

Urban Forest Management Plan

For:

The Town of Washington Grove

Washington Grove, Maryland



Prepared By:

Daniel P. Landry
DPL Consulting
7007 Macbeth Way
Eldersburg, Maryland 21784
410-206-4482

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Executive Summary

The Town of Washington Grove committed volunteer resources and budgetary support for conducting a tree inventory. The purpose was to assess the current state of the tree canopy and develop recommendations for preserving one of the unique characteristics of Washington Grove—A Town Within a Forest. Volunteering in Washington Grove has a long tradition and this activity is one of the broadest-based initiatives since the founding of the Town in 1937. The commitment of resources included the hiring of a Town Forester to provide advice and technical assistance and support for conducting the tree inventory. This inventory is not the first attempt to monitor and intervene to save our tree canopy; it is unique in that each tree was rated on a 25-point scale to assess its health.

The health of the tree canopy in 2006 is relatively good, which is encouraging and supports the past efforts of the Town to provide ongoing tree maintenance, replanting, and removal of dangerous or diseased trees. This ongoing effort now will be approached systematically based on the results of the tree inventory.

Washington Grove has produced this report in response to the approval of funds at the June 2002 Town Meeting with monetary support from the Town Council and volunteer and technical support from the Forestry and Beautification Committee. This report is the first in a series that will inform Town residents of ongoing programs to increase awareness of the value of the trees to the Town, as well as to educate residents on steps being taken to secure a tree canopy deep into this century and beyond. As in all Town initiatives, volunteers provided the knowledge and skill required to conduct such a large project. In the future, there will be need to an ongoing volunteer support effort to update and revise the inventory in response to changing needs. The commitment of the Town to preserve the tree canopy, and to continue to accurately describe the Town of Washington Grove as a “Town Within a Forest,” will depend on future volunteers.

Summary of Recommendations

1) Implement and follow a routine inspection and maintenance cycle with one-third of the trees inspected each year.

This will include:

- Inspection and maintenance program should include a visual inspection of each tree utilizing the tree inspection sheet developed during the volunteer tree inventory.
- Inspect the trees identified during the volunteer tree inventory as having high percentages of deadwood for their hazard potential.
- Inspect the trees identified during the volunteer tree inventory as having condition ratings higher than fifteen for their hazard potential.
- All trees on each cycle should be evaluated for potential hazards.
- If hazards are found, the town should retain a Maryland Licensed Tree Expert and International Society of Arboriculture Certified Arborist to investigate the extent of the hazard and recommend corrective action
- Town trees should be pruned on cycle as needed to establish and maintain sound branching patterns and form.
 - Pruning should be done in accordance with the American National Standards Institute A300 Pruning Standard and the Maryland Tree Expert Law.
- Annual inspection should include the replacement of missing tree tags, correctly numbered to match the inventory database historical record.
 - Fertilization should be considered on a case by case basis and the town should consult with a Maryland Licensed Tree Expert and International Society of Arboriculture Certified Arborist prior to applying fertilization to town trees.
- Current monitoring and treat for gypsy moth should be incorporated into the inspection and maintenance cycle.

2) Establish a tree care budget with line items.

3) The tree inventory that was completed from 2003 through 2005 should be maintained and updated as actions are taken for tree maintenance, removal, and plantings.

4) Develop an annual tree planting program to increase forest cover

It is desirable to:

- Complete an inventory of acceptable tree planting locations prior to implementing any tree planting program and determine appropriate stocking levels for each planting site.
- Determine appropriate planting cycle that will achieve the objective of creating an uneven aged stand with species diversity consistent with the trend indicated in Figure 4 of the plan.
- Any planting program should broaden the age and size range of the immature canopy.
- Trees and plant species selected for planting should, when possible, be native, specifically to the Piedmont region of Maryland (see Appendices 3 and 4).

- Include fast growing trees that are well adapted to the stress of urban settings in the mix of trees that are planted each year (see appendix 4).
 - Develop a tree replacement program for trees that must be removed.
 - A planting cycle should be developed so that the town can spread the cost of the tree planting over the scope of this management plan.
 - Diversity in the age of the trees in the urban forest as well as diversity in the species of the urban forest should be increased.
 - Trees planted along the roadside should be planted far enough apart so that when the trees reach maturity, their crowns do not significantly overlap.
 - When overhead lines exist above any planting site, the town should follow the guidelines developed by the National Arbor Day Foundation regarding their Right Tree Right Place planting guide.
 - Trees planted in park settings should be planted in groups of three
 - Trees planted in groups of three must be inspected and evaluated at intervals of ten to fifteen years and as these trees age, the poorly growing, or poorly forming trees should be selectively removed.
 - Newly planted trees should be watered thoroughly every three days during dry periods of the year they were first planted.
 - Newly planted trees should not be staked unless there is a persistent high wind concern. If this is done, stakes should be removed after the first growing season.
 - Corrective pruning should be performed when trees are first planted.
- 5) Encourage private homeowners to adopt the town's objectives and philosophy with regard to the management and preservation of large mature canopy trees.**
- 6) Consider alternatives for the disposal of wood debris from Town tree pruning and removals.**
- 7) Develop and implement USFS Urban Tree Risk Community Management Integration Plan.**
- 8) Consider developing a management plan for the two fifty-acre forested tracts as well.**

Formal Report

Purpose

Urban forest management is the science and business of managing the trees in the urban environment for societal needs such as recreation, environmental protection, and safety. Trees growing in urban areas are part of an ecosystem and must be managed as such. Urban forest management requires a significant investment in time and financial resources if the urban forest can be expected to provide the amenities such as recreation, enjoyment, increased property value and safety that are expected by the community that lives in the urban forest.

This plan is intended to guide the Town of Washington Grove in the management of trees growing in urban areas for a minimum of the next fifty years. However, there may be advancements or changes in proper tree care operations, insect or disease treatment prescriptions, or in the Town's requirements of its urban forest that may require the plan to be revised or modified. Should a revision become necessary, and the author of this plan is not available, there is a registry of Maryland Licensed Professional Foresters that the town can use to identify a suitable Consulting Forester. The registry can be found at <http://dnrweb.dnr.state.md.us/download/forests/consultingforesters.pdf>. The fact that the Town of Washington Grove has sought this management plan indicates the long term commitment that the town has made to managing and preserving its urban forest.

Although this plan does not cover either of the two fifty acre forested tracts that the town owns, it is recommended that the town consider developing a management plan for those tracts as well. There are significant benefits to recreation, wildlife, and the health and vigor of the forested tracts that could be achieved through a multiple use – sustained yield plan that would compliment the towns' considerable devotion to its wooded areas.

By following the recommendations set forth in this plan, the town will be able to meet its objectives of providing the residents of Washington Grove with the character of "A Town Within A Forest", managing the public tree areas of the town in a pro-active manner, fostering the maintenance of trees in the community, including a planting program on public and private land, and educating town residents about the value of the town's forest resources.

Objectives

The objective of this report is to present a management plan that addresses the short and long term management requirements for the Town of Washington Grove's (the town's) urban forest resource. The town's main long term objectives are to preserve for the residents of Washington Grove the character of "A Town Within A Forest", manage the public tree areas of the town in a pro-active manner, foster the maintenance of trees in the community, including a planting program on public and private land, and to educate town residents about the value of the town's forest resources. Essentially, the objective is to provide and maintain a safe, healthy, and mature tree canopy throughout the town. While private home owners are not restricted in how they manage their own private trees, the town encourages private home owners to adopt the town's objectives and philosophy with regard to the management and preservation of large mature canopy trees. The management should be proactive, annually inspecting and maintaining the

town's trees on a consistent cycle, with the intent being to improve the overall urban forest health. The plan also provides for sustaining, where practicable, suitable wildlife habitat, protect the town's soils from erosion, and maintain existing recreational areas.

History of Town Inventories

The Town of Washington Grove has recognized the importance of its tree canopy as an integral part of its allure, and a major contributing factor for the quality-of-life of residents. Since the founding of the Town in 1937, the Town has protected this resource through Town ordinances and a willingness to withstand development pressures as the area around the Town was transformed from rural to suburban. A song written by a Town resident, ex-Mayor Don McCathran, included the characterization of the Town as "**A Town Within A Forest,**" which has become the unofficial motto for the Town.

According to Town records, tree inventories have been conducted at least twice since the founding of the Town. In the 1960s, a perfunctory inventory of Town trees was begun, but there are no records existing from that effort. In 1986-87, an inventory was conducted, of which records are available. This inventory resulted in identification of approximately one-half of the trees in the Town at the time, with little explanatory information designed to monitor the health of the trees. This effort, however, was important as a base to begin the current inventory.

In 1999, The Tree Advisory Committee, chaired by Joli McCathran, was established by Mayor John Compton to conduct a comprehensive review of Town policies and initiatives and to make recommendations to maintain the forests in the Town. In April 2000, the committee issued its report with recommendations for meeting this goal. Among the recommendations under Priority Goal II (More Effectively and Aggressively Manage Public Trees), the committee listed two priorities. They were to (1) Retain the services of an arborist for managing trees throughout the Town, and (2) Develop, maintain, and utilize a tree inventory. A copy of the full committee report is kept in the Town office.

In the fall of 2000, the Town Council approved the hiring of a Town Forester. After advertising for this position and interviewing potential candidates, Dan Landry, an employee of PEPCO in their tree management division, was hired in 2001. He met with Town officials and developed a plan for assessing Town trees and for conducting a comprehensive tree inventory. As part of the charge from the Mayor and Town Council, the Forester also was instructed to develop an educational plan for raising awareness of Town trees among residents. In the summer and fall of 2001, the Town offered the services of Mr. Landry to assess trees on private property as part of the educational plan. More than 35 residents took advantage of these services. The Tree Inventory was scheduled to begin in the Spring of 2002.

Inventory Methodology

In the fall of 2001, planning for the Tree Inventory began, based on recommendations to the Town from Mr. Landry. The Town was divided into 13 sectors with relatively equivalent tree stands on Town property (see Appendix 1). Trees on private property and those in the East and West woods were not included in the sector schema. Tree tags, numbering 1-1,000, were

ordered from a national forestry supplier and assigned to the sectors. A general call in the Town Bulletin seeking volunteers to implement the Tree Inventory resulted in enough volunteers to cover 10 of the 13 sectors. Training sessions were scheduled based on the availability of volunteers.

Training of Tree Inventory volunteers occurred on two weekend mornings in the spring of 2002. The sessions lasted for 2 to 3 hours. Training materials may be found in Appendix 2 and included the following:

- A map of Morgan Park (Brown Street and Grove Road), where the training took place (Appendix 2A).
- A 4-page instruction sheet titled "Tree Inventory Notes," that described items to look for in assessing a tree during the inventory (Appendix 2B).
- A sample copy of the Tree Inventory Rating Sheet to be used during the assessment of individual trees (Appendix 2C).

Mr. Landry reviewed each of the materials and provided instruction on trees in Morgan Park. After a review of the Tree Inventory Notes, he used the rating sheet to rate the tree, explaining at each step the ranking system used to assess the tree. Questions were encouraged during the session.

Over the period of the training session, the method for marking the trees with a tree tag using galvanized nails or wire was demonstrated. In addition, at the end of the rating for individual trees, they were marked on a map of Morgan Park.

Because the rating system is relatively subjective based on the skills and experience of the inventory volunteer, each training participant was given the opportunity to rate a tree on the 25-part rating scale with input from other volunteers. By the end of the training session, each participant was questioned as to their comfort level in rating trees. Those needing additional help were given additional training, or paired with a "buddy" that had a higher comfort level.

After training, teams of 2-3 volunteers were assigned a sector, provided with materials to assess at least 50 trees (i.e., nails, wire, tree tags, rating sheets, and sector maps). Teams were asked to complete their sector by the spring of 2003. A (draft) list of volunteers is found as Appendix 6.

Geography

Washington Grove is a two hundred acre Town that is positioned near the heart of Montgomery County, Maryland, North of the City of Rockville and East of Gaithersburg. The Town consists of two fifty acre forests, which will continue to be allowed to mature with minimal management, and one hundred acres of developed home sites among a mature mixed oak and poplar canopy. There are approximately 210 homes and 840 residents. The mature trees that exist in Washington Grove are nearing the end of their life cycles. This presents a significant challenge to maintaining the high percentage of tree cover that residents expect.

Native Trees and Plants

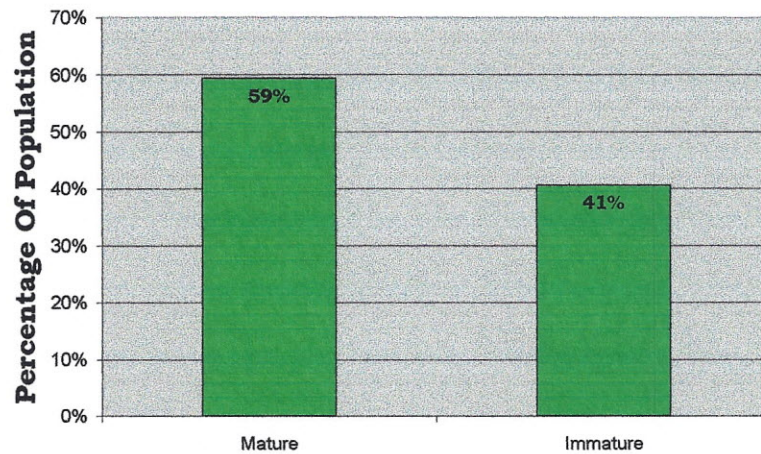
Native trees and plants are those that occur naturally in the region in which they evolved (USFWS, 2001). Over many generations, they have adapted to the local soil, rainfall, temperature, and insect and disease conditions (USFWS, 2001). This evolution gives a native plant an advantage over a non-native plant because the native plant will grow with minimal need for supplemental water, fertilizer or pesticides. Similarly, wildlife species evolve with the plants in their ecosystem so incorporating native tree and plant species into the urban landscape will help support native wildlife populations. A list of locally available native tree and plant species is located in Appendix 3. The town of Washington Grove is located in Maryland's Piedmont Region. Native trees and plant species that the town selects for planting should, when possible, be native specifically to the Piedmont region of Maryland.

Forest Cover and Canopy

Forest cover, canopy, or crown cover is defined as "the ground area covered by the crowns of trees" (Helms, 1998). The crown cover is essentially a measure of the extent to which the crowns of trees are nearing or touching one another. It is also expressed as the percentage of the ground that is covered by the crowns of trees. In Washington Grove, the relative difference between mature forest cover and immature forest cover is good. Fifty-nine percent of the forest is at maturity while forty-one percent is still immature (Figure 1). When you stop to consider that eighty-nine percent of the forest is in good health you begin to see that you have both a healthy mature canopy and a vigorous immature canopy. Maintaining a healthy, vigorous immature segment of the canopy is important in order to maintain a large canopy long into the future. A comprehensive planting program should be considered to broaden the age and size range of the immature canopy. The reason for this is to provide a continuous supply of dominant trees capable of maintaining good forest cover over a long period of time, or, in other words, to develop an uneven aged stand population. The benefits of managing an urban forest to be an uneven aged population are that it is likely to develop a deep irregular canopy with sturdy boles, it will have a relatively low wind hazard, small trees become the future canopy trees, and insect and disease pathogens are less likely to have serious impacts (Daniel, Helms, & Baker, 1979).

Figure 1

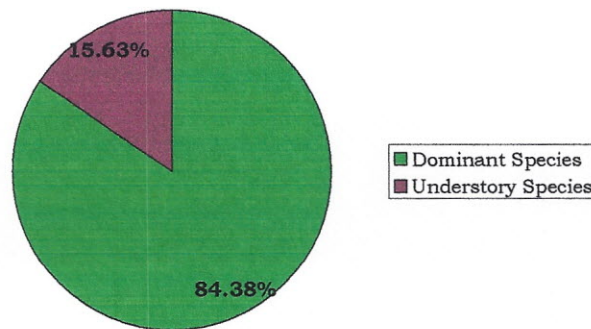
Forest Cover Currently At Maturity



There is also a good mix of dominant and understory trees. Eighty-four percent of the forest consists of dominant species while sixteen percent are understory species (Figure 2). Dominant species are those that become canopy trees. For clarification, of the eighty-four percent of the forest that consists of dominant species, fifty-nine percent are at maturity. This will lead to a continued large percentage of overstory canopy species in the future because the majority of the young trees are dominant overstory species.

Figure 2

Dominant Versus Understory Species



Uses of Removed Town Trees

Recycling the town's trees is an important issue. When a tree must be removed, there are many uses that the wood can be put towards. The United States Department of Agriculture – Forest Service has produced two excellent guides entitled "Recycling Municipal Trees: A Guide for Marketing Sawlogs from Street Tree Removals in Municipalities" and "Utilizing Municipal Trees: Ideas from Across the Country". These guides are attached in Appendix seven and eight, respectively. The town should consider alternatives for the disposal of wood debris from Town tree pruning and removals.

Tree Planting Rationale

It takes approximately sixty-five years to grow one oak tree to a height of approximately fifty feet (Dirr, 1998). For reference, the vast majority of the canopy sized trees in Washington Grove are two hundred fifty years old or older and upwards of eighty feet tall. In general, trees planted in urban settings today have an average lifespan of twenty years (Manion, 1991). This is primarily because of soil compaction, pollution, pests, vandalism, and the lack of a consistent inspection and maintenance cycle. If the town wants to maintain the canopy type forest cover it enjoys now, the town's trees must live longer than twenty years. To duplicate the current town trees life expectancy the town must follow the methods presented in this plan. The most important thing that the town can do is to implement and follow a routine inspection and maintenance cycle. Considering this statistic, it is also recommended that the town attempt to include fast growing trees that are well adapted to the stress of urban settings in the mix of trees that are planted each year. Appendix 4 lists trees that are well suited for planting in urban environments. The town should consider developing an annual tree planting program to increase overall forest cover as well as a tree replacement program for trees that must be removed.

A tree planting program would identify locations in the town where there is space to plant new trees. These spaces could include areas where mature trees have been removed several years ago, or may be spaces where large mature trees are in decline. Planting trees in these locations will serve to keep the urban forest growing. When planting near trees that are in decline, the planted trees should be placed far enough away from the existing tree to allow room to remove the existing tree without damaging the younger trees.

Although the town is limited in the amount of space available to plant trees, an inventory of acceptable tree planting locations should be completed prior to implementing the tree planting program. Once the inventory is complete, a schedule or planting cycle should be developed so that the town can spread the cost of the tree planting over the scope of this management plan. This is also important from a forest health point of view. It is better if there is diversity in the age of the trees in the urban forest as well as diversity in the species of the urban forest because that will ensure that there are several generations of trees growing in the town. See the section of this report entitled Forest Cover and Canopy for additional information on this topic. As Figure one indicates, fifty-nine percent of the urban forest is at maturity. The town should work to develop an urban forest with a broader diversity of age.

The town should also work toward developing greater species diversity among the dominant canopy sized trees that are planted. Maintaining a diverse species population will further mitigate many potential insect or disease outbreaks. This is because most insects or diseases affect a small variety of species, so that such an impact on an urban forest with great species diversity will be relatively minor. The population of white oak, for example, in the town is an extremely large percentage of the total tree population, thirty nine percent, Figure 3. This opens the town to significant risk of insects or diseases that may affect white oak trees because the town could face the potential loss of almost forty percent of its tree cover from one pest infestation. Insect or disease information can be found at the Maryland Cooperative Extension at: <http://www.agnr.umd.edu/MCE/>. The issue of species diversity is critically important to the town's goal of maintaining as high a percentage of tree cover as possible.

Figure 3

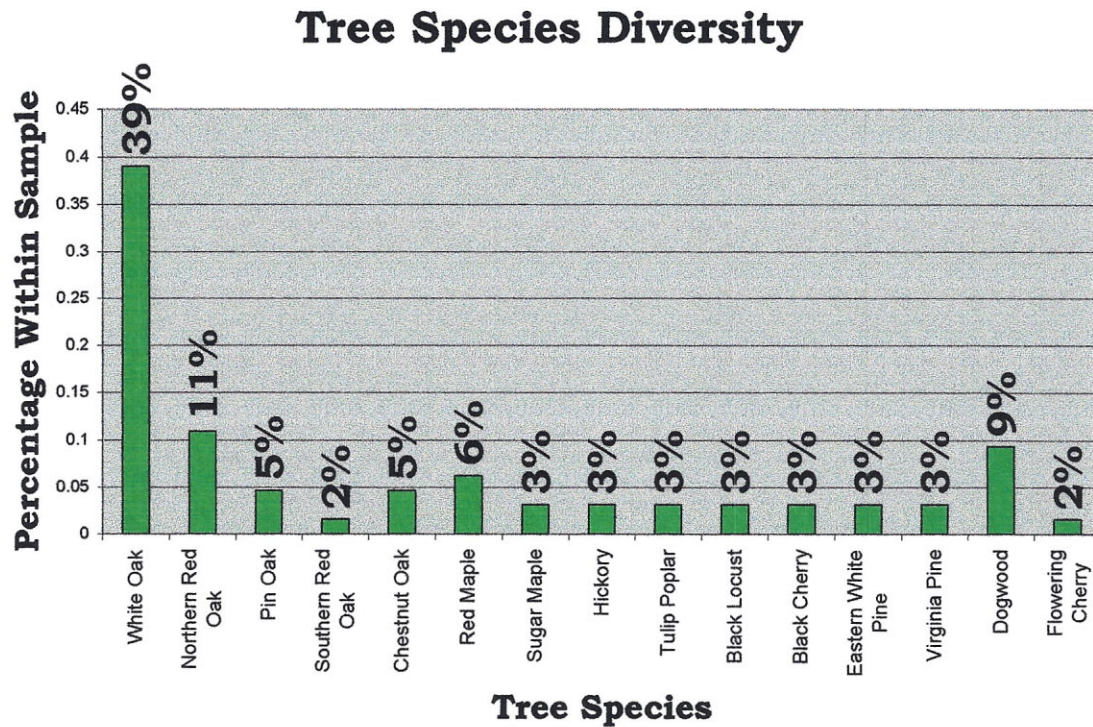
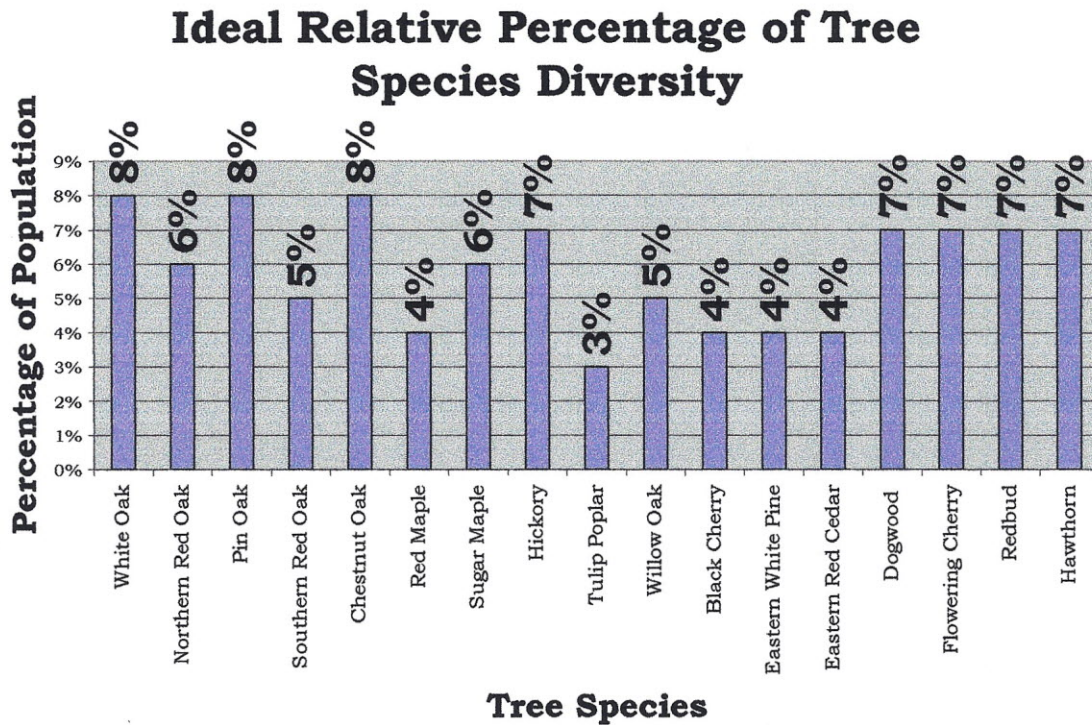


Figure three is a sample representation of the tree species diversity found in Washington Grove and is not intended to be a complete list of all species represented in the town's forest. Data collected during the 2003 – 2005 tree inventory will be used to determine a comprehensive planting strategy.

An example of acceptable species diversity population levels can be seen in Figure 4. This shows a relatively even distribution of several large canopy species. These species may include white oak, Northern red oak, pin oak, Southern red oak, chestnut oak, sugar maple, hickory, or Tulip poplar. The figure also shows that approximately thirty percent of the total tree population should be understory species. These species may include dogwood, flowering cherry, redbud and hawthorn.

Figure 4



Trees planted along the roadside should be planted far enough apart so that when the trees reach maturity, their crowns do not significantly overlap. For example, if a tree species has a crown spread of sixty feet at maturity and is planted next to a tree species with a crown spread of forty feet at maturity, the two trees should be planted approximately forty to fifty feet apart. In addition, when planting trees along the roadside, the town should determine if there are overhead electric or communication lines above the planting site. If overhead lines exist, the town should follow the guidelines developed by the National Arbor Day Foundation regarding their Right Tree Right Place planting guide which can be found at:

<http://www.arborday.org/trees/righttreeandplace/>. A list of trees that are compatible with overhead lines can be found in Appendix 5. Trees planted along the roadside should also be planted in accordance with the towns established setbacks from intersections and road signs.

A different rationale should be used when trees are planted in park settings. Trees planted in park settings should be planted in groups of three. For example, if the town is planting a location with the objective of replacing a mature tree that has recently been removed, the town should plant three replacement trees in its place. Trees planted in this way should be spaced approximately twenty feet apart in a triangle shape in the center of the opening of the canopy left by the removed tree, if possible. This will encourage the trees to compete equally with each other as well as the other existing trees surrounding them. In addition, the town should determine if there are overhead electric or communication lines above the planting site. If overhead lines exist, the town should follow the guidelines developed by the National Arbor Day Foundation regarding their Right Tree Right Place planting guide (see link above).

These trees must be inspected and evaluated at intervals of ten to fifteen years and as the trees age, the poorly growing, or poorly forming trees should be selectively removed. The intent is to remove one of the trees at the ten to fifteen year inspection, and to remove a second tree at the twenty to thirty year inspection. The reason for this strategy is to allow the town to manage the urban forest in its park areas for the most vigorous and well formed trees as well as to mitigate the effects of soil compaction, pollution, pests, and vandalism. At age thirty, a tree has developed its primary branching structure and should be well adapted to the site. Selecting the best tree at each inspection cycle will help the town develop a healthy and vigorous urban forest. Understory trees in park settings should be planted following the same rationale.

Newly planted trees will need care during their first growing season. During dry periods, the newly planted trees should be watered thoroughly every three days. Newly planted trees should not be staked unless there is a persistent high wind issue with that particular planting site. If a newly planted tree must be staked, the stakes must be inspected monthly to ensure that the tree's stem is not damaged or girdled by the stakes. The stakes should be removed after the first growing season. Corrective pruning should be performed when trees are first planted to begin to establish the branching structure of the tree and to remove any broken or damaged branches.

Tree Inspection and Maintenance Cycle Rationale

The town should adopt a routine tree inspection and maintenance cycle. Such programs enable the municipality to identify hazards and train and maintain the form and branching structure of urban trees which will ensure long term safety and survival of the urban forest (Miller, 1997). A typical inspection and maintenance cycle is three years, meaning that one third of the town's trees would be inspected each year so that all of the town's trees would be inspected and maintained every three years. The inspection and maintenance program should include a visual inspection of each tree utilizing the tree inspection sheet attached in Appendix 2C as a guide. This is the same guide that was used for the town's tree inventory conducted by volunteers from 2003 to 2005. During each inspection and maintenance cycle, the town's trees should be pruned as needed to establish and maintain sound branching patterns and form. Pruning should be done in accordance with the American National Standards Institute A300 Pruning Standard and the Maryland Tree Expert Law. This is especially important for young trees, as they are developing the branching patterns that the town will be living with and managing far into the future.

As part of the inspection and maintenance program, all trees should be evaluated for potential hazards. If hazards are found, the town should hire a Maryland Licensed Tree Expert and International Society of Arboriculture Certified Arborist to investigate the extent of the hazard and recommend corrective action. The annual program should also include the replacement of missing tree tags, correctly numbered to match the inventory database historical record.

In general, tree fertilization is not recommended to be part of the inspection and maintenance program. Fertilization should be considered on a case by case basis and the town should consult with a Maryland Licensed Tree Expert and International Society of Arboriculture Certified Arborist prior to applying fertilization to town trees.

The town should continue to monitor and treat for gypsy moth as it has been doing. This should be incorporated into the annual inspection and maintenance program.

Tree Inventory Maintenance

The tree inventory that was completed during 2003 through 2005 should be maintained on a regular basis. As trees are removed, the record should be changed to indicate that the tree was removed. The record of that tree's existence should be kept for future data analysis. Newly planted trees should be added to the inventory and tagged in the field so that their inspection and maintenance can be tracked. Each year, as the inspection and maintenance program is completed, any significant findings should be added to the inventory record so that a complete history of the town's trees can be found in one place. Examples of significant findings include but are not limited to corrective actions such as cabling and bracing, significant deadwood pruning to mitigate a possible hazard, or treatment for an insect or disease infestation. The town should strive to compile as much information on each tree's history as is practical. The more information that is available about each tree, the better the town's trees can be managed to achieve the goal of maintaining as much forest cover as possible.

Urban Tree Risk Community Management Integration

The United States Forest Service has developed a plan for integrating the management of publicly owned trees with the needs of the community. The publication, "Urban Tree Management: A Community Guide to Program Design and Implementation", presents an excellent guide to assist community managers. The guide was produced by Coordinating author, Jill Pokorny, USDA FS, as well as many others. The town should consider implementing this program. A link to the website for more information is:
<http://www.na.fs.fed.us/spfo/pubs/uf/utrm/>.

Tree Care and Replacement Budget

The town should establish a tree care budget with line items that include but are not limited to tree maintenance pruning, tree planting, corrective actions (cabling and bracing for example), gypsy moth inspection and treatment, and tree removal. A typical rationale for developing such a budget is for the town to establish a per capita expense for tree care. For example, there are approximately 210 homes in the town with approximately three residents per home. The town would then decide how much of the town's financial resources to dedicate per person for tree care. Other municipalities have per capita expenses for tree care ranging from \$10 to \$50. This should be compared to the financial commitment required to establish an annual inspection and maintenance program. The town has a resident arborist, Jim Fletcher, who could likely perform the inspection duties as part of his regular work, as well as much of the pruning of young and newly planted trees that is aimed at training and developing branching structure. First year expenditures will likely be higher because of the potential identification of hazardous trees from the tree inventory. Once the inspection and maintenance program is implemented, expenditures should remain relatively level.

Concluding Thoughts

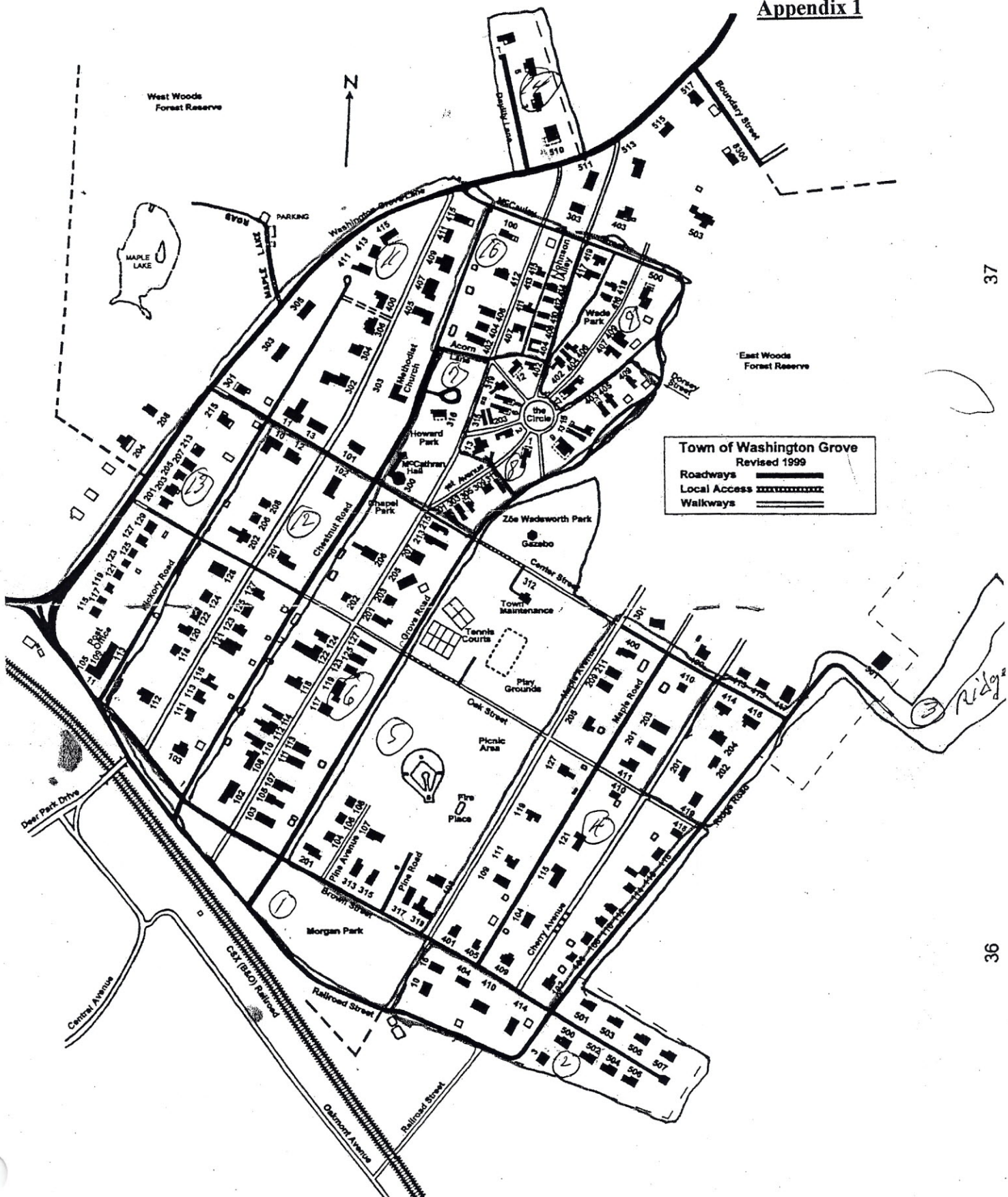
This plan is intended to guide the Town of Washington Grove in the management of its urban trees for a minimum of the next fifty years. The plan should be evaluated every ten to fifteen years because there may be advancements or changes in proper tree care operations, insect or disease treatment prescriptions, or in the Town's requirements of its urban forest. A Maryland Licensed Professional Forester should assist the town with any necessary revisions or changes. By implementing this plan, the Town of Washington Grove has made a long term commitment to managing and preserving its urban forest.

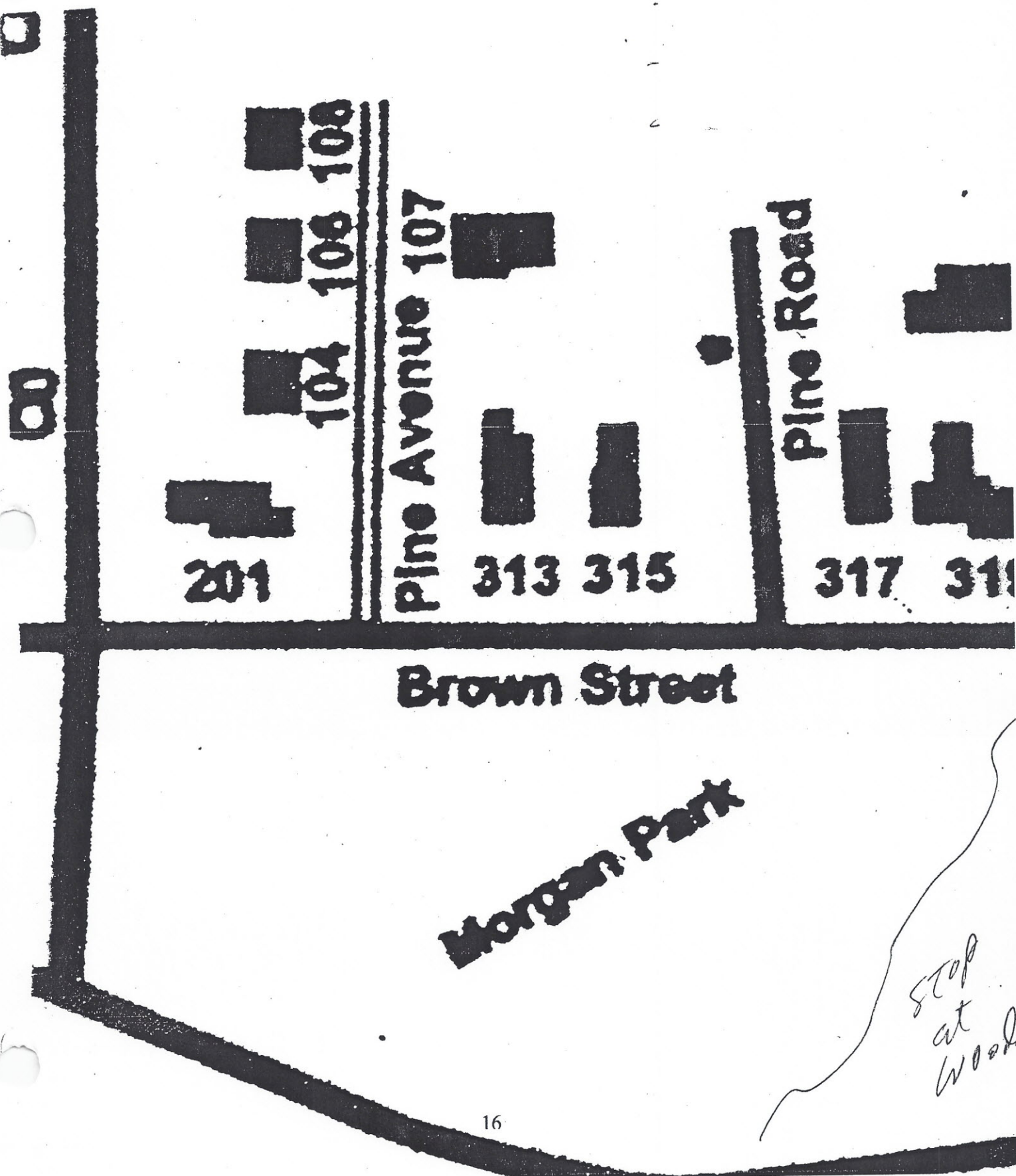
By following the recommendations set forth in this plan, the town will be able to meet its objectives of providing the residents of Washington Grove with the character of "A Town Within A Forest", managing the public tree areas of the town in a pro-active manner, fostering the maintenance of trees in the community, including a planting program on public and private land, and educating town residents about the value of the town's forest resources.

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Appendix 1





TREE INVENTORY NOTES

ROOTS:

ANCHORAGE:

Check for soft areas where roots should be
Are buttress roots visible and in tact
Are there signs of decay, cracks, and cavities
Is there trunk flare at the ground

CONFINED RELATIVE TO SIZE:

How much growing space is there relative to tree size
Ideal space requirement is 2 times the drip line of the tree
The drip line is the outermost limit that the crown extends

COLLAR SOUNDNESS:

bark Are there signs of decay, swollen areas of bark, sunken areas of
Are there cavities

MECHANICAL INJURY:

Damage from lawn mowers, string trimmers, cars, and vandalism

GIRDLING ROOTS:

Are there roots that are girdling other roots or the trunk

COMPACTION OR WATER LOGGED ROOTS:

Is the soil compacted or water logged

CHEMICAL SYMPTOMS:

Chlorotic leaves, dieback
Use caution as this is difficult to diagnose unless you know the
history of the tree
The majority of trees will rate a 4 for this category

INSECT OR DISEASE PRESENCE:

Are there any visible signs of insects or fungal fruiting bodies

TRUNK:

SOUND BARK AND WOOD:

Are there any cracks, cavities, swollen, or sunken areas

WELL-TAPERED TRUNK:

Trunk should taper from the top down at a consistent rate
Look for co-dominant stems – these usually lead to decay

MECHANICAL INJURY

Damage from lawn mowers, string trimmers, cars, and vandalism

CRACKS:

Are there any visible cracks

SWOLLEN OR SUNKEN AREAS:

Are there any visible areas
Swollen areas indicate an old wound that closed over a stub
Sunken areas indicate an old wound that closed over a cavity

INSECT OR DISEASE PRESENCE:

Are there any visible signs of insects or fungal fruiting bodies

SCAFFOLD BRANCHES:

STRONG ATTACHMENTS:

Usually between 90° and 45°
Poor attachments lead to decay in the top of the crotch
Poor attachments also tend to have included bark

INCLUDED BARK:

When bark from the trunk and bark from the limb push against each other and rub instead of growing together and forming a seamless crotch
A crotch with included bark will tend to collect water and then

decay

VERTICLE DISTRIBUTION:

Are limbs distributed well throughout the crown

DECAY AND CAVITIES:

Are there any cavities present on the scaffold branches

WELL PRUNED:

Are any visible pruning cuts closing well
Are any natural limb sheds closing well

PROPORTIONED TAPERED LATERALS:

Same idea as with a well-tapered trunk
Limbs should be narrow at the tips and larger where the limbs
attach

WOUND CLOSURE:

You should see corky wood forming around wounds and pruning
cuts

DEADWOOD:

Is there any deadwood in the crown
Deadwood is typically considered anything 2" in diameter or
greater
How much deadwood is there

INSECT OR DISEASE PRESENCE:

Are there any visible signs of insects or fungal fruiting bodies

SMALLER BRANCHES AND TWIGS:

VIGOR-CURRENT VERSUS PREVIOUS:

Look at twigs if possible to compare vigor for last few years

WELL DISTRIBUTED THROUGH TREE:

Crown should be full
Is the crown lopsided or showing dieback in spotty areas

NORMAL APPEARANCE OF BUDS:

Are the buds normal and shaped correctly

PRESENCE OF BARE OR DEAD TWIGS:

Bare and dead twigs indicate several things
Possibly stress, lack of water, insect or disease problems, or
decline

INSECT OR DISEASE PRESENCE:

Are there any visible signs of insects of fungal fruiting bodies

FOLIAGE:

NORMAL APPEARANCE:

Are leaves normal is size, color and shape

HERBICIDE OR CHEMICAL INJURY:

Any visible sign of injury

Injury usually looks chlorotic or "burned"

Will usually affect the whole crown

WILTED OR DEAD LEAVES:

Are there any in the tree

Look at the crown for "flagging" or spotty dead areas

INSECT OR DISEASE PRESENCE:

Are there any visible signs of insects of fungal fruiting bodies

DON'T BE AFRAID TO WRITE NOTES ON THE INSPECTION FORM. ANY INFORMATION YOU PROVIDE WILL HELP. WRITE ANY QUESTIONS DOWN AND WE WILL TRY TO ANSWER THEM.

Tree Inspection Sheet

Location:						ID Number	1
Species:						Circumference:	
						Diameter:	
Land Use:	Residential	Town	Park	Church	Other		
Need To Trim For							
Potential Targets:	Clean Crown	Streetlight	Park	Sidewalk	Roadway	Street Sign	Parking Lot
Utility Conflict:	Yes	No					
	(circle one)						
Percent Deadwood:							
Tree Condition	Value	Tree Condition Rating					
Roots:	Y/N						
root anchorage		Total Points Condition Rating					
confined relative to size	no problem 5	from total points below	23 - 25	Excellent	90 - 100		
collar soundness	no apparent problem 4		19 - 22	Good	70 - 89		
mechanical injury	minor problem 3		15 - 18	Fair	50 - 69		
girdling roots	major problem 2		11 - 14	Poor	25 - 49		
compaction or water logged	extreme problem 1		05 - 10	Very Poor	05 - 24		
chemical symptoms							
insect or disease presence		Notes:					
Trunk:							
sound bark & wood							
well tapered trunk	no problem 5						
mechanical injury	no apparent problem 4						
cracks	minor problem 3						
swollen/sunken areas	major problem 2						
insect or disease presence	extreme problem 1						
Scaffold Branches:							
strong attachments							
included bark							
vertical distribution	no problem 5						
free of decay and cavities	no apparent problem 4						
well pruned	minor problem 3						
proportioned-tapered laterals	major problem 2						
wound closure	extreme problem 1						
deadwood		Recommendations:					
insect or disease presence							
Smaller Branches and Twigs:							
vigor-current vs. previous	no problem 5						
well distributed through tree	no apparent problem 4						
normal appearance of buds	minor problem 3						
presence of bare/dead twigs	major problem 2						
insect or disease presence	extreme problem 1						
Foliage:							
normal appearance	no problem 5						
herbicide/chemical injury	no apparent problem 4						
wilted or dead leaves	minor problem 3						
insect or disease presence	major problem 2						
	extreme problem 1						
Total Points:							

Adapted from coursework at Virginia Tech

Native Tree Planting List

witch hazel	<i>Hamamelis virginiana</i>	3 – 15' mature height
spice bush	<i>Lindera benzoin</i>	6.5 – 16' mature height
highbush blueberry	<i>Vaccinium corymbosum</i>	6 – 12' mature height
American hornbeam	<i>Carpinus caroliniana</i>	35 – 50' mature height
Eastern red cedar	<i>Juniperus virginiana</i>	30 – 50' mature height
serviceberry	<i>Amelanchier canadensis</i>	35 – 50' mature height
sweetbay magnolia	<i>Magnolia virginiana</i>	20 – 30' mature height
sassafras	<i>Sassafras albidum</i>	35 – 50' mature height
mockernut hickory	<i>Carya alba</i>	60 – 90' mature height
pignut hickory	<i>Carya glabra</i>	60 – 80' mature height
common persimmon	<i>Diospyros virginiana</i>	50 – 75' mature height
chestnut oak	<i>Quercus prinus</i>	60 – 80' mature height
swamp white oak	<i>Quercus bicolor</i>	60 – 70' mature height
American beech	<i>Fagus grandifolia</i>	50 – 100' mature height
black walnut	<i>Juglans nigra</i>	70 – 90' mature height

***Adapted from USFWS – May, 2001 - Native Plants for Wildlife Habitat and Conservation
Landscaping – Maryland Piedmont Region***

Fast Growing, Well Adapted Urban Tree Planting List

red maple	<i>Acer rubrum</i>	40 – 60' mature height
pin oak	<i>Quercus palustris</i>	60 – 80' mature height
willow oak	<i>Quercus phellos</i>	80 – 100' mature height
American basswood	<i>Tilia Americana</i>	> 100' mature height
white ash	<i>Fraxinus Americana</i>	70 – 80' mature height
sweet gum	<i>Liquidambar styraciflua</i>	60 – 80' mature height
American sycamore	<i>Platanus occidentalis</i>	75 – 100' mature height
black willow	<i>Salix nigra</i>	40 – 80' mature height
river birch	<i>Betula nigra</i>	30 – 50' mature height
bald cypress	<i>Taxodium distichum</i>	60 – 90' mature height
hackberry	<i>Celtis occidentalis</i>	40 – 60' mature height
goldenraintree	<i>Koelreuteria paniculata</i>	30 – 40' mature height

***Adapted from USFWS – May, 2001 - Native Plants for Wildlife Habitat and Conservation
Landscaping – Maryland Piedmont Region***

Trees Suitable for Planting under Utility Lines

{Not necessarily native species}

redbud	<i>Cercis canadensis</i>	15 – 20' mature height
fringetree	<i>Chionanthus virginicus</i>	15 – 18' mature height
dogwood	<i>Cornus florida</i>	15 – 25' mature height
kousa dogwood	<i>Cornus kousa</i>	16 – 18' mature height
thornless hawthorn	<i>Crataegus crusgalli inermis</i>	18 – 20' mature height
crabapple	<i>Malus spp.</i>	20 – 25' mature height
Japanese black pine	<i>Pinus thunbergii</i>	20 – 25' mature height
purpleleaf plum	<i>Prunus cerasifera</i>	15 – 20' mature height
Japanese flowering cherry		
columnar	<i>Prunus serrulata 'Amonagawa'</i>	20 – 25' mature height
spreading	<i>Prunus serulata 'Kwanzan'</i>	20 – 25' mature height
trinity flowering pear	<i>Pyrus callerya 'trinity'</i>	15 – 20' mature height
winterberry	<i>Ilex verticallata</i>	4 – 8' mature height

Volunteers and Acknowledgements

To the many volunteers that made this inventory possible, the Town Council and Forestry and Beautification Committee wish to acknowledge you (listed alphabetically). The coming years will offer many opportunities for this list to grow longer.

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*And all the children who helped parents complete sectors.

A special acknowledgement to the residents of Washington Grove who supported the spending of Town funds to begin and continue the Tree Inventory.

A special thanks to Jean Myers for taking on the overwhelming task of developing the database and doing computer stuff to make the inventory data useable for now and for the future.

And apologies for those that were unintentionally left off this list. Please let us know--this report will be revised after the Town meeting before being submitted to the Town Council.

NOTE: This report was developed by Dan Landry, Town Forester, and Darrell Anderson, Town Council, with review and comments from the Town Council and Forestry and Beautification Committee.