



TOWN OF CANANDAIGUA

NATURAL RESOURCES INVENTORY UPDATE

NOVEMBER 2020



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INTRODUCTION

The Town of Canandaigua Natural Resource Inventory (NRI) describes the Town’s significant natural and cultural resources and guides decision-makers in how to retain the benefits of these resources for Town residents now and in the future.

The NRI is organized in two parts. Part 1 includes maps and descriptions of the significant natural and cultural resources in the Town. The resource maps constitute the Town’s “Open Space Index.” Proposals for development that would impact the following resources depicted in these maps must be referred to the Town’s Environmental Conservation Board for advisory review.

A. Natural Ecological Communities

1. Wetlands
2. Woodlands
3. Old Fields and Shrubland
4. Wildlife Corridors

B. Water Resources

1. Watersheds
2. Canandaigua Lake and Shoreline
3. Streams and Riparian Corridors
4. Farm Ponds
5. Groundwater

C. Steep Slopes

D. Agricultural Land

E. Extractive Resources

F. Cultural Resources

1. Historic Sites
2. Scenic Vistas and View Points
3. Recreational and Other Public and Protected Land

Part 2 describes potential threats and presents best practices for conserving the Town’s important resources. This part identifies current Town Code provisions as well as relevant State and Federal regulations that help to maintain the conservation value of these resources.

The Appendices include references and sources of additional information.

A Project Review Guide, published separately, serves as a guide for the Environmental Conservation Board, Town staff and other Town boards to consider potential impacts on natural resources resulting from development and other projects. This guide identifies the information needed to determine potential impacts and suggests approaches to avoid or mitigate these impacts.

USE OF THE NRI IN PROJECT REVIEW

The Natural Resource Inventory (NRI) is intended as a reference document to supplement the Site Assessment (SA) and Project Review Guide (PRG), published separately and included as Part 3 of this document. The maps and checklists in the Site Assessment and Project Review Guide are designed to ensure that natural resources are considered in the review of proposed projects.

The Town will work with State, County and Federal government agencies as well as private partners to update the Natural Resource Inventory. Priorities for updates are:

- Update Land Cover Mapping. The mapping used in this NRI was completed in 2002 and updated in part for the Town’s Agricultural Enhancement Plan. Some of the land cover types have changed due to succession, such as from shrubland to forest, and some natural land cover types have been developed.
- Investigate Wildlife Corridors. Additional field-level mapping is needed to identify critical habitats and corridors for wildlife.
- Identify locations of abandoned wells. Many abandoned wells in the Town may be uncapped and pose risk to groundwater contamination. Information about these wells is not available in any central source.
- Update Scenic Views Inventory and Prioritization. The locations of scenic views in this NRI was based on an inventory conducted in 2004 and 2006. The photos were updated in the 2018 Open Space Plan. Some of these views have changed because of tree growth or development. Additional scenic views and vantage points may be identified and prioritized based on high usage or historical significance. Examples of vantage points to consider for viewshed conservation include public spaces (parks, pull-offs, publicly accessible land), scenic highway corridors (e.g., NYS Route 21), and community gateways (i.e., Padelford Brook Greenway, hamlet of Cheshire.)
- Update map of Historic Resources upon completion of Phase 2 of the Reconnaissance-Level Survey of Historic Resources. The first-phase report describes the Town’s history and resources in general. The second phase will include an annotated property list, which is an inventory of buildings, structures, objects, sites, and/or districts that are historically significant. This list and associated map will supersede the map of historic resources included in this NRI.

The Town will periodically update the implementation tools to improve ease of use and effectiveness in considering natural resource impacts of proposed developments. In particular, the Town will work with Ontario County to maintain data in the ONCOR mapping systems for use in site assessments and project review.

The Town will also consider updating the Town Code to strengthen natural resource protections. The Town is in the process of updating its Conservation Subdivision regulations to ensure that the open space set aside for conservation contributes in a meaningful way to the protection of natural resources. The Town will also consider Code updates and enforcement to maintain vegetation along slopes and streams.

PART 1: NATURAL RESOURCES OVERVIEW

The Town of Canandaigua’s natural and cultural resources are of value to the community in many ways, including ecosystem and wildlife, hydrological function, scenic views, agricultural production, recreation, and aesthetics. The resources included in this Natural Resource Inventory include surface and groundwater, natural land cover types, steep slopes, extractive resources, hilltops and ridgelines, scenic viewpoints and vistas, historical resources and recreational land. This update of the Town’s Natural Resource Inventory helps to advance the goal of the Town’s Open Space, Conservation, and Scenic Views Master Plan to preserve the Town’s open spaces for their health, economic, social and environmental benefits and to maintain the quality of life for the residents of the Town of Canandaigua.

ECOLOGICAL COMMUNITIES

Forests, wetlands, shrubland and fields are the natural land cover types delineated in the NRI Update. These ecological communities are defined by the land cover mapping classification assigned to each acre of the Town's land area. Each of these communities provides habitat for various wildlife and plant species. The Town has delineated areas of mostly contiguous forest in the southern part of the Town as a "Strategic Forest Protection Area." Contiguous areas of natural land cover types connected by stream corridors represent potential corridors for wildlife.

The NRI includes the following maps of Ecological Communities:

- Map 1. Woodlands and Wetlands
- Map 2. Strategic Forest Protection Area
- Map 3. Successional Old Fields and Shrublands
- Map 4. Wildlife Corridors

WATER RESOURCES

Surface water resources include Canandaigua Lake, streams, and ponds. Groundwater is source of drinking water for many Town residents. Maintaining drinking water quality is vital for public health. Canandaigua Lake and streams support wildlife habitat as well as recreation and community character.

Land adjoining streams has value for wildlife habitat, filtering pollutants, and preventing erosion. Land along the Canandaigua Lake shoreline is susceptible to erosion which impacts the water quality of the lake.

The NRI includes the following maps of Water Resources:

- Map 5. Streams, Ponds and Watersheds
- Map 6. Aquifers and Wells

STEEP SLOPES

Areas of steep slopes are located throughout the Town, with concentrations in the southern portion of the Town and along the lakeshore. Slopes of at least 15% are considered steep. These slopes are more susceptible to erosion which affects the stability of slopes and cause sedimentation of water bodies. The priority for protection is greater for slopes that are very steep (25% to 40%) and extremely steep (40% or greater.)

Map 7: Steep Slopes in the NRI depicts areas of steep slopes.

AGRICULTURAL LAND

The NRI identifies actively farmed land as delineated in land cover mapping. Agricultural use of land maintains open space and scenic vistas, produces food and supports the regional agricultural economy. The Town prepared an inventory of high quality agricultural land as part of the Agricultural Enhancement Plan completed in 2017.

Map 8 depicts active farmland by soil classification as well as the Town's Strategic Farmland Protection Area.

EXTRACTIVE RESOURCES

Extractive resources include sand and gravel, stone, and natural gas. Sand and gravel has been mined in certain areas of the Town for use in road and other construction. Mines permitted by NYS must be reclaimed following extraction of resources. Several small areas in the Town were formerly mined for sand and gravel or stone. A few natural gas wells have been drilled in the Town; none are currently operating.

Map 9 depicts the locations of existing and closed sand and gravel mines and natural gas wells.

CULTURAL RESOURCES

In this NRI, cultural resources include land with their historic, recreational or scenic value and those that are protected for recreational, conservation or public use.

HISTORIC RESOURCES

Historic sites represent a connection to the Town's past. Map 10 depicts the location of historic sites listed in the National Register of Historic Places and those identified by the Town Historian as having locally significant historic value. This map will be superseded by the inventory and associated map of buildings, structures, objects, sites, and/or districts that are historically significant to be prepared as Phase 2 of the Town's Reconnaissance-Level Survey of Historic Resources,

SCENIC VISTAS AND VIEW POINTS

Scenic resources include land visible from Canandaigua Lake, hilltops and ridgelines, and scenic view points and vistas identified in previous planning studies. The following maps depict scenic resources:

- Map 11. Land Visible from Canandaigua Lake
- Map 12. Elevations
- Map 13. Scenic Views

RECREATIONAL AND OTHER PUBLIC AND PROTECTED LAND

Parks and trails are included in the NRI because of their recreational value. The NRI also includes publicly-owned land, land protected by Purchase of Development Rights or private easement, and land owned by private organizations such as schools, churches and cemeteries. The following maps Map 14 depicts the locations of Public and Protected Land:

- Map 14. Public & Protected Land
- Map 15. Regulated Resources

A. NATURAL ECOLOGICAL COMMUNITIES

Natural ecological communities¹ found in the Town include wetlands, woodlands, shrublands and old fields. Each ecological community provides habitat for characteristic plants and animals. The classifications are based on land cover types documented in the NYS Department of Conservation's Natural Heritage Program's "Ecological Communities of New York, 2nd Edition." A map and descriptions of all of the land cover types found in the Town of Canandaigua is in Appendix B.

The New York Natural Heritage Program ranks each ecological community on a scale from S1 to S5, with S1 being the rarest and most imperiled in New York State. Nearly all of the natural land cover types in the Town are rated S5, which are considered "demonstrably secure," or S4, which are "apparently secure." Two wetland communities found in the Town – the Floodplain Forest and the Silver Maple-Ash Swamp – are considered "very vulnerable" (S2), with 2-20 occurrences Statewide, or somewhat vulnerable (S3), with 21-100 occurrences.

SOURCE OF LAND COVER MAP DATA

The primary source of data for the inventory and maps of natural and agricultural resources is the comprehensive land cover mapping completed by Dr. Bruce Gilman of the Finger Lakes Community College in 2002 for the Ontario County Planning Department.

The mapping was based on review of aerial photographs with additional field verification as needed. All land cover types were mapped and categorized based on the system described in the publication, "Ecological Communities of New York", 2nd Edition, published by the NYS Department of Environmental Conservation's Natural Heritage Program. The descriptions of ecological communities in this section are adapted from this publication. Additional detail and excerpts from "Ecological Communities of New York" are in Appendix B.

Agricultural land cover types were updated based on a review of more recent aerial photographs by LaBella Associates/ CC Environment & Planning for the Town's 2016 Agricultural & Farmland Protection Plan.

In some cases the land cover has changed since this inventory; for example, some land mapped as "old fields" may now be agricultural, woodland or even developed. An updated inventory would be beneficial.

1. WETLANDS

Two general categories of wetlands are found in the Town – "Forested" and "Open." "Forested Mineral Soil Wetlands" typically have at least 50% canopy cover of trees. These include seasonally flooded forests and permanently flooded or saturated swamps. The "Open Mineral Soil Wetlands," characterized by less than 50% canopy cover of trees. Each wetland type offers conservation value as described below. The locations of wetlands are depicted in Map 1: Woodlands and Wetlands.

The two forested wetland communities found in the Town – Floodplain Forest and Silver Maple-Ash Swamp – are considered to be vulnerable in New York State (see Map 1: Woodlands & Wetlands.) Based on the NY Natural Heritage Program's Statewide ranking of "S2 S3" for Floodplain Forest and

¹ For the purpose of this NRI, "ecological communities" exclude those land cover types have been developed, such as buildings, roads, lawns, mines, outdoor recreation and agricultural land.

“S2 S3” for Silver Maple-Ash Swamp, there are fewer than 100 occurrences of these types in the State.

The types of Open Mineral Soil Wetlands found in the Town include Deep Emergent Marsh, Shallow Emergent Marsh, and Shrub Swamp. They are distinguished based on the soil type and types of plants.

Many of the Town’s wetlands are found in the northern part of the Town near and along Padelford Brook. This area has been designated for conservation in the Town’s Padelford Brook Greenway² Plan, which was adopted by the Town as an Addendum to its Comprehensive Plan in 2015. (See Map 14: Public & Protected Land.)

Delineation of wetlands in the field is based on analysis of vegetation, hydrology and soils. Wetlands scientists look for certain types of vegetation that are typical of wetlands. The flow of water over and through the land (hydrology) also helps to delineate the locations of wetlands. Certain soil types, called “hydric soils,” are characteristic of wetland. A list of these soil types is included in Appendix C.

SILVER MAPLE ASH SWAMP

The Silver Maple – Ash Swamp is a hardwood basin swamp that typically occurs in poorly-drained depressions. These sites are characterized by uniformly wet conditions with minimal seasonal fluctuations in water levels.

Silver Maple Ash Swamps provide vital habitat for several different species of birds, amphibians, especially breeding salamanders, and mammals such as beaver. This is also an area that supports outdoor recreation for canoeing, kayaking, fishing, birdwatching and other activities. These communities are dwindling due to encroachment from development and associated stormwater runoff.

Approximately 1,687 acres of Silver Maple Ash Swamp are found in the Town. Several relatively large examples of this community are located:

- west of Middle Cheshire Road (108 acres, largely coincident with NYS DEC wetland CL-9, Class 3)
- east of Woolhouse Road (46 acres, includes a portion of NYS Wetland CL-5, Class 3)
- north and south of Buffalo Street Ext. and east of Cooley Road (190 acres)
- north of County Road 30 and east of Brickyard Road (62 acres).

With a ranking of S3, this community is considered to be somewhat vulnerable in New York State.

FLOODPLAIN FOREST

The Floodplain Forest is a hardwood forest that occurs on river floodplains. Low areas are annually flooded in spring, and high areas are flooded irregularly. Some sites may be quite dry by late summer, whereas other sites may be flooded again in late summer or early autumn after heavy rains.

These communities are very important for flood control. Floodplain Forests retain water and help relieve flood conditions from surrounding urban areas as well as reducing the amount of silt and other debris that end up in nearby rivers (NYNHP 2017). As these areas are prone to flooding and standing

² See http://townofcanandaigua.org/documents/large_files/adopted_padelbrook_greenway_plan.pdf

water for portions of the year, they are not prime development areas. In addition, these forested floodplains typically provide diverse habitat conditions that support a variety of wildlife.

DEEP EMERGENT MARSH

The Deep Emergent Marsh occurs on mineral soils or fine-grained organic soils (muck or well-decomposed peat) that are usually flooded. Water depths can range from 6 inches to 6.6 feet. Water levels may fluctuate seasonally, but the ground is rarely dry and there is usually standing water in the fall.

This community is ecologically important due to the habitat and recreational value it provides. For one, it provides habitat for numerous species of breeding birds, amphibians, reptiles and invertebrates. This is also an important habitat for muskrat. Some rare breeding birds may be found here, including bitterns and rails. These areas are often visited for outdoor recreation purposes such as fishing, wildlife observation, and canoeing/kayaking.

A total of 111 acres of Deep Emergent Marsh community are located in the Town. In addition, a 107-acre wetland north of Yerkes Road has characteristics of both Deep Emergent Marsh and Sliver Maple-Ash Swamp. Many of these areas are wetlands regulated by the NYS Department of Environmental Conservation (NYS DEC), which classifies them based on their ecological value from Class 1 (most important) to Class 4. The best example of this community in the Town is found along Beaver Creek northeast of the intersection of New Michigan and Yerkes Roads. Classified by the NYS Department of Environmental Conservation as CG-10, Class 2 this wetland (NYS Wetland CG-10) is considered ecologically important and is subject to more stringent standards than other wetlands. Another example is located to the east of Cooley Road north of US Routes 5 & 20 (CG-18, Class 3).

SHALLOW EMERGENT MARSH

The Shallow Emergent Marsh is a meadow community, typically dominated by cattails that occurs on soils that are permanently saturated and seasonally flooded. This marsh is better drained than a deep emergent marsh. Water depths range from 6 inches to 3.3 feet during flood stages, but the water level usually drops by mid to late summer.

The community supports a diverse array of bird, reptile and amphibian species. Other wildlife, such as deer, can also be associated with these habitats. Shallow emergent marshes also aid in flood control and water quality retention, due to their seasonal nature. In addition, these communities are often connected to deep emergent marshes, and help maintain a mosaic landscape which supports higher diversity of species.

Approximately 277 acres of Shallow Emergent Marsh are located in the Town. The largest examples are located along both sides of Brickyard Road and north of Yerkes Road (NYS DEC wetland), and north and south of US Routes 5 & 20 in the westernmost part of the Town.

SHRUB SWAMP

Shrub Swamps are dominated by tall shrubs, such as alder, dogwood and buttonbush, and occur in wet depressions or as a transition zone between a marsh or swamp and an upland community. Approximately 167 acres of this community are found in scattered areas throughout the northern part of the town. The largest area is located west of NYS Route 332 and south of Yerkes Road. Other relatively large examples are located east of McCann Road and west of NYS Route 332 just north of Campus Road.

Various songbirds seek the cover of the shrub habitat present in Shrub Swamps for making nests, and the berries provide nutrients for birds during migration. Deer and other mammals eat the berries found on the shrubs and browse on the twigs in addition to using the shrubs as cover.

2. WOODLANDS

Two types of Forested Uplands are found in the Town: Hemlock-Northern Hardwood Forest and Successional Northern Hardwoods. The locations of woodlands are depicted in Map 1: Woodlands & Wetlands.

HEMLOCK-NORTHERN HARDWOOD FOREST

The Hemlock-Northern Hardwood Forest is a mixed forest that typically occurs on middle to lower slopes of ravines, on cool, mid-elevation slopes, and on moist, well-drained sites at the margins of swamps.

Approximately 147 acres of this community are found in the southern part of the Town adjoining successional northern hardwoods communities. These forests are predominantly found on steep slopes along gullies in the Town. As they have year-round evergreen cover, they provide shade that keeps stream waters cool.

These moist forests provide habitat for several mammal species such as deer, red and gray fox, porcupines, and coyotes. Although this forest community comprises a small portion of the Town's forests, its evergreen trees provide valuable habitat to wildlife because they produce year-round thermal cover, i.e., warmer winter temperatures and cooler summer temperatures.

SUCCESSIONAL NORTHERN HARDWOOD FOREST

The Successional Northern Hardwood Forest is a hardwood or mixed forest that occurs on sites that have historically been cleared or otherwise disturbed. With 6,748 acres, this community represents the majority of forest found in the Town. Examples of this community are located predominantly in the southern part of the Town. Most of these areas were cleared for farming by European settlers. Because the soils are less productive than farmland elsewhere in the Town, these lands became uneconomical to farm and were abandoned. Other areas, like those with steeper slopes were extensively logged. Most of these successional northern hardwood forests are between 40 and 90 years old.

The large, contiguous areas of forested land found in the southern part of the Town provide important habitat to wildlife species that live in the forest interior or require large areas of habitat. These forests are often filled with several species of breeding birds during the breeding season, such as barred owl, wood thrush or scarlet tanager. Additionally, these forests provide habitat for mammals such as deer, fox and bobcat. When these forests are found on the edge of wetland habitat, they can increase the presence of both bird and amphibian species that prefer both upland and wetland habitat types.

These forests often have “vernal pools,” or shallow temporary wetlands, in low lying areas that support breeding amphibians due to the absence of fish predators. These pools are some of the only places that freshwater shrimp are found. Additionally, these vernal pools provide critical habitat for breeding salamanders and wood frogs.

Furthermore, these forests are valuable for their wood production in New York. Responsible harvest of wood products is generally compatible with open space conservation and can provide valuable habitat diversity to a forest. In addition, wood products are used by the community and yield beneficial

revenue to landowners, providing them an incentive to care for the land rather than subdivide and develop it.

3. OLD FIELDS AND SHRUBLAND

Successional Old Fields and Successional Shrubland are found on sites that were formerly cleared for agriculture and recently abandoned, having since reverted to natural vegetation. The locations of these land cover types are depicted in Map 3: Successional Old Fields and Shrublands.

Old fields consist of mostly grasses and herbs. Approximately 4,108 acres of this community were identified in the Town when the land cover mapping was completed in 2002. As this is a relatively short-lived community, many of these areas may have transitioned to shrubland or forest.

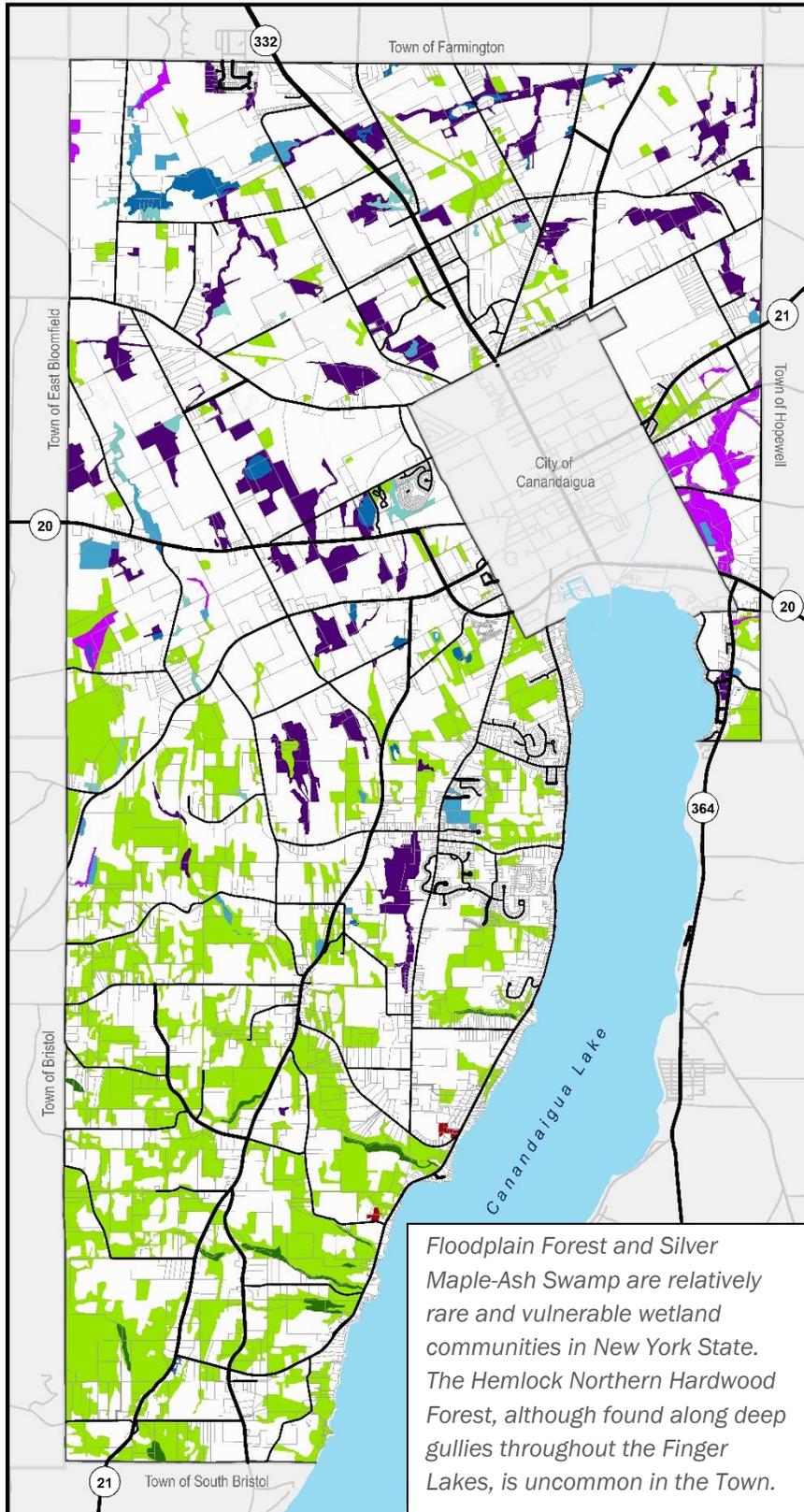
Shrubland has at least 50% cover of shrubs. Approximately 1,180 acres are found in the Town. Shrubland is a very valuable habitat type for birds and other wildlife because they contain dense cover and an abundance of food sources, including berries and twigs. When they are left undisturbed, they will transition to a forest community.

4. WILDLIFE CORRIDORS

Wildlife Corridors are designated as contiguous land blocks with the potential to support inter- and intra-species movement and migrations throughout aquatic and terrestrial environments. Connections among habitat types are needed as wildlife often utilize a variety of land cover types for feeding, breeding or migrating.

Map 4: Wildlife Corridors depicts potential corridors for wildlife that connect areas of natural land cover along stream corridors. Investigation in the field is needed to confirm the use of these areas as wildlife corridors.

MAP 1: WOODLANDS & WETLANDS



Floodplain Forest and Silver Maple-Ash Swamp are relatively rare and vulnerable wetland communities in New York State. The Hemlock Northern Hardwood Forest, although found along deep gullies throughout the Finger Lakes, is uncommon in the Town.

Town of Canandaigua
Natural Resource Inventory

Woodlands & Wetlands

Ecological Community

- Floodplain Forest
- Silver Maple-Ash Swamp
- Hemlock-Northern Hardwood Forest
- Successional Northern Hardwood Forest
- Successional Red Cedar Woodland
- Deep Emergent Marsh
- Shallow Emergent Marsh
- Shrub Swamp

— Roads

▭ Parcel Boundaries (2017)

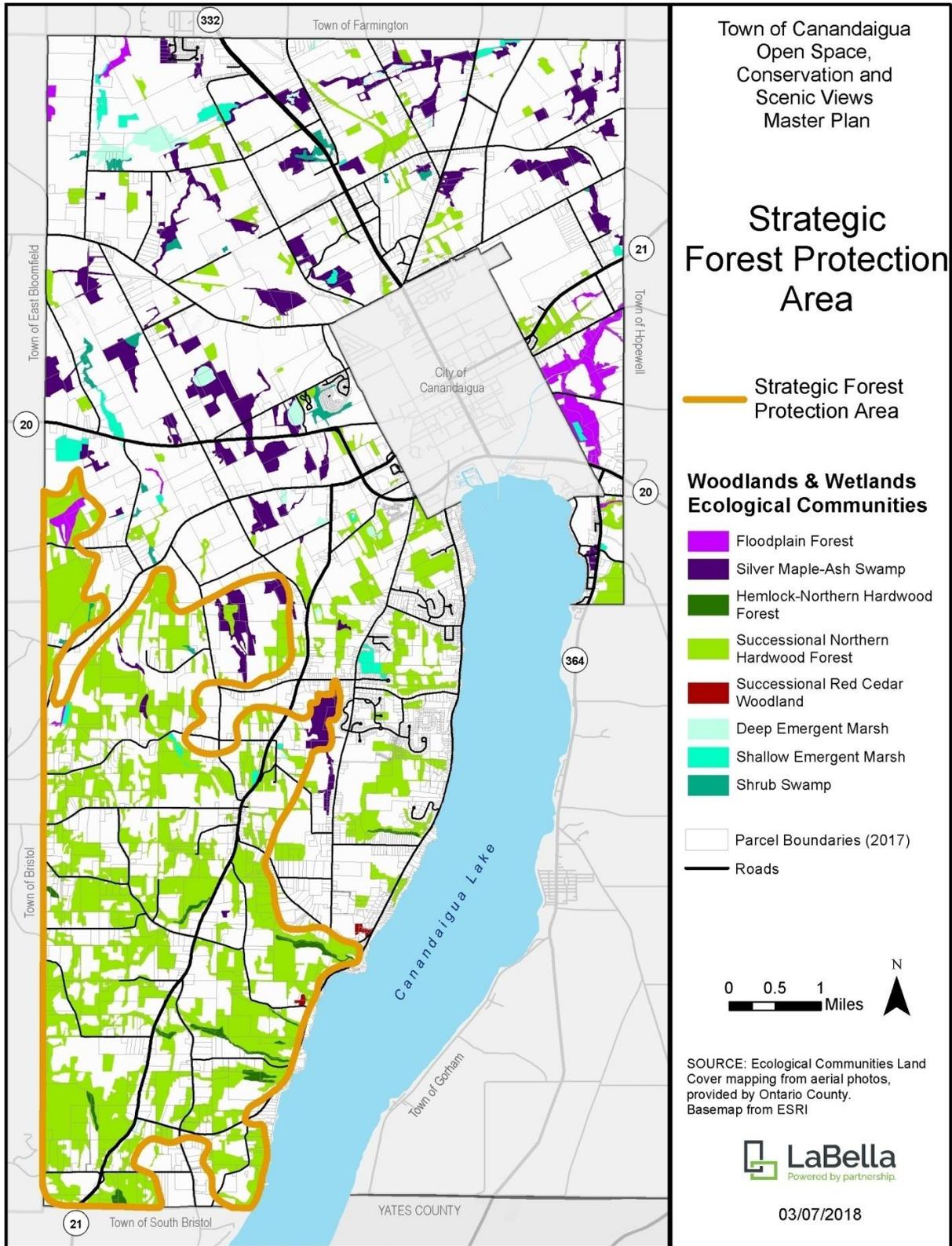
0 0.5 1 Miles



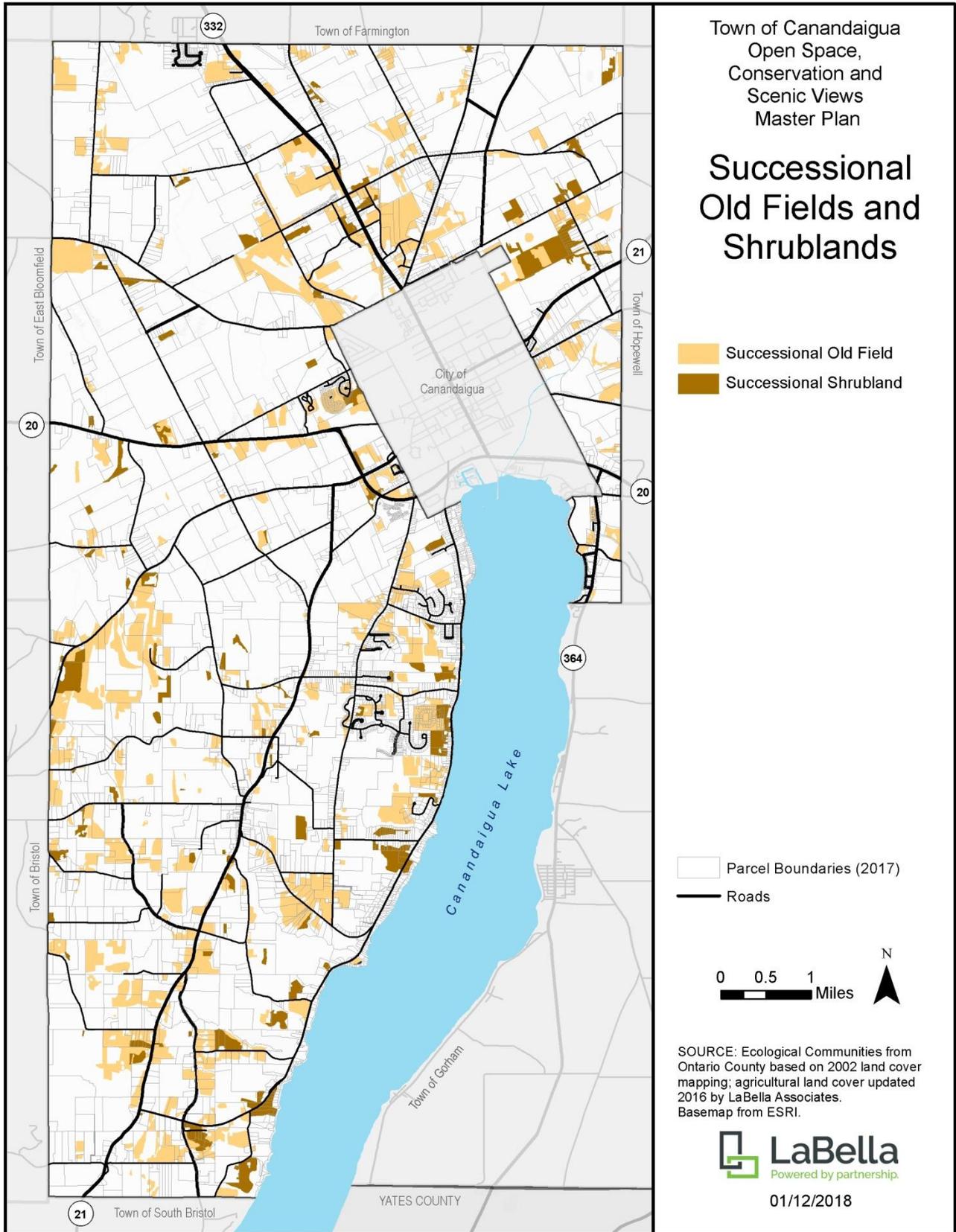
SOURCE: Open Space, Conservation & Scenic Views Master Plan, 2018. Ecological Communities Land Cover mapping from aerial photos, provided by Ontario County, 2017. Basemap from ESRI



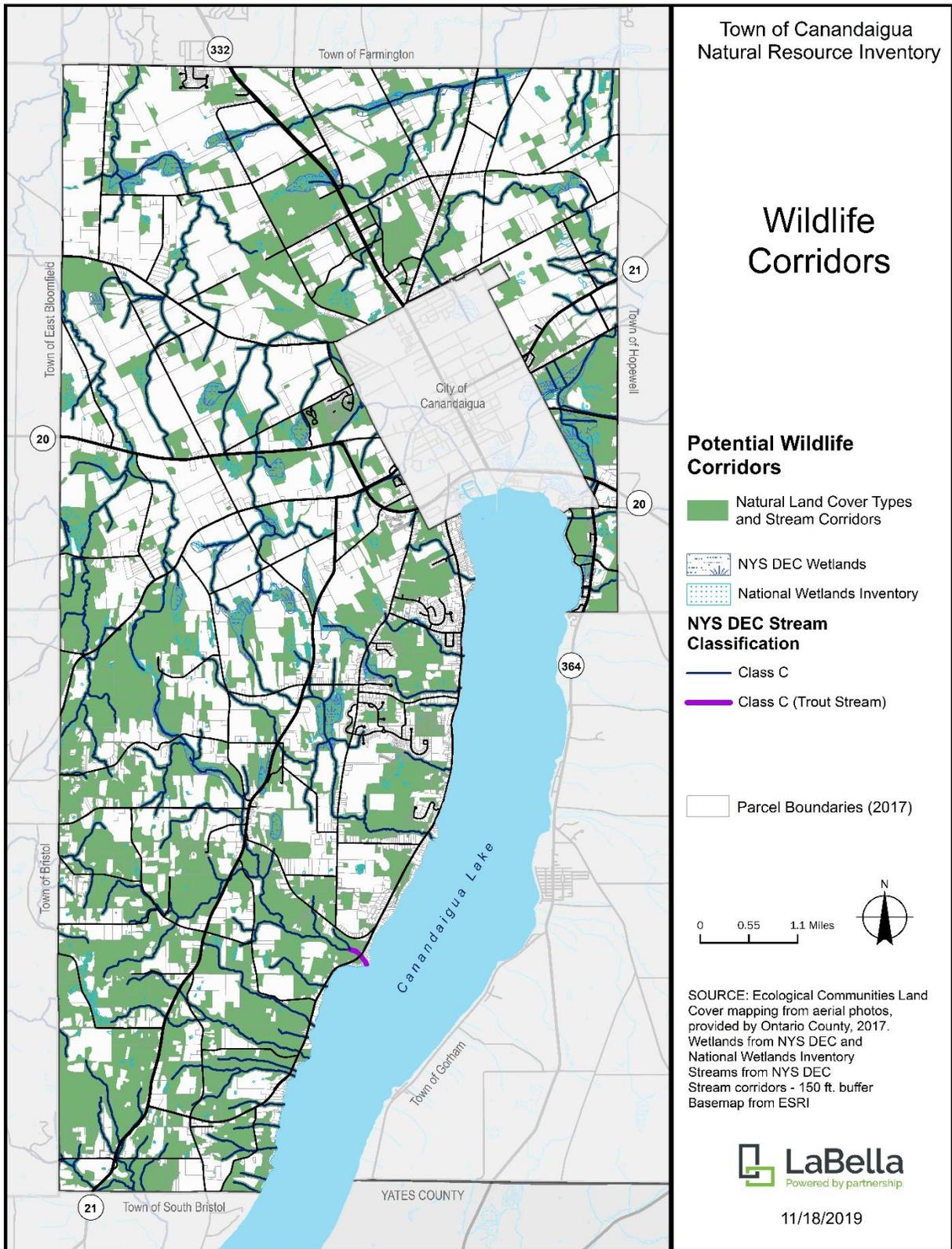
MAP 2: STRATEGIC FOREST PROTECTION AREA



MAP 3: OLD FIELDS AND SHRUBLAND



MAP 4: WILDLIFE CORRIDORS



B. WATER RESOURCES

1. WATERSHEDS

As shown in Map 5: Streams, Ponds, Watersheds, the Canandaigua Lake watershed, including the sub-watersheds of Sucker Brook and Deep Run, encompasses a large portion of the Town. Land in the western and northern portion of the Town drain into Mud Creek, and the northwestern part of the Town drains into the Canandaigua Lake Outlet.

2. CANANDAIGUA LAKE AND SHORELINE

Canandaigua Lake is the Town's most prominent natural resource as well as a regional recreational resource. Canandaigua Lake also supplies drinking water to many Town and region residents.

There are approximately 1.4 miles of Canandaigua Lake along the east side of Canandaigua Lake, in the northeasternmost part of the Town, and approximately 9.1 miles of shoreline along the western side of the Lake. Most of the shoreline is developed with seasonal and year round houses and recreational uses. Steep slopes along the shoreline are susceptible to erosion.

3. STREAMS AND RIPARIAN CORRIDORS

There are more than 121 miles of mapped streams in the Town. These range from substantial streams that carry water year-round to intermittent drainageways. Map 5: Streams, Ponds, Watersheds depicts the locations of streams and other waterbodies in the Town.

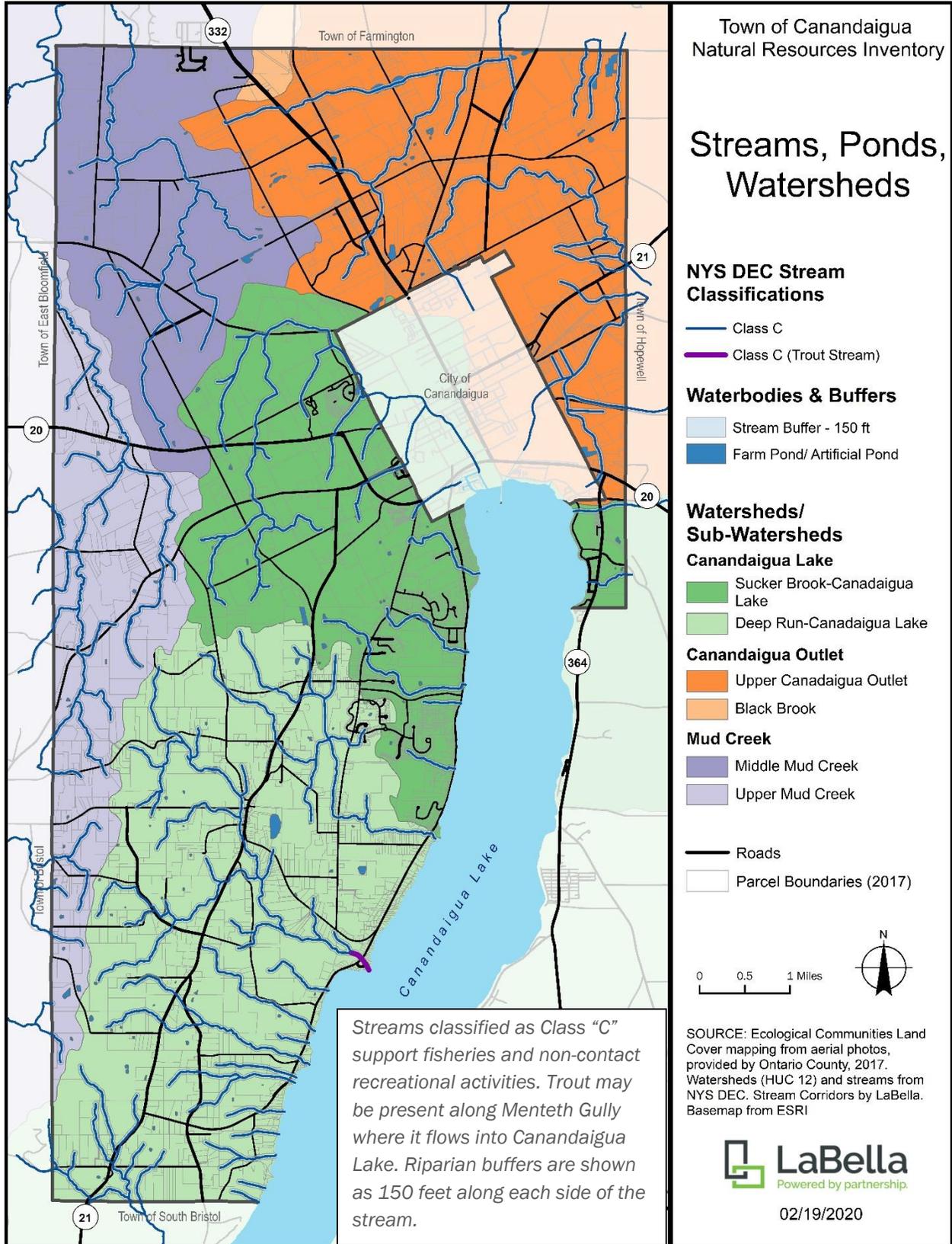
The land adjoining streams – called “riparian corridors” – are significant landscape features in the Town and support diverse plant and wildlife species. The natural vegetation along streams provides food and shelter for many species and serve as critical corridors for wildlife movement. In addition, vegetation within riparian corridors helps to stabilize stream banks, filter pollutants, recharge groundwater and store flood waters.

4. FARM PONDS

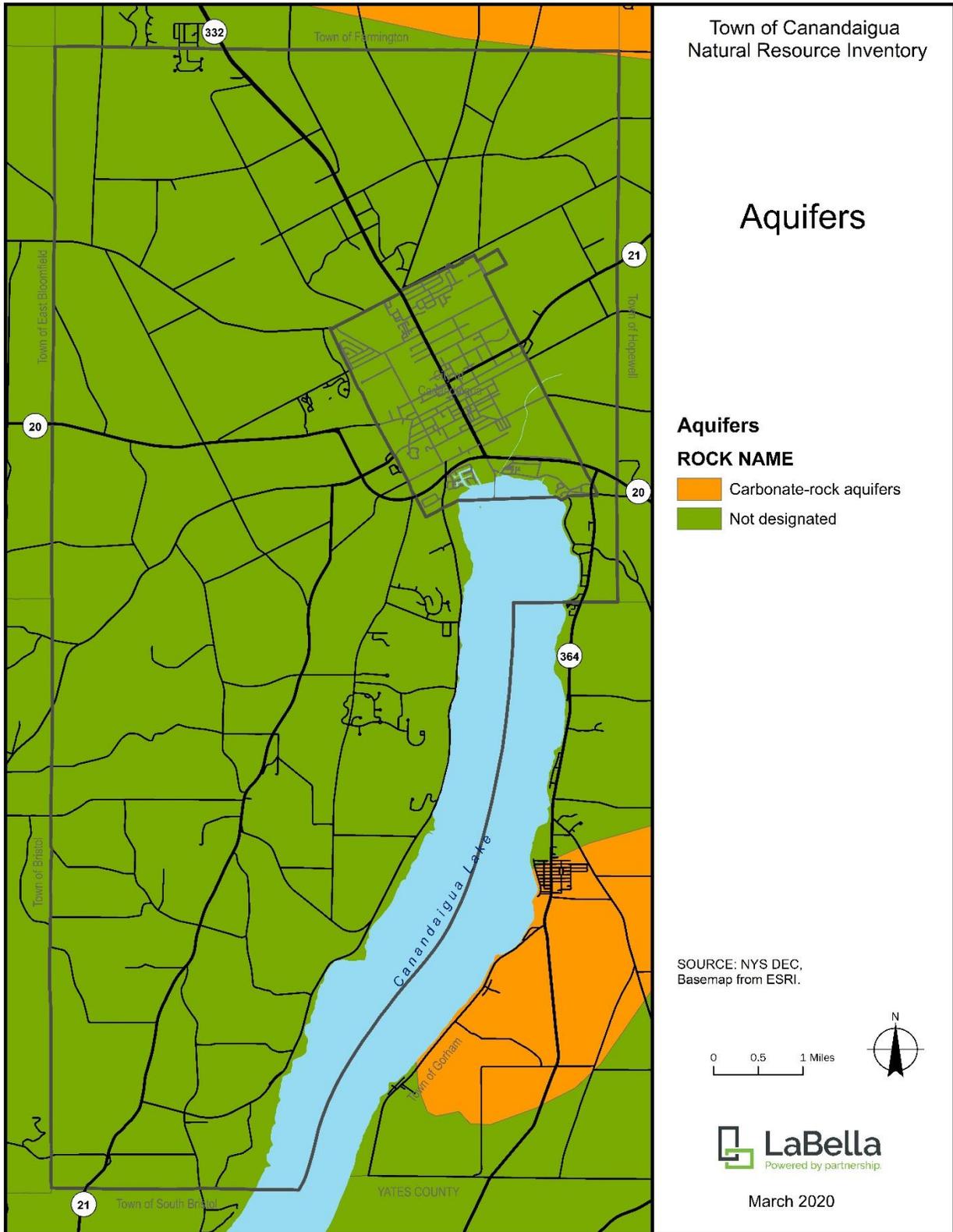
Many of the ponds in Canandaigua were originally constructed as an economical and efficient way to retain water for livestock and irrigation. These ponds can also provide food, cover and nesting habitat for a variety of wildlife species.

Farm ponds or other artificial ponds occupy approximately 220 acres. These small ponds are located throughout the town. The locations of these ponds are depicted in Map 5: Streams, Ponds, Watersheds.

MAP 5: STREAMS, PONDS, WATERSHEDS



MAP 6: AQUIFERS AND WELLS



5. GROUNDWATER

The groundwater that underlies the Town of Canandaigua is not protected as a primary or principal aquifer pursuant to NYS. Groundwater may be found in the bedrock underlying the Town. (In other areas of New York State, underground sand and gravel geological formations store large amounts of water.) (See Map 6: Aquifers and Wells and the Aquifer Viewer at <https://ny.water.usgs.gov/maps/aquifer/>)

Homes and businesses outside of areas served by public water supplies depend on groundwater for their drinking supply. The locations of individual wells are not known, except for the limited number of wells registered by contractors with NYS Department of Environmental Conservation pursuant to ECL §15-1525.

Based on unverified data for the 18 wells registered by contractors with the NYS Department of Environmental Conservation, the average well depth is 137 feet, the average depth to bedrock is 37 feet, and the average yield is 9.86 gallons per minute.

Many abandoned wells in the Town have not been properly capped. These wells pose a threat as they could allow contaminants to be introduced directly into groundwater.

C. STEEP SLOPES

Steep slopes occur along streams as ravines and along the edges of drumlins. These areas are located throughout the Town, with concentrations in the southern portion and along the lakeshore. Map 7: Steep Slopes depicts those areas in the Town with slopes of at least 15%.

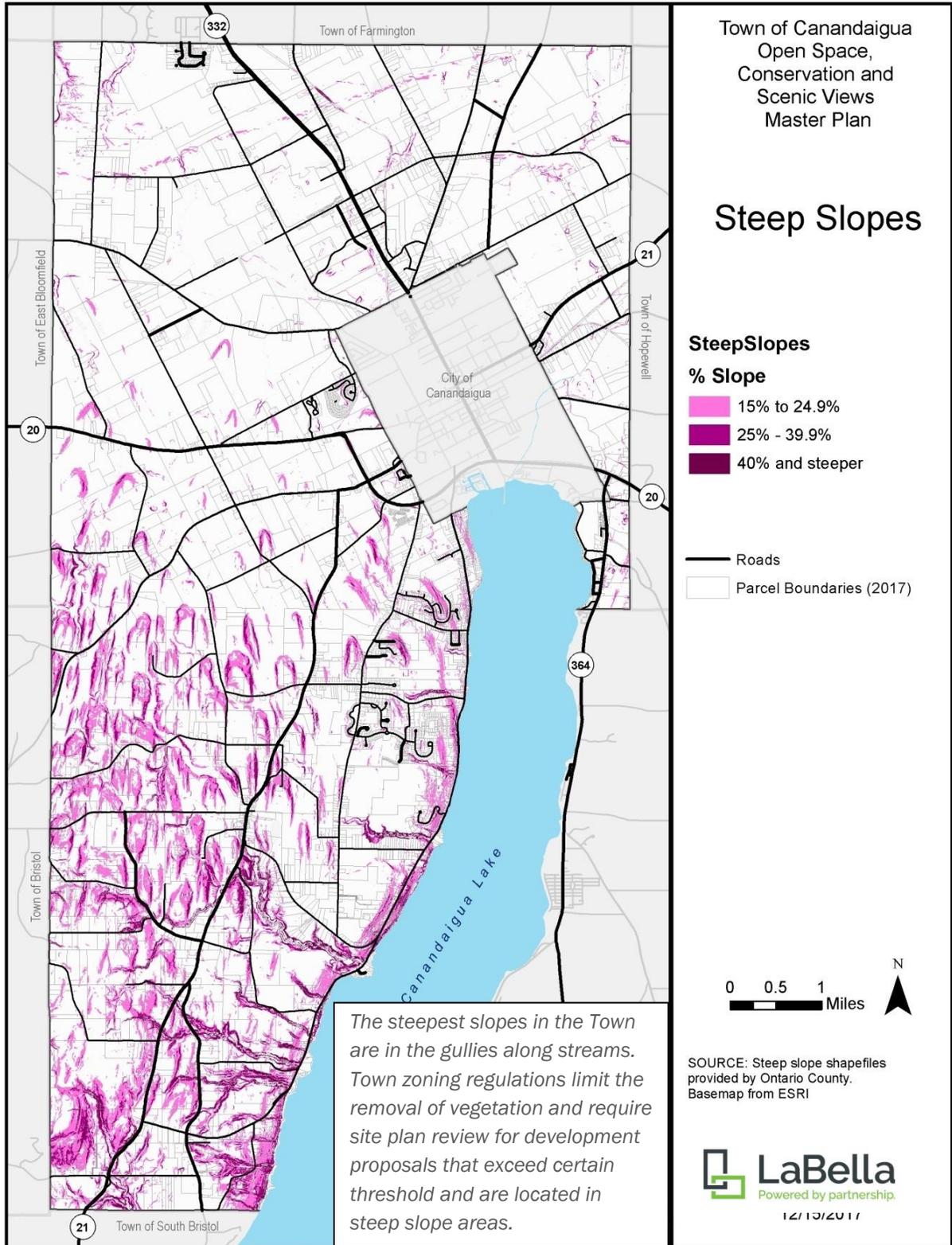
Steep slopes are sensitive natural resources because they are susceptible to erosion which could destabilize the slope and carry sediment into streams.

D. AGRICULTURAL LAND

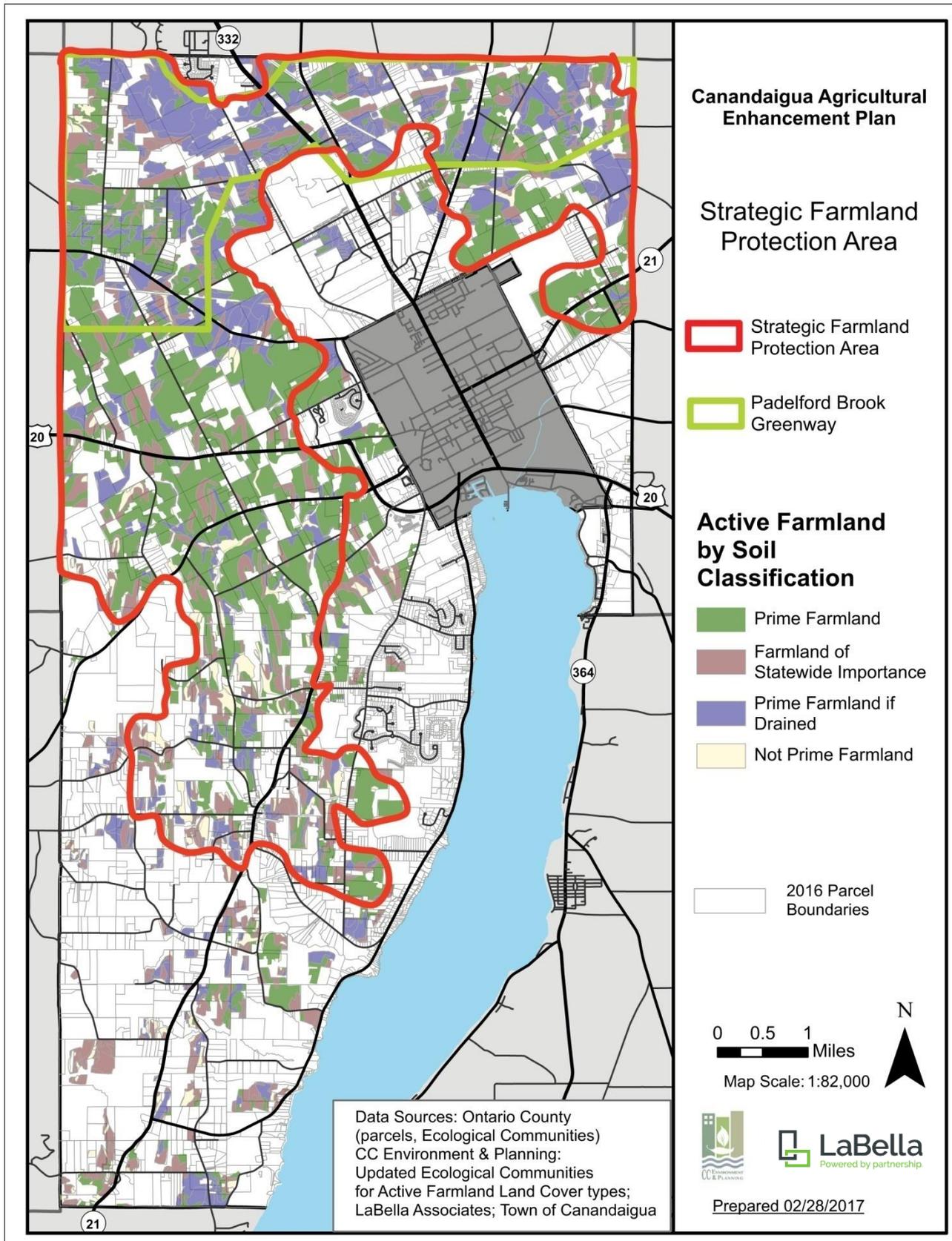
As documented in the Town's Agricultural Enhancement Plan (2016), more than 13,500 acres in the Town are actively farmed lands with high quality agricultural soils (Prime, Soils of Statewide Importance, or Prime if Drained.) The high quality soils in the Town support the regional agricultural economy. In addition, actively farmed land maintains open space, contributes to the scenic beauty of the Town, helps to recharge groundwater, and acts as a buffer to natural ecosystems such as forest and wetland.

Map 8: Strategic Farmland Protection Area depicts agricultural land cover by soil classification as well as the Town's Strategic Farmland Protection Area. The agricultural land cover was mapped in 2002 as part of comprehensive land cover mapping for the Ontario County Planning Department and updated for the Town of Canandaigua's 2016 Agricultural Enhancement Plan.

MAP 7: STEEP SLOPES



MAP 8: STRATEGIC FARMLAND PROTECTION AREA



E. EXTRACTIVE RESOURCES

Certain natural resources have economic value when extracted from the ground. These resources may be extracted from soils, rock or underground deposits for use as energy, construction or other industrial purposes. Extractive resources present in the Town include natural gas and gravel. Map 9: Mines and Wells depicts the locations of existing and former mines and wells.

SAND AND GRAVEL

About the Data

The following three data sources identify the locations of sand and/or gravel mines:

- “Gravel Mine” is a category of Ecological Communities mapped as part of the land cover mapping completed in 2002 by Ontario County.
- The NYS Department of Environmental Conservation (NYS DEC) published locations of maps permitted since 1983. NYS Mined Land Reclamation Law requires a permit for all excavations that remove more than 1,000 tons or 750 cubic yards, whichever is less, from the earth during twelve successive calendar months. Or more than 100 cubic yards from land adjacent to a Class C stream (water bodies not protected under Article 15 of the Environmental Conservation Law.) Mining is not permitted next to protected water bodies.
- Soils maps report “Pits, gravel” and “Pits, quarry pit” as a soil type.

NYS PERMITTED MINES

Two sand and gravel mines in the Town were issued permits by the NYS DEC since 1983. The 13-acre Warner Mine, located at 3919 State Route 21, is currently in operation. NYS DEC originally issued a permit for five acres of the mine in 1988; the permit was renewed for another five years in August 2015. The reclamation plan is to restore the area to grass. This mine is owned by David and Glenn Warner.

The 22-acre Hagadorn Pit, located at 3955 Cheshire Road at County Road 8, was granted a permit to operate between 1989 and 2009 and is now closed. The four acres that were affected by mining were reclaimed as agricultural land.

MINES IDENTIFIED IN LAND COVER MAPPING

Land cover mapping based on aerial photos in 2002 identified four gravel mines, including the Warner Mine on NYS Route 21. The other locations are at 3495 State Route 364, 4439 County Road 50, and a site operated by Ontario County on County Road 46.

FORMER PITS IDENTIFIED IN SOIL SURVEY

Several former mine sites were mapped as part of the U.S. Soil Survey and given a soil classification of “Pits, gravel” or “Pits, quarry.” Map 9 shows the locations of these areas. Approximately 1,822 acres are “Pits, gravel and sand” and 374 acres are “Pits, quarry.” The disturbed soils make these sites unsuitable for most uses. Soil maps for the Town of Canandaigua are considered to be accurate and up to date by the USDA.

NATURAL GAS

No operating gas wells are located in the Town. However, NYS DEC records indicate that four wells drilled but not producing natural gas (“dry wildcat” wells) are located in the Town. The Outhouse Burton 1 well, operated by Joshua Bronson, is located east of State Route 21S and south of Smith Road. It was drilled in 1959 to a depth of 2725 feet. A dry well is located west of NYS Route 21S and south of Bunnell Road. A well owned by Ontario Gas, drilled in 1913, is located west of NYS Route 21S north of Goodale Road. The “Pierce 1” well, owned by William Duchscherer, was drilled in 1966 to a depth of 2668 feet. It is located east of County Road 32, north of Rossier Road.

F. CULTURAL RESOURCES

In this NRI, cultural resources are broadly defined to include resources with conservation value other than natural land cover types and steep slopes. These include historic sites, recreational and other public and protected land, and scenic resources.

1. HISTORIC SITES

Historic barns, schoolhouses, cemeteries and other historic points are among the significant cultural resources in the Town. These complement the open space resources identified in this document. Lands that include or abut these historic or cultural sites have a somewhat higher priority for conservation. The presence of these resources should be considered during the evaluation of specific sites for conservation.

Map 10: Historic Sites depicts the location of historic sites listed in the National Register of Historic Places and those identified by the Town Historian as having locally significant historic value.

2. SCENIC VISTAS AND VIEW POINTS

Scenic resources include:

- scenic vista points identified in the 2004 Lands of Conservation Interest Map and the 2006 Prioritization of Scenic Views and their viewsheds;
- land visible from Canandaigua Lake;
- hilltops, ridges, and other land with relatively high elevation; and

Map 11: Land Visible from Canandaigua Lake depicts those lands that are visible from Canandaigua Lake and the eastern lake shore. These areas may also offer views of Canandaigua Lake and the eastern shore.

Map 12: Elevations depicts the elevation of land in the Town. Areas with elevation at 1000 feet or higher are considered highly visible and are included in the Open Space Index.

Map 13: Scenic Views depicts the scenic view points identified in the 2004 and 2006 studies. Views from these vista points are documented by photographs taken in Fall 2016 by LaBella Associates. Each photo is identified by the key number on the map and the direction of the view. The Scenic Views Map and table are intended as a guide, as the inventory has not been updated and is not comprehensive. In addition, many of the views from these scenic viewpoints have changed since the original studies were conducted.

ESRI's ArcGIS 3-D Analyst software was used to determine what lands are visible from one-half mile, 1 mile and two miles from one or more of the scenic viewpoints.³ These areas comprise the viewsheds for each of the scenic viewpoints.

3. RECREATIONAL AND OTHER PUBLIC AND PROTECTED LAND

Map 14: Public & Protected Land depicts the locations of recreational and other public and protected land. Recreational resources include public and privately-owned parks, outdoor recreational facilities and trails. Trails are included in the NRI because of their recreational value. The NRI also includes publicly-owned land, land protected by Purchase of Development Rights or private easement, and land owned by private organizations such as schools, churches and cemeteries.

PARKS AND TRAILS

Some public and private parks, trails and other outdoor recreation facilities help to maintain open space and the ecological value of natural landscapes while providing recreational opportunities to Town residents and visitors. The Town of Canandaigua has 161 acres in five developed Town parks, 23 acres for Miller Park which is being maintained as a meadow. (See Map 14: Public & Protected Land.)

A 1.25-mile segment of the 23-mile Ontario Pathways trail runs along a former railroad in the eastern part of the Town between the City of Canandaigua and the Town of Hopewell. The trail is owned and maintained by Ontario Pathways, a not-for-profit organization. It is available for hiking, bicycling and horseback riding, as well as cross-country skiing and snowshoeing in the winter months. (See Map 14: Public & Protected Land.)

A planned extension of the Auburn Trail would connect the City of Canandaigua through the Town of Canandaigua to the Town of Farmington and make connections to Blue Heron, Outhouse, Old Brookside, and Miller Parks and the Route 332 Business Corridor. The Peanut Line Trail, a proposed multi-use trail on the old Peanut Line railroad bed, would connect the northwest corner of the City of Canandaigua to the Town of Bloomfield, with connections to Richard P. Outhouse Memorial Park.⁴ **A section of the Peanut Line between Cooley Rd and CR 30 is already developed as a trail and in the Town's ownership.**

OTHER PUBLIC AND PROTECTED LANDS

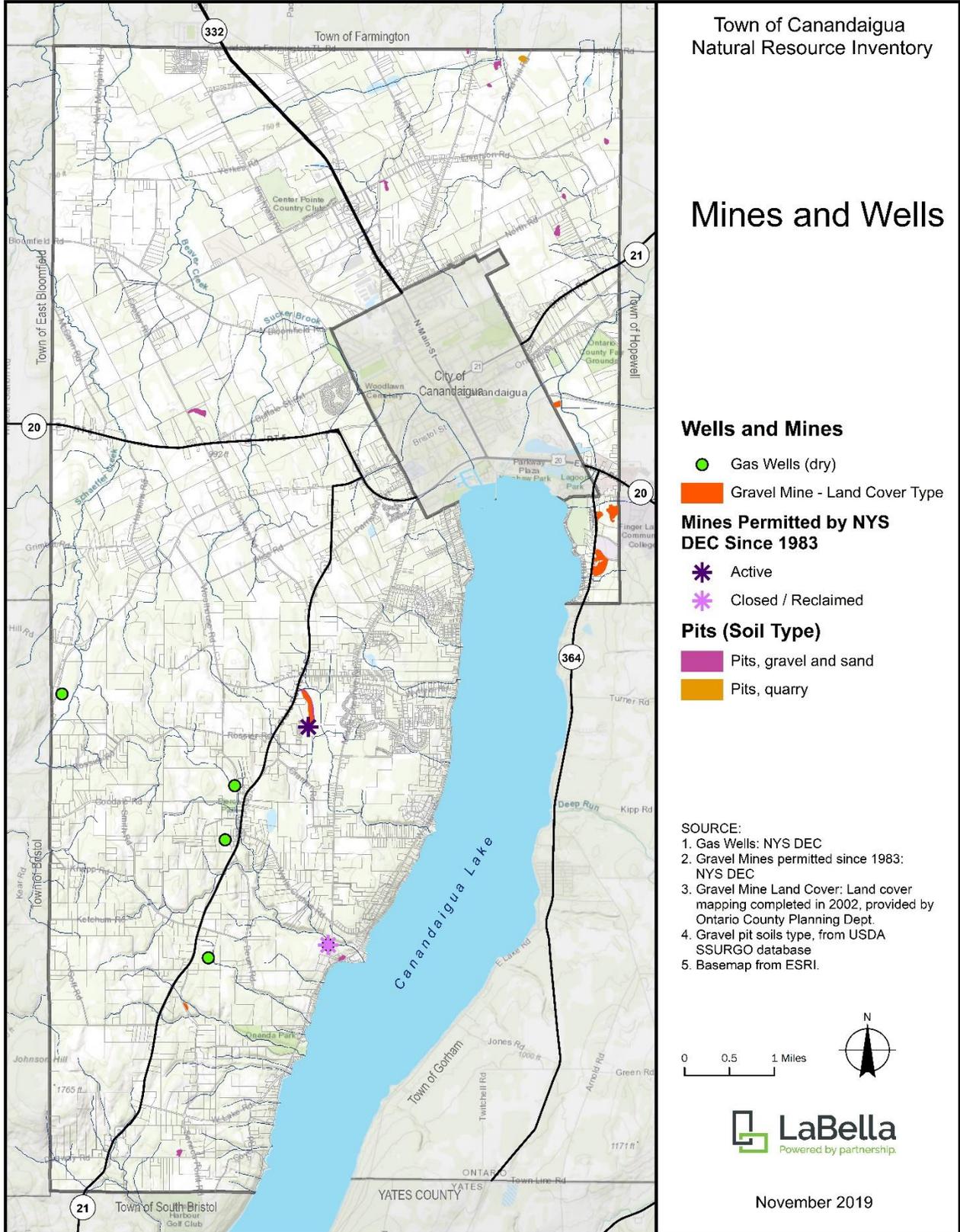
Other publicly owned and protected lands include agricultural land protected with a permanent conservation easement, and publicly owned land used for governmental purposes such as schools and government offices.

³ ESRI's Viewshed Analysis extension in ArcMap 10.4 was used to delineate viewsheds. For the Scenic View Points viewsheds, the analysis was run from a point six feet above the ground at each of the 35 view points. To identify land visible from Canandaigua Lake, the analysis was run from a line down the middle of Canandaigua Lake.

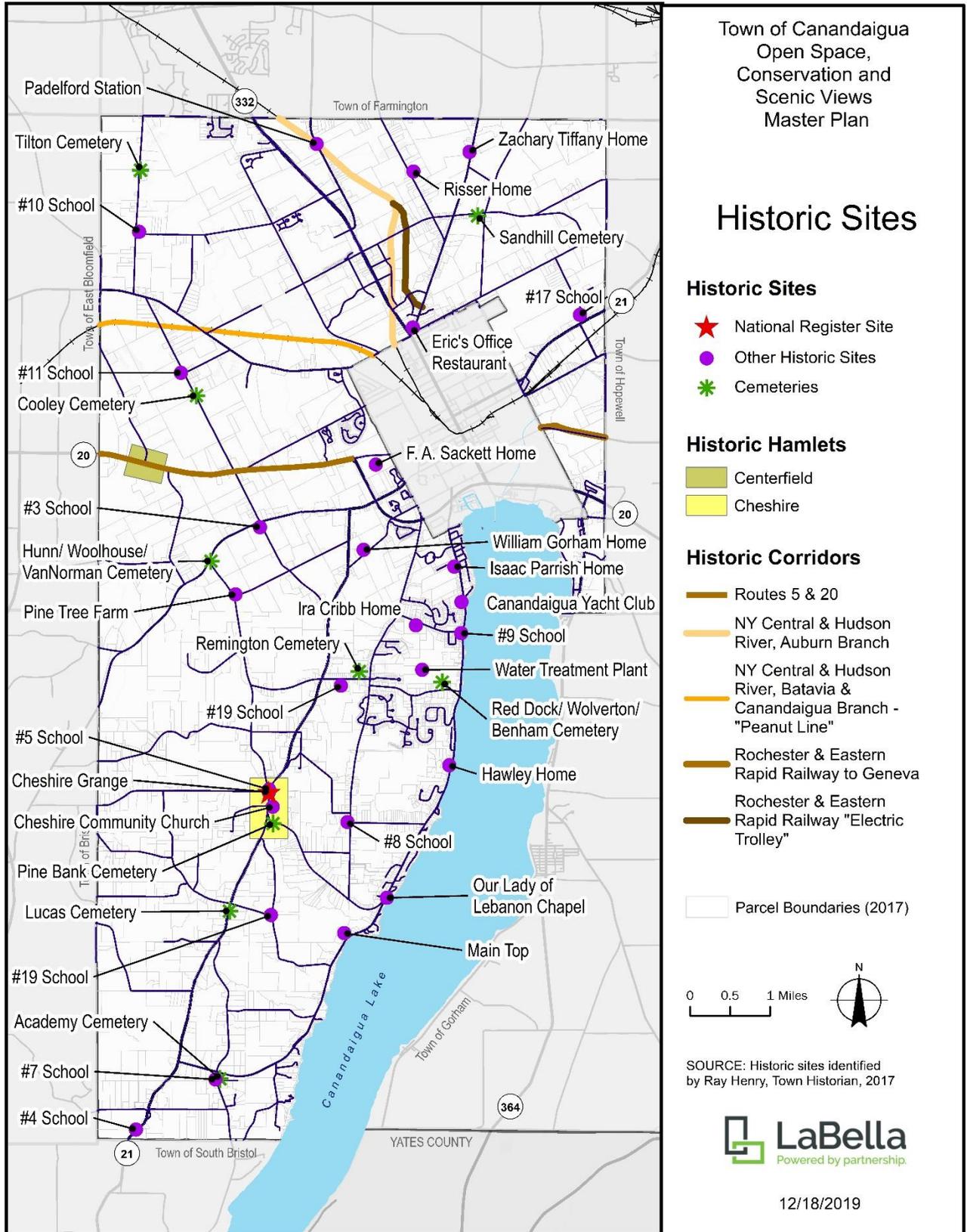
The Scenic View Points viewshed analysis created three separate viewshed polygons for each of the scenic viewpoints. The three polygons depict land visible from within one-half mile, one mile and two miles of the scenic view point. Map 8: Scenic Views combines the polygons from all 35 view points.

⁴ SOURCE: Town of Canandaigua Parks and Recreation Master Plan 2018-2028

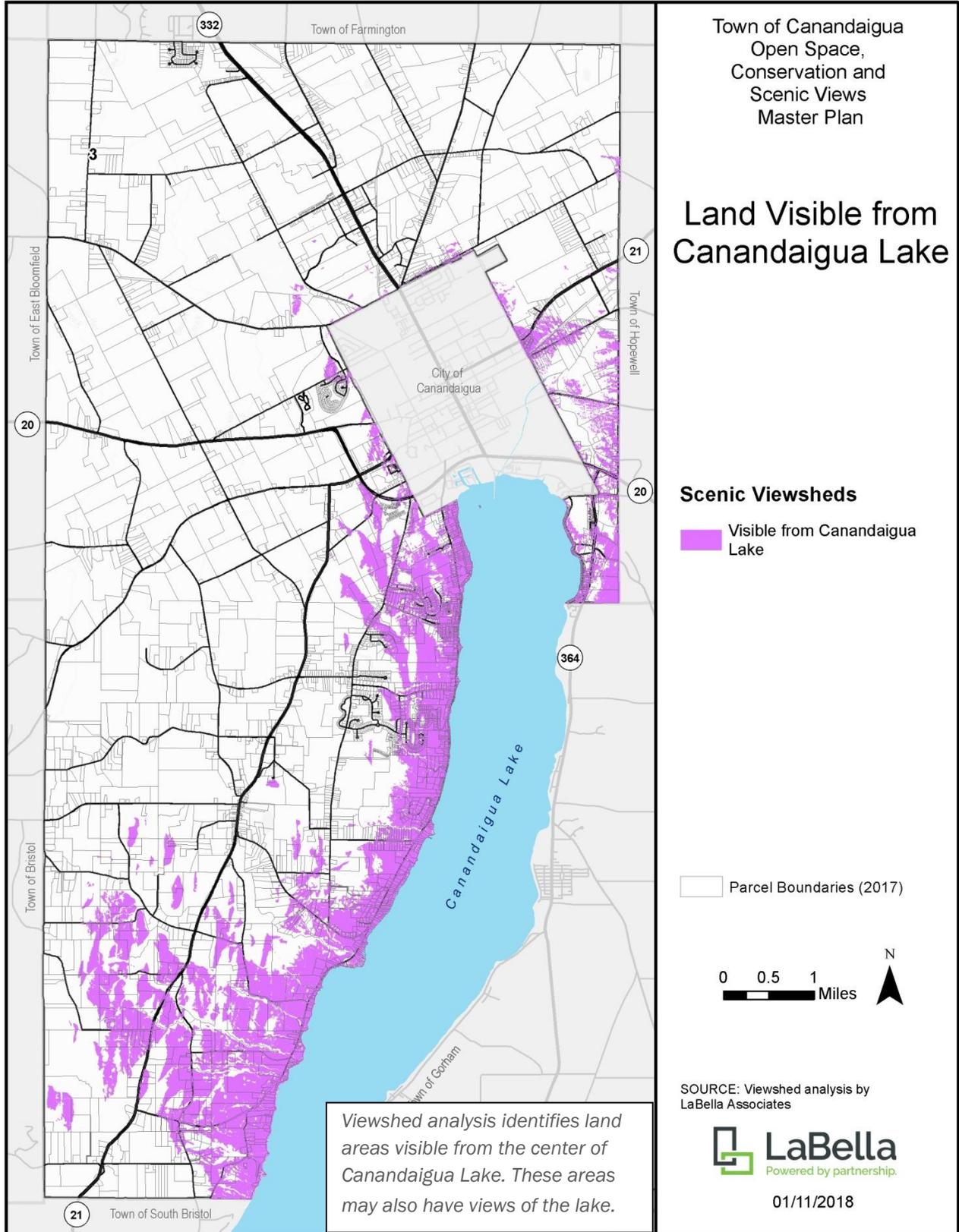
MAP 9: MINES AND WELLS



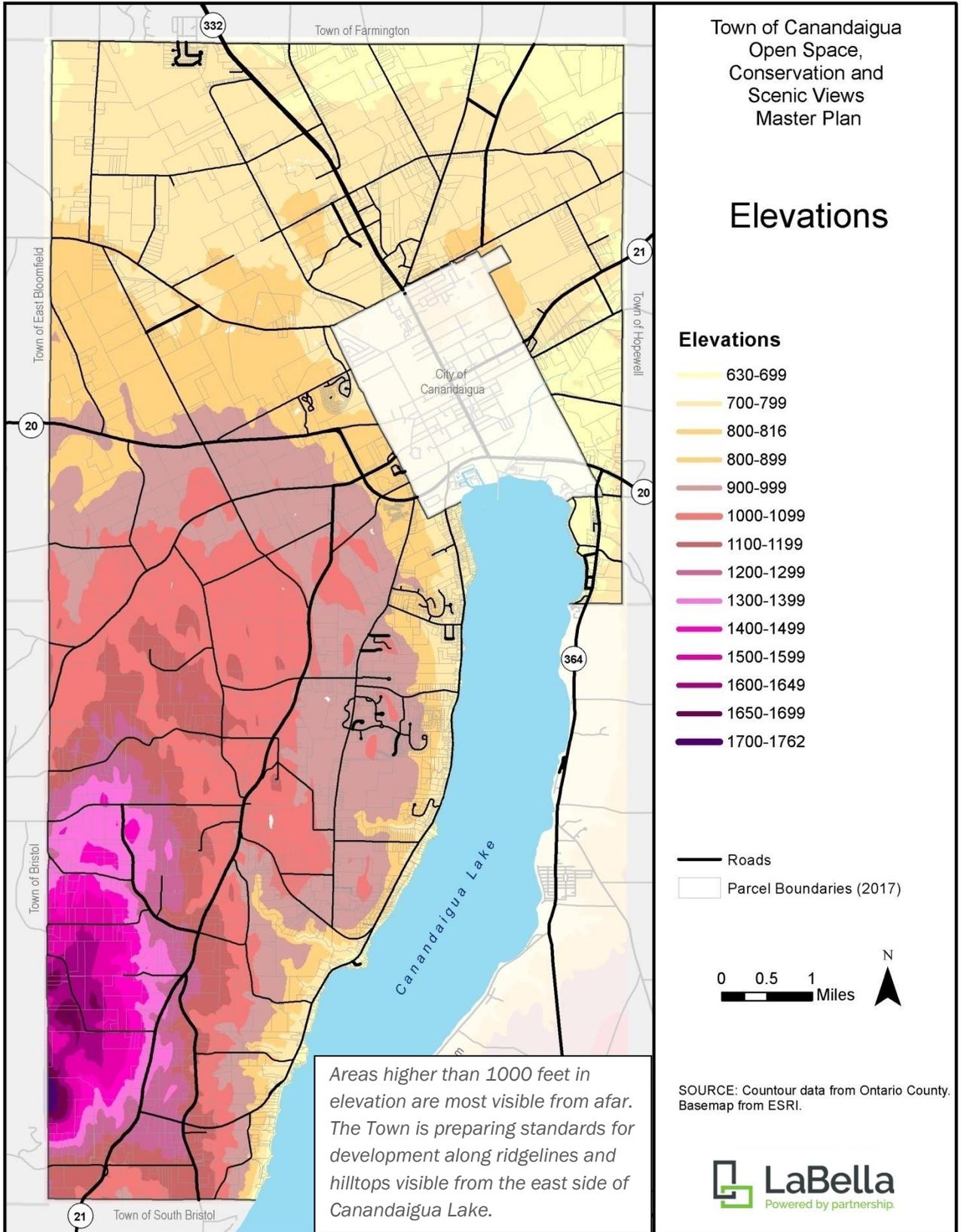
MAP 10: HISTORIC SITES



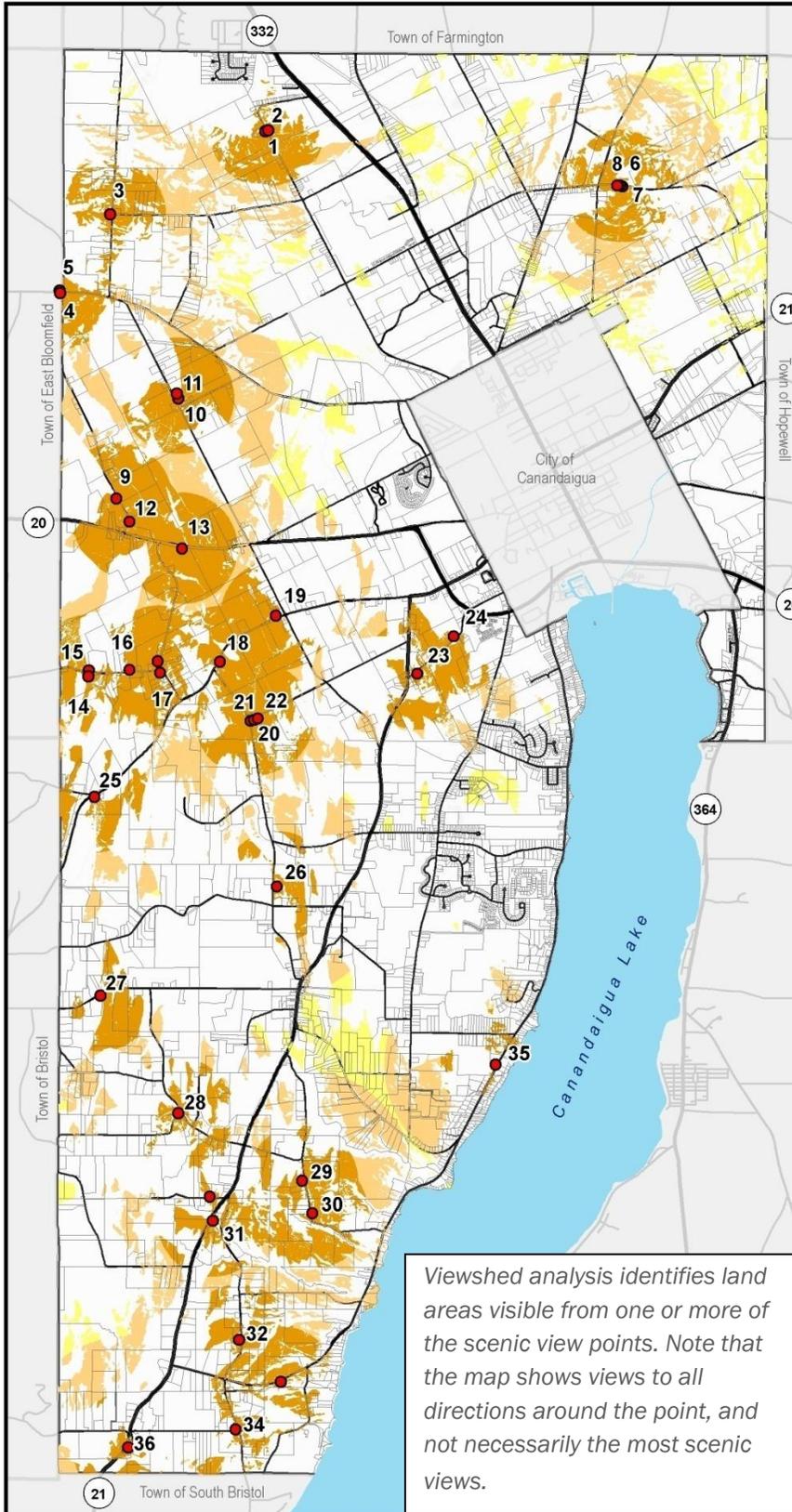
MAP 11: LAND VISIBLE FROM CANANDAIGUA LAKE



MAP 12: ELEVATIONS



MAP 13: SCENIC VIEWS



Town of Canandaigua
Open Space,
Conservation and
Scenic Views
Master Plan

Scenic Views

Scenic View Points

- Vista Point (Photo Key)

Scenic Viewsheds

(Visible from one or more viewpoints)

- Half-mile Radius
- 1-mile Radius
- 2-mile Radius

□ Parcel Boundaries (2017)



Viewshed analysis identifies land areas visible from one or more of the scenic view points. Note that the map shows views to all directions around the point, and not necessarily the most scenic views.

SOURCE: Viewshed analysis by LaBella Associates

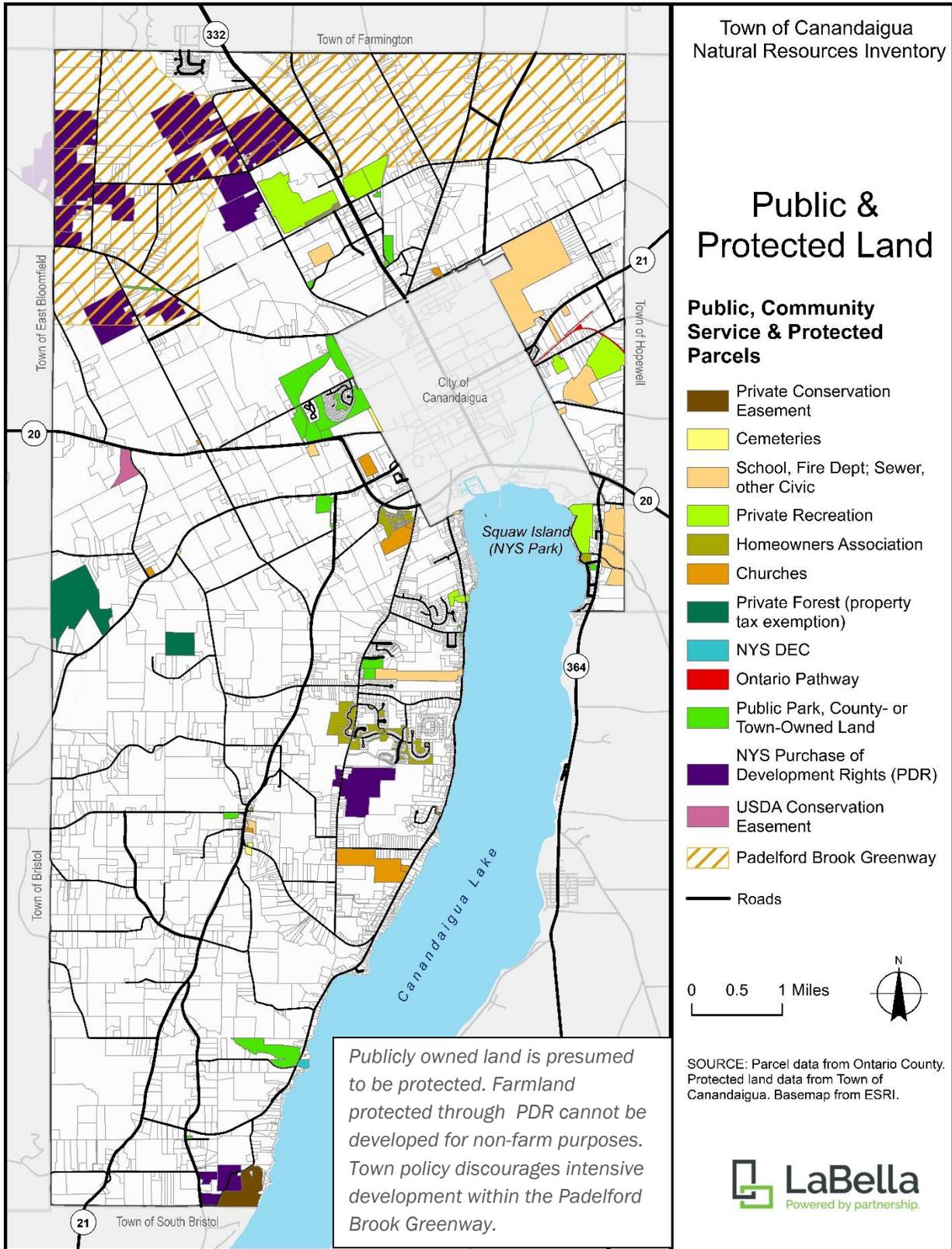


01/11/2018

SCENIC VIEWS – MAP KEY AND PHOTOS

Map Key	View Toward	Location	1 W	2 E	3 W	3 W
1	W	Brickyard Road				
2	E	Purdy Road				
3	W	Yerkes Road				
4	NE	County Road 30				
5	SE	County Road 30				
6	NW	Emerson Road				
7	NE	Emerson Road				
8	SE	Emerson Road				
9	NE	McCann Road				
10	E	Cooley Road				
11	S	Cooley Road				
12	SW	Route 5 & 20				
13	S	Hopkins Road				
14	N	Grimble Road				
15	NW	Grimble Road				
16	SW	Grimble Road				
17	SW	Grimble Road				
18	E	County Road 32				
19	S	County Road 32				
20	W	Woolhouse Road				
21	S	Woolhouse Road				
22	SE	Woolhouse Road				
23	SE	Parrish Street Ext.				
24	N	Parrish Street Ext.				
25	S	County Road 32				
26	SE	Woolhouse Road				
27	E	Goodale Road				
28	NE	Smith Road				
29	E	Deuel Road				
30	E	Deuel Road				
31	E	Seneca Point Road				
32	E	Seneca Point Road				
34	E	Seneca Point Road				
35	E	County Road 16				
36	E	Route 21 South				

MAP 14: PUBLIC & PROTECTED LAND



PART 2:

DEVELOPMENT REVIEW CONSIDERATIONS

The Town of Canandaigua’s Environmental Conservation Board, Town staff and officials will consider potential impacts on the resources documented in this Natural Resource Inventory as they review proposed development and other projects in the Town. For each of the natural and cultural resources documented in the NRI, this section presents the considerations to apply to these reviews:

- Why is the resource important?
- What are the threats?
- What are best practices that could help protect the resource?
- What regulations and organizations have a role in protecting the resource?

These considerations will be applied in parallel with the environmental review required by the NY State Environmental Quality Review Act (SEQRA.) For any action subject to SEQRA, applicants are required to document details about the project and how it would affect natural and cultural resources. The environmental review process is designed to identify ways that potential impacts could be avoided or mitigated. In addition to natural resources, SEQRA considers impacts to historic and archaeological resources, environmental hazard sites, noise level, and energy usage. The analogous federal law is the National Environmental Policy Act (NEPA) that becomes applicable if a federal agency is involved in funding or approving a project.

In reviewing projects near Canandaigua Lake, the Town’s Environmental Conservation Board (ECB) will review input from the Town Engineer relating to land disturbance, erosion control, stormwater management, flood protection, disturbance of lake, protection of drinking water quality and the adequacy of on-site wastewater treatment systems.

Components of project review that may require additional attention by the ECB include potential impacts on wildlife habitat, recreational resources, and/ or scenic resources. If impacts on these resources may be significant, the ECB may request that the Town obtain additional professional assistance in evaluating how a proposed development may affect wildlife habitat, hydrology, or other impacts on natural, agricultural, scenic, historic or other resources.

A. NATURAL ECOLOGICAL COMMUNITIES

WHY IS THIS IMPORTANT

The natural ecological communities in the Town - woodlands, wetlands, shrublands and fields - represent the natural landscapes of the Town that provide habitat to a variety of wildlife. In addition to providing wildlife habitat, wetlands filter stormwater runoff to protect water quality. Some wetlands are essential to flood control. Woodlands and natural vegetation on slopes help prevent erosion.

Species richness, or the total number of species in a region, is affected by the degree of undeveloped, natural spaces, as invasive species tend to thrive in habitats that are disturbed.

POTENTIAL THREATS

Land development, the removal of natural vegetation and invasive species have the potential to affect the ecological function of existing communities. Extensive alteration of ecosystems typically leads to increased numbers of introduced plants in edge habitats. This will typically lead to a decrease in native species, richness of birds, mammals, reptiles, invertebrates and amphibians, from honeybees to salamanders and migratory animals to resident populations. Woodlands and wetlands are especially threatened by fragmentation.

LAND DEVELOPMENT AND VEGETATION REMOVAL

Land development presents the greatest threat to open space. Even small scale scattered development can impact ecosystems by fragmenting habitat or disrupting natural drainage.

INVASIVE SPECIES

Invasive species represent a threat to every type of ecological community found in the Town. Some plants not native to North America have become established here and have the ability to out-compete native vegetation and take over an area. This reduces the number of plant species present at a site, degrading the habitat value for wildlife. Examples include phragmites and knotweed in wetlands, and honeysuckle, buckthorn and swallow-wort in old fields and forests.

Insects and diseases represent threats to forest communities in the Town. In particular, the Hemlock-Woolly Adelgid (HWA) is an invasive, aphid-like insect that attacks Hemlocks.⁵ Damage caused by these insects to the forest can also affect water quality, as hemlocks along stream banks help to control erosion.

Oak wilt was identified in the Town of Canandaigua in 2016. This disease kills oak trees and is best prevented by restricting oak pruning to only winter months.

Additionally, the emerald ash borer is causing widespread mortality to ash trees within the Town. In some forests this could be a significant percentage of canopy trees. Ensuring that native trees and shrubs replace the dying ash trees, rather than invasive plants, will be critical to the future health of these forest stands.

The Finger Lakes Partnership for Regional Invasive Species Management (PRISM), based at the Finger Lakes Institute in Geneva, is an excellent source of information for landowners about how to identify, prevent or eliminate invasive species from their properties.

⁵ <http://www.dec.ny.gov/animals/7250.html>

POOR FOREST MANAGEMENT

Proper management is essential to maintaining the ecological function and wildlife habitat in forests. Timber harvests can be used to manage a forest to ensure that it remains healthy. Professional foresters can advise landowners about how to carry out timber harvests in a way that results in the greatest benefit to the forest's health.

In contrast, poor forest management techniques can damage a forest. An example of a poor forest management technique is "high-grading," which is where a logger takes all the valuable trees and leaves only what is undesirable, leaving poor quality trees to comprise the future forest stand.

Forest owners can find a forester for advice through the NYS Department of Environmental Conservation's website: <http://www.dec.ny.gov/lands/5230.html> .

BEST PRACTICES

Retaining large, contiguous areas of open space helps to maintain habitat critical to native wildlife.

Limiting runoff of nutrients, pesticides and sediment into streams helps to protect aquatic species.

When reviewing potential wildlife impacts of new development, useful data to consider for further analysis should include road crossings and lighting design. In addition, landowners can become functional stewards to limit the introduction of invasive and native plants within the Town and avoid impacting ecosystems through the use of off-road vehicles.

EXISTING REGULATIONS AND PROGRAMS

Several local, State and federal regulations offer some protection to wetlands and flood prone areas. Map 15: Regulated Resources delineates those areas that are protected by New York State and federal wetlands and flood zone regulations.

FLOOD CONTROL (TOWN OF CANANDAIGUA TOWN CODE)

The Town of Canandaigua has adopted a local flood control law in accordance with Federal guidance. Development standards to minimize flood hazards are administered by the Town of Canandaigua in accordance with federal standards.

Many of the wetland areas in the Town are also flood hazard areas.

WETLANDS PROTECTION (STATE AND FEDERAL WETLANDS REGULATIONS)

Passed in 1975, the NYS Freshwater Wetlands Act protects freshwater wetlands that are 12.4 acres or greater in size as well as adjacent 100-foot buffer zones. Smaller wetlands may also be protected if they are of unusual local importance. Any activity that may result in negative impact on wetlands and their buffer zones must obtain a permit from the NYS Department of Environmental Conservation (NYSDEC); some activities are exempt from regulation. The permit requirements are more stringent for Class I and II wetlands, which provide better ecological benefits and value as wildlife habitat than Class III and IV wetlands.

Under the Section 404 of the Clean Water Act of 1972, any activity within a wetland, regardless of its size or type (estuarine, freshwater, riverine, etc.) requires a permit from the U.S. Army Corps of Engineers. While federal wetlands are mapped in the U.S. Fish & Wildlife Service National Wetlands Inventory, such mapping is not definitive and a field investigation is necessary to verify the

identification of a regulated wetland and its boundaries. Typically, the U.S. Army Corps of Engineers requires a permit when the disturbed area exceeds one acre.

ENDANGERED SPECIES PROTECTION (NYS AND FEDERAL ENDANGERED SPECIES ACTS)

The NYS Endangered Species Act identifies and protects habitat of animals and plants whose survival is classified as endangered or threatened. The NYSDEC Natural Heritage Program maintains the official database of all known habitats of endangered, threatened, and special concern species. Appropriate NYSDEC Regional Office staff can provide guidance on permitting conditions and mitigation measures for activities that may be disruptive to the confirmed or potential habitats of the listed species. Any lawful activity that may result in an “incidental take” (i.e. as a consequence, not as the primary intent) of the endangered species, including any adverse modification of the protected species’ habitat, will require a permit.

Passed in 1973, the federal Endangered Species Act sought to limit the extinction of the country’s native plants and animals. The federal list of endangered and threatened species and their habitat in the New York State is maintained by the NYSDEC Natural Heritage Program.

Any “incidental take” of federally listed terrestrial or freshwater species must obtain a permit from the U.S. Fish & Wildlife Service – of recent interest is the endangered Northern Long-Eared Bat. While there is no confirmed occurrence of Northern Long-Eared Bat in Ontario County, the protected species’ habitat patterns may change over time due to population decline and environmental factors. Supplementary regulation is the Bald and Golden Eagle Protection Act, which prohibits the “taking” of Bald Eagle and any adverse modification to their habitat without a permit from the Secretary of the U.S. Department of Interior.

Starting in March 2015 under Part 575, NYSDEC started to regulate the possession, transport, and sale of select invasive species, both terrestrial and aquatic. NYSDEC maintains the official prohibited and regulated species list. Invasive species control measures can be added to construction specifications to avoid the introduction of the identified invasive species.

TOWN OF CANANDAIGUA STRATEGIC FOREST PROTECTION AREA

The Town of Canandaigua delineated a Strategic Forest Protection Area as part of its Open Space Plan. Map 8: Strategic Farmland Protection Area identifies areas of largely contiguous wooded areas that support woodland wildlife.

FOREST USE ASSESSMENTS

Property tax exemptions for Forest Land exemptions are available through NYS Real Property Tax Law, Section 480-a (<http://www.dec.ny.gov/lands/5236.html>). Eligible parcels must comprise at least 50 acres of contiguous forest land, exclusive of any portion not devoted to the production of forest crops. Owners must commit to continued forest crop production over a period of ten years in accordance with an approved management plan. To receive the exemption, landowners must file an annual commitment form with the Town Assessor and the DEC Regional Forester each year, and submit an updated work schedule every five years.

The Section 480-a program is currently under review and is projected to be replaced by a Section 480-b program. This version is anticipated to have additional management requirements and certifications but a lower threshold for inclusion and a smaller tax exemption.

B. WATER RESOURCES

1. CANANDAIGUA LAKE AND LAKESHORE

WHY IS THIS IMPORTANT?

Canandaigua Lake is the source of drinking water for the region as well as a significant recreational and scenic resource. Maintaining the water quality of Canandaigua Lake is vital to public health, the regional economy and the character of the community.

POTENTIAL THREATS

Pollutants can be carried into Canandaigua Lake from streams (see next section), from erosion of land along the lake shore that deposits sediment into the lake, or from spills of chemicals or nutrients within the watershed that travel into the lake through groundwater. Discharges of sewage or chemicals from boats and inadequate septic systems are other threats to the water quality of Canandaigua Lake.

BEST PRACTICES

Best practices for watershed protection include stormwater management and erosion control along streams and the lakeshore, proper management and disposal of chemicals, monitoring of septic systems and management of boating.

EXISTING PROTECTIONS

Several existing Federal, State and local laws and regulations are intended to protect the water quality of Canandaigua Lake and to manage development along the lakeshore.

PROTECTION OF WATERS (NYS WATER ENVIRONMENTAL CONSERVATION LAW)

In accordance with the NYS Environmental Conservation Law, the NYS DEC through the Protection of Waters Regulatory Program has classified Canandaigua Lake as AA because its best use is as a drinking water supply. As a protected water body, any activity disturbing the lake bed or its banks requires a Protection of Waters Permit from the NYS DEC.

PRESERVATION OF NATURAL FEATURES IN TOWN ZONING (TOWN CODE CHAPTER 220)

The Town's Zoning regulations prohibit new structures within 25 feet of the "mean high-water elevation of Canandaigua Lake." (Town of Canandaigua Zoning Town Code Section 220-9: Regulations applicable to all districts, A. Preservation of Natural Features.)

SOIL EROSION AND SEDIMENTATION CONTROL (TOWN CODE CHAPTER 165)

Town Code Chapter 165 – Soil Erosion and Sedimentation Control, requires a permit for stripping or grading of more than 500 sq. ft. or filling of more than five cubic yards within 500 feet of Canandaigua Lake, within NYS DEC wetlands, in areas within the Canandaigua Lake watershed with slopes >10%, in areas outside of the Canandaigua Lake watershed with slopes > 15%, and areas within the 100-year floodplain or within regulated floodways.

If a project meets the threshold for such a permit, technical review by the Town's consulting engineer will help ensure that the project is designed to minimize impacts on water quality.

STORMWATER MANAGEMENT (TOWN CODE CHAPTER 170)

Town Code Chapter 170 requires management of stormwater on site to prevent runoff of sediments into waterbodies and to prevent flooding of neighboring properties. Because the Town is part of a designated “urbanized area” subject to regulation as a “Municipal Separate Storm Sewer System” (MS4), Part 404 of the Federal Clean Water Act requires the Town to establish a process to administer stormwater permits to all land development that affects more than one acre of land. NYS Department of Environmental Conservation administers this requirement through a “General Permit” (GP-0-15-002) issued by under the State Pollutant Discharge Elimination System (SPDES) permit.

To comply with the requirements of the SPDES general permit for construction activities, the Town of Canandaigua requires all “land development activity” to comply with stormwater management best practices. “Land Development Activity” is defined as:

Construction activity, including clearing, grading, excavating, soil disturbance or placement of fill, that results in land disturbance of equal to or greater than one acre, or activities disturbing less than one acre of total land area that is part of a larger common plan of development or sale, even though multiple separate and distinct land development activities may take place at different times on different schedules, including the construction of agricultural structures.

Projects that meet the criteria for a stormwater management permit are subject to technical review by the Town’s consulting engineers to ensure that stormwater is properly managed on site and any increase in runoff resulting from development does not affect neighboring properties

INSPECTION OF ON-SITE WASTEWATER TREATMENT SYSTEMS (TOWN CODE CHAPTER 202)

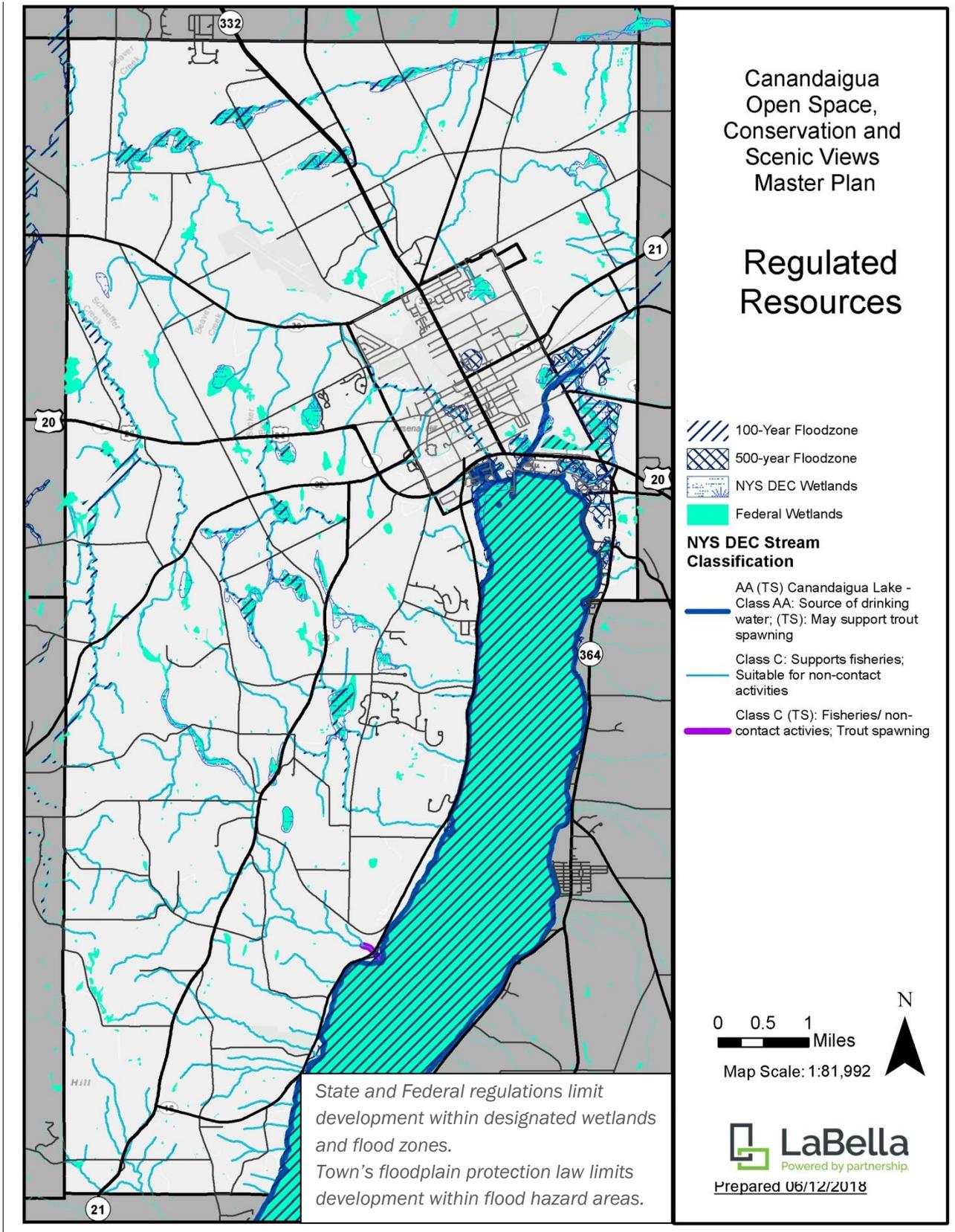
Pursuant to Town Code Chapter 202, all on-site wastewater treatment systems must be inspected every five years. All other on-site wastewater treatment systems must be inspected prior to any change of use, conveyance of real property, expansion of the number of bedrooms, or any alterations to the absorption field or treatment system.

WATERSHED RULES AND REGULATIONS

The Watershed Rules and Regulations for the Canandaigua Lake drinking water supply (10 CRR-NY 132.1) apply to Canandaigua Lake and all streams that flow into the Lake. The regulations are enforceable by the providers of drinking water (City of Canandaigua, Villages of Palmyra and Newark, and Village of Rushville) through the Watershed Manager.

The Watershed Regulations limit waste disposal, septic systems and manure storage within 100 feet of the lake and streams.

MAP 15: REGULATED RESOURCES



2. STREAMS AND RIPARIAN BUFFERS

WHY IS THIS IMPORTANT?

Streams in the Town of Canandaigua support aquatic as well as terrestrial wildlife. Maintaining water quality of streams is essential to viable ecosystems. Sediment accumulation in streams affects their flow and depth, which changes the quality of the habitat.

For the 65 linear miles of streams within the Canandaigua Lake watershed, maintaining high water quality helps to protect the water quality of Canandaigua Lake. For example, nutrients in sediments carried by streams into Canandaigua Lake contribute to the risk of blue green algae blooms.

Vegetation along streams helps to filter the stormwater that runs across the land into streams and reduce the amount of sediment, nutrients and other contaminants that may otherwise accumulate in streams or flow into receiving waterbodies.

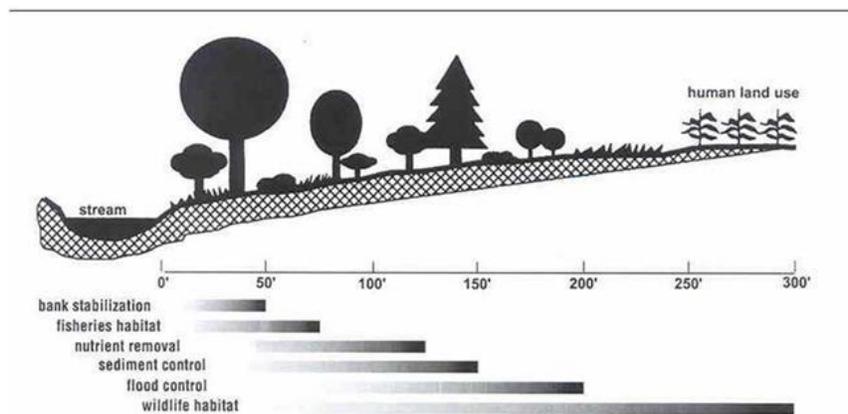
POTENTIAL THREATS

Development along streams can affect water quality as well as the wildlife habitat within riparian buffers. Removal of natural vegetation can cause erosion of stream banks and reduce the filtering of pollutants. Removing natural vegetation within stream corridors leads to increased erosion and less filtering of pollutants. When structures are located near streams, there is an increased risk of property damage when the streams periodically flood.

Many riparian buffers have already been developed with lawns or structures, especially in the immediate vicinity of Canandaigua Lake. The Town’s Zoning Board of Appeals is frequently asked to approve variances for lakeshore development within 100 feet of streams.

BEST PRACTICES

Retaining or restoring vegetation adjoining streams can help to prevent erosion of soil and runoff of nutrients into streams.



Sample buffers for various environmental quality goals

FIGURE 1:

As depicted in the figure above, a 50-foot buffer is typically minimal to maintain the stability of the stream bank; a 75-foot buffer maintains fisheries habitat; 125-foot buffer filters nutrients; and a 150-foot buffer is best to manage sedimentation. As each stream is different, field investigation would be

needed to delineate the areas of sensitivity. In lieu of detailed mapping, a set width for the stream buffer of 150 feet is mapped as lands of conservation value.

The NYS Department of Environmental Conservation encourages tree planting along streams through the Trees for Tribes program. ⁶ The Ontario County Soil & Water Conservation District (SWCD) provides trees for purchase during an annual sale. ⁷

EXISTING PROTECTIONS

DEVELOPMENT LIMITED WITHIN 100 FEET OF STREAMS (TOWN ZONING CODE SECTION 220-9)

The Town of Canandaigua Zoning Town Code Section 220-9: Regulations applicable to all districts, A. Preservation of Natural Features, limits development within 100 feet of streams. This section includes the following provisions:

- With a few exceptions, no structure shall be built within 100 feet of the bed of a stream carrying water on an average of six months of the year or within 25 feet of the mean high-water elevation of Canandaigua Lake.
- Except as part of an approved construction project or in accordance with an approved erosion control plan, no person shall strip, excavate, stockpile, or otherwise remove or relocate topsoil.
- No movement of earth or soil erosion shall be permitted at any time in any district which adversely affects conditions on any other property.
- Whenever natural features such as trees, brooks, drainage channels and views interfere with the proposed use of property, the retention of the maximum amount of such features consistent with the intended use of the property shall be required.

The provisions of this section are enforced by the Town Code Enforcement Officer. Residents may contact the CEO if they see disturbance within a stream corridor that is not part of an approved construction project.

PROTECTION OF WATERS (NYS ENVIRONMENTAL CONSERVATION LAW)

In accordance with the NYS Environmental Conservation Law and the Protection of Waters Regulatory Program, waterbodies classified as AA, A, B, C(T), or C(TS) – T or TS for trout presence – are protected. Class C streams, which support fisheries and non-contact recreation, are not subject to regulation under the Protection of Waters program in accordance with the State law that created the program.

In the Town of Canandaigua, Canandaigua Lake is protected as a Class AA waterbody. Of the streams in the Town, only one small segment is classified C(T) because it supports trout habitat. This segment is located along Menteth Gully in the southern part of the Town where it empties into Canandaigua Lake. Any activity that would disturb the bed or banks of this stream segment would require a Protection of Waters Permit from the NYSDEC.

FLOOD HAZARD PROTECTION

The Town of Canandaigua requires a floodplain development permit for all construction or other development located within designated areas of flood hazard as shown in the Flood Insurance Rate

⁶ <https://www.dec.ny.gov/animals/77710.html>

⁷ <https://www.ontswcd.com/tree-shrub-sale>

Map. The development standards in Chapter 115 of the Town Code, along with NYS Building and Residential Codes, aim to reduce future flood risks that may result from development in a floodplain.

The Town's floodplain management regulations, adopted in accordance with the National Flood Insurance Program, apply to areas in mapped Special Flood Hazard Areas (100-year floodplains, or areas with greater than 1 percent chance of flooding in any year.) NYSDEC does not have permitting authority but can grant a variance.

3. GROUNDWATER

WHY IS THIS IMPORTANT?

As groundwater is the source of drinking water for Town residents outside of public water districts, maintaining its quality is vital to public health.

POTENTIAL THREATS

Pollutants can be carried into groundwater from spills of chemicals that seep into groundwater through the soil. Abandoned wells in the Town that have not been properly capped pose a serious risk of contamination, as contaminants would not be filtered by soils.

BEST PRACTICES

Education of landowners is needed to identify and properly cap abandoned wells and to ensure proper management and disposal of chemicals.

EXISTING PROTECTIONS

As the aquifer that underlies Canandaigua is not considered a "primary" or "principal" aquifer, no State programs are in place specifically to protect its water quality.

C. STEEP SLOPES

WHY IS THIS IMPORTANT?

Steep slopes are susceptible to erosion which can impact the water quality of streams and Canandaigua Lake. and are susceptible to erosion which affects the stability of slopes and cause sediments to flow into water bodies. In addition to increasing water turbidity, sediments may carry contaminants such as pesticides and nutrients. Slopes that are very steep (25% to 40%) and extremely steep (40% or greater) have a very high potential for erosion. Retaining vegetation along steep slopes is critical to minimizing the potential for erosion.

POTENTIAL THREATS

Erosion along steep slopes can occur as part of construction activities or when natural vegetation is removed. Weather events such as heavy rainfall can cause rapid and substantial erosion if soils are not held in place by vegetation.

BEST PRACTICES

Retaining vegetation along steep slopes limits the potential for erosion. If vegetation is disturbed, temporary erosion and sedimentation control measures can be installed to manage runoff and erosion.

EXISTING PROTECTIONS

The Town of Canandaigua’s Steep Slope Protection Law (Sec. 220-8 of the Town Zoning Code) is intended to minimize impacts of development in areas with slopes of 15% or greater. The law requires site plan review by the Town Planning Board for development in areas of steep slopes that exceed certain thresholds. Where the disturbed area exceeds a certain threshold, the Steep Slope Protection Law prohibits the “removal of existing ground cover and root systems except when related to a permitted use.”

As Town regulations only apply once a development is proposed along a steep slope, there are no regulations limiting the ability of private landowners to remove vegetation along slopes.

D. AGRICULTURAL LAND

WHY IS THIS IMPORTANT?

Retaining high quality farmland for continued agricultural use helps to support the regional agricultural economy, produce food, and maintain the rural character of the Town.

POTENTIAL THREATS

Farmland in the Town is under pressure in many areas for conversion to residential, commercial or industrial uses. Development of farmland would reduce open space, increase the amount of impervious surfaces, and remove valuable buffers to natural resources.

BEST PRACTICES

Development review practices to limit the impacts of development on neighboring farms include avoiding fragmentation of farmland and maintaining drainage and access roads used by farms.

Incentives to keep high quality land in farming include the acquisition of development rights or conservation easements through programs such as Purchase of Development Rights, Transfer of Development Rights, or donation of easements to a land trust or municipality. (See the Town’s Agricultural Enhancement Plan for additional information.)

EXISTING PROTECTIONS

The Town’s Agricultural Enhancement Plan delineated strategic agricultural protection areas where conservation of farmland is a high priority. This map is used in making decisions regarding siting of new development.⁸

The Town has assisted several farmers in obtaining permanent conservation easements through the NYS Department of Agriculture & Markets’ Farmland Protection Implementation Grant (FPIG) Program (Purchase of Development Rights.) As of 2016, a total of 1,539 acres in the Town were protected

⁸

http://www.townofcanandaigua.org/documents/files/Town%20of%20Canandaigua%20Ag%20Enhancement%20Plan%20with%20Appendices_Dec-6-2016.pdf

from development through this program. Another 644 acres were awarded funds for protection, pending final approval, which would increase the total protected acreage to 2,183 acres.

E. EXTRACTIVE RESOURCES

WHY IS THIS IMPORTANT?

Sand and gravel and other extractive resources have economic value. However, mining and drilling can impact natural resources.

POTENTIAL THREATS

Mining disturbs agricultural soils and ecological communities and has the potential to affect water quality.

BEST PRACTICES

Mined land can be reclaimed for agricultural or recreational use. To allow future agricultural use, topsoil must be stockpiled separately from subsoil and replaced on the land with care to assure the land remains viable for agricultural use.

Protection of waterbodies requires the installation and maintenance of erosion and sedimentation control practices.

EXISTING PROTECTIONS

New York State's Mined Land Reclamation law requires a permit for removal of or proposals to remove more than 1000 tons of material during 12 successive months, or more than 100 cubic yards in or adjacent to a protected water body (Canandaigua Lake.)

F. CULTURAL RESOURCES

1. RECREATIONAL AND OTHER PUBLIC & PROTECTED LAND

WHY IS THIS IMPORTANT?

Recreational and other public or protected land represent significant areas of open space in the Town and enhance the conservation value of other resources.

POTENTIAL THREATS

Existing recreational and public land may be sold and converted to other uses.

Development near recreational facilities or public land could affect the quality of the recreational facility or impact the conservation value of protected land.

BEST PRACTICES

Planning for the use and maintenance of recreational and other public land should involve the public and advance the best interests of the community. Land protected by conservation easements needs

to be monitored periodically to ensure that the conditions of the easements continue to be met. Enforcement action may be needed to address violations.

EXISTING PROTECTIONS

Existing protections for recreational, public and protected land parcels depends on the owner, the terms of applicable easements or other restrictions on the property.

2. HISTORIC RESOURCES

WHY IS THIS IMPORTANT?

The historic resources in the Town connect us to the past and are a tangible reminder of the Town’s history.

POTENTIAL THREATS

As the owners of historic sites are not required to maintain historic features, they may demolish or alter their buildings or sites. Development near historic sites can affect views of the resource.

BEST PRACTICES

Screening of nearby development can minimize impacts on views of historic resources.

Compliance with historic development standards, as published by the U.S. Department of the Interior, ensures that alterations do not detract from the historic character of buildings and sites.

EXISTING PROTECTIONS

If any local, State or Federal funds or approvals are involved, review by the NY State Historic Preservation Office (SHPO) is required.

Boards responsible for the review of development projects must consider potential impacts on historic resources as part of the State Environmental Quality Review (SEQR) process.

The Town Historian and the Town’s Local History Team review demolition permits for structures older than 50 years and document the structure through research and photos (with landowner permission) before it is torn down.

3. SCENIC VISTAS AND VIEWPOINTS

WHY IS THIS IMPORTANT?

The scenic beauty of land throughout the Town contributes to the character of the community. Land with views of Canandaigua Lake – which is also visible from Canandaigua Lake and the eastern shore of the lake – are important scenic resources. Scenic views from points throughout the Town that were identified in previous planning studies are documented with photographs and viewshed mapping.

Consideration of scenic value should continue to be a factor in review of specific development projects and potential acquisition of land or easements for conservation purposes.

POTENTIAL THREATS

Scenic views are affected by development that blocks lines of sight. While the growth of trees may also affect scenic views, vegetation has other benefits to natural resource and habitat protection.

BEST PRACTICES

Development can be modified to minimize visual impacts from neighboring properties, roadways and public parks and other sites.

EXISTING PROTECTIONS

Currently, there are no Town regulations that specifically address scenic views, other than the requirement that visual impacts be addressed as part of the NY State Environmental Quality Review (SEQR).

PART 3: SITE ASSESSMENT & PROJECT REVIEW GUIDE

INTRODUCTION

The Town of Canandaigua Natural Resource Inventory Site Assessment and Project Review Guide is intended to guide local officials in evaluating the potential impacts of development on resources documented in the Town’s Natural Resource Inventory.

The **Site Assessment** identifies resources that may be affected by a proposed project. Applying the Site Assessment checklist will determine whether and to what extent the following resources are present on or near a site proposed for development:

- Ecological Communities
- Water Resources
- Agricultural Land
- Cultural Resources

Once all of the resource maps are incorporated into Ontario County’s ONCOR mapping system, a report generated through ONCOR will summarize the resources located on or near a site proposed for development.

The **Project Review Guide** will help Town officials to determine how proposed activities on a site would impact the resources identified in the Site Assessment, and how impacts may be mitigated.

The project impacts that may affect the Town’s natural resources are grouped as follows:

- Removal of natural vegetation
- Modification to land forms, streams or drainage patterns
- Changes in agricultural soils, actively farmed land or agricultural infrastructure
- Impacts on historic, recreation, scenic or other cultural resources

The Town will rely on information provided in Environmental Assessment Forms and any studies required by the Town’s Stormwater Management, Flood Prevention, Erosion Control and zoning, as well as information required by regulatory agencies with permitting authority over the resources. Town may require additional biological surveys or other studies to provide additional analysis of potential impacts and how they could be avoided, reduced or mitigated.

SITE ASSESSMENT CHECKLIST

RESOURCE	INFO NEEDED	SOURCES
Ecological Communities		
Land Cover		
1. What natural or agricultural ecological communities are on the site? 2. Any rare or vulnerable land cover types? (i.e., Silver Maple Ash Swamp or Floodplain Forest)	Specify acres of each by category: <ul style="list-style-type: none"> • Rare/ Vulnerable • Other Open Space • Not Open Space 	a) NRI Maps #1: Woodlands & Wetlands; #3: Old Fields & Shrublands; and #8: Strategic Farmland Protection Area b) Visual check against current aerial photo c) Field check for characteristic plant / animal species and to delineate boundaries
Endangered or Threatened Species		
1. Any species listed as threatened or endangered in the general area?	Yes / No List any species identified in EAF Mapper (e.g., Bald Eagle)	a) ONCOR / NYSDEC EAF Mapper or Environmental Mapper b) NYS Natural Heritage Program
Woodlands		
1. How much of the site is woodland? a. Is the site part of a larger wooded area? b. Is it in the middle or along the edge of the larger area?	# acres / proportion of site Describe location / extent	a) NRI Map #1: Woodlands & Wetlands b) Visual check against current aerial photo c) Field check to delineate boundaries
2. Is the site known to support woodland or edge habitat? Any known bat or bird populations?	Describe habitat	a) Local knowledge b) Technical investigation
3. How much of the site is within the Strategic Forest Protection Area?	# acres / proportion of site	a) NRI Map #2: Strategic Forest Protection Area
4. What is the quality of the woodland? 5. Any ash trees susceptible to infestation?		a) Local knowledge b) Technical investigation
Water Resources / Hydrology		
Watershed		
1. What watershed(s) is it in? 2. Is any portion of site in the Canandaigua Lake Watershed?	# acres / proportion of site within each sub-watershed	a) NRI Map #5: Streams, Ponds, Watersheds b) ONCOR

SITE ASSESSMENT CHECKLIST

RESOURCE	INFO NEEDED	SOURCES
Water bodies		
<ol style="list-style-type: none"> 1. What waterbody does the site drain into? 2. Is the site along the Canandaigua Lake shore? 3. What stream or pond is within 300 feet of the site? 4. What is the NYS DEC Stream Classification? 5. Is the stream suitable for trout? 	<ul style="list-style-type: none"> • Name of waterbody • Distance from waterbody • NYSDEC Stream Classification • Linear feet within site 	<ol style="list-style-type: none"> a) NRI Map #5: Streams, Ponds, Watersheds b) ONCOR c) Current aerial d) Field verification of alignment
<ol style="list-style-type: none"> 6. Is the stream perennial, intermittent or ephemeral? 		<ol style="list-style-type: none"> a) Aerial photos b) Field check
Riparian/ Lakeshore Buffer		
<ol style="list-style-type: none"> 1. How much of the site is within the riparian or lakeshore buffer? (50', 100', 300') 	<ul style="list-style-type: none"> • Delineate each buffer • Specify # acres in each 	<ol style="list-style-type: none"> a) NRI Map #5: Streams, Ponds, Watersheds b) ONCOR
<ol style="list-style-type: none"> 2. What is the current vegetation within the buffer (trees/ other established vegetation; lawn or minimal vegetation; eroded/ bare 	Describe based on observations in aerial photos and/ or in the field	<ol style="list-style-type: none"> a) Current aerial photo b) Field check
<ol style="list-style-type: none"> 3. Are any highly erodible soils within the riparian buffer? 	# acres in each buffer	<ol style="list-style-type: none"> a) USDA Web Soil Mapper/ ONCOR
<ol style="list-style-type: none"> 4. Does the buffer include steep stream banks? 	Calculate # acres from GIS / ONCOR or describe	<ol style="list-style-type: none"> a) NRI Map #7: Steep Slopes b) ONCOR
Wetlands		
<ol style="list-style-type: none"> 1. Within a NYS DEC mapped wetland or check zone? 2. What Class? (I, II, III or IV) 	# acres in each DEC wetland class	<ol style="list-style-type: none"> a) NRI Map #15: Regulated Resources b) NYSDEC EAF Mapper or Environmental Mapper c) Field delineation (NYS) or verification (Federal)
<ol style="list-style-type: none"> 3. Have boundaries been verified in the field? 	Yes / No	
<ol style="list-style-type: none"> 4. Are there hydric soils? 	# acres	USDA Web Soil Mapper/ ONCOR

SITE ASSESSMENT CHECKLIST

RESOURCE	INFO NEEDED	SOURCES
5. Are the wetlands on the site connected hydrologically to surrounding waterbodies?	Describe based on technical analysis	Field observation / Technical expert
6. Are any wetlands located within 300 feet of the site? Are they hydrologically connected to those on the site?	<ul style="list-style-type: none"> Identify by name and show distance from site Assess potential hydrologic connection 	a) NYSDEC EAF Mapper or Environmental Mapper b) Technical investigation by experts
Floodplains		
1. Any areas in mapped flood hazard areas? (100-year flood; 500-year flood; Floodway)	<ul style="list-style-type: none"> # acres in each category Specify flood zone elevation 	a) NRI Map #15: Regulated Resources (FEMA flood zones) b) NYSDEC EAF Mapper or Environmental Mapper
Stormwater		
1. How much of the site's land cover is currently impervious?	# acres	a) NRI Map: Impervious surfaces b) Field verification
2. What waterbody does the site drain into?	<ul style="list-style-type: none"> Watershed(s) Name of waterbody 	a) NRI Map #5: Streams, Ponds, Watersheds b) StreamStats tool/ ONCOR
Steep Slopes / Erodible Soils		
1. Does the site include areas with slopes >15%?	# acres	NRI Map #7: Steep Slopes Map
2. Are there highly erodible soils on the site?	# acres	USDA Web Soil Mapper/ ONCOR
Cultural Resources		
Parks, Trails, Recreation		
1. Is the site near a public park, trail or recreational facility? <ul style="list-style-type: none"> Trail within or adjoining site Park adjoining site or within 300 feet of the site 	Name of and distance from park, trail or recreational facility	a) ONCOR b) NRI Map #14: Public & Protected Land

SITE ASSESSMENT CHECKLIST

RESOURCE	INFO NEEDED	SOURCES
Historic Resources		
1. Are any historic resources within or adjacent to the site? <ul style="list-style-type: none"> National Register Locally designated 	<ul style="list-style-type: none"> Name and location of historic resource 	a) NRI Map #10: Historic Sites b) NYSDEC EAF Mapper or Environmental Mapper c) CRIS: https://cris.parks.ny.gov/Login.aspx?ReturnUrl=%2f
Scenic Views		
1. Is the site visible from Canandaigua Lake?	Yes / No	a) NRI Map #11: Land visible from Canandaigua Lake
2. Is the site above 1000 feet in elevation?	Yes / No	a) NRI Map #12: Elevations
Public or Protected Land		
1. Does the site include or adjoining any public or protected land?	<ul style="list-style-type: none"> Yes / No Identify protected parcels 	NRI Map #14: Public & Protected Land
Agricultural Land		
1. How many acres of the site are prime farmland, farmland of statewide importance, or soils that are prime if drained?	# acres	a) NRI Map #8: Strategic Farmland Protection Area b) USDA Web Soil Mapper / ONCOR
2. Is the site located within the Town’s Strategic Farmland Protection Area?	Yes / No Proportion of site	NRI Map #8: Strategic Farmland Protection Area
3. Is the site currently in agricultural use? If not, was it recently (within the last 3 years) taken out of production?	Yes/ No If no, last year of agricultural production (if known)	a) Current aerial photo b) Field observation c) Local knowledge
4. Is there active farmland adjoining or near the site?	Yes / No	a) Current aerial photo b) Field observation
5. Is any protected farmland adjoining or near the site?	Yes / No	NRI Map #14: Public / Protected Land

PROJECT REVIEW GUIDE

Site design should avoid impacts on natural and cultural resources through conservation-oriented design. If impacts cannot be avoided, they should be reduced or mitigated.

POTENTIAL IMPACT	INFO NEEDED	POTENTIAL MITIGATION
I. Does the project propose removal of existing natural vegetation? If yes:		
A. Ecological Communities (other than wetlands) / Wildlife Habitat		
<ol style="list-style-type: none"> 1. Does the vegetation proposed to be removed exist as part of an ecological community with high native plant integrity (few to no invasive species)? 2. Is the vegetation proposed to be removed mostly or entirely exotic or invasive species? 3. Is the vegetation in an early, middle or later stage of natural succession since any previous disturbance? 4. Is the vegetation part of a plant community known to support any rare or endangered species? (e.g., trees for bats or bald eagles). 5. Will the removal of vegetation affect a wildlife corridor or edge habitat? 6. Will the removal increase fragmentation of woodlands or other habitat? 	<ul style="list-style-type: none"> • Determine whether and how project footprint would require the removal of natural and native vegetation and how this might affect local ecological communities and wildlife habitat. • Require a biological site assessment as needed to better understand the value of the site’s vegetation to the local ecological community and to determine potential impacts of its removal. 	<ol style="list-style-type: none"> a) Retain undisturbed forests, especially those composed of mostly native species and in a mature or late stage of succession. b) Avoid riparian corridors, floodplains and wetlands. c) When possible, site projects in areas that have already been disturbed or that are in an early (herbaceous, non-woody) stage of natural succession. d) When possible, avoid areas with natural vegetation at a mid-successional stage of development (i.e. have young trees 6-10” dbh.) These plant communities are recognized to have high ecological value as edge habitat, bird nesting habitat and also for high rates of phytometabolic carbon sequestration. e) When possible, site projects in areas that already have high levels of invasive species as the natural cover. f) Retain vegetation communities needed by any identified protected plant species, protected wildlife or other species of concern.

PROJECT REVIEW GUIDE

Site design should avoid impacts on natural and cultural resources through conservation-oriented design. If impacts cannot be avoided, they should be reduced or mitigated.

		<p>g) Limit tree removal to winter months (November through March) to avoid disturbing bat breeding habitat.</p> <p>h) Retain edge habitat.</p> <p>i) Retain wildlife corridors by avoiding woodland fragmentation.</p> <p>j) Restore disturbed sites with plantings of native vegetation (refer to list).</p>
B. Wetlands		
<p>Will vegetation be removed from any regulated wetlands or their buffer zones?</p> <p>Are there any wetlands on the site that are not regulated?</p> <p>(For any Waters on site) Is the project area sited near or steeply up-slope from Waters?</p>	<ul style="list-style-type: none"> • Delineate boundaries of regulated wetlands and consider slope/erosion challenges.¹ • Identify and delineate smaller wetlands that may not be subject to State or Federal regulation. • Define and delineate the riparian buffer area that supports habitat and protects water quality. 	<p>a) Retain natural vegetation within wetlands to prevent loss of ecological functional values.</p> <p>b) Require wetlands mitigation consistent with NYS and/or Federal wetlands permits.</p> <p>c) Design and build in robust and effective erosion controls that are appropriate for the local grades and erosion/water pollution potential during construction.</p>

¹ Development within regulated wetlands is subject to NYS Environmental Conservation Law and Federal Clean Water Act. Permits are required from the NYS Department of Environmental Conservation and/or the U.S. Army Corps of Engineers. The Town’s Soil Erosion and Sedimentation Control Law requires a permit for stripping or grading of more than 500 sq. ft. of ground surface within a NYS DEC wetlands.

PROJECT REVIEW GUIDE

Site design should avoid impacts on natural and cultural resources through conservation-oriented design. If impacts cannot be avoided, they should be reduced or mitigated.

Streams, Riparian Buffers, Lakeshore ²		
<p>Will vegetation be removed from:</p> <ul style="list-style-type: none"> • Land within the Canandaigua Lake Watershed? • Land within 25 feet of the Canandaigua Lake shore? • Stream bank or riparian buffer (25-300 feet)? 	<ul style="list-style-type: none"> • Define and delineate the lakeshore or riparian buffer area that supports habitat and protects water quality. • Assess how the removal of vegetation would impact stormwater management, aquatic habitat and ambient temperature of stream beds, stream banks, lake shore and riparian buffers. 	<ol style="list-style-type: none"> Minimize the amount of clearing and grading. Retain natural vegetation within riparian buffer areas. Avoid steep grades with receiving Waters at the bottom.
C. Flood Zones ³		
<p>Will vegetation be removed from any Flood zone or Floodway?</p>	<ul style="list-style-type: none"> • Determine how the vegetation removal would affect flood erosion. 	<p>Retain vegetation that helps manage stormwater and prevent flooding and erosion in accordance with the Town’s flood prevention local law.</p>

² Note: The Town’s Soil Erosion and Sedimentation Control Law requires a permit for site preparation which involves stripping or grading of more than 10,000 sq. ft. of ground surface, or 500 sq. ft. of ground surface within a NYS DEC wetlands, in areas greater than 10% slope in the Canandaigua Lake Watershed, in areas with greater than 15% slope outside of the Canandaigua Lake Watershed, areas within the 100-year flood zone or floodway or any watercourse or lake; or in areas within 500 feet of Canandaigua Lake or a tributary to Canandaigua Lake shown on a USGS Map.

The Town’s Zoning Code § 220-9 Regulations applicable to all districts prohibits construction of most structures within 100 feet of the bed of a stream carrying water on an average of six months of the year or within 25 feet of the mean high-water elevation of Canandaigua Lake.

³ The Town’s Flood Damage Prevention regulations (Chapter 115 of the Town Code) requires proposed development within designated areas of flood hazard or floodways to meet construction standards that minimize the potential for flood damage.

The Town’s Stormwater Management regulations (Chapter 170) establishes stormwater management standards and controls to minimize flooding risks.

The Town’s Soil Erosion and Sedimentation Control Law (Chapter 165) requires a permit for stripping or grading of more than 500 sq. ft. of ground surface within the 100-year flood zone or floodway.

PROJECT REVIEW GUIDE

Site design should avoid impacts on natural and cultural resources through conservation-oriented design. If impacts cannot be avoided, they should be reduced or mitigated.

D. Steep Slopes/ Erodible Soils ⁴		
<p>Will vegetation be removed from:</p> <ul style="list-style-type: none"> • Steep slopes? • Erodible soils? 	<ul style="list-style-type: none"> • Assess site topography and how the removal of vegetation would increase the potential for erosion along slopes or in areas of erodible soils 	<ul style="list-style-type: none"> a) Retain vegetation along steep slopes and in areas of highly erodible soils to prevent erosion. b) If slopes are disturbed during construction, utilize effective erosion control measures and restore vegetation in accordance with erosion control plan. Provide compliance documentation system.
E. Views of a scenic vista or views of the project site from a public or recreational facility		
<p>1. Will natural vegetation be removed from:</p> <ul style="list-style-type: none"> • A site visible from Canandaigua Lake? • A site over 1000 ft. in elevation? • Land visible from public or recreational facility? 	<ul style="list-style-type: none"> • Assess the impact of vegetation removal on views – both of the affected site and from the affected site. • Require a Viewshed Analysis if impact may be significant. 	<ul style="list-style-type: none"> a) Retain natural vegetation that is a key part of a scenic view or vista from public or recreational land. b) Restore disturbed land with plantings of native species
II. Will the project change the amount of impervious surface or alter drainage patterns? ⁵ If yes:		

⁴ The Town’s Soil Erosion and Sedimentation Control Law (Chapter 165) requires a permit for stripping or grading of 500 sq. ft. of ground surface within areas greater than 10% slope in the Canandaigua Lake Watershed and in areas with greater than 15% slope outside of the Canandaigua Lake Watershed, and for stripping or grading of more than 10,000 sq. ft. of ground surface elsewhere in the Town.

⁵ The Town’s Stormwater Management Law (Chapter 170), requires a permit for construction activity, including clearing, grading, excavating, soil disturbance or placement of fill, that results in land disturbance of equal to or greater than one acre. A SWPPP will be required if the project meets this threshold.

PROJECT REVIEW GUIDE

Site design should avoid impacts on natural and cultural resources through conservation-oriented design. If impacts cannot be avoided, they should be reduced or mitigated.

A. Ecological Communities/ Wetlands ⁶		
Will the change in hydrology affect designated wetlands or other natural ecological communities?	Require the stormwater analysis to address potential impacts on natural ecological communities and wildlife habitat.	<ul style="list-style-type: none"> a) Minimize the increase in impervious surfaces b) Manage stormwater on-site in a manner that retains the existing quantity of flows to neighboring properties and retains or improves the water quality of the runoff. c) Ensure that the project does not alter the quantity and quality of water flow into and out of documented wetlands
B. Streams/ Canandaigua Lake		
Will the change in drainage patterns affect the amount or quality of stormwater runoff into existing streams or Canandaigua Lake?	Stormwater analysis to address potential water quality impacts.	Ensure that the project does not alter the quantity or quality of water flow into and out of documented wetlands or streams, and that the project design protects or improves the water quality of Canandaigua Lake.
C. Flood zones		
Will the change in drainage patterns increase flood risk?	Stormwater analysis to address potential flooding impacts.	Manage stormwater flow to minimize flood hazards.
III. Will the project affect agricultural resources? If yes:		
Farmland		

⁶ State and federal wetlands permits will require maintenance of water flows into and out of regulated wetlands.

PROJECT REVIEW GUIDE

Site design should avoid impacts on natural and cultural resources through conservation-oriented design. If impacts cannot be avoided, they should be reduced or mitigated.

<ol style="list-style-type: none"> 1. Will the project result in conversion of active farmland? 2. Is the project within the Town’s Strategic Farmland Protection Areas? 3. Will the project utilize soils classified by USDA as Prime Farmland or Soils of Statewide Importance? 4. Will the project increase fragmentation of farmland? 	<p>Determine whether the farmland affected is high quality, significant to the Townwide or regional agricultural economy, or integral to a larger farm operation.</p>	<ol style="list-style-type: none"> a) Retain farmland for continuing agricultural production if the location and configuration of the farmland is suitable b) If high quality farmland is converted, acquire permanent conservation easements to similar farmland elsewhere in the Town c) Design development to minimize fragmentation of farmland
<p>Agricultural Infrastructure</p>		
<ol style="list-style-type: none"> 1. Will the project impact existing drainage (either ditches or sub-surface tiles), access or other agricultural infrastructure? 	<p>Determine what affect the impact will have on agricultural operations</p>	<ol style="list-style-type: none"> a) Avoid damaging or disrupting access to farm fields, farm drainage or other agricultural infrastructure. b) Replace or relocated affected infrastructure as needed.
<p>IV. Will the project affect Cultural Resources?</p>		
<p>Parks, Trails, Recreation</p>		

PROJECT REVIEW GUIDE

Site design should avoid impacts on natural and cultural resources through conservation-oriented design. If impacts cannot be avoided, they should be reduced or mitigated.

<ol style="list-style-type: none"> 1. Would the proposed structure be visible or the operations of the project audible from any public park, trail or recreational facility? 2. Could additional trail access or other recreational amenities be incorporated into the site? 	<ul style="list-style-type: none"> • Determine the potential impact of the project on the recreational facility • Determine whether the project could incorporate trail access or other amenities 	<ol style="list-style-type: none"> a) Require screening or noise control. b) Incorporate trail access into site design.
Historic Resources⁷		
<ul style="list-style-type: none"> • Would the proposed structure be visible or the operations of the project audible from any historic site? 	Determine impact on historic site	Modify project to avoid or minimize impacts on historic resources
Scenic Views		
<ol style="list-style-type: none"> 1. Would the proposed structure be visible from Canandaigua Lake or other public lands? 2. Would the proposed development block scenic views from elsewhere? 	Determine whether visual impact is potentially significant and impact require Visual Impact Assessment if needed.	Require screening or modify design to avoid, reduce or mitigate visual impact.
Public or Protected Land		
<ol style="list-style-type: none"> 1. Would the project impact the use of or adjoining any public or protected land? 	Determine impact on public lands	Modify project to avoid or minimize impacts on public or protected land

⁷ SHPO consultation required as part of SEQR

TOWN OF CANANDAIGUA
NATURAL RESOURCES INVENTORY UPDATE

November 2020

APPENDICES

- A. References and Additional Sources of Information
- B. Map of and Excerpts from “Ecological Communities of New York State”
- C. List of Soils and Hydric Soils
- D. List of Bird Species Observed in the Town of Canandaigua
- E. List of Native Plants
- F. Town Code References to “Natural Resource Inventory”

APPENDIX A

RESOURCES FOR ADDITIONAL INFORMATION

More detailed information about the natural resources found in the Town of Canandaigua is available through on-line mapping sites, regulatory agencies and published documents. Members of the Environmental Conservation Board, landowners, Town decision-makers and others interested in learning more about the Town's resources are encouraged to explore these sources of information.

https://www.dec.ny.gov/docs/wildlife_pdf/ecocomm2014.pdf This is the Edindger Landscape Classification Document that the State of NY often requires us to use when describing areas to be disturbed by development.

<https://nepis.epa.gov/Exe/ZyPDF.cgi/9101NYGT.PDF?Dockey=9101NYGT.PDF> This is an EPA document written for the State of NY intended as a guideline for dealing with wetland regulatory issues.

Huffman & Associates, Inc. 2000. Wetlands Status and Trend Analysis of New York State - Mid-1980's to Mid-1990's. Prepared for New York State Department of Environmental Conservation. Larkspur, California. Available at http://www.dec.ny.gov/docs/wildlife_pdf/wetstattrend2.pdf

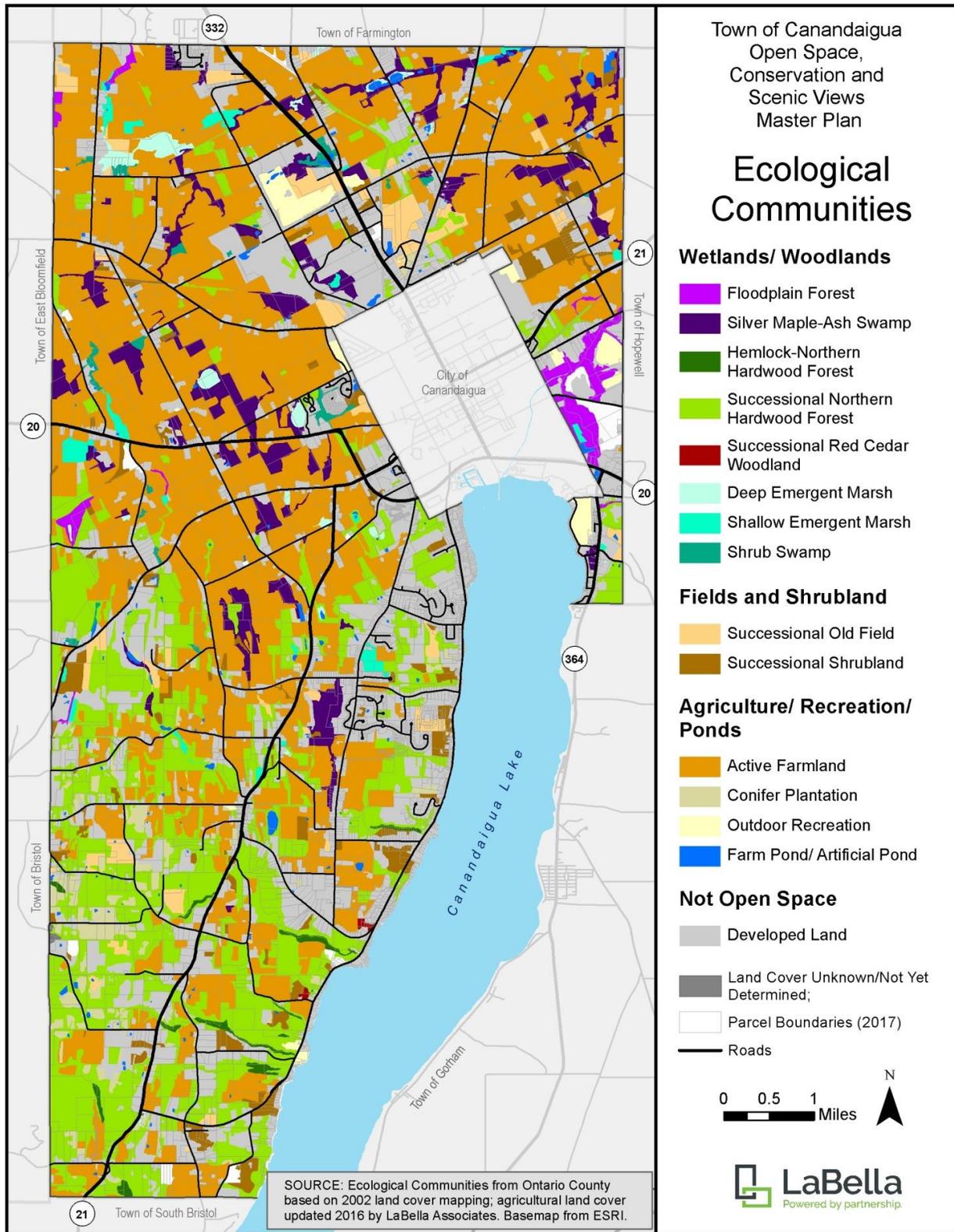
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Strong, K. 2008. Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley. New York Cooperative Fish and Wildlife Research Unit, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary Program, Ithaca, NY. <http://www.dec.ny.gov/lands/50083.html>

Haeckel, I. and L. Heady. 2014. Creating a Natural Resources Inventory: A Guide for Communities in the Hudson River Estuary Watershed. Department of Natural Resources, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary Program, Ithaca, NY. Available at www.dec.ny.gov/lands/100925.html

APPENDIX B ECOLOGICAL COMMUNITIES IN THE TOWN

ECOLOGICAL COMMUNITIES



Map prepared by LaBella Associates for the Town of Canandaigua Open Space, Natural Resources and Scenic Views Master Plan, 2018

APPENDIX B

ECOLOGICAL COMMUNITIES IN THE TOWN

IV. LACUSTRINE SYSTEM

The lacustrine system consists of ponded waters situated in topographic depressions or dammed river channels, with persistent emergent vegetation sparse or lacking, but including any areas with abundant submerged or floating-leaved aquatic vegetation. The lacustrine communities in this classification are distinguished primarily by trophic state, alkalinity, annual cycles of thermal stratification, circulation, morphometry (size and shape of the lake basin and drainage area; water permanence), and water chemistry (including salinity).

The communities are described in terms of the free-floating organisms of the open water, or the limnetic or pelagic zone (including plankton and fish), the aquatic macrophytes and fish near the shore or littoral zone, and the bottom-dwelling organisms or benthos. The limnetic (pelagic) zone may be divided into the epilimnion (upper lake zone), which is sunny mixed by the wind, and comparatively rich in oxygen, and the hypolimnion (lower lake zone), which is darker, and comparatively rich in carbon dioxide from respiration and decay. The transition between the epilimnion and hypolimnion is called the thermocline (or the metalimnion). The lake bottom or benthic zone may be divided into the peripheral, well-lit shallows or littoral zone, the slightly deeper and darker sublittoral zone, and (in summer-stratified lakes) the deep, cold region where currents are minimal and light is much reduced, called the profundal zone. Benthic zones may each have a distinctive resident biota; however, many of the plankton and fish move between pelagic zones on a regular basis. Deep lakes have an average depth greater than about 60 m (200 ft), moderately deep lakes are from about 6 to 60 m (20 ft to 200 ft) deep, and shallow lakes have an average depth less than about 6 (20 ft). Large lakes are greater than about 80 ha (200 acres) and small lakes are less than this size.

This classification of lacustrine communities is based on a combination of NYNHP field surveys, literature review, and discussions with aquatic scientists. To date about 42 plots have been sampled statewide by NYNHP in lacustrine communities. Although the Heritage Program has focused inventory work on lakes since 1995; we do not currently have sufficient field data for confidently undertaking any major restructuring of the 1990 lacustrine classification. However, field work has suggested that this classification works well for representing the coarsest scale distinctions between both biotic and abiotic features of lacustrine community types. The classification is intended to represent entire lake “macrohabitats.” Although physically based, it is meant to serve as a coarse filter emphasizing resident lake biota. It is recognized that lakes may contain numerous pelagic and benthic associations and that there is often much overlap in association distribution across lake macrohabitat types. For now, NYNHP is maintaining this macrohabitat classification while evaluating the utility and feasibility of replacing or supplementing this classification with an association classification. Further evaluation of the macrohabitat classification is underway to compare trophic state versus alkalinity as a factor more important in driving the distribution of biota and more resistant to human alteration of water chemistry. Tentatively, it is thought that alkalinity is a stronger driving force, thus suggesting a switch of the 1990 classification of common pond types from oligotrophic and eutrophic to acidic and alkaline, and common dimictic lake types from oligotrophic, mesotrophic, and eutrophic to acidic and alkaline, perhaps with trophic state as a secondary modifier.

Lastly, addition of three “intermittent pond” types to the 1990 classification is also recommended: vernal pool and pine barrens vernal pond (both previously treated under the palustrine system) and

Appendix B Ecological Communities in the Town

sinkhole pond (split from sinkhole wetland in the palustrine system). Other types under evaluation include “flow-through” or “fluvial pond,” a potential split from the currently recognized oligotrophic pond and eutrophic pond, closely associated with riverine complexes rather than in the typical isolated basin setting.

Further refinement of the lacustrine classification to distinguish regional variants will likely be based on additional field surveys and analysis of data collected by various aquatic scientists and agencies statewide. Regional variation in many of the designated lacustrine communities is evident, but we do not currently have in our files enough information or have undertaken analyses to confidently split common and widespread lake types into more specific regional variants. A finer scale classification of lakes that distinguishes types according to ecoregion and/or watershed is being evaluated. Preliminary conclusions suggest that vascular plant, bryophyte, algae, fish, mollusk, insect, and plankton assemblages may follow different distribution patterns, some more closely correlated with ecoregion boundaries, some more closely with major ecological drainage units.

B. LACUSTRINE CULTURAL

This subsystem includes communities that are either created, and maintained by human activities, or are modified by human influence to such a degree that the trophic state, morphometry, water chemistry, or biological composition of the resident community are substantially different from the character of the lake community as it existed prior to human influence.

4. Farm pond/artificial pond: the aquatic community of a small pond constructed on agricultural or residential property. These ponds are often eutrophic, and may be stocked with panfish such as bluegill (*Lepomis macrochirus*), and yellow perch (*Perca flavescens*). The biota are variable (within limits), reflecting the species that were naturally or artificially seeded, planted, or stocked in the pond. *Distribution:* throughout New York State.

Farm ponds or other artificial ponds occupy approximately 220 acres. These small ponds are located throughout the town.

Rank: Unranked cultural *Revised:* 2005

Appendix B Ecological Communities in the Town

V. PALUSTRINE SYSTEM

The palustrine system consists of non-tidal, perennial wetlands characterized by emergent vegetation. The system includes wetlands permanently saturated by seepage, permanently flooded wetlands, and wetlands that are seasonally or intermittently flooded (these may be seasonally dry) if the vegetative cover is predominantly hydrophytic and soils are hydric. Wetland communities are distinguished by their plant composition (hydrophytes), substrate (hydric soils), and hydrologic regime (frequency of flooding) (Cowardin 1979).

Peatlands are a special type of wetland in which the substrate primarily consists of accumulated peat (partly decomposed plant material such as mosses, sedges, and shrubs) or marl (organically derived calcium carbonate deposits), with little or no mineral soil. Stable water levels or constant water seepage allow little aeration of the substrate in peatlands, slowing decomposition of plant litter, and resulting in peat or marl accumulation. In this classification, peatlands are characterized by their hydrologic regime; water source and water chemistry are important factors. Minerotrophic peatlands (fens) are fed by groundwater that contains minerals obtained during passage through or over mineral soils or aquifers. Ombrotrophic peatlands (bogs) are fed primarily by direct rainfall, with little or no groundwater influence (Damman and French 1987). The vegetation of ombrotrophic peatlands is depauperate; plants in the families *Sphagnaceae* and *Ericaceae* are prominent. The vegetation of minerotrophic peatlands is comparatively rich in species; plants in the families *Cyperaceae* and *Poaceae* are prominent (Heinselman 1970).

In a natural landscape there are continuous gradients from ombrotrophic to strongly minerotrophic wetlands; there are also continuous gradients in soils from mineral soils to peat soils. The boundaries between different types of wetlands are not always discrete. Several different types of wetlands may occur together in a complex mosaic.

A. OPEN MINERAL SOIL WETLANDS

This subsystem includes wetlands with less than 50% canopy cover of trees. In this classification, a tree is defined as a woody plant usually having one principal stem or trunk, a definite crown shape, and characteristically reaching a mature height of at least 16 ft (5 m) (Driscoll et al. 1984). The dominant vegetation may include shrubs or herbs. Substrates range from mineral soils or bedrock to well-decomposed organic soils (muck). Fluctuating water levels allow enough aeration of the substrate to allow plant litter to decompose, so there is little or no accumulation of peat.

1. Deep emergent marsh: a marsh community that occurs on mineral soils or fine-grained organic soils (muck or well-decomposed peat); the substrate is flooded by waters that are not subject to violent wave action. Water depths can range from 6 in to 6.6 ft (15 cm to 2 m); water levels may fluctuate seasonally, but the substrate is rarely dry, and there is usually standing water in the fall.

The most abundant emergent aquatic plants are cattails (*Typha angustifolia*, *T. latifolia*), wild rice (*Zizania aquatica*), bur-weeds (*Sparganium eurycarpum*, *S. androcladum*), pickerel weed (*Pontederia cordata*), bulrushes (*Scirpus tabernaemontani*, *S. fluviatilis*, *S. heterochaetus*, *S. acutus*, *S. pungens*, *S. americanus*), arrowhead (*Sagittaria latifolia*), arrowleaf (*Peltandra virginica*), rice cutgrass (*Leersia oryzoides*), bayonet rush (*Juncus militaris*), water horsetail (*Equisetum fluviatile*) and bluejoint grass (*Calamagrostis canadensis*).

A total of 111 acres of this community are located in the Town. The two largest areas coincide with NYS DEC wetland CG-19, between Buffalo Street and US Routes 5 & 20, and NYS DEC wetland CG-18, located to the east of Hickock Road north of US Routes 5 & 20.

Appendix B Ecological Communities in the Town



DEEP EMERGENT MARSH (EXAMPLE – NOT IN TOWN)

The most abundant floating-leaved aquatic plants are fragrant water lily (*Nymphaea odorata*), duckweeds (*Lemna minor*, *L. trisulca*), pondweeds (*Potamogeton natans*, *P. epihydrus*, *P. friesii*, *P. oakesianus*, *P. crispus*, *P. pusillus*, *P. zosteriformis*, *P. strictifolius*), spatterdock (*Nuphar variegata*), frog's-bit (*Hydrocharis morus-ranae*), watermeal (*Wolffia* spp.) water-shield (*Brasenia schreberi*), and water-chestnut (*Trapa natans*).

The most abundant submerged aquatic plants are pondweeds (*Potamogeton richardsonii*, *P. amplifolius*, *P. spirillus*, *P. crispus*, *P. zosteriformis*), coontail (*Ceratophyllum demersum*), chara (*Chara globularis*), water milfoils (*Myriophyllum spicatum*, *M. sibiricum*), pipewort (*Eriocaulon aquaticum*), tapegrass (*Vallisneria americana*), liverwort (*Riccia fluitans*), naiad (*Najas flexilis*), water lobelia (*Lobelia dortmanna*), waterweed (*Elodea canadensis*), waterstargrass (*Heteranthera dubia*), and bladderworts (*Utricularia vulgaris*, *U. intermedia*).

Animals that may be found in deep emergent marshes include red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), bullfrog (*Rana catesbeiana*), and painted turtle (*Chrysemys picta*). Rare species in some deep emergent marshes include American bittern (*Botaurus lentiginosus*), Virginia rail (*Rallus limicola*), and piedbilledgrebe (*Podilymbus podiceps*). Marshes that have been disturbed are frequently dominated by aggressive weedy species such as purple loosestrife (*Lythrum salicaria*) and reedgrass (*Phragmites australis*). Deep emergent marshes also occur in excavations that contain standing water (e.g., roadside ditches, gravel pits).

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Ecological Communities in the Town

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 2001

Examples: Lake Champlain South Basin, Washington County; Lake Lila, Hamilton County; Chippewa Creek Marsh, St. Lawrence County; Upper and Lower Lakes St. Lawrence County, Big Bay Swamp, Oswego County.

Sources: Bray 1915; Cowardin 1979; Gilman 1976 NYNHP field surveys.

2. Shallow emergent marsh: a marsh meadow community that occurs on mineral soil or deep muck soils (rather than true peat), that are permanently saturated and seasonally flooded. This marsh is better drained than a deep emergent marsh; water depths may range from 6 in to 3.3 ft (15 cm to 1 m) during flood stages, but the water level usually drops by mid to late summer and the substrate is exposed during an average year.

Most abundant herbaceous plants include bluejoint grass (*Calamagrostis canadensis*), cattails (*Typha latifolia*, *T. angustifolia*, *T. x glauca*), sedges (*Carex* spp.), marsh fern (*Thelypteris palustris*), manna grasses (*Glyceria pallida*, *G. canadensis*), spikerushes (*Eleocharis smalliana*, *E. obtusa*), bulrushes (*Scirpus cyperinus*, *S. tabernaemontani*, *S. atrovirens*), threeway sedge (*Dulichium arundinaceum*), sweetflag (*Acorus americanus*), tall meadow-rue (*Thalictrum pubescens*), marsh St. John's-wort (*Triadenum virginicum*), arrowhead (*Sagittaria latifolia*), goldenrods (*Solidago rugosa*, *S. gigantea*), eupatoriums (*Eupatorium maculatum*, *E. perfoliatum*), smartweeds (*Polygonum coccineum*, *P. amphibium*, *P. hydropiperoides*), marsh bedstraw (*Galium palustre*), jewelweed (*Impatiens capensis*), loosestrifes (*Lysimachia thyrsoiflora*, *L. terrestris*, *L. ciliata*). Frequently in degraded examples reed canary grass (*Phalaris arundinacea*) and/or purple loosestrife (*Lythrum salicaria*) may become abundant.

Approximately 277 acres of this community are located in the Town. The largest examples coincide with NYS DEC wetlands CG-11, along both sides of Brickyard Road, NYS DEC wetland CL-8, and north and south of US Routes 5 & 20 in the westernmost part of the Town.

Sedges (*Carex* spp.) may be abundant in shallow emergent marshes, but are not usually dominant. Marshes must have less than 50% cover of peat and tussock-forming sedges such as tussock sedges (*Carex stricta*), otherwise it may be classified as a sedge meadow. Characteristic shallow emergent marsh sedges include *Carex stricta*, *C. lacustris*, *C. lurida*, *C. hystricina*, *C. alata*, *C. vulpinoidea*, *C. comosa*, *C. utriculata*, *C. scoparia*, *C. gynandra*, *C. stipata*, and *C. crinita*.

Other plants characteristic of shallow emergent marshes (most frequent listed first) include blue flag iris (*Iris versicolor*), sensitive fern (*Onoclea sensibilis*), common skullcap (*Scutellaria galericulata*), beggarticks (*Bidens* spp.), water-horehounds (*Lycopus uniflorus*, *L. americanus*), bur-weeds (*Sparganium americanum*, *S. eurycarpum*), swamp milkweed (*Asclepias incarnata*), water-hemlock (*Cicuta bulbifera*), asters (*Aster umbellatus*, *A. puniceus*), marsh bellflower (*Campanula aparinoides*), water purslane (*Ludwigia palustris*), royal and cinnamon ferns (*Osmunda regalis*, *O. cinnamomea*), marsh cinquefoil (*Potentilla palustris*), rushes (*Juncus effusus*, *J. canadensis*), arrowleaf (*Peltandra virginica*), purple-stem angelica (*Angelica atropurpurea*), water docks (*Rumex orbiculatus*, *R. verticillatus*), turtlehead (*Chelone glabra*), waterparsnip (*Sium suave*), and cardinal flower (*Lobelia cardinalis*).

Appendix B Ecological Communities in the Town

Shallow emergent marshes may have scattered shrubs including rough alder (*Alnus incana* ssp. *rugosa*), water willow (*Decodon verticillatus*), shrubby dogwoods (*Cornus amomum*, *C. sericea*), willows (*Salix* spp.), meadow sweet (*Spiraea alba* var. *latifolia*), and buttonbush (*Cephalanthus occidentalis*). Areas with greater than 50% shrub cover are classified as shrub swamps.



SHALLOW EMERGENT MARSH (EXAMPLE – NOT IN TOWN)

Amphibians that may be found in shallow emergent marshes include frogs such as eastern American toad (*Bufo a. americanus*), northern springpeeper (*Pseudoacris c. crucifer*), green frog (*Rana clamitans melanota*), and wood frog (*Rana sylvatica*); and salamanders such as northern redback salamander (*Plethodon c. cinereus*) (Hunsinger 1999). Birds that may be found include red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), and common yellowthroat (*Geothlypis trichas*) (Levine 1998).

Shallow emergent marshes typically occur in lake basins and along streams often intergrading with deep emergent marshes, shrub swamps and sedge meadows and they may occur together in a complex mosaic in a large wetland.

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 2001

Examples: South Branch Grass River Colton, St. Lawrence County; West Branch Oswagatchie River Diana, Lewis County; East Branch Fish Creek, Lewis County; Jordan River, St. Lawrence/Franklin

Appendix B

Ecological Communities in the Town

Counties; Lakeview Marshes, Jefferson County. Sources: Bray 1915; Gilman 1976; Hotchkiss 1932; Hunsinger 1999; Levine 1998; Metzler and Tiner 1992; Tiner 1985; NYNHP field surveys.

3. Shrub swamp: an inland wetland dominated by tall shrubs that occurs along the shore of a lake or river, in a wet depression or valley not associated with lakes, or as a transition zone between a marsh, fen, or bog and a swamp or upland community. The substrate is usually mineral soil or muck. This is a very broadly defined type that includes several distinct communities and many intermediates. Shrub swamps are very common and quite variable. They may be codominated by a mixture of species, or have a single dominant shrub species.

Approximately 167 acres of this community are found in the town.

In northern New York many shrub swamps are dominated by alder (*Alnus incana* ssp. *rugosa*); these swamps are sometimes called *alder thickets*. A swamp dominated by red osier dogwood (*Cornus sericea*), silky dogwood (*C. amomum*), and willows (*Salix* spp.) may be called a *shrub carr*. Along the shores of some lakes and ponds there is a distinct zone dominated by water-willows (*Decodon verticillatus*) and/or butonbush (*Cephalanthus occidentalis*) which can sometimes fill a shallow basin.

Characteristic shrubs that are common in these and other types of shrub swamps include meadow-sweet (*Spiraea alba* var. *latifolia*), steeple-bush (*Spiraea tomentosa*), gray dogwood (*Cornus foemina* ssp. *racemosa*), swamp azalea (*Rhododendron viscosum*), highbush blueberry (*Vaccinium corymbosum*), maleberry (*Lyonia ligustrina*), smooth alder (*Alnus serrulata*), spicebush (*Lindera benzoin*), willows (*Salix bebbiana*, *S. discolor*, *S. lucida*, *S. petiolaris*), wild raisin (*Viburnum cassinoides*), and arrowwood (*Viburnum recognitum*). More documentation and research is needed to distinguish the different types of shrub swamps in New York.

Birds that may be found in shrub swamps include common species such as common yellowthroat (*Geothlypis trichas*); and rare species such as American bittern (*Botaurus lentiginosus*), alder flycatcher (*Empidonax alnorum*), willow flycatcher (*E. trallii*), and Lincoln's sparrow (*Passerella lincolni*) (Levine 1998).

Distribution: throughout New York State.

Rank: G5 S5 Revised: 2001

Examples: West Branch Oswagatchie River Diana, Lewis County; West Branch Sacandaga River, Hamilton County; Jordan River, St. Lawrence/Franklin Counties, Shingle Shanty Brook, Hamilton County, East Branch Fish Creek, Lewis County.

Sources: Bray 1915; Levine 1998; McVaugh 1958; Metzler and Tiner 1992; Shanks 1966; Tiner 1985; NYNHP field surveys.

Appendix B Ecological Communities in the Town

C. FORESTED MINERAL SOIL WETLANDS

This subsystem includes seasonally flooded forests, and permanently flooded or saturated swamps. These forests and swamps typically have at least 50% canopy cover of trees. For the purposes of this classification, a tree is defined as a woody plant usually having one principal stem or trunk, a definite crown shape, and characteristically reaching a mature height of at least 16 ft (5 m) (Driscoll et al. 1984).

1. Floodplain forest: a hardwood forest that occurs on mineral soils on low terraces of river floodplains and river deltas. These sites are characterized by their flood regime; low areas are annually flooded in spring, and high areas are flooded irregularly. Some sites may be quite dry by late summer, whereas other sites may be flooded again in late summer or early autumn (these floods are caused by heavy precipitation associated with tropical storms). This is a broadly defined community; floodplain forests are quite variable and may be very diverse.

Approximately 381 acres of land in this community are located in the town. Relatively large examples are located east of McCann Road and west of NYS Route 332 just north of Campus Road

With a ranking of S2 S3, this community is considered to be vulnerable in New York State.

The most abundant trees include silver maple (*Acer saccharinum*), ashes (*Fraxinus pensylvanica*, *F. nigra*, *F. americana*), cottonwood (*Populus deltoides*), red maple (*Acer rubrum*), box elder (*Acer negundo*), elms (*Ulmus americana*, *U. rubra*), hickories (*Carya cordiformis*, *C. ovata*, *C. laciniosa*), butternut and black walnut (*Juglans cinerea*, *J. nigra*), sycamore (*Platanus occidentalis*), oaks (*Quercus bicolor*, *Q. palustris*), and river birch (*Betula nigra*). Other less frequently occurring trees include hackberry (*Celtis occidentalis*), tulip tree (*Liriodendron tulipifera*), basswood (*Tilia americana*), and sugar maple (*Acer saccharum*). Introduced trees, such as white willow (*Salix alba*) and black locust (*Robinia pseudo-acacia*), have become established in some floodplain forests.

The most abundant shrubs include spicebush (*Lindera benzoin*), ironwood (*Carpinus carolinianus*), bladdernut (*Staphylea trifoliata*), speckled alder (*Alnus incana* spp. *rugosa*), dogwoods (*Cornus sericea*, *C. foemina* spp. *racemosa*, *C. amomum*), viburnums (*Viburnum cassinoides*, *V. prunifolium*, *V. dentatum*, *V. lentago*), and sapling canopy trees. Invasive exotic shrubs that may be locally abundant include shrub honeysuckles (*Lonicera tatarica*, *L. morrowii*), and multiflora rose (*Rosa multiflora*). Other less frequently occurring shrubs include meadowsweet (*Spiraea alba* var. *latifolia*) and winterberry (*Ilex verticillata*). The most abundant vines include poison ivy (*Toxicodendron radicans*), wild grapes (*Vitis riparia*, *Vitis* spp.), Virginia creeper (*Parthenocissus quinquefolia*), virgin's bower (*Clematis virginiana*), and less frequently, moonseed (*Menispermum canadense*). Vines may form a dense liana in tree canopy and/or dominate the groundcover.

The most abundant herbs include sensitive fern (*Onoclea sensibilis*), jewelweeds (*Impatiens capensis*, *I. pallida*), ostrich fern (*Matteuccia struthiopteris*), white snakeroot (*Eupatorium rugosum*), wood nettle (*Laportea canadensis*), false nettle (*Boehmeria cylindrica*), goldenrods (*Solidago gigantea*, *S. canadensis*, *Solidago* spp.), lizard's tail (*Saururus cernuus*), and jumpseed (*Polygonum virginianum*). Invasive exotic herbs that may be locally abundant include moneywort (*Lysimachia nummularia*), garlic mustard (*Alliaria petiolata*), dame's rockets (*Hesperis matronalis*), and stilt grass (*Microstegium vimineum*). Other less frequently occurring herbs include skunk cabbage (*Symplocarpus foetidus*), enchanter's nightshade (*Circaea lutetiana* ssp. *canadensis*), bluejoint grass (*Calamagrostis canadensis*), white avens (*Geum canadense*), clearweed (*Pilea pumila*), jack-in-the-pulpit (*Arisaema triphyllum*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex lacustris*, *C. intumescens*, *C. lupulina*), and many others.

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FLOODPLAIN FOREST (EXAMPLE – NOT IN TOWN)

Characteristic birds include yellow-throated vireo (*Vireo flavifrons*), tufted titmouse (*Parus bicolor*), redbellied woodpecker (*Melanerpes carolinus*), and pileated woodpecker (*Dryocopus pileatus*). The composition of the forest apparently changes in relation to flood frequency and elevation of floodplain terraces along larger rivers. Neighboring states recognize several floodplain forest variants based on dominant plants, flood regime, and topographic position (Fike 1999, Kearsley 1999, Sorenson et al. 1998). The composition of floodplain forests in New York State has not been studied in sufficient detail to characterize compositional variations and how they correlate with flood regime and terrace elevation.

Distribution: throughout upstate New York, north of the Coastal Lowlands ecozone.

Rank: G3 G4 S2 S3 Revised: 2001

Examples: Raquette River, Franklin County; Howland Island, Cayuga County; Catskill Creek, Greene County; Doyles Islands, Delaware County; South Bay Creek Wetlands, Washington County.

Sources: Barrett and Enser 1997; Bechtel and Sperduto 1998; Fike 1999; Gordon 1940; Kearsley 1999; Metzler and Damman 1985; Nichols et al. 2000; Sorenson et al. 1998; Veneman and Tiner 1990; NYNHP field surveys.

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6. Silver maple-ash swamp: a hardwood basin swamp that typically occurs in poorly-drained depressions or along the borders of large lakes, and less frequently in poorly drained soils along rivers. These sites are characterized by uniformly wet conditions with minimal seasonal fluctuations in water levels.

The dominant trees are usually silver maple (*Acer saccharinum*) and green ash (*Fraxinus pennsylvanica*). American elm (*Ulmus americana*) is often present and probably was a codominant prior to the onset of Dutch elm disease and elm yellows. Other trees include black ash (*F. nigra*), white ash (*F. americana*), swamp white oak (*Quercus bicolor*), red maple (*Acer rubrum*), and occasionally the silver maple-red maple hybrid “Freeman’s maple” (*Acer x freemanii*). Many of the canopy trees occur in the subcanopy along with ironwood (*Carpinus carolinianus*).

Approximately 1,687 acres of silver maple-ash swamp are found in the Town. Relatively large examples of this community are located: coincident with NYS DEC wetland CL-9 west of Middle Cheshire Road, east of Woolhouse Road, north of Buffalo Street Ext. and east of Cooley Road, north of County Road 30, and east of Brickyard Road.

With a ranking of S3, this community is considered somewhat vulnerable in New York State.

Characteristic shrubs include winterberry (*Ilex verticillata*), spicebush (*Lindera benzoin*), various shrubby dogwoods (*Cornus foemina* ssp. *racemosa*, *C. amomum*, and *C. sericea*), various viburnums (*Viburnum recognitum*, *V. lentago*, and *V. cassinoides*), speckled alder (*Alnus incana* ssp. *rugosa*), gooseberries (*Ribes* spp.), and sapling canopy trees. Characteristic vines include Virginia creeper (*Parthenocissus quinquefolia*) and poison ivy (*Toxicodendron radicans*).



SILVER MAPLE - ASH SWAMP (EXAMPLES - NOT IN TOWN)

Characteristic herbs include sensitive fern (*Onoclea sensibilis*), skunk cabbage (*Symplocarpus foetidus*), false nettle (*Boehmeria cylindrica*), wood-nettle (*Laportea canadensis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), marsh fern (*Thelypteris palustris*), jewelweed (*Impatiens capensis*), mannagrasses (*Glyceris striata*, *G. grandis*), and various sedges (*Carex lupulina*, *C. crinita*, *C. bromoides*, and *C. lacustris*). Other herbs in wetter examples include arrow arum (*Peltandra virginica*), arrowheads (*Sagittaria* spp.), wild calla (*Calla palustris*), cattail (*Typha latifolia*), and duckweeds (*Lemna* spp.). A few examples are dominated by reed canary grass (*Phalaris arundinacea*) and/or lizard’s tail (*Saururus cernuus*). Silver maple-ash swamps are often underlain by calcareous bedrock and may contain a few calciphilic species, such as northern white

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Ecological Communities in the Town

cedar (*Thuja occidentalis*) and alder-leaf buckthorn (*Rhamnus alnifolia*). Ash-elm dominated swamps with little or no maple are tentatively included here until more data are collected on this variant.

Data on characteristic animals are needed.

Distribution: in central and western New York in the Appalachian Plateau ecozone, and in the Champlain Valley sub-zone of the Lake Champlain ecozone.

Rank: G3 G4 S2 S3 Revised: 2001

Examples: Kings Bay Wetlands, Clinton County; Beaver Creek Swamp, St. Lawrence County; Black Creek Swamp, Monroe County; Cicero Swamp, Onondaga County; Conesus Wetlands, Livingston County.

Source: Huenneke 1982; NYNHP field surveys.

Appendix B Ecological Communities in the Town

VI. TERRESTRIAL SYSTEM

The terrestrial system consists of upland habitats. These habitats have well-drained soils that are dry to mesic (never hydric), and vegetative cover that is never predominantly hydrophytic, even if the soil surface is occasionally or seasonally flooded or saturated. In other words, this is a broadly defined system that includes everything except aquatic, wetland, and subterranean communities.

A. OPEN UPLANDS

This subsystem includes upland communities with less than 25% canopy cover of trees; the dominant species in these communities are shrubs, herbs, or cryptogamic plants (mosses, lichens, etc.). Three distinctive physiognomic types are included in this subsystem. Grasslands include communities that are dominated by grasses and sedges; they may include scattered shrubs (never more than 50% cover of shrubs), and scattered trees (usually less than one tree per acre, or 3 trees per hectare). Meadows include communities with forbs, grasses, sedges, and shrubs codominant; they may include scattered trees. Shrublands include communities that are dominated by shrubs (more than 50% cover of shrubs); they may include scattered trees.

30. Successional old field: a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming or development), and then abandoned.

Characteristic herbs include goldenrods (*Solidago altissima*, *S. nemoralis*, *S. rugosa*, *S. juncea*, *S. canadensis*, and *Euthamia graminifolia*), bluegrasses (*Poa pratensis*, *P. compressa*), timothy (*Phleum pratense*), quackgrass (*Agropyron repens*), smoothbrome (*Bromus inermis*), sweet vernal grass (*Anthoxanthum odoratum*), orchard grass (*Dactylis glomerata*), common chickweed (*Cerastium arvense*), common evening primrose (*Oenothera biennis*), oldfield cinquefoil (*Potentilla simplex*), calico aster (*Aster lateriflorus*), New England aster (*Aster novae-angliae*), wild strawberry (*Fragaria virginiana*), Queen-Anne'slace (*Daucus corota*), ragweed (*Ambrosia artemisiifolia*), hawkweeds (*Hieracium* spp.), dandelion (*Taraxacum officinale*), and ox-tongue (*Picris hieracioides*).

Approximately 4,108 acres of this community are located in the town. This reflects the legacy of agriculture in the area as the less productive farm soils are no longer used for agricultural production.

Shrubs may be present, but collectively they have less than 50% cover in the community. Characteristic shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum recognitum*), raspberries (*Rubus* spp.), sumac (*Rhus typhina*, *R. glabra*), and eastern red cedar (*Juniperus virginiana*).

A characteristic bird is the field sparrow (*Spizella pusilla*). This is a relatively short-lived community that succeeds to a shrubland, woodland, or forest community.

Distribution: throughout New York State.

Rank: G4 S4 Revised: 1990

Example: Chippewa Creek Plains, St. Lawrence County; Finger Lakes National Forest, Schuyler County.

31. Successional shrubland: a shrubland that occurs on sites that have been cleared (for farming, logging, development, etc.) or otherwise disturbed. This community has at least 50% cover of shrubs. Characteristic shrubs include gray dogwood (*Cornus*

Approximately 1,180 acres of this community are found in the town.

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Ecological Communities in the Town

foemina ssp. *racemosa*), eastern red cedar (*Juniperus virginiana*), raspberries (*Rubus* spp.), hawthorne (*Crataegus* spp.), serviceberries (*Amelanchier* spp.), choke-cherry (*Prunus virginiana*), wild plum (*Prunus americana*), sumac (*Rhus glabra*, *R. typhina*), nanny-berry (*Viburnum lentago*), arrowwood (*Viburnum recognitum*), and multiflora rose (*Rosa multiflora*).

Birds that may be found in successional shrublands brown thrasher, blue-winged warbler, golden-winged warbler, chestnut-sided warbler, yellow-breasted chat, eastern towhee, field sparrow, song sparrow, and indigo bunting (Levine 1998).

Distribution: throughout New York State.

Rank: G4 S4 Revised: 1990

Example: Chippewa Creek Plains, St. Lawrence County; Finger Lakes National Forest, Schuyler County.

Source: NYNHP field surveys.

B. BARRENS AND WOODLANDS

This subsystem includes upland communities that are structurally intermediate between forests and open canopy uplands. Several physiognomic types are included in this subsystem. Savannas are communities with a sparse canopy of trees (25 to 60% cover), and a groundlayer that is predominantly either grassy or shrubby (these will be called, respectively, grass-savanna and shrub-savanna). Woodlands include communities with a canopy of stunted or dwarf trees (less than 16 ft or 4.9 m tall), and wooded communities occurring on shallow soils over bedrock with numerous rock outcrops. The term “barrens” is commonly applied to both savannas and woodlands (e.g., pine barrens).

26. Successional red cedar woodland: a woodland community that commonly occurs on abandoned agricultural fields and pastures, usually at elevations less than 1,000 ft (305 m).

The dominant tree is eastern red cedar (*Juniperus virginiana*), which may occur widely spaced in young stands and may be rather dense in more mature stands. Smaller numbers of gray birch (*Betula populifolia*), hawthorn (*Crataegus* spp.), buckthorn (*Rhamnus cathartica*), and other early successional hardwoods may be present. On slopes along the Finger Lakes, red cedar is commonly found mixed with white ash (*Fraxinus americana*) and black walnut (*Juglans nigra*).

Shrubs and groundlayer vegetation are similar to a successional old field; in some stands the groundcover consists of a nearly pure stand of non-native bluegrasses such as *Poa compressa* and *P. pratensis*.

A total of 34.8 acres of this community is found in three locations in the Town: along the south side of Monks Road west of Seneca Point Road, north of Dueul Road just west of West Lake Road; and along the north side of Wells Curtice Road at West Lake Road.

A characteristic bird is the prairie warbler (*Dendroica discolor*). More data on characteristic fauna are needed.

Distribution: restricted to calcareous areas throughout upstate New York State.

Rank: G5 S5 Revised: 1990

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Ecological Communities in the Town

Examples: Champlain Valley Essex, Essex County; Crown Point, Essex County; Beaver Brook Valley, Essex County; NY State Thruway at Cauterskill, Greene County.

Source: NYNHP field surveys.

C. FORESTED UPLANDS

This subsystem includes upland communities with more than 60% canopy cover of trees; these communities occur on substrates with less than 50% rock outcrop or shallow soil over bedrock.

19. Hemlock-northern hardwood forest: a mixed forest that typically occurs on middle to lower slopes of ravines, on cool, mid-elevation slopes, and on moist, well-drained sites at the margins of swamps.

Approximately 147 acres of this community are found in the southern part of the Town adjoining successional northern hardwoods communities.

In any one stand, eastern hemlock (*Tsuga canadensis*) is codominant with any one to three of the following: sugar maple (*Acer saccharum*), red maple (*A. rubrum*), yellow birch (*Betula alleghaniensis*), black birch (*B. lenta*), red oak (*Quercus rubra*), American beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), chestnut oak (*Quercus montana*), white oak (*Q. alba*), white pine (*Pinus strobus*). Other trees may include hop hornbeam (*Ostrya virginiana*), black cherry (*Prunus serotina*), and basswood (*Tilia americana*). The relative cover of eastern hemlock is quite variable, ranging from nearly pure stands in some steep ravines to as little as 20% of the canopy cover. Striped maple (*Acer pensylvanicum*) is often prominent as a mid-story tree.

The shrub layer may be sparse and typically includes saplings of canopy trees. Characteristic shrubs are witch hazel (*Hamamelis virginiana*), hobblebush (*Viburnum lantanoides*), maple-leaf viburnum (*Viburnum acerifolium*), lowbush blueberry (*Vaccinium pallidum*), and raspberries (*Rubus* spp.). In some ravines, especially in the southern part of the state, rosebay (*Rhododendron maximum*) forms a dense subcanopy or tall shrub layer.

Canopy cover can be quite dense, resulting in low light intensities on the forest floor and hence a relatively sparse groundlayer. Characteristic groundlayer herbs include woodferns (*Dryopteris marginalis*, *D. intermedia*, *D. campyloptera*), Christmas fern (*Polystichum acrostichoides*), Canada mayflower (*Maianthemum canadense*), white wood aster (*Eurybia divaricata*), sarsaparilla (*Aralia nudicaulis*), partridge berry (*Mitchella repens*), common wood-sorrel (*Oxalis montana*), jack-in-the-pulpit (*Arisaema triphyllum*), star flower (*Trientalis borealis*), lady fern (*Athyrium filix-femina* var. *asplenioides*), and Pennsylvania sedge (*Carex pensylvanica*). Other plants include Indian cucumber-root (*Medeola virginiana*), sessile-leaved bellwort (*Uvularia sessilifolia*), shining fir clubmoss (*Huperzia lucidula*), foamflower (*Tiarella cordifolia*), round-leaf violet (*Viola rotundifolia*), twisted stalk (*Streptopus roseus*), purple trillium (*Trillium erectum*), and white cushion moss (*Leucobryum glaucum*). In forests that have American beech as a codominant tree, beech-drops (*Epifagus virginiana*) is a common herb. Indian-pipe (*Monotropa uniflora*) and American pinesap (*M. hypopithys*) are occasionally found in low light examples. Hay-scented fern (*Dennstaedtia punctilobula*) and New York fern (*Thelypteris noveboracensis*) may be common in canopy gaps.

Birds frequently found in hemlock forests include Acadian flycatcher (*Empidonax vireescens*), blue-headed vireo (*Vireo solitarius*), black-throated green warbler (*Dendroica virens*), and Blackburnian warbler (*Dendroica fusca*) (Ross *et al.* 2004). These birds are not restricted to this forest type. More data on characteristic fauna are needed.

Appendix B Ecological Communities in the Town

This is a broadly defined and very widespread community, with many regional and edaphic variants. For example, in the Hudson Valley, eastern hemlock is sometimes codominant with red oak (Charney 1980) and is also the case in and central and western New York (D. Faber-Langendoen *pers. comm.*); in the Adirondacks, yellow birch and sugar maple are sometimes codominant, with a relatively small number of eastern hemlocks as well as a few red spruce (*Picea rubens*). More data on the shrub layer and groundlayer composition are needed before these regional variants can be distinguished as separate types.

Distribution: throughout New York State.

Rank: G4G5 S4 Revised: 2004

Examples: Ampersand Mountain, Franklin County; Five Ponds Wilderness Area, Herkimer and Hamilton Counties; Slide Mountain, Sullivan and Ulster Counties; Big Basin in Allegany State Park, Cattaraugus County; Western Rensselaer Plateau Escarpment, Rensselaer County.

Sources: Braun 1950; Charney 1980; Eyre 1980; Heimburger 1934; Leopold *et al.* 1988; McIntosh 1972; McVaugh 1958; Ross 1958; Ross *et al.* 2004; Shanks 1966; NYNHP field surveys.

26. Successional northern hardwoods: a hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed.

Characteristic trees and shrubs include any of the following: quaking aspen (*Populus tremuloides*), bigtooth aspen (*P. grandidentata*), balsam poplar (*P. balsamifera*), paper birch (*Betula papyrifera*), or gray birch (*B. populifolia*), pin cherry (*Prunus pensylvanica*), black cherry (*P. serotina*), red maple (*Acer rubrum*), white pine (*Pinus strobus*), with lesser amounts of white ash

Examples of this community are found predominantly in the southern part of the Town and occupy approximately 6,748 acres.



SUCCESSIONAL NORTHERN HARDWOOD FOREST (EXAMPLE – NOT IN TOWN)

Appendix B Ecological Communities in the Town

(*Fraxinus americana*), green ash (*F. pensylvanica*), and American elm (*Ulmus americana*). Northern indicators include aspens, birches, and pin cherry. This is a broadly defined community and several seral and regional variants are known.

Characteristic birds include chestnut-sided warbler (*Dendroica pensylvanica*), Nashville warbler (*Vermivora ruficapilla*) in young forests with aspen and birch seedlings, and yellow-bellied sapsucker (*Sphyrapicus varius*) in mature aspen forests.

Distribution: throughout upstate New York north of the Coastal Lowlands ecozone.

Rank: G5 S5 *Revised:* 2001

Example: Chase Lake Sandplain, Lewis County.

Source: Mellinger and McNaughton 1975; NYNHP field surveys.

D. TERRESTRIAL CULTURAL

This subsystem includes communities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence.

1. Cropland/row crops: an agricultural field planted in row crops such as corn, potatoes, and soybeans. This community includes vegetable gardens in residential areas.

Approximately 13,572 acres of the town are currently used for row crops or field crops.

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 1990

2. Cropland/field crops: an agricultural field planted in field crops such as alfalfa, wheat, timothy, and oats. This community includes hayfields that are rotated to pasture. Characteristic birds include grasshopper sparrow (*Ammodramus savannarum*), vesper sparrow (*Pooecetes gramineus*), bobolink (*Dolichonyx oryzivorus*), mourning dove (*Zenaida macroura*), and upland sandpiper (*Bartramia longicauda*)

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 1990

3. Pastureland: agricultural land permanently maintained (or recently abandoned) as a pasture area for livestock. Characteristic birds include grasshopper sparrow (*Ammodramus savannarum*), vesper sparrow (*Pooecetes gramineus*), horned lark (*Eremophila alpestris*), killdeer (*Charadrius vociferus*), and upland sandpiper (*Bartramia longicauda*).

Approximately 998 acres in the town are currently used for pasture.

Appendix B Ecological Communities in the Town

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 1990

4. Flower/herb garden: residential, commercial, or horticultural land cultivated for the production of ornamental herbs and shrubs. This community includes gardens cultivated for the production of culinary herbs. Characteristic birds include American robin (*Turdus migratorius*) and mourning dove (*Zenaida macroura*). *Distribution:* throughout New York State.

Approximately 18 acres are devoted to flower/herb gardens or nursery.

Rank: G5 S5 *Revised:* 1990

5. Orchard: a stand of cultivated fruit trees (such as apples, cherries, peaches, pears, etc.), often with grasses as a groundcover. An orchard may be currently under cultivation or recently abandoned. Staghorn sumac (*Rhus typhina*), goldenrods (*Solidago* spp.), and poison ivy (*Toxicodendron radicans*) may be common in abandoned orchards. Characteristic birds include American robin (*Turdus migratorius*), eastern kingbird (*Tyrannus tyrannus*), mourning dove (*Zenaida macroura*), and in mature orchards with a minimum dbh of 10 in (about 25 cm), yellow-bellied sapsucker (*Sphyrapicus varius*). *Distribution:* throughout New York State at low elevations.

Approximately 6 acres are shown as part of orchards.

Rank: G5 S5 *Revised:* 1990

6. Vineyard: a stand of cultivated vines (such as grapes, or raspberries), often with grasses as a groundcover. *Distribution:* throughout New York State at low elevations. *Rank:* unranked cultural *Revised:* 1990

Approximately 6 acres in the Town are vineyards

10. Conifer plantation: a stand of softwoods planted for the cultivation and harvest of timber products, or to provide wildlife habitat, soil erosion control, windbreaks, or landscaping. This is a broadly defined community that excludes stands in which pine, spruce, or fir are dominant, although they may be present at low densities. These plantations may be monocultures, or they may be mixed stands with two or more codominant species.

Approximately 51 acres throughout the town are conifer plantations.

Softwoods that are typically planted in these plantations include European larch (*Larix decidua*), Japanese larch (*Larix kaempferi*), and northern white cedar (*Thuja occidentalis*). Groundlayer vegetation is usually sparse, apparently because of the dense accumulation of leaf litter. Speedwell (*Veronica officinalis*) is a characteristic groundlayer plant. More data on this community are needed.

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 1990

12. Mowed lawn: residential, recreational, or commercial land, or unpaved airport runways in which the groundcover is dominated by clipped grasses and there is less than 30% cover of trees.

Approximately 4,363 acres are mowed lawns.

Appendix B Ecological Communities in the Town

Ornamental and/or native shrubs may be present, usually with less than 50% cover. The groundcover is maintained by mowing.

Characteristic birds include American robin (*Turdus migratorius*), upland sandpiper (*Bartramia longicauda*), and killdeer (*Charadrius vociferus*).

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 1990

21. Gravel mine: an excavation in a gravel deposit from which gravel has been removed. Often these are dug into glacial deposits such as eskers or kames. Vegetation may be sparse if the mine is active; there may be substantial vegetative cover if the mine has been inactive for several years. Near-vertical slopes are used by bank swallows (*Riparia riparia*) for nesting sites.

Four areas with a total of 53 acres are current or former gravel mines.

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 1990

31. Junkyard: a site that has been cleared for disposal or storage of primarily inorganic refuse, including discarded automobiles, large appliances, mechanical parts, etc. Small pockets of water that collect within the junk piles and in discarded tires provide abundant breeding sites for mosquitoes.

Approximately 41 acres are classified as Junkyard, located along the north side of County Road 48

Distribution: throughout New York State.

Rank: unranked cultural *Revised:* 2002

33. Urban structure exterior: the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, apartment buildings, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in an urban or densely populated suburban area. These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; occasionally vascular plants may grow in cracks. Nooks and crannies may provide nesting habitat for birds and insects, and roosting sites for bats.

Approximately 799 acres are included in this classification.

Characteristic birds include common nighthawk (*Chordeiles minor*) on rooftops, American robin (*Turdus migratorius*) on porches or under shelter, and exotic birds such as rock dove (*Columba livia*) and house sparrow (*Passer domesticus*).

Distribution: throughout New York State.

Rank: G5 S5 *Revised:* 1990

34. Rural structure exterior: the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, barns, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in a rural or sparsely populated suburban area.

Approximately 276 acres are included in this classification.

Appendix B

Ecological Communities in the Town

These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; occasionally vascular plants may grow in cracks. Nooks and crannies may provide nesting habitat for birds and insects, and roosting sites for bats. Characteristic birds include American robin (*Turdus migratorius*) on porches or under shelter, barn swallow (*Hirundo rustica*) under shelter, and exotic birds such as rock dove (*Columba livia*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*). *Distribution*: throughout New York State.

Rank: G5 S5 *Revised*: 1990

APPENDIX A: HERITAGE PROGRAM ELEMENT RANKS**Explanation of ranks and codes used in Natural Heritage database reports.**

Each element has a global and state rank as determined by NY Natural Heritage. These ranks carry no legal weight but are believed to accurately reflect the relative rarity given of the element. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State. The global rank for communities is estimate of the rarity of the state type throughout its range. Intraspecific taxa are also assigned a taxon rank to reflect the infraspecific taxon's rank throughout the world. For species, the Taxon or T-ranks (T1 - T5) are defined like the global ranks (G1 - G5), but the T-rank *only* refers to the rarity of the subspecific taxon of the species.

GLOBAL RANK

- G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology and/or ecology.
- G2 = Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors.
- G3 = Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (*e.g.*, a physiographic region), or vulnerable to extinction throughout its range because of other factors.
- G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- GH = Historically known, with the expectation that it might be rediscovered.
- GX = Species believed to be extinct.
- GU = Status unknown.

STATE RANK

- S1 = Typically 5 or fewer occurrences, very few remaining individuals (for species), acres, or miles of stream, or some factor of its biology and/or ecology making it especially vulnerable in New York State.
- S2 = Typically 6 to 20 occurrences, few remaining individuals (for species), acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
- S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
- S4 = Apparently secure in New York State.
- S5 = Demonstrably secure in New York State.
- SH = Historically known from New York State, but not seen in the past 20 years.
- SX = Apparently extirpated from New York State.
- SE = Non-native species, not native to New York State.
- SR = State report only, no verified specimens (for species) known from New York State.
- SU = Status unknown.

TAXON RANK (for species)

- T1 - T5 = indicates a rank assigned to a subspecies following the Global Rank definitions above.
- Q = indicates a question exists whether or not the taxon is a good taxonomic entity.
- ? = indicates a question exists about the rank.

Town of Canandaigua
Natural Resource Inventory

Appendix C1

Soil Types and Acreages
Town of Canandaigua

Map unit symbol and name	Map unit acres
1A—Fluvaquents-Udifluvents complex, 0 to 3 percent slopes, frequently flooded	2,565
2A—Geneseo silty clay loam, 0 to 3 percent slopes	1,510
3A—Hemlock silty clay loam, 0 to 3 percent slopes	5,528
4A—Naples Creek silty clay loam, 0 to 3 percent slopes	871
5A—Wayland soils complex, 0 to 3 percent slopes, frequently flooded	6,703
13F—Rock outcrop-Arnot complex, 25 to 70 percent slopes	4,348
15A—Guyanoga channery silt loam, fan, 0 to 3 percent slopes	1,014
15B—Guyanoga channery silt loam, fan, 3 to 8 percent slopes	1,430
18A—Homer fine sandy loam, 0 to 3 percent slopes	2,228
24A—Howard gravelly loam, 0 to 3 percent slopes	1,169
24B—Howard gravelly loam, 3 to 8 percent slopes	930
24C—Howard gravelly loam, 8 to 15 percent slopes	1,579
24D—Howard soils, 15 to 25 percent slopes	1,306
25B—Chenango gravelly loam, 3 to 8 percent slopes	162
25C—Chenango gravelly loam, 8 to 15 percent slopes	542
25D—Chenango gravelly loam, 15 to 25 percent slopes	150
25E—Chenango gravelly loam, 25 to 35 percent slopes	148
26B—Chenango channery loam, fan, 3 to 8 percent slopes	850
27B—Castile gravelly silt loam, 3 to 8 percent slopes	349
31A—Collamer silt loam, 0 to 3 percent slopes	1,825
31B—Collamer silt loam, 3 to 8 percent slopes	849
31C—Collamer silt loam, 8 to 15 percent slopes	776
32A—Dunkirk fine sandy loam, 0 to 3 percent slopes	177
33B—Dunkirk silt loam, 3 to 8 percent slopes	1,710
33C—Dunkirk silt loam, 8 to 15 percent slopes	1,064
34A—Lakemont silty clay loam, 0 to 3 percent slopes	7,096
35A—Odessa silt loam, 0 to 3 percent slopes	10,198
35B—Odessa silty clay loam, 3 to 8 percent slopes	4,193
36A—Schoharie silty clay loam, 0 to 3 percent slopes	5,783
36B—Schoharie silty clay loam, 3 to 8 percent slopes	11,768
36C—Schoharie silty clay loam, 8 to 15 percent slopes	4,852
36D—Schoharie silty clay loam, 15 to 25 percent slopes	2,476
36E—Schoharie silty clay loam, 25 to 45 percent slopes	2,131
37A—Schoharie silt loam, 0 to 3 percent slopes	1,404
37B—Schoharie silt loam, 3 to 8 percent slopes	1,254
38A—Niagara silt loam, 0 to 3 percent slopes	51
39A—Rhinebeck silty clay loam, 0 to 3 percent slopes	2,725

SOURCE: United States Department of Agriculture (USDA) Web Soil Survey, Ontario County, NY

Survey Area Data: Version 17, Sept. 16, 2019

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Town of Canandaigua
Natural Resource Inventory

Appendix C1

Soil Types and Acreages
Town of Canandaigua

Map unit symbol and name	Map unit acres
43A—Canandaigua silt loam, 0 to 3 percent slopes	454
44A—Canandaigua mucky silt loam, 0 to 3 percent slopes	1,259
46B—Galen fine sandy loam, 3 to 8 percent slopes	278
48A—Arkport fine sandy loam, 0 to 3 percent slopes	2,888
48B—Arkport fine sandy loam, 3 to 8 percent slopes	4,839
48C—Arkport fine sandy loam, 8 to 15 percent slopes	2,754
50B—Dunkirk-Arkport complex, 3 to 8 percent slopes	352
53A—Lamson fine sandy loam, 0 to 3 percent slopes	3,065
54A—Lamson mucky fine sandy loam, 0 to 3 percent slopes	2,550
56A—Elnora loamy fine sand, 0 to 3 percent slopes	2,975
58C—Colonie loamy fine sand, 8 to 15 percent slopes	362
62B—Mardin channery silt loam, 3 to 8 percent slopes	418
62C—Mardin channery silt loam, 8 to 15 percent slopes	1,682
62D—Mardin channery silt loam, 15 to 25 percent slopes	3,066
63C—Langford channery silt loam, 8 to 15 percent slopes	2,048
64B—Langford-Erie channery silt loams, 3 to 8 percent slopes	1,028
66A—Lyons soils, 0 to 3 percent slopes	2,815
68A—Volusia channery silt loam, 0 to 3 percent slopes	99
68B—Volusia channery silt loam, 3 to 8 percent slopes	1,752
68C—Volusia channery silt loam, 8 to 15 percent slopes	1,886
69B—Erie channery silt loam, 3 to 8 percent slopes	466
71A—Darren silt loam, 0 to 3 percent slopes	3,115
71B—Darren silt loam, 3 to 8 percent slopes	7,182
71C—Darren silt loam, 8 to 15 percent slopes	3,687
72A—Darren-Ilion silt loams, 0 to 3 percent slopes	2,418
72B—Darren-Ilion silt loams, 3 to 8 percent slopes	808
73B—Gretor silt loam, 3 to 8 percent slopes	2,000
73C—Gretor silt loam, 8 to 15 percent slopes	1,320
73D—Gretor channery silt loam, 15 to 25 percent slopes	122
76B—Orpark silt loam, 3 to 8 percent slopes	1,113
76C—Orpark silt loam, 8 to 15 percent slopes	1,954
76D—Orpark channery silt loam, 15 to 25 percent slopes	661
77A—Chippewa silt loam, 0 to 3 percent slopes	252
77B—Chippewa silt loam, 3 to 8 percent slopes	248
82C—Manlius channery silt loam, 8 to 15 percent slopes	41
91A—Palms muck, 0 to 3 percent slopes	1,991
92A—Carlisle muck, 0 to 3 percent slopes	3,310

SOURCE: United States Department of Agriculture (USDA) Web Soil Survey, Ontario County, NY

Survey Area Data: Version 17, Sept. 16, 2019

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Town of Canandaigua
Natural Resource Inventory

Appendix C1

Soil Types and Acreages
Town of Canandaigua

Map unit symbol and name	Map unit acres
94A—Martisco muck, 0 to 3 percent slopes	612
101A—Honeoye loam, 0 to 3 percent slopes	1,753
101B—Honeoye loam, 3 to 8 percent slopes	9,763
101C—Honeoye loam, 8 to 15 percent slopes	5,417
101D—Honeoye loam, 15 to 25 percent slopes	2,533
101E—Honeoye loam, 25 to 35 percent slopes	445
104C—Honeoye loam, 8 to 15 percent slopes, lower clay surface	1,957
106B—Danley-Lansing complex, 3 to 8 percent slopes	2,111
108C—Lansing loam, 8 to 15 percent slopes	3,855
108D—Lansing loam, 15 to 25 percent slopes	4,510
108E—Lansing loam, 25 to 35 percent slopes	1,549
112E—Ontario fine sandy loam, 25 to 35 percent slopes	2,081
116C—Ontario loam, 8 to 15 percent slopes	2,179
118F—Ontario, Honeoye, and Lansing soils, 35 to 55 percent slopes	1,866
120E—Palmyra and Howard soils, 25 to 45 percent slopes	3,959
126A—Palmyra gravelly loam, 0 to 3 percent slopes	5,980
126B—Palmyra gravelly loam, 3 to 8 percent slopes	3,525
126C—Palmyra gravelly loam, 8 to 15 percent slopes	2,163
126D—Palmyra gravelly loam, 15 to 25 percent slopes	2,093
128B—Palmyra gravelly sandy loam, 3 to 8 percent slopes	1,782
128C—Palmyra gravelly sandy loam, 8 to 15 percent slopes	951
130A—Farmington loam, 0 to 3 percent slopes	2,753
132B—Galoo loam, 3 to 8 percent slopes, rocky	362
152B—Valois gravelly loam, 3 to 8 percent slopes	451
152C—Valois gravelly loam, 8 to 15 percent slopes	1,767
152D—Valois gravelly loam, 15 to 25 percent slopes	3,020
152E—Valois gravelly loam, 25 to 35 percent slopes	2,042
153C—Valois gravelly loam, cool, 8 to 15 percent slopes	780
162B—Willdin channery silt loam, 3 to 8 percent slopes	2,503
162C—Willdin channery silt loam, 8 to 15 percent slopes	3,881
162D—Willdin channery silt loam, 15 to 25 percent slopes	1,702
168A—Ontusia channery silt loam, 0 to 3 percent slopes	344
168B—Ontusia channery silt loam, 3 to 8 percent slopes	1,919
168C—Ontusia channery silt loam, 8 to 15 percent slopes	1,580
171D—Lordstown-Manlius-Towerville complex, 15 to 25 percent slopes, very stony	1,846
171E—Lordstown-Manlius-Towerville complex, 25 to 35 percent slopes, extremely stony	3,975
171F—Lordstown-Manlius-Towerville complex, 35 to 80 percent slopes, extremely stony	9,125

SOURCE: United States Department of Agriculture (USDA) Web Soil Survey, Ontario County, NY

Survey Area Data: Version 17, Sept. 16, 2019

C1-3

Town of Canandaigua
Natural Resource Inventory

Appendix C1

Soil Types and Acreages
Town of Canandaigua

Map unit symbol and name	Map unit acres
177A—Norchip silt loam, 0 to 3 percent slopes	225
177B—Norchip silt loam, 3 to 8 percent slopes	154
181C—Mongaup-Ischua complex, 8 to 15 percent slopes	2,282
181D—Mongaup-Ischua complex, 15 to 25 percent slopes, very stony	3,146
201A—Lima loam, 0 to 3 percent slopes	10,778
201B—Lima loam, 3 to 8 percent slopes	14,943
201C—Lima loam, 8 to 15 percent slopes	1,557
204B—Lima loam, 3 to 8 percent slopes, lower clay surface	6,308
210A—Phelps gravelly silt loam, 0 to 3 percent slopes	5,366
210B—Phelps gravelly silt loam, 3 to 8 percent slopes	796
240B—Aurora-Angola silt loams, 3 to 8 percent slopes	776
240C—Aurora-Angola silt loams, 8 to 15 percent slopes	786
240D—Aurora-Angola silt loams, 15 to 25 percent slopes	423
241B—Aurora silt loam, 3 to 8 percent slopes	152
241C—Aurora silt loam, 8 to 15 percent slopes	206
241D—Aurora silt loam, 15 to 25 percent slopes	586
255B—Cazenovia silt loam, 3 to 8 percent slopes	1,082
260B—Cayuga silt loam, 3 to 8 percent slopes	5,884
260C—Cayuga silt loam, 8 to 15 percent slopes	1,862
260D—Cayuga silt loam, 15 to 25 percent slopes	852
304A—Kendaia loam, 0 to 3 percent slopes	11,795
304B—Kendaia loam, 3 to 8 percent slopes	1,151
342A—Angola silt loam, 0 to 3 percent slopes	707
356A—Ovid silt loam, 0 to 3 percent slopes	2,095
356B—Ovid silt loam, 3 to 8 percent slopes	2,573
357B—Ovid silty clay loam, 3 to 8 percent slopes	69
357C—Ovid silty clay loam, 8 to 15 percent slopes	359
PG—Pits, gravel and sand	1,822
PQ—Pits, quarry	374
W—Water	12,514

Town of Canandaigua
Natural Resource Inventory

Appendix C2: Hydric Soils
Town of Canandaigua

Map unit symbol	Map unit name	Rating	Acres in Town
1A	Fluvaquents-Udifulvents complex, 0 to 3 percent slopes, frequently flooded	55	184.4
4A	Naples Creek silty clay loam, 0 to 3 percent slopes	5	30.5
5A	Wayland soils complex, 0 to 3 percent slopes, frequently flooded	90	265
18A	Homer fine sandy loam, 0 to 3 percent slopes	5	7.4
34A	Lakemont silty clay loam, 0 to 3 percent slopes	95	1,974.40
35A	Odessa silt loam, 0 to 3 percent slopes	5	2,805.20
35B	Odessa silty clay loam, 3 to 8 percent slopes	4	1,288.80
38A	Niagara silt loam, 0 to 3 percent slopes	5	2.1
39A	Rhinebeck silty clay loam, 0 to 3 percent slopes	5	533.2
43A	Canandaigua silt loam, 0 to 3 percent slopes	97	3.2
44A	Canandaigua mucky silt loam, 0 to 3 percent slopes	100	64.5
53A	Lamson fine sandy loam, 0 to 3 percent slopes	98	1.7
54A	Lamson mucky fine sandy loam, 0 to 3 percent slopes	100	10.9
64B	Langford-Erie channery silt loams, 3 to 8 percent slopes	5	32.6
66A	Lyons soils, 0 to 3 percent slopes	95	513
68A	Volusia channery silt loam, 0 to 3 percent slopes	5	7.4
68B	Volusia channery silt loam, 3 to 8 percent slopes	5	9.8
68C	Volusia channery silt loam, 8 to 15 percent slopes	4	15.3
69B	Erie channery silt loam, 3 to 8 percent slopes	5	2.4
71A	Darien silt loam, 0 to 3 percent slopes	4	132.1
71B	Darien silt loam, 3 to 8 percent slopes	4	1,216.30
71C	Darien silt loam, 8 to 15 percent slopes	4	1,433.40
72A	Darien-Ilion silt loams, 0 to 3 percent slopes	27	63.7
72B	Darien-Ilion silt loams, 3 to 8 percent slopes	27	212.7
73B	Gretor silt loam, 3 to 8 percent slopes	5	21.6
73C	Gretor silt loam, 8 to 15 percent slopes	5	7.4
73D	Gretor channery silt loam, 15 to 25 percent slopes	2	2.6
76B	Orpark silt loam, 3 to 8 percent slopes	5	72.7
76C	Orpark silt loam, 8 to 15 percent slopes	5	94.9
76D	Orpark channery silt loam, 15 to 25 percent slopes	5	14.1
77A	Chippewa silt loam, 0 to 3 percent slopes	95	1.7
77B	Chippewa silt loam, 3 to 8 percent slopes	90	3.9
91A	Palms muck, 0 to 3 percent slopes	100	33
92A	Carlisle muck, 0 to 3 percent slopes	100	122.7
94A	Martisco muck, 0 to 3 percent slopes	100	0

SOURCE: United States Department of Agriculture (USDA) Web Soil Survey, Ontario County, NY

Town of Canandaigua
Natural Resource Inventory

Appendix C2: Hydric Soils
Town of Canandaigua

168A	Ontusia channery silt loam, 0 to 3 percent slopes	5	31.5
168B	Ontusia channery silt loam, 3 to 8 percent slopes	5	63.8
168C	Ontusia channery silt loam, 8 to 15 percent slopes	5	3.1
177A	Norchip silt loam, 0 to 3 percent slopes	95	28.2
177B	Norchip silt loam, 3 to 8 percent slopes	95	8.9
201A	Lima loam, 0 to 3 percent slopes	2	1,034.50
201B	Lima loam, 3 to 8 percent slopes	1	3,353.20
204B	Lima loam, 3 to 8 percent slopes, lower clay surface	1	25.2
304A	Kendaia loam, 0 to 3 percent slopes	5	1,055.70
304B	Kendaia loam, 3 to 8 percent slopes	4	163.6
342A	Angola silt loam, 0 to 3 percent slopes	5	10.8
356A	Ovid silt loam, 0 to 3 percent slopes	5	319.3
356B	Ovid silt loam, 3 to 8 percent slopes	5	404.3
357B	Ovid silty clay loam, 3 to 8 percent slopes	5	9.6
357C	Ovid silty clay loam, 8 to 15 percent slopes	5	46.3
Subtotals for Soil Survey Area			40,004.50

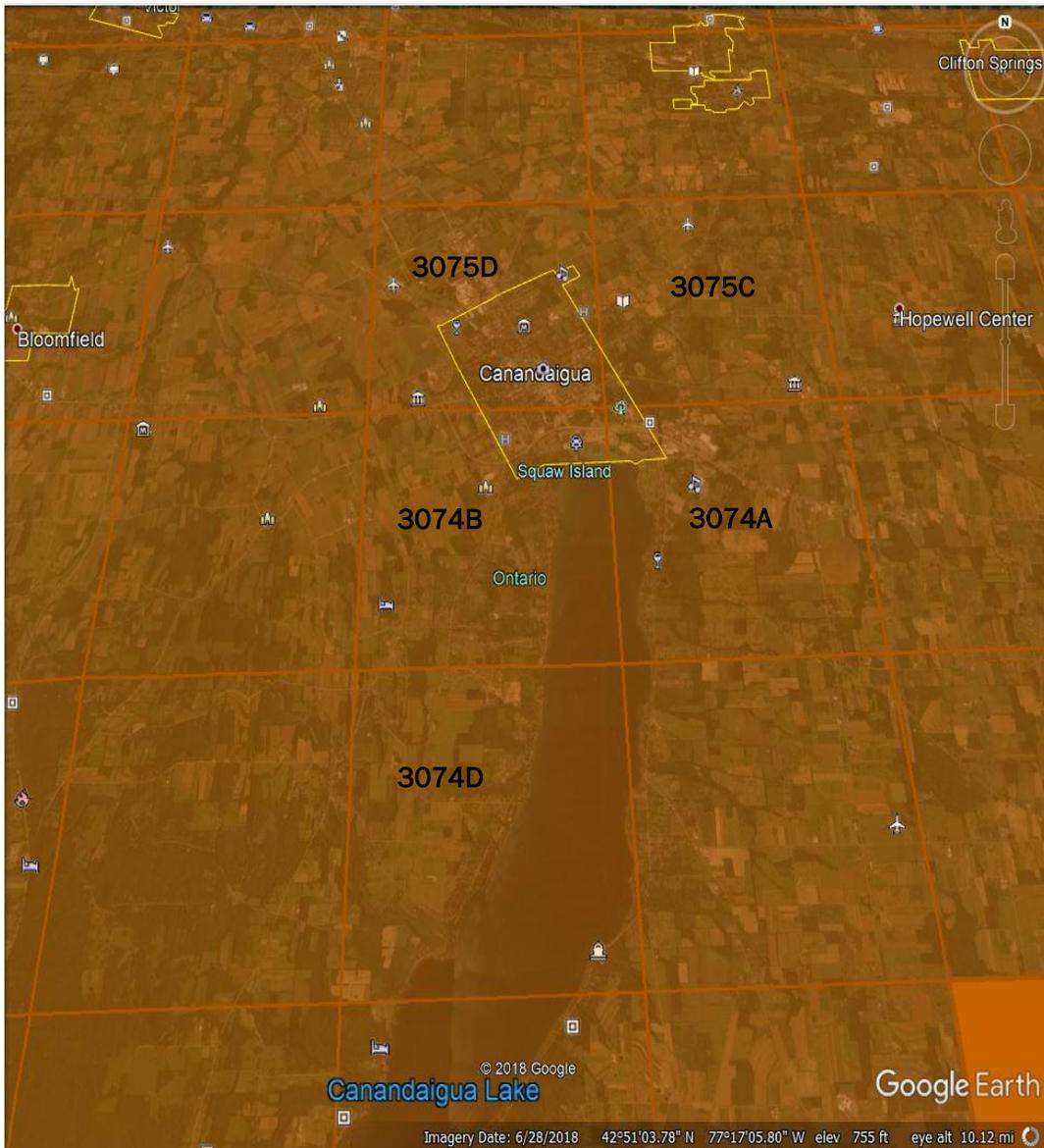
17742.6

SOURCE: United States Department of Agriculture (USDA) Web Soil Survey, Ontario County, NY

APPENDIX D

BREEDING BIRDS OBSERVED IN TOWN OF CANANDAIGUA

NYS Breeding Bird Atlas, 2000 – 2005 Species Recorded in Blocks 3075D, 3074B and/ or 3074D



Data Set Details¹: Depicts the distribution of breeding bird species in New York State, as recorded during the 2000-2005 Breeding Bird Atlas surveys. The Breeding Bird Atlas is a presence/absence survey. While a record of a species in a block is highly suggestive of its breeding presence there the lack of a record does not guarantee absence of the species as a breeder in the block. Atlasers were directed to work in a block until 76 species had been recorded; therefore the list of species reported breeding within a block was not intended to be comprehensive.

¹ <http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1257>

APPENDIX D

BREEDING BIRDS OBSERVED IN TOWN OF CANANDAIGUA

NYS Breeding Bird Atlas, 2000 – 2005 Species Recorded in Blocks 3075D, 3074B and/ or 3074D

The list below is arranged taxonomically.

Family names appear in **bold**. Scientific names are in parentheses.¹

Species of Breeding Birds	3074B	3074D	3075D	3075C	3074A
Swans, Geese, & Ducks (Anatidae)					
Canada Goose (<i>Branta canadensis</i>)	X	X	X	X	X
Wood Duck (<i>Aix sponsa</i>)	X				
Mallard (<i>Anas platyrhynchos</i>)	X	X	X	X	X
Redhead (<i>Aythya americana</i>)	X				
Common Merganser (<i>Mergus merganser</i>)		X			
Partridges, Grouse, & Turkeys (Phasianidae)					
Ring-necked Pheasant (<i>Phasianus colchicus</i>)	X	X	X		X
Wild Turkey (<i>Meleagris gallopavo</i>)	X				
Bitterns, Herons, & Allies (Ardeidae)					
Great Blue Heron (<i>Ardea herodias</i>)	X	X	X	X	X
Green Heron (<i>Butorides virescens</i>)	X	X	X	X	
Vultures (Cathartidae)					
Turkey Vulture (<i>Cathartes aura</i>)		X	X	X	
Kites, Eagles, Hawks, & Allies (Accipitridae)					
Sharp-shinned Hawk (<i>Accipiter striatus</i>)	X				
Cooper's Hawk (<i>Accipiter cooperii</i>)	X		X		
Red-tailed Hawk (<i>Buteo jamaicensis</i>)	X		X	X	
Osprey (<i>Pandion haliaetus</i>)		X			
Caracaras & Falcons (Falconidae)					
American Kestrel (<i>Falco sparverius</i>)	X	X	X	X	
Plovers & Lapwings (Charadriidae)					
Killdeer (<i>Charadrius vociferus</i>)	X	X	X	X	X
Sandpipers, Phalaropes, & Allies (Scolopacidae)					
Spotted Sandpiper (<i>Actitis macularius</i>)			X	X	
American Woodcock (<i>Scolopax minor</i>)			X		X
Skuas, Gulls, Terns, & Skimmers (Laridae)					
Herring Gull (<i>Larus argentatus</i>)	X				
Pigeons & Doves (Columbidae)					
Rock Pigeon (<i>Columba livia</i>)	X	X		X	X
Mourning Dove (<i>Zenaida macroura</i>)	X	X	X	X	X
Cuckoos, Roadrunners, & Anis (Cuculidae)					
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)			X		
Typical Owls (Strigidae)					
Great Horned Owl (<i>Bubo virginianus</i>)		X			X
Swifts (Apodidae)					
Chimney Swift (<i>Chaetura pelagica</i>)	X		X	X	X
Hummingbirds (Trochilidae)					
Ruby-throated Hummingbird (<i>Archilochus colubris</i>)		X	X	X	X

APPENDIX D

BREEDING BIRDS OBSERVED IN TOWN OF CANANDAIGUA

NYS Breeding Bird Atlas, 2000 – 2005 Species Recorded in Blocks 3075D, 3074B and/ or 3074D

The list below is arranged taxonomically.

Family names appear in **bold**. Scientific names are in parentheses.¹

Species of Breeding Birds	3074B	3074D	3075D	3075C	3074A
Kingfishers (Alcedinidae)					
Belted Kingfisher (<i>Megaceryle alcyon</i>)	X				
Woodpeckers & Allies (Picidae)					
Red-bellied Woodpecker (<i>Melanerpes carolinus</i>)	X	X	X	X	X
Downy Woodpecker (<i>Picoides pubescens</i>)	X	X	X	X	X
Hairy Woodpecker (<i>Picoides villosus</i>)			X		
Northern Flicker (<i>Colaptes auratus</i>)	X			X	X
Pileated Woodpecker (<i>Dryocopus pileatus</i>)	X				
Tyrant Flycatchers (Tyrannidae)					
Eastern Wood-Pewee (<i>Contopus virens</i>)	X	X	X	X	X
Least Flycatcher (<i>Empidonax minimus</i>)					X
Eastern Phoebe (<i>Sayornis phoebe</i>)	X	X	X	X	X
Great Crested Flycatcher (<i>Myiarchus crinitus</i>)	X	X	X		X
Eastern Kingbird (<i>Tyrannus tyrannus</i>)	X		X	X	X
Alder Flycatcher (<i>Empidonax alnorum</i>)		X	X		
Willow Flycatcher (<i>Empidonax traillii</i>)		X	X	X	X
Vireos (Vireonidae)					
Yellow-throated Vireo (<i>Vireo flavifrons</i>)					X
Warbling Vireo (<i>Vireo gilvus</i>)	X	X	X	X	X
Red-eyed Vireo (<i>Vireo olivaceus</i>)	X	X	X		X
Jays, Magpies, & Crows (Corvidae)					
Blue Jay (<i>Cyanocitta cristata</i>)	X	X	X	X	X
American Crow (<i>Corvus brachyrhynchos</i>)	X	X	X	X	X
Larks (Alaudidae)					
Horned Lark (<i>Eremophila alpestris</i>)		X	X	X	
Swallows (Hirundinidae)					
Tree Swallow (<i>Tachycineta bicolor</i>)	X	X	X	X	X
Barn Swallow (<i>Hirundo rustica</i>)	X	X	X	X	X
Bank Swallow (<i>Riparia riparia</i>)				X	
Purple Martin (<i>Progne subis</i>)		X			
Northern Rough-winged Swallow (<i>Stelgidopteryx serripennis</i>)		X			X
Chickadees & Titmice (Paridae)					
Black-capped Chickadee (<i>Poecile atricapillus</i>)	X	X	X	X	X
Tufted Titmouse (<i>Baeolophus bicolor</i>)	X	X	X		X
Nuthatches (Sittidae)					
Red-breasted Nuthatch (<i>Sitta canadensis</i>)	X				
White-breasted Nuthatch (<i>Sitta carolinensis</i>)	X	X	X		X
Wrens (Troglodytidae)					
Carolina Wren (<i>Thryothorus ludovicianus</i>)	X	X			
House Wren (<i>Troglodytes aedon</i>)	X	X	X	X	X

APPENDIX D

BREEDING BIRDS OBSERVED IN TOWN OF CANANDAIGUA

NYS Breeding Bird Atlas, 2000 – 2005

Species Recorded in Blocks 3075D, 3074B and/ or 3074D

The list below is arranged taxonomically.

Family names appear in **bold**. Scientific names are in parentheses.¹

Species of Breeding Birds	3074B	3074D	3075D	3075C	3074A
Thrushes (Turdidae)					
Eastern Bluebird (<i>Sialia sialis</i>)	X	X		X	X
Wood Thrush (<i>Hylocichla mustelina</i>)	X	X	X	X	X
American Robin (<i>Turdus migratorius</i>)	X	X	X	X	X
Mockingbirds, Thrashers, & Allies (Mimidae)					
Gray Catbird (<i>Dumetella carolinensis</i>)	X	X	X	X	X
Northern Mockingbird (<i>Mimus polyglottos</i>)		X		X	X
Brown Thrasher (<i>Toxostoma rufum</i>)		X			
Starlings & Allies (Sturnidae)					
European Starling (<i>Sturnus vulgaris</i>)	X	X	X	X	X
Waxwings (Bombycillidae)					
Cedar Waxwing (<i>Bombycilla cedrorum</i>)	X	X	X	X	X
Wood Warblers (Parulidae)					
Yellow Warbler (<i>Dendroica petechia</i>)	X	X	X	X	X
Magnolia Warbler (<i>Dendroica magnolia</i>)	X				
American Redstart (<i>Setophaga ruticilla</i>)	X	X			X
Ovenbird (<i>Seiurus aurocapilla</i>)	X				
Northern Waterthrush (<i>Seiurus noveboracensis</i>)	X				
Common Yellowthroat (<i>Geothlypis trichas</i>)	X	X	X	X	X
Blue-winged Warbler (<i>Vermivora pinus</i>)		X			
Chestnut-sided Warbler (<i>Dendroica pensylvanica</i>)		X			
Hooded Warbler (<i>Wilsonia citrina</i>)		X			
Tanagers (Thraupidae)					
Scarlet Tanager (<i>Piranga olivacea</i>)	X	X	X	X	
Towhees, Buntings, Sparrows, & Allies (Emberizidae)					
Chipping Sparrow (<i>Spizella passerina</i>)	X	X	X	X	X
Field Sparrow (<i>Spizella pusilla</i>)	X	X	X		X
Savannah Sparrow (<i>Passerculus sandwichensis</i>)		X	X	X	X
Song Sparrow (<i>Melospiza melodia</i>)	X	X	X	X	X
Swamp Sparrow (<i>Melospiza georgiana</i>)	X		X		
Eastern Towhee (<i>Pipilo erythrophthalmus</i>)		X	X		
Vesper Sparrow (<i>Pooecetes gramineus</i>)		X			
Dark-eyed Junco (<i>Junco hyemalis</i>)		X			
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)			X		
Grosbeaks & Buntings (Cardinalidae)					
Northern Cardinal (<i>Cardinalis cardinalis</i>)	X	X	X	X	X
Rose-breasted Grosbeak (<i>Pheucticus ludovicianus</i>)	X	X	X		
Indigo Bunting (<i>Passerina cyanea</i>)		X	X	X	X
Blackbirds (Icteridae)					

APPENDIX D

BREEDING BIRDS OBSERVED IN TOWN OF CANANDAIGUA

NYS Breeding Bird Atlas, 2000 – 2005

Species Recorded in Blocks 3075D, 3074B and/ or 3074D

The list below is arranged taxonomically.

Family names appear in **bold**. Scientific names are in parentheses.¹

Species of Breeding Birds	3074B	3074D	3075D	3075C	3074A
Red-winged Blackbird (<i>Agelaius phoeniceus</i>)	X	X	X	X	X
Bobolink (<i>Dolichonyx oryzivorus</i>)		X	X	X	X
Eastern Meadowlark (<i>Sturnella magna</i>)		X	X	X	X
Common Grackle (<i>Quiscalus quiscula</i>)	X	X	X	X	X
Brown-headed Cowbird (<i>Molothrus ater</i>)	X	X	X	X	X
Baltimore Oriole (<i>Icterus galbula</i>)	X	X	X	X	X
Finches (Fringillidae)					
House Finch (<i>Carpodacus mexicanus</i>)	X	X	X	X	X
American Goldfinch (<i>Carduelis tristis</i>)	X	X	X	X	X
Old World Sparrows (Passeridae)					
House Sparrow (<i>Passer domesticus</i>)	X	X	X	X	X

APPENDIX E
LIST OF NATIVE PLANTS

Native Flowers

Native Grasses, Ferns & Groundcovers

Native Shrubs

Native Trees

Native Vines

SOURCE: New York State Department of Environmental Conservation,
Division of Lands & Forests

https://www.dec.ny.gov/docs/lands_forests_pdf/factnatives.pdf

NATIVE FLOWERS

For Gardening and Landscaping



Division of
Lands and
Forests

Smooth White Beardtongue (*Penstemon digitalis*)

Also known as foxglove beardtongue. Beautiful addition to pollinator garden or perennial border. Long blooming period in early summer. "Husker Red" is popular cultivar with dark red leaves.

Light	Soil	Height (in)	Zone
Full sun - partial shade	Dry - moist, well drained	12 - 36"	3-9



Canada Anemone (*Anemone canadensis*)

Dense clusters of bright green leaves topped by classic 1" white anemone flowers. Makes splendid tall groundcover for open damp areas. Long bloom period in late spring.

Light	Soil	Height (in)	Zone
Full sun - partial shade	Dry - wet, flood tolerant	12 - 24"	2-9



Northern Blueflag (*Iris versicolor*)

Narrow sword-shaped leaves stay attractive all season. Spring bloomer with several blue-violet flowers per stem.

Light	Soil	Height (in)	Zone
Full sun - partial shade	Moist - wet, tolerant of standing water	24 - 36"	3-9



Joe-Pye Weed (*Eutrochium spp.*)

Several similar species with tall leafy stems and flat to rounded heads of small pink flowers. Butterfly magnet in mid-late summer. Shorter cultivars now widely available. An essential plant for butterfly and pollinator gardens.

Light	Soil	Height (in)	Zone
Full sun - partial shade	Moist, flood tolerant	36 - 72"	4-8



Common Milkweed (*Asclepias syriaca*)

Essential food plant for eastern monarch caterpillars. Bold, handsome foliage and baseball-sized spheres of fragrant pink flowers. Spreading roots can be controlled with simple root barrier.

Light	Soil	Height (in)	Zone
Full sun	Dry - moist, flood tolerant	36 - 60"	4-9



Swamp Milkweed (*Asclepias incarnata*)

Clumping milkweed, popular for rain and butterfly gardens. Easy to grow with adequate moisture. Smaller and less assertive than common milkweed. Valuable monarch resource.

Light	Soil	Height (in)	Zone
Full sun - light shade	Moist - wet, flood tolerant	24 - 48"	3-9



Great Blue Lobelia (*Lobelia siphilitica*)

Late summer beauty with sturdy spire of blue flowers on leafy stem. Easier to grow than related cardinal flower. May last for decades in garden as long as no competition. Will self-sow on bare disturbed soil. A bumblebee favorite.

Light	Soil	Height (in)	Zone
Full sun - shade	Moist - wet, flood tolerant	24 - 36"	3-9



Wild Bergamot (*Monarda fistulosa*)

Grows in clumps, less spreading than many related bee-balms. Late summer lavender flowers draw bees and butterflies. Aromatic foliage. May get powdery mildew in damp weather.

Light	Soil	Height (in)	Zone
Full sun	Dry - moist, flood and drought tolerant	36 - 48"	3-9



Sneezeweed (*Helenium autumnale*)

This popular garden perennial with its many cultivars is actually a native wildflower often found on prairies and open fields. Valuable butterfly and pollinator plant. Long blooming period in late summer. Wild plants are tall with yellow flowers, but garden cultivars, available in many colors, are shorter and more compact. The common name comes from historic use of dried leaves as snuff.

Light	Soil	Height (in)	Zone
Full sun - partial shade	Moist to wet, tolerant of standing water	36 - 60"	3-8



Smooth Blue Aster (*Symphyotrichum laeve*)

Native asters are a valuable late summer resource for butterflies and pollinators. Smooth blue aster has numerous 3/4 inch blue flowers and is a mainstay for a native aster garden. Combine with purple New England aster and heath aster with its tiny white flowers.

Light	Soil	Height (in)	Zone
Full sun - partial shade	Dry - moist	12 - 36"	3-9



Bluets (*Houstonia caerulea*)

Tiny spring wildflower that can form delicate carpets of pale blue on dry sunny sites. A classic rock garden plant and groundcover.

Light	Soil	Height (in)	Zone
Full sun - light shade	Moist to dry. Drought tolerant	2 - 6"	3-9



CONTACT INFORMATION

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PHOTO CREDITS

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NATIVE GRASSES, FERNS & GROWDCOVERS



Division of
Lands and
Forests

For Gardening and Landscaping

Big Bluestem (*Andropogon gerardii*)

Famous prairie grass, grows in tall clumps with distinctive “turkey foot” seed heads. Turns shades of copper and gold in fall.

Light	Soil	Height (ft)	Zone
Full sun	Dry - moist	4 - 8'	3-9



Broad-leaf Sedge (*Carex platyphylla*)

Clump-forming sedge with soft blue-green leaves which are up to an inch wide. Does well in dry shade, often stays green all winter.

Light	Soil	Height (in)	Zone
Part shade – shade	Dry – moist	4 - 12"	4-9



Little Bluestem (*Schizachyrium scoparium*)

Short clumps of green to blue-green leaves, topped by flowering stems. Shades of red, gold, orange and copper in fall. Small, fluffy, white seed heads along stems. Often found on dry exposed sites, such as rocky ridges or dry sand plains. Many cultivars available. Drought tolerant.

Light	Soil	Height (ft)	Zone
Full sun	Dry - moist, well drained	1 - 3'	3-9



Bottlebrush grass (*Elymus hystrix*)

Clump-forming cool season grass with airy three-dimensional seed heads. Decorative grass for light shade. Tolerates dry soil, clay soil, limestone soils. Grows on rock outcrops.

Light	Soil	Height (ft)	Zone
Partial shade – light shade	Dry - moist	1 - 4'	5-9



Northern Prairie Dropseed (*Sporobolus heterolepis*)

Dense clumps of long thin leaves resemble shaggy heads of hair. Easily grown decorative grass. Can be used as groundcover on dry sunny sites. Delicate-looking open seed heads. Gold fall color.

Light	Soil	Height (ft)	Zone
Full sun	Dry - moist, well drained	1 - 3'	3-8



Pennsylvania Sedge (*Carex pensylvanica*)

Sometimes used for lawns, this low-growing sedge is often found growing under oak trees. Forms a delicate wispy groundcover layer in shade, becomes heavier and clump-forming in sun.

Light	Soil	Height (in)	Zone
Full sun - shade	Dry - moist, well drained	4 - 8"	4-8



Wild Ginger (*Asarum canadense*)

Heart-shaped leaves 3 inches across make this a beautiful groundcover for shade, especially under deciduous trees.

Light	Soil	Height (in)	Zone
Partial shade - shade	Moist, well drained	4 - 8"	4-8



Appalachian Barren Strawberry (*Waldsteinia fragarioides*)

A little-known native groundcover with glossy dark green leaves which even thrives in dry shade. Semi evergreen. Yellow flowers in spring.

Light	Soil	Height (in)	Zone
Full sun - shade	Dry - moist	3 - 6"	3-8



Bearberry (*Arctostaphylos uva-ursi*)

Creeping evergreen groundcover with small shiny leaves and red berries. Forms dense mat on rock outcrops or acidic sandy soil.

Light	Soil	Height (in)	Zone
Full sun - partial sun	Dry - moist, well drained	3 - 9"	2-6



Christmas Fern (*Polystichum acrostichoides*)

Wonderfully durable evergreen fern for shade.

Light	Soil	Height (in)	Zone
Partial shade - shade	Moist - dry	12 - 18"	3-8



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NATIVE SHRUBS

For Gardening and Landscaping



Division of
Lands and
Forests

Highbush Blueberry (*Vaccinium corymbosum*)

Bell-like white flowers. Clusters of delicious blue berries. Fall color is a range of reds. Striking in winter with colorful young branches and peeling multicolored bark on older stems. Tolerates flooding, needs acidic soil.

Light	Soil	Height/Spread (ft)	Zone
Full sun - light shade	Dry - wet	10'8'	3-7



American Elderberry (*Sambucus nigra ssp. canadensis*)

Large compound leaves and plate-sized clusters of small white flowers. Small purple berries used in making preserves, pies, and elderberry wine.

Light	Soil	Height/Spread (ft)	Zone
Full sun - light shade	Moist, well drained	8'8'	4-9



Virginia Rose (*Rosa virginiana*)

Versatile with glossy leaves and large, pink flowers. Spectacular fall colors. Salt tolerant, somewhat drought tolerant. Does well in sandy soil.

Light	Soil	Height/Spread (ft)	Zone
Full sun	Dry - moist	5'10'	4-8



Buttonbush (*Cephalanthus occidentalis*)

Fragrant spheres of white flowers attract butterflies, hummingbirds and native bees. Top wildlife species. Good for rain gardens.

Light	Soil	Height/Spread (ft)	Zone
Full sun	Moist - wet	8'8'	5-11



Maple-leaved Viburnum (*Viburnum acerifolium*)

Understory shrub with soft maple-shaped leaves. Clusters of small white flowers. Dark-blue berries. Unusual pale, bluish-pink fall colors.

Light	Soil	Height/Spread (ft)	Zone
Partial - full shade	Dry-moist, well drained	5'5'	4-8



American Hazelnut (*Corylus americana*)

Dense, vase-shaped clumps of supple stems with large rough leaves and edible nuts. Important grouse food. Shades of orange, gold and red in fall.

Light	Soil	Height/Spread (ft)	Zone
Full sun - full shade	Dry - wet	10'10'	4-9



Nannyberry (*Viburnum lentago*)

Large multi-stemmed shrub. Can be trained into small single-stemmed tree. Glossy foliage, clusters of small white flowers. Resistant to viburnum leaf beetle. Dark-blue berries persist into winter. Good fall color.

Light	Soil	Height/Spread (ft)	Zone
Full sun - light shade	Moist - wet	25'/15'	3-7



Northern Bush-honeysuckle (*Diervilla lonicera*)

Not a true honeysuckle. Slender stems with large finely toothed, glossy leaves, yellow flowers. New leaves typically reddish bronze. Orange, gold and red fall colors. Spreads easily, good ground cover. Drought-resistant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - partial shade	Dry - moist	3'/3'	3-7



Bayberry (*Morella caroliniensis* (formerly *Myrica pensylvanica*))

Coastal species well adapted to sandy soil and occasional flooding. Fine urban shrub because of high salt tolerance and resistance to insects and diseases. Glossy, aromatic foliage, semi-evergreen. Tolerates pruning.

Light	Soil	Height/Spread (ft)	Zone
Full sun - partial shade	Dry - wet	10'/10'	3-6



Flowering Raspberry (*Rubus odoratus*)

Large fuzzy leaves with pointed lobes on thorn-less, arching canes. Single pink flowers are an inch across and resemble wild rose flowers. Small raspberry fruits. Wonderful shrub for edge areas. Shade tolerant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - full shade	Moist	5'/3'	4-6



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NATIVE TREES

For Gardening and Landscaping



Division of
Lands and
Forests

White Spruce (*Picea glauca*)

Classic conical Christmas tree shape. Short stiff needles are bluish green. Most adaptable native spruce for landscape planting. Many cultivars.

Light	Soil	Height/Spread (ft)	Zone
Full sun - partial shade	Moist, well drained	50'/20'	2-6



Alternate-leaved Dogwood (*Cornus alternifolia*)

Also known as "Pagoda Dogwood" because of unusual horizontal branch structure. Excellent small tree for partial shade. Clusters of small white flowers, good fall color. Shade tolerant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - full shade	Moist, well drained	20'/10'	3-7



Bur Oak (*Quercus macrocarpa*)

Rangy oak with shaggy-capped acorns and big dark glossy leaves, often with distinctive deep lobe in middle. Very adaptable and tough, will grow on both acidic and alkaline soils. Flood tolerant and somewhat drought tolerant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - partial shade	Dry - wet	80'/60'	3-8



Red Maple (*Acer rubrum*)

Red flowers followed by red seeds in spring. Red-stemmed leaves with whitish undersides in summer. Red and yellow leaves in fall. Well-known as a swamp tree, but also grows well on upland sites. Most versatile native maple for landscapes. Many cultivars. Flood tolerant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - light shade	Dry - wet	50'/30'	3-9



Eastern Red Cedar (*Juniperus virginiana*)

Young trees narrow, columnar. Older trees more conical form. Small, blue, berry-like cones on female trees are eaten by many birds. Tough tree which thrives on dry, harsh, rocky sites. Grows well on limestone, and also on more acidic sites. Very drought tolerant. Must have full sun.

Light	Soil	Height/Spread (ft)	Zone
Full sun	Dry - moist, well drained	40'/15'	3-9



Serviceberry, Shadbush (*Amelanchier arborea*)

Graceful small tree. Has delicate white flowers in early spring. Flowers followed by oval leaves and edible berries in summer. Vivid fall colors.

Light	Soil	Height/Spread (ft)	Zone
Full sun - partial shade	Moist, well drained	20'/15'	4-9



Black Gum (*Nyssa sylvatica*)

Great fall color. Fruit attracts many birds and mammals, good nectar source for honey bees. Salt and shade tolerant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - full shade	Dry - wet	50'/30'	4-9



Swamp White Oak (*Quercus bicolor*)

Dark green leaves with white undersides. Tolerates compacted soils and drought. Also good for wet areas, flood tolerant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - full shade	Dry - wet	80'/50'	4-8



Tamarack (*Larix laricina*)

Deciduous conifer with soft bluish-green needles, small round cones. A northern species which does well on cool, wet sites. Bright yellow fall color.

Light	Soil	Height/Spread (ft)	Zone
Full sun	Moist - wet	50'/15'	2-4



River Birch (*Betula nigra*)

Young trees have spectacular, multi-colored, peeling bark in warm shades of tan, brown, pink and cream. Popular birch for landscape use because of heat tolerance and disease resistance. Flood tolerant.

Light	Soil	Height/Spread (ft)	Zone
Full sun - partial shade	Moist - wet	60'/30'	3-9



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NATIVE VINES

For Gardening and Landscaping



Division of
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Forests

Virginia Creeper (*Parthenocissus quinquefolia*)

High-climbing vine with graceful five-leaflet leaves and glorious red fall color. Can cling to almost any surface with adhesive-tipped tendrils. Splendid vine for covering walls. Can also climb wire fences and trellises by coiling tendrils. Dark-blue berries valuable food for birds. Several cultivars available.

Light	Soil	Height (ft)	Zone
Full sun - shade	Dry - moist	Up to 70'	4-9



Woodbine (*Parthenocissus inserta*)

A "non-stick" version of Virginia creeper, this species climbs with coiling tendrils like a grape. It does not form adhesive disks and cannot cling to walls. Same five-leaflet leaves and red fall color as Virginia creeper. Climbs trellises or fences, also excellent groundcover. Very tolerant of road salt.

Light	Soil	Height (ft)	Zone
Full sun - partial shade	Dry - moist	Up to 50'	4-8



American Groundnut (*Apios americana*)

Slender twining vine with compound leaves and clusters of wisteria-like pink flowers in late summer. Non-woody perennial which dies back to ground each fall. Has small edible tubers spaced along thin roots like beads in a necklace. Excellent in containers.

Light	Soil	Height (ft)	Zone
Full sun - partial shade	Moist - wet, flood tolerant	10 – 15'	5-9



Summer Grape (*Vitis aestivalis*)

Vigorous climber with small tangy fruit. Large leaves are dark green above and silvery white beneath. Young tendrils often bright red. Parent of several wine grape hybrids. Needs regular pruning.

Light	Soil	Height (ft)	Zone
Full sun	Moist -dry	50 – 75'	5-9



Trumpet Honeysuckle (*Lonicera sempervirens*)

Twining stems with opposite leaves topped by clusters of slender, 2 inch long, red trumpet-shaped flowers. Many cultivars and hybrids. Flowers attract hummingbirds.

Light	Soil	Height (ft)	Zone
Full sun - partial shade	Moist, well drained	Up to 25'	4-9



Virginia Virgin's Bower (*Clematis virginiana*)

Vigorous clematis with small white flowers, blooming in late summer. Climbs with twining leaflet stems. Fall color often burgundy to purple. Clouds of fluffy, swirled seed heads make eye-catching display. Easy to grow and eager to climb.

Light	Soil	Height (ft)	Zone
Full sun - partial sun	Moist, well drained	Up to 25'	4-8



Wild Yam (*Dioscorea villosa*)

Graceful twining vine with strongly veined, heart-shaped leaves. Does not have edible root. Non-woody, dies back to perennial rhizome in late fall. Interesting winged seedpods. Native substitute for invasive cinnamon vine.

Light	Soil	Height (ft)	Zone
Full sun - partial shade	Moist, well drained	10 - 15'	4-8



Hops (*Humulus lupulus*)

Common hop vine grown for flowers used to flavor beer. Vigorous twining vine with handsome multi-lobed leaves. Dies back to perennial rhizome in fall. Fast-growing vine great for shade coverage.

Light	Soil	Height (ft)	Zone
Full sun	Moist, well drained	Up to 30'	4-8



Limber Honeysuckle (*Lonicera dioica*)

Very hardy small vine with large oblong opposite leaves on twining stems. Early spring flowers yellow, red or purplish, held above "cup" of fused pair of leaves. Flowers valuable for bumblebees. Undersides of leaves are bright silvery white.

Light	Soil	Height (ft)	Zone
Full sun - partial shade	Dry - wet	Up to 15'	3-8



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APPENDIX F TOWN CODE REFERENCES TO “NATURAL RESOURCE INVENTORY” AND “NATURAL RESOURCES”

[accessed 4/25/19) from <https://ecode360.com/CA0614>

Chapter 1 General Provisions

§1-17 Definitions

NATURAL RESOURCES INVENTORY

The document adopted by resolution of the Canandaigua Town Board on December 19, 2011, entitled "Town of Canandaigua Natural Resources Inventory (NRI)" together with the maps attached thereto. Said report and maps have an effective date of March 1, 2012. Copies of the NRI report and maps are available at the Town Clerk's Office.

[Added 3-16-2015 by L.L. No. 3-2015]

Chapter 174 Subdivision of Land

§ 174-18 Preservation of natural features.

- A. See also Town Code § 220-9A, Preservation of natural features.
- B. Proposals for subdivision and development of land shall be designed to preserve and protect natural features as identified in the Natural Resources Inventory.
- C. Existing vegetation shall be preserved by the applicant during development to the fullest extent possible.
 - 1) Special precaution shall be taken to protect existing trees and shrubbery during the process of grading the lots and roads.
 - 2) Where any land other than that included in public rights-of-way is to be reserved for public or common use, the developer shall only remove such trees and other vegetation from the land so reserved as are specifically designated for removal on the plat approved by the Planning Board.
- D. The boundaries and alignment of existing surface water shall be preserved unless the Planning Board finds that a change would be ecologically sound.
- E. Land development within federal and/or state regulated wetland areas shall be subject to the appropriate agency approval.
- F. Land subject to flooding or land deemed by the Planning Board to be uninhabitable shall not be plotted for residential occupancy or uses that may be a danger to health, life or property or aggravate an existing flood hazard. Such land areas shall be noted as "undevelopable" on the plat and set aside.

APPENDIX F TOWN CODE REFERENCES TO “NATURAL RESOURCE INVENTORY” AND “NATURAL RESOURCES”

[accessed 4/25/19) from <https://ecode360.com/CA0614>

§ 174-16 **Conservation subdivisions.**

[Amended 3-16-2015 by L.L. No. 3-2015]

A. Purpose. Pursuant to § 278 (cluster subdivisions) of New York Town Law, the purpose of these regulations is to achieve a balance between well-designed development, meaningful open space conservation and natural resource protection in the Town of Canandaigua by requiring conservation subdivisions instead of conventional subdivisions. Conservation subdivision (clustering) is intended to encourage development in the most appropriate locations on a subdivided parcel, to limit the impact of development on sensitive and/or significant environmental, agricultural, historical and archaeological resources, and to encourage development that enhances the Town's rural character, pattern and scale of settlement. The process for conservation subdivision of land shall be as follows:

- (1) Step 1: determine applicability or exemption.
- (2) Step 2: preapplication sketch plan discussion (voluntary).
- (3) Step 3: identify constrained (undevelopable) land.
- (4) Step 4: calculate maximum permissible number of lots.
- (5) Step 5: perform conservation analysis.
- (6) Step 6: preliminary plat review.
- (7) Step 7: final plat review.

B. Applicability.

(1) These regulations shall apply to all subdivisions of property in all zoning districts unless:

- (a) The proposed subdivision results in a total of four or fewer lots created from one parent parcel; and
- (b) The road frontage of the parent parcel will not be reduced by more than 50%; and
- (c) No new public street or private roads will be created; and
- (d) No more than 10% of the parent parcel contains priority natural resources as identified in the Town's Natural Resources Inventory.

(2) Subdivision proposals that do not meet all four of the above criteria shall be subject to preliminary and final subdivision review, as described in this chapter, and the conservation subdivision process described herein.

(3) Subdivision proposals that meet all four of the above criteria may, at the discretion of the applicant, utilize the conventional subdivision process described in this chapter.

C. Standards for conservation subdivisions.

APPENDIX F

TOWN CODE REFERENCES TO “NATURAL RESOURCE INVENTORY” AND “NATURAL RESOURCES”

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- (1) Density calculation.
 - (a) The maximum number of residential dwellings allowed on a site shall be known as the base density. Appropriate lot sizes will be determined by the Planning Board after careful consideration of all site characteristics and development requirements.
 - [1] Constrained land includes:
 - [a] New York State or federally regulated wetlands.
 - [b] Watercourses as depicted in the Natural Resources Inventory.
 - [c] One-hundred-year floodplains.
 - [d] Slopes over 15%.
 - [e] Land which contains one or more acres of woodlands, up to a maximum of five acres in any one area of the site.
 - [f] Land which is occupied by existing public utility structures or improvements.
 - [g] Land encumbered by existing easements or in other ways made unavailable for development.
 - [h] Land which is within an existing drainage control area or right-of-way.
 - [i] Land which is otherwise found by the Planning Board to be unsuitable for development.
 - [2] Unconstrained acreage shall be determined by subtracting the acreage of constrained land from the total (gross) acreage.
 - [3] Base density shall be determined by dividing the unconstrained acreage by the allowable number of acres per unit required within the zoning district. All fractional units shall be rounded to the nearest whole unit.
 - (b) Pursuant to § 261-b of New York Town Law, the base density, as determined by Subsection **C(1)(a)** above, may be increased by up to 15% by the Town Board within areas served by public water and sewer, if permanent public access will be granted to the protected open space land and any associated improvements.
 - (c) The maximum base density determined under this section may be further reduced by the Planning Board as a result of the conservation analysis required in Subsection **C(2)**, Conservation analysis, below.
 - (d) The density permitted by this section shall not be further reduced as a result of the reservation of parkland during the subdivision process.
- (2) Conservation analysis.

APPENDIX F

TOWN CODE REFERENCES TO “NATURAL RESOURCE INVENTORY” AND “NATURAL RESOURCES”

[accessed 4/25/19) from <https://ecode360.com/CA0614>

(a) As part of its preliminary plat submission [See Subsection **D(2)**, Permanent preservation by conservation easement, below.], an applicant shall prepare a conservation analysis, consisting of inventory maps, description of the land and an analysis of the conservation value of various site features. The conservation analysis shall show lands with conservation value, including but not limited to:

[1] Constrained land as defined in Subsection **C(1)(a)[1]** above;

[2] Open space and recreational resources described in the Town's Farmland and Open Space Conservation Plan and Lands of Conservation Interest Map;

[3] Buffer areas necessary for screening new development from adjoining parcels;

[4] Land exhibiting recreational, historic, ecological, water resource, scenic or other natural resource value, as shown within the Town's Natural Resources Inventory; and

[5] In districts where agriculture is a permitted use, the agricultural value of land as indicated by the presence of soils classified by the U.S. Department of Agriculture as prime, prime if drained, and soils of statewide importance.

(b) The conservation analysis shall describe the importance and the current and potential conservation value of all land on the site. In the course of its initial preliminary plat review, the Planning Board shall indicate to the applicant which of the lands identified as being of conservation value are most important to preserve.

(c) The outcome of the conservation analysis and the Planning Board's determination shall be incorporated into the approved preliminary plat, which shall show land to be permanently preserved by a conservation easement. The preliminary plat shall also show preferred locations for intensive development as well as acceptable locations for less dense development.

(d) The determination as to which land has the most conservation value and should be protected from development by conservation easement shall be made by the Planning Board. Whenever the Planning Board approves a preliminary plat with protected open space, it shall make written findings identifying the specific conservation values protected and the conservation findings supporting such protection. An application that does not include a complete conservation analysis sufficient for the Planning Board to make its conservation findings shall be considered incomplete.

APPENDIX F

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- (e) The preliminary plat shall show the following as land to be preserved by conservation easement:
 - [1] Constrained land identified by the analysis described in Subsection **C(1)** above; and
 - [2] Within residential districts, at least 40% of the land not preserved in Subsection **C(2)(e)[1]** above.
- (f) If, based upon the conservation analysis, the Planning Board determines in its conservation findings that there is no reasonable basis for requiring a conservation subdivision, the Board may approve a conventional subdivision plat. In order for the Planning Board to make such a determination, the Planning Board must find at least one of the following:
 - [1] The land contains no substantial resources with conservation value.
 - [2] The total acreage under consideration is too small to preserve a substantial amount of land with conservation value (This criterion shall not be evaded by piecemeal subdivision of larger tracts.) or the lot configuration is unique and precludes preservation of a substantial amount of land with conservation value.
- (g) In order to make the required showing under Subsection **C(2)(f)[1]** or **[2]** above, the applicant must also demonstrate that the parcel does not adjoin other land that, when combined with open space on the parcel, would result in the preservation of a substantial amount of land with conservation value (including, but not limited to, any portion of a designated trail corridor), regardless of whether or not the adjoining parcels have been protected as open space.
- (h) Approval of a conventional subdivision shall refer to the conservation findings and may be conditioned upon the protection by conservation easement of portions of the site identified in the conservation analysis.
- (3) Types of development in a conservation subdivision. The allowable residential units may be developed as single-family or two-family dwellings. Within a conservation subdivision, a maximum of 25% of the residential units may be placed in two-family dwellings.
- (4) Area and dimensional requirements.
 - (a) The minimum lot sizes permitted within conservation subdivisions shall be as follows:
 - [1] Within the R-1-20 District, where a site has both public water and sewer service, lot area shall not be smaller than 10,000 square feet.

APPENDIX F TOWN CODE REFERENCES TO “NATURAL RESOURCE INVENTORY” AND “NATURAL RESOURCES”

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[2] Within the R-1-30 District, where a site has both public water and sewer service, lot area shall not be smaller than 15,000 square feet.

[3] Within the SCR-1 District, where a site has both public water and sewer service, lot area shall not be smaller than 20,000 square feet.

[4] Within the MR, NC, RB-1, CC, I and LI Districts, where a site has both public water and sewer service, lot area shall not be smaller than 30,000 square feet.

[5] Within all areas not served by public water and sewer service, minimum lot sizes shall be determined by the Planning Board with regard to specific site characteristics and public health and safety concerns.

(b) Where a conservation subdivision abuts an existing residence in a residentially zoned area, a suitable buffer area shall be required by the Planning Board. This buffer shall be at least the same distance as the minimum rear or side yard setback in the district in which the abutting land is located.

(c) Where residential lots within a conservation subdivision abut agricultural operations, a suitable buffer area shall be required by the Planning Board. See also Town Code Chapter **107**, Farming, for the Town of Canandaigua Right-to-Farm Law.

(d) The applicant shall specify dimensional requirements for a proposed conservation subdivision by identifying setbacks and other lot dimensions to be incorporated into the final plat.

(5) Town Clerk notations on Official Zoning Map. In accordance with § 278 of Town Law, when the final plat is filed with the County Clerk and a copy of the final plat is filed with the Town Clerk, the Town Clerk shall make appropriate notations and references thereto on the Town Zoning Map. The Town Clerk shall make such notations and references as needed, but not less frequently than semiannually.

(6) Conservation subdivision of a portion of larger tract. The Planning Board may entertain an application for a subdivision of a portion of a parcel if a conservation analysis is provided for the entire parcel, and the approval to develop a portion of the parcel is not a basis for the applicant or successor in interest to subsequently request an exception under Subsection **C(2)(f)** for the remainder of the parcel.

(7) Conservation subdivision design guidelines.

(a) Conservation subdivisions shall be arranged in a manner that protects land of conservation value.

(b) Preserved open space shall not be included as a portion of a building lot and shall be contained in one or more separate open space lots. Preserved open space

APPENDIX F TOWN CODE REFERENCES TO “NATURAL RESOURCE INVENTORY” AND “NATURAL RESOURCES”

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shall be arranged contiguously to the greatest extent practicable. Unpaved areas contained within cul-de-sac turnarounds shall not be counted within open space configurations.

(c) Except as specified herein, conservation subdivisions and development thereof shall be subject to all requirements applicable to subdivisions.

(d) The Town's Farmland and Open Space Conservation Plan, and specifically the Lands of Conservation Interest Map, shows the location of ridgelines in the Town. As part of preliminary subdivision review, applicants shall provide written documentation of compliance with these guidelines, or any necessary variations therefrom.

D. Permanent open space. Open space set aside in a conservation subdivision shall be permanently preserved as required by this section. Any development permitted on land located in a conservation subdivision that is not protected as open space shall not compromise the conservation value of such open space land.

(1) Conservation value of open space. The open space protected pursuant to this section must have conservation value, which shall be determined in the course of the conservation analysis described in Subsection C(2) above.

(2) Permanent preservation by conservation easement.

(a) A perpetual conservation easement restricting development of the open space land and allowing use only for agriculture, forestry, passive recreation, protection of natural resources or similar conservation purposes, pursuant to § 247 of the General Municipal Law and/or §§ 49-0301 through 49-0311 of the Environmental Conservation Law, shall be granted to the Town, with the approval of the Town Board, and/or to a qualified not-for-profit conservation organization acceptable to the Town Board. Such conservation easement shall be approved by the Planning Board and is required for final plat approval. The Planning Board shall require that the conservation easement be enforceable by a recognized land trust or similar agency, or the homeowners' association, if the Town is not the holder of the conservation easement. The Planning Board shall confirm that the deed includes language regarding the conservation easement prior to final approval. The conservation easement shall be recorded in the County Clerk's office, and recording information (liber and page) shall be shown on the final plat prior to filing of the final plat in the County Clerk's office.

(b) The conservation easement shall prohibit residential, industrial or commercial use of open space land (except in connection with agriculture, forestry and passive recreation) and shall not be amendable to permit such use. Driveways,

APPENDIX F

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wells, underground sewage disposal facilities, local utility distribution lines, stormwater management facilities, trails and agricultural structures shall be permitted on preserved open space land with Planning Board approval, provided that they do not impair the conservation value of the land. Forestry shall be conducted in conformity with applicable best management practices as described by the New York State Department of Environmental Conservation's Division of Lands and Forests.

(c) A land management plan, approved by the Planning Board, shall be included in the conservation easement. The land management plan shall contain the following information:

[1] A baseline property condition report fully describing conditions of the property to be protected under the easement.

[2] Primary contact information for all parties responsible for holding, monitoring and enforcing the easement.

[3] A monitoring schedule and associated requirements.

[4] A recordkeeping procedure.

[5] Enforcement policy.

[a] The conservation easement shall provide that if the Town Board finds that the management plan has been violated in a manner that renders the condition of the land a public nuisance, the Town may, upon 30 days' written notice to the owner, enter the premises for necessary maintenance, and the cost of such maintenance by the Town shall be assessed against the landowner, or, in the case of a homeowners' association, the owners of properties within the development, and shall, if unpaid, become a tax lien on such property or properties.

[b] The conservation easement shall provide that if the Town's Code Enforcement Officer finds that the conservation easement or management plan has been violated in any way, the owner of the property and any persons or entities contributing to said violation shall be subject to the penalties specified for Zoning Code violations in Town Code § 220-114, § 220-115, and § 220-99.

[6] An amendment procedure.

[7] For easements not held by the Town, a policy regarding dissolution of the easement-holding party.

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(d) The Town's Code Enforcement Officer shall have authority to enforce any conservation easement in the Town regardless of whether said conservation easement has been granted to the Town. Enforcement of conservation easements by the Town's Code Enforcement Officer shall be pursuant to the provisions of Town Code § 220-99D.

(3) Notations of final plat. Preserved open space land shall be clearly delineated and labeled on the subdivision final plat as to its use, ownership, management, method of preservation and the rights, if any, of the owners of lots in the subdivision and the public to the open space land. The final plat shall clearly show that the open space land is permanently preserved for conservation purposes by a conservation easement required by the section and shall include deed recording information in the County Clerk's office for the conservation easement.

(a) Ownership of open space land. Open space land may be owned:

[1] In common by a homeowners' association (HOA); or

[2] Offered for dedication to Town, county or state government; or

[3] Transferred to a not-for-profit conservation organization acceptable to the Planning Board; or

[4] Held in private ownership; or

[5] Held in such other form of ownership as the Planning Board finds appropriate to properly manage the open space land and to protect its conservation value.

(b) If the land is owned in common by a HOA, such HOA shall be established in accordance with the following:

[1] The HOA application must be submitted to the New York State Attorney General's office before the approved subdivision final plat is signed and must comply with all applicable provisions of the General Business Law. The HOA must be approved by the New York State Attorney General's office prior to issuance of the first certificate of occupancy from the Code Enforcement Officer.

[2] Membership must be mandatory for each lot owner, who must be required by recorded covenants and restrictions to pay fees to the HOA for taxes, insurance and maintenance of common open space, private roads and other common facilities.

[3] The HOA must be responsible for liability insurance, property taxes and the maintenance of recreational and other facilities and private roads.

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[4] Property owners must pay their pro rata share of the costs in Subsection **D(3)(b)[2]** above, and the assessment levied by the HOA must be able to become a lien on the property.

[5] The HOA must be able to adjust the assessment to meet changed needs.

[6] The applicant shall make a conditional offer of dedication to the Town, binding upon the HOA, for all open space to be conveyed to the HOA. Such offer may be accepted by the Town, at the discretion of the Town Board, upon failure of the HOA to take title to the open space from the applicant or other current owner, upon dissolution of the association at any future time, or upon failure of the HOA to fulfill its maintenance obligations hereunder or to pay its real property taxes.

[7] Ownership shall be structured in such a manner that real property taxing authorities can satisfy property tax claims against the open space lands by proceeding against individual owners in the HOA and the dwelling units they each own.

[8] The Town's Attorney shall find that the HOA documents presented satisfy the conditions in Subsection **D(3)(b)[1]** through [7] above and such other conditions as the Planning Board shall deem necessary.

E. Conservation subdivision procedures. In addition to all other requirements applicable to conventional two-stage subdivision review, the following shall apply to conservation subdivisions:

(1) Sketch plan. Applicants are encouraged to request a sketch plan discussion with the Planning Board prior to submission of a preliminary application.

(a) In addition to requirements specified in Town Code § **174-9**, a sketch plan for conservation subdivision shall show the approximate area of the project considered to be constrained lands (wetlands, floodplains, steep slopes, etc.) and the area to be classified as developable lands.

(2) Preliminary subdivision review. In addition to information required pursuant to Town Code § **174-13**, the preliminary subdivision application for a conservation subdivision shall contain the following:

(a) A density calculation, as described in Subsection **C(2)** above.

(b) A conservation analysis as described in Subsection **C(3)** above, including a proposed conservation analysis map.

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- (c) A schematic ("bubble") diagram showing which areas on the parcel would be developed and where land would be protected as permanent open space by a conservation easement.
- (3) Final subdivision review. In addition to information required pursuant to Town Code § 174-14, the final subdivision application for a conservation subdivision shall contain the following:
 - (a) All the materials required for approval as provided herein, unless waived by the Planning Board.
 - (b) Proposed conservation easement(s) for the protection of permanent open space land.
 - (c) A final land management plan for the permanent open space areas, to be incorporated into the conservation easement and made enforceable by the Town.
 - (d) Other submission requirements as specified by the Planning Board.