

Natural Resource Inventory  
Town/Village of Mount Kisco, New York



Photo of Great blue heron at Branch Brook by John Rhodes Sept 4, 2016

Prepared by Mount Kisco Conservation Advisory Council  
March 15, 2017

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## EXECUTIVE SUMMARY

New York State law authorizes a Conservation Advisory Council (CAC) to develop a Natural Resources Inventory (NRI). This NRI was completed by the CAC after the Village applied for and received technical assistance from New York State DEC in 2015.

Over 30 hikes and field surveys, open to the public, were conducted in 2016 as part of the NRI. A public meeting held in February, 2016 at the Mount Kisco Library to determine citizen's conservation priorities attracted several dozen residents. Additional open space and parks, hiking trails, cleaner water and town-wide tree plantings were major objectives along with litter and pesticide reduction, removal of invasive plants, community gardens, education about 'green' landscapes and adapting to and mitigating climate change. These priorities are in accordance with the Village's Vision Plan of 2000 which also called for additional open space and parks, new hiking trails, reduced water pollution and tree planting.

Field surveys were done by naturalists at Leonard Park, Marsh Sanctuary, Kisco Mountain and the Kisco River and Branch Brook and previous studies were reviewed. Findings included old growth trees (over 125 years old) in Leonard Park and along the Kisco River, a rare butternut walnut grove, forest-dwelling birds at Leonard Park and Kisco Mountain, field-dwelling birds at Marsh Sanctuary and waterfowl at the Kisco River wetland. Mammals observed included bear at the Bedford border and beaver, muskrat and bobcat at the Kisco River wetland. Salamanders and green frogs were found at the Leonard Park wetland and stoneflies-an indication of clean water-were seen in the Branch Brook north of Shoppers' Park and the Kisco River east of Lexington Avenue. These findings indicate that high-quality forests, wetlands and watercourses are found at the perimeter of Mount Kisco.

Threats to the town's natural resources include: Branch Brook water pollution-characterized as 'severely impacted' (polluted) through Shoppers' Park, high sodium levels at the Byram Lake Reservoir, clearing of trees and shrubs along the Branch Brook and Wallace Pond, stressed street trees and higher temperatures and greater precipitation due to

climate change which could stress vegetation and increase storm water runoff and street flooding.

Strategies to protect the town's water resources include:

- Stream restoration with native trees and shrubs at Wallace Pond, Wallace Pond outlet, Branch Brook and the Reservoir
- A 'no mowing' zone of at least 10 feet along watercourses
- Enforcement of wetland and storm water regulations
- Education about land management

Storm water improvements include:

- Increased catch basin maintenance
- Detention basins, vegetative swales and rain gardens to capture and filter storm water
- Reduction of impervious surfaces at parking lots and other paved areas

Native trees, shrubs and wildflowers can be planted along streets, parking lots, at Shoppers' Park and at the many apartment complexes, businesses and institutions in town

Open space opportunities are found at the north and south parcels of Kisco Mountain, at Radio Circle and adjacent to Marsh Sanctuary

Pocket parks can be located at town property along Lexington Avenue and at other places in town

A town-wide trail system is near completion with opportunities for hiking trails at Kisco Mountain, Kisco River and the Kisco River wetland

Strategies to protect drinking water at Byram Lake Reservoir include:

- Reduction of road salt use at interstate 684 and Byram Lake Road
- Repair of cave-ins and shoulders along Byram Lake Road
- Planting vegetative strips between the road and the reservoir
- Paving of parts of the road, installation of catch basins and temporary road closures may be necessary.

Funding for stream restoration, tree planting, storm water improvement, open space acquisition and the creation of pocket parks and walking trails is available from various sources. Many of these recommendations are low cost items and several only require a change in maintenance procedures.

It is recommended that the Village Board adopt the NRI and prioritize the recommendations for implementation in accordance with budgeting, safety and other Village priorities.

A Natural Resource Inventory ('NRI') is a document prepared by municipalities, with assistance from their Conservation Advisory Councils ('CAC') that identifies important natural resources in the municipality. By examining current conditions, conservation values, threats to natural resources and actions to protect the town's natural resources, town's can balance development with conservation to ensure that the benefits of healthy ecosystems are available to the community and to future generations. By analyzing natural resources over a large area, the functioning of watersheds, long stream corridors, large wetlands, extensive areas of forest and corridors connecting them can be protected better than if looked at individually. The NRI can then be used by individuals, homeowners, businesses, developers, town agencies and others to guide their actions.

New York State General Municipal Law Section 239 authorizes CACs to advise in the development, management and protection of its natural resources. This same law also authorizes CACs to complete an open space (natural resources) inventory of lands within the municipality and to make recommendations for the ecologically suitable utilization of such lands. Mount Kisco's Vision Statement of 2000, part of the Comprehensive Development Plan, states that "The Village Conservation Advisory Council should work with other boards and agencies to utilize the environmental and land use data and maps prepared for this Comprehensive Development Plan for identifying significant natural resources [and] evaluating potential open space areas."<sup>1</sup> In January 2016 the Town and the CAC began preparation of this NRI.

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<sup>1</sup> Vision Statement, page II-6



The Town/Village of Mount Kisco, New York, is a small, 3.25 square mile, densely populated municipality located in northern Westchester County. The population was 10,877 at the 2010 census.

The Mount Kisco area was settled in the 1670's when European immigrants moved to the area and purchased land from Native Americans. It was an important center of activity during the Revolutionary War, both as a base for loyalists and for a meeting between General Washington and Rochambeau. Mount Kisco was officially founded in 1850 shortly after the arrival of the railroad. It included two small settlements called Kirbyville and New Castle Corners. Kisco is derived from an Indian word –either *kiskamenahook* meaning “settlement near a brook” or *cisqua* meaning “a muddy place.” Mount comes from the 623-foot hill northwest of town. Mount Kisco emerged from the Town of Bedford and the Town of New Castle as a coterminous and independent Village/Town of Mount Kisco effective January 1, 1978. <sup>2,3</sup>

The Town's Vision Statement, adopted in August 2000, states that *“The Vision for Mount Kisco is one in which Village character, charm, diversity and social interaction are retained; the quality of neighborhoods is maintained, restored or enhanced. It is also one where the range of services, cultural and recreational facilities, programs and community events continue to sufficiently meet the needs of the Village. The Vision is also one in which the water supply and natural resources are protected and improved, and the integrity of scenic vistas and open spaces are preserved. In addition, the Vision consists of vibrant downtown and business areas, diverse housing opportunities, and the scale, design and intensity of development compatible with the small town character of the community”*.<sup>4</sup>

*Mount Kisco's  
Vision Plan calls  
for the protection  
of water, natural  
resources and  
open space*

<sup>2</sup> Town of Mount Kisco website, [http://www.mountkisco.org/Pages/MtKiscoNY\\_WebDocs/about](http://www.mountkisco.org/Pages/MtKiscoNY_WebDocs/about)

<sup>3</sup> Mount Kisco Historical Society

<sup>4</sup> Mount Kisco Comprehensive Development Plan, page I-1.

Mount Kisco is in a sense a prototypical 'smart growth' community with dense development in the center of town clustered around mass transportation (Metro-North railroad), the hospital, library, town hall, retail shops, offices, restaurants and stores. Open space surrounds the developed part of town at the northwest, southeast and southwest borders (see Open Space map page 9). Steep slopes on the east and west sides of town funnel water down into the center of town, forming Branch Brook and its associated wetlands (see Streams & Wetlands Satellite Map page 13). Development in the center of town has created impervious surfaces that further concentrate water into the Branch Brook. Impervious surfaces cannot slow down and filter storm water and the result is water pollution and frequent street flooding in the center of town. Impervious surfaces are 24% of the town's land area (see Land Cover Map, page 11), the highest percentage of impervious surface of any of the towns in the Croton Watershed (see Municipal Impervious Surfaces table, page 61).

*Mount Kisco is a smart growth community*

The topography, hydrology and geography of Mount Kisco combine to make the protection of natural resources--including provision of parks and open space, protection of wildlife habitat, creation of hiking and walking trails, protection of clean drinking water, management of storm water and flood control--a challenge.

# Mount Kisco Natural Resources Inventory Land Cover Map

Vegetated land slows, absorbs and filters rainfall; impervious surfaces do not. Mount Kisco is approximately 1/4 impervious surface. The Kisco River sub-basin has the highest per centage of impervious surface in the New Croton Reservoir watershed. Vision 2000 call for augmenting efforts to plant street trees throughout the Village. Trees purify drinking water, prevent flooding and erosion, absorb air pollutants, store carbon, produce oxygen, moderate temperatures, provide wildlife habitat and add beauty to Mount Kisco.



Vegetative Cover
  Village of Mt Kisco

Impervious Surfaces


0    0.15  
Miles

Sources:  
 Satellite Imagery: ESRI  
 Open Space: Westchester County GIS, 2006  
<http://giswww.westchestergov.com/download/wcospace.zip>

# Mount Kisco Natural Resources Inventory Open Space Street Map

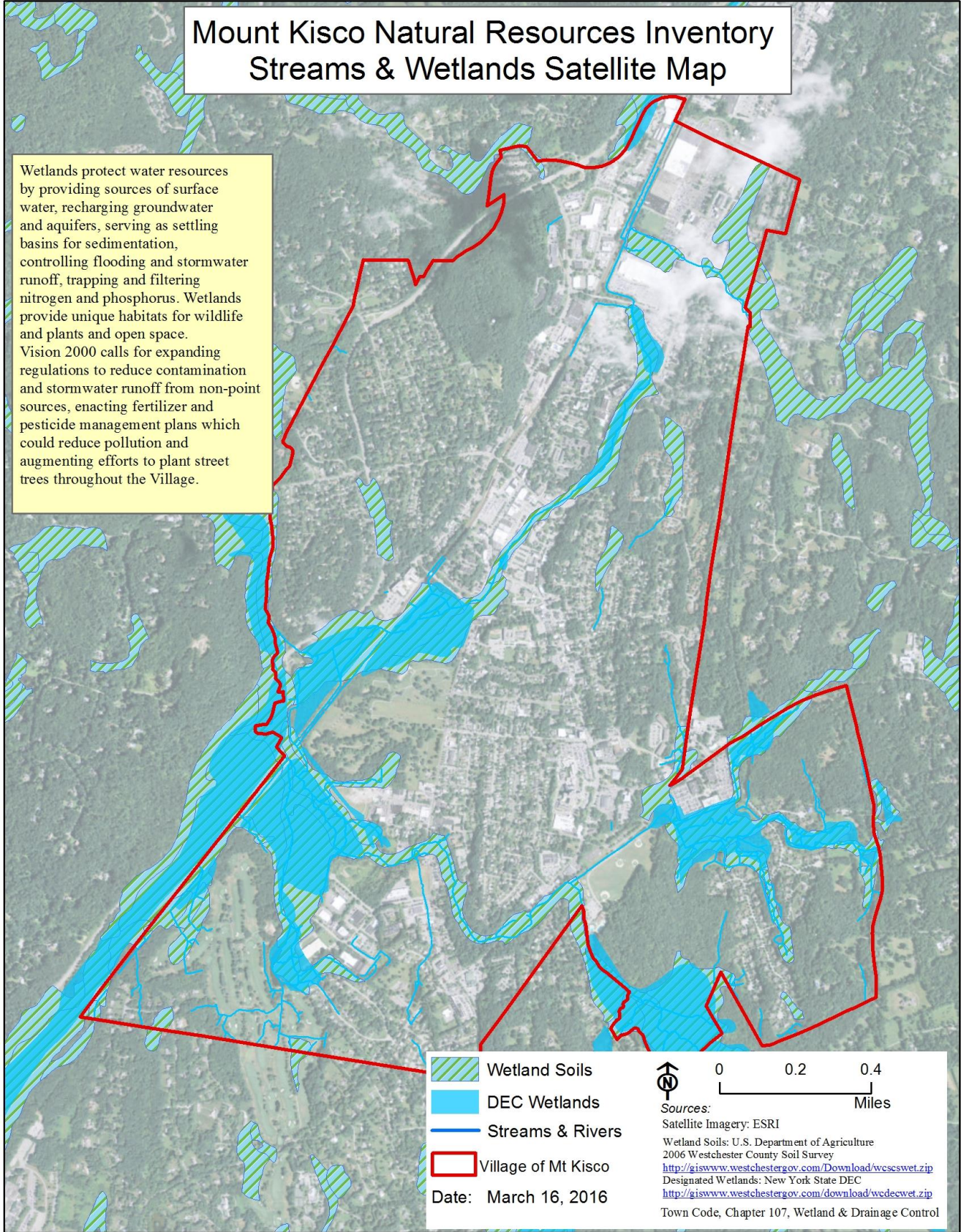
Large blocks of open space lie in the northwest, southwest and southeast sections of Mount Kisco. Cemeteries and a golf course have vegetative cover, allow movement of wildlife and are possible trail connections. Homeowners' Associations have mature trees. Village property buffers the Branch Brook and the Kisco River. Leonard Park and Marsh Sanctuary have trails. Kisco Mountain has views north, east and south. Vision 2000 calls for the evaluation of potential open space areas, pocket parks, a trail network and linkages to other parks.



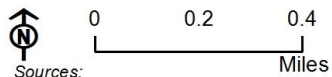
 MT KISCO PARKS & OPEN SPACE	 PUBLIC NON-PARK LANDS	 PRIVATE RECREATION
 MT KISCO WATER SUPPLY LANDS	 PARKWAY LANDS	 LARGE PRIVATE PARCELS
 HOA OPEN SPACE	 NATURE PRESERVES	 CEMETERIES
 0 0.15 Miles	 VILLAGE OF MT KISCO	Sources: Satellite Imagery: ESRI Open Space: Westchester County GIS, 2006 <a href="http://giswww.westchestergov.com/download/wcospace.zip">http://giswww.westchestergov.com/download/wcospace.zip</a>
	Date: March 15, 2017	

# Mount Kisco Natural Resources Inventory Streams & Wetlands Satellite Map

Wetlands protect water resources by providing sources of surface water, recharging groundwater and aquifers, serving as settling basins for sedimentation, controlling flooding and stormwater runoff, trapping and filtering nitrogen and phosphorus. Wetlands provide unique habitats for wildlife and plants and open space. Vision 2000 calls for expanding regulations to reduce contamination and stormwater runoff from non-point sources, enacting fertilizer and pesticide management plans which could reduce pollution and augmenting efforts to plant street trees throughout the Village.



-  Wetland Soils
  -  DEC Wetlands
  -  Streams & Rivers
  -  Village of Mt Kisco
- Date: March 16, 2016



Sources:  
 Satellite Imagery: ESRI  
 Wetland Soils: U.S. Department of Agriculture  
 2006 Westchester County Soil Survey  
<http://giswww.westchestergov.com/Download/wcscswet.zip>  
 Designated Wetlands: New York State DEC  
<http://giswww.westchestergov.com/download/wdceewet.zip>  
 Town Code, Chapter 107, Wetland & Drainage Control

The goals of this NRI include, among others:

- Identifying important attributes and components of the Town's natural resources
- Identifying potential threats to those natural resources
- Identifying options and strategies to ameliorate those threats
- Developing a tool to proactively plan and make informed decisions regarding potential uses and activities and their impacts on natural resources
- Designating, if warranted, critical environmental areas
- Developing and implementing, if warranted, an open space plan
- Making recommendations concerning zoning and subdivision regulations
- Educating residents, businesses, boards, committees and other organizations about the importance of the Town's natural resources and provide actions they can take to protect and enhance the Town's natural resources

## PROJECT METHODS

In preparing the NRI the subcommittee was guided by the Hudson River Estuary Program's "Creating a Natural Resource Inventory: A Guide for Communities in the Hudson River Estuary Watershed" written by Laura Heady and Ingrid Haeckel in 2014.

### [NRI SUBCOMMITTEE](#)

The Town of Mount Kisco's Conservation Advisory Council is chaired by Robert Liebman and in 2015 it included members Alison Bisbano and James Gmelin. John Rhodes, Harry McCartney and Alan Antin joined the CAC the following year. In 2014, Alison Bisbano suggested that the CAC do an NRI. In 2015 the Village applied to the New York State Department of Environmental Conservation Hudson River Estuary Program for technical assistance in preparing the NRI and was chosen as a community eligible for such assistance. The Village Board formed a subcommittee under James Gmelin to initiate the NRI. Teatown Reservation's Director of Conservation Science, Mike Rubbo and Jim Nordgren were also contacted to provide assistance. During 2015 the CAC met with the Harry McCartney of the Mount Kisco Historical Society and both agreed to work together to develop a town-wide hiking trail that will incorporate elements of the Town's history and the Town's natural resources.

Throughout 2016 the NRI subcommittee expanded to include Ruth Moy, John Rhodes, Mike Kirsh, Steve Ricker of Westmoreland Sanctuary, Melissa Beristain of New York City Department of Environmental Protection, Susan Agnifilio, Laurie Kimsal, Hans Selsevier, Karin Mango, André Ferrara, Michael Savoca, Madeline Kearin, Ralph Vigliotti of the Planning Board and several others. Edward Brancati, Village Manager, attended several meetings and site walks.

The NRI subcommittee met internally three times to plan the NRI process and attended three informational meetings at Teatown Reservation led by Mike Rubbo to share NRI experiences with other towns, to learn about GIS/GPS tools and to learn about future grant opportunities. A meeting was held with the regional land trust, Westchester Land Trust, asking for their assistance in protecting open space along the Kisco River and at Kisco

Mountain. Site visits were done with local government officials including the Village Manager Ed Brancati and habitat restoration experts Brendan Murphy from the Watershed Agricultural Council and Rob Doscher from Westchester County's Department of Planning at Leonard Park, Branch Brook and the Branch Brook 'Peninsula' south of Leito Drive. Naturalists Steve Ricker, Director of Conservation and Wildlife at Westmoreland Sanctuary, and Anne Swaim, Executive Director of Saw Mill Audubon, assisted in bird and wildlife surveys. DEC Forester George Profous assessed Mount Kisco's street trees.

### PUBLIC PARTICIPATION

Public participation has been a key part of this NRI for several reasons. First, citizen input helped establish the projects methods, goals and recommendations. Secondly, citizen participation helped in identifying important natural resources including wildlife sightings and specimen trees. Citizens also helped ready trails for public hikes by removing litter and overgrown vegetation. Citizens also helped with background work such as locating previous natural resource studies. Finally, citizen participation helped to publicize the NRI and to gain support for the NRI's findings.

Public outreach began with a public meeting at the town library at which more than 20 citizens attended and wrote down their preferences for natural resource protections in Mount Kisco. The most common suggestions from the Feb 20th library meeting were to:

- Create pocket parks at Lexington Avenue and other locations
- Create more hiking trails throughout town
- Protect water quality in streams and reservoirs
- Control flooding, improve storm water control
- Target sources of pollution and correct them
- Plant trees, shrubs, wildflowers throughout town
- Educate the public on how to green their backyards
- Promote green landscaping of apartment complexes
- Regulate pesticide use by landscaping companies and golf courses
- Remove invasive vines, shrubs and trees taking over parts of town
- Clean up trash
- Create community vegetable gardens



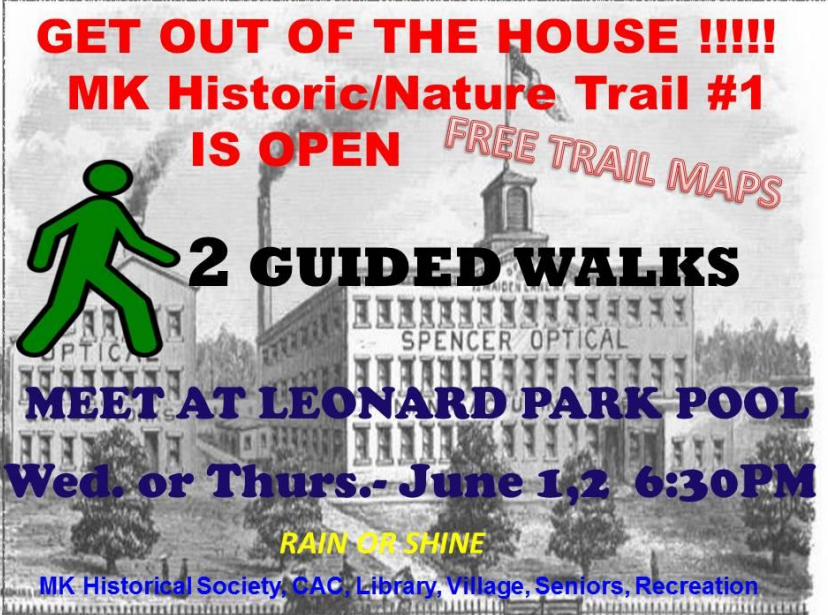
Many of these suggestions reinforced the goals of natural resource protection mentioned in the Town's Comprehensive Plan's Vision Statement, summarized on pages 24-26.



Public Meeting, Mount Kisco Library  
February 20, 2016



During the spring and summer the NRI subcommittee along with the Historical Society held more than 20 public hikes including a hike of Kisco Mountain that drew 30 citizens. Several other hikes had over two dozen participants.



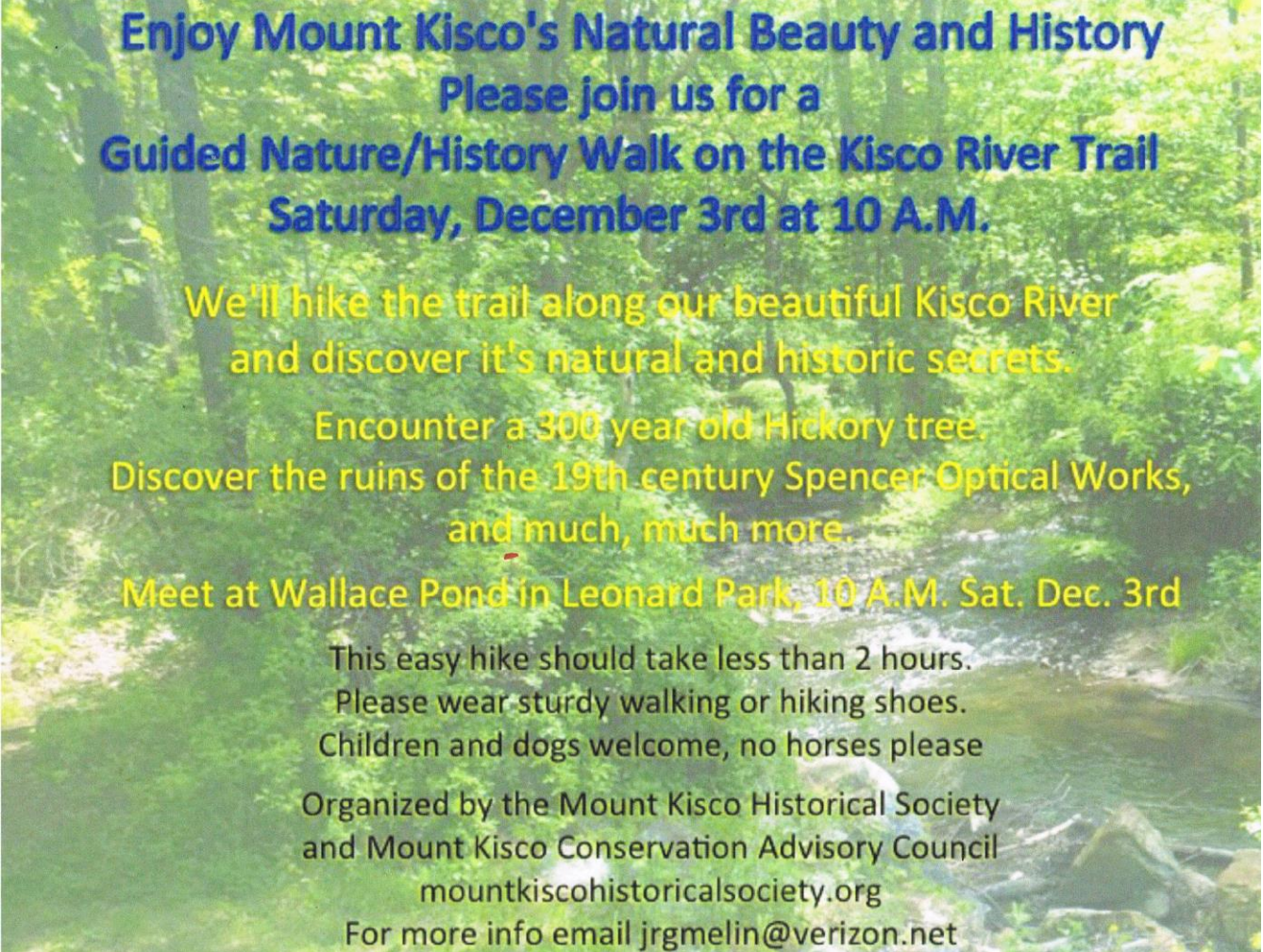
**GET OUT OF THE HOUSE !!!!!**  
**MK Historic/Nature Trail #1**  
**IS OPEN** *FREE TRAIL MAPS*

**2 GUIDED WALKS**

**MEET AT LEONARD PARK POOL**  
**Wed. or Thurs.- June 1,2 6:30PM**

*RAIN OR SHINE*

MK Historical Society, CAC, Library, Village, Seniors, Recreation



**Enjoy Mount Kisco's Natural Beauty and History**  
Please join us for a  
**Guided Nature/History Walk on the Kisco River Trail**  
**Saturday, December 3rd at 10 A.M.**

We'll hike the trail along our beautiful Kisco River  
and discover it's natural and historic secrets.

Encounter a 300 year old Hickory tree.  
Discover the ruins of the 19th century Spencer Optical Works,  
and much, much more.

**Meet at Wallace Pond in Leonard Park, 10 A.M. Sat. Dec. 3rd**

This easy hike should take less than 2 hours.  
Please wear sturdy walking or hiking shoes.  
Children and dogs welcome, no horses please

Organized by the Mount Kisco Historical Society  
and Mount Kisco Conservation Advisory Council  
mountkiscohistoricalsociety.org  
For more info email [jrgmelin@verizon.net](mailto:jrgmelin@verizon.net)



Hike along Kisco River Trail June 1, 2016



Trash clean up at Peninsula wetland April 23, 2016



Hike to Kisco Mountain  
March 3, 2016



Leonard Park Hike & Tree Survey January 28, 2016

In addition to the public meetings and hikes, the NRI subcommittee passed out material and signed up citizens for hikes at Mount Kisco ‘sales days’ over a two day period. Participation with the local schools included a trout release at the Kisco River.

Ongoing public outreach includes a NRI-dedicated web-site: <http://mountkisco-ny-nri.weebly.com/>, a Facebook page: [https://www.facebook.com/mountkiskonri/?ref=page\\_internal](https://www.facebook.com/mountkiskonri/?ref=page_internal), and the posting of upcoming events on the Town of Mount Kisco E-Notice: [https://www.facebook.com/mountkiskonri/?ref=page\\_internal](https://www.facebook.com/mountkiskonri/?ref=page_internal)

A complete list of NRI public events with dates can be found in Appendix 3, page 1468.

### REVIEW OF EXISTING STUDIES:

The subcommittee took advantage of all the previous planning documents and natural resource studies that have been done in Mount Kisco, reviewing them and summarizing them in the NRI so that stakeholders have easy access to them for education and decision-making.

Planning documents reviewed include:

- Comprehensive Development Plan and Vision Plan, 2000  
[http://www.mountkisco.org/pages/mtkiskonny\\_manager/visionplan.pdf](http://www.mountkisco.org/pages/mtkiskonny_manager/visionplan.pdf)  
[http://www.mountkisco.org/Pages/MtKiscoNY\\_Manager/compplan.pdf](http://www.mountkisco.org/Pages/MtKiscoNY_Manager/compplan.pdf)
- The Croton Plan for Westchester, 2009  
<http://planning.westchestergov.com/crotonplan>

Natural Resource studies reviewed include:

- NY State DEC’s “30 Year Trend in Water Quality of Rivers and Streams in New York State, Macroinvertebrate Data”, 1972-2002  
[http://www.dec.ny.gov/docs/water\\_pdf/sbu30yrintro.pdf](http://www.dec.ny.gov/docs/water_pdf/sbu30yrintro.pdf)
- NY State DEC and USGS’s “Seasonal Variability and Effects of Stormflow on Concentrations of Pesticides in Kisco River” December, 2004  
<https://pubs.usgs.gov/wri/wri03-4151/includes/WRIR03-4151.pdf>

- NY City Environmental Protections' "2013 Watershed Water Quality Annual Report", July 2014  
[http://www.nyc.gov/html/dep/pdf/reports/fad\\_5.1\\_watershed\\_monitoring\\_program\\_-\\_2013\\_watershed\\_water\\_quality\\_annual\\_report\\_07-14.pdf](http://www.nyc.gov/html/dep/pdf/reports/fad_5.1_watershed_monitoring_program_-_2013_watershed_water_quality_annual_report_07-14.pdf)
- Westchester County Department of Planning's "Westchester County Croton Watershed Water Quality Conditions Report", March 2002  
<http://planning.westchestergov.com/images/stories/CrotonPlan/Appendix%20B%20Water%20Quality%20Conditions.pdf>
- NY State DEC's "The Lower Hudson River Basin Waterbody Inventory", August 2008 [http://www.dec.ny.gov/docs/water\\_pdf/pwillhud08rev.pdf](http://www.dec.ny.gov/docs/water_pdf/pwillhud08rev.pdf)
- NY City Panel on Climate Change's "Climate Risk Information", June 2013  
[http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc\\_climate\\_risk\\_information\\_2013\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc_climate_risk_information_2013_report.pdf)
- NYSERDA's "Climate Change in New York State", September, 2014  
<https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York>
- NYSERDA "Climate Risk Information 2013", June 2013.  
[http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc\\_climate\\_risk\\_information\\_2013\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc_climate_risk_information_2013_report.pdf)
- Mount Kisco Stormwater Annual Report, March, 2016
- Chazen Companies' "Byram Reservoir Monitoring Program", 2016
- NY State DEC's memo on Mount Kisco street trees, George Profous, 2016
- New York State Breeding Bird Atlas, 2008  
<http://www.dec.ny.gov/animals/51030.html>
- New York State DEC Bureau of Fisheries Kisco River Survey, 1986, 2000, 2014, 2016.
- NY State DEC Hudson River Estuary Programs' "Natural Areas and Wildlife in your Community" August 2016.

## MAPS OF NATURAL RESOURCES:

The next step in the NRI was to make GIS-based maps of important natural resources.

Maps made include:

Satellite Map  
Street Map  
Land Cover Map  
Watershed Map  
Contours Map  
Steep Slopes Map  
Bedrock Map  
Soil Map  
Suricial Geology Map

Aquifer Map  
Streams & Wetlands Maps  
Flood Zone Map  
Stormwater Outlet Maps  
1947 Aerial Map  
Hazardous Waste Site Map  
Open Space Maps  
Hiking Trail Map  
Water Quality Map

A similar set of maps was made for the Byram Lake Reservoir, owned by Mount Kisco and its source of drinking water. See pages 11-13; 35-59 for maps.

## FIELD SURVEYS:

Suveys of trees and shrubs, streams, wetlands, birds, amphibians, reptiles, fish and macroinvertebrates were undertaken during the growing and nesting seasons of 2016. The surveyors were made up of experts from Westmoreland Sanctuary-Steve Ricker, Saw Mill Audubon-Anne Swain, naturalist Jim Nordgren as well as citizen-scientists Jim Gmelin, John Rhodes and others. The town's major forested areas at Marsh Sanctuary, Leonard Park and Kisco Mountain were surveyed as were the town's main watercourses and wetland complexes along the Kisco River and Branch Brook. Diamters of very large trees were recorded., breeding birds were identified by sound and sight, amphibians were surveyed using boards in wetlands, fish were surveyed using minnow traps, macroinvertebrates were surveyed using kick nets. Sightings by citizens of wildlife and specimen trees were also recorded.



Inventorying old growth trees, Kisco Mountain, March 3, 2016

### COMPREHENSIVE DEVELOPMENT PLAN & VISION PLAN

Mount Kisco's Comprehensive Development Plan was adopted by the Town/Village in 2000. Part of the Plan includes the Vision Plan which provides a framework for the future of the Village. Many of the Vision Plan's objectives were also priorities mentioned by residents at the NRI public meetings. Objectives pertinent to the NRI, include, among others to:

#### Open Space:

- Explore the protection, preservation and possible acquisition of open space and park areas
- Coordinate efforts with private landowners, land trusts and other environmental groups in the acquisition and maintenance of new open space areas
- Create smaller pocket parks and open space in residential areas which may be underserved
- Adopt a Scenic Overlay Zone for areas which have scenic ridges, views, sanctuaries or preserves, old stone walls and other important features

#### Water Quality:

- Enforce and expand regulations to reduce contamination and storm water runoff into the Branch Brook, Kisco River, wetlands and lakes
- Enact lawn fertilizer and pesticide management plans
- Create streamside vegetation buffers for the streams that feed into Byram Lake
- Implement recommendations of the Croton Plan, focused on improving water quality

#### Hiking Trails:

- Enhance existing trails in Leonard Park and develop new walking/hiking and bike trails throughout the Village

#### Trees and Landscaping:

- Plant street trees throughout the Village, and re-establish its Tree Planting Program
- Incorporate more landscaping within parking lots and along road frontages and/or property lines
- Encourage property owners to protect natural resources within their properties



- Notify residents and businesses on how they can incorporate native trees, shrubs, flowers and other appropriate plantings within their properties
- Make application reviews consistent with the Tree Preservation Ordinance’s intent to protect and preserve trees, reforest or replace trees, provide wetland buffers and protect wildlife habitats

Litter:

- Establish a more frequent, formal structure for litter clean-up days.

CROTON PLAN

The Croton Plan, written with input from Mount Kisco and the nine other municipalities in the Croton Watershed, has the following findings that are relevant to the NRI:

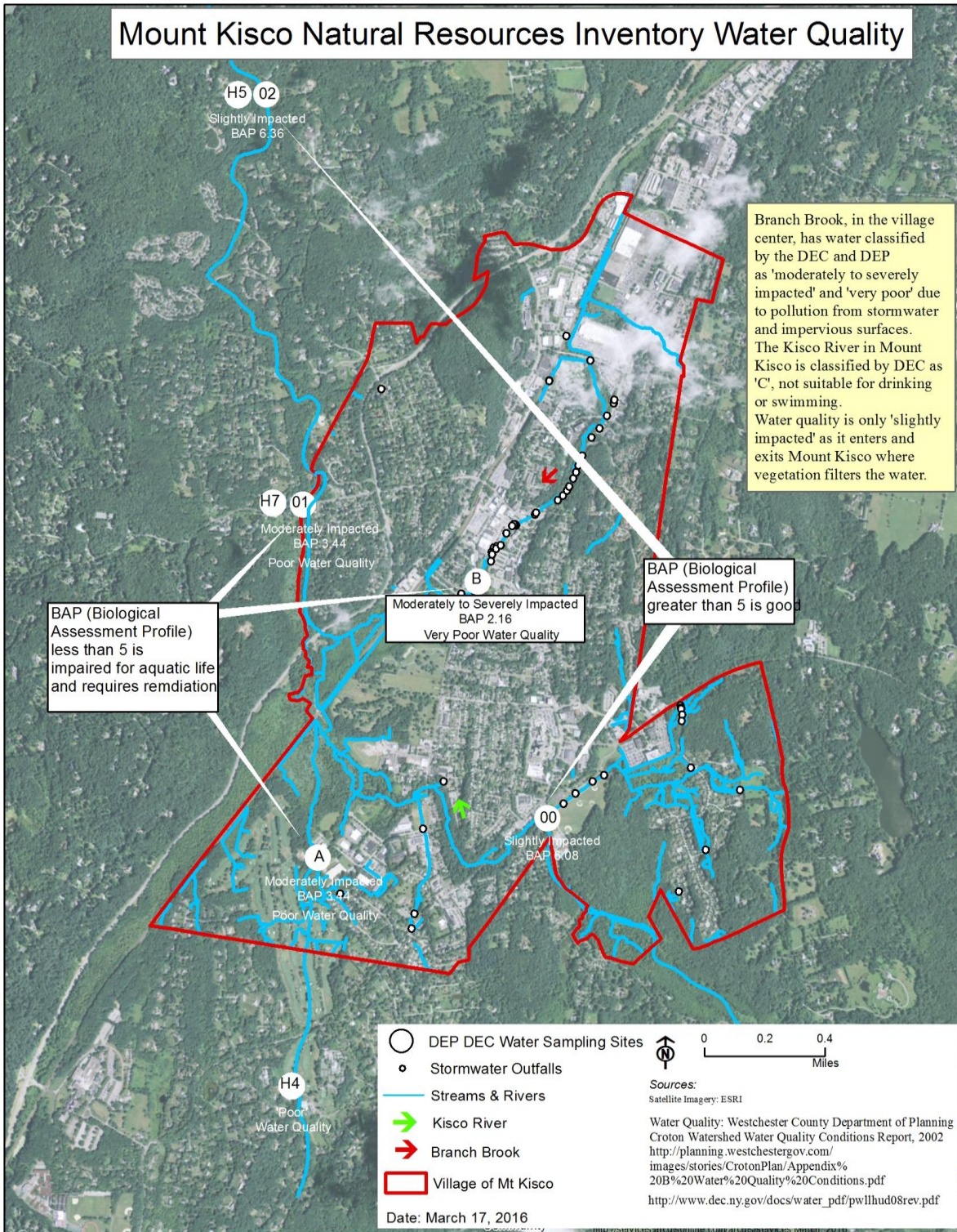
- Mount Kisco has highest percentage of impervious surfaces in the Watershed
- The Kisco River, which runs through the southern portion of Mount Kisco, has 12 percent impervious surface which is the second highest level of impervious surface of the 43 tributaries in the Watershed
- Stormwater picks up metals, toxins, sediment, pesticides, fertilizers that contribute to high levels of phosphorous, pathogens and turbidity
- The Kisco River is the only tributary that has all of the following pollutants:
  - Coliform
  - Phosphorus
  - Turbidity (soil erosion, urban runoff)
  - Wastewater Treatment Plants
  - Inactive hazardous waste site pollution

Recommendations of the Croton Plan relevant to Mount Kisco include, among others, that Mount Kisco:

- Create a stream restoration program based on the Westchester County Stormwater Management Planning Manual
- Prepare a water quality mowing practice and a chemical herbicide management plan for municipal land
- Develop residential landscaping guidelines that protect water quality
- Promote establishment of a parks pollution prevention plans regarding stormwater control and chemical application rates

WATER QUALITY STUDIES-KISCO RIVER

Water quality studies of the Kisco River, the Branch Brook and tributaries done by DEC, DEP and Chazen Companies of the Kisco River, Branch Brook and Byram Lake show that the water quality of the Kisco River varies throughout its course as it flows from wooded areas east of Mount Kisco, through the developed, urban part of Mount Kisco and then flows northwest to the New Croton Reservoir. It is most polluted in the center of Mount Kisco where development and impervious surfaces are the greatest.



The Kisco River is fed by a tributary flowing from Howlands Lake just east of Mount Kisco. This stream runs along Route 172 to Wallace Pond in Leonard Park. At the southwestern border of Leonard Park, this water mixes with the relatively clean water flowing from Seven Springs and the forested parts of Marsh Sanctuary and Leonard Park to the east. The result is that water is classified as only 'slight impacted' (polluted) as it flows beneath Byram Lake Road.

The Branch Brook, which flows through the center of Mount Kisco and feeds into the Kisco River along the Town's southwest border is sampled at Lexington Avenue and Lieto Drive. Results indicate that Branch Brook is 'severely impacted' (polluted). The macroinvertebrate insects sampled reflect water pollution and were dominated by sewage-tolerant midges, worms, and snails. No pollution-intolerant macroinvertebrates such as mayflies, stoneflies and caddisflies were found at the Branch Brook sampling site at Lexington Avenue. Waterfowl contribute to the organic loading in this stream.<sup>5</sup>

*Branch Brook, in the center of town, is 'severely impacted' by water pollution*

At the southwest section of Mount Kisco, a tributary located between the village of Mount Kisco and the hamlet of Chappaqua, just east of the Chappaqua Brook has 'poor' water quality due to high levels of nutrients (phosphorus), pathogens and ammonia. Macroinvertebrate sampling indicates 'moderately impacted'. In three of six samples, no pollution-intolerant macroinvertebrates were found at the Radio Circle cul-de-sac sampling site. The tributary runs directly through the Mount Kisco Country Club golf course for .67 miles. The most likely causes of the pollution are wildlife bacteria and fertilizer from the golf course. Water quality samples collected at this site exceed the threshold of fecal coliform and total coliform.<sup>6</sup>

As the polluted waters from the Branch Brook and the tributary upstream of Chappaqua Brook mix with the still-clean Kisco River, pollution increases to the 'moderately impacted' and 'impaired' level at the Main Street/Route 133 bridge along Mount Kisco's

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<sup>5</sup> NY State DEC's "30 Year Trend in Water Quality of Rivers and Streams in New York State, Macroinvertebrate Data", 1972-2002 [http://www.dec.ny.gov/docs/water\\_pdf/sbu30yrintro.pdf](http://www.dec.ny.gov/docs/water_pdf/sbu30yrintro.pdf). Pps. 283, 291.

<sup>6</sup> Westchester County Department of Planning's "Westchester County Croton Watershed Water Quality Conditions Report", March 2002 <http://planning.westchestergov.com/images/stories/CrotonPlan/Appendix%20B%20Water%20Quality%20Conditions.pdf>. Pgs. 71-72.

western border. Pollutants include phosphorous, low dissolved oxygen, pathogens (bacteria) and silt and sediment, most likely from urban stormwater and waterfowl bacteria.

Macroinvertebrate insects caddisflies and riffle beetles indicated municipal/industrial pollution and urban stormwater runoff. Three tributaries showed waterfowl waste and the unnamed tributary by Radio Circle showed toxic pollutants.<sup>7</sup>

As the Kisco River continues to flow northwest out of Mount Kisco water quality improves another category to 'slightly impacted' at Nitra-Yeshiva Road/Pines Bridge Road based on macroinvertebrate sampling. Nonpoint source nutrient enrichment is the primary polluter.<sup>8</sup> Water quality recovers a short distance away and is 'good' as it enters the New Croton Reservoir.<sup>9</sup>

Sampling was done from 1998 to 2007 and over those nine years there was no improvement or deterioration in water quality at any of the sample sites.

Macroinvertebrates that indicate clean, high-quality streams include:<sup>10</sup>



**STONEFLIES**

Stoneflies are extremely sensitive to pollution, if any are present, water quality is excellent



**MAYFLIES**

Mayflies cannot live in streams with bacteria, sewage or nutrients -all of which lower dissolved oxygen. Mayflies are also sensitive to pesticides.



**CADDISFLIES**

Some species of caddisflies can tolerate pollution.

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<sup>7</sup> NY State DEC's "The Lower Hudson River Basin Waterbody Inventory", August 2008 [http://www.dec.ny.gov/docs/water\\_pdf/pwllhud08rev.pdf](http://www.dec.ny.gov/docs/water_pdf/pwllhud08rev.pdf) Pgs. 148-152.

<sup>8</sup> NY State DEC's "30 Year Trend in Water Quality of Rivers and Streams in New York State, Macroinvertebrate Data", 1972-2002 [http://www.dec.ny.gov/docs/water\\_pdf/sbu30yrintro.pdf](http://www.dec.ny.gov/docs/water_pdf/sbu30yrintro.pdf). Pg. 291.

<sup>9</sup> Westchester County Department of Planning's "Westchester County Croton Watershed Water Quality Conditions Report", March 2002. Pg. 71.

<sup>10</sup> NY State DEC's "30 Year Trend in Water Quality of Rivers and Streams". Pg 371.

## PESTICIDE & HERBICIDE WATER STUDIES

Water quality studies done by New York State DEC and the USGS in 2000 of the Kisco River along Croton Lake Road just northwest of the Town found levels of pesticides and herbicides that exceeded the water quality criteria for the protection of aquatic life.<sup>11</sup> Pesticides diazinon, carbaryl, malathion and chlorpyrifos and the herbicide 2,4-D exceeded the thresholds for aquatic life. These are most commonly used on lawns and golf courses for weed control and on lawns and gardens for insect control. The peak run-off for the herbicide 2,4-D occurred in June and again in September, which corresponds to the manufacturer's recommended application times for lawns. 2,4-D is sold in home and garden stores, most widely known as Scott's 'Weed B Gone' product. This indicates that the source of this herbicide is homeowners' use on their lawns. Other studies have shown that about 10% of lawn herbicides wash off into stormwater and then into streams and rivers.

*Lawn chemicals  
are polluting the  
Kisco River*

## DRINKING WATER SAMPLING

Mount Kisco's drinking water comes from Byram Lake Reservoir, east of the Town but owned by the Town, and from wells at Leonard Park. Byram Lake Reservoir serves approximate 10,000 customers and is the Town's primary drinking water source. Water quality at the Reservoir is monitored by Chazen Companies during the spring, summer and fall each year. Test results indicate that Byram Lake remains in a transitional oligotrophic/mesotrophic category of quality, which is good and is just one stage below a pristine, fully oligotrophic water body. The Reservoir's only pollutant of concern is salt (sodium and chloride), which is caused by winter road salt applied to Interstate 6-84 located just a few feet east of the Reservoir, and winter road salt applied to Byram Lake Road which runs along the northern and eastern shore of the Reservoir. Sodium and chloride concentrations have risen over the past few years. Concentrations in all tributaries as much as doubled levels found in 2002-2008 with steady increases noted in all tributaries

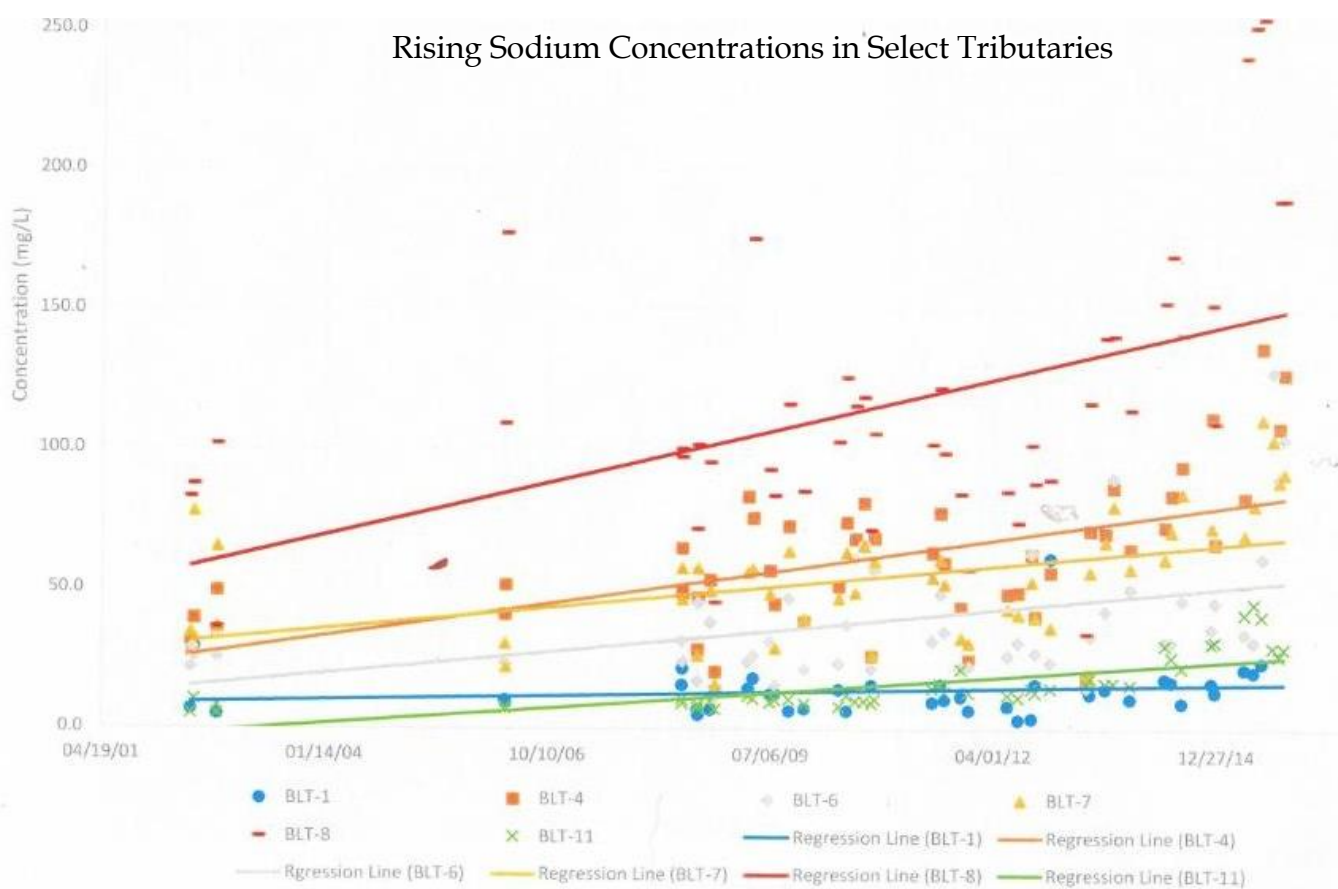
*Byram Lake  
Reservoir has  
high levels of  
sodium*

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<sup>11</sup> U.S. Geological Survey and New York State DEC. "Seasonal Variability and Effects of Stormflow on Concentrations of Pesticides in Kisco River May 2000-February 2001". December 2004. <https://pubs.usgs.gov/wri/wri03-4151/includes/WRIR03-4151.pdf>

thereafter.<sup>12</sup> Sodium levels were slightly above 20 mg/L in 2002. In 2013 sodium concentrations were in the range of 20 to 25 mg/Liter. In 2015 sodium was in the range of 35 to 40 mg/Liter, firmly above the N.Y. State Department of Health guidance value of 20 mg/Liter for those on severely restricted sodium diets. Many people with high blood pressure are on sodium restricted diets. The study does not include winter, so sodium and chloride may be even higher over the winter months when salt use is highest on roads.<sup>13</sup>

The chart below shows the steadily increasing levels of sodium (salt) since 2004 at the tributary/Reservoir sampling locations. A New York City DEP report found that the Kisco River also has high levels of sodium and chloride due to road salt. <sup>14,15</sup>



The Chazen Companies  
March 2016

<sup>12</sup> Chazen Companies. “2015 Annual Report: Byram Reservoir Monitoring Program.” Pg. 23.

<sup>13</sup> Chazen Companies. “2015 Annual Report: Byram Reservoir Monitoring Program.” Pg. 1.

<sup>14</sup> NY City Environmental Protections’ “2013 Watershed Water Quality Annual Report”, July 2014

[http://www.nyc.gov/html/dep/pdf/reports/fad\\_5.1\\_watershed\\_monitoring\\_program\\_-\\_2013\\_watershed\\_water\\_quality\\_annual\\_report\\_07-14.pdf](http://www.nyc.gov/html/dep/pdf/reports/fad_5.1_watershed_monitoring_program_-_2013_watershed_water_quality_annual_report_07-14.pdf)

<sup>15</sup> Chazen Companies’ “Byram Reservoir Monitoring Program”, 2016

## STORMWATER REPORT

Mount Kisco issues an annual Stormwater Report as required by the EPA's Phase II National Pollutants Discharge Elimination System water program. Stormwater is the leading water pollutant in the United States and is a particular problem in areas such as Mount Kisco that have high impervious surfaces that cannot absorb and filter stormwater. Mount Kisco has the highest percentage of impervious surface in the Croton Watershed at 24% of land surface<sup>16</sup>. Watershed water quality begins to deteriorate when impervious surfaces exceed 10% to 15% of surface area.<sup>17</sup> Mount Kisco's 2016 Storm water Report indicates that 1,500 catch basins are inspected and cleaned each year in the Town. The Town provides educational materials to the public concerning storm water management, pesticide and fertilizer application, recycling and wetland protection with printed materials, list-serves and public presentations.

*Leonard Park and Marsh Sanctuary are part of a 7,000 acre forest*

## FISH SURVEYS

Fish surveys of the Kisco River have been done at Byram Lake Road and at Pines Bridge Road by New York State DEC in 1986, 2000, 2014 and 2016. A survey in 1986 found 5 native brook trout and 2 American eels at the Pines Bridge Road sampling site. Brook trout require cool, clean water and their populations have been declining due to habitat destruction, according to New York State DEC. Brook trout were not found in any of the later surveys. American eels are hatched in the Atlantic Ocean and migrate to freshwaters along the Hudson River. No American eels were found in later surveys.

## HUDSON RIVER ESTUARY REPORT-NATURAL AREAS & WILDLIFE

Laura Heady of NY State DEC's Hudson River Estuary Program used GIS models to identify several important natural resources in Mount Kisco including large forest patches and important areas for rare animals-eel, brook trout and New England cottontail- in the "Natural Areas and Wildlife in your Community" report, August, 2016, Appendix 2, pages 141-147.

The DEC report identifies a large forest patch of over 4,000 acres extending from Bedford, New Castle and North Castle between Byram Lake Road and Armonk Road which

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<sup>16</sup> The Croton Plan for Westchester, 2009. Figure 3-10.

<sup>17</sup> Delaware NEMO Guide to Natural Resource Planning, 2005. Page 2-2.

itself is adjacent to another large forest patch of almost 3,000 acres west of Armonk Road, though both forests are fragmented by roads and residential development. Most of these forest blocks are south and east of Mount Kisco, but the forest patches in Mount Kisco at Leonard Park, Marsh Sanctuary and along the Kisco River at the southern section of Mount Kisco play important conservation roles by buffering, extending and supporting these two forest blocks. The presence of scarlet tanager, wood thrush and Louisiana water thrush in the Mount Kisco breeding survey block and in field surveys done in Mount Kisco in 2016 indicate that this high-quality interior and riparian forest habitat is still functioning.

The DEC report notes that the Kisco River just northwest of Mount Kisco contains habitat for the American eel, which is declining through much of its range due to obstacles blocking its migration from the Atlantic Ocean. Brook trout were also found in the Kisco River, though surveys since 1986 have not found brook trout or American eels. Brook trout are declining due to the loss of clean, cool streams to pollution and development. The New England cottontail, a New York Species of Special Concern which is declining due to loss of shrub land habitat and displacement by the more common Eastern cottontail, was found along the Saw Mill River Parkway in 2004. This area has been heavily altered by the widening of the Parkway's bridge at the Kisco Avenue on and off ramp in 2015 and 2016.

### STREET TREES

Mount Kisco's street trees were surveyed by DEC Forester George Profous in October, 2016. The survey found that pin oaks and red oaks were healthy, but that many trees along East Main Street and South Moger Avenue were declining because of a lack of growing space and soil and that the large oaks by the library were stressed by compaction. Recommendations included enlarging tree pits and extending the growing space beneath the sidewalks with structural soil, cantilevering, porous concretes, unilock paving and/or sylvacells. The report recommended avoiding Bradford pears because of breakage and inventorying all trees in Mount Kisco to assess tree composition and to guide future tree species choices. See DEC Forester Report, Appendix 4, pages 151-152.

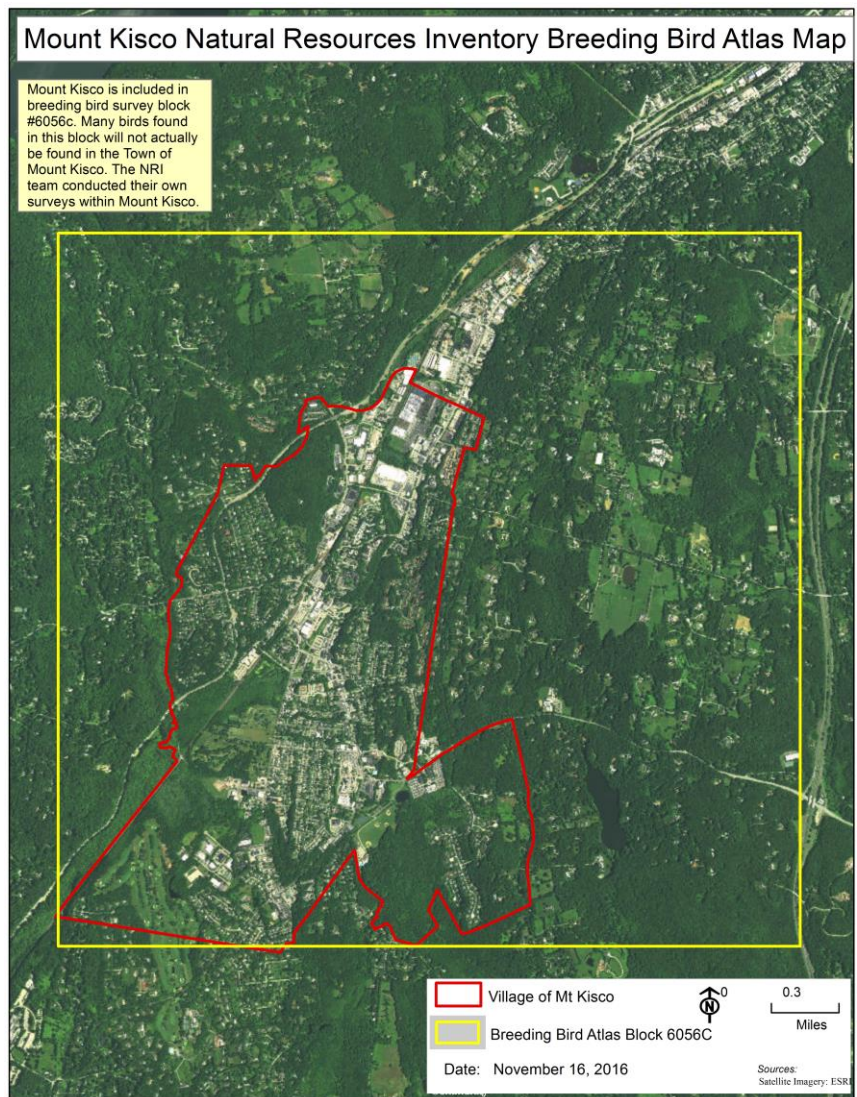


## BIRD SURVEYS

Bird surveys were done across New York State from 2000 through 2005 and results are published in the New York State Breeding Bird Atlas.<sup>18</sup> Surveys are done in 9 square mile blocks. Mount Kisco lies in the western half of survey block 6056C. Results of the 2008 Atlas can be compared to the 1988 Atlas covering years 1980-1985. Birds that were breeding here in 1980-1985 but are no longer found here include: grassland-habitat birds bobolink and meadowlark; the shrubland-habitat birds ruffed grouse, woodcock, brown thrasher and least flycatcher; woodland-habitat birds Canada

warbler, blue-headed vireo, brown creeper, broad-winged hawk and black-billed

cuckoo. These birds were most likely observed in the grassland and shrub land east of Mount Kisco along Guard Hill Road and Sarles Street. Grassland and shrub land is being lost to development and succession into new forest all over the northeast, including this survey block. Birds that require large, unfragmented forest habitat are declining as forests become more fragmented due to development. Several species of birds are newly observed in this survey block including: turkey vultures that are expanding their range northward as temperatures rise; double-breasted cormorants, Cooper's hawk and great blue heron that are recovering due to the



The Breeding Bird Survey covers more than Mount Kisco and picks up many birds not found in Mount Kisco

*Many grassland, shrub land and forest-dependent birds have been lost in this area since 1985*

<sup>18</sup> New York State Ornithological Association and New York State DEC. "The Second Atlas of Breeding Birds in New York State. McGowan Kevin J. and Kimberley Corwin. 2008

banning of the pesticide DDT; turkey, cliff swallow and the non-native mute swan that are increasingly adapted to suburbs. Other species increasing in this survey block include ruby-throated hummingbird, red-breasted nuthatch, pine warbler and bank swallows, all for reasons unknown. A complete list of birds observed in Mount Kisco's survey block during both surveys can be found in Appendix 1, page 133-140.

19

Birds no longer found in the Mount Kisco area



Ruffed grouse



Woodcock

New arrivals in the Mount Kisco area



Turkey vulture

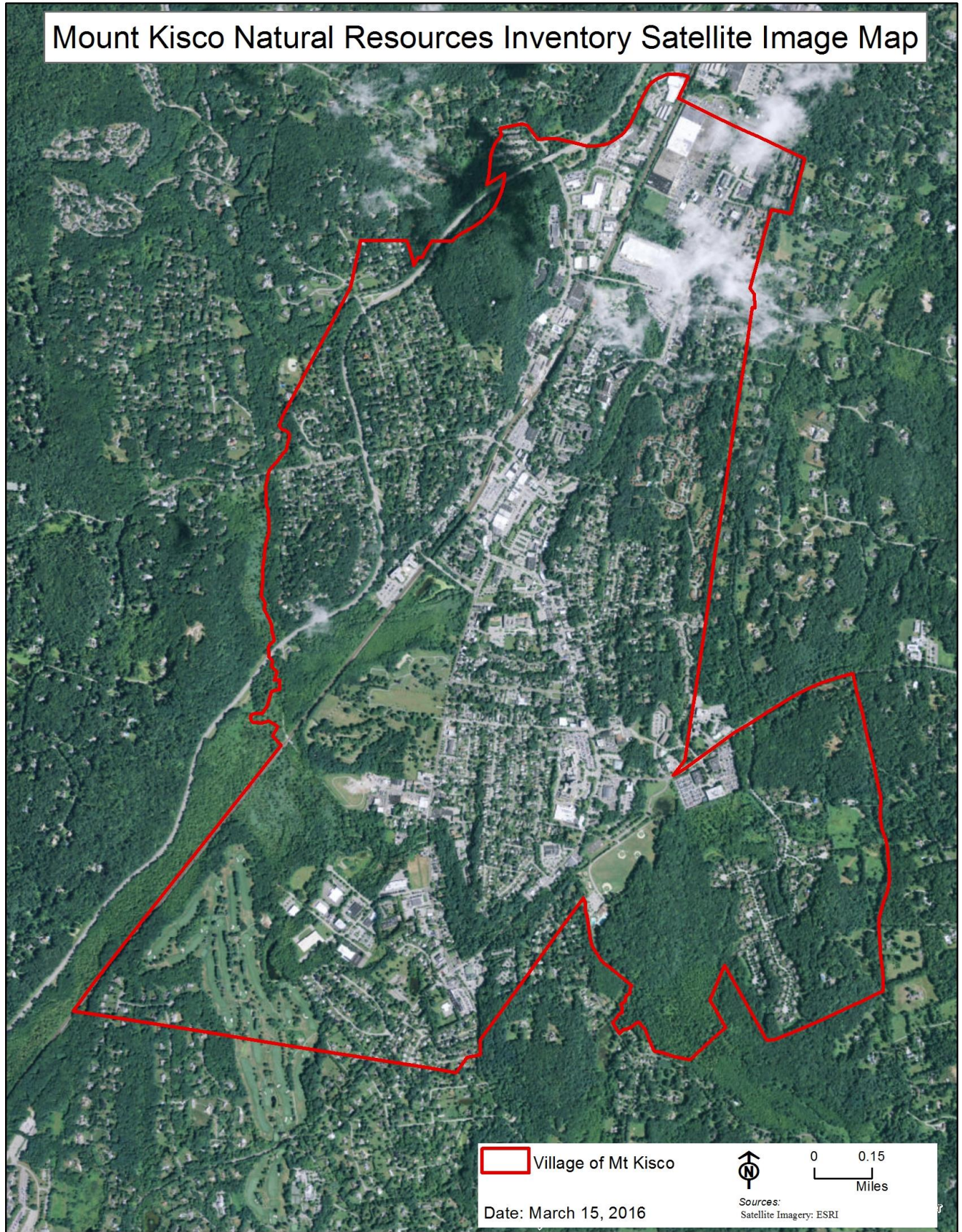


Mute swan

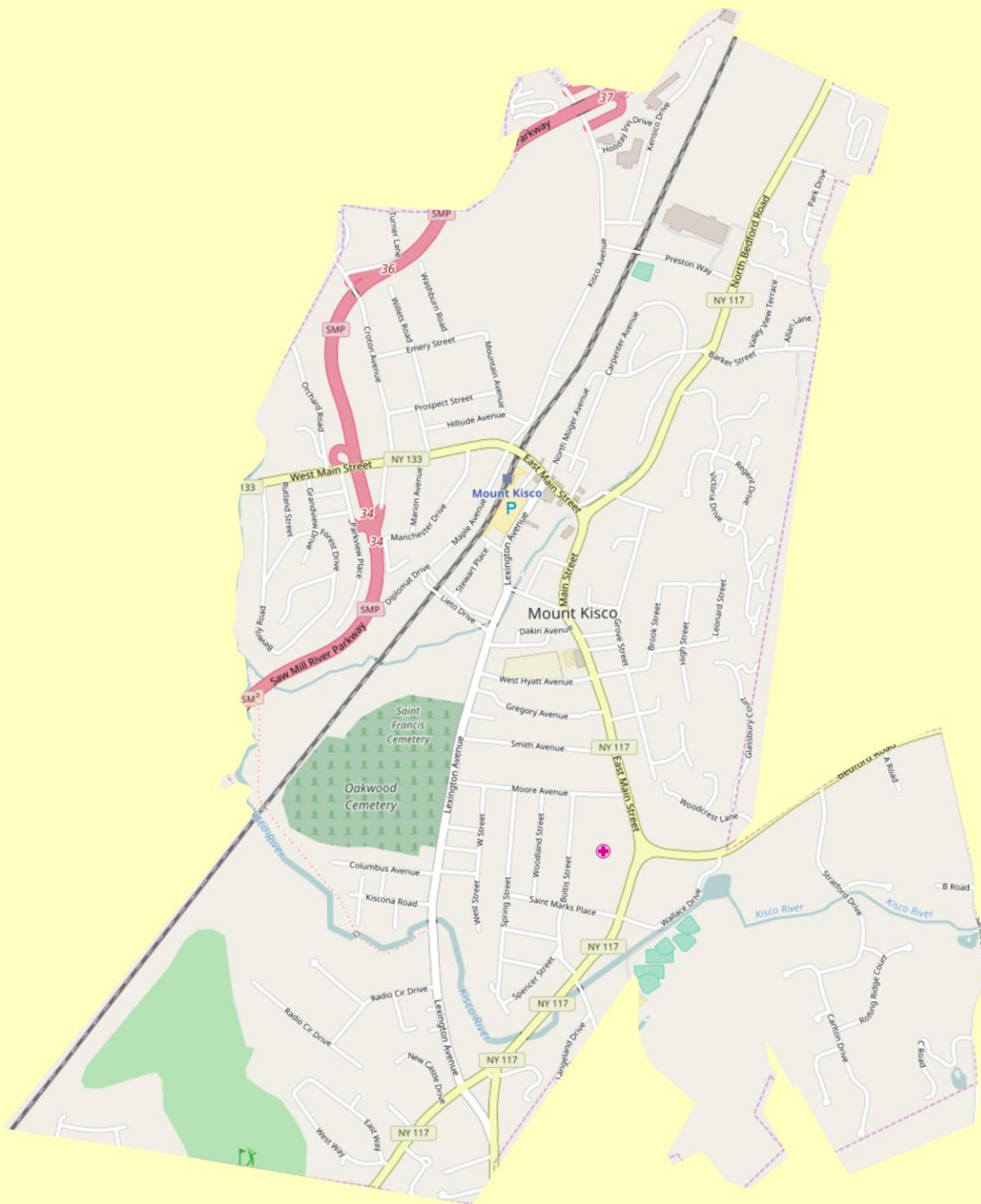
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<sup>19</sup> Cornell Lab of Ornithology. [https://www.allaboutbirds.org/guide/Ruffed\\_Grouse/id](https://www.allaboutbirds.org/guide/Ruffed_Grouse/id)

# Mount Kisco Natural Resources Inventory Satellite Image Map



# Mount Kisco Natural Resources Inventory Street Map

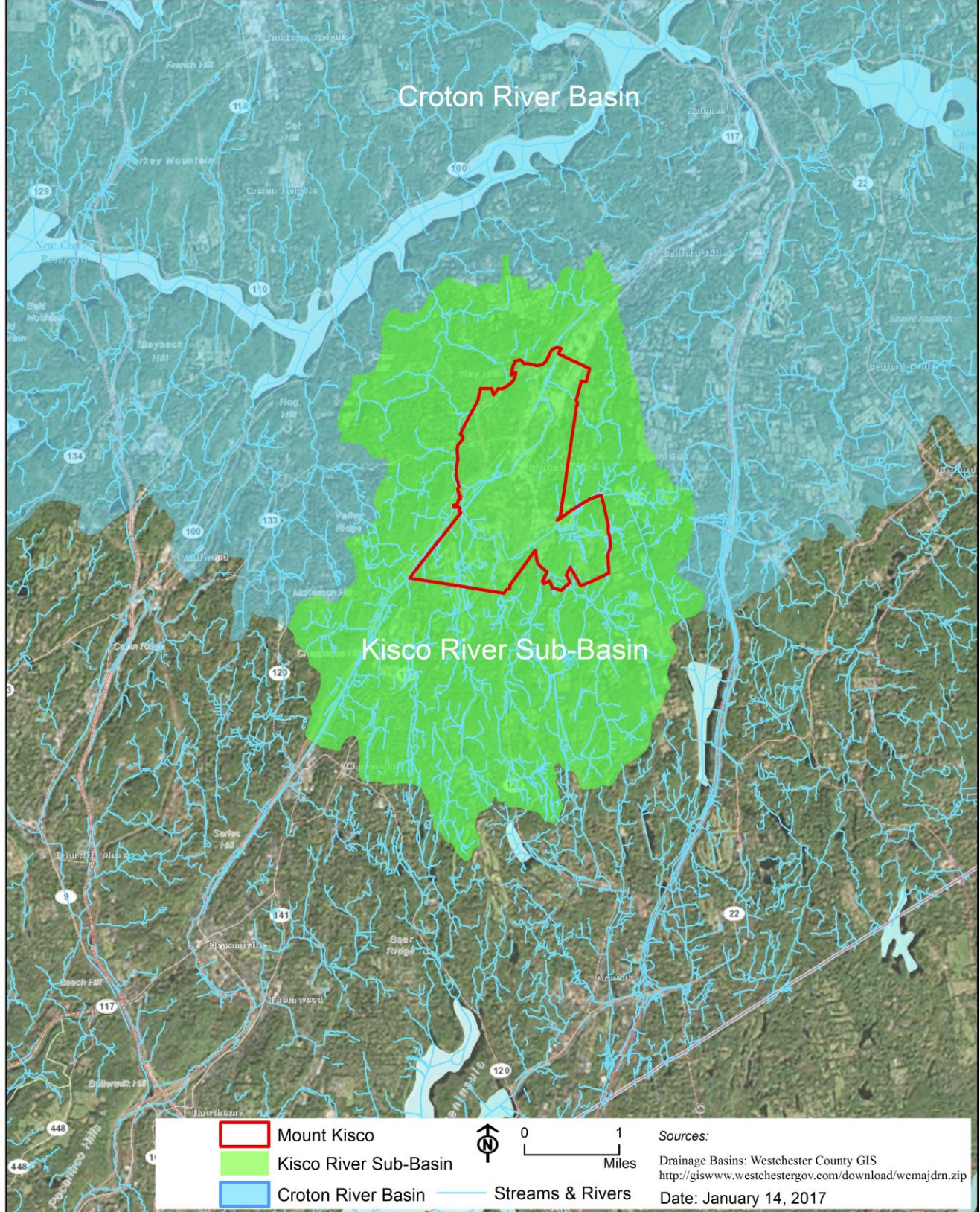



 0      0.25  
 Miles

Date: January 14, 2017  
 Sources:  
 Street Map: ESRI

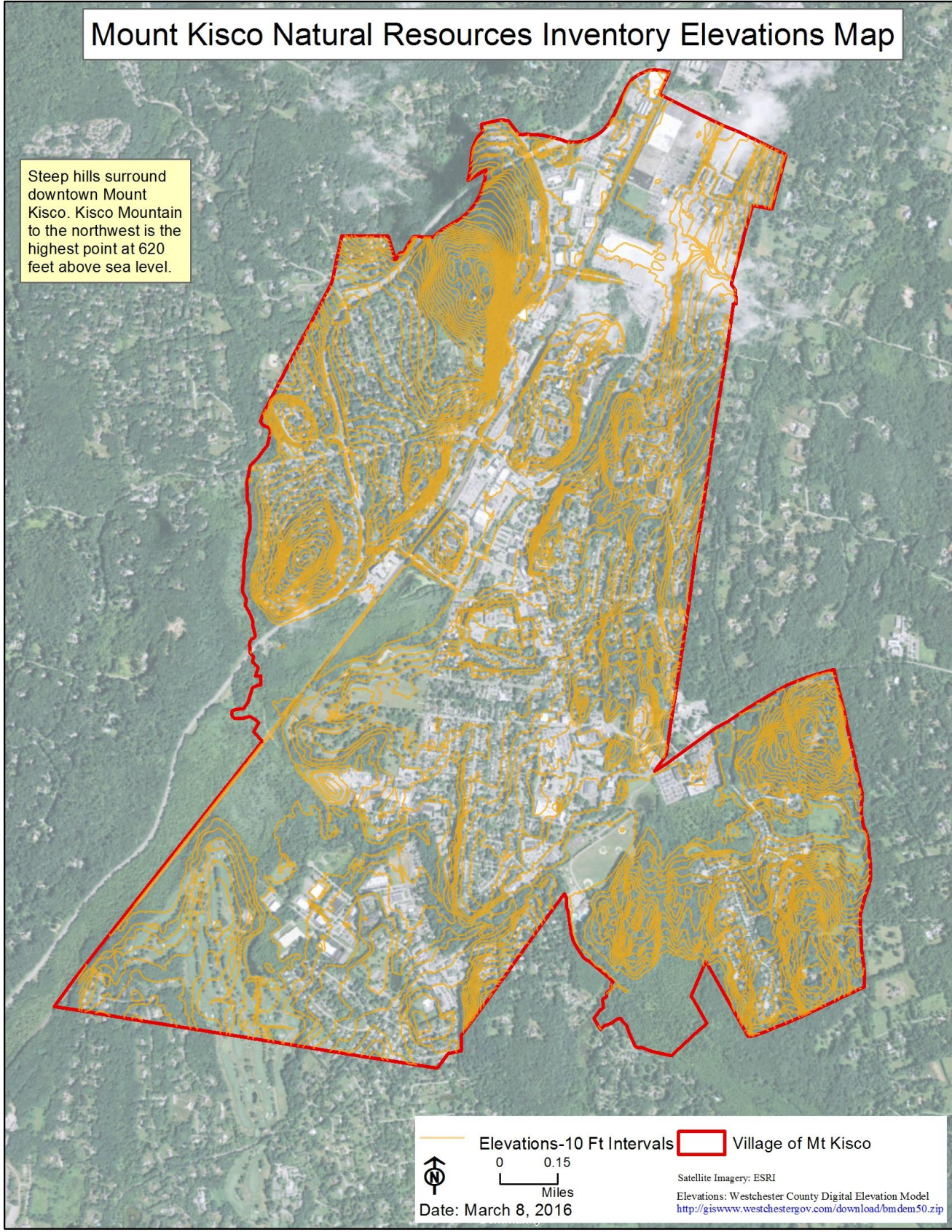
iA

# Mount Kisco Natural Resources Inventory Drainage Basin Map



# Mount Kisco Natural Resources Inventory Elevations Map

Steep hills surround downtown Mount Kisco. Kisco Mountain to the northwest is the highest point at 620 feet above sea level.



— Elevations-10 Ft Intervals     Village of Mt Kisco

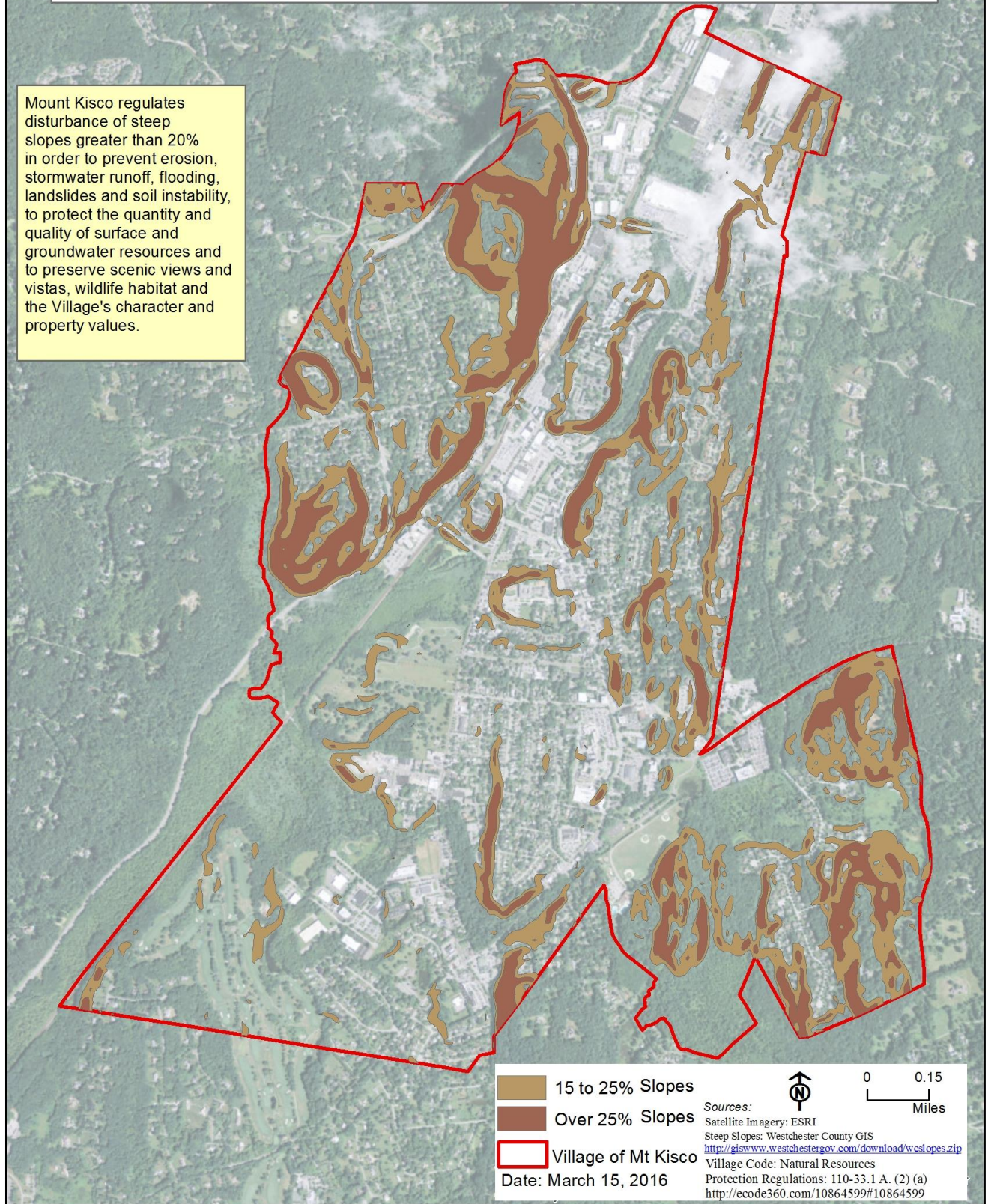
0    0.15  
Miles

↑  
Date: March 8, 2016

Satellite Imagery: ESRI  
Elevations: Westchester County Digital Elevation Model  
<http://giswww.westchestergov.com/download/bm-dem50.zip>

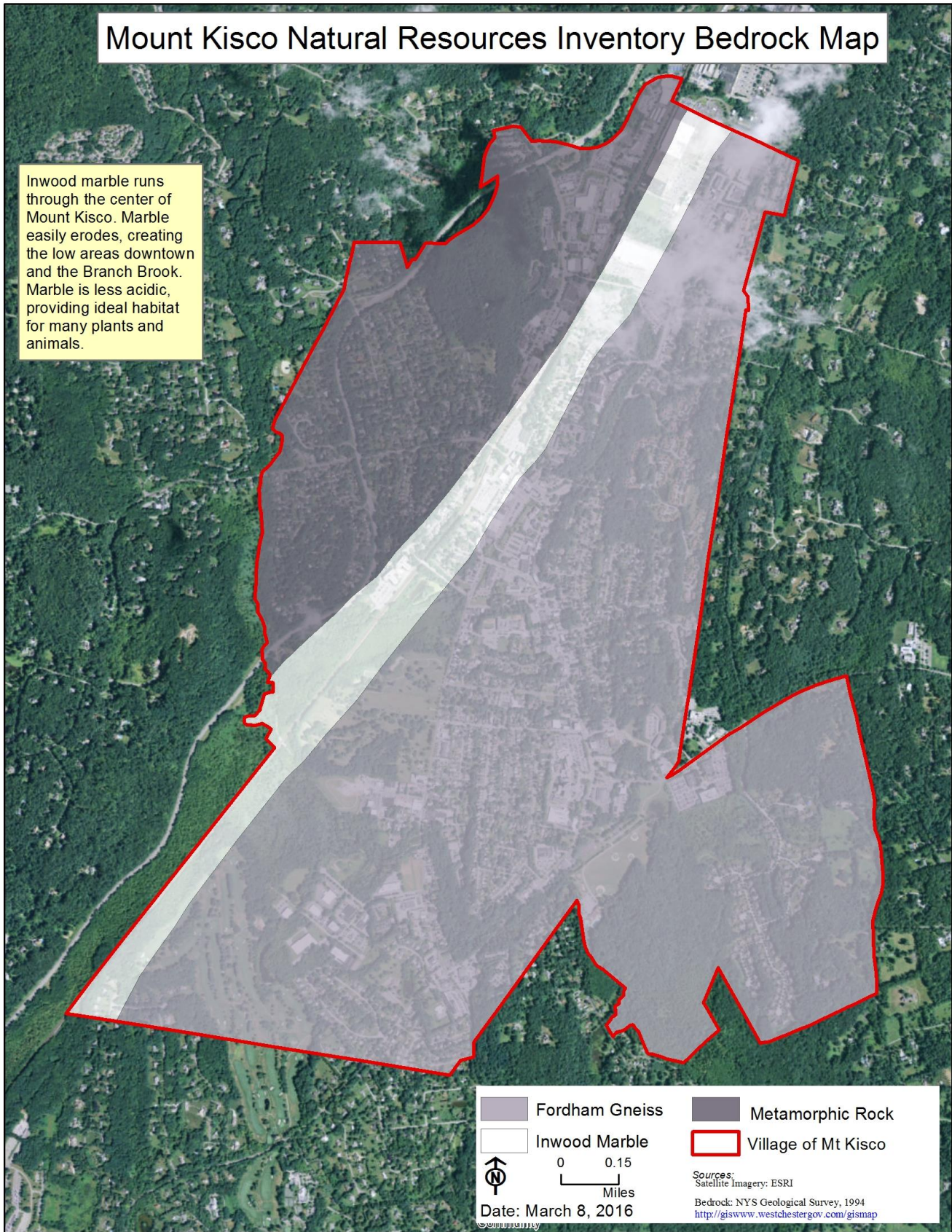
# Mount Kisco Natural Resources Inventory Steep Slopes Map

Mount Kisco regulates disturbance of steep slopes greater than 20% in order to prevent erosion, stormwater runoff, flooding, landslides and soil instability, to protect the quantity and quality of surface and groundwater resources and to preserve scenic views and vistas, wildlife habitat and the Village's character and property values.



# Mount Kisco Natural Resources Inventory Bedrock Map

Inwood marble runs through the center of Mount Kisco. Marble easily erodes, creating the low areas downtown and the Branch Brook. Marble is less acidic, providing ideal habitat for many plants and animals.





# Mount Kisco Natural Resources Inventory Soils Map

**Soils & % of Mt Kisco Soils**

- Uf Urban Land-17%
- CrC Charlton-Chatfield complex-13%
- UhB Urban land-Charlton complex-11%
- CsD Chatfield-Charlton complex-8%
- ChC Charlton loam-11%
- Ff Fluvaquents- frequently flooded-5%
- UI Urban land-Charlton-Chatfield complex-5%
- CuD Chatfield-Hollis-Rock outcrop complex-4%
- WdB Woodbridge loam-3%
- HrF Hollis-Rock outcrop complex-3%
- Pn Paxton fine sandy loam-2%
- Ce Catden muck-2%

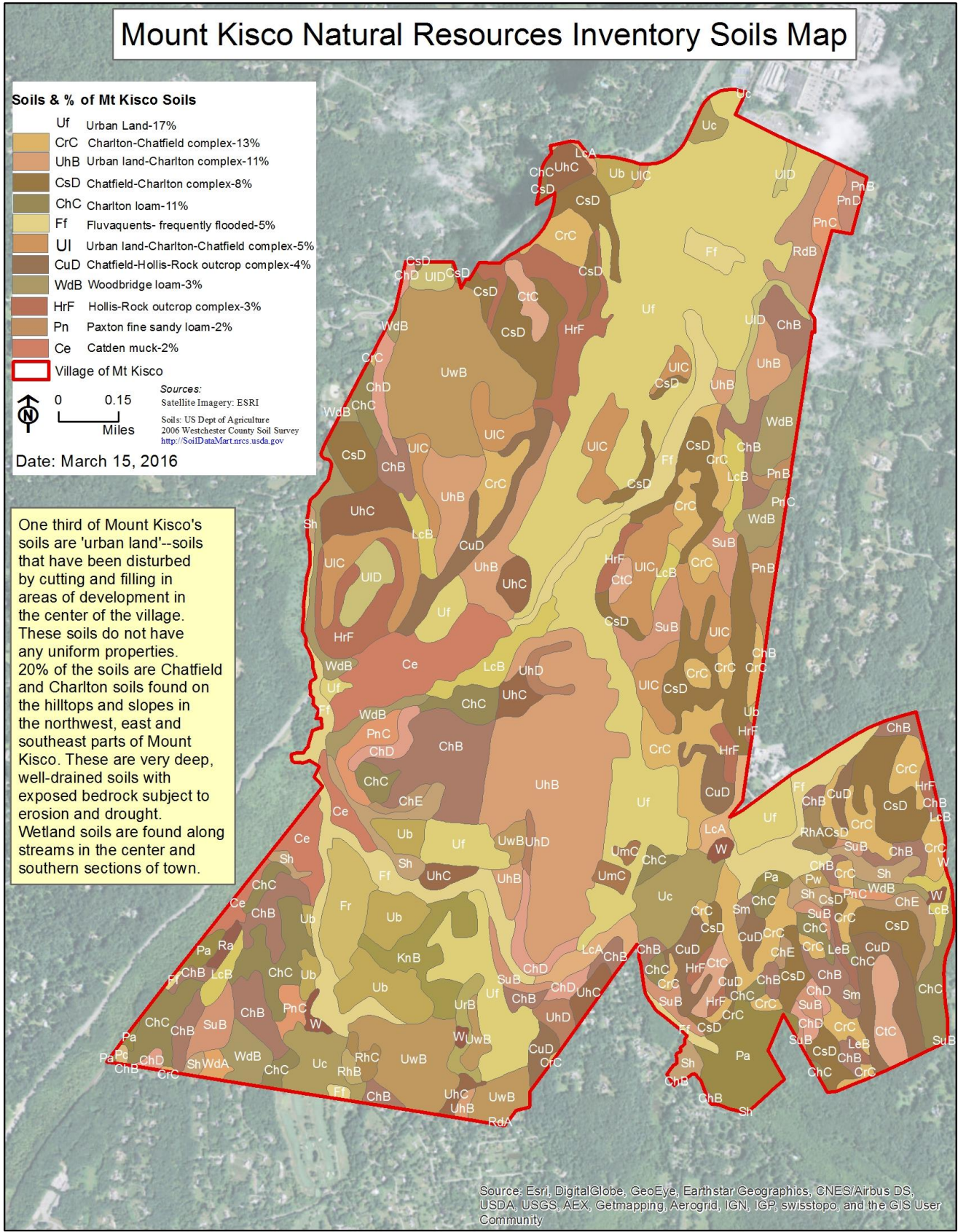
Village of Mt Kisco

Sources:  
 Satellite Imagery: ESRI  
 Soils: US Dept of Agriculture  
 2006 Westchester County Soil Survey  
<http://SoilDataMart.nrcs.usda.gov>

0 0.15  
 Miles

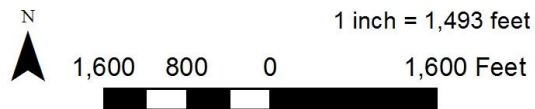
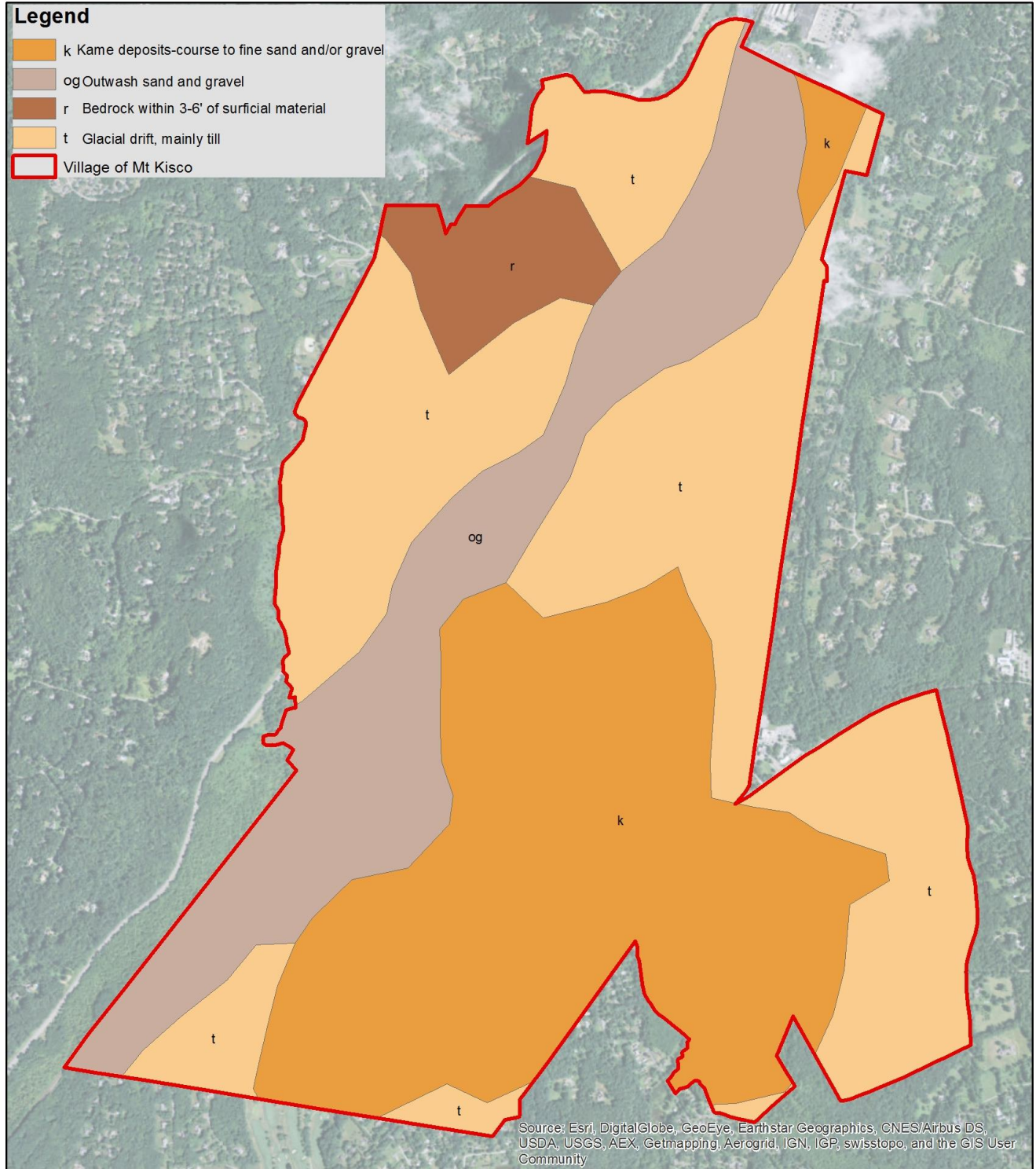
Date: March 15, 2016

One third of Mount Kisco's soils are 'urban land'--soils that have been disturbed by cutting and filling in areas of development in the center of the village. These soils do not have any uniform properties. 20% of the soils are Chatfield and Charlton soils found on the hilltops and slopes in the northwest, east and southeast parts of Mount Kisco. These are very deep, well-drained soils with exposed bedrock subject to erosion and drought. Wetland soils are found along streams in the center and southern sections of town.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGR, swisstopo, and the GIS User Community

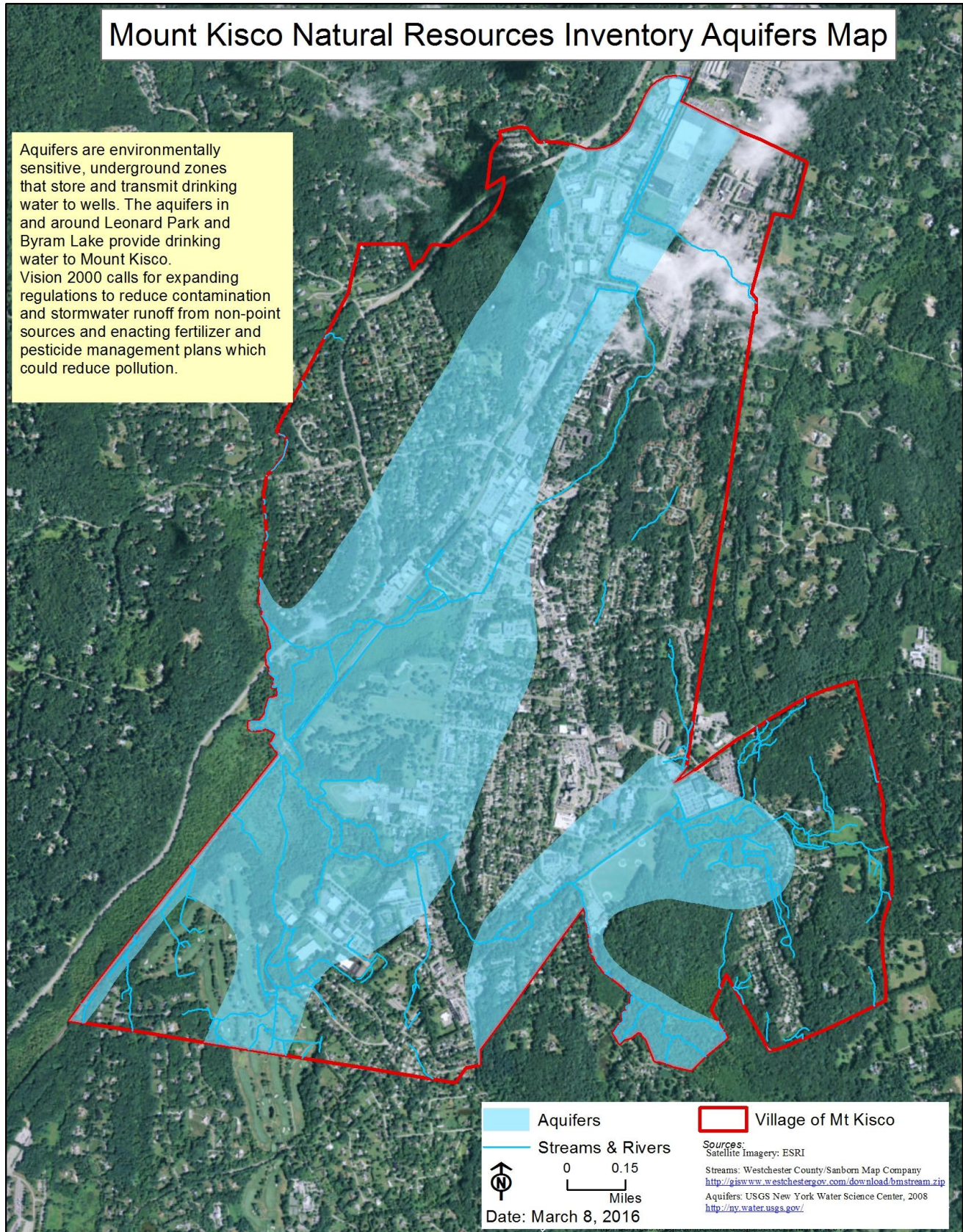
# Mount Kisco Surficial Geology Map



Author: Jim Nordgren  
Date: January 11, 2016

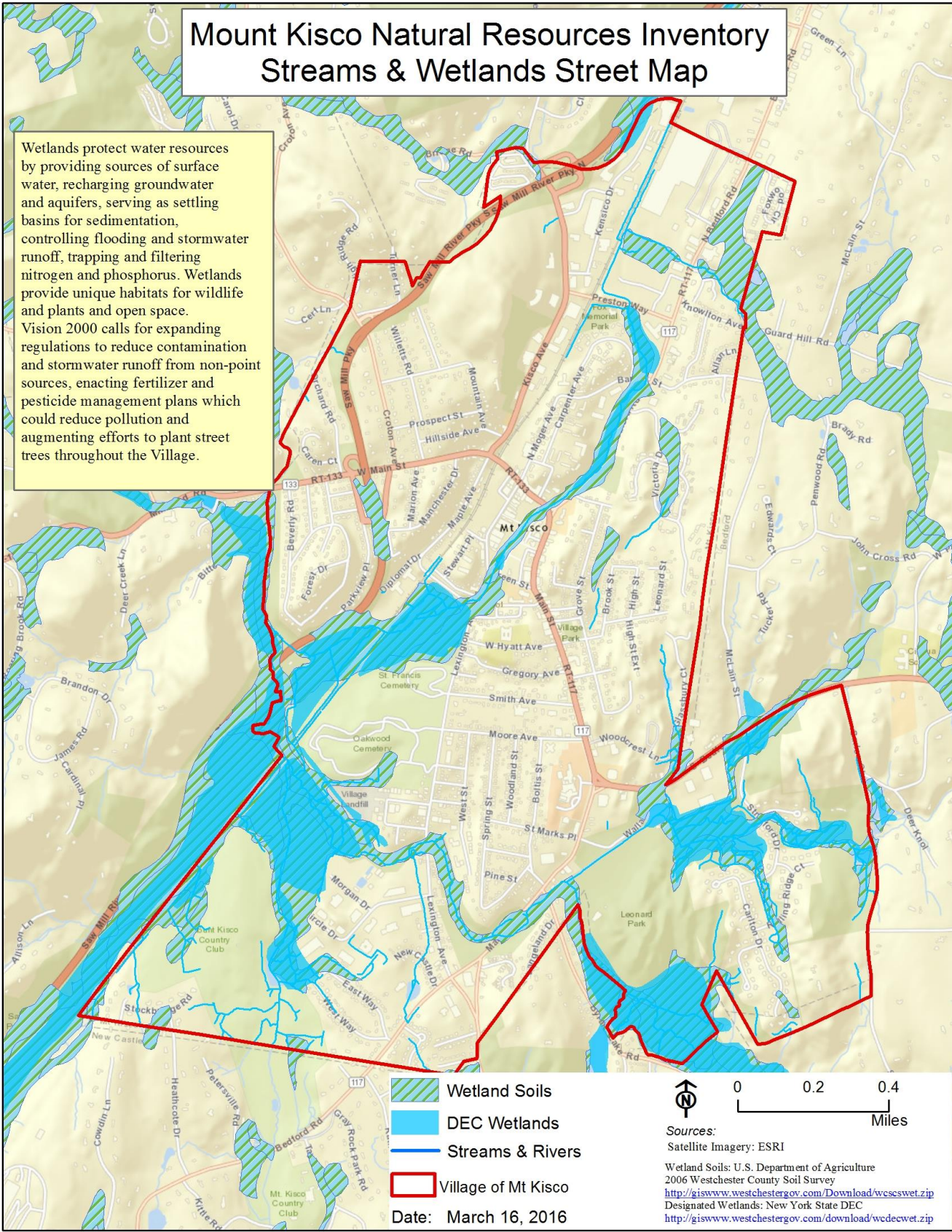
# Mount Kisco Natural Resources Inventory Aquifers Map

Aquifers are environmentally sensitive, underground zones that store and transmit drinking water to wells. The aquifers in and around Leonard Park and Byram Lake provide drinking water to Mount Kisco. Vision 2000 calls for expanding regulations to reduce contamination and stormwater runoff from non-point sources and enacting fertilizer and pesticide management plans which could reduce pollution.

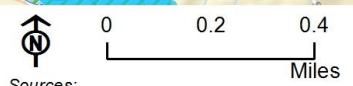


# Mount Kisco Natural Resources Inventory Streams & Wetlands Street Map

Wetlands protect water resources by providing sources of surface water, recharging groundwater and aquifers, serving as settling basins for sedimentation, controlling flooding and stormwater runoff, trapping and filtering nitrogen and phosphorus. Wetlands provide unique habitats for wildlife and plants and open space. Vision 2000 calls for expanding regulations to reduce contamination and stormwater runoff from non-point sources, enacting fertilizer and pesticide management plans which could reduce pollution and augmenting efforts to plant street trees throughout the Village.



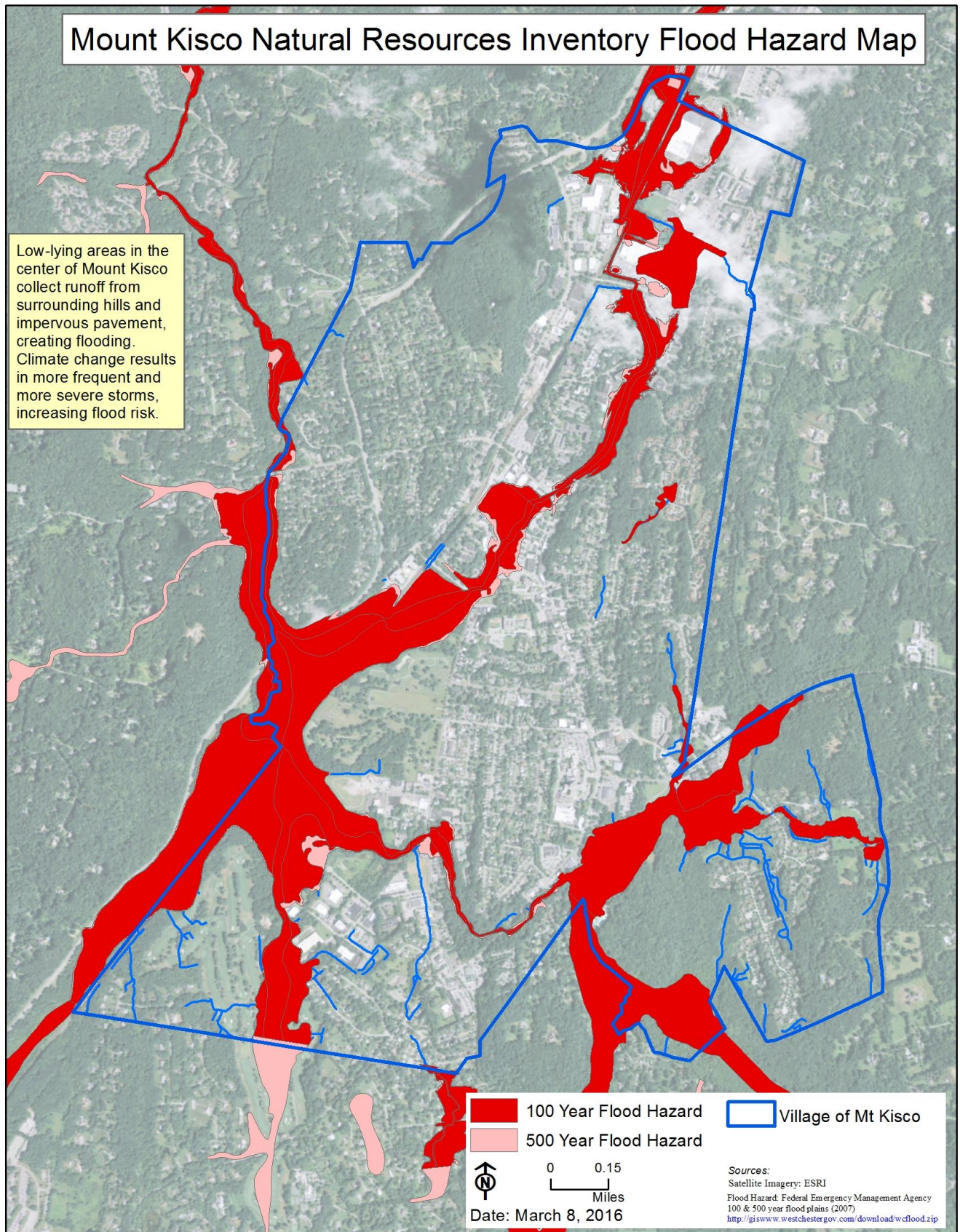
- Wetland Soils
  - DEC Wetlands
  - Streams & Rivers
  - Village of Mt Kisco
- Date: March 16, 2016



Sources:  
 Satellite Imagery: ESRI  
 Wetland Soils: U.S. Department of Agriculture  
 2006 Westchester County Soil Survey  
<http://giswww.westchestergov.com/Download/wcscswet.zip>  
 Designated Wetlands: New York State DEC  
<http://giswww.westchestergov.com/download/wcdecwet.zip>

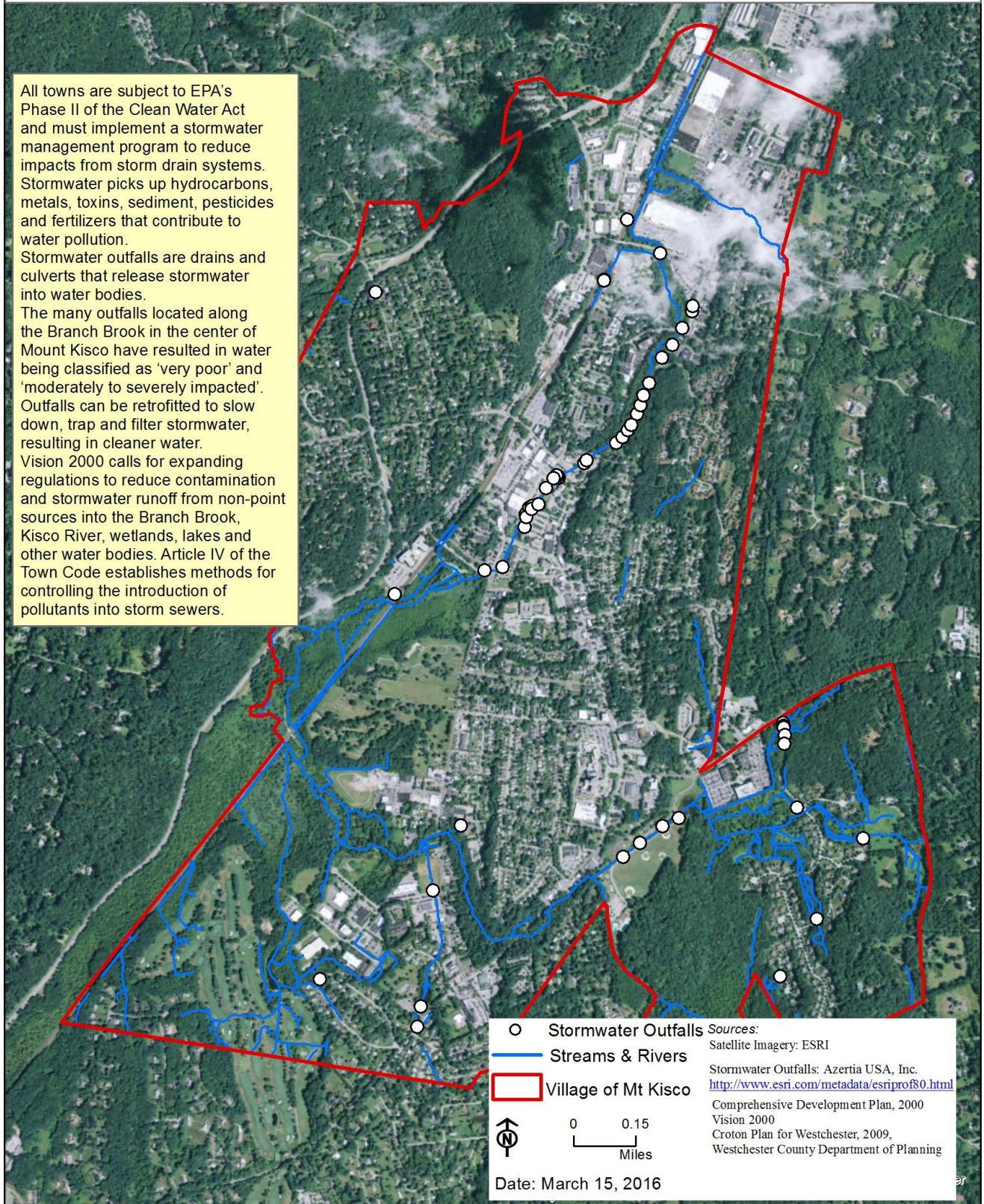
# Mount Kisco Natural Resources Inventory Flood Hazard Map

Low-lying areas in the center of Mount Kisco collect runoff from surrounding hills and impervious pavement, creating flooding. Climate change results in more frequent and more severe storms, increasing flood risk.



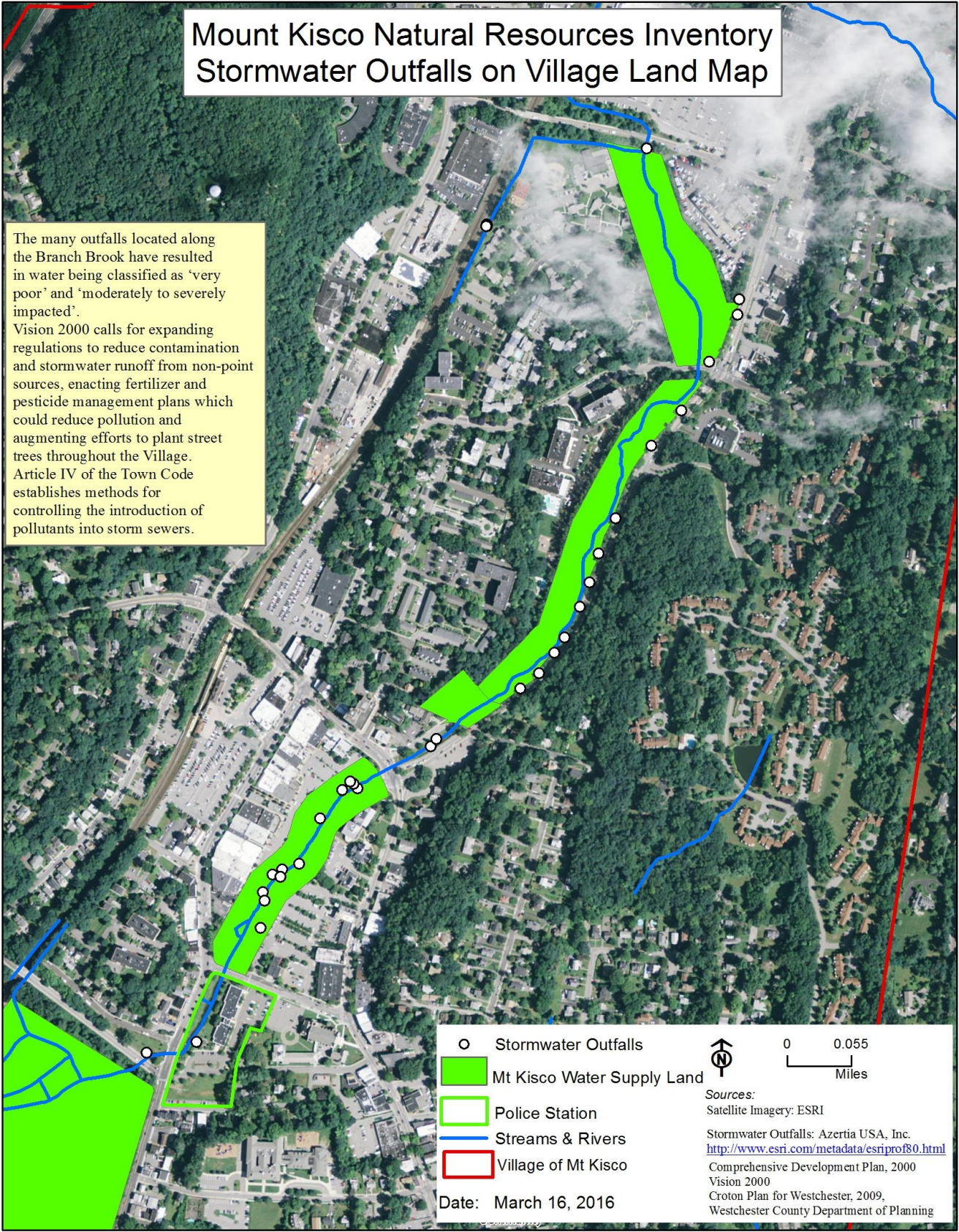
# Mount Kisco Natural Resources Inventory Stormwater Outfalls Map

All towns are subject to EPA's Phase II of the Clean Water Act and must implement a stormwater management program to reduce impacts from storm drain systems. Stormwater picks up hydrocarbons, metals, toxins, sediment, pesticides and fertilizers that contribute to water pollution. Stormwater outfalls are drains and culverts that release stormwater into water bodies. The many outfalls located along the Branch Brook in the center of Mount Kisco have resulted in water being classified as 'very poor' and 'moderately to severely impacted'. Outfalls can be retrofitted to slow down, trap and filter stormwater, resulting in cleaner water. Vision 2000 calls for expanding regulations to reduce contamination and stormwater runoff from non-point sources into the Branch Brook, Kisco River, wetlands, lakes and other water bodies. Article IV of the Town Code establishes methods for controlling the introduction of pollutants into storm sewers.



# Mount Kisco Natural Resources Inventory Stormwater Outfalls on Village Land Map

The many outfalls located along the Branch Brook have resulted in water being classified as 'very poor' and 'moderately to severely impacted'. Vision 2000 calls for expanding regulations to reduce contamination and stormwater runoff from non-point sources, enacting fertilizer and pesticide management plans which could reduce pollution and augmenting efforts to plant street trees throughout the Village. Article IV of the Town Code establishes methods for controlling the introduction of pollutants into storm sewers.



- Stormwater Outfalls
- Mt Kisco Water Supply Land
- Police Station
- Streams & Rivers
- ▭ Village of Mt Kisco

Sources:  
 Satellite Imagery: ESRI  
 Stormwater Outfalls: Azertia USA, Inc.  
<http://www.esri.com/metadata/esriprof80.html>  
 Comprehensive Development Plan, 2000  
 Vision 2000  
 Croton Plan for Westchester, 2009,  
 Westchester County Department of Planning

Date: March 16, 2016

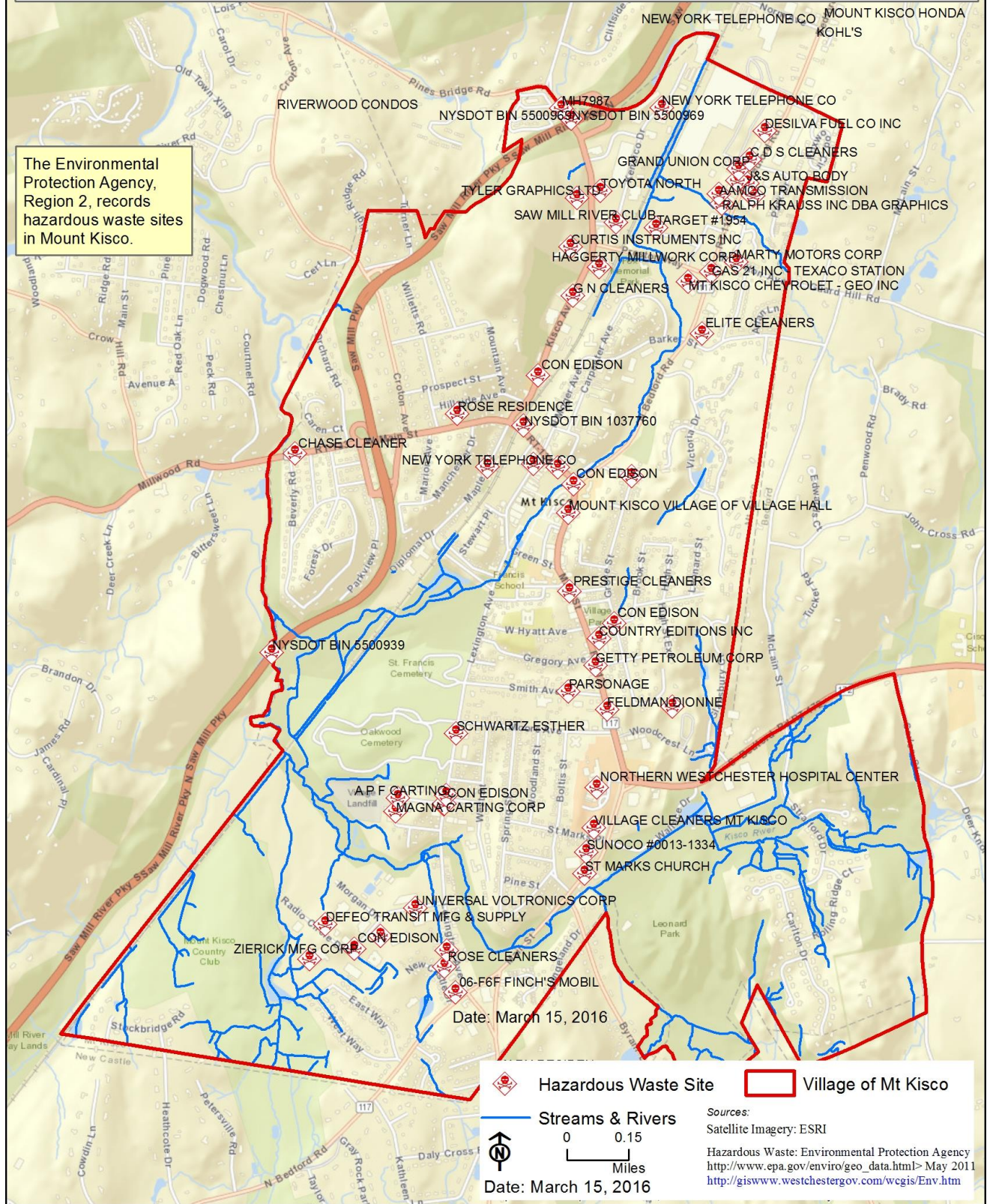
# 1947 Aerial Photograph Map





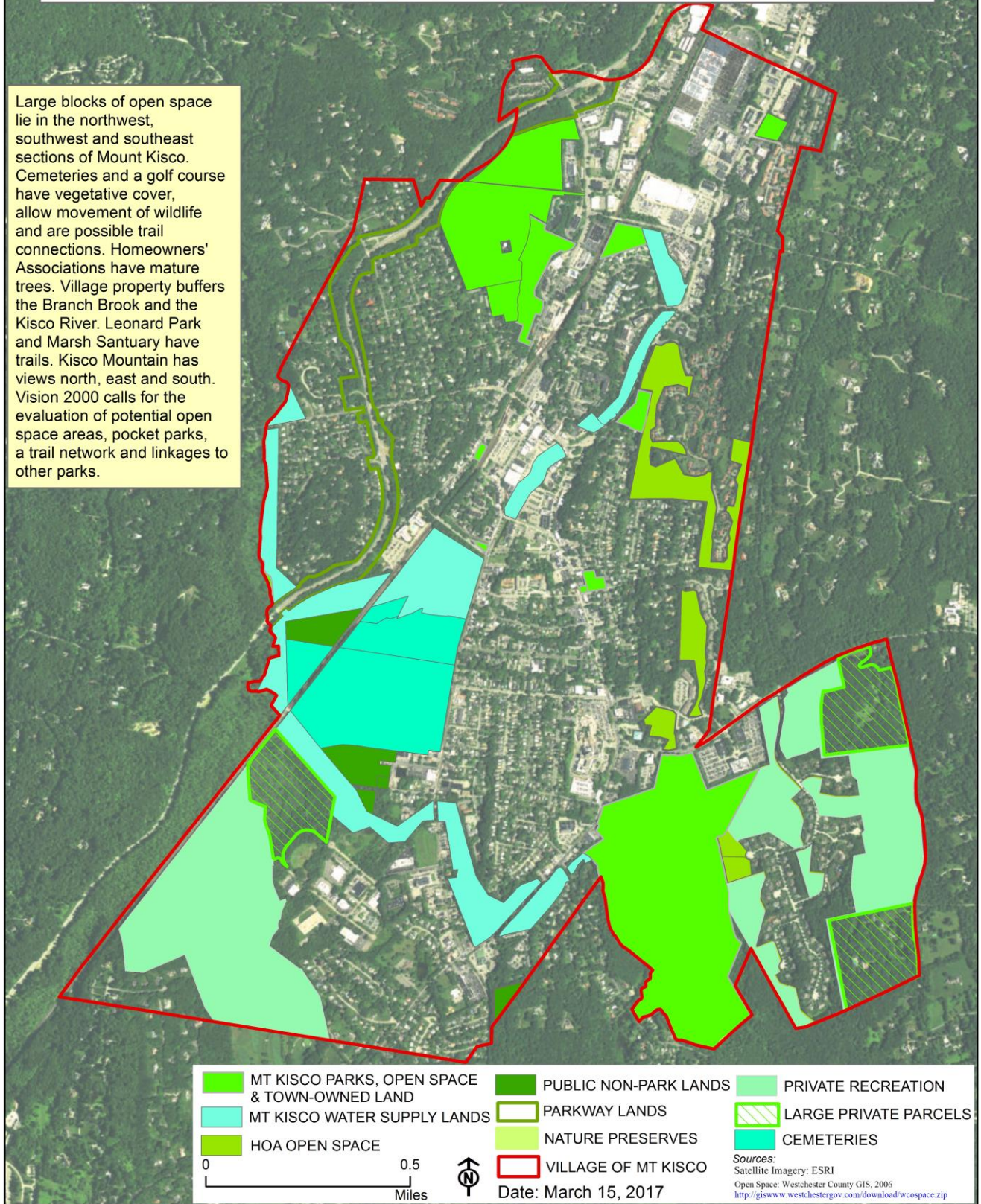
# Mount Kisco Natural Resources Inventory Hazard Waste Site Map

The Environmental Protection Agency, Region 2, records hazardous waste sites in Mount Kisco.

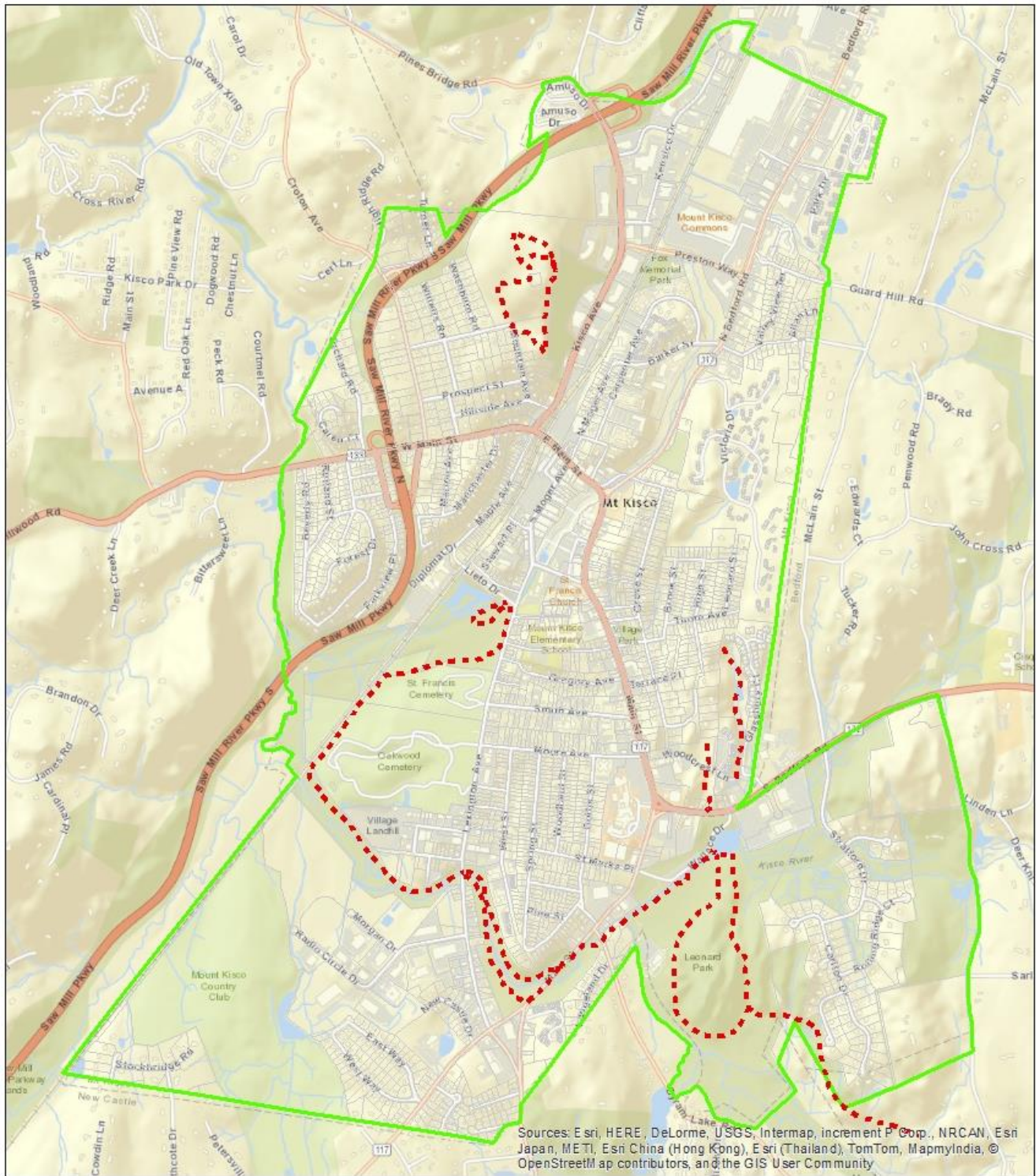


# Mount Kisco Natural Resources Inventory Open Space Satellite Map

Large blocks of open space lie in the northwest, southwest and southeast sections of Mount Kisco. Cemeteries and a golf course have vegetative cover, allow movement of wildlife and are possible trail connections. Homeowners' Associations have mature trees. Village property buffers the Branch Brook and the Kisco River. Leonard Park and Marsh Sanctuary have trails. Kisco Mountain has views north, east and south. Vision 2000 calls for the evaluation of potential open space areas, pocket parks, a trail network and linkages to other parks.



# Mount Kisco Trails Map



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

- - - Hiking Trails
- ▭ Village of Mt Kisco

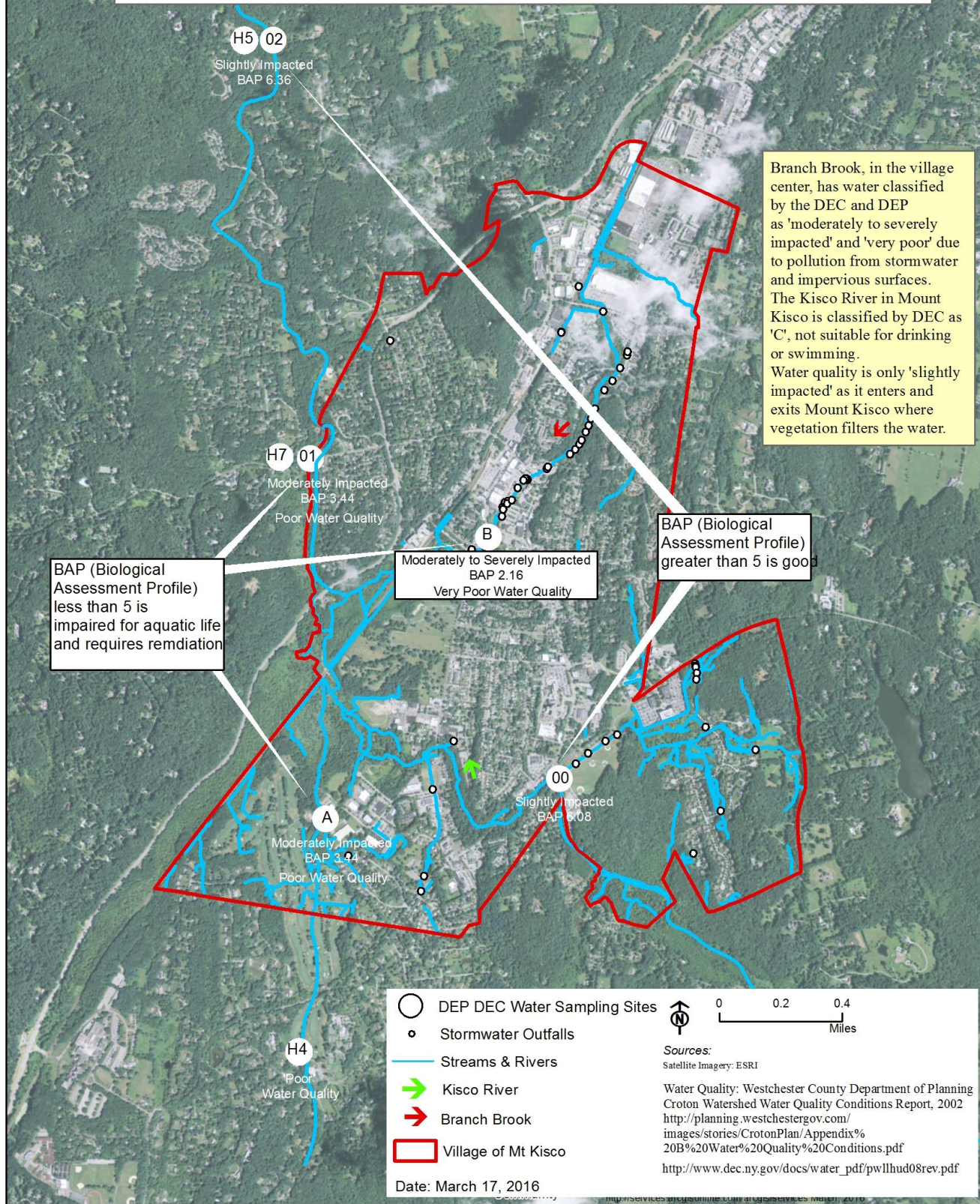
N

1 inch = 1,493 feet

1,000 500 0 500 1,000 Feet

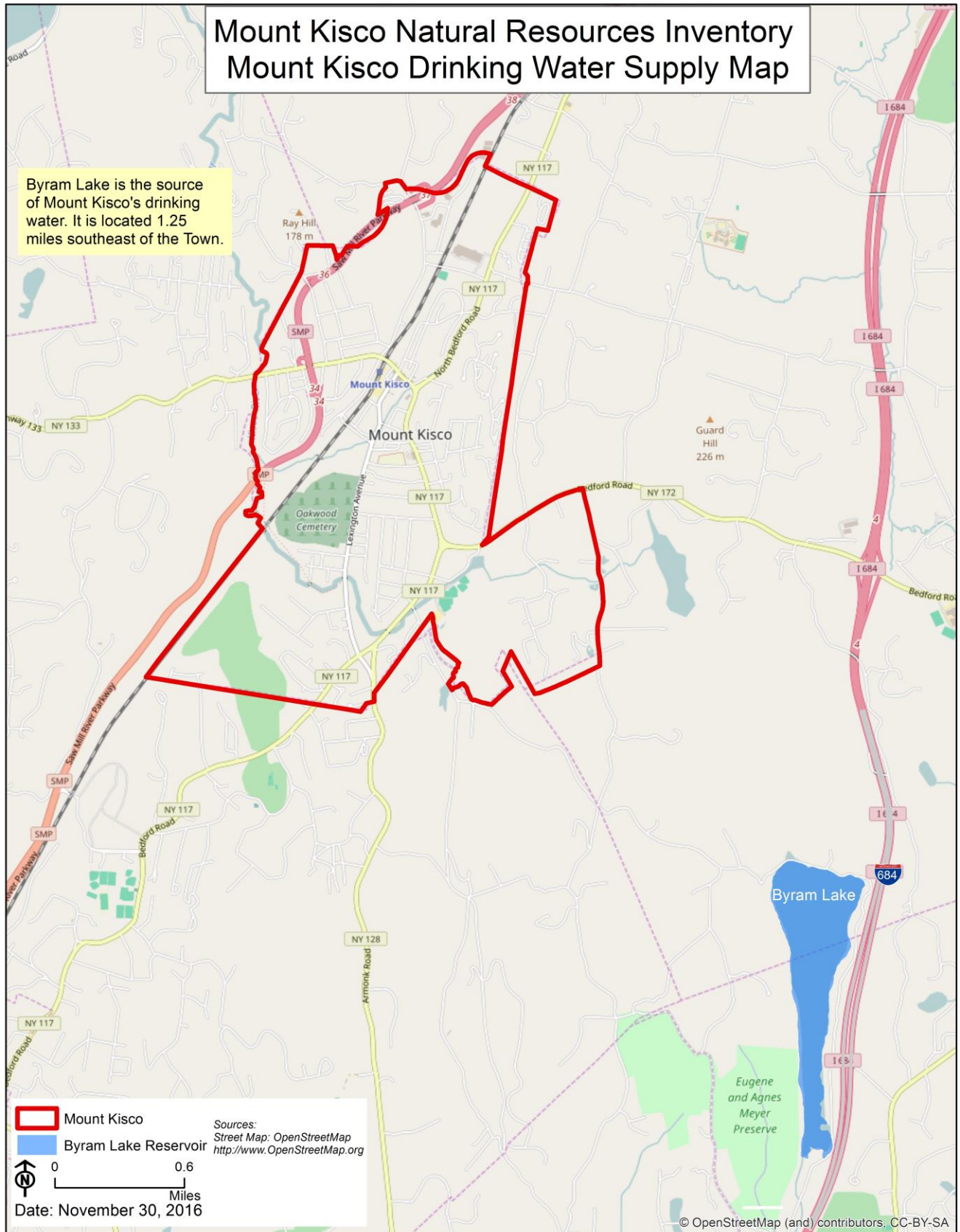
Author: Jim Nordgren  
Date: May 19, 2016

# Mount Kisco Natural Resources Inventory Water Quality

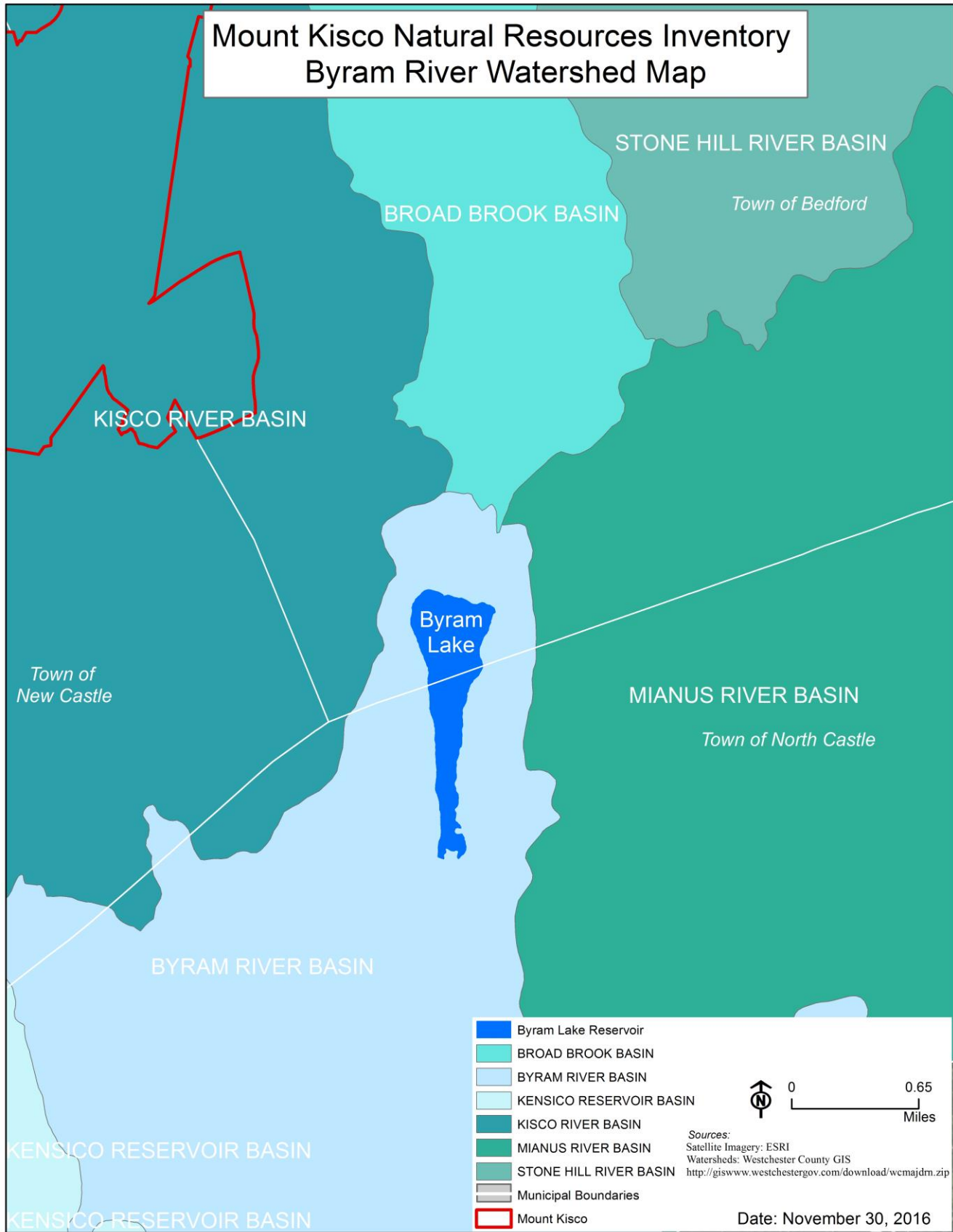


# Mount Kisco Natural Resources Inventory Mount Kisco Drinking Water Supply Map

Byram Lake is the source of Mount Kisco's drinking water. It is located 1.25 miles southeast of the Town.



# Mount Kisco Natural Resources Inventory Byram River Watershed Map



# Mount Kisco Natural Resources Inventory Byram River Watershed Elevations Map



# Mount Kisco Natural Resources Inventory Byram River Watershed Steep Slopes Map

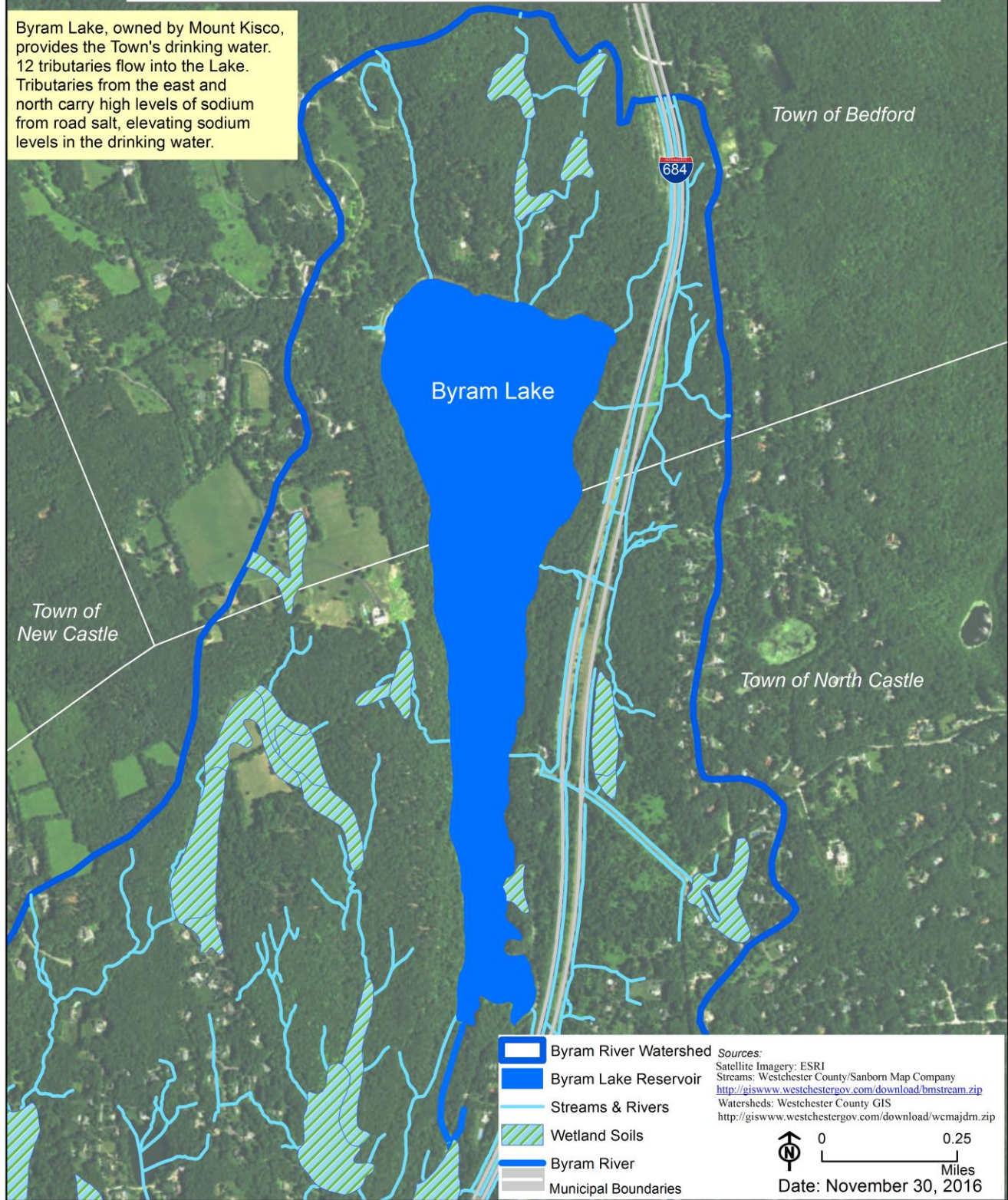
Byram Lake is surrounded by steep slopes. If disturbed, stripped of vegetation or paved, steep slopes can increase stormwater runoff, erode and cause flooding and landslides, all of which add pollutants to Byram Lake.





# Mount Kisco Natural Resources Inventory Byram River Watershed Streams & Wetland Soils Map

Byram Lake, owned by Mount Kisco, provides the Town's drinking water. 12 tributaries flow into the Lake. Tributaries from the east and north carry high levels of sodium from road salt, elevating sodium levels in the drinking water.

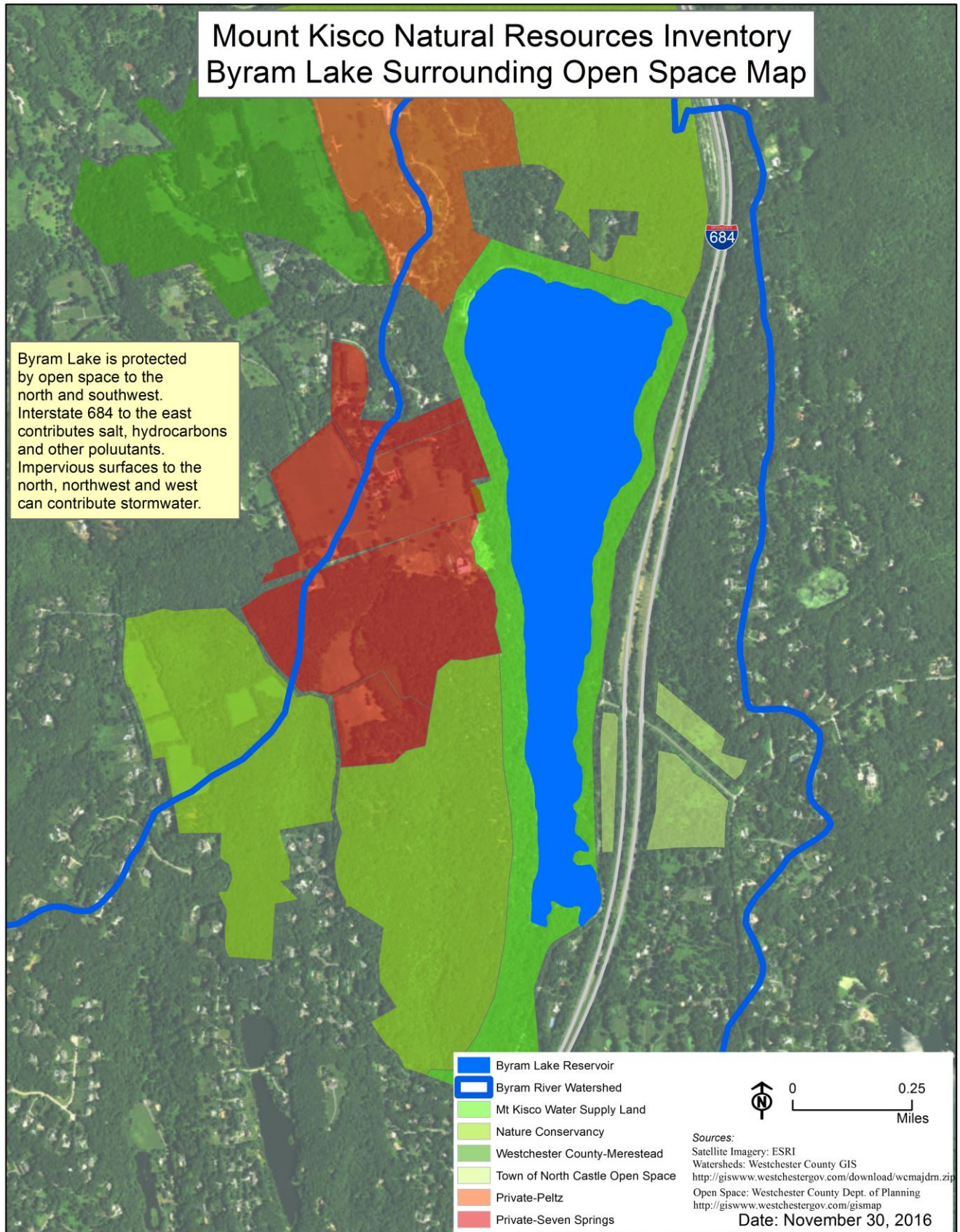


	Byram River Watershed	Sources:
	Byram Lake Reservoir	Satellite Imagery: ESRI
	Streams & Rivers	Streams: Westchester County/Sanborn Map Company
	Wetland Soils	<a href="http://giswww.westchestergov.com/download/bmstream.zip">http://giswww.westchestergov.com/download/bmstream.zip</a>
	Byram River	Watersheds: Westchester County GIS
	Municipal Boundaries	<a href="http://giswww.westchestergov.com/download/wcmajdm.zip">http://giswww.westchestergov.com/download/wcmajdm.zip</a>

0 0.25  
 Miles  
 Date: November 30, 2016

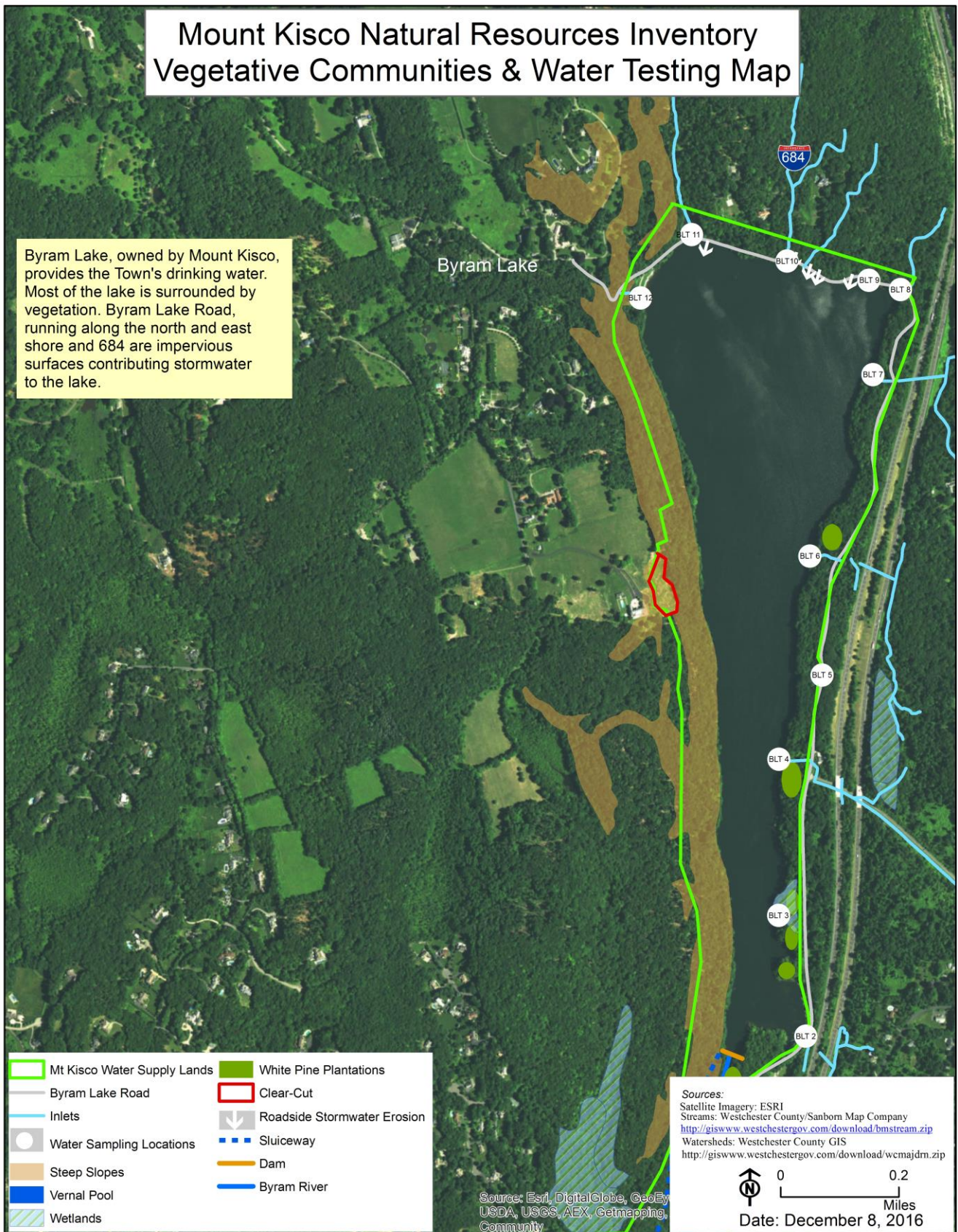
# Mount Kisco Natural Resources Inventory Byram Lake Surrounding Open Space Map

Byram Lake is protected by open space to the north and southwest. Interstate 684 to the east contributes salt, hydrocarbons and other pollutants. Impervious surfaces to the north, northwest and west can contribute stormwater.



# Mount Kisco Natural Resources Inventory Vegetative Communities & Water Testing Map

Byram Lake, owned by Mount Kisco, provides the Town's drinking water. Most of the lake is surrounded by vegetation. Byram Lake Road, running along the north and east shore and 684 are impervious surfaces contributing stormwater to the lake.



- |                             |                             |
|-----------------------------|-----------------------------|
| Mt Kisco Water Supply Lands | White Pine Plantations      |
| Byram Lake Road             | Clear-Cut                   |
| Inlets                      | Roadside Stormwater Erosion |
| Water Sampling Locations    | Sluiceway                   |
| Steep Slopes                | Dam                         |
| Vernal Pool                 | Byram River                 |
| Wetlands                    |                             |

**Sources:**  
 Satellite Imagery: ESRI  
 Streams: Westchester County/Sanborn Map Company  
<http://giswww.westchestergov.com/download/bmstream.zip>  
 Watersheds: Westchester County GIS  
<http://giswww.westchestergov.com/download/wcmajdm.zip>

0 0.2  
 Miles  
 Date: December 8, 2016

Source: Esri, DigitalGlobe, GeoEye, USDA, USGS, AEX, Getmapping, Community

CLIMATE CHANGE:

Climate change is a threat to Mount Kisco, particularly higher levels of rainfall and more extreme rain events both contributing to increased pollution from storm water runoff and greater street flooding. Additionally, higher temperatures will stress trees-already under stress according to the DEC Forester’s report (see Appendix 4, pages 151-152)-and other vegetation that are critical in absorbing storm water, storing water and preventing flooding.

The New York State Energy Research and Development Authority (NYSERDA)’s “Responding to Climate Change in New York State-2014”, notes that heavy rainfall events (over 1-2” of rain in a day), have already increased by 74%, which has led to more flooding in Mount Kisco. NYSEDA estimates that precipitation will be +10% greater by 2050 (average of estimates). <sup>20</sup>The probability of 100-year floods is projected to increase by 70% to 190% in New York State by 2050. The NYSEDA report notes that temperatures in New York State have increased, on average, by 2 degrees Fahrenheit since 1970 and that temperatures in the Hudson Valley region will rise an additional 5 degrees Fahrenheit by 2050.<sup>21</sup>

*Precipitation will be 10% greater and temperatures 5 degrees warmer by 2050*

**Baseline Climate and Mean Annual Changes**

Air temperature Baseline (1971 - 2000) 54°F	Low-estimate (10th percentile)	Middle range (25th to 75th percentile)	High-estimate (90th percentile)
2020s	+ 1.5°F	+ 2.0°F to + 3.0°F	+ 3.0°F
2050s	+ 3.0°F	+ 4.0°F to + 5.5°F	+ 6.5°F
Precipitation Baseline (1971 - 2000) 50.1 inches	Low-estimate (10th percentile)	Middle range (25th to 75th percentile)	High-estimate (90th percentile)
2020s	-1 percent	0 to + 10 percent	+ 10 percent
2050s	1 percent	+ 5 to + 10 percent	+ 15 percent
Sea level rise Baseline (2000-2004) 0 inches	Low-estimate (10th percentile)	Middle range (25th to 75th percentile)	High-estimate (90th percentile)
2020s	2 inches	4 to 8 inches	11 inches
2050s	7 inches	11 to 24 inches	31 inches

Based on 35 6 GCMs (24 for sea level rise) and two Representative Concentration Pathways. Baseline data are from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) United States Historical Climatology Network (USHCN), Version 2 (Menne et al., 2009). Shown are the 10th percentile, 25th percentile, 75th percentile, and 90th percentile 30-year mean values from model-based outcomes. Temperature values are rounded to the nearest 0.5°F, precipitation values are rounded to the nearest 5 percent, and sea level rise values rounded to the nearest inch.

<sup>20</sup> NYSEDA “Climate Risk Information 2013” June 2013. Pg. 5

<sup>21</sup> NYSEDA, Pg. 5. The full NYSEDA report can be found at:

[http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc\\_climate\\_risk\\_information\\_2013\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc_climate_risk_information_2013_report.pdf)  
[www.nyserda.ny.gov/climaid](http://www.nyserda.ny.gov/climaid)

Increased precipitation will require that the Town continue and perhaps increase its efforts to inspect, maintain, clean-out and retrofit storm water catch basins and undertake new low-impact development projects to contain, filter and slowing release storm water. The Town is currently undertaking several storm water improvement projects, some using East-of-Hudson funding from New York City DEP including the creation of a wetland basin to filter parking lot run-off from buildings on route 172 before it enters the Leonard Park stream and playing fields, storm water improvements at the parking lot at Mount Kisco Medical Group to filter storm water before it enters Leonard Park and the Kisco River and clearing vegetation that may cause flooding on both sides of the Branch Brook as it flows through Shoppers' Park and as it continues south of Lexington Avenue. 25 storm water outlets flow into the Branch Brook between Preston Way and Leito Drive, all contributing pollution to the Branch Brook and Kisco River (see Storm Water Outfalls Maps pages 46-47).

*Mount Kisco has several storm water improvement projects underway in 2016*

DEVELOPMENT:

Although Mount Kisco appears to be nearly completely built-out and developed, there are still areas that can be developed, resulting in additional impervious surfaces which contribute to increased pollution from storm water runoff and increased flooding. Already Mount Kisco has by far the highest percentage of impervious surfaces of any municipality in the Croton Watershed at 24% of its land.<sup>22</sup>

**Figure 3-10. Municipal Impervious Surfaces**

Municipality	Percent Impervious		
	Transportation	Structures	Total
Mount Kisco	16%	8%	24%
New Castle	5%	2%	8%
Yorktown	5%	2%	7%
Somers	4%	2%	6%
Bedford	5%	1%	7%
Lewisboro	4%	1%	5%
Cortlandt	4%	1%	5%
North Salem	3%	1%	4%
Pound Ridge	2%	1%	3%

Source: Westchester County, 2000.

<sup>22</sup> The Croton Plan for Westchester, 2009. Pg. 3-14. <http://planning.westchestergov.com/crotonplan>

Approximately 60% Mount Kisco's 1,934 acres are developed with residential, commercial and municipal buildings. Approximately 30% of Mount Kisco's land is not developed, including parks, parts of the Mount Kisco Golf Course that lie in Mount Kisco and undevelopable right of ways (of which approximately 56% are paved)<sup>23</sup>. The remaining approximately 8%, over 150 acres, is undeveloped and potentially developable.<sup>24</sup>

*Mount Kisco has 150 acres that can be developed in the future*

Thoughtful planning will balance development with the need to protect natural resources, including vegetative cover that will help to control storm water and flooding in the center of Mount Kisco. Smart growth techniques can focus development in areas that have the infrastructure to support it-including transportation, sewers and other services. Mount Kisco is already a model for smart growth with high density residential and commercial structures clustered close to mass transportation (Metro-North railroad) and other community services such as Northern Westchester Hospital, Mount Kisco Library, the Town Hall, places of worship, a theater, shops and restaurants. A conceptual plan to replace impervious surface at parking lots along South Moger Avenue with a double-deck parking facility that has a smaller footprint and mixed-use development adjacent to the train station is an excellent example of retrofitted development that can reduce environmental impacts while stimulating the Town center. Additional examples of smart growth techniques that conserve natural resources can be found at New York DEC's "Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies".<sup>25</sup>

Currently there is a proposal to develop the northern slope of Kisco Mountain, which is now completely forested, with a large building on steep slopes. A sensitive wetland area that buffers the Kisco River is also for sale for development at Radio Circle. Opportunities for development and conservation will undoubtedly continue to become available.

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<sup>23</sup> Croton Plan. Pg 2-48.

<sup>24</sup> Croton Plan, Pg. 2-36.

<sup>25</sup> The report can be found at: <http://www.dec.ny.gov/lands/50083.html>

### DRINKING WATER:

As discussed on pages 25-26, the main source of Mount Kisco's drinking water, the Byram Lake Reservoir, is experiencing a fairly constant increase in the amount of sodium and chloride in the water, which could be a threat to people with high blood pressure.

### INVASIVE PLANTS AND PLANT DISEASES:

As mentioned above, climate change is resulting in higher temperatures that are stressing trees, many of which are already stressed from lack of growing space along Mount Kisco's streets and parking lots. In addition to higher temperatures, a number of plant diseases threaten the forests at the northern and southern sections of Mount Kisco, including Dutch elm disease, ash wilts, emerald ash borer, oak wilts (found in 2016 in New York) and hemlock woolly adelgid.

Invasive plants are well-established in Westchester County and in Mount Kisco. Invasive plants out-compete native plants which native insects-including butterflies, bees and other pollinators-depend upon. This reduction in biodiversity makes Mount Kisco's vegetative areas less resilient to other stresses. Deer have become an invasive species in the northeast and by eating young vegetation they have eliminated the understory in the Town's parks and preserves which reduces wildlife habitat and prevents the forests from regenerating new trees and shrubs as the forest canopy ages and dies.

### LOSS OF BIODIVERSITY:

In the last three decades Mount Kisco and its immediate vicinity have lost brook trout and American eels from streams due to pollution and barriers. We have lost birds including bobolink, meadowlark, ruffed grouse, woodcock, brown thrasher, least flycatcher, Canada warbler, blue-headed vireo, brown creeper, broad-winged hawk and black-billed cuckoo to habitat loss and development. We have most probably also lost the New England cottontail with the widening of the Saw Mill River Parkway. Jeff Glassberg of the North American Butterfly Association notes that the New York area has lost about half of its butterflies to habitat loss, pollution and pesticides. On the other hand, those species that can tolerate human interaction and suburban development have increased, including deer and even coyote and bear-a citizen scientist photographed a bear in Mount Kisco recently.

Biodiversity refers to the number of different wildlife species in an area. Higher biodiversity means more diverse species. A more natural, functioning environment with a high level of biodiversity is more stable, more sustainable, healthier and more resilient to stresses. With the loss of biodiversity, many obvious, direct impacts on humans occur. One example is an increasing mosquito population due to the loss of amphibians that eat mosquito eggs and the loss of bats that eat adult mosquitoes. Another example is the increase in tick populations related to the explosion of deer which in turn is due to the loss of deer predators and the fragmentation of forests. Other examples of the perils of biodiversity loss include the reduction in pollinating bees, butterflies and other insects that we depend upon for one third of our food crops. These are the most obvious and direct impacts on humans of biodiversity loss. Given our limited knowledge of nature and nature's complexity, it is easy to imagine many more harmful effects of biodiversity loss. Since we don't know the exact role that each species plays in maintaining a healthy environment, scientists stress the 'precautionary principle' which posits that if the impacts of the loss of pieces of the environment cannot be fully known, then as many pieces (species) as possible should be protected and preserved.

As Mount Kisco continues to be developed and built out it is important to prevent the further loss of biodiversity by balancing development with conservation and using smart growth techniques that can not only prevent environmental degradation but if done correctly can reverse negative impacts and improve Mount Kisco's environment.

#### LITTER:

A final threat to natural resources in Mount Kisco is litter. Litter is a common complaint among citizens at NRI events. Large concentrations of litter were found along the Branch Brook between Preston Way and East Main Street and below Leito Drive. In addition to being unsightly, litter can pollute water, clog storm water basins and watercourses and endanger wildlife that consumes plastics or becomes entangled in litter that is not biodegradable. The Town's maintenance workers regularly collect litter and a number of litter clean-up events take place in Mount Kisco and at Byram Lake.



## FIELD SURVEYS

The combined inputs from public meetings, the above mentioned planning documents, natural resource studies and GIS mapping of Mount Kisco's natural resources, along with a consideration of threats to natural resources, led the NRI to focus its field surveys on water quality, stream and wetland function, storm water maintenance, large forest blocks in Mount Kisco, old growth trees, street trees, wildlife-including birds, amphibians, reptiles and mammals and wildlife habitat-and existing and future hiking trails. The following surveys were done by the sub-committee and naturalists during 2016:

Vegetative Community Inventories at Leonard Park, Marsh Sanctuary, Kisco

Mountain, Kisco River, Branch Brook and Byram Lake Reservoir

Bird surveys at Leonard Park, Marsh Sanctuary, Kisco Mountain, Kisco River and Branch Brook

Amphibian and Fish surveys at Leonard Park

Macroinvertebrate surveys at Branch Brook and Kisco River

Stream testing for pollutants at Branch Brook

Stream and storm water outlet surveys of Branch Brook and Kisco River

Citizen-science reports of specimen trees, wildlife sightings

LEONARD PARK & WALLACE POND:

Leonard Park, Marsh Sanctuary and the Chase Homeowners' Association open space form an unfragmented block of 187 acres of forest at Mount Kisco's southeastern border. These woods have extensive wooded wetlands that contribute water to and protect the Town's drinking water wells at Leonard Park. The woods also have extensive hiking trails.

Wallace Pond is at the northern entrance to Leonard Park. It is fed by Howland Lake located 1 mile to the east. The inflow at the pond's northern shore is well buffered along the western edge with medium-sized ash trees, silky dogwood shrubs and blue vervain and path rush groundcover. The east side of this tributary, however, is bordered by a parking lot at Mount Kisco Medical Group (Caremount Medical) that washes sand, salt and gravel into the water. A retrofit of the storm water catch basins was being done in 2016-2017 to improve the water quality flowing into Wallace Pond.

The Watershed Agricultural Council's Trees for Tribes program planted 60 native trees and shrubs along the northwest shore to help filter water and shade and cool the pond in 2010. Despite instructions that the entire area was not to be mown, most of the plantings have been clear-cut by the Town's maintenance crew. Only two pepperbush, a red osier, a willow and a bayberry survive. Several red osier have



Map of Leonard Park hiking trails at entrance



Runoff from MKMG parking lot



Northwest shoreline plantings in winter

been eaten by deer. In addition to killing the native trees and shrubs, mowing of the tall grass surrounding the pond, which normally discourages Canada geese, has allowed geese on the shoreline, resulting in erosion of the bank and deposition of soil and sediment into Wallace Pond.

The trees planted north of the pond have survived due to the protective plastic tubing and mesh, which protects the plants from deer and from lawn-mowing. Trees include red maple, oak, sycamore, tupelo and white pine.

When vegetation has been allowed to grow back, swamp milkweed, bur reed, bulrush and other sedges have grown in along the northwest section of pond.



Northwest shoreline vegetation in summer

Juniper shrubs and overgrown vines have also recently been cleared from the pond's southeastern shore, but pepperbush, alder and winterberry shrubs and a hawthorn tree-all native plants-still grow along southern shore by the Teahouse. The eastern shore of the pond has natural vegetation consisting of medium-size red maples, white ash and two hemlocks with juniper making up the shrub layer.

Another tributary enters Wallace Pond at the southeastern shore. It is heavily vegetated with silky dogwood, pepperbush and spicebush shrubs and red maple and elm trees. The understory has beech saplings and ironwood trees; the groundcover has sensitive ferns, monkey flower and some swamp milkweeds. There are many bittersweet vines growing in the trees.

Wallace Pond was stocked with infertile carp in 2016 in an attempt to eat algae that blooms when storm water and nutrients pollute the pond. The pond also has native fish. Jim Gmelin set minnow traps at the pond and on July 2, 2016 found about 20 creek chub, up to 5 inches long. On June 18, 2016 Mr. Gmelin found a 7 inch Red-fin pickerel in the pond.

The outlet of Wallace Pond that merges with the Leonard Park tributaries is naturally vegetated for the first 150 feet south of the pond. Trees include young black walnut, pin oak, hawthorn and box elder trees and silky dogwood and invasive multi-flora rose shrubs, all of which protect and stabilize the stream bank.

For the next 450 feet of the river, only the western bank is vegetated; the eastern bank has 10 planted red maples but no other vegetation except lawn to the water's edge. Lack of vegetation has led to erosion of the stream bank. See Kisco River at Leonard Park Significant Trees Map on page 68.



Wallace Pond outlet looking south, stream banks do not have vegetation to prevent erosion



Wallace Pond outlet looking west with vegetated stream banks



Erosion on eastern side of outlet caused by storm water culvert on west side of outlet

The next 450 feet of the river has no natural vegetation and is mown lawn to the water's edge. Six red maples have been planted on the east side and two large weeping willows grow in the west side. The lack of stabilizing vegetation has resulted in erosion of the stream bank, allowing soil, silt and pollutants to enter the river. See map on page 67.



Looking west at unvegetated stream bank and erosion



Looking north at unvegetated stream bank and erosion

16 small red maples have been planted along the eastern edge of the outlet stream. These will serve to stabilize the stream bank and shade and cool the water, providing better habitat for fish and other wildlife as they mature.

The last 300 feet of the stream are naturally vegetated with 17 small to medium-size hemlock along the eastern bank and natural vegetation along the western bank. The stream is fast moving at this point. The number of birds picks up noticeably in this area due to the improved habitat. Vines that have been strangling hemlocks already weakened by wooly adelgid infestations have been cleared with only some vines remaining. The hemlock branches have been cut off up to about six feet and this should not be pruned again since the low branches photosynthesize and also provide important ground cover for birds and other wildlife. See map on page 67.

At this point the Wallace Pond outlet merges with the Leonard Park streams, becoming the Kisco River. Several hemlocks, large sugar maples, several black cherry, five large flowering dogwoods, young elms, young sugar maples and many asters grow along the Kisco River's east bank between here and Byram Lake Road. A large, 30" red maple,

smaller elms, a few beech saplings and silky dogwood line the river's west bank. A large burning bush and many smaller burning bush grow close to Byram Lake Road.

A small wetland is found just south of the rear of the CVS parking lot along the park's western border. It flows into the Wallace Pond outlet by the parking lots. It is all invasive phragmites and so has little wildlife habitat but it is an important vegetative swale that can collect and slowly release storm water. In late 2016 a storm water improvement project deepened this wetland and installed sand filters in order to collect and filter more storm water.

# Kisco River at Leonard Park Significant Trees Map



	Leonard Park		Vegetated Bank
	Village of Mt Kisco Land		Unvegetated Bank
	Kisco River & Tributaries		
	17 Small Hemlocks		
	Flowering Dogwoods		
	Phragmites Wetland		
	Significant Trees		

Sources:  
 Satellite Imagery: ESRI  
 Streams: Westchester County/Sanborn Map Company  
<http://giswww.westchestergov.com/download/bmstream.zip>

0 0.025 0.05 Miles  
 Date: December 27, 2016

## LEONARD PARK WOODS:

Leonard Park woods are part of a 186-acre forest block which includes the adjacent Chase Homeowners Association Open Space and the Marsh Sanctuary woods. The Leonard Park woods begin at the southeastern edge of Wallace Pond and the teahouse.

A tributary enters Wallace Pond here and is part of a

red maple swamp with many 50-70 feet tall red maple and ash trees. Some trees are quite large including a 32" diameter tulip tree and a 30" diameter ash. The canopy is open to sunlight. This is a high-quality wetland and a survey done on June 21, 2016 by Steve Ricker and Jim Gmelin found two red-backed salamanders and a half dozen green frogs. Further into the woods the forest changes from a red maple swamp to an oak-hickory forest. Several 100 foot tall and over 30 inches in diameter white and red oaks, red maples, beech and tulips trees grow here, implying that this forest has not been cleared in over 100 years. One large red oak measured 42 inches in diameter. The understory is made up of black birch, black cherry, yellow birch, beech and sassafras trees and witch hazel, spicebush, and serviceberry shrubs. Christmas ferns make up the groundcover. Rock outcroppings with marginal wood fern are found along the west side of trail. The understory is thick and healthy here with native trees, saplings and shrubs and no invasive plants.

*Leonard Park has many large, old-growth oaks, maples, beech and tulip trees that are over 100 years old*

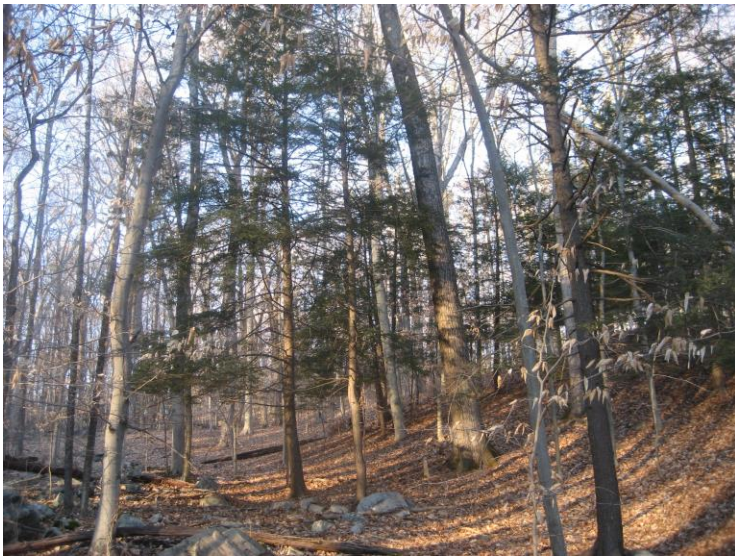


Healthy oak-hickory forest



Native eastern hemlocks are found toward the center of the Leonard Park woods on the high rock outcrops found on both sides of the trail. Healthy hemlock groves are rare now; many have been killed by the wooley adelgid aphid that spread to New York in the 1980s and 1990s and several of these hemlocks have died from the disease. Many medium sized hemlocks grow in the understory and could be treated to protect them from wooly adelgid disease. In addition to hemlocks, many medium to large beech and hickory trees grow here. The understory has sugar maple, beech, yellow birch and hop hornbeam saplings. The groundcover consists of Christmas ferns and beech drops-a parasitic plant that feeds on beech roots without harming them.

*Many of Leonard Park's hemlock trees are dying from wooly adelgid disease*



Hemlock grove in center of Leonard Park woods

The hiking trail splits in the center of the woods with one trail going east to Marsh Sanctuary and Sarles Street and the other going west to the pool area.



The southern quarter of Leonard Park is a wooded wetland with blueberry, pepperbush, winterberry and nannyberry shrubs and medium sized red maple, elm, tulip, shagbark hickory and swamp white oak trees. Ironwood grows in the understory along with a few locust trees. Groundcover includes greenbrier vines and Christmas ferns. This is a healthy wooded wetland with 50 foot tall trees and an open canopy. Only a few invasive burning bush and barberry shrubs are found here.



Large tulip tree

Along the southern edge of the park, tributaries from Seven Springs located 2 miles to the southeast enter and merge with another tributary and then merge with the Wallace Pond outlet stream, forming the Kisco River at the western edge of Leonard Park.

The trail leaves the woods at the pool area. The end of the trail has many large tulip trees and a few flowering dogwoods. Locations of Leonard Park's large trees can be found on the Leonard Park Significant Trees and Forest Stands Map on page 76.

Birds found in January, 2016 in the Leonard Park included cardinal, blue jay, white throated sparrow, mockingbird, song sparrow, goldfinch, downy woodpecker, pileated woodpecker, red-winged blackbird and great blue heron. Birds observed on the morning of June 7, 2016 by Anne Swaim, Steve Ricker and Jim Gmelin included cedar waxwings, 3 warbling vireo, rough-winged swallow, yellow warbler, killdeer, 4 catbird, 4 pee-wee, 3 red eyed vireo, downy woodpecker, flicker, 2 scarlet tanager, pileated woodpecker, titmice, chickadee, 4 veery, white-breasted nuthatch, 2 wood thrush, red-bellied woodpecker, 3 ovenbird, mourning dove, robin, 2 towhee, house wren, blue jay, goldfinch, great crested flycatcher, 2 common yellowthroat, kingbird, bluebird, 3 phoebe, chipping sparrow, grackle and Canada geese. The red-eyed vireos, scarlet tanagers, veerys, wood thrush and ovenbirds are only found breeding in large, unfragmented interior forests. Their presence at the Leonard Park-Marsh Sanctuary woods shows that this forest is a healthy, intact, functioning forest.<sup>26</sup>



Tributaries merging from Seven Springs

*Leonard Park has many interior forest birds including scarlet tanagers, wood thrush and ovenbirds*

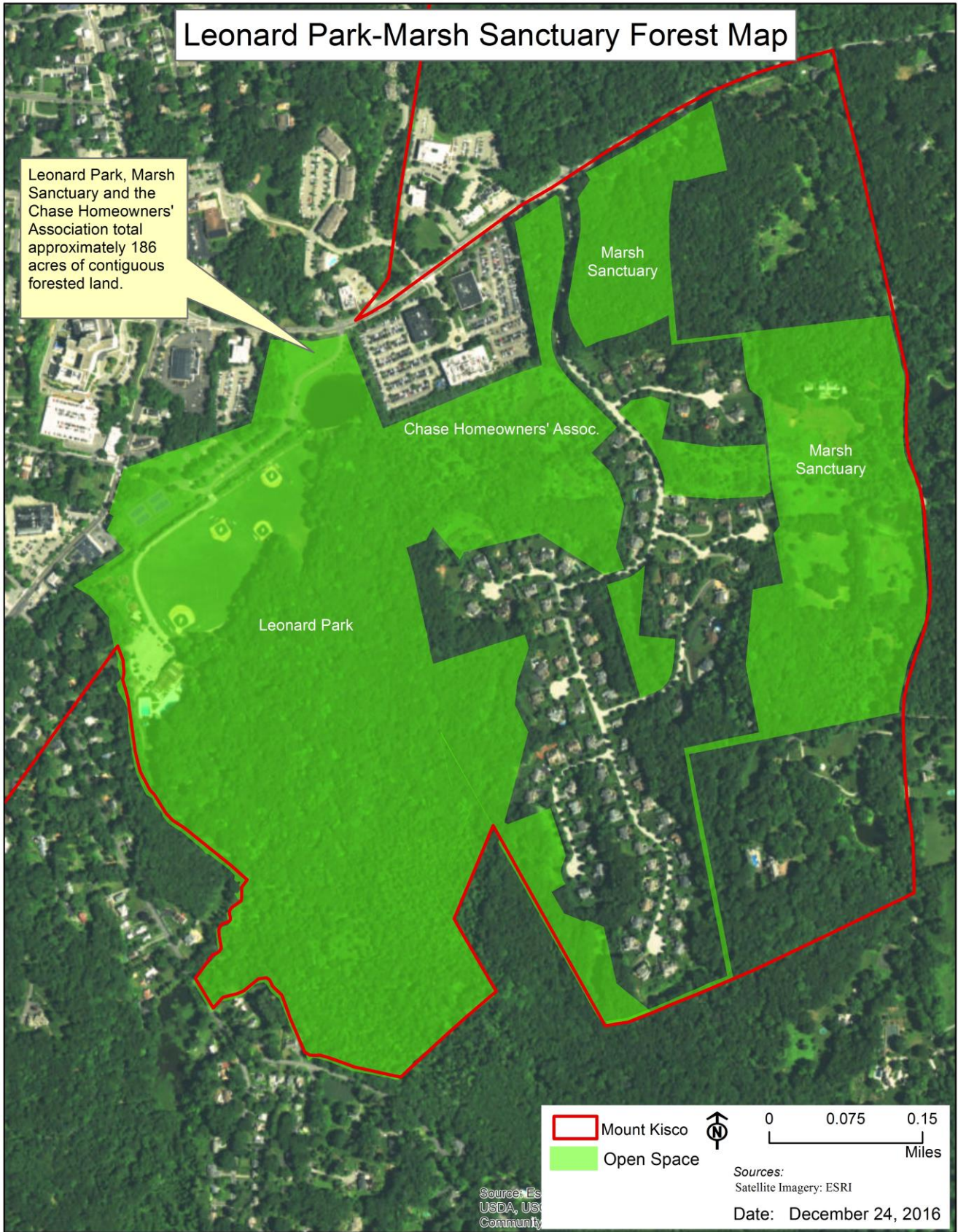


Scarlet tanager

<sup>26</sup> Scarlet tanager photo: Cornell Lab of Ornithology. [https://www.allaboutbirds.org/guide/Scarlet\\_Tanager/id](https://www.allaboutbirds.org/guide/Scarlet_Tanager/id)

# Leonard Park-Marsh Sanctuary Forest Map

Leonard Park, Marsh Sanctuary and the Chase Homeowners' Association total approximately 186 acres of contiguous forested land.

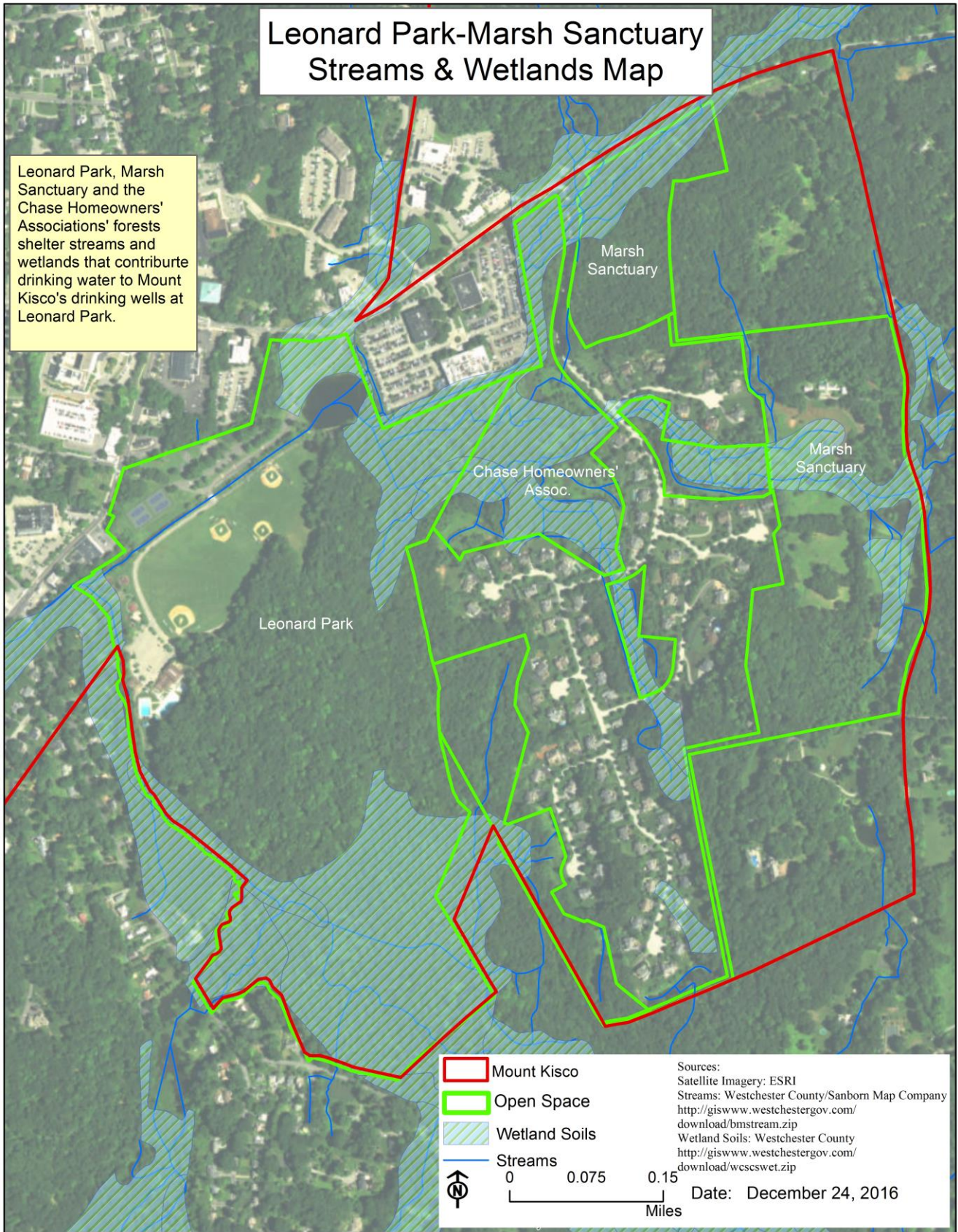


Sources: Esri, USDA, US Community

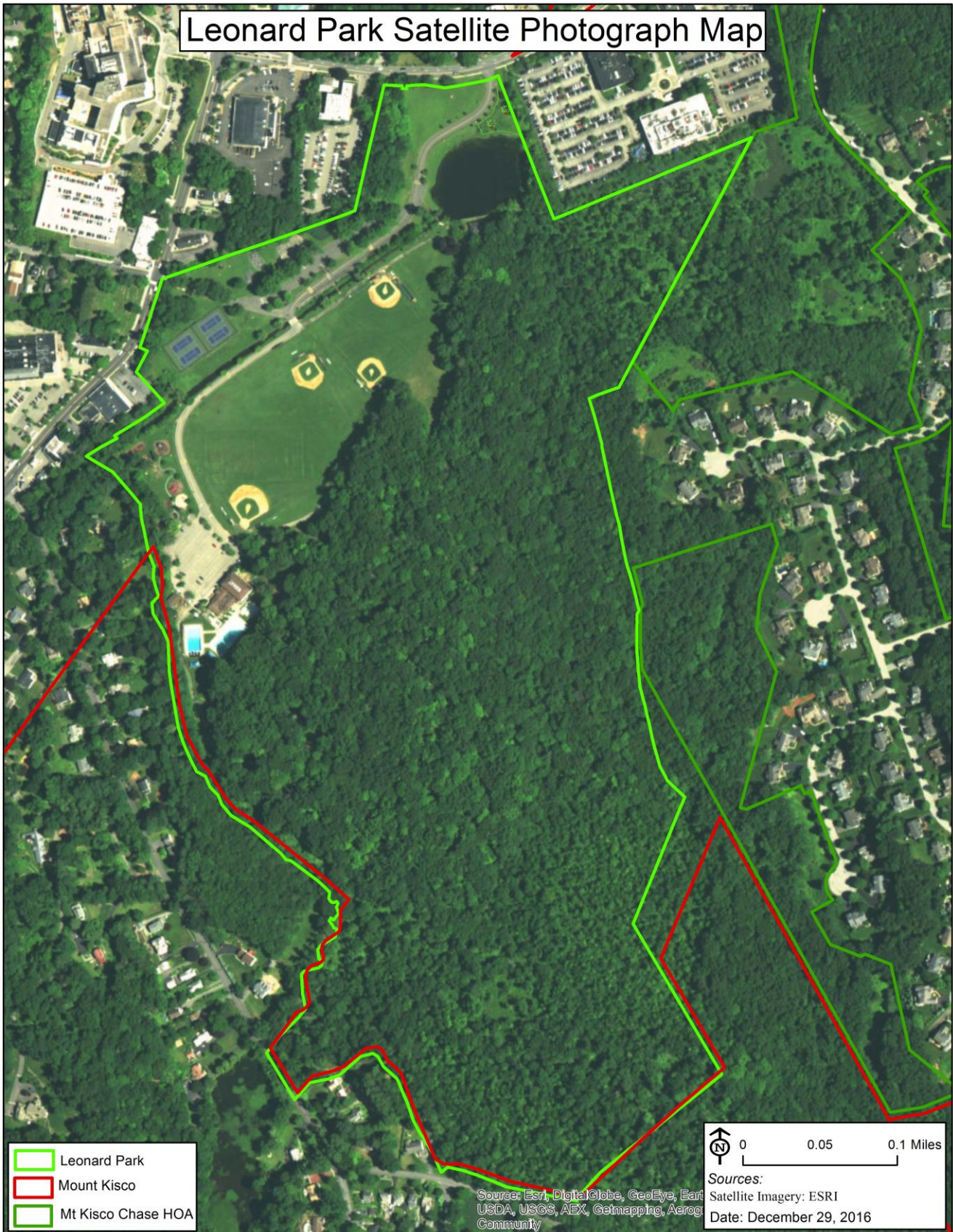
Sources: Satellite Imagery: ESRI  
Date: December 24, 2016

# Leonard Park-Marsh Sanctuary Streams & Wetlands Map

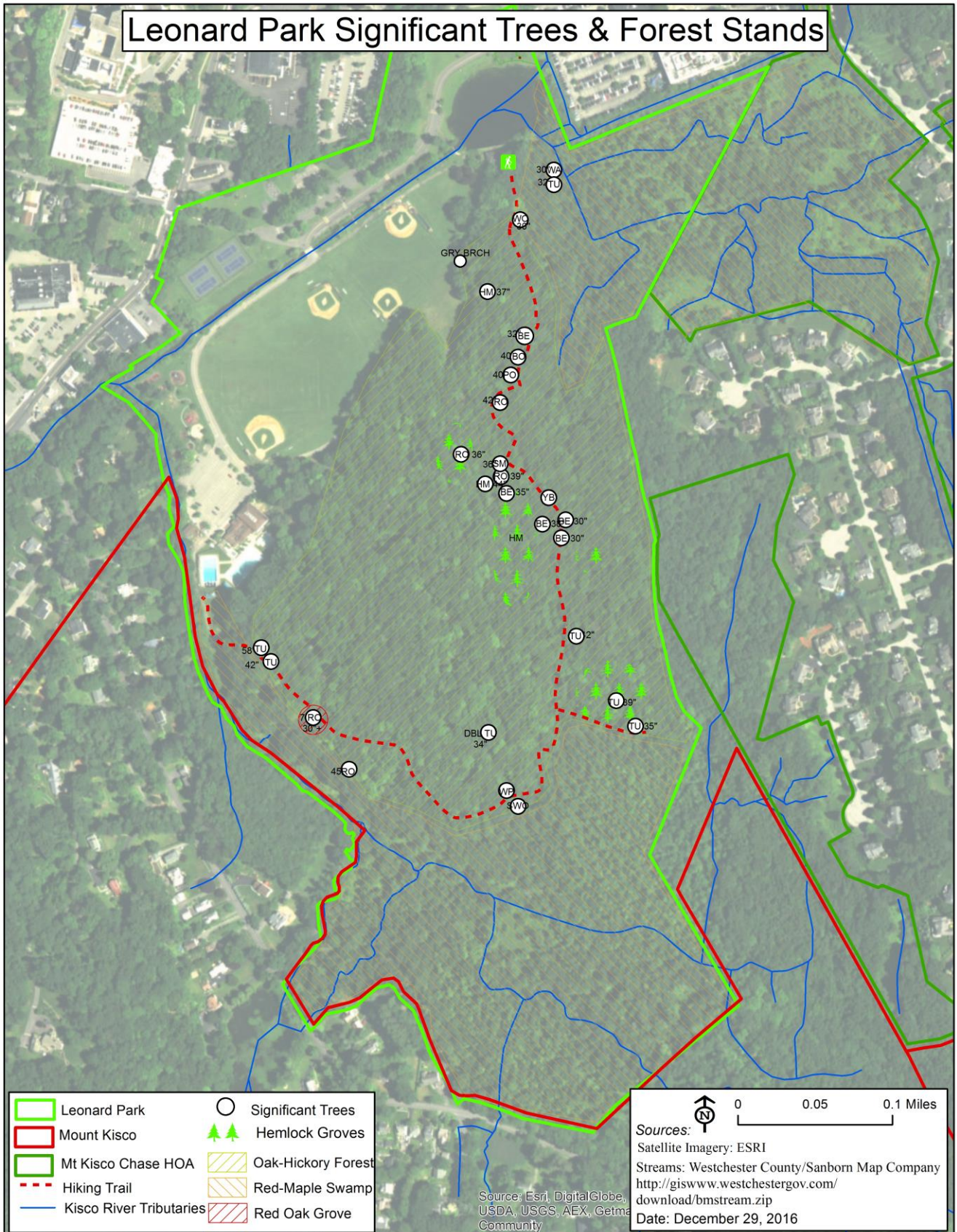
Leonard Park, Marsh Sanctuary and the Chase Homeowners' Associations' forests shelter streams and wetlands that contribute drinking water to Mount Kisco's drinking wells at Leonard Park.



# Leonard Park Satellite Photograph Map



# Leonard Park Significant Trees & Forest Stands



## MARSH SANCTUARY:

The Marsh Sanctuary is a 156-acre nature Sanctuary located on Mount Kisco's eastern border. The Sanctuary is owned by the Marsh Sanctuary Incorporated, a not-for-profit organization. The land includes a variety of mature mixed hardwood forests, hemlock groves, young second-growth forests, old fields, meadows, floodplain forests, open wetlands, ponds and rocky outcroppings. Four miles of hiking trails run through the sanctuary and connect to Leonard Park and other local parks and preserves including Butler and Westmoreland Sanctuaries, Merestead, Byram Lake and Meyer Preserve, forming a very large, nearly intact forest of over 4,000 acres.



The northern 3 acres of the sanctuary are a floodplain forest of red maple and ash. The understory consists of many tall nannyberry, spicebush and winterberry shrubs. Groundcover is absent due to frequent water inundation. These woods provide an important buffer for the tributary flowing through it which eventually enters Wallace Pond .4 miles to the west. The road next to the stream contributes silt, sediments, hydrocarbons and other pollutants which limit the type of aquatic species that can live in this stream. The heavily vegetated embankments counteract to some extent the negative impacts from the roadway. River otter, a species of special concern in Westchester County, have been observed in this stream as have river dace.

The higher elevation area south of this is a 7 acre chestnut oak-hickory forest. The understory consists of serviceberry, witch hazel, ironwood and beech and sugar maple saplings. Pennsylvania sedge, low bush blueberry, Christmas ferns and many chestnut oak seedlings make up the groundcover. Just to the east is a 2 acre hemlock grove with hemlocks, hickory, black birch, ash and black cherry. The understory consists of serviceberry, witch hazel and winterberry shrubs, ironwood and beech, red maple, red oak and black birch saplings. Pennsylvania sedge and greenbrier vine make up the groundcover. Some of the hemlocks are infected with wooly adelgid disease.



The southern section of the sanctuary has 6.5 acres of meadow in the early stages of succession. Some of the attractive wildflowers and grasses found here include yarrow, dogbane, swamp milkweed, common milkweed, butterfly weed, asters, wild basil, mountain mint, Queen Anne 's lace, goldenrods, orchard grass, deer-tongue grass, little blue stem grass along with high bush blueberry shrubs.



Northern meadow

Due to the loss of farmland, reforestation and development, meadows such as these are increasingly rare and many of the species that depend on this habitat are in steep decline including woodcock, bluebird, blue-winged warbler, prairie warbler, field sparrows, migrating kestrels, rufous-sided towhees and indigo buntings. Bluebirds, towhees, indigo buntings and blue-winged warblers were observed in March and April, 2013 and June, 2016 by Adam Zorn and by Benjamin Van Doren. Many butterflies, moths, bees, wasps, damsel and dragonflies and other beneficial insects also visit these meadows.

*Marsh Sanctuary has many grassland and shrub land birds that are now rare*

The southern section of the sanctuary also has 7 acres rare open wet meadow habitat dominated by native plants including winterberry, tussock sedge, marsh and sensitive ferns, goldenrods, bayberry, blueberry, maleberry, gray dogwood, meadowsweet, cattails crabapples, flowering dogwoods and willows. A Watershed Agricultural Council 'Trees for Tribes' planting along the stream at the southern edge of this wet meadow has many willow, oak alder and black spruce saplings.



Southern wet meadow looking at pond

The southern part of the southern section has 5 acres of old field habitat. This is former pastureland with common pasture grasses including little bluestem, orchard grass, deer tongue grass and fescue. Other plants include goldenrod and stands of bayberry. Invasive shrubs, including barberry and multi-flora rose and invasive stilt grass, are gradually overtaking this field. A large stand of locust is encroaching on the western part of this field.



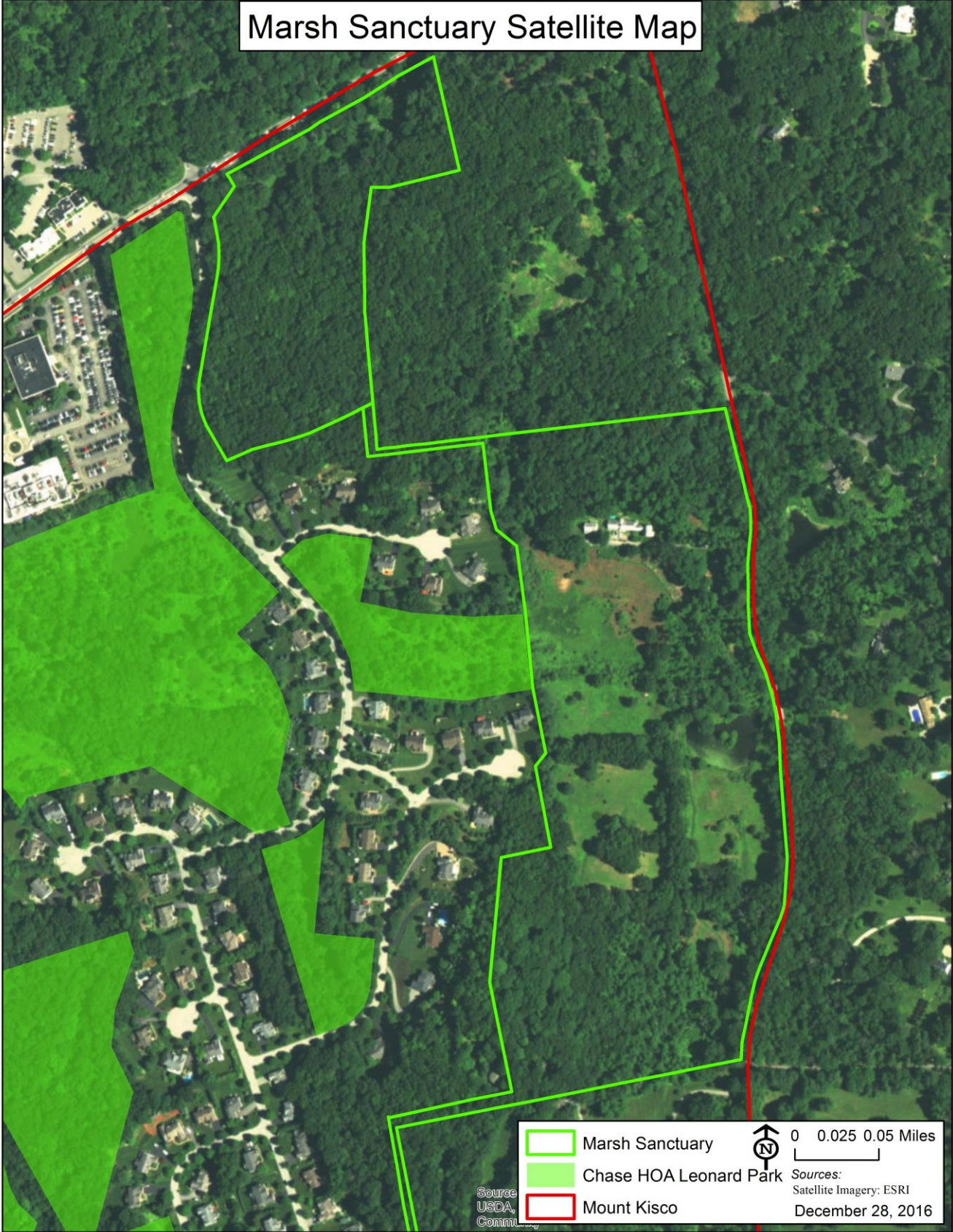
Shrub land habitat at south end

Shrub land such as this provides habitat for birds and other wildlife that can only survive in older abandoned fields or woods that have been disturbed and are regenerating with shrubs including ruffed grouse-found in surveys done nearby in the 1980's but not since-chestnut-sided warbler, towhee, brown thrasher, indigo bunting, woodcock and New England cottontail which was found in the western parts of Mount Kisco several years ago.

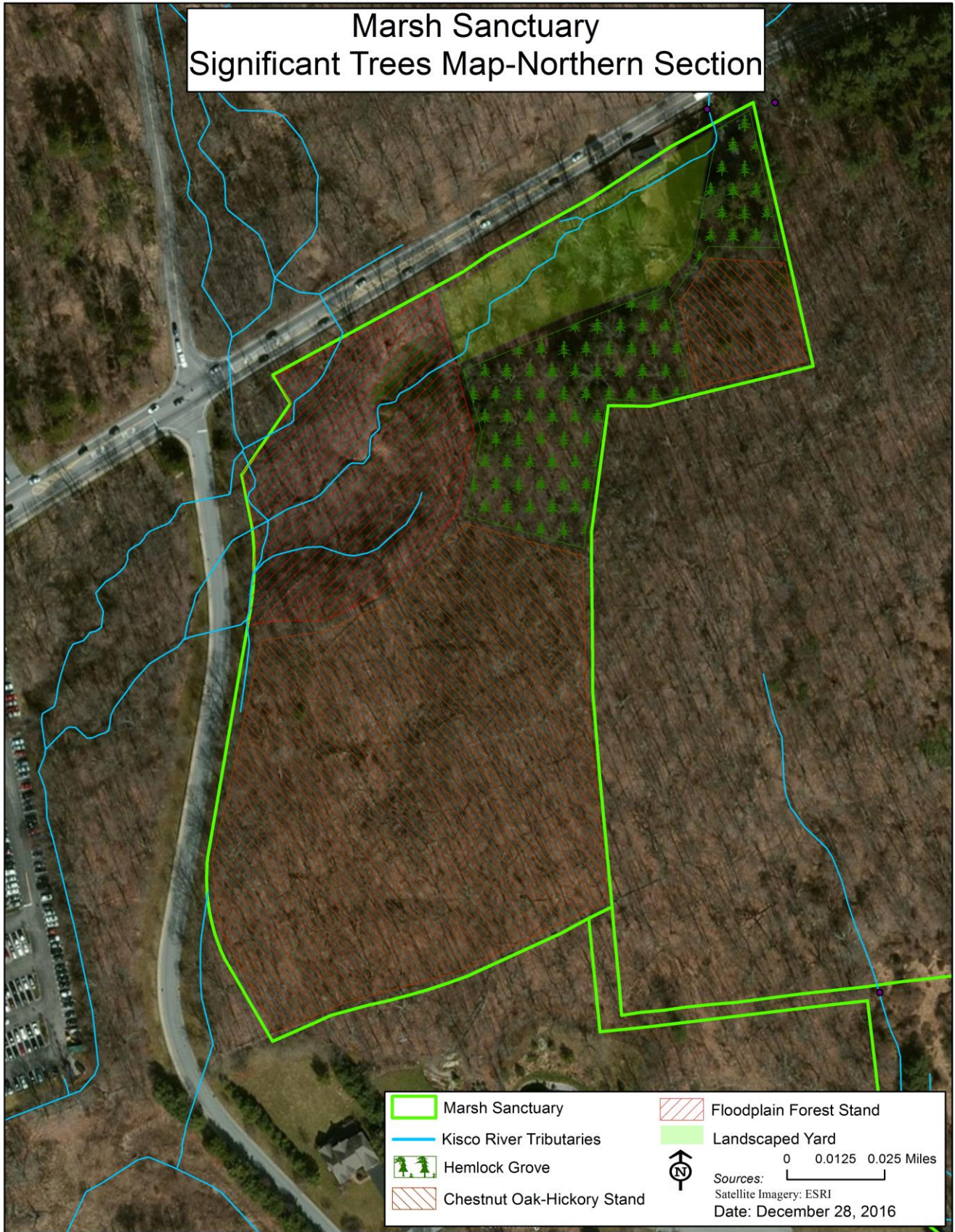
The hilltop in the southwestern portion of the sanctuary has 8 acres of oak-hickory forest. Red, white, black and chestnut oak and pignut hickory are the most common trees. There is very little understory or groundcover due to deer browsing. 8 acres of invasive locust trees have taken over along the sanctuary's southern border that was open field as recently as 1947. Their aggressive growth has prevented any other trees, shrubs or groundcover to grow with the exception of other invasive plants such as ailanthus (tree of heaven), pokeweed, barberry, burning bush, multi-flora rose, wine berry, bittersweet vines and stilt grass.

The 1-acre pond in the center of the sanctuary's southern section has an impressive array of native shrubs and trees on the south, southeast and southwest banks including several large arrowwood viburnum shrubs, thickets of gray dogwood shrubs, silky dogwood, alder and winterberry shrubs and willow and flowering dogwood trees. At least 15 new shrubs have been planted on the north bank of the pond including chokeberry, winterberry, buttonbush and gray dogwood shrubs, flowering dogwood trees, pasture roses and spireas. Invasive Japanese knotweed, porceleinberry and swallowwort grow around the pond spillway and are gradually being removed.

# Marsh Sanctuary Satellite Map



# Marsh Sanctuary Significant Trees Map-Northern Section



# Marsh Sanctuary Significant Trees Map-Southern Section



Marsh Sanctuary	Old Field Habitat
Kisco River Tributaries	Locust Stands
Meadow	
Open Wet Meadow	
Oak-Hickory Stand	

0      0.025      0.05 Miles   
 Sources:   
 Satellite Imagery: ESRI   
 Date: December 28, 2016

## KISCO RIVER: Byram Lake Road to Lexington Avenue:

This section of the Kisco River is protected on both sides by 22 acres of woods owned by Mount Kisco. Although invasive plants are common on both the eastern and western edges of these woods, the interior is a healthy, mature forest with many trees of 3 feet in diameter and larger.

The Kisco River flows from Leonard Park south and west and passes beneath Byram Lake Road. The hiking trail from Leonard Park crosses Byram Lake Road and enters into a young mixed deciduous woods on the west side of Byram Lake Road. Locust, ash, red maple, Norway maple and a few black birch, black cherry and elm trees grow here. The trees are about 60 feet tall with a 15 inch diameter, on average. The understory is made up of sugar maple saplings and many burning bush shrubs with a few barberry bushes. The groundcover is made up of raspberry bushes, onion grass and Star of Bethlehem flowers in late February. The river runs rapidly here and is vegetated well on both sides. As the trail nears route 117, a large sycamore grows.

On May 28, 2016, Steve Ricker observed phoebe, kingbird, red-bellied woodpecker, Carolina and house wren and catbird in these woods. .

Water quality studies at this location show the water to be fairly clean and only 'slightly impacted'. Jim Gmelin did macroinvertebrate sampling here on April 29, 2016 and found stoneflies, mayflies, crane flies, Dobson flies and caddis flies, all indicators of good water quality. Mr. Gmelin also trapped several rusty crayfish in minnow traps. Rusty crayfish are tolerant of pollution. The good water quality in this section of the Kisco River implies that tributaries downstream from this location, including the Branch Brook and a tributary to the south that runs through the Mount Kisco Golf Course, must be more polluted since water quality samplings further downstream show the Kisco River to be 'poor' and 'moderately impacted'.



Kirbyville Monument at Byram Lake Road

The Kisco River flows beneath route 117; the hiking trail crosses route 117 and continues along the sidewalk until reaching the site of the old Spencer Optical factory on the west side of route 117. A large tamarack tree grows close to the road here.

Two medium sized catalpas grow at the Spencer Optical sign. The surrounding woods are made up of medium sized ash and sugar maples with privet in the understory.

After a few hundred feet along the trail the woods becomes very old with many large trees. The invasive plants found close to Byram Lake Road and route 117 are not as common deeper into the woods. The Spencer Optical factory was abandoned in the 1880's and many of these trees date from that time. A large red oak, a large sugar maple, several large ash and a 52" tulip grow here. Three non native sweet cherries grow on the hillside. At the old dam, 8 large red oaks grow in a grove. Some of the oaks are 37 inches in diameter and all appear to be about the same age, perhaps from the same mast year during the 1880's. See Kisco River Significant Trees Map page 88 for the locations of large trees.

Just beyond the red oak grove is a white oak grove. These four of five white oaks are not as large, averaging about 25 inches in diameter. Since white oaks grow more slowly than red oaks, these may be the same age as the red oaks. The woods here are healthy with hickories and medium sized black cherries in the canopy, witch hazel and spicebush shrubs and ironwood and sugar maple, elm and locust saplings. Just beyond this is a large patch of invasive pachysandra, burning bush shrubs and a locust grove. These young trees are about 60 feet tall. Next is a grove of hickory trees including shagbark and bittersnut hickories. Black cherry and elm also grow here. The understory is made up of witch hazel and spicebush shrubs and ironwood trees. The stream is rapidly moving with white water and is vegetated on both sides.



Spencer Optical site, west side of route 117

*Many very large oaks, sugar maples, ash and tulips grow where the old factory was until the 1880's. These trees may be over 125 years old*

The western side of the stream, close to Lexington Avenue, is littered with trash and junk from the backyards along Lexington. Invasive myrtle, pachysandra and bamboo have escaped from the yards and grow here. The canopy consists of many invasive Norway maples and locusts; the understory consists of many burning bush and privet shrubs. Steve Ricker and Jim Gmelin found a native hazelnut shrub, *Corylus americana*, growing among the burning bush shrubs.

Brown trout are released into the Kisco River by Byram Lake Road as part of Trout Unlimited's "Trout in the Classroom" program and a 12 inch brown trout was caught in the Kisco River close to Lexington Avenue in 2016.

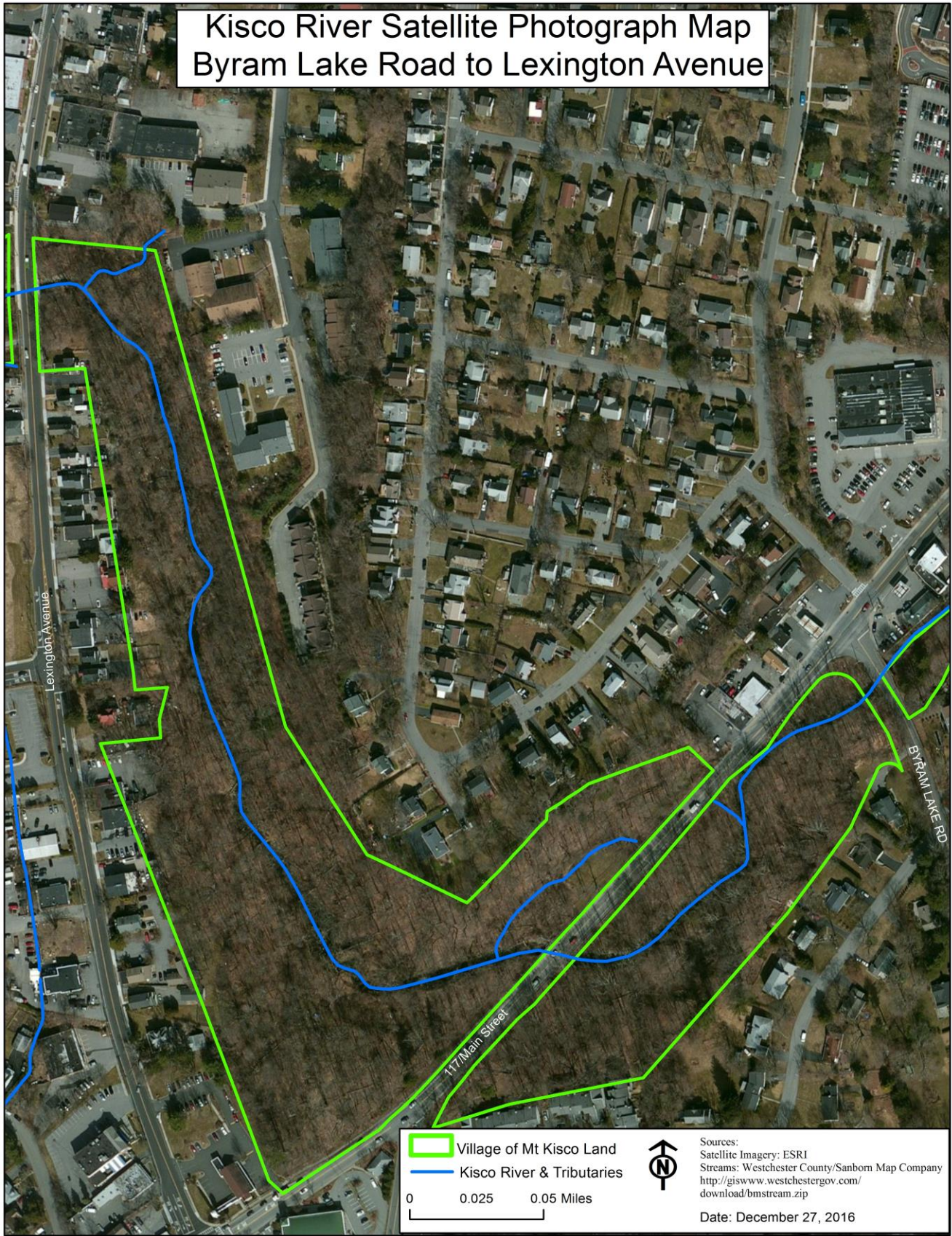


# Kisco River Forest Map Byram Lake Road to Lexington Avenue

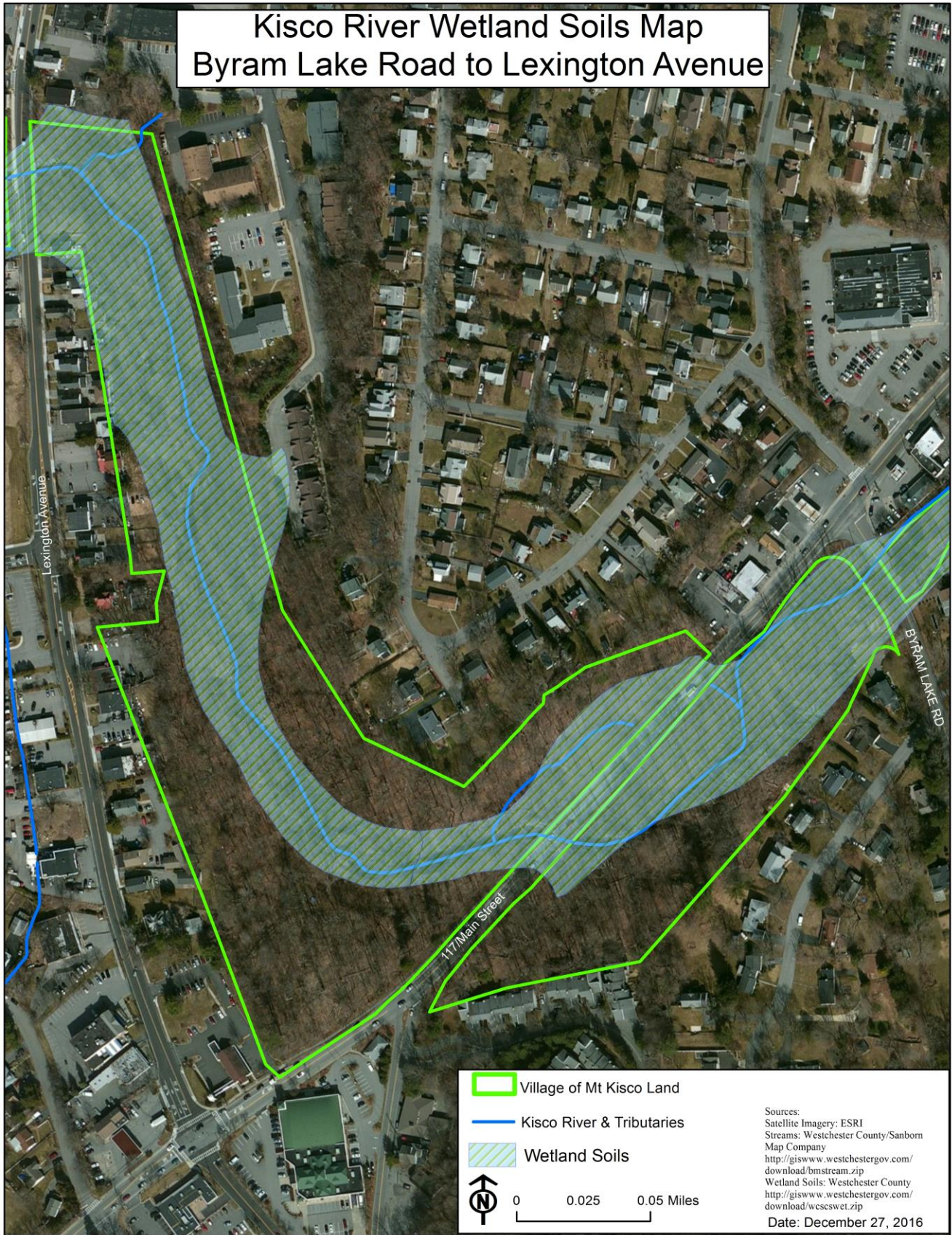
22 acres of forest  
buffer the Kisco  
River between  
Byram Lake Rd  
and Lexington Ave



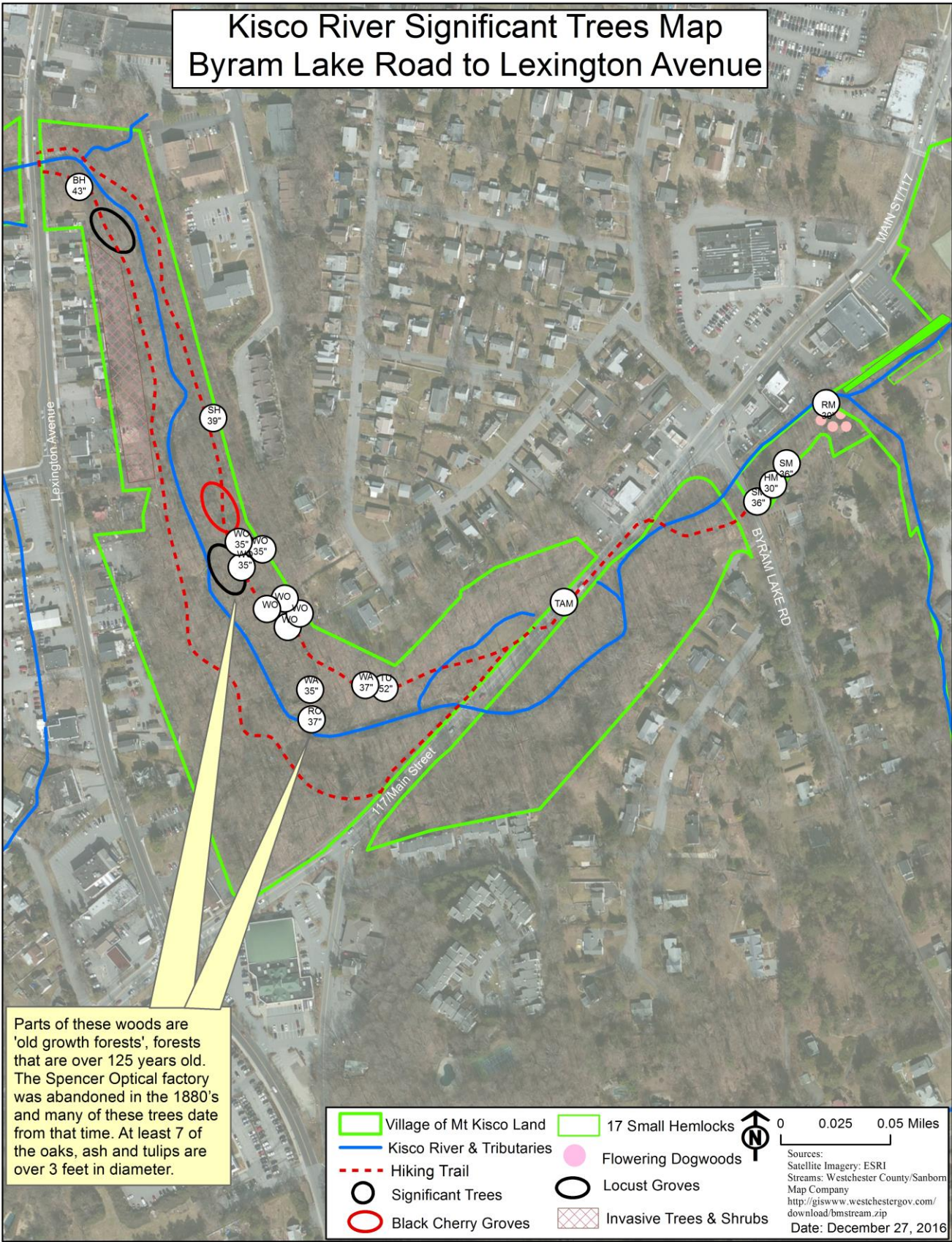
# Kisco River Satellite Photograph Map Byram Lake Road to Lexington Avenue



# Kisco River Wetland Soils Map Byram Lake Road to Lexington Avenue



# Kisco River Significant Trees Map Byram Lake Road to Lexington Avenue



Parts of these woods are 'old growth forests', forests that are over 125 years old. The Spencer Optical factory was abandoned in the 1880's and many of these trees date from that time. At least 7 of the oaks, ash and tulips are over 3 feet in diameter.

Village of Mt Kisco Land	17 Small Hemlocks	0 0.025 0.05 Miles <small>Sources:  Satellite Imagery: ESRI  Streams: Westchester County/Sanborn  Map Company  <a href="http://giswww.westchestergov.com/download/bmstream.zip">http://giswww.westchestergov.com/download/bmstream.zip</a>  Date: December 27, 2016</small>
Kisco River & Tributaries	Flowering Dogwoods	
Hiking Trail	Locust Groves	
Significant Trees	Invasive Trees & Shrubs	
Black Cherry Groves		

### KISCO RIVER: Lexington Avenue to Railroad Tracks:

This section of the Kisco River is protected on both sides by 18 acres of land owned by Mount Kisco. Unlike the steeply wooded section of the river to the east, this area is flat and is almost entirely wetlands.

A highlight of the field surveys was finding a grove of healthy butternut walnut trees close to the hiking trail entrance at Lexington Avenue along the south side of the Kisco River. At least 6 medium to large butternuts of approximately 40 feet in height were found along with at least 6 small butternuts. Only one young butternut had evidence of cankers (disease).

*A grove of rare butternut walnut trees, perhaps disease-resistant, grows along the Kisco River*

Butternut is being killed throughout its range by *Sirococcus clavigignenti-juglandacearum*, a fungus most likely introduced from outside of North America in the 1960's or perhaps earlier. The disease has killed about 80% of butternut trees, making this once common hickory very uncommon.<sup>27</sup> Some butternut trees may be resistant to the fungus, and that may be the case with this grove. Because butternuts are shade intolerant, it is important that vines be kept off these trees and that surrounding trees not be allowed to grow to a height where they will shade the butternuts.

Other trees growing here include large cottonwood trees and ash, sycamore, elm, sugar maple, red maple, pignut hickory, white and red oak and willow trees. A grove of Norway spruce grows near the abandoned green houses west of the trail. Trees also found here in smaller numbers include a few Norway maples, a basswood, ironwood, catalpa, beech, alder, black cherry, box elder and silver maple trees. Medium-sized black walnut and pin oak and medium-sized locust and small mulberry trees grow on the northwest side of the trail by the pond. Many non-native pear trees grow here also. Shrubs include native silky and gray dogwoods, spicebush, elderberry, blueberry, arrowwood viburnum and winterberry. Thin-leafed and common cattail and some non-native phragmites grow around the pond and spatterdock grows on the pond surface. Groundcover consists of royal, sensitive, cinnamon and marsh ferns, horsetail, skunk cabbage, Joe Pye weed, dogbane,

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<sup>27</sup> US Department of Agriculture. "How to Identify Butternut Canker and Manage Butternut Trees". [https://www.na.fs.fed.us/spfo/pubs/howtos/ht\\_but/ht\\_but.htm](https://www.na.fs.fed.us/spfo/pubs/howtos/ht_but/ht_but.htm)

ground nut vine, early meadow rue, golden Alexanders, meadowsweet, poison ivy, Virginia creeper, jewelweed, stinging nettles, mugwort, white wood asters and creeping Jenny.

As in any disturbed and frequently traveled area, invasives are plentiful including multi-flora rose and honeysuckle and a few ailanthus trees.

This large wetland is the eastern portion of a very large, 237-acre DEC wetland "K-12" which continues 2.5 miles southward. Green frogs, bull frog and muskrat were seen in the river and pond area. A great variety of birds were observed by Steve Ricker on June 2, 2016

including chimney swift, blue gray gnatcatcher, female wood duck, warbling vireo, veery, oriole, rose breasted grosbeak, tree and barn swallows, cedar waxwing, Coopers hawk, willow flycatcher, blue-winged warbler, yellow warbler, common yellowthroat, house wren, flicker, red-bellied and downy woodpeckers, red-winged blackbird, catbird, grackle, cardinal, white-breasted nuthatch and song sparrow-an indication of the importance of large wetlands and watercourses to birds and other wildlife.

*This wetland is part of a large, 237-acre wetland-home to many birds and other wildlife*

# Kisco River Forest Lexington Avenue to Railroad Tracks Map

The Kisco River  
Town-owned land  
totals 18 acres of  
forest between  
Lexington Ave and  
the railroad tracks.

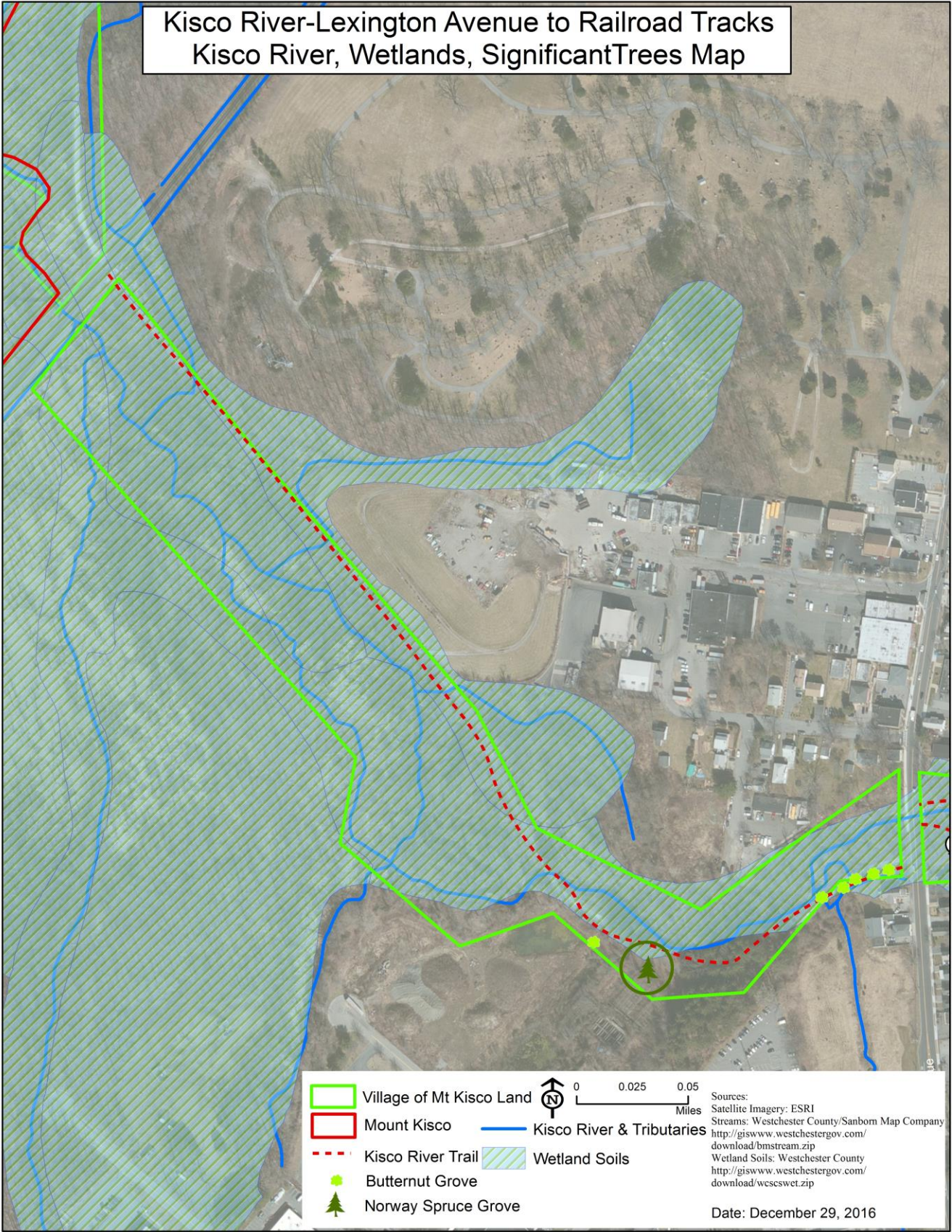


# Kisco River-Lexington Avenue to Railroad Tracks Satellite Photograph Map





Kisco River-Lexington Avenue to Railroad Tracks  
 Kisco River, Wetlands, Significant Trees Map



## BRANCH BROOK:

As mentioned in the review of water quality studies (pages 25-27), the Branch Brook, which runs through the center of Mount Kisco from Preston Way at the northern border of Mount Kisco to the Kisco River at the southwest border of the town, is classified as 'severely impacted' (polluted). The macroinvertebrate insects sampled reflect the presence of water pollution and were dominated by sewage-tolerant midges, worms, and snails. No pollution-intolerant macroinvertebrates such as mayflies, stoneflies and caddisflies were found at the Branch Brook sampling site at Lexington Avenue.<sup>28</sup> This is not a surprise given the high level of development surrounding almost all of Branch Brook. In the past 70 years the land immediately surrounding Branch Brook has gone from nearly completely pervious (undeveloped), to nearly completely impervious (see 1947 Impervious Surface Map page 105). Over 25 stormwater outlets release pollution into the Branch Brook between Preston Way and Leito Drive (see Stormwater Outfalls Maps, pages 46-47). The increase in impervious surfaces along with an increase in storm water discharges adds pollution to this section of the Branch Brook.

The Branch Brook begins as a shallow, silty drainage ditch that runs around the perimeter of Fox Park at Preston Way. A large pipe runs beneath the railroad tracks and then picks up water from the parking lot. The northeastern section of Fox Park is wooded with large cottonwoods, a few black walnuts, willows, locust, catalpa, tree of heaven, black cherry, a flowering dogwood and a small Norway spruce. Shrubs are mainly invasive multi-flora rose and invasive honeysuckle. Groundcover is also mainly invasive plants including mugwort, garlic mustard, phragmites, purple loosestrife with bittersweet vines in the trees. Some native horsetail and nettles also grow here. Despite the abundance of invasive plants, the vegetative cover does provide some protection to the stream and to birds including grackles and song sparrows observed there.

A culvert crossing beneath Preston Way provides more water volume coming from the Target shopping center and the vegetation begins to resemble a true wetland habitat with

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<sup>28</sup> NY State DEC's "30 Year Trend in Water Quality of Rivers and Streams in New York State, Macroinvertebrate Data", 1972-2002 [http://www.dec.ny.gov/docs/water\\_pdf/sbu30yrintro.pdf](http://www.dec.ny.gov/docs/water_pdf/sbu30yrintro.pdf). Pps. 283, 291.

skunk cabbage, silky dogwood shrubs and cottonwoods, red maples, white ash, elm and black birch. As the stream continues toward Barker Street, many tussock sedges appear and many crabapple trees were in bloom. The stream is still clear here with no silt and a pebbly stream bottom. Two Canada geese nests, a mallard, deer and raccoon tracks, cardinals, grackles and song sparrows show that even invasive, degraded vegetation can provide some wildlife habitat. One neighbor remarked that it was the cleanest he has seen the stream in the 30 years he has lived in Mount Kisco.

Just below Barker Street the stream becomes siltier as it widens out into a larger wetland. The wetland is heavily wooded with red maples, elms, crabapples, young box elder, hawthorn and black cherry trees. A nice surprise was to find 6 large native button bush shrubs and a few native spicebush shrubs growing along with a few invasive rose of Sharon, privet and buckthorn shrubs. The groundcover in the wetland includes cinnamon fern, royal fern, goldenrod, jewelweed, marsh marigold in bloom, violets in bloom, arrowhead patches and some phragmites. Unfortunately this area has a tremendous amount of litter and as the stream curves closer to route 117 it is clear that silt and sediment are flowing off route 117 directly into the stream and wetland.



Branch Brook from Barker St. bridge, looking south



Marsh marigold



Branch Brook litter



Native skunk cabbage, spicebush, red maples and elms shelter the Branch Brook north of East Main Street  
April 25, 2016

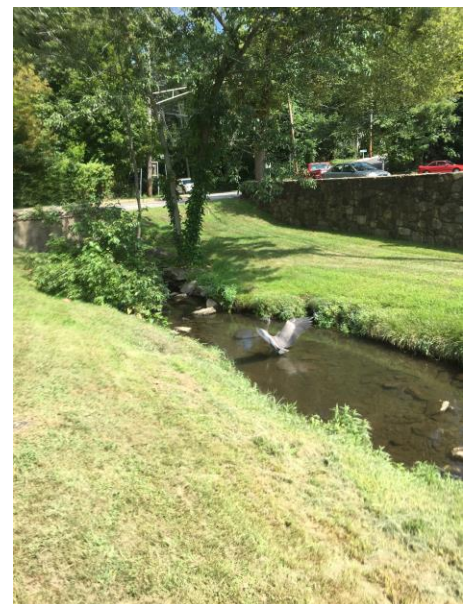
The east side of route 117 from Victoria Drive to Brookside Avenue is heavily wooded. A black bear was sited just .4 miles to the east at the Mount Kisco/Bedford border on July 1, 2016. Trees growing here include medium to large tulip, red oak, elm and red maple trees. The understory is red oak, ash, black cherry, elm, box elder and black walnut saplings with a few clumps of native maple-leaf viburnums. It becomes wetter to the south where the groundcover is royal and cinnamon ferns and jewelweed. Many invasive privet shrubs grow along the east side of route 117 along with some small catalpa and Norway maple trees and some Japanese knotweed and purple loosestrife. This heavily vegetated portion of route 117 must have a cleansing influence on the Branch Brook running along the west side of route 117.

As the Branch Brook flows beneath Legion Way, the stream bank is no longer vegetated and is tightly mowed grass with 2 storm water culverts that have eroded the stream bank in at least four sections of the west bank. One or two native silky dogwood, elm, ash, sugar maple, red maple and pin oaks grow here.



Branch Brook Looking South from Legion Way

Although vegetation is sparse at this location, a great blue heron was photographed here by John Rhodes.



Great blue heron

The Branch Brook resurfaces at the public library where thick vegetation grows along the east bank including cattails, hedge bindweed, nut sedge, jewelweed, evening primrose water pepper, climbing boneset, a small mulberry and a small ash tree and some purple loosestrife. Two rain gardens have been developed between the library and the Branch Brook. Unfortunately a large clump of New York ironweed had just been cut to the ground. The library garden along the building's south side is planted with many native perennials including orange milkweed, coneflowers. The rain gardens and the perennial garden help slow and filter storm water before it enters the Branch Brook.

The Branch Brook flows east of the Shoppers' Park parking lot. The lot has many islands for trees including 14 crabapples, 12 Bradford pears, 10 red oaks, 10 plum trees and a flowering dogwood, with miscanthus grass growing beneath them. As mentioned above, the DEC forester George Profous surveyed Mount Kisco's street trees and recommended creating more growing space and refraining from planting Bradford pear trees which break easily (see Appendix 4, DEC Forester Report, page 151-152). The east side of the brook has 4 large weeping willows.

The rain gardens, perennial wildflower garden at the library and the street trees around Shoppers' Park help to cleanse the Branch Brook as they provide shade and beauty for residents and some habitat for wildlife. Many plantings were done along the Branch Brook in 2000 but, as was the case at Wallace Pond, most were cut down by 2011.

*Many of the native trees and shrubs planted along the Branch Brook have been mowed down*

In late 2016 a storm water improvement project was planned for this section of the Branch Brook. It included removing vegetation from overgrown storm water facilities, smothering phragmites around the one large and another small retention pond just north of the Police Station and replacing four equalizing pipe at the Branch brook just south of Leito Drive. Native plants were to replace any plants removed during the construction.

Vegetation growing along the Branch Brook just south of South Moger Avenue at the Police Station had also been cut. Brendan Murphy of the Watershed Agricultural Council walked this section with the Village Manager Ed Brancati and the NRI subcommittee. Brendan said the 10-foot wide vegetative buffers help water quality and discourage Canada geese that can pollute the water. Mr. Murphy said that pin oak trees and bayberry shrubs are

salt tolerant, that river birch would grow well along the brook without getting too tall and that black willow, pin oak, sycamore, swamp white oak, tupelo and alders would all tolerate the wet conditions along the stream bank. He said the pussy willows and silky dogwood could be planted in late winter using the 'live stake' method of driving the cut stems deep into the stream bank. Village Manager Ed Brancati said that the town will not cut any plantings along the brook and that the town continues to refrain from using any pesticides or herbicides anywhere in Mount Kisco.



Mowing and bank erosion along Branch Brook at South Moger Avenue.

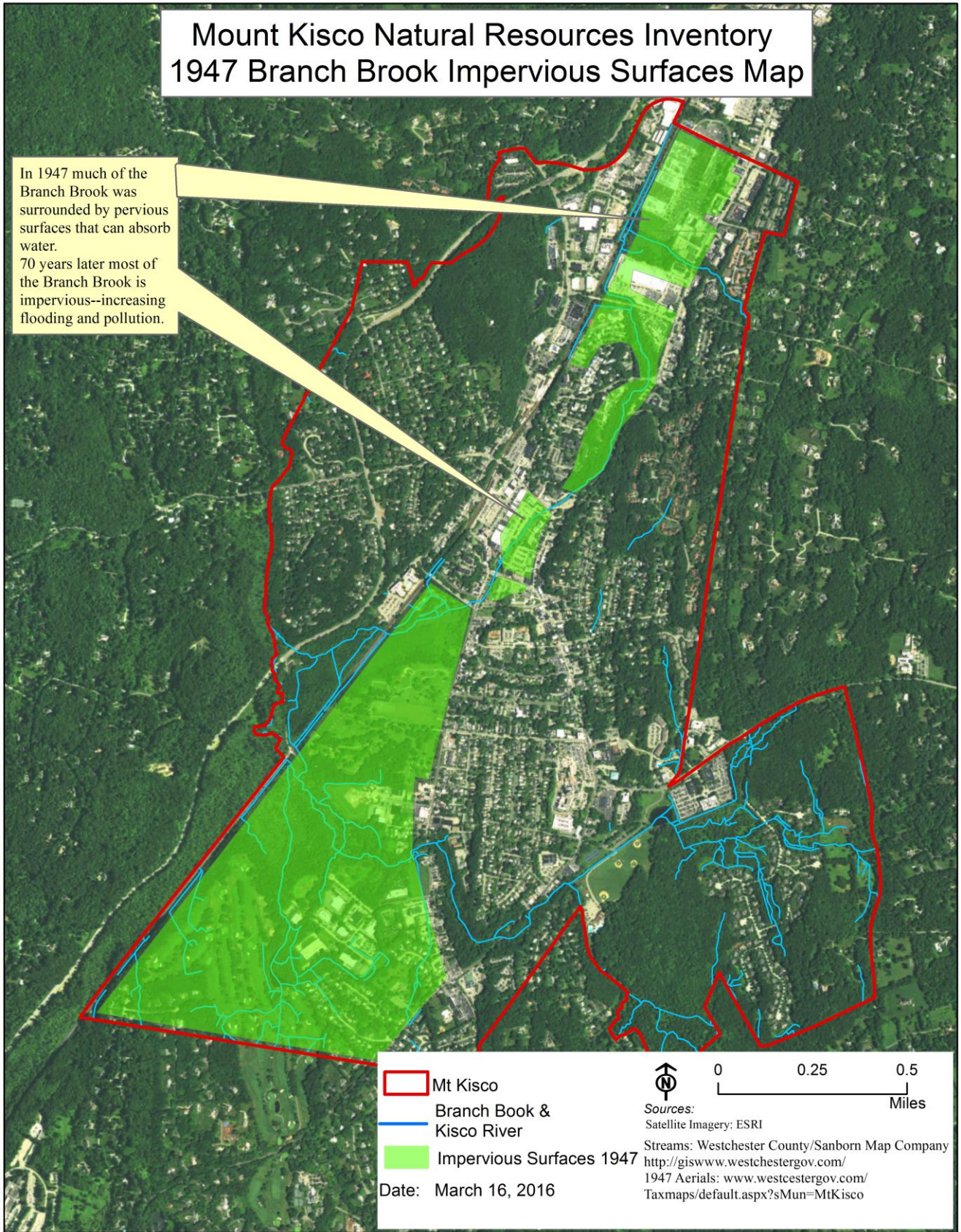


Branch Brook pond just north of South Moger Avenue.  
Phragmites to be removed and replanted with native plants in 2016.



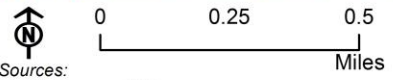
# Mount Kisco Natural Resources Inventory 1947 Branch Brook Impervious Surfaces Map

In 1947 much of the Branch Brook was surrounded by pervious surfaces that can absorb water.  
70 years later most of the Branch Brook is impervious--increasing flooding and pollution.



- Mt Kisco
- Branch Brook & Kisco River
- Impervious Surfaces 1947

Date: March 16, 2016



Sources:  
Satellite Imagery: ESRI  
Streams: Westchester County/Sanborn Map Company  
<http://giswww.westchestergov.com/>  
1947 Aerials: [www.westchestergov.com/Taxmaps/default.aspx?sMun=MtKisco](http://www.westchestergov.com/Taxmaps/default.aspx?sMun=MtKisco)

## BRANCH BROOK: South of Leito Drive

The Branch Brook flows beneath Leito Drive and enters the large, 237-acre DEC wetland "K-12". This area, referred to as the 'Peninsula', has recently had hiking trails cleared and trash removed.



Beaver lodge



Beaver teeth marks

Most of the peninsula is inaccessible except by canoe. Both sides of the Branch Brook are vegetated with cottonwood, black willow, weeping willow, pussy willow, black walnut, box elder, catalpa and mulberry trees and winterberry, arrowwood viburnum, elderberry and silky dogwood shrubs including a yellow-stemmed variety of dogwood shrub. Groundcover includes bur-reed, white sweet clover, great chickweed, prickly lettuce, narrowleaf bittercress, nipplewort and burdock. Aquatic plants include arrow arum, pickerel weed and spatterdock.



Branch Brook looking south from Peninsula trail

This large wetland provides critical wildlife habitat in a very developed area. Beaver have been living here, but were trapped and removed to prevent flooding. Jim Gmelin saw 3 muskrats here in May, 2016. A bobcat was seen by town employees. Painted turtles were seen sunning on logs and green frogs have been observed here. Birds seen here include: yellow warbler, common yellowthroat, green heron, wood duck, chimney swift, willow flycatcher, warbling vireo and cedar waxwing, all observed by Steve Ricker on May 28, 2016. A great horned owl has been nesting there for the past several years, according to Anne Swaim and others have reported seeing a kingfisher here.

The town is clearing the banks of invasive plants beginning in 2016 and will replant with native shrubs and trees.

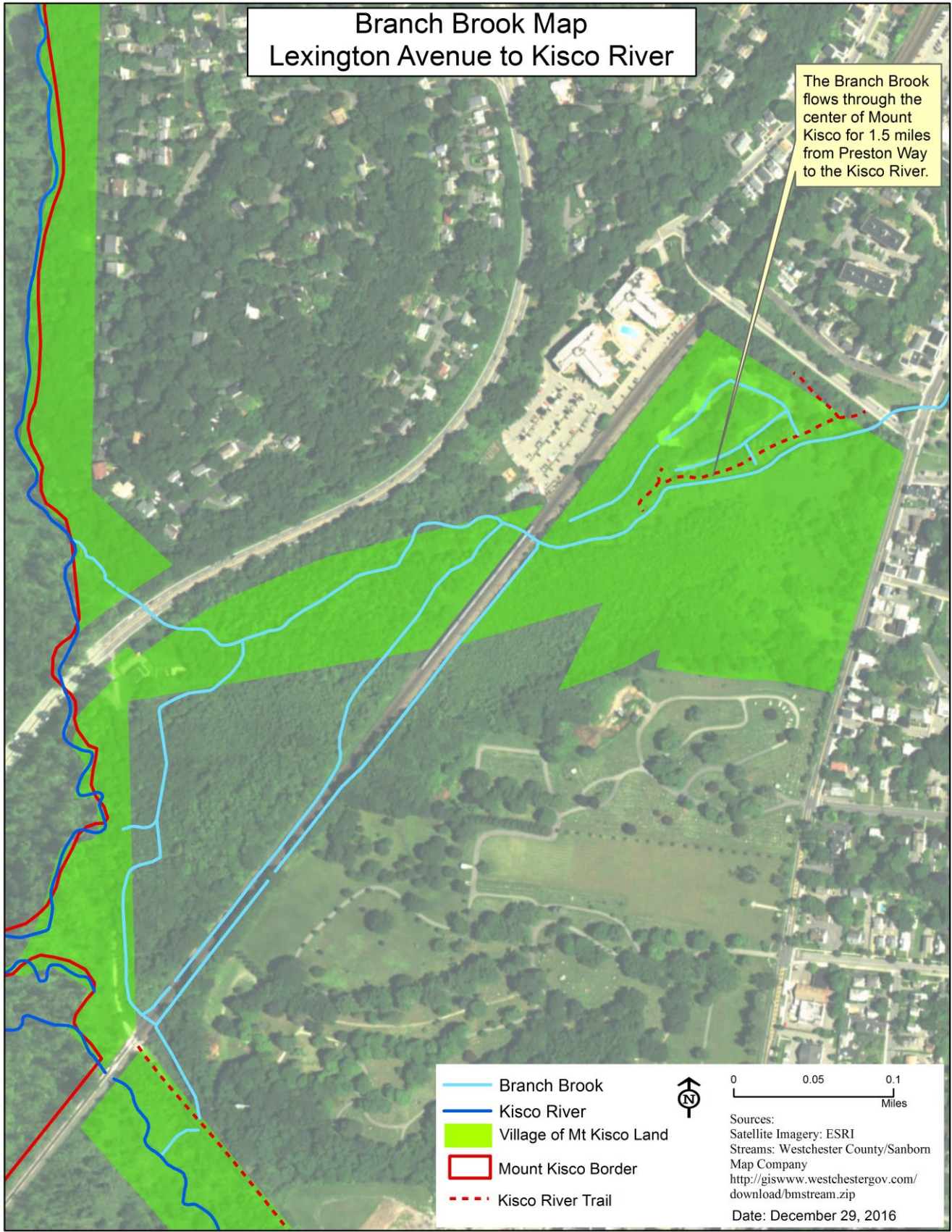
Water quality studies reviewed on pages 25-28 mention that the Branch Brook, listed as 'severely impaired' was sampled at Lexington Avenue. In order to find out where along the brook's course it becomes polluted, Jim Gmelin sampled macroinvertebrates at four sites along the Branch Brook on May 1, 2016 and found the following macroinvertebrates:

- South of Preston Way-----Damselflies, nematodes, aquatic earth, worms, tessellated darter (fish)
- Barker Street bridge----Dragonflies, caddis, crane fly
- American Legion----Crane flies, caddis, sow bug , crayfish, tessellated darter, scuds
- Peninsula----Damselflies, dragonflies, planaria (flat worm), aquatic earth worms

According to Jim Gmelin, this sampling indicates that quality of water deteriorated as it flowed through the village, since the specimens found at the peninsula all have high tolerances for pollution, while those found up-stream were less tolerant. Most of the pollution, therefore, seems to be flowing into the Branch Brook at Shoppers' Park. Over 25 storm water outlets release storm water into the Branch Brook between Preston Way and Leito Drive.

# Branch Brook Map Lexington Avenue to Kisco River

The Branch Brook flows through the center of Mount Kisco for 1.5 miles from Preston Way to the Kisco River.

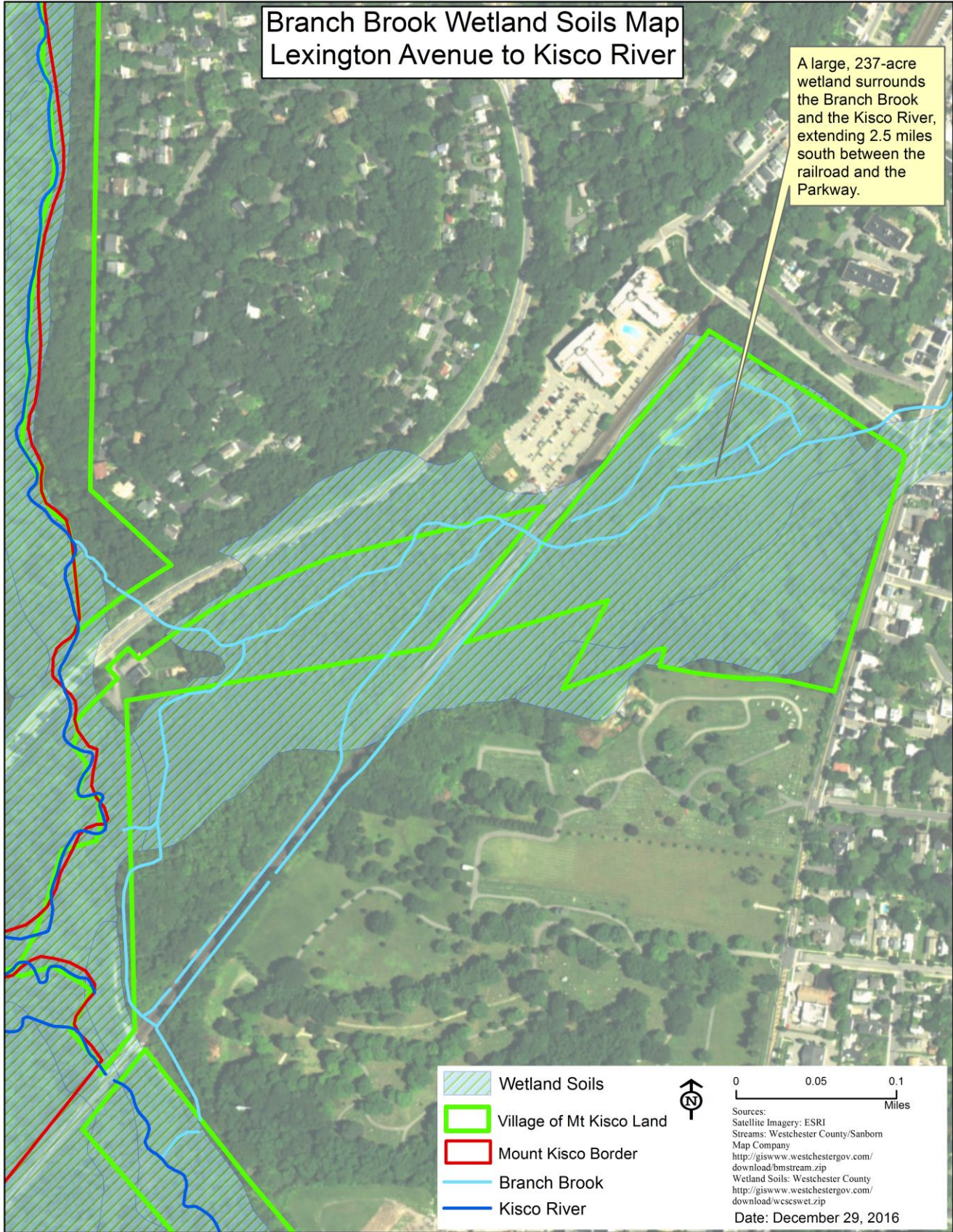


- Branch Brook
- Kisco River
- Village of Mt Kisco Land
- Mount Kisco Border
- Kisco River Trail

Sources:  
Satellite Imagery: ESRI  
Streams: Westchester County/Sanborn Map Company  
<http://giswww.westchestergov.com/download/bmstream.zip>  
Date: December 29, 2016

# Branch Brook Wetland Soils Map Lexington Avenue to Kisco River

A large, 237-acre wetland surrounds the Branch Brook and the Kisco River, extending 2.5 miles south between the railroad and the Parkway.



## KISCO MOUNTAIN

Kisco Mountain has 66 acres of forest owned in by Mount Kisco and The Hearth on three separate parcels. Plans had called for the building of an assisted care facility on an 18.5 acre parcel on the north slope of Kisco Mountain. This parcel, now owned by the Town of Mount Kisco, was to be swapped with a smaller parcel located on the southern slope of Kisco Mountain now owned by The Hearth. Some clearing and road building had occurred as of 2016 but the final plans are still uncertain.

The hiking trail crosses the former Swiss Benevolent Society land, now open lawn, at the southern slope of Kisco Mountain. The trail continues north into the Kisco Mountain oak-hickory woods where chestnut, red, white and black oaks and mockernut and pignut hickories grow on the rocky, dry, steep and sunny east slope. Other associated trees include black cherry, red maple and a few invasive Norway maple and locust. The understory includes black birch, black cherry, sugar maple, locust and hawthorn trees and saplings. This very dry area has high and low bush blueberries, witch hazel and serviceberry growing in the understory along with many invasive privet shrubs and a few



Steep eastern slope of Kisco Mountain

invasive multi-flora rose shrubs. The groundcover is Pennsylvania sedge, wood fern and patches of rattlesnake weed on rocky areas. Near the summit the trees are quite large. One chestnut oak is 30 inches in diameter, a red oak measures 40 inches in diameter and 4 red and white oaks are 36 inches in diameter.

At 620 feet in elevation, the views from Mount Kisco are impressive and make a wonderful hiking destination.



View to the southeast



Enjoying the view, March 10, 2016 hike



Measuring the summit

Construction of The Hearth on the northern side of the mountain and its access road led to clearing of several trees and some soil erosion which appears to now be controlled by vegetative mats.

The western side of the mountain, being closer to homes, streets and trucks going to the water tower, has more invasive plants than does the rest of the mountain. Large patches on Japanese knotweed along with ailanthus trees and locusts grow along the road leading to the water tower. The water tower road is being severely eroded by vehicular traffic.

Kisco Mountain has an impressive variety of bird species, including birds found in open grassland (bluebirds), birds found in open woodlands (rose-breasted grosbeak, great crested flycatcher, Baltimore oriole), and birds only found in deep interior forests (wood thrush, pee-wee, ovenbird, red start, red-eyed vireo, black & white warbler and pileated woodpecker). Other birds observed by Steve Ricker on June 16, 2016 include red tailed hawk, downy woodpecker, catbird, house wren, house finch, robin, chipping sparrow and mockingbird. Fox and coyote scat were also found on a February 18, 2016 survey.

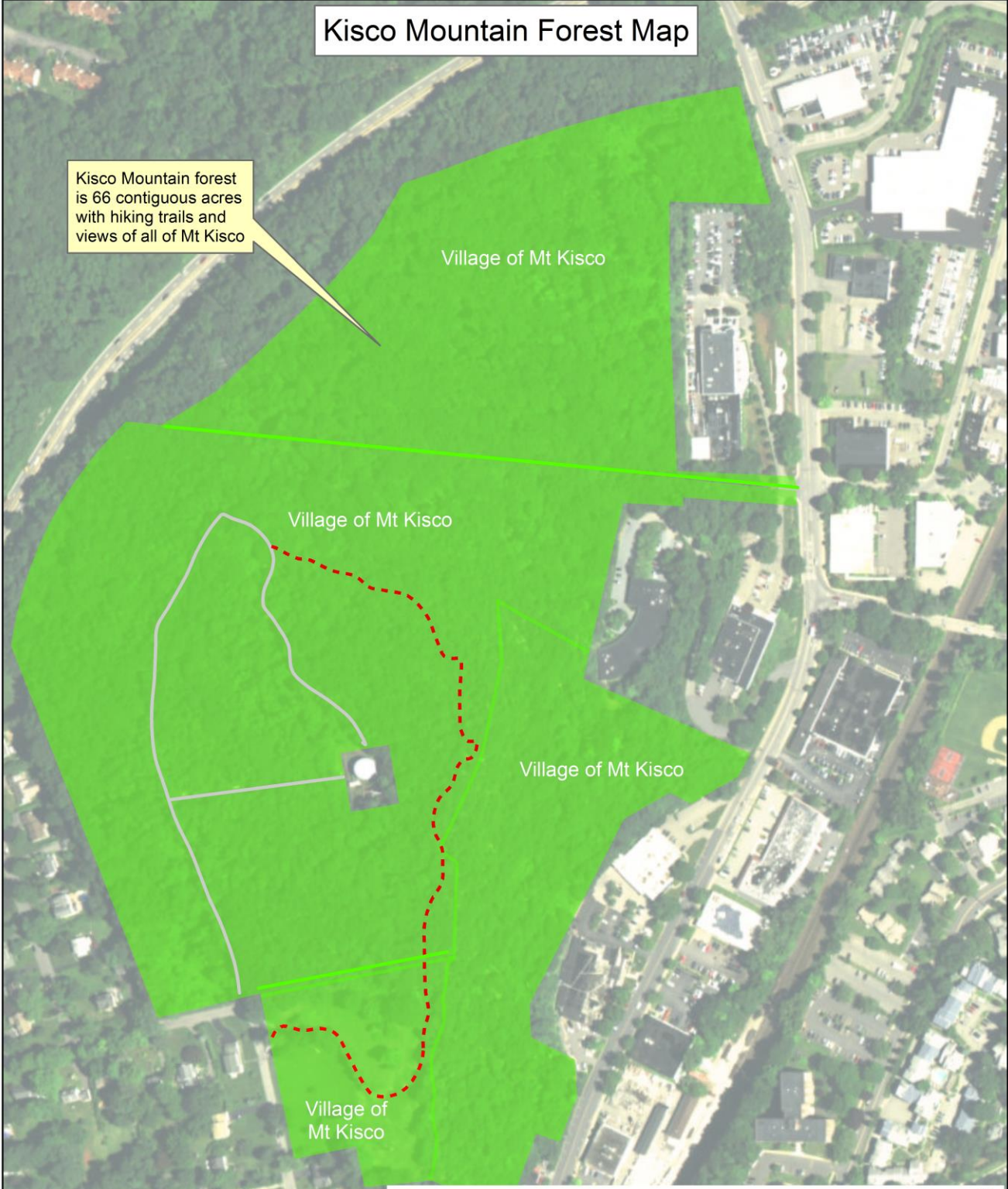


Erosion along water tower road



# Kisco Mountain Forest Map

Kisco Mountain forest is 66 contiguous acres with hiking trails and views of all of Mt Kisco



-  Village of Mt Kisco Parks, Open Space & Village-Owned Land
-  Cliffside Hiking Trail
-  Water Tower Road

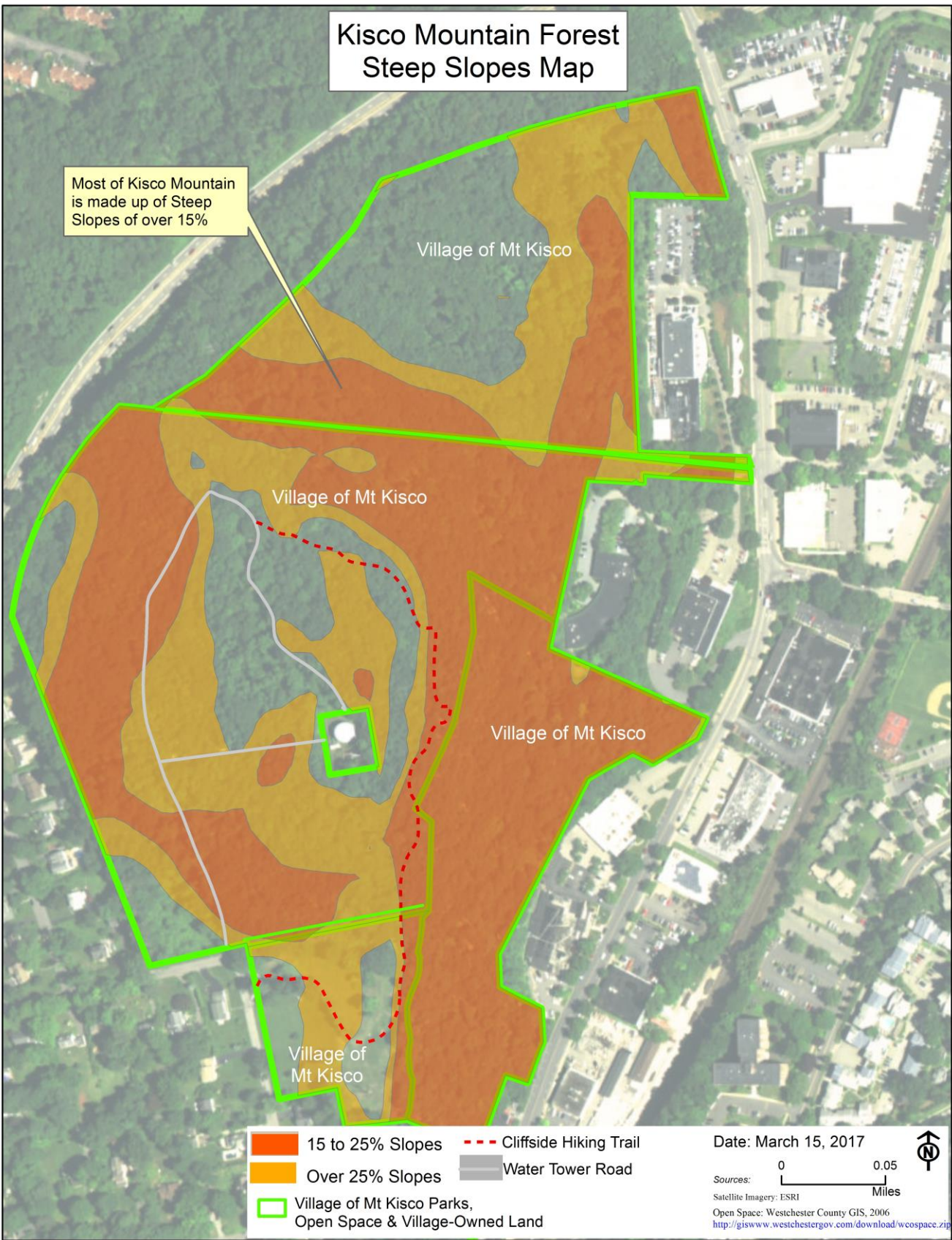
Date: March 15, 2017



Sources: Satellite Imagery: ESRI  
Open Space: Westchester County GIS, 2006  
<http://giswww.westchestergov.com/download/wcospace.zip>

# Kisco Mountain Forest Steep Slopes Map

Most of Kisco Mountain is made up of Steep Slopes of over 15%



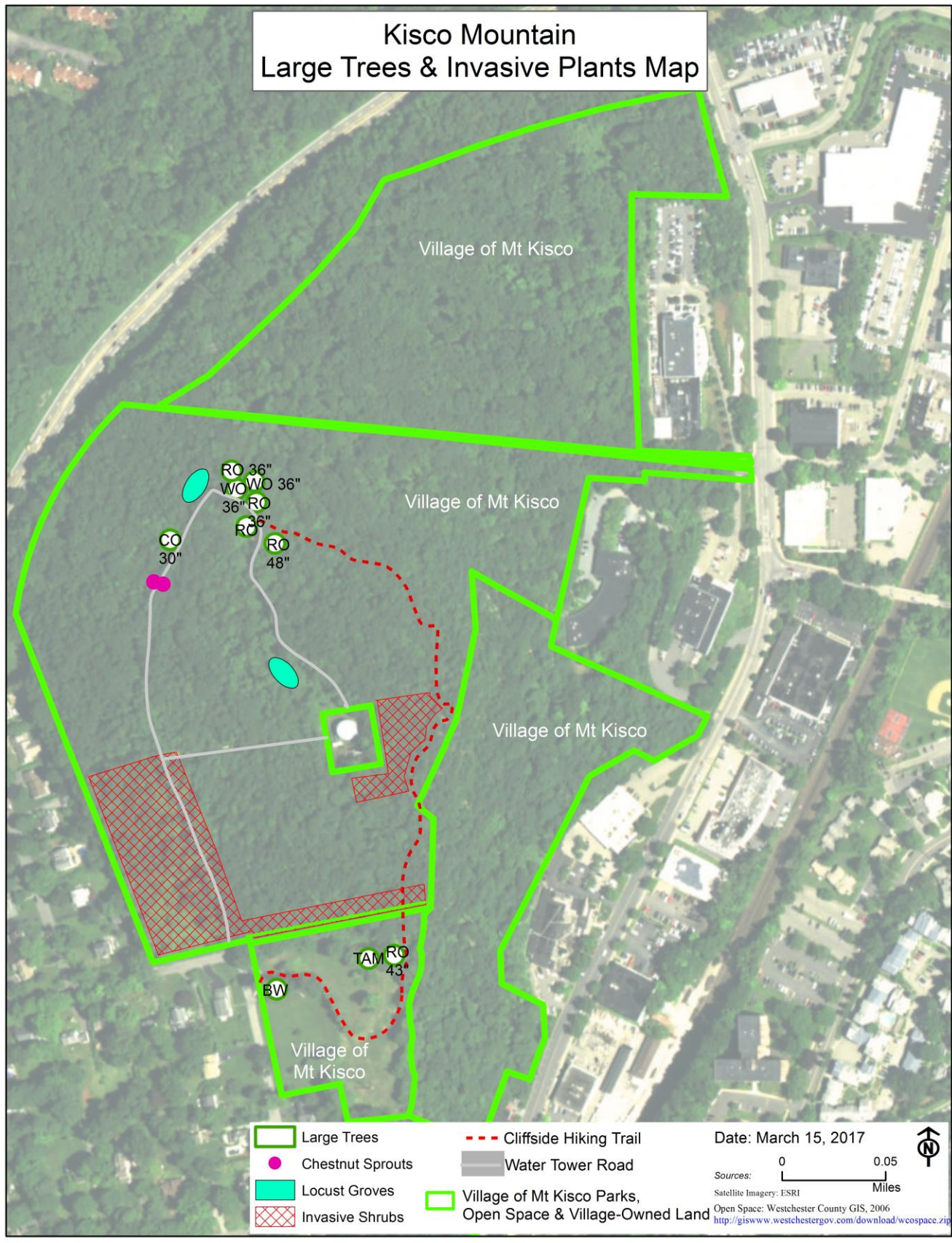
- 15 to 25% Slopes
- Over 25% Slopes
- Village of Mt Kisco Parks, Open Space & Village-Owned Land
- Cliffside Hiking Trail
- Water Tower Road

Date: March 15, 2017

0 0.05  
Miles

Sources:  
Satellite Imagery: ESRI  
Open Space: Westchester County GIS, 2006  
<http://giswww.westchestergov.com/download/wcospace.zip>

# Kisco Mountain Large Trees & Invasive Plants Map



- Large Trees
- Chestnut Sprouts
- Locust Groves
- Cliffside Hiking Trail
- Water Tower Road
- Invasive Shrubs
- Village of Mt Kisco Parks, Open Space & Village-Owned Land

Date: March 15, 2017

Sources: 0 0.05 Miles



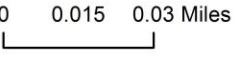





Satellite Imagery: ESRI

Open Space: Westchester County GIS, 2006

<http://giswww.westchestergov.com/download/wcospace.zip>

# Woodcrest Homeowners' Association Open Space Map

Woodcrest HOA Open Space is 8 acres of woods with trails open to the public. A stream and pond are surrounded by steep slopes and mature trees. It is located on Woodcrest Lane off of Route 172.

	Woodcrest HOA	 
	Woodcrest Pond	
	Streams	Sources: Satellite Imagery: ESRI Streams: Westchester County/Sanborn Map Company <a href="http://giswww.westchestergov.com/download/hmstream.zip">http://giswww.westchestergov.com/download/hmstream.zip</a> Wetland Soils: Westchester County <a href="http://giswww.westchestergov.com/download/wscswet.zip">http://giswww.westchestergov.com/download/wscswet.zip</a> Steep Slopes: Westchester County <a href="http://www.westchestergov.com/download/wcslopes.zip">http://www.westchestergov.com/download/wcslopes.zip</a>
	15 to 25% Slopes	Date: December 28, 2016  Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
	Over 25% Slopes	
	Mount Kisco	



## BYRAM LAKE RESERVOIR

Byram Lake Reservoir is Mount Kisco's main source of drinking water. The land immediate surrounding Byram Lake is owned by Mount Kisco and is preserved as Water Supply Land to buffer the reservoir. It is designated a Critical Environmental Area. The Reservoir is located 1.25 miles southeast of Mount Kisco.

The Reservoir is protected by open space to the north and southwest (see Surrounding Open Space Map, page 55). Interstate 684 parallels the Reservoir to the east; Byram Lake Road is immediately adjacent to it to the north and east. Both roads contribute salt and storm water run-off to the Reservoir.

At least 12 tributaries feed the Reservoir (see Streams and Wetlands Map, page 57). 12 of these are sampled for water quality by Chazen Companies (see Byram Lake Vegetative Communities & Testing Locations Map, page 59). Because of the importance of these tributaries to the water quality of the Reservoir, the NRI field surveys focused extensively on the vegetative cover that protects these streams and on the physical condition of the outlets and the roads close to the tributaries and reservoir.

The main tributary to Byram Lake originates in a large wetland complex within the Nature Conservancy's Meyer Preserve located along the southwest section of Byram Lake adjacent to Mount Kisco Water Supply Land.



Natural stream exiting Meyer Preserve wetland

The naturally flowing stream flows southeast from the wetland and then is converted to a stone-lined sluiceway that re-directs the water north into Byram Lake.



Stream re-directed into sluiceway



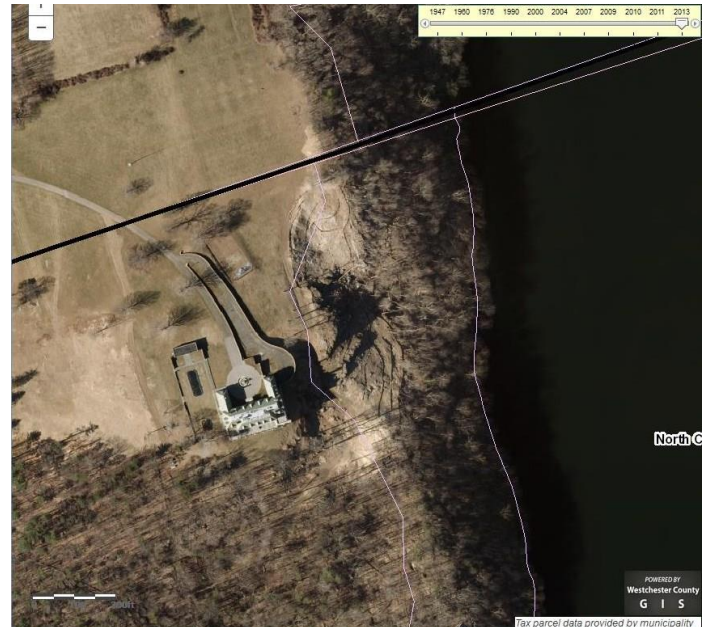
Sluiceway with vegetation on both sides

A very steep slope of over 25% runs along the entire west side of Byram Lake, a length of 1.4 miles. Elevations drop sharply from a peak elevation of 680 feet above sea level to 450 feet above sea level at the lake's shoreline. In extremely steep areas elevation drops 200 feet over just a 300 foot distance. Rock outcrops and dead and dying eastern hemlock evergreens dominate this community.



South end looking north at Byram Lake and steep, vegetated western slope

A large, 2-acre area at the top of the cliff on Mount Kisco land has been clear cut recently (aerial photographs from 2013 indicate it to be forested at that time). This are is prone to erosion and/or landslides that will drive sediment into the lake.



2-acre clear cut on Mt Kisco Water Supply Land.  
2011 photograph on left; 2013 photograph on right.

In less steep areas in the southwest portion of Mt Kisco Water Supply Land medium to large red, white and chestnut oaks grow in the canopy. Some oaks are as large as 38" diameter at breast height. Beech and pignut hickory trees also grow among the oaks. On lower slopes, large tulip trees are found.

The understory consists of many still living medium sized hemlocks and many downed and dead hemlocks. Wooley adelgid has infected these hemlocks and typically causes death of an entire hemlock grove in as little as six years, as is the case here. Fortunately it appears that oaks and hickories are growing up and replacing the dying hemlocks.

Other understory trees include serviceberry and ironwood trees and black birch, beech, red maple and hickory saplings. The shrub layer includes mountain laurel and witch hazel shrubs. The ground cover is made up of Pennsylvania and broad leaf sedges, Christmas and intermediate wood ferns, greenbrier vines and wine berry, dewberry, deer tongue grass, beech drops, pin cushion moss and beech and pine seedlings.



Sluiceway with vegetated steep slope to west



Dead and downed hemlocks on west slope



Oaks, hickories and hemlocks at southwest property line



The section southeast of the dam has many large tulip and several white pine plantations- evergreens were commonly planted around reservoirs to provide water protection in winter months. Red oaks, beech and black birch grow beneath the taller trees. Spicebush is common; the ground cover consists of wintergreen, hay-scented fern and many pine seedlings-a good sign that the forest will regenerate itself despite deer predation.



Southeast lakeshore with white pine, oaks and black birch

The Byram River is the outlet of Byram Lake; it is stone-lined and just east of the sluiceway inlet.



Byram River beneath dam/lake

To the east of the Byram River is a large wetland extending east to Byram Lake Road and southwest to Oregon Road. The northern portion of the wetland appears to be an isolated wetland, potentially a vernal pool in which amphibians may breed. The pool is surrounded by red maples and elms with spicebush in the shrub layer and skunk cabbage at the ground layer.



Possible vernal pool

The larger wetland to the south also has a canopy made up of red maples and elms along with some yellow and black birch. The understory consists of ironwood trees and red oak samplings. Swamp loosestrife grows in the center of the wetland.



Wetland southeast of Byram Lake

Although deer browse has eliminated much of the shrub layer and understory, the canopy-with the exception of dying hemlocks-is healthy and many deciduous saplings and white pine seedlings indicate that the forest is regenerating. There are very few invasive plants, except for the area right along Byram Lake Road. Both the sluiceway inlet and the Byram River outlet are heavily vegetated, protecting the water quality of the streams and lake.



Sign identifying Water Supply Land as a Designated Conservation Area

The eastern shore of Byram Lake has at least six tributaries emptying into the lake. Most of these begin in wetlands or drainage ditches east of route 684, which is located between 300 feet to 600 feet east of Byram Lake and runs parallel to it. These tributaries then flow beneath 684 and are then piped beneath Byram Lake Road which is located just 200 feet to 250 feet east of Byram Lake and runs parallel to it. The Chazen Companies has been monitoring and analyzing Byram Lake water quality and viability since 2007 and tests these tributaries at 12 locations labeled BLT (Byram Lake Testing) #1-#12 (see Byram Lake Vegetative Communities & Testing Locations Map, page 59).

BLT 1 is the sluiceway which as mentioned above originates in a natural, protected wetland owned by the Nature Conservancy and flows through a heavily vegetated woodland.

BLT 2 is located at the southeast corner of Byram Lake. Three pipes carry water beneath Byram Lake Road and into the lake. This stream is well-vegetated with red maples, pussy willow trees, alder, winterberry, silky dogwood and blueberry shrubs and path rush and cinnamon fern. Many white pine seedlings indicate future tree growth, protecting the stream.



3 culverts beneath Byram Lake Road at BLT 2, looking east



Further upstream looking east to culvert beneath highway

BLT 3 is a wetland channel surrounded by elm and tulip trees, blueberry spicebush and silky dogwood shrubs, wine berry, intermediate wood and cinnamon ferns, wintergreen and partridgeberry groundcover. The channel bed is filled with true forget-me-not and cattails.

The woods surrounding this channel grow out into a peninsula and are dominated by white pine plantations. Some white pines are 24 inches diameter at breast height. Ash, white and red oak also grow in the canopy along with hickory and black cherry in the understory. Both the channel and the land surrounding it are well-vegetated.



Wetland channel at BLT 3 looking east from shoreline



Peninsula with white pine regeneration

BLT 4 is located just northwest of the former Rene Dubos Center 30-acre property which was acquired by the Town of North Castle, with contributions from Mount Kisco and the Westchester Land Trust, in 2009. Directly east of this tributary is a large amount of impervious surface beneath a cell tower that directs storm water into this culvert. The stream is surrounded by tulip, elm and white pine trees. This is one area of the reservoir that has an abundance of invasive plants. Invasive



Concrete culvert at BLT 4 with cell tower across Byram Lake Road

honeysuckle and invasive multi-flora rose, along with invasive bittersweet vines and invasive garlic mustard, grow along the stream bank. The streambed itself is rock-filled, which slows storm water and prevents erosion. The amount of invasives indicates that this area has been disrupted recently, perhaps when the cellular tower was constructed and paved and storm drains were installed.

BTL is 5 is surrounded by red oak, white ash and a few non-native Norway maples. Many spicebush grown along the stream bank. The stream is well-vegetated.



Spicebush along stream bank at BLT 5

BLT 6 has a high rock headwall that has caved into the stream channel. The stream is surrounded by white ash, shagbark hickory, sugar maples and yellow birch. Shrubs include spicebush; Christmas ferns are abundant.



Collapsed headwall at BLT 6, looking west from road to lake

BLT 7 flows from a culvert located beneath the highway. The east side of Byram Lake Road is very steep. On the west side of the road the steep slope becomes a deep ravine. Water tests note that this stream is 5% cooler than the other tributaries during peak summer periods, increasing dissolved oxygen concentrations which is helpful to fish and other wildlife. This is most likely has more to do with the deepness of the ravine that creates shade that lasts through much of the day-keeping the stream cool-and less to do with the heavy vegetation surrounding the stream, since most of the other streams have the same degree of vegetative cover. If coolness is due to terrain and not vegetation, then adding additional vegetation to other tributaries will not lower temperatures, but as the Chazen report says, further examination of BLT 7 is warranted to determine why it is cooler.

The vegetation at BLT 7 is typical of rocky ravines with a half dozen small to medium sized hemlocks, at least five yellow birch and many Christmas ferns. Other trees include large red oaks and large tulips. Spicebush is the dominant shrub.

The road has caved in and is releasing storm water and gravel into the stream. The pink and black striped ribbon indicates that the Town of Bedford is aware of this problem.



Culvert looking east at steep slope and highway



Looking west at road cave in at BLT 7



Rocky ravine at BLT 7 cools the stream

BLT 8's tributary originates .20 miles north of the lake at Interstate 684. It flows thorough the Nature Conservancy's Butler Sanctuary north of Byram Lake Road. The stream is entirely vegetated with no impervious surface between Interstate 684 and Byram Lake Road, which should result in very good water quality readings. Somewhat surprisingly, BLT 8 has the highest levels of sodium of all the tributaries to the lake (see Sodium, Byram Reservoir Tributaries, 2015 on page 30). This may indicate that some of the sodium contaminating the lake is coming not from Interstate 684 but rather is coming from Byram Lake Road, which is maintained by the Town of Bedford and the Town of North Castle.

The first .85 miles of Byram Lake Road are located in the Town of Bedford and are gravel. The remaining .97 miles of Byram Lake Road that run along side the lake are owned by the Town of North Castle. The Bedford portion of the road is gravel; the North Castle portion is asphalt. Gravel may have a positive impact on water quality because it is somewhat permeable, slowing and absorbing some storm water. On the other hand, gravel can contribute sediments to the lake which, because sediment can bind with phosphorous and nitrates, may increase pollution. While asphalt accelerates storm water runoff, properly positioned storm water basins, if maintained, may result in less pollution entering the reservoir. Both alternatives should be further tested.



View north into Butler Sanctuary



View south to lake at BLT 8. Pink and black ribbon indicates road cave in.

Vegetation at BLT 8 consists of tulip, sugar maple and ash trees in the canopy, spicebush, non-native burning bush and non-native honeysuckle. The ground cover includes wine berry, goldenrod and Christmas fern.

The pink and black ribbon on the guardrail at BLT 8 marks another road cave-in that contributes storm water runoff from the road into the reservoir and indicates the Town of Bedford is aware of the problem.

BLT 9 is a spring that begins on the lake side of Byram Lake Road. The road is caving in again at this location.



Spring and green stake marking a gauging station at BLT 9

The stream flowing into the lake at BLT 10 is just north of Byram Lake Road and is well-vegetated. A few red cedars are found at the culvert at BLT 10 but the road at BLT 10 has caved in and has no shoulder or cubing. It appears that storm water running down the steep driveway at #607 Byram Lake Road is eroding the road and running off into the lake



Vegetated stream flowing to BLT 10, just north of Byram Lake Road





BLT 10 with no road shoulder or curbing

The pond and marsh at BLT 11 are well-vegetated with willows and other deciduous trees.



Marsh and pond flowing to BLT 11, looking north from Byram Lake Road



North side of Byram Lake Road is caving into the marsh



Culverts emptying marsh into Byram Lake from beneath Byram Lake Road



Hillside stream and check dam with culvert



Water released into lake at pump station

BLT 12 is at the pump station. Water drains from the steep hillside on both sides of Byram Lake Road. A crushed stone check dam slows water and pipes it to the manhole covered pipe where it appears to be slowly released into the lake.

All tributaries to Byram Lake are naturally vegetated with little space for adding vegetation. Byram Lake Road, by contrast, has no shoulder or curbing. For at least .08 miles between BLT 9 and BLT 10 road run-off is going directly into the reservoir. The road is caving in at several other points along the north shore of the reservoir



North end of lake from Byram Lake Road looking southwest.  
Lack of shoulders, curbing or vegetation allows storm water runoff directly into lake.



Eroded embankment along Byram Lake Road at north end of lake

Another spot susceptible to erosion is found on Byram Lake Road just east of the pump station where the road surface changes from asphalt to gravel. Storm water accelerates as it runs down the paved hill and carries sediment with it as it meets gravel and then drains into the lake.



Asphalt/gravel interface at base of Byram Lake Road hill

Several spots along south side Byram Lake Road are vegetated. Hardy native plants that can tolerate salt grow here including a large 30 foot long grove of native bayberry shrubs and over a dozen native red cedars.



Salt and sun-tolerant bayberry shrubs



Salt and sun-tolerant red cedars

Other vegetation growing on the Byram Lake Road embankment includes white ash, sugar and red maples, red oaks, sassafras, elm, crabapple, cottonwood, pussy willow, gray birch and swamp white oak trees along with alder, juniper and silky dogwood shrubs. These plants both stabilize the highly erodible road side and slow down, absorb and filter some of the storm water flowing into the lake.

## 2005 BREEDOMG BIRD SURVEY-82 SPECIES

List of Species Breeding in Atlas Block 6056C				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Behavior Code</u>	<u>Date</u>	<u>NY Legal Status</u>
Canada Goose	<i>Branta canadensis</i>	<a href="#">ON</a>	6/1/2004	<a href="#">Game Species</a>
Mute Swan	<i>Cygnus olor</i>	<a href="#">P2</a>	5/30/2004	<a href="#">Protected</a>
Wood Duck	<i>Aix sponsa</i>	<a href="#">FL</a>	6/10/2004	<a href="#">Game Species</a>
Mallard	<i>Anas platyrhynchos</i>	<a href="#">FY</a>	6/5/2004	<a href="#">Game Species</a>
Mallard x Am. Black Duck Hybrid	<i>Anas platyrhynchos</i> x <i>A. rubripes</i>	<a href="#">FL</a>	//2004	<a href="#">Game Species</a>
Ruffed Grouse	<i>Bonasa umbellus</i>	<a href="#">T2</a>	4/20/2004	<a href="#">Game Species</a>
Wild Turkey	<i>Meleagris gallopavo</i>	<a href="#">FL</a>	6/1/2004	<a href="#">Game Species</a>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	<a href="#">X1</a>	4/20/2004	<a href="#">Protected</a>
Great Blue Heron	<i>Ardea herodias</i>	<a href="#">X1</a>	6/30/2004	<a href="#">Protected</a>
Green Heron	<i>Butorides virescens</i>	<a href="#">N2</a>	6/1/2004	<a href="#">Protected</a>
Turkey Vulture	<i>Cathartes aura</i>	<a href="#">X1</a>	5/30/2004	<a href="#">Protected</a>
Cooper's Hawk	<i>Accipiter cooperii</i>	<a href="#">T2</a>	6/10/2004	<a href="#">Protected-Special Concern</a>
Red-tailed Hawk	<i>Buteo jamaicensis</i>	<a href="#">B2</a>	4/10/2004	<a href="#">Protected</a>
Killdeer	<i>Charadrius vociferus</i>	<a href="#">X1</a>	5/29/2004	<a href="#">Protected</a>
Spotted Sandpiper	<i>Actitis macularius</i>	<a href="#">T2</a>	5/29/2004	<a href="#">Protected</a>
Rock Pigeon	<i>Columba livia</i>	<a href="#">FY</a>	5/15/2004	<a href="#">Unprotected</a>
Mourning Dove	<i>Zenaida macroura</i>	<a href="#">NE</a>	6/1/2004	<a href="#">Protected</a>
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	<a href="#">T2</a>	6/10/2004	<a href="#">Protected</a>
Eastern Screech-Owl	<i>Megascops asio</i>	<a href="#">T2</a>	4/10/2004	<a href="#">Protected</a>
Great Horned Owl	<i>Bubo virginianus</i>	<a href="#">T2</a>	4/10/2004	<a href="#">Protected</a>

Chimney Swift	<i>Chaetura pelagica</i>	<a href="#">X1</a>	//2004	<a href="#">Protected</a>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	<a href="#">D2</a>	6/1/2004	<a href="#">Protected</a>
Belted Kingfisher	<i>Megaceryle alcyon</i>	<a href="#">T2</a>	5/30/2004	<a href="#">Protected</a>
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	<a href="#">ON</a>	6/1/2004	<a href="#">Protected</a>
Downy Woodpecker	<i>Picoides pubescens</i>	<a href="#">T2</a>	6/3/2004	<a href="#">Protected</a>
Hairy Woodpecker	<i>Picoides villosus</i>	<a href="#">X1</a>	6/3/2004	<a href="#">Protected</a>
Northern Flicker	<i>Colaptes auratus</i>	<a href="#">ON</a>	6/5/2004	<a href="#">Protected</a>
Pileated Woodpecker	<i>Dryocopus pileatus</i>	<a href="#">T2</a>	6/10/2004	<a href="#">Protected</a>
Eastern Wood-Pewee	<i>Contopus virens</i>	<a href="#">T2</a>	6/10/2004	<a href="#">Protected</a>
Willow Flycatcher	<i>Empidonax traillii</i>	<a href="#">S2</a>	6/17/2004	<a href="#">Protected</a>
Eastern Phoebe	<i>Sayornis phoebe</i>	<a href="#">ON</a>	6/7/2004	<a href="#">Protected</a>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<a href="#">S2</a>	6/1/2004	<a href="#">Protected</a>
Eastern Kingbird	<i>Tyrannus tyrannus</i>	<a href="#">S2</a>	7/10/2004	<a href="#">Protected</a>
Yellow-throated Vireo	<i>Vireo flavifrons</i>	<a href="#">P2</a>	6/17/2004	<a href="#">Protected</a>
Warbling Vireo	<i>Vireo gilvus</i>	<a href="#">FY</a>	6/17/2004	<a href="#">Protected</a>
Red-eyed Vireo	<i>Vireo olivaceus</i>	<a href="#">S2</a>	6/17/2004	<a href="#">Protected</a>
Blue Jay	<i>Cyanocitta cristata</i>	<a href="#">X1</a>	6/17/2004	<a href="#">Protected</a>
American Crow	<i>Corvus brachyrhynchos</i>	<a href="#">X1</a>	6/17/2004	<a href="#">Game Species</a>
Tree Swallow	<i>Tachycineta bicolor</i>	<a href="#">ON</a>	6/17/2004	<a href="#">Protected</a>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	<a href="#">P2</a>	6/18/2004	<a href="#">Protected</a>
Bank Swallow	<i>Riparia riparia</i>	<a href="#">P2</a>	6/18/2004	<a href="#">Protected</a>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	<a href="#">X1</a>	6/18/2004	<a href="#">Protected</a>
Barn Swallow	<i>Hirundo rustica</i>	<a href="#">FY</a>	6/17/2004	<a href="#">Protected</a>

Black-capped Chickadee	<i>Poecile atricapillus</i>	<a href="#">FY</a>	6/18/2004	<a href="#">Protected</a>
Tufted Titmouse	<i>Baeolophus bicolor</i>	<a href="#">P2</a>	6/10/2004	<a href="#">Protected</a>
Red-breasted Nuthatch	<i>Sitta canadensis</i>	<a href="#">X1</a>	6/17/2004	<a href="#">Protected</a>
White-breasted Nuthatch	<i>Sitta carolinensis</i>	<a href="#">T2</a>	6/17/2004	<a href="#">Protected</a>
Carolina Wren	<i>Thryothorus ludovicianus</i>	<a href="#">FY</a>	6/10/2004	<a href="#">Protected</a>
House Wren	<i>Troglodytes aedon</i>	<a href="#">FS</a>	6/18/2004	<a href="#">Protected</a>
Eastern Bluebird	<i>Sialia sialis</i>	<a href="#">ON</a>	6/17/2004	<a href="#">Protected</a>
Veery	<i>Catharus fuscescens</i>	<a href="#">S2</a>	6/10/2004	<a href="#">Protected</a>
Wood Thrush	<i>Hylocichla mustelina</i>	<a href="#">S2</a>	6/10/2004	<a href="#">Protected</a>
American Robin	<i>Turdus migratorius</i>	<a href="#">ON</a>	6/10/2004	<a href="#">Protected</a>
Gray Catbird	<i>Dumetella carolinensis</i>	<a href="#">FS</a>	//2004	<a href="#">Protected</a>
Northern Mockingbird	<i>Mimus polyglottos</i>	<a href="#">P2</a>	6/10/2004	<a href="#">Protected</a>
Cedar Waxwing	<i>Bombycilla cedrorum</i>	<a href="#">X1</a>	6/10/2004	<a href="#">Protected</a>
Blue-winged Warbler	<i>Vermivora pinus</i>	<a href="#">FY</a>	6/17/2004	<a href="#">Protected</a>
Yellow Warbler	<i>Dendroica petechia</i>	<a href="#">FS</a>	6/10/2004	<a href="#">Protected</a>
Pine Warbler	<i>Dendroica pinus</i>	<a href="#">N2</a>	6/10/2004	<a href="#">Protected</a>
Prairie Warbler	<i>Dendroica discolor</i>	<a href="#">T2</a>	6/10/2004	<a href="#">Protected</a>
Black-and-white Warbler	<i>Mniotilta varia</i>	<a href="#">T2</a>	6/17/2004	<a href="#">Protected</a>
American Redstart	<i>Setophaga ruticilla</i>	<a href="#">S2</a>	6/17/2004	<a href="#">Protected</a>
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	<a href="#">FY</a>	6/17/2004	<a href="#">Protected</a>
Ovenbird	<i>Seiurus aurocapilla</i>	<a href="#">FY</a>	6/17/2004	<a href="#">Protected</a>
Louisiana Waterthrush	<i>Seiurus motacilla</i>	<a href="#">S2</a>	5/30/2004	<a href="#">Protected</a>

Common Yellowthroat	<i>Geothlypis trichas</i>	<a href="#">FS</a>	//2004	<a href="#">Protected</a>
Hooded Warbler	<i>Wilsonia citrina</i>	<a href="#">X1</a>	6/17/2004	<a href="#">Protected</a>
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	<a href="#">FY</a>	6/17/2004	<a href="#">Protected</a>
Chipping Sparrow	<i>Spizella passerina</i>	<a href="#">ON</a>	6/18/2004	<a href="#">Protected</a>
Field Sparrow	<i>Spizella pusilla</i>	<a href="#">FY</a>	6/10/2004	<a href="#">Protected</a>
Song Sparrow	<i>Melospiza melodia</i>	<a href="#">NE</a>	6/10/2004	<a href="#">Protected</a>
Swamp Sparrow	<i>Melospiza georgiana</i>	<a href="#">S2</a>	6/10/2004	<a href="#">Protected</a>
Scarlet Tanager	<i>Piranga olivacea</i>	<a href="#">FS</a>	6/10/2004	<a href="#">Protected</a>
Northern Cardinal	<i>Cardinalis cardinalis</i>	<a href="#">FS</a>	6/10/2004	<a href="#">Protected</a>
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	<a href="#">T2</a>	6/10/2004	<a href="#">Protected</a>
Indigo Bunting	<i>Passerina cyanea</i>	<a href="#">FS</a>	6/17/2004	<a href="#">Protected</a>
Common Grackle	<i>Quiscalus quiscula</i>	<a href="#">FS</a>	6/10/2004	<a href="#">Protected</a>
Brown-headed Cowbird	<i>Molothrus ater</i>	<a href="#">NY</a>	6/17/2004	<a href="#">Protected</a>
Orchard Oriole	<i>Icterus spurius</i>	<a href="#">T2</a>	6/18/2004	<a href="#">Protected</a>
Baltimore Oriole	<i>Icterus galbula</i>	<a href="#">NE</a>	6/10/2004	<a href="#">Protected</a>
House Finch	<i>Carpodacus mexicanus</i>	<a href="#">D2</a>	6/10/2004	<a href="#">Protected</a>
House Sparrow	<i>Passer domesticus</i>	<a href="#">ON</a>	6/17/2004	<a href="#">Unprotected</a>



## 1985 BREEDING BIRD SURVEY-87 SPECIES

## List of Species Breeding in Atlas Block 6056C

<u>Common Name</u>	<u>Scientific Name</u>	<u>Behavior Code</u>	<u>Date</u>	<u>NY Legal Status</u>
Canada Goose	<i>Branta canadensis</i>	<a href="#">FL</a>	1980	<a href="#">Game Species</a>
Wood Duck	<i>Aix sponsa</i>	<a href="#">P2</a>	1983	<a href="#">Game Species</a>
Mallard	<i>Anas platyrhynchos</i>	<a href="#">FL</a>	1980	<a href="#">Game Species</a>
Ring-necked Pheasant	<i>Phasianus colchicus</i>	<a href="#">P2</a>	1981	<a href="#">Game Species</a>
Ruffed Grouse	<i>Bonasa umbellus</i>	<a href="#">NE</a>	1980	<a href="#">Game Species</a>
Green Heron	<i>Butorides virescens</i>	<a href="#">NY</a>	1982	<a href="#">Protected</a>
Broad-winged Hawk	<i>Buteo platypterus</i>	<a href="#">X1</a>	1980	<a href="#">Protected</a>
Red-tailed Hawk	<i>Buteo jamaicensis</i>	<a href="#">NE</a>	1983	<a href="#">Protected</a>
American Kestrel	<i>Falco sparverius</i>	<a href="#">P2</a>	1981	<a href="#">Protected</a>
Killdeer	<i>Charadrius vociferus</i>	<a href="#">P2</a>	1983	<a href="#">Protected</a>
Spotted Sandpiper	<i>Actitis macularius</i>	<a href="#">X1</a>	1980	<a href="#">Protected</a>
American Woodcock	<i>Scolopax minor</i>	<a href="#">S2</a>	1982	<a href="#">Game Species</a>
Rock Pigeon	<i>Columba livia</i>	<a href="#">NE</a>	1983	<a href="#">Unprotected</a>
Mourning Dove	<i>Zenaida macroura</i>	<a href="#">NE</a>	1981	<a href="#">Protected</a>
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	<a href="#">D2</a>	1980	<a href="#">Protected</a>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	<a href="#">X1</a>	1981	<a href="#">Protected</a>
Eastern Screech-Owl	<i>Megascops asio</i>	<a href="#">S2</a>	1982	<a href="#">Protected</a>
Great Horned Owl	<i>Bubo virginianus</i>	<a href="#">P2</a>	1981	<a href="#">Protected</a>
Chimney Swift	<i>Chaetura pelagica</i>	<a href="#">ON</a>	1982	<a href="#">Protected</a>
Belted Kingfisher	<i>Megaceryle alcyon</i>	<a href="#">ON</a>	1983	<a href="#">Protected</a>
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	<a href="#">X1</a>	1981	<a href="#">Protected</a>
Downy Woodpecker	<i>Picoides pubescens</i>	<a href="#">FL</a>	1980	<a href="#">Protected</a>
Hairy Woodpecker	<i>Picoides villosus</i>	<a href="#">D2</a>	1982	<a href="#">Protected</a>

Northern Flicker	<i>Colaptes auratus</i>	<a href="#">ON</a>	1981	<a href="#">Protected</a>
Pileated Woodpecker	<i>Dryocopus pileatus</i>	<a href="#">NE</a>	1981	<a href="#">Protected</a>
Eastern Wood-Pewee	<i>Contopus virens</i>	<a href="#">P2</a>	1981	<a href="#">Protected</a>
Willow Flycatcher	<i>Empidonax traillii</i>	<a href="#">S2</a>	1982	<a href="#">Protected</a>
Least Flycatcher	<i>Empidonax minimus</i>	<a href="#">S2</a>	1984	<a href="#">Protected</a>
Eastern Phoebe	<i>Sayornis phoebe</i>	<a href="#">NE</a>	1980	<a href="#">Protected</a>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<a href="#">X1</a>	1981	<a href="#">Protected</a>
Eastern Kingbird	<i>Tyrannus tyrannus</i>	<a href="#">FY</a>	1982	<a href="#">Protected</a>
White-eyed Vireo	<i>Vireo griseus</i>	<a href="#">S2</a>	1983	<a href="#">Protected</a>
Yellow-throated Vireo	<i>Vireo flavifrons</i>	<a href="#">S2</a>	1985	<a href="#">Protected</a>
Blue-headed Vireo	<i>Vireo solitarius</i>	<a href="#">NE</a>	1983	<a href="#">Protected</a>
Warbling Vireo	<i>Vireo gilvus</i>	<a href="#">FY</a>	1983	<a href="#">Protected</a>
Red-eyed Vireo	<i>Vireo olivaceus</i>	<a href="#">B2</a>	1981	<a href="#">Protected</a>
Blue Jay	<i>Cyanocitta cristata</i>	<a href="#">FL</a>	1980	<a href="#">Protected</a>
American Crow	<i>Corvus brachyrhynchos</i>	<a href="#">NE</a>	1982	<a href="#">Game Species</a>
Tree Swallow	<i>Tachycineta bicolor</i>	<a href="#">ON</a>	1983	<a href="#">Protected</a>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	<a href="#">ON</a>	1983	<a href="#">Protected</a>
Barn Swallow	<i>Hirundo rustica</i>	<a href="#">NY</a>	1980	<a href="#">Protected</a>
Black-capped Chickadee	<i>Poecile atricapillus</i>	<a href="#">ON</a>	1981	<a href="#">Protected</a>
Tufted Titmouse	<i>Baeolophus bicolor</i>	<a href="#">FS</a>	1981	<a href="#">Protected</a>
White-breasted Nuthatch	<i>Sitta carolinensis</i>	<a href="#">P2</a>	1980	<a href="#">Protected</a>
Brown Creeper	<i>Certhia americana</i>	<a href="#">UN</a>	1982	<a href="#">Protected</a>
Carolina Wren	<i>Thryothorus ludovicianus</i>	<a href="#">X1</a>	1983	<a href="#">Protected</a>
House Wren	<i>Troglodytes aedon</i>	<a href="#">NY</a>	1980	<a href="#">Protected</a>
Eastern Bluebird	<i>Sialia sialis</i>	<a href="#">FL</a>	1982	<a href="#">Protected</a>

Veery	<i>Catharus fuscescens</i>	<a href="#">FS</a>	1982	<a href="#">Protected</a>
Wood Thrush	<i>Hylocichla mustelina</i>	<a href="#">FL</a>	1983	<a href="#">Protected</a>
American Robin	<i>Turdus migratorius</i>	<a href="#">NY</a>	1981	<a href="#">Protected</a>
Gray Catbird	<i>Dumetella carolinensis</i>	<a href="#">NY</a>	1981	<a href="#">Protected</a>
Northern Mockingbird	<i>Mimus polyglottos</i>	<a href="#">NE</a>	1981	<a href="#">Protected</a>
Brown Thrasher	<i>Toxostoma rufum</i>	<a href="#">NE</a>	1981	<a href="#">Protected</a>
European Starling	<i>Sturnus vulgaris</i>	<a href="#">NE</a>	1980	<a href="#">Unprotected</a>
Cedar Waxwing	<i>Bombycilla cedrorum</i>	<a href="#">P2</a>	1982	<a href="#">Protected</a>
Blue-winged Warbler	<i>Vermivora pinus</i>	<a href="#">FY</a>	1982	<a href="#">Protected</a>
Yellow Warbler	<i>Dendroica petechia</i>	<a href="#">FL</a>	1982	<a href="#">Protected</a>
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	<a href="#">FY</a>	1983	<a href="#">Protected</a>
Prairie Warbler	<i>Dendroica discolor</i>	<a href="#">FY</a>	1983	<a href="#">Protected</a>
Black-and-white Warbler	<i>Mniotilta varia</i>	<a href="#">B2</a>	1983	<a href="#">Protected</a>
American Redstart	<i>Setophaga ruticilla</i>	<a href="#">S2</a>	1983	<a href="#">Protected</a>
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	<a href="#">S2</a>	1980	<a href="#">Protected</a>
Ovenbird	<i>Seiurus aurocapilla</i>	<a href="#">FY</a>	1983	<a href="#">Protected</a>
Louisiana Waterthrush	<i>Seiurus motacilla</i>	<a href="#">FY</a>	1983	<a href="#">Protected</a>
Common Yellowthroat	<i>Geothlypis trichas</i>	<a href="#">S2</a>	1980	<a href="#">Protected</a>
Hooded Warbler	<i>Wilsonia citrina</i>	<a href="#">T2</a>	1981	<a href="#">Protected</a>
Canada Warbler	<i>Wilsonia canadensis</i>	<a href="#">FL</a>	1984	<a href="#">Protected</a>
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	<a href="#">FY</a>	1983	<a href="#">Protected</a>
Chipping Sparrow	<i>Spizella passerina</i>	<a href="#">FL</a>	1982	<a href="#">Protected</a>
Field Sparrow	<i>Spizella pusilla</i>	<a href="#">FL</a>	1982	<a href="#">Protected</a>
Song Sparrow	<i>Melospiza melodia</i>	<a href="#">FY</a>	1980	<a href="#">Protected</a>
Swamp Sparrow	<i>Melospiza georgiana</i>	<a href="#">FL</a>	1981	<a href="#">Protected</a>
Scarlet Tanager	<i>Piranga olivacea</i>	<a href="#">FY</a>	1983	<a href="#">Protected</a>
Northern Cardinal	<i>Cardinalis cardinalis</i>	<a href="#">NE</a>	1980	<a href="#">Protected</a>

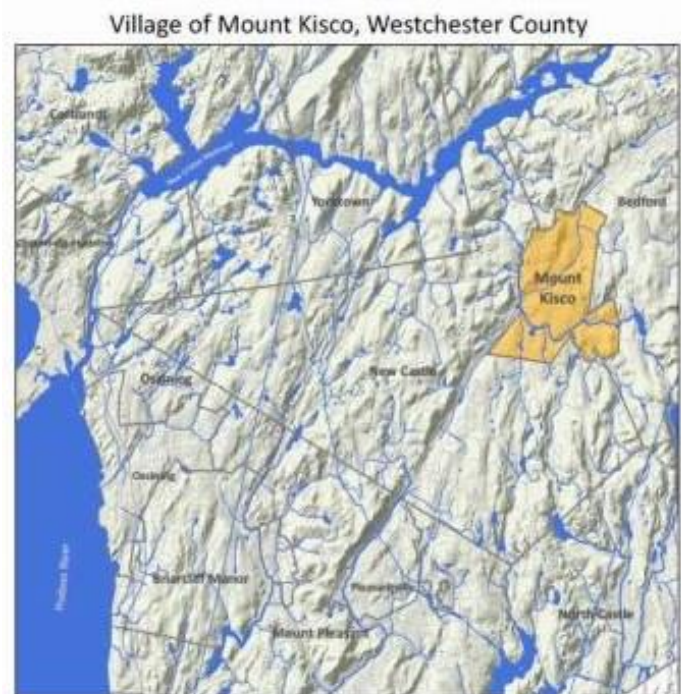
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	<a href="#">S2</a>	1981	<a href="#">Protected</a>
Indigo Bunting	<i>Passerina cyanea</i>	<a href="#">FL</a>	1982	<a href="#">Protected</a>
Bobolink	<i>Dolichonyx oryzivorus</i>	<a href="#">FY</a>	1982	<a href="#">Protected</a>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	<a href="#">NE</a>	1980	<a href="#">Protected</a>
Eastern Meadowlark	<i>Sturnella magna</i>	<a href="#">X1</a>	1982	<a href="#">Protected</a>
Common Grackle	<i>Quiscalus quiscula</i>	<a href="#">NY</a>	1980	<a href="#">Protected</a>
Brown-headed Cowbird	<i>Molothrus ater</i>	<a href="#">FL</a>	1980	<a href="#">Protected</a>
Orchard Oriole	<i>Icterus spurius</i>	<a href="#">X1</a>	1983	<a href="#">Protected</a>
Baltimore Oriole	<i>Icterus galbula</i>	<a href="#">ON</a>	1981	<a href="#">Protected</a>
House Finch	<i>Carpodacus mexicanus</i>	<a href="#">NE</a>	1980	<a href="#">Protected</a>
American Goldfinch	<i>Spinus tristis</i>	<a href="#">FL</a>	1981	<a href="#">Protected</a>
House Sparrow	<i>Passer domesticus</i>	<a href="#">NE</a>	1980	<a href="#">Unprotected</a>

# NATURAL AREAS AND WILDLIFE IN YOUR COMMUNITY

August 2016

## Ecological Data Prepared for the Village of Mount Kisco

The attached ecological information was compiled in August 2016 to support the development of a natural resources inventory (NRI) in the Village of Mount Kisco. It identifies natural features with important ecological values in the village, and is intended to supplement maps of wetlands, streams, floodplains, and other natural areas to be included in the NRI. The summary is limited to information available to the New York State Department of Environmental Conservation (DEC) and its partners at the time of this writing, and therefore should not be considered a complete inventory of habitats and natural areas. More detailed studies can be conducted to expand upon these existing data and increase the accuracy of the maps. For example, some communities in the Hudson Valley have developed town-wide habitat maps based on in-depth map analysis and field surveys, or collected water quality data such as macroinvertebrate samples.



Wetlands, forests, stream corridors, and other natural areas are not only habitat for fish and wildlife, but also support the estuary and provide many vital benefits to human communities. These ecosystems help to keep drinking water and air clean, moderate temperature, filter pollutants, and absorb floodwaters. They also provide opportunity for outdoor recreation and education, and create the scenery and sense of place that is unique to the Hudson Valley. Whether working in a small, urban community, or a large, rural town, local land-use planning efforts are instrumental in balancing future development with protection and restoration of these resources.

For more information on local conservation approaches, see [Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley](#)

## Important Habitats in the Village of Mount Kisco

Figure 1 shows the major ecological and natural features that are known to occur in Mount Kisco, including habitat areas for New England cottontail, American eel, and brook trout; a locally-significant forest patch; and the Kisco River and associated tributaries. **Note:** This map is intended to complement the series of maps being produced for the Village's natural resources inventory (NRI) and does not include widely-available data sets like NYS Freshwater Wetlands, National Wetlands Inventory, floodplains, etc., which are also important for habitat and maintaining ecosystem services.

**Areas of Known Importance for Rare Animals.** The New York Natural Heritage Program (NYNHP) has identified areas of importance for sustaining populations of rare animals and plants in the region, based on existing records and the species' habitat requirements. These areas include the specific locations where species have been observed, as well as associated habitat(s) which may be used at different times of the year and which are critical to maintaining these rare animal and plant populations. Proactive planning that considers how species move across the landscape, with careful attention to maintaining habitat connections and adequate buffers of natural areas, will contribute to the long-term survival of animals and plants. "Areas of Known Importance" shown on Figure 1 address habitat needs for the following rare species:

**American eel.** Data from DEC Bureau of Fisheries, The Nature Conservancy, and NYNHP indicate that the Kisco River contains migratory habitat for American eel through most of its extent in Mount Kisco and beyond, where it continues northward to the Croton River and eventually flows into the Hudson River in Croton-on-Hudson (White et al. 2011). In addition, the *Atlas of Inland Fisheries of New York* (Carlson et al. 2016) documents early and recent presence of American eel in this part of Westchester County. [American eel](#) is a fish species that begins life in the Atlantic Ocean and migrates to the headwaters of North American tributary streams as tiny "glass eels." American eel is in decline throughout much of its range, and though adult eels are able to bypass certain dams, culverts, and other aquatic barriers, they rely on aquatic connectivity along streams to complete their life cycle and return to the sea to spawn. The Area of Known Importance on the map depicts the *known* habitat and associated sections of the Kisco River that would help to protect the eel population; for complete details on how the areas were identified, see White et al. 2011.

**Brook trout.** The Kisco River and its tributaries also contribute to an Area of Known Importance for [brook trout](#). Brook trout require well-shaded, cool to cold, flowing water and are sensitive to warmer temperatures. While all streams benefit from adequate streamside vegetation, it is especially important for maintaining the clean, coldwater habitats that support native species like brook trout. The Important Area on the map depicts *known* brook trout habitat and associated sections of the Kisco River and tributaries that would help to protect trout populations from potentially negative upstream impacts (Brown and Cheeseman 2013).

**New England cottontail.** NYNHP documented the presence of [New England cottontail](#), a NY species of Special Concern, in Mount Kisco in 2004 (see Figure 1). New England cottontail is the only native cottontail east of the Hudson River in New York. Its range has been greatly reduced in the state due to habitat loss and competition with the more abundant Eastern

cottontail. New England cottontail habitat includes open woods, disturbed areas, shrubby areas, thickets, and marshes. (See Shrublands and Young Forests, below.)

## Streams

The Village of Mount Kisco is situated in the Kisco River watershed, an 11,693 acre watershed with approximately 60% forest cover. The Kisco River flows northward from the southeast and is joined by Branch Brook at the village's border with North Castle, and eventually flows into the New Croton Reservoir. Some species observed in the Kisco River during a 2014 NYSDEC survey are representative of fast-flowing, cold water streams, including blacknose dace, longnose dace, and brown trout; and some are more typical of warmer waters, such as largemouth bass and pumpkinseed sunfish (R. Coulter, pers. comm.). As the NRI maps will indicate, the Kisco River flows through several broad floodplain areas, many of which contain forested wetlands. In addition to providing habitat to riparian wildlife and supporting the in-stream food web, these streamside forests and wetlands help to reduce pollution and sediment entering the Kisco River and can help to mitigate flooding along the creek. In locations where streamside vegetation is lacking or sparse along Kisco River, Branch Brook, and their tributaries, restoration projects may be beneficial to re-establish riparian buffers. The Hudson River Estuary Program's "[Trees for Tribs](#)" initiative offers free consultation and native trees and shrubs for qualifying streamside buffer planting projects in the estuary watershed. Mount Kisco has participated in this program in the past, with plantings in Leonard Park and Choate Audubon Sanctuary.

## Forests

The ability of Hudson Valley forests to provide wildlife habitat, clean water, and climate moderation depends in part on our ability to maintain sizeable tracts of forest. In general, larger forests will provide more ecosystem services and higher quality forest habitat than smaller ones. However, the value of each forest is relative to the values of other forests in your community, watershed, or natural landscape. Even smaller patches of forest can be extremely valuable depending on different factors, such as their relationship to the surrounding landscape. For example, a network of forest patches along a stream can create a riparian corridor that helps maintain water quality and wildlife habitat, and serve as a travel route for terrestrial species.

As is typical of most population centers, Mount Kisco's forests are small compared to more rural parts of the Hudson Valley; however, even small forests can contribute to a better quality of life in more residential areas, by helping to moderate temperature and intercept stormwater, for example. The most notable forested area is in the southeast lobe of the town, where the northern end of a forest patch of over 4,000 acres is located. This patch extends into Bedford, New Castle, and North Castle, between Byram Lake Road and Armonk Road, and is adjacent to another large forest patch of almost 3,000 acres situated to the west of Armonk Road. Although these forests are "perforated" with disturbed areas (such as residential development), they likely have important ecological value. Minimizing further fragmentation of these forests will contribute to their habitat value and may require intermunicipal cooperation to ensure forest connectivity across municipal boundaries.

Forest fragmentation is the process of breaking up large patches of forest into smaller pieces, often by clearing for new roads or development. Fragmentation decreases forest habitat quality and health, disrupts wildlife movement, and facilitates the spread of invasive species. These impacts are greatest at forest edges, but can extend for hundreds of feet into forest patches, often displacing sensitive species that depend on interior forest.

**Note:** The Estuary Program’s forest patch map was created from land cover data developed for the Coastal Change Analysis Program (National Oceanic and Atmospheric Administration 2006). Land cover categories considered ‘forest’ for this analysis included deciduous forest, evergreen forest, mixed forest, and palustrine forested wetland. Roads were buffered and removed from forest patches to show results of development-related fragmentation. Interstate roads were buffered by a total of 300 feet and state and county roads by 66 feet. The forest patch size classifications, e.g., “locally significant,” are described in the Orange County Open Space Plan (Orange County Planning Department 2004) as cited in Strong (2008).

The [NYS Breeding Bird Atlas](#) has several records of birds that indicate the availability of high-quality forest habitat (scarlet tanager and wood thrush) and high-quality riparian forest habitat (Louisiana waterthrush and yellow-throated vireo) in or near Mount Kisco (more than half of the Atlas block that contained Mount Kisco was in Bedford and a portion was in New Castle) (see Table 1). Conserving adequate forest to sustain populations of these species will help other wildlife and contribute to preserving the ecosystem services that the village’s forests are providing to its residents. Audubon New York’s website has specific information on [managing habitat for forest birds](#).

### Shrublands and Young Forests

Shrublands and young forests are transitional habitats characterized by few or no mature trees, with a diverse mix of shrubs and/or tree saplings, along with openings where grasses and wildflowers grow. They can occur in recently cleared areas and abandoned farmland, and are sometimes maintained along utility corridors by cutting or herbicides. These habitats are important for many wildlife species declining throughout the region because former agricultural areas have grown into forests, and natural forest disturbances that trigger young forest growth, such as fires, have been suppressed.

We know little about the presence or condition of these successional habitats in Mount Kisco, but can infer from wildlife records, such as the New England cottontail records along the Sawmill River Parkway, that they occur in or near the village. The [NYS Breeding Bird Atlas](#) documented eight species of conservation concern that prefer young forest and shrubland habitat in the Atlas block that contained Mount Kisco, including field sparrow, prairie warbler, and ruffed grouse (see Table 1). For more information on maintaining these kinds of successional habitats, see Audubon’s guidance, [Managing Habitat for Grassland Birds](#), or [Managing Grasslands, Shrublands and Young Forests for Wildlife: A Guide for the Northeast](#).



## Table 1. Species of Conservation Concern in Mount Kisco

The following table lists species of conservation concern that have been recorded in Mount Kisco, NY.

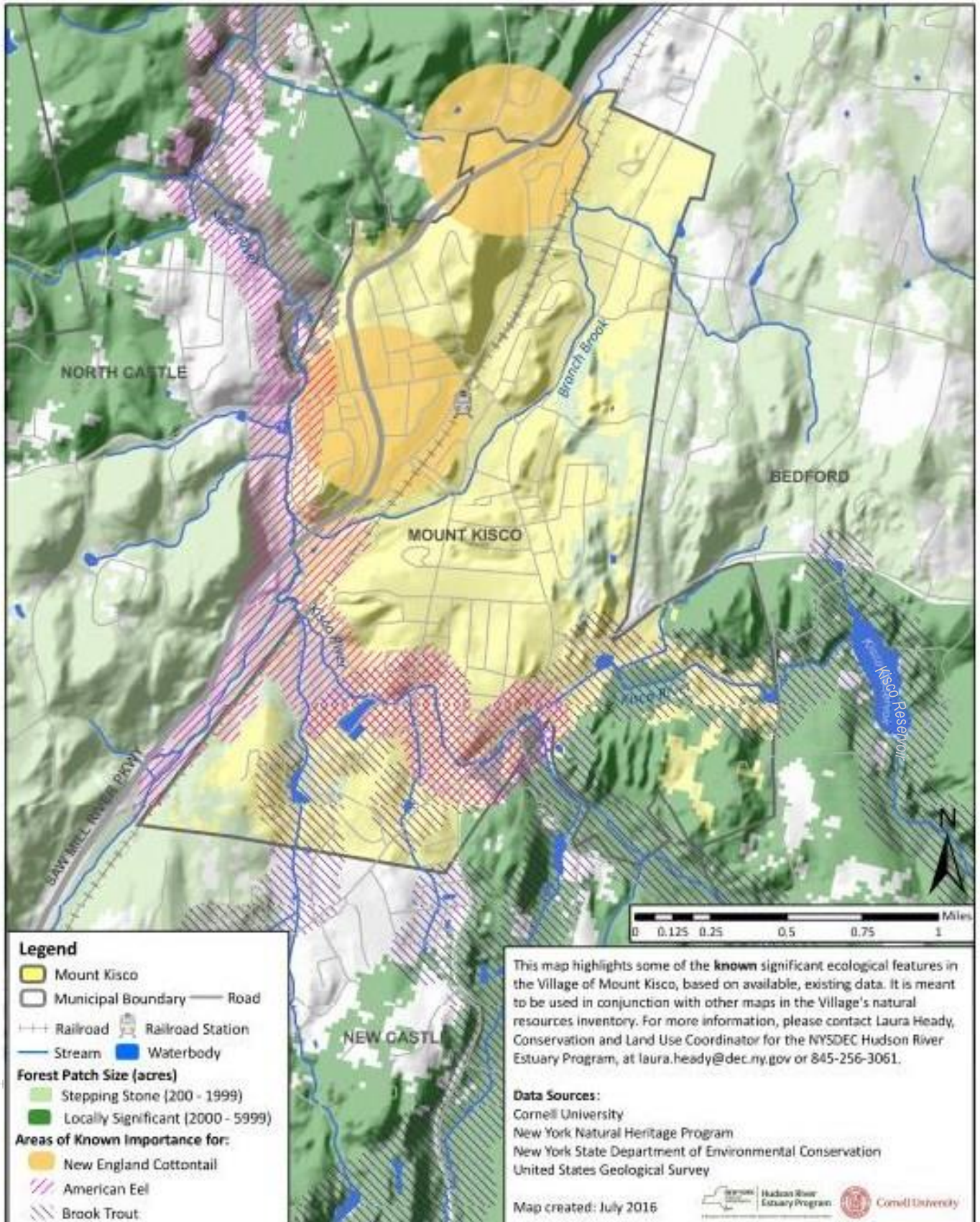
The records in Table 1 come from the [New York Natural Heritage Program \(NYNHP\)](#) biodiversity databases and the 2000-2005 [New York State Breeding Bird Atlas \(NYBBA\)](#). Species from the NYBBA are included in the table if they were documented in Atlas blocks that were more than 50% in Mount Kisco. (Most of Mount Kisco was contained in Atlas Block 6056C, about half of which was also in the Town of Bedford.) The table only includes species designated in New York as endangered, threatened, special concern, or rare; listed as Species of Greatest Conservation Need (SGCN) in the [New York State Wildlife Action Plan](#); or are recognized as a [Hudson River Valley Priority Bird](#) by Audubon New York. Generalized primary habitat types are provided for each species, but for conservation and planning purposes, it's important to recognize that many species utilize more than one kind of habitat. More information on rare animals, plants, and ecological communities can be found at <http://guides.nynhp.org>.

**Note:** There may be additional species or habitats of conservation concern in Mount Kisco that have not yet been documented.

Common Name	Scientific Name	Primary Habitat	Conservation Status					Data Source
			NYS SGCN (xx = high priority)	NYS Special Concern	NYS Threatened	NYS Endangered	Hudson Valley Priority Birds	
<b>Fish</b>								
American Eel	<i>Anguilla rostrata</i>	Hudson River, streams	xx				x	NYNHP
Brook Trout	<i>Salvelinus fontinalis</i>	freshwater streams	x				x	NYNHP
<b>Birds</b>								
American Redstart	<i>Setophaga ruticilla</i>	forest					x	NYBBA
Baltimore Oriole	<i>Icterus galbula</i>	forest					x	NYBBA
Black-and-white Warbler	<i>Mniotilta varia</i>	forest					x	NYBBA
Cooper's Hawk	<i>Accipiter cooperii</i>	forest		x			x	NYBBA
Downy Woodpecker	<i>Picoides pubescens</i>	forest					x	NYBBA
Eastern Wood-Pewee	<i>Contopus virens</i>	forest					x	NYBBA
Hooded Warbler	<i>Wilsonia citrina</i>	forest					x	NYBBA
Louisiana Waterthrush	<i>Seiurus motacilla</i>	forest	x				x	NYBBA
Northern Flicker	<i>Colaptes auratus</i>	forest					x	NYBBA

Common Name	Scientific Name	Primary Habitat	Conservation Status				Data Source	
			NYS SGCN (xx = high priority)	NYS Special Concern	NYS Threatened	NYS Endangered		<a href="#">Hudson Valley Priority Birds</a>
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	forest					X	NYBBA
Scarlet Tanager	<i>Piranga olivacea</i>	forest	X				X	NYBBA
Veery	<i>Catharus fuscescens</i>	forest					X	NYBBA
Wood Thrush	<i>Hylocichla mustelina</i>	forest	X				X	NYBBA
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	forest	X				X	NYBBA
Yellow-throated Vireo	<i>Vireo flavifrons</i>	forest					X	NYBBA
Blue-Winged Warbler	<i>Vermivora pinus</i>	young forest, shrubland	X				X	NYBBA
Eastern Kingbird	<i>Tyrannus tyrannus</i>	young forest, shrubland					X	NYBBA
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	young forest, shrubland					X	NYBBA
Field Sparrow	<i>Spizella pusilla</i>	young forest, shrubland					X	NYBBA
Prairie Warbler	<i>Dendroica discolor</i>	young forest, shrubland	X				X	NYBBA
Ruffed Grouse	<i>Bonasa umbellus</i>	young forest, shrubland	X				X	NYBBA
Willow Flycatcher	<i>Empidonax traillii</i>	young forest, shrubland					X	NYBBA
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	young forest, shrubland					X	NYBBA
<b>Mammals</b>								
<a href="#">New England Cottontail</a>		young forest, shrubland	xx	X				NYNHP

Figure 1. Significant Ecological Features in the Village of Mount Kisco, Westchester County



# General Conservation Measures for Protecting Natural Areas and Wildlife



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- **Protect large, contiguous, unaltered tracts** wherever possible.
- **Preserve links** between natural habitats on adjacent properties.
- **Restore and maintain broad buffer zones** of natural vegetation along streams, along shores of other water bodies and wetlands, and at the perimeter of other sensitive habitats.
- In general, **encourage development of altered land** instead of unaltered land wherever possible.

**Promote redevelopment of brownfields**, other post-industrial sites, and other

- previously-altered sites (such as mined lands), “infill” development, and “adaptive re-use” of existing structures wherever possible, instead of breaking new ground in unaltered areas.

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**Encourage pedestrian-centered developments** that enhance existing neighborhoods, instead of isolated developments requiring new roads or expanded vehicle use.

- **Concentrate development along existing roads**; discourage construction of new roads in undeveloped areas. Promote clustered development wherever appropriate, to maximize extent of unaltered land.
- **Direct human uses toward the least sensitive areas**, and minimize alteration of natural features, including vegetation, soils, bedrock, and waterways.

**Minimize area of impervious surfaces** (roads, parking lots, sidewalks, driveways,

- roof surfaces) and maximize onsite runoff retention and infiltration to help protect groundwater recharge, and surface water quality and flows.
- **Restore degraded habitats wherever possible**, but do not use restoration projects as a “license” to destroy existing habitats.

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## APPENDIX 3-NRI EVENTS

Date (2016)	Natural Resources Inventory Event	Attendees
January 8	Meeting to review studies	CAC, Village Trustee
January 14	Meeting to plan NRI	CAC and NRI Subcommittee
January 18	Hike Leonard Park-Police Station	Subcom, Historical Soc, Public
January 28	Hike/Surveyed Leonard Park	Subcommittee, public
February 4	Hike/Surveyed Leonard Park	Subcommittee, Steve Ricker
February 15	Hike/Surveyed Leonard Park	Subcommittee, Steve Ricker
February 17	GPS Training, Teatown	CAC's from several towns
February 18	Hike/Survey Leonard Pk, Kisco Mtn	Subcommittee, Steve Ricker
February 20	Public Meeting on NRI	Public, 20+ attendees
February 26	Hike/Surveyed Kisco River	Subcommittee
February 28	Hike Leonard Park	Public, 10 attendees
March 3	Hike Leonard Park to Marsh Sanctry	Public, 8+ attendees
March 6	Hike Leonard Park	Public, 6+ attendees
March 10	Hike Kisco Mountain	Public, 14 attendees
March 25	Cleanup at Peninsula Trail	Historical Soc, Subcommittee
March 30	Leonard Park tree maintenance	Watershed Ag Council, Subcom
April 2	Hike Kisco Mountain	Public, 30+ attendees
April 11	Bird Survey at Peninsula	Steve Ricker, Anne Swain
April 17	Cleanup at Peninsula Trail	Historical Soc, Subcommittee
April 20	NRI Progress Meeting	Subcommittee, Village Trustee
April 23	Cleanup at Peninsula Trail	Historical Soc, Subcommittee
April 25	Hike/Surveyed Branch Brook	Subcommittee
April 29	Trout Release, Kisco River	Students, Subcommittee
May 1	Branch Brook macroinv sampling	Subcommittee
May 6	Site Walk Peninsula Trail	Village Mgr, Subcommittee
May 10	NRI grant possibility meeting	Mike Rubbo, Teatown
May 18	Survey of Woodcrest HOA	Historical Soc
May 23	Cleanup Kisco River Trail	Historical Soc, Subcommittee
June 1, 2	Hike Kisco River	Public, 12+ attendees
June 2	Bird Survey Kisco River	Steve Ricker, Subcommittee
June 7	Bird Survey Leonard Park	Steve Ricker, Anne Swain
June 8	Bird Survey Kisco River to RR	Steve Ricker, Subcommittee
June 14	Cleanup Peninsula Trail	Historical Soc, Subcommittee
June 16	Bird Survey Kisco Mtn, Peninsula	Steve Ricker, Subcommittee
June 18	Fish Survey Branch Brk, Kisco River	Subcommittee
June 20	Amphibian Survey Leonard Park	Steve Ricker, Subcommittee
June 30	Fish Survey Leonard Pk, Kisco River	Subcommittee
July 20	Macroinv Survey Branch Brook	Subcommittee
July 27	Site Walk Branch Brook	Village Mgr, Watershed Ag, Subcommittee
August 23	NRI Training	CAC's from other towns, Teatown, Hudson River Estuary
August 26	Macroinv Survey Branch Brook	Subcommittee
September 2	City Tree Survey Shoppers' Plaza	Subcommittee

September 9	Fish Electroshocking Kisco River	DEC
September 17,18	Table at Mt Kisco Shopping Days	Historical Soc, CAC
October 11	Site Walk Branch Brook	County Planning, Village Mgr, Subcommittee
October 9	Hike Kisco Mtn	Public, 13+ attendees
October 17	Open Space Preservation meeting	Westchester Land Trust, Subcommittee

## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Lands and Forests, Region 3  
 21 South Platt Corners Road, New Paltz, NY 12561-1620  
 P: (845) 256-2000 | F: (845) 255-1701  
[www.dec.ny.gov](http://www.dec.ny.gov)

To: Jan Johannessen, AICP, Kellard Sessions Consulting  
 Cc: Edward W. Brancatti, Village Manager, Mount Kisco  
 James Gmelin, CAC

I will make sure that future notices of grant opportunities will be sent to the Village and yourself. In the meantime, an example of previous grant requirements can be accessed on the Urban and Community Forestry DEC web site. The local match and size of the grants, as I mentioned, have improved.

In summary, based on my observations, the cause of the stressed condition of many of the trees along E Main Street and South Moger Avenue is a lack of available growing space. Many trees have reached a size where they have outgrown the available soil and dedining.

The future remedy for this situation would be to provide larger tree pits (minimum 5' by 5,' but preferably 5' by 10,' see sample photos from Rye and Oneonta, NY) and extend the growing space under the sidewalks using various methods, such as structural soil, cantilevering, porous concrete, unilock paving, sylvia cells, etc... Also, care should be taken that new trees are planted at the correct depth, mulching does not exceed 2-3 inches and does not rise above the surrounding sidewalk pavement, and the tree roots are inspected and pruned during planting to eliminate girdling and shallow roots - all simple, but common causes of failure.

The water table elevation and soil pH will also be factors which must be considered in choosing replacement specimens. Guidance can be found in Cornell University's woody plants database ([woodyplants.cals.cornell.edu/home](http://woodyplants.cals.cornell.edu/home)).

Bradford callery pears (*Pyrus*, spp) should be avoided in the future. In rare instances, should they be used, cultivars with minimum branching and a clearly dominant main stem should be chosen.

The zelkovas, pin oaks, red oaks and most other trees I observed appear to have been growing fairly well. Species diversity, I observed, is generally adequate, discounting Callery pears. I recommend a larger village-wide tree inventory in the future to assess street tree composition and guide subsequent species choices.

An inquiry into native replacements and alternatives for weeping willows turned up no equivalent alternatives.

I suggest the 100-year old oaks by the library need to be checked for wood decay/root decay fungi and some may have to be pruned or removed. The trees are being

stressed by compaction and aeration, mulching and soil treatment is recommended for the remaining trees.

The choice of replacement trees is best made observing the successes in the existing trees. I have attached a tree list I have put together and will send along (hard copy), some of the other lists on which this list is based. There is no easy correct answer for the best tree, which also depends on your community's preferences (size, esthetics, native vs non-invasive non-natives). However, matching whatever trees are available to your local conditions and preferences is important for the largest trees, but is always secondary to good growing space designs and high quality trees.

I am always available to answer any questions on the species chosen or to help as a list is being put together for your community.

Sincerely,

George Profous,  
Senior Forester  
NYSDEC-Lands and Forests  
21 S Putt Corners Road,  
New Paltz, NY 12561-1620  
845-256-3082  
George.Profous@dec.ny.gov



## SOURCES

- Audubon New York. *Birds Considered at Risk in the Hudson River Valley*.  
<http://ny.audubon.org/managing-habitat-forest-birds>
- Calhoun, A. J. K. and M. W. Klemens. 2002. *Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States*. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.
- Chazen Companies' "Byram Reservoir Monitoring Program", 2016
- Cooney, P. (2004). *NY-NJ-CT Botany Online*.  
<http://www.bing.com/search?q=old+field+botany&qsn&form=QBRE&pq=old+field+botany&sc=0-13&sp=-1&sk=>.
- Comprehensive Development Plan and Vision Plan, 2000  
[http://www.mountkisco.org/pages/mtkiskonyc\\_manager/visionplan.pdf](http://www.mountkisco.org/pages/mtkiskonyc_manager/visionplan.pdf)  
[http://www.mountkisco.org/Pages/MtKiscoNY\\_Manager/compplan.pdf](http://www.mountkisco.org/Pages/MtKiscoNY_Manager/compplan.pdf)
- Croton Plan for Westchester, 2009 <http://planning.westchestergov.com/crotonplan>
- Miller, N.A. and M. W. Klemens. 2002. Eastern Westchester Biotic Corridor. MCA Technical Paper No. 4, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.
- Mount Kisco Stormwater Annual Report, March, 2016
- NYSERDA's "Climate Change in New York State", September, 2014  
<https://www.nyserra.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York>
- NYSERDA "Climate Risk Information 2013", June 2013.  
[http://www.nyc.gov/html/planyc2030/downloads/pdf/npsc\\_climate\\_risk\\_information\\_2013\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/npsc_climate_risk_information_2013_report.pdf)
- NY City Environmental Protection's "2013 Watershed Water Quality Annual Report", July 2014  
[http://www.nyc.gov/html/dep/pdf/reports/fad\\_5.1\\_watershed\\_monitoring\\_program\\_-\\_2013\\_watershed\\_water\\_quality\\_annual\\_report\\_07-14.pdf](http://www.nyc.gov/html/dep/pdf/reports/fad_5.1_watershed_monitoring_program_-_2013_watershed_water_quality_annual_report_07-14.pdf)
- NY City Panel on Climate Change's "Climate Risk Information", June 2013  
[http://www.nyc.gov/html/planyc2030/downloads/pdf/npsc\\_climate\\_risk\\_information\\_2013\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/npsc_climate_risk_information_2013_report.pdf)
- NY State Breeding Bird Atlas, 2008 <http://www.dec.ny.gov/animals/51030.html>
- NY State DEC, Watershed Agricultural Council. (2011). *New York State Forestry Best Management Practices for Water Quality*.
- NY State DEC's "30 Year Trend in Water Quality of Rivers and Streams in New York State, Macroinvertebrate Data", 1972-2002  
[http://www.dec.ny.gov/docs/water\\_pdf/sbu30yrintro.pdf](http://www.dec.ny.gov/docs/water_pdf/sbu30yrintro.pdf)
- NY State DEC and USGS's "Seasonal Variability and Effects of Stormflow on Concentrations of Pesticides in Kisco River" December, 2004 <https://pubs.usgs.gov/wri/wri03-4151/includes/WRIR03-4151.pdf>

- NY State DEC's "The Lower Hudson River Basin Waterbody Inventory", August 2008  
[http://www.dec.ny.gov/docs/water\\_pdf/pwllhud08rev.pdf](http://www.dec.ny.gov/docs/water_pdf/pwllhud08rev.pdf)
- NY State DEC's memo on Mount Kisco street trees, George Profous, 2016
- NY State DEC Bureau of Fisheries Kisco River Survey, 1986, 2000, 2014, 2016.
- NY State DEC Hudson River Estuary Programs' "Natural Areas and Wildlife in your Community" August 2016.
- Reschke, C. (1990). *Ecological Communities of New York State*. Latham, New York: New York Natural Heritage Program, New York State Department of Environmental Conservation.
- Rosenzweig, C., W. Solecki, A. DeGaeitano, M. O'Grady, S. Hassol, P. Grabhorn (editors), 2011. Responding to Climate Change in New York State. New York State Energy Research and Development Authority, Albany, NY.
- Stevens, Gretchen "Natural Resource Inventories for Municipalities". *Hudsonia*, Vol. 30, No. 1, pg 7, 10.
- USDA Forest Service. (November, 2011). *New York City Watershed Forest Management Plan*.  
[http://www.nyc.gov/html/dep/pdf/watershed\\_protection/depforestmanagementplan2011.pdf](http://www.nyc.gov/html/dep/pdf/watershed_protection/depforestmanagementplan2011.pdf)
- USDA Natural Resources Conservation Service. *Official Soil Series Descriptions*.  
<http://soils.usda.gov/technical/classification/osd/index.html>
- US Fish & Wildlife Service. *Significant Habitats and Habitat Complexes of the New York Bight Watershed*. (November 1996).
- Westchester County Department of Planning's "Westchester County Croton Watershed Water Quality Conditions Report", March 2002  
<http://planning.westchestergov.com/images/stories/CrotonPlan/Appendix%20B%20Water%20Quality%20Conditions.pdf>

## STATEMENT OF QUALIFICATIONS

Jim Nordgren has completed open space plans, natural resource inventories, baseline documentation reports and management plans for Open Space Institute, Scenic Hudson, Northeast Wilderness Trust, LandVest, Watershed Agricultural Council, North Salem Open Land Foundation, Orange County Land Trust, Pound Ridge Land Conservancy, Putnam County Land Trust, Westchester Land Trust, Oblong Land Conservancy, Weantinoge Heritage Land Trust, Sisters of Hope, Ossining, Town of Lewisboro and Town of Castine, Maine. He is proficient in GPS and GIS technology. He has researched, drafted and signed purchase option agreements, buy/sell agreements, conservation easements and fee purchase agreements for the Northeast Wilderness Trust and the Westchester Land Trust. He successfully applied for Land Trust Alliance Accreditation for the Northeast Wilderness Trust. Mr. Nordgren earned his Masters in Environmental Management at the Yale School of Forestry, 2007. He is a qualified Watershed Forester for the New York Watershed Agricultural Council, served on the Lewisboro Planning Board from 1994 to 2003 and served as Lewisboro Town Supervisor.

Natural Resource Plan  
Town/Village of Mount Kisco, New York

RECOMMENDATIONS



Photo of Leonard Park by Anne Swaim  
June 7, 2016

Prepared by Mount Kisco Conseration Advisory Council  
March 15, 2017

Mount Kisco's Natural Resource Inventory describes the town's natural resources. A Natural Resource Plan goes the next step and identifies recommended actions and strategies to protect those natural resources<sup>29</sup>.

The following recommendations, all of which are preliminary and voluntary, are taken from comments made by Mount Kisco residents at NRI public meetings, from Mount Kisco's Comprehensive Development Plan & Vision Plan, from the NRI Subcommittee members, from experts at the Watershed Agricultural Council, Westchester County Planning Department, New York State DEC and Chazen Companies and from information gathered during the process of preparing the NRI itself.

## RECOMMENDATIONS FROM RESIDENTS

The most common recommendations from residents attending the February 20<sup>th</sup>, 2016 NRI meeting were to:

- Create pocket parks at Lexington Avenue and other locations
- Create more hiking trails throughout town
- Protect water quality in streams and reservoirs
- Control flooding, improve storm water control
- Target sources of pollution and correct them
- Plant trees, shrubs, wildflowers throughout town
- Educate the public on how to green their backyards
- Promote green landscaping of apartment complexes
- Regulate pesticide use by landscaping companies and golf courses
- Remove invasive vines, shrubs and trees taking over parts of town
- Clean up trash
- Create community vegetable gardens

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<sup>29</sup> Stevens, Gretchen. "Natural Resource Inventories for Municipalities". Hudsonia, Vol. 30, No. 1, pg 7, 10.  
<http://hudsonia.org/>

## RECOMMENDATIONS FROM COMPREHENSIVE DEVELOPMENT & VISION PLAN

Recommendations from Mount Kisco residents were very much in line with Mount Kisco's Comprehensive Development Plan & Vision Plan recommendations which are to:

- Explore the possible acquisition of new open space and park areas
- Create smaller pocket parks and open space in underseved areas
- Develop new walking/hiking and bike trails throughout the Village-being done now by the Historical Society and CAC
- Enforce and expand regulations to reduce contamination and stormwater runoff into the Branch Brook, Kisco River, wetlands and lakes
- Enact lawn fertilizer and pesticide management plans
- Implement recommendations of the Croton Plan, which were to:
  - Create a stream restoration program based on the Westchester County Storm water Management Planning Manual
  - Prepare a water quality mowing practice and a chemical herbicide management plan for municipal land
  - Develop residential landscaping guidelines that protect water quality
- Plant street trees throughout the Village
- Incorporate more landscaping within parking lots and along road frontages
- Encourage property owners to protect natural resources within their properties
- Educate residents and businesses about how they can incorporate native trees, shrubs and flowers within their properties
- Establish a more frequent, formal structure for litter clean-up days

## RECOMMENDATIONS EMANATING FROM THE NRI PROCESS

- Plant native trees and shrubs along Branch Brook, Wallace Pond, Kisco River and tributaries
- Plant additional native trees and shrubs in Shoppers' Park
- Preserve part of Kisco Mountain north parcel if developed, protect with conservation easement (see map page 165)
- Preserve large parcels along Kisco River now for sale at Radio Circle, protect with conservation easement (see map page 166)
- Design an outreach program to improve land management practices at businesses, schools, hospitals, golf courses, apartment complexes and other institutions that impact the Kisco River, Branch Brook and tributaries.
- Review/strengthen wetland law including buffer size and enforcement
- Review construction mitigation measures for effectiveness
- Continue to implement Town's Storm Water Management Plan

- Review catch basin inspection and maintenance schedules
- Identify catch basins that need more frequent maintenance
- Identify areas of the Branch Brook, Kisco River and tributaries that will benefit from storm water management improvements including:
  - Watercourses adjacent to impervious roads and parking lots
  - Places with stream bank erosion
  - Areas where silt and sedimentation have built up
  - Areas where trash accumulates
  - Culverts that are broken or not functioning
  - Locations where storm water discharges directly into streams
- Prioritize areas where storm water retrofits are most feasible
- Install additional storm water controls including: detention basins, ponds and wetlands, forebays, vegetated swales, infiltration trenches, sand filters, deep sump catch basins, oil/particle separators, permeable pavement and underground infiltration systems.<sup>30</sup>The Town is undertaking several such storm water projects in 2016-2017, see NRI pages 65, 69, 10.
- Apply for funding for stormwater projects from State and New York City
- Work with N.Y. State DEC's Office of Environmental Justice to obtain Community Impact Grants to fund projects that address clean water, flood protection, clean air, wildlife habitat, and places to recreate in low-income and minority communities at Lexington Avenue and East Main Street which are 'Potential Environmental Justice Areas' (see map, page 167).<sup>31</sup>

## RECOMMENDATIONS FROM WATERSHED AGRICULTURAL COUNCIL

- Prevent mowing and cutting of vegetation around watercourses including Wallace Pond and Branch Brook- Village Manager said that the town will not cut any plantings
- Plant more trees and shrubs around Wallace Pond and outlet to Byram Lake Road
- Maintain a 10 foot no cut buffer around all watercourses to filter pollution and discourage Canada geese
- Plant 'live-stake' willows and dogwoods along Branch Brook
- Plant black willow, pin oak, sycamore, swamp white oak, tupelo and alders in wet areas where tree height is not an issue
- Plant pussy willows, silky dogwoods in those areas where height and line of sight is an issue

<sup>30</sup> 2004 Connecticut Stormwater Quality Manual. CT DEP, Cheryl Chase. <http://ahhowland.com/regulations/state-of-ct/ct-dep/2004-ct-stormwater-quality-manual.pdf>

2015 New York State Stormwater Management Design Manual, NY DEC, Center for Watershed Protection. [http://www.dec.ny.gov/docs/water\\_pdf/swdm2015entire.pdf](http://www.dec.ny.gov/docs/water_pdf/swdm2015entire.pdf)

<sup>31</sup>DEC Office of Environmental Justice, <http://www.dec.ny.gov/public/333.html>

- Plant pin oak trees and bayberry shrubs where road salt accumulates
- Apply for Trees for Tribes application in spring 2017 for plantings
- Install erosion mats if plantings where plantings are not feasible

## RECOMMENDATIONS FROM COUNTY PLANNING DEPARTMENT

- Remove phragmites with herbicide rather than trying to dig out from Branch Brook
- Leave cattails around Branch Brook pond north of Police Station
- Install settling basins to reduce silt in Branch Brook
- Do not mow within 6 feet of Branch Brook stream bank
- Do not remove vegetation from west side of Branch Brook below Leito Drive, instead cut it every 2 years to keep water flowing and to cause less disturbance to soil and stream bank

## BYRAM LAKE RESERVOIR

### Reduce road salt entering Reservoir:

- Determine how much salt comes from Byram Lake Road vs. 684 local schools may help study this
- Work with DOT to reduce salt use on 684/use salt alternatives
- Work with Bedford (owner and maintainer of Byram Lake Road) to:
  - Plant a vegetative strip between Byram Lake Road and Reservoir (also a recommendation from Chazen Companies)
  - Build up road shoulder on Byram Lake Road and vegetate with bayberry, red cedars which are salt tolerant
  - Construct storm drains along Byram Lake Road and pump regularly
  - Consider paving the gravel portion of Byram Lake Road and installing storm drains/catch basins
  - Consider alternatives to road salt
  - Consider closing the Byram Lake Road during storms and while snow and ice are on road
  - Consider closing Byram Lake Road in winter

### Reduce storm water entering Reservoir:

- Repair all road cave-ins over the .08 mile stretch of Byram Lake Road
- Repair other road cave-ins along Byram Lake Road
- Insert storm drain at #675 where storm water accelerates down driveway
- Insert storm drain at asphalt/gravel interface at bottom of Byram Lake Road hill where storm water accelerates
- Crown road so water drains away from Reservoir



Maintain vegetative cover around Reservoir to filter storm water:

- Treat some diseased hemlocks on west slope
- Replant the 2-acres that were clear cut on Mount Kisco land by Seven Springs using fines to pay for restoration

## WALLACE POND, KISCO RIVER, BRANCH BROOK WATERCOURSES

- Add native plantings in gaps along Wallace Pond outlet to Byram Lake Road
- Remove bittersweet vines in trees and shrubs around Wallace Pond and at outlet to Byram Lake Road
- Do not over prune hemlocks and other trees along outlet to Byram Lake Road
- Remove invasive burning bush east of Byram Lake Road
- Remove vines from all butternut hickories along Kisco River west of Lexington Avenue
- Remove debris on stream bank between Kisco River and Lexington Avenue
- Add native plantings on both sides of Branch Brook at Legion Way
- Replicate Library's rain gardens and native flower garden to both sides of Branch Brook between Shoppers' Park and Leito Drive
- Do not mow library's rain garden wildflowers until late winter
- Replicate tree and shrub plantings at Shoppers' Park to other parts of Shoppers' Park
- Replace any native plants removed during the storm water projects along Branch Brook-the Village Manager has agreed to do this
- Clean up trash in Branch Brook wetlands between Preston Way and Legion Way
- Clean up trash in Branch Brook south of Leito Drive

## KISCO MOUNTAIN

- Preserve majority of the north slope parcel with a conservation easement if development occurs there
- Preserve a portion of the south parcel with a conservation easement for hiking parking, access and for scenic views
- Extend hiking trails to northern slope
- Monitor repair of erosion along water tower access road
- Monitor replanting of areas cleared for Hearth road

- Remove invasive Japanese knotweed from water tower access road entrance

## MARSH SANCTUARY

- Work with Village to pursue acquisition of 25 acre parcel at 180 S. Bedford Road
- Protect native shrubs and trees at stream along route 172
- Expand native plantings along north shore of pond
- Expand 'Trees for Tribs' program plantings in open wet meadow
- Remove invasive plants including: multi-flora rose, barberry and honeysuckle from meadows, bittersweet vines in flowering dogwoods, locust and ailanthus saplings in old field, porceleinberry, swallowwort, Japanese knotweed from pond outlet, porceleinberry, Norway and Japanese maples by stream along route 172 and mugwort by community garden
- Brushhog the two large fields once every year or two to maintain field habitat and prevent invasives from becoming established.
- Save some hemlocks from woolly adelgid disease by treating with imidacloprid and dinotefuran

## STREET TREES

- Enlarge sidewalk tree pits to provide more growing space for trees
- Extend the growing space beneath the sidewalks with structural soil, cantilevering, porous concretes, unilock paving and/or sylva cells.
- Avoid planting Bradford pears due to breakage
- Inventory the rest of the Town's street trees for health, species composition

## CLIMATE CHANGE

NYSERDA estimates that precipitation will be +10% greater in New York state by 2050 (average of estimates).<sup>32</sup> The probability of 100-year floods is projected to increase by 70% to 190% in New York State by 2050. The NYSERDA report also predicts that temperatures in the Hudson Valley region will rise an additional 5 degrees Fahrenheit by 2050.<sup>33</sup>

Climate change resulting in higher levels of rainfall and more extreme rain events will lead to increased pollution from storm water runoff and greater street flooding in Mount Kisco. Additionally, higher temperatures will stress trees and other vegetation that are now cooling temperatures, absorbing storm water and preventing flooding in town.

Increased precipitation will require that the Town increase its efforts to inspect, maintain, clean-out and retrofit storm water catch basins and undertake new low-impact development projects to contain, filter and slowing release storm water.

Planting more trees, shrubs and other vegetation will absorb some of the additional stormwater. Vegetation will also shade and cool Mount Kisco as temperatures rise. Only trees that can accommodate higher temperatures should be planted. Trees that range in the southern portion of the United States will be able to withstand higher temperatures. Examples of 'southern' trees are oaks, hickories, tupelos, dogwoods, redbuds and sweet gums, all of which can be planted along streets, sidewalks and parking lots.

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<sup>32</sup> NYSERDA "Climate Risk Information 2013" June 2013. Pg. 5

<sup>33</sup> NYSERDA, Pg. 5. The full NYSERDA report can be found at:

[http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc\\_climate\\_risk\\_information\\_2013\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/npcc_climate_risk_information_2013_report.pdf)  
[www.nyserda.ny.gov/climaid](http://www.nyserda.ny.gov/climaid)

Other ways to mitigate climate change that are beyond the scope of this report include:

- Increasing energy efficiency in homes and office buildings in Mount Kisco by promoting insulation and reducing unnecessary lighting
- Using trees to shade and cool buildings and to shield buildings from wind
- Promoting green roofs atop buildings
- Promoting renewable energy especially solar and geothermal energy
- Encouraging more use of mass transit by making more parking available and at lower cost by the Metro North train station
- Promoting more bus use
- Establishing electric car recharge stations
- Buying low-emission vehicles for the town's and schools' vehicle fleet
- Reducing idling
- Encouraging locally sourced food with Farmers' Markets
- Creating community gardens
- Facilitating the buying of local food in schools and institutions
- Promoting recycling with single-stream recycling and recycling bins
- Establishing a town composting site for food and yard waste
- Banning plastic bags and leaf blowers
- Establishing ways to swap and recycle consumer goods
- Establishing 'pay-as-you-throw' trash pricing

# Kisco Mountain Open Space Map

Large portions of the North and South Parcels could be protected with conservation easements if they are developed

Village of Mt Kisco

Village of Mt Kisco

Village of Mt Kisco

Village of Mt Kisco

-  Village of Mt Kisco Parks, Open Space & Village-Owned Land
-  Cliffside Hiking Trail
-  Water Tower Road

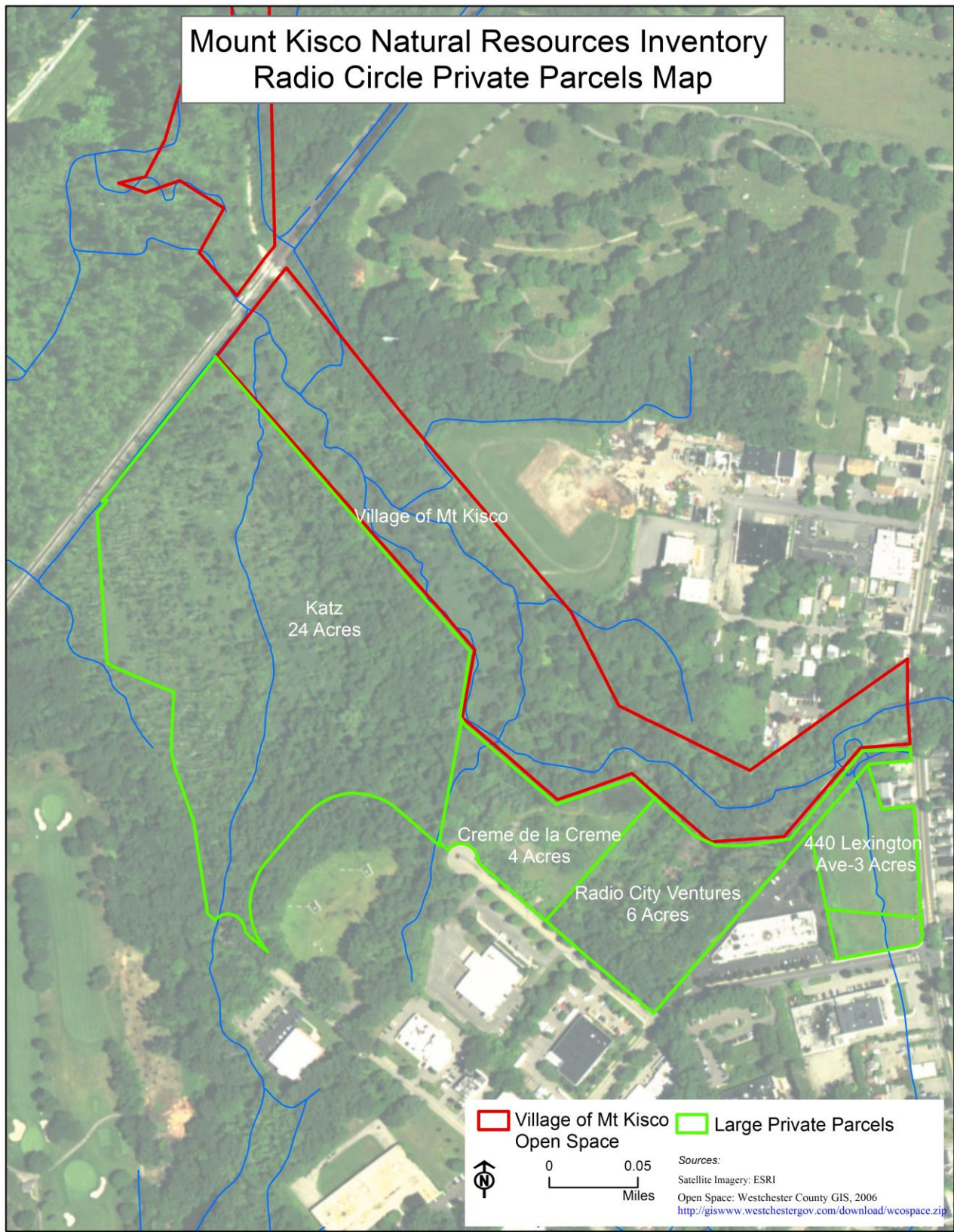
Date: March 15, 2017

Sources:  0 0.05 Miles

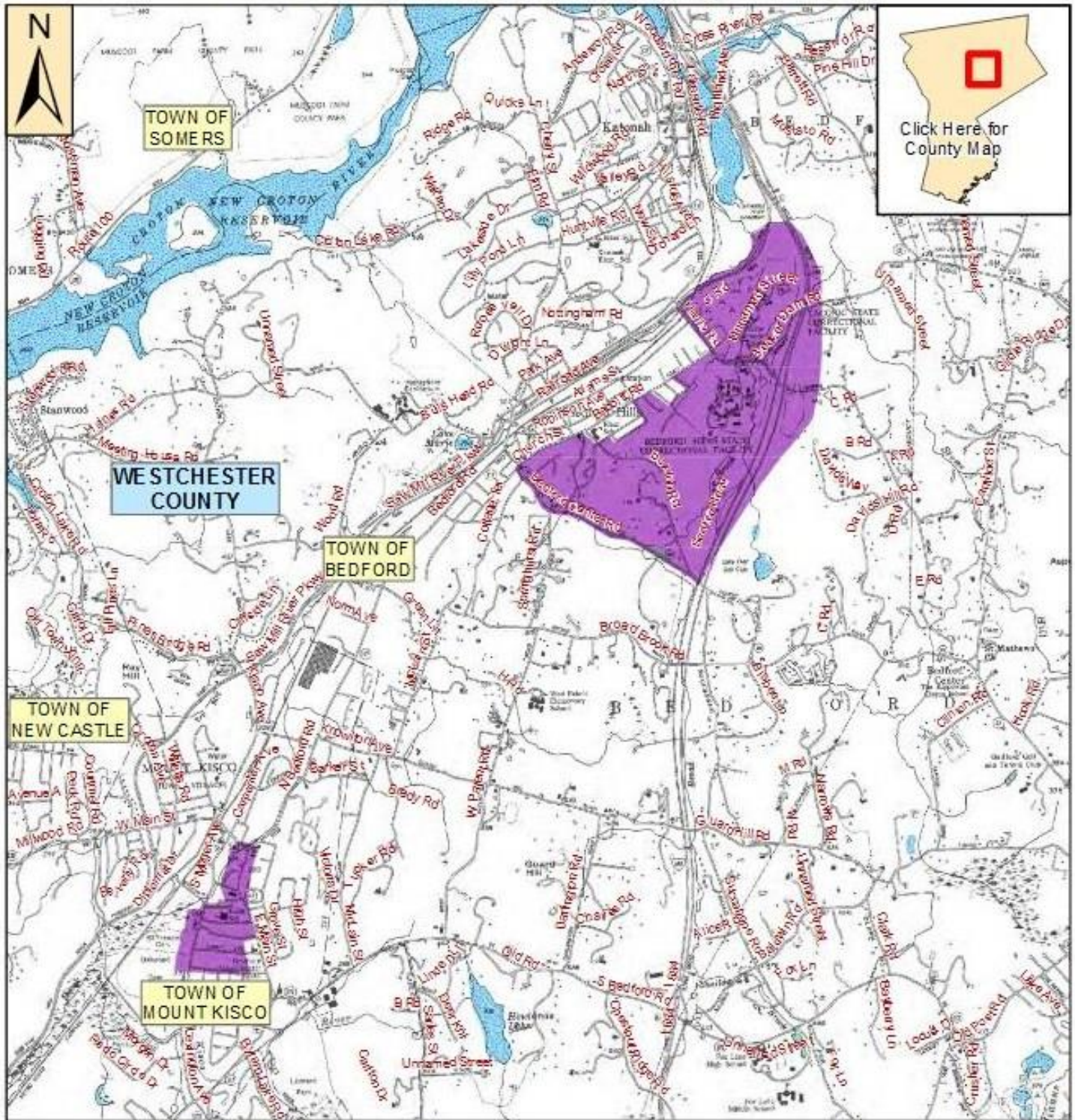
Satellite Imagery: ESRI  
Open Space: Westchester County GIS, 2006  
<http://giswww.westchestergov.com/download/wcospace.zip>



# Mount Kisco Natural Resources Inventory Radio Circle Private Parcels Map



# Potential Environmental Justice Areas in the Towns of Bedford and Mount Kisco, Westchester County, New York



This computer representation has been compiled from supplied data or information that has not been verified by EPA or NYSDEC. The data is offered here as a general representation only and is not to be used for commercial purposes without verification by an independent professional qualified to verify such data or information.

Neither EPA nor NYSDEC guarantee the accuracy, completeness, or timeliness of the information shown and shall not be liable for any loss or injury resulting from reliance.

Data Source for Potential Environmental Justice Areas:  
U.S. Census Bureau, 2000 U.S. Census

## Legend

-  Potential EJ Area
-  County Boundary
-  Waterbodies

0 0.2 0.4 0.6 0.8 1 Miles

SCALE: 1:40,000

For questions about this map contact:  
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