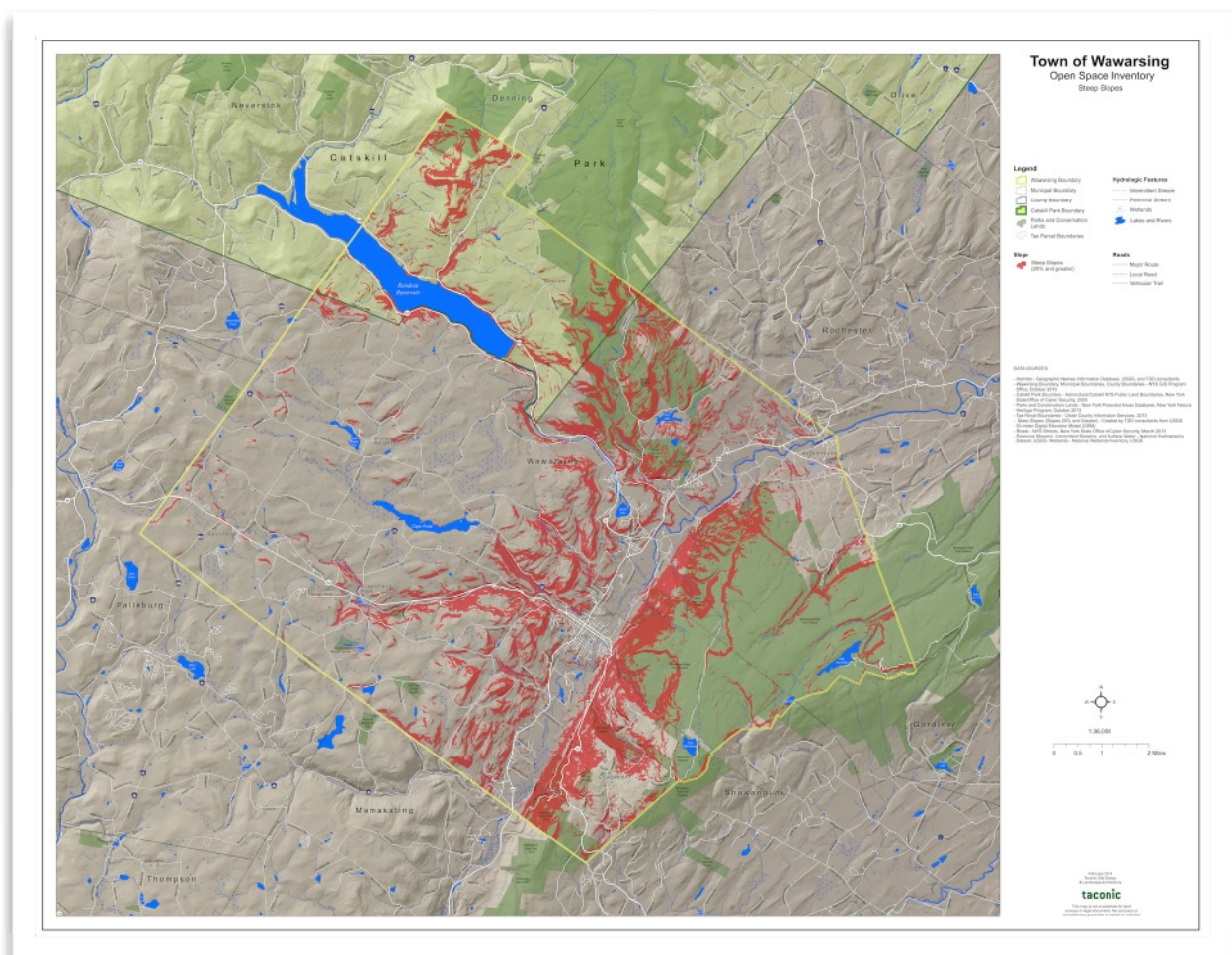


Surficial Geology Map

Overburden is the general term for unconsolidated sediments deposited above bedrock and consists of surficial geologic sediments with developing soil on top. Surficial geology includes the study of sediments placed on the bedrock surface as a result of geologic processes of erosion, transport, and deposition by glaciers, wind, streams, and glacial meltwaters above, within, under and away from the ice. Other processes include lacustrine environments such as ponds and lakes as well as delta formation where streams transport sediments into such still bodies of water and drop the sediments upon entrance. (Geology Text and Map Source: An Interim Watershed Management Plan for the Lower, Non-Tidal Portion of the Rondout Creek, Ulster County, NY)

Topography and Steep Slopes

Route 209 between Kingston and Port Jervis follows a series of southwestward-trending stream valleys (Esopus Creek, Roundout Creek, Basher Kill, and the Neversink River, north to south, respectively). These stream follow a natural saddle in the landscape called the Port Jervis Trough. This valley follows the strike of northwest dipping strata along the western side of the Great Valley, a valley that formed along the easily eroded shales, the older, more weathering-resistant dolomite and limestone formations, and the even more resistant sandstones and conglomerates. To the northwest of the valley the land rises to the height of the Catskills Plateau where the mountaintops consist of more weathering-resistant sandstone and conglomerate. In the 19th Century, the lateral continuity of the streams valleys was utilized for the construction of the Delaware and Hudson Canal. (Source: <http://3dparks.wr.usgs.gov/nyc/parks/loc27.htm>)



Steep Slopes Map

As expected, Wawarsing's topography follows its underlying geologic features. Elevations within the Town range from 240 feet above sea-level at the Roundout Creek in Kerhonkson to 2,380 feet above sea-level and rising at the extreme northwest corner of the Town (in the Catskill Park). As important, the

Waterbodies

Along with the Rondout Reservoir, there are many other small bodies of water (small lakes and ponds) scattered throughout the Wawarsing landscape including:

Rondout Reservoir - part of the New York City water supply system, this man-made reservoir is over 6 miles long and holds approximately 50 billion gallons of water.

Cape Pond - an impounded waterbody along the Beer Kill, Cape Pond is the second largest waterbody in the Town at approximately 225 acres.

Ulster Heights Lake - a small, 55-acre impounded lake, this lake feeds into the Beer Kill.

Sky Lakes - Wawarsing has the fortune of being home to 3 of the 5 glacial 'Sky Lakes' located along the top plateau of the Shawangunk Mountains. These lakes specifically are:

Lake Maratanza - is the highest lake on the Shawangunk Ridge at 2,245 feet above sea level and is the second largest Sky Lake at approximately 40 acres. The lake is located within Sam's Point Preserve and served as a drinking water supply to the Village of Ellenville.

Mud Pond - Mud Pond is the smallest of the five "sky lakes" at approximately 9 acres. Mud Pond is a shallow waterbody choked with aquatic vegetation and does not contain the ruggedness of its sister waterbodies.

Awosting Lake - The largest of the "sky lakes", Lake Awosting is a long, sweeping pristine lake surrounded by forest and white Shawangunk Conglomerate cliffs. Lake Awosting is approximately 88 acres in size.

Honk Lake - As the second impounded waterbody along the Rondout Creek, Honk Lake is a small 44-acre lake with another impressive waterfall just below the lake's outfall called Honk Falls.

Lyons Lake - A 33-acre private impounded lake located just south of Rogue Harbor Road drains into the Vernoo Kill. This lake is wholly contained on private property completely surrounded by the Vernoo Kill State Forest.

Kerhonkson Reservoir - A small (less than 2-acre) impounded water supply lake servicing the Kerhonkson Water District (status unknown) located between Route 44/55 and Foordemoore Road.

Many of these bodies of water are small impounded water features that have been created along natural stream corridors and/or in support of agricultural production and water supply.

Watercourses (Creeks and Streams)

A watershed is a land area that drains to a common point or waterway, such as a stream, lake, wetland, or aquifer, and is based on surface topography. Watersheds are described below. Creeks and streams serve

as the collection corridors of all surface water resources within a watershed. The majority of the Town's landscape drains into the Rondout Creek (and ultimately into the Hudson River) with the remaining landscape area draining into the Shawangunk Kill watershed.

Several major tributary streams join the main stem of the Rondout Creek as it flows through Wawarsing including Vernooey Kill and West Branch Vernooey Kill (from west), Brandy Brook, Beer Kill and West Branch Beer Kill (from west), Fantine Kill (from west), Botsford Brook (from west), Sandberg Creek (from south), Homowack Kill (from south), Lauren Kill (from west), Witch's Hole Unnamed, Shingle Gully, North Gully, South Gully (from east), and Mine Hole Brook (from east).

Wetlands and Riparian Buffers

Wetlands and riparian buffers are among the most fragile and sensitive natural habitats, and are granted exceptional measures of protection under both federal, state and sometimes local law. Wetlands provide a multitude of ecological, economic and social benefits important to public welfare and the economic vitality of the region, and are therefore a high priority for preservation efforts. Wetlands are critically important for:

- Providing a common linkage between aquatic systems (streams, wetlands, riparian buffers, etc.);
- Protecting water quality by functioning as chemical and biological oxidation basins and nutrient traps for nitrogen and phosphorus and as filters for surface water pollutants;
- Controlling flood and stormwater runoff by storing or regulating natural flows;
- Controlling erosion and water turbidity by serving as sedimentation areas and filter basins, absorbing silt and organic matter;
- Providing a critical living, breeding, nesting and feeding environment for many forms of wildlife, including, but not limited to, mammals, wildfowl, migratory birds, shorebirds, reptiles, amphibians, rare species, especially endangered and threatened species, and other dependent plants and animals;
- Providing breeding and spawning grounds, nursery habitat and food for various species of fish;
- Providing open space and visual relief from residential and commercial development;
- Providing areas for recreational uses including, but not limited to, hunting, fishing, boating, hiking, bird watching, photography and camping; and
- Serving as outdoor laboratories and living classrooms for the study and appreciation of natural, history, ecology and biology.

NYSDEC Wetlands - In total, there are approximately 1,030 acres of NYSDEC regulated wetlands (or 5 percent of the Town's land area) and approximately 1,180 acres of non-regulated wetlands (or 6 percent of the Town's land area). Wetland areas that are smaller than 12.4 acres do not fall under the jurisdiction of the NYSDEC.

Wawarsing Wetland Complex -The Shawangunk Mountains Regional Open Space Plan specifically calls out and describes the large complex of interconnected wetlands surrounding Cape Pond as a *complex of large wetlands well maintained by a large area of surrounding upland forest. The forested wetlands along Brandy Brook contain trees that are 480 years old, as well as unique and rare communities and species. A wetland along the Beer Kill can be canoed and offered a diversity of aquatic habitats. The overall wetland and forest complex serve as an important connection between the Shawangunk and Catskill Mountains.*

National Wetlands Inventory (NWI) - *These US Fish and Wildlife Service topical wetland maps are graphic representations of the type, size and location of the wetlands and deepwater habitats in the United States. These maps have been prepared from the analysis of high altitude imagery in conjunction with collateral data sources and field work. The maps represent reconnaissance level information on the location, type, size of wetlands habitats such that they are accurate at the nominal scale of the 1:24,000 base map. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site, may result in revision of the wetland boundaries or classification established through image analysis. The Service uses the Cowardin et al. (1979) definition of wetland. This definition is the standard for the agency and is the National Standard for wetland mapping, monitoring, and data reporting as determined by the Federal Geographic Data Committee in 1996.*

Probable and Possible Wetlands - Other areas adjacent to mapped wetland areas indicate the locations of known hydric soils and, therefore, these areas should be investigated as part of an individual site wetland delineation.

Vernal Pools - In addition to the perennial wetlands, Wawarsing contains seasonal wet pockets known as intermittent woodland or vernal pools. Vernal pools are seasonal bodies of water, likely located in a wooded area that fill with water in the spring from snow melt and/or spring rain runoff. Vernal pools are an important habitat feature that supports high biodiversity. As these small pools are typically dry by summer, they do not support fish populations and offer breeding opportunities for amphibians and other invertebrates where there is no threat from the predation of fish.

Floodplains

Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances. These measures are adopted by state and local governments so that the citizens in the community will be eligible to purchase flood insurance. (Source: FEMA website)

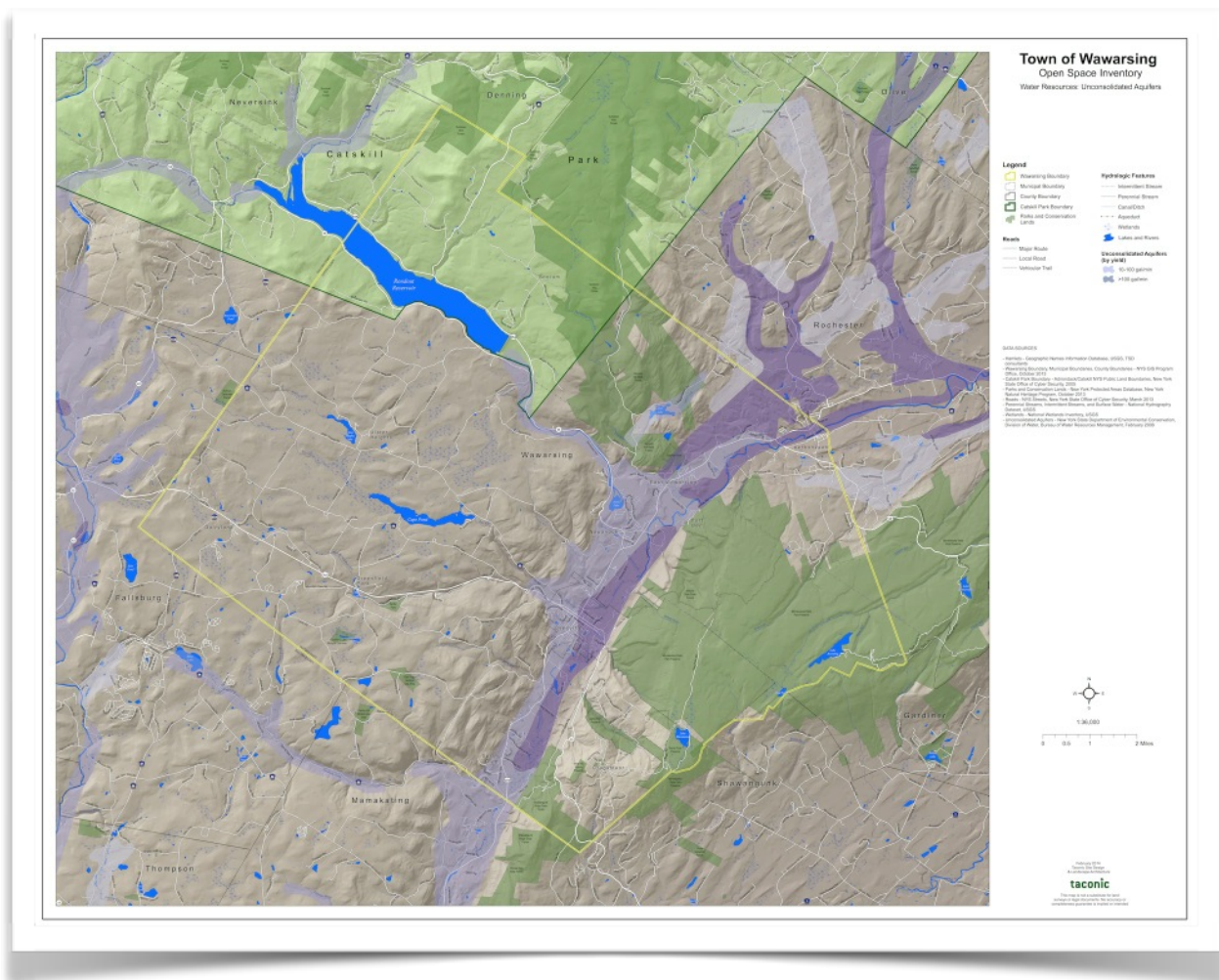
Floodplains in the Town of Wawarsing generally flow south to north and follow the Rondout Creek and Sandburg Creek corridors. Refer to the Surface Waters Map for floodplain locations.

Floodplains and riparian buffers play a particularly important role in watershed management by:

- Slowing the rate of runoff
- Capturing excess nutrients carried from the land
- Protecting stream banks and floodplains from erosion
- Regulating water temperature changes
- Providing food and cover to terrestrial and aquatic fauna
- Acting as natural filtration systems.

Aquifers

The portion of rainfall that does not run off into a water body moves below the earth's surface and infiltrates underground water storage areas called aquifers, where it can be tapped for human use.



Water Resources: Unconsolidated Aquifers

The most productive aquifers in upstate New York consist of unconsolidated deposits of sand and gravel that occupy major river and stream valleys or lake plains and terraces. Ground water in these aquifers occurs under water-table (unconfined) or artesian (confined) conditions. Municipalities, industries, and farms have been built over many of these aquifers because they typically form flat areas that are suitable for development and generally provide an ample ground-water supply. This development, coupled with the high permeability of these deposits and shallow depth to the water table, makes these aquifers particularly susceptible to contamination from point sources such as landfills and petroleum storage and non-point sources such as urban and agricultural runoff. Substantial aquifers are found under the Rondout and Sandberg Creeks. Throughout the Town is a network of streams, ponds and wetlands, as well as open and forested land, that control the water flow and helps recharge the aquifers. This is important as aquifers represent one of the most utilized sources of water for the residents of Wawarsing. (Source: <http://ny.water.usgs.gov/projects/bgag/aquifer.maps/maps.html>)

As shown in the Water Resources: Unconsolidated Aquifers Map below, acquirers have been categorized based on their potential yield, specifically 10 to 100 gallons per minute and 100+ gallons per minute.

Watersheds and Stream Classifications

Watersheds

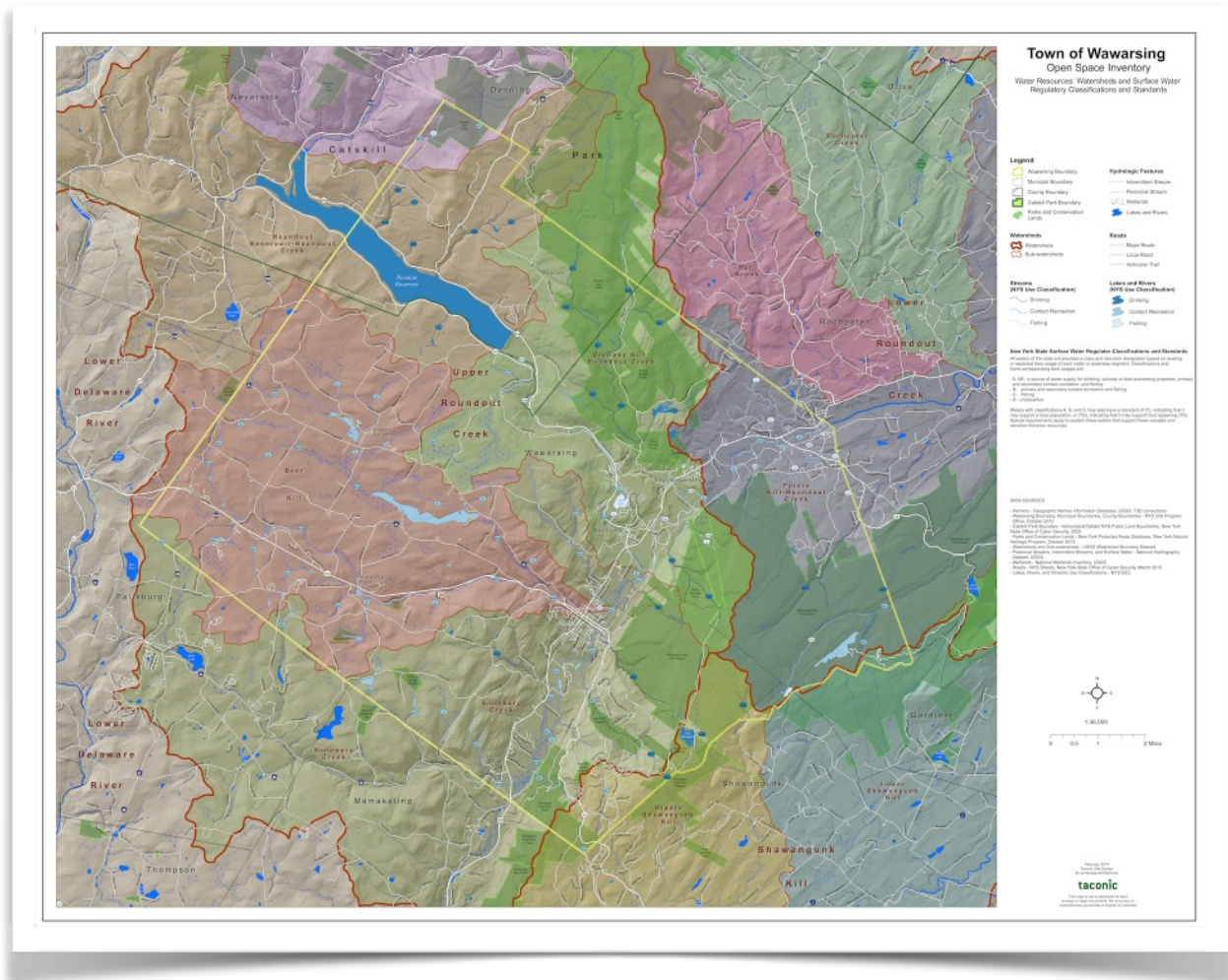
New York is rich with valuable water resources. These rivers, streams, lakes and ponds are necessary for drinking and bathing; agricultural, commercial and industrial uses; and fish and wildlife habitat. In addition, New York's waterways provide opportunities for recreation; education and research; and aesthetic appreciation.

Certain human activities can adversely affect, even destroy the delicate ecological balance of these important areas, impairing the uses of these waters. The policy of New York State; set forth in Title 5 of Article 15 of the Environmental Conservation Law (ECL) , is to preserve and protect these lakes, rivers, streams and ponds. To implement this policy, the New York State Department of Environmental Conservation (DEC) created the Protection of Waters Regulatory Program to prevent undesirable activities on water bodies by establishing and enforcing regulations that are compatible with the preservation, protection and enhancement of the present and potential values of the water resources; protect the public health and welfare; and are consistent with the reasonable economic and social development of the state.

Classification of Waters

All waters of the state are provided a class and standard designation based on existing or expected best usage of each water or waterway segment.

- *The classification AA or A is assigned to waters used as a source of drinking water.*
- *Classification B indicates a best usage for swimming and other contact recreation, but not for drinking water.*
- *Classification C is for waters supporting fisheries and suitable for non - contact activities.*
- *The lowest classification and standard is D.*



Water Resources: Watersheds and Surface Water Classifications

Waters with classifications A, B, and C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning (TS). Special requirements apply to sustain these waters that support these valuable and sensitive fisheries resources.

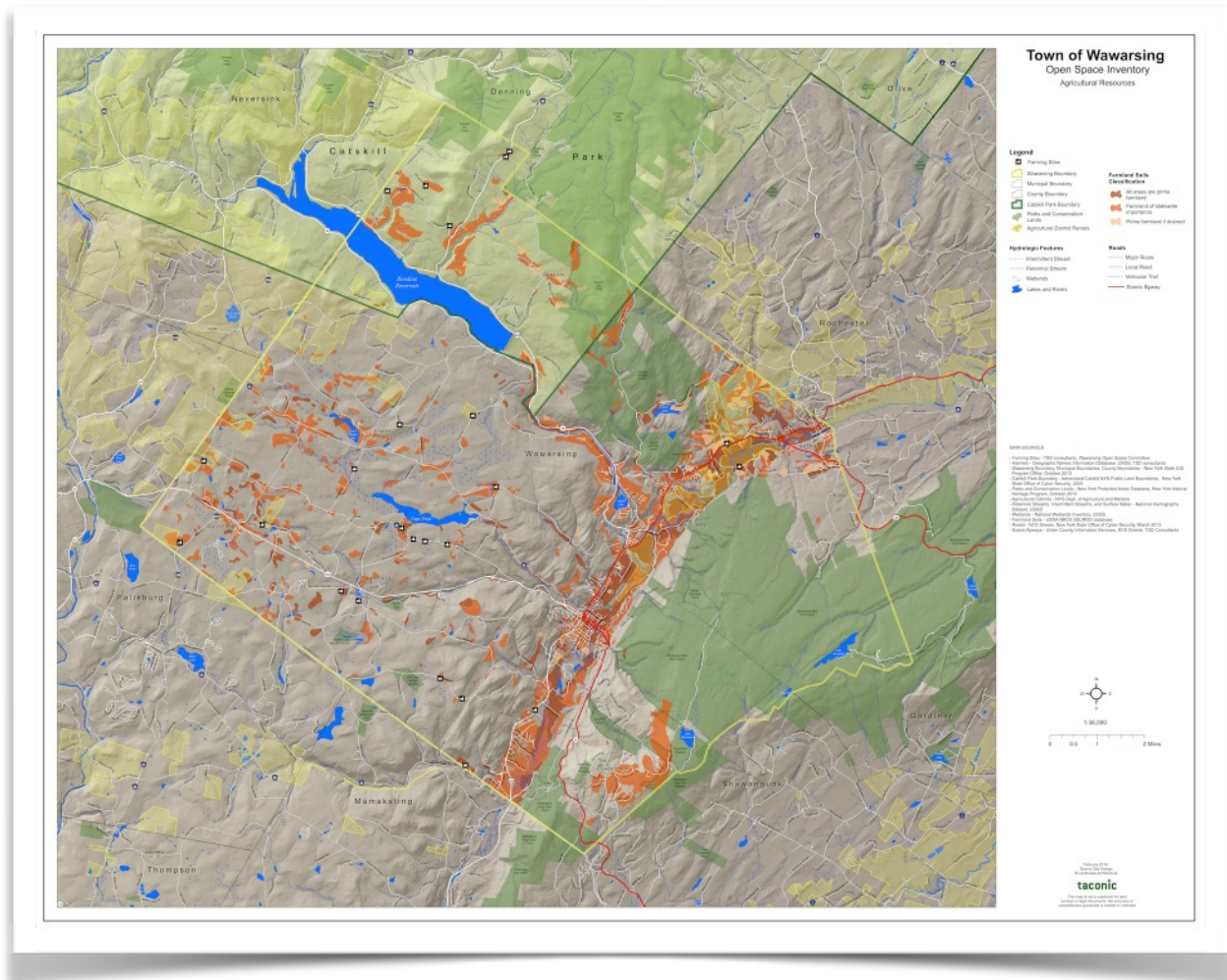
Small ponds and lakes with a surface area of 10 acres or less, located within the course of a stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Protection of Waters.

To determine the classification and standard of a given watercourse, contact the Department of Environmental Conservation regional office responsible for the area in which the watercourse is located (see page vi of this guide for addresses and phone numbers).

Certain waters of the state are protected on the basis of their classification. Streams and small water bodies located in the course of a stream with a classification of AA, A, or B, or with a classification of C with a standard of (T) or (TS) are collectively referred to as "protected streams," and are subject to the stream protection provisions of the Protection of Waters regulations. (Source: NYSDEC website <http://www.dec.ny.gov/permits/6042.html>)

Agriculture

While agricultural lands constitute a relatively small fraction of the Town of Wawarsing's land use, they represent a very important part of the economy and culture of Wawarsing. Approximately 3,670 acres of land (8.7% of the town's land area) are in agricultural use in the Town of Wawarsing. This figure is based on the land use classification code in the tax assessment data. Most of the active agricultural properties are located in the Rondout Valley portion of Town. These properties are illustrated on the Agricultural Resources Map.



Agricultural Resources Map

Currently, there seems to be a resurgence of small farmers working the land surrounding the ever increasing opportunities of agriculture based tourism and the social movement towards eating local and organic food products. Agricultural uses are varied in Wawarsing, and include vegetables; small dairy; poultry and livestock; horse boarding; silviculture (tree farming); and specialty crops such as garlic, mushrooms, and maple syrup. A good amount of the agricultural land in Wawarsing is also used to grow hay for livestock feed, which is an important supporting agricultural use. A lot of this land has converted to shrubby meadow due to non-use.

Agricultural Districts

The purpose of agricultural districting is to encourage the continued use of farmland for agricultural production. The Program is based on a combination of landowner incentives and protections, all of which are designed to forestall the conversion of farmland to non-agricultural uses. Included in these benefits are preferential real property tax treatment (agricultural assessment and special benefit assessment), and protections against overly restrictive local laws, government funded acquisition or construction projects, and private nuisance suits involving agricultural practices. (Source: <http://www.agriculture.ny.gov/AP/agservices/agdistricts.html>)

GIS data for agricultural districts were collected from three (3) sources, the New York State Department of Agriculture and Markets, the Ulster County Information Service Department, and the Ulster County Real Property Tax Service respectively. While the first two noted sets of GIS data contain and identify many of the same parcels of land as being located within Ulster County Agriculture District #1, each data set also contains parcels of land that are not contained within the other. A third source of data from the Ulster County Real Property Tax Service further identifies land areas in excess of either of the noted GIS data sets, however, this data does not specifically identify the district parcels.

For the purposes of this inventory, we have determined that the New York State Department of Agriculture and Markets data set is the most complete source and it is this data set that has been projected on the related inventory map. However, both GIS data sets have been included within the project GIS database.

In summary, the Town of Wawarsing contains approximately 4,000 acres of land located within Ulster County Agriculture District #1. Relative to adjacent Towns, Wawarsing has a relatively small amount of agricultural districts when compared to the overall size of the Town with most agricultural district parcels concentrated north of Ellenville in the Rondout Valley and south of the Rondout Reservoir.

Prime and Statewide Significant Soils

Another way to assess agricultural resources is by assessing viable agricultural soil conditions. One way to do this is to look at the *Prime Soils* and *Soils of Statewide Significance* within the Town.

Prime soils are lands that have the best characteristics for agricultural production with the least input - these are the best lands to grow high yields of crops. Prime soils can be thought of as our “land bank” for growing food. Prime soils are defined and mapped by the United States Department of Agriculture (USDA).

Soils of Statewide Significance are nearly Prime Soils and economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce yields as high as Prime Soils if conditions are favorable.

About 5,000 acres of the land in Wawarsing (or 12% of the town’s land area) consists of prime soils. A large portion of these prime soils that are not being used for farming are located in the floodplain areas.

Some of these lands are post-agricultural (trees and shrub have grown in) and some have large-lot residential homes associated with the land.

Individual Farms

Most of the active farming in Wawarsing is taking place along the Rondout Creek between Ellenville and Kerhonkson. A large portion of this area is owned by the New York State Department of Corrections Service, including Colony Farm. There are also sporadic nodes of active farming scattered throughout the Town notably to the south of Ellenville, in the vicinity of the hamlets of Greenfield Park and Dairyland, and to the south of Cape Pond.



Agricultural Lands in Wawarsing

Based in Accord, the RVGA maintains an active list of members that showcases some of the larger agricultural operations in the Rondout Valley. *The Rondout Valley Growers Association (RVGA) was organized in 2003 to invigorate the health of farm businesses by undertaking a strong, focused effort to better market Rondout Valley farm products. The survival of the area's farms is paramount to the protection of the valley's open space.* (Source: http://www.rondoutvalleygrowers.org/about_rondout_valley_growers.cfm)

Recreation, Scenic and Historic Resources

Many of the landscape patterns we see today all relate back to the Town's physical characteristics. The fertile lowlands provided food, the corridors of moving water provided industrial power and the massive landforms forced transportation systems (roads, canal, railroad, etc.) to specific areas and routes. These factors also helped shape the early settlement hamlets such as Ellenville, Napanoch, and Cragmoor.

Today, Wawarsing has become a hot spot for outdoor recreation and agri-tourism in large part to the Town's overlapping physical features, its scenic qualities and many of historic remnants that remain.

For the purposes of this inventory, the tangible elements of these features have been categorized in the following manner:

Outdoor Recreation Resources are defined as and include non-motorized transportation routes (rail trails, carriageways, foot trails, etc.), access to water and other recreational nodes (parking, trailheads, sites, etc.), and other unique geologic or hydrologic features (ice caves, waterfalls, etc.)

Scenic Resources are defined as significant viewpoints. From these significant viewpoints, view shed areas become evident and should inform the next phase of open space planning.

Historic Resources include National and State Registered historic sites, local historic landmarks and other observed significant historic markers.

These resources are illustrated on the Recreation, Historic and Scenic Resources Map.

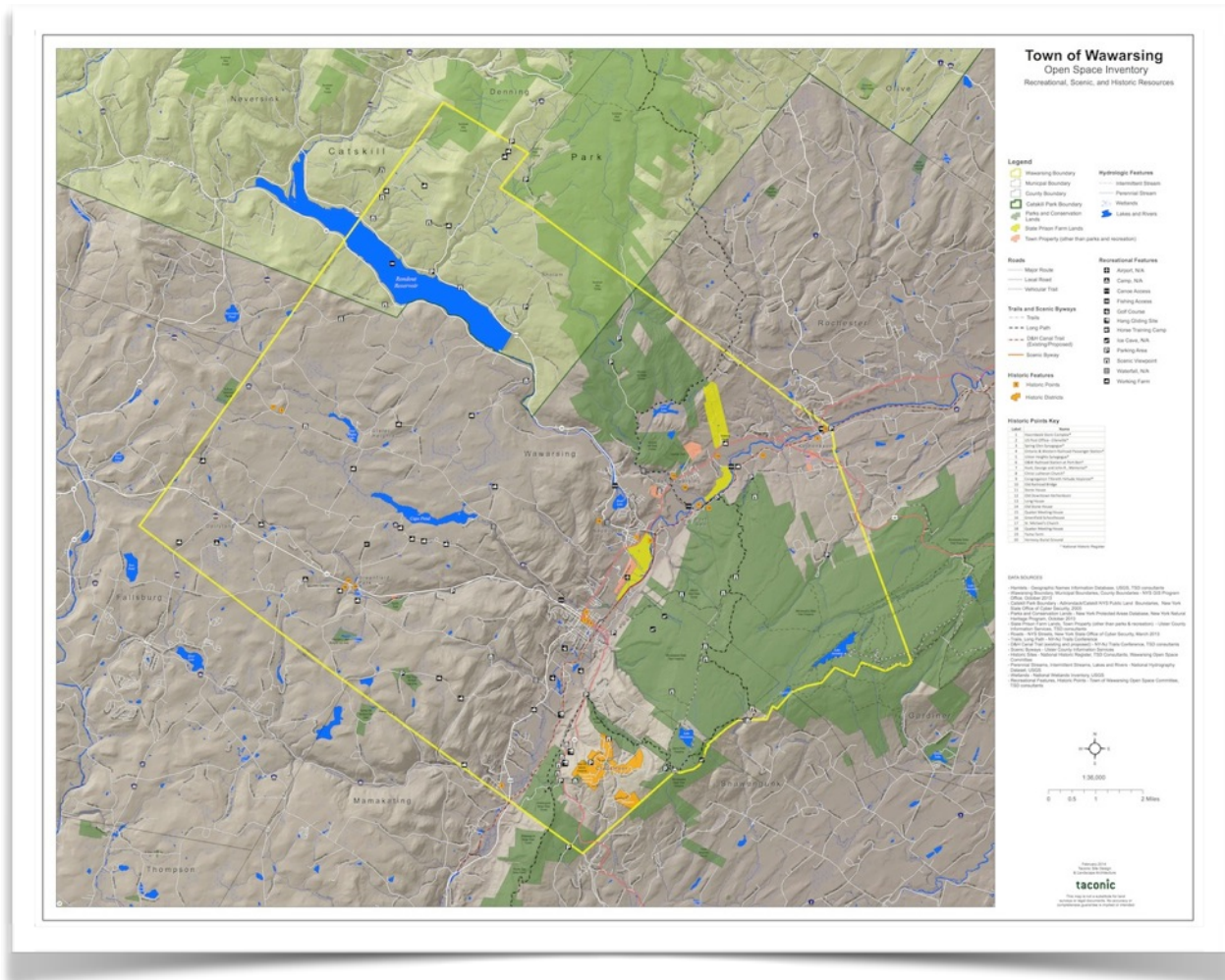
Outdoor Recreation

Outdoor recreation is an open space-related land use that is important to the local community. Getting outside to explore the town's open space lands is a vital way for people to learn about, and appreciate, open space. This fosters a strong connection between people and open space and results in greater appreciation of nature and its processes. The Shawangunk Mountains, the Vernooy Kill State Forest and the D&H O&W Rail Trail are the three major areas of the Town that provide the most opportunities for outdoor recreation. These corridors also connect to larger areas of recreation outside of Wawarsing.

Wawarsing also contains many unique features that contribute to the overall quality of outdoor recreation resources. These include significant geologic features such as the Ellenville Fault Ice Caves, Shingle, North and South Gully (on the west side of the Shawangunk Mountains) and hydrologic features such waterfalls like Verkeerderkill Falls in Minnewaska State Park Preserve and Honk Falls, just below Honk Lake. The Rondout Reservoir and the Rondout Creek (along Route 209) also provide many opportunities for water recreation including boating and fishing.

Some unique recreational activities happening in Wawarsing include rock and ice climbing and hang gliding. Rock climbing opportunities potentially exist in Minnewaska State Park Preserve (currently not authorized) in the vicinity of Foordemoore Road and Berme Road and ice climbing sites existing within

With's Hole State Forest. Hang Gliding is happening along the west side of the Shawangunk Mountains above Ellenville with several launch sites for hang-gliders adjacent to Route 52 and landing zones at the east end of Hang Glider Road (off Route 209).



Recreation, Scenic and Historic Resources

Trails

Non-motorized trails are abundant in Wawarsing and mostly concentrated on the Shawangunk Mountains. Many of the foot trails are updated and maintained by the New York-New Jersey Trail Conference. Major access to this regional trail network exists at Sam's Point Preserve, Berme Road Park in Ellenville, at Lippman Park, on Main Street in Kerhonkson and along Lundy Road.

D&H O&W Rail Trail - Currently the D&H O&W Rail Trail extends from Kingston to the Town of Rochester/Town of Wawarsing Town line, just north of Kerhonkson, as a multi-use public trail. Planning is underway to acquire lands and easements to extend the trail south to the Napanoch Train Station. Long term county planning calls for the rail trail to extend south through Ellenville, the Nevelle Resort property and continuing to the Sullivan County line and beyond.

Long Path - The **Long Path** is a 347.4-mile long-distance hiking trail beginning at the George Washington Bridge in Fort Lee, New Jersey and ending at Altamont, New York, in the Albany area. While not yet a continuous trail, relying on road walks in some areas, it nevertheless takes in many of the popular hiking attractions west of the Hudson River, such as the New Jersey Palisades, Harriman State Park, the Shawangunk Mountains and the Catskill Mountains. It offers hikers a diversity of environments to pass through, from suburbia and sea-level salt marshes along the Hudson to wilderness and boreal forest on Catskill summits 4,000 feet in elevation. (Source: http://en.wikipedia.org/wiki/Long_Path)

The Long Path passes through the Town of Wawarsing at Port Ben and connects the Shawangunk Mountains with the Vernooey Kill State Forest and the Catskill Mountains beyond.

Shawangunk Mountains Trail - The Shawangunk Mountains Trail connects the Long Path with the northern Shawangunks into Minnewaska State Park Preserve and Mohonk Preserve.

Old Carriage Roads - There are several old carriage trails on the Mountains including Smiley Road from Ellenville into Minnewaska State Park Preserve and High Point Road in Sam's Point Preserve.

Lippman Park - As noted earlier, Lippman Park contains both active and passive recreation opportunities for residents including a high concentration of technical mountain bike trails. Lippman Park also acts as the de facto trailhead to the Vernooey Kill State Forest.

Scenic Viewpoints

Wawarsing's massive landforms and high elevations offer countless and some of the best scenic viewpoints and viewsheds in the Hudson Valley. From the Shawangunk Mountains, panoramic views radiate eastward toward the Hudson River, southward along the Mountains and westward to the Catskill Mountains. Many of the Town's recreational trails take full advantage of the Town's scenic qualities by connecting one high elevation viewpoint after another. From the Rondout Valley, sweeping views from Route 209 across the Rondout Creek/Sandburg Creek floodplains to the Shawangunk Mountains welcome visitors as they enter the Town from the north and south.

The following panoramic images attempt to express the breadth of Wawarsing's scenic quality:



View from Sam's Point (looking southeast)



View from Route 209 (south of Ellenville)



View from Oak Mountains Road (looking east)



View from Route 209 (near Napanoch)



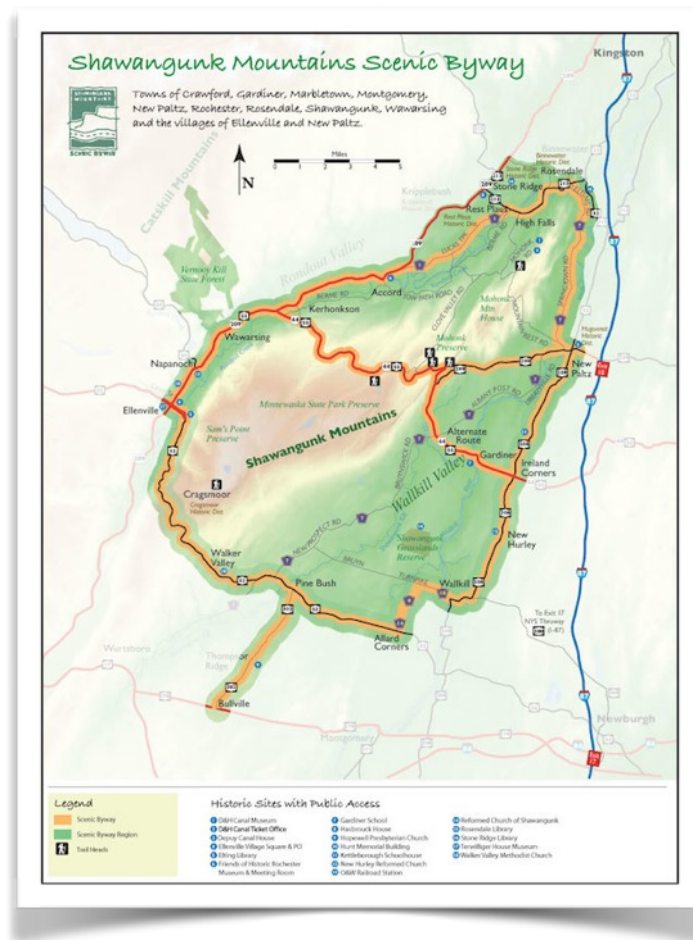
View from Cragsmoor Stone Church (looking northwest)

Shawangunk Mountains Scenic Byway - The Town of Wawarsing also have the fortune of being part of the Shawangunk Mountains Scenic Byway, encompassing the western half of the lower loop of the byway.

We live in a region of mountains, forests, farms, rivers and streams, small hamlets and rolling, still unspoiled countryside, alive with nature and, yes, it is beautiful here. The region is outlined by the Shawangunk Mountains Scenic Byway, officially designated a New York State Scenic Byway by the state legislature and the governor in the fall of 2006. An alternate route through Gardiner was added in the fall of 2009.

The now 88-mile byway encircles the northern Shawangunk Mountains and travels through the Rondout and Wallkill valleys, linking communities that have a common relationship to the northern Shawangunks and forming a distinct region of the state with its own special character. The state awarded designation based on the significance of the scenic, natural, historic and recreational resources in the region.

During the six years of planning the byway, our nine towns and two villages came to realize that we have a lot in common and that much can be achieved by working together. So we created an inter-municipal partnership to implement our corridor management plan, to help improve our transportation systems, and to advance our mutual goal of gaining economic growth through tourism while helping to preserve the important resources of our region.



Shawangunk Mountains Scenic Byway Map

The Shawangunk Mountains Regional Partnership of the towns of Crawford, Gardiner, Marletown, Montgomery, New Paltz, Rochester, Rosendale, Shawangunk, Wawarsing and the villages of Ellenville and New Paltz is the management organization for the Shawangunk Mountain Scenic Byway.

(Source: <http://mtnscenicbyway.org/about.html>)

Other notable scenic viewpoints are noted on the Recreation, Scenic and Historic Resources Map.

Historic Districts and Landmarks

National and State Register of Historic Places - Wawarsing contains several National and State historic sites with official designation including:

Cragsmoor Historic District - *includes most of that hamlet atop the Shawangunk Mountains in the Town of Wawarsing, part of Ulster County, New York, USA. It is roughly bounded by Henry, Cragsmoor and Sam's Point roads, a Y-shaped area of 3,620 acres. Many of the buildings in the district date to Cragsmoor's founding as an art colony in the late 19th century, when Edward Lamson Henry and some of his fellow painters visited what was then a small mountain hamlet for local loggers and grew enamored of the scenery. Many homes were designed by Frederick Dellenbaugh and Bert Goldsmith. George Inness, Jr. and Charles Courtney Curran were among the artists who lived and worked here. **It was added to the National Register of Historic Places in 1996.** (Source: http://en.wikipedia.org/wiki/Cragsmoor_Historic_District)*

Chetolah - *also known as the George Inness, Jr. Estate, is a historic estate located at Cragsmoor in Ulster County, New York. The estate includes the main house and 10 support structures. The main house was begun in 1901 and is a large, rambling, 2½-story, eclectic style residence with a hipped, metal-sheathed roof with both shed and eyelid type dormers. It features both a stucco and shingled exterior. Other buildings include a greenhouse, studio, garage, two residences, a log cabin, and stone tower and gatehouse. It was designed by and used as a summer home by George Inness, Jr. (1854–1926), son of noted artist George Inness (1825–1894). In 1936, the estate was purchased by the missionary order Daughters of Mary, Health of the Sick and served as Motherhouse and Novitiate until 1970. **It was listed on the National Register of Historic Places in 1980.** (Source: <http://en.wikipedia.org/wiki/Chetolah>)*

Ellenville Fault Ice Caves - *are the largest known open fault in the United States with corresponding ice caves. As a result of the cool microclimate, ice is present throughout the year and more northern plants such as black spruce, hemlock, mountain ash, and creeping snowberry, and bryophytes are able to survive. **It was designated a National Natural Landmark in 1967.** (Source: http://en.wikipedia.org/wiki/Sam's_Point_Preserve)*

Local Historic Landmarks - In recent years, the Wawarsing Historic Preservation Commission, through action by the Town Board, has secured local historic status to several structures in Town including several at the historic Yama Farm, structures in the hamlet of Greenfield Park and the Vernooy Burial Ground.



Local Historic Landmarks (Yama Farm Buildings and the old Quaker Meeting House)

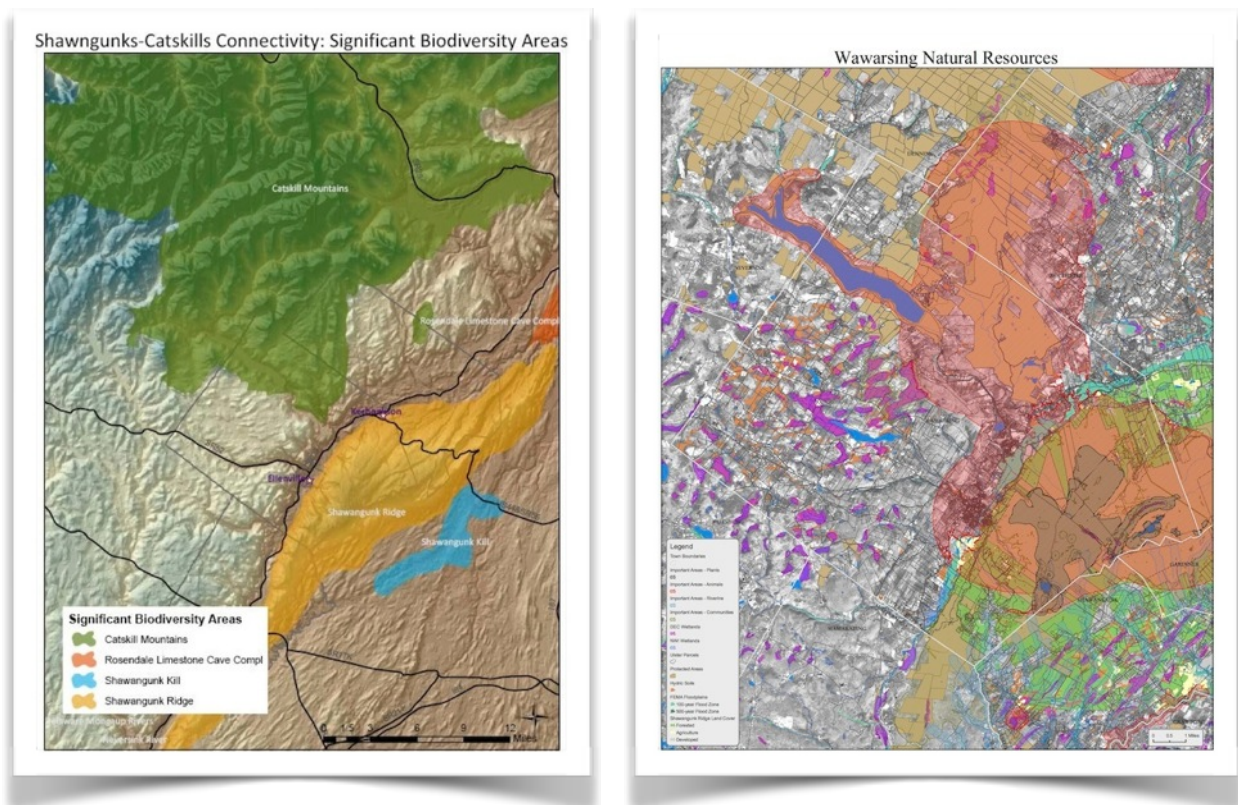
Other national and state historic places (in the form of individual structures) and local historic landmarks are noted on the Recreation, Scenic and Historic Resources Map.

Biodiversity and Connectivity

Large, connected open spaces and very important to maintaining a biodiversity of species. Wawarsing contains 2 major NYSDEC Significant Biodiversity Areas (SBAs) and a significant number of other high quality habitat types including State Forests, major water features and large wetland systems.

Forests are part of the essential ecology and character of Wawarsing and cover over 90% of the Town. Wawarsing has a critical mass of not only forests, which extend into all adjacent Towns, but portions of the high quality forests that exist along the Shawangunk Mountains and within the Catskill Mountains, and the connection between them. Forests of this type have the scale of habitat(s) necessary to support and contain natural processes of ecosystems with plants and animals, including rare species, depending on such a diverse series of ecological processes to survive.

This connection between the Shawangunks and the Catskills is often referred to as the “Catskill-Shawangunk Greenway” and refers to the area along the Rondout Creek and Route 209 between the hamlets of Port Ben and Kerhonkson. This is the closest point between Minnewaska State Park Preserve and the Vernooij Kill State Forest and the Natural Heritage Communities of each.



NYSDEC Significant Biodiversity Areas / Shawangunk Mountains Green Assets Program Map for Wawarsing

The Shawangunk Ridge Biodiversity Partnership is working to protect and restore biological connections between the Shawangunks and the Catskills (a sub-range of the Appalachians) to the north. The Shawangunks are famous for

outdoor recreation, biodiversity and scenery; and New York's Catskill Park is the state's second greatest wildlands complex (after the Adirondack Park).

Safe wildlife crossings of roads will be crucial to restoring this connection, as well as other land acquisitions and conservation easements on private lands. Some of the Conservation Groups active in this region include the NYS OPRHP, Open Space Institute, Mohonk Preserve, Shawangunk Mountains Biodiversity Partnership, The Nature Conservancy, and others. (Source: Wildlands Network website at <http://www.twp.org/node/664#sthash.IOrjHawA.dpuf>)

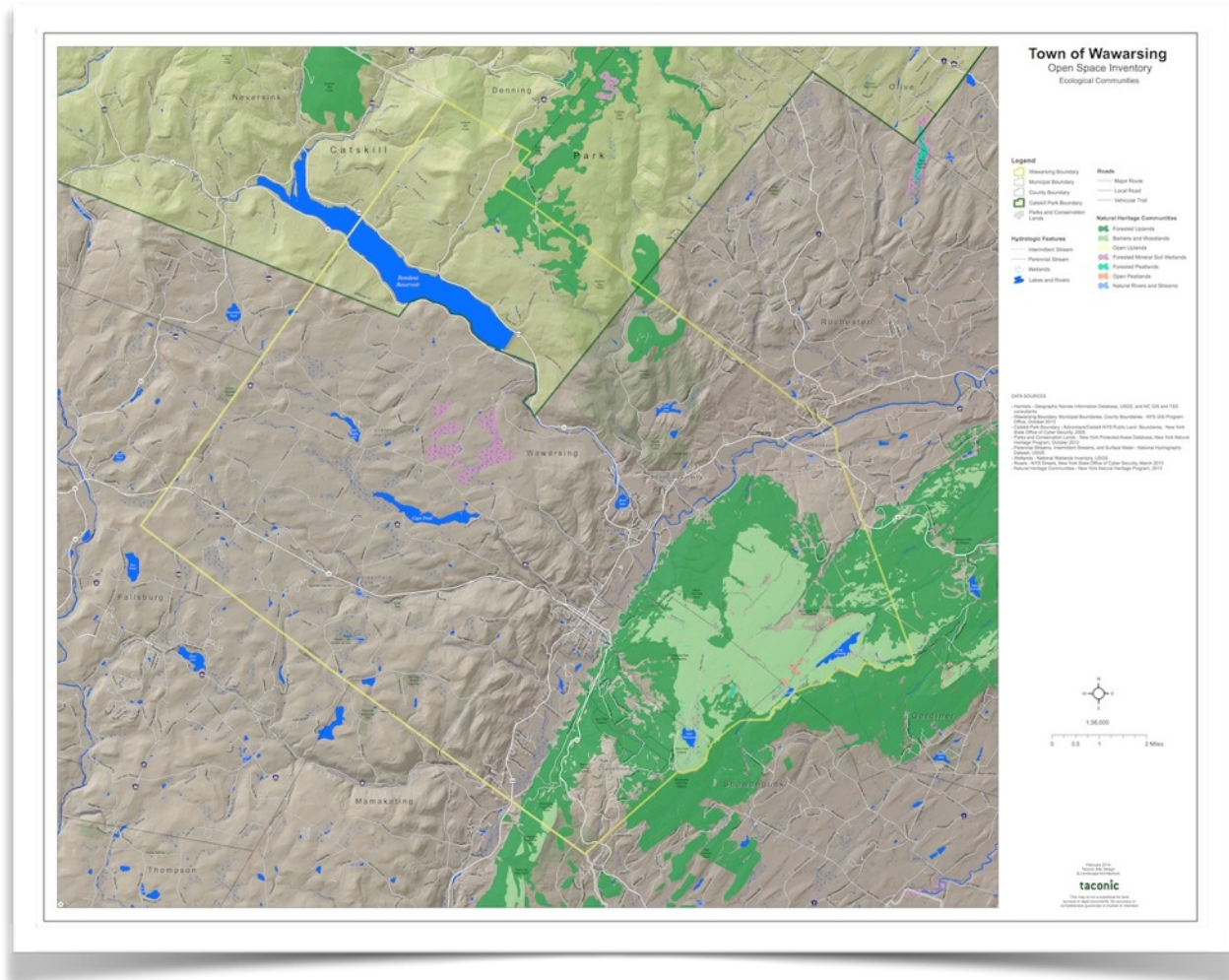
Ecological Communities

The ecological communities have been extensively mapped in the eastern and northern sections of Town by the work of the Shawangunk Ridge Biodiversity Partnership and The Nature Conservancy. Much of this data has been assembled in the Wawarsing edition of The Green Assets Program of the Shawangunk Ridge Biodiversity Partnership as shown on the map above and referenced in the Appendix.

To illustrate the Ecological Communities of the Town through the lens of open space conservation, this inventory has shown as part of a broader NYSDEC Significant Biodiversity Areas and Natural Heritage Communities described by the New York Natural Heritage Program.

The NY Natural Heritage Program is a partnership between the NYS Department of Environmental Conservation (NYSDEC) and the State University of New York College of Environmental Science and Forestry. Our mission is to facilitate conservation of rare animals, rare plants, and natural ecosystems, which we commonly refer to as "natural communities." We accomplish this mission by working collaboratively with partners inside and outside New York to support stewardship of New York's rare plants, rare animals, and significant natural communities, and to reduce the threat of invasive species to native ecosystems. We combine thorough field inventories, scientific analyses, expert interpretation, and comprehensive databases on New York's flora and fauna to deliver quality information to partners working in natural resource conservation. The end result of our actions will be more compatible management activities around our most imperiled species, ecosystems, and high-quality natural areas, in order to have significant and lasting effects on the preservation of New York's biodiversity.

The NYNHP maintains New York's most comprehensive database on the status and location of rare species and natural communities. We presently monitor 179 natural community types, 802 rare plant species, and 466 rare animal species across New York, keeping track of more than 12,800 locations where these species and communities are found. The database also includes detailed information on the relative rareness of each species and community, the quality of their occurrences, and descriptions of sites. (Source: <http://www.dec.ny.gov/animals/29338.html>)

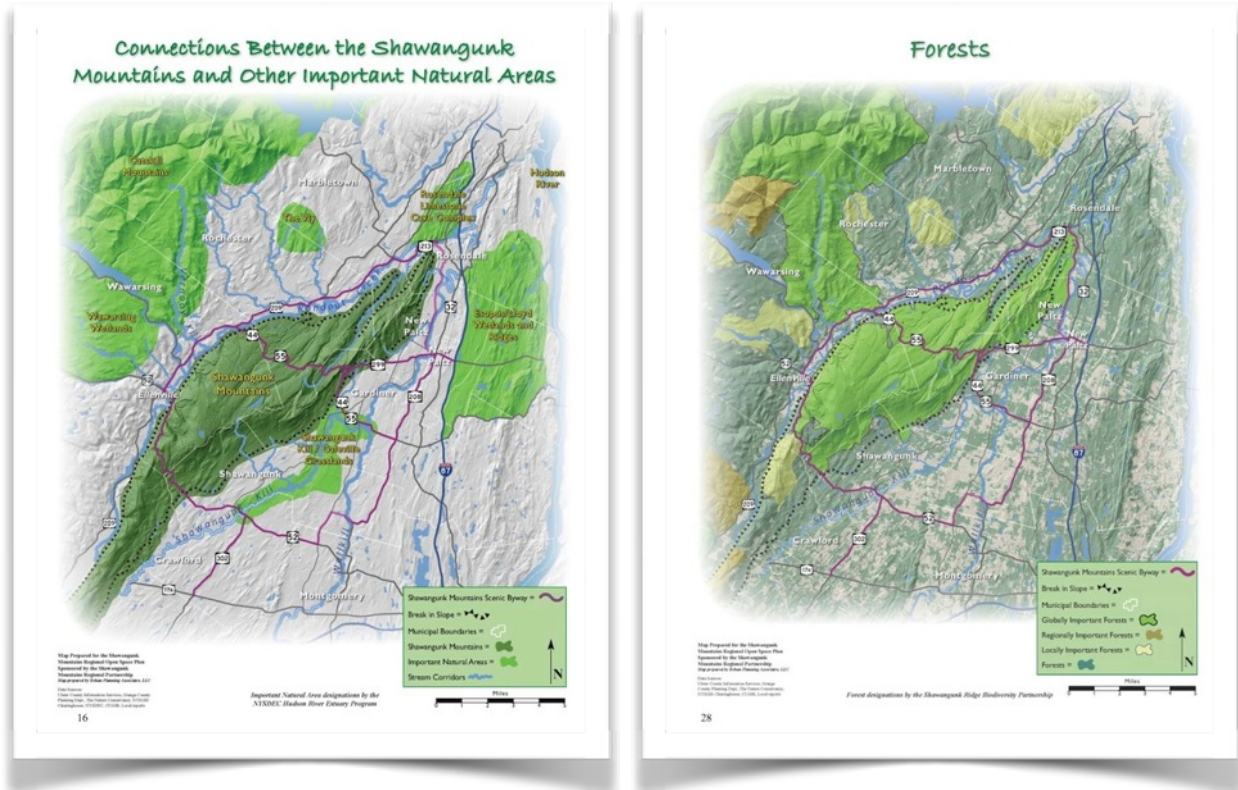


Ecological Communities Map

Connectivity Corridors

As previously noted, the closest point between the Catskill Mountains and the Shawangunk Mountains is located along Route 209 between Napanoch and Kerhonkson. This area has been identified in many orders of open space planning magnitude as a critical link between these high quality ecosystem areas.

Along with the above, this area also includes several other compatible but overlapping landscape layers. Port Ben lies at the crossroads between the 2 major non-motorized transportation routes of the Long Path and D&H O&W Rail Trail. This area also contains many of the NYS owned farmlands associated with the state correctional facility, including Colony Farm, which is on the north side of Route 209 and adjacent to the Vernoo Kill State Forest.



Shawangunk Mountains Connectivity and Forest Maps

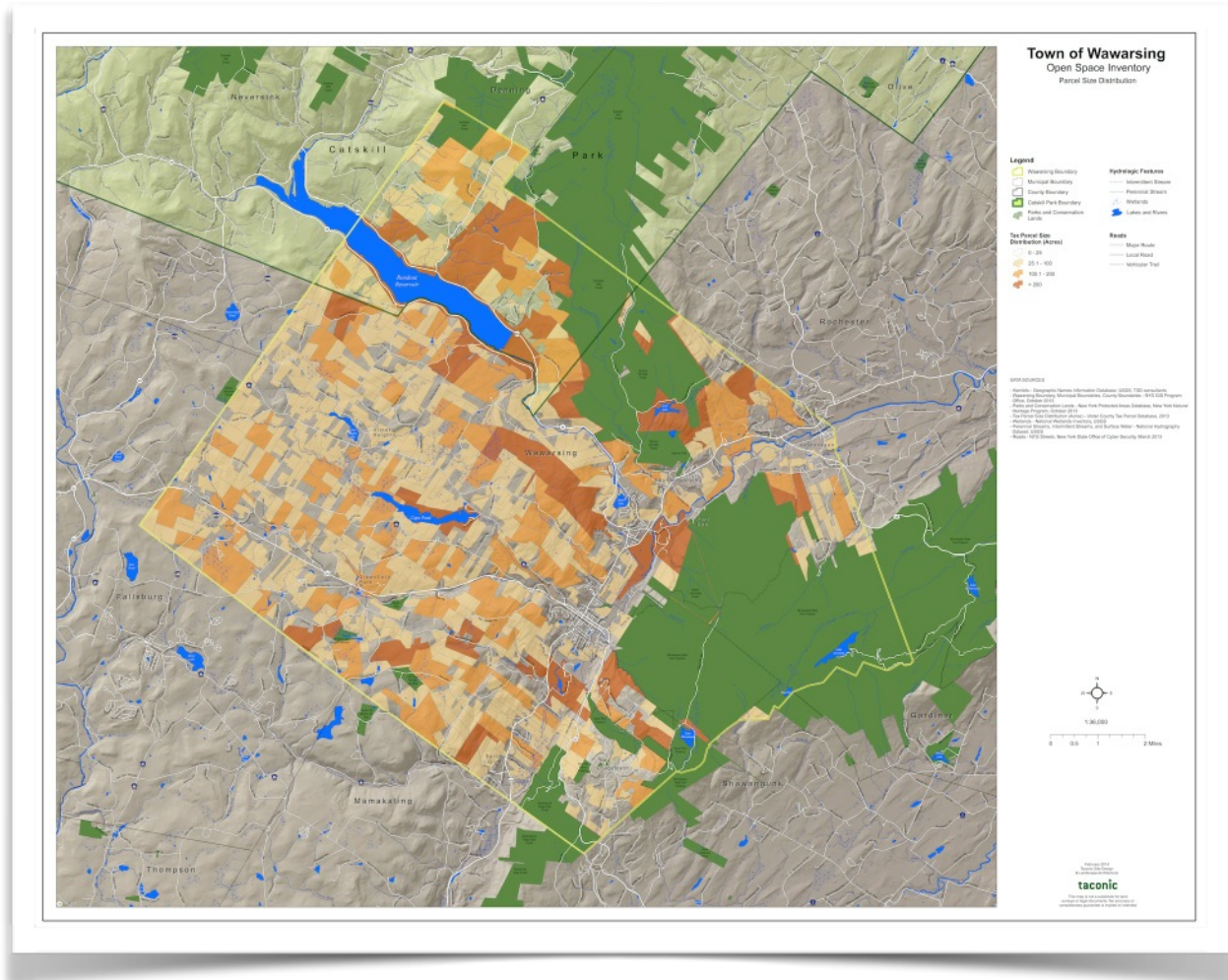
(Source: Shawangunk Mountains Regional Open Space Plan)

Understanding the location of these overlapping resources is important to understand when thinking in terms of ecological and recreational linkages across this areas and which tax parcels are critical to these linkages. To this end, this inventory has created an enlarged map of this zone showing the following existing resources:

- High Resolution Aerial Photograph Base Map
- Waterbodies and Streams
- Tax Parcels
- Public Lands (State Forest, State Park Preserve, and Town Parks.
- Transportation Routes (both motorized and non-motorized) including NYS Route 209, local roads, the Long Path, the D&H O&W Rail Trail, trailheads, other trails, and access to water nodes.
- Agricultural Districts
- Shawangunk Mountains Scenic Byway

Parcel Size and Distribution

As with any Town, over time, large parcels of land are subdivided into smaller and smaller pieces. This often impacts the quality of any natural systems that may have existed. Large continuous parcels of land often maintain high quality systems and provide the best opportunity to protect the most meaningful open spaces. For the purposes of this inventory, individual tax parcels have been arranged according to their parcel size to better understand and highlight the existence of the largest open, contiguous land areas in Town.



Parcel Size and Distribution Map

Understanding the size of existing tax parcels is an important factor in identifying critical areas of conservation. It is often easier to negotiate land protection (be it acquisition or conservation easement) on larger sized land parcels than smaller ones.

IV. Recommended Next Steps

This open space resource inventory describes the most current understanding of the existing natural, governmental, agricultural, recreational and cultural conditions of the the Town of Wawarsing. It provides a comprehensive foundation for the Town to refer to when considering both short term and long term land planning and conservation decisions. It is clear when referring to these developed inventory maps that the Town of Wawarsing is well supplied with important and high quality open space resources and areas. With this open space inventory, the community will better understand their importance as it identifies a vision, with supporting goals and implementation strategies, for all future open space and conservation planning within the Town.

Key next steps in the Open Space Planning Process should include the following tasks:

- Develop an over-arching Open Space Vision and identify the major goals of the open space plan.
- Encourage public participation and input by conducting a series of public involvement sessions to gain input from project partners, key stakeholders and stakeholder groups, and interested residents.
- Develop Priority Conservation Areas supported by the vision, goals and public input including Recommendations and Action Items to implement the plan.
- Present and steward the plan through the official plan adoption process with the Town Board.
- Begin the long process of implementing the Plan on a case by case basis.

V. Appendix

Appendix A - Inventory Maps

Appendix B - Critical Resource and Reference Document List

Appendix C - GIS Data Source Matrix

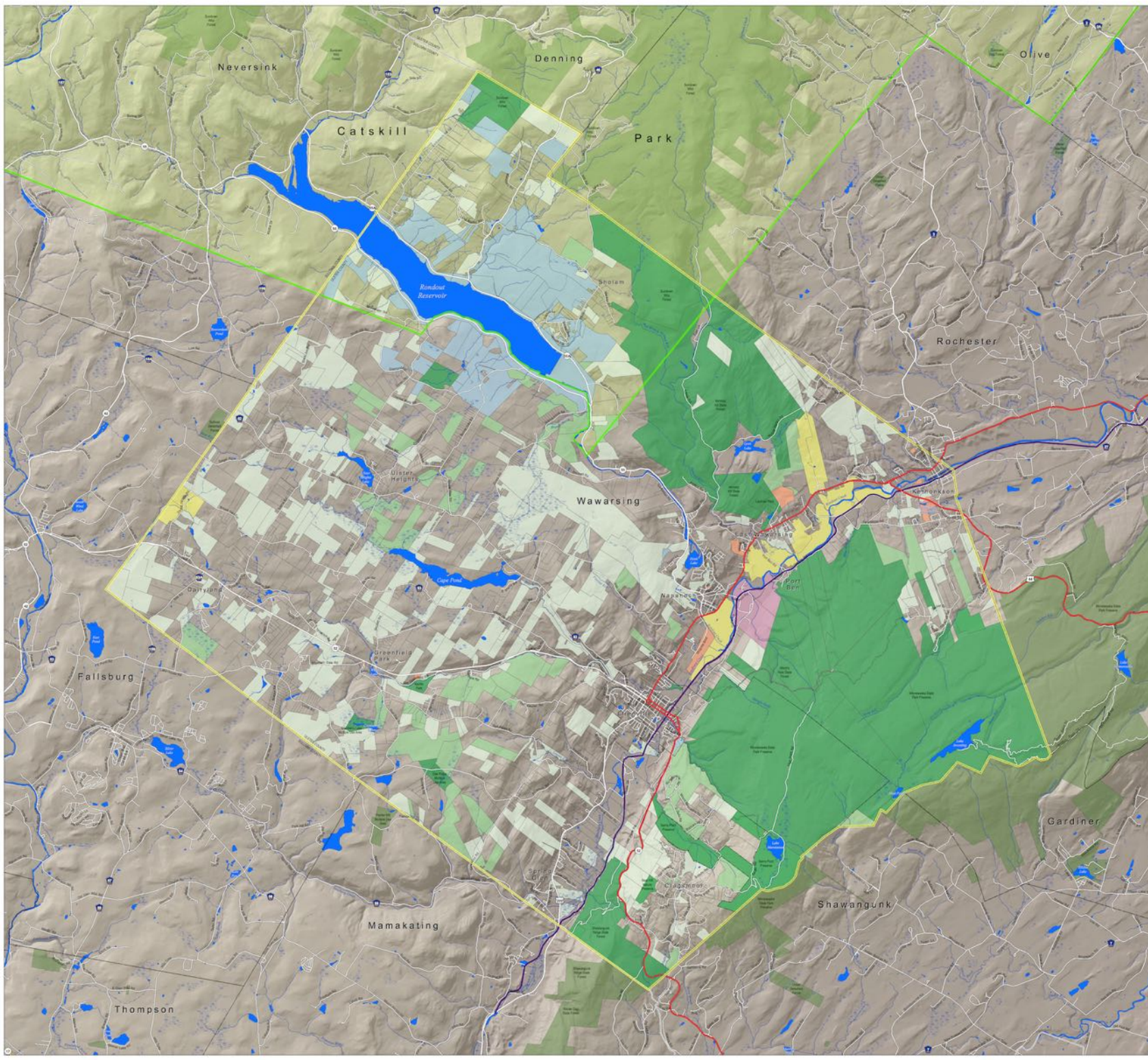
Appendix D - ArcReader and Desktop Installation Instructions

Appendix E - Committee Meeting Agendas and Minutes

Appendix A - Inventory Maps

Town of Wawarsing Open Space Inventory

Existing and Potential Open Space Lands



- Legend**
- | | |
|------------------------------|---------------------|
| Wawarsing Boundary | Intermittent Stream |
| Municipal Boundary | Perennial Stream |
| County Boundary | Wetlands |
| Catskill Park Boundary | Lakes and Rivers |
| Parks and Conservation Lands | |
-
- Existing and Potential Open Space Lands**
- | | |
|---|--|
| Parks, Preserves, and Recreation | Major Route |
| Private Wild and Forest Lands | Local Road |
| Residential Vacant Land Over 10 Acres | Vehicular Trail |
| Farm Lands | Scenic Byway |
| Town Property (other than parks and recreation) | D&H O&W Rail Trail (Existing and Proposed) |
| New York City Bureau of Water Lands | |
| State Prison Lands (non-Farm Lands) | |
-
- Roads, Scenic Byways, and Trails**
- | |
|--|
| Major Route |
| Local Road |
| Vehicular Trail |
| Scenic Byway |
| D&H O&W Rail Trail (Existing and Proposed) |

DATA SOURCES

- Hamlets - Geographic Names Information Database, USGS, TSD consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2005
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Existing Potential and Open Space Lands - Ulster County Information Services, TSD consultants, selected tax parcels with from corresponding NYS real property class codes
- Wetlands - National Wetlands Inventory, USGS
- Perennial Streams, Intermittent Streams, Lakes and Rivers - National Hydrography Dataset, USGS
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Scenic Byways - Ulster County Information Services, NYS Streets, TSD Consultants
- D&H O&W Rail Trail (Existing and Proposed Route) - Ulster County Information Services, TSD consultants



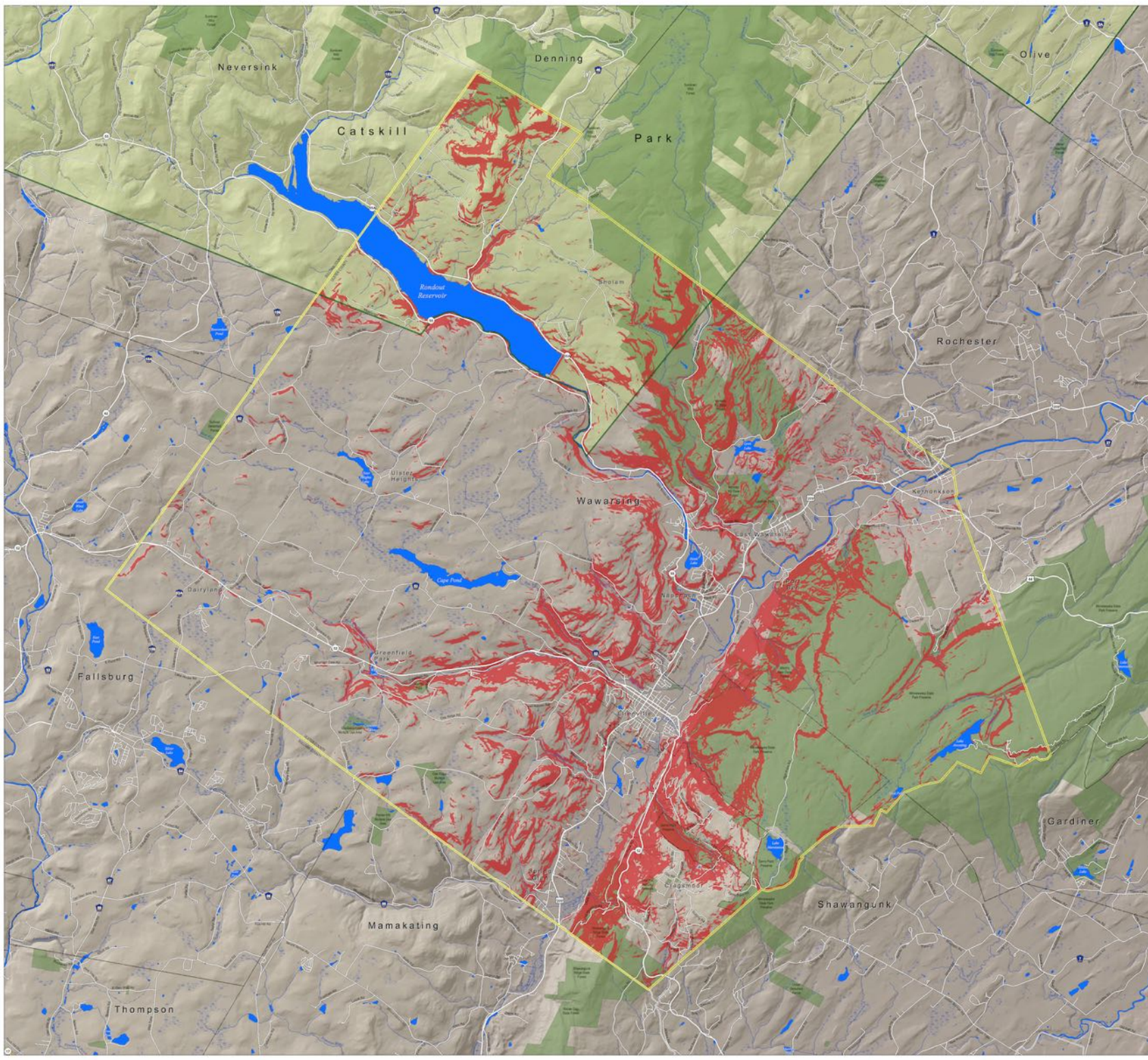
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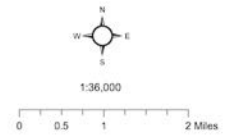
Town of Wawarsing Open Space Inventory Steep Slopes



- Legend**
- | | |
|--------------------------------|----------------------------|
| Wawarsing Boundary | Hydrologic Features |
| Municipal Boundary | Intermittent Stream |
| County Boundary | Perennial Stream |
| Catskill Park Boundary | Wetlands |
| Parks and Conservation Lands | Lakes and Rivers |
| Tax Parcel Boundaries | |
| Slope | Roads |
| Steep Slopes (20% and greater) | Major Road |
| | Local Road |
| | Vehicular Trail |

DATA SOURCES

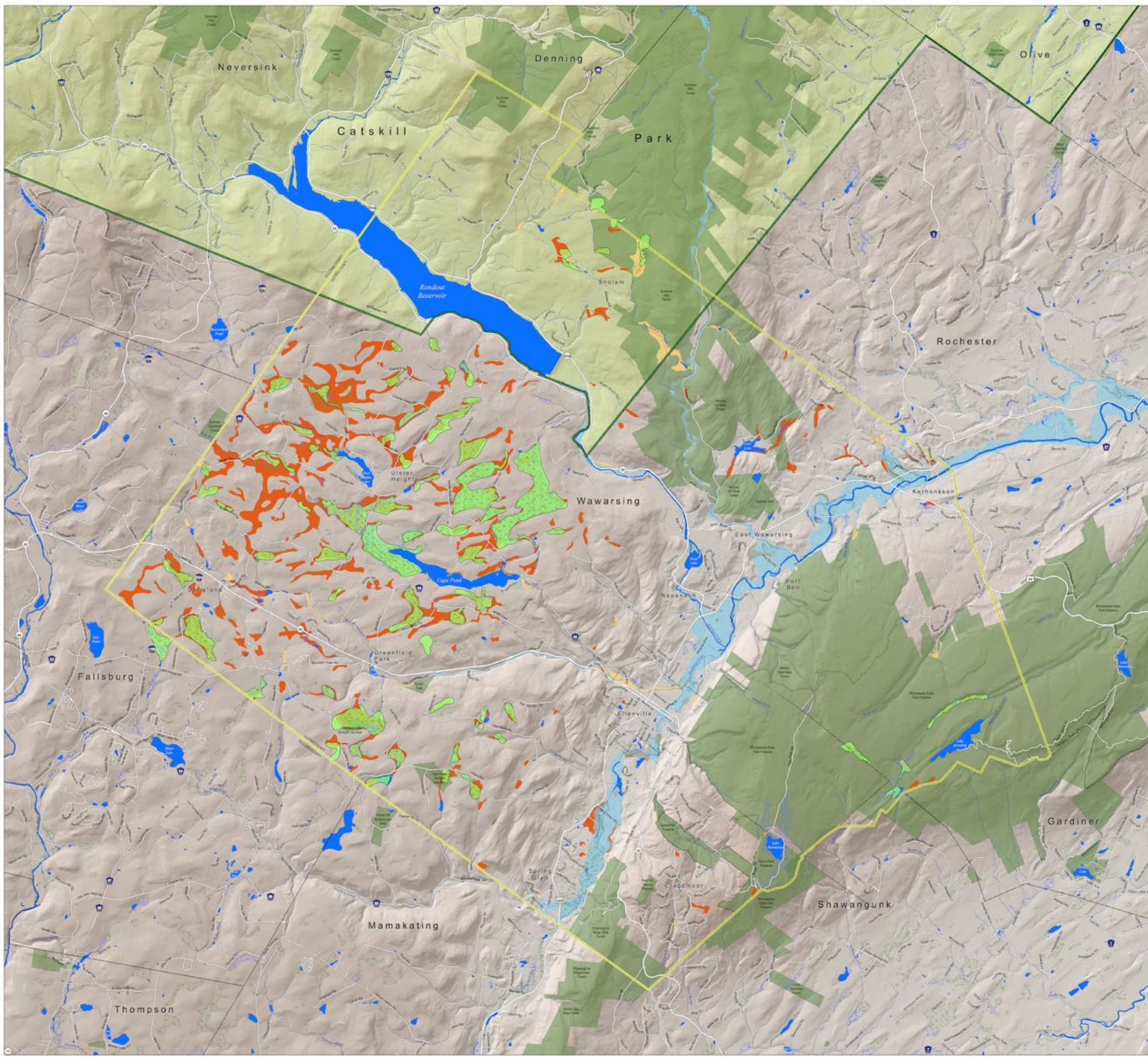
- Hamlets - Geographic Names Information Database, USGS, and TSD consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2005
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Tax Parcel Boundaries - Ulster County Information Services, 2013
- Steep Slopes (Slopes 20% and Greater) - Created by TSD consultants from USGS 30-meter Digital Elevation Model (DEM)
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Perennial Streams, Intermittent Streams, and Surface Water - National Hydrography Dataset, USGS
- Wetlands - National Wetlands Inventory, USGS



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Town of Wawarsing Open Space Inventory

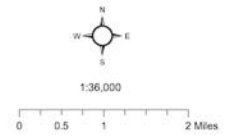
Water Resources: Wetlands
and Flood Hazard Areas



- Legend**
- Wawarsing Boundary
 - Municipal Boundary
 - County Boundary
 - Catskill Park Boundary
 - Parks and Conservation Lands
 - Flood Hazard Area (Preliminary)
- Roads**
- Major Route
 - Local Road
 - Vehicular Trail
- FEMA Floodplains (Preliminary)**
- Flood Hazard Area
- Hydrologic Features**
- Intermittent Stream
 - Perennial Stream
 - 🌊 Lakes and Rivers
- Wetland Type**
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Other
- NYS Regulated Wetlands**
- Regulated Wetland Boundary
- Wetland Soils**
- Possible Wetlands
 - Probable Wetlands

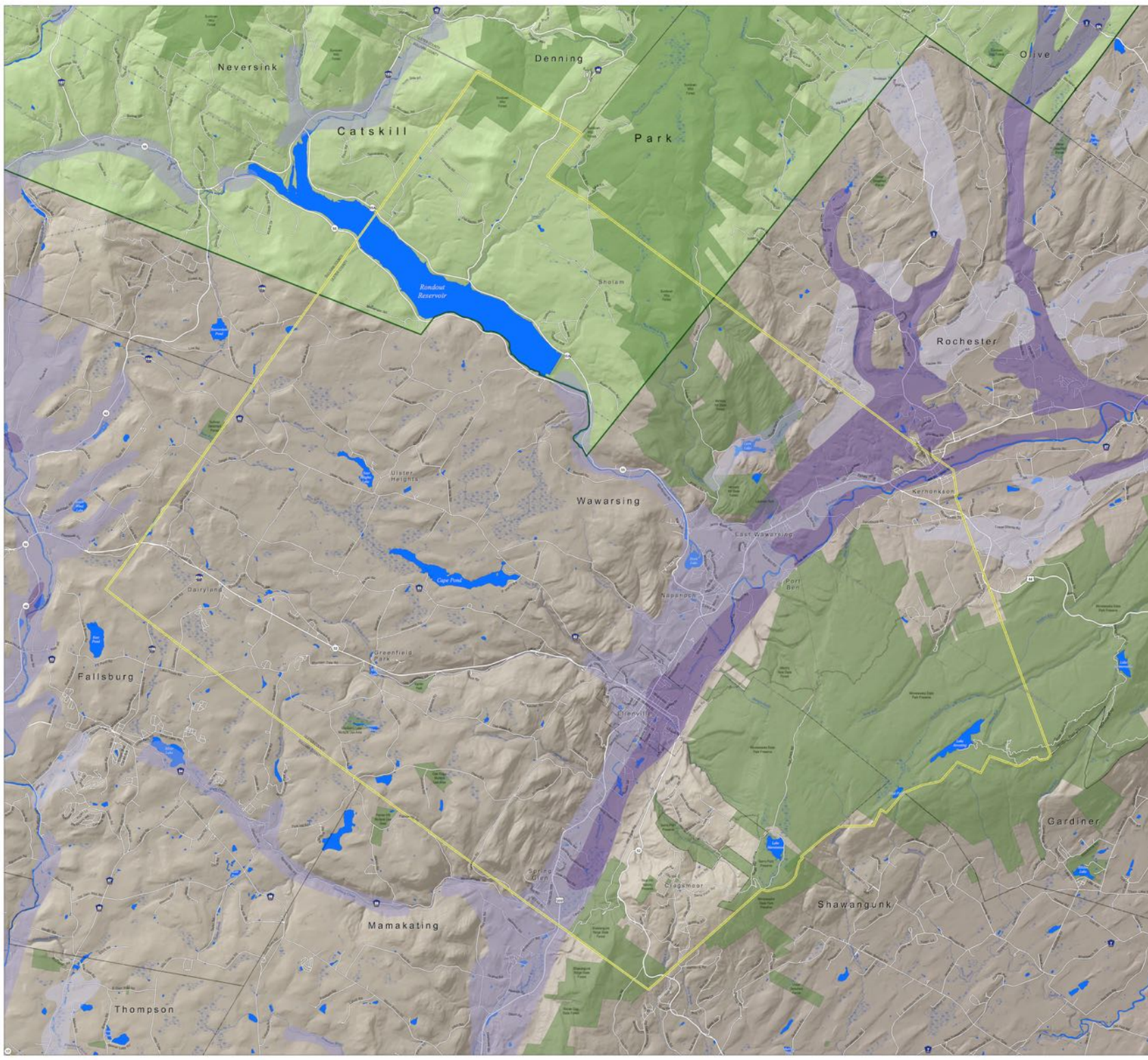
DATA SOURCES

- Hazards - Geographic Names Information Database, USGS, TED consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2005
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Perennial Streams, Intermittent Streams, Lakes and Rivers - National Hydrography Dataset, USGS
- Wetlands (Wetland Type) - National Wetlands Inventory, USGS
- NYS Regulated Wetlands - NYS Dept. of Environmental Conservation
- Possible and Probable Wetlands - USDA-NRCS SSURGO database; Drainage Class: Poorly Drained (possible wetlands) and Very Poorly Drained (probable wetlands); Flood Hazard Area (Preliminary) - NYS DEC, Bureau of Flood Protection and Dam Safety, 2013
- Parks and Conservation Lands - New York State Protected Areas Database (NYPAD) and Ulster County Tax Parcels, 2013



Town of Wawarsing Open Space Inventory

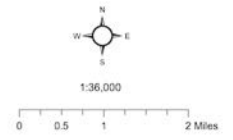
Water Resources: Unconsolidated Aquifers



- Legend**
- Wawarsing Boundary
 - Municipal Boundary
 - County Boundary
 - Catskill Park Boundary
 - Parks and Conservation Lands
 - Major Route
 - Local Road
 - Vehicular Trail
 - Intermittent Stream
 - Perennial Stream
 - Canal/Ditch
 - Aqueduct
 - Wetlands
 - Lakes and Rivers
 - 10-100 gal/min
 - >100 gal/min

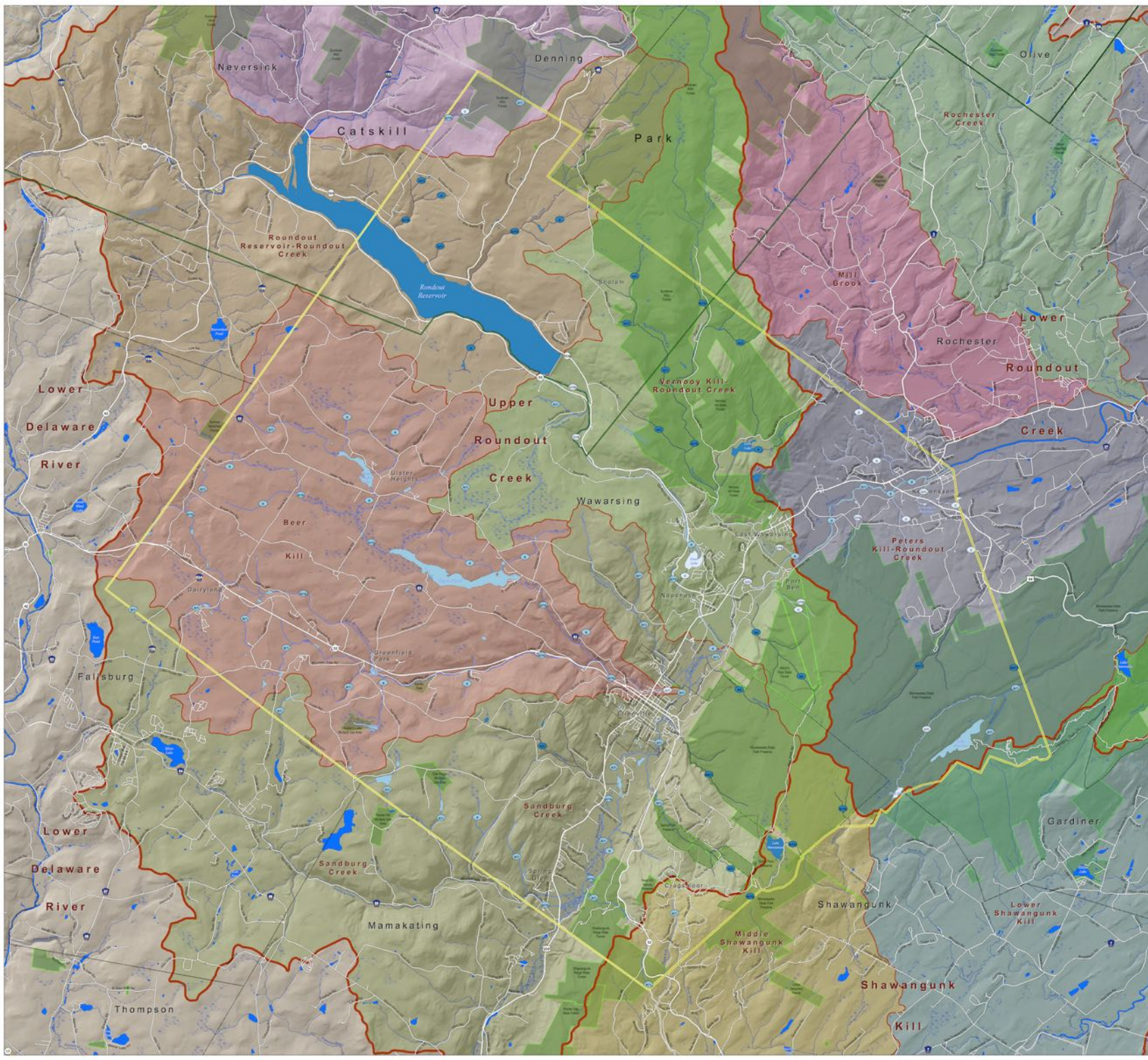
DATA SOURCES

- Hamlets - Geographic Names Information Database, USGS, TSD consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2005
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Perennial Streams, Intermittent Streams, and Surface Water - National Hydrography Dataset, USGS
- Wetlands - National Wetlands Inventory, USGS
- Unconsolidated Aquifers - New York State Department of Environmental Conservation, Division of Water, Bureau of Water Resources Management, February 2008



Town of Wawarsing Open Space Inventory

Water Resources: Watersheds and Surface Water
Regulatory Classifications and Standards



Legend

- | | |
|------------------------------|---------------------|
| Wawarsing Boundary | Intermittent Stream |
| Municipal Boundary | Perennial Stream |
| County Boundary | Wetlands |
| Catskill Park Boundary | Lakes and Rivers |
| Parks and Conservation Lands | |
-
- | | |
|-------------------|-----------------|
| Watersheds | Roads |
| Watersheds | Major Route |
| Sub-watersheds | Local Road |
| | Vehicular Trail |
-
- | | |
|---|--|
| Streams (NYS Use Classification) | Lakes and Rivers (NYS Use Classification) |
| Drinking | Drinking |
| Contact Recreation | Contact Recreation |
| Fishing | Fishing |

New York State Surface Water Regulator Classification and Standards
All waters of the state are provided a class and standard designation based on existing or expected best usage of each water or waterway segment. Classifications and their corresponding best usages are:

- A, AA - a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing
- B - primary and secondary contact recreation and fishing
- C - fishing
- D - unclassified

Waters with classifications A, B, and C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning (TS). Special requirements apply to sustain these waters that support these valuable and sensitive fisheries resources.

DATA SOURCES

- Hamlets - Geographic Names Information Database, USGS, TSD consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2005
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Watersheds and Sub-watersheds - USGS Watershed Boundary Dataset
- Perennial Streams, Intermittent Streams, and Surface Water - National Hydrography Dataset, USGS
- Wetlands - National Wetlands Inventory, USGS
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Lakes, Rivers, and Streams Use Classifications - NYS DEC

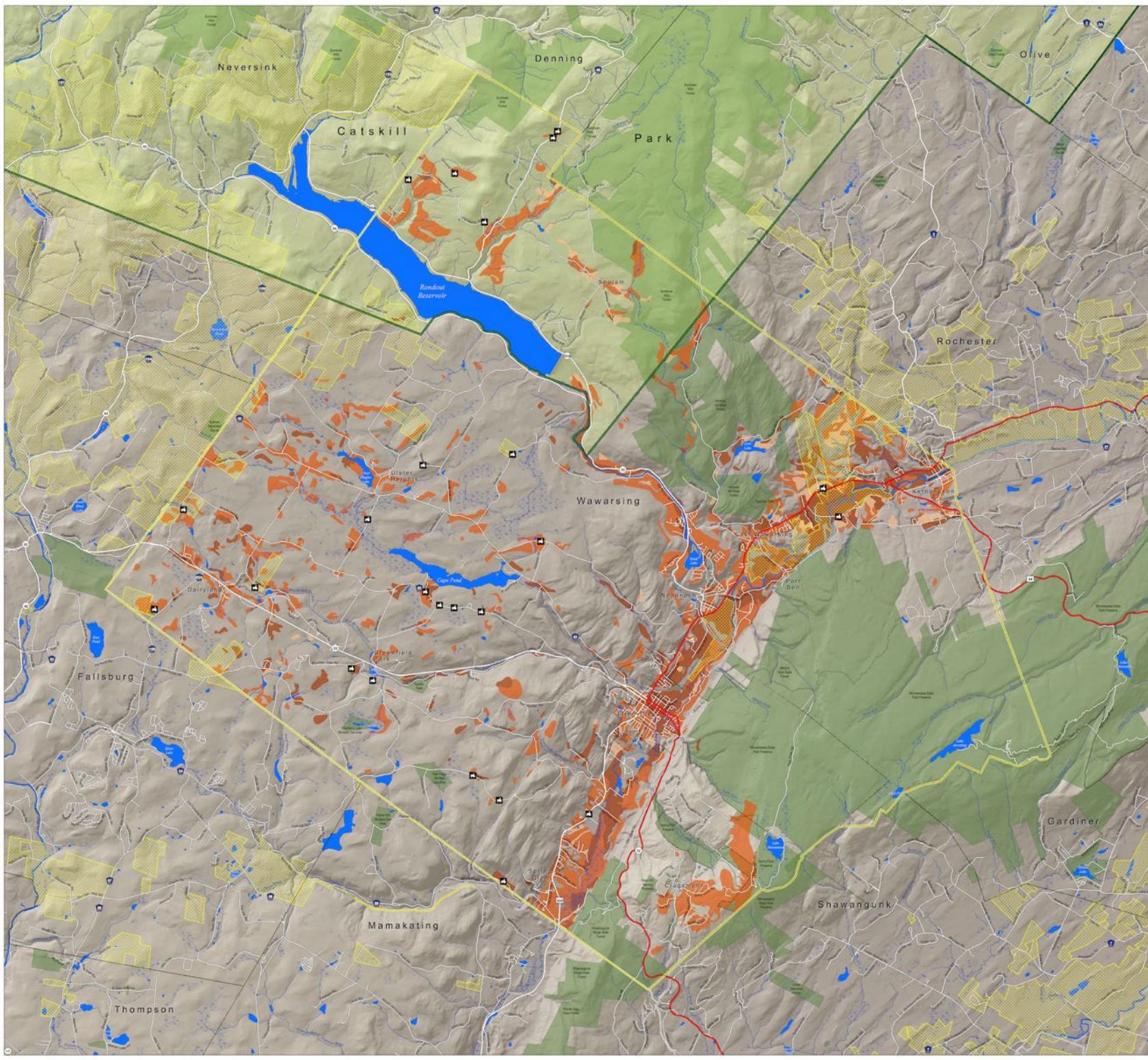


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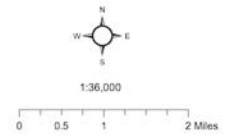
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Town of Wawarsing Open Space Inventory Agricultural Resources

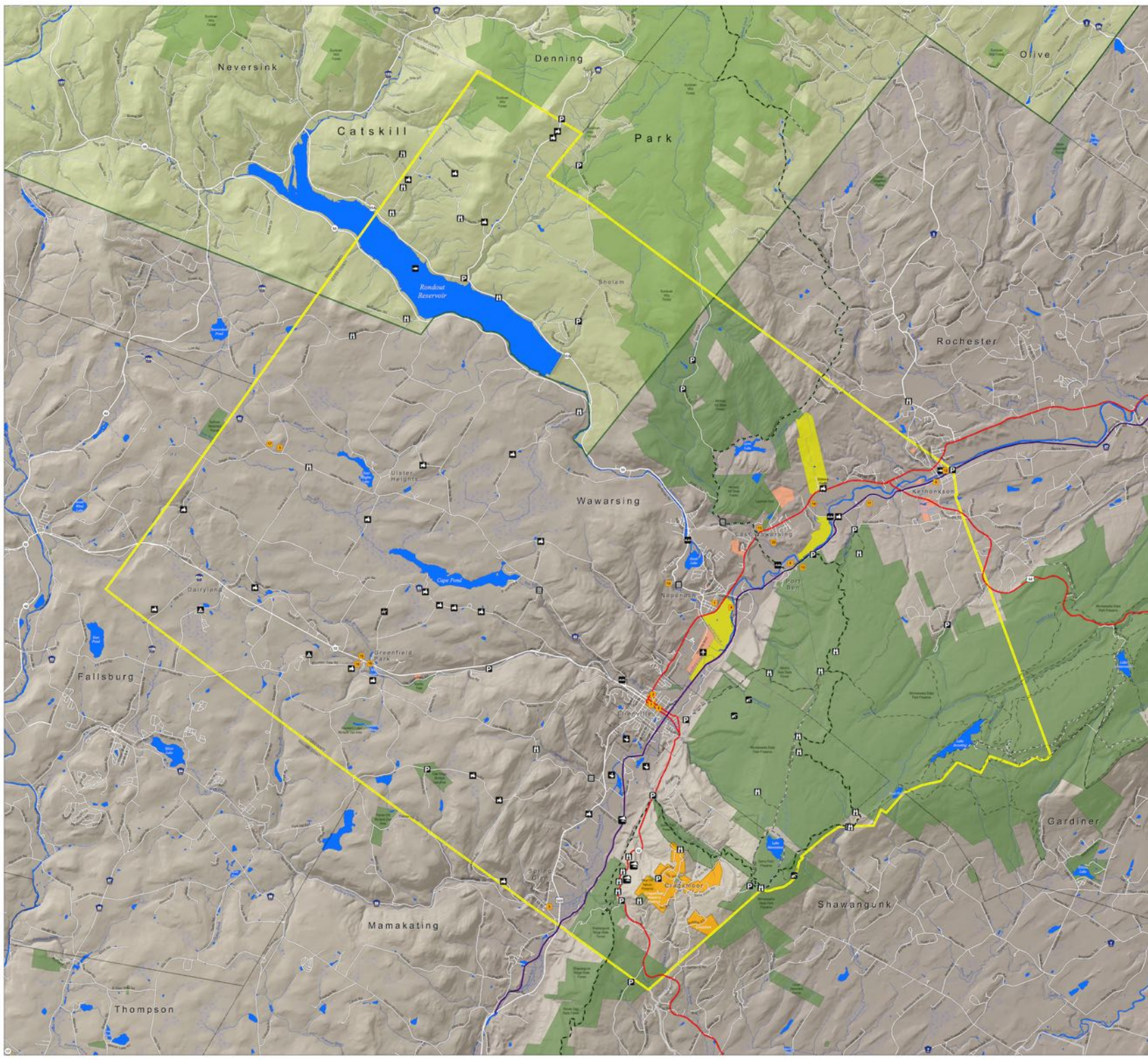


- Legend**
- Farming Sites
 - Wawarsing Boundary
 - Municipal Boundary
 - County Boundary
 - Catskill Park Boundary
 - Parks and Conservation Lands
 - Agricultural District Parcels
- Farmland Soils Classification**
- All areas are prime farmland
 - Farmland of statewide importance
 - Prime farmland if drained
- Hydrologic Features**
- Intermittent Stream
 - Perennial Stream
 - Wetlands
 - Lakes and Rivers
- Roads**
- Major Route
 - Local Road
 - Vehicular Trail
 - Scenic Byway

- DATA SOURCES**
- Farming Sites - TSD consultants, Wawarsing Open Space Committee
 - Hamlets - Geographic Names Information Database, USGS, TSD consultants
 - Wawarsing Boundary, Municipal Boundaries, County Boundaries - New York State GIS Program Office, October 2013
 - Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2006
 - Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
 - Agricultural Districts - NYS Dept. of Agriculture and Markets
 - Perennial Streams, Intermittent Streams, and Surface Water - National Hydrography Dataset, USGS
 - Wetlands - National Wetlands Inventory, USGS
 - Farmland Soils - USDA NRCS SDRUGO database
 - Roads - NYS Streets, New York State Office of Cyber Security, March 2013
 - Scenic Byways - Ulster County Information Services, NYS Streets, TSD Consultants



Town of Wawarsing Open Space Inventory Recreational, Scenic, and Historic Resources



- Legend**
- Wawarsing Boundary
 - Municipal Boundary
 - County Boundary
 - Catskill Park Boundary
 - Parks and Conservation Lands
 - State Prison Farm Lands
 - Town Property (other than parks and recreation)
- Hydrologic Features**
- Intermittent Stream
 - Perennial Stream
 - Wetlands
 - Lakes and Rivers
- Roads**
- Major Route
 - Local Road
 - Vehicular Trail
- Trails and Scenic Byways**
- Trails
 - Long Path
 - D&H O&W Rail Trail (Existing and Proposed)
 - Scenic Byway
- Historic Features**
- Historic Points
 - Historic Districts
- Recreational Features**
- Airport, N/A
 - Camp, N/A
 - Canoe Access
 - Fishing Access
 - Golf Course
 - Hang Gliding Site
 - Horse Training Camp
 - Ice Cave, N/A
 - Parking Area
 - Scenic Viewpoint
 - Waterfall, N/A
 - Working Farm

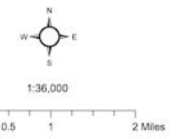
Historic Points Key

Label	Name
1	Hamblett Store Complex*
2	US Post Office - Oneida*
3	Spring Glen Synagogue*
4	Onondaga & Adirondack Railroad Passenger Station*
5	Uster Heights Synagogue*
6	DB&W Railroad Station at Port Ben*
7	Bank, Spring and Ashok, Memorial
8	Christ Lutheran Church*
9	Congregation "Herz Israhel Veysvitz"*
10	Old Railroad Bridge
11	Stone House
12	Old Oneida Amherst
13	Living House
14	Old Stone House
15	Quaker Meeting House
16	Greenfield Schoolhouse
17	St. Michael's Church
18	Quaker Meeting House
19	Rama Farm
20	Verney Rural Ground

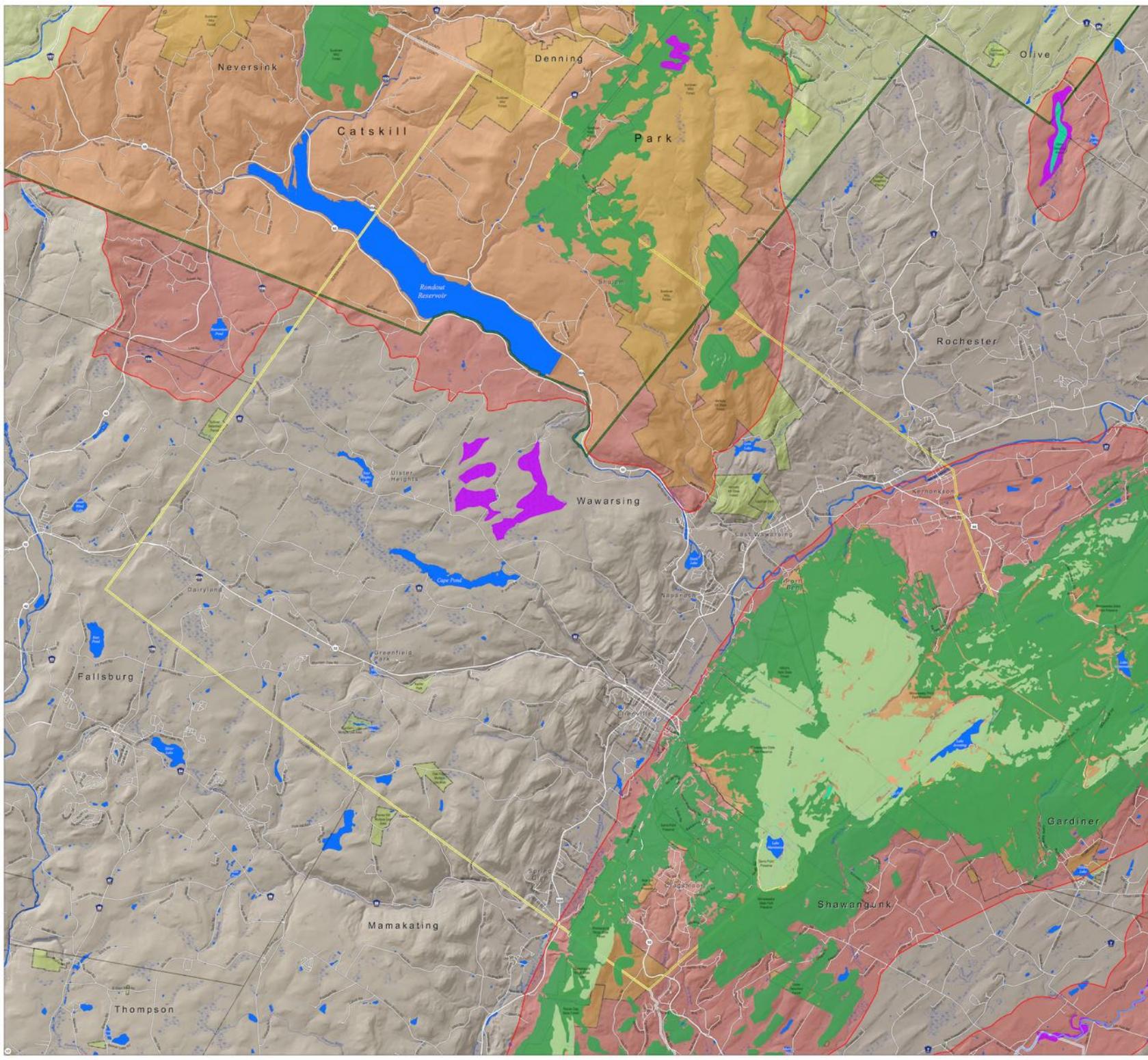
* National Historic Register

DATA SOURCES

- Hamlets - Geographic Names Information Database, USGS, TSD consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2005
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- State Prison Farm Lands, Town Property (other than parks & recreation) - Uster County Information Services, TSD consultants
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Trails and Scenic Byways - NYS Trails Conference, Uster County Information Services, TSD consultants
- Historic Sites - National Historic Register, TSD Consultants, Wawarsing Open Space Committee
- Intermittent Streams, Perennial Streams, Lakes and Rivers - National Hydrography Dataset, USGS
- Wetlands - National Wetlands Inventory, USGS
- Recreational Features, Historic Points - Town of Wawarsing Open Space Committee, TSD consultants



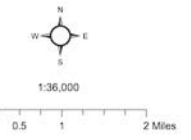
Town of Wawarsing Open Space Inventory Ecological Communities



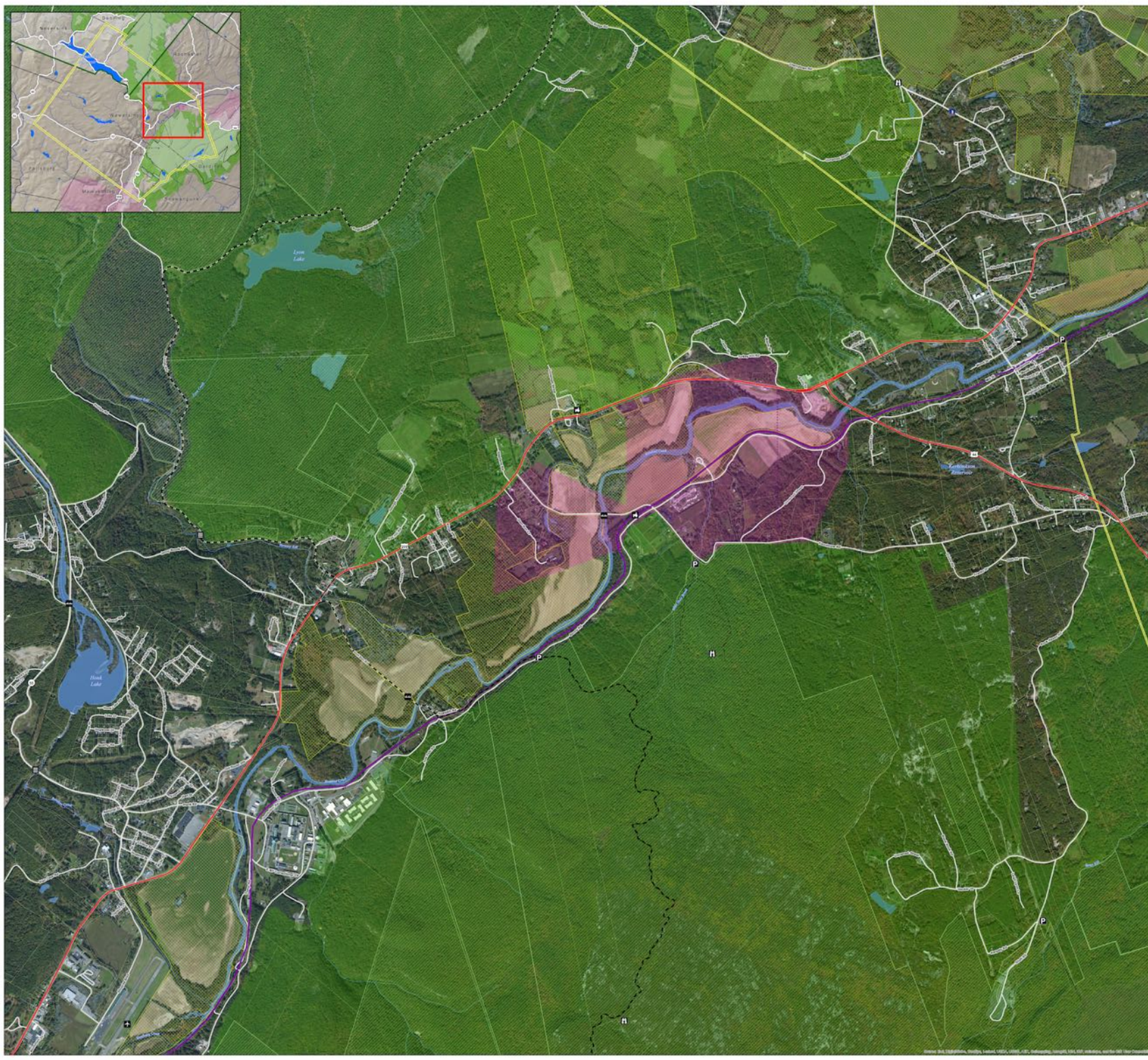
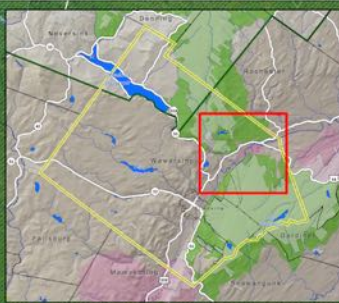
- Legend**
- Wawarsing Boundary
 - Municipal Boundary
 - County Boundary
 - Catskill Park Boundary
 - Parks and Conservation Lands
 - Major Route
 - Local Road
 - Vehicular Trail
 - Significant Biodiversity Areas
- Hydrologic Features**
- Intermittent Stream
 - Perennial Stream
 - Wetlands
 - Lakes and Rivers
- Natural Heritage Communities**
- Forested Uplands
 - Barrens and Woodlands
 - Open Uplands
 - Forested Mineral Soil Wetlands
 - Forested Peatlands
 - Open Peatlands
 - Natural Rivers and Streams

DATA SOURCES

- Hamlets - Geographic Names Information Database, USGS, and NC GIS and TSD Consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Catskill Park Boundary - Adirondack/Catskill NYS Public Land Boundaries, New York State Office of Cyber Security, 2005
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Perennial Streams, Intermittent Streams, and Surface Water - National Hydrography Dataset, USGS
- Wetlands - National Wetlands Inventory, USGS
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Significant Biodiversity Areas - NYS DEC Hudson River Estuary Program
- Natural Heritage Communities - New York Natural Heritage Program, 2013



Town of Wawarsing Open Space Inventory Catskill-Shawangunk Greenway



- Legend**
- Wawarsing Boundary
 - Catskill Park Boundary
 - Parks and Conservation Lands
 - Agricultural Districts
- Roads**
- Major Route
 - Local Road
- Trails and Scenic Byways**
- Trails
 - Long Path
 - D&H O&W Rail Trail (Existing and Proposed)
 - Scenic Byway
- Matrix Forest Blocks and Linkages**
- Linkage
 - Linkage Zone
 - Forest Block
- Hydrologic Features**
- Intermittent Stream
 - Perennial Stream
 - Canal/Ditch
 - Wetlands
 - L Lakes and Rivers
- Recreational Features**
- Airport, N/A
 - Camp, N/A
 - Canoe Access
 - Fishing Access
 - Golf Course
 - Horse Training Camp
 - Ice Cave, N/A
 - Parking Area
 - Scenic Viewpoint
 - Waterfall, N/A
 - Working Farm

DATA SOURCES

- Hamlets - Geographic Names Information Database, USGS, TSD consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Agricultural Districts - NYS Dept. of Agriculture & Markets
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013
- Trails & Scenic Byways - NY/NJ Trails Conference, Ulster County Information Services, TSD consultants
- Perennial Streams, Intermittent Streams, and Surface Water - National Hydrography Dataset, USGS
- Wetlands - National Wetlands Inventory, USGS
- Recreational Features, Historic Points - Town of Wawarsing Open Space Committee, TSD consultants

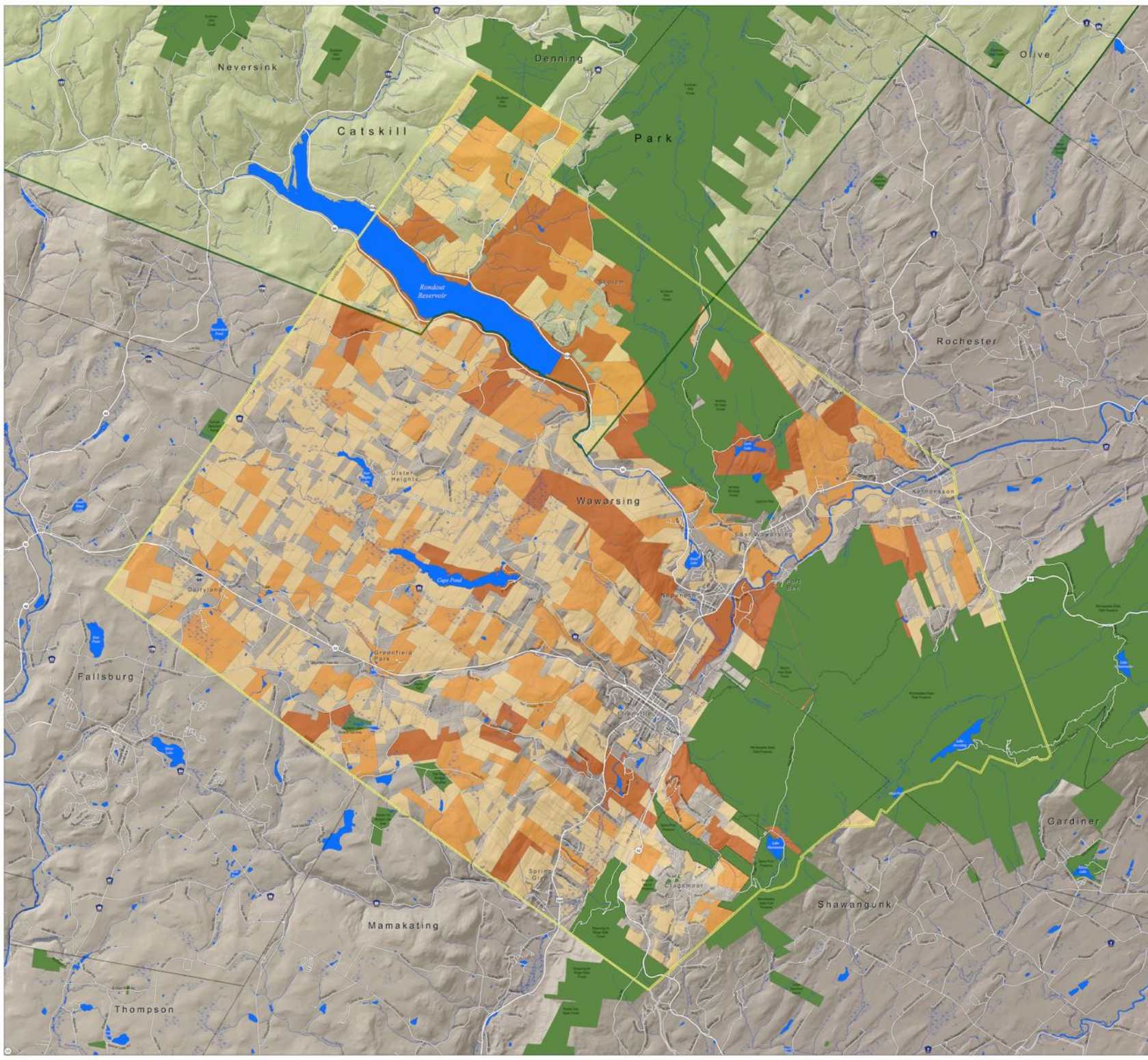


February 2014
Taconic Site Design
& Landscape Architecture

taconic

This map is not a substitute for land surveys or legal documents. No accuracy or completeness guarantee is implied or intended.

Town of Wawarsing Open Space Inventory Parcel Size Distribution

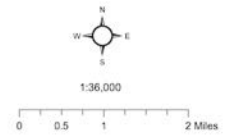


Legend

Wawarsing Boundary	Hydrologic Features
Municipal Boundary	Intermittent Stream
County Boundary	Perennial Stream
Catskill Park Boundary	Wetlands
Parks and Conservation Lands	Lakes and Rivers
Tax Parcel Size Distribution (Acres)	Roads
0 - 25	Major Route
25.1 - 100	Local Road
100.1 - 200	Vehicular Trail
> 200	

DATA SOURCES

- Hamlets - Geographic Names Information Database, USGS, TSD consultants
- Wawarsing Boundary, Municipal Boundaries, County Boundaries - NYS GIS Program Office, October 2013
- Parks and Conservation Lands - New York Protected Areas Database, New York Natural Heritage Program, October 2013
- Tax Parcel Size Distribution (Acres) - Ulster County Tax Parcel Database, 2013
- Wetlands - National Wetlands Inventory, USGS
- Perennial Streams, Intermittent Streams, and Surface Water - National Hydrography Dataset, USGS
- Roads - NYS Streets, New York State Office of Cyber Security, March 2013



Appendix B - Critical Resource and Reference Document List

1. Town of Wawarsing Comprehensive Plan (2006)
2. Shawangunk Mountains Scenic Byway (2006)
3. Catskill Park State Land Master Plan (2008)
4. Ulster County Non-Motorized Transportation Plan (2008)
5. Shawangunk Mountains Regional Open Space Plan (2008)
6. Ulster County Open Space Plan , 2nd Edition (2009)
7. Interim Watershed Management Plan for the Lower, Non-Tidal Portion of the Rondout Creek and Municipal Agreement (2010)
8. NYNHP PATHWAYS - Wildlife Habitat Connectivity in the Changing Climate of the Hudson Valley (2012)
9. Town of Wawarsing Zoning Map (2012)
10. NYSDEC Region 3 Open Space Advisory Committee Report (July 2013 Draft Revision)
11. Green Infrastructure Center Evaluating Green Infrastructure Across the Landscape: A Practitioner's Guide (2013)
12. Rondout Valley Grower's Association Farm Directory & Map (2013)
13. Town of Wawarsing Local Historic Landmark List
14. The Eastern Wild-way and Essential 16 Map
15. Green Assets Shawangunk Region Maps (Wawarsing Volume)

Appendix C - GIS Data Source Matrix

Agriculture

Title (feature class)	Description	Author, Date	Source(s)	Date Acquired
Agricultural Districts (Agricultural_ Districts)	These GIS files represent geographic boundaries for lands that are under the protection of NYS Agricultural District Law, administered by the New York State Department of Agriculture and Markets. The boundaries are derived from New York State Agricultural District, 1:24,000-scale, maps produced at county agencies. The district boundaries correspond to tax parcel data. District boundaries are joined into a file representing all of the Agricultural Districts within an entire county. Note that 2003 legislation allows lands to be added to districts on an annual basis. Electronic data provided here may predate those additions. Boundaries may be generalizations; precise information can be obtained from the county or town tax parcel information. An Agricultural District is defined by a list of tax parcels, including properties added during the annual open enrollment. The 1:24,000-scale maps are only updated to reflect open enrollment changes at the eight-year renewal of the district.	NYS Department of Agriculture and Markets, February 2011	Cornell University Geospatial Information Repository (CUGIR) http://cugir.mannlib.cornell.edu/bucketinfo.jsp?id=7995	November 2013
Farmland Soils (Farmland_Soils_ Wawarsing)	Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.	U.S. Dept. of Agricultural, Natural Resource Conservation Service, December 2011	Soil Survey Geographic (SSURGO) Database http://websoilsurvey.sc.egov.usda.gov/	November 2013

Biodiversity and Habitat

Title (feature class)	Description	Author, Date	Source(s)	Date Acquired
Natural Heritage Communities (Natural_Heritage_Communities)	Features represent occurrences of rare or high-quality natural communities (ecological communities), as recorded by the New York Natural Heritage Program. An occurrence is one natural community type at one location. Examples of community types include deep emergent marsh, red maple-hardwood swamp, dwarf shrub bog, hemlock-northern hardwood forest, and tidal creek. Data was clipped to the Wawarsing town boundary and surrounding area. The legend in the Wawarsing open space maps show generalized habitat categories. Use the "identify" tool in the digital map to click on a natural heritage community to show its specific type.	New York State Department of Environmental Conservation, February 2013	NYS GIS Clearinghouse, Natural Heritage Community Occurrences – NYNHP http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1241	October 2007
Matrix Forest Blocks, Linkages, and Linkage Zones (NYS_Matrix_Forest_Blocks, NYS_Linkage_Zones, NYS_Forest_Block_Linkages)	Matrix sites are large contiguous areas whose size and natural condition allow for the maintenance of ecological processes, viable occurrences of matrix forest communities, embedded large and small patch communities, and embedded species populations. The goal of the matrix forest selection was to identify viable examples of the dominant forest types that, if protected and allowed to regain their natural condition, would serve as critical source areas for all species requiring interior forest conditions or associated with the dominant forest types.	The Nature Conservancy (TNC) Eastern Conservation Science, November 2012	NYS GIS Clearinghouse, Matrix Forest Blocks and Linkages http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1261	October 2013
Significant Biodiversity Areas (Hudson_River_Significant_Biodiversity_Areas)	The New York State Department of Environmental Conservation (NYSDEC) Hudson River Estuary Program worked with the New York Cooperative Fish and Wildlife Research Unit at Cornell University and the NY Natural Heritage Program to develop Significant Biodiversity Areas (SBAs) for the Hudson River estuary region of New York State. SBAs are 22 landscape areas with a high concentration of biological diversity or value for regional biodiversity.	The New York State Department of Environmental Conservation, Hudson River Estuary Program, New York Cooperative Fish & Wildlife Research Unit at Cornell University, NY Natural Heritage Program, December 2006	NYS GIS Clearinghouse, Hudson River Significant Biodiversity Areas http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1247	October 2013

Boundaries

Title (feature class)	Description	Author, Year	Source(s)	Acquired
Catskill Park Boundary (AdirondackCatskill)	New York State Adirondack Park and Catskill Park administrative boundaries	New York State Office of Cyber Security, January 2005	NYS GIS Clearinghouse, NYS Public Land Boundaries http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=931	October 2013
Municipal Boundaries (CityTown)	Town and city boundaries in New York State	NYS GIS Program Office, October 2013	NYS GIS Clearinghouse, NYS Civil Boundaries http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927	December 2013
County Boundaries (County)	County boundaries in New York State	NYS GIS Program Office, October 2013	NYS GIS Clearinghouse, NYS Civil Boundaries http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927	December 2013
Ellenville Boundary (Ellenville)	Ellenville village boundary, extracted from statewide village boundary layer	NYS GIS Program Office, October 2013	NYS GIS Clearinghouse, NYS Civil Boundaries http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927	December 2013
Wawarsing Boundary (Wawarsing_Town_Boundary)	Wawarsing town boundary, extracted from statewide city and town boundary layer	NYS GIS Program Office, October 2013	NYS GIS Clearinghouse, NYS Civil Boundaries http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927	December 2013
Preliminary Flood Zones (FEMA_FIRM_2013_Prelim)	Preliminary flood zones (Zone "A" and "AE") in Ulster County, to be included in upcoming Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA). The FIRM is the basis for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP). This layer represents the geographic boundaries of the flood zones based on their inclusion in the Special Flood Hazard Areas (SFHAs). The SFHA is the area where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. In this preliminary layer, the SFHA in Wawarsing and Ellenville includes Zones A and AE (subject to inundation by the 1% annual chance flood event, or the so-called "100-year" flood), and in the map are symbolized as areas "IN" the SFHA. The new flood zones will not be official until adopted by all Ulster County communities.	NYSDEC Division of Water, Bureau of Flood Protection and Dam Safety, August 2007	Direct from agency author (NYSDEC Division of Water, Bureau of Flood Protection and Dam Safety)	February 2013

Title (feature class)	Description	Author, Year	Source(s)	Acquired
New York Protected Areas Database (NYS_Conservation_Lands_DB)	From the New York State-wide database of public and private conservation, recreation and open-space lands, clipped to Wawarsing and surrounding area. NYPAD is a spatial database of lands protected, designated, or functioning as open space, natural areas, conservation lands, or recreational areas. Shown in the town of Wawarsing open space maps as "Parks and Conservation Lands", along with Town Property & Parks, and Private Recreation Lands (medium green shaded polygons with dash-dot pattern outline).	New York Natural Heritage Program, a partnership between SUNY Environmental Science and Forestry and NYS DEC (collaborators include NYS Office of Parks, Recreation and Historic Preservation and The Nature Conservancy), October 2013	New York Protected Areas Database (NYPAD) Website (http://nypad.org/)	November 2013
Open Space Parcels (Open_Space_Parcels)	This layer was generated by Taconic Site Design & Landscape Architecture consultants, and was derived from the tax parcels boundary data and associated Real Property System (RPS) property code type and ownership information. It includes 1) Private Recreation Land; Recreational Facilities; State Parks, Forests, Preserves, MUAs, Easements; Town Parks and Recreation; 2) Private Wild and Forest Lands; 3) Residential Vacant Land Over 10 Acres; 4) Private Farm Lands, State Prison Farm Lands; 5) Other Town Property; 6) New York City Bureau of Water Lands; and 7) State Prison Lands	Ulster County Information Services, 2013	Direct from agency author (Ulster County Information Services)	October 2013
Tax Parcels (Tax_Parcels_2013)	Tax parcel polygons in Ulster County, with attributed data exported from the Real Property System v. 4 (RPS4) database (e.g. owner, address, etc.)	Ulster County Information Services, 2013	Direct from agency author (Ulster County Information Services)	October 2013
Wawarsing Boundary for Clipping (Wawarsing_Clip_Boundary)	Rectangular boundary around the town of Wawarsing used to clip state and national data sets to the cartographic boundary of the maps created for the open space maps	TSD Consultants, 2013	TSD Consultants	n/a

Historic and Cultural

Title (Feature Class)	Description	Author	Source(s)	Acquired
Hamlets (Hamlets)	Well-known populated sections or settlement areas that are not incorporated as villages	USGS, US Census Bureau, TSD Consultants, Wawarsing Open Space Committee	US cities and towns/populated places, committee tour 10/13/2013 and map review	September-October 2013
Historic Points (Historic_Points_All)	Point GIS data layer of historic points listed in the National Historic Register and collected by Taconic Site Design and Landscape Architecture consultants and Town of Wawarsing Open Space Committee. National Historic Register points are those where attribute table column Source = "National Historic Register".	NYS Parks and Historic Preservation Office, TSD consultants and Wawarsing Open Space Committee, October 2013	Direct from agency author (NYS Parks and Historic Preservation Office), Committee tour and GPS collection on 10/13/2013	October 2013
Historic Register Sites (National_Historic_Register_Waw)	Polygon GIS data layer whose features represent the sites of buildings, structures, objects, historic districts listed in the National Register. Archeological sites and properties determined eligible for listing are not included. Historic Register polygons in this layer are also represented as points in the Historic Points layer. Only Historic Register Sites > 15 acres are displayed in the Town of Wawarsing Open Space Maps. The remaining sites are represented in the maps as points.	NYS Parks and Historic Preservation Office, 2013	Direct from agency author (NYS Parks and Historic Preservation Office)	October 2013

Physical

Title (Feature Class)	Description	Author	Source(s)	Acquired
NYS Regulated Wetlands (DEC_Wetlands_Waw)	This data set is based on official New York State Freshwater Wetlands Maps as described in Article 24-0301 of the Environmental Conservation Law. The data set is 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. Regulatory wetland maps are prepared by NYSDEC and filed as required by the Freshwater Wetlands Act (Article 24 of the Environmental Conservation Law). Associated with the maps are Classification Sheets that list the Wetlands Identification Code, the municipality in which the wetland occurs and the regulatory class of each wetland. For a final determination of the actual location of a wetland it is necessary to contact the NYSDEC office for the region in which the wetland occurs.	New York State Department of Environmental Conservation, June 2009	Cornell University Geospatial Information Repository (CUGIR), Freshwater Wetlands (DEC; NAD83) http://cugir.mannlib.cornell.edu/datatheme.jsp?id=111	October 2013
DEP Aqueducts (DEP_Aqueducts)	This layer was extracted by Taconic Site Design & Landscape Architecture consultants from the USGS National Hydrography Dataset (NHD) high-resolution "Flowline" layer – aqueduct features (FCODE=42803). The data was obtained from the NYS statewide staged geodatabase and clipped to the town of Wawarsing and surrounding area.	US Geographic Survey, 2012	USGS National Hydrography Dataset, NYS statewide staged geodatabase http://nhd.usgs.gov/data.html	December 2013
Streams, Waterbodies – NYS Use Classification (NYS_WaterClass_Line, NYS_WaterClass_Polygon)	This data set provides the water quality classifications of the town of Wawarsing's lakes, rivers, streams and ponds, collectively referred to as water bodies. All water bodies in New York State are provided a water quality classification by the NYS Dept. of Environmental Conservation based on existing, or expected best usage, of each water body or water body segment. Most water bodies, including most lakes and ponds along the stream network, are represented in the line layer (Streams). Lakes and ponds along the stream network are represented by flow lines drawn through lakes and ponds to connect flow in a linear network. Isolated lakes and ponds, and other features difficult to represent with flow lines are represented in the polygon (Waterbodies) layer. Under New York State's Environmental Conservation Law (ECL), Title 5 of Article 15 (Protection of Waters Regulatory Program) streams and small water bodies located in the course of a stream that are designated	NYS Department of Environmental Conservation, Division of Water, Bureau of Water Assessment and Monitoring, April 2010	NYS GIS Clearinghouse, Water Quality Classifications - NYS http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1118	February 2012

	as C (T) or higher (i.e., C (TS), B, or A) are collectively referred to as "protected streams."			
Wetlands (NWI_Wetlands)	This data set represents the extent, approximate location and type of wetlands and deepwater habitats in Columbia County, New York and surrounding areas. These data delineate the areal extent of wetlands and surface waters as defined in: Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, DC. FWS/OBS-79/31. The NYS statewide coverage was obtained by Taconic Site Design & Landscape Architecture consultants from the NYS statewide staged data on the National Wetlands Inventory website, then clipped to the town of Wawarsing and surrounding area.	US Fish and Wildlife Service, October 2013	National Wetlands Inventory Website http://www.fws.gov/wetlands/Data/State-Downloads.html	October 2013
Surface Water (NHD_Waterbodies, NHD_Flowline, NHD_Area)	The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. A pre-staged geodatabase containing the high-resolution NHD data for the state of New York was downloaded by Taconic Site Design & Landscape Architecture. The NHDArea, NHDFlowline, and NHDWaterbody layers were extracted from the NHD database and clipped to the town of Wawarsing and surrounding area.	US Geographic Survey, 2012	USGS National Hydrography Dataset, NYS statewide staged geodatabase http://nhd.usgs.gov/data.html	December 2013
Possible and Probable Wetlands (PossibleProbable Wetlands)	These layers were derived from the USDA NRCS Soil Survey Geographic (SSURGO) Database. "Probable wetlands" are those classified in the USDA-NRCS soil survey as very poorly drained or poorly drained, and "possible wetlands" are those classified as somewhat poorly drained soils (after Kiviat and Stevens, 2001).	U.S. Dept. of Agricultural, Natural Resource Conservation Service, December 2011	Soil Survey Geographic (SSURGO) Database http://websoilsurvey.sc.egov.usda.gov/	November 2013
Unconsolidated Aquifers (Unconsolidated_Aquifers)	These aquifers are those in upstate NY that consist of sand and gravel and yield large supplies of water to wells. Bedrock aquifers, although significant in some areas, are not addressed here. Source data is 1:250,000, same scale as the NYS Geological Survey surficial and bedrock geology maps on which they were based. Together these maps form a consistent set of geologic and groundwater maps for use in regional management of the groundwater resources of the State.	New York State Department of Environmental Conservation, Division of Water, Bureau of Water Resources Management, February 2008	NYS GIS Clearinghouse, Unconsolidated Aquifers at 1:250,000 http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1141	October 2013
Watersheds, Sub-Watersheds	This layer consists of watershed boundaries in the town of Wawarsing and surrounding area, extracted	US Department of Agriculture, Natural	NRCS Geospatial Gateway: http://datagateway.nrcs.usda.gov	December 2013

<p>(Watersheds_HUC10, Watersheds_HUC12)</p>	<p>from the National Watershed Boundary Dataset 12-digit Hydrologic Unit Code (HUC12) layer. The HUC12 layer is called "Subwatersheds" in the Wawarsing open space maps. The HUC10 layer was produced by merging the HUC12 polygons on the HUC10_Name field, and is called the "Watersheds" layer in the Wawarsing open space maps. The intent of defining hydrologic units (HU) for the Watershed Boundary Dataset is to establish a base-line drainage boundary framework, accounting for all land and surface areas. Watershed boundaries define the aerial extent of surface water drainage to a point. Its boundaries are defined by hydrographic and topographic criteria that delineate an area of land upstream from a specific point on a river, stream or similar surface waters. Impacts that affect surface and groundwater quality in upstream areas of a watershed may also affect areas downstream.</p>	<p>Resource Conservation Service - National Geospatial Management Center, 2008</p>	<p><u>✓</u></p>	
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Recreation

Title (Feature Class)	Description	Author	Source(s)	Acquired
Private Recreation Lands (Private_Recreation_Lands)	Created by Taconic Site Design & Landscape Architecture consultants from Tax Parcel boundaries, based on property class code and ownership attributes. Shown in the town of Wawarsing open space maps as "Parks and Conservation Lands", along with selected parcels from Town Property & Parks, and NYS Conservation Lands (medium green shaded polygons with dash-dot pattern outline).	Ulster County Information Services, 2013, TSD Consultants	Direct from agency author (Ulster County Information Services)	October 2013
Town Property and Parks (Town_Property_Parks_Parcels_2013)	Created by Taconic Site Design & Landscape Architecture consultants from Tax Parcel boundaries, based on property class code and ownership attributes. Shown in the town of Wawarsing open space maps as "Parks and Conservation Lands", along with Private Recreation Lands, and NYS Conservation Lands (medium green shaded polygons with dash-dot pattern outline).	Ulster County Information Services, 2013, TSD Consultants	Direct from agency author (Ulster County Information Services)	October 2013
Trails (Trails)	Created by Taconic Site Design & Landscape Architecture consultants from several sources: New York-New Jersey Trail Conference trails layer, Ulster County trails layer, NYS Streets layer (Scenic Byways), and digitized features (D&H O&W Rail Trail route)	NY-NJ Trail Conference, Ulster County Information Services, New York State Office of Cyber Security, 2013	Direct from authors, NYS GIS Clearinghouse (NYS Streets) http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=932	October 2013

Unique Resources

Title (Feature Class)	Description	Author	Source(s)	Acquired
Unique Features	Camps, canoe and fishing access locations, farming sites, historic sites, scenic viewpoints and other unique open space features in the town of Wawarsing. Captured and edited by Taconic Site Design & Landscape Architecture consultants and Wawarsing Open Space Committee volunteers.	TSD Consultants, Wawarsing Open Space Committee volunteers, October 2013	Committee tour and GPS collection on 10/13/2013	October 2013
Roads	Public/private streets and ferry crossings compiled from orthoimagery and other sources. Attributed with street names and route numbers. Clipped to the town of Wawarsing and surrounding area. "Symbol" field added by Taconic Site Design & Landscape Architecture consultants to simplify labeling in town of Wawarsing open space maps.	New York State Office of Cyber Security, March 2013	NYS GIS Clearinghouse (NYS Streets) http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=932	October 2013

Raster Layers

Data Set	Description	Author	Source(s)	Acquired
NYS Digital Orthophotography Program 2010 Orthophotos (NYS DOP2009)	These files contain 2009 digital Ortho-imagery of the Town of Wawarsing. Image pixel size is 1.0' GSD. Image type is 4-band, RGB & NIR. Image horizontal accuracy is within 4' at the 95% confidence level (NSSDA). Each file contains an image covering 2000 ft. by 3000 ft. on the ground.	NYS Cyber Security, 2009	NYS GIS Clearinghouse, Direct Download Directory Statewide Digital Orthoimagery 2000 – 2013, Ulster County http://gis.ny.gov/gateway/mg/2009/ulster/	February 2014
Elevation (DEM)	This layer consists of elevations across a continuous grid over the town of Wawarsing and surrounding area. It was clipped from the 1/3 arc second National Elevation Dataset. Each 10m x 10m grid cell represents an elevation on the ground.	US Geological Survey, March 2008	The National Map, USGS National Elevation Dataset http://viewer.nationalmap.gov/viewer/	September 2013
Hillshade (Hillshade)	This layer depicts the physical relief (hills, valleys, and major landforms) of Wawarsing and surrounding area. The layer was created by Taconic Site Design & Landscape Architecture consultants from the National Elevation Dataset.	US Geological Survey, March 2008	The National Map, USGS National Elevation Dataset http://viewer.nationalmap.gov/viewer/	September 2013
Steep Slopes (Slope_Waw)	The layer was created by Taconic Site Design & Landscape Architecture consultants. Percent slope (where 100% slope = 45 degree angle slope) was computed for each grid cell in the Elevation layer. Slopes 20% and higher are shown in red in the town of Wawarsing open space maps.	US Geological Survey, March 2008	The National Map, USGS National Elevation Dataset http://viewer.nationalmap.gov/viewer/	September 2013
Lippman Park Master Plan (LippmanPark_MasterPlan)	Lippman Park Master Plan scanned image, georeferenced in UTM NAD83 coordinate system	Town of Wawarsing, TSD Consultants	Town of Wawarsing, Lippman Park Master Plan	October 2013

Appendix D: Installing ArcReader and viewing the GIS data and maps

Contents of the Disc

The top folder of this disc contains three folders and two files:

- [ArcReader](#) (folder) – Contains the installer for ESRI ArcReader, which can be installed and used to view the GIS data layers used to create the Town of Wawarsing Open Space Inventory maps and referenced in the inventory report.
- [GIS](#) (folder) – Contains all GIS data and maps created by Taconic Site Design and Landscape Architecture for the Town of Wawarsing Open Space Inventory, in ESRI format. The data in this folder can be updated and edited using ESRI ArcGIS Desktop software.
- [PDF Maps](#) (folder) – Contains all Open Space Inventory maps in Adobe Portable Document Format (PDF) format
- [WawarsingOpenSpaceInventory.pdf](#) - Town of Wawarsing Open Space Inventory report by Taconic Site Design and Landscape Architecture in Adobe PDF format

Installing ArcReader

ArcReader is a basic data viewer for maps and GIS data published in the proprietary ESRI format using ArcGIS Desktop commercial software. ArcReader provides some basic tools for map viewing, printing and querying of spatial data. It is included with any of the ArcGIS suite of commercial products, and is also available for free to download. A previously downloaded installer has also been included with this disc. To install ArcReader:

1. Open the DVD in Windows and navigate to the ArcReader window. Double-click the installer application (Setup.exe) to run it. Your computer may not show the file extension (.exe) in the window, but the file type will be shown in the file details as "Application."
2. Wait for the Windows Installer program to prepare the setup wizard
3. Click "Next" and follow the instructions in the ArcReader Setup wizard. Once finished, the application will be installed and ready.

Copying GIS data and maps to your computer

All GIS data and maps are stored in the GIS folder on the disc. The contents of the folder are shown in the image below, and described in more detail following.

- [GIS-Data.gdb](#) (folder) – Contains the GIS database in ESRI format (file geodatabase) used in all maps, which can be edited and updated using ESRI ArcGIS Desktop software.

- Orthophotos (folder) – contains the orthophotos which can be viewed seamlessly in the digital map (WawarsingOpenSpaceInventory)
- ArcGIS ArcMap Documents (e.g. Agricultural_Resources, Aquifer_Resources...) – each file listed under Type, "ArcGIS ArcMap Document". These files can only be opened in ESRI ArcGIS Desktop software. They are included for completeness and can be edited and updated using ESRI ArcGIS Desktop software.
- WawarsingOpenSpaceInventory.pmf – ArcGIS Published Map, which can be opened in ArcReader.

To copy the maps and data, simply drag and drop the GIS folder from the disc to a location of your choosing on your computer. For example, you can copy the folder to the top directory of your C:\ drive, or you can copy it to your Documents folder. However, you must NOT copy individual folders and files within the GIS folder separately. Instead, copy the *entire* GIS folder. The digital map will not work otherwise.

Opening and viewing the map

Once you have 1) installed ArcReader and 2) copied the GIS folder to your computer, simply navigate to the GIS folder on your computer and double-click the file "WawarsingOpenSpaceInventory.pmf" to open the map in ArcReader.

The tools in ArcReader allow you to zoom and pan to different locations within the map. You can also query individual GIS layers using the Find tool. For a quick tutorial on how to navigate GIS data and maps in ArcReader using these and other tools, watch this short video

<http://www.youtube.com/watch?v=afZuOJPkgOY>)

or the series of videos at

http://webhelp.esri.com/arcgisdesktop/9.3/tutorials/arcreader/arcreader_tutorial_index.htm.

Appendix E - Committee Meeting Agendas and Minutes



Memorandum

To: Wawarsing Open Space Committee
From: Peter Karis, RLA
Date: August 29, 2013
Re: August 22, 2013 Project Meeting #1 Minutes
 Committee: Hank Alicandri, Scott Carlsen (Supervisor), John Adams, Hank Bartosik, John Constable, Jennifer Garofalini, Jeff Slade
Attendees: Consultants: Peter Karis, Neil Curri
 Others: Sarah Underhill
Absent: Bryant Arms, Jack Grifo, Bruce Jackson, Brian Schug, Rob Mecus

This memo provides a summary of discussion and action items discussed at the project meeting held on August 22, 2013 at the Wawarsing Town Hall - 5:30pm to 7:00 pm.

	Discussion/Action Item	Lead	Due Date	Status
1	Welcome, Introductions and Project Description/History Volunteer timesheet discussion.	Hank Alicandri	NA	Complete
2	Plan purpose discussion (Open Space Resource Inventory vs. Open Space Plan)	Peter Karis	NA	Complete
3	Review of Overall Project Schedule. Tri-weekly meetings suggested. Future meeting dates will be scheduled at subsequent meeting to maximize committee availability.	Peter Karis	NA	Complete
4	Hank A. indicated that a contract extension is required from Hudson River Estuary Program (HREP).	Hank Alicandri	9/12	In action
5	Project schedule to be adjusted to accommodate a December 15 completion. Adjust project schedule working back from this date. Working back from 12/15 deadline, revised project schedule.	Hank Alicandri / Peter Karis	9/12	In action
6	Review of critical resource documents	Peter Karis	NA	Complete

	Discussion/Action Item	Lead	Due Date	Status
7	Additional critical resource documents offered by committee: <ul style="list-style-type: none"> - NYSDEC Unit Management Master Plan for Shawangunk Ridge - NYS Open Space Plan - NYSDEC Region 3 report to NYS Open Space Plan update - D&H,O&W Rail Trail Master Plan - Friends of Colony Farm and the Catskill Shawangunk Greenway 	Committee	NA	Complete
8	Peter Karis to obtain documents to serve as additional resources.	Peter Karis	9/12	In action
9	Consultant request for Town to provide copy of 2009 Town Comprehensive Plan CD appendix	Supervisor Carlsen	9/12	In action
10	Town Overview - Existing state of land use, conserved properties, agricultural lands and forest blocks	Neil Curri	NA	Complete
11	Existing non-profit organizations holding conservation easements in Town: <ul style="list-style-type: none"> - Rondout Esopus Land Trust - Cragsmoor Conservancy 	Committee	NA	Complete
12	“What is important to you” Map Exercise - Basic maps handed out to Committee members. Committee members asked to mark locations on map that are personally important.	Committee	9/12	In action
13	GIS Data Sharing Letter - Consultant to coordinate with Supervisor for Town to provide a general letter requesting that agencies with GIS data share said data with Town’s consultant in support of Open Space Inventory.	Peter Karis, Supervisor	9/12	In action

	Discussion/Action Item	Lead	Due Date	Status
14	<p>Committee Assignments - Committee asked to think about their local knowledge strengths for supplemental data contribution. Local knowledge needed for :</p> <ul style="list-style-type: none"> - Agricultural and Working Landscapes - Ecological and Habitat Resources - Historic, Cultural and Heritage Resources - Recreation Resources - Unique Resources <p>Committee should be prepared to commit to their area of local knowledge.</p>	Committee	9/12	In action
15	<p>Measurements of a successful project discussion - what qualities will define a successful project?</p> <ul style="list-style-type: none"> - Project delivered on time. - Cohesive setup for phase II and III of Open Space Plan - Project report is setup for future grant funding - Marketability of produced mapping - Town, Local organizations and businesses 	Committee/ Consultant	NA	Completed
16	<p>Next Meeting scheduled for Thursday September 12 at 530pm at Wawarsing Town Hall.</p> <p>Meeting agenda will be provided 1 week in advance.</p>	Peter Karis	9/5	In action

Respectfully,

Peter Karis, RLA

Taconic Site Design & Landscape Architecture



Memorandum

To: Wawarsing Open Space Committee
From: Peter Karis, RLA
Date: September 18, 2013
Re: September 12, 2013 Project Meeting #2 Minutes
 Committee: Hank Alicandri, , John Adams, Jack Grifo, Jennifer Garofalini, Bryant Arms
Attendees: Consultants: Peter Karis, Neil Curri
 Others: Sarah Underhill

Committee: Hank Alicandri (Chair), John Adams, Jack Grifo, Scott Carlsen (Supervisor), Bryant Arms, John Constable, Bruce Jackson, Brian Schug, Rob Mecus, Hank Bartosik, Jeff Slade, Jennifer Garofalini

This memo provides a summary of discussion and action items discussed at the project meeting held on September 12, 2013 at the Wawarsing Town Hall - 5:30pm to 7:00 pm.

	Discussion/Action Item	Lead	Due Date	Status
1	Welcome Reminder to track and complete volunteer timesheet.	Hank Alicandri	NA	Complete
2	Review of Accelerated Overall Project Schedule. Project meetings to shorten to 2-week intervals suggested, if possible.	Peter Karis	NA	Complete
3	Hank A. indicated discussion with Hudson River Estuary Program (HREP) on extension of grant. Formal request to be made by Town. Indications on contract extension to Spring 2014. Recommend proceed with accelerated project timeline with some cushion to complete project by end of year if required.	Hank Alicandri Peter Karis	9/12	In action

	Discussion/Action Item	Lead	Due Date	Status
4	Project schedule to be adjusted to accommodate a December 15 completion. Adjust project schedule working back from this date. Working back from 12/15 deadline, revised project schedule.	Hank Alicandri / Peter Karis	9/12	In action
5	Review of critical resource documents	Peter Karis	NA	Complete
6	Additional critical resource documents offered by committee: - NYSDEC Unit Management Master Plan for Shawangunk Ridge - NYS Open Space Plan - NYSDEC Region 3 report to NYS Open Space Plan update - D&H,O&W Rail Trail Master Plan - Catskill Shawangunk Greenway Map - Ulster County Open Space Plan 2009 Executive Summary and Map Book, 2nd Edition. - Ulster County Non-Motorized Transportation Plan (2008)	Committee	NA	Not complete Provided by John A. Obtained from online. Provided by John A. PK to obtain copy of latest draft. Provided by John A. Obtained from online. Obtained from online
7	Peter Karis to obtain documents to serve as additional resources.	Peter Karis	9/12	In action
8	Consultant request for Town to provide copy of 2009 Town Comprehensive Plan CD appendix Appendix CD received from Supervisor's office on Sept 12.	Supervisor Carlsen	9/12	Complete

	Discussion/Action Item	Lead	Due Date	Status
9	<p>Town Overview - Review and discussion of existing hamlet areas from 2006 Town Comprehensive Plan:</p> <p>Dairyland - cluster of old agricultural buildings; low density residential; summer camps and campground.</p> <p>Greenfield Park - cluster of mixed uses inc. Post office, 2 old schoolhouses (one owned by the Town), fire station, low density residential. Town Parcel (Park?)</p> <p>Spring Glen - old bungalow community; mostly residential with few commercial uses</p> <p>Cragsmoor -</p> <p>Napanoch -</p> <p>(East) Wawarsing (hamlet) -</p> <p>Kerhonkson -</p> <p>Ulster Heights - Sprawled clusters of development, few churches.</p> <p>Sholam -</p>	Peter Karis	NA	Complete
10	<p>Hamlets not identified in 2006 Comp. Plan</p> <p>Port Ben -</p> <p>Lakawak -</p>	Committee	NA	
11	<p>Existing non-profit organizations holding conservation easements in Town:</p> <p>- Rondout Esopus Land Trust</p> <p>- Cragsmoor Conservancy</p>	Committee	NA	Investigate existence of GIS data from these 2 organizations.
12	<p>Discussion on Historic Sites/Districts</p> <p>Jen G. To investigate SHPO website/resources and provide to PK/NC.</p> <p>Bryant Arms to provide local historic designation list to PK/NC.</p> <p>Chetotah site east of Cragsmoor? What is this?</p>	<p>Jen Garofalini</p> <p>Bryant Arms</p> <p>PK/NC</p>	9/26	In Action

	Discussion/Action Item	Lead	Due Date	Status
13	<p>Discussion of Recreation Lands/Resources Rails Trails, Long Path, Lippman Park, other trails</p> <p>Hank Alicandri to provide contact at NY/NJ Trails.</p> <p>Neil Curri to coordinate delivery of data.</p> <p>DEC connector trail from Lippman Park to VerNooy State Forest.</p> <p>Lippman Park - 50+/- acres - 4 parcels including transfer station.</p> <p>Neil Curri to contact local bike club for trail routes within Lippman Park.</p>	Hank Alicandri Neil Curri	9/26	In action
14	<p>Discussion of Working Landscapes Ag Districts, Ag Exempt Parcels, Mining, commercial farms.</p>	All	NA	Continue to map districts and exempt parcels, list and location of notable farm operations per committee input.
15	<p>Discussion of Scenic Roads / Viewpoints Shawangunk Mountain Scenic Byway - State designated scenic area</p> <p>Bryant Arms advised there are no officially designated local 'scenic' roads.</p> <p>John Adams noted Point Lookout on west side of S.Ridge (visible from Route 209)</p>	All	NA	Show SMSB on project mapping. Map notable scenic viewpoints or road stretches per committee input.
16	<p>"What is important to you" Map Exercise - Basic maps handed out to Committee members. Committee members asked to mark locations on map that are personally important.</p> <p>A few maps were handed in by committee members. Preferences expressed so far show preferences for scenic resources and Catskill/Shawangunk connectivity.</p>	Committee	9/26	In action
17	<p>GIS Data Sharing Letter - Consultant to coordinate with Supervisor for Town to provide a general letter requesting that agencies with GIS data share said data with Town's consultant in support of Open Space Inventory.</p>	Peter Karis, Supervisor	9/26	In action

	Discussion/Action Item	Lead	Due Date	Status
18	<p>Discussion on Committee Assignments - Committee asked to think about their local knowledge strengths for supplemental data contribution. Local knowledge needed for :</p> <ul style="list-style-type: none"> - Agricultural and Working Landscapes - Historic, Cultural and Heritage Resources - Recreation Resources - Unique Resources <p>Committee to decide how to most efficiently distribute assignments i.e. Focused area, brainstorming meeting, other ideas.</p>	Committee	9/26	In action
19	<p>Discussion of NYSDEC HREP.</p> <p>Hank A. Advised that Laura Heady is currently preparing a biodiversite assessment for the Town. PK to contact Laura on status.</p> <p>Laura may also be able to provide insight into the DEC's work on habitat connectivity and forest 'performance levels'.</p>	Committee/ Consultant	NA	Completed
20	<p>Miscellaneous</p> <p>Hank A. requested final working maps show local road names at close range.</p> <p>Bryant A. Advised of a large cedar swamp north and east of Cape Pond. Feature witnessed on historic County Map in Town Hall foyer.</p> <p>Mike Somers - Wawarsing Assessor - developed/identified parcels that make up "hamlets" - Neil C. to contact Mike S in regards to this assertion.</p>			
21	<p>Next Meeting scheduled for Thursday September 26 at 530pm at Wawarsing Town Hall.</p> <p>Meeting agenda will be provided 1 week in advance.</p>	Peter Karis	9/5	In action

Respectfully,

Peter Karis, RLA

Taconic Site Design & Landscape Architecture



Memorandum

To: Wawarsing Open Space Committee
From: Peter Karis, RLA
Date: October 16, 2013
Re: September 26, 2013 Project Meeting #3 Minutes
 Committee: Hank Alicandri, John Adams, Jack Grifo, Jennifer Garofalini, Bryant Arms, Hank Bartosik, Jeff Slade
Attendees: Consultants: Peter Karis
 Others: Sarah Underhill

Committee: Hank Alicandri (Chair), John Adams, Jack Grifo, Scott Carlsen (Supervisor), Bryant Arms, John Constable, Bruce Jackson, Brian Schug, Rob Mecus, Hank Bartosik, Jeff Slade, Jennifer Garofalini

This memo provides a summary of discussion and action items discussed at the project meeting held on September 26, 2013 at the Wawarsing Town Hall - 5:30pm to 7:30 pm.

	Discussion/Action Item	Lead	Due Date	Status
1	Welcome Reminder to track and complete volunteer timesheet.	Hank Alicandri	NA	Complete
2	Town has submitted for a contract extension with NYSDEC. Review of Adjusted Project Schedule.	Peter Karis	NA	Complete
4	Discussion on investing committee effort for comprehensive driving tour of Town. Tour scheduled for Monday October 14th at 8am to end. TSD to provide map of proposed tour routes for committee review prior to the 14th.	Hank Alicandri / Peter Karis	NA	In action
5	Review of critical resource document list.	Peter Karis	NA	Complete

	Discussion/Action Item	Lead	Due Date	Status
6	Additional critical resource documents offered by committee: - 2012 Town of Wawarsing Zoning Map - 2008 Ulster County Non-Motorized Transportation Plan	Committee	NA	Complete. Obtained from online. Obtained from online
9	Brainstorming Map Exercise TSD and Committee gathered around table to review and physically mark on maps the locations of resources in the following categories: - Working and Agricultural Landscapes - Ecological and Unique Resources - Historic, Cultural, Heritage Resources - Recreation Resources	Peter Karis	NA	Complete
10	Consultant to translate marked maps into GIS points with associated description database for inclusion in mapping.	Committee	10/21	In progress.
11	Consultant to reach out to the following additional resource contacts based on map exercise - Rondout Esopus Grower's Association - Laura Heady, NYSDEC	Peter Karis	10/21	In progress.
21	Next Meeting scheduled for Monday October 21 at 530pm at Wawarsing Town Hall. Meeting agenda will be provided 1 week in advance. Based on Town Tour, Meeting date to possibly be adjusted. TSD to coordinate with Hank A.	Peter Karis Hank Alicandri	10/18	In progress.

Respectfully,

Peter Karis, RLA

Taconic Site Design & Landscape Architecture

Memorandum

To: Wawarsing Open Space Committee
From: Peter Karis, RLA
Date: October 7, 2013
Re: Town of Wawarsing Open Space Inventory Project

MEETING AGENDA

October 14, 2013 8:00 AM TOWN TOUR AGENDA

I. Town Tour Field Trip

Loop 1 (8am to 1030am)

Rondout Reservoir, Vernooy State Forest, Rondout Valley Ag. Lands (north of Ellenville)

Loop 2 (1030am to 1pm)

Western Plateau and lands south of Route 52

Loops have been optimized to include:

Key visitation areas

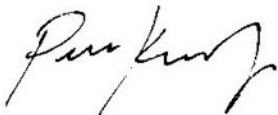
- Hamlets
- Vernooy Kill State Forest
- Rondout Creek and Ag. Lands
- Rondout Reservoir, Cape Pond and Honk Lake
- Central swamp complex
- Ag. Lands along Ulster Heights Road, South Hill Road & Steam Hollow Road

Key visitation sites

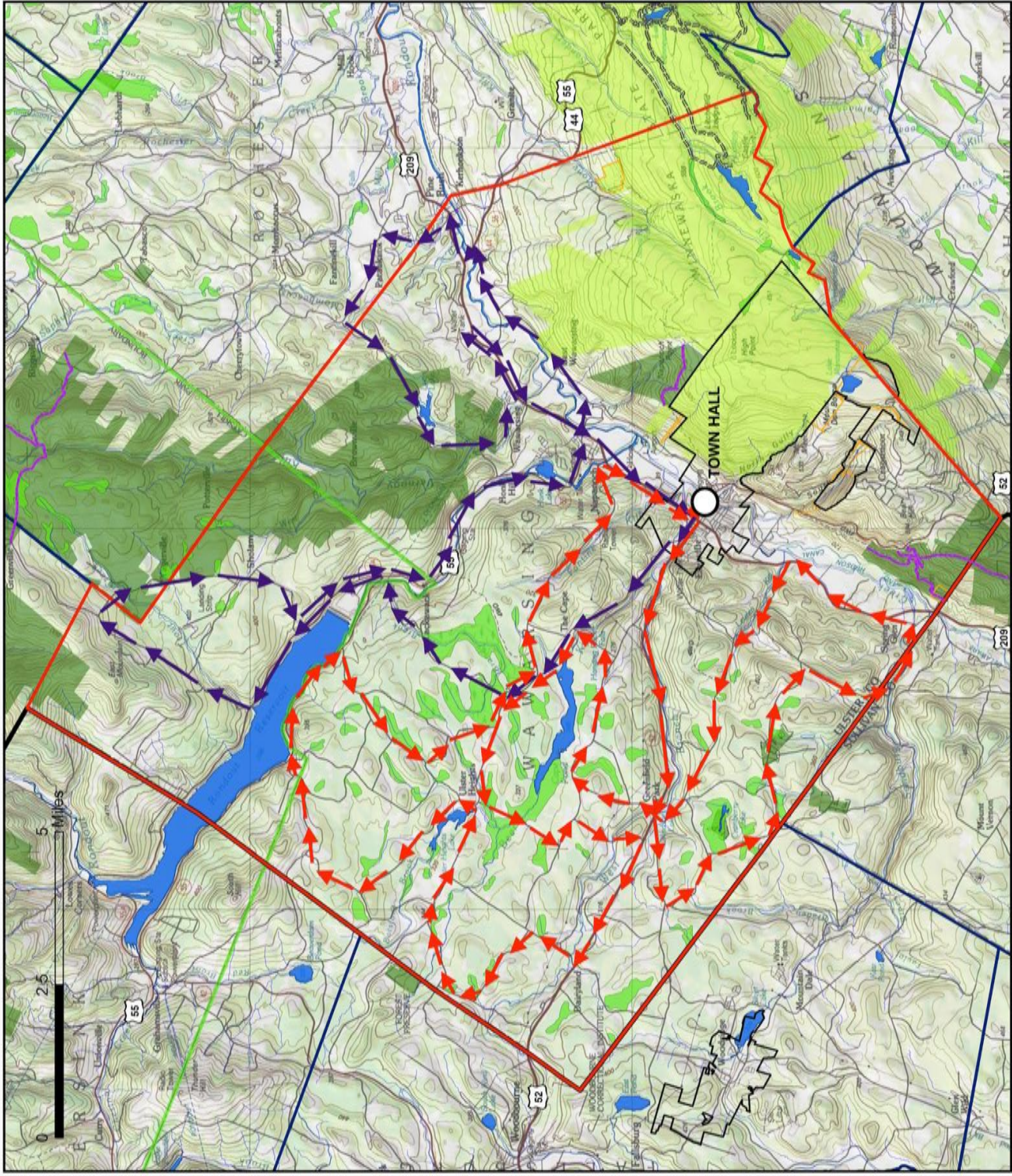
- Rondout Reservoir - northern gorge
- Colony Farm
- Cedar Swamp

II. Next Committee Meeting scheduled for Monday October 21, 2013 at Wawarsing Town Hall.

Respectfully submitted,



Peter Karis, RLA



Legend	
	Carriage Roads
	Existing Footpaths
	NYSDEC Roads and Trails
	Town of Wawarsing
	NYS Counties
	Town Boundary
	Village Boundary
	Catskill Park Boundary
	Major Creeks
	Streams
	Waterbody
	NYSDEC Wetland
	Open Space Conservancy Lands (2009)
	New York State Parks
	NYSDEC Lands
	Mohawk Preserve

LOOP 1

LOOP 2

Town of Wawarsing
Open Space Inventory
Town Tour

October 14, 2013



Memorandum

To: Wawarsing Open Space Committee
From: Peter Karis, RLA
Date: December 4, 2013
Re: October 30, 2013 Project Meeting #4 Minutes
 Committee: Hank Alicandri, John Adams, Jack Grifo, Bryant Arms
Attendees: Consultants: Peter Karis
 Others: Sarah Underhill

Committee: Hank Alicandri (Chair), John Adams, Jack Grifo, Scott Carlsen (Supervisor),
 Bryant Arms, John Constable, Bruce Jackson, Brian Schug, Rob Mecus, Hank
 Bartosik, Jeff Slade, Jennifer Garofalini

This memo provides a summary of discussion and action items discussed at the project meeting held on October 30, 2013 at the Wawarsing Town Hall - 5:30pm to 7:30 pm.

	Discussion/Action Item	Lead	Due Date	Status
1	Welcome Reminder to track, complete and submit volunteer timesheet.	Hank Alicandri	NA	Complete
2	Review of Adjusted Project Schedule. Town Board Presentation considered for TB work session, possibly Nov 25th.	Peter Karis	ASAP	PK to reach out to Supervisor's office and coordinate Presentation Meeting date.
4	Town tour debriefing discussion and review of summary map. 6 hrs. - 2 loops - 117+ miles - 121 collected waypoints	Peter Karis	NA	Populate map with waypoint data and committee markups from 9/26 mtg
5	Review of critical resource document list and additional resources.	Peter Karis	NA	Complete - will be consulted for applicability and referenced in report

	Discussion/Action Item	Lead	Due Date	Status
6	Additional critical resource documents offered by committee: - Rondout Valley Grower's Association Map - The Eastern Wildway Essential 16 - 2013 Green Infrastructure Center Evaluating Green Infrastructure across the landscape: A Practitioner's Guide	Committee	NA	Complete. - Obtained from RVGA - Obtained from online - Obtained from GIC
7	Discussion of status of Ag. District at Colony Farm. Current NY Ag&Markets Data layer does not include north parcel.	Committee	10/21	In progress.
8	Consultant to reach out to the following additional resource contacts based on map exercise - Rondout Esopus Grower's Association - Laura Heady, NYSDEC Summary of Outside Resource Meetings: NYSDEC - Laura Heady - 10/17 DEC provided clear insight into the Catskill-Shawangunk Greenway connection - advised best data to illustrate concept are forest blocks and linkages. Rondout Valley Grower's Association - Deborah DeWan - 10/25 RVGA provided insight into location of active farms within Town and provided map for reference	Peter Karis	10/30	Complete
9	Interactive discussion with working GIS database and maps	Neil Curri	10/30	Complete
10	Resource Exercise - review of inventory themes: Committee noted that NYSDEC Shawangunk Land Management Draft Plan had been released for public comment and is available online. Consultant to obtain draft document for reference and map population	Peter Karis / Neil Curri	11/22	In progress.
11	Ice caves at Sams Point Preserve noted as National Natural Landmark Add to historic resources layer and note in report.	Peter Karis / Neil Curri	11/22	In progress.

	Discussion/Action Item	Lead	Due Date	Status
12	<p>Discussion on Floodplains - revised 2013 FEMA maps have not been officially adopted and are only draft.</p> <p>Bryant Arms noted 1983 maps are most current 'adopted' maps for enforcement.</p> <p>Consultant to include both layers in geodatabase for reference and consider which is more appropriate to show on map.</p>	Peter Karis / Neil Curri	11/22	In progress.
13	<p>Discussion of Hang-gliding as local recreational resource.</p> <p>Committee noted very active regional community using western slope of Shawangunk Ridge, primarily along Route 52 and south.</p> <p>Resources include: multiple launch sites at Route 52 with landing zones at end of Hang Glider Road.</p> <p>Hill at Colony Farm also used for training.</p> <p>Consultant to include these locations in resource database and maps.</p>	Peter Karis / Neil Curri	11/22	In progress.
14	<p>Committee noted that NYNJ Trails Conf is planning reroute of Long Path at Port Ben.</p> <p>Rerouteing was pointed out on map by John Adams.</p> <p>Consultant to show reroute on plan</p>	Peter Karis / Neil Curri	11/22	In progress.
15	<p>Next Meeting scheduled for Friday November 22 at 530pm at Wawarsing Town Hall.</p> <p>Meeting agenda will be provided 1 week in advance.</p>	Peter Karis Hank Alicandri	10/18	In progress.

Respectfully,

Peter Karis, RLA

Taconic Site Design & Landscape Architecture



Memorandum

To: Wawarsing Open Space Committee
From: Peter Karis, RLA
Date: December 4, 2013
Re: November 22, 2013 Project Meeting #5 Minutes

Attendees: Committee: Hank Alicandri, John Adams, Jack Grifo, Jeff Slade, Bryant Arms
Consultants: Peter Karis, Neil Curri

Committee: Hank Alicandri (Chair), John Adams, Jack Grifo, Scott Carlsen (Supervisor),
Bryant Arms, John Constable, Bruce Jackson, Brian Schug, Rob Mecus, Hank
Bartosik, Jeff Slade, Jennifer Garofalini

This memo provides a summary of discussion and action items discussed at the project meeting held on Friday November 22, 2013 at the Wawarsing Town Hall - 5:30pm to 7:30 pm.

	Discussion/Action Item	Lead	Due Date	Status
1	Welcome Reminder to track, complete and submit volunteer timesheet.	Hank Alicandri	NA	Complete
2	Review of Adjusted Project Schedule. Town Board Presentation scheduled for December 5th TB Work Session. Supervisor's office to advise on specific time 1 week prior to meeting.	Peter Karis	ASAP	Complete
4	Review of Inventory Maps List and associated data	Peter Karis	NA	Complete

	Discussion/Action Item	Lead	Due Date	Status
5	<p>Agriculture Map</p> <p>discussion on showing NYCDEP buyout properties along aqueduct. Understanding is that impacted parcels will possibly be annexed to adjacent properties</p> <p>Ag. Map to still be populated with existing farms</p> <p>Close loop on agricultural exempt parcels with County I.S. - understanding is that all ag exempt parcels are contained within ag. districts, so ag districts layer should cover any affected parcels - continue research</p> <p>question still remains on ag district status at Colony Farm</p>	Peter Karis	NA	In progress.
6	<p>Parcel Size Distribution Map</p> <p>lower parcel size category from 0-50 acres to 0-25 acres to catch more contiguous parcels</p>	Neil Curri	NA	In progress.
7	<p>Steep Slopes</p> <p>Discussion of cut-off slope categories. Committee settled on 20% as definition of 'steep' slope.</p> <p>Understanding that slopes are being calculated based on 20' USGS contour lines, and although this method will show large areas of steep slopes, it will not be accurate on a parcel by parcel scale.</p>	Neil Curri	NA	In progress.
8	<p>Lippman Park</p> <p>Neil C pointed out that the landfill parcel, although shown as part of the park in the park master plan, is not parcel coded as 'parkland'</p> <p>John A pointed out that trails exist along the periphery of the landfill cap, including the 'dump' road.</p> <p>Consensus to show parcel as 'other town owned lands' and not 'parkland'</p>	Neil C	NA	In progress.
9	<p>Existing Open Spaces Map</p> <p>Consultant showing 'Vacant residential parcels over 10 acres' as open space category. Committee agreed</p>	Neil Curri	NA	Complete

	Discussion/Action Item	Lead	Due Date	Status
10	<p>Wetlands</p> <p>Consultant showing NYSDEC wetlands, NWI wetlands and hydric soils as 'probable' and 'possible' wetlands - Committee agreed.</p> <p>Discussion on Wawarsing Wetland Complex in the area surrounding Cape Pond and Ulster Heights Pond - Consultant will show elliptical shape to highlight this area on map and in text.</p>	Peter Karis / Neil Curri	11/22	In progress.
11	<p>Waypoints</p> <p>The following points should be added to the Recreation theme:</p> <ul style="list-style-type: none"> - water access points along Rondout - Hang Gliding south of Ellenville 	Peter Karis / Neil Curri	11/22	In progress.
12	<p>Symbols comment:</p> <p>Discussion on symbology for points of interest.</p> <p>Parking/Trailhead should be shown as symbol. Most others can be shown as number with corresponding table in legend i.e. historic sites</p>	Peter Karis / Neil Curri	11/22	In progress.
13	<p>Next Committee Meeting scheduled for Monday December 16th at 530pm at Wawarsing Town Hall.</p> <p>Meeting agenda will be provided 1 week in advance.</p>	Peter Karis Hank Alicandri	10/18	In progress.

Respectfully,

Peter Karis, RLA

Taconic Site Design & Landscape Architecture