

Williston Community Forestry Plan



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Table of Contents

Acknowledgements.....	4
Executive Summary.....	5
Chapter 1. Introduction.....	6
1.1 Benefits of Community Trees.....	6
1.2 Purpose & Scope of the WCFP.....	6
Chapter 2. Williston’s Trees.....	8
2.1 Historical Perspective.....	8
2.2 Tree Inventory.....	8
2.3 Economic Value.....	11
2.4 Future Needs & Actions.....	11
Chapter 3. Operations.....	13
3.1 Current Operations.....	13
3.2 Needs & Goals.....	15
3.3 Action Items.....	16
Chapter 4. Protection of Existing Trees.....	17
4.1 Current Policies.....	17
4.2 Needs & Goals.....	17
4.3 Action Items.....	18
Chapter 5. Planning for Future Trees.....	19
5.1 Current Policies.....	19
5.2 Needs & Goals.....	19
5.3 Action Items.....	21
Chapter 6. Maintenance.....	23
6.1 Current Maintenance Policies and Activities.....	23
6.2 Needs & Goals.....	24
6.3 Action Items.....	28
Chapter 7. Public Education and Outreach.....	31
7.1 Current Activities, Needs & Goals.....	31
7.2 Action Items.....	31
Chapter 8. Funding.....	33
8.1 Current Community Forestry Expenditures.....	33
8.2 Needs & Goals.....	34
8.3 Action Items.....	37

Appendix A. WCFP Timetable for Implementation..... A1
Appendix B. Williston Tree Inventory Report..... B1
Appendix C. Williston Public Tree Valuation..... C1
Appendix D Arbor Day Tree Survey Results..... D1
Appendix E Draft Street Tree Bylaw..... E1

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Executive Summary

Trees play an important role in every community, providing benefits that are by turns economic, aesthetic, and cultural. Williston currently has over 1,300 public trees in street rights-of-way and on municipal properties. This number will continue to increase as residential and commercial developments are constructed. The vast majority of Williston's public trees are now very young and in good health, although they will need proper maintenance and stewardship in order to reach their full potential. As the estimated value of the Town's community tree resources is over \$1 million, these trees need to be regarded and managed as a valuable part of the public infrastructure. The Williston Community Forestry Plan evaluates existing policies, resources and operations relating to public trees, assesses current needs, and establishes goals and actions for management of Williston's community forest over the next five years.

Primary conclusions reached in the development of this plan include the following:

- A great deal of preventive maintenance, especially structural pruning and proper mulching, is needed to ensure that Williston's small trees grow into healthy mature trees with strong form;
- Tree species diversity must be increased in Williston;
- The Town must do a better job of ensuring that street trees installed or retained as part of new developments are sited appropriately, planted correctly, cared for after planting, and protected from construction;
- Training is needed for Town employees (and others involved in public tree care) in routine and hazard tree maintenance practices;
- Public education surrounding rights and responsibilities for public trees is needed;
- Planting of new public trees is currently done on a piecemeal basis. A well planned and systematic approach to new tree plantings is needed;
- A budget commitment will be necessary if Williston plans to train municipal employees, conduct needed preventive tree care, and plant new public trees on an annual basis;
- Implementation of this Community Forestry Plan would be facilitated by the establishment of a Tree Board and/or the assumption of an active role by the Town Tree Warden.

The overall goal of this 5-year plan is to design and implement a practical Community Forestry Program in Williston that allows the Town to get the maximum benefit out of its tree resources over the long term.

Chapter 1: Introduction

1.1 Benefits of Community Trees

Trees provide many functions and benefits within a community. Some of these benefits, like decreased heating and cooling costs, erosion control, reduction of stormwater runoff, and increased property values, translate directly into economic savings. The U.S. Forest Service estimates that over a 50-year lifetime, one tree generates \$31,250 worth of oxygen, provides \$62,000 worth of air pollution control, recycles \$37,500 worth of water, and provides \$31,250 worth of soil erosion control.¹

Other benefits of trees are not quantifiable in monetary terms, but are no less valuable. These involve the aesthetic and social advantages of maintaining healthy street and shade trees within a community. The degree of planning and care that street and shade trees receive is directly proportional to the benefits that a community can reap from its tree resources. Therefore, it is important to set guidelines and strategies for developing, maintaining, protecting, and managing a healthy community forest.

Street and Shade Tree Benefits

- Trees conserve energy by shading and cooling buildings and pavement, reducing the need for air conditioning.
- Trees provide screening and buffers between buildings and adjacent land uses.
- Trees increase property values.
- Trees provide food and shelter for urban and suburban wildlife.
- Properly placed street trees can provide traffic calming functions.
- Trees reduce soil erosion and stormwater runoff by holding the soil together and intercepting and reducing the velocity of rainfall.
- Trees provide oxygen and improve air quality by absorbing pollution and odors.
- Trees make streets, parks, and neighborhoods more livable and beautiful.
- Trees reduce glare and reflection from urban surfaces.
- Trees mark the passage of time and provide living memorials for significant community events.

1.2 Purpose and Scope of the Williston Community Forestry Plan

Williston has reached the size as a community where it is responsible for a significant number of street and shade trees that require long-term maintenance and care in order to thrive. Additionally, the Town has realized the potential benefits of planning for and directing the expansion of its community forest in the future. The Williston Community Forestry Plan (WCFP) provides a 5-year plan for the comprehensive management of

¹ USDA, Forest Service Pamphlet #R1-92-100

trees on municipal properties (community parks, public schools, cemeteries, and other town parcels) and within town highway rights-of-way.

This plan's purpose is: 1. to summarize and evaluate existing resources, policies, operations and educational initiatives relating to community trees; 2. to assess current needs; and 3. to establish goals and actions for future development and management of the community forest. The WCFP does not apply to forestry resources within Country Parks or Conservation Areas, which are addressed via individual management plans for these areas. Although the plan provides valuable information for home and business owners and addresses public education concerning tree stewardship throughout Williston, this plan does not specifically address trees on privately owned parcels.

Chapter 2: Williston's Trees

2.1 Historical Perspective

Vermonters have long valued public street and shade trees for their beauty and the sense of place they bring to a community. When Vermont towns like Williston were first established in the mid 1700's, trees in select places were often left standing as development and land clearing progressed. These trees often became centerpieces within towns and on homesteads, but it was not for another century (at the same time that the local tourist industry was beginning) that most New England villages began planting trees with the intent of beautifying the village landscape.² In Williston's Village Center and outlying homesteads in 1800s and early 1900s, trees were likely planted by homeowners to provide shade and beauty. Many of the historic buildings and older farmsteads throughout town are still graced by large, stately trees planted during this time period. Trees were also planted by citizens to beautify municipal and community properties like the Town Hall, schools, parks, cemeteries and churches.

As Williston has grown in population and become more developed, trees on municipal properties and along street rights of way have continued to be an important asset. Since the 1970s, Williston has seen a marked increase in residential and commercial development. There has been a 98% increase in residential population and a 563% increase in its working population over just the past 20 years.³

Beginning in 1997, the Town began to require developers creating new streets to plant trees along them; however, few standards have been implemented to guide that process or ensure the future success of these trees. With the establishment of the State of Vermont's Urban and Community Forestry Program, financial and technical resources have become available to assist municipalities with inventorying their tree populations and developing and implementing comprehensive plans for planting, care and maintenance of community tree resources.

2.2 Tree Inventory

No community tree resource can be properly managed unless its composition, key attributes, and condition are well understood. In 2004, the Williston Planning & Zoning Department received a Trees for Local Communities (TLC) Grant from the Vermont Urban and Community Forestry Program (VUCFP) to conduct an inventory of public street and shade trees. The health, condition, and general characteristics of over 1,300 trees were assessed by professional arboriculture consultants Trees New England, LLC during 2005 and 2006. Inventoried trees included those in all community parks, cemeteries, public school grounds,* the public library and municipal buildings, Maple

² Campanella, T.J. 2003. *Republic of Shade: New England and the American Elm*. Yale University Press, New Haven, CT.

³ Williston, Town of. 2006. *Williston Comprehensive Plan*. Williston, VT.

* A portion of the Williston Central School grounds was not included in the 2005-06 Tree Inventory.

Tree Place, and five residential subdivisions where trees had been planted within the street ROW (see Appendix A for a detailed map of inventory areas). Each tree was given a unique identification number, and all data were organized into spreadsheets linked to a Geographic Information System (GIS) for spatial referencing. This system provides excellent baseline data about the current community tree resource in a format that can be easily updated as maintenance or additional plantings occur in the future. Results of the 2005-6 Tree Inventory are summarized below; the Inventory Report is found in Appendix B.

2.2.1 Species Diversity

Williston’s street and shade tree community is lacking diversity. Although 35 different species of tree were identified during the inventory, 73% of these trees are either ash or maple. Green ash (*Fraxinus pennsylvanica*) and Norway Maple (*Acer platanoides*) are particularly over-represented in the Town’s street tree population (Fig. 1), comprising 43% and 13% of all trees, respectively. Tree species diversity is generally greater in the Town’s parks and cemeteries than along the street ROW (Fig. 2), where species selection has been limited to some degree due to the need for salt tolerant trees. In several residential and commercial areas, all or nearly all of the trees which have been planted are of a single species. This is not ideal, since species- or genus-specific plant diseases may damage or destroy all the trees in an area at once, leaving the landscape completely altered. This was a lesson learned the hard way in many New England communities during the 1950s and 60s when Dutch Elm Disease wiped out thousands of mature American elm (*Ulmus americana*) trees lining village streets.

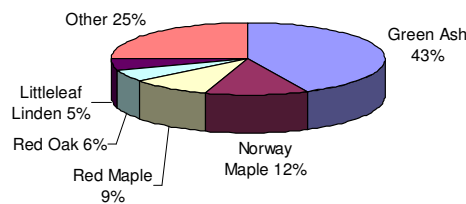


Figure 1. Overall species composition of Williston’s community trees.

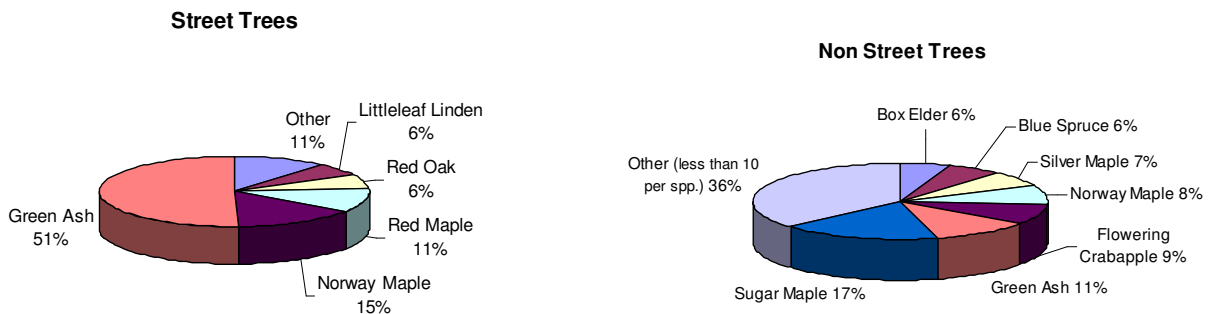


Figure 2. Species composition of street trees (left) and non street trees on municipal properties (right).

Many professional arborists and urban forestry associations now recommend that community tree populations should consist of no more than 10% of any one species, 20% of any one genus, or 30% of any one family of trees.^{4,5} Williston will need to develop specific strategies for diversification of its community tree population, while recognizing that it may be several decades before the recommended diversity targets are met.

2.2.2 Size and Age Composition

The International Society of Arboriculture (ISA) recommends that a community tree population be diversified in terms of size and age distribution. According to DBH measurements (diameter at breast height (4.5'), a general indicator of tree size and age) collected during the tree inventory, the vast majority of Williston's public trees are small or very small (84% are $\leq 6''$ in diameter) (Fig 4). This is primarily due to the extensive residential and commercial development experienced during the past 20 years, and the fact that the Town has only recently required the installation of street trees as a condition of development approval for subdivisions. Although the age distribution of Williston's trees is not ideal, the small size of many trees will make maintenance and structural pruning much easier in the near term. As long as the growth and development of young trees in Williston is fostered, a sustainable population with a more diverse size and age composition will eventually develop.

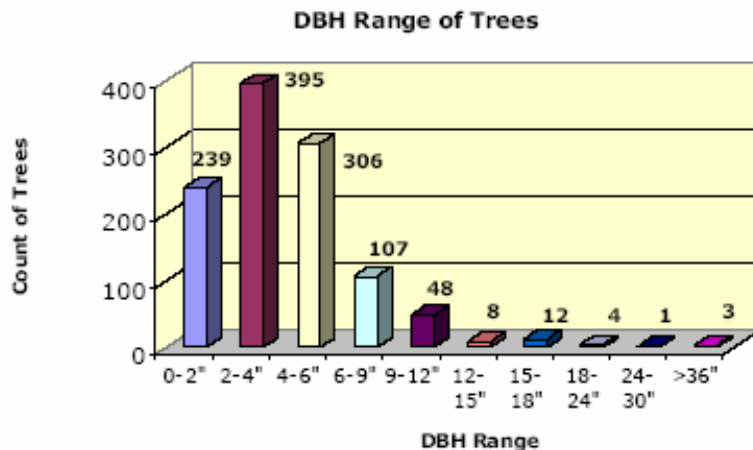


Figure 3. DBH ranges of Williston's community tree population.⁶

⁴ Santamour, F.S. 1990. *Trees for Urban Planting: Diversity, Uniformity, and Common Sense*. In Proceedings of the 7th Metropolitan Tree Improvement Alliance Conference, 11-12 June 1990, Lisle, IL.

⁵ Miller, R.H. and R.W. Miller. 1991. *Planting survival of selected street tree taxa*. Journal of Arboriculture 17(7): 185-91.

⁶ Trees New England. 2006. *Town of Williston Urban Street Tree Inventory and Assessment Report*. Petersham, MA.

2.2.3 Health and Condition

The vast majority of Williston's community trees are in good health. Over 94% of the trees inventoried were in good condition, meaning that they had minimal to no trunk damage, branch dieback, or suckering, and possessed a full canopy characteristic of the species. Of the remaining trees, 35 (3%) were in fair condition, 10 (1%) were in poor condition, and 13 (1%) were dying or dead. Though the health of most public trees is good, most (96%) are in need of one or more types of routine maintenance, including structural pruning, crown cleaning or crown raising. In addition, over 32% of trees showed some evidence of trunk damage (which often results from vehicular or lawn care equipment impact) and 32% were improperly mulched.

2.2.4 Inventory Summary

In summary, Williston's community trees are generally young but in good health. A great deal of structural pruning is necessary in the near future to ensure that these young trees develop a strong form which will promote good health in the future. Fortunately, structural pruning of very young trees is a relatively simple process. Species diversity is also lacking and needs to be taken into consideration in future planting efforts.

2.3 Economic Value

2.3.1 2007 Valuation of Williston's Trees

The value of Williston's public tree resource was assessed in 2007 using the Replacement Cost Method (RCM), which estimates the cost of replacing each tree at the same location with one of the same species, condition and size. RCM is the most commonly used method of tree assessment when the majority of trees to be assessed are small enough that they could physically be replaced with trees of a similar size. The market values of different tree species are taken into account, as well as the condition and location of the tree to be replaced, and removal, clean-up and installation costs. Using this method, the Town's 1300+ public trees have an estimated value of \$1,143,400.00. See Appendix C for valuation details.

2.4 Future Needs & Actions

2.4.1 Inventory Remaining Trees on Williston Central School Grounds

There are an estimated 20 to 50 trees on the grounds of the Williston Central School which have not yet been inventoried due to an administrative oversight. These trees should be assessed and incorporated into the existing tree inventory by Fall 2007.

2.4.2 Conduct Periodic Updates of Tree Inventory

The Tree Inventory must also be updated regularly to include new tree plantings and to record removals and any maintenance activities conducted. Unless information about the size and condition of all trees is also updated as maintenance is conducted, a complete update of the inventory data will need to be conducted every 5 to 7 years.

Ideally these updates will be synchronized with updates of the Community Forestry Plan.

2.4.3 Review Progress and Update 5-year Williston Community Forestry Plan

An assessment of the Town's progress in implementing this Community Forestry Plan should be carried out by the year 2012. The plan should then be updated and modified as necessary to reflect changed needs and goals in Williston's Community Forestry Program. The updated plan should be re-adopted by the Selectboard, to guide community forestry activities through 2017.

Chapter 3: Operations

Numerous individuals and groups, including municipal departments, town boards, and volunteer groups have a role in managing Williston's community forest resource. This chapter identifies these parties and defines their respective roles, responsibilities, and interactions.

3.1 *Current Operations*

3.1.1 *Town of Williston*

3.1.1.1 *Public Works Department*

The Williston Public Works Department (PWD) is primarily responsible for the management and maintenance of Williston's public street and shade trees. The PWD makes decisions regarding the interaction between trees and transportation infrastructure such as sidewalks, curbs, streets, utility lines, and pedestrian and bike paths. Most of the tree maintenance currently conducted by the Williston PWD involves removing trees or pruning branches which have become safety hazards for vehicular and/or pedestrian traffic. Landscaping and maintenance of municipal properties such as the town offices and community parks are also the responsibility of the PWD.

Because the PWD is responsible for transportation infrastructure in Williston, the department reviews all development proposals which include new private or public streets and/or paved pedestrian paths. The Director of Public Works ensures that new streets and recreational paths meet Town specifications, and also reviews the landscaping associated with transportation corridors.

3.1.1.2 *Williston School District*

The Williston School District (WSD) serves the towns of Williston and St. George, and provides primary education for students in grades pre-K to 8. The District has two schools, the Allen Brook School off Talcott Road and the Williston Central School in the historic Village Center. Planting and maintenance of all trees and landscaping on school grounds is carried out by the District itself. As with the PWD's activities, tree maintenance on school properties has typically been limited to addressing safety and hazard concerns due to time and budget constraints. The activities of the WSD are directed by the Williston School Board, a five member board of elected directors.

3.1.1.3 *Cemetery Commission*

The Cemetery Commission is a volunteer Town board charged with the care and management of the Town's four cemeteries. Maintenance of trees and landscaping within the cemeteries is either conducted by commission members themselves or contracted out to landscaping professionals. All decisions regarding the management of trees in Williston's cemeteries involve the Cemetery Commission.

3.1.1.4 Planning and Zoning Department

The Williston Planning and Zoning Department (PZD) is responsible for developing and administering the Comprehensive Plan, zoning bylaws and land use regulations. Each of these documents relates to public street and shade trees in some manner. The comprehensive plan sets out strategies for overall community design, including urban forestry, while the Town's bylaws provide a potential avenue for protecting existing public trees and developing standards and regulations for new tree plantings associated with future streets, pathways and new developments. The PZD is also responsible for implementing grant-funded planning projects such as tree inventories and development of this Community Forestry Plan. Most long-range or comprehensive planning for Williston's community trees will likely be coordinated through the PZD.

Williston PZD staff also manage several Town volunteer boards, including the Planning Commission, Conservation Commission, Development Review Board, and the Historical and Architectural Advisory Committee. The Development Review board evaluates proposed developments in Williston and ensures that they comply with zoning bylaws. The Conservation Commission and HAAC also review proposed developments as they relate to environmental issues and historic preservation/design criteria, respectively, and provide recommendations to the DRB. The Planning Commission works on long-range planning issues in Williston. Each of these boards may influence community tree management via planning or development review.

3.1.1.5 Tree Warden

The State of Vermont mandates that every municipality retain a Tree Warden, to be appointed annually by the Town Selectboard. According to 24 V.S.A § 2502 – 2511, the Tree Warden is responsible for maintaining the health, appearance, and safety of trees within public rights of way and for protecting them from noxious insect pests and diseases. The Tree Warden also enforces any laws relating to public trees, and may implement a tree planting and preservation program. Legally, only a tree warden or someone with his/her permission may cut down a publicly owned tree. In Williston, as in many Vermont communities, this office has become essentially an honorary position with few associated duties. The Williston Tree Warden occasionally determines whether a tree in or near a ROW is privately or publicly owned, but otherwise the traditional duties of a Tree Warden have become the responsibility of the PWD. Recently there has been a renewed interest in active duties for Tree Wardens in some Vermont towns, as municipalities recognize the complex array of tasks involved in managing community tree resources. Potential future roles for the Tree Warden in Williston include increasing public awareness about responsibility for trees within the Town ROW, educating citizens about proper tree care and maintenance, implementing a historic tree registry program, assisting with tree plantings on public property, and participating in Arbor Day celebrations organized by the Town.

3.1.1.6 Recreation Department

The Williston Recreation Department (WRD) develops and implements recreational programs for residents of all ages. This department also assists the PWD in maintaining a system of community parks, primarily in residential areas of the Town. WRD staff manage the Williston Recreation Committee, a volunteer advisory board that reviews department projects and programs. Both the Recreation Department and the Williston Recreation Committee are involved in the management of trees in community parks.

3.1.2 Other Groups and Individuals

3.1.2.1 Williston In Bloom

Williston In Bloom (WIB) is a registered local chapter of America In Bloom, a national community beautification and improvement program (for more information, go to www.americainbloom.org). WIB provides volunteer landscaping of public spaces including municipal building grounds, street medians and intersections, and Town ROWs. Volunteers with WIB are often involved in planting new trees to replace removals or to enhance areas that have been sparsely planted. The PWD works closely with WIB to coordinate landscaping activities.

3.1.2.2 Vermont Urban and Community Forestry Program

The Vermont Urban and Community Forestry Program (VUCFP) is a division of the Vermont Division of Forests, Parks, and Recreation whose mission is to “promote the stewardship of urban and rural landscapes to enhance the quality of life in Vermont communities.” The VUCFP provides technical resources and financial assistance to the Town in the management of its community forestry resources. Grant funding has been secured by the Town of Williston through VUCFP’s Trees For Local Communities grant program for tree inventories and to develop this comprehensive plan. In addition, VUCFP staff include five District and Urban Foresters who are available to municipalities for technical advice and planning assistance.

3.1.2.3 Williston Residents, Homeowner’s Associations, and Businesses

Many individuals and organizations not specifically identified in this plan may have an interest in stewardship of Williston’s community trees. For example, individuals or homeowner’s associations may be interested in taking over some of the maintenance of trees in their street ROWs. This should be permitted, provided the individual or group has been trained in proper maintenance techniques and has received permission from the Public Works Director. We also expect that citizens and businesses will participate in the community tree planning process, and in tree-related educational initiatives sponsored by the Town.

3.2 Needs and Goals

Having the Public Works Department take on many of the traditional roles of the tree warden has worked well for the Town of Williston. The PWD should continue to conduct the majority of street tree maintenance, especially addressing hazard tree

situations. It is likely that the Cemetery Commission and School Board will also continue to maintain trees within their own jurisdictions. With the development of this plan, there is a unique opportunity to unite the activities of different maintenance jurisdictions under a cohesive set of goals. Although many sections of the WCFP can be implemented by the individual groups described above, the establishment of a Tree Board which directly oversees the implementation of the plan and coordinates between all interest groups will assist greatly in this endeavor. In addition, there are excellent opportunities for the appointed tree warden to take a more active role in Williston's community forestry. In order for the community forestry program in Williston to be truly exemplary, a Tree Board and active Tree Warden should be involved.

3.3 Action Items

3.3.1 Establish a Williston Tree Board

A Tree Board should be established by the Selectboard which has the specific responsibility of implementing the WCFP. The Tree Board can coordinate with the PWD, School Board, and Cemetery Commission on funding and accomplishing maintenance objectives, and may keep the inventory/maintenance database up-to-date. Similarly, the Tree Board can work with the PZD, Tree Warden, Williston-In-Bloom, or Recreation Department on specific projects from tree planting to public education to securing funding for forestry activities. Establishment of a Tree Board will ensure that the WCFP is implemented as efficiently as possible.

3.3.2 Encourage the Tree Warden to take an Active Role

There are many aspects of community forestry in Williston for which the appointed Tree Warden could offer assistance that is greatly needed. Potential roles for the Tree Warden include increasing public awareness about responsibility for trees within the Town ROW, making determinations about ROW locations, organizing and facilitating public hearings when a public tree removal is proposed, educating citizens about proper tree care and maintenance, implementing an historic tree registry program, assisting with new tree plantings, and participating in Arbor Day celebrations hosted by the Town. In the event that the current Tree Warden is not interested in or able to take an active role but wishes to remain in the position, VT state statute allows for the appointment of a deputy tree warden.

Chapter 4. Protection of Existing Trees

4.1 Current Policies

As of the writing of this Community Forestry Plan, the Town of Williston has no written policies, regulations or bylaws concerning protection of municipally owned trees. State law (24 V.S.A. § 2508 -2510) maintains that “a public shade tree shall not be cut or removed, in whole or in part, except by a Tree Warden...or by a person having the written permission of a Tree Warden.” Fines for willfully defacing a public tree are set at “not more than \$50,” and for critically injuring or killing a public tree at “not more than \$500,” to be paid to the municipality. Furthermore, public trees in residential areas cannot be removed without a public hearing, presided over by the Tree Warden.

Protection of trees (public or private) to be retained during construction of new development is also a concern of the Planning & Zoning Department. The current Interim Stormwater Management Regulations specify that developments required to complete a Runoff & Erosion Control Plan (RECP) or a Runoff and Erosion Control Checklist have to mark construction disturbance limits on the ground and demonstrate how existing vegetation is to be protected during construction. No specific standards for this protection are detailed.

4.2 Needs and Goals

It is doubtful whether the somewhat archaic State tree protection statutes described above have ever been invoked to protect a tree in Williston. However, they do highlight some important questions about the level of protection for existing community trees. There is a general lack of public awareness regarding the ownership of and responsibility for trees along Town streets and highways. In a survey of Williston residents conducted by the Williston Community Forestry Working Group, 71% thought that care and maintenance of street trees was the responsibility of individual landowners. In reality, where street trees have been planted within the ROW, they are the responsibility of the Town, and should not be removed or even pruned without express permission from the Director of Public Works. However, residents have the right to request that the PWD conduct maintenance on trees in the ROW, or inspect trees for suspected insect pest or disease damage.

During construction of new development projects, trees should be retained and protected from construction damage wherever possible. The current stormwater regulations are a good start, but do not go into enough detail to ensure that trees to be retained are adequately protected during construction. Specific performance standards are needed.

4.3 Action Items

4.3.1 Draft and Adopt a Tree Protection Ordinance

The Williston Planning and Zoning Department will develop a Tree Protection Ordinance which will prohibit intentional damage to trees on municipal properties or within Town ROWs. Removing, cutting, pruning, and/or applying chemicals to any public tree shall also be prohibited without prior consent from the Director of Public Works. Proper channels for requesting the removal of a public tree will be specified in the ordinance. Enforcement and penalties will be described. Once the draft ordinance has been reviewed and finalized, it will be submitted to the Selectboard for adoption.

4.3.2 Develop Performance Standards for Tree Protection During Construction

Performance standards for tree (and other vegetation) protection during construction will be developed and incorporated into the Williston Public Works Standards. Diagrams illustrating required tree protection methods should also be developed to assist developers in complying with the standards. At a minimum, these standards should include clearly delineating construction disturbance limits out to a tree's vegetation dripline, designating specific construction access pathways, minimizing grade changes, and installing underground and above-ground utilities an appropriate distance from existing trees.

Chapter 5: Planning for Future Trees

New community trees are planted in Williston under one of two scenarios: Installation of street trees may be required as a condition of new development, or trees may be planted by the Town itself on municipal properties or to replace tree removals from within the street ROW. This chapter discusses existing policies, current needs, and proposed strategies regarding installation of new public trees.

5.1 Current Policies

5.1.1 Street Trees in New Subdivisions

The current Williston Subdivision Regulations (effective since June 8, 2002) require developers of new subdivisions to plant hardwood shade trees at intervals of no less than 60' within the ROW along both sides of private and public drives. Trees must be 2" in diameter (measured at 1' above the ground) at the time of planting. Typical cross sections of various types of streets (dense residential, urban, rural residential) are provided in the *Williston Public Works Specifications*. Under these regulations, street trees have been installed in at least five recent subdivisions.

5.1.2 Trees in Other New Developments

Proposed developments in certain commercial areas and in Williston's historic Village Center are subject to design review by the Historic and Architectural Review Committee (HAAC), which includes a review of landscaping. The design review guidelines under Section 4.21.3 of the Williston Zoning Ordinance specify that the total cost of landscaping in commercial design review districts shall be at least 3% of total construction cost of the development. Street trees "of appropriate size and species" are required along all streets. In the Village Center, developers are required to "preserve and maintain the greenbelt" along village streets, including planting new and/or replacement street trees of traditional varieties.

5.1.3 Other Public Tree Planting

The Town does not currently have a written policy governing how and when new and replacement trees are to be planted on municipal properties and within existing Town ROWs. In the past, tree plantings have been organized when available funds remain in the DPW landscaping budget near the end of a fiscal year. Most tree plantings are replacements of dead trees that were removed.

5.2 Needs and Goals

5.2.1 Street Trees in New Developments

Street tree planting should continue to be required whenever development projects create new public or private streets. Installation of street trees should also be required where development is proposed adjacent to existing roads that do not have adequate street tree plantings. The current regulations and cross sections for street trees in new developments are not detailed enough to ensure high quality street tree installations.

For example, street trees have been planted in at least five new developments under the current subdivision regulations. In at least one of these developments, many of the trees were planted too deeply, resulting in trunk rot that is now causing failure of these trees during high wind events. Comprehensive performance standards are needed for tree species selection and diversity, planting area dimensions, distances from curbs, sidewalks, utilities, and intersections, and sizes and quality of plant stock. In addition, professional oversight of the installation process is essential for large planting projects to ensure that trees are installed correctly and according to approved landscaping plans. Maintenance, including irrigation, of newly installed street trees should be the responsibility of the developer for a defined period following planting. This will reduce the chances of the Town having to replace dead or dying street trees that were not planted properly or cared for after planting.

5.2.2. Town-Sponsored Public Tree Planting

The planting of new public trees, independent of new development, should also be a high priority for the Town. Although some street tree removals are now replaced on a piecemeal basis, very few new trees are being planted in other suitable planting sites throughout town. This is partly due time and budget constraints, but also reflects the fact that vacant planting sites have not been quantified or identified in any systematic manner. The Town needs to identify street ROWs and municipal properties where the public tree resource could be improved. Following this, prioritization of potential planting sites can occur.

When prioritizing locations for tree planting, the Town should solicit input from all relevant municipal departments and boards, as well as residents of the community. In drafting this WCFP, the members of the Community Tree Working Group asked key town personnel (from PWD, Williston School District, Cemetery Commission, etc.) to prioritize locations for new tree plantings. Members of the community were also asked to suggest tree planting locations in a survey distributed at Williston's first Arbor Day event (see Appendix D for survey results). From the results of these inquiries, the following preliminary list of planting sites has been identified:

1. New Fire Department
2. Allen Brook School
3. New Police Department
4. Tafts Corners area
5. Williston Central School
6. Along the bike path that travels behind the Williston Central School
7. Deer View Cemetery

This list needs to be expanded and refined after further inquiries and completion of a vacant planting site inventory. Once a priority list is developed, realistic annual targets and schedules for tree planting can be generated.

5.3 *Action Items*

5.3.1 *Develop and Adopt a Street Tree Bylaw*

The Williston Planning & Zoning Department will develop a Street Tree chapter in its new Unified Development Bylaw to provide performance standards for the planting of new street trees associated with new developments in all zoning districts. At a minimum, the bylaw will include the following:

- Tree species diversity requirements
- Minimum standards for planting strips
- Minimum spacing requirements for street trees
- Distances from curbs, sidewalks, utilities, and intersections
- Prohibited species due to invasive tendencies
- Requirements for size and quality of planting stock
- Requirements for landscaping plans
- Requirements for supervision of planting by a certified arborist in projects over a certain size
- Maintenance and irrigation requirements following planting
- Standards for transplantation of existing street trees to new locations

This bylaw will help ensure that street trees installed as part of new developments will survive to maturity and realize their full potential in terms of providing urban forestry benefits to the community.

5.3.2 *Update the Williston Public Works Standards*

Street cross sections in the *Williston Public Works Standards* will be updated to incorporate spacing, distance, and planting strip dimensional requirements adopted in the Street Tree Bylaw. Detailed illustrations for planting of street trees and protection of existing trees during construction will also be included in the *Public Works Standards*.

5.3.3 *Inventory and Prioritize Vacant Planting Sites*

The Town will conduct an inventory of vacant planting sites in street ROWs and on municipal properties. Analysis of suitable planting sites in street ROWs will focus on existing residential neighborhoods, the Village Center, and relevant commercial districts. Site characteristics such as available rooting space, distance to known utilities, exact geographic location (GPS), salt exposure, and soil type will be recorded at each site to assist in future species selection. This effort will likely be coordinated by the Williston Planning Department with assistance from the Williston Conservation Commission, Williston In Bloom, and other volunteers. Data will be incorporated into the existing Street Tree Inventory Database, and displayed using ArcGIS.

Once the inventory is complete, future planting sites will be prioritized. Prioritization will require input from municipal officials, Town boards, homeowners' associations, area businesses, and residents of the community. There may be instances where home or business owners would rather not have street trees planted in the ROW, or instances

where property owners would like trees in inappropriate locations. Cooperation and coordination between the Town and property owners will be important in planning any new street tree planting efforts.

5.3.4 Develop Annual Targets for New Tree Planting

After prioritization of vacant planting sites is complete, the Town will develop annual targets for the number of new public trees to be planted each year. These numbers will be a reflection of the actual need for new and replacement trees, based upon the list of priority planting sites, as well as anticipated funding and available planting and maintenance labor. Until the vacant planting site inventory has been completed and targets developed, the Town should strive to plant at least 10 new public trees each year.

5.3.5 Work to Increase Tree Species Diversity

The Town will strive to increase public tree diversity so that Williston's tree population contains no more than 20% of any one tree genus. This can be accomplished via requiring developers to meet diversity targets within individual developments, ensuring that new public trees planted increase rather than decrease species diversity, and placing a temporary ban on planting species that are over-represented in the Town's public tree population.

5.3.6 Consider Establishing a Municipal Tree Nursery

Many towns and cities across the northeastern U.S. (including at least 3 municipalities in Vermont) have established municipal tree nurseries in order to reduce costs for new and replacement tree plantings, or to assure adequate supplies of desirable tree species and sizes. If an adequate site for a nursery can be identified on town-owned lands, bare-root species could be purchased from wholesale nurseries, planted, and grown to adequate sizes for planting on municipal properties and within ROW. There are many factors which must be considered prior to establishing a nursery including the economic costs vs. benefits; potential nursery locations; access and irrigation; and the increased maintenance burden on public works staff. These analyses should be undertaken, however, to determine whether a municipal tree nursery makes sense for Williston.

Chapter 6. Maintenance

Maintenance of existing trees is a key component of any urban forestry program. Preventive maintenance such as structural pruning, mulching, and occasional fertilizing will allow trees to realize their full potential in terms of growth, longevity, and benefits to the community. “Reactive” or emergency maintenance activities, those that follow after a problem or safety hazard has developed, are also integral to any maintenance program. These can include eliminating unacceptable risks to public safety and property caused by trees, addressing conflicts between trees and utilities, or treating identified pest or disease eruptions. Although emergency maintenance activities must take priority over routine tree care, fewer threats to public safety and property will develop over time if an effective preventive care program is put into practice.

The maintenance of public trees in Williston is undertaken by the Public Works Department, School District, or the Cemetery Commission, depending upon where the trees are located. The PWD is responsible for the majority of the Town’s community trees (see Fig 6.1), and will be charged with the care of most public trees planted in Williston in the future. Unless explicitly stated otherwise, the text of this chapter refers primarily to the activities of the Williston PWD.

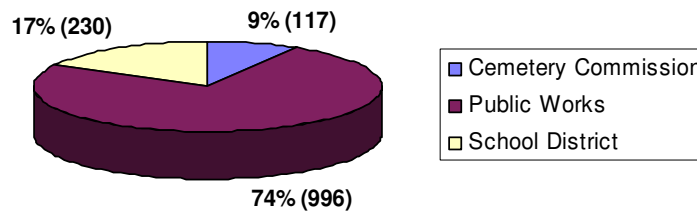


Figure 6.1. Percentages (numbers) of all public trees in Williston maintained by the Public Works Department, Williston School Board, or the Cemetery Commission.

6.1 Current Maintenance Policies and Activities

At present, maintenance of community trees on municipal properties or in the public ROW is primarily limited to addressing threats to public safety and/or property caused by trees. These “urgent care” activities include the following:

- pruning deadwood or limbs that are liable to fall on structures, roadways, or pedestrians;
- pruning or removing trees which have sustained storm damage;
- pruning trees that obscure visibility at intersections or road curves;
- removing dead, diseased or dying trees (especially if they pose a safety hazard);

- Pruning trees that are conflicting with overhead wires or restricting clearance for vehicles or pedestrians which must pass under tree limbs.

Urgent care activities are accomplished in order of their threat to public safety, and take priority over all other tree maintenance. Individual hazard cases are generally identified by PWD employees or brought to the attention of the PWD by concerned residents. Most urgent care tree work is carried out by PWD employees themselves (there are currently seven (7) PWD employees available for part-time tree maintenance), although professional tree services are occasionally contracted when trees to be maintained/removed are particularly large or where significant skill is required to avoid damaging infrastructure.

Virtually no preventive maintenance or structural pruning is currently conducted on public trees. Trees around municipal buildings and in parks occasionally receive new mulch, and trees in the public ROW may or may not receive mulch and/or fertilizer depending upon the activities of the landscaping company hired by each particular development. No structural pruning or training of young trees is conducted, and little preventive monitoring for infectious diseases or pests is performed. This is true for public trees maintained by the PWD, School District, and the Cemetery Commission. The deficiency in preventive care is likely due to a lack of information about specific preventive maintenance needs and how to focus efforts, as well as a shortage of training, time, and funding for PWD employees or others involved in maintenance activities.

6.2. Maintenance Needs and Goals

6.2.1. Identified Needs

Maintenance needs were identified for all public trees during the Town's 2005-06 tree inventory. The inventory revealed that 96% of public trees could benefit from one or more types of routine pruning. Since most of Williston's community trees are still very small, structural pruning of young trees to encourage a strong growth form is an especially prevalent maintenance need. Maintenance needs vary considerably among areas maintained by the PWD, School District, and Cemetery Commission, reflecting differences in species composition, age class, and size of trees in these areas.

6.2.1.1. Williston's Cemeteries

Williston's three older cemeteries, East Cemetery, Chittenden Cemetery, and Allen Cemetery, contain sizeable, mature trees. In many cases, these older "specimen" trees have reached a point where they require support, in the form of cabling or bracing, in order to prevent trunk splitting or loss of large limbs. Twenty-one cemetery trees (18%) will require cabling in the near future in order to extend their lifespan (Fig 6.2). Since the hardware and installation costs to cable and/or brace large trees can be expensive, this will be a significant maintenance obstacle for the Cemetery Commission in the coming years. Eight cemetery trees are also identified as needing to be removed; three of these are priority safety hazards while the remainder are non-priority removals.

Crown cleaning and crown raising are significant preventive maintenance needs in Williston’s three older cemeteries (see Fig 6.2). Completion of this maintenance should reduce the need for additional cabling in the future. Williston’s fourth cemetery, Deer View, is recently established and contains very young, small trees. Structural pruning to encourage strong form is the most immediate need in Deer View Cemetery. Finally, 55% of all cemetery trees will benefit from additional mulch; none are over-mulched.

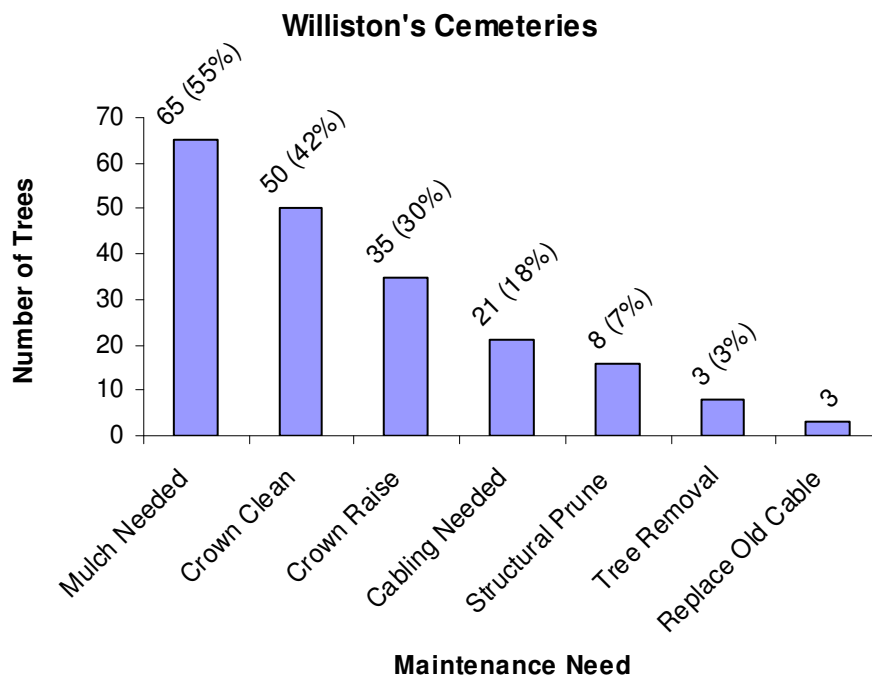


Figure 6.2. Most common maintenance needs identified for all trees in Williston’s cemeteries (n=117).

6.2.1.2 Williston School District

Trees on the grounds of the Williston Central School and Allen Brook School are primarily young and in good health. Seventy-two percent (72%) of the 105 Allen Brook School trees and 90% of the 68 inventoried Williston Central School trees are less than 6” in trunk diameter. Structural pruning (68%) is the primary maintenance need for these small trees. There are some considerably larger trees on the Dorothy Alling Memorial Library grounds (also partially maintained by the Williston School District); however, these trees are also primarily in good health.

Crown raising and cleaning are needed for 17% and 14% of all School District trees, respectively. Thirteen non-priority removals are also noted in the inventory. The removals are mostly small trees that have sustained significant trunk injuries and/or crown damage from which they will never adequately recover. Trunk injuries are

present in nearly a third of all trees on school or library grounds. If it is evident that the primary cause of trunk injury is contact with mowers and/or weed whackers, the School District should consider creating larger mulched areas under all trees. Over half of the trees maintained by the school district (62%) are in need of mulch, while 20% have excess mulch that can be re-distributed to areas where mulch is lacking.

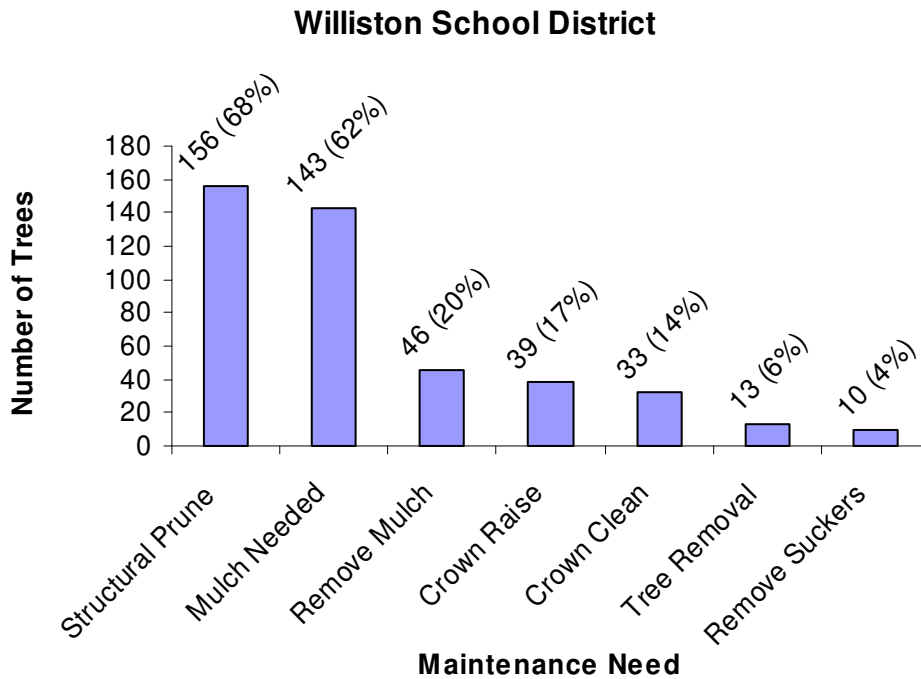


Figure 6.3. Most common maintenance needs identified for all trees maintained by the Williston School District (n=230).

6.2.1.3 All Other Public Trees

The majority of the public trees maintained by the Public Works Department are small and in good condition. Primary preventive care needs are two-fold: structural pruning and proper mulching. Structural pruning is needed for well over 90% of the nearly 1000 trees under the jurisdiction of the PWD. Since it will take at least one half hour to prune each tree for structure, a significant time commitment will be required to complete this maintenance (estimated at 470 man hours), even when it is spread over many years. The initial investment in structural pruning is well worth the time and money in consideration of the alternative- that these trees will require costly hazard maintenance once they become large, mature trees with poor structure. Systematic and proper

pruning of immature trees has been proven to reduce priority hazard maintenance⁷ and produce cost-savings over time.⁸

A large percentage of PWD trees (42%) are over-mulched. A mulch layer that is too thick, or in direct contact with the tree’s trunk, can lead to root girdling, suffocation of deeper roots, rodent damage, fungal growth, and may stress the tree due to poor gas exchange in the bark cells. “Mulch volcanoes” are more prevalent in certain developments than others, and are likely the work of particular landscaping companies. Alternately, in some areas, trees are in need of additional mulch. Trunk injuries are also very common in PWD trees (34% of all trees). Depending upon the tree and its placement, trunk injuries can be the result of collisions with mowers, weed whackers, plows, plowed snow and ice, or other vehicles. In some cases (mower and weed-whacker collisions), enlarging the circumference of the mulch circle under the tree may reduce future collisions. Addressing mulching problems will be a significant preventive maintenance task for the PWD; luckily, proper mulching can easily be achieved via a combination of volunteer effort and public/landscaping crew education.

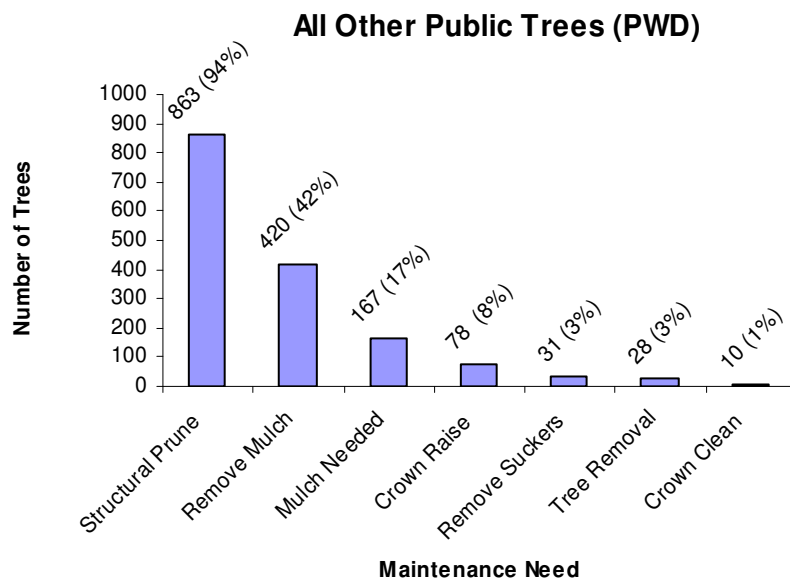


Figure 6.4. Most common maintenance needs identified for all trees maintained by the Williston Public Works Department (n=996).

Twenty eight PWD trees need to be removed in the near future. Five of these trees are priority safety hazards (these have already been removed by the PWD), and the remainder are currently non-priority removals.

⁷ Luley, C.J, Sisinni, S, and A. Pleninger. 2002. *The effect of pruning on service requests, branch failures, and priority maintenance in the City of Rochester, New York, US.* Journal of Arboriculture 28(3):137-143

⁸ Miller, R.W. and W.A. Sylvester. 1981. *An economic evaluation of the pruning cycle.* Journal of Arboriculture 7(4): 109-112.

The maintenance needs of Williston's public trees are now well documented in the 2005-06 Inventory report and database. Remaining impediments to conducting preventive maintenance include lack of funding, manpower, and expertise. Field training of municipal employees and others responsible for public trees is needed, especially in structural pruning and proper mulching techniques. Some of the burden of this preventive maintenance must also be taken on by community volunteers if the Town hopes to get caught up with maintenance in a timely manner.

6.3. Action Items

6.3.1 Continue Hazard Tree Maintenance

Managing trees that pose an immediate threat to public safety or property will continue to be the highest maintenance priority for the PWD, School District, and Cemetery Commission. As long as hazard trees continue to be recognized in a timely manner, the current system of identifying hazards can be continued. Once scheduled preventive maintenance is initiated in Williston (see 6.3.2), identification of existing and potential hazard trees should be facilitated. Public education for residents and business owners explaining how and when to inform the PWD about a potential hazard tree will be considered.

6.3.2 Implement a Cyclical Schedule for Preventive Maintenance

The Williston Planning Department, Conservation Commission, and (future) Tree Board will assist the PWD, School Board and Cemetery Commission in developing realistic cyclical schedules for conducting routine preventive maintenance. Preventive maintenance may include the following activities; all pruning will be conducted in accordance with ANSI A300 standard practices for tree and shrub maintenance.

- **Structural Pruning:** Pruning of young trees (generally <10 years old) to encourage the formation of a strong central leader trunk and evenly spaced scaffold branches. Permanent branches should be selected to maintain an even radial distribution.
- **Crown Cleaning:** Removal of dead, dying, diseased, or weakly attached branches from a tree's crown.
- **Crown Raising:** Removing the lower branches of a tree to provide vertical clearance for buildings, vehicles, and pedestrians.
- **Crown Reducing:** Selective pruning to decrease crown height and/or spread, usually near buildings or utility wires.
- **Non-priority Removals:** Removal of dead or dying trees that do not pose an immediate threat to public safety or property. Conducting scheduled removals will allow for replacement of these trees with new plantings.
- **Mulching:** Addition of mulch under trees helps reduce soil moisture loss due to evaporation and prevents weed growth, reducing competition for water and nutrients. A 2" to 4" layer of mulch should be applied evenly under the base of

the tree, extending 4' to 6' from the base of the trunk. Mulch should be pulled away from the base of the trunk to prevent bark decay.

- Fertilizing: Fertilizer will be applied to trees only when nutrients have been determined to be deficient based upon a soil test. All fertilizers will be used in accordance with the manufacturer's directions.

Ideally, all areas maintained by the PWD will be covered within a 5-year period; school grounds and cemetery maintenance may be conducted on a shorter cycle. Maintenance will be scheduled on a geographic basis, and each year's activities will include maintenance of some trees of every size or age class. This will allow for some volunteer pruning of smaller trees (see 6.3.7) which will reduce the workload of municipal employees. As new public trees are planted, they will be added to the preventive care cycle. The additional cost of maintaining newly planted trees should eventually be offset by the reduced number of hazard trees resulting when trees are pruned regularly for strength.

6.3.4 Develop and Implement a Policy for Non-Priority Tree Removals

Non-priority tree removals should generally be dealt with as part of the scheduled preventive care cycle. In other words, non-priority removals may not always be conducted as they are identified. Residents should have explicit means of requesting removal of a tree from the Town PWD, in case the tree is in fact a safety concern. If the tree in question is not a safety hazard but should be removed, residents should have the option of removing the tree themselves at their own expense, or waiting until routine tree maintenance is scheduled in their area. If the Public Works Director or Tree Warden does not feel the tree needs to be removed, a public hearing should be held before a decision is made (by the Public Works Director or Tree Warden) to remove or keep a public tree. This requirement for a public hearing is mandated by state law, and should be codified in a future Tree Protection Ordinance (see 4.3.1).

6.3.5 Create and Maintain a Maintenance Database

Using the 2005-6 inventory database and GIS files, a maintenance database will be developed in order to catalogue and keep track of all maintenance activities conducted in each calendar year. Aerial maps with uniquely identified trees will be printed for the PWD, School District, and Cemetery Commission in order to facilitate recording of maintenance activities for specific trees. The central maintenance database for all public trees can be kept up-to-date by the Planning and Zoning Department. The maintenance database will be integral in situations where pruning of a single tree needs to span several years, or in identifying locations where new trees are needed to replace recent removals. Trees that may become safety hazards in the future can also be identified as such in the database.

6.3.6 Provide Training for PWD Employees and Others Involved in Public Tree Care

Workshops and training opportunities for municipal employees and others involved in public tree care will be made available. Trainings are needed in structural pruning and training young trees, routine pruning (crown cleaning, raising, and reduction), reducing and managing tree wounds and ice damage, tree planting procedures, proper mulching, and other relevant tree care topics. Whenever possible, trainings will be conducted by a Certified Arborist, and will be hands-on workshops conducted in the field. The Town should also consider encouraging an interested municipal employee or board member to become an International Society of Arboriculture (I.S.A.) Certified Arborist. Maintaining a Certified Arborist on the PWD staff will ensure the quality and consistency of tree care in Williston.

Information on proper tree care must also be provided to landscaping companies conducting maintenance in developments with public street trees. If landscaping companies cannot be persuaded to mulch and/or prune public trees correctly, they must be directed to cease maintenance activities for these trees.

6.3.7 Establish, Train and Utilize Volunteer Citizen Pruning Crews

The routine and structural pruning of young trees (77% of Williston's public trees are < 6 DBH) can be accomplished by interested citizens with a modest amount of training and access to hand tools. The Conservation Commission, Public Works Department and Planning and Zoning Department will work collaboratively to establish and train crews of citizen pruners who can be responsible for some of the routine maintenance needed on small trees. The utilization of volunteer pruning crews will reduce the workload of municipal employees, as well as lifting some of the financial burden for preventive care from the PWD, School Board, and Cemetery Commission. Pruning crews can also conduct activities such as removal or addition of mulch, fertilization, and irrigation of new trees. Crews may be organized on a town-wide basis or be associated with a particular subdivision. Homeowners may be more likely to persist with maintenance activities and pruning if they feel a sense of ownership for the trees they are caring for.

6.3.8 Keep informed about emerging pest and disease threats

Municipal employees and boards involved in public tree maintenance will stay informed about emerging pest and disease threats and will monitor trees for signs of infection/infestation during routine tree care activities. In the event that a disease or pest infestation is suspected, the State Department of Forests, Parks and Recreation will be consulted for advice. Any decision about whether and how to treat an affected tree will be made by party responsible for maintenance (PWD, School District, or Cemetery Commission).

Chapter 7. Public Education and Outreach

7.1 Current Activities, Needs and Goals

An informed and involved community, including residents, landowners, business owners, and those employed in Williston, is integral to the success of the Williston Community Forestry Plan. Currently, there is very little town-sponsored public education on urban forestry issues. Workshops are occasionally offered through the State Urban and Community Forestry Program, and Williston has recently held its first event in celebration of Arbor Day. Still, there remains a significant need for additional public education, both in informing the public about laws and regulations governing public trees, and in providing leadership and training in proper stewardship of trees on both public and private property. The Town will undertake the initiatives detailed in the following section in order to inform and involve the public in matters relating to community forestry.

7.2 Action Items

7.2.1 Work towards becoming a Tree City USA

Tree City USA is a program run by the National Arbor Day Foundation which offers certification to municipalities having urban forestry programs that meet certain criteria. To become a Tree City USA, a town must: a) have a tree ordinance or forestry plan; b) observe/celebrate Arbor Day; c) have a Tree Board; and d) spend \$2 per capita on urban forestry. By the time this Community Forestry Master Plan is adopted, Williston will have satisfied the first two criteria. Establishment of a Tree Board is proposed in Chapter 3, and proposed budgets are discussed in Chapter 8. The Town must spend approximately \$16,500 annually on community forestry in order to meet the final criteria. Benefits of participation in the program include the increased community pride and support for stewardship of trees that can follow from a municipality's designation as a Tree City USA, and an enhanced ability to secure financial assistance (grants) for future urban forestry projects.

7.2.2. Continue to Celebrate Arbor Day

Arbor Day in Vermont is always the first Friday in May. In May 2007, the Town held its first-ever Arbor Day events, including a workshop on tree planting, an informational booth, and a survey to gauge the level of citizen support and background knowledge surrounding urban forestry issues. The results of this survey are found in Appendix D. Arbor Day can be observed in a variety of ways in order to engage the public, including tree planting projects, educational workshops, photo or drawing contests, field trips or interpretive walks, children's activities, or plant sales. The possibilities for celebration of trees are almost endless, and Arbor Day is an excellent opportunity to bring annual attention to Williston's community forestry program.

7.2.3 Create a Voluntary Heritage Tree Program

Trees which are especially noteworthy in the community, whether they are on public or private property, can be enrolled in a voluntary “Heritage Tree” program. Trees might be nominated for a list of Heritage Trees based upon extraordinary size, age, aesthetics, ecological value, or other unique characteristics. Alternately, trees may have historic significance based upon their particular location or their association with a notable local event, person, or structure. As long as the owner of the tree consents, nominated trees meeting defined criteria could be designated as Heritage Trees. A list of Williston’s Heritage Trees and their vital statistics could be posted on the Town’s website or maintained in the public library. The primary purpose of the program would be to increase public awareness about trees and their value within a community, although owners of Heritage Trees may also be willing to agree to some form of nominal protection for their specimen trees. If any trees are identified that meet the criteria of the National Register of Historic Trees or the Vermont Big Tree List, owners should be encouraged to nominate their trees for these honors.

7.2.4 Provide Urban Forestry Workshops and Trainings for the Community

Proper stewardship of Williston’s trees, both public and private, is the ultimate goal of this Community Forestry Master Plan. To that end, the Town will host occasional trainings and workshops for the public about tree planting, care and maintenance. Other ideas for workshops include tree species identification or recognition/treatment of common tree pests and diseases. These workshops could be organized by the Tree Warden, a future Tree Board, the Conservation Commission, or the Williston Planning Department. They may also coincide with Arbor Day celebrations, and could be geared for adults or children.

7.2.5 Support Local Schools in Forestry Education

Educating youth about appropriate stewardship of trees within their community is an important means of ensuring the future success of Williston’s community forestry program. The PZD, Tree Warden, and (future) Tree Board should work directly with educators at the Williston Central School and Allen Brook School to develop community forestry themed curriculum and activities that fit within the state’s standards for education.

7.2.6 Utilize Local Media Outlets for Urban Forestry Issues & Events

Every effort will be made to obtain positive media coverage for urban forestry issues and events in Williston. The *Williston Observer* has been very receptive to covering community tree issues in the past, running several stories about the recent tree inventory and another about the development of this plan. The *Observer* will likely continue to be a primary outlet for informing Williston residents about urban forestry issues, although certain events may also warrant wider coverage by the Burlington Free Press or local TV news channels.

Chapter 8. Funding

A successful Community Forestry Program in Williston will require reliable financial resources that can be fulfilled via an annual budgetary commitment from the Town, in addition to grant funding secured for specific projects. This chapter discusses current Town budgets for community forestry, the projected cost of implementing the Williston Community Forestry Plan over the next 5 years, and strategies for achieving financial goals.

8.1 Current Community Forestry Expenditures

It is very difficult to estimate what has been directly spent on the planting, care, and maintenance of public trees in Williston in the past. This is because budget categories are generalized for landscaping or road maintenance or buildings/grounds, and include many expenses that are not related to trees as well as those that are. In addition, town employee's labor time for tree-related work has not been specifically documented in most cases. The following chart is a very rough estimate of what was spent on community forestry-related matters in FY 2007, based upon approximations made by each department. The second column is the general budget category (if applicable) out of which the public tree expenses were drawn.

Table 8.1 Estimated public tree expenses in FY 2007.

Budget Category	Category Total	Est. Tree Expenses	Tree Work Conducted
PWD – Highway Landscaping Expenses	\$10,000	\$2,000	Purchase of trees for planting, equipment rental, contracted services for hazard trees
PWD – Highway Summer Maintenance Salary	\$145,620	\$2,242	Labor, hazard tree elimination, pruning
Planning – Miscellaneous Planning Studies	\$12,500	\$3,000	Arborist consultant services- tree ordinance development
Planning – Equipment	\$4,000	\$160	Pole saws, pruners, diameter tape
Conservation Com. – Salary	\$22,690	\$3,760	Drafting urban forestry plan, arbor day celebrations, tree inventory analysis
Conservation Com. – Operating Expenses	\$5,250	\$170	Trees/materials for Arbor Day, training for WCC members & staff
Conservation Com – Trail Maintenance	\$5,000	\$50	Pruners, hand saw
Parks & Recreation – Park Maintenance Salary	\$9,750	\$2,500	Planting, maintenance, removal of trees in parks, mulch
Cemetery Maintenance	\$21,200	\$4,025	Crown cleaning, removal, cabling of cemetery trees
School District – Buildings & Grounds	\$1,171,469	\$4,000	Planting, maintenance, removal of trees on school grounds

Total Tree Expenditures		\$21,907	
Estimated Routine Maintenance Only		\$10,792	

The FY 2007 total of \$21,907 includes expenditures for tree maintenance costs (labor and materials) as well as planning and administrative tasks associated with urban forestry. It should be noted that this total already exceeds the \$2 per capita spending minimum required to become a Tree City USA. The FY 2007 estimates will not necessarily be representative of all years, however, since several 2007 projects (\$6,760 in planning/conservation costs for Tree Inventories and Ordinance Drafts, as well as \$4,025 in cemetery hazard tree mitigation costs) are not annual expenditures. The total estimated maintenance expenditures (\$10,792) is more representative of what is currently spent annually on public tree planting, care, and maintenance in Williston.

8.2 Needs and Goals

8.2.1 Maintenance Costs

As discussed in Chapter 1, public trees provide benefits that translate into economic savings through reduced energy costs, cleaner air, interception of stormwater runoff, and reduced soil erosion. In addition, the replacement value of the Town's current public trees is over 1 million dollars (see Appendix C). Therefore, the Town's public trees should be maintained and managed similar to any other element of the community's public infrastructure. Public trees require maintenance and upkeep to provide optimum benefits to the community, just as highways, public buildings, street lights, sidewalks, or utilities do, and funding for this maintenance must be dependably included in the annual budgets for the PWD, Cemeteries, and Schools. Fortunately, public trees will increase in value as they grow and are properly maintained (unlike most public infrastructure that decreases in value over time).

The Town's recent tree inventory provides baseline information from which to estimate maintenance needs for public trees over the next five years. The following tables were developed by consulting arborists Trees New England, and were modified by Planning Department Staff to reflect in-house maintenance rates. Hourly rates for contracted maintenance are based on 2006 prices from Vermont tree care companies.

Table 8.2 Current maintenance needs, labor hours, and cost estimates for trees under the jurisdiction of the Williston Public Works Department.

Maintenance Need	No. Trees	Time (hrs)	\$/hr in-house (\$/hr contracted)	Total cost in-house (Total cost contracted)
Removals	28	28	\$30/hr (\$100/hr)	\$840 / (\$2,800)
Crown Clean	10	20	\$30/hr (\$100/hr)	\$600 / (\$2,000)
Crown Raise	78	78	\$30/hr (\$100/hr)	\$2,340 / (\$7,800)
Add Mulch (not incl. cost of mulch)	167	28	\$30/hr (\$50/hr)	\$840 / (\$1,400)

Remove Mulch	420	210	\$30/hr (\$50/hr)	\$6,300 / (\$10,500)
Structural Prune	940	470	\$30/hr (\$55/hr)	\$14,100 / (\$25,850)
Total (next 5 yrs)	1117	834		\$25,020/ (\$50,350)
Annual				\$5,004/ (\$10,070)

Table 8.3 Current maintenance needs, labor hours, and cost estimates for trees under the jurisdiction of the Cemetery Commission. No in-house costs are displayed since the Cemetery Commission does not have salaried staff.

Maintenance Need	No. Trees	Time (hrs)	\$/hr contracted	Total cost contracted
Removals	8	16	\$100/hr	\$1,600
Crown Clean	50	100	\$100/hr	\$10,000
Crown Raise	35	35	\$100/hr	\$3,500
Add Mulch (not incl. cost of mulch)	65	11	\$50/hr	\$550
Structural Prune	35	17.5	\$55/hr	\$963
Cabling	24	48	\$100/hr	\$4,800
Total	217	227.5		\$21,413

Table 8.4 Current maintenance needs, labor hours, and cost estimates for trees under the jurisdiction of the Williston School District

Maintenance Need	No. Trees	Time (hrs)	\$/hr in-house (\$/hr contracted)	Total cost in-house (Total cost contracted)
Removals	13	13	\$30/hr (\$100/hr)	\$390 (\$1,300)
Crown Clean	33	66	\$30/hr (\$100/hr)	\$1,980 (\$6,600)
Crown Raise	39	39	\$30/hr (\$100/hr)	\$1,170 (\$3,900)
Add Mulch (not incl. cost of mulch)	143	24	\$30/hr (\$50/hr)	\$720 (\$1,200)
Remove Mulch	46	23	\$30/hr (\$50/hr)	\$690 (\$1,150)
Structural Prune	200	100	\$30/hr (\$55/hr)	\$3,000 (\$5,500)
Remove Suckers	10	1	\$30/hr (\$50/hr)	\$30 / (\$50)
Total	484	266		\$7,980 / (\$19,700)

The largest maintenance burden in Williston is generated by street and park trees under the jurisdiction of the PWD. The estimated \$50,350 that it would cost to contract the needed maintenance out to consulting arborists over the next 5 years is reduced by more than half (\$25,020, or \$5,004 per year) when the work is done in-house by PWD employees. This assumes that PWD employees have the time (roughly 834 person-hours over the next 5 years) to conduct the needed maintenance, and that they receive the training required to carry out the more technical maintenance activities. In reality, the

required maintenance may need to be accomplished via a combination of contracted services and in-house work.

Some of the low-expertise maintenance (such as structural pruning of young trees and adding or removing mulch) can be accomplished through volunteer initiatives within residential developments and across the Town as a whole. This will reduce the maintenance budget accordingly, although there will be Planning Staff salary costs associated with coordinating these volunteer programs and training volunteers.

It should be noted that the estimated maintenance costs in Tables 8.2-8.4 do not take into account costs involved in handling emergency situations (downed trees or branches creating immediate safety hazards) nor do they cover costs for materials (e.g. mulch) or equipment. Although the \$5,000+/year needed is below the estimated current annual expenditure by the PWD (roughly \$6,700 in FY07) very little of this type of preventive maintenance currently conducted with that \$6,700. It is very likely that, even with significant volunteer involvement, additional funds will be required in order to complete the required preventive maintenance in an efficient and timely manner.

Maintenance of trees managed by the Williston School District and Cemetery Commission will also likely require budget increases. Like the PWD, the WSD can reduce costs by conducting maintenance in-house and completing some maintenance on smaller trees with volunteer citizen crews. The Cemetery Commission is limited in its ability to reduce costs, as it has no formal staff and many of the cemetery trees are of significant size that they require professional care. The roughly \$14,800 in cabling and crown cleaning costs will likely need to be contracted out to arborists; however, the costs could be partially covered by grant funding or a one-time budget increase.

8.2.2 New Tree Plantings

Planning for expansion of Williston's community forest will also require at least a modest financial commitment. If the Town plans to purchase and plant 10 public trees each year, this could cost as much as \$5,000 annually for 2.5" caliper balled & burlapped stock, or as little as \$200 for bare-root trees and mulch. Bare-root trees will usually have a greater mortality rate since their roots have typically been exposed to the air during shipping and processing, so it is advisable to plant at least some balled and burlapped or container-grown stock each year. Once a vacant planting site inventory is completed, opportunities may arise to plant more than 10 trees in some years, which will require a larger financial commitment.

8.2.3 Other Expenses

Implementation of many of the other action items in this plan will require some amount of funding. Although cost estimates for these undertakings have not yet been developed, many of the projects are excellent candidates for outside grant funding.

Some, such as Arbor Day celebrations, may also be covered by donations or existing budgets (i.e. planning or conservation).

8.3 Action Items

8.3.1 Consider Tree-Specific Budget Categories

Knowing with certainty how much money the Town of Williston spends on public tree infrastructure and maintenance is a key factor in being able to secure matching grant funding for community forestry projects in the future. This task would be made infinitely easier by categorizing budgets to reflect what is spent solely on public trees.

8.3.2 Increase Budget(s) to Reflect the Costs of Identified Maintenance Needs

Although some of the costs involved in preventive tree maintenance can be covered under current budgets and/or reduced by utilizing volunteer labor, additional funds will be needed to complete the list of identified maintenance tasks within 5 years. The Town should make an effort to increase budgets in order to cover the costs of preventive tree maintenance.

8.3.3 Fund Tree Plantings Annually

A modest amount of funding (\$1,000 to \$3,000) should be made available each year for new public tree plantings, with the goal of planting 10 trees annually until vacant planting sites have been identified and prioritized. At this point the number of trees planted annually and associated funding will be re-evaluated. Donations and discounts on tree stock will be sought at local nurseries to help offset the cost of new tree plantings, and some low cost bare-root plants may be installed each year.

8.3.4 Solicit Grant Funding for Community Forestry Projects

The Vermont Urban & Community Forestry Program (VUCF) offers grant funding for planning, education, planting, and maintenance projects related to community trees. Other federal, state, and local foundations and grant programs (such as the Vermont Community Foundation, or the Vermont Municipal Planning Grant Program) may also be potential funding sources for certain forestry projects. The Williston Planning Department, Conservation Commission, or future Tree Board will solicit grant funding to implement several of the action items in this plan. Projects that are excellent candidates for grant funding include inventorying and prioritizing vacant planting sites, completing tree planting projects, establishing and training citizen pruning crews, conducting hazard maintenance on very large trees in Williston's cemeteries, and providing urban forestry workshops for the community.