

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

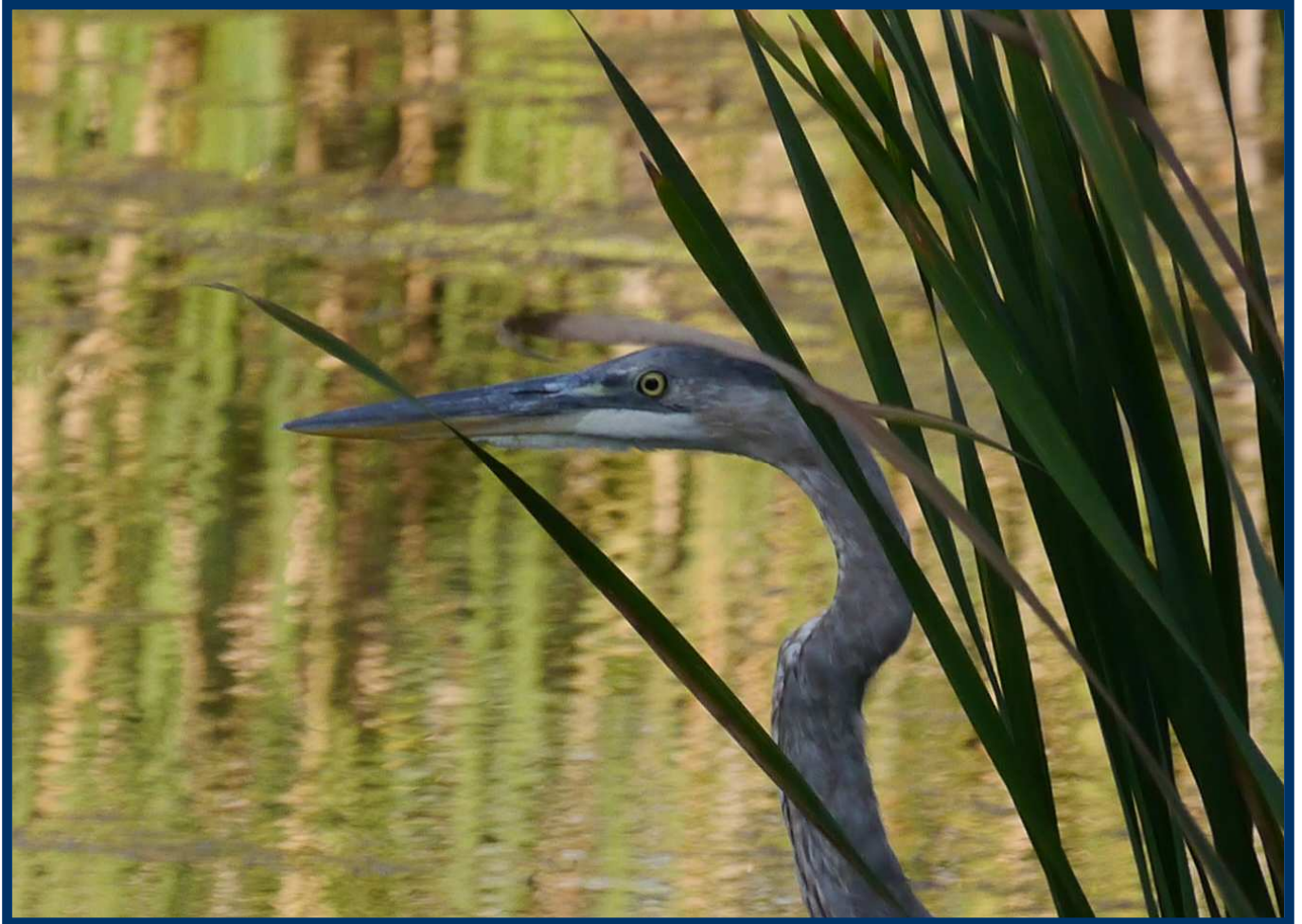


Photo of Great blue heron at Branch Brook by John Rhodes Sept 4, 2016

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."¹ In January 2016 the Town and the CAC began preparation of this NRI.

¹ 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.^{2,3}

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”*.⁴

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

² Town of Mount Kisco website, http://www.mountkisco.org/Pages/MtKiscoNY_WebDocs/about

³ Mount Kisco Historical Society

⁴ 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

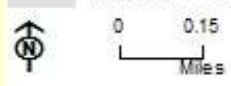
The topography, hydrology and geography of Mount Kisco combine to make the protection of natural resources--including provision of parks and open space, protection of wildlife habitat, creation of hiking and walking trails, protection of clean drinking water, management of storm water and flood control--a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



Sources:
Satellite Imagery: ESRI
Open Space: Westchester County GIS, 2006
<http://www.westchester.gov/download/westchestergis>

Mount Kisco Natural Resources Inventory Open Space Street Map

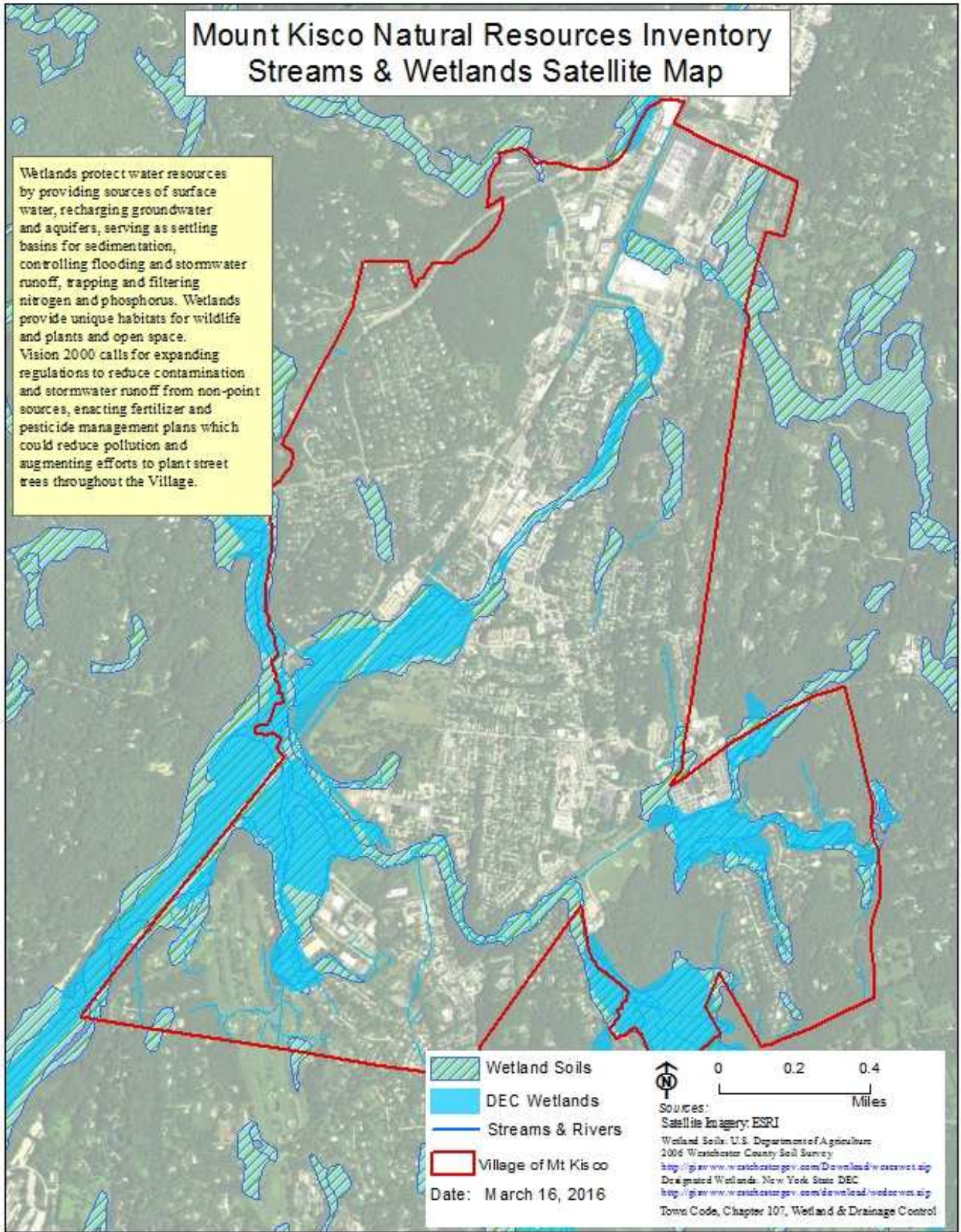
Large blocks of open space lie in the northwest, southwest and southeast sections of Mount Kisco. Cemeteries and a golf course have vegetative cover, allow movement of wildlife and are possible trail connections. Homeowners' Associations have mature trees. Village property buffers the Branch Brook and 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 http://www.landusechange.com/download/ncogpac.asp
Date: March 15, 2017		

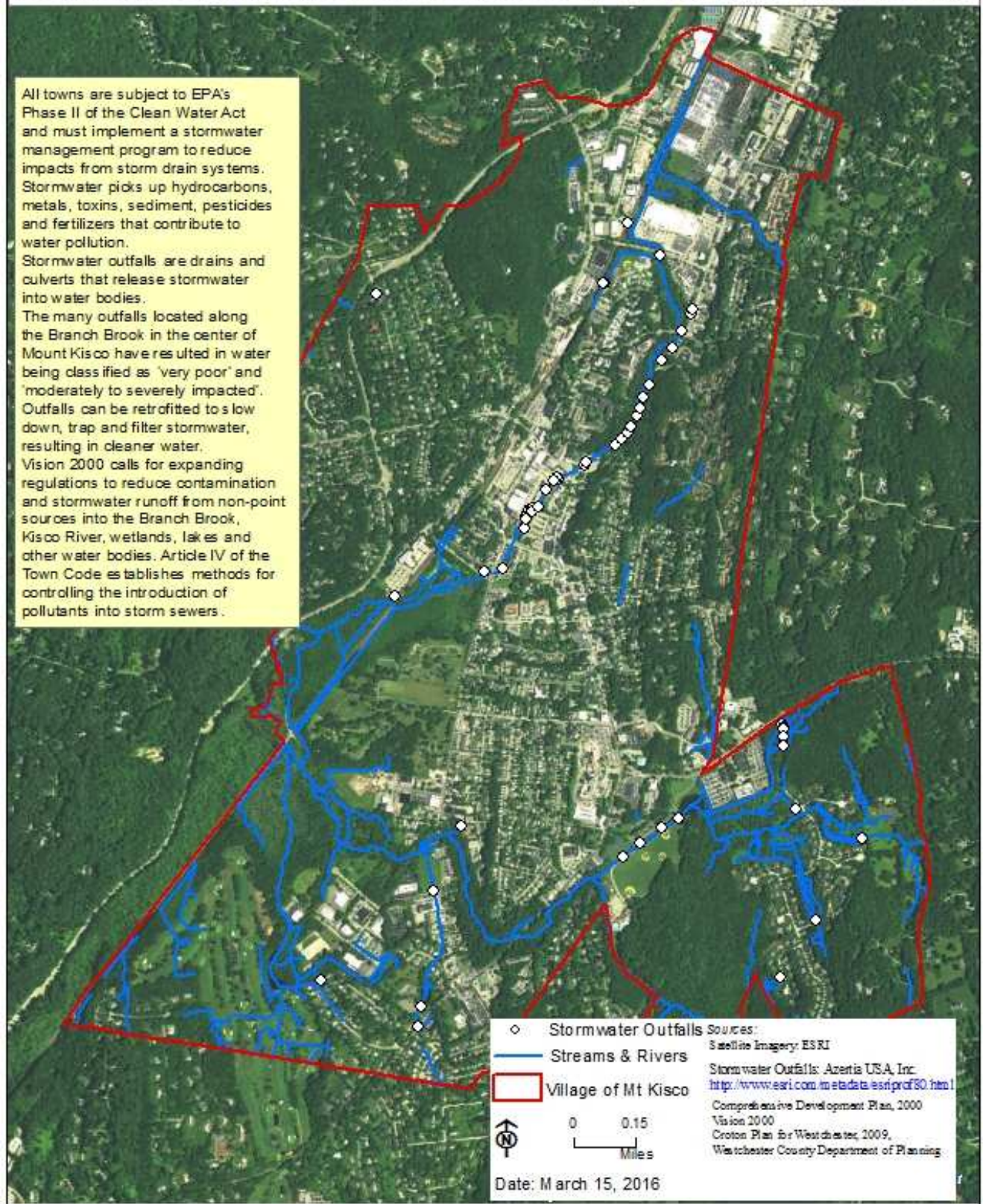
Mount Kisco Natural Resources Inventory Streams & Wetlands Satellite Map

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.

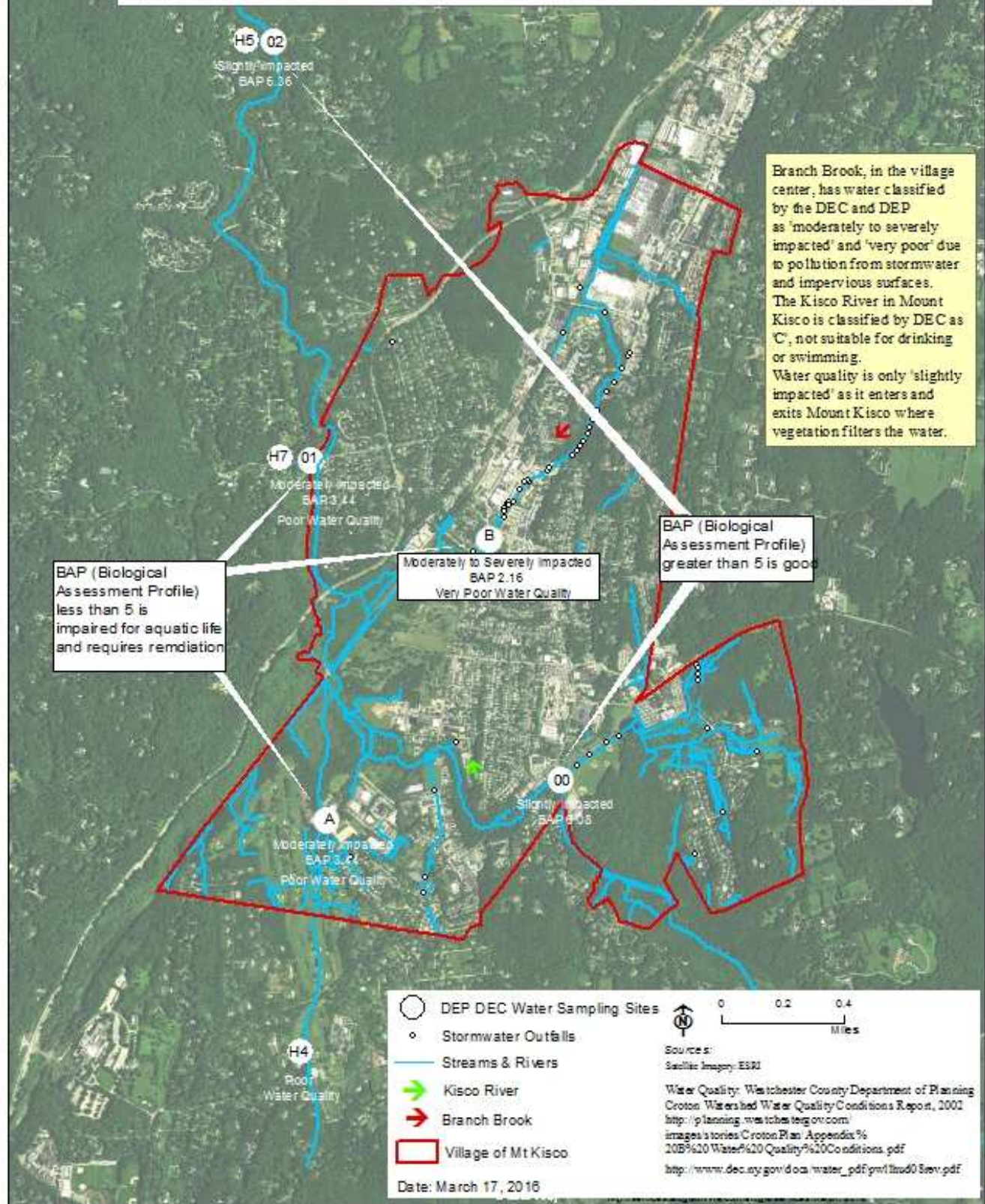


Mount Kisco Natural Resources Inventory Stormwater Outfalls Map

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 Water Quality



PROJECT GOALS

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.



Hike along Kisco River Trail June 1, 2016



Hike to Kisco Mountain
March 3, 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

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. NYSERDA estimates that precipitation will be +10% greater by 2050 (average of estimates).⁵The probability of 100-year floods is projected to increase by 70% to 190% in New York State by 2050. The NYSERDA 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 2050.⁶

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 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.

⁵ NYSERDA “Climate Risk Information 2013” June 2013. Pg. 5

⁶ 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
www.nyserdera.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.⁷

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.

⁷ 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)⁸. The remaining approximately 8%, over 150 acres, is undeveloped and potentially developable.⁹

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".¹⁰

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.

⁸ Croton Plan. Pg 2-48.

⁹ Croton Plan, Pg. 2-36.

¹⁰ 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

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

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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 resources¹¹.

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 20th, 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

¹¹ 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.¹²-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).¹³

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

¹² 2004 Connecticut Stormwater Quality Manual. CT DEP, Cheryl Chase. <http://ahhowland.com/regulations/state-of-ct/ct-dep/2004-ct-stormwater-quality-manual.pdf>

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¹³DEC 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 wooly 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).¹⁴ 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 2050.¹⁵

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.

¹⁴ NYSERDA "Climate Risk Information 2013" June 2013. Pg. 5

¹⁵ 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
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