TOWN OF CANANDAIGUA

NATURAL RESOURCES INVENTORY UPDATE

DRAFT: DECEMBER 2019

Town of CANANDAIGUA

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Natural Resource Inventory Update

DRAFT: December 2019

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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 within areas delineated in these maps must be referred to the Town's Environmental Conservation Board for advisory review.

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.

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 along streams has value for wildlife habitat, filtering pollutants, and preventing erosion. Land along the Canandaigua Lake shoreline is susceptible to erosion which would impact 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 susceptible to erosion which can affect the stability of slopes and cause sedimentation of water bodies. Slopes of at least 15% are considered steep. The priority for protection is greater for slopes that are very steep (25% to 40%) and extremely steep (40% or greater.)

Map 7 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.

Cultural Resources

In this NRI, cultural resources are broadly defined to include resources other than natural land cover types and steeps slopes that have value for agricultural production, mineral extraction, or for their historic, recreational or scenic value.

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.

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.

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 Vistas and View Points

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. Map 14 depicts the locations of Public and Protected Land.

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A. Natural Ecological Communities

Natural ecological communities[1] 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. Based on the NY Natural Heritage Program's Statewide ranking of S2 S3 for Floodplain Forest and S3 for Silver Maple-Ash Swamp, there are fewer than 100 occurrences of these types in the State.

[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.

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 Greenway[2] 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 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.

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

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 and 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 Sucessional 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.

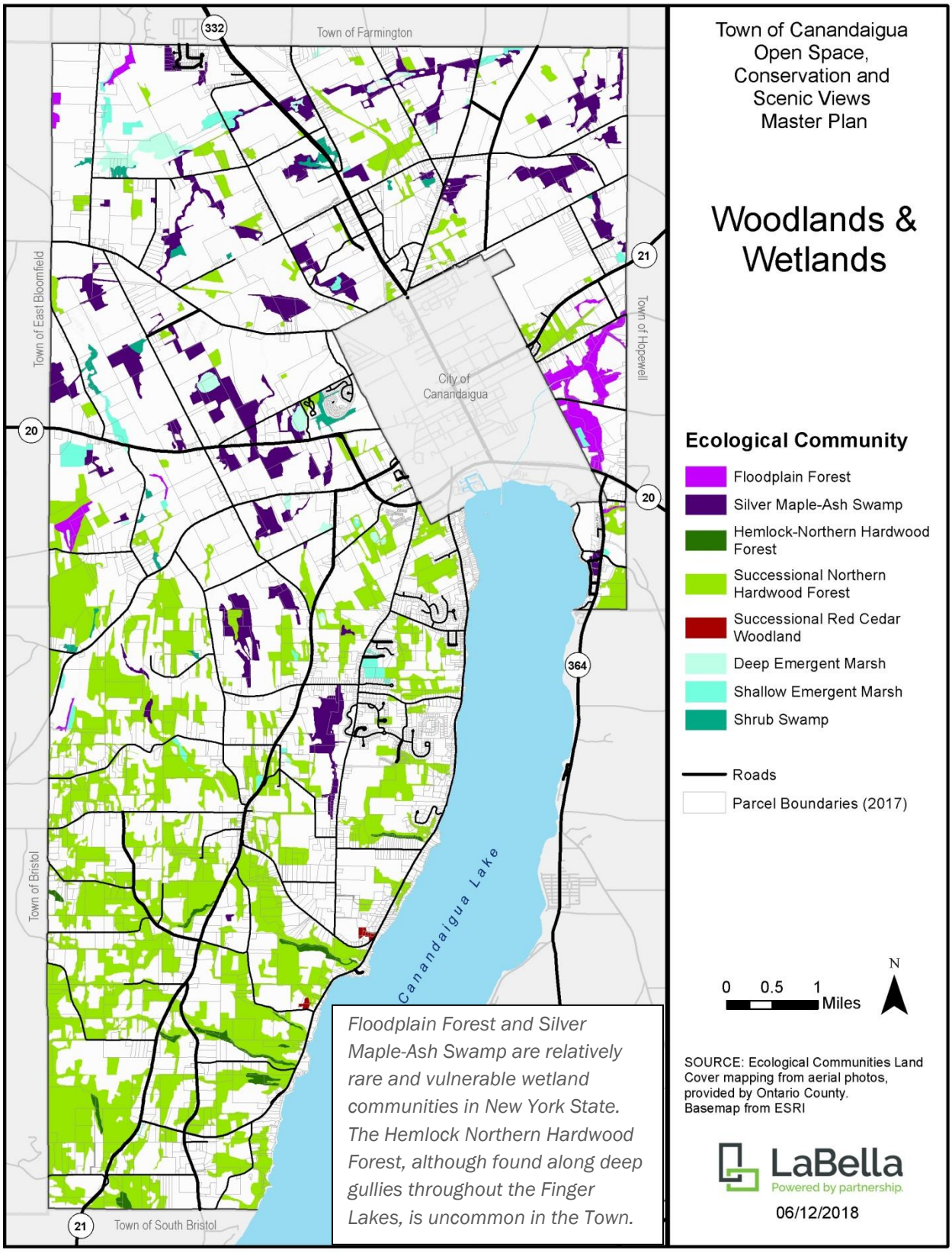
Shrubland has at least 50% cover of shrubs. Approximately 1,180 acres are found in the Town. Shrubland is a very valuable habitat type for birds and other wildlife because they contain dense cover and an abundance of food sources, including berries and twigs. When they are left undisturbed, they will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

4. Wildlife Corridors

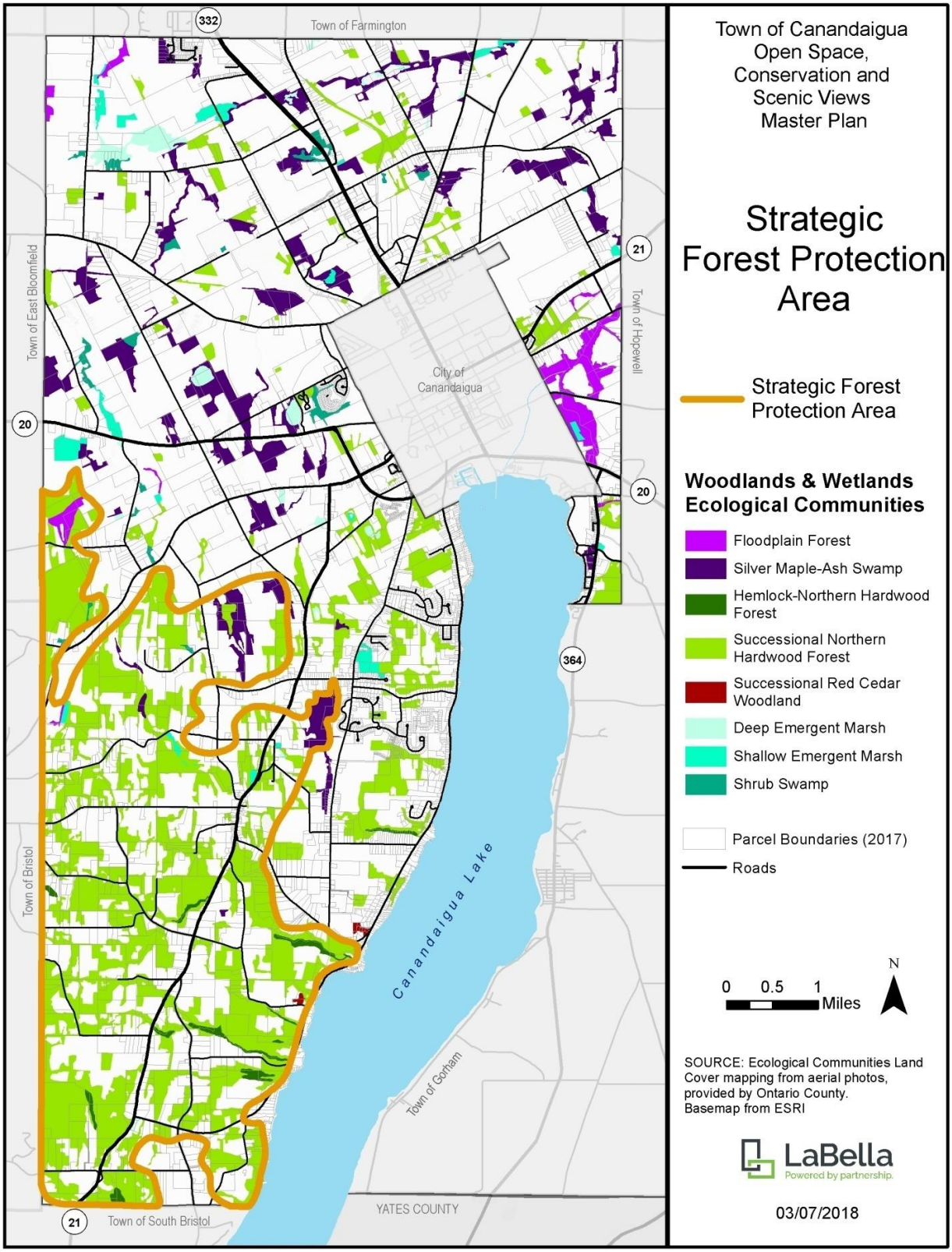
Wildlife often utilize a variety of land cover types for feeding, breeding or migrating. Retaining large, contiguous areas of open space helps to support wildlife.

Map 4 depicts potential corridors for wildlife. Investigation in the field is needed to confirm the use of these areas as wildlife corridors.

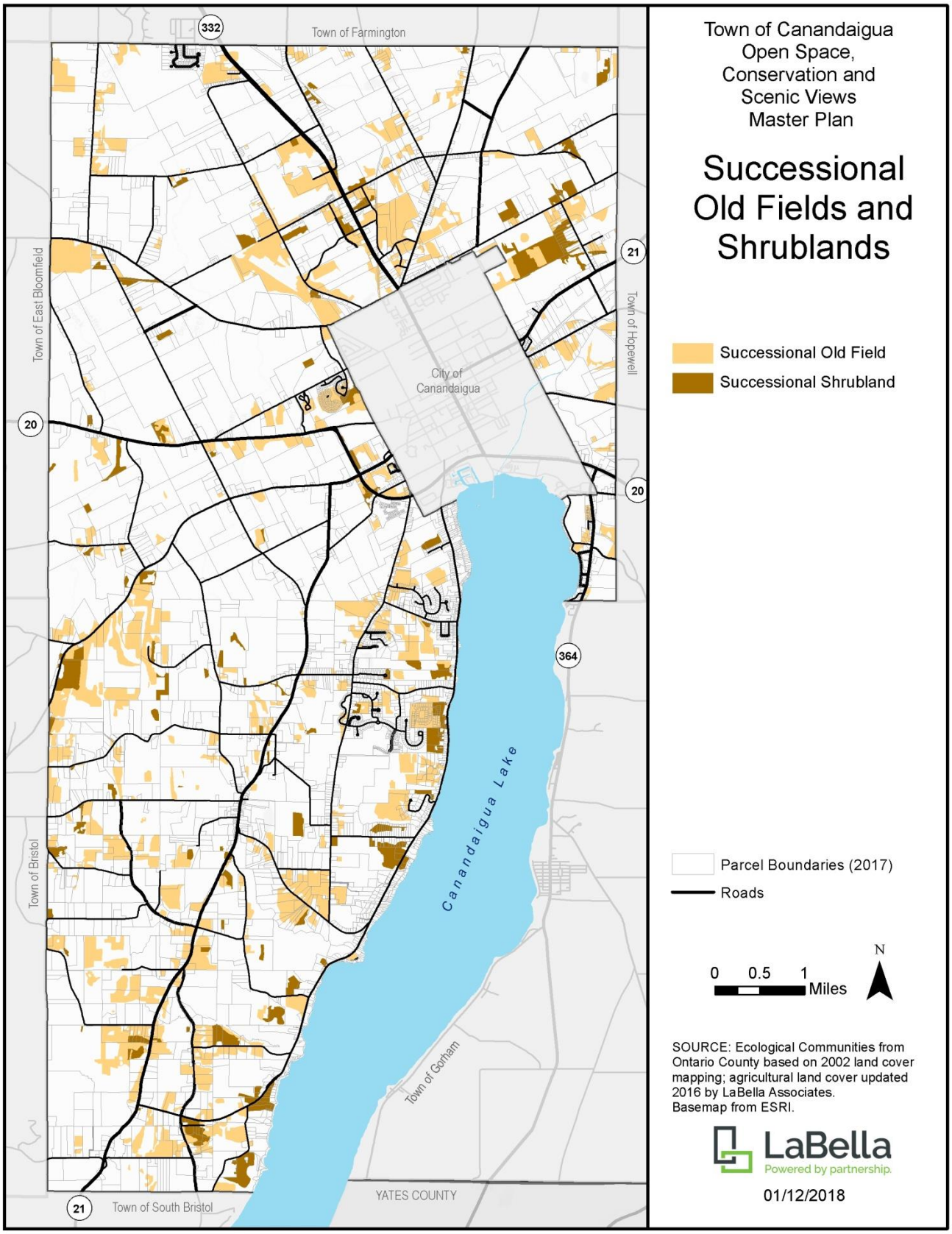
MAP 1: WOODLANDS & WETLANDS



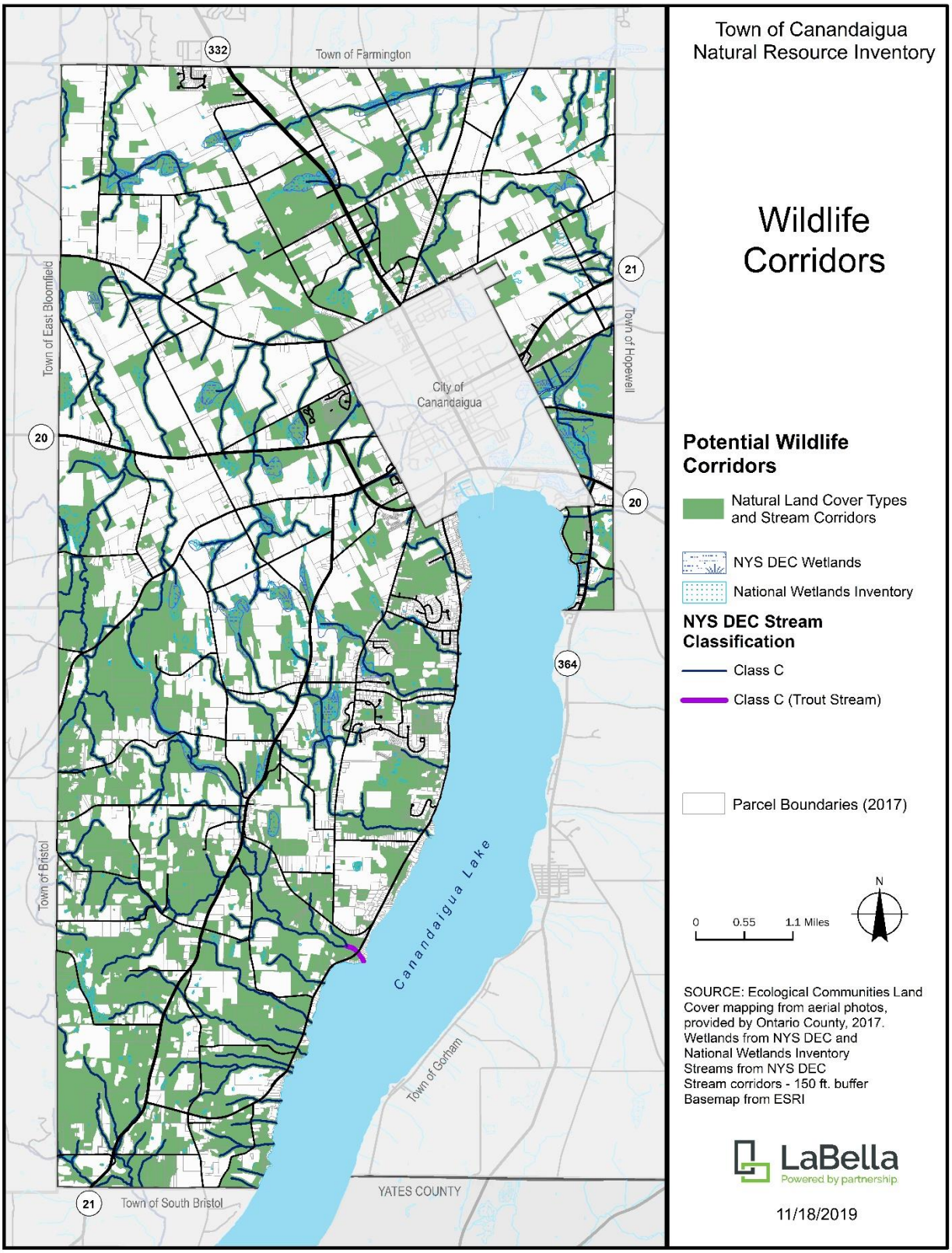
MAP 2: STRATEGIC FOREST PROTECTION AREA



MAP 3: OLD FIELDS AND SHRUBLAND



MAP 4: WILDLIFE CORRIDORS



B. Water Resources

1. Canandaigua Lake and Shoreline

Canandaigua Lake is the Town's most prominent natural resource and the source of public drinking water for many Town and region residents. As shown in Map 5, the Canandaigua Lake watershed encompasses a large portion of the Town.

The Canandaigua Lake shoreline is a sensitive environmental area. Steep slopes along the shoreline are susceptible to erosion.

2. 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 and 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.

3. 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.

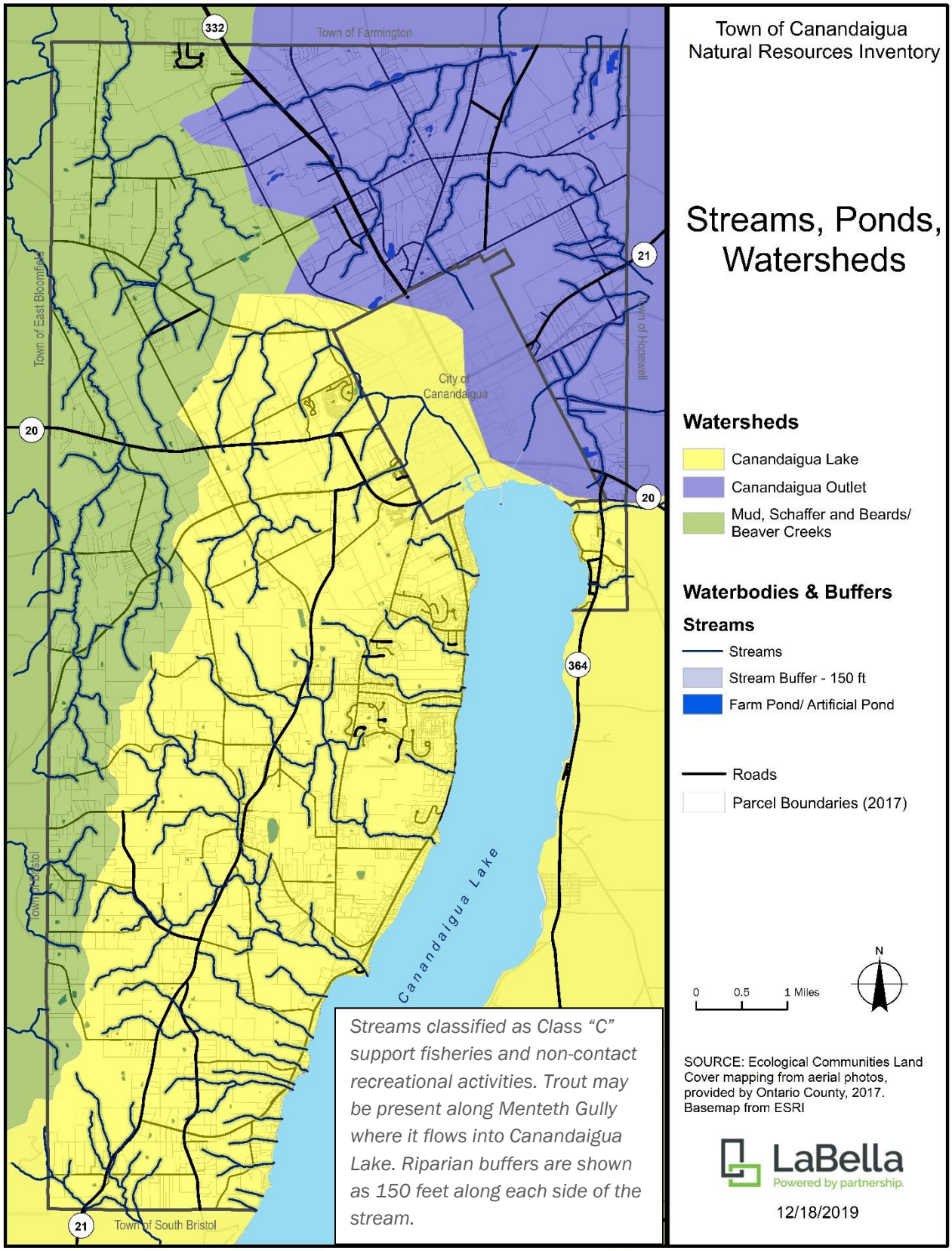
4. Groundwater

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/)

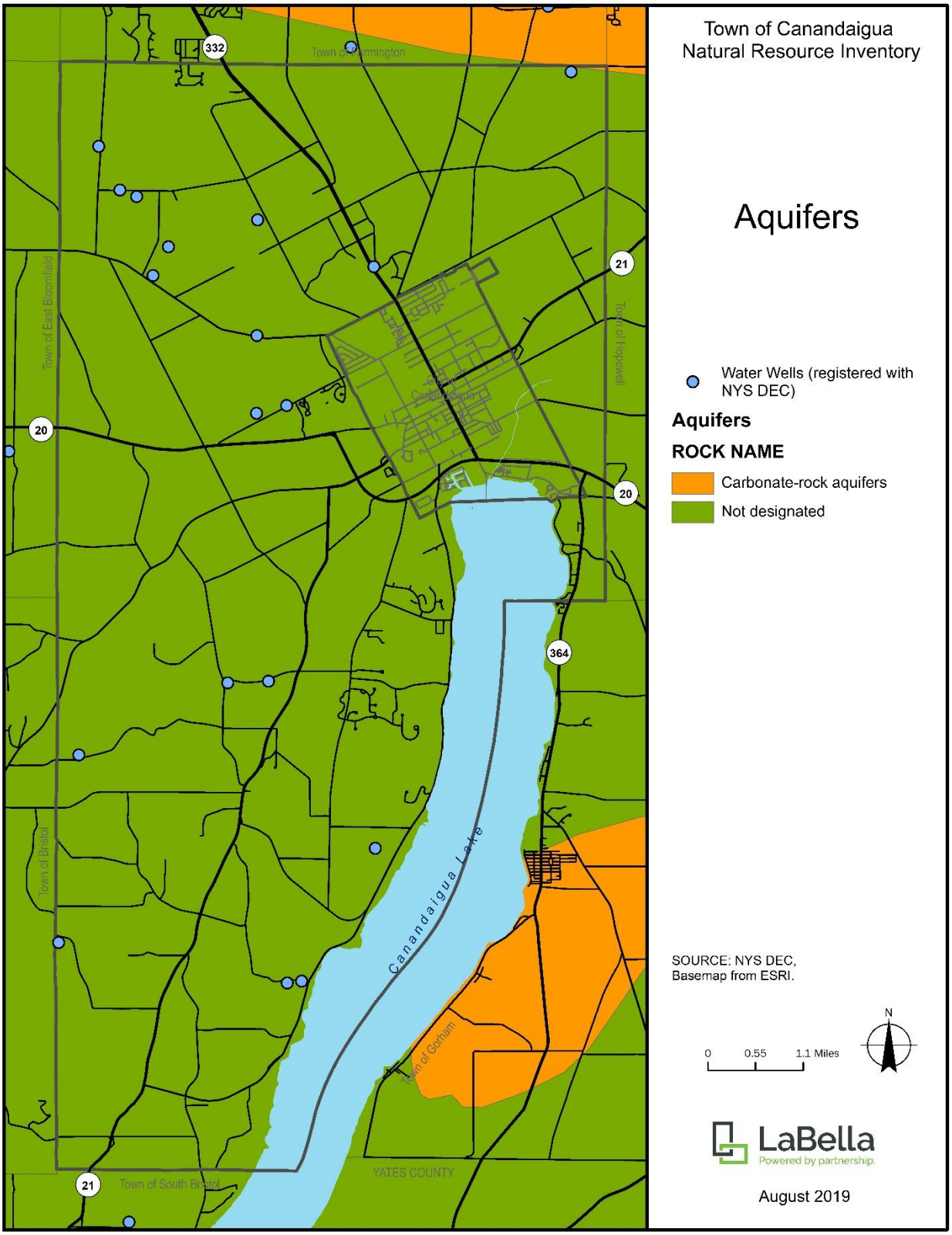
Homes and businesses outside of areas served by public water supplies depend on groundwater for their drinking supply. Based on unverified data for the 18 wells registered by contractors with the NYS Department of Environmental Conservation pursuant to ECL §15-1525, the average well depth is 137 feet, 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.

MAP 5: STREAMS, PONDS, WATERSHEDS



MAP 6: AQUIFERS AND WELLS



C. Steep Slopes

Areas of steep slopes are susceptible to erosion which lead to instability and impact water quality. Map 7: Steep Slopes depicts those areas in the Town with slopes of at least 15%. These areas are located throughout the Town, with concentrations in the southern portion and along the lakeshore.

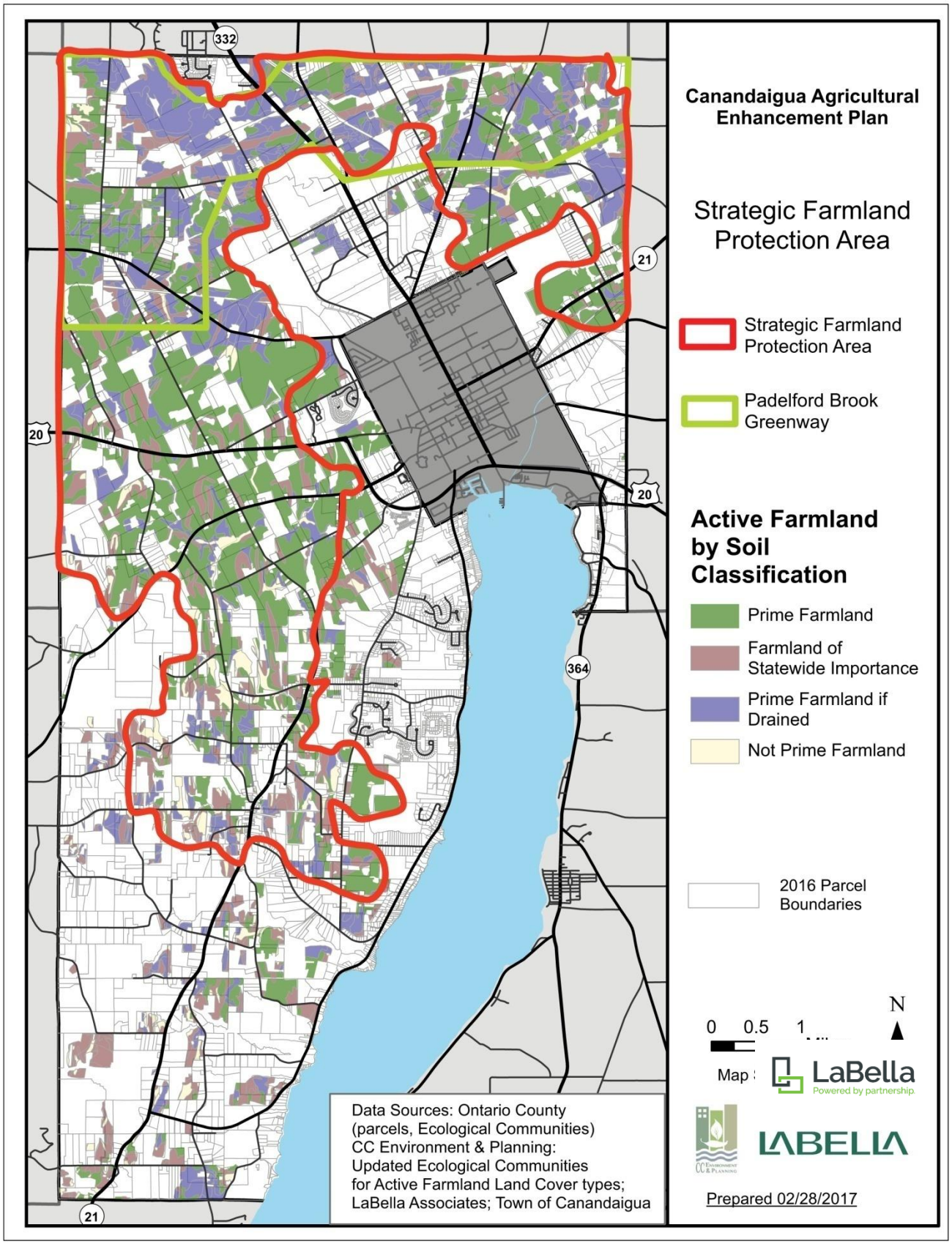
D. Agricultural Land

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 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. Cultural Resources

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

1. 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 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 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.

2. 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 11 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.

3. 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 9: 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 10: Elevations depicts the elevation of land in the Town. Areas with elevation at 100 feet or higher are considered highly visible and are included in the Open Space Index.

Map 11: 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.

4. Recreational and Other Public and Protected Land

Map 10 depicts the locations of recreational and other public and protected land. Recreational resources include public and privately-owned parks, outdoor recreational facilities 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.

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 and 85 acres of undeveloped natural land along Middle Cheshire Road. (See Map 8: Public and 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 8: Public and Protected Lands.)

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]

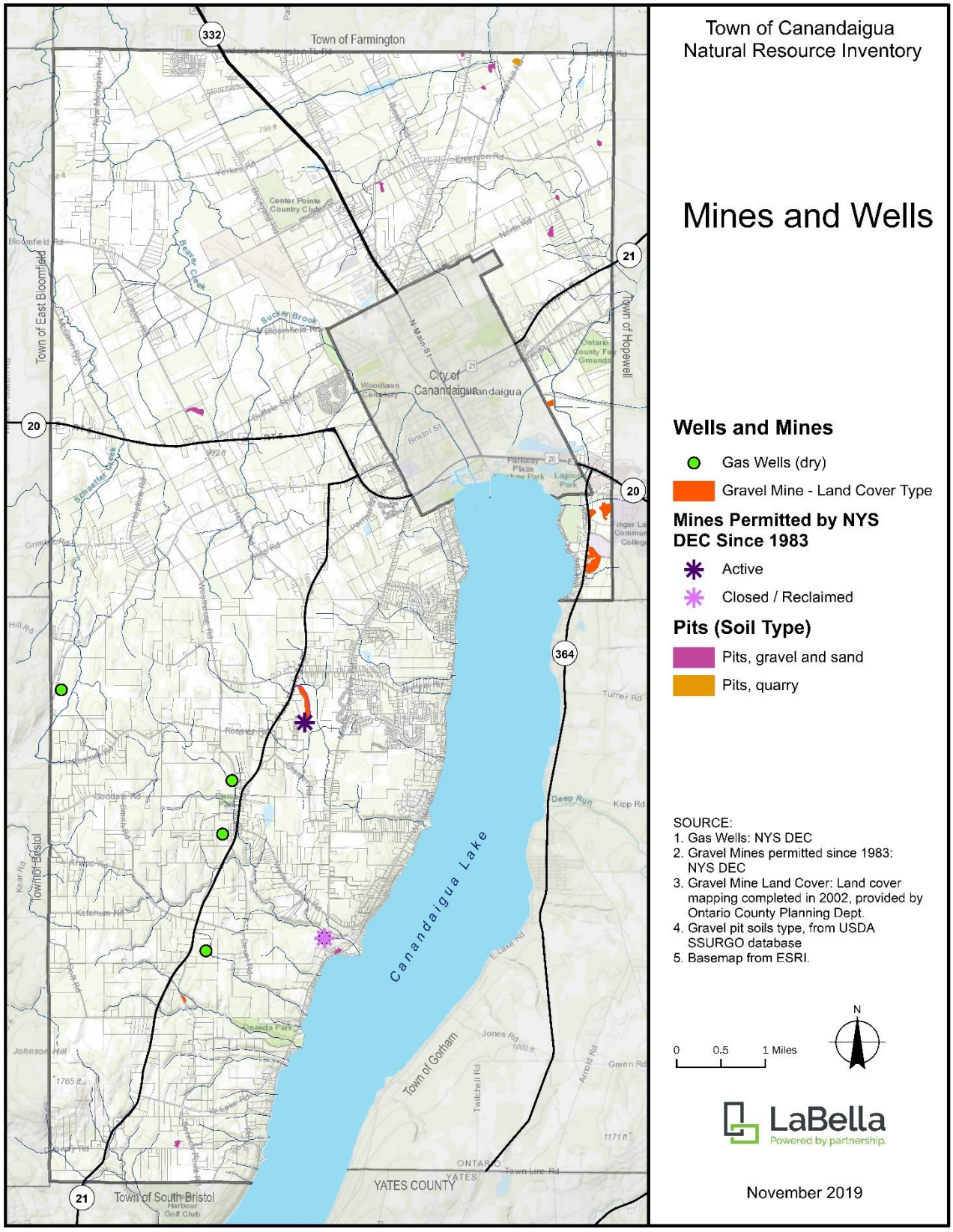
Other Public and Protected Lands

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.

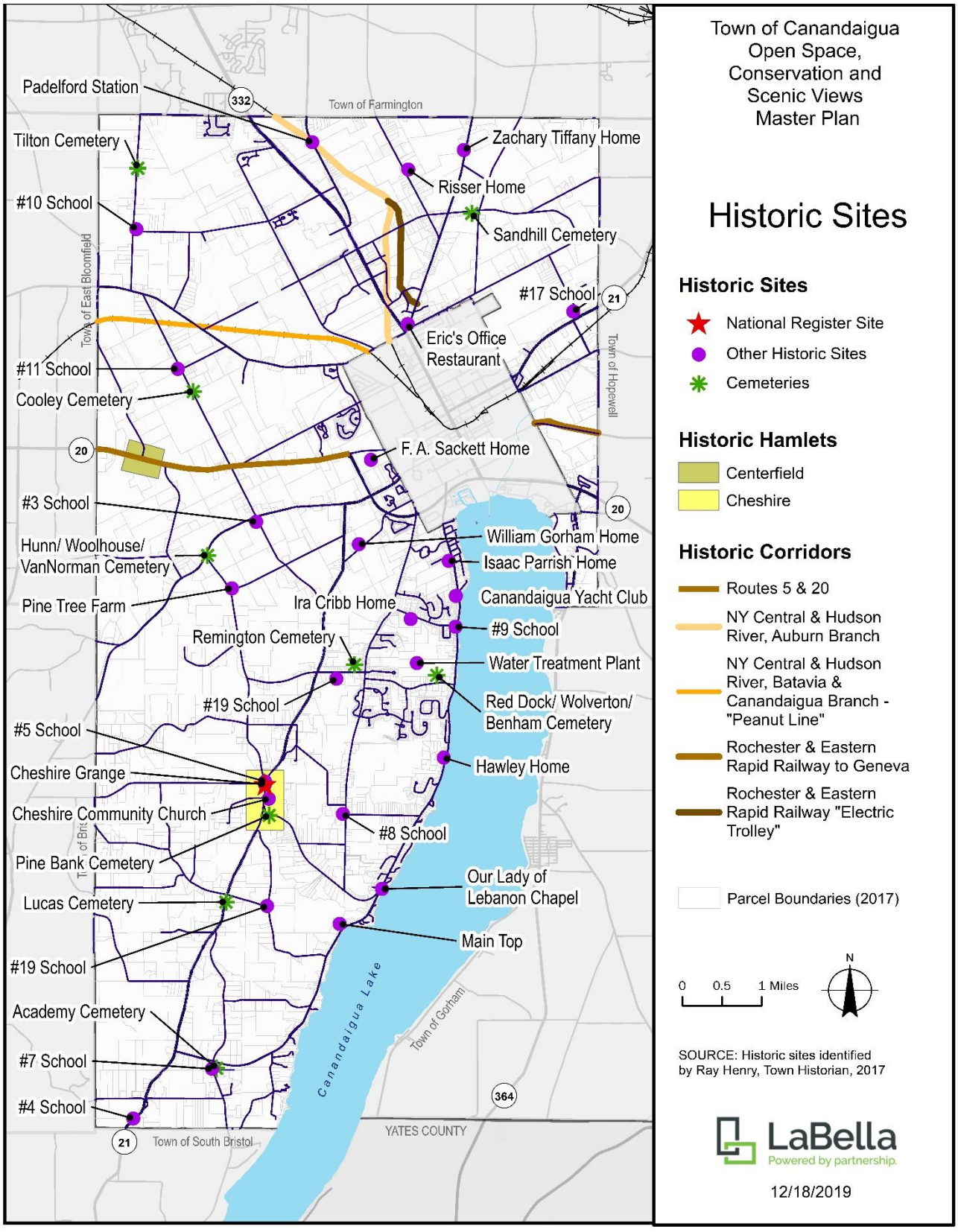
[3] ESRI's Viewshed Analysis extension in ArcMap 10.4 was used to delineate viewsheds. For the Scenic View Points viewsheds, the analysis was run from a point six feet above the ground at each of the 35 view points. To identify land visible from Canandaigua Lake, the analysis was run from a line down 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 2017-2022

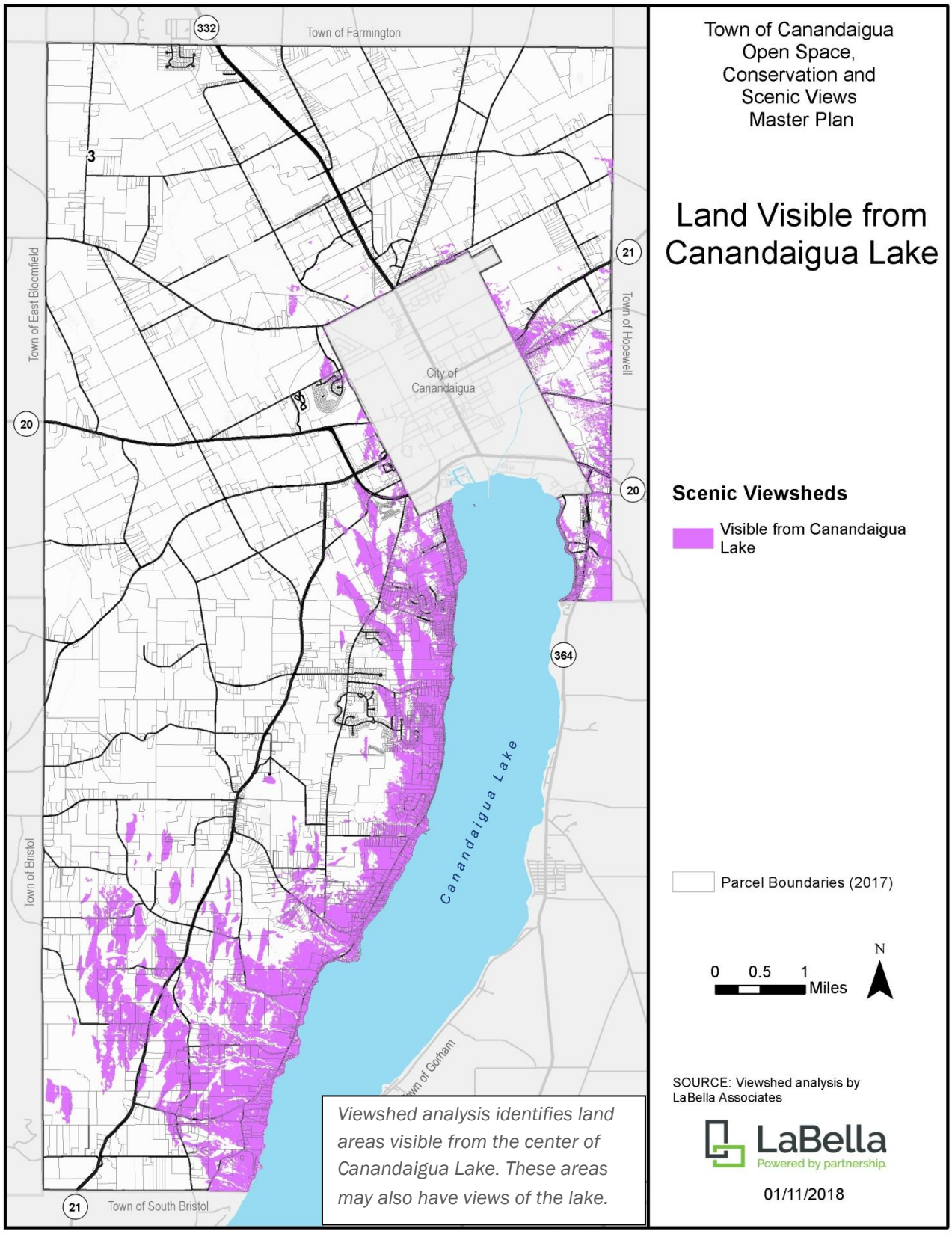
MAP 9: MINES AND WELLS



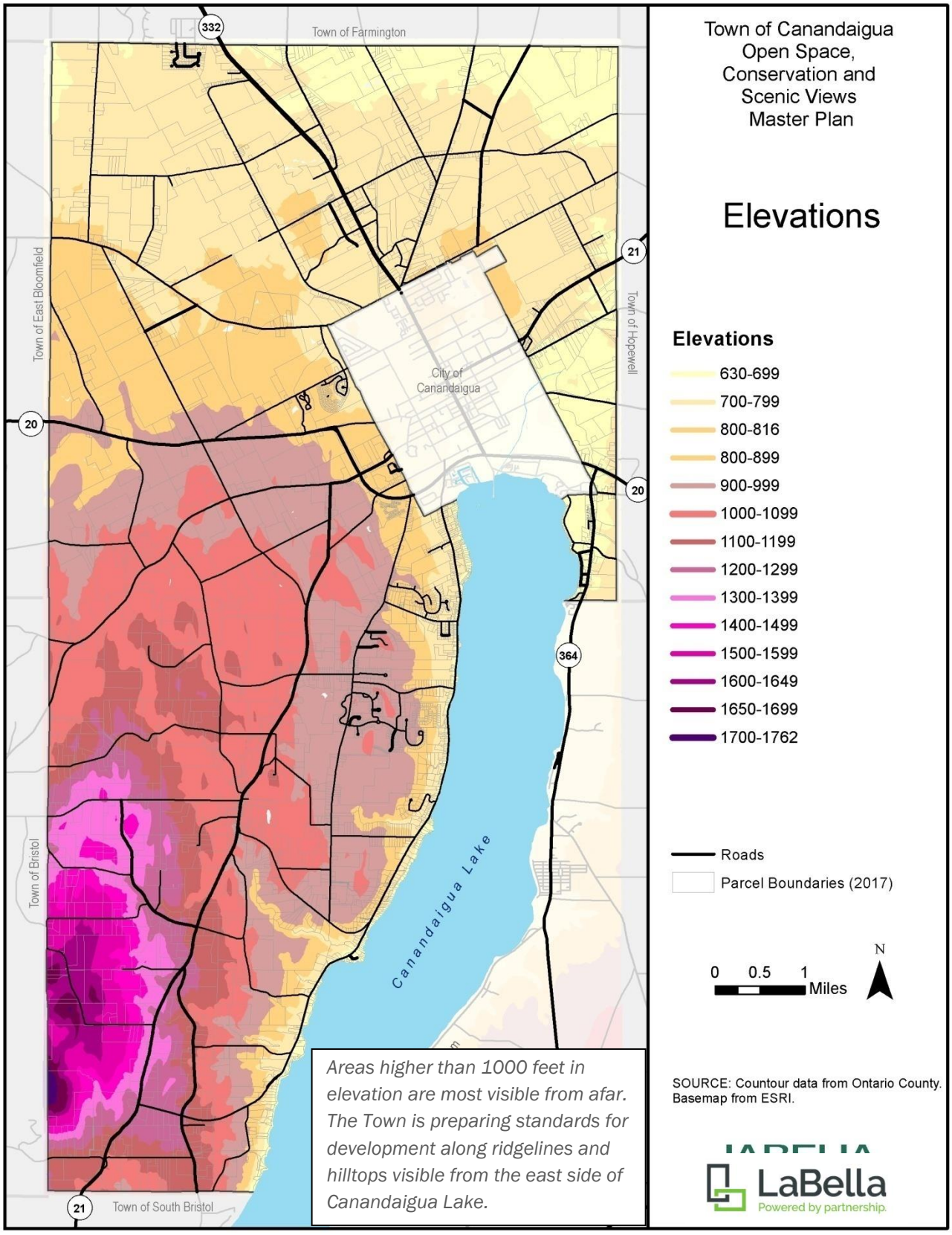
MAP 10: HISTORIC SITES



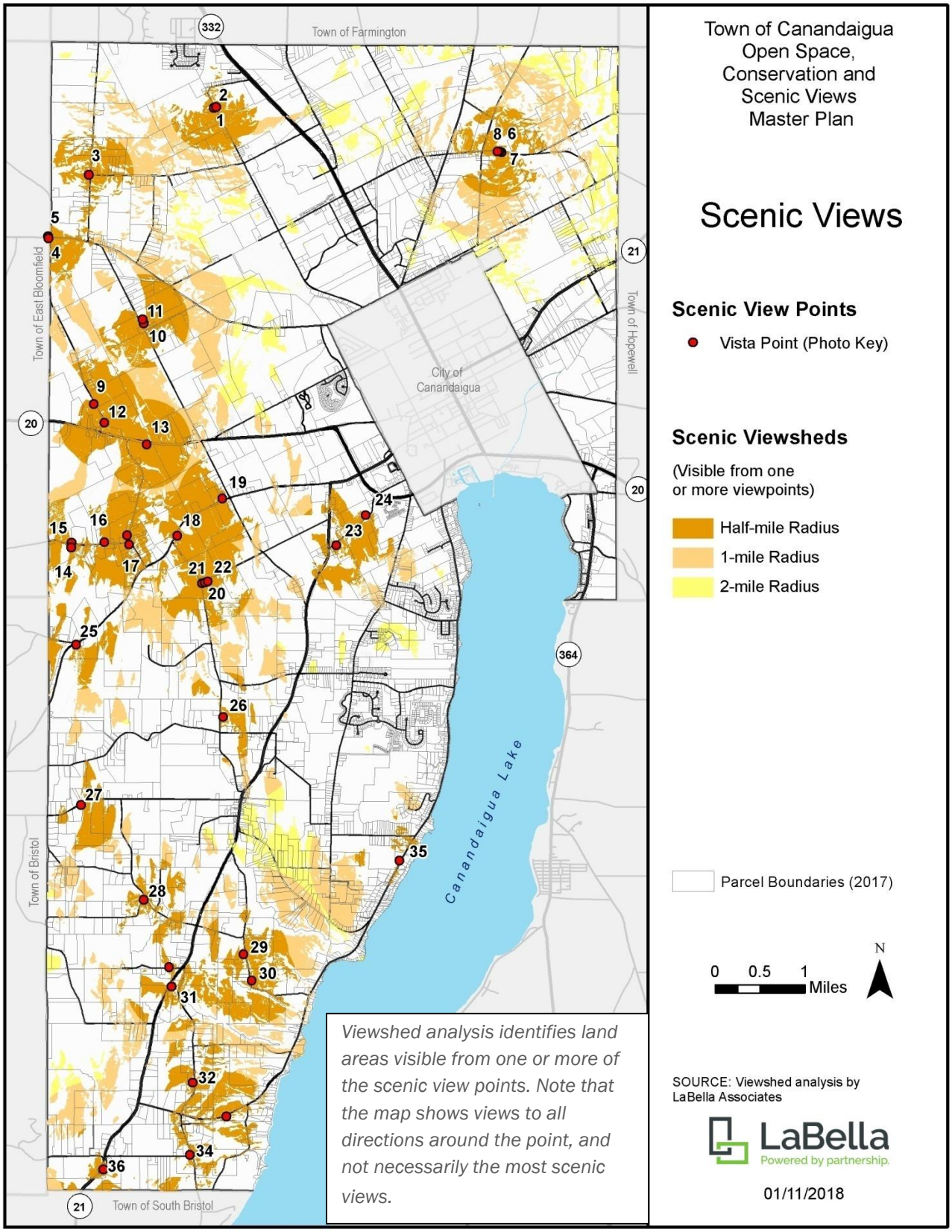
MAP 11: LAND VISIBLE FROM CANANDAIGUA LAKE



MAP 12: ELEVATIONS



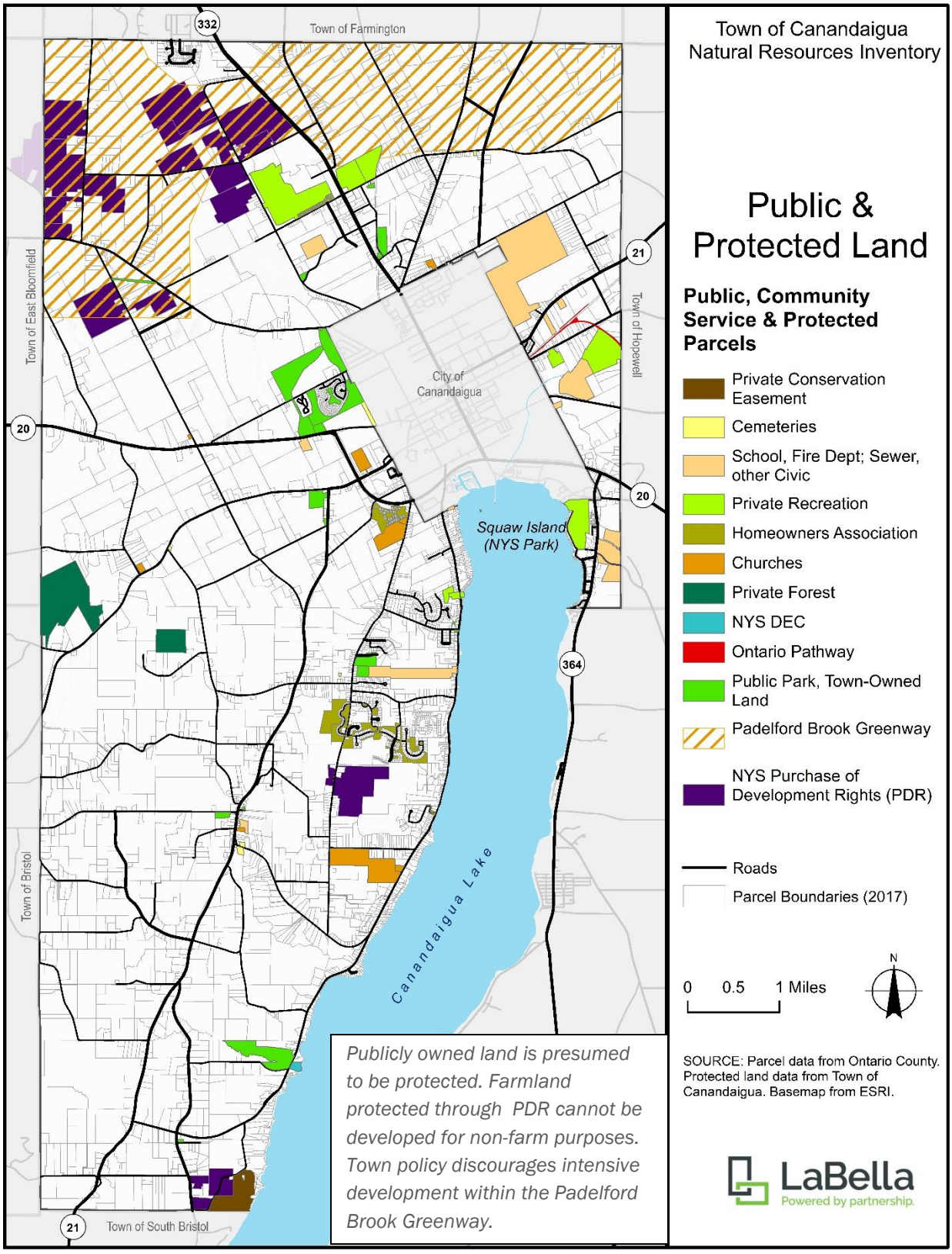
MAP 13: SCENIC VIEWS



SCENIC VIEWS – MAP KEY AND PHOTOS

Map Key	View Toward	Location
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 natural resources, 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 findings of technical experts 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
- aesthetic resources
- community character.

The Town may require professional assistance in evaluating the potential impacts of a proposed development on 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.

Potential Threats

Land development, the removal of natural vegetation and invasive species have the potential to affect the ecological function of existing communities. 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-Wooly 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 expected to cause 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.

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.

[5] http://www.dec.ny.gov/animals/7250.html

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 .

Existing Regulations and Programs

Several local, State and federal regulations offer some protection to wetlands and flood prone areas. Map 4: Regulated Features 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 information 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. This map identifies largely contiguous wooded areas that support woodland wildlife.

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 within the watershed that travel into the lake through groundwater.

Best Practices

Watershed protection includes stormwater management erosion control along streams and the lakeshore, proper management and disposal of chemicals within the watershed.

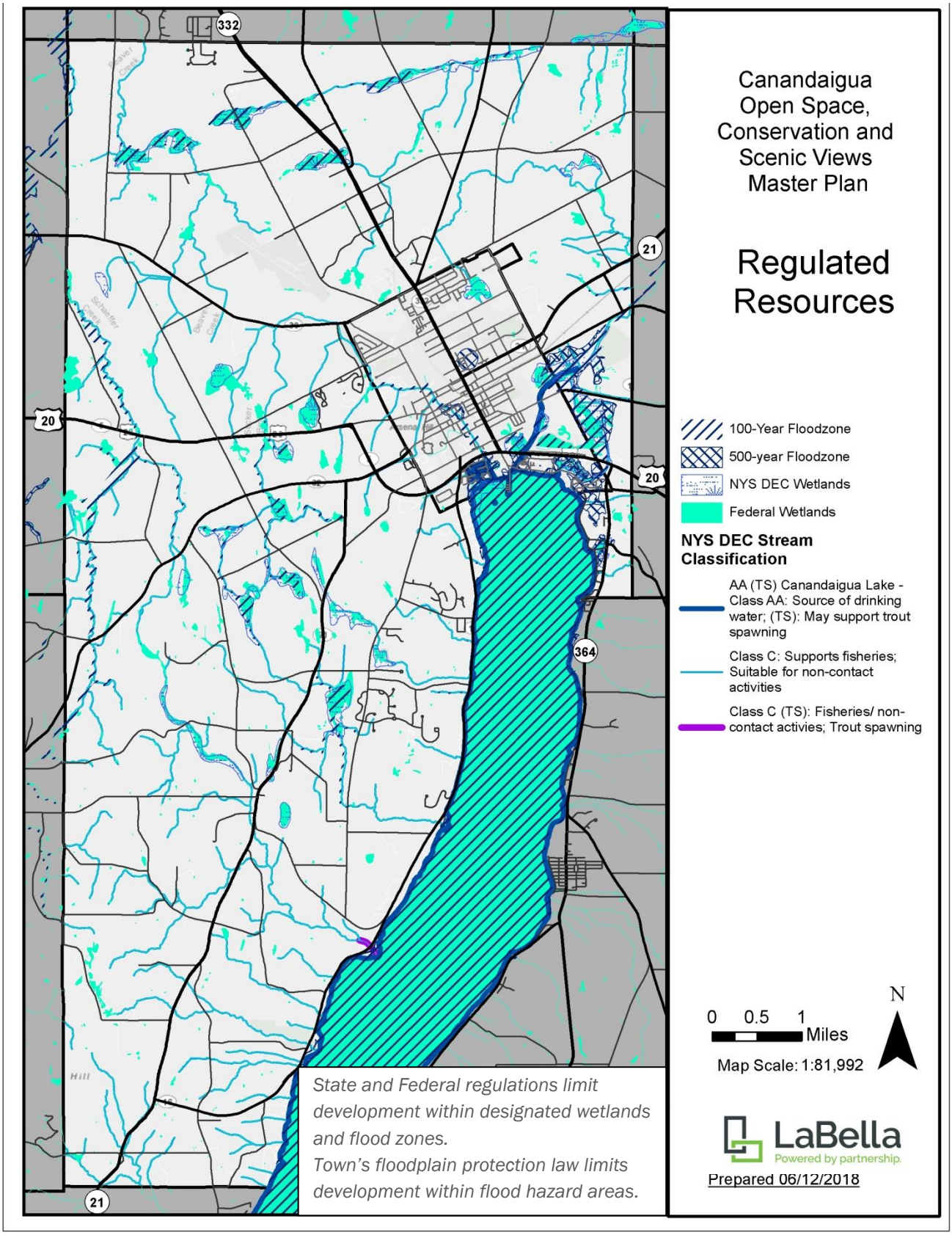
Existing Protections

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.

MAP 15: REGULATED RESOURCES



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 required Town was required 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.

Environmental Conservation Board Role

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 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.

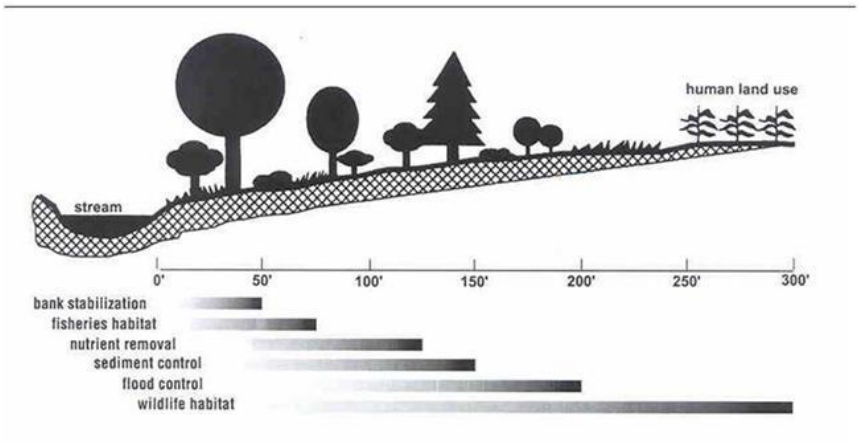
Potential Threats

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, property damage occurs 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.

EXISTING PROTECTIONS

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

The Town of Canandaigua 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 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 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.

Potential Threats

Erosion along steep slopes can occur as part of construction activities or when natural vegetation is removed.

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.

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.

The Town has assisted several farmers in obtaining permanent conservation easements through the NYS Department of Agriculture & Market's Farmland Protection Implementation Program (Purchase of Development Rights.) A total of 1,539 acres in the Town are protected from development through this program.

E. Cultural Resources

1. Mineral 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.

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.)

2. 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 has could affect the quality of the recreational facility or impact the conservation value of protected land.

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.

3. Historic Resources

Why is this important?

Historic resources connect us to the past.

Potential Threats

The owners of historic sites are not required to maintain historic features. However,

Existing Protections

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

4. Scenic Vistas and Viewpoints

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

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).