

**A Community Forest Management Plan for Owasco, New York**  
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**Updated in July 2023**



**Photo by Bill Hecht, 29 August 2013.**

## Acknowledgements

This Community Forestry Management Plan for the Town of Owasco is the product of a two-year effort by many people in and around the Town who share a passion to identify, manage, and protect trees and forests for the long-term benefit of Owasco and the Finger Lakes.

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## Preface

We cannot escape the idea that human progress is tied in material, social, and spiritual terms to the landscapes where we live. The bountiful and beautiful spaces within this place we call the Finger Lakes is known the world over for its storied history and spectacular geologic features. For those of us who call it home, we know the many benefits and responsibilities that come with stewarding these special landscapes, and for most of our lives, our relationship with this region has been stable and predictable. This has changed.

Dramatic swings in weather, intense storms, and the onset of harmful algal blooms in our Finger Lakes challenges us to rethink our relationship to the land. These algal blooms not only degrade the aquatic ecosystems by reducing dissolved oxygen levels in lake water and altering aquatic food chains, their microcystin by-product is a powerful liver toxin that renders drinking water unsafe, further restricting water recreation for lake front property owners and park visitors along Owasco Lake. Indeed, the Town of Owasco and the City of Auburn have together devoted nearly \$3 million on drinking water filtration plant improvements to remove the microcystin toxin produced by algal blooms in Owasco Lake.

Within our suburban neighborhoods and along the shared edges of Owasco's productive farmland, invasive plants like Japanese knotweed are poised to challenge agricultural property owners as much or more than farm managers are already coping with invasive Marestalk - a tenacious native plant that can impact agricultural field operations to manage corn, soybeans, and wheat. Like Marestalk, the exotic Japanese knotweed takes hold of road-sides, but also specializes in colonizing and taking over stream sides and shore lines. Rather than spread seeds far and wide like Marestalk, Knotweed's formidable surface roots break off and flow down stream and get attached to equipment only to be transported to a new site. And in the upper reaches of the forested stream corridors of all our Finger Lake watersheds a new, unimaginably small invasive insect, the Hemlock wooly adelgid is wrecking havoc on our steep soil-securing roof-top gardens.

The question this management plan seeks to answer is this: what role can township-level forestry play in helping residents achieve safer and stable lives, and more successfully achieve their goals for a prosperous and sustainable future? Forestry in developed landscapes, be they urban or suburban, is typically relegated to augmenting the aesthetic appeal of our communities, especially along streets and in our parks. But as our concerns over the sustainability of our relationship with Finger Lakes landscapes grow, so too do our expectations of the work forest vegetation can do for us. Trees can't just be attractive; they are now counted on to absorb storm water runoff, sequester carbon, compliment wildlife management goals, stabilize ecosystems, and compliment - not complicate - the efficient

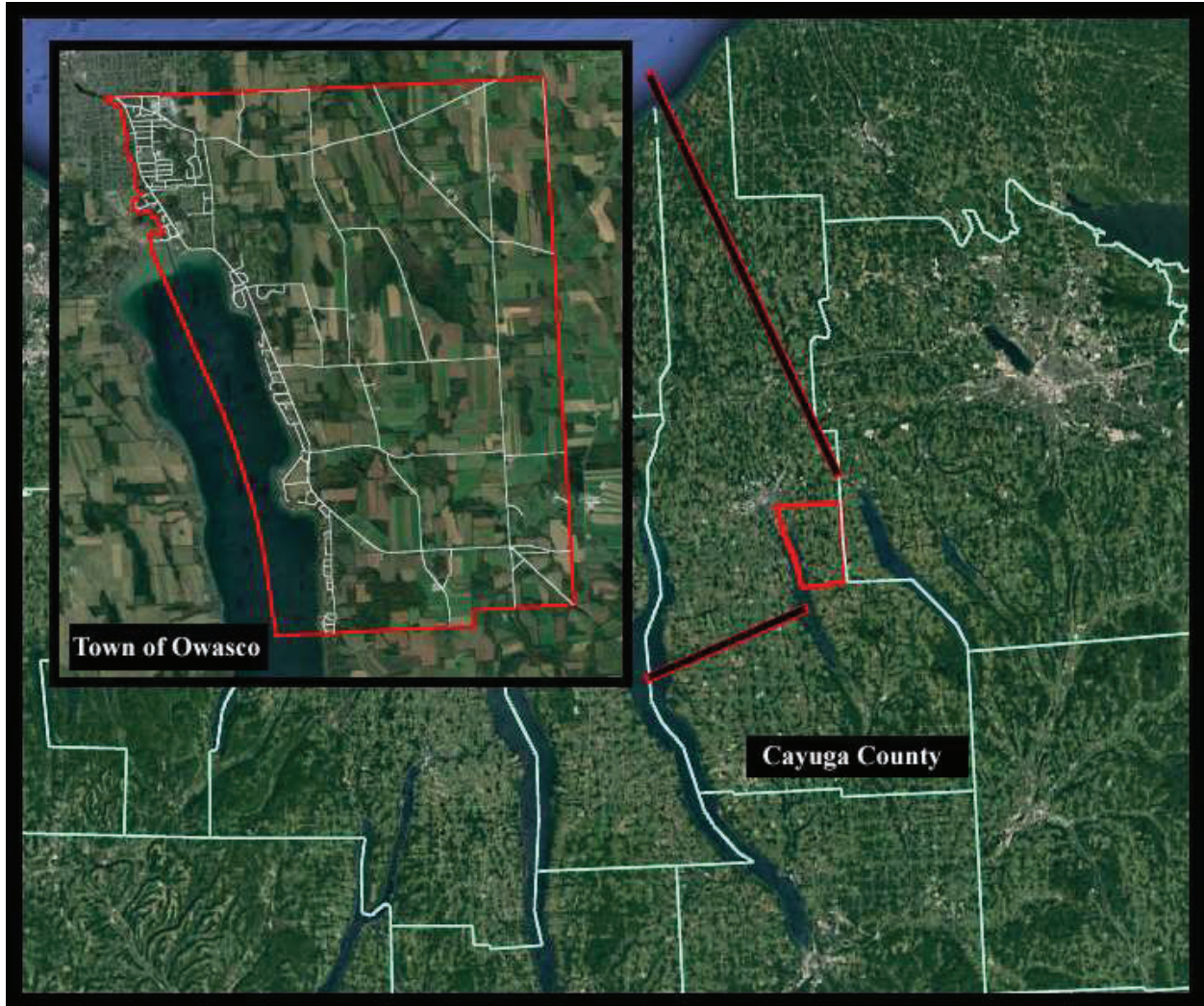


administration and management of the infrastructure that keeps these wonderful neighborhoods livable, be it water, sewer, gas, roads, and wired infrastructure for electricity and telecommunications.

Our residents now explicitly demand better recreational services at parks and trails, and through their many affiliations and experience in gardening, wildland and watershed conservation networks, they also expect townships deploy forestry services to assist in wetland remediation, flood mitigation, storm water management, wildlife conservation, and sustainability through improved green infrastructure, and increasingly, to address climate change. In short, trees have a lot of work to do! So much so in fact that they can do with our help.

This management plan is an attempt to describe how community forestry in Owasco can make a difference in residents' lives and landscape. In the closing years of the late 19<sup>th</sup> century, an American conservation ethos was taking root. Famed ecologist Aldo Leopold echoed Theodore Roosevelt when he called upon his fellow citizens to understand land conservation as responsibility, not just a framework for never-ending harvests of timber, water, and game. Understood as a civic virtue, conservation was transformed from simple exploitation into a complex relationship of commitments meant to foster human survival and growth. This ethos is needed now more than ever, and in the pages to follow we hope to show how forestry deployed at the local community level can make a difference.

- Walt Aikman  
6 January 2022



Map 1. The Town of Owasco

## Executive Summary

This community forest management plan for the Town of Owasco, New York describes the forest resources in the Township, and sets out the goals and strategies to provide a safe, healthy, and sustainable forest resource for generations to come. This is a formidable task. The Town is 23.48 square miles in area, of which 11.0% is Owasco Lake (2.57 square miles), the sixth largest of the eleven Finger Lakes. The Town's total land area of 20.91 square miles is predominately agricultural, with rich forest and wetland areas, and with lovely suburban and lake-front neighborhoods has the most residents by township in the 205 square mile Owasco Lake Watershed.

The 2019 street tree inventory shows that Owasco has 1,555 trees on public land and rights-of-way in the Town, with 770 of these trees planted and growing along Town roads and in the Town Park. Of these trees, more than 220 are large or very large trees (over 24" in diameter measured at breast height - DBH) and a significant majority of these trees are Silver maples (*Acer saccharinum* L.). Silver maples grow to be very tall, very massive trees, but they are notoriously weak-wooded and are subject to failure. Together with many large Sugar maples (*Acer saccharum* L.), the large, old trees growing next to homes and under power lines present a significant and expensive management challenge to the Town.

In addition to these planted street and park trees, the Town also has nearly two miles of unplanted tree canopy growing into and over road ways, mostly in the agricultural portion of the Township. Sampling of this canopy tells us of 785 trees growing along Town roads, and this wild forest scattered about the Town sports native as well as invasive understory plants. In each case - planted and wild - there exist numerous trees in poor condition and/or close proximity to power lines, and the condition of these trees presents significant and expensive management challenges to residents and staff.

Given that trees provide so many benefits to Owasco's property owners and the wider community in the Town, we must meet the challenge of our times and craft a plan of action. This need is particularly urgent when one considers the Town's average Tree Canopy is 33%, well below the recommended 50% threshold for suburban neighborhoods. This management plan offers a framework of action to achieve the goals set out by the Owasco Town Tree Conservation Board. The goals - and the challenges that obstruct them - were identified and drafted under the guidance of the Owasco Town Tree Conservation Board, and included a process of formal discussions amongst the members of the Town Tree Board (established under local law §138), and informal discussions with the Town Highway Superintendent, members of the highway department staff, the Town historian, and residents.

The principal community forestry management goals for the Town discovered in this process recognize the important role trees play in providing environmental, cultural, and economic benefits to residents. In brief, the Town of Owasco needs:

1. To maintain trees in a safe condition;
2. A sustainable public forest resource that adds value to the community, protects water resources, and sequesters carbon;
3. A tree planting program for Spring and Fall;
4. To maintain a street and park tree inventory;
5. A tree canopy that is structurally and biologically diverse, with plants that reflect the natural heritage of the community;
6. To manage invasive terrestrial plant species;
7. To encourage private property owners to steward their land;
8. To recognize, demonstrate, and enhance the role of vegetation in storm water management;
9. A cradle -to-cradle brush management program, and;
10. To proactively manage the community forest resource with the adoption of defined forest management planning units.

These ten goals animate and direct this management plan; it is a goal-oriented management plan. As such, the specific steps in this plan include:

1. To maintain an annual tree budget that proactively keeps pace with expenditures to support Tree Board involvement and oversight of forestry management activities including tree inventory and database maintenance, tree assessments, planting site assessments, and tree risk assessment;
2. Maintain funding levels to support Tree Board involvement and oversight of forestry program activities including tree planting, pruning, and removal;
3. Sustain an on-going focus on tree and urban forestry funding in anticipation of direct and reimbursement grants;
4. Plan and promote tree planting celebration support in partnership with neighborhood associations, local schools, and watershed protection agencies;
5. Cultivate and deploy a volunteer tree planting network;
6. Manage the aging trees along the Town's Avenues with an eye toward targeted risk assessment and removal;
7. Encourage and foster the planting and cultivation of native trees and shrubs;
8. Develop and support an invasive plant control capacity that can effectively partner with State and Regional organizations;
9. Continue to investigate and support alternatives to the Town's brush management program, and;
10. Strive to plant a dozen trees in Town rights-of-way per planting season and encourage residents to plant three trees each year.





The Martin Point Sycamore. This legacy tree of Owasco's ancient forest was saved by developers and grows to this day in the only divided highway in the Township.  
Photo by Walt Aikman, 2020.

### Introduction to Forest Planning in Owasco

The plan is presented in four parts to describe in detail the current state of the public and private forest resource in the Town, and also identifies the specific challenges and opportunities in fulfilling the goals of a sustainable forestry program. As such, the plan establishes a clear statement of commitment to forest management in the Town of Owasco.

Part 1 describes the general geologic nature of Owasco, and the character of Owasco's forest since it was first described in the post-colonial survey of 1790. Analysis of orthographically rectified 1938 air photos (the earliest available) help us understand the extent of native forests remaining in the earlier parts of the 20<sup>th</sup> century. Contemporary land use in Owasco is readily deduced from satellite imagery, and that too is presented in this part of the plan, along with a detailed discussion of ten community forest management units that are the operational basis for forest management activity in Owasco.



Part 2 begins with i-Tree’s Landscape computer application analysis of the forest resources in the Town of Owasco. The preliminary 2019 Town of Owasco street and park tree inventory are discussed in terms of the ecosystem services and their economic benefits and costs. (These findings are enhanced in Appendix 2 with a report on a Tree Risk Assessment survey of street trees along the Town’s avenues carried out in 2022.) The ecosystem services of public and private forest land will be presented as well, and in each case the results are presented on a Town-wide and forest management unit basis. In this part of the plan, 15 specific management challenges related to tree size, species, and condition are discussed in detail. This includes consequences of invasive insects like the Emerald ash borer that are already impacting the Town’s 43 Green ash trees (*Fraxinus pennsylvanica* Marsh.) growing on Town rights-of-way (RoWs), as well as invasive plants on public and private property that are becoming a larger and more alarming part of the Owasco landscape.

In Part 3, the specific community-based forestry management goals and challenges are presented in detail. These include: managing species diversity through tree planting and targeted removals; hazardous trees; pruning and tree care; tree risk assessment and monitoring; and the recruitment and training of volunteers.

This brief discussion is followed by Part 4, a program for Owasco’s community forest. This program references Owasco’s forest planning units to detail the different goals and challenges in each unit. This part of the plan will also describe the need for a comprehensive Town-wide brush management strategy and present annual and future budgets for fulfilling the goals in the management plan.

Here the reader will also find a discussion of the on-going need for current data on trees and forests in Owasco through regular inventory work, with results presented and shared as tables and maps. Program success in community-based planning depends upon maintaining partnerships, and in this the role of the Tree Board is vital. To ensure the safety of the community, the value of their property, and the sustainable provision of ecosystem services, the will and commitment of the entire Town is required.

Delivering our shared forest conservation commitments into practical programs that impact Owasco in positive, lasting and meaningful ways would appear, at first glance, to come down to decisions about actions. This seems obvious on the face of it, yet the shared heritage of environmental conservation in Owasco suggests a much deeper, much longer held set of values that are so deeply embedded in the strength of Owasco’s culture that in many ways the choices have already been made. What direction will Owasco take? The closing remarks in Part 4 sheds some light on this question, that will hopefully make the following journey worthwhile.

Part 1: The Owasco Forest, history, and overview.

All plants in Owasco grow in soils derived from glacial deposits made up of the sandstones, limestones, and shales of the Devonian and Silurian age sedimentary rocks found between the Northern edge of the Finger Lakes and extending Northward to the Lake Ontario shoreline. As the glaciers retreated at the end of the last ice age - more than 8,000 years ago - dramatic drops in ancient lake shoreline occurred, resulting in the sediments and landforms we see today. Drilling by the NYS Museum in the Summer & Fall of 2019 in the Town of Owasco and just South of Ithaca, reveals that numerous glaciations over the millennia have reworked the Owasco landscape many times, and have left many layers of glacial sediments deep below the upper elevation wetland areas.

Glacial landforms in the Finger Lakes tend to manifest noticeable differences in plant communities. The differences imposed by soil type and moisture are probably the most commonly remarked, but the differences dictated by aspect are also very important. North facing slopes are typically much cooler than South facing slopes, and in our region the North-South orientation of the landscape means that East-facing slopes are also measurably cooler than their West-facing counter parts. For this reason Hickories as well as Red and Black oaks grow somewhat more numerous and vigorously on warmer and drier West-facing slopes, while Sugar maple, Yellow birch, and Beech are somewhat more common and vigorous on cooler and moister East-facing slopes. Of course forest species diversity is also a function of land use, and places rich in inherited genetic diversity offer splendid hints of the forests of long ago, and this can be deduced from considering the location and extent of early 20<sup>th</sup> century forest remnants.

Shortly after the Revolutionary War, the young State of New York commissioned a detailed land survey of what is now known as the Eastern Finger Lakes and Central New York regions. Placed into law on May 11, 1784, this survey of the State's new "Military Tract" created the townships of these regions and divided these into one hundred lots of six hundred acres, and thus established the geographic basis to distribute lands to Revolutionary War veterans for service to the United States. The surveyors' notes formed the basis of the maps and also included descriptions of the land surveyed, swampy areas, forest conditions, and witness trees at each established lot corner. With these notes in hand it is possible to describe the condition of the forests in the Finger Lakes prior to European settlement.

Surveyor notes of witness trees during the 1790 survey of the Aurelius Township Number 8 (See Map 2, below), we know that the Finger Lakes were covered with undisturbed forests dominated by Beech, Sugar maple, Hemlock and Basswood in the uplands, with Red maple, Black ash, and cedar/larch common in the wetlands.



Map 2. Town of Aurelius, 1790 Survey Lines (E-W, N-S) in Owasco shown in red, with wetland habitat in blue. Thick red line is the Town boundary. Google earth imagery.

If they encountered them, the surveyors did not note the Hickories, Walnuts, and Red and Black oaks common today along the slopes of the Owasco Lake shoreline. Many of the larger specimens of these trees in the Town of Owasco are so old they are hollow, therefore impossible to date accurately. It may also be significant that these trees are close to the oldest cultivated lands in the region: the deltaic soils of the Dutch Hollow Brook on Burtis Point. Also, we know that oak distribution in



the pre-colonial forest reflects native American land use practices that featured burning to rejuvenate soil (a form of swidden agriculture) and the construction and maintenance of long brush barriers, or fences, to drive game. (In his 1882 recollections of Owasco landscape based on what his family told him they observed when they arrived in 1795 or so, John I. Brinkerhoff described the remains of a brush barrier that extended from Owasco Lake to Skaneateles Lake, with periodic gaps for ambushing driven game. In the same remarks on early Owasco, Brinkerhoff described the digging of the raceway for the first saw mill in 1796, along what is now Dutch Hollow Brook.)

Notable too, is the path the surveyors took on their way through Owasco: directly through the Town's numerous wetlands, including Cedar Swamp. As a result of the necessity to follow straight-line survey routes (they were establishing corners after all) the surveyor's notes clearly indicate the quantity of wetland forest vegetation, hence historians' description of Owasco's forest containing Cedar / Larch, and Black ash dominated forests.

Alongside the impact native Americans had on the Owasco landscape, the most significant changes to local flora resulted directly from colonial-era land clearing for agriculture. Most of the original forest cover in the Owasco Lake Watershed was removed long before the early 20th century, but we can at least try to deduce how much forest remained at that time. Thanks to Cornell University Library, the 1938 air photos of Cayuga County are readily available. The forest and wetland cover at the time is easily recognized on these images, and by stretching the photos to match a coordinate system they can be accurately integrated into a geographic information system (see an example, Map 3, below).

By delineating and quantifying the remaining forest cover in 1938, we know that 12% (6.5 square kilometers / 2.5 square miles) of the Town of Owasco was forested at the time, and we can infer that forest was what remained of the original forest. The largest of these oldest upland trees in Owasco are remnants of the original forest canopy, over story trees that towered over the then-younger understory shade-tolerant Sugar maples, Red maples, and Beech that dominate today's forest. There is no doubt these forests have greatly changed over the centuries from logging and development, but few communities can boast a forest heritage as rich as Owasco's, and the many ancient trees in the neighborhoods lucky enough to fall within the 12% zone have much to celebrate.



Map 3. Orthographically rectified 1938 air photo of NW Owasco, showing Town roads in red and 1938 forests in green.

### A New Approach to Township-level Community Forest Planning

A celebratory connection between people and the natural world is the heart of conservation; a point of view native and unique to American culture. It is grounded in the idea that humans have both rights and responsibilities in their relationship with land. We have learned much since Theodore Roosevelt and Aldo Leopold first helped Americans understand the dynamism of the *round river*; the many cycles of energy and nutrient flows that describes land as a set of organic interconnections that go far beyond viewing it as just a larder of economic productivity.

Understood as the functional cultural connection with land, conservation is dynamic, and as Dana and Fairfax noted in 1980, it changes as society changes; it fosters human survival. Further, when community forestry work is seen as an



enterprise in conservation we stand a chance to build on several key capabilities now available to American conservationists and will help Owasco achieve its community forestry management goals. Local action is vital since advances in scientific, technical, and organizational creativity have far outpaced the legal and regulatory framework that forms the administrative basis of the practices necessary to conserve natural resources. Simply put, American policy has not kept pace with American ingenuity. The good news is that communities are learning their way out of numerous contemporary conservation challenges by building on local adaptations to change and applying these advances closer to home.

Building on Curt Meine, the most significant scientific, technical, and organizational advances bearing on conservation in the 20<sup>th</sup> and 21<sup>st</sup> centuries are:

Knowledge of Ecosystems. The interactions between organisms and the environment are now more tangibly quantified than ever before, such that ecosystems are now understood to provide services that provision and protect human endeavors *as well as* host natural resources that pay.

Watershed Management. A century after John Wesley Powell argued for using watersheds as the geographic basis for natural resource management, achieving water quality through land use management of the drainage basin is the framework of choice applied throughout the Finger Lakes.

Geographic Information Systems. Advances in computing hardware have been closely matched with software innovations that allow a map to be used as graphical interface to a relational database. This new form of cartography has a built-in topological capability; that is to say the data models not only can tell the user where something is, it knows what is next to what.

Telecommunications. Server-based software and data are now available and enable new levels of natural resource analysis, decision making and management. Many of these data sets are so large they are, in practical terms, functionally impossible to transfer on physical media.

Partnerships. Local conservation work is empowered by fostering functional connections with locally established Non-Governmental Organizations (NGOs) and locally-based public land conservancies that facilitate regional conservation projects and programs.

These five realms of innovation create a context of local resource management and collaboration not possible at state and federal levels where powerful interest groups prevent meaningful adaptation to change.

#### Contemporary Land Use in Owasco

Land use in Owasco is readily deduced from satellite imagery. Two data sources are helpful in this work:

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1. 2016 U.S. Geological Survey 30-meter National Land Cover; helpful to describe land use patterns across the Town, and,
2. 2013-2014 Chesapeake Watershed 1-meter Land Cover; that is useful for detailed land-use descriptions at the management-unit level

By analyzing the 30-meter imagery with the help of road, parcel, and wetland data, land use in Owasco is as follows (see Map 4, below):

<u>Category</u>	<u>Area</u>	<u>%</u>
Total Town area:	23.48 square miles	
Owasco Lake area in Town:	2.57 square miles	11.0 %
Total Land area:	20.91 square miles	
Wet forests area:	2.30 square miles	11.0 %
Upland forests area:	2.61 square miles	12.5 %
Agriculture area:	12.90 square miles	61.8 %
Grass area:	1.61 square miles	7.7 %
(Road corridors & Golf courses)		
Developed land (Roads & Buildings)	1.49 square miles	7.0 %

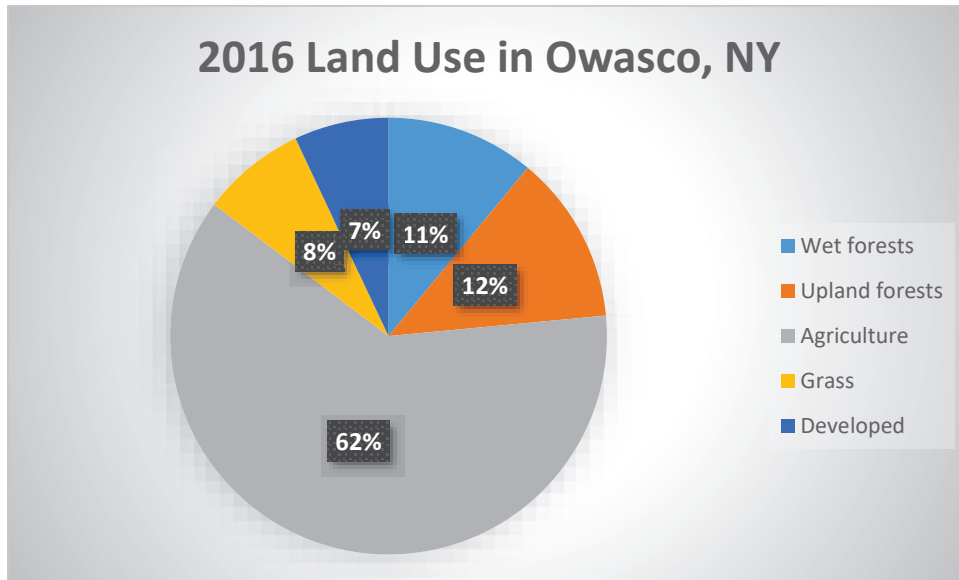
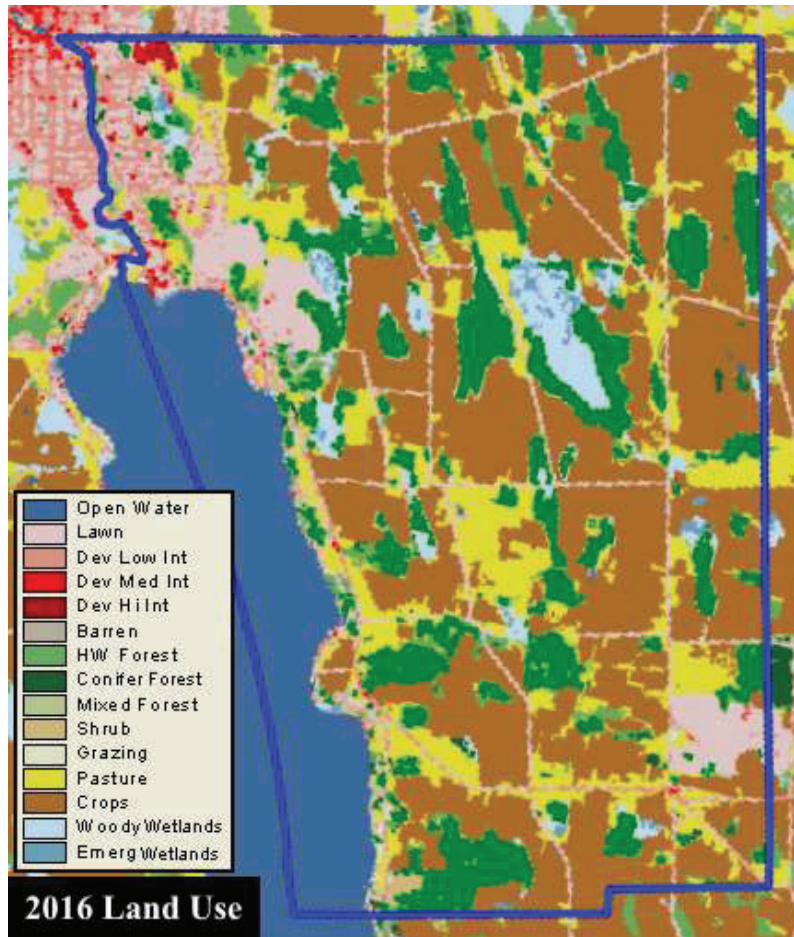


Table 1. 2016 Land Use in the Town of Owasco.

It is noteworthy that forests have more than doubled in area since 1938. This is consistent with New York State figures that show a dramatic increase in forest cover over the 20<sup>th</sup> century.



Map 4. Land use in Owasco, NY.  
Data categories from 2016 USGS NLCD.

### The Administrative Context of Forestry Planning in Owasco, NY

Beyond the Home Rule powers granted Owasco from the State Constitution, and State and Federal laws and policy protecting wetlands, there are three local laws and/or commitments, that frame the administrative context pertaining to forest management planning. These are:

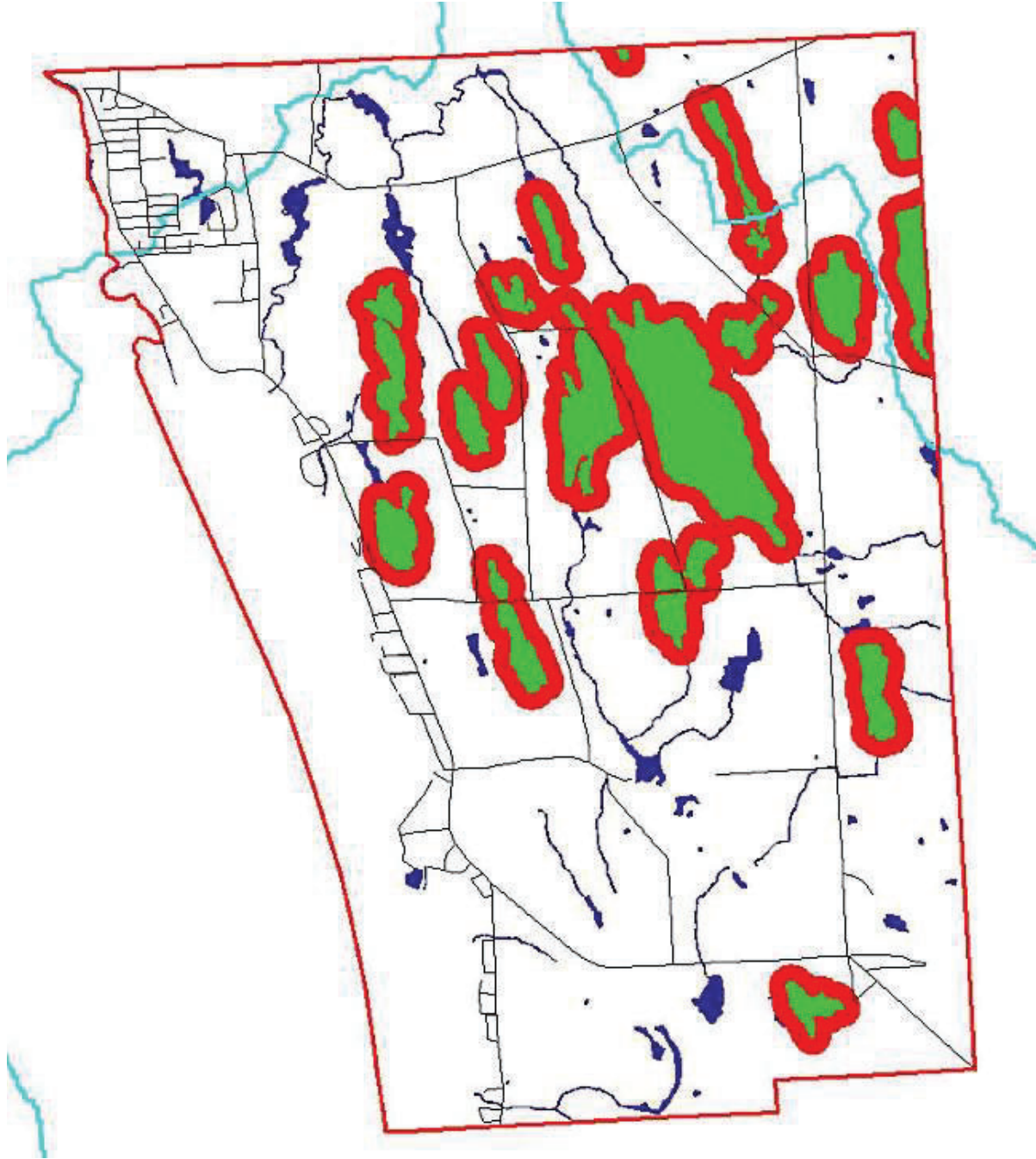
- the Town of Owasco zoning law;
- Town of Owasco Environmental Protection Overlay Districts, and;
- Owasco's commitment to Owasco Lake watershed management;

### State Laws and Federal Guidelines

Wetlands in Owasco (Map 5, below) can be described in two ways: those that are regulated under current NYS law, and areas where wet habitats predominate but are not, strictly speaking, regulated. These latter areas are lands identified under the National Wetland Inventory administered by the US Fish and Wildlife Service. This program began in the mid 1980s but never saw regulatory daylight.

Wetland totals for Owasco are categorized as follows:

NYS Regulated Wetlands:	873 acres
NYS Regulated Check Zones:	1,989 acres
NWI Wetlands:	1,393 acres



Map 5. Wetlands in the Town of Owasco. NYS Regulated wetlands in green; NYS Checkzones in red; National Wetland Inventory wet habitat shown in dark blue; Owasco Lake watershed boundary in light blue; and Roads in black.



Wetlands provide many ecosystem services, and are highly valued for their role in providing wildlife habitat, sequestering carbon, and protecting water quality.

Wetlands are delineated on the basis of soil, water saturation, and vegetation, and the maps published by the State are considered regulatory instruments and as such are treated as legal documents expressing statutory authority. In New York State, wetlands are regulated by the NYS Department of Environmental Conservation everywhere in the State under the New York State Freshwater Wetlands Act, except the Adirondack Park where they are regulated by the Adirondack Park Agency. All new development activity in a regulated wetland requires a DEC or APA permit. In addition to these designated wetlands, every wetland in the State is surrounded by a 100' regulated "adjacent area" that enjoys similar protection by extending the State's regulatory powers into neighboring uplands.

Since wetland maps are based on soil mapping and air photos, the actual delineation on the ground typically varies from the published maps. To minimize mistaken incursion into a regulated wetlands and to encourage compliance with the wetlands laws, DEC has established 500' buffers around regulated wetlands called "check zones". If a proposed project falls within the check zone, DEC advises property owners and developers to first determine the project's proximity to the mapped wetland and if necessary request field work to delineate the wetland on the ground.

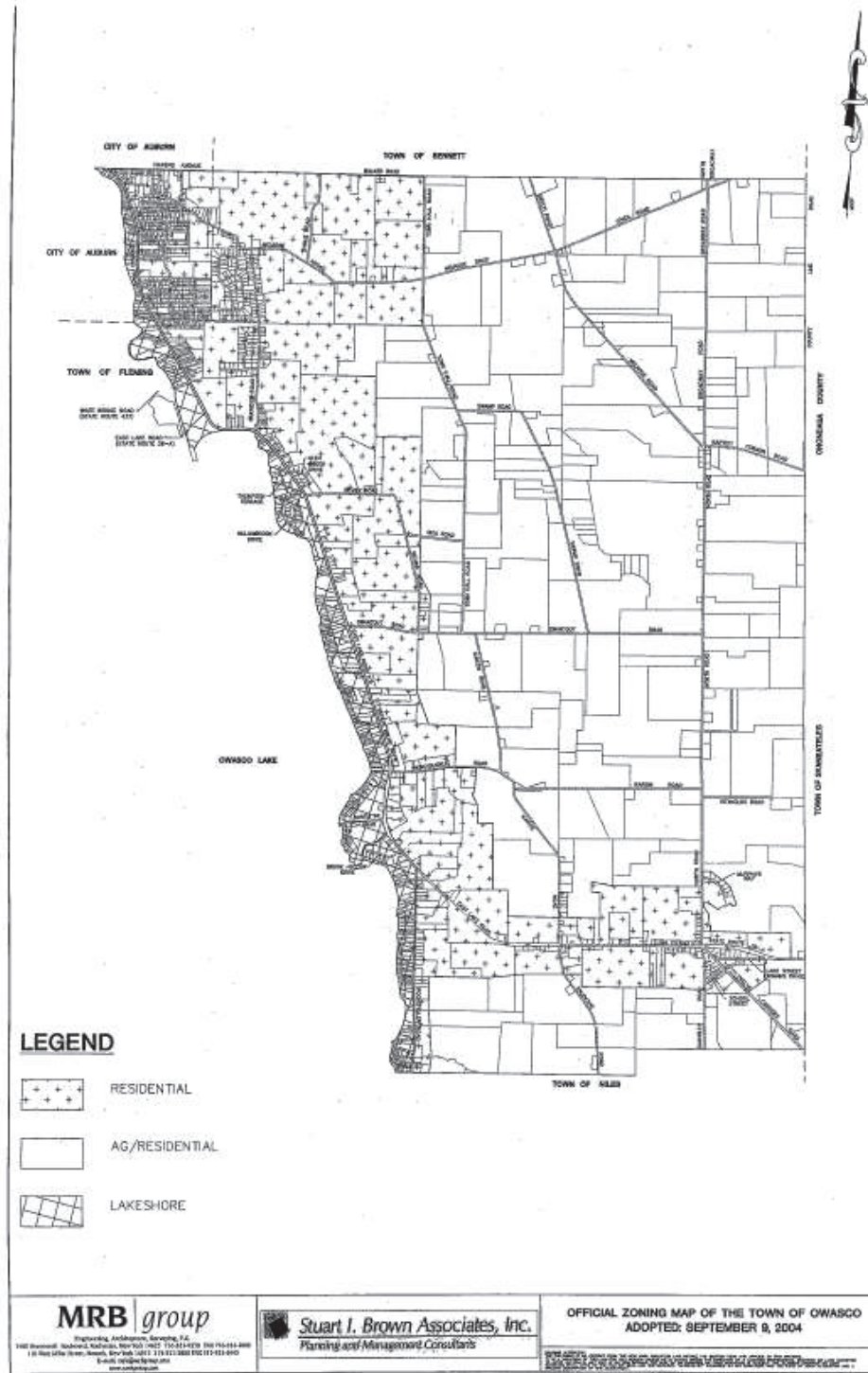
Perhaps not immediately evident in Map 5 (above) is that National Wetland Inventory Wetlands (NWI) are larger in area than currently regulated wetlands. These mapped wetlands are usually larger in area than NYS regulated wetlands, as they include much more land by extending designation along stream corridors. Though they do not carry regulatory weight, the habitat mapped through the National Wetlands Inventory provide some of the best large-scale data available to natural resource planners.

#### Local Land and Water Protection in Owasco

Three will be described: the Town of Owasco zoning law; the Town of Owasco Environmental Protection Overlay Districts, and; Owasco's commitment to Owasco Lake watershed management. First, zoning: Owasco adopted three zoning categories in September, 2004: Residential, Ag/Residential, and Lakeshore (see Map 6, below). Calculating on the basis of lot size and



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Map 6. Town of Owasco Zoning classification from the 2019 real tax property data, and excluding water and road right-of-ways, the rational basis for these categories becomes evident.

The Ag/Residential Zone is 13.9 square miles and contains 294 lots with nearly all in a NYS Agricultural District. Although the average lot size in the zone is 30.35 acres, those lots classified as agricultural average 70.14 acres. These figures reflect the agricultural nature of the land use in the zoning category. Residential lots in this zone reflect this as well, with an average lot size of 21.05 acres. The casual reader should note that the majority of the regulated wetlands in Owasco fall within this zone, together with vacant land and a golf course.

The Residential Zone is 6 square miles and contains 1,191 lots. Of the three zoning areas, it is the most diverse with five major categories of property tax classification. Sixteen lots in the zone are taxed as agricultural, and the average size of those lots is 51.3 acres. 1,038 lots are classified as residential, and the average size of those lots is 1.7 acres. The remaining lots are classified as vacant, commercial, recreational, community services, public services and park land.

The Lakeshore Zone is the smallest at just under one square mile: 0.93 square miles. Although there is one agricultural lot in the zone, the average residential lot in this zone is 0.76 acres. The remaining lots are in recreation, commercial, or vacant property classification codes. This zone is noted for the steep terrain, many private roads, and very few sidewalks and/or tree lawns.

Second, special areas of land use concern are referred to as critical environmental areas, and three are regulated as “Environmental Protection Overlay Districts” in Owasco. These special districts offer additional controls over development in critical environmental areas as a “technique to protect and preserve unique environmental features” as follows:

- A. Prevention of an irreversible loss in natural resources.
- B. Enhancement of flood protection.
- C. Maintenance and/or improvement of surface water quality.
- D. Preservation of wildlife habitats.
- E. Aesthetics.
- F. Maintenance of soils and slope stability.
- G. Maintenance of open space.
- H. Control of adverse impacts on existing development.

Lest anyone be concerned of regulatory oversight, there are a huge range of activities that are exempted under these regulations, including routine tree and shrub care, the “select cutting and removal of trees in woodlots, that are not located on steep slopes, for the personal use of the property owner and not for commercial purposes”, and for the removal of dead or deteriorating vegetation. These overlay districts act to enhance Owasco’s zoning regulations, not to replace them. As such

they are part of the ordinary zoning review process and only apply if and when a proposed development activity is proposed within the districts. The overlay districts under local law are:

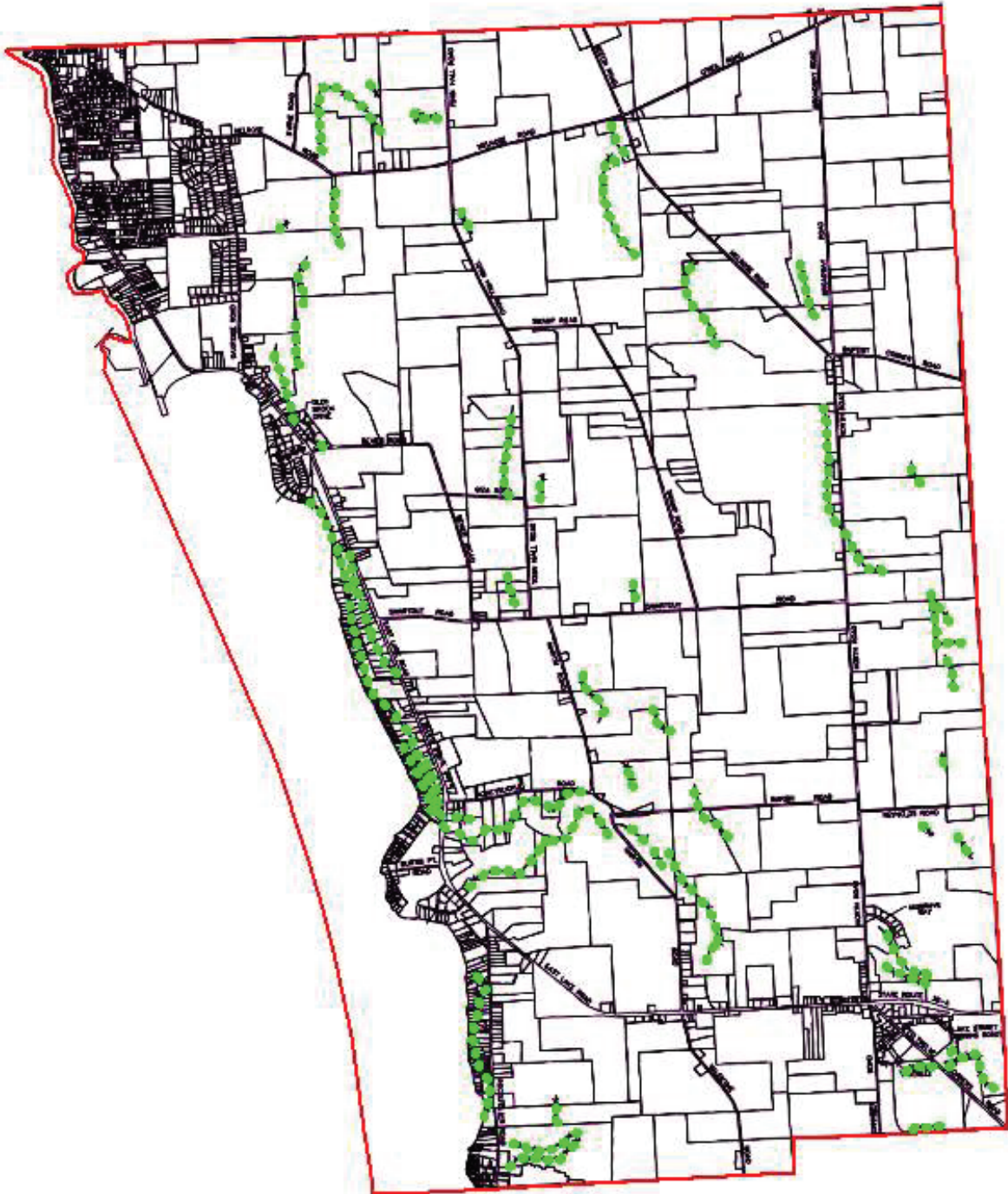
- The Stream Corridor, Lakeshore and Floodplain Protection District;
- the Woodlot Protection District, and;
- the Steep Slope Protection District.

Under the New York State Constitution, Towns have clearly defined home rule powers, including control over development and zoning. Within this context, development is widely understood to mean a transformation of land use wherein 1: the character of the land is significantly altered through construction, and; 2: the value of the property is increased. Within this context, forestry - understood as scientifically driven operations deployed to secure ecological and/or monetary values from trees - except in the Lakeshore Zoning District is not regulated within these Overlay Districts, but tree and forest removal as part of land development *is* guided by regulatory oversight. In protecting the value of forest cover in the development process the Town employs a range of techniques - from site management and planning that may specify steps to protect vegetation during development, up to, and possibly including the establishment of restrictive covenants that may restrict or prohibit clear-cutting of trees or removal of vegetation or other ground cover. Town oversight of the development process in these Districts are tailored to the specific projects presented to the Town's Planning Board.

The Steep Slope Protection District (map 7, below) is designed to “minimize the impacts of development activities on steep slopes”. Clearing of trees and understory plants during construction is the primary issue to be considered here, in this document, though sewage and storm water management concerns on steep slopes are not at all trivial. As such, this District requires only the minimum area of plant life be disturbed to limit the negative effects of development on steep slopes. Furthermore, the “[r]emoval of existing mature trees from steep slope areas will be permitted only where absolutely necessary to allow the subject construction. All trees larger than three inches in diameter to be removed shall be shown on the site plan.”

The Stream Corridor, Lakeshore and Floodplain Protection District (map 8, below) is designed to “provide special controls to guide land development adjacent to waterway corridors in the Town of Owasco.” Furthermore, it “encourages development of land so as to protect and preserve the waterways, to prevent soil erosion and sedimentation due to removal of vegetation, dredging, filling,

damming or channelization, and to prevent activities which degrade water quality or fish and wildlife habitat.” The law establishes a 50 foot buffer along each side



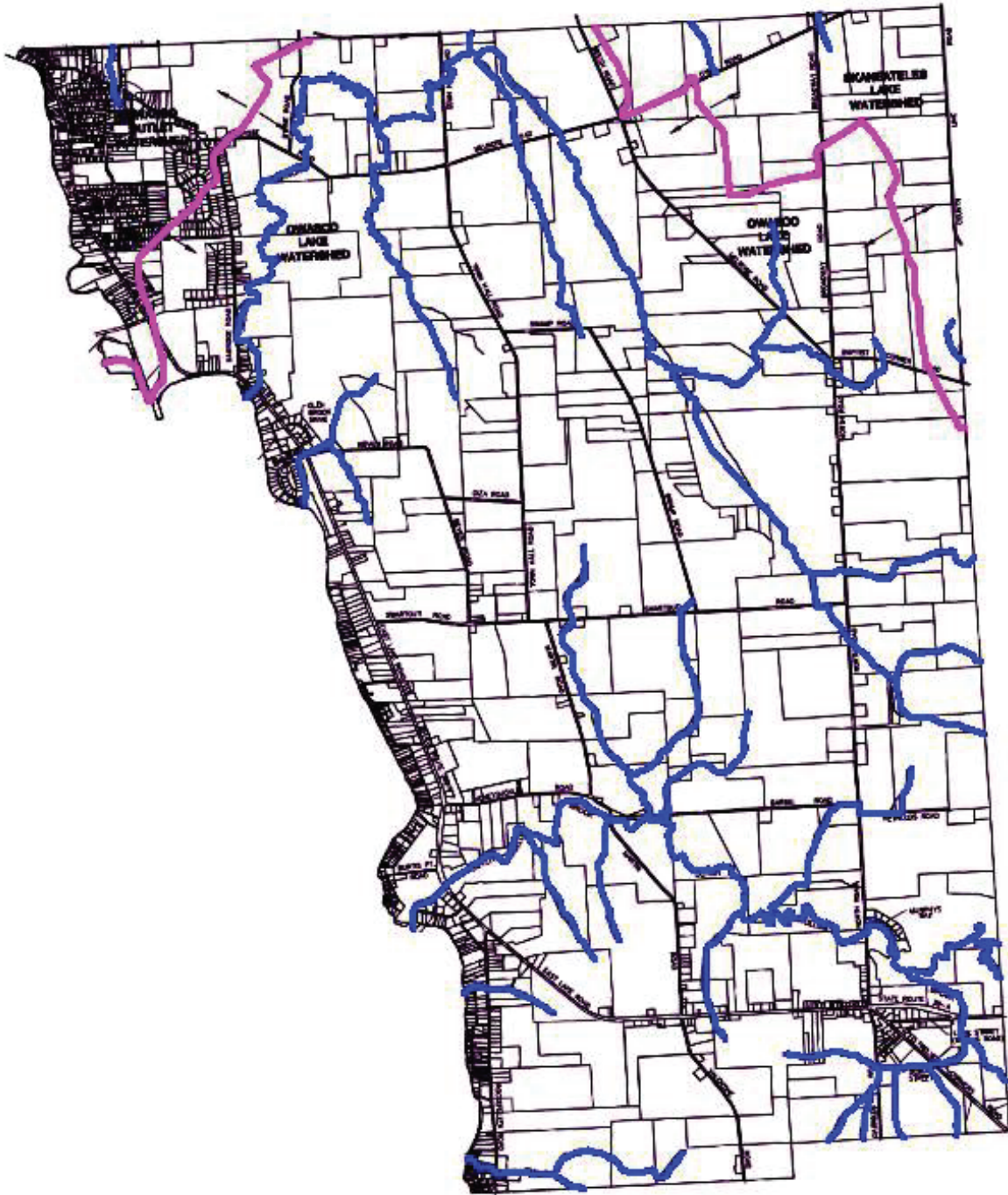
Map 7. Steep Slope Protection District.

Highlighting of the promulgated map is for illustrative purposes only.

of all designated streams, except along Dutch Hollow Brook where the buffer is 65 feet wide, “measured horizontally from the center line of the waterway”. The



District includes specific reference to special flood hazard districts, if any, and includes land within 50 feet of the Owasco Lake shoreline “measured

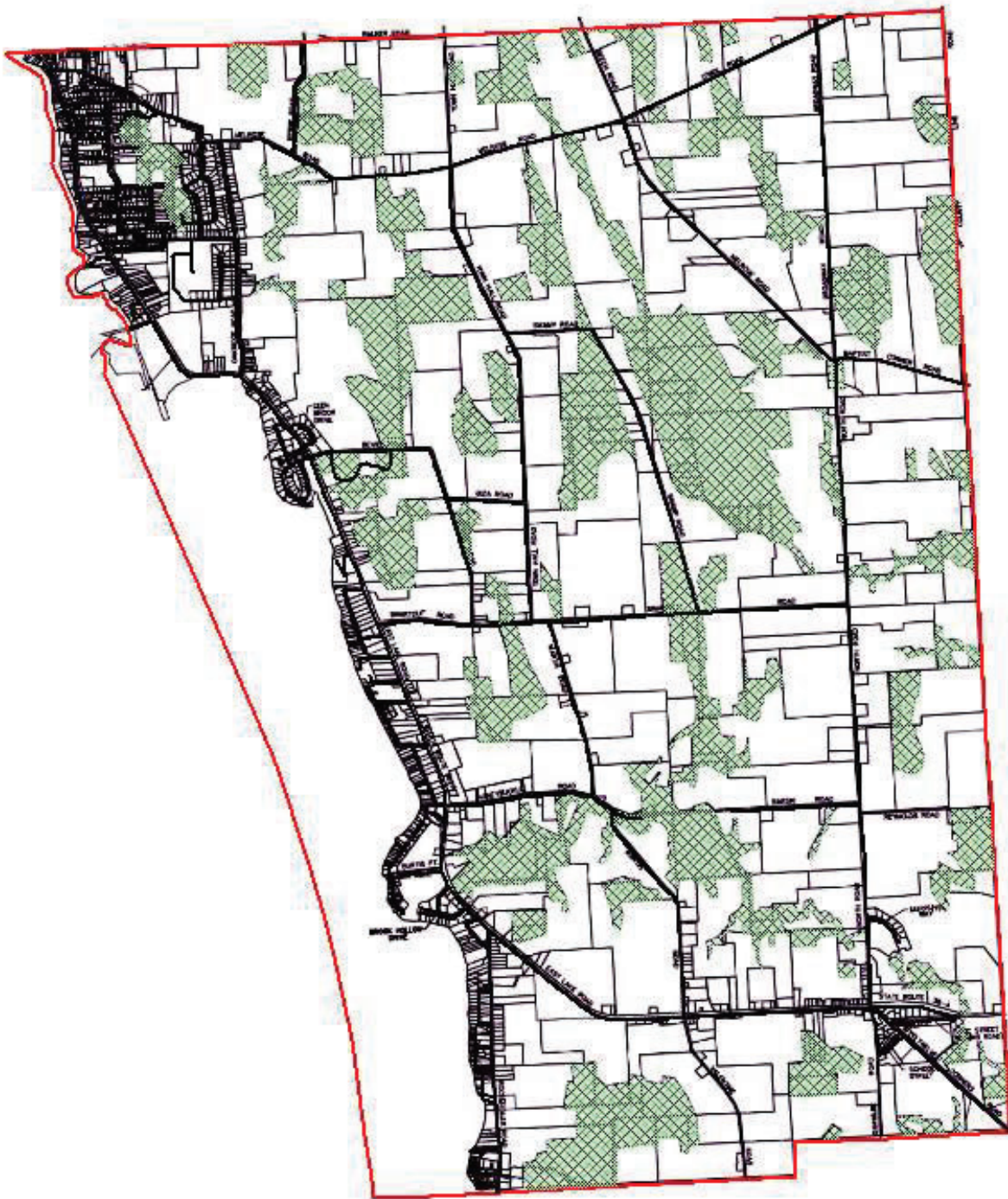


Map 8. The Stream Corridor, Lakeshore and Floodplain Protection District.  
Streams is blue, Owasco Lake Watershed boundary in pink.  
Highlighting of the promulgated map is for illustrative purposes only.



horizontally from the low water mark of 714.00 feet above sea level using United States Geological Survey datum.”

Development activity within lands so protected by this District are explicitly prohibited from degrading water quality, reducing a stream’s flood mitigation capacity, increasing a stream’s rate of sedimentation, negatively impact the rate or



Map 9. The Woodlot Protection District.

Highlighting of the promulgated map is for illustrative purposes only.

velocity of surface water runoff, adversely impact the natural characteristics of the watercourse and floodplain, reduce soil stability, or degrade fish and wildlife habitat. And the District is specifically linked to the protection efforts expressed through the Town's "Public Water Safety Local Law, commonly referred to as the "Owasco Watershed Protection Regulations"". Numerous activities are regulated in this District, but of interest here is that thinning of trees and shrubs within the buffer is allowed, "provided that at least 60% of the flora remains".

The Woodlot Protection District (map 9, above) preserves and protects about 4.6 square miles (nearly 3,000 acres) of woodland and "measurable stands of trees" by regulating development activity "in areas that contain woodlands". Generally, this includes forest stands with 5 or more contiguous acres, and "all woodlot areas within the Lakeshore Zoning District regardless of size". Managed orchards are not part of the District. Clearing and construction on land within the District is subject to regulation (there are sensible exemptions), as is "[t] thinning or harvesting of trees for commercial purposes".

Regulated activity within the District requires review, and must not adversely impact: soil stability, the velocity of surface water runoff, existing drainage systems, the natural characteristics of a watercourse or wetland, significant wildlife habitats, steep slope areas, water quality, or noise levels on adjacent areas. Project developers are required to preserve "as many of the of the original trees and other site flora, including understory, brush and shrubs, as possible", provide a detailed "tree preservation plan at scale of 1:50", and arrange for a site walk to ensure the proposed tree preservation methods are sufficient, that , following this on-site visit, must limit the impact of the project to no more than 25% of the original Woodland. If the developer cannot achieve this goal they must create a mitigation plan that includes specific vegetation planting goals established by the Town as to "the species, size, quantity and dollar amount that said replanting shall entail". All of these steps must take place prior to any disturbance at the site.

Tree harvesting for commercial purposes is regulated within the Lakeshore Zoning District. This zoning district is small (0.93 square miles), and includes high density development on relatively small lots. The area is also quite steep. For these reasons applicants must seek formal review and "advisory opinions" from the NYS Department of Environmental Conservation *and* the Cayuga County Soil and Water Conservation District. Applicants are required to "submit a management plan prepared by a qualified consulting forester or a forest management recommendation prepared by a NYSDEC forester".



Finally, all subdivision developments in the District must include a detailed tree preservation plan that includes the identification of trees that are proposed for removal as well as all trees that are to be preserved. The developers must permanently tag each tree “designated for preservation in the tree preservation plan” and “shall install protective barriers around each tree or groups of trees and adjacent understory not specifically authorized for removal prior to the start of any construction or may, with the approval of the Board, erect protective barriers around sections in which several trees are located. The barriers shall remain in place and be kept in good repair until all construction has been completed and removal of the barriers has been authorized by the Zoning Enforcement Officer”.

As trees damaged during development are designated site improvements that are part of the bonded security required by the Town, their health and longevity are required for a full year after the completion of the subdivision. Trees must be inspected prior to the release of the bond and the developer must comply with the tree preservation plan to replace trees that cannot be expected to perform. Trees within existing or adjoining subdivisions are also included within the District’s regulations, and developers are required to include “any tree eight inches or more in caliper located within 50 feet of a new lot or required subdivision improvement” in the tree preservation plan,

And finally, watershed management: the Owasco Lake Watershed is approximately 205 square miles in area, and most - but not all - of the land in the Town of Owasco drains into Owasco Lake (see Map 10, below).



Map 10. The Town of Owasco in red and the Owasco Lake Watershed in blue,



looking NW to Lake Ontario. NOAA imagery in Google Earth.

More than 90% of the land area in the Township drains into Owasco Lake. The specific break down is as follows:

18.97 square miles of Owasco's land surface drains to Owasco Lake,  
1.07 square miles of Owasco's land surface drains to the Owasco River, and  
.87 square miles of Owasco's land surface drains to Skaneateles Lake.

As mentioned above, the implementation of the Owasco Lake Watershed Rules and Regulations are integrated into the Town's zoning rules and regulations. The Town's commitment to watershed stewardship does not end there. Beginning in the early 2000s, the Town explicitly identified Owasco Lake Watershed management as one of the 16 Goals and Recommendations identified by Town residents in the Town's 2016 "Update to Town of Owasco Comprehensive Plan with Conservation Lands and Trails Plan". Within the category of "Environmental Stewardship and Water Quality Protection", residents stated their goal to "[s]upport water quality preservation through good stewardship of Owasco Lake and nearby watersheds". The recommendations to achieve this goals are:

- a. Implement more stringent, town-specific regulations for erosion and sediment control to reduce water quality issues in Owasco Lake, and encourage other towns on the lake to follow.
- b. Monitor and report issues dealing with CAFO regulations and encourage best management practices on farms for reducing agricultural runoff, including runoff from chemical pesticides.
- c. Work with NYS DEC and Cayuga County Soil and Water Conservation District to ensure that sensitive areas are protected from agricultural run-off.
- d. Maintain and reference (prior to development decisions) a current "map of potential conservation lands" with all natural resources including stream corridors, water bodies, undeveloped shoreline, beaches, wetlands, watershed areas, vegetation communities, woodlands, steep slopes, meadows, specimen trees, wildlife habitats, soils, geology, and aquifer contribution areas.
- e. Use overlay zones to place regulatory buffers around wetlands and water bodies.
- f. Adopt the Cayuga County Soil and Water Conservation District's model sedimentation and control law, whereby any development that will disturb more than one acre of land must prepare an erosion and sediment control plan approved by the SWCD.
- g. Require routine septic system inspections.

Furthermore, the comprehensive plan explicitly states these four “Watershed Protection and Environmental Quality” goals remain as the Town’s policy:

1. Protect and improve the quality of the water in Owasco Lake.
2. Preserve the quality of water in Dutch Hollow Brook, Sucker Brook and other tributaries of Owasco Lake.
3. Protect the quality of groundwater.
4. Protect environmentally sensitive natural areas such as woodlands and wetlands.

Within the regional context of the 205 square mile Owasco Lake Watershed, the Town of Owasco is a founding member of the Owasco Lake Watershed Management Council, (OLWMC). The Council is “an inter-municipal 501(c)3 nonprofit development corporation with representation from municipalities throughout the Owasco Lake Watershed” and:

Actively monitors and evaluates the general health of the waters of Owasco Lake and its watershed;

Supports research in the watershed to help identify problem areas;

Works on implementing projects by partnering with various agencies including the New York State Department of Environmental Conservation, the Finger Lakes Institute, Owasco Watershed and Lake Association;

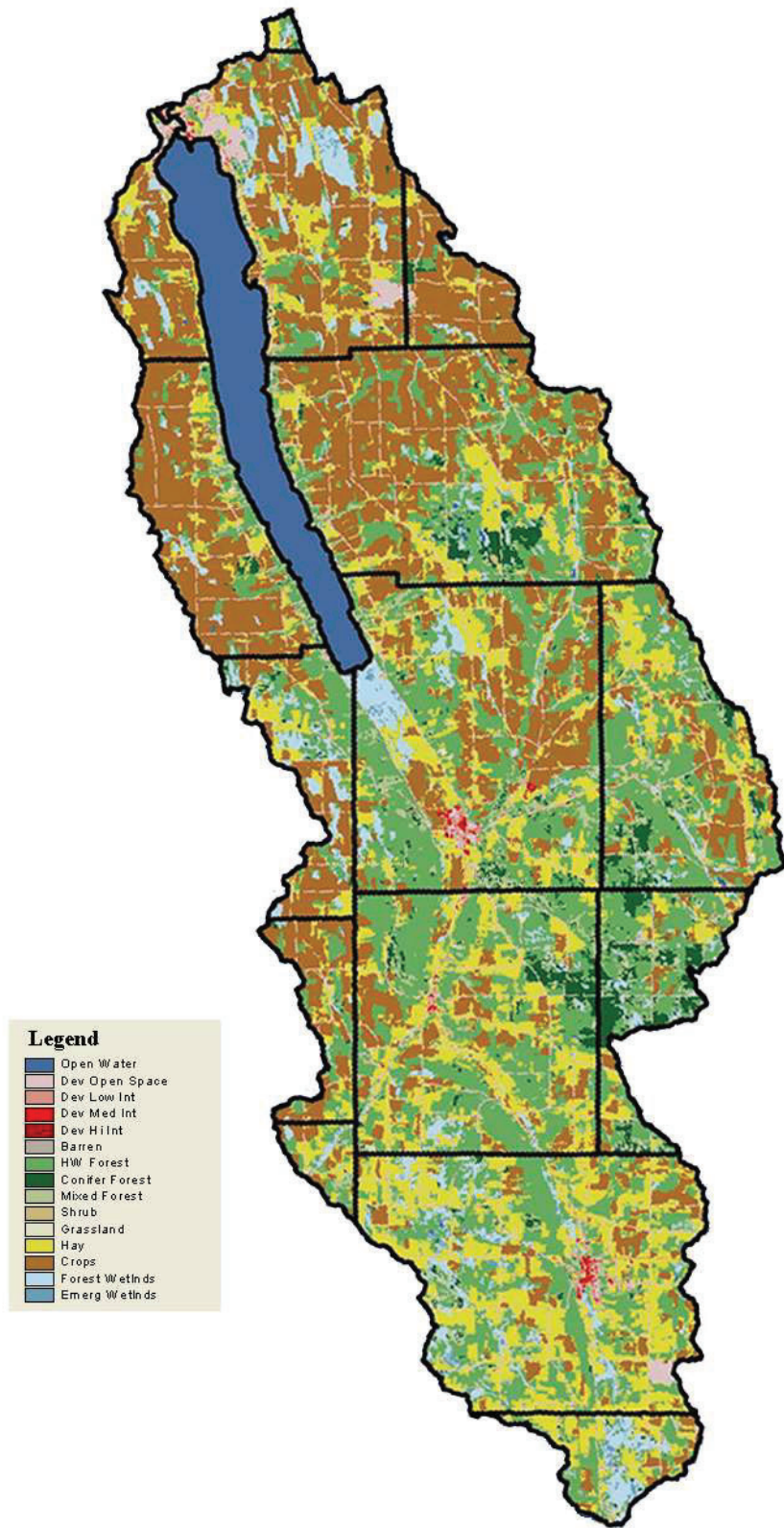
Directs the Watershed Inspection and Protection Division to identify and stop activities within the watershed that may result in a decrease of water quality; and

Looks to implement educational programs that will increase public awareness about the responsible care and protection of the watershed.

To consider the role of forests in watershed management and protection, please note land use in the Owasco Lake Watershed (see Map 11, below). By analyzing the 2016 National Land Cover Data to reveal forest land use by township, (Table 2, below), we can begin to see how forest land use in the watershed impacts water quality. While interesting in some ways, the amount of forest within each township in the watershed does not tell us very much. However, by utilizing data from the 2015 30 meter USGS High Resolution Delineation National Hydrography Dataset (see Map 12, below), we can identify the catchments within the watershed and apply the analysis of NYS DEC’s NY Natural Heritage Program. This program supports efforts to prioritize and restore degraded riparian areas, address storm water events, and target tree planting to highly venerable catchments (<https://www.nynhp.org/treesfortribsny>).

Natural Heritage analysts scored habitat in the catchments in terms of their ecological health and their ecological resiliency; their capacity to take and recover from stress (see Natural Heritage program image, below). With these resources, the Natural Heritage program provides community forestry managers, planners,





Map 11. Land Use in the Owasco Lake Watershed.  
Source: 2016 National Land Cover Data..

**Forest land use\* by Township in the Owasco Lake Watershed**

Municipality	Forest (acres)	Forest (sq mi)
Moravia	8,692.31	13.58
Locke	8,289.77	12.95
Groton	8,018.45	12.53
Niles	6,214.38	9.71
Sempronius	5,878.79	9.19
Summerhill	3,826.08	5.98
Owasco	2,779.94	4.34
Venice	2,162.12	3.38
Scipio	1,601.47	2.50
Dryden	1,468.92	2.30
Genoa	807.96	1.26
Fleming	553.32	0.86
Lansing	526.19	0.82
Skaneateles	445.23	0.70
Sennett	126.32	0.20

Table 2. \*from 2016 NLCD categories: Hardwood Forest, Conifer Forest, Mixed Forest, and Forest Wetlands

and watershed stakeholders with tools to decide where best to do forest conservation work consistent with watershed management goals. The program’s work allows detailed investigation into the most impacted of watershed catchments (see Catchment Score image example, below).

By analyzing forest land use and development in the 28.41 square miles of most ecologically stressed catchments with the 38.56 square miles of the healthiest catchments in the Owasco Lake Watershed, the healthiest and weakest catchments within the Owasco Lake Watershed can be compared to reveal the impact forest land use has on ecosystem health and resiliency.

Catchment	Forest Land Use in Sq. Mi.	Developed Land Use in Sq. Mi.	Agricultural Land Use in Sq. Mi.	Total Land Area in Sq. Mi.
Stressed	8.64	3.45	15.83	28.41
Healthiest	21.55	1.87	14.30	38.56

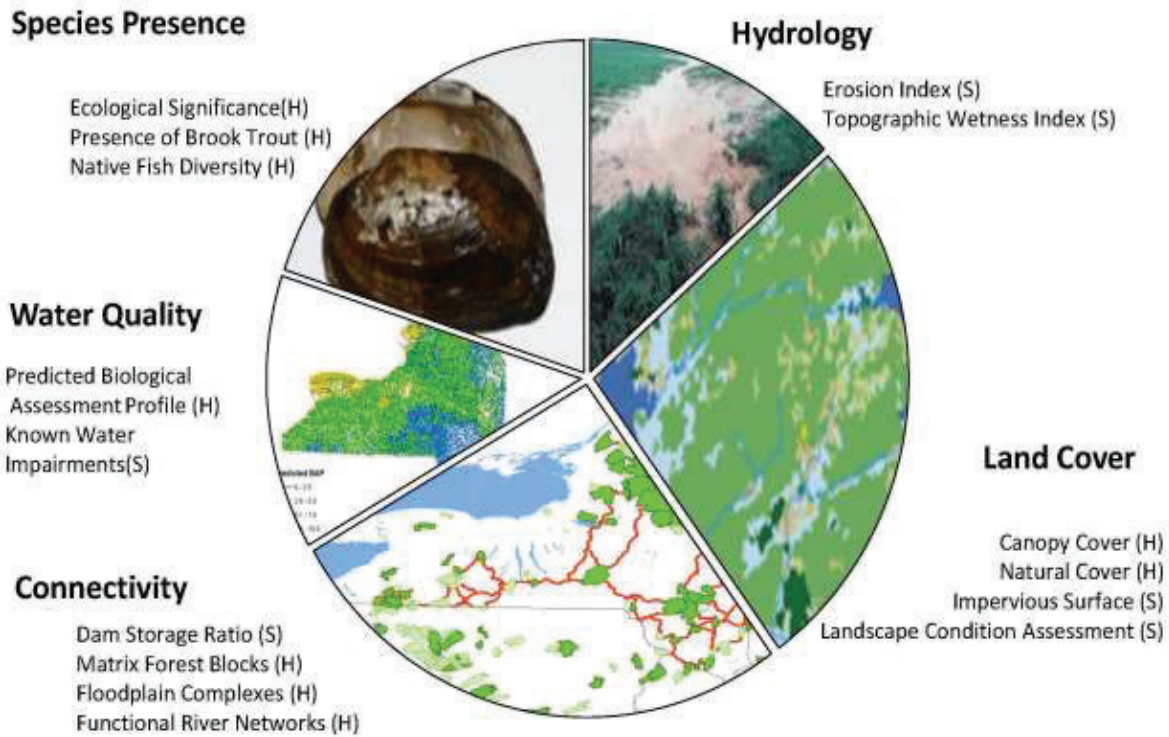
Even with nearly the same area of land in agriculture, the healthiest catchments have more than twice the area of their land in forest. Though it is true the most



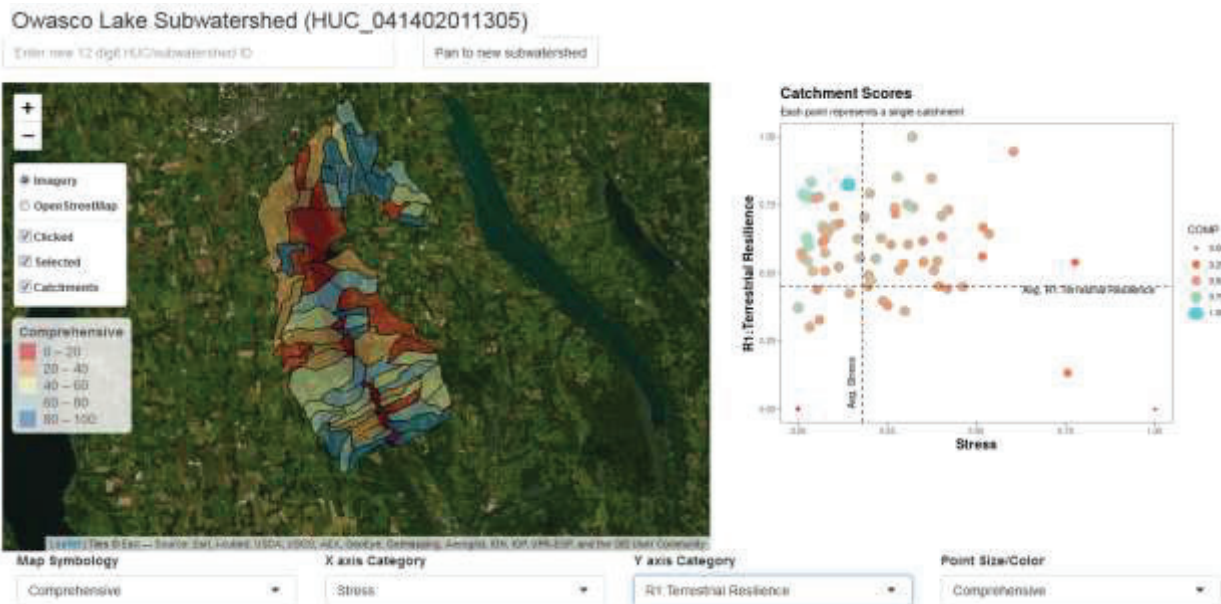
Map 12. Small catchments within the Owasco Lake Watershed. Municipal boundaries in red. 2015 30 meter USGS High Resolution Delineation National Hydrography Dataset.



# Suite of Indicators



Ecological health and stress indicators in catchments.  
NY Natural Heritage Program. 2018.

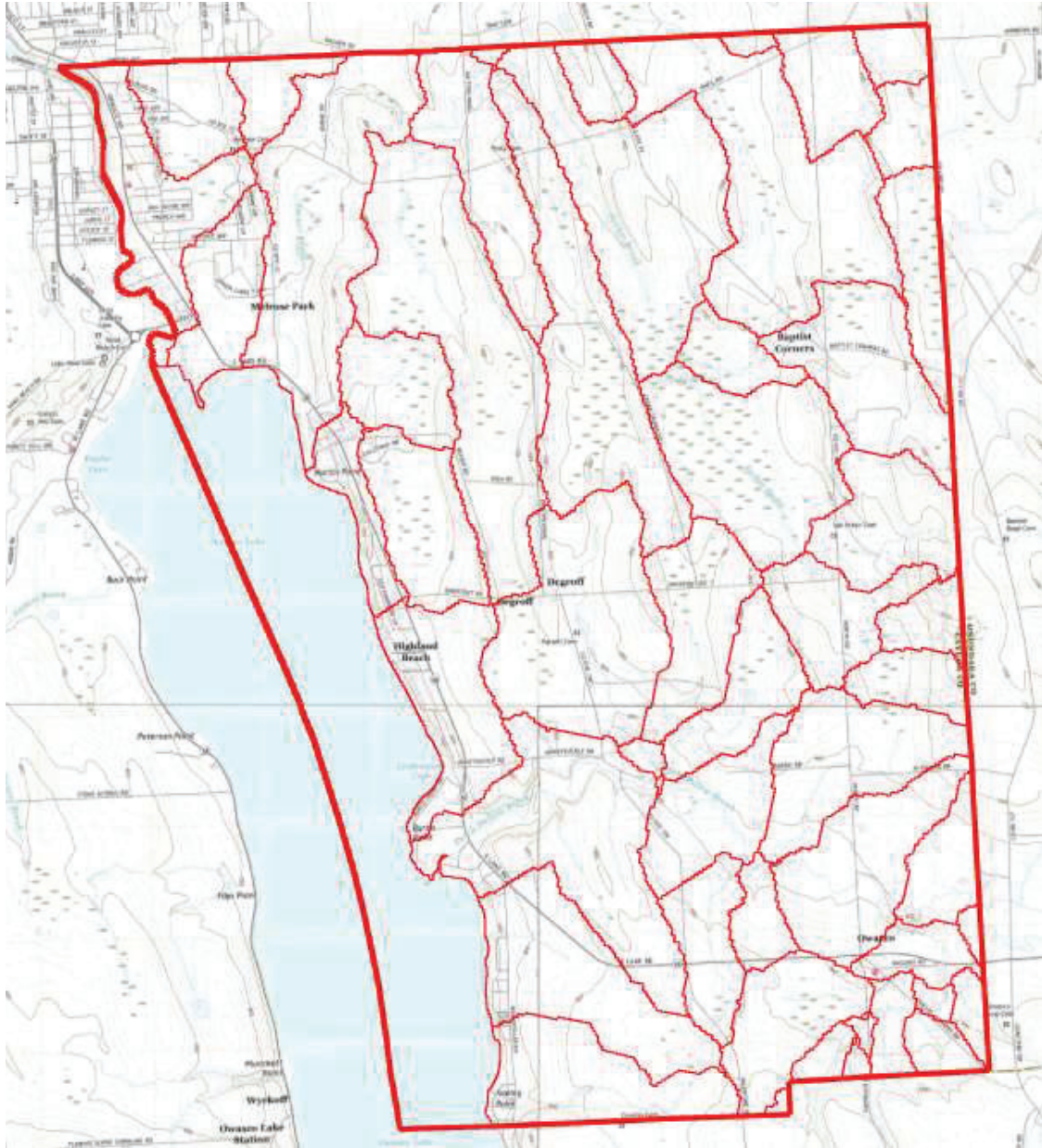


Catchment Scores in the Northern portion of the Owasco Lake Watershed. Source: NY Natural Heritage Program. 2018.

stressed catchments have twice the area under development than the healthiest, the role of forest land use is significant factor in ensuring vital ecosystem services survive and thrive to protect water quality.

The catchment basins within and overlapping the Town of Owasco (see Map 13, below) were identified and consolidated to use in combination with the Town's zoning areas to create ten community forestry management units (see Map 14, and Table 3 below). By crafting these forestry planning units from the Town's zoning law and watershed catchment basins, the Town now has a rational basis to focus practical and sustainable management activities appropriate to the neighborhood needs *and* that can be targeted with respect to the ecological health of the watershed component. And by folding forest conservation planning criteria into watershed management goals, Owasco now has a framework to deploy forest management activities on a practical and sustainable basis that also resonates with State-wide, science-based spatial data analysis.

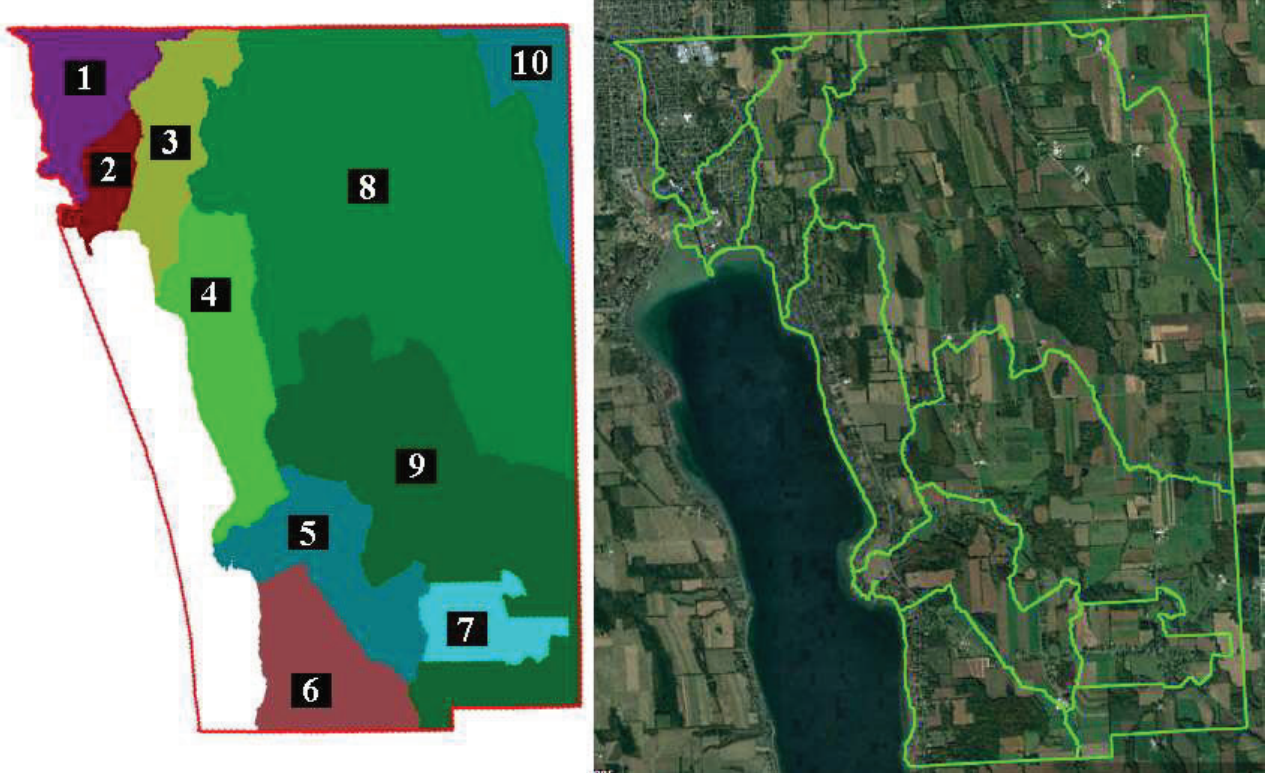
Community Forest Management Plan for Owasco, New York



Map 13  
Catchment basins in the Town of Owasco over USGS topographic maps.



Community Forest Management Plan for Owasco, New York



Map 14

Owasco’s Community Forestry Management Units in two views:  
 ArcView polygons on the left with reference numbers for Table 2;  
 Unit boundaries in Google Earth on the right.

Map Ref #	Unit Name	Neighborhoods	Area in Sq. Mi.	Housing Units	Pop	Pop Density People/Sq. Mi.
1	Owasco River	The Avenues	1.07	678	1558	1,456
2	Melrose Park	Stryker & Dickman tracts	0.4	154	400	1,000
3	Sucker Brook	From East Lake Road, along Oak Ridge Road, North to Walker Road	1.13	108	221	196
4	East Lake Road	Martin Point to Burtis Point along the Lake, East to Degroff	1.6	237	320	200
5	Dutch Hollow Brook	Most of Burtis Point, Honeysuckle Road and part of East Lake Road	1.39	58	72	52

Community Forest Management Plan for Owasco, New York

6	Rockefeller – Koenig	Rockefeller Road to Koenig Point, along East Lake Road	1.28	190	288'	225
7	Hamlet	Hamlet of Owasco and the housing along Dutch Hollow Brook	0.7	44	123	176
8	North Agricultural - Residential	From Town Hall and O'Neil Roads, inclusive of Cedar Swamp, and South and East to Baptist Corners	8.18	142	375	46
9	South Agricultural - Residential	Town portions of the upper Dutch Hollow Brook drainage, from Swartout Road South and East of the Hamlet of Owasco, and then West to Valentine Road	4.29	138	336	78
10	Northeast Uplands	Skaneateles Lake uplands from O'Neil Road to Baptist Corners Road and along Town Line Road on the East	0.87	16	43	49

Table 3.  
Town of Owasco Community Forestry Management Units



Street trees along First Avenue, Owasco, New York.  
Spring 2019. Photo by Walt Aikman, PhD.

## **Part 2: Ecosystem Services, Economic Benefits and Costs.**

Benefits of living trees include their beauty, their shade, and their measurable contribution to property values. In addition to these important benefits, trees provide numerous – if less visible –ecosystems services that support each and every aspect of our lives. In this respect, two are key: capturing carbon and transpiring water. We know that as they carry out photosynthesis, trees take in atmospheric carbon and bind it with hydrogen from water, and store it as starches in their supporting wood and tissues. Over time, the carbon that is gathered up and the rainwater that is intercepted in this process can reach considerable volumes. In this part of the plan, we'll first look at these benefits on a Town-wide basis, and then consider them for each management unit.

Scientists have examined trees in the forest and the lab to measure how much and how fast different species absorb nutrients like carbon and water. This research has been tabulated and connected to interactive computer programs to help community foresters use street and park tree inventory data to estimate these benefits. The flagship computer application for quantifying these benefits is i-Tree. i-Tree is a collaborative product of the i-Tree Cooperative, consisting of the USDA Forest Service, Davey Tree Expert Company, the Arbor Day Foundation, the Society of Municipal Arborists, the International Society of Arboriculture, Casey Trees, and the SUNY College of Environmental Science and Forestry.

i-Tree's Landscape application results for Owasco (shown below) indicate that forests (18.84% of Town land use) store 118,791.5 metric tons of carbon, and sequester (take up) 2,433.9 metric tons of carbon per year. Furthermore, Owasco forests store 435,568.7 metric tons of CO<sub>2</sub> equivalent – effectively offsetting the community's 24,614 metric tons of CO<sub>2</sub> equivalent emissions. On a town-wide



i-Tree Landscape  
Owasco

Date: 02/17/2021  
 landscape.itreetools.org  
 Version: 4.3.1



Location Information

Canopy & Impervious (2011 NLCD)				Area		Canopy		Impervious	
Dataset	Type	Name	ID	acre	% of all	acre	%	acre	%
NLCD 2011	County Subdivisions	Owasco	3601155871	15,024.4	100.00	2,850.1	21.33	217.8	1.63

Tree Benefits

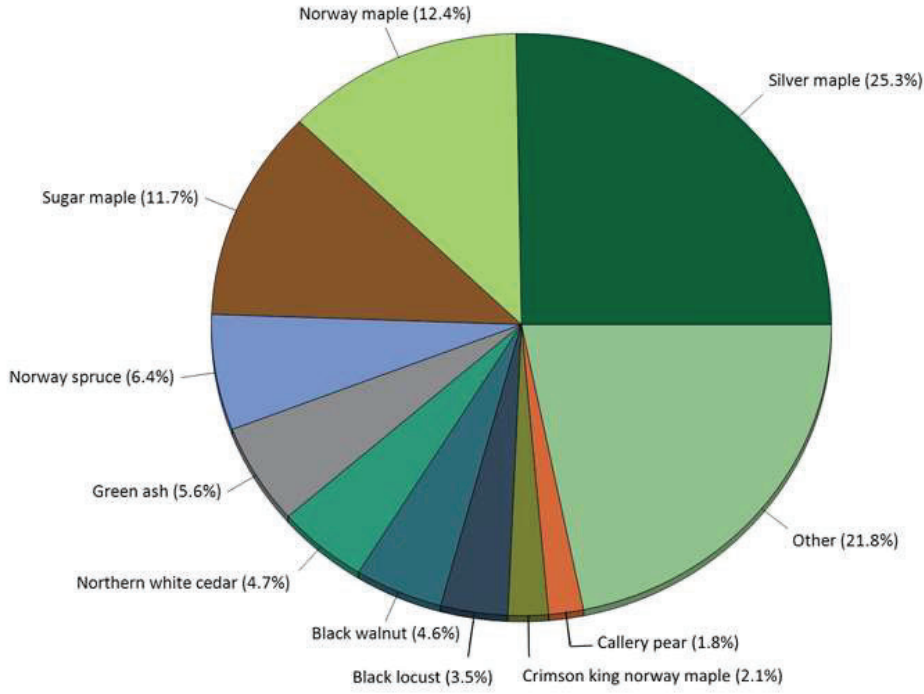
Carbon and CO <sub>2</sub> (High Resolution UTC)				Carbon Storage		Carbon Sequestration		CO <sub>2</sub> Equivalent Storage	
Dataset	Type	Name	ID	\$	Short Ton	\$/yr	t/yr	\$	Short Ton
NLCD 2011	County Subdivisions	Owasco	3601155871	20,259,973	118,791.5	415,109	2,433.9	20,259,973	435,568.7

basis, Owasco’s forests transpire 301.9 million gallons of water per year, and intercept 258.8 million gallons of rainfall each year. This rainfall interception avoids 1.3 million gallons of runoff each year, worth at least \$11,806 in avoided management costs.

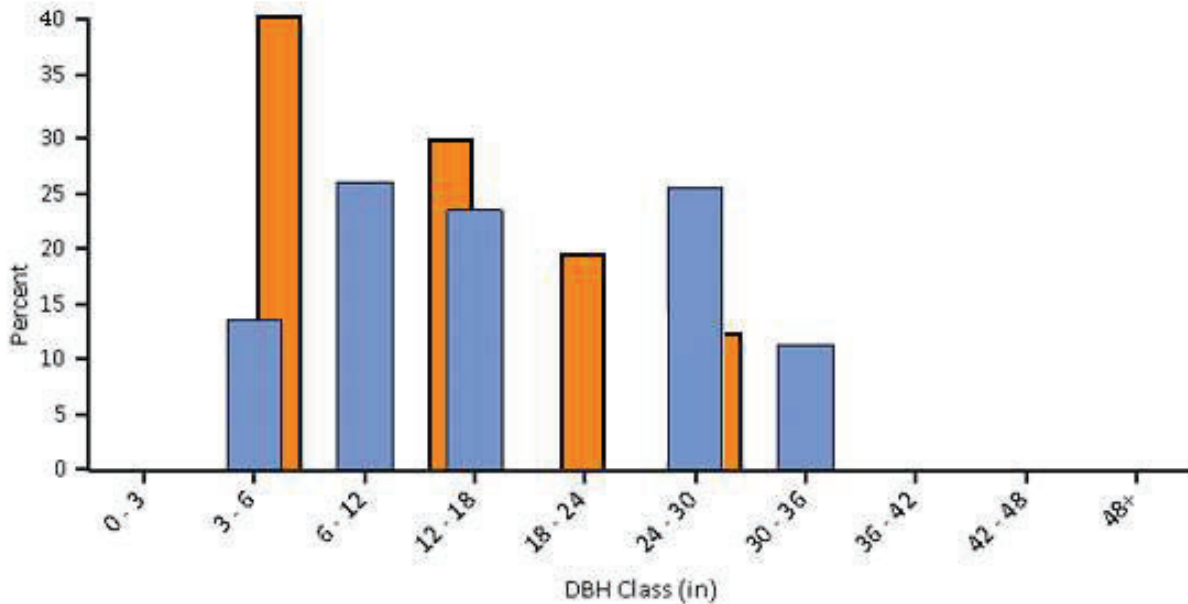
When Owasco’s 2019 street and park tree inventory data is analyzed by i-Tree ECO software, details about street and park trees are revealed, and the contributions these trees make to the forests of the entire town are possible. As we know from the inventory data, the most common trees along Owasco’s streets are Silver maple, Norway maple, and Sugar maple (see tree species composition chart below). Although these trees provide a small portion of the Town’s total carbon storage, these street and park trees have a replacement value of \$2.37 million.

Owasco’s low street tree species diversity is compounded by an unsustainable size-class distribution. As shown in the chart below, most of Owasco’s street and park trees are either pole sized, large, or very large trees. Dr. Norm Richards, Professor of Forestry at the SUNY College of Environmental Science and Forestry, has noted the ideal distribution of street trees by size class. When applied to a known size



Community Forest Management Plan for Owasco, New York



Street Tree Species Composition in the Town of Owasco, NY

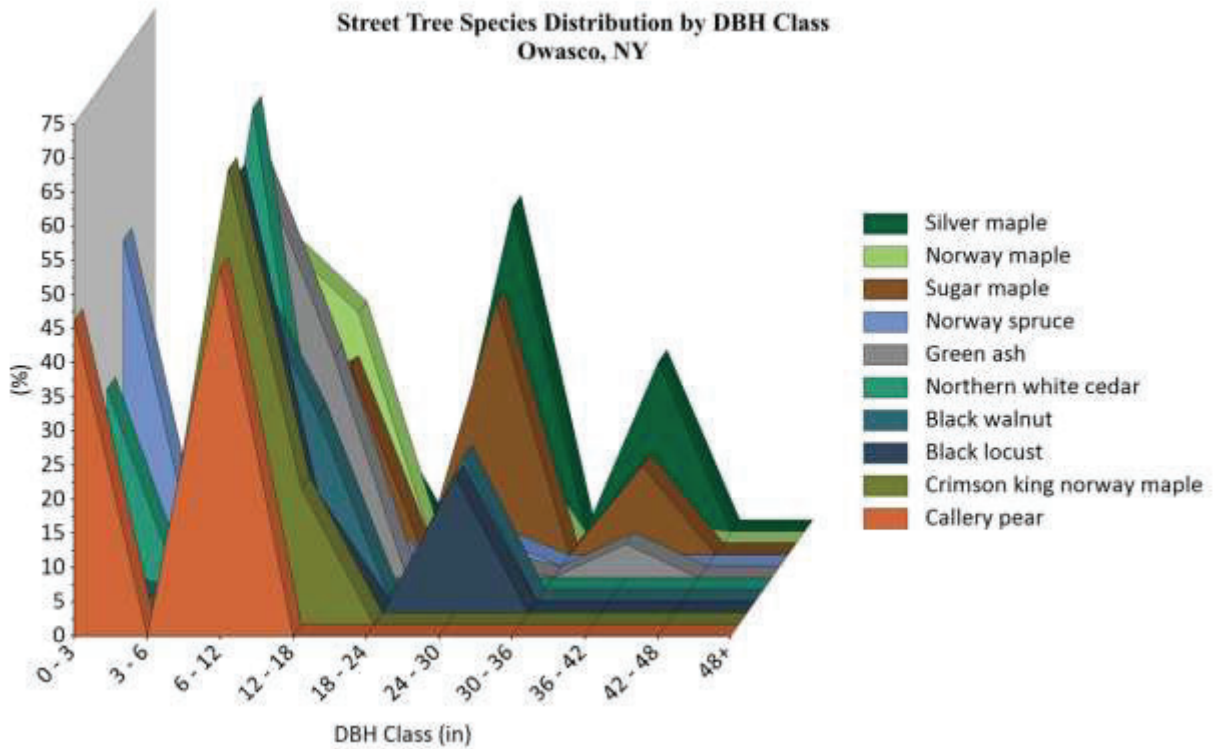


Percent of Tree Population by Diameter Class (DBH - Stem Diameter at 4.5 feet)

iTree Results:   
 Richard's Rule: 

class distribution, “Richard’s Rule” helps describe the sustainability of the tree population in question. In this perspective, a larger portion of younger, smaller trees can help managers compensate for the loss of trees after planting, and accordingly this portion should be 40% of the total. Trees larger than 24” DBH should ideally be only 10% of the population. Richards’ rule clearly identifies the basic community forest management problem facing Owasco: too many large trees of too few species, and far too few young trees to replace them.

Among the many tools i-Tree provides, the breakdown of street tree distribution by species and size class is particularly helpful. In the following chart, the ten most common street trees in Owasco are displayed by DBH size class, (diameter at breast height). Note that large Silver and Sugar maples are particularly significant in their contribution to the top-heavy distribution of tree biomass, and especially significant in their contribution to Owasco’s urban tree canopy.



### Urban Tree Canopy in Owasco

Glimpses into Owasco’s community forest afforded by the charts below are helpful, but new tools in remote sensing have helped urban foresters articulate a new way of evaluating the forest resource: urban tree canopy. Simply put, the urban forest canopy is the leafy green cover that trees provide to home owners, families, and park visitors. Expressed as percentage of land area as seen from directly overhead, the forest canopy is where the principle ecosystem services of



shade, fruit, wildlife habitat, energy conservation, storm water mitigation, and beauty are produced (USFS 2019). Knowing how much tree canopy exists helps a community set goals for maintaining or increasing shading in residential and commercial settings of developed urban landscapes. Such assessments are enhanced by a consideration of the area of impervious surfaces - where rainfall run off will be the worst.

What contribution to the Town’s total tree canopy do Owasco’s street trees provide, and how can this help the Town plan for the future? American Forests, the oldest forest conservation organization in the United States, originally suggested a 50% urban tree canopy cover in suburban neighborhoods. If this benchmark is applied, Owasco is falling short. To illustrate the impact street tree canopy can have in Owasco neighborhoods, a large-scale (i.e. zoomed into the neighborhood level) canopy study is presented in Part 4.

According to i-Tree, Urban Tree Canopy cover in Owasco is: 301,176.90 sq. feet, or 6.914 acres. As mentioned in the executive summary, this amounts to an average Tree Canopy of 33%, well below the recommended 50% threshold for suburban neighborhoods. Clearly not every acre in Owasco is suburban, and so the tree canopy data is broken down for each management unit, as follows:

Management Unit / Land Cover	Total Tree Canopy Acreage	Mgt Unit Sq Mi	Mgt Unit Acres	UTC %
North Agricultural - Residential	1,641.03	8.18	5,235.20	31.35
South Agricultural - Residential	730.76	4.29	2,745.60	26.62
Dutch Hollow Brook	285.10	1.39	889.60	32.05
East Lake Road	365.98	1.60	1,024.00	35.74
Hamlet	96.90	0.70	448.00	21.63
Melrose Park	83.93	0.40	256.00	32.79
Owasco River	305.18	1.07	684.80	44.56
Rockefeller-Koenig	392.00	1.28	819.20	47.85
Northeast Uplands	141.98	0.87	556.80	25.50
Sucker Brook	222.04	1.13	723.20	30.70

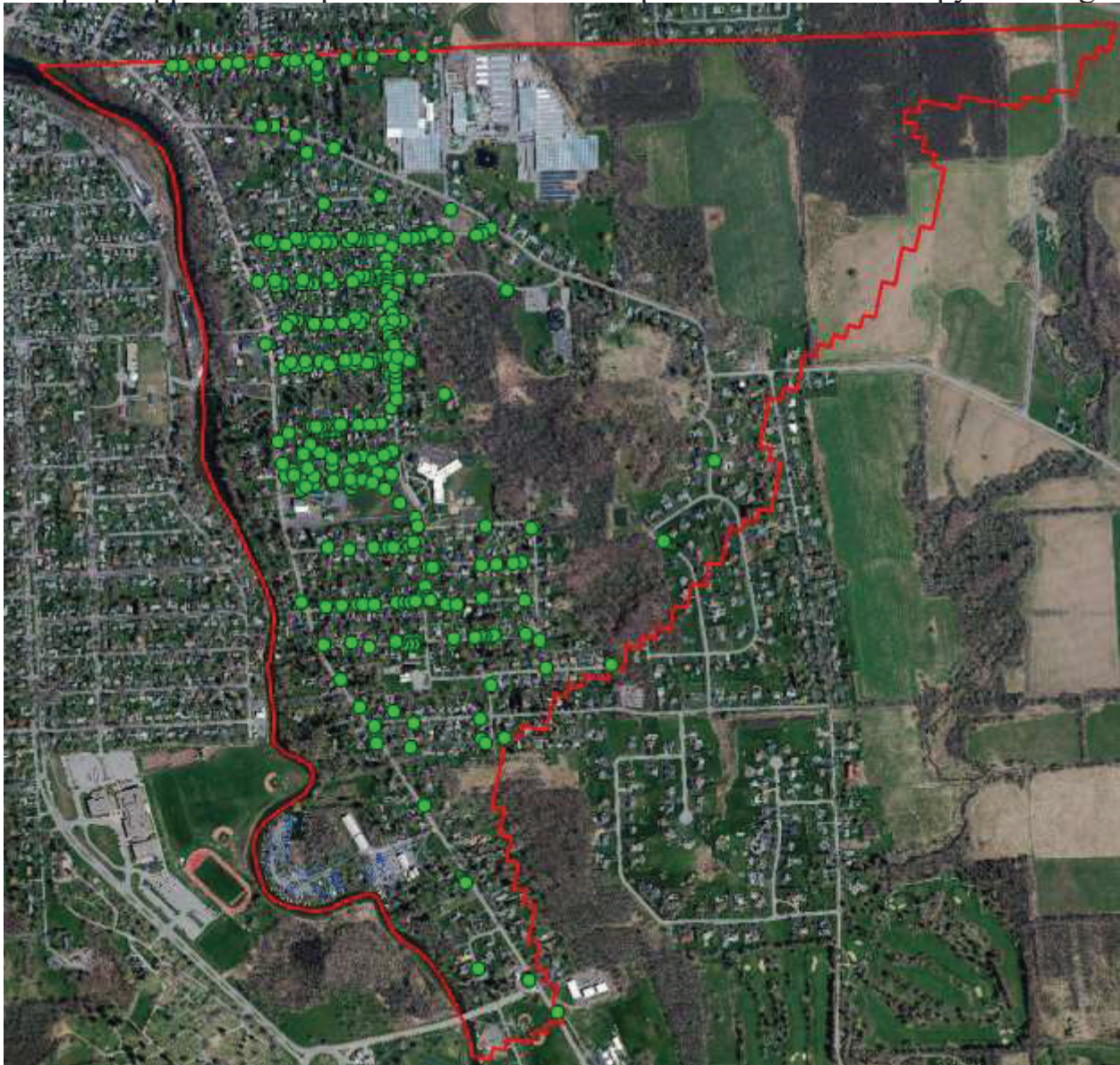
Urban Tree Canopy in Acres by Management Unit

In the Town as a whole, 181 Silver maple trees are 25.3% of the street trees in Owasco, and together they provide 79,427.7 sq. feet of canopy cover - 26.4% of the contribution of all street trees (excluding road-side copse forests) in the Town. 84 Sugar maple trees are 11.7% of the street trees in Owasco, and together they provide 41,451.1 sq. feet of canopy cover - 13.8% of the contribution of all street trees (excluding road-side copse forests) in the Town. Understanding the amount of forest canopy in Owasco’s neighborhoods can help the community evaluate the impact of forest management decisions and set goals for tree planting and care. This will become increasing urgent as large, older trees are removed.

### **Benefits and Management Challenges by Management Unit**

Almost half the street and park trees in Owasco are in the River Management Unit, and four of Owasco Management Units contain 85% of the street and park trees in the Town: River, Melrose, East Lake Road, and the North Agricultural. In these four, the tree species and size class distribution reflect the patterns described above. However, since the management units vary so much in size and land use, future street and park trees – and strategically placed vegetation in key areas – can provide benefits not evident when assessed at the Town level.

In the Owasco River Management Unit (see Map below), the i-Tree ECO computer application reports the 361 street and park trees have a canopy covering



Street and Park Trees in the Owasco River Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.

2.5 acres. These street trees store 406.2 tons of carbon, and sequester 5 tons of carbon each year, and help Owasco avoid 5,883 cubic feet of runoff every year.

According to i-Tree, trees in River Unit have a replacement value of \$1.16 million, almost half the Town's total tree replacement value. Much of this valuation is based on the advanced age of many of the street trees in the River Management Unit. Not only do larger trees appraise at higher values, they also store considerable amount of carbon. For example, in the River Unit, the Silver maples store and sequester the most carbon (approximately 60.2% of the total carbon stored and 61.7% of all sequestered carbon in the Unit). Furthermore, i-Tree ECO notes:

“The [replacement] value of an urban forest tends to increase with a rise in the number and size of healthy trees (Nowak et al 2002a). Annual functional values also tend to increase with increased number and size of healthy trees. Through proper management, urban forest values can be increased; *however, the values and benefits also can decrease as the amount of healthy tree cover declines*” (i-Tree ECO, 2021, emphasis added).

This reminder initiates the first management challenge in Owasco:

Management Challenge 1: 25% of the trees in the River Unit are in poor condition, meaning that the trees have only about 65% of their foliage – at best – and contain considerable number of weak and/or damaged limbs. It is especially noteworthy that half of these trees in poor condition are Silver maples and many of these are very large trees, 36” in diameter and larger. But aggressive removals in high—traffic areas like Owasco Road can upset residents.

As mentioned above, many more than half of the street trees in Owasco are maples: Norway, Silver, and Sugar maples. The low species diversity among street trees in Owasco increases the forest's vulnerability to insects and disease, and increases the likelihood that when problems arise in the future, the impact will be far more widespread than necessary.

Management Challenge 2: Low species diversity among Owasco's street trees and in the Town Park.

Many of the homes and streets, and drainage infrastructure in the River Unit date back to the early 20<sup>th</sup> century, with a large number of the housing built in the years following World War II. Lot sizes, home size and design, and the close proximity of homes next to one another reflect the housing demands of that era, and these streets have most of the street trees in the Unit. But these older neighborhoods are juxtaposed with housing development that reflects the housing demands of the late 20<sup>th</sup> century: larger homes with attached 2 car garages, larger lots, and advanced deployment of roads and infrastructure. This history poses a challenge:

Management Challenge 3: In addition to the challenges posed by older trees in poor condition, the River Unit also encompasses the Northern portions of the newest subdivisions, where there are few street trees. These subdivisions contain some of the most desirable housing in Cayuga County, and the beautiful homes and picturesque landscapes are



complimented by the absence of above-ground utilities. Trees on private property provide most of the community forestry values in these neighborhoods, and Owasco has an opportunity to reach out and partner with neighbors to plant more trees.

Most of this Unit scores very poorly in New York's Natural Heritage Program rating system. In fact, the ecological conditions in the Unit are rated as poor, scoring with poor ecological health (.25 out of 1.00 or much lower) and have the highest ecological stress levels possible. This is clearly a function of development and population density: at 1.07 square miles, the River Unit has more houses than any other unit, and the highest population density in the Town of Owasco.

Furthermore, 52% of the River Unit is developed, and contains 8.8 miles of roads; 17% of all the Town's road miles. In terms of road density, the River Unit has 8.22 miles of road per square mile, more than triple the road density for the entire Town (Owasco has 52.3 miles of roads in all categories). We all know roads are impervious to water infiltration, and together with structures and other impervious surfaces, there are 116.52 acres of land in the River Unit that cannot absorb rainwater runoff. The River Unit does contain 37 acres of unregulated wetland habitat, and these areas can form the core of ecological restoration work that will functionally improve the nutrient absorbing capacity in the Unit and demonstrate the benefits of forest restoration to the entire community. The upland parts of this habitat, East of the Owasco Elementary School, are considerably degraded by invasive European buckthorn, but can benefit from a restoration effort.

Management Challenge 4: Where practical, effective, and possible, forest management must consider the wider ecological impacts urbanized land use has on ecosystems, and foster community forestry work – including ecosystem restoration and runoff mitigation projects – on public and private lands to address these problems.

In the South-central portion of the River Unit is the Owasco Town Park and the Owasco Elementary School complex (see Map below). Located at the Western end of the area the Park features the Michael O'Leary Playground, the only American with Disabilities Act (ADA) compliant playground within 80 miles. This complex includes a splash park, tennis and pickle ball courts, and a lighted bocce ball court. Adjacent to the Park on the North is the Town Hall. Immediately South of the playground are the Town's gazebo, an open air pavilion and farmers' market, and the Town's Volunteer Fire Department. On the higher elevations of the Eastern end is the Owasco Elementary School, owned and managed by the Auburn Enlarged City School District. These properties are the center of Town activity.



Town Park and Owasco Elementary School.  
Parcels in red over 2018 1' JP2 imagery.

All is not well, however. The playground facilities and the Fire Department are immediately down-slope from Letchworth Street and the School parking area (see image below). The clay-rich soils are damp through most of the Spring, but dry



Eastern end of the Town Park, just down-slope of Owasco Elementary School.  
Rain garden project highlighted in green.

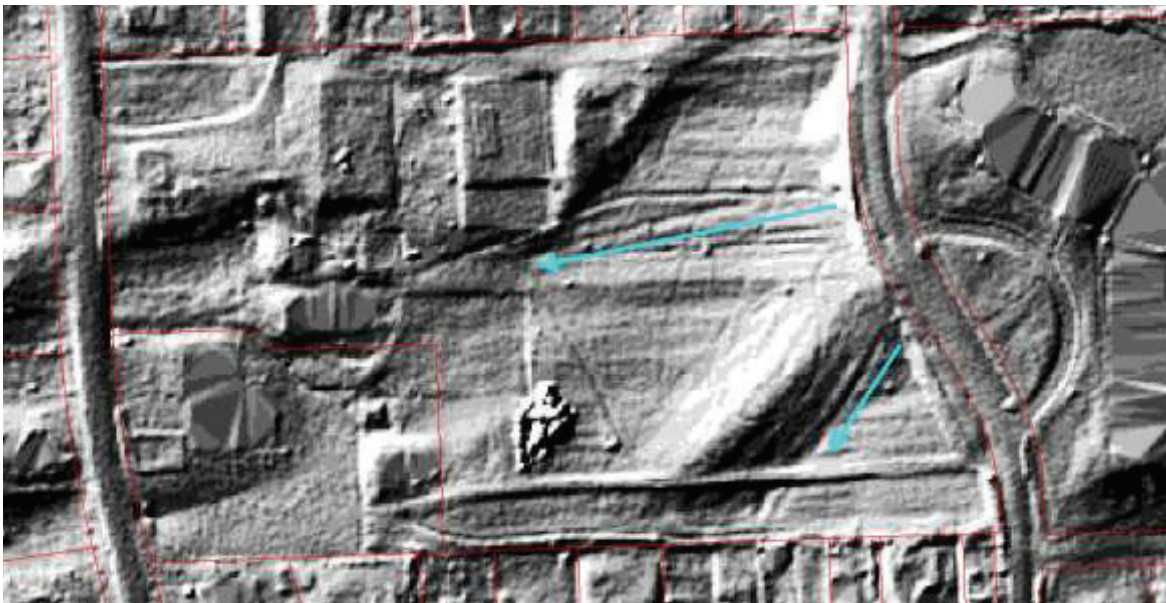


out by early Summer and become relatively impervious. Discussions with Town employees suggest there is only one subsurface drainage for the upland above the site, and that is not sufficient to manage the run-off from the School roof, Letchworth Street, and the parking area. As storms become more intense, delivering seasonal rain in fewer, more dramatic events, the run-off problems at this site have become increasingly common.

Close inspection of the topography of the site reveals the problem areas, as shown

Management Challenge 5: Confronting storm water runoff. Residents have noticed increasing volume of water in their back yards, in one case is so severe it has created a seasonal pond; storm events in the Summer of 2020 created a storm flow so intense it damaged the framing and gravel work around the Town Park's Bocce court; and Owasco Fire Department officials report significant flooding at their facility that disrupt their operations.

in the 1:400 shaded relief map derived from 2018 Lidar data:



1:400 scale shaded relief map of the Owasco Town Park.  
Blue arrows indicate direction of flow down and off site.

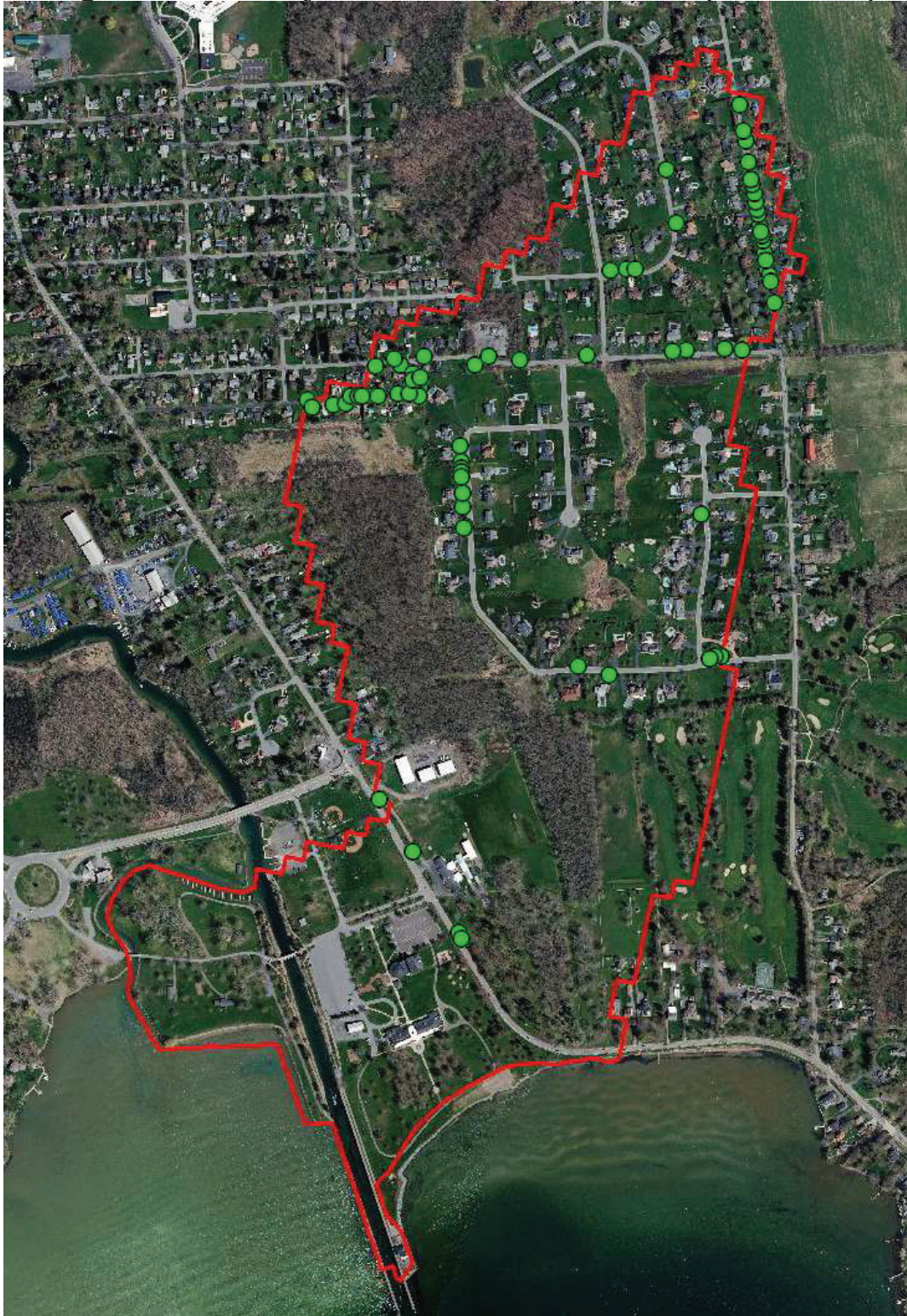
In addition to these rather significant challenges, another troublesome terrestrial invasive plants appears in the River Unit: Japanese knotweed. Knotweed is found throughout Cayuga County, and has unfortunately taken hold in Owasco. It occurs in this unit on the Eastern edge of Owasco Road, just South of Havens Avenue. This is a very difficult plant to eradicate, and effective control follows rapid response with a dedicated and consistent management with herbicide injection and mechanical screening. Together with invasive phragmites, the Town of Owasco has spent considerable sums and labor to address invasive plants at the Town's highway facility on East Lake Road, and this experience can form the basis of a Town-wide terrestrial invasive plant management strategy.



## Community Forest Management Plan for Owasco, New York

Management Challenge 6: Owasco needs to develop a terrestrial invasive plant management strategy that includes: funding for the Town's NYS-certified herbicide applicator to confront invasives on Town property and rights-of-way, respond to landowner concerns about invasive plants like knotweed and phragmites, and use the Town's many communication outlets to help residents learn about the invasive plants growing in the Township and how they can manage these plants on their own property and in their contributions to the Town's seasonal street-side brush pick up and management program.

The Melrose Park Management Unit (see Map below) is the smallest of Owasco's management units – at just under ½ square mile – and presents unique



Street Trees in the Melrose Park Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.



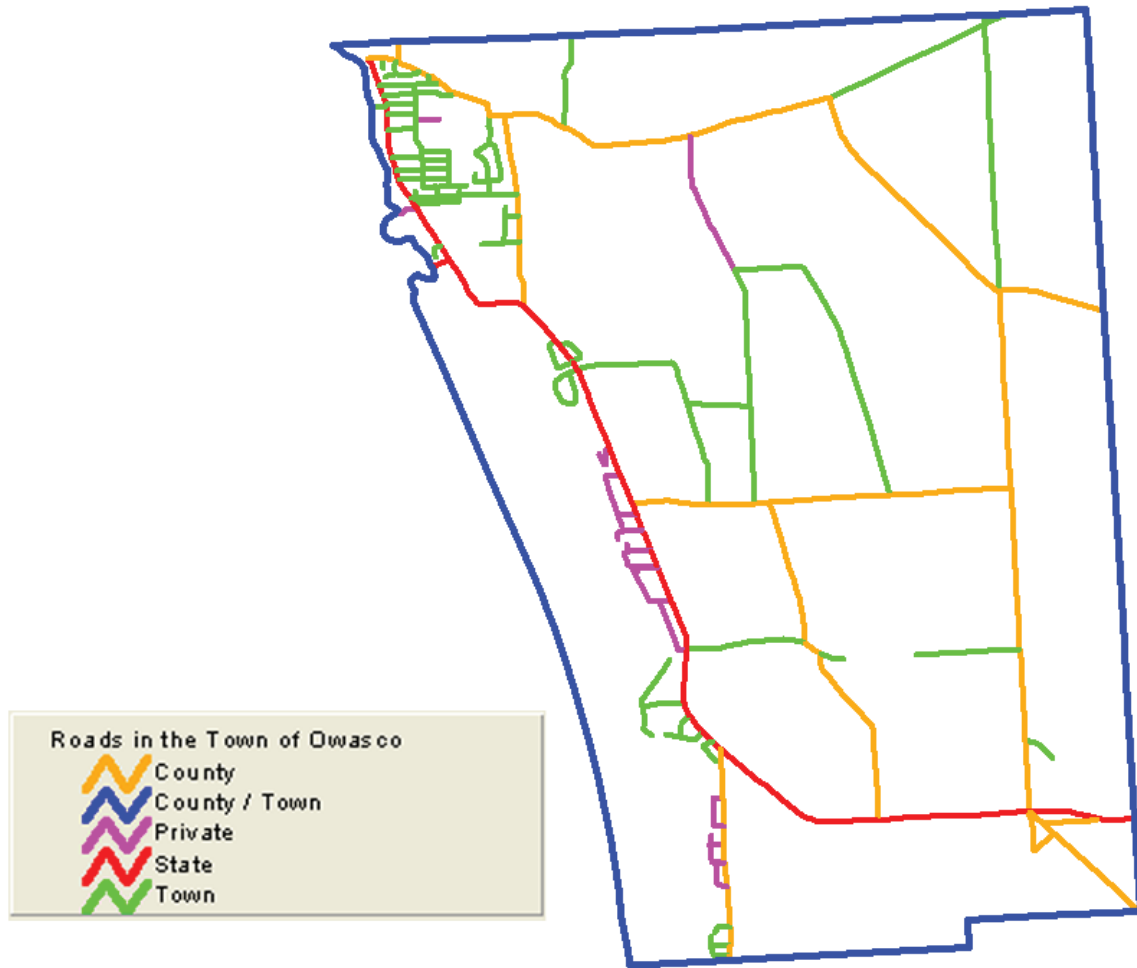
circumstances that introduce additional management challenges. The Unit has 66 street trees with a canopy of almost half an acre. Street trees in this Unit store 72.15 tons of carbon, and sequester 1,840 pounds of carbon each year. These trees also help Owasco avoid 1,212 cubic feet of runoff each year. Finally, these trees have a replacement value of \$208,000. Like the River Unit, the Melrose Park Unit shares similar problems with respect to street tree species and size class distribution, and also contains a diversity of neighborhoods with similar planting opportunities. However this Unit encompasses most of the large street trees along the center portion of Oak Ridge Road, where property owners and utility needs conflict.

Management Challenge 7: Managing Owasco's community forest under and near utilities demands a proactive and functional relationship with utility stakeholders. The Northeastern portion of the Unit includes the East side of Oak Ridge Road, where many large trees straddle a complex power line right-of-way along the road and on private property in front of homes. This site offers a good opportunity to partner with utility foresters to share resources and create and demonstrate a sustainable forestry management effort in these circumstances.

The management complexity of Oak Ridge Road is compounded by the fact that the road is not a Town road: it is a County Road. Not all roads in the Town of Owasco are under Town Jurisdiction (see Map below). Having roads in a municipality under multiple jurisdictions complicates community forestry management and planning. Basically, it is a classic problem of split incentives: property owners and Town leaders want to plant, prune, remove and otherwise care for trees in the rights-of-way, but County and State agencies are not incentivized to underwrite the care of resources that do not benefit their mission.

Management Challenge 8: Managing Owasco's community forest in County and State rights-of-way demands a proactive and functional relationship with these stakeholders.

This Unit shares almost the same ecosystem management challenges as the River Unit, but unlike the River Unit all land surfaces drain to Owasco Lake, not directly to the Owasco River. To a great extent the ecological characteristics of this Unit reflects the relative absence of natural cover or forest canopy of any kind. Indeed, almost 60% of the Unit is developed land, and the 32 acres that has any canopy at all is composed mainly of wet forest impacted by invasive European buckthorn. Buckthorn degrades an ecosystem's resiliency and its capacity to provide meaningful ecosystem services. Furthermore, the developed portions of the Unit have a history of challenging drainage problems. While the Natural Heritage Program scores this Unit with average ecosystem health, it scores as the most stressed catchment basin in Owasco draining into Owasco Lake.



Roads in the Town of Owasco.

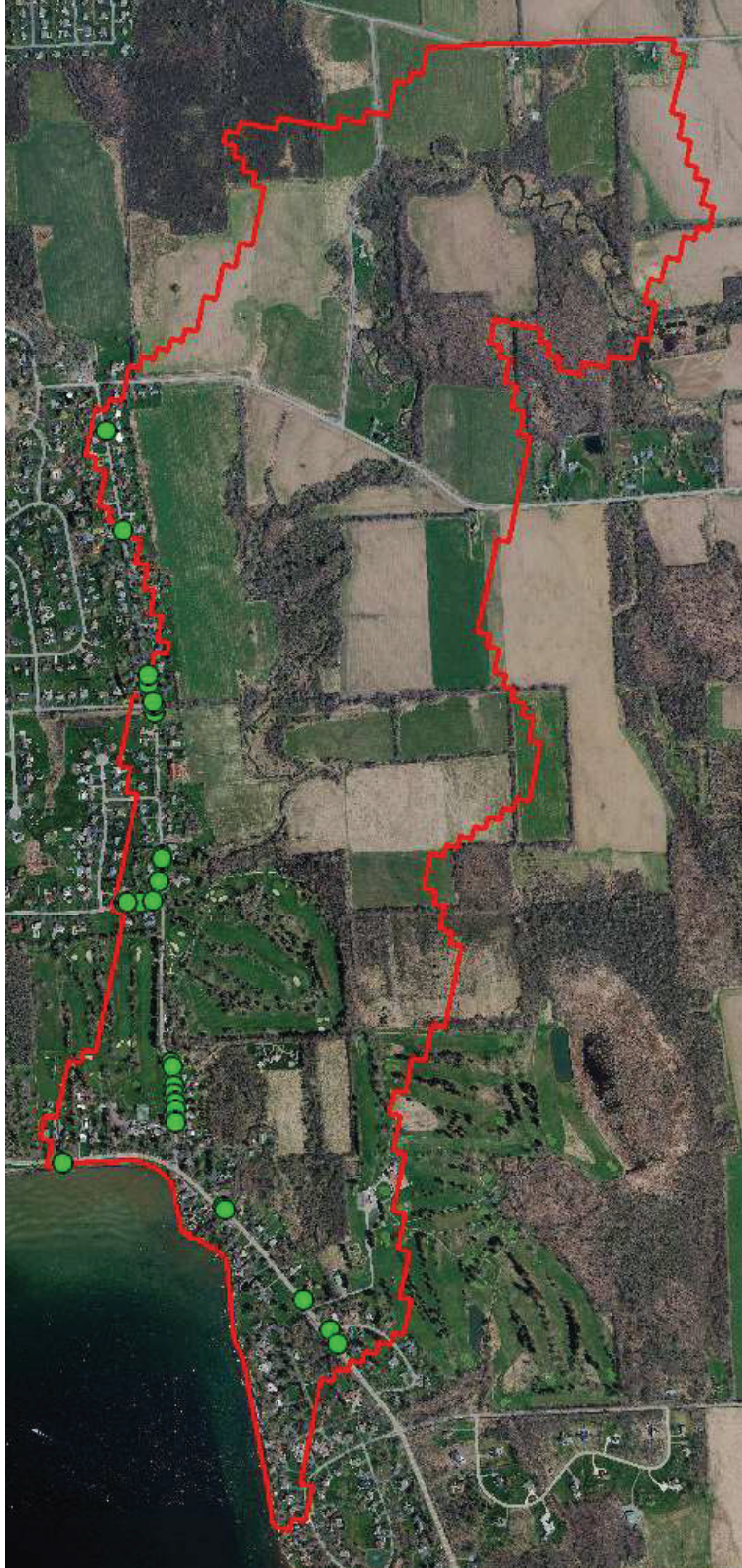
These conditions result from a high population density, and may well require an advanced, dedicated catchment basin management effort focused on improved storm water retention, better vegetative buffers, and wetland restoration. But increasing the forest canopy in the youngest of Owasco's subdivisions can go a long way to improving the Unit's capacity to buffer nutrients before they reach Owasco Lake. There are 2.71 miles of roads in the Management Unit, and with only .4 square miles in area, at 6.78 road miles per square mile it has almost the same road density as the Owasco River Management Unit.

Management Challenge 9: To maximize the ecosystem benefits of street tree planting in Owasco, the Town must consider adopting advanced tree tenure relationships with private property owners. In neighborhoods with limited planting sites in the public rights-of-way, the Town can explore planting trees on the private property of interested and willing owners through the creation of limited and temporary tree planting and care easements. Private lands already encumbered with restrictive conservation covenants provide an inviting opportunity to create, attempt, and demonstrate this community tree planting model.



The Sucker Brook Management Unit contains 30 street trees with a canopy shading 11,110 thousand square feet. The most common street trees in the Unit are Silver maple, Norway maple, and Sugar maple. These trees store 49.43 tons of carbon and sequester 898.9 pounds of carbon each year. The avoided runoff from these trees amounts to 579.3 cubic feet of water each year. Finally, the replacement value of these trees is \$130,000. Although the Unit is not as developed as the Melrose Park and Owasco River Management Units, the Sucker Brook Unit still has a fairly high road density of 2.8 road miles/square mile. NY's Natural Heritage Program rates this Unit with intermediate ecological stress and health levels.

Furthermore, 25.4% of the land area in this Unit is developed (over 180 acres), and this includes acreage in golf courses. With only 18.5% of the land area in this Unit in forest, there is limited nutrient buffering capacity in the lower portions of the Unit, especially given the area of land upstream. The first of Owasco's lake shore neighborhoods begins in this unit. Here, East Lake Road follows the shore of Owasco Lake and offers excellent views of the Lake. Unless residents express a need for street trees along East Lake Road, it is likely that forest management work in the Unit will be concentrated on the uppermost and lower portions of Oak Ridge Road and the North half of Glenbrook Drive.



Street Trees in the Sucker Brook Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.

Management Challenge 10: Provide community forest management services to residents adjacent to public rights-of-way in lake-level neighborhoods. Maintaining a good view of the Lake is a priority for these residents, and the practical absence of tree lawns along the narrow roads near the lake shore make street planting more challenging.

The East Lake Road Management Unit (see map below) has 101 street trees with a canopy cover of more than 1 acre. Trees in these neighborhoods are younger than in the River and Melrose Park Units, and the most common species of street trees are Honeylocust, Black walnut, and Norway maple. i-Tree ECO reports these trees store 47.9 metric tons of carbon, and sequester 1,691 pounds of carbon each year. Trees in the East Lake Road Unit help Owasco avoid 1,705 cubic feet of runoff each year, and have a replacement value of \$219,000.

The Northern shore portion of this 1.6 square mile Unit is ecologically stressed, although it does have an above average ecological health score. In addition to this part of the Unit, the southern portion of this Unit – from the shore of Owasco Lake eastward and beyond East Lake Road – is relatively stressed with barely average ecological stress levels. Not surprisingly, the poor ecological scores in this Unit reflect the development concentrated along Owasco Lake.

Two important management challenges emerge in this Unit: providing responsive community forest management services to residents in steeply sloped neighborhoods along the Lake, and the presence of invasive Japanese knotweed. In the first instance, East Lake Road climbs nearly 80 feet from the Northern extent near Martin’s Point to the top of the rise East of Owasco Lake. Here the road is more than 130 feet above the shore line, and the steepest areas of the Unit, slopes reach 35%.

Management Challenge 11: Properties along Owasco Lake are served primarily by steep private roads, where there are few opportunities to foster community tree and shrub planting. Here, lake shore portions of the Owasco community may require forestry support to enhance ecosystem management goals, but there may be limited possibilities in fostering partnerships to enhance land stewardship in these areas.

To be clear, although the steep conditions along the shore line in the East Lake Management Unit limit community forestry work in those areas, there are opportunities to plant and care for trees along the Unit’s other roads and rights-of-way. These roads include the Southern half of Glenbrook Drive, East Lake Road, Bevier Road, Galloway Drive, Swartout Road, and Honeysuckle Road. Residents at Martin Point have an active homeowners association that looks after trees and shrubs in that neighborhood.





Street Trees in the East Lake Road Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.

The second management challenge that emerges in the East Lake Management Unit is the number and size of the Japanese knotweed stands there (see map below). The single worst stand of knotweed is on private property, and covers nearly 17,000 square feet. The owners are considering installing an experimental kill screen, especially if they can successfully partner with a neighbor who shares the stand. The screening method is experimental, but has met with some success in



Known stands of Japanese knotweed in the East Lake Road Management Unit.  
Eastern-most stand is in the adjacent Southern Ag-Residential Unit.

the United Kingdom. The current owners are reluctant to apply herbicides lest they inadvertently impact Owasco Lake. The second occurrence of knotweed is behind the Town’s Highway Department. These stands were mechanically removed in 2020 during the NYS Department of Environmental Conservation’s mandated wetland restoration project. Town officials are considering testing a kill screen there.

Management Challenge 12: With a terrestrial invasive plant management strategy (outlined in Challenge #4) Owasco can share the lessons learned in containing and eliminating Japanese knotweed at the Town Highway Department, and help private landowners in the Township and the East Lake Road Management Unit identify and contain Japanese knotweed on their property.

Along with its Southern Counterpart, the North Agricultural – Residential Management Unit illustrates unique challenges to community forestry in Owasco. At 8.18 square miles, it is the single largest Unit in Owasco (see map below).

i-Tree ECO reports the Unit has 125 street trees, not including the trees and shrubs in the 12 copses of forest growing along the roads. The street trees in the Unit provide 1.2 acres of shade, and store 92.46 tons of carbon, and sequester 1.169 tons



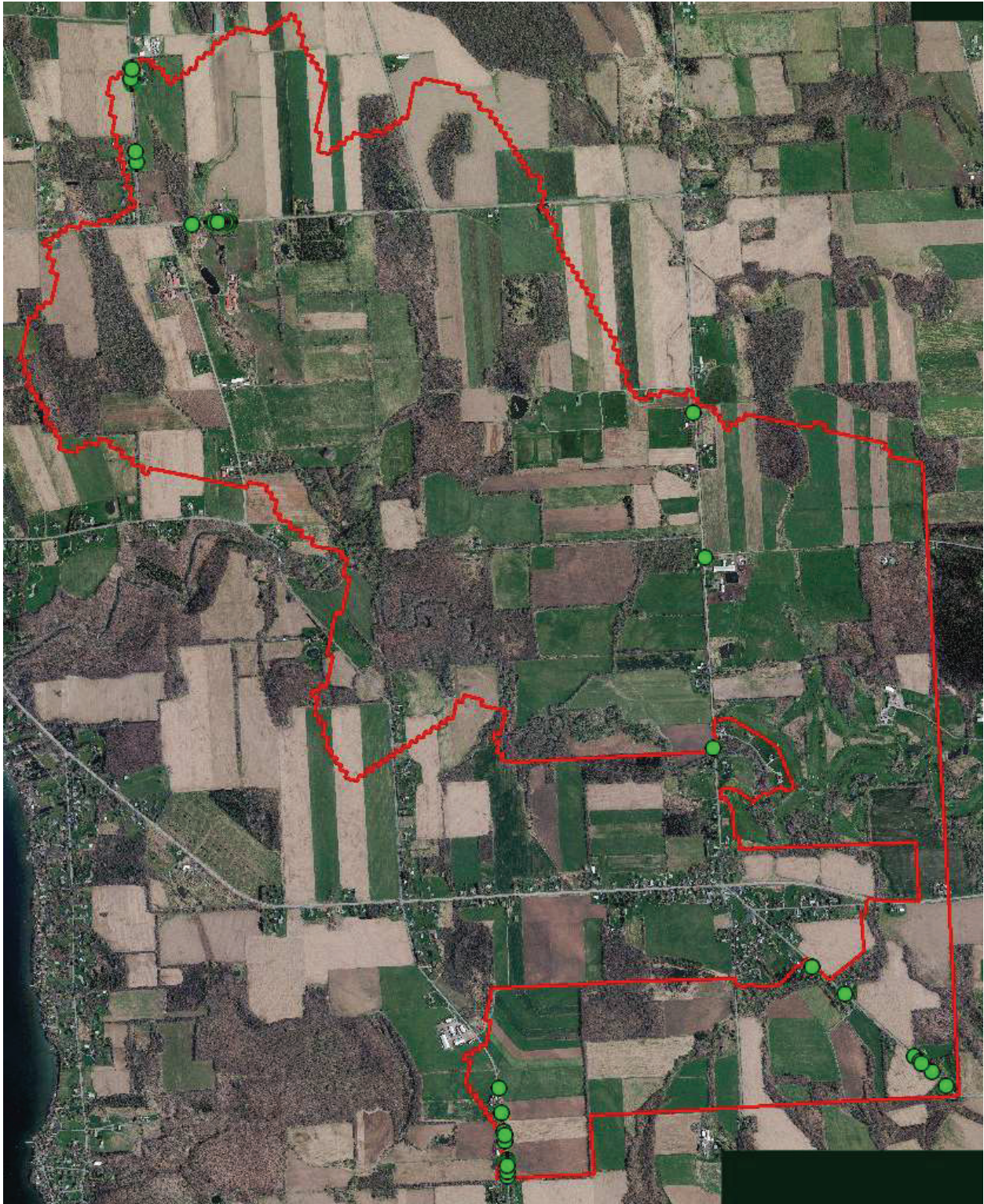
of carbon each year. These street trees also help Owasco avoid 2,829 cubic feet of rainwater runoff each year. According to i-Tree ECO, the most common street trees in the Unit are Eastern juniper, Sugar maple, and Norway spruce. Finally, these trees have a replacement value of \$365,000.



Street Trees in the North Ag-Residential Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.



All but one of the catchments in the Ag–North Management Unit are among the healthiest and least stressed of any in Owasco’s portion of the Owasco Lake



Street Trees in the South Ag-Residential Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.

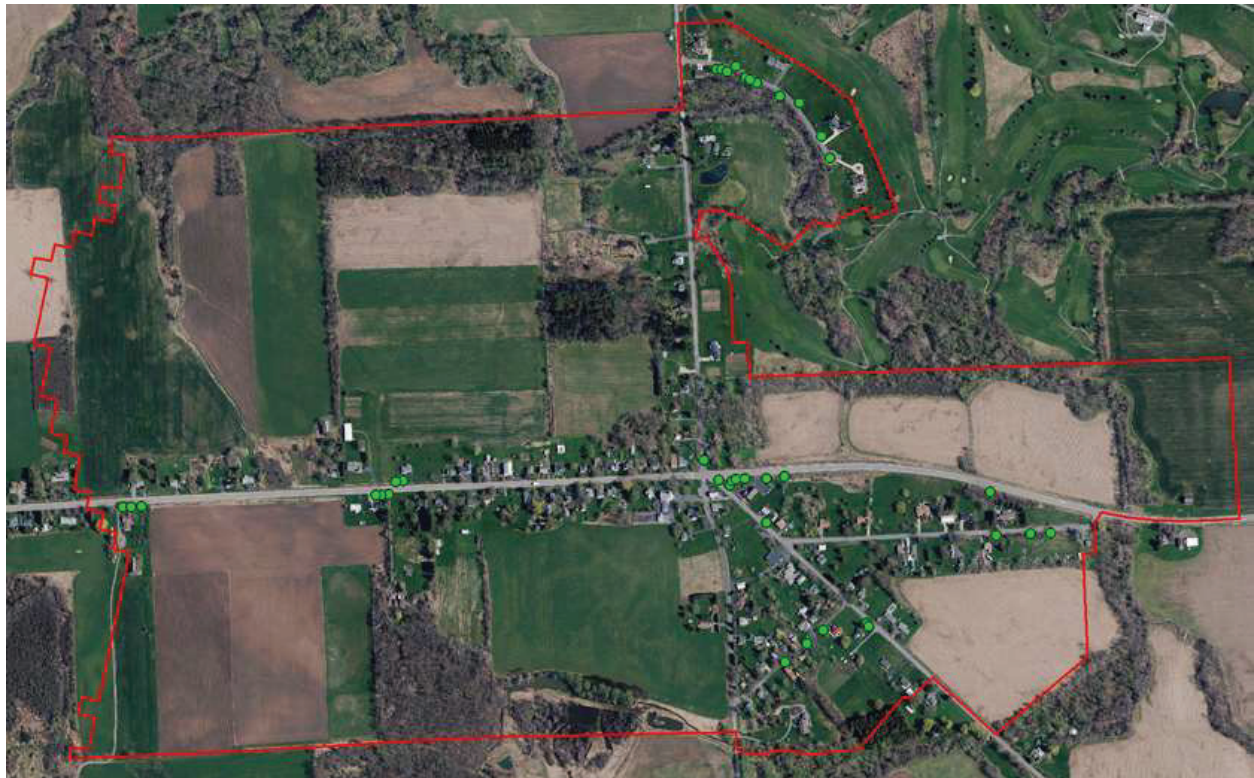


Watershed. The one exception is a 121 acres catchment just West of Baptist Corners. Overall, this Unit contains very few developed acres because 68% of the land is under agricultural management. Along with the wild forest stands growing along the roads in many places, 26% of the Unit is forested, and the Unit contains just over one square mile of regulated wetlands – much of this in wet forest.

Management Challenge 13: Even with the majority of land in the Ag-Residential Management Units under agricultural management, the Town of Owasco still devotes resources to address road and utility conflicts in the areas where street trees and road-side forest stands grow into and over the public rights-of-way. Going forward, these trees and road-side stands must be regularly inspected to provide some measure of proactive management, while at the same time residents can still request street tree planting and care.

The South Agricultural-Residential Management Unit contains 42 street trees and 5 road-side wild grown forest stands (see map above). The street trees provide 13,570 square feet of canopy cover. The most common street trees are Norway spruce, Silver maple, and Sugar maple. These trees store 48.1 tons of carbon, and sequester 1,014 pounds of carbon each year. These trees help Owasco avoid 879.2 cubic feet of runoff each year, and have a replacement value of \$153,000,

At only 0.7 square miles, the Hamlet Management Unit (see map below) is the



Street Trees in the Hamlet Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.

second–smallest of Owasco’s Management Units. It contains 34 street trees, mainly Norway maple, ornamental cherry trees, and Green ash. These street trees provide 16,190 square feet of tree cover and store 26.25 tons of carbon. These trees also sequester 603.5 pounds of carbon each year, and help Owasco avoid 744.3 cubic feet of rainwater runoff each year. The replacement value of these trees is \$93,000. Almost 15% of the Unit is developed, and about 75% of the Unit’s area is in agricultural land use. The NY National Heritage Program ecosystem health and stress scores for the catchments range from very poor to good. The most ecologically stressed catchments within the Unit are on the



Street Trees and Copses in the Dutch Hollow Brook Management Unit.  
Trees in Green over 2018 1 foot JP2 Imagery.



Eastern side, just downstream of a major golf course and a large farm. Street trees can help mitigate the ecological consequences of up-stream land use, and the Town of Owasco can make an extra effort to identify welcome planting sites in the Hamlet Unit.

Management Challenge 14: Street tree planting can help Owasco mitigate storm-water runoff by transpiring water and fixing nutrients into plant tissues. Extra effort to plant trees in the Hamlet Unit can go a long way to addressing the ecological stress underway in the middle reaches of the Dutch Hollow Brook sub-watershed.

There are only 6 street trees in the Dutch Hollow Brook Management Unit (see map above). These are growing on East Lake Road, Valentine Road, Honeysuckle Road, and Martin Road. Though they are few, they do provide 3,597 thousand square feet of shade. The most common street trees in the Unit are Norway maple, American basswood, and Norway spruce. These street trees store 4.27 tons of carbon and sequester 123.4 pounds more each year. These trees help Owasco avoid 237.9 cubic feet of runoff each year, and have a replacement value of \$22,400. While it is tempting to prioritize street tree planting in this Unit, (for there is room for more), the fact is that the ecological health of the unit is well above average for the catchments in Owasco's portion of the Owasco Lake Watershed. This mainly due to the large percent of forest land use in the Unit: 21%.

The Rockefeller-Koenig Management Unit (see map below) has only 4 street trees and one clump of brush in the public right-of-way, but these trees provide 2,155 square feet of shade. The trees are Pin oak, Norway spruce, Eastern juniper, and Norway maple. They store 2.36 tons of carbon and sequester 67.08 pounds of carbon each year. They also help Owasco avoid 147.5 cubic feet of storm water runoff each year, and have a replacement value of \$11,400.

The Unit includes portions of catchments that divide it into two nearly equally sized Northern and Southern parts. The NY Natural Heritage Program rates the Northern catchment as above average in terms of its ecological health and stress levels, but the Southern catchment is measurably less stressed, as the Southern portion has less land developed, has more forest, and fewer acres under agricultural management. In the Northern portion, 8% of the land area is developed, 30% is in forest, and 57% of the area is under agricultural management. In the Southern portion, 5.5% of the land area is developed, 43% is in forest, and 41% of the area is under agricultural management.

Subject to local approval, most of the easier planting opportunities are on East Lake Road and Rockefeller Road. However, addressing watershed management priorities may become so important the Town can consider partnering more creatively with residents and consider fostering tree planting easements in ecologically stressed neighborhoods.



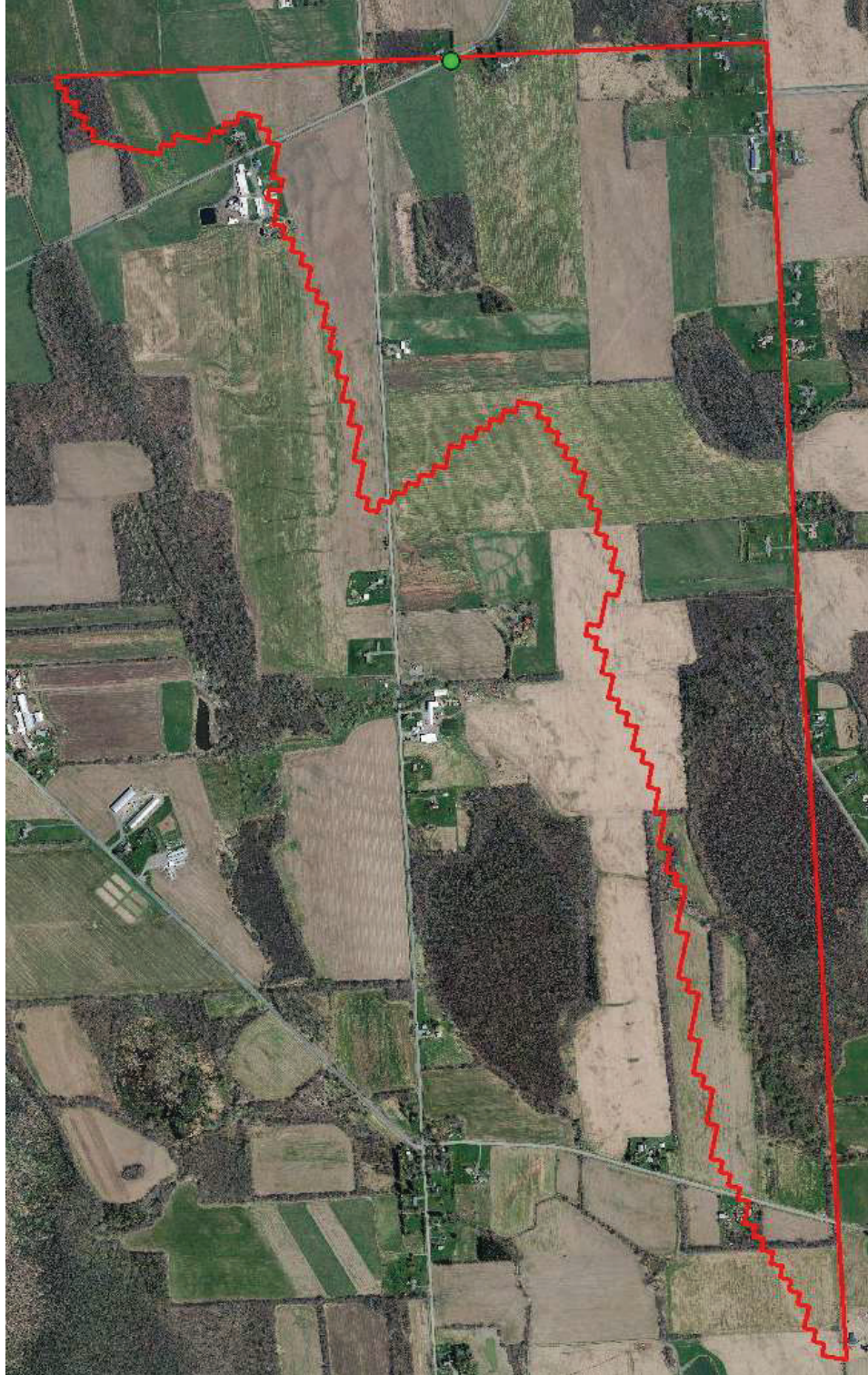
Street Trees and Copses in the Rockefeller–Koenig Management Unit.

Trees in Green and catchment boundary in Blue over 2018 1 foot JP2 Imagery.

Management Challenge 15: The Town can partner more effectively with the regional watershed management program proactive tree planting in ecologically stressed neighborhoods. Neighborhood – level spatial analysis can help target street tree planting to support watershed management in the Owasco Lake Watershed, and tree planting easements can increase the number of trees planted.

Land in the Northeast Uplands Management Unit (see map below) drains to Skaneateles Lake. There is one street tree in the Unit, and this Sugar maple provides 783 square feet of tree canopy cover and stores 2.952 tons of carbon. This one tree sequesters 53.38 pounds of carbon each year and helps Owasco avoid 49.45 cubic feet of rainwater runoff each year.





Street Trees in the Northeast Uplands Management Unit.  
One street tree in Green over 2018 1 foot JP2 Imagery.





Martin Cuykendall's 1803 lot North of the Hamlet of Owasco over the 1938 air photo, with the approximate locations of the Balm of Gilead Tree in green, and his mill seat in pink.

### **Part 3: Addressing Owasco's Forestry Management Goals & Challenges**

Owasco Town Historian Laurel Auchampaugh has thoroughly described the pioneering journey behind Martin Cuykendall's entry into the Owasco uplands, his harrowing survival in a lean-to during the winter of 1801-2, and his planting of a Balm of Gilead tree in the heart of the valley surrounding Dutch Hollow Brook. Martin's modest lean-to was cut from the woods that became the hearth and home of his extended family, and formed the basis of a mill operation that helped build the thriving community we know today. In a deep and resounding way, Martin's progress from lone pioneer to community patron reminds us that like oaks and hickories, communities grow slowly, inch by inch, year by year, and like strong trees are rooted in rich soil and shared heritage.

It is fitting that the historic uplands of the Township introduce the tempering of goals with the practical challenges that confront community forestry management in Owasco. The community forestry management goals presented in the Introduction line up with the management challenges presented in Part 2 in nine key areas:

1. The removal of large, older, and unsafe trees and the planting of new trees along streets and in parks;
2. The low diversity of street and park trees in Owasco;
3. The annual community forestry work plan, emphasizing tree and site inspections, tree selection, and database maintenance;
4. Cradle-to-Cradle brush management;
5. Invasive species control;
6. Planting and restoration projects that compliment Owasco Lake watershed management;
7. Forestry activities memorandum of understanding on mixed rights-of-way; and,
8. A volunteer tree planting program.
9. Funding.

1. Removals and Planting. The first three goals identified in this plan emphasize safety, sustainability, and seasonal programming:

1. To maintain street and park trees in a safe condition.
2. A sustainable public forest resource that adds value to the community, protects water resources, and sequesters carbon.
3. A tree planting program for Spring and Fall.

The fundamental means to achieving sustainability in community forestry are removal and replacement. Cutting trees down is an inevitable action when trees age, develop structural weakness, or suffer irreparably from storm damage, disease, or insect attack. In a residential setting, street and park trees are in close proximity to residents and their property, and a municipality does its best to minimize the hazards presented by old and weak trees. Replacement through tree planting is typically done spring and fall, as planting material becomes available. On a tree by tree basis, removal is much more costly than replacement, though the true costs of tree planting are much greater than the price of a single tree.

Small tree removal in Owasco is performed by the Town Highway Department; larger trees – especially those close to power lines – are removed by contractors working under County bid specifications. Tree removal is difficult and dangerous; and it is not inexpensive. Based on 2020 figures, large tree removal in Owasco averages \$3,000 per tree. Removal of very large trees under emergency circumstances can cost much more, and due to liability insurance purposes the costs for removal of very large trees on private property are even greater. And unfortunately for municipalities like Owasco, efforts to manage removals are dictated more often by insects, wind, and weather, and much less often by inventory work, lists, and maps. In other words, municipalities manage their forests reactively, not proactively.

What makes a tree a hazard, and how should Owasco prioritize removals? Tree condition is assessed during an inventory, and the basic measure of a tree's vigor is percent tree canopy. In short, the greater the percentage of living canopy, the healthier the tree. A conservative assessment was used when inventorying Owasco's trees: a 65% canopy threshold was applied for designating a tree as in "poor" condition. Further details on tree condition include the number of dead limbs, indicators of decay and disease, and proximity to utilities, especially power lines. If a tree's condition includes many of these factors above and beyond poor canopy conditions, the tree is considered a "consult" tree requiring priority management action.

In our region, communities have had tremendous success working with bare root trees harvested for Fall season plantings. These trees are easy to plant and are very easy to handle because without soil a single tree is easily carried; kids can move and plant bare root trees. Not all trees are suitable for bare root planting and may not be available for the Spring season, and for those locations trees must be planted with traditional balled-and-burlapped technology. B&B trees (trees harvested with soil and wrapped in burlap) are heavy and more expensive. And regardless of location, all tree planting sites must undergo mandatory "Dig Safe" utility inspection, officially known as Underground Facilities Protection Organization (UFPO) review.

Tree planting success cannot be measured by funding alone: the true metric is survival. Survival rates of planting projects are measured 1 year after planting, but it is also important to track how well trees are doing 3 and 4 years later, what foresters call establishment: when a tree's roots can grow new shoots and foliage. Transplanting is very stressful to trees. Many that do not fail in the first year die in the next two years. For this reason – and a host of others – planting survival is rarely 100%. Aside from correctly planting a tree in the first place, the next important step is to make sure it gets sufficient rainwater; and failing that, be manually watered every few days. Tree irrigation bags attached to trees make this work much easier, but this time, labor, and materials add additional costs.

The Owasco Town Council took key steps in February 2021 when it formally adopted an official tree planting list, an official practices guidelines, and an official tree permit form for all residents and contractors doing tree work in the public rights-of-way. These actions are necessary prerequisites to a durable, long-term tree care strategy.

2. The low diversity of street and park trees in Owasco. A key element of sustainability urban and community forest management is to strive to achieve the highest practical level of diversity among street and park trees. This is not easy because streets trees endure difficult growing conditions. In most cases, street-side



planting sites are poorly drained. Soils along streets are typically of poor quality, and as they are surrounded by hardened “grey” infrastructure of sidewalks, curbs, roads, and pipes of all kinds, the site can become compacted rather quickly. Add to this the impacts of heat, salt, and careless drivers, your result is a challenging place to grow a healthy tree. For these reasons, many trees simply cannot survive street conditions, and foresters are left with fewer and fewer trees for planting. Still, the days of planting one kind of tree along a street are over, and every effort to diversify the street and park tree population of Owasco should be perused. Work is already underway. In 2021, the Owasco Tree board adopted an official list of trees for street and park planting, and along with new tree work permit guidelines for public and private contract work on Town rights-of-way.

3. Work plan. The next two goals identified in this plan emphasize data and biodiversity:

1. To maintain a street and park tree inventory.
2. A tree canopy that is structurally and biologically diverse, with plants that reflect the natural heritage of the community.

Achieving sustainability through public forest resource development demands having real-time data on forest resources. It is the mandate of the Town’s Tree Board to oversee the annual inspection of public trees and the maintenance of the street and park tree database. On a day-to-day basis, this will require the Town to retain the services of an ISA certified (International Society of Arboriculture) arborist capable of carrying out street and park tree inventories, with the ability to update a geospatially-referenced database with the data consistent with New York State DEC standards. For example, in 2019 the DEC required the following minimal information:

- Column headings and description of column content,
- Measurement of tree DBH (diameter at breast height) in inches,
- Tree species – genus/species AND common names needed,
- Street address location,
- GPS coordinates,
- Location and size of empty and/or potential tree planting sites/stumps appropriate to applicant’s current planting and removal patterns,
- Crown condition and/or percentage of crown dieback (excellent to dead rating),
- Maintenance recommendation (prune, train, remove, etc.), and,
- I-Tree ECO Summary report of environmental benefits.

(Source: Request for Applications, 2019 Urban and Community Forestry Grants Program.)

Given the number of large trees along Town Rights of Way - particularly along the Avenues - the Town must also devise a tree risk management strategy that is based

on the contemporary principles and practices of the International Society of Arboriculture (ISA) Tree Risk Assessment protocols. In this approach, the Town would engage the services of a contractor with ISA Tree Risk Assessment Qualification (TRAQ) certification and the findings of such assessments would enter the Highway Department's work flow in a consistent way that can ensure that identified tree risks are recognized and addressed, and that each step in the flow of management information is fully documented.

It is vital the Tree Board recognize the character of the current forest and the necessity to introduce species variety into the community forest with each planting season. As the bridge between the forest, the community, and the Town Council, the Tree Board must strive to grow a resource that is biologically diverse, with plants that reflect the natural heritage of the community. It is an axiom of forestry management to conduct operations that achieve more than one goal at a time. Labor and material costs are such that operators must combine activities to the greatest extent possible, and the Tree Board must combine tree removals with plantings to the greatest extent possible. Such an approach is key to transforming reactive habits to proactive management practices.

4. Cradle-to-Cradle brush management. Cradle to Cradle is a design framework devised and promoted by Michael Braungart and William McDonough. Central to the concept is that nothing in nature is wasted: all nutrients in a functioning ecosystem have a role to play. Instead of treating nutrients as waste that ends up in graveyard, nutrients that have no evident use can be reconsidered and brought into practical use if care is taken in their selection and development. Gardeners and landscapers do this all the time when they convert leaves, stems and wood to mulch through composting. Communities can do this as well, and Owasco is mandated through the Town's tree ordinance to have a sustainable brush composting and disposal program.

As of this writing, brush management in Owasco has undergone significant changes. Prior to 2020, the Town accepted brush from anyone, 24-7, 365. This included huge logs from arborists, grass clippings and brush from regional landscapers, and people interested in dumping clippings and invasive plants at all hours of the day or night. All this material was accepted over and above the road-side brush service the Town offers residents each week from April to September, and residential leaf pick-up every day in October and November.

For many years the Cayuga County Soil and Water District offered their tub-grinder at above-market rates to cooperating municipalities, but this machine saw so much use it fell out of repair and has been out of service for several years. By 2019, the Town spent over \$30,000 to have this growing brush pile ground up by a commercial tub-grinder operator. These high costs, together with a DEC Consent

Decree over wetland filling at the highway department have forced the Town to limit brush disposal at the highway department to residents only, and only during limited hours. During all this time residents were allowed to remove mulch as needed from the brush pile, even though the piling method in use did little to degrade weeds and seeds in the piles.

In the months following the Town's compliance with the wetland remediation plan, the Town has contracted grinding services with a new operator and has drastically reduced its grinding fees. This is fortunate, as brush management during the 2020-21 Covid-19 Shut-Down exploded; residents spent many hours working on their landscaping, and brush loading in the Town more than doubled, placing huge burdens on staff and available space at the highway department.

Limited space and staffing costs currently dictate brush management, and as a consequence nearly all the brush leaving the site never returns. This includes all the leaves collected every Autumn that are given away to a local tree growing operation. There are two reasons for this: limited space and staffing. The Town's work area at the highway department is just over 2 acres, and half of this is inside the 100' regulated wetland buffer. The law allows current use in the two acres, and that space must accommodate brush, hard fill, equipment, and road building supplies ranging from culverts and signs to playground equipment.

The Town Highway Department currently handles an average of about 45 truck loads of brush every month, from April to October. Their leaf shredder/compactor is loaded 4 to 5 times a day, every day for nearly 40 days. All of this material is stored temporarily; once it is hauled away it does not return. At this point, the Town does not have the space or staffing necessary to conduct a state-of-the-art brush composting system. However, as per the Town's tree ordinance, it is incumbent on the Tree Board's management plan to recommend a new approach, and there are basically two options.

To kill weeds, composting must achieve temperatures between 130 - 165°F. This can be reached with a good C / N ratio in the brush mix, but by and large aerated systems are best. The two systems of choice are aerated bay systems, and aerated static pile systems (see images below). Aerated bays are very common on Cayuga County farms, and have the advantage of requiring less frequent pile turning than static pile systems. They can be easily scaled to handle a loader and the forced air quickly breaks down woody material into good, high-quality mulch. Like all aerated composting systems, it is necessary to regularly wet-down the compost piles, and aerated bay systems are typically constructed with built-in sprinklers or operators use vehicle-mounted sprayers to keep the compost healthy.

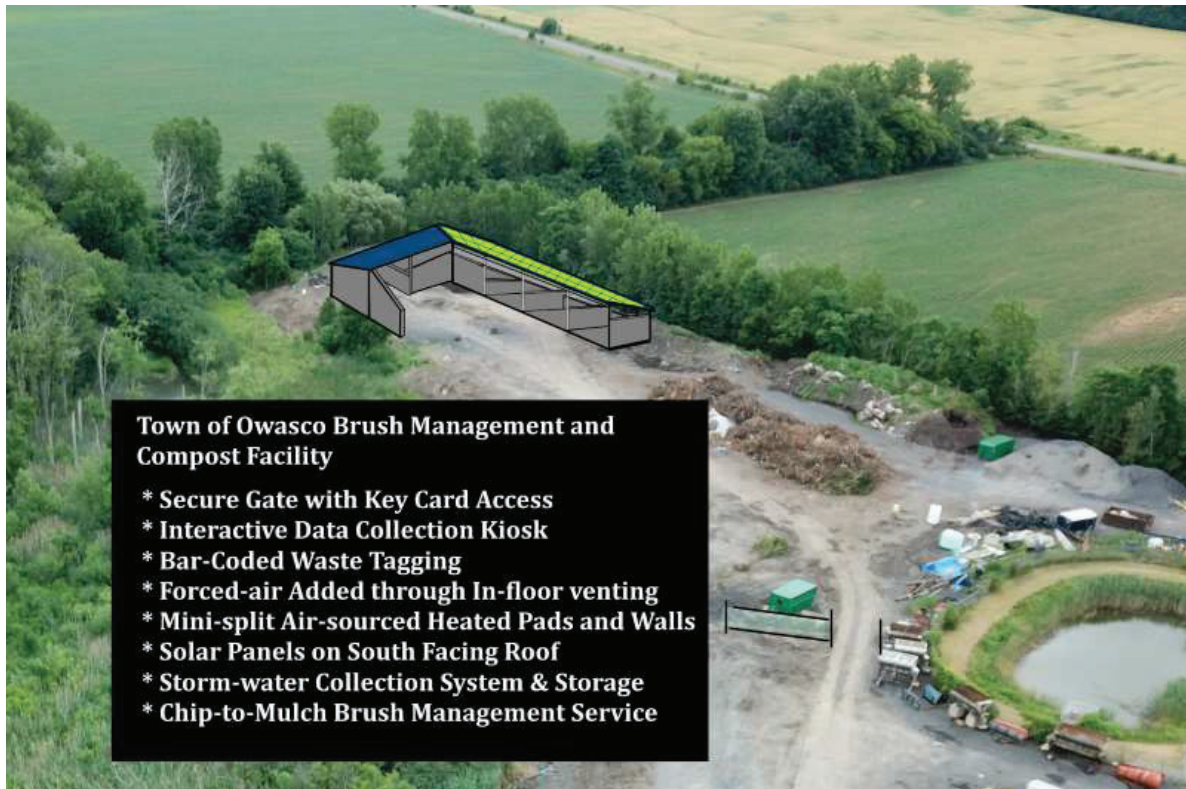


## Aerated bay systems



Aerated static piles are typically the entry-level system. One local example is the system at the Oswego County Solid Waste facility, though it is favored by consulting groups in upstate NY as well. Static piles are popular because it is the simplest and least costly approach; because piles are turned with tractors or skid-steers, the labor costs are somewhat lower, and therefore it is the least equipment intensive method. Compost is created nearly as fast as in the bay system, but operators use standard sprinklers or hoses mounted to power take-off connections. Town staff are satisfied with the current approach even though all the biological resources generated from street and park trees and lawns, together with the brush and leaves from residents are sent off-site. “Sent” is not the proper word: the brush is disposed of *because* it is seen as waste and not a resource. This view holds in spite of the many human and equipment hours devoted to collecting a resource for which the Town does earn any return. Even though the new status-quo is successful because it is considered the best use of time and resources at the moment, all staff agree it is necessary to have a secured area of the Highway Department where residents have key-fob/card access for both regular and invasive plant drop-off. A public education program is necessary to acquaint residents with new drop-off procedures, and even if the Town never adopts an aerated composting system, it will be important to gather brush data from residents to track and learn when and how much brush is being brought to the facility.

# Aerated static pile systems



**Town of Owasco Brush Management and Compost Facility**

- \* Secure Gate with Key Card Access
- \* Interactive Data Collection Kiosk
- \* Bar-Coded Waste Tagging
- \* Forced-air Added through In-floor venting
- \* Mini-split Air-sourced Heated Pads and Walls
- \* Solar Panels on South Facing Roof
- \* Storm-water Collection System & Storage
- \* Chip-to-Mulch Brush Management Service

Idealized Composting Facility at the Owasco Highway Department.

The basic flow-through of brush at the Owasco highway department could include:

Residential brush drop-off areas for regular and invasive plant materials directed by QR-Coded signage,  
Facility separation and screening areas,  
Chipping area, and,  
4 bunkers, last three with air, last two with heat.

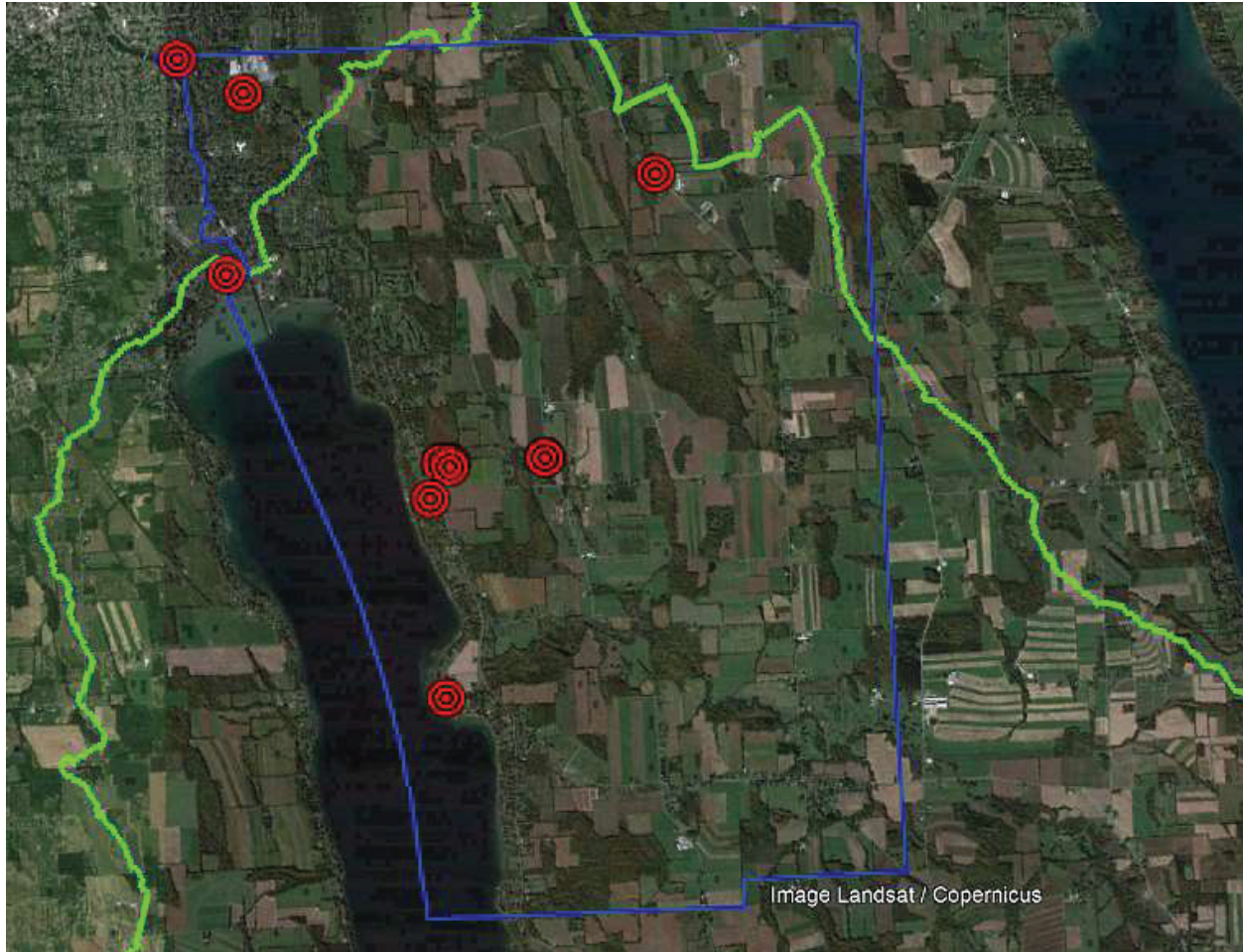
5. Invasive species control. Adopted goals of the Owasco Tree Board include the necessity to manage invasive terrestrial plant species, and encourage private property owners to steward their land. Each informs the other, as upland invasive plants are becoming a more common problem in the Township. Notable terrestrial invasive plants include:

Amur honeysuckle (*Lonicera maackii*),  
Autumn olive (*Elaeagnus umbellata*),  
Black locust (*Robinia pseudoacacia*),  
Border privet, (*Ligustrum obtusifolium*),  
European buckthorn (*Rhamnus cathartica*),  
Garlic mustard (*Alliaria petiolata*),  
Japanese knotweed (*Fallopia japonica*),  
Marestail (*Erigeron canadensis*)  
Multiflora rose (*Rosa multiflora*),  
Norway maple (*Acer platanoides*),  
Pale swallow-wort (*Cynanchum rossicum*),  
Phragmites (*Phragmites australis*), and  
Purple loosestrife (*Lythrum salicaria*).

All have become ubiquitous in Owasco, and all are a regular part of the Town's brush material flow. And all except Norway maple and Black locust are *prohibited* under NYS law and cannot be sold, imported, purchased, transported or introduced. Though Norway maple and Black locust are not prohibited under NYS law, these two are *regulated* plants and can be owned and transported, but they cannot be legally introduced in a "free-living" state.

Though not as common as buckthorn, multiflora rose, or Norway maple, Japanese knotweed is poised to become a serious nuisance in Owasco. Only people who have combated this tenacious plant understand how truly difficult it is to eradicate, so it is not getting the attention it deserves.





Japanese knotweed stands in Owasco, 2021

We need an Owasco Invasive Plant Program, (OWIPP), modeled after the program founded by Douglas Johnson, M.D., a volunteer conservationist then living in the Adirondacks. Dr. Johnson's team of volunteers partnered with the Hamilton County Soil and Water Conservation District to secure state DEC pesticide technician training for volunteers, and link volunteers with landowners to get Japanese knotweed under control. Though there is a passive, kill-screen technique

Imapinvasives # \_\_\_\_\_ GPS \_\_\_\_\_

**INDEMNITY AGREEMENT: TOWN OF OWASCO INVASIVE PLANT PROGRAM  
INVASIVE SPECIES CONTROL WORK COMMERCIAL LAWN APPLICATION CONTRACT**

\_\_\_\_\_, with a mailing address \_\_\_\_\_,  
phone \_\_\_\_\_; email \_\_\_\_\_ is the owner or agent (hereinafter  
referred to as the "Owner") of property located in \_\_\_\_\_ County, New York, which  
property has a street address of \_\_\_\_\_ [or other identifier] (hereinafter  
referred to as the "Property").

Owner, in consideration of receiving assistance from \_\_\_\_\_ County Soil & Water Conservation District  
(CSWCD) in controlling invasive species on the Property, hereby agrees as follows:

Owner agrees to the physical, chemical or biological removal of invasive species from the Property by the CSWCD  
(including employees, contractors, volunteers), and releases from liability and agrees to hold harmless the CSWCD  
(including employees, contractors and volunteers) from and against any and all claims arising from these invasive  
species control activities on the Property, whether such activities involve the physical removal of invasive species  
from the Property, the use of chemical or biologic control activities, or any other activity that the Owner and  
CSWCD mutually choose to employ on the Property.

Owner recognizes that there may be risks associated with all forms of invasive species control activities, and  
acknowledges that the CSWCD has made no representations, express or implied, about any such risks.  
Invasive plant control measures using herbicides to treat Japanese Knotweed (*Fallopia japonica*) will include  
three applications of glyphosate: Accord or Rodeo concentrate (EPA Reg. No. 62719-324), Accord XRT II (EPA  
62719-556) by pesticide applicators selected by the CSWCD: \_\_\_\_\_, NYS Certified Commercial Pesticide  
applicator # \_\_\_\_\_; \_\_\_\_\_ Auburn, NY 13021 315-\_\_\_\_-\_\_\_\_; NYSDEC Pesticide Business  
Registration # \_\_\_\_\_.

The approximate date of application is \_\_\_\_\_ to \_\_\_\_\_. (Alternate dates \_\_\_\_\_ or  
\_\_\_\_\_). If needed, there may be additional pesticide applications during those dates \_\_\_\_\_ to \_\_\_\_\_. The  
property owner or owner's agent may request the specific date or dates of the application(s) to be provided and, if  
so requested, the pesticide applicator or business must inform the owner of the specific dates and include that  
date or dates in the contract. There will be no charge to the owner, with costs covered by donations from owners  
and others, grants, and the town/county. There is no guarantee that the control work will be performed. Included  
with this contract is a list of the pesticides to be applied and any label warnings that are pertinent to the protection  
of humans, animals or the environment.

Executed on this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

Property owner or owner's agent signature/printed name: \_\_\_\_\_

If appropriate: Pesticide Applicator or Business Signature and Title \_\_\_\_\_

Please send donations payable to Town of Owasco - OWIPP and mail to address below  
with your name, address, email, and phone.  
\_\_\_\_\_ County Soil and Water Conservation District e-mail: \_\_\_\_\_@\_\_\_\_\_.

For More Information on Knotweed Control go to [www.noowascoknotweed.org](http://www.noowascoknotweed.org)

Draft sample landowner indemnification form to connect landowners with  
invasive Japanese knotweed control services.

from the U.K. that is being tried at the Owasco Highway Department, most success  
in killing knotweed has been achieved with stem injection of herbicides. Timing  
and technique is vital in this approach, but connecting landowners with knotweed  
with a service they will accept is just as important. In the Adirondacks, Dr.  
Johnson and his volunteers developed an indemnity agreement form (see sample  
above) that allows certified volunteers and staff to treat knotweed on the property



of willing landowners who are encouraged to donate funds to a dedicated account set up to offset the costs of equipment and chemicals. In the years their partnership has been active, the Adirondack effort has successfully treated hundreds of sites contaminated by Japanese knotweed.

In the Adirondacks, the Regional Inlet Invasive Plant Program founded by Douglas Johnson, M.D., determined the most effective treatment for Japanese knotweed to be:

- Herbicide treatments after knotweed has started to flower and prior to hard frost (when taking nutrients to root system) to a plant that has not been cut down
- Inject 2 ml of concentrated (40-52%) glyphosate to each cane, and foliar spray of 5% glyphosate with surfactant to canes too small to inject
- Do not cut down knotweed for several weeks after treatment so the herbicide will get to root system

Dr. Johnson's Japanese knotweed control network have used Glyphosate injection (with foliar spray of plants too small to inject) resulting in killing of roughly 90 to 95% of plants on sites treated. At these locations, the stem-injection technique was used two years in a row, with only a few tiny plants remaining. On sites treated for up to three years, many stands were completely killed, while some still had a few tiny plants growing. If more landowners knew the consequences of this terrible plant degrading the Owasco Lake Watershed, they would join our efforts to eradicate this invasive plant.

6. Planting and restoration projects that compliment Owasco Lake watershed management. Effecting meaningful change in Owasco Lake and the Owasco River water quality requires the adoption of carefully crafted green technology - i.e., plants - especially in catchments with degraded buffering capacity. This gets to the heart of watershed management: the conservation of land to effect change in surface water quality. Here are two examples to illustrate how thoughtful planting can make a difference in mitigating storm water run off. The first is an intensive street tree replanting project built into an existing effort, the "Town of Owasco Inflow and Infiltration Reduction Improvements Project". The second is a conceptual example of small-scale run-off mitigation for the Town park, an example of a neighborhood-scale rain garden demonstration project.

The "Inflow and Infiltration Reduction Improvements Project" (I&I for short), is a capitol project on three Town of Owasco streets: 950 feet along Third Avenue, 1,150 feet along Van Duyne Avenue, and 1,750 feet along Stryker Avenue (see Map below). The project will reduce the inflow and infiltration of storm water into the sanitary sewer system, thereby reducing the costs the Town pays the City of Auburn to treat the combined flow at the City's wastewater treatment plant on Bradley Street, along the Owasco River in the NW corner of the City. Along with



replacing the existing aging clay piping under those streets, the project will prevent sewer overflows that negatively impact Owasco River water quality.



Project streets highlighted in pink, trees and open sites in blue, management unit bounds in red.

The majority of the inflow and infiltration is generated from homes with connections that combine sewer and storm water in one pipe. This problem can only be addressed by replacing the existing storm water infrastructure. Replacement of this “grey” infrastructure will cost upwards of \$25 million, and involve significant construction along the streets - work that will certainly impact existing street trees. A project of this magnitude is an opportunity to strategically

remove low quality street trees of every size class, grind all stumps, and replant with fresh trees that can meet the Town’s goals.

Of the 68 trees and planting sites depicted on the map above, 13 are on Third Avenue, 13 are on Van Duyne Avenue, and 16 are along Stryker Avenue. The break down is as follows:

Street	Trees	Open Sites
Third	13	10
Van Duyne	13	16
Stryker	3	13

Of the 26 trees along Third and Van Duyne Avenues, 17 are Silver maples, with the remainder a mix of two Norway maples, two small Sugar maples, an aging Japanese maple, a small catalpa, a cherry tree, one pear, and a flowering crab. The major expense on this project is clearly removals and stumping, but it makes no sense to proceed with a major upgrade of the grey infrastructure without addressing the impacts to and opportunities with improving the green. Cost estimates for this work are included in Part 4 of this plan.

The second example of a planting and restoration project demonstrates how a neighborhood-scale rain garden can reduce storm water run off and improve downstream water quality. Since developed landscapes include a substantial area of impermeable surfaces, sudden surges of runoff from rain events often overwhelm existing drainage infrastructure. The rapid flow of water and the flooding that can result can be quite damaging, and the runoff often contains many contaminants from road and roof surfaces. Rain gardens situated in low areas of the landscape are designed to gather surface water run off generated from rain fall and snow melt, transpire the excess with water-loving plants, and delay its flow to surface waters by helping it soak into the ground. When planted with water-tolerant grasses and flowering perennials, well-designed rain gardens are a charming and cost-effective method to reduce surface flows from storm water runoff (see illustration, below).

The Eastern, higher elevation area of the Owasco Park and School complex is dominated by impervious surfaces (see Map, below). Much of the school site - roofs, roads, and parking areas - drains a single culvert that crosses under Letchworth Street and enters the Town Park. During high rainfall events, a enormous amount of water is quickly generated and it flows Westward along the Northern half of the Park toward the playground, bocce ball courts, and the Fire House. A substantial volume also flows toward homes along the Southern



Community Forest Management Plan for Owasco, New York



Typical rain garden. Public domain image by Moreau1, 24 December 2007, Dennis Ave. Health Center, Wheaton, MD.



Impermeable Town roads and structures at the Owasco Elementary School in grey.



edge of the Park. Indeed, flooding along Owasco Road in front of the Fire House must be carefully managed else it can impact Fire Department operations (see photos, below).



Flooding after Park uplands storm surge, Summer 2021. Left photo looking from Fire House, NNW. Right photo from Fire House looking NNE. Photos by Nate Vevone, 2021.

There are opportunities to address this problem at the Eastern, higher elevation area of the site. Given the site's proximity to the School, it can serve as a locus of forest conservation and watershed protection education. The lay-out of the site affords two key demonstration opportunities:

- First, to establish native plantings to help our community learn about plant conservation in the Owasco Lake Watershed, and;
- Second, to demonstrate water run-off mitigation practices that can have a practical and much needed effect on reducing water run-off from the Park.

Despite their ecological merit, it is to be understood that in the past most residents did not appreciate the aesthetic appeal of crowded, mixed clumps of old meadow plants full of Golden rod, New England aster, Back-eyed Susan, and common Milkweed. Neither were they interested in allowing a thick understory of native shrubs to colonize the shadier parts of their property. In that older, more common perspective, most suburbanites reached for their string trimmer before they ever consider looking for their 35mm camera. But this perspective has changed.

In recent years, homeowners, gardeners, and school children have become increasingly aware of the ecological services provided by pollinating insects and birds. Most everyone is familiar with the challenges facing honey bees, and every educated person is increasingly concerned about the difficulties migrating Monarch butterflies encounter along their astounding migratory path from Mexico, through the United States, into Canada and back again. Virtually all nursery stores and catalogs now provide plant material for the growing market demand for pollinator-friendly plants. Seymour Public Library in Auburn has a nice little pollinator

garden, and even the New York State Department of Transportation now encourages no-mowing zones for pollinator plant zones along NYS roads.

Still, most of us prefer a somewhat managed look to our landscapes, and in a park it is especially important to garner support. The basic idea is to establish well-managed native pollinator beds anchored by native trees and shrubs that are surrounded by grass. It is important to grow the plants within a setting that helps our largely suburban residents learn about the role of native plants in the landscape, and experience how these plants help conserve vital pollinators and combat invasive plants. In this updated perspective, our friends are more likely to pull out their phone to take a picture long before they reach for their trimmer. This conservation aesthetic is grounded in the ideal of recognizing the ecological role of all the members of the natural community, and affords an opportunity to create a beautiful asset for the Town as we establish an educational resource for the entire watershed.

Existing trees provide alternating North- and South-facing sites that allow practical demonstration of plant communities that are adapted to differing degrees of shade tolerance. And since the majority of water run-off is concentrated at one location, there is an opportunity to demonstrate mechanical and vegetation control over storm water run-off. This project can be executed in phases, as funding and design details develop, and estimated costs are included in Part 4.

#### 7. Forestry activities memorandum of understanding on mixed rights-of-way.

Management Challenge 8 drew attention to the difficulties approaching the management of Owasco's community forest in County and State rights-of-way (18 and 8 road miles in Owasco, respectively). Many residents want trees planted in front of their homes, but spending scarce Town funding in another municipality's bailiwick - not to mention adopting liability there at the same time - complicates program development. For these reasons, the Town Tree Board has directed staff to reach out to the relevant County Highway Department official and State Department of Transportation officers to open discussions. We hope this will begin the crafting of mutually-supportive memorandum of understanding to help guide the Town in delivering community forestry services to residents living along County and State rights-of-way.

8. Volunteer tree planting. Decades after the City of Ithaca partnered with Cornell University's Urban Horticultural Institute to muster the "Ithaca Tree Works" volunteer tree planting program, many upstate New York communities continue to plant trees in the Ithaca tradition. Syracuse, Rochester, Fayetteville, and Auburn all have a volunteer tree planting corps to help municipalities meet their planting goals. Owasco is following suit, and celebrated its first bare-root tree planting on

November 6<sup>th</sup>, 2021. Owasco will use the Town’s website and social media postings to notify supporters, and grow the program in the years ahead.

At this writing, a new regional partnership is underway to foster an “Auburn Conservation Corps” as a way to introduce and provide Cayuga County youth experience in environmental resource conservation. Beginning with a summer program at Cayuga-Onondaga BOCES, students can learn about outdoor careers like arboriculture, forestry, watershed management, utilities management, soil conservation, wetland delineation, stream health monitoring, and wildlife habitat restoration through practical, hands-on experience. Young people brought into the local conservation community can help fill the future ranks of a volunteer tree planting effort in Owasco.

9. Funding. Three categories of financial program support are described here: donations, Town budget, and grants. First, donations. Funds donated to a municipality in New York State must be handled in a particular way, as reserve accounts. Owasco created their own Owasco Tree Planting Reserve Account in 2021 and named it the Bob Brower Memorial Tree Planting Fund. This funding stream helps honor the memory of Bob’s devotion to Finger Lakes stewardship, his commitment to geospatial technological innovation and enterprise, and his tireless work in fostering new conservation partnerships in the Owasco Lake watershed. These funds are available for purchasing street and park trees, as well as plant material for ecological restoration, streamside conservation, and watershed protection and management in the Town of Owasco. Town budgeting and grant funding will be described in Part 4.

It is apparent when reviewing the description of the forest resources in each management unit in Part 2, that many of the management challenges pertaining to community forestry are best seen in a regional, watershed perspective. This is certainly true when thinking about confronting invasive plants, and will bear on any project focused on ecosystem restoration and runoff mitigation. Private landowners often ignore ticking ecological time-bombs like Phragmites and Japanese knotweed not from a lack of concern, but from a lack of options. And indeed, farmers are already devoting time and money to control invasive plants that complicate management and reduce crop yields.

Approaches that regulate people are not dissimilar from approaches that incentivize people – they each involve a measure of control. Neither ask “what is the obstacle?”, and so any approach based on either carrots or sticks will not succeed in a community as culturally rich and naturally blessed as Owasco. For these reasons alone it is incumbent on the community forestry efforts to continue to build on the partnership model already proven successful with the Owasco Lake Watershed Management Council and the Owasco Watershed Lake Association. As



the community forestry work in Owasco is founded on a sub-watershed unit basis, it is only logical to partner with these regional leaders.

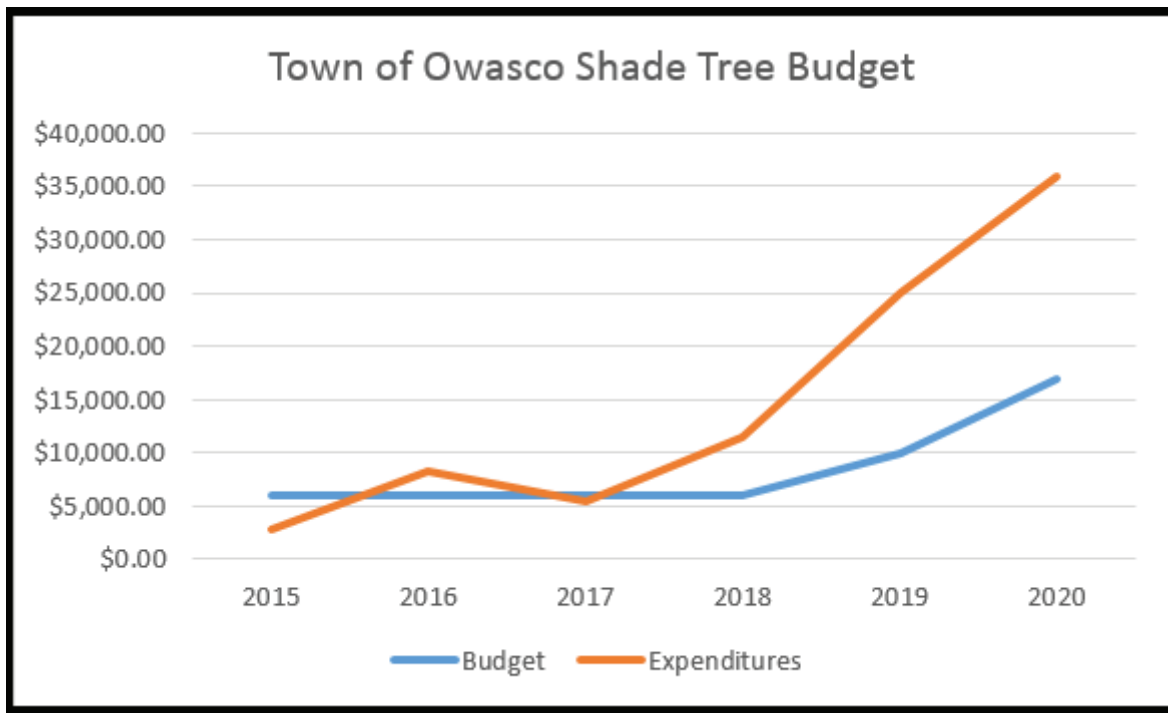
**Part 4: A program for Owasco's community forest**



Birds-eye View of Tree Pruning on Owasco's Avenues. Photo left, courtesy of Cranebrook.  
Tree planting in Owasco, November 2021. Photo by Kelly Rocheleau.

Owasco’s Tree budget line has been increasing in recent years, and expenditures have exceeded budget expectations in nearly every year. Town of Owasco shade tree budget line, A8560.400:

Year	Budget	Expenditures
2015:	6,000.00	2,870.00
2016:	6,000.00	8,200.00
2017:	6,000.00	5,419.60
2018:	6,000.00	11,500.00
2019:	10,000.00	24,947.10
2020:	17,000.00	36,000.00 (estimate)



There’s little doubt expenditures are outpacing budget estimates because of contracted tree removal costs. For example, in 2020 the removal of 6 trees and the pruning of 1 other totaled \$13,950. Based on these contracted removals, the cost for removing one large and dangerous tree is \$3,000 (\$2,160 will be used as an average). The problem facing Owasco is that there are many large and dangerous trees that should be removed, and to keep pace with planting goals the Town must budget for tree planting and forestry planning as well.

The modern standard for urban and community forestry planning in New York State has been established by the NYS Department of Environmental Conservation’s Urban and Community Forestry Funding benchmarks. These



policy guidelines essentially require professional staffing to develop appropriate operational standards that include:

- Tree Board involvement and oversight of forestry activities;
- Community forestry planning, including tree inventory and database maintenance, and management planning;
- Tree assessments, planting site assessments, tree planting, and pruning;
- Grant writing and Tree City USA Certification application support;
- Planning and promoting tree planting celebration support; and the
- Cultivation and deployment of volunteer tree planters and planting events.

All of these activities requires an on-going effort to create, cultivate, and nurture relationships for a sustainable effort that will yield predictable results.

### Basic Management Costs

Data from the 2019 Owasco Street and Park Tree Inventory tells us of 65 trees that should be scheduled for removal: 38 are of the highest priority, in poor condition, causing potential utility conflicts. Most of these trees very large silver maples; in fact, two dozen of these trees are high priority due to severe utility conflicts, and represent opportunity for tactical partnership with power utility to combine resources to remove these trees. (Indeed, the location and details of these trees were shared with New York State Electric and Gas in 2020.) Following these 38 trees, there are 27 more that should be removed as time and funding allows.

In addition to these potentially hazardous trees, there are an additional 37 Green ash trees that are vulnerable to the Emerald ash borer, an invasive insect that is killing ash of all species all over the United States. Although trees can be kept alive and healthy with the application of advanced insecticides, trees must be treated every other year for the life of the tree. Most communities cannot afford this and opt for removal, and in Owasco's case we should note that only 2 of the 37 street and park ash trees in the Town are in good condition. In this instance, removal of all ash trees makes sense.

With the total removal candidates now to 102, the total estimated cost of tree removals in Owasco is high.

Estimated Removal Costs of 102 trees: \$306,000
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Estimating tree planting costs will depend on how many trees, what kind of planting technology is used, and who does the work. First, let us consider how many trees. In October 2015, Town of Owasco Climate Action Plan identified specific steps Owasco can take to mitigate the community's GHG production and more successfully adapt to the climate changes we are already experiencing here in the Finger Lakes. The Climate Action Plan Advisory Committee recommended

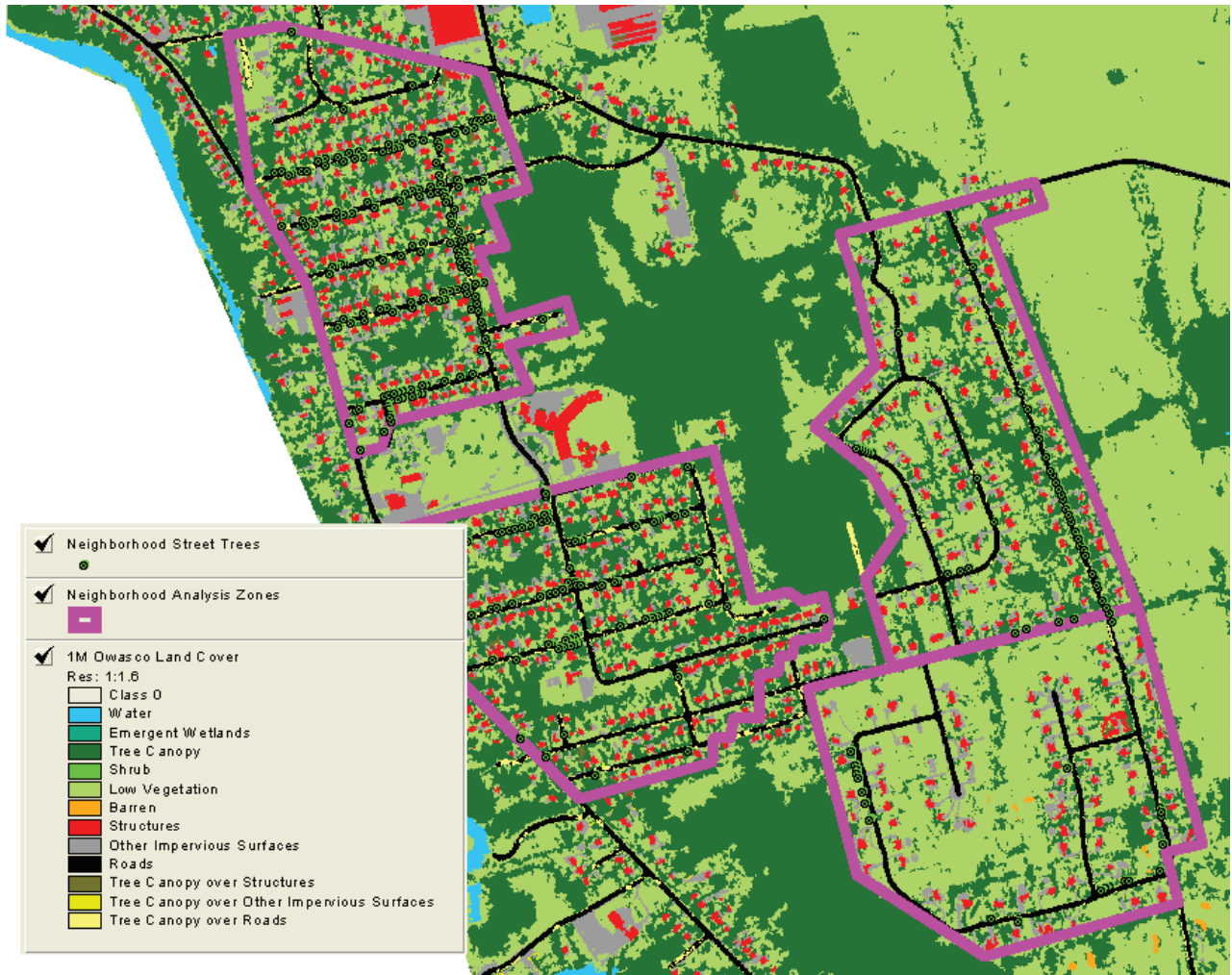
storing carbon through tree planting and recognized that even if only 20% of Owasco households plant trees, the Town can reduce its carbon footprint by 73 MTCO<sub>2</sub>e (Metric Tons of Carbon Dioxide Equivalent) by the year 2025. Working off 2000 Census Data, there are 1,425 households in Owasco, and 20% of this number is 285. Following the Climate Action Plan approach, this is about 30 trees per year.

Estimated tree planting costs for 30 trees per year:  
Fall season planting of 15 bare-root trees, including UFPO stakeout, site prep and planting with volunteers: \$2,366.25  
Spring season planting of 15 B&B trees, including UFPO stakeout, site prep and planting: \$5,425.95  
Total: \$7,792.20 per year

This challenge is further complicated by the necessity to establish sufficient number of trees to meet a 50% tree canopy. Total numbers of trees needed to attain such goal based on the area of the management units as a whole are:

Tree Canopy Goals by Management Unit	Tree Canopy % Today	Tree Canopy Acreage	Acres of Tree Canopy Needed to Reach 50% Tree Canopy	Total Trees Needed
Melrose Park	32.79%	83.93	44.07	568
Owasco River	44.56%	305.18	37.22	180
				747

This would require planting 75 trees per year for ten years to achieve this goal. However, not all the acreage in each management unit is residential, so the tree canopy analysis at the management unit level actually *underestimates* the number of trees needed. What are the projected needs if only those residential areas alone within each management unit are examined? Using 1M land cover data, four sample “neighborhoods” are manifested to examine the urban tree canopy in each:



Case study of four “neighborhoods” in Owasco. 2013 1M Land Cover.

The sample neighborhoods are:

- Avenues North: 167 street trees provide 64,908.0 sq. feet of canopy cover
- Avenues South: 82 street trees provide 37,134.5 sq. feet of canopy cover
- Hidden Brook: 24 street trees provide 7,056.9 sq. feet of canopy cover
- Oak Ridge: 44 street trees, provide 22,378.5 sq. feet of canopy cover

It is helpful to note that 139 Silver maple and 36 Sugar maple trees in the study neighborhoods make up 55.2% of the trees, and account for 59.1% of the street tree contribution to the total canopy measured there. While none of these study areas meet the 50% suburban tree canopy standard, it is clear that the loss of large trees will erode the canopy percentages even further, and in the case of Oak Ridge and the Avenues North and South study areas where these large trees make a significant impact on the tree canopy.



Community Forest Management Plan for Owasco, New York

Tree Canopy Goals by Study Area	Tree Canopy % Today	Tree Canopy Acreage	Acres of Tree Canopy Needed to Reach 50% Tree Canopy	Total Trees Needed
Avenues North	41.47	30.48	6.27	281
Avenues South	41.62	32.63	6.57	277
Hidden Brook	18.36	15.24	26.26	1,044
Oak Ridge	33.46	25.46	12.59	546

Tree Canopy Percentages and Planting Goals in Four Study Areas of Owasco.

Obviously, the Town alone cannot plant this many trees in the public rights of way, and therefore residents must plant more trees. How many? If just 3 trees were planted on each lot in the study areas, the goal would be met.

Special project costs for ecosystem restoration projects, mechanical and herbicide control of invasive plants, and surface water runoff / rainwater retention basin are highly specialized and cannot be summarized as easily as the costs for removals and planting. However, since the need for such projects occur on a neighborhood basis, it is appropriate to discuss tree benefits and management challenges that are evident at the Management Unit level.

The three budget categories for a basic tree program budget are tree removals, tree planting, and staffing. Per tree figures are as follows:

Removals. Based on the 2020 figures cited above, the average 2020 contracted cost for a tree removal is \$2,160.00. (\$3,000 for one large tree). (Note: the stump grinding provided by the County-approved principal contractor - about \$400 per stump - are not factored in here, but do appear in the I & I project example, below.)

Tree Planting. The 2021 average bare root tree cost is \$90. With volunteers to help plant these trees, the average planting cost per tree is \$67.50, so the total cost of planting a bare root tree is \$157.50. This is consistent with 2021 figures reported by the Cities of Syracuse and Auburn. Balled and burlapped trees (B&B) cost more: the 2020 average B&B tree was \$136.00. With public employee-only planting, the average planting cost per B&B tree is \$90.00 per tree, so the total cost of planting a B&B tree is \$226.00, more than 40% over the cost of planting a bare root tree. This is why most upstate NY municipalities plant about half their trees in the Fall season with bare-root trees, and the other half in the Spring season with public crews. (Note however, that private contractor costs in Syracuse range from \$450 to \$700 per tree, depending on caliper). This approach provides successful planting results since the easiest trees are planted in the Fall and the more difficult transplants are better established with Spring B&B planting.

Staffing. Staffing costs beyond specialty consultation in drafting a management plan, conducting an inventory, or supporting a wetland remediation for example, was \$2,225.00 in 2020.

**Budget Option 1.** Without extrapolating from the Town’s budget trend lines, a status quo, reactionary budget for shade trees would be:

Removals. 6 trees will be removed per year.	\$12,960.00
Planting. 6 B&B trees, Fall & Spring.	\$1,356.00
<u>Staffing. Tree &amp; Site assessments, Tree Board.</u>	<u>\$2,225.00</u>
Total:	\$16,541.00

Such a budget does not vary much from current policy, except that it excludes adopting bare root tree planting technology in the Fall planting season, and maintains the current policy of staffing the Owasco tree board, celebrating National Arbor Day, and securing an annual Tree City USA certification. However, this budget does not have a vision to partner with regional organizations, foster a volunteer tree planting corps, or seek outside funding.

**Budget Option 2.** Extrapolating beyond the Town’s budget trend lines, an all-out, full cost shade trees budget funded solely by local budgets in one year would be:

Removals. 102 trees will be removed.	\$306,000.00
Planting. 50 BR in Fall with volunteers	
50 B&B in Spring with contractor.	\$30,375.00
<u>Staffing. Tree &amp; Site assessments, Tree Board.</u>	<u>\$11,125.00</u>
Total:	\$347,500.00

These figures are impractical for many reasons, yet provide a necessary comparison to shape a more realistic budget.

**Budget Option 3.** Extrapolating from the Town’s budget trend lines, a strategic shade trees budget funded solely by local budgets in one year would be:

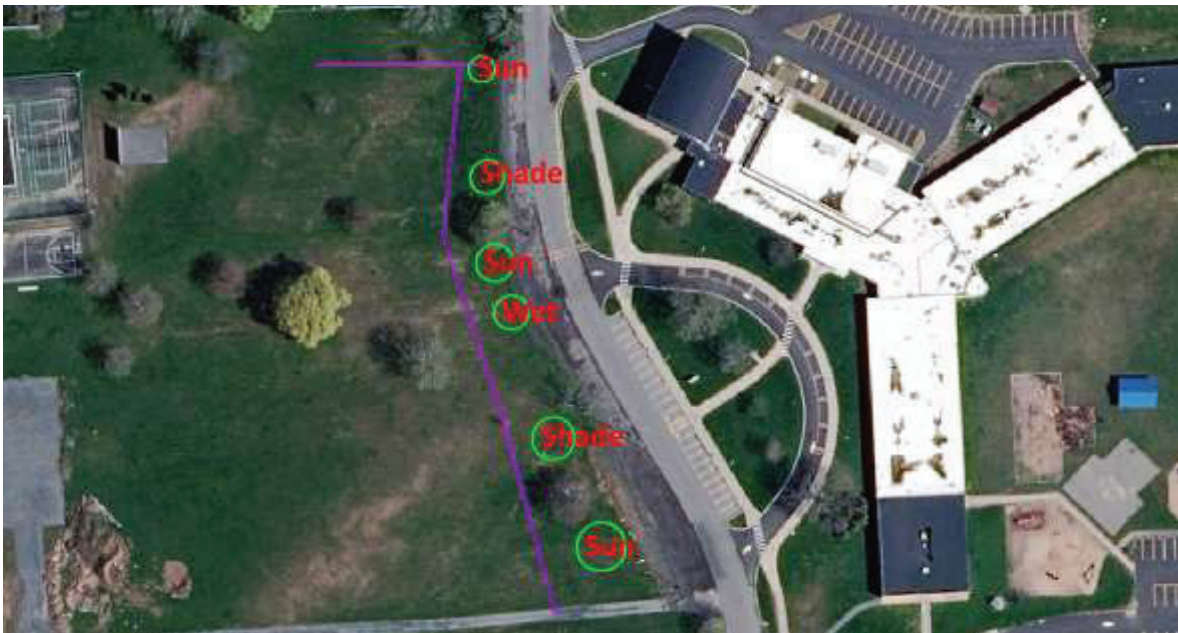
Removals. 12 trees will be removed.	\$25,920.00
Planting. 12 bare root in Fall, 12 B&B trees in Spring.	\$4,602.00
<u>Staffing. Tree &amp; Site assessments, Tree Board.</u>	<u>\$5,562.50</u>
Total:	\$36,084.50

This budget option provides an intermediate position between the two extremes that is opportunistically proactive and sustainable. It is proactive because it formally doubles the number of removals each year, formally adopts bare root tree planting technology, and provides staff funding to partner with upcoming projects, neighboring organizations and agencies; cultivate local support for a Town-wide tree planting effort that includes cultivating a volunteer tree planting corps; and secure grant funding that will be vital to shoulder the high costs of wide spread necessary removals along Town roads.

### Special Projects Budget Worksheet Examples

Two examples are described here: a demonstration water quality protection planting, and a street tree planting project. The proposed Watershed Conservation & Pollinator Garden Planting project area is located at the Eastern end of the Town Park along Letchworth Street, just West of Owasco Elementary School. The site is downhill of a parking area for parents and school visitors. The project is bounded by the parking area on the East, and park paths on the North, South, and West. This site is approximately 30,000 square feet in area.

Existing trees provide alternating North- and South-facing sites that allow practical demonstration of plant communities that are adapted to differing degrees of shade tolerance. And since the majority of water run-off is concentrated at one location, there is an opportunity to demonstrate mechanical and vegetation control over storm water run-off. This project can be executed in phases, as funding and design details develop. This image illustrates the general zones:



General Work Plan: The Northern planting sites represent the vital upland plant communities of the upper forests in the Owasco Lake Watershed: remote stands of Sugar maple, Beech, and best of all, Canadian hemlock. Of these species, hemlock is threatened by an invasive insect called the Hemlock Woolly Adelgid – a tiny sucking insect that is killing these ancient guardians of our watershed. In the richest of these forests there are numerous native shrubs and wildflowers that nurture wildlife and are beautiful to behold. The Southern planting sites represent the lush belts of wildflowers found along our roads, trails, and fields. They are the last refuge of native pollinators, and though they anchor our soil from increasingly



intense rainfall they are vulnerable to the myriad of invasive plants that threaten the native biodiversity throughout the Owasco Lake Watershed.

Pollinator Tree Planting Budget, Plant material:

<u>Acer rubrum</u>	Red Maple	\$12.50	x	6 =	\$75.00
<u>Acer saccharum</u>	Sugar Maple	\$13.25	x	4 =	\$53.00
<u>Alnus serrulata</u>	Smooth Alder	\$9.95	x	8 =	\$79.60
<u>Amelanchier arborea</u>	Downy Serviceberry	\$13.25	x	12 =	\$159.00
<u>Aronia melanocarpa</u>	Black Chokeberry	\$9.95	x	12 =	\$119.40
<u>Carpinus caroliniana</u>	American Hornbeam	\$13.25	x	12 =	\$159.00
<u>Carya laciniosa</u>	Shellbark Hickory	\$13.25	x	8 =	\$106.00
<u>Cephalanthus occidentalis</u>	Buttonbush	\$9.95	x	10 =	\$99.50
<u>Cornus sericea (stolonifera)</u>	Redosier Dogwood	\$9.95	x	16 =	\$159.20
<u>Nyssa sylvatica</u>	Black gum	\$13.25	x	6 =	\$79.50
<u>Ostrya virginiana</u>	E. Hophornbeam	\$13.25	x	12 =	\$159.00
<u>Rhus typhina</u>	Staghorn Sumac	\$9.95	x	24 =	\$238.80
<u>Viburnum dentatum</u>	Arrowwood Vib.	\$10.50	x	24 =	\$252.00
<u>Viburnum lentago</u>	Nannyberry	\$10.50	x	24 =	\$252.00
Subtotal pollinator plant material:					\$1,991.00

Site prep and planting costs are easily adapted from the cost estimates in the next example, but unlike conventional street tree planting a project of this nature will require detailed engineering planning and design. We will need to generate an engineering report for the site based on the hydraulic modeling of the drainage above the Town Park, the percolation test results of the Town Park, and the performance capability of the existing drainage infrastructure from Letchworth Street all the way to the Owasco River. Knowledge of this sort does not come cheap. To qualify for State funding support, additional engineering reports must be drafted and provided to the NYS Environmental Facilities Corporation (EFC) to be sure the project is funding agency ready. Such an investment is well worth it; with intense storms occurring with increasing frequency, the Town staff and Tree Board can use the knowledge gained in this project to design and implement similar efforts elsewhere in Owasco.

Removing, stump grinding, and replacing trees along the three streets of the Inflow and Infiltration Reduction Improvements Project (I&I) may be much less expensive than the funds required to upgrade the sewer and water infrastructure, but it is not trivial. As noted above, average 2020 tree removal plus an estimated \$400 stump grinding fee is \$2,560. There are 18 trees in the project that are large Silver maples in poor condition. Three of the trees are growing into power lines. There are no sidewalks on these streets. Given these figures, the total estimated cost for removing trees along the I&I streets is \$46,080. Referencing the tree planting costs described above, replacing all 18 trees with 9 balled-and-burlapped

trees (Spring) and 9 bare root trees (Fall) have an estimated planting cost of \$3,451.50 bringing the total to nearly \$50,000.

### The Path Forward.

When the covered wagons of the Brinkerhoff expedition - made up of 29 adults and 52 children, and an unknown number of slaves - first arrived in Cayuga County on July 4<sup>th</sup>, 1793, they spent two years scouting the area before purchasing land at what is today known as Burtis Point in the Town of Owasco. How did they decide where to go? What did their decision-making process look like? Owasco Town Historian Laurel Auchampaugh's research tells us that prior to their departure from Gettysburg, Pennsylvania, these pioneering families were part of a letter-writing network sharing information about the lands in the Northeastern Finger Lakes, the "New York Lake Country". They had a vision of what they were looking for before they traveled. They had a story in mind of what they would find, and who they could become. All they needed was a place to grow.

Wayfinding in the 18<sup>th</sup> century may well be different than it is today, at least technologically, but the principles remain the same. To decide where you want to go you must first know where you are. Moving forward in Owasco community forestry may well appear complicated, yet as the proceeding pages demonstrate Owasco is well on its way to exploring how forestry at the township level can support many Town priorities. Elements presented in the plan provide a range of management and policy options that can support the Town implement a range of projects, from street and park tree plantings, invasive species management, to rain gardens. When each Town project is viewed as an opportunity to advance community forestry goals then the Town will increasingly achieve the forestry maxim to accomplish more than one goal with each operational step. This approach is not just a cost-saving measure, but it also echoes the hearty practicality evident in Owasco's pioneering spirit. Conservation choices therefore are, in many ways, up to individuals, but they are also a matter of culture, and as residents and neighbors of Owasco, NY, in many ways our choices have already been made. We simply need to accept them, and move forward with shared confidence and commitment.

Appendix 1: Overview of the Owasco community forest inventory

In February, 2019, the Town of Owasco contracted to inventory all the street and park trees in the public right-of-ways (RoWs) in the Town. Over the following Spring and Summer, each tree was examined and data gathered to note:

- Species
- Size class
  - Sapling: to 6”
  - Pole: 6 to 12”
  - Medium: 12 to 24”
  - Large: 24 to 36”
  - Very Large: > 36”
- General condition
  - Good
  - Fair
  - Poor
  - Hazard
  - Dead
- Proximity to overhead wires, curbing, sidewalks, fire hydrants, and street drainage grates
- Spatial data for each tree.

Field procedure. Locate trees on Town Property and/or clearly in the Town ROW, and secure GPS coordinates via a hand-held receiver tethered to a automotive roof-top antennae. Data collected with real-time reference to NYS 2018 JP2 Imagery. Tree species were noted and placed into a appropriate size class, taking note of the general condition of the tree along with details about the site, especially infrastructure conflicts and invasive plants. Road-side trees growing as copses in the RoWs total 9,522 linear feet in the rural neighborhoods; these were randomly sampled at 4%.



Appendix 2: Owasco’s 2022 Tree Risk Assessment survey

As noted in Chapter 3, page 68, the Town’s Community Forestry Work Plan should reflect detailed information on the large trees growing along the Avenues, specifically the risk they may pose to residents, visitors, and residential property and infrastructure. It was obvious during the 2019 tree survey that many of the larger trees along the Town's avenues would force the Town to carry out more removals and pruning in the very near term, and that the Township would need more detailed inventory data to manage the work. This view was embraced by the Town Supervisor, the Town Highway Superintendent, the Town Council, and the Fire Department.

As the Town’s management planning process advanced in 2021 and 2022, the Tree Board and the Town Council agreed to support a tree risk assessment inventory of the large street trees along the Town's Avenues - the most densely populated part of the Township. Support for this work intensified after a series of large tree failures in 2022, and the Owasco Town Council in the summer of 2022 commissioned the author to carry out a Level 2, ISA Tree Risk Assessment (the author is TRAQ certified) of all the large trees along the Town’s Avenues. This area includes the road-side public rights-of-way from Havens Avenue in the North to the intersection of Oakridge Road and East Lake Road.

Project focus was large and very large trees, generally over 24” in diameter growing within the Town’s right-of-way (tree diameter is expressed as DBH, Diameter at Breast Height, and is measured about 4.5’ above the ground on the uphill side of the tree). In all, 178 trees were surveyed. A few pole sized (6 to 12”) and medium sized (12 to 24”) dead Green ash trees (*Fraxinus pennsylvanica*) were noted. Excluding these few smaller trees, the average DBH of the trees surveyed is 33.2”.

Method. Each tree was located by street address and 1983 NY State Plane Coordinates. Once each tree was identified and measured, a Level 2 International Society of Arboriculture tree risk assessment was performed on each tree. This means that defects in the major parts of the tree including crown, branches, trunk, and roots and root collar were noted and factored into the likelihood of failure and impact of the relevant tree part, and the consequences should failure occur. Depending on the consequences of failure, the risk rating for a tree is either: Low, Moderate, High, or Extreme. The time frame for this project is twelve months, although 15 trees noted below are in such poor condition their time frame is three months. With the exception of Melrose Road and Oakridge Road, all the surveyed trees are growing along Town rights-of-way.

In general, trees in the survey are tall enough that if tree defects are present and conditions are such that failure occurs, then residents, street infrastructure, pedestrians, cars and trucks in driveways, yard structures and landscaping, and homes within the height of each tree are assumed to be targets that cannot be moved. Likewise, the occupancy rate at these targets is considered frequent for the project. The shared site conditions of the area includes poor drainage, a history of power line clearing where utility lines are present, snow plowing and road salt application, soil compaction from vehicular use, and limb failures consistent with the failure profiles of the two common trees in the project: Silver and Sugar maples.

Also, three aspects of risk assessment must be noted: first, it is *dynamic* in that it can change if the concern about the tree part in question is resolved; and second, a Level II risk assessment is *limited* - it is carried out from the ground. Contract work based on the Level II assessment is best followed by an aerial survey by boom truck or by a trained and certified tree climber to determine specific actions. Therefore, recommendations for removal should be considered preliminary as there are many older, “veteran” trees that can be saved with judicious pruning and continue to provide necessary ecosystem benefits to Town residents. Finally, just as each property owner has their own tolerance for tree risk, so do municipalities. Since Owasco’s Avenue residents live so close to so many large trees it has a fairly low risk tolerance, and will work diligently to cultivate the community forest for its many benefits so long as the trees in the forest are safe.

Results. The tally of the 178 trees is as follows:

#	<u>Common Name</u>
90	Silver maple
25	Freeman maple
22	Sugar maple
17	Norway maple
8	Green ash
6	Black walnut
3	Black maple
3	White pine
1	Black locust
1	Pin oak
1	Poplar
1	Red maple

As mentioned above, the most common trees along the Avenues are maples. Silver maple (*Acer saccharinum*) is a native, fast growing tree that becomes very large

and tall at maturity, frequently with numerous forked branches of nearly the same diameter, often with bark included between them. This codominant branching can lead to very weak branch unions, and Silver maples are among the weakest street trees largely due to this branching habit. Freeman maple (*Acer x freemanii*) is a natural hybrid between Red maple (*Acer rubrum*) and Silver maple. The fall foliage of Owasco’s Freeman maples is dramatic, and the bright red foliage along the Avenues is due to these trees. Freeman maples have a better branching habit than Silver maples, however like Silver maples they are fast growing trees subject to wounds, rot, and cavities. Sugar maple (*Acer saccharum*) is another native forest tree, that unfortunately for Finger Lake municipalities, has not adapted well to urban conditions. They grow best in forest stands away from road salt, soil compaction and power lines. Sugar maples are notorious for sudden branch failure, even in calm conditions.

Along the County Roads Within the Project Area. Based on survey data, there are some trees growing within the County’s right-of-way on both Melrose and Oakridge Roads that should be removed before the high winds of winter storms begin. Specifically, among the 4 large trees in the County’s right-of-way on Melrose Road, 2 require pruning and there is 1 that should receive priority attention for removal:

Address	Wires	Tree_ref	DBH	Risk_rating	Mitigation	Residual_risk
11 MELROSE RD	N	Silver maple	46.8	Moderate	Prune bad limbs	Low
11 MELROSE RD	N	Silver maple	30.7	Moderate	Prune bad limbs	Low
64 MELROSE RD	Y	Black locust	48.4	High	Removal	Low

Also, among the thirty-six 36 large trees in the County’s right-of-way on Oakridge Road, there are 5 that should receive priority attention for removal:

Address	Wires	Tree_ref	DBH	Risk_rating	Mitigation	Residual_risk
5896 OAKRIDGE RD	Y	Silver maple	51	Moderate	Prune bad limbs	Low
6020 OAKRIDGE RD	Y	Sugar maple	29.5	High	Removal	Low
6112 OAKRIDGE RD	Y	Silver maple	26.7	Moderate	Removal	Low
6116 OAKRIDGE RD	Y	Freeman maple	32.3	Moderate	Removal	Low
6124 OAKRIDGE RD	Y	Silver maple	29	Moderate	Removal	Low
6124 OAKRIDGE RD	Y	Freeman maple	27.9	High	Removal	Low
6124 OAKRIDGE RD	Y	Ash	28.2	High	Removal	Low
6140 OAKRIDGE RD	Y	Ash	22.2	Moderate	Removal	Low
6124 OAKRIDGE RD	Y	Silver maple	33.3	Moderate	Prune	Low
6140 OAKRIDGE RD	Y	Freeman maple	40.5	Moderate	Removal	Low
6148 OAKRIDGE RD	Y	Sugar maple	43.8	High	Removal	Low
6174 OAKRIDGE RD	Y	Sugar maple	30.1	High	Removal	Low



Among the trees on Oakridge Road, many of the trees with a Moderate risk rating should be removed since the pruning required to bring them into a safer risk category will leave the trees in a very compromised growing condition. The County’s Oakridge Road right-of-way is complicated by overhead utilities that are situated between the road-side trees and homes. Although New York State Electric and Gas has made notable progress in tree removals and trimming, several residents wish NYSEG would return to remove more trees.

Along the Avenues. Based on survey data, there are some trees growing within the Town’s right-of-ways along the Avenues that should be removed before the high winds of winter storms begin. Specifically, there are 9 trees in the Town’s right-of-way along the Avenues that should receive priority attention for removal:

Address	Notes	Wires	Tree_ref	DBH	Risk_rating	Mitigation	Residual_risk
<b>9 Trees too risky to wait until additional funding is available:</b>							
15 LETCHWORTH ST		Y	Silver maple	43.7	High	Removal	Low
38 HAVENS AV		N	Green ash	40.6	High	Removal	Low
38 HAVENS AV		N	Green ash	36.4	High	Removal	Low
66 HAVENS AV		N	Sugar maple	37.9	High	Removal	Low
66 HAVENS AV		N	Sugar maple	43.4	High	Removal	Low
Along S side of First Ave		N	Green ash	28	High	Removal	Low
5 FIRST AV		Y	Green ash	15.1	High	Removal	Low
Along E side of Archie St between Melrose and First		N	Green ash	14	High	Removal	Low
Along E side of Archie St between Melrose and First		N	Green ash	9	High	Removal	Low

An additional 55 high risk trees must take priority for management moving forward, pruned where possible but removed if necessary:

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**55 Trees that should be removed as soon as practical:**

24 HAVENS AV		N	Silver maple	28.4	High	Removal	Low
16 LETCHWORTH ST	On 2nd Avenue side	Y	Silver maple	31.8	High	Removal	Low
28 LETCHWORTH ST	3rd tree to east on 3rd Avenue side	N	Silver maple	27.5	High	Removal	Low
15 LETCHWORTH ST	On 2nd Avenue side	Y	Silver maple	26	High	Removal	Low
17 LETCHWORTH ST	Eutypella canker	Y	Norway maple	23.5	High	Removal	Low
17 LETCHWORTH ST		Y	Silver maple	37.7	High	Removal	Low
30 FIRST AV		N	Silver maple	37.1	High	Removal	Low
29 FIRST AV		Y	Norway maple	19.6	High	Removal	Low
18 FIRST AV		N	Silver maple	42.3	High	Removal	Low
17 FIRST AV		Y	Silver maple	39.7	High	Removal	Low
15 FIRST AV		Y	Silver maple	31.9	High	Removal	Low
10 FIRST AV		N	Silver maple	40	High	Removal	Low
5 FIRST AV		Y	Silver maple	32.6	High	Removal	Low
7288 OWASCO RD	On 2nd Avenue side	N	Silver maple	39.2	High	Removal	Low
3 SECOND AV		N	Black maple	30.1	High	Removal	Low
2 SECOND AV		Y	Silver maple	44.5	High	Removal	Low
2 SECOND AV		Y	Silver maple	33.7	High	Removal	Low
14 SECOND AV		Y	Silver maple	32.3	High	Removal	Low
14 SECOND AV		Y	Silver maple	33.3	High	Removal	Low
16 SECOND AV		Y	Silver maple	43.3	High	Removal	Low
30 SECOND AV		Y	Silver maple	25.3	High	Removal	Low
38 SECOND AV		Y	Silver maple	36.5	High	Removal	Low
24 THIRD AV		N	Freeman mapl	37	High	Removal	Low
35 FOURTH AV	Last tree to west	Y	Silver maple	25.3	High	Removal	Low
27 FOURTH AV		Y	Freeman mapl	30	High	Removal	Low
15 FOURTH AV		Y	Silver maple	41.1	High	Removal	Low
1 FOURTH AV		Y	Silver maple	36	High	Removal	Low
30 FOURTH AV	Western of 2 trees	N	Freeman mapl	34	High	Removal	Low
7210 OWASCO RD		N	Sugar maple	37	High	Removal	Low
25 BRISTOL AV		Y	Sugar maple	37.7	High	Removal	Low
21 BRISTOL AV		Y	Sugar maple	27.5	High	Removal	Low
13 BRISTOL AV		Y	Freeman mapl	38.7	High	Removal	Low
11 BRISTOL AV		Y	Sugar maple	20.4	High	Removal	Low
7 BRISTOL AV	Maple borer	Y	Sugar maple	36.3	High	Removal	Low
7 BRISTOL AV		Y	Black maple	33.9	High	Removal	Low
7 BRISTOL AV		Y	Sugar maple	25.2	High	Removal	Low
5 BRISTOL AV		Y	Sugar maple	36.8	High	Removal	Low
5 BRISTOL AV	Maple borer	Y	Sugar maple	27	High	Removal	Low
30 ADAMS AV		N	Silver maple	24.7	High	Removal	Low
37 ADAMS AV		Y	Sugar maple	28.5	High	Removal	Low
7140 OWASCO RD		N	Freeman mapl	45.5	High	Removal	Low
7 VANDUYNE AV		N	Silver maple	49.9	High	Removal	Low
13 VANDUYNE AV		N	Freeman mapl	37.2	High	Removal	Low
19 VANDUYNE AV		N	Freeman mapl	36.8	High	Removal	Low
21 VANDUYNE AV		N	Silver maple	32.7	High	Removal	Low
23 VANDUYNE AV		N	Silver maple	41.3	High	Removal	Low

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<b>27 VANDUYNE AV</b>	<b>On van dyne Avenue side 2nd</b>	<b>N</b>	<b>Silver maple</b>	<b>38.9</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>27 VANDUYNE AV</b>		<b>N</b>	<b>Silver maple</b>	<b>23.6</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>7114 OWASCO RD</b>		<b>N</b>	<b>Silver maple</b>	<b>44.4</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>21 FRENCH AV</b>		<b>N</b>	<b>Silver maple</b>	<b>41</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>21 FRENCH AV</b>		<b>N</b>	<b>Silver maple</b>	<b>29.6</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>24 FRENCH AV</b>		<b>Y</b>	<b>Silver maple</b>	<b>29.1</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>24 FRENCH AV</b>		<b>Y</b>	<b>Silver maple</b>	<b>24.9</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>1 FRENCH AV</b>		<b>N</b>	<b>Norway maple</b>	<b>34</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>
<b>17 SHEARIN ST</b>		<b>N</b>	<b>Silver maple</b>	<b>34.2</b>	<b>High</b>	<b>Removal</b>	<b>Low</b>

All of these trees should be addressed as a prudent course of action, even when they are relatively smaller than other trees in the community. From the ground these tree are judged to be too far gone to save with pruning alone. .

The following trees are high risk trees due to branch defect that can be addressed with pruning:

**13 Trees that should be pruned as soon as practical:**

<b>66 HAVENS AV</b>	<b>Hanger is immediate concern</b>	<b>N</b>	<b>Sugar maple</b>	<b>22.6</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>11 LETCHWORTH ST</b>	<b>On 2nd Avenue side</b>	<b>N</b>	<b>Silver maple</b>	<b>35.5</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>27 LETCHWORTH ST</b>	<b>on 3rd Avenue side</b>	<b>Y</b>	<b>Freeman mapl</b>	<b>27.1</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>43 LETCHWORTH ST</b>		<b>Y</b>	<b>Freeman mapl</b>	<b>38.7</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>50 HAVENS AV</b>		<b>N</b>	<b>Silver maple</b>	<b>26.8</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>34 FIRST AV</b>		<b>N</b>	<b>Silver maple</b>	<b>35.7</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>13 SECOND AV</b>		<b>N</b>	<b>Silver maple</b>	<b>38.5</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>35 SECOND AV</b>		<b>N</b>	<b>Silver maple</b>	<b>41.3</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>7242 OWASCO RD</b>		<b>N</b>	<b>Silver maple</b>	<b>37.3</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>30 FOURTH AV</b>		<b>N</b>	<b>Freeman mapl</b>	<b>33.1</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>10 ADAMS AV</b>		<b>N</b>	<b>Silver maple</b>	<b>40</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>26 ADAMS AV</b>		<b>N</b>	<b>Silver maple</b>	<b>33.9</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>
<b>17 SHEARIN ST</b>		<b>N</b>	<b>Silver maple</b>	<b>32.7</b>	<b>High</b>	<b>Prune bad limbs</b>	<b>Low</b>

The following trees are moderate risk trees that may, in some cases, be rendered low risk by judicious pruning. For the others, pruning will reduce crown size and therefore tree vigor to such an extent that pruning will render the tree unsightly and unhealthy:



Community Forest Management Plan for Owasco, New York

**30 Trees that should be removed or pruned as soon as practical:**

32 HAVENS AV		N	Norway maple	31.6	Moderate	Prune bad limbs	Low
28 LETCHWORTH ST	2nd tree to east on 3rd Avenue side	Y	Norway maple	19	Moderate	Removal	Low
24 LETCHWORTH ST		N	Freeman mapl	25.6	Moderate	Prune bad limbs	Low
20 LETCHWORTH ST		N	Freeman mapl	37.4	Moderate	Prune bad limbs	Low
15 LETCHWORTH ST		Y	Silver maple	35.8	Moderate	Removal	Low
27 LETCHWORTH ST		Y	Silver maple	31.7	Moderate	Removal	Low
27 LETCHWORTH ST	3rd tree from	Y	Silver maple	35.2	Moderate	Prune bad limbs	Low
31 LETCHWORTH ST		Y	Silver maple	31	Moderate	Prune bad limbs	Low
90 FIRST AV		N	Silver maple	26.9	Moderate	Prune bad limbs	Low
23 SECOND AV		N	Freeman mapl	30.4	Moderate	Prune bad limbs	Low
44 SECOND AV		Y	Freeman mapl	37.2	Moderate	Removal	Low

35 THIRD AV		Y	Freeman mapl	32.5	Moderate	Removal	Low
29 THIRD AV		Y	Silver maple	40.4	Moderate	Prune bad limbs	Low
18 THIRD AV		N	Freeman mapl	49.7	Moderate	Prune bad limbs	Low
28 THIRD AV		N	Silver maple	39.2	Moderate	Removal	Low
2 FOURTH AV			Silver maple	38.5	Moderate	Removal	Low
35 FOURTH AV	4th Avenue side		Norway maple	21.4	Moderate	Removal	Low
35 FOURTH AV	Tree on corner	Y	Silver maple	23	Moderate	Removal	Low
9 BRISTOL AV		Y	Freeman mapl	33.1	Moderate	Prune bad limbs	Low
19 BRISTOL AV		Y	Norway maple	26.5	Moderate	Removal	Low
28 ADAMS AV	Uphill of 2 trees	N	Norway maple	24.5	Moderate	Removal	Low
30 ADAMS AV		N	Silver maple	38.7	Moderate	Removal	Low
6 ALDRICH AV		N	Silver maple	25.6	Moderate	Prune bad limbs	Low
6 ALDRICH AV		N	Silver maple	28.5	Moderate	Prune bad limbs	Low
36 ALDRICH AV		N	Norway maple	33.4	Moderate	Prune bad limbs	Low
3 VANDUYNE AV		N	Silver maple	35.5	Moderate	Prune bad limbs	Low
9 VANDUYNE AV		N	Silver maple	37.1	Moderate	Prune bad limbs	Low
25 VANDUYNE AV		N	Freeman mapl	29.6	Moderate	Prune bad limbs	Low
8 FRENCH AV		Y	Norway maple	23.3	Moderate	Removal	Low
17 SHEARIN ST	On van dyne Avenue side;	N	Silver maple	46.4	Moderate	Removal	Low

Finally, there are 31 low risk trees that must be monitored:

**31 Trees that must be monitored:**

46 HAVENS AV	Tips failing	N	Black maple	31.5	Low		
15 LETCHWORTH ST		Y	Norway maple	26.8	Low		Low
28 LETCHWORTH ST	1st tree on 3rd	N	Silver maple	23	Low		
3 LETCHWORTH ST		N	Sugar maple	29.7	Low	Prune bad limbs	Low
3 LETCHWORTH ST	Tony removed branches in last 2	N	Silver maple	45.2	Low		Low
44 LETCHWORTH ST	3rd tree n of driveway near 4th	N	Silver maple	30.9	Low		Low
50 LETCHWORTH ST		N	Sugar maple	25.5	Low		Low
44 LETCHWORTH ST		N	Silver maple	35.3	Low	Prune bad limbs	Low
Along E side of Archie St between Melrose and First		N	Black walnut	16	Low	Prune bad limbs	Low
Along E side of Archie St between Melrose and First		N	Black walnut	18.3	Low	Prune bad limbs	Low
18 FIRST AV		N	Silver maple	36.7	Low	Removal	Low
37 FIRST AV		Y	Silver maple	34.2	Low		
38 FIRST AV		N	Silver maple	23.8	Low		Low
43 FIRST AV	fungus at root collar	Y	Silver maple	28	Low		Low
41 SECOND AV	Chain in tree	N	Freeman mapl	25	Low	Prune bad limbs	Low
41 SECOND AV		N	Silver maple	36.3	Low	Prune bad limbs	Low
11 FOURTH AV	Aerial inspection	Y	Silver maple	31.2	Low		Low
36 FOURTH AV	on Letchworth side; determine ownership before	Y	Black walnut	36.3	Low	Prune bad limbs	Low
26 ADAMS AV		N	Red maple	31.5	Low	Prune bad limbs	Low
6 ALDRICH AV	2nd tree up from	N	Norway maple	23.4	Low	Removal	Low
8 ALDRICH AV		N	Norway maple	21.6	Low	Prune bad limbs	Low
12 ALDRICH AV		N	Norway maple	24.4	Low	Prune bad limbs	Low
24 ALDRICH AV	owner says it is 105 years old	N	Norway maple	42.5	Low		Low
29 FRENCH AV		N	Black walnut	37.1	Low		Low
21 FRENCH AV		N	Black walnut	27.2	Low		Low
21 FRENCH AV			Black walnut	35.6	Low	Prune bad limbs	Low
101 EASTWOOD AV	Check ownership	Y	Silver maple	32.3	Low	Prune bad limbs	Low
102 EASTWOOD AV	check ownership on letchworth side	N	Poplar	37.3	Low	Removal	Low
51 STRYKER AV	Check ownership along Letchworth before cutting; Box elder, Black locust,	N	Silver maple	78.9	Low	Prune bad limbs	Low
50 HAZELHURST AV		Y	Norway maple	41.2	Low	Prune bad limbs	Low
72 HAZELHURST AV		Y	Silver maple	35.6	Low	Prune bad limbs	Low

### Conclusions

All trees present some risk. While there is no perfect crystal ball to determine precisely when, where, and how a tree will fail, it is possible to use tree risk assessment to prioritize public funding and manage large trees responsibly. Among the 178 trees assessed in this project, there are 15 mentioned above that should receive priority, proactive attention before the high winds of our seasonal winter storms begin.



Appendix 3: Owasco’s official list of desirable and undesirable trees

**Town of Owasco, NY**  
 County of Cayuga  
 State of New York  
 Owasco Town Tree Conservation Board  
**Approved Street Trees for Owasco, NY**  
 February 2021

**Recommended Street and Park Trees for Owasco, New York**

Town of Owasco Tree Board  
 December 2020

Latin name	Common name	Notes
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**Small Trees for Streets. Generally less than 25 feet tall at maturity. These trees also acceptable for park planting.**

<i>Acer buergeranum</i>	Trident maple	
<i>Acer campestre</i>	Hedge maple	low tree with rounded crown
<i>Acer tataricum</i>	Tatarian maple	
<i>Amelanchier arborea</i>	Serviceberry	
<i>Asimina triloba</i>	pawpaw	
<i>Carpinus caroliniana</i>	American hornbeam	
<i>Chioanthus virginicus</i>	Fringe tree	
<i>Carpinus caroliniana</i>	American hornbeam	
<i>Malus varieties</i>	apple, and crabapple cultivars	
<i>Ostrya virginiana</i>	Hophornbeam	
<i>Prunus 'Accolade'</i>	Accolade flowering cherry	
<i>Prunus serrulata</i>	Kwanzan cherry	
<i>Sorbus intermedia</i>	Swedish Mountain Ash	
<i>Sorbus thuringiaca fastigiata</i>	Oakleaf Mountain Ash	
<i>Stewartia koreana</i>	Korean stewartia	
<i>Syringa reticulata</i>	Japanese Tree Lilac	

**Medium Trees for Streets. Generally 25 to 50 feet tall at maturity. These trees also acceptable for park planting.**

<i>Abies concolor</i>	White fir	
<i>Acer x freemanii</i>	Freeman Maple	
<i>Acer truncatum</i>	Shantung maple	
<i>Aesculus carnea</i>	Red horsechestnut	
<i>Aesculus glabra</i>	Ohio buckeye	
<i>Aesculus hippocastanum</i>	Horse chestnut	
<i>Aesculus octandra</i>	Yellow buckeye	
<i>Cercis spp.</i>	redbuds	Dirr calls this the true medium tree

Community Forest Management Plan for Owasco, New York

<i>Cladrastis lutea</i>	Yellowwood	
<i>Gleditsia triacanthos</i>	Honeylocust	
<i>Halesia tetraptera</i>	Carolina silverbell	
<i>Nyssa sylvatica</i>	Black tupelo	prefers wet sites
<i>Platanus x acerfolia</i>	London Plane Tree	allergen
<i>Prunus sargentii</i>	Sargent Cherry	
<i>Prunus subhirtella</i>	Higan cherry	
<i>Prunus yedoensis</i>	Yoshino cherry	
<i>Quercus bicolor</i>	Swamp white oak	
<i>Quercus robur</i>	English oak	
<i>Sorbus alnifolia</i>	Korean Mountain Ash	
<i>Styrax japonicus</i>	Japanese snowbell	
<i>Tilia cordata</i>	Littleleaf Linden	
<i>Ulmus parvifolia</i>	Chinese elm	

**Large Trees for Streets. Generally 50 to 75 feet or more tall at maturity. These trees also acceptable for park planting.**

<i>Acer rubrum</i>	Red Maple	
<i>Acer saccharum</i>	Sugar Maple	
<i>Carpinus betulus</i>	European Hornbeam	
<i>Carya ovata</i>	Shagbark hickory	
<i>Carya laciniosa</i>	Shellbark hickory	wet sites
<i>Celtis occidentalis</i>	Hackberry	
<i>Cercidiphyllum japonicum</i>	Katsura Tree	
<i>Corylus colurna</i>	Turkish Filbert	
<i>Fagus grandifolia</i>	American beech	
<i>Fagus sylvatica</i>	European beech	
<i>Ginkgo biloba</i>	Ginkgo (Male suggested for street planting)	
<i>Gymnocladus dioicus</i>	Kentucky Coffeetree	
<i>Juglans nigra</i>	Black walnut	juglone in sap deters many plants
<i>Liquidambar styraciflua</i>	Sweetgum	
<i>Liriodendron tulipifera</i>	Tulip Tree	
<i>Magnolia acuminata</i>	Cucumbertree	
<i>Platanus occidentalis</i>	Sycamore	
<i>Quercus alba</i>	White oak	
<i>Quercus Macrocarpa</i>	Bur Oak	
<i>Quercus palustris</i>	Pin oak	
<i>Quercus rubra</i>	Northern Red Oak	
<i>Quercus shumardii</i>	Shumard oak	
<i>Quercus velutina</i>	Black oak	

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<i>Sophora japonica</i>	Scholar Tree
<i>Tilia americana</i>	Basswood
<i>Tilea euchlora</i>	Crimean linden
<i>Tilia tomentosa</i>	Silver Linden
<i>Zelkova serrata</i>	Japanese Zelkova

### Recommended Park Trees for Owasco, New York

#### Small Park Trees. Generally less than 25 feet tall at maturity.

<i>Acer griseum</i>	Paperbark maple
<i>Acer palmatum</i>	Japanese Maple
<i>Betula populifolia</i>	gray birch
<i>Cornus alternifolia</i>	alternate-leaf dogwood
<i>Cornus kousa</i>	Kousa dogwood
<i>Cornus racemosa</i>	Gray Dogwood
<i>Cotinus spp.</i>	Smoke trees
<i>Crataegus inermis</i>	Thornless hawthorn
<i>Crataegus phaenopyrum</i>	Washington thorn
<i>Crataegus viridis</i>	'Winter King' hawthorn
<i>Franklinia alatamaha</i>	Franklin tree

#### Medium Park Trees. Generally 25 to 50 feet tall at maturity.

<i>Juniperus scopulorum</i>	Rocky Mountain juniper	
<i>Koelreuteria paniculata</i>	Goldenrain tree	
<i>Laburnum watereri</i>	Chain tree	reported toxic
<i>Pinus bungeana</i>	Lacebark pine	
<i>Pinus cembra</i>	Swiss stone pine	
<i>Stewartia pseudocamellia</i>	Japanese stewartia	
<i>Thuja occidentalis</i>	Northern white cedar*	
<i>Tsuga canadensis</i>	Eastern hemlock**	old specimen grow large

\* This is a preferred browse species of white-tailed deer.

\*\* Consideration must be given due to the impact of the Hemlock woolly adelgid.

#### Large Park Trees. Generally 50 to 75 feet or more tall at maturity.

<i>Betula nigra</i>	Heritage River Birch	park
<i>Larix decidua</i>	European larch	deciduous conifer
<i>Larix kaempferi</i>	Japanese larch	deciduous conifer
<i>Metasequoia glyptostroboides</i>	Dawn Redwood	deciduous conifer
<i>Picea abies</i>	Norway spruce	conifer
<i>Picea omorilea</i>	Serbian spruce	conifer
<i>Taxodium distichum</i>	Baldcypress	deciduous conifer



**Trees Not to be Planted on Public Property:**

<i>Acer negundo</i>	Box elder	
<i>Acer platanoides</i>	Norway maple	
<i>Acer pseudoplatanus</i>	Sycamore maple	
<i>Acer saccharinum</i>	Silver maple	
<i>Catalpa speciosa</i>	Catalpa or Indian Bean	
<i>Fraxinus americana</i>	White ash	
<i>Fraxinus pennsylvanica</i>	Green ash	
<i>Juglans cinerea</i>	Butternut	
<i>Populus deltoides</i>	Cottonwood	
<i>Pyrus spp.</i>	Ornamental Pear cultivars	'Bradford' also not acceptable
<i>Robinia, all species</i>	Black locust	
<i>Salix alba var. tristis</i>	Weeping willow	

**Sources, in order of importance:**

- Cornell Urban Horticultural Institute,  
“Recommended Urban Trees”
- NYS Department of Conservation.
- Ithaca Tree Works Bare Root Tree Planting List.
- Dr. Don Leopold's ESF list, published after the 1998 Labor Day storm.
- NIMO & NYSEG Lists.
- City of Auburn's Official Tree List.
- City of Geneva's Official Tree List.

Appendix 4: Owasco's new Community Forestry Guidelines

**Town of Owasco, NY**

County of Cayuga

State of New York

Owasco Town Tree Conservation Board

**Arboricultural Specifications and Standards of Practice**

February 2021

The Arboricultural Specifications and Standards of Practice for Owasco, NY are set forth in the ten chapters of the American National Standard: Tree, Shrub, and Other Woody Plant Management, published by the Tree Care Industry Association, Inc. of Londonderry, NH.

ANSI A300 (Part 1) – 2017 Pruning.

ANSI A300 (Part 2) – 2018 Soil Management a. Assessment, b. Modification, c. Fertilization, and d. Drainage.

ANSI A300 (Part 3) – 2013 Supplemental Support Systems.

ANSI A300 (Part 4) – 2014 Lightning Protection Systems.

ANSI A300 (Part 5) – 2019 Management of Trees and Shrubs During Site Planning, Site Development, and Construction.

ANSI A300 (Part 6) – 2012 Planting and Transplanting (R2018).

ANSI A300 (Part 7) – 2018 Integrated Vegetation Management.

ANSI A300 (Part 8) – 2013 Root Management.

ANSI A300 (Part 9) – 2017 Tree Risk Assessment.

ANSI A300 (Part 10) – 2016 Integrated Pest Management.

Appendix 5: Owasco’s Tree Work Permit Request Form

**Town of Owasco, NY**

County of Cayuga

State of New York

Owasco Town Tree Conservation Board

**Street & Park Tree Work Permit Request Form**

Date: \_\_\_\_\_

I, \_\_\_\_\_, the undersigned, hereby petition the Town of Owasco, NY for:

- Check all that Apply: Planting \_\_\_\_\_
- Pruning: \_\_\_\_\_
- Removal: \_\_\_\_\_
- Stump Grinding: \_\_\_\_\_
- Topsoil & Seed Request: \_\_\_\_\_
- Construction Around Trees, including new Power Poles: \_\_\_\_\_
- Tree Protection on Construction Site: \_\_\_\_\_
- Other maintenance (Specify fertilization, pest control, etc.) \_\_\_\_\_
- Annual Utility Line Clearing: \_\_\_\_\_

Situated within the public right-of-way next to real property located at \_\_\_\_\_.

If permit is granted, I hereby agree to do the work in accordance with the Tree Ordinance of the Town of Owasco, and other rules and regulations specified by the Town of Owasco or the Town’s designated forester. (See “Arboricultural Specifications and Standards of Practice and Approved Street and Park Trees for Owasco, NY”)

Describe the Nature of the Work (include/append additional details & maps as necessary):

\_\_\_\_\_  
\_\_\_\_\_

New trees are to become the property of the Town. After planting, no work aside from staking and watering during the first growing season shall be done by the applicant. (See “Arboricultural Specifications and Standards of Practice and Approved Street and Park Trees for Owasco, NY”)

\_\_\_\_\_  
 Signature \_\_\_\_\_ Address \_\_\_\_\_ Telephone No. \_\_\_\_\_

**Liability**

All of the work referred to above shall be performed without cost to the Town. The holder of this permit agrees not to hold the Town of Owasco, County of Cayuga, State of New York, or any employees thereof, responsible for any liability by accident to person or property, however caused, through the exercise of this permit. Any tree improperly planted will be subject to removal by and at the direction of the Town of Owasco, or its designated forester, with the cost of removal addressed to the holder of this permit.

Please return form to: Supervisor, Town of Owasco, 2 Bristol Avenue, Auburn, NY 13021



## References

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- Brinkerhoff, John I. 1882. From an excerpt of his “Article on the Early History of Cayuga County”. In, Owasco Stories, a Glimpse into Owasco, New York’s Past. Edited by Anthony Gero. 2005. Auburn, NY. Jacobs’ Press.
- Dana, Samuel Trask and Sally K. Fairfax. 1980. Forest and Range Policy; Its Development in the United States. NY. McGraw-Hill Publishing.
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- Meine, Curt. 2009. “This Place in Time”, in Conservation for a New Generation: Redefining Natural Resources Management. Edited by Richard L. Knight and Courtney White. Washington, Island Press.
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- Urban and Community Forestry Grants Program. 2019. Request for Applications, 2019 NYS DEC.