

Urban Forestry Management Plan

Village of
Brockport, NY



February 2016

Prepared by:

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&
Department of Public Works
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Cover Photo: European Beech, South Avenue Park

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Brockport's Urban Forestry History

Frederick Law Olmstead, designer of famous parks and green spaces as well as residential streets across the country, pioneered the American concept of the tree-lined street. In Brockport, the first purposefully planted shade trees appeared some years after 1829; that year a traveler on the canal commented that Brockport had “not a shade tree to be seen.” In Jonathan Mark Smith’s insightful cultural geography of Brockport (*...A Narrative of that place and the place of this narrative*) one can trace the narrative of the village trees. The solution for shade was to plant fast growing locust trees. By the 1860s, the village had become gentrified and the village fathers were intent on village beautification. Accordingly, they banned free grazing cows from village streets, turned the maintenance of the plank and brick sidewalks over to the village government, installed gas street lights, and replaced misshapen locust trees with elms and maples. All these improvements, the trees not the least of them, were taken as signs of the village’s “healthy moral atmosphere,” and its perceived exemption from “the corrupting influences of the city.”

Vanity lithographs of the homes of wealthy Brockporters, produced in the 1860s, show carefully planted trees a uniform distance apart in the public tree lawn (Photo 1).



Photo 1. Home of Dayton Morgan, Main Street

Turning to late 19th and early 20th century streetscape photographs of Brockport, the viewer is struck by the Village's densely shaded residential streets with their uniform canopies of elms, horse chestnuts, and maples arching over streets (Photo 2).

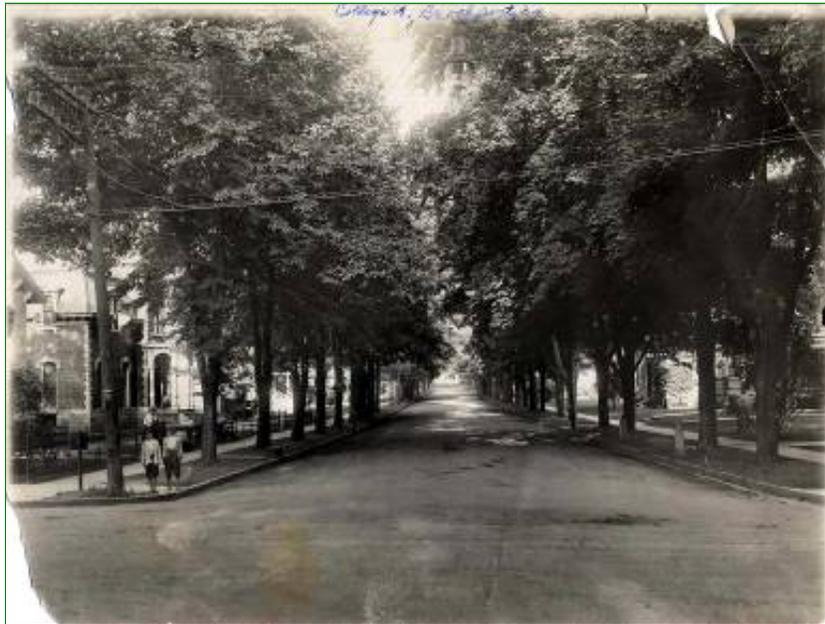


Photo 2. College Street, looking east to Main Street

The downtown business area, however, remained treeless, as it did in many other communities across the USA (Photo 3).



**Photo 3. Downtown Brockport, c. 1930
Looking south.**

Not until the 1980s, when Brockport's electric lines were buried in the business district, were trees—honeylocust—planted downtown (Photo 4).



Photo 4. Downtown Brockport, 2010, looking south

The village's public trees were under the stewardship of the street commissioners in early Brockport, and later the Village's Department of Public Works. As the elms died out from Dutch elm disease in the 1940s and 1950s, they were replaced by Norway and Crimson King maples. Tree replacement consistently lagged behind tree removals and there and little to no attention was paid to diversification of species in planting.

By the early 2000's interest had grown in improving the condition and quality of Brockport's public trees. Unfortunately, many trees were brought down by a devastating ice storm in 1991, and many more were compromised and taken out in succeeding years. By then the public had learned more about the environmental benefits of street trees, like their capacity for muffling noise, slowing traffic, improving air quality by converting carbon dioxide to oxygen, and absorbing storm water. A college student internship with the mayor in 2005 led to the establishment of the village's first Tree Board in 2005 and the first celebration of Arbor Day in many years with the planting of a Honeylocust tree at the Welcome Center on the canal (Photo 5).



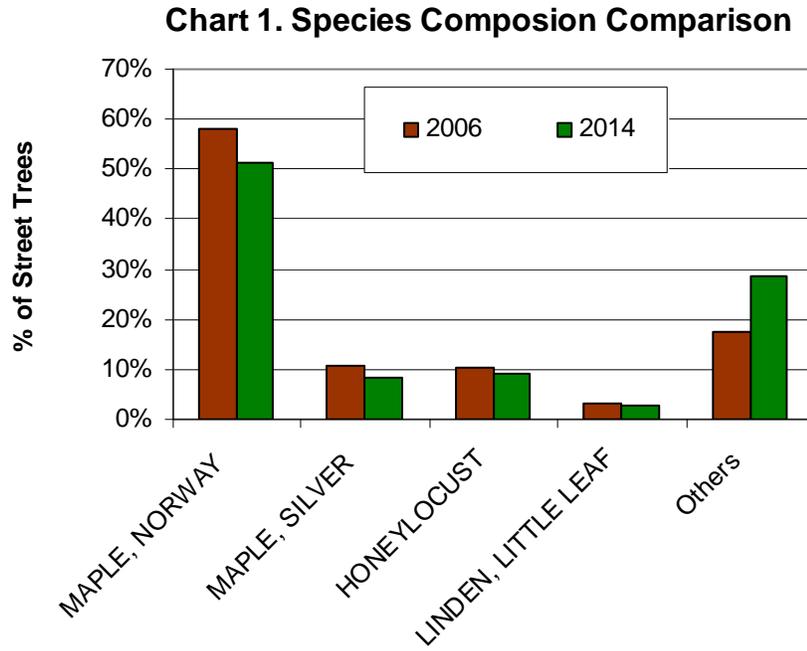
Photo 5. Arbor Day tree planting, 2005

Successive Arbor Day tree plantings have been conducted every year since. Under the helpful guidance from the Village's Department of Public Works and the College at Brockport's Facilities Maintenance crew, volunteers from the community, Brockport Central School District and the college at Brockport undertake the planting. In an effort to fill the more than 700 vacant tree spaces in the Village, the Tree Board has focused on large tree plantings every spring at Arbor Day and, when possible, during the late fall. Tree planting request forms and memorial tree donation forms have been made available on the Tree Board's website to encourage residents to request trees for vacant spaces.

In 2006 the first inventory of the village's public trees was completed by Andy Pleninger of Urban Forestry LLC. In 2007 the Tree Board launched its website, and in 2008 revised and expanded village tree ordinances were adopted by the Village Board and codified into law. In 2009 the Tree Board achieved one of its major goals—Brockport's recognition as a Tree City USA.

The 2006 tree inventory revealed how undiversified the Village's urban forest was. Brockport had 48 species of public trees. 77% were maples; 10 % were Honeylocust, 3% lindens, 2% ash and all others, 8%. More recently, Brockport's desire to create a village arboretum has focused the Board's attention on planting a diversity of species. In 2012 Tree Board chair Ian Blount prepared a Master Tree List for the village as a planting guide to suitable street and park trees. The Board's concerted effort to diversify its urban forest has resulted in the following additions, among others, to the village's trees: Serviceberry, Japanese Tree Lilac, Tupelo, Zelcova, Hornbeam, Golden Raintree, American Gold Ginkgo,

Kentucky Coffeetree, and Dawn Redwood. The most recent tree re-inventory (2014) shows our progress in these efforts.



Brockport’s Urban Forest Management Plan

The Village tree inventories completed in 2006 and 2014 have provided valuable information for identifying needs and evaluating the management of Brockport’s urban forest. In 2015, the Village Tree Board embarked on a planning process to identify the challenges and needs for properly managing the urban forest. The following 5-year urban forest management plan was written to address these challenges and improve the management of Brockport’s urban forest resource.

Through this planning process current challenges and objectives to address these challenges were organized into five management categories; Forest Health & Protection, Forest Management, Community Involvement & Education, Public Safety and Funding & Resources to guide the Village’s efforts over the next five years.

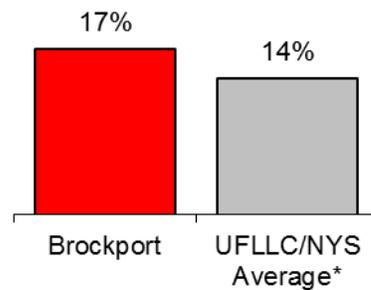
I. Forest Health & Protection – This category includes challenges and objectives to improve, sustain the health and protect the urban forest through proper arboricultural practices, legislation, policy, communication, and standards and specifications.

A. Current Challenges

Like humans and animals, a healthy tree is less susceptible to disease. They are also less susceptible to insect pests and storm damage. Unlike trees in the natural environment, trees in the urban environment require human intervention such as pruning to maintain tree health.

- 1. Too many of the Village’s trees are in poor or very poor condition (Chart 2).*

Chart 2. Trees in Poor Condition



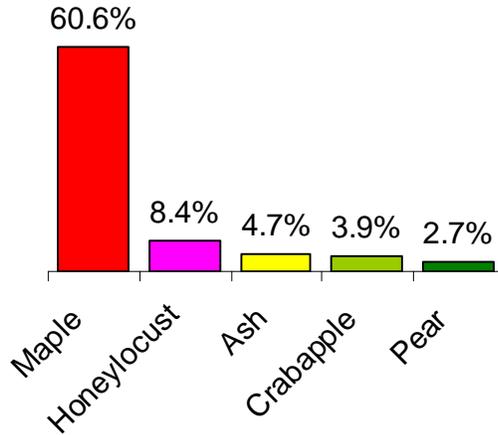
*Average of 13 communities in NYS inventoried by Urban Forestry LLC

Serious insect and disease pests typically target a specific plant Family, Genus and/or Species of tree. Limiting the representation a Family, Genus or individual species comprises in the tree population will minimize the potential impact on tree health, losses and the cost to mitigate these problems. Urban Forestry, LLC recommends the following population diversity goals: the

representation of trees in the urban forest should not exceed 20% within a Family, 10% of a Genus and 5% of a single Species.

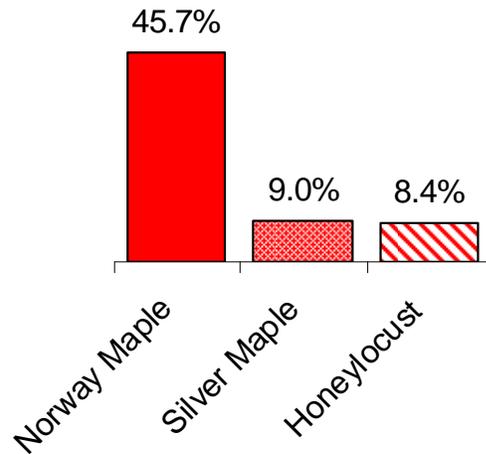
2. *There are too many trees of the maple family and genus in the population (Chart 3).*

Chart 3. Brockport's Top 5 Tree Genus



3. *There are too many Norway maple, silver maple and honeylocust trees in the population (Chart 4).*

Chart 4. Tree Species Exceeding 5%



4. *Emerald Ash Borer (EAB), an insect pest that kills ash trees is active in the Brockport area and the Village has 84 ash trees. (See photo right)*

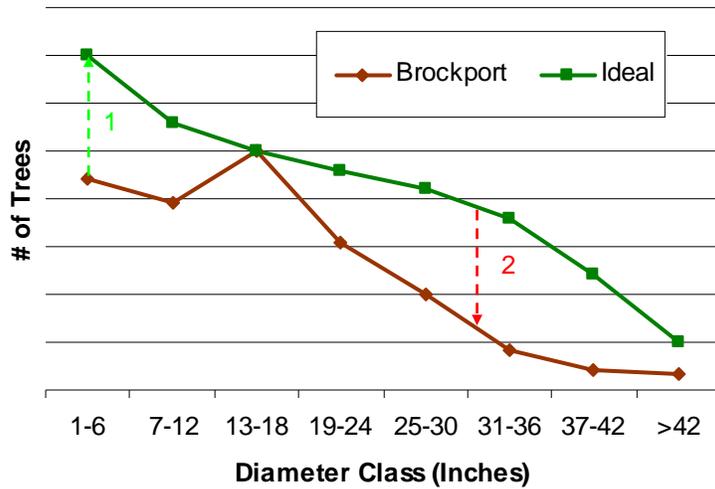


In an ideal urban forest age population curve, the majority of trees are young indicating a strong planting program; there is a relatively flat line as trees mature indicating they are reaching their age potential and then a slow decline as trees entering over-maturity need to be removed (Chart 5).

5. Village tree inventory (2014) identifies 700 street tree planting sites. The Village is 71% stocked with street trees. (Chart 5.-#1)

6. The loss rate of semi-mature to mature trees (13 inches in diameter or greater) trees is too high. (Chart 5. #2)

Chart 5. Age of the Urban Forest as a Function of Tree Diameter



7. Approximately 10% of new tree plantings die. The transplant losses should be less than 5%.

8. Utility pruning is a necessary management practice to maintain the safe distribution of electrical power. However, excessive utility pruning completed in 2014 will require the removal of 68 street trees and potential loss of an additional 57 street trees.



Siberian elms on Monroe Ave./Holly St.

9. *The Village tree inventory is 29% below 100% street tree stocking (Table 1).*

10. *The Village inventory presently identifies 700 sites available to plant street trees (Table 1).*

Table 1. 2006 & 2014 Tree Inventory Comparisons			
Inventory	Trees	Street Planting Sites	Street Tree Stocking
2006	1692	782	62.4%
2014	1750	700	71%
% Change	3.31%	-11.71%	8.6%

B. Objectives

The following are objectives developed to identify the current forest health & protection challenges. The Current Challenge the objective is to address is noted at the end of each Objective as: (CC - challenge #).

1. The Village should develop a rotational tree pruning program (CC# 1).
 - a. Ideally, young trees should be pruned every 3 years.
 - b. Ideally mature trees should be pruned every 7 years.
2. Restrict the planting of trees of the maple family and genus as well as Norway maple, silver maple and honeylocust until their representation in the population drops below their respective diversity goals. (CC# 1,2,3,)
3. The Village should prohibit the planting of trees in the ash genus. (CC# 4)
4. The Village should develop a tree pest mitigation strategy. (CC# 3)
5. The Village should plant tree species with a low representation in the population. (CC# 1,2,3)
6. The Village should develop and implement a young tree care program (CC# 1,5,7).
7. Develop clearly defined urban forest policies for tree planting, removal, pruning, risk management, service delivery, community involvement and tree protection. (CC# All)
8. Seek restitution from National Grid for the excessive utility pruning. (CC 8)
9. Develop and adopt Arboricultural standards and specifications document. (CC 1,5,6,8)
10. Evaluate and update annually Brockport's Master Tree List. (CC# 2,3,6,7)
11. Develop and adopt an annual tree planting goal. (CC# 5,9,10)
12. Require notification of the Tree Board before completing all scheduled tree work. (CC# All)

II. Forestry Management – This category includes challenges and objectives to improve the management of the urban forest with respect to expertise, work practices, and administration.

A. Current Challenges

Each year, trees need to be removed because they are diseased, die or represent an unacceptable risk to public safety. In a well maintained urban forest the percentage of the tree population that needs to be removed annually (Removal Rate) is predictable and should fall below 1% of the population each year as management improves.

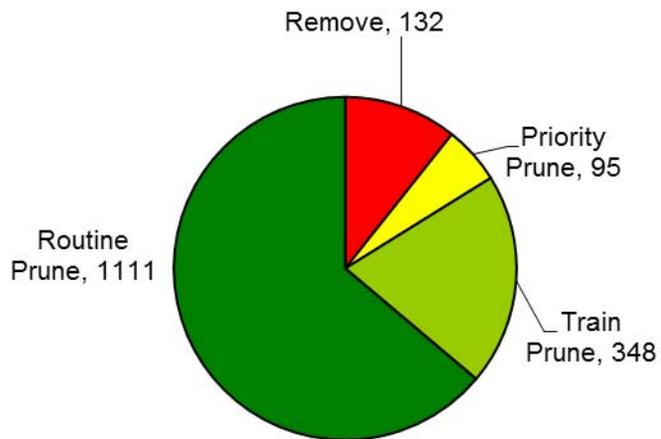
1. *Brockport’s tree removal rate increased from 2006 to the 2014 indicating a failure to address tree removal needs effectively (Table 2).*

Table 2. 2006 & 2014 Inventory Tree Removal Rate Comparison	
Inventory	Removal Rate
2006	6.0%
2014	6.8%
% Change	0.8%

2. *The current and projected forestry workload estimates are not being adequately addressed (Chart 6).*

- a. *Priority work needs include 132 removals and 95 priority prunings.*
- b. *84 ash trees, if left untreated will die.*
- c. *100 young trees need to be pruned annually to achieve a 3 year rotation.*
- d. *Pruning 172 mature trees per year would achieve a 7 year rotation.*

Chart 6. Tree Work Needs



3. *Tree care requires training to complete properly and safely. The majority of tree pruning work is performed by DPW staff who do not have adequate training in arboriculture.*
4. *Accurate management information facilitates effective and efficient management and facilitates measuring progress. The Village’s tree inventory software is not being adequately utilized to maintain the*

inventory and work activities, and therefore cannot generate accurate management statistics.

5. *There are other entities and organizations that have an impact on the health and management of the urban forest. The Village should recognize these organizations, their interests and develop mutually beneficial working relationships.*

B. Objectives

The following are objectives developed to identify the current forest management challenges. The Current Challenge the objective is to address is noted at the end of each Objective as: (CC challenge #).

1. Secure the services of a consulting arborist/urban forester on an annual basis. (CC# 1,3,4)
2. Complete a cost benefit analysis of utilizing in-house versus contractual services to complete forestry work activities. (CC# 2,4)
3. Develop a schedule to complete the current priority forestry workload (Table 3). (CC# 2)

Table 3. Current Workload Needs by Priority					
Task	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Safety Pruning	36	0	0	0	59
Removals	24	25	34	14	24
Totals	60	25	34	14	83

4. Provide urban forestry and arboricultural training for Department of Public Works personnel. (CC# 3)
5. Develop a work activity recording procedure that integrates the use of the tree inventory software. (CC# 4)
6. Identify and build partnerships of all the stakeholders who have an influence or impact on the health and management of the urban forest. (CC# 5)
7. Publish urban forest management statistics as part of the forestry activity budget each fiscal year. (CC# 4)
 - a. Population Statistics
 - b. Work Activities for the year
8. Prepare an annual report of the previous years accomplishments and present it at the annual Arbor Day Ceremony. (CC# 4)
9. Review and revise the Management Plan after 4 years. (CC# 4)

III. Public Safety – This category includes challenges and objectives to promote an environment that is reasonably free of tree-related risks for Village residents and visitors.

A. Current Challenges

Defective trees can pose a threat to public safety. Reducing the risks requires regular periodic tree inspection to identify risk trees and prioritize an action plan to mitigate the risk. Assessing tree risks requires a qualified arborist specialized in urban forest management. Periodic storm events can cause significant damage to trees and property. A prompt and effective response to these events minimizes the risks to public safety.

1. *132 trees are presently recommended for removal and 95 trees are recommended for priority pruning due to health or structural problems.*
2. *Trees can pose a safety risk to people and property.*
3. *Periodic storm events can pose a risk to people and property.*

B. Objectives

The following are objectives developed to identify the current public safety challenges. The Current Challenge the objective is to address is noted at the end of each Objective as: (CC challenge #).

1. Complete the tree removal and priority pruning needs identified in the 2014 tree inventory. (CC# 1)
2. A survey to identify public trees that pose an unacceptable risk to public safety including the appropriate management actions to reduce these risks should be completed annually. (CC# 2)
3. Assessing trees for tree related risks (see #2) should be completed by an International Society of Arboriculture Tree Risk Assessment Qualified (TRAQ) arborist. (CC# 2)
4. An emergency response plan should be developed to guide the Village's response. (CC# 3)

IV. Community Involvement & Education – This category includes challenges and objectives for engaging and educating residents in the management and appreciation of the urban forest.

A. Current Challenges

1. *The Tree Board presently has member and leadership vacancies.*
2. *The Village needs to improve communication to the public regarding the value of the urban forest, urban forest policies, education and work activities.*
3. *Notification of residents should be integrated into policies, operational and administrative schedules for tree-related activities.*
4. *There are forestry work activity projects (e.g. young tree care and planting) that are well suited to solicit volunteer assistance from Village residents.*

B. Objectives

The following are objectives developed to identify the current community involvement and education challenges. The Current Challenge the objective is to address is noted at the end of each Objective as: (CC challenge #).

1. Fill the current Tree Board vacancies and leadership roles. (CC# 1)
2. Continue to hold an Arbor Day ceremony each year and provide an annual report of accomplishments. (CC# 2)
3. Apply for Tree City USA recertification and any growth awards that may be appropriate by December. (CC# 2)
4. Update the Tree Board page of the Village web page
5. Develop a Tree Board Facebook page. (CC# 2,3)
6. Develop and publish a forestry brochure that informs residents of the Village's forestry policies and programs. (CC# 2,3)
7. Develop a volunteer young tree care program. (CC# 4)

V. Funding & Resources – This category includes efforts to maintain sufficient resources to realize the goals of the urban forest program.

A. Current Challenges

The Village has many competing priorities and demands on the Village’s limited resources. The forestry workload includes the current higher priority work needs indentified in the 2014 tree inventory and an estimated annual workload if the Village is to implement an ideal management program. This demand will be met with a combination of Village and other resources, both financial and human. The following tables itemize the financial costs to meeting these needs using current Monroe County contract tree work rates.

1. *The current priority forestry workload will require approximately \$93,905 of resources to complete (Table 4).*

Table 4. Current Forestry Workload Resource Need			
Activity	Trees/Units	Unit Cost	Totals
Priority Pruning	95	\$127	\$12,065
Removals	132	\$408	\$53,856
Stumps	132	\$212	\$27,984
Total			\$93,905

2. *The estimated annual forestry activity resource needs is approximately \$44,360 (Table 5).*

Table 5. Estimated Annual Forestry Activity Resource Need			
Activity	Units /Trees	Unit Cost	Totals
7 yr. Rotational Mature Pruning	172	\$127	\$21,844
Train Pruning	100		\$0
Priority Pruning 3%	52	\$127	\$6,629
Removals 1%	17	\$408	\$7,099
Stumps	17	\$212	\$3,604
Plantings	18	\$125	\$2,284
Arboricultural Consulting	10	\$90	\$900
Emergency		\$2,000	\$2,000
Total			\$44,360

B. Objectives

The following are objectives developed to identify the current funding & resource challenges. The Current Challenge the objective is to address is noted at the end of each Objective as: (CC challenge #).

1. Apply for a NYS DEC urban forestry grant to address the Current Workload Needs. (CC# 1)
2. Develop a resource management (financial, labor, equipment) strategy to meet the annual workload needs of the urban forestry program. (CC# 2)
3. Investigate new funding streams. (CC# 1,2)
4. Continue to apply for DEC tree planting grants. (CC# 1,2)

Appendix 1 – Objectives by Year

Annual

- Complete the tree removal and priority pruning needs identified in the 2014 tree inventory.
- Restrict the planting of trees of the maple family and genus as well as Norway maple, silver maple and honeylocust until their representation in the population drops below their respective diversity goals.
- The Village should prohibit the planting of trees in the ash genus.
- The Village should plant tree species with a low representation in the population.
- Evaluate and update annually Brockport's Master Tree List.
- Assessing trees for tree related risks (see #2) should be completed by an International Society of Arboriculture Tree Risk Assessment Qualified (TRAQ) arborist.
- Continue to hold an Arbor Day ceremony each year and provide an annual report of accomplishments.
- Apply for Tree City USA recertification and any growth awards that may be appropriate by December.
- Continue to apply for DEC tree planting grants.
- Provide urban forestry and arboricultural training for Department of Public Works personnel.

2016

- Fill the current Tree Board vacancies and leadership roles.
- Develop clearly defined urban forest policies for tree planting and removal, pruning, risk management, service delivery, community involvement and tree protection.
- Develop and adopt an annual tree planting goal.
- Seek restitution from National Grid for the excessive utility pruning.
- Secure the services of a consulting arborist/urban forester on an annual basis.
- Require pre-notification of the Tree Board before completion of all scheduled tree work.
- Develop and adopt Arboricultural standards and specifications document.
- Apply for a NYS DEC urban forestry grant to address the Current Workload Needs.

2017

- Complete a cost benefit analysis of utilizing in-house versus contractual services to complete forestry work activities.

- Develop a schedule to complete the current priority forestry workload utilizing in-house and contractual services.
- Develop a work activity recording procedure that integrates the use of the tree inventory software.
- Identify and build partnerships of all the stakeholders who have an influence or impact on the health and management of the urban forest.
- Publish urban forest management statistics as part of the forestry activity budget each fiscal year.
 - Population Statistics
 - Work Activities for the year
- Prepare an annual report of the previous years accomplishments and present it at the annual Arbor Day Ceremony.

2018

- The Village should develop a tree pest mitigation strategy.
- The Village should develop and implement a young tree care program.
- Develop a volunteer young tree care program.
- An emergency response plan should be developed to guide the Village's response.

2019

- Investigate new funding streams.
- Update the Tree Board page of the Village web page
- Develop a Tree Board Facebook page.
- Develop and publish a forestry brochure that informs residents of the Village's forestry policies and programs.
- Review the Management Plan and revise after 4 years.

2020

- A risk tree survey of public trees should be completed annually.
- Develop a resource management (financial, labor, equipment) strategy to meet the annual workload needs of the urban forestry program.
- The Village should develop a rotational tree pruning program.
 - Ideally, young trees should be pruned every 3 years.
 - Ideally mature trees should be pruned every 7 years.