Dunwoody

Smart people – Smart city

URBAN CANOPY INVENTORY

AND ASSESSMENT



Solutions Naturally
Arborguard Tree Specialists

Ecological Planning Group

AEC

Urban Canopy Inventory and Assessment

By Arborguard Tree Specialists

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Introduction

The Trees of Dunwoody

The City of Dunwoody has thousands of trees within its boundaries, both publicly and privately owned. The vast majority of the trees that make up the City's canopy are in good health. In this study the focus is on City trees, that is, trees found on road rights of ways, parklands and green spaces. The canopy assessment has provided information to help gain an understanding of what condition these trees are in and approximately how many specimen trees are City owned. With this information it can be determined how best to effectively manage this resource to encourage continued economic, social and community growth as well as further community well being.

The tree illustrated on the following page is an example of the specimen trees found in the community. This particular tree is located at Brook Run Park adjacent to the currently abandoned tennis courts. It is a 46" diameter Southern Red Oak tree. This tree is in good structural condition and is exhibiting good health. This tree will make both economic and aesthetic contributions to the community for many years to come. The following information reports many trees to be in fair condition, this is due to observations related to structural issues such as dead branches or the lack of maintenance. This should not be interpreted as to how healthy and vigorous these trees are as a fair condition tree may be exhibiting good health. The purpose of this assessment was to document trees that require corrective maintenance to assure the safety of the citizens.

Historical Perspective

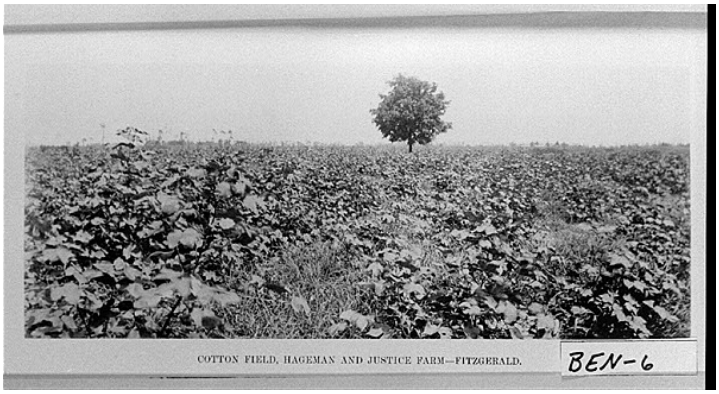
The area currently known as the City of Dunwoody was first inhabited by the Cherokee Indian tribe of the Creek Confederation who, by the early 1800's had populated the area with numerous small farms. After the Indian Springs Treaty of 1821 removed the Creek and Cherokee Indians from the area, it was opened up for settlement by pioneers. Dunwoody was pioneered in the 1820's with family farms and the establishment of the Ebenezer Baptist Church. Some of the initial families to settle the area were the Martin's, the Eidson's and the Spruill's. Farming was the primary industry with the major crop of the area being cotton. These local farms also raised corn, livestock and vegetables. Family farms remained operational for the next 100 years and the area remained rural in nature, with dairy farming becoming an important industry after the Boll Weevil started decimating cotton crops in 1915. Electric power was introduced to the area in 1930's which did not alter the agricultural land usage.

The expansion of Atlanta with its urban sprawl brought significant residential growth to the Dunwoody area in the late 1950's and early 1960's. This growth greatly accelerated when family farms such as the Spruill's started to sell off some of their outer tracts to developers and Interstate 285 was constructed in the late 1960's.

Dunwoody continued to experience rapid growth for the next several decades. In 2006, a feasibility study was conducted to determine whether Dunwoody could be incorporated into a city. As a result of the community's desire to incorporate, and through the efforts of the citizens, Dunwoody officially became a city on December 1, 2008. Currently, there are very few developable tracts of land left and projected future growth will likely result from the redevelopment of existing developed property.

Introduction

The City of Dunwoody is distinctly unique in its extensive tree canopy coverage. It is fortunate that the elected officials desired to proactively protect this precious aesthetic, cultural and economically beneficial natural resource. For over a century the region did not enjoy the extensive tree canopy coverage it enjoys today. During the booming agricultural era, most of the region in and around the Dunwoody area had been engaged primarily in row crop agricultural production for over 130 years, so it is likely that very few trees were retained on the farm. The few trees that remained after the fields were cleared were typically found in the middle of large fields for resting the team of horses, along fence rows, adjacent to stream channels, on homesteads or in cemeteries.



As this area was formerly dominated by the open fields of row crop agriculture, one can imagine that most trees we see today within the City of Dunwoody and throughout this region were planted into new landscapes as the area was developed into residential subdivisions. Since the transition from agricultural land use to subdivisions began in the late 1950's it can be inferred that most of the trees we see in the City landscape today are not much older than 60 to 75 years of age. In flood plains and along the creek banks where no agricultural activity occurred it may be possible to find trees older than this, but it must be remembered that the removal of trees for timber along stream banks was a common practice until the Clean Water Act was established in 1972 and these practices were discontinued.

Generally, the land in this region is of a gently rolling nature and was found to be ideal for row crop farming. When the area was first pioneered in the late 1820's the soils were rich and fertile after being forested for many thousands of years. As farms were established and, King Cotton became the major crop, the land began to change. It was logged, converted to farmland, and aggressively farmed with no soil conservation practices in place. By the late 1800's most of the rich, fertile topsoil had eroded off of the farmland and today can be found located predominantly in low lying floodplains throughout Georgia. As urban development replaced agriculture the soils were further modified by human activities such as cutting the soil from high spots to fill

low spots. Oftentimes, prior to residential development, any remaining trees were clear-cut from the landscape and replaced with new trees. The remaining soil profile we see today consists of a very thin layer of topsoil which overlies a soil that is very clayey silt in nature, is highly acidic, moderately fertile, highly erodible and easily compacted. These urban soils are very difficult to manage and the health of newly planted trees in parks, green spaces and right of ways can be severely impacted by these poor soils.

Study Background

Upon its incorporation in 2008, the City of Dunwoody inherited approximately 150 miles of public right of ways and approximately 190 acres of parkland and green spaces. Included in these locations are forested areas consisting of flowering understory trees, mixed hardwood trees and pine trees. As the newly incorporated City settled itself, elected officials began a series of studies to determine how best to continue its growth during challenging economic times. These studies include a Comprehensive Land Use Plan (2010), Comprehensive Transportation Plan (2011) a Parks, Recreation and Open Space Master Plan (2011) and an Economic Development Strategy (2012). The City's trees are seen as a vital component of the infrastructure, so it is no surprise that consistent throughout these comprehensive planning initiatives has been the uniquely thoughtful perception of how the City's forested areas contribute to the social and economic well being of the community. This implies the need for a sustainable tree canopy management program to insure that the citizens of Dunwoody have a non-hazardous, safe, walkable community in which to live and play in.

In 2011, Dunwoody was certified by the Atlanta Regional Commission as a Certified Silver, Green Community. To supplement the City's sustainability measures and support the existing Tree Protection Ordinance, in 2010, the City adopted a No Net Loss Tree policy. The acceptance of this policy by elected officials laid the groundwork for becoming a Tree City USA® city and worked to establish a metric by which an assessment of the existing tree canopy could be undertaken. Once the overall condition of the forested areas and their immediate needs are identified, a functional management strategy could then be instituted. To gain a better understanding as to the condition of the existing forest canopy and to ensure that it is effectively managed for long-term survivability, the City has undertaken a Tree Canopy Inventory and Assessment.

Purpose

There are thousands of trees located on both public and private property throughout the City of Dunwoody. The purpose this tree canopy assessment is to determine the general condition of the existing forest and tree canopy found along the public right of ways and in the City owned parks and green spaces. Specifically, the assessment goal is to identify specimen trees and trees that are currently or will in the near future pose a threat or hazardous condition to the citizens of Dunwoody who enjoy the use of these spaces. The information from this assessment will then be utilized to craft a tree management strategy that will allow City officials to determine at a glance which trees in the City that are in of need immediate attention such as those that are dead or hazardous as well those that will need attention given to them over the course of the next several years.

The scope of this study encompasses the City of Dunwoody's publicly accessible forests found within parklands, green spaces and in road right of ways. Within the total parkland and green space acreage, greater than 80% of the areas assessed consist of undeveloped to minimally developed raw forested canopy.

Methods

It is the intent of the City to gain a better understanding of the current condition of their forest and tree canopy in general, and focus on trees which may pose a threat to citizens. Once a general understanding of the forest condition is ascertained, with specific tree needs documented, a realistic tree management plan can be incorporated based upon those needs.

Due to the sheer number of trees found on the road rights of ways and within the parkland/green spaces, every individual tree within these spaces was not assessed. Specimen sized hardwood trees equal to and greater than 24" in diameter, softwood trees equal to and greater than 30" in diameter and flowering understory trees equal to and greater than 6" in diameter were assessed. In addition to specimen sized trees, trees found to be in a hazardous condition or that are in need of maintenance in a timely manner to prevent a hazardous condition were also documented. Trees found in a hazardous condition include dead trees, severely leaning trees, trees with significant structural issues such as those that are hollow, trees that are severely diseased, or trees that are in an advanced state of decline with over 40% of the canopy in a state of die-back. Except for the dead and hazardous trees found within the

chain link fencing of the Brook Run Park dog park, all trees have been located utilizing Global Positioning System (GPS) technology.

The trees found within the City owned road rights of ways were assessed by the "windshield" method. Rather than walk all 150 miles of road right of ways, the technician drives down the road and observes the trees within the rights of ways and medians that the City is responsible for maintaining. When the technician observes a suspected specimen or hazard tree, he parks his vehicle in a safe location and assesses the tree. If it meets specimen tree criteria or needs immediate maintenance, a tag bearing a unique number is attached to it, and any relevant information is recorded. The tree is then located with GPS technology.

The approximately 190 acres of City owned parkland and green spaces assessed are composed primarily of heavily forested areas that were physically walked to identify specimen trees and trees that require immediate maintenance. Trees identified as being of specimen size or requiring immediate maintenance, had a tag bearing a unique number attached to it, other relevant information recorded and is then located with GPS technology.

With both the road rights of ways and the parkland/green spaces, the collected information is then utilized to generate a report with a unique map coordinate location for each tree that is incorporated into a Geographic Information System (GIS) map of the City. The maps are then accessed on a computer where each tree is displayed with its unique identification number. An individual can utilize the mouse pointing tool to "click" on a tree number, causing all of that trees relevant information to be displayed on the computer screen. GIS maps are created specifically for the road rights of ways as well as for each individual park/green space.

Summary

Inventory Summary

In general, the forest that the City of Dunwoody lives within is found to be in good health.

Dunwoody's forest is representative of a typical Piedmont forest; it is populated with a rich and diverse mix of tree species that are found to be in a wide range of developmental stages. Many of these trees are successional in nature meaning they have grown from seeds spread by animals after agriculture was no longer the dominant industry in the region. A significant number of these trees have also been planted into the landscape as neighborhoods and subdivisions began to populate the area in the late 1950's.

As the focus of the assessment was to identify specimen and hazard trees and to only comment on the general condition of the forest itself, it will quickly be seen that most of the trees assessed were found to be dead or in fair to poor condition with very few good condition trees identified, please keep in mind the reported trees are only a very small percentage of the total trees reviewed by the technicians.

Due to lack of maintenance by DeKalb County along roadways and in parks over the past decades, the City of Dunwoody now shoulders the responsibility of effectively managing these tree resources with public safety as the highest priority.

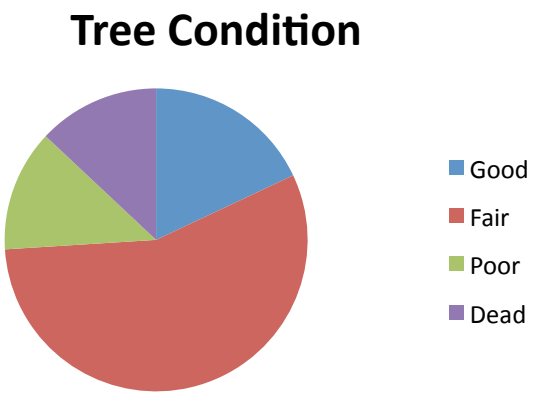
Invasive species were also identified within the forested areas. The most common invasive species were found to be groundcovers and shrubs which included English ivy, poison ivy and privet.

Briefly, trees identified as being in good condition are trees that have few if any structural defects or are not infected with pathogenic organisms. Fair condition trees are trees that may have moderate structural defects or a pathogenic organism may be present in a small population that is not life threatening to the tree. Most fair condition trees in this assessment merely need to have large dead limbs pruned out of them. Poor condition trees are trees that have major structural defects, such as being hollow, have high populations of pathogenic organisms or are in a state of advanced decline. Poor condition trees will not upgrade to fair or good condition but will only continue to decline.

A total of 988 trees were assessed in this study. These trees are categorized as follows:

- 747 hardwood trees were identified with the dominant tree species being oak, which accounts for 75.5% of all trees assessed
- 98 softwood trees were identified with the dominant species being loblolly pine, which accounts for 10% of the trees assessed
- 143 flowering understory trees were identified with the dominant species being dogwood, which accounts for 14.5% of the trees assessed

Of all the 988 trees assessed:



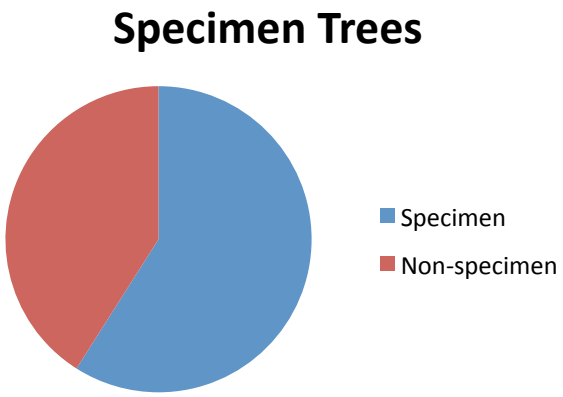
- 18% are in good condition
- 56% are in fair condition
- 13% are in poor condition
- 13% are dead

Of the 988 trees assessed, 326 (33%) were found in the road rights of ways and 662 (67%) were found in the parkland/green spaces.

Specimen Trees

In parkland/green spaces and rights of ways, 581 trees (59%) were found that met the City of Dunwoody specimen tree size criteria.

The remaining 407 trees (41%) are of mixed species and sizes that range in size from 3" in diameter to 23" in diameter that have been identified as requiring some form of immediate attention.



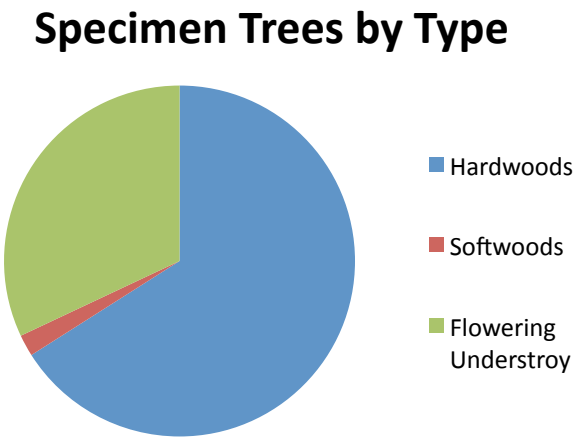
Collectively, the specimen size trees within the rights of ways and parkland/green spaces include:

- 437 hardwood trees (75%)
    - 134 trees (30.5%) were found to be in good condition
    - 278 trees (63.5%) were found to be in fair condition
    - 20 trees (5%) were found to be in poor condition
    - 5 trees (1%) are dead
- 15 softwood trees (3%)
    - 3 trees (20%) were found to be in good condition
    - 12 trees (80%) were found to be in fair condition
- 129 flowering understory trees (22%)
    - 36 trees (28%) were found to be in good condition

- 84 trees (65%) were found to be in fair condition
- 7 trees (5%) were found to be in poor condition
- 2 trees (2%) are dead

Right of Ways

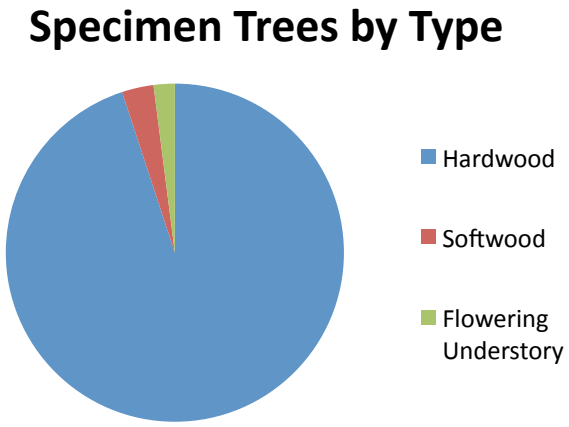
Within the road rights of ways, a total of 303 trees (96%) met the City of Dunwoody's specimen tree size criteria.



- 200 hardwood trees (66%) with:
  - 23 trees (12%) being in good condition
  - 167 trees (84%) being in fair condition
  - 10 trees (4%) that are in poor condition
- 5 softwood trees (2%) with:
  - 5 trees (100%) being in fair condition
- 98 (32%) flowering understory trees with:
  - 13 trees (13%) being in good condition
  - 79 trees (81%) being in fair condition
  - 6 trees (6%) that are in poor condition

Parks & Green Spaces

In the parkland/green spaces, 278 trees were identified that met the City of Dunwoody's specimen tree size criteria:



- 237 trees (85%) are hardwood trees with:
    - 111 trees (47%) being in good condition
    - 111 trees (47%) being in fair condition
    - 10 trees (4%) being in poor condition
    - 5 trees (2%) that are dead
- 10 (4%) were softwood trees with:
    - 3 trees (30%) being in good condition
    - 7 trees (70%) being in fair condition
- 31 trees (11%) were flowering understory trees with:
    - 23 trees (74.5%) being in good condition
    - 5 trees (16.5%) being in fair condition
    - 1 tree (3%) being in poor condition
    - 2 trees (6%) that are dead

Maintenance

Schedule

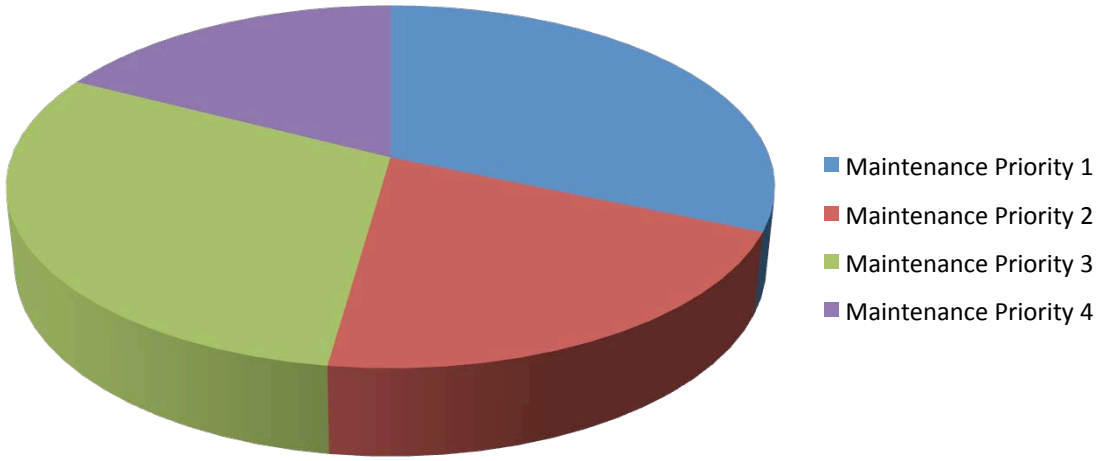
Forest Management Plan

With 82% of the assessed trees being either in fair condition, poor condition or dead, a tree management strategy will need to be established that prioritizes tree maintenance in terms of work that needs to be performed as soon as possible to no tree maintenance required at this time.

Arborguard has assigned all assessed trees with a maintenance priority number. This number indicates the level of immediacy with which trees having particular defects or hazards or other maintenance needs should be addressed. This is a qualitative assessment made by the technician and represents the best judgment of the technician based on his accumulated tree care experiences.

- Maintenance Priority 1 trees are trees that are dead, present a high risk of failure in the immediate future or are in such poor condition that they present hazardous conditions to the community.
- Maintenance Priority 2 trees are trees that have major dead limbs over roadways or sidewalks that will not likely fail in the near future but should be removed to insure public safety.
- Both Maintenance Priority 1 and Maintenance Priority 2 trees should be addressed in a timely manner.
- Maintenance priority 3 trees are trees that may require structural supports added to stabilize trees with weak stem unions or trees that would benefit from soil fracturing or supplemental organic nutrients.
- Maintenance Priority 4 trees are trees that currently exhibit good health and that are structurally sound. These trees do not require any immediate attention.

Maintenance Priorities



- Maintenance Priority 1: Action is required as soon as possible, these trees may be dead or hazardous
    - 311 trees are classified as maintenance priority 1
        - 280 trees in parks, 31 trees in road right of ways
- Maintenance Priority 2: These trees require action in the near future, these trees may need to be pruned for hazardous dead limbs
    - 205 trees are classified as maintenance priority 2
        - 153 trees in parks, 52 trees in road right of ways
- Maintenance Priority 3: Maintenance priorities 1-2 should be addressed before maintenance priority 3
    - 300 trees are classified as maintenance priority 3
        - 87 trees in parks, 213 in road right of ways
- Maintenance Priority 4: Tree maintenance is not required at this time
    - 172 trees are classified as maintenance priority 4
        - 142 trees in parks, 30 in road right of ways

To aid in managing these Maintenance Priority issues within the road right of ways, Arborguard has chosen to divide the City of Dunwoody into 17 Tree Maintenance Zones. These zones can be viewed on the City of Dunwoody Master Maintenance Priority Level Map which is included in an electronic format and can be plotted as a 34"x44" map. Each tree assessed is shown on the map as a color coded symbol with its associated identification number. The included table shows the street address and other pertinent information for each tree. Also included in an electronic format is a computer based version of these maps with an interactive feature that allows an individual to click on a specific tree symbol, whereupon information pertinent to that tree will be displayed on the computer output device.

Each parkland/green space is individually represented in a similar fashion as the road right of ways, that is, with plottable maps and a computer based version of each map with interactive features. However, given that there are no specific addresses for each tree in the parks, a satellite image of each park is shown with the locations of each color coded displayed. These maps are included in the provided binder with each park report.

There are 423 trees that fall into either the Priority 1 or Priority 2 category. It is estimated that it will take 15 weeks to remove and prune the trees that require the most immediate attention. The initial work will need to be conducted concurrently in the parks and the road right of ways. This work is to be prioritized by most frequently used area, the first area of greatest concern is the playground and dog park at Brook Run Park. This work should be completed with the highest level of priority. The next area of great concern is the walking trail in the Dunwoody Nature Center. The large tree removals on the road right of ways should be reviewed and the most hazardous of these trees should be removed as soon as possible.

Within the body of each of the following reports is a Maintenance Schedule. The intent of this schedule is to provide a generalized idea of the time it will take to complete work on the Priority 1 & 2 trees with an estimated budget.

For budgeting purposes, the following are estimates for completing the required priority 1 & 2 work in a timely manner by a qualified tree care service provider:

Tree removal budget for all parks: $68700

Tree removal budget for rights of ways: $33500

Tree pruning budget for all parks: $49850

Tree pruning budget for rights of ways: $19000

Plant health care budget for all parks: $40245

Plant health care budget for rights of ways: $7600

There are 272 Maintenance Priority 3 trees shown, the majority of these trees being found in the road rights of ways. Of the trees shown, approximately 100 of these trees are dogwoods and would require very little pruning. Approximately 65 trees will require light pruning in a second or third year program to remove dead branches over roadways or sidewalks. The remaining trees in Maintenance Priority 3 require some type of soil treatments to improve the overall vigor of the tree. It is uncertain at this point how the City of Dunwoody would like to proceed with the management of these trees and this budget will be addressed at a later date.

Maintenance Priority 4 has 66 trees in this classification. At this time, no maintenance is required on these trees.

Priority 1 Maintenance

City of Dunwoody

Tree_ID	Species	Mtnc_Rec	Location
4	Dogwood-Flowering	Removal	2471 Brookhurst Dr.
12	Dogwood-Flowering	Removal or prune	2419 Brookhurst Dr.
26	Oak-Northern Red	Removal	N. Peachtree Rd. Brookhurst Dr.
35	Oak-Southern Red	Risk Assessment	2391 Riverglenn Cir.
39	Dogwood-Flowering	Risk Assessment	4669 Dunover Cir.
50	Oak-Southern Red	Remove	2608 Laurelwood Rd.
80	Eastern Redbud	Risk Assessment	4884 Maclaren Cir.
106	Oak-Water	Remove	4955 Delverton Ct.
114	Cherry-Black	Remove	4853 Tilly Mill Rd.
127	Oak-Southern Red	Remove	5144 Meadowlake Ln.
129	Maple-Red	Prune or Remove	5307 Lake Springs Dr.
130	Oak-Northern Red	Prune or Remove	Lake Springs Way & Tilly Mill Rd.
131	Maple-Red	Prune or Remove	Lake Springs Way & Tilly Mill Rd.
134	Maple-Red	Prune & soil therapy	1630 Damon Pl.
135	Sweetgum	Prune	1605 Damon Pl.
177	Oak-Pin	Remove hangers and address decline	1 Perimeter Ctr. East @ Bank of America
204	Maple-Silver	Prune or Remove	Across from 1441 Mile Post Rd.
212	Cherry	Prune & remove vines	5163 Hidden Branches Cir.
235	Redbud	Remove	5527 Bunky Way
237	Oak-Water	Prune	1758 Withmere Way
255	Oak-Chestnut	Prune	Mt. Vernon Rd. & Vernon Oaks Dr.
256	Oak-Chestnut	Prune	Mt. Vernon Rd. & Vernon Oaks Dr.
259	Oak-Water	Prune	1749 Mt. Vernon Rd
260	Sweetgum	Remove or mitigate risk	1719 Mt. Vernon Rd.
261	Oak-Southern Red	Remove or mitigate risk	Mt. Vernon Rd. & Forest Springs Dr.
262	Oak-Willow	Prune	5337 Cedar Chase
274	Oak-Live	Prune	1741 Tolleson Ct.
275	Oak-Chestnut	Prune	5530 Woodsong Tr.
279	Oak-Southern Red	Prune	Womack Rd. west of Village Creek Dr.
280	Oak-Southern Red	Removal	Womack Rd.west of Village Creek Dr.
228	Pine-Shortleaf	Remove	Roberts Dr. & Manor Oaks Ct.

Priority 1 Trees

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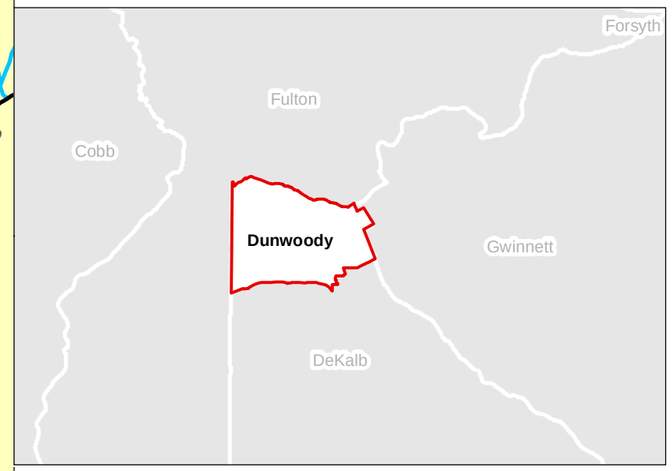
Legend

- Dunwoody City Limits
- Maintenance Zones
- Parcels
- Lakes / Water Features
- Major Roads
- Roads
- Railroads

Parks & Recreation Areas

City of Dunwoody



Legend

- Major Roads
- Roads
- Railroads
- Parcels
- Lakes / Water Features
- Dunwoody City Limits

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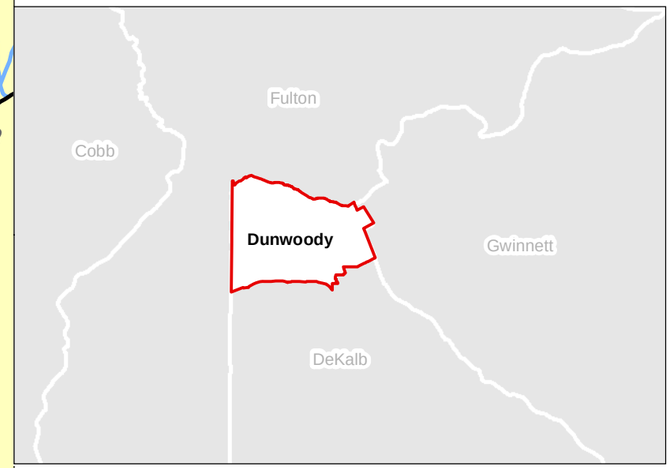
General Tree Types
City of Dunwoody



Tree Types

Hardwoods **Softwoods**

Legend

- Dunwoody City Limits
- Major Roads
- Roads
- Railroads
- Parcels
- Lakes / Water Features

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Sustainability

Perspectives on Sustainability

The City of Dunwoody is situated on approximately 8500 acres of land that is composed of heavily wooded parkland areas surrounded by moderately wooded residential areas, with lightly to moderately wooded commercial locations. Understanding the overall condition of the forest canopy is the first of many steps that will likely be taken by the City of Dunwoody to gain a clear understanding of the true value of their tree resources.

Sustainability is defined as design, construction, operations, and maintenance practices that meet the needs of the present without compromising the ability for future generations to meet their own needs. Trees play an integral role in sustainability for many reasons. These include the benefits of trees from social, green infrastructure and environmental benefits. Trees also provide significant economic value whether real or perceived to the community. The intent of this study was to gain an understanding of the current condition of the tree canopy and address the required maintenance needs. However, a generalized discussion can be provided here as an opportunity to investigate the methods by which the value of the Dunwoody's urban canopy can be more accurately determined and how the canopy contributes to the environmental, social and economic well being of the community.

The amount of canopy coverage can be approximated and an estimated value determined for the replacement value of the trees and for the contributions of the canopy. By utilizing satellite imagery, areas that have little to no canopy coverage such as the water treatment plant, Perimeter Mall, residential areas that experienced heavy canopy loss in the tornado and open parkland areas can be approximated. This area is estimated to be 2631 acres or 31% of the City. The remaining 69% of the City consists of heavily wooded areas, moderately wooded areas and impervious surfaces too small to quantify with the tools at our disposal. Based on previous experience and from a visual perspective it is estimated that approximately 19% of the total acreage consists of impervious surfaces and the remaining 50% is covered by tree canopy.

Trees provide numerous environmental benefits that can both be measured and quantified. Of primary importance is the role trees play in the carbon cycle and as filters for pollution. These roles include: carbon storage, carbon sequestration, and

the filtration of carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter; moderate temperatures beneath the canopy, provide sound reduction barriers and act as buffers between residential neighborhoods and commercial entities.

The included reference articles found in this section are illustrative examples of how Dunwoody's Urban Canopy contributes to carbon neutrality by absorbing car emissions or the energy required to run an average home. This information directly emphasizes the critical importance of trees and can contribute to public awareness and even funding for tree care or tree planting.

An Arborscout Tree Assessment was conducted by Arborguard on the 53 acres Northwoods Expansion at Piedmont Park. 1824 trees were assessed in this study and ranged in size from 3" to over 31". These trees have an estimated a replacement value of approximately $30,984,745, store approximately 600 tons of carbon per year and filter approximately 1308 pounds of pollutants a year. A study on the Compensatory value of Urban Trees in the U.S. shows that the average value of an urban tree in Atlanta, Georgia is $394. A city of Decatur tree canopy assessment conducted by the Global Ecosystem Center places the average value of stormwater management by their urban tree canopy at $2,074,400. Property with trees has been found to generally be 37% higher than similar properties with no trees.

Other studies of the environmental contributions of trees to communities reveal stunning information of great value. In the Chicago area alone, urban trees sequester roughly 155,000 tons of carbon a year. By providing energy savings in residential heating and cooling, the same trees help reduce carbon emissions from power plants by about 12,600 tons annually. In the continental United States, carbon sequestration alone provided by urban trees is estimated to be about 25 million tons per year and is equivalent to the carbon emitted by 18 million cars annually.

A separate study would be required to fully understand the value of this most precious resource.

ACTrees
Tree by Tree • Street by Street
Alliance for Community Trees

Benefits of Trees and Urban Forests

This resource list compiled by Alliance for Community Trees (ACTrees) gathers the many scientifically proven benefits of urban forests into a single document for tree advocates to use. These facts come directly from primary research conducted by professional scientists, with all citations noted. Grouped by category, these benefits speak to the enormous monetary, social, and ecological value of urban forests to human society. They argue for the vital role of trees in our communities. ACTrees member organizations nationwide are working to bring these benefits to towns small and large, improving the health and livability of our communities by planting and caring for trees. To learn more, visit www.ACTrees.org

Green Infrastructure Benefits..... 2
- Economic Benefits 2
- Reducing Stormwater Run Off and Maintenance Costs..... 2
- Improving Air Quality 3
- Improving Water and Soil Quality..... 4

Public Health Benefits..... 4
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Green Infrastructure Benefits

Economic Benefits

- Urban forests in the United States contain about 3.8 billion trees, with an estimated structural asset value of $2.4 trillion. [109]
- Urban forests in the U.S. provide essential services to more than 220 million people (supporting 79 percent of the population). [1]
- Trees in New York City provide $5.60 in benefits for every dollar spent on tree planting and care. [120]
- For every dollar spent on tree planting and maintenance, the city of Providence, RI reaps $3.33 in benefits.[81]
- Street trees in Washington, DC, produce annual benefits of $10.7 million.[13]
- Trees in Glendale, AZ, produce total annual benefits of $665,856 or $31 per tree.[2]
- Trees in Berkeley, CA, produce total annual benefits of $3.25 million or $89 per tree.[2]
- Trees in Minneapolis, MN, produce total annual net benefits of $15.7 million or $79 per tree.[36]
- Trees in Mecklenburg Country, NC, produce annual ecological benefits (stormwater management and air pollution mitigation) of over $200 million per year.[3]
- The average annual net benefit of a mature large tree is $85 in a yard and $113 on public land.[4]
- New York's state parks and open space provide a $2.7 billion annual economic benefit to local governments and taxpayers.[5]
- The value from urban forestry in Chicago totals $2.3 billion[13]
- Portland invested $8 million in green infrastructure to save $250 million in hard infrastructure costs.
    - The value of green infrastructure on urban climate adaptation
- Net benefits for a yard and public tree summed over 40-year period [76]:
    - Large Tree: $4,320 (yard) and $3,880 (public)
    - Medium Tree: $1,040 (yard) and $760 (public)
    - Small Tree: $280 (yard) and $40 (public)
    - Conifer: $2,040 (yard) and $1,640 (public)

Reducing Stormwater Run Off and Maintenance Costs

- Urban forest can reduce annual stormwater runoff by 2–7 percent, and a mature tree can store 50 to 100 gallons of water during large storms. [10]
- Green streets, rain barrels, and tree planting are estimated to be 3-6 times more effective in managing stormwater per $1,000 invested than conventional methods.[13]
- Implementing green infrastructure practices in Detroit's sewage and water department will reduce combined sewer overflow volumes by 10-20% and reduce annual costs by $159 million a year.[6]
- Portland, OR, is saving 43% ($64 million) by integrating green infrastructure--including planting 4,000 trees--into a combined gray-green stormwater management solution rather than the standard gray infrastructure approach.[79]
- Street trees in Minneapolis save $9.1 million in stormwater treatments annually.[62]
- Philadelphia's $1.5 billion stormwater management plan focuses almost exclusively on eco-friendly solutions--bioswales, permeable pavement, street

trees--as a way of reducing the city's 15 billion gallons of annual water overflow.[16]

- Trees on UC San Diego's 1,200-acre campus trap and filter nearly 140 million gallons of stormwater runoff each year at a value of $250,000. [65]
- The stormwater management value of Philadelphia's parkland and trees is $5.9 million annually. [11]
- Urban greening in Washington, DC, prevents over 1.2 billion gallons of stormwater from entering the sewer system, 10% of the total volume. This represents a savings of $4.74 billion in gray infrastructure costs per 30-year construction cycle. [12]
- Trees in Houston, TX, provide $1.3 billion in stormwater benefits (based on $0.66 /cubic foot of storage). [13]
- Each urban tree in Modesto, CA, reduces stormwater runoff by 845 gallons annually, with a benefit valued at $7 per tree. [87]
- Street trees in New York City intercept 890 million gallons of stormwater annually: 1,525 gallons per tree on average, with a total value of over $35 million each year. [120]

Improving Air Quality

- Trees clean the air by absorbing carbon dioxide, sulphur dioxide, nitrous oxides and other pollutants, and also shade cars and parking lots, reducing ozone emissions from vehicles.[76]
- The tree canopy of Houston, TX, removes 60,575 tons of air pollutants annually with a value of $300 million. [76]
- The tree canopy of New York City, removes 1,973 tons of air pollution annually at a value of $9.24 million.[80]
- The trees in the Atlanta metro area remove 19 million pounds (8,618 t) of air pollutants annually, for annual savings valued at $47 million. [74]
- The urban forest of Montgomery, AL, removes 1,603 tons of air pollutants annually valued at $7.9 million.[78]
- Trees and shrubs in Philadelphia removed 971 tons of air pollution annually at value to society of $4.8 million. [14]
- Sacramento County's million trees remove approximately 1,607 tons of air pollutants annually. These trees removed 665 tons of ozone, 748 tons of PM10, 164 tons of NO2, and 30 tons of SO2. The total value of the annual reduction of ozone and particle pollution is $28.7 million.[18]
- The urban trees of Los Angeles, CA, remove about 77,000 tons of carbon per year and about 1,976 tons of air pollution per year.[107]
- Mature trees absorb 120-240 lbs of particulate pollution each year.[15]
- Urban trees in the US remove 711,000 metric tons of air pollution (O3, PM10, NO2, SO2, CO) annually, at a value of $3.8 billion. [17]
- UFORE analysis of the urban tree benefits of Washington D.C.'s 1.9 million trees report the following [75]:
    - 474,000 metric tons of Carbon stored ($10.8 million value)
    - 14,600 metric tons/year of Carbon sequestered ($334,000 value)
    - 490 metric tons/year total pollution removal ($3.7 million value)
    - 23 metric tons/year of CO removed ($32,000 value)
    - 65 metric tons/year NO2 removed ($645,000 value)
    - 196 metric tons/year of O3 removed ($1.9 million value)
    - 66 metric tons/year of SO2 removed ($160,000 value)
    - 140 metric tons/year of PM10 removed ($928,000 value).
- Net air pollutants removed, released, and avoided from Minneapolis's urban

trees average 2 lbs per tree and are valued at $1.1 million annually. Avoided emissions of NO2 and SO2 total about 150 tons, valued at $830,000. [36]

- A big tree removes 60 to 70 times more pollution than a small tree. [98]

Improving Water and Soil Quality

- Trees and other plants help remediate soils at landfills and other contaminated sites by absorbing, transforming, and containing a number of contaminants. [19]
- New York's implementation of a forest protection strategy instead of building a new water treatment plant will save the city $6 billion. [20]
- Switzerland saves roughly $64 million a year by using water from forested watersheds that needs no water treatment plant.[20]
- In studies at Pennsylvania State University, tracts of trees in municipal watersheds were used to purify partly treated sewage and protect surface waters. [21]
- Trees divert captured rainwater into the soil, where bacteria and other microorganisms filter out impurities. This reduces urban runoff and the amount of sediment, pollutants, and organic matter that reach streams. [9]

Public Health Benefits

Improving Attention

- Contrary to some beliefs, studies show that children with ADD function better after activities in green settings, and the "greener" a child's play area, the less severe his or her attention deficit symptoms. [22]
- A study on children with attention deficit disorders discovered that the effect of a walk through a park is equal to peak effects of two typical ADHD medications.[23]
- College students with more natural views from their dorm windows scored higher on attention tests. [24]
- Trees help girls succeed. On average, the greener a girl's view from home, the better she concentrates and the better her self-discipline, enabling her to make more thoughtful choices and do better in school.[116]

Decreasing Asthma & Obesity

- Trees filter airborne pollutants and reduce the conditions that cause asthma and other respiratory problems. [89]
- Researchers from Columbia University found childhood asthma rates were highest in parts of the city where tree density was lowest. The rate of asthma fell by 25% for every extra 340 trees per square kilometer, a pattern that held true even after taking account of differing sources of pollution, levels of affluence and population density. [26]
- In a study, residents of areas with the highest levels of greenery were three times as likely to be physically active and 40% less likely to be overweight or obese than residents living in the least green settings. [25]
- Neighborhood parks promote exercise, especially to people living within a mile of a park. In a study three-quarters of park users lived a mile or less from the park. [27]
- Children in neighborhoods with more green space have lower odds of increased change in body mass index. [28]
- Children and youth living in greener neighborhoods have lower body mass index.[122]

- The presence of parks is associated with higher levels of physical activity among adolescent girls, with the attendant health benefits of exercise. [88]

Improving Physical and Mental Health

- Green environment impacts worker productivity: in one study workers without nature views from their desks claimed 23% more sick days than workers with views of nature. [29]
- Park users report lower levels of anxiety and sadness after visiting parks. [30]
- The longer park users stay in park settings, the less stress they report. [30]
- Contact with nature not only decreases elementary school children's stress, but higher amounts of exposure to natural environments indicate lower levels of stress in a child. [31]
- Mental wellbeing improves from exercising outdoors compared to exercising indoors. Exercising in natural environments is associated with greater feelings of revitalization and positive engagement, decreases in tension, confusion, anger, depression, and increased energy. [32]
- Visual exposure to settings with trees helps recovery from stress within five minutes, as indicated by changes in blood pressure and muscle tension. [33]

Reduced Hospital Days

- Patients recovering from surgery in hospital rooms with window views of natural scene had shorter postoperative hospital stays, received fewer negative evaluations in nurses' notes, and took fewer potent analgesics than matched patients in similar rooms with windows facing a brick wall. [33]

Protection from UV rays

- A person standing in direct sunlight takes 20 minutes to burn. However, under a tree providing 50% coverage it takes 50 minutes to burn, and under full shade it takes 100 minutes before one to get a sunburn.[34]

Noise Reduction

- Trees reduce noise pollution by absorbing sounds. A belt of trees 98 feet wide and 49 feet tall can reduce highway noise by 6 to 10 decibels. [90]
- Planting big enough trees and earth berms can cut traffic noise by up to half. [21]
- Trees absorb high frequency noise which are most distressing to people. [35]
- Planting "noise buffers" composed of trees and shrubs can reduce 50% of noise to the human ear. [39]

Roads and Traffic Benefits

Traffic Calming and Accident Reduction

- Street landscape improvements reduced accidents in Toronto by 5% to 20%, generating significant public costs savings, and boosted pedestrian use of urban arterials. [37]
- Trees improve driving safety. One study found a 46% decrease in crash rates across urban arterial and highway sites after landscape improvements were installed. [38]
- The presence of trees in a suburban landscape significantly reduced the cruising speed of drivers by an average of 3 miles per hour. Faster drivers and slower drivers both drove slower with the presence of trees. [40]
- Exposure to a natural roadside setting decreased the magnitude of driver's

stress response.[41]

- Highway drivers with views of natural roadsides displayed higher frustration tolerance, a known precursor of road rage. [41]
- Mid-block islands with trees can result in up to 7% reduction in motor vehicle speeds. [97]
- Studies show that narrow lanes and street trees can reduce the severity of car crashes. [110]

Reducing Road Maintenance Costs

- Tree shade has been proven to reduce pavement fatigue, cracking rutting, shoving and other distress, saving on repair costs. [42]
- Street trees prolong the live of pavement. Shaded roads can save up to 60% of repaving costs. That's a lot of savings considering the four million miles of roadways in the US. [42]
- A study in Modesto, CA, projected that shade street trees will reduce costs for repaving by $2,900 (58%) over a 30 year period, or $7.13/$m^2$ compared to the unshaded street.[42]
- Shade provided by trees reduces the need for maintenance and repaving. A study from US Davis found that, 20% shade on a street improves pavement condition by 11%, which is a 60% savings for resurfacing over 30 years.[96]

Business Benefits

Business Districts: Increased Sales, Desirability and Rents

- Shoppers will travel further and longer to visit a district with high quality trees, and spend more time there once they arrive. [45]
- People have more favorable perceptions of communities with green roads. [46]
- Visitors to well-treed central business districts will spend 9 to 12 percent more for products. [46]
- People will pay higher prices for goods in green communities. For instance, in one study, sports shoes were priced 7% higher in the green setting, and a sit-down dinner or a flower bouquet were 10% higher. [47]
- A study found 7% higher rental rates for commercial offices having high quality landscapes. [44]

Jobs

- In California in 2009, urban forestry supported 60,067 jobs, resulting in $3.3 billion in individual income, $826 million of Local, State, and Federal taxes, and added $3.5 billion in values to CA's economy. [7]
- The environmental horticultural industry—including all businesses and government units involved in distributing, installing, and maintaining plants, landscapes, trees, and related equipment—in 2002 was estimated at $147.8 billion in output, 1,964,339 jobs, $95.1 billion in value added, and $64.3 billion in labor income. [99]

Property Value Benefits

Increasing Property Values

- Studies have found general increases of up to 37% in residential property values associated with the presence of trees and vegetation on a property. [13]

- Philadelphia's water management plan includes improved and built green areas to capture stormwater, which will increase nearby property values by $390 million. [8]
- Trees increased home sales prices in Athens, GA $1475 to $1750. This increase in property value results in an increase of $100,000 in the city's property tax revenues.[49]
- Street trees increase the value of homes in Portland by a total of $1.1 billion, and, on average, add $7,020 to the price of a house. [50]
- New tree plantings increased surrounding housing values by approximately 10%, in the Philadelphia neighborhood of New Kensington, which translates to a $4 million gain in property value through tree plantings. [48]
- In Minnesota, a 10% increase in tree cover within 100 m increases average home sale price by $1371 (0.48%) and within 250 m increases sale price by $836 (0.29%). [56]
- Minneapolis street trees add $7.1 million to aesthetic and property values. [62]
- Annual economic benefits of Washington DC street trees in 2011 were $10.6 million, including $5.1 million for property value. [13]

Climate Change and Carbon Benefits

Storing carbon and reduction of carbon emissions

- Urban trees in the U.S. store 700 million tons of carbon valued at $14 billion with an annual carbon sequestration rate of 22.8 million tons per year valued at $460 million annually. [52]
- Planting 100 million urban trees can store and avoid up to 357 billion tons of carbon over the next 50 years. [51]
- Each year an acre of trees absorbs the amount of carbon produced by driving a car for 26,000 miles. [93]
- Individual urban trees contain about four times more carbon than individual trees in forests.[52]
- New York City's trees store about 1.35 million tons of carbon valued at $24.9 million, and these trees remove over 42,000 tons of carbon each year. [121]
- The million trees in Sacramento County reduce atmospheric CO_2 at an annual value of $3.3 million.[18]
- The urban trees of Los Angeles, CA, store 1.3 million tons of carbon valued at $26.3 million.[107]
- The urban forest in Casper, Wyoming, is estimated to store about 37,000 tons of carbon and to remove about 50 tons of air pollution per year. [54]
- The 200,000 trees at UC San Diego reduce 10,000 tons of carbon dioxide emissions per year, 5% of its annual emissions, for annual savings of $2.2 million. The total amount of carbon dioxide stored in UC San Diego's forest is 166,000 tons. [65]
- Streets in Minneapolis, MN, reduce CO2 emissions by 27,611 tons through energy savings and 29,526 tons through sequestration, at a total value of $857,000. [36]
- In 2006, the urban forest of Washington, D.C., was estimated to store about 526,000 tons of carbon. [53]
- The urban forest in Chicago, IL, has a total carbon sequestration rate of 25,200-tons/year equivalent valued $14.8 million/year. [13]

- Urban trees sequester more carbon than individual trees in non-urban forests because the more open structure of the urban environmental allows individual trees to intercept more light and grow faster. [52]
- The national average urban forest carbon storage density is 25.1 tC/ha. [52]

Carbon Mitigation Programs

- The Million Trees LA campaign to plant one million trees, started in 2007 with the aim to reduce atmospheric carbon dioxide by about 1 million tons over the next 35 years, equivalent to taking 7,000 cars off the road each year. [57]
- The NFL strives to make the Super Bowl a carbon-neutral event; carbon emissions from the game in Jacksonville, FL, were offset with the planting of more than 1,000 trees. For the Super Bowl in Detroit, the NFL planted 2,400 trees to combat greenhouse gas emissions from over 100 events associated with the game. [58]
- In 2008 Harbison-Mahony-Higgins Builders, Inc entered into a contract with the Sacramento Tree Foundation to offset the emissions of the company's new vehicle fleet: 580 trees planted to offset 2,665 tCO2e. [59]
- In 2010, Cascade Land Conservancy's Carbon Mitigation Program collaborated with Pearl Jam, in which the Peal Jam donated $210,000 to offset the band's world tour carbon footprint of 7,000 tons of carbon dioxide through restoration of 33 acres of forest land. [43]

Reducing the Heat Island Effect

- Trees and vegetation lower surface and air temperatures by providing shade and through evapotranspiration. Shaded surfaces may be 20–45°F cooler than the peak temperatures of unshaded materials. Evapotranspiration, can help reduce peak summer temperatures by 2–9°F. [60]
- Tree planting is one of the most cost-effective means of mitigating urban heat islands. Air temperature differences of approximately 2 to 4°C have been observed across urban areas having variable tree cover, with approximately 1°C of temperature difference being associated with 10% canopy cover difference. [41]
- The indirect cooling effect of evapotranspiration is greater than the direct effect of shading. As the number of trees in an area increase, relative contribution of evapotranspiration to overall cooling goes up, mitigating the urban heat effect.[66]
- Trees cool city heat islands by 10 degrees to 20 degrees, thus reducing ozone levels and helping cities meet the air quality standards required for disbursement of federal funds. [94]
- Mature tree canopy reduces air temperatures by about 5-10° F. [15]

Energy Use Benefits

Energy Efficiency

- Just three strategically placed trees can decrease utility bills by 50%. [91]
- The net cooling effect of a healthy tree is equivalent to 10 room-size air conditioners operating 20 hours a day. [15]
- Evergreens serve as windbreaks and in the winter save 10-50% on heating costs. [85]
- A 20-percent tree canopy over a house results in annual cooling savings of 8 to 18% and annual heating savings of 2 to 8%. [13]
- Properly placed trees can reduce cooling costs by 30 percent. Shading an air conditioning unit can increase its efficiency by 10 percent.[68]

- A 25-foot tree reduces annual heating and cooling costs of a typical residence by 8 to 12 %. [15]
- Trees on the west and south sides of houses can reduce summertime electricity use by 185 kWh or 5.2%. [84]
- Street trees in Minneapolis save $6.8 million in energy costs annually. [62]
- In cold climates, a 30% increase in urban tree cover can reduce winter heating bills by 10% in urban areas and by 20% in rural areas. [63]
- Houston's regional urban forest save the city $111.8 million in annual air conditioning costs and $13.9 million in heating costs.[77]
- In CA, if 50 million trees were planted, they would sequester about 4.5 million tons of CO_2 annually, and if planted strategically to provide shade they would reduce air conditioning energy use by 6,408 GWh, equivalent to 1.4 million tons of CO_2. The estimated total CO_2 reduction is the same as would be obtained from retrofitting all CA homes with energy-efficient electric appliances. [64]
- UC San Diego's 200,000 trees help reduce energy use by 12,886 megawatt-hours by consuming solar energy through the process of "evapo-transpiration" and by blocking winter winds. [65]
- The urban forest in Sacramento County, CA, has annual cooling savings of 157 GHw valued at $18.3 million per year, and net effects on heating of 145 TJ is valued at $1.3 million. [67]
- Trees in Chicago are estimated to reduce annual residential energy costs by $360,000 per year.[108]
- 50 million shade trees planted in strategic, energy-saving locations could eliminate the need for seven 100-megawatt power plants. [86]
- Electricity saved annually in Minneapolis from both shading and climate effects of street trees totals 32,921 MWh, for a retail savings of $2.5 million ($12.58 per tree). [36]

Community Benefits

Less Violence and Crime

- Public housing residents with nearby trees and natural landscapes reported 25% fewer acts of domestic aggression and violence.[69]
- There is less graffiti, vandalism, and littering in outdoor spaces with natural landscapes than in comparable plant-less spaces.[70]
- Apartment buildings with high levels of greenery had 52% fewer crimes than those without any trees. Buildings with medium amounts of greenery had 42% fewer crimes.[82]
- Results of a Portland crime study, found that street trees fronting a house reduced 44 crime occurrences. The net effect of all trees was a reduction in 33 crimes.[83]

Improves Neighborhood, Connectivity

- Older adults who have more exposure to green common spaces report a stronger sense of unity among residents within their local neighborhood, and experience a stronger sense of belonging to the neighborhood.[71]
- Researches are finding signs of stronger communities where there are trees. In buildings with trees, people-report significantly better relations with their neighbors. People report a stronger feeling of unity and cohesion with their neighbors; they like where they are living more and they feel safer than residents who have few trees around them.[72]

- Surveys shoe that People feel trees improve communities by making people feel calmer, and improve ones quality of life. [61]

Wildlife and Biodiversity

- Urban forests help create and enhance animal and plant habitats and can act as "reservoirs" for endangered species. Urban forest wildlife offers enjoyment to city dwellers and can serve as indicators of local environmental health.[73]

Canopy Cover Facts

- How much tree cover a city needs depends on local climate. Eastern cities ideally need 40% cover and western cities need 25% canopy cover. [98]
- An estimated 634,400,000 trees are currently missing from metropolitan areas across the United States as the result of urban and suburban development. [100]
- Increased urban canopy cover, leads to reduced ozone concentrations in cities.[106]
- Washington DC:
    - Washington D.C has lost 64% of its urban forest cover between 1973 and 1997 due to disease, development and natural attrition. [95]
    - A 1999, analysis of Washington, DC, showed that overall tree canopy declined from 37% to 21% between 1973 and 1997. The lost tree cover increased stormwater runoff by 34% and would have removed about 354,000 pounds of pollutants. [100]
    - Washington D.C has been working to improve its tree canopy. In 2009 the city's urban tree canopy cover was 35% [101]
- Los Angeles, CA, has 6 million trees with a tree cover of 24.9%..[107]
- Chicago, IL, has about 3,585,000 trees with canopies that cover 17.2% of the city.[108]
- New York City:
    - In 2006 New York City's urban tree canopy (UTC) covered 44,509 acres or 24% of the city. For New York City to meet its goal of 30% UTC by 2030 will require 12,000 acres of additional tree canopy. [111]
    - New York City's canopy cover was still 24% in 2010[112]
    - New York lost 9,000 acres (4.5%) of vegetative cover between 1984-2002. [112]

Tree Canopy Loss

- Between 1985 and 2001 the City of San Antonio, TX, had lost 39% of its heavy tree canopy cover. [114]
- According to Time Magazine in 2007, San Diego lost a quarter of its tree cover; the tree cover in Michigan, North Carolina and Florida has fallen to 27% of what it once was; Chicago and Philadelphia are just 16%. [98]
- Philadelphia lost 200,000 shade trees between 1976 and 2004, according to a 2004 study by forestry consultants [115]
- Indianapolis urban canopy had a 25% net loss of trees between 1962 and 1993.[117]
- In Atlanta, GA, the average tree cover declined from 45% to 29% between 1974 and 1996. This resulted in a 33% increase in stormwater runoff, translating to around 591 million cubic feet of water and a cost of $1.18 billion for stormwater management infrastrucuture.[118]

- Charlotte, NC, lost 49% of tree canopy and 5% of its open space between 1985 and 2008. [119]

U.S. City urban tree canopy cover percentages

- Rockville, MD 44% in 2009 [101]
- New York. NY 24% in 2009 [101]
- Annapolis, MD 41% in 2009 [101]
- Burlington, VT 43% in 2009 [101]
- Providence, RI 23% in 2009 [101]
- Boston, MA 29% in 2008 [102]
- Portland, OR 42% in 1990 [103]
- Chicago, IL 14% in 2008 [104]
- Miami, FL 21% in 2008 [104]
- Seattle, WA 18% in 2008 [104]
- Ann Arbor, MI 33% in 2010 [105]

Tree canopy goal recommendations by geographic area [113]

For metropolitan areas east of the Mississippi and in the Pacific Northwest

- Average tree cover counting all zones 40%
- Suburban residential zones 50%
- Urban residential zones 25%
- Central business districts 15%

For metropolitan areas in the Southwest and dry West

- Average tree cover counting all zones 25%
- Suburban residential zones 35%
- Urban residential zones 18%
- Central business districts 9%

Urban Forest Data from USDA Forest service Urban Forest Canopy data by state

- http://www.nrs.fs.fed.us/data/urban/state/?state=

Percent urban tree canopy cover of urban land for all available states from 2008

- http://www.nrs.fs.fed.us/data/urban/state/viz.asp?var=STUCANPER&state=WV

American Forests Urban Ecosystem Analyses of certain states and cities.

- http://ftp.americanforests.org/resources/urbanforests/analysis.php

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Measuring the Economic Value *of a* City Park System

THE TRUST *for* PUBLIC LAND

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Measuring the Economic Value *of a* City Park System

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Produced under a grant from
The Graham Foundation for Advanced Studies in the Fine Arts, Chicago

The initial research that led to this report was funded by the U.S. Forest Service under an Innovation Grant from the National Urban and Community Forestry Advisory Council and by grants from the Barr Foundation and the Marpat Foundation.

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Introduction

Cities are economic entities. They are made up of structures entwined with open space.

Successful communities have a sufficient number of private homes and commercial and retail establishments to house their inhabitants and give them places to produce and consume goods. Cities also have public buildings—libraries, hospitals, arenas, city halls—for culture, health, and public discourse. They have linear corridors—streets and sidewalks—for transportation. And they have a range of other public spaces—parks, plazas, trails, sometimes natural, sometimes almost fully paved—for recreation, health provision, tourism, sunlight, rainwater retention, air pollution removal, natural beauty, and views.

In successful cities the equation works. Private and public spaces animate each other with the sum greatly surpassing the parts. In unsuccessful communities some aspect of the relationship is awry: production, retail, or transportation may be inadequate; housing may be insufficient; or the public realm might be too small or too uninspiring.

In 2003, The Trust for Public Land's Center for City Park Excellence gathered two dozen park experts and economists in Philadelphia for a colloquium to analyze how park systems economically benefit cities. Based on this conversation and subsequent consultation with other leading economists and academics, the center identified seven attributes of city park systems that provide economic value and are measurable.

Not every aspect of a park system can be quantified. For instance, the mental health value of a walk in the woods is not known, and there is no agreed-upon methodology for valuing the carbon sequestration value of a city park. But seven major factors—*property value, tourism, direct use, health, community cohesion, clean water, and clean air*—have been enumerated. While the science of city park economics is still in its infancy, TPL has worked to carefully consider and analyze these values. Our report sets forth a summary of this methodology.

Two of the factors provide a city with ***direct income*** to its treasury. The first factor is increased property tax from the increase in property value because of proximity to parks. (This is also called "hedonic value" by economists.) The second is increased sales tax on spending by tourists who visit primarily because of the city's parks. (Beyond the tax receipts, these factors also bolster the ***collective wealth*** of residents through property appreciation and tourism revenue.)

Three other factors provide city residents with ***direct savings.*** By far the largest amount stems from residents' use of the city's free parkland and free (or low-cost) recreation opportunities, which saves them from having to purchase these items in the marketplace. The second is the health benefit—savings in medical costs—due to the beneficial aspects of exercise in the parks. And the third is the community cohesion benefit of people banding together to save and improve their neighborhood parks. This "know-your-neighbor" social capital helps ward off antisocial problems that would otherwise cost the city more in police and fire protection, prisons, counseling, and rehabilitation.

The last two factors provide ***environmental savings.*** The larger involves water pollution reduction—the retention of rainfall by the park system's trees, bushes, and soil, thus cutting the cost of treating stormwater. The other concerns air pollution—the fact that park trees and shrubs absorb a variety of air pollutants.

In the following chapters, after describing the value factor and the rationale for calculating it, we provide a real-life example of the mathematical outcome, based on the first five test cases undertaken in this program—the cities of Washington, D.C., San Diego, Boston, Sacramento, and Philadelphia.

Peter Harnik
Director, Center for City Park Excellence
March 2009

Increasing Hedonic (Property) Value

More than 30 studies have shown that parks have a positive impact on nearby residential property values. Other things being equal, most people are willing to pay more for a home close to a nice park. Economists call this phenomenon "hedonic value." (Hedonic value also comes into play with other amenities such as schools, libraries, police stations, and transit stops. Theoretically, commercial office space also exhibits the hedonic principle; unfortunately, no study has yet been carried out to quantify it.)

Hedonic value is affected primarily by two factors: distance from the park and the quality of the park itself. While proximate value ("nearby-ness") can be measured up to 2,000 feet from a large park, most of the value is within the first 500 feet. In the interest of being conservative, we have limited our valuation to this shorter distance. Moreover, people's desire to live near a park depends on characteristics of the park. Beautiful natural resource parks with great trees, trails, meadows, and gardens are markedly valuable. Other parks with excellent recreational facilities are also desirable (although sometimes the greatest property value is a block or two away if there are issues of noise, lights, and parking). Less attractive or poorly maintained parks are only marginally valuable. And parks with frightening or dangerous aspects can reduce nearby property values.

Determining an accurate park-by-park, house-by-house property value for a city is technically feasible but prohibitively time-consuming and costly. Therefore, we formulated a methodology to arrive at a reasonable estimate. Computerized mapping technology known as Geographic Information Systems (GIS) was used to identify all residential properties within 500 feet of every significant park. ("Significant" is defined as one acre or more; "park" includes every park in the city, even if owned by a county, state, federal, or other public agency.)

Coleen Gentles

Meridian Hill Park in Washington, D.C. provides extra value to the thousands of dwelling units surrounding it, and to the city itself through higher property tax receipts.

Unfortunately, because of data and methodology problems, it is difficult to determine exactly which of a city's parks confer "strongly positive," "slightly positive," and "negative" value to surrounding residences. Research into quantifying park quality continues; in the interim we have chosen to assign the conservative value of 5 percent as the amount that parkland adds to the assessed value of all dwellings within 500 feet of parks. (The preponderance of studies has revealed that excellent parks tend to add 15 percent to the value of a proximate dwelling; on the other hand, problematic parks can subtract 5 percent of home value. Taking an average of this range yields the 5 percent value that will be used until a park quality methodology can be established.)

Once determined, the total assessed value of properties near parks is multiplied by 5 percent and then by the tax rate, yielding the increase in tax dollars attributable to park proximity.

PARK VALUE IN ACTION

Increasing Property Values in Washington, D.C.

The most famous park in Washington, D.C. may be the National Mall with its museums and government agencies, but it is the many other parks—from huge Rock Creek Park to tiny Logan Circle, the ones surrounded by homes—that provide the city with the greatest property value benefit.

The city's abundance of green has placed much of Washington's real estate either directly abutting or within a stone's throw of a park. This makes it convenient for the capital's denizens to toss a ball around, enjoy a picnic, or just get a pleasurable view. The city's coffers are also reaping the benefits.

Getting to this number is fairly straightforward. Using GIS in combination with the city's assessment data, we find that the value of all residential properties (apartments, condominiums, row houses, and detached homes) within 500 feet of a park is almost $24 billion (in 2006 dollars). Using an average park value benefit of 5 percent, we see that the total amount that parks increased property value is just under $1.2 billion. Using the effective annual tax rate of 0.58 percent, we find that Washington reaped an additional $6,953,377 in property tax because of parks in 2006.

The Hedonic (Property) Value of Washington, D.C.'s Parks	
Value of properties within 500 feet of parks	$23,977,160,000
Assumed average value of a park	5%
Value of properties attributed to parks	**$1,198,858,025**
Effective annual residential tax rate	0.58%
Annual property tax capture from value of property due to parks	**$6,953,377**
Property values were obtained from the District of Columbia	

Income from Out-of-Town Park Visitor Spending (Tourists)

Though not always recognized, parks play a major role in a city's tourism economy. Some such as Independence National Historic Park in Philadelphia, Central Park in New York, Millennium Park in Chicago, or Balboa Park in San Diego are tourist attractions by themselves. Others are simply great venues for festivals, sports events, even demonstrations. Read any newspaper's travel section and you'll usually see at least one park among the "to see" picks.

Calculating parks' contribution requires knowing the number of park tourists and their spending. Unfortunately, most cities have little data on park visitation or visitor origin. (By definition, local users are not tourists—any spending they do at or near the park is money not spent locally somewhere else, such as in their immediate neighborhood.) Sometimes there are tourism numbers for one particularly significant park, but it is not possible to apply these numbers to the rest of the city's parks. To get around these missing data, visitation numbers and expenditures from other sources must be obtained and then used to make an educated guess about trips that are taken entirely or substantially because of parks or a park.

First, we estimate the number of park tourists. Then we reduce this to an estimate of the number of park tourists who came *because* of the parks. After dividing that number into day visitors (who spend less) and overnighters (who spend more), we multiply these numbers by the average spending per tourist per day (a figure that is usually well known by the local convention and visitors bureau). Finally, tax revenue to the city can be estimated by multiplying park tourism spending by the tax rate.

Jon Sullivan (www.pdphoto.org)

Beautiful Balboa Park—with its zoo, botanical gardens, numerous museums, sports fields, and public events—is the single biggest tourist attraction in San Diego.

PARK VALUE IN ACTION

Stimulating Tourism in San Diego

A visit to San Diego is not complete if it doesn't include a park—whether that's a beach, a harbor park, Old Town State Park, Mission Bay, or 1,200-acre Balboa Park. In fact, when the *New York Times* featured San Diego in its "36 Hours" travel series, it mentioned all of the above places. The role of parks in the city's tourism economy is huge.

Spending by Tourists Who Came Because of Parks, San Diego, 2006	
Overnight Visitors	
Overnight visitors to San Diego	16,050,000
Overnight visitors who visited parks (20%*)	3,210,000
Estimated 26%* who visited *because* of parks	834,600
Spending per overnight visitor per day	$107
Spending of overnight visitors because of parks	**$87,302,200**
Day Visitors	
Overnight visitors to San Diego	11,874,000
Overnight visitors who visited parks (20%)	2,374,800
Estimated 22% who visited because of parks	522,456
Spending per day visitor per day	$48
Spending of day visitors because of parks	**$25,077,888**
Total Spending (overnight and day visitors)	**$114,380,088**
Sales, meal, and hotel taxes (7.5% average) on park tourist spending	**$8,578,507**
Net profit (35% of tourist spending)	**$40,033,031**
*San Diego Convention and Visitors Bureau and California Travel and Tourism Commission, 2006.	

According to data from the San Diego Convention and Visitors Bureau (CVB), the California Travel and Tourism Commission, and a telephone survey by the Morey Group, an estimated 20 percent of tourists visited a park while in San Diego in 2007. The phone survey further revealed that 22 percent of San Diego park visitors came *because* of the parks. (Using this methodology assures that the count did not include the many tourists who came to San Diego for other reasons and happened to visit a park without planning to do so.) The conclusion was that just under 5 percent of San Diego tourism in 2007 was due to the city's parks—835,000 overnighters and 522,000 day visitors.

Knowing the average daily spending level of those tourists—$107 per overnight visitor and $48 per day visitor—we determined that total park-derived tourist spending in 2007 came to $114.3 million. With an average tax rate on tourist expenditures of 7.5 percent, tax revenue to the city was $8,579,000. In addition, since economists consider that an average of 35 percent of every tourist dollar is profit to the local economy (the rest is the pass-through cost of doing business), the citizenry's collective increase in wealth from park-based tourism was $40,033,000.

Direct Use Value

While city parks provide much indirect benefit, they also provide huge tangible value through such activities as team sports, bicycling, skateboarding, walking, picnicking, benchsitting, and visiting a flower garden. Economists call these activities "direct uses."

Most direct uses in city parks are free of charge, but economists can still calculate value by knowing the cost of a similar recreation experience in the private marketplace. This is known as "willingness to pay." In other words, if parks were not available in a city, how much would the resident (or "consumer") pay in a commercial facility? (Thus, rather than income, this value represents *savings* by residents.)

The model used to quantify the benefits received by direct users is based on the "Unit Day Value" method developed by the U.S. Army Corps of Engineers. Park visitors are counted by specific activity, with each activity assigned a dollar value by economists familiar with prices in the private martketplace. For example, playing in a playground is worth $3.50. Running, walking, or in-line skating on a park trail is worth $4, as is playing a game of tennis on a city court. For activities for which a fee is charged, like golf or ice skating, only the "extra value" (if any) is assigned; that is, if a round of golf costs $20 on a public course and $80 on a private course, the direct use value of the public course would be $60. Under the theory that the second and third repetitions of a park use in a given period are slightly less valuable than the first (i.e., the child visiting a playground gets somewhat less value the seventh time in a week than the first), we modified the model with diminishing returns for heavy park users. (For example, playground value diminishes from $3.50 for the first time in a week to $1.93 for the seventh.) We also estimated an average "season" for different park uses to take into account reduced participation rates in the off-season. (Although some people are active in parks 365 days a year, we conservatively eliminated seasons when participation rates drop to low levels.) Finally, for the few activities for which a fee is charged, such as golf, ice skating, and the use of fields for team sports, we subtracted the per-person fee from the assumed value.

The number of park visits and the activities engaged in is determined through a professionally conducted telephone survey of city residents. Residents are asked to answer for themselves; for those adults

Boston Parks and Recreation Department

The Frog Pond in the Boston Common is but one of the numerous park facilities that provide Bostonians with hundreds of millions of dollars of direct use value.

with children under the age of 18, a representative proportion are also asked to respond for one of their children. (Nonresidents are not counted in this calculation; their value is measured through out-of-town tourist spending.)

While some might claim that direct use value is not as "real" as tax or tourism revenue, it nevertheless has true meaning. Certainly, not all park activities would take place if they had to be purchased. On the other hand, city dwellers do get pleasure and satisfaction from their use of the parks. If they had to pay and if they consequently reduced some of this use, they would be materially "poorer" from not doing some of the things they enjoy.

PARK VALUE IN ACTION

Providing Direct Use Value in Boston

When Frederick Law Olmsted designed the park system of Boston, he envisioned a series of places of respite accessible to all. No need to pay for a trip out to the countryside—the park system could provide that—and more—right near home. Today that vision lives on in Boston's 5,040 acres of parks and the pastimes these parks offer: jogging down the Commonwealth Avenue median and into Boston Common, spending a morning at the playground, watching a tennis match, birdwatching across 1,765 natural acres, attending a summer festival, enjoying lunch in Post Office Square, walking the trails of 527-acre Franklin Park, admiring the flowers of the Public Garden, or taking in movie night in Jamaica Pond Park.

These and many more "direct uses" were measured in a telephone survey of Boston residents and were then multiplied by a specific dollar value for each activity. Based on the level of use and those values, it was found that in 2006 Boston's park and recreation system provided a total of $354,352,000 in direct use value.

Shared Benefits: The Economic Value of Direct Use of Parks in Boston, 2006

Facility/Activity	Person-Visits	Average Value per Visit	Value ($)
General park use (playgrounds, trails, dog walking, picnicking, sitting, etc.)	76,410,237	$1.91	$146,230,236
Sports facilities use (tennis, team sports, bicycling, swimming, running, ice skating, etc.)	48,407,572	$3.05	$147,812,453
Special uses (golfing, gardening, festivals, concerts, attractions, etc.)	6,467,113	$9.33	$60,309,713
Totals	**131,284,922**		**$354,352,402**

Data were drawn from a telephone survey of 600 Boston residents.

Health Value

Several studies have documented the economic burden of physical inactivity. Lack of exercise is shown to contribute to obesity and its many effects, and experts call for a more active lifestyle. Recent research suggests that access to parks can help people increase their level of physical activity. The Parks Health Benefits Calculator measures residents' collective economic savings through the use of parks for exercise.

After identifying the common types of medical problems that are inversely related to physical activity, such as heart disease and diabetes, we created the calculator based on studies in seven different states that show a $250 cost difference between those who exercise regularly and those who don't. For people over the age of 65, the value is $500 because seniors typically incur two or more times the medical care costs of younger adults.

The key data input is the number of park users who indulge in a sufficient amount of physical activity to make a difference. (This is defined as "at least 30 minutes of moderate to vigorous activity at least three days per week.") To determine this number, we took a telephone park use survey of activities and age and eliminated low-heart-rate uses such as picnicking, sitting, strolling, and birdwatching. We also eliminated respondents who engage in strenuous activities but do so less than three times per week because they are not active enough for health benefit.

After obtaining the number (and age) of city dwellers engaged in strenuous park activities, we applied the multipliers (by age) and added the subtotals. The calculator makes one final computation, applying a small multiplier to reflect the differences in medical care costs between the city's region and the United States as a whole.

Sacramento Department of Parks and Recreation

With or without a stroller, a regular vigorous run can cut medical costs by an average of $250 a year. McKinley Park, Sacramento.

PARK VALUE IN ACTION

Promoting Human Health in Sacramento

Sacramento has 5,141 acres of parks that provide a multitude of ways to stay healthy. The city has 43 tennis courts, 101 baseball diamonds, 116 basketball hoops, 171 playgrounds, 78 soccer fields, 7 skate parks, 12 swimming pools, over 80 miles of trails, and many more facilities.

Using the Parks Health Benefits Calculator, we determined the medical savings realized by city residents because of park exercise and found that about 78,000 Sacramentans engage actively enough in parks to improve their health—72,000 of them under the age of 65 and about 6,000 older. Using the estimated dollar value attributable to those activities, we calculated the savings in 2007, which came to $19,872,000.

Health Care Savings: Physically Active Users of Sacramento Parks, 2007

Cost Description	Residents Physically Active in Parks*	Average Medical Cost Difference Between Active and Inactive Persons	Amount
Adult users under 65 years of age	71,563	$250	$17,890,750
Adult users 65 years of age and older	6,054	$500	$3,027,000
Subtotals combined	77,617	——	$20,917,750
Regional cost multiplier (based on statewide medical costs)			0.95
Total Value			**$19,871,863**

*People engaging in moderate, vigorous, or strenuous activity at least half an hour, three days per week

Community Cohesion

Numerous studies have shown that the more webs of human relationships a neighborhood has, the stronger, safer, and more successful it is. Any institution that promotes this kind of community cohesion—whether a club, a school, a political campaign, a religious institution, a co-op—adds value to a neighborhood and, by extension, to the whole city.

This human web, which Jane Jacobs termed "social capital," is strengthened in some cities by parks. From playgrounds to sports fields to park benches to chessboards to swimming pools to ice skating rinks to flower gardens, parks offer opportunities for people of all ages to interact, communicate, compete, learn, and grow. Perhaps more significantly, the acts of improving, renewing, or even saving a park can build extraordinary levels of social capital. This is particularly true in a neighborhood suffering from alienation partially due to the lack of safe public spaces.

While the economic value of social capital cannot be measured directly, it is instructive to tally the amount of time and money that residents devote to their parks. This can serve as a proxy. In cities with a great amount of social capital, park volunteers do everything from picking up trash and pulling weeds to planting flowers, raising playgrounds, teaching about the environment, educating public officials, and contributing dollars to the cause.

To arrive at the number, all the financial contributions made to "friends of parks" groups and park-oriented community organizations and park agencies are tallied. Also added up, through contacting each organization, are the hours of volunteer time donated to park organizations. This number is then multiplied by the value assigned to volunteerism by the national organization Independent Sector. (This value varies by year and by state.)

Philadelphia Department of Parks and Recreation

With more than 100 "friends of parks" groups, Philadelphia has few peers when it comes to park-based social capital.

PARK VALUE IN ACTION

Stimulating Community Cohesion in Philadelphia

Philadelphia parks have support galore. In fact, there are more than 100 "friends of parks" organizations. Two of them, the Philadelphia Parks Alliance and Philadelphia Green, operate on a citywide basis; the rest deal with individual parks.

This impressive web of formal and informal action greatly boosts the civic life of the city, and it is measurable economically. Using the "community cohesion" methodology, we tallied the financial contributions made to all these groups in 2007. Then we added up the total volunteer hours donated to parks and converted them to a dollar figure (at $18.17 per hour, the latest figure available for the state of Pennsylvania). Combining the two yielded a 2007 community cohesion value of $8,600,000.

Community Cohesion Value: Park Supporters in Philadelphia

Organization or Activity	Volunteer Hours	Value of Volunteer Hours*	Financial Contributions	Total
Fairmount Park Volunteers (54 friends groups)	154,209	$2,894,503	$3,318,713	$6,213,216
Independence National Historical Park	10,390	$195,017	——	$195,017
Pennsylvania Horticultural Society (52 friends groups)	65,052	$1,221,026	$694,680	$1,915,706
Other support groups, combined	452	$8,485	$267,961	$276,446
Total Value		**$4,319,031**	**$4,281,354**	**$8,600,385**

*Value of one hour of volunteer labor in Pennsylvania as determined by Independent Sector, 2005: $18.77.

Reducing the Cost of Managing Urban Stormwater

Stormwater runoff is a significant problem in urban areas. When rainwater flows off roads, sidewalks, and other impervious surfaces, it picks up pollutants. In some cases (cities with sewer systems that separate household sewage from street runoff), the polluted rainwater flows directly into waterways, causing significant ecological problems. In other cases (cities with combined household and street systems), the rainwater is treated at a pollution control facility, but larger storms dump so much water that the system is designed to overflow when capacity is exceeded, resulting in spillage of both rainwater and household sewage.

Parkland reduces stormwater management costs by capturing precipitation and/or slowing its runoff. Large pervious (absorbent) surface areas in parks allow precipitation to infiltrate and recharge the groundwater. Also, vegetation in parks provides considerable surface area that intercepts and stores rainwater, allowing some to evaporate before it ever reaches the ground. Thus urban green spaces function like ministorage reservoirs.

The Western Research Station of the U.S. Forest Service in Davis, California, developed a model to estimate the value of retained stormwater runoff due to green space in parks. First, land cover data are obtained through analysis of aerial photographs. This reveals forested as well as open grassy areas and also water surface; it also reveals impervious surfaces in parks—roadways, trails, parking lots, buildings, and hard courts.

Philadelphia Department of Parks and Recreation

With a wide vegetative buffer to catch runoff, Pennypack Park helps reduce Philadelphia's stormwater management costs.

Second, the same photographs are then analyzed for the amount of perviousness of the *rest* of a city—in other words, the city without its parkland and not counting surface water. (Pervious land in the city can consist of residential front and back yards as well as private natural areas such as cemeteries, university quadrangles, and corporate campuses.)

Third, the amount and characteristics of rainfall are calculated from U.S. weather data. The model (which combines aspects of two other models developed by researchers with the U.S. Forest Service) uses hourly annual precipitation data to estimate annual runoff. By comparing the modeled runoff (with parks) and the runoff that would occur from a city the same size and level of development (i.e., with streets, rooftops, parking lots, etc. but without any parks), we can calculate the reduction in runoff due to parks.

The final step involves finding what it costs to manage each gallon of stormwater using traditional methods (i.e., "hard infrastructure" such as concrete pipes and holding tanks rather than parkland). By knowing this number and the amount of water held back by the park system, we can assign an economic value to the parks' water pollution reduction.

PARK VALUE IN ACTION

Cutting Stormwater Costs in Philadelphia

Philadelphia's 10,334-acre park system is one of the oldest in the country, and it provides more than seven acres of parkland for every 1,000 residents. About 12 percent of the city is devoted to parkland, and the water retention value of the trees, grass, riparian corridors, and plants significantly reduce the amount (and cost) of runoff entering the city's sewer system.

Philadelphia's parkland is 81.3 percent pervious. The rest of the city is 34.9 percent pervious. Philadelphia receives an average of 43.29 inches of rain per year (with the characteristic mid-Atlantic mix of drizzles, showers, and downpours). The model developed by the Forest Service shows that Philadelphia's parks reduced runoff in 2007 by 496 million cubic feet compared with a scenario in which the city had no parks. It is estimated that Philadelphia stormwater management cost is 1.2 cents ($0.012) per cubic foot.

Thus, the park system provided a stormwater retention value of $5,949,000 in 2007.

Stormwater Costs in Philadelphia per Cubic Foot	
Rainfall on impervious surface	8,667,269,456 cu. ft.
Annual expenditure on water treatment	$100,000,000
Cost per cubic foot	**$0.012**

Cost Savings Due to Runoff Reduction: Philadelphia's Parks	
Results for Typical Year – 43.29 inches of rainfall	**Cubic Feet**
Annual rainfall over Entire City of Philadelphia	1,623,928,386
Amount of actual runoff from parks (81.3% perviousness)	168,480,901
Runoff if parks didn't exist and if that acreage were of the same permeability as rest of city (34.9% perviousness)	664,198,620
Reduction in runoff due to parkland's perviousness	495,717,719
Estimated stormwater costs per cubic foot	$0.012
Total savings due to park runoff reduction	**$5,948,613**

Removal of Air Pollution by Vegetation

Air pollution is a significant and expensive urban problem, injuring health and damaging structures. The human cardiovascular and respiratory systems are affected, and there are broad consequences for health-care costs and productivity. In addition, acid deposition, smog, and ozone increase the need to clean and repair buildings and other costly infrastructure.

Trees and shrubs remove air pollutants such as nitrogen dioxide, sulfur dioxide, carbon monoxide, ozone, and some particulates. Leaves absorb gases, and particulates adhere to the plant surface, at least temporarily. Thus, vegetation in city parks plays a role in improving air quality and reducing pollution costs.

In order to quantify the contribution of park vegetation to air quality, the Northeast Research Station of the U.S. Forest Service in Syracuse, New York, designed an air pollution calculator to estimate pollution removal and value for urban trees. This calculator, which is based on the Urban Forest Effects (UFORE) model of the U.S. Forest Service, is location-specific, taking into account the air pollution characteristics of a given city. (Thus, even if two cities have similar forest characteristics, the park systems could still generate different results because of differences in ambient air quality.)

First, land cover information for all of a city's parks is obtained through analysis of aerial photography. (While every city has street trees and numerous other trees on private property, only the trees on public parkland are measured.)

Then the calculator determines the pollutant flow through an area within a given time period (known as "pollutant flux"), taking into account concentration and velocity of deposition. The calculator also takes into account characteristics of different types of trees and other vegetation and seasonal leaf variation.

National Park Service

Washington, D.C.'s Rock Creek Park has more than 1,500 acres of trees that trap and absorb pollutants from the city's air.

The calculator uses hourly pollution concentration data from the U.S. Environmental Protection Agency. The total pollutant flux is multiplied by tree-canopy coverage to estimate pollutant removal. The monetary value is estimated using the median U.S. externality value for each pollutant. (The "externality value" refers to the amount it would otherwise cost to prevent a unit of that pollutant from entering the atmosphere. For instance, the externality value of a short ton of carbon monoxide is $870; the externality value of the same amount of sulfur dioxide is $1,500.)

PARK VALUE IN ACTION

Cutting Air Pollution Costs in Washington, D.C.

The trees of Washington, D.C., are the city's lungs, inhaling and exhaling the air flowing around them.

Beyond the famous Japanese cherry trees around the Tidal Basin, the stately elms gracing the Reflecting Pool, and massive oaks of Lafayette Park, there are 4,839 acres of general tree cover in the city's 7,999 acres of parkland. Their aesthetic value is not countable, but the value of the air pollution they extract is. The Air Quality Calculator determined that they removed 244 tons of carbon dioxide, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide in 2005. Based on the dollar values assigned to these pollutants, the savings was $1,130,000.

Air Pollution Removal Value of Washington D.C.'s Parks, 2005

Pollutant Type	Tons of Pollutant Removed*	Dollars Saved per Ton Removed	Total Pollutant Removal Value
Carbon dioxide	10.4	$870	$9,089
Nitrogen dioxide	43.7	$6,127	$267,572
Ozone	83.7	$6,127	$512,771
Particular matter	70.3	$4,091	$287,709
Sulfur dioxide	35.5	$1,500	$53,246
Total	**243.6**	——	**$19,871,863**

*Based on the city's 60.5% tree cover (4,839 acres) of 7,999 acres total parkland.

Conclusion

While reams of urban research have been carried out on the economics of housing, manufacturing, retail, and even the arts, there has been until now no comprehensive study of the worth of a city's park system. The Trust for Public Land believes that answering this question—"How much value does an excellent city park system bring to a city?"—can be profoundly helpful to all the nation's urban areas. For the first time, parks can be assigned the kind of numerical underpinning long associated with transportation, trade, housing, and other sectors. Urban analysts will be able to obtain a major piece of missing information about how cities work and how parks fit into the equation. Housing proponents and others may be able to find a new ally in city park advocates. And mayors, city councils, and chambers of commerce may uncover solid justification to strategically acquire parkland in balance with community development projects.

Determining the economic value of a city park system is a science still in its infancy. Much research and analysis lie ahead. And cities themselves, perhaps in conjunction with universities, can help greatly by collecting more specific data about park usership, park tourism, adjacent property transactions, water runoff and retention, and other measures. In fact, every aspect of city parks—from design to management to programming to funding to marketing—would benefit from deeper analysis. In that spirit this report is offered: for the conversation about the present and future role of parks within the life and economy of American cities.

Appendix 1
Acknowledgments

The report was funded through a grant from The Graham Foundation for Advanced Studies in the Fine Arts. Major consultation on the underlying economic formulas for this study was provided by:

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Appendix 2
Colloquium Participants

The following individuals took part in the colloquium "How Much Value Does a Park System Bring to a City" in Philadelphia in October 2003.

Susan Baird	Denver Department of Parks and Recreation	Denver
Kathy Blaha	The Trust for Public Land	Washington, D.C.
Blaine Bonham	Pennsylvania Horticultural Society	Philadelphia
Glenn Brill	Ernst & Young	New York
Valerie Burns	Boston Natural Areas Network	Boston
Patrice Carroll	Philadelphia Managing Director's Office	Philadelphia
Donald Colvin	Indianapolis Department of Parks and Recreation	Indianapolis
Ernest Cook	The Trust for Public Land	Boston
John Crompton	Texas A&M University	College Station, Texas
Dick Dadey	City Parks Alliance	New York
Nancy Goldenberg	Philadelphia Center City Partners	Philadelphia
Peter Harnik	The Trust for Public Land	Washington, D.C.
Nancy Kafka	The Trust for Public Land	Boston
Alastair McFarlane	U.S. Dept of Housing and Urban Development	Washington, D.C.
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Susan Wachter	University of Pennsylvania	Philadelphia
Guijing Wang	Centers for Disease Control	Atlanta
Richard Weisskoff	Everglades Economics Group	North Miami
Wayne Weston	Mecklenburg Parks and Recreation Department	Charlotte, North Carolina
Jennifer Wolch	University of Southern California	Los Angeles
Kathleen Wolf	University of Washington	Seattle
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Appendix 3
Resources Related to the Economic Value of Parks

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Piedmont Park Conservancy: North Woods Expansion ArborScout Tree Inventory

Assessing Effects and Values of Urban Trees

Sustainability Initiative
ArborScout Analysis

Solutions Naturally
Arborguard Tree Specialists

PIEDMONT PARK CONSERVANCY

Submitted by: Arborguard
January 2010

Solutions Naturally
Arborguard Tree Specialists

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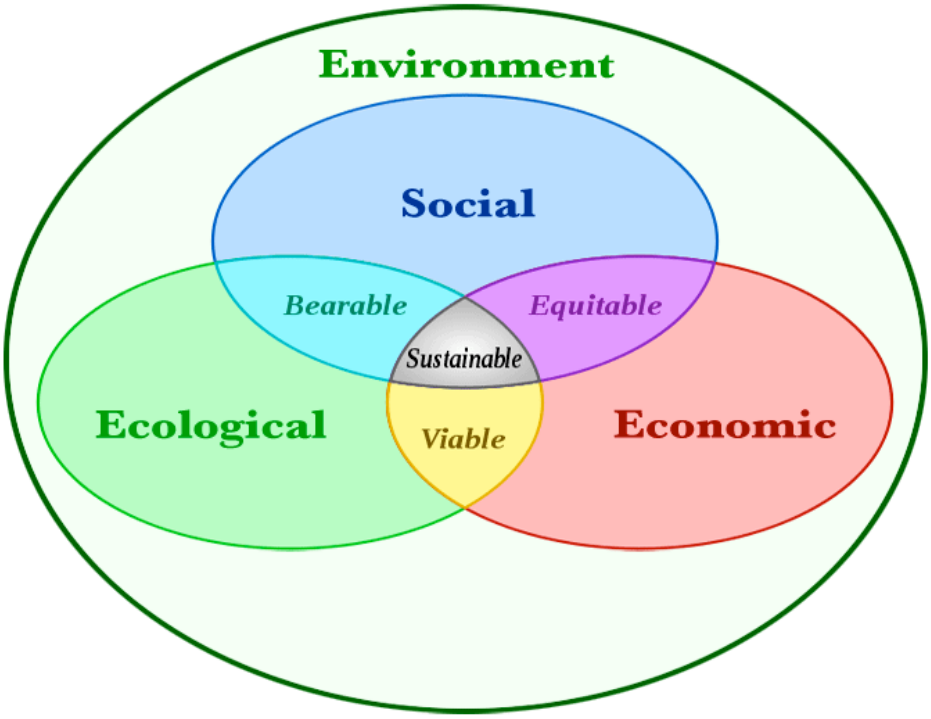
Introduction:

The world is becoming increasingly aware that our actions have a profound impact on the environment. The decisions we make on how we use energy, travel, eat, live, work and play take their toll on the natural world. As our cities grow larger and our populations continue to increase at exponential rates, our needs for environmental resources grow with them. The question is becoming clear: How do we meet the needs of the present, without compromising our future? The answer is sustainability: practices that fit the needs of our society without harming future generations.



Preserving Green Space is a vital part of sustainability. Green Space is unique in that it can provide numerous benefits (social, economic and ecological) to a community like Atlanta. Piedmont Park Conservancy's North Woods Expansion is a project that will demonstrate to the public the incredible value that Green Space provides.

A tree inventory was conducted over the 53 acre Piedmont Park Conservancy North Woods Expansion (the North Woods) to show what role the trees play in enhancing the North Woods' economic, social and environmental benefits.

There were 1,824 trees surveyed in the North Woods. This inventory was performed using GIS and GPS technology. Understory trees, those between 3 and 5 inches in diameter at breast height, were tallied but not recorded within the GPS. The trees were measured, given a detailed health assessment, and checked for maintenance needs. Those values were then used to calculate the environmental benefits those trees provide. The following information was found:

Piedmont Park Conservancy's North Woods Expansion Urban Forest Summary	
Feature	Measure
Number of Trees	1,824
Most common Species	Tulip-poplar, Hickory, Boxelder
Pollution removal	1,308lbs/year
Carbon Storage	600.7 tons
Carbon Sequestration	21.9 tons/year
Replacement Value	$30,984,745

The most common tree species are Tulip-poplar, Hickory and Boxelder. The trees in the North Woods store 600.7 tons of carbon and sequester 21.9 tons of carbon per year. The trees remove 1,308 pounds of pollution a year from the air. The trees have a compensatory value of $30,984,745.

This report is intended to be used as a tool to promote the importance of Green Space and the value that the trees in the North Woods add to the Park and the Atlanta community.

Carbon sequestration is a measure of how much carbon a tree takes in every year to create new tissue. Carbon storage is a measure of the total amount of carbon held in the tree. You can think of carbon sequestration as an annual value that is subject to change each year and carbon storage as the total amount taken in during the life of the tree.

The carbon removal for the North Wood's trees can also be viewed in terms of car emissions and single family home emissions.

- An average car emits one pound of carbon for every mile driven, and the average Atlanta commuter drives 40 miles to and from work every day. Thus, the average commuter puts out 40 pounds of carbon a day.

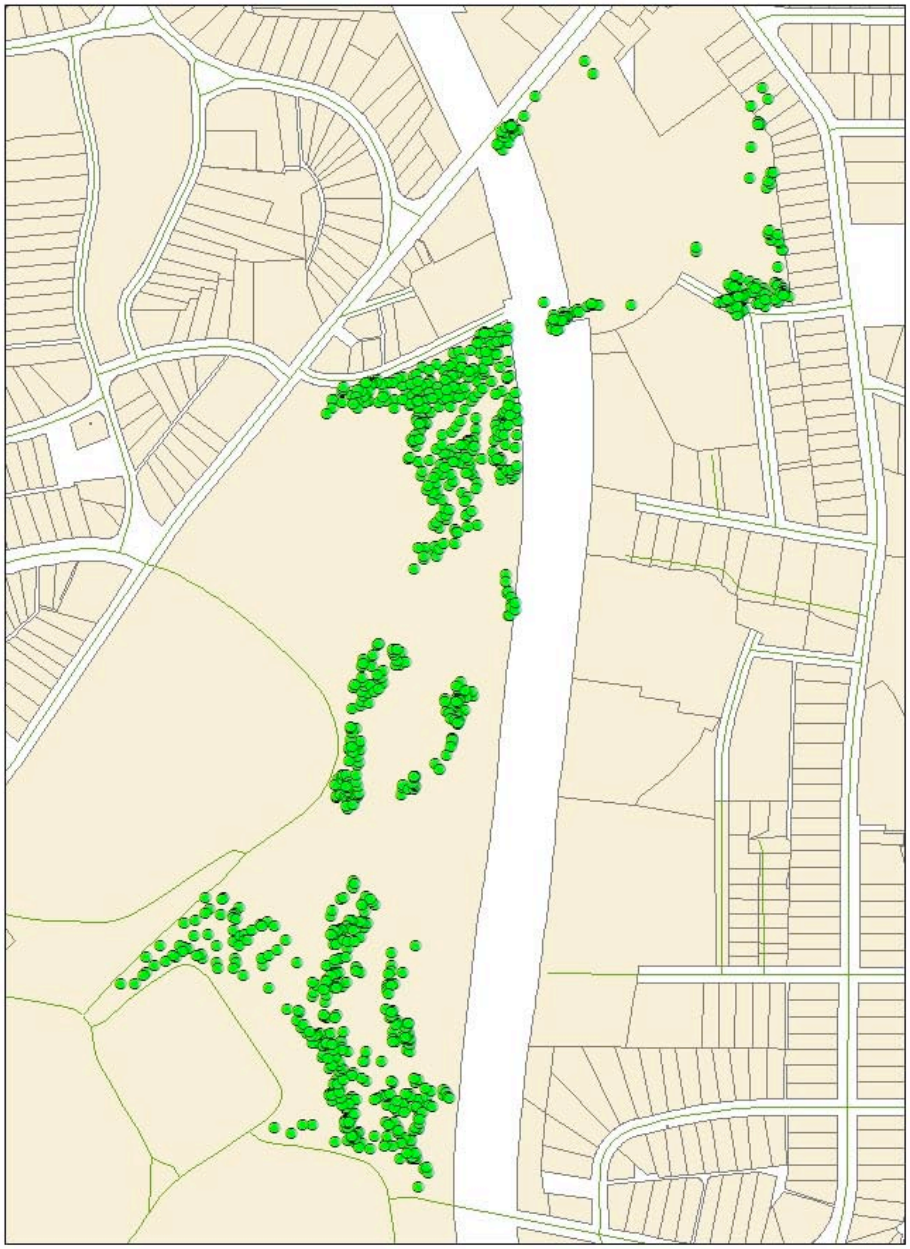
- **The total amount of carbon stored in the tissue of the North Wood's trees is the equivalent of 82 cars emissions for a year.** The North Wood's trees sequester the equivalent of one car's carbon emissions for 3 years.

- Or to look at it another way, **the trees' carbon storage is the equivalent of 70 single family homes for one year**. The North Wood's trees sequester the equivalent of a single family home's emissions for 2.5 years.

- It is important to remember carbon sequestration is greater for large healthy trees. However, trees with dead limbs and decaying wood material emit carbon into the atmosphere as the wood decays.

- Regular tree maintenance will enhance the carbon removal and make sure that the North Wood's trees continue to improve Atlanta's air quality.

Map of the Area



Methods

The inventory is a compilation of information gathered from the trees in the Piedmont Park Expansion. All trees 6" in diameter and above were identified and located by GPS with the following data parameters recorded for each tree. All trees 3-5" in diameter were tallied but not recorded by GPS.

Term	Description
Tree No.	All trees were tagged on the side of the trunk with an aluminum tag, bearing a unique number to identify trees, at approximately 4.5 feet.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Location	A description of the tree's physical location: between sidewalk and curb, behind curb no sidewalk, behind sidewalk within streetscape impact zone, planting pit in sidewalk, container or raised bed, park.
Site Conflicts	Any other structures that interfere with the tree or any way the tree interferes with other structures: curb/wall, building/structure, low limbs, visibility, signs/traffic control, utility lines, underground utility, other trees.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death. Dead ..... Tree is dead.
Root Health	The overall health of the root system is assessed and given a rating from Good to Poor.
Root-Structure	The overall structure of the tree's root system is assessed and give a rating from Good to Poor.

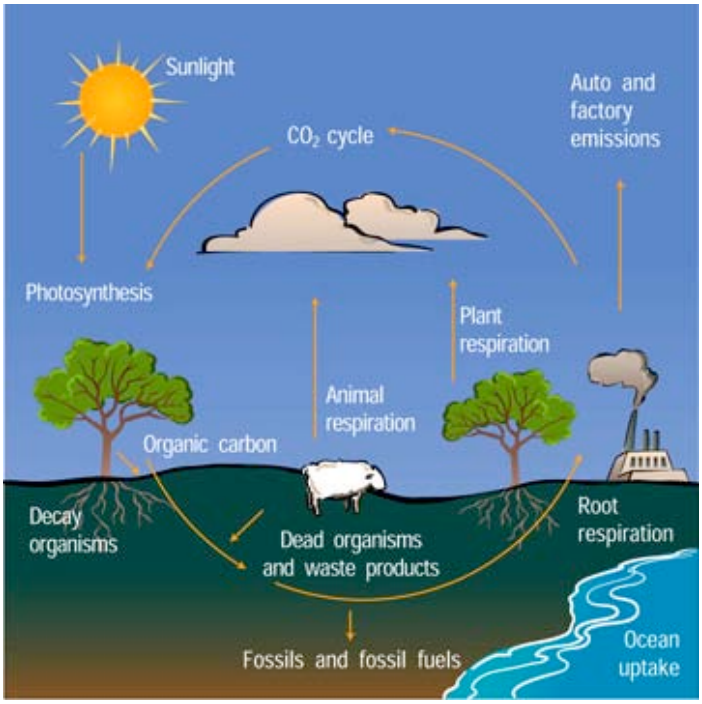
Trunk Health	The overall health of the trunk of the tree is assessed and given a rating from Good to Poor.
Scaffold Branches	The major scaffold branches of the tree are assessed and given a rating from Good to Poor.
Small Branches/Twigs	The smaller branches and twigs of the tree are assessed and given a rating from Good to Poor.
Foliage/Buds	The trees foliage and terminal buds are assessed and give a rating from Good to Poor.
Structural Defects	Any problems that the tree has structurally such as: decay-root, decay-trunk, weak stem union, lean, cavity-trunk, cavity-scaffolds, wound-roots, wound-trunk, wound-aerial.
Defect Location	Where a defect is located on the tree.
Maintenance Recommendations	Any maintenance needed.
Maintenance Priority	Urgency of the required maintenance rated from 1 (highest priority) to 3 (lowest priority).
Land Use	Code for how the area was used. (Commercial/industrial)
Total Tree Height	The total height of the tree.
Height-live Top	The height of the tree up to the furthest living bud.
Height-Crown Base	The height up to the base of the canopy.
Crown Width E-W	The width of the tree's canopy measured east to west.
Crown Width N-S	The width of the tree's canopy measured north to south.
% Canopy Missing	Percent of the crown volume that is not occupied by leaves.
% Dieback	Percent crown dieback in crown area.
Comments	Any other additional notes about the tree that were not adequately covered in the other fields.

Results:

Once the raw data was collected in the field, it was broken down and analyzed. The data from this survey is shown in Appendix B of this report. The following information has been taken from the data and summarized where relevant. This is intended to provide a snapshot of the North Woods and the benefits which it provides.

All plants use photosynthesis to grow. Through photosynthesis, they take in carbon dioxide and release oxygen back into the atmosphere. Human activity has greatly increased the amount of carbon in our atmosphere, and plants are an important way of removing that carbon and replacing it with the oxygen we all need to breathe.

Due to their size, trees have a much greater impact carbon removal than almost anything else. Different species have different growth rates, and larger trees sequester more carbon than smaller trees due to their size. However, declining tree health and tree removal can decrease the carbon sequestration of an urban forest. Thus, species, health and size directly relate to the amount of carbon that is removed from the atmosphere.



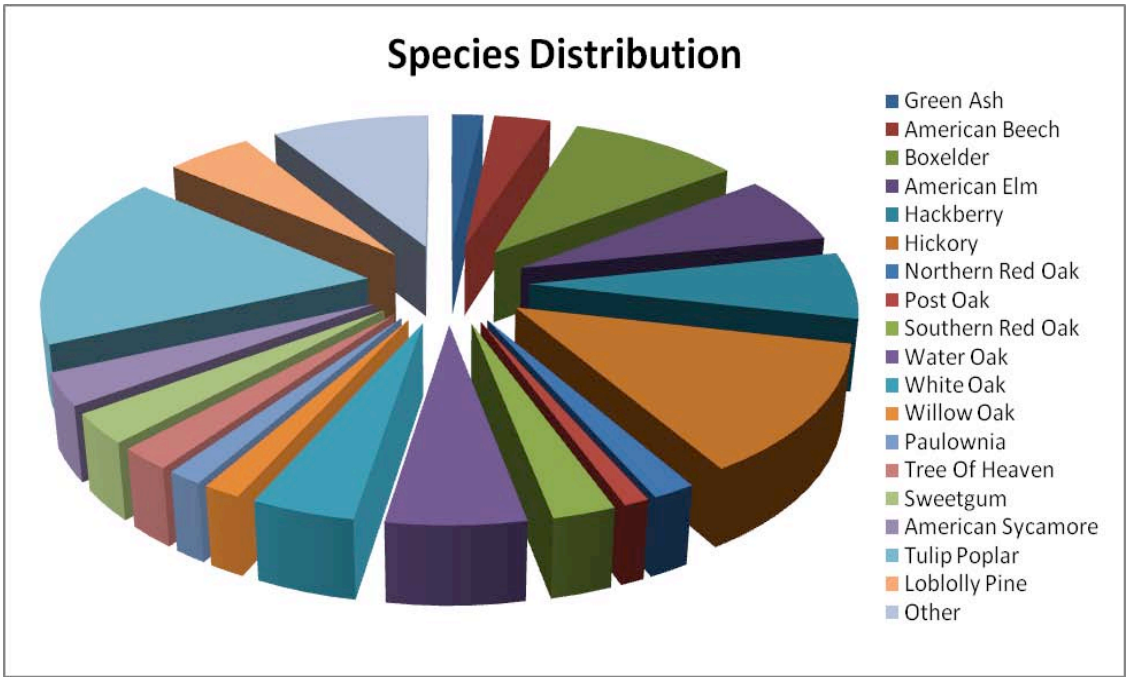
The Carbon Cycle

Species Distribution

There are 36 different species of tree inventoried within the project area. The predominant species with the percentage of total population that they represent are as follows:

Species	Percent
Green Ash	1.8
American Beech	3.3
Boxelder	9.9
American Elm	6.8
Hackberry	6.7
Hickory	12.9
Northern Red Oak	1.8
Post Oak	1.1
Southern Red Oak	2.7

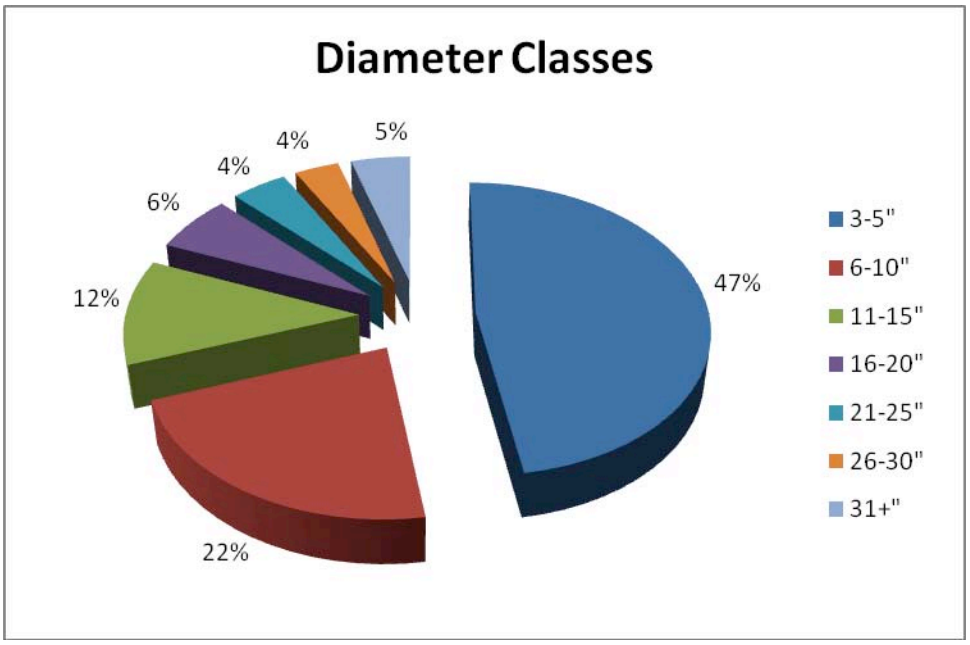
Species	Percent
Water Oak	5.9
White Oak	4.4
Willow Oak	1.6
Paulownia	1.5
Tree of Heaven	2.2
Sweetgum	3.0
American Sycamore	3.2
Tulip-poplar	17.3
Loblolly Pine	5.0
Other Hardwoods	9.1



Diameters

The trees in the North Woods range from 3 to 56 inches in diameter. The following is a break down of the number of trees in each 5 inch diameter category.

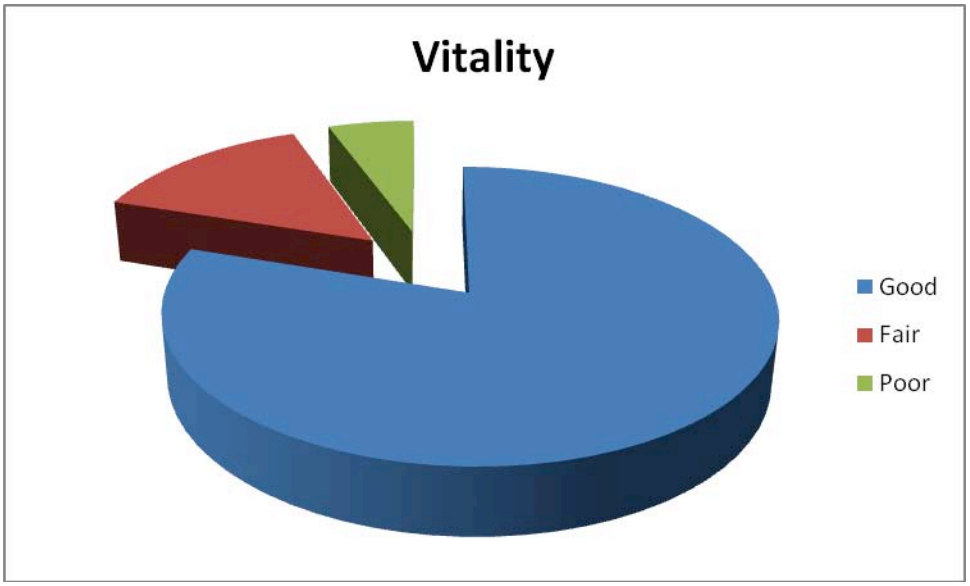
Diameter	Number
3-5"	883
6-10"	411
11-15"	215
16-20"	118
21-25"	82
26-30”	65
31”+	86



Vitality Rating

Of the surveyed trees, 80% are in good condition, 14% are in fair condition and 6% are in poor condition. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree. Please refer to Appendix B for more detailed information.

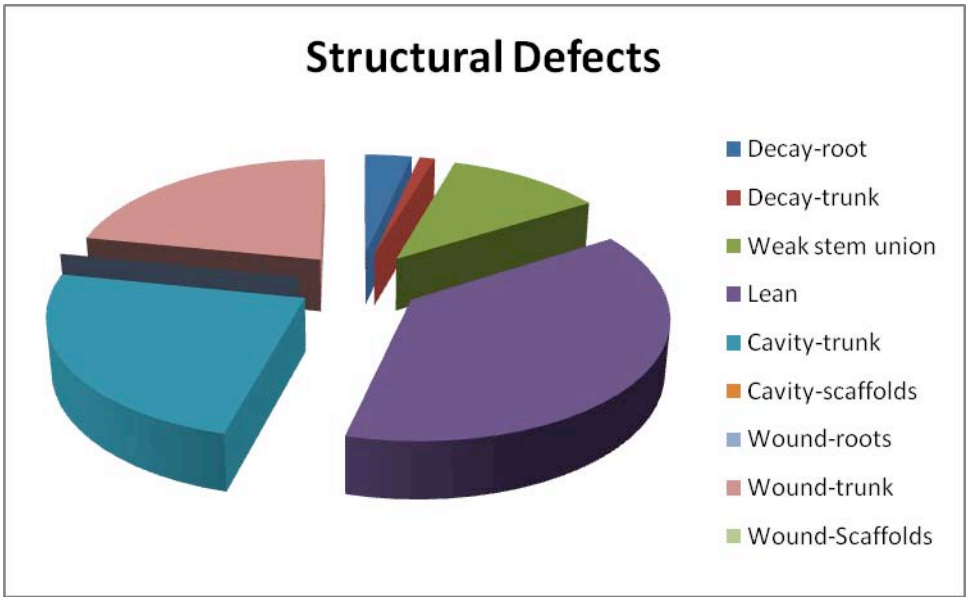
Vitality Rating	Number
Good	783
Fair	140
Poor	54



Structural Defects

The number of trees identified as having specific health or integrity issues are identified in the following charts.

Structural Defects	Number
Decay-root	3
Decay-trunk	1
Weak stem union	10
Lean	33
Cavity-trunk	21
Cavity-scaffolds	0
Wound-roots	0
Wound-trunk	19
Wound-Scaffolds	0
Wound-aerial	0



Environmental Benefits:

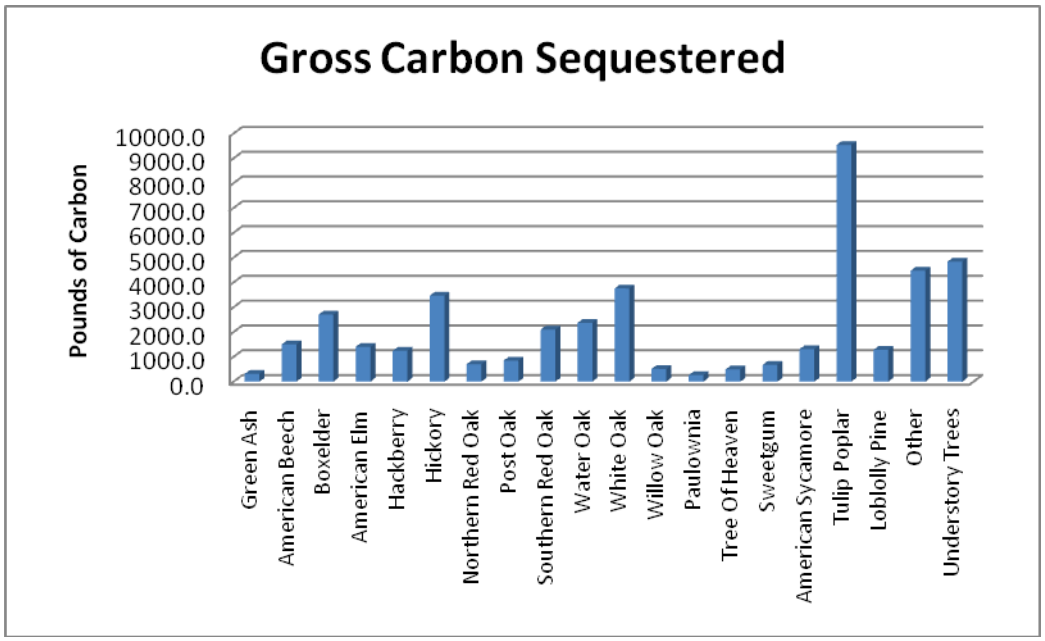
Overview of the environmental benefits from the PPC Expansion's trees broken up by species:

Species	Number of Trees	Carbon (tons)	Gross Sequestered (tons/year)	*Values ($)
Green Ash	17	3.49	0.15	559,764
American Beech	31	25.88	0.75	2,997,365
Boxelder	93	29.41	1.35	3,462,253
American Elm	64	1.47	0.70	2,107,356
Hackberry	62	8.97	0.62	2,041,501
Hickory	121	29.18	1.73	3,584,223
Northern Red Oak	17	6.83	0.35	559,764
Post Oak	10	10.95	0.43	329,272
Southern Red Oak	25	44.03	1.05	823,184
Water Oak	55	25.56	1.19	1,811,008
White Oak	41	69.22	1.88	1,350,024
Willow Oak	15	7.82	0.26	693,909
Paulownia	14	1.57	0.13	460,981
Tree Of Heaven	21	3.9	0.25	491,474
Sweetgum	28	9.81	0.34	921,966
American Sycamore	30	24.81	0.66	987,821
Tulip Poplar	163	181.55	4.77	5,367,174
Loblolly Pine	47	19.81	0.64	1,547,588
Other Hardwoods	87	76.68	2.24	2,864,688
Understory Trees	883	19.3	2.42	329,359
Total	**1,824**	**600.7**	**21.9**	**30,984,745**

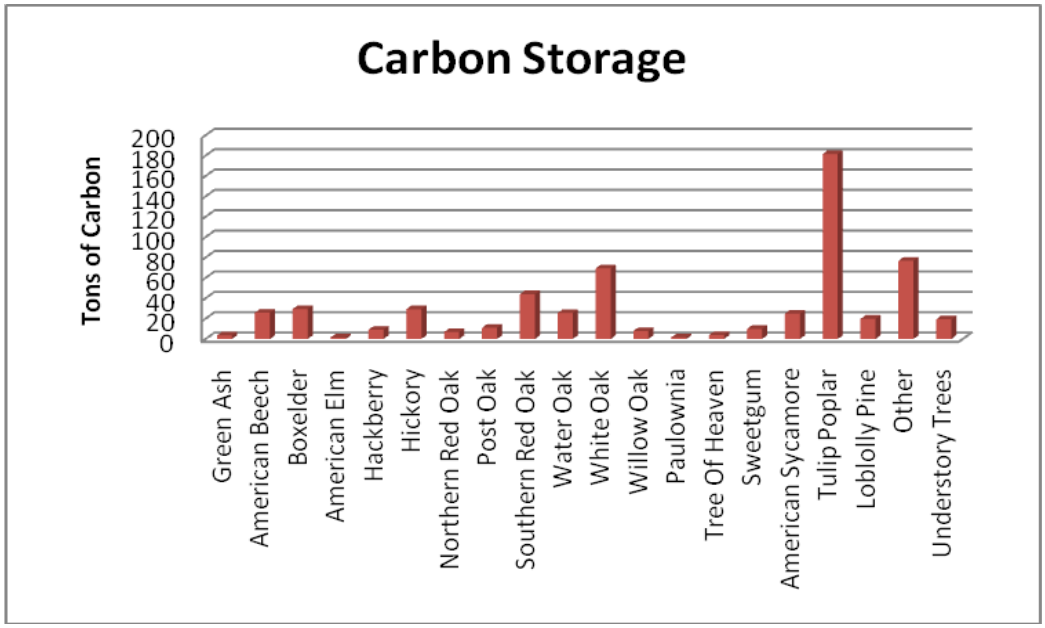
*Values calculated by the Council of Tree and Landscape Appraisers Handbook, 9th Edition

Carbon Storage and Sequestration

Climate change has become an issue of global concern. Urban trees can help to mitigate climate change by absorbing atmospheric carbon dioxide and sequestering the carbon. The main way they do this is by sequestering carbon in new tissue growth every year. The amount of carbon annually sequestered is increased with healthier trees and larger diameter trees. Gross sequestration from the North Woods trees is approximately 21.9 tons (43,800 pounds) of carbon per year.



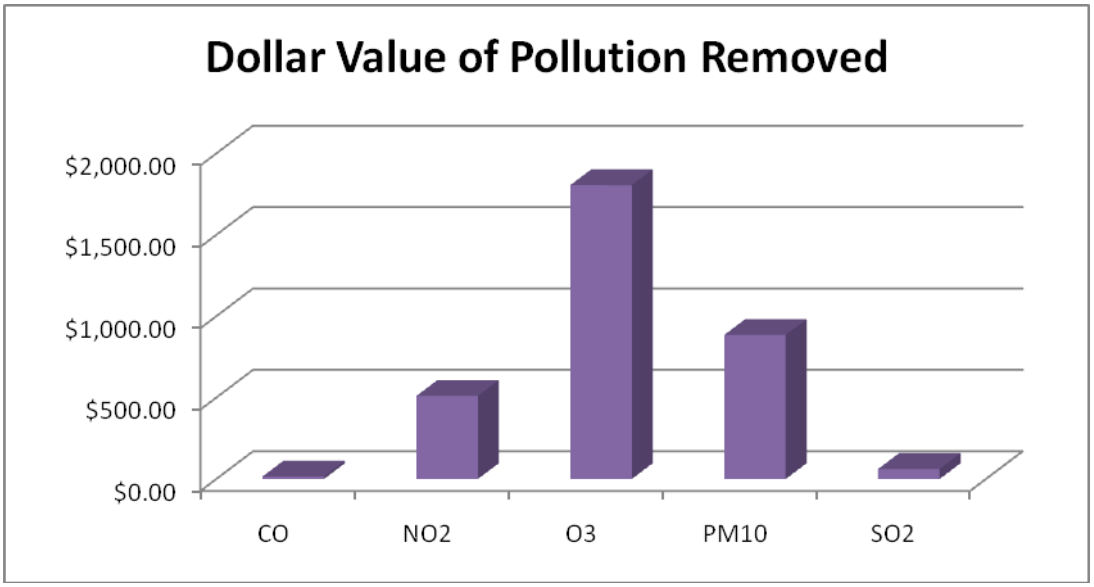
Trees also influence climate change by carbon storage. As they grow, trees store more carbon by holding it in their accumulated tissue. When trees die and decay, they release much of the stored carbon back to the atmosphere. Thus, carbon storage is an indication of the amount of carbon that can be lost if trees are allowed to die and decompose. Trees in the North Woods store an estimated 600.7 tons of carbon. Of all the species measured Tulip-poplars store the most carbon, an estimated 181.55 tons (almost 30% of the total carbon stored). Tulip-poplars sequester the most carbon, an estimated 4.8 tons (about 9541.8 pounds) per year.



Air Pollution Removal by Urban Trees

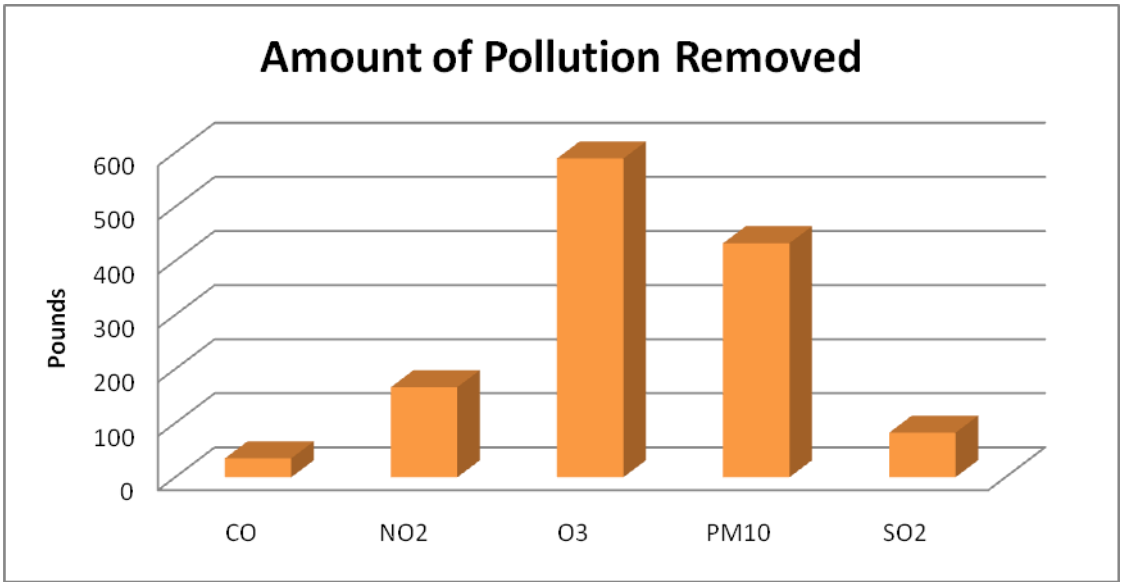
Poor air quality is a big problem for Atlanta. Atlanta is among the worst cities in America in terms of air quality, this leads to health problems, reduced visibility, and is harmful to our ecosystem. The North Wood's trees help improve the air we breathe. Trees improve air quality by directly removing pollutants from the air, reducing air temperature, and reducing energy consumption in buildings. Studies have shown that an increase in tree canopy cover leads to reduced ozone formation.

The Environmental Protection Agency (EPA) assigns a dollar value to certain harmful pollutants (shown in the graphs below). It is estimated that the value of the 1,308 pounds removed annually is $3,277.42.



Carbon Monoxide (CO) is a highly toxic gas that can be fatal to humans and animals. Nitrogen Dioxide (NO_2) results from high temperatures in internal combustion engines and forms with precipitation to create acid rain. Ozone (O_3) is formed from volatile organic compounds and is harmful to human and environmental health. Particulate matter less than 10 microns (PM_{10}) are generated by fossil fuels and can lead to asthma, heart disease and cancer. Sulfur Dioxide (SO_2) results from burning coal and oil. It, along with Nitrogen Dioxide, create acid rain.

It is estimated that the PPC Expansion's trees remove 1,308 pounds of pollution a year. Pollution removal was greatest for Ozone (O_3), about 45% of the total pollution removed was Ozone. Particulate matter less than 10 microns (PM_{10}) accounted for 33% and Nitrogen dioxide (NO_2) accounted for 13% of the pollution removed. Sulfur dioxide (SO_2) was 6% of the total, and Carbon monoxide (CO) was 3%.



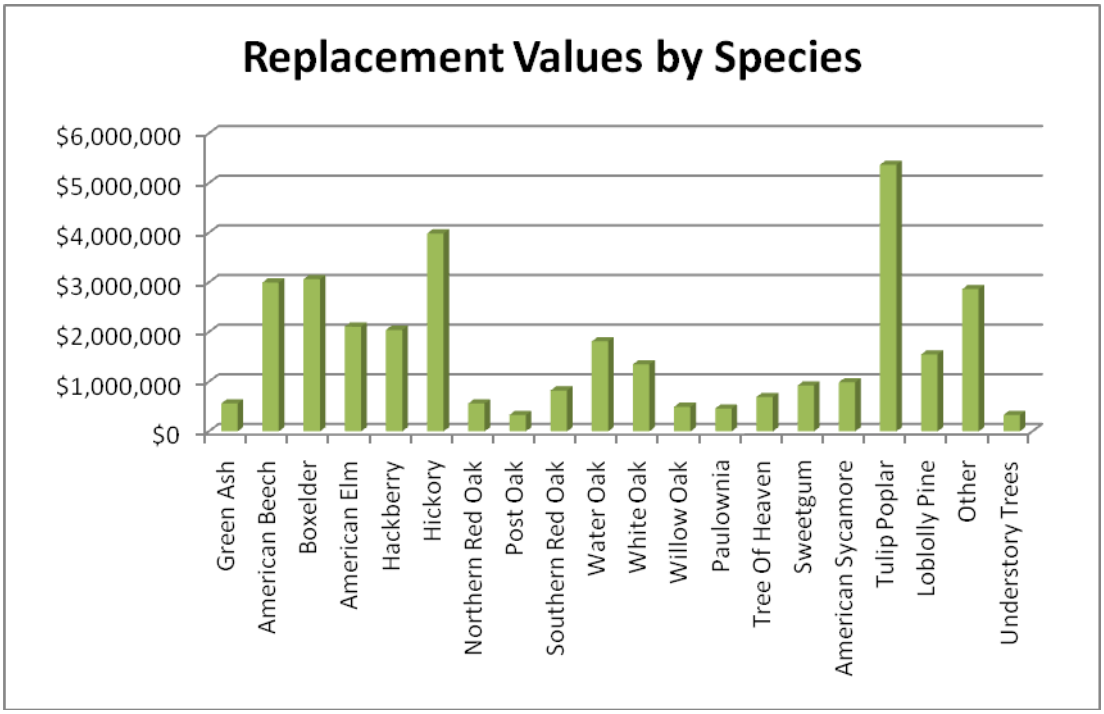
In a high enough concentration, each of these pollutants can cause injury to tree foliage. However, rarely are such levels reached in the environment. Most impacts on the trees due to pollution are secondary problems and don't have a great impact on overall tree health. The impact of these pollutants on human health is much greater, thus the importance of pollution removal cannot be overstated.

Replacement and Environmental Values

When computing a value for an urban forest, there are two values that must be considered. The replacement value is an estimated cost of having to replace the tree. It is computed based on the Council of Tree and Landscape Appraisers guide.

The second value to consider is the environmental value. This is based on the functions the tree performs. This value is annual and tends to increase with the number of healthy, mature trees. Not all environmental values are calculated here (such as energy cost savings, improvements in water quality and reduction in air temperatures). A properly managed urban forest increases in value, while an improperly or poorly managed urban forest loses value.

Estimated Replacement Value	Estimated Environmental Value
$30,984,745	$ 3,277.42



Recommendations:

General recommendations to continue improving environmental quality:

Action	Reason
Increase the number of healthy trees	Increase pollution removal
Sustain existing trees	Maintain current pollution removal levels
Sustain large healthy trees	Large healthy trees have the greatest per tree effects
Plant trees with long life spans	Reduce emissions from planting and removal
Plant trees to shade parked cars	Reduce vehicle emissions and cool asphalt
Supply ample water to trees	Enhance pollution removal and production
Plant trees in energy saving locations	Reduce energy consumption

For specific tree maintenance see "Tree Care Program"

Conclusion:

The North Woods provide considerable benefits to the Atlanta community. By sequestering atmospheric carbon, the North Woods works to reduce the effects of global warming. The North Woods also cleans the air we breathe by removing harmful pollutants. There is also a monetary value to the community, through irreplaceable mature trees and the pollution that they remove. All of these benefits can be measured and calculated and their value shared with the public.

Perhaps the greatest value of the North Woods is the one thing that cannot be measured: the aesthetic and cultural value it provides. The North Woods is a sanctuary for families in the community. With Atlanta growing rapidly, and most of the available Green Space being developed, the value of having 53 acres of wilderness in the city is tremendous.

The North Woods is a reminder, that even in the heart of the city we are never far from the natural world. This park will go a long way to promoting sustainability and making sure that Atlanta can meet the needs of the present, without compromising the needs of the future.

Appendix A

Common Name – Latin Name Key

Common Name	Latin Name
Hornbeam, American	Carpinus caroliniana
Ash, Green	Fraxinus pennsylvanica
Beech, American	Fagus grandifolia
Black Locust	Robinia pseudoacacia
Boxelder	Acer negundo
Basswood	Tilia americana
Black Cherry	Prunus serotina
Cottonwood, Eastern	Populus deltoides
Elm, American	Ulmus americana
Hackberry, Northern	Celtis occidentalis
Hickory	Carya tomentosa
Magnolia, Southern	Magnolia grandiflora
Maple, Red	Acer rubrum
Maple, Sugar	Acer saccharum
Mimosa	Albizia julibrissin
Mulberry, Red	Morus rubra
Oak, Blackjack	Quercus marilandica
Oak, Northern Red	Quercus rubra
Oak, Overcup	Quercus lyrata
Oak, Post	Quercus stellata
Oak, Scarlett	Quercus coccinea
Oak, Southern Red	Quercus falcata
Oak, Water	Quercus nigra
Oak, White	Quercus alba
Oak, Willow	Quercus phellos
Paulownia	Paulownia tomentosa
Tree of Heaven	Ailanthus altissima
Pecan	Carya illinoinensis
Persimmon	Diospyros virginiana
Sourwood	Oxydendrum arboretum
Sweetgum	Liquidambar styraciflua
Sycamore, American	Platanus occidentalis
Tulip-poplar	Liriodendron tulipifera
Willow, Black	Salix nigra
Pine, Loblolly	Pinus taeda
Elm, Chinese	Ulmus parvifolia

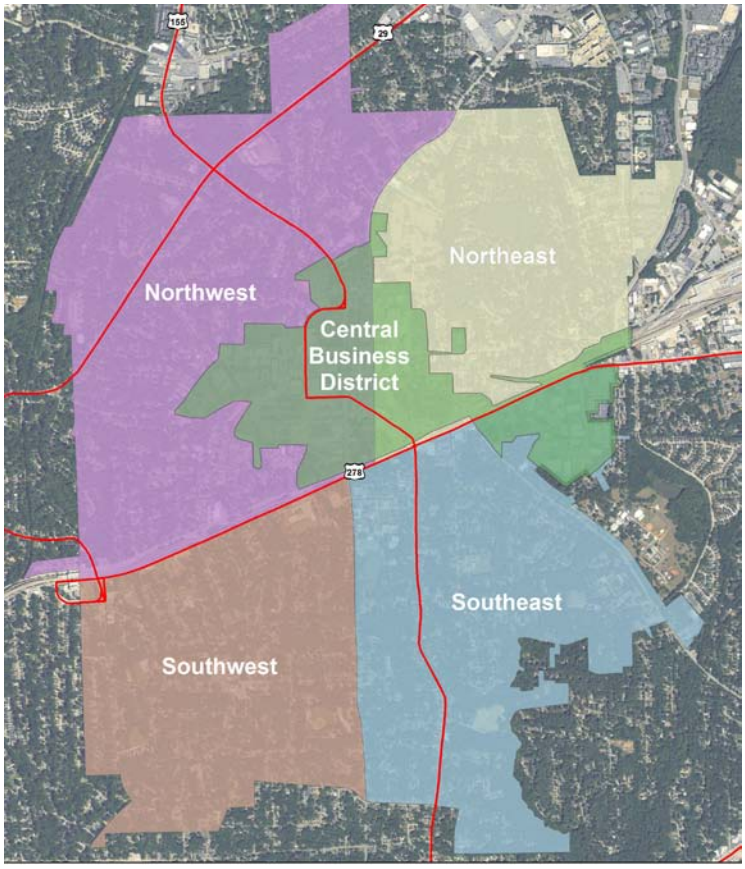
Appendix B

Inventory Data Sheets

Urban Tree Canopy Assessment
Decatur, Georgia

Table of Contents

1. Project Background
2. Project Goal
3. Assessment Procedure
4. Economic Benefits
5. Results
6. Recommendations

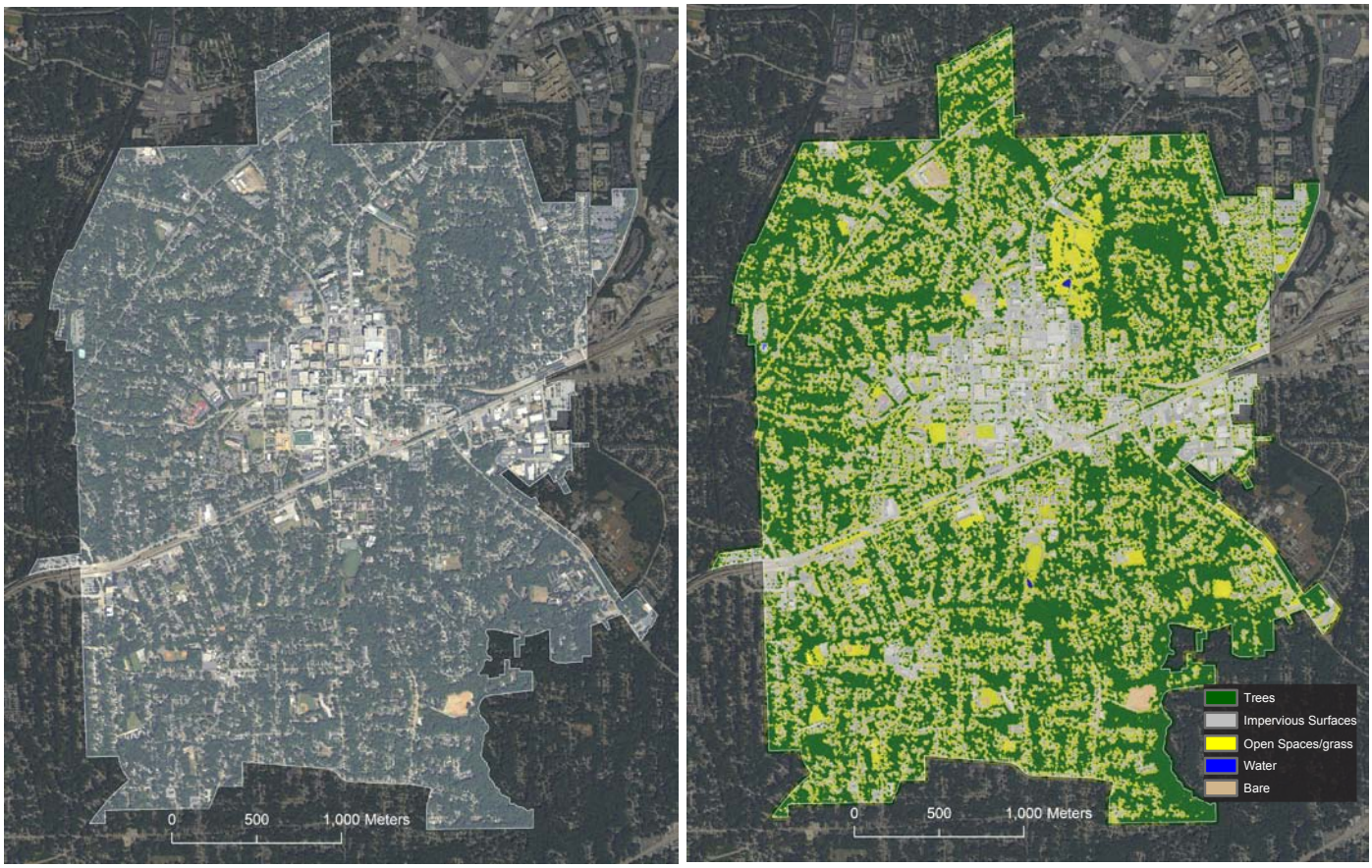


1. Project Background

Decatur is a small city in DeKalb County, Georgia. The 2010 Census reported the population as 19,335. The Global Ecosystem Center (GEC) was contracted by the Decatur City Government to perform an Urban Tree Canopy Assessment (UTCA) for the City for 2005 and 2010.

2. Project Goal

The goal of this project was to accurately and inexpensively document urban forest canopy and ecosystem service values so the canopy value as infrastructure can be considered in policy decision making, budget deliberations, and resource management. As a tool, canopy analysis enabled managers effectively measure, monitor and communicate the effectiveness of their programs and practices.



Decatur natural-color NAIP imagery (left) and resulting classified land cover (right)

3.0 Assessment Procedure

3.1 Image Acquisition
3.2 Data Processing
3.3 Land Cover Classification
3.4 Change Analysis
3.5 Quality Assurance and Quality Control
3.6 Canopy Assessment

3.1 Imagery Acquisition

GEC used 1-meter, 3-band NAIP imagery acquired in 2005 and 2010 (4-band imagery is preferred, but was not available). Land cover classification with 3-band imagery requires additional effort by the analyst.

NAIP imagery is acquired during the agricultural growing seasons in the continental United States.

3.2 Data Processing

After NAIP imagery is acquired, the imagery is clipped to the project boundary and resampled at a 3-meter pixel resolution. The resampling of 1-meter resolution imagery to 3-meter resolution essentially leaves important details of natural and man-made features intact while providing a high level of accuracy. A 1-meter classification was conducted on the Central Business District since impervious surface is the dominant feature and average tree canopy size tends to be small.

Key Terms

Land Cover: The physical cover on the Earth's surface such trees, grass, concrete, bare ground and water.

NAIP: National Agriculture Imagery Program

Ortho-Imagery: Geo-referenced image data of the Earth's surface from. The image can be collected by satellite or airborne sensors.

TR-55: The stormwater runoff calculations incorporate volume of runoff formulas from the Urban Hydrology of small Watersheds model (TR-55) http://www.hydrocad.net/tr-55.htm developed by the U.S. Natural Resources Conservation Service (NRCS), formerly known as the U. S. Soil Conservation Service. Don Woodward, P. E., a hydrologic engineer with NRCS, customized the formulas to determine the benefits of trees and other urban vegetation with respect to stormwater management.

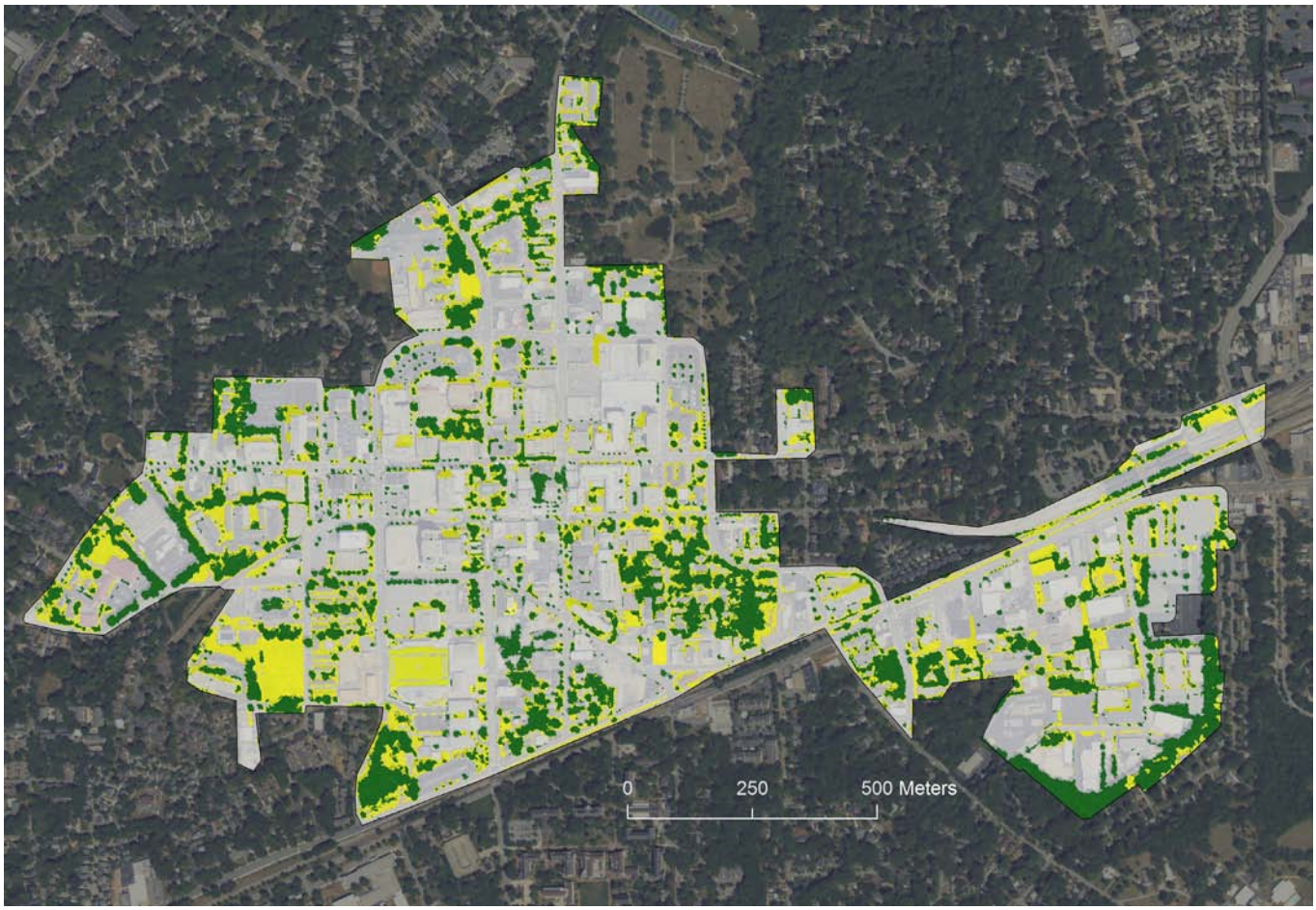
L-THIA: Long-Term Hydrological Impact Assessment model developed by Purdue University to estimate the change in the concentration of the pollutants in runoff during a typical storm event given the change in the land cover from existing trees to a no tree condition.

UFORE: The Urban Forest Effect model developed by USDA Forest Service to estimate mass of greenhouse gases stored in tree canopies. UFORE model is based on data collected in 55 U. S. cities.

3.3 Land Cover Classification

In order to create consistent and accurate land cover products, automated and semi-automated processes are used to conduct classifications. Automated processes provide precise and accurate assessments while eliminating analyst bias. This methodology requires the analyst to establish create extensive training sets before the automated process begins.

Once the imagery was clipped and re-sampled, a supervised classification was conducted to extract land cover features. Graphic models were applied to reduce speckle and correct some misclassifications. The final classification was reviewed and edited as needed.



The 1-meter, 5-class land cover classification of the Central Business District. The 1-meter resolution was used to better identify smaller trees in this area.

3.4 Change Analysis

Specialized image processing software was used to extract land cover features and for change-mask creation between the 2005 and 2010 imagery. Once the land cover changes were captured in a binary mask, a regression tool called Classification and Regression Tree (CART) was used to classify these areas. In-house models were utilized to ensure consistency, accuracy, and quality of the land cover classification within the change-areas. This classification was used to create the final 2010 land cover classification.

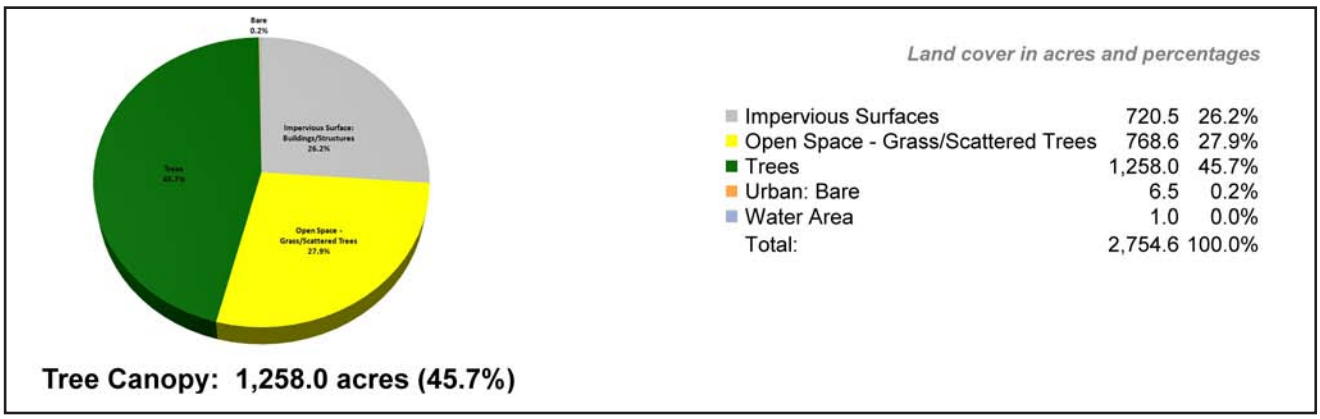
3.5 Quality Assurance and Quality Control

Custom models were used to ensure product quality and accuracy. The final land cover classification was validated against randomly selected sample points. The minimum mapping unit was set to 3 meters and 95%+ accuracy for land cover categories overall.

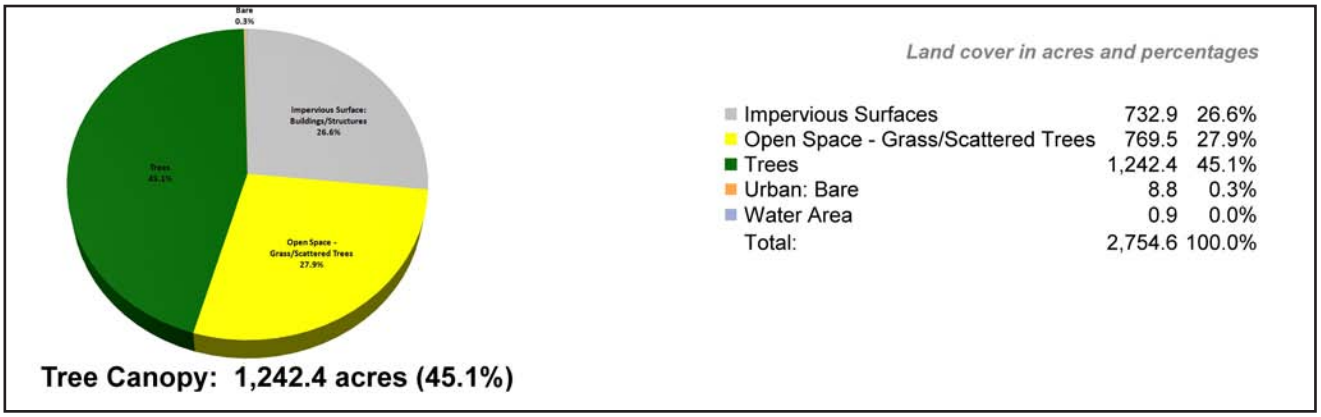
As more objective approaches have been adopted in the classification process, the resulting land cover classification has increasingly realistic and accurate land cover features. To ensure the quality of land cover classifications, hand edits are performed only at the final stage of the classification.

3.6 Canopy Assessment

Using the land cover data interpreted from the NAIP imagery along with soil and weather data provided by the NRCS and the National Weather Service, ecosystem services are calculated.



Land cover percentages for 2005



Land cover percentages for 2010

The 2005 canopy assessment documents that Decatur had canopy coverage of 1,258 acres (45.7%) and this category was the dominant land cover feature. The second largest land cover class was open space, which accounted for 768.6 acres (27.9%) and impervious surfaces accounted for 720.5 acres (26.2%).

As of 2010, Decatur showed some loss in canopy coverage. The assessment showed that canopy coverage was reduced from 1,258 acres to 1,242.4 acres, a net loss of 16 acres of tree canopy. The canopy assessment chart demonstrates that almost all of the canopy loss was coverted to urban development.

4. Economic Benefits

In addition to classifying the spectral image into land cover categories so canopy measurements can be established, the land cover classification is used to calculate ecosystem services. By using land cover along with soil, weather, and air quality to populate scientific and engineering models, land cover can be translated into economic values.

Economic benefits are calculated in terms of stormwater management, air quality and carbon storage. Additionally, water quality is calculated in terms of specific nutrients added to the water.

5.0 Results

The data provided by the assessment provides decision makers and resource managers with a framework for improving their urban forest and increasing the economic values produced by the resource in the future. The classified geo-referenced data can be used in an ArcGIS project to plan growth and development that includes improving the green infrastructure.

5.2 Stormwater Management

Stormwater management using green infrastructure as non structural devices (trees etc) offers huge financial benefits to a community and can be accomplished during the urban planning process. GEC's ecosystem services use a hydrological model (TR-55) to calculate stormwater numbers for any given urban areas. Results show that 45.7% of the tree coverage has saved over 12 million cubic feet of rain water from running off, and saved over $2 million annually as of 2005. As of 2010, the reduction to 45.1% tree canopy resulted in 11.9 million cubic feet of stormwater runoff, which means Decatur received 130,017 cubic feet of runoff benefits in 2010.

Stormwater Management	
Water Quantity (Runoff Volume)	
2-yr, 24-hr Rainfall in inches:	3.25
Curve Number reflecting existing conditions:	76
Curve Number of replacement land cover:	84
Dominant Soil Type: **B**	
Replacement land cover type: (existing condition)	
Impervious Surfaces: Buildings/ structures	
Additional cu. ft. storage needed:	**3,488,340**
Construction cost per cu. ft.:	$2.00
Total Stormwater Value:	**$6,976,679**
Annual Stormwater Value: (based on 20-year financing at 6% interest)	**$608,259**

Stormwater Statistics for 2005

5.1 Air Pollution and Carbon

The ecosystem analysis also calculates air pollution removal and carbon storage/ sequestration. Using an UFORE model with the land cover classification, results were produced for each pollutant. Results indicate as of 2005, 45.7% canopy coverage removed a total of 119,986 lbs of air pollutants per year. This same canopy coverage stored 54,132 ton of carbon and sequestered 421 ton annually.

However, by 2010 pollution removal was just 118,505 lbs/year and carbon storage was only 53,464 tons and sequestration was 416 tons annually. The 16 acres of tree canopy loss contributed to this decrease in ecosystem services.

Air Pollution Removal		
Nearest air quality reference city: ***Washington DC***		
	Lbs. Removed/yr	Dollar Value/yr.
Carbon Monoxide:	1,918	$941
Ozone:	14,961	$52,858
Nitrogen Dioxide:	7,672	$27,107
Particulate Matter:	12,659	$29,861
Sulfur Dioxide:	6,138	$5,297
Totals:	**43,348**	**$116,064**
	Dollar values are based on 2009 dollars	
Carbon Storage and Sequestration		
Tons Stored **(Total)**:	**18,518**	
Tons Sequestered **(Annually)**:	**144**	

Air Pollution & Carbon Statistics for 2005

Stormwater Management

Water Quantity (Runoff Volume)

2-yr, 24-hr Rainfall in inches:	3.75
Curve Number reflecting existing conditions:	75
Curve Number of replacement land cover:	90
Dominant Soil Type: **B**	
Replacement land cover type: (existing condition)	
Impervious Surfaces: Buildings/ structures	
Additional cu. ft. storage needed:	**11,896,601**
Construction cost per cu. ft.:	$2.00
Total Stormwater Value:	**$23,793,202**
Annual Stormwater Value: (based on 20-year financing at 6% interest)	**$2,074,400**

Stormwater Statistics for 2010

Air Pollution Removal

Nearest air quality reference city: ***Atlanta***

	Lbs. Removed/yr	Dollar Value/yr.
Carbon Monoxide:	3,323	$1,631
Ozone:	50,946	$179,995
Nitrogen Dioxide:	13,290	$46,955
Particulate Matter:	42,086	$99,274
Sulfur Dioxide:	8,860	$7,647
Totals:	**118,505**	**$335,501**

Dollar values are based on 2009 dollars

Carbon Storage and Sequestration

Tons Stored **(Total)**:	**53,464**
Tons Sequestered **(Annually)**:	**416**

Air Pollution & Carbon Statistics for 2010

Ecosystem Services Provided by Natural Systems

City of Decatur - NE

Year	Air Pollution Removal	Air Pollution Removal Value	Carbon Stored	Carbon Sequestered	Stormwater Runoff Reduction*	Stormwater Benefit @ $2 per cu.ft	Additional Stormwater Runoff**	Value after the Additional Stromwater
	lbs/yr	$	tons	tons	cu.Ft	$	cu.Ft	$
City of Decatur 2005	20,292	$57,449	9,155	71	2,046,416	$4,092,831		
City of Decatur 2010	20,139	$57,017	9,086	71	2,032,364	$4,064,727	14,052	-$28,104

City of Decatur - NW

Year	Air Pollution Removal	Air Pollution Removal Value	Carbon Stored	Carbon Sequestered	Stormwater Runoff Reduction*	Stormwater Benefit @ $2 per cu.ft	Additional Stormwater Runoff**	Value after the Additional Stromwater
	lbs/yr	$	tons	tons	cu.Ft	$	cu.Ft	$
City of Decatur 2005	41,806	$118,357	18,861	147	4,261,424	$8,522,848		
City of Decatur 2010	41,182	$116,590	18,579	145	4,210,173	$8,420,346	51,251	-$102,502

City of Decatur - SE

Year	Air Pollution Removal	Air Pollution Removal Value	Carbon Stored	Carbon Sequestered	Stormwater Runoff Reduction*	Stormwater Benefit @ $2 per cu.ft	Additional Stormwater Runoff**	Value after the Additional Stromwater
	lbs/yr	$	tons	tons	cu.Ft	$	cu.Ft	$
City of Decatur 2005	33,701	$95,411	15,204	118	3,329,798	$6,659,597		
City of Decatur 2010	33,100	$93,709	14,933	116	3,273,761	$6,547,523	56,037	-$112,074

City of Decatur - SW

Year	Air Pollution Removal	Air Pollution Removal Value	Carbon Stored	Carbon Sequestered	Stormwater Runoff Reduction*	Stormwater Benefit @ $2 per cu.ft	Additional Stormwater Runoff**	Value after the Additional Stromwater
	lbs/yr	$	tons	tons	cu.Ft	$	cu.Ft	$
City of Decatur 2005	24,154	$68,382	10,897	85	2,382,048	$4,767,096		
City of Decatur 2010	24,051	$68,091	10,851	84	2,373,076	$4,746,152	8,972	-$20,944

* Stormwater Runoff Reduction = If existing land cover replaced to Impervious Surfaces: Buildings/Structure

** Additional Stormwater based on earliest land cover 2005 and compared to 2010

6.0 Recommendations

A first step for any city or town to better manage their natural systems and man-made infrastructure is to map canopy coverage. The change detection analysis conducted for Decatur provides data that allows managers and public policy makers to adjust their strategy for the immediate future. By conducing a third analysis in approximately three years will provide data needed to establish a trend analysis. The ability to document, map, and project future trends in land use and would be a logical approach to managing and calculating costs and benefits.

Therefore, it is highly recommended the following analysis are conducted to further enhance existing land cover classification:

6.1 Scenario Modeling

GEC has developed a scenario modeling tool that enables decision-makers to create hypothetical scenarios of land cover change, and used to calculate the resulting impacts on ecosystem services and future costs. This powerful tool can be applied to other GIS data layers as well. The best application of this model is to apply it to future planning maps to compute ecosystem service values.

6.2 Change Analysis

The GEC has developed methodologies to conduct inexpensive high-resolution change analysis that document economic and ecological change. This analysis reveals the cost and benefits of land use change. In Decatur, the change analysis between 2005 and 2010 documented the exact nature of canopy loss and urban development illustrating how changes in land cover directly affected the ecosystem services.

6.3 Trend Analysis

As change analysis provides valuable information regarding land cover for two dates, it cannot be used to draw decisive projections of future growth. Trend analysis can reveal socio-economic changes and the direction of such changes. Based on a series of change over multiple years of data, trend analysis can provide crucial information on the state of the land use management and pin-point the areas of concern. Furthermore, trend analysis can give detailed cost/benefit information for decision making.

October 2002

Projected Environmental Benefits of Community Tree Planting

A Multi-Site Model Urban Forest Project in Atlanta

Report Contents

2 Project Overview

3 Major Findings

4 Environmental Benefits of the Urban Forest

5 Demonstration Study Sites and Findings

8 Using This Information with The Model Urban Forest

9 Regional Changes in Tree Cover

10 Analysis Methodology

11 Acknowledgements

Project Partners: USDA Forest Service, Georgia Forestry Commission, Park Pride, Trees Atlanta, Arabia Mountain Heritage Area, and Atlanta Habitat for Humanity

Sponsored by: the USDA Forest Service and Georgia Forestry Commission

Prepared by:

AMERICAN FORESTS
americanforests.org

Project Overview

AMERICAN FORESTS conducted a tree canopy analysis of three sites in the Metropolitan Atlanta Region. The findings of this report will be used as part of the Georgia Model Urban Forest, a project of the Georgia Forestry Commission (GFC). This project establishes trees as "green infrastructure" providing measurable environmental benefits for a city. Communities that use the Georgia Model Urban Forest approach can better understand, preserve, plant, and maintain trees and forests as an important community resource. AMERICAN FORESTS' portion of this project details the environmental values that the urban forest provides to the community. Specifically, the findings show that a site with strategically planted trees and reduced impervious paving can reduce stormwater runoff, improve air quality, reduce summer residential energy use and reduce air temperature.

In order to demonstrate how the Georgia Model Urban Forest approach can be implemented, three sites were selected to represent different urban conditions: the urban core, older suburbs and newer suburbs. The corresponding demonstration sites selected are:

- Turner Field parking lot in the City of Atlanta

- Arabia Mt. multi-use trail to be built along Klondike Road near Stonecrest Mall in DeKalb County

- Mount Zion Manor, seven Habitat for Humanity Atlanta, Inc. houses in the City of Atlanta.

At each site, environmental benefits were calculated under their existing conditions and then again after the sites were planted to maximize tree canopy and shade potential and to reduce impervious pavement. AMERICAN FORESTS' approach modeled tree growth over time and calculated the additional benefits of increased canopy.

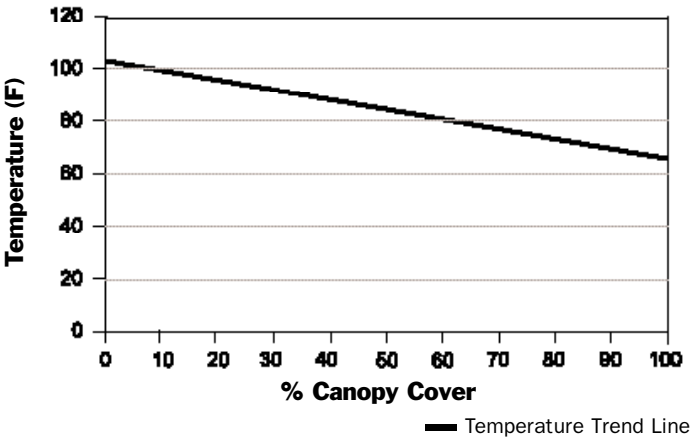
This information will be included in the Georgia Model Urban Forest project that documents the sites' improvements. Through video, printed educational materials and a public relations campaign, the Georgia Forestry Commission and project partners will raise public awareness of the importance of a well-planned, planted and maintained urban forest and encourage public decision makers and civic associations to actively support and manage their green infrastructure.

The tree canopy analysis, developed by AMERICAN FORESTS assesses the value of ecological features using scientific and engineering models that quantify the effects of the landscape on air, water and energy applied to an individual site's land cover, using Geographic Information Systems (GIS) technology. AMERICAN FORESTS' CITYgreen software was used to calculate the environmental benefits related to stormwater runoff, air quality, carbon storage and sequestration. For, Mount Zion Manor, the residential site, CITYgreen was also used to calculate summer energy savings from the direct shading of trees upon the seven residences.

A new component added for this project documented temperature change at the three sites under current conditions and with increased urban tree canopy. While this was not a research project, AMERICAN FORESTS collaborated with Dr. Jeffrey Luvall, (NASA) to measure summer temperatures from places in Atlanta with similar tree canopy and impervious surface conditions. Using remote sensing techniques, Luvall analyzed satellite imagery and measured temperature in the upper one-third of tree canopy (called surface radiant temperature) approximating air temperature.

Luvall provided the surface radiant temperatures for Southside Shopping Mall in Atlanta for 0%, 30% and 80% tree canopy conditions. AMERICAN FORESTS used these temperature/canopy correlations to derive temperatures of the three demonstration sites under current and planted and modeled conditions.

Temperature Canopy Trend



Using a linear regression created from Luvall's surface temperatures recorded under different tree canopy densities, notice that at an 80% tree canopy, surface temperatures are about 80 degrees F. Without trees, surface temperatures soar to over 100 degrees F. Using this graph, surface temperatures at other canopy densities around the area can be estimated. Temperatures are estimated to be 95.5 degrees F with a 15% tree canopy, 91.8 degrees F with a 25% canopy and 86.2 degrees with a 40% canopy.

Afternoon Ground Temperatures Measured in Sun and Tree Shade
(data provided by Trees Atlanta)

Date 2001	Location	Air Temp Fahrenheit	Condition	Temp in tree shade	Temp in full sun	Ave. % difference
Aug 15	Turner Parking Lot	89	Partly cloudy	106-112	138-142	22%
Aug 15	Midtown mall	90	Partly cloudy	93-97	133-135	29%
Sept. 6	Turner Parking Lot	89	Cloudy	94	124	24%
Sept. 6	Midtown	91	Mostly cloudy	94	130	28%
Sept 21	Turner Parking Lot	86	Mostly clear	85-92	127-128	31%
Sept. 21	Midtown	86	Mostly clear	85-90	127-129	32%
Average Difference						28%

For comparison, Trees Atlanta provided data on the temperatures measured with an infrared thermometer pointed at one small spot of asphalt in both sun and shade. While these temperatures are not sufficient to use for modeling, they show the dramatic temperature differences that tree shade provides.

Major Findings

Trees are an indicator of environmental quality because of their ability to moderate the effects of urbanization on air, water, and energy. The economic impacts of these changes on land cover are calculated using AMERICAN FORESTS' CITYgreen software. When trees are strategically added to each of the three study sites and grown for 20 and 30 years, the benefits of tree canopy are readily apparent.

If tree-planting standards were applied to all surface parking lots in the Downtown Atlanta Study Area, mature trees would provide stormwater savings valued at $491,000 and air pollution mitigation valued at $7,500 annually.

At Turner Field Parking Lot the existing trees only line the perimeter of the 4-acre parking lot. Trees Atlanta installed parking islands and planted 33 oak and maple shade trees. When the trees were "grown" 30 years to a 29% canopy cover, the surface temperatures decreased by about 10%. The total stormwater retention capacity of the mature tree cover is valued at $16,000. The urban forest improves air quality by removing nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (0_3), and particulate matter 10 microns or less (PM_{10}). With this increased tree canopy, air pollution is reduced and valued at $276 annually. When these tree-planting standards are applied to the 122 acres of surface parking lots in the Downtown Atlanta Study Area, the results demonstrate significant benefits.

The direct residential summer energy savings from maximizing tree shade at the seven Mount Zion Manor homes is estimated at $951 annually.

At Mount Zion Manor, the seven single-family homes had some trees, but they were not strategically planted for shade or energy conservation. The Georgia Forestry Commission developed an updated planting plan. The existing trees and the updated plan's trees were grown for 20 and 30 years and the environmental benefits compared. At 30 years of growth, the site had an overall 21% tree canopy and surface temperatures were reduced by 5.6 degrees.. With less energy used for air conditioning, less carbon is produced at local power plants. This savings, from avoided carbon, is estimated at 427,441 lbs. annually. The trees also provide savings on stormwater runoff retention facilities, valued at $3,000 and they reduce air pollution at an annual value of $119 for the seven-home site.

Planting trees and other vegetation along the Arabia Mountain Multi-Use Trail will provide an immediate 4-degree F. temperature reduction. When mature, these trees will reduce surface temperatures by 15 degrees F, reduce air pollution valued at $284 annually and provide one time stormwater runoff benefits valued at $12,600.

The Arabia Mountain Multi-Use Trail had an existing 13% tree canopy cover in the 2.27 acre abandoned railroad right of way. The proposed trail will be an 840-foot by10-foot wide paved path with trees, shrubs and ground cover planted on either side of the path. A CITYgreen analysis shows the immediate benefit of providing vegetation--a 4-degree F. temperature reduction along the path as well as reduction in stormwater runoff and air pollution mitigation. When the new landscape is grown 30 years, it will provide total stormwater runoff benefits valued at $12,600 and air pollution mitigation valued at $284 annually. The 30-year growth scenario estimates that the new landscape plan will reduce temperatures from 96.3 to 81.3 degrees.

Environmental Benefits of the Urban Forest

There are many components to the ecology of an urban area. Trees are an indicator of the health of the urban ecosystem, since their roots require adequate air, water, and soil to support them. Urban problems such as air pollutants, road salts, compacted soils etc. will all affect tree health. Conversely, when the tree canopy is plentiful and healthy, including those that line streets and cover parking lots, the less impervious surface, the better the soil structure and therefore the greater the environmental benefits they can provide. Trees provide communities with many valuable services that can be measured in terms of dollar benefits. These include: 1) slowing stormwater runoff and reducing peak flow and 2) improving air quality 3) reducing summer energy from direct shading of trees and 4) reducing temperature which further reduces energy consumption and air pollution. These quantifiable benefits can help community leaders recognize cost savings opportunities from increased tree cover.

Cities spend tremendous amounts of money installing stormwater control systems and repairing damage from flooding. Furthermore, cities that cannot meet EPA attainment levels for air and water quality jeopardize federal funding for capital improvements. Trees are an attractive, non-built solution. Their environmental benefits underscore the importance of maintaining and restoring the natural infrastructure of our communities.

AMERICAN FORESTS developed CITYgreen software to analyze the effects of trees on air, water and energy in urban areas. American Forests uses CITYgreen to conduct a detailed analysis of how the structure of the landscape affects its function. This tool connects research and engineering formulas to place a dollar value on the work trees do. CITYgreen is used to show how different local design scenarios affect stormwater movement, temperature, energy conservation, and air quality.

Stormwater Runoff

Trees and soil function together to reduce stormwater runoff. Trees reduce stormwater flow by intercepting rainwater on leaves, branches, and trunks. Some of the intercepted water evaporates back into the atmosphere, and some soaks into the ground reducing the total amount of runoff that must be managed in urban areas. Trees also slow storm flow, reducing the volume of water that a containment facility must store. The TR-55 model, developed by the Natural Resources Conservation Service, measures stormwater movement in various storm events (see page 10).

Local governments are looking toward non-built stormwater management strategies, including trees, to reduce the cost of constructing stormwater control infrastructure. The value of trees for stormwater management is based on cost avoided for storage of stormwater in retention ponds. Local construction costs for building containment facilities are multiplied by the total volume of avoided storage to determine dollars saved by trees.

Air Quality

Trees provide air quality benefits by removing pollutants such as NO_2, CO, SO_2, O_3, and PM_{10}. AMERICAN FORESTS used the method developed by the USDA Forest Service to calculate air quality. To calculate the dollar value for these pollutants, economists multiply the number of tons of pollutants by an "externality cost" or costs to society that are not reflected in marketplace activity (see page 10).

Carbon

Trees and other plants are the lungs of our planet. Trees absorb carbon, in the form of carbon dioxide and produce the air we breathe. Trees store carbon in roots, trunks and limbs, helping to remove atmospheric carbon, a by-product of burning fossil fuels, thus reducing pollution. Carbon in trees is measured in two ways: the total amount stored, which becomes greater as the tree ages, and the rate at which carbon is stored (called sequestration), which is faster in young trees and then slows as the tree matures.

Temperature

Trees provide direct shading to the gray infrastructure including buildings, parking lots, and road surfaces. Shading with trees not only reduces summer temperatures, but also indirectly reduces ozone, a primary component of air pollution. This has significant implications for the City of Atlanta, which is currently classified as non-attainment status for ozone, under the National Ambient Air Quality Standards (NAAQS) of the Clean Air Act. According to Lawrence Berkeley National Lab scientists, when the air temperature is 72 degrees F, all cities can reach air quality attainment, when the temperature rises to 90 degrees F, no city can.

Energy Use

Atlanta experiences a long, hot summer and residents spend approximately $400 per home on air conditioning per year according to the Georgia Power Company. Trees provide direct shading on buildings and can reduce air conditioning use, save energy costs and reduce emissions at the utility plant.

Avoided Carbon

Reducing energy use also reduces the amount of carbon pollution produced by utility companies. CITYgreen calculates the amount of kilowatt-hours of electricity conserved as a result of direct shading of trees. This number is multiplied by the fuel types Georgia uses in its electricity production to generate a value.

Demonstration Study Sites and Findings

Turner Field Parking Lot

Located in downtown Atlanta, Turner Field parking lot was devoid of trees except for a perimeter row of magnolias, oaks and maples along Fulton and Hank Aaron Drive and existing oaks at the parking island ends. Cars in the parking lot would bake under the hot summer sun. Trees Atlanta retrofitted the lot in 2001 by planting 33 oaks and maples of 3-1/2 inch caliper and low-growing holly shrubs in newly created parking islands. AMERICAN FORESTS used CITYgreen to model these trees at 20 and 30 years growth and compared environmental benefits with the existing trees modeled for the same growth period.

The Turner Field Parking Lot planting demonstrates the benefits of retrofitting parking lots under Atlanta's tree ordinance. When trees in parking islands are added and grown, the temperature drops dramatically as the environmental benefits for stormwater savings and air pollution rise. After 30 years of growth, the value of the added parking lots trees is apparent: the ground temperature is reduced by an estimated 10 degrees F. The value of reducing stormwater runoff becomes $16,000 and the annual air pollution removal value increases to $275.

While these values represent only one 4-acre parking lot, what if these planting requirements were implemented for all downtown surface parking lots? According to Caleb Racicot, Tunnell-Spangler and Associates, there are 122 acres of surface parking lots in the Downtown Atlanta Study Area. When this total surface parking lot acreage was modeled with a 7% canopy cover, the benefit savings make a tangible impact. Stormwater benefits increase to $311,000 and air quality benefits rise to $1,907 annually. When trees are "grown" for thirty years, stormwater benefits increase to $491,000 and air quality savings increase to $7,534 annually.

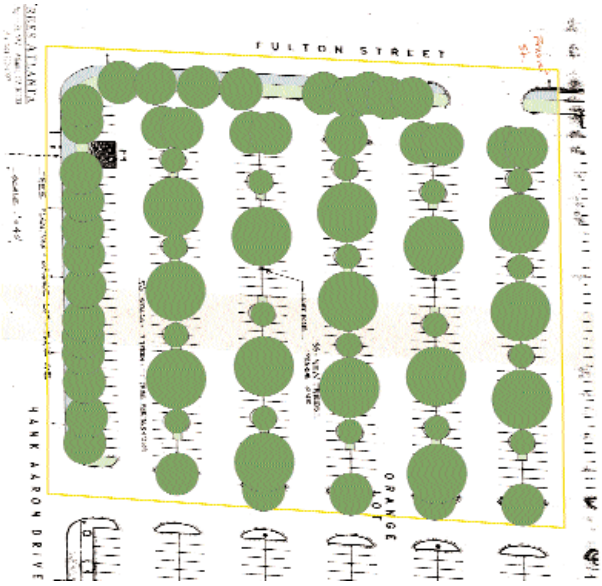
Turner Field Parking Lot Environmental Benefits Under Different Tree Canopy Conditions

Condition	% Tree Canopy	Est. Surface Temp. (°F)	Air Pollution Removal (annual)	Stormwater Savings * Total	Stormwater Savings * Annual	Carbon Storage (total tons)	Carbon Sequestration (annual lbs.)
Current Tree Canopy	5%	99.3	$49	$10,142	$884	7	300
Current + 20 year growth	10%	97.4	$91	$11,902	$1,038	17	60
Current + 30 year growth	12%	96.7	$116	$11,902	$1,038	22	80
Current + New trees at planting	7%	98.5	$62	$10,142	$884	8	380
Current + New trees+ 20 years growth	19%	94.3	$180	$13,436	$1,171	33	120
Current + New trees+ 30 years growth	29%	90.3	$275	$16,000	$1,395	52	180

**Annual Stormwater savings is based on financing over 20 years at 6%*
**Based on a $2 per cubic foot construction cost to build stormwater retention facilities*

Turner Field New Trees and Parking Islands at Planting

Turner Field New Trees Grown 30 Years



Planting trees and shrubs in a parking lot can dramatically reduce ground temperatures and increase environmental benefits.

Mount Zion Manor

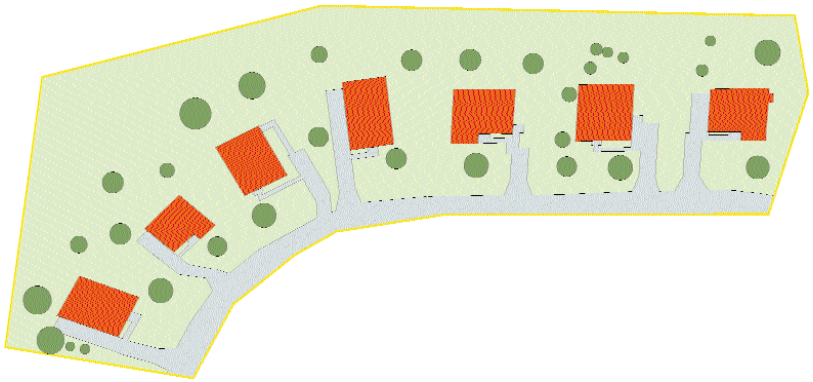
Habitat for Humanity in Atlanta, Inc. built seven new homes with minimal landscaping. The Georgia Forestry Commission developed a landscape plan that recommended removal of unhealthy trees, selected additional species, and sited new trees to maximize energy conservation. Since this is a residential study site, AMERICAN FORESTS used CITYgreen to calculate the energy conservation and avoided carbon emission values that trees provide in addition to the other environmental benefits discussed.

Six different scenarios demonstrated the environmental benefits of properly selecting, siting and maintaining trees in a residential area. When the trees were modeled at 20 and 30 years growth, the surface temperature decreased and the air pollution removal, energy savings and avoided carbon emissions increased significantly. Energy savings increased to $951. Avoided carbon absorption increased to over 427,000 lbs. per year reflecting that less fossil fuel is needed to cool homes. Stormwater benefits became significant when tree cover grew to 18%.

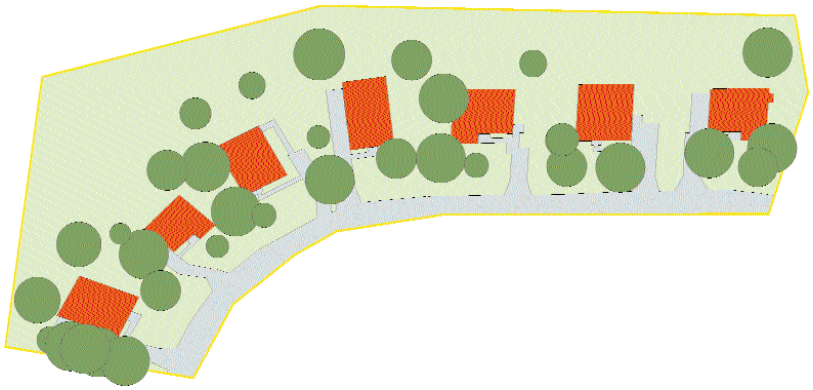
Mount Zion Manor Environmental Benefits Under Different Tree Canopy Conditions

Condition	% Tree Canopy	Est. Surface Temp. (°F)	Air Pollution Removal (annual)	Stormwater Savings *		Energy and Avoided Carbon Total Annual		Carbon Storage (total tons)	Carbon Sequestration (annual lbs.)
				Total	Annual	Energy Savings	Avoided Carbon (lbs.)		
Current Tree Canopy	6	98.9	$31	$0	$0	$50	24,651	6	20
Current + 20 year growth	10	97.4	$56	$0	$0	$248	123,060	11	40
Current + 30 year growth	12	96.7	$69	$0	$0	$416	206,738	13	40
Updated trees at planting	5	99.3	$29	$0	$0	$89	44,373	5	20
Updated trees+ 20 years growth	18	94.4	$98	$3,070	$268	$366	182,086	18	60
Updated trees+ 30 years growth	21	93.3	$119	$3,070	$268	$951	427,441	22	80

**Annual Stormwater savings is based on financing over 20 years at 6%*
**Based on a $2 per cubic foot construction cost to build stormwater retention facilities*



Mt. Zion Manor, updated trees at planting, reflects 12 new shade trees, the removal of 7 shade trees and several pines due to structural defects.



Mt. Zion Manor, updated trees grown 30 years

When trees are planted strategically, summer energy savings and avoided carbon emissions increase significantly.

Arabia Mt. Multi-Use Trail

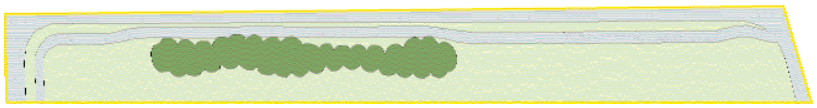
The proposed multi-use trail follows an old railroad right of way south of I-20 and east of Klondike Road in DeKalb County. The forested area was clear-cut in 1986. Currently there is a 13% tree canopy. The proposed trail will be an 840-foot by10-foot wide paved path with trees, shrubs and ground cover planted along the right of way. The trail starts at the Lithonia Woman's Center, crosses Covington highway, and terminates at a new mall under construction. A bike pavilion is also being planned. Roy Ashley Associates Landscape Architects is developing the plan along with the South River Watershed Alliance. AMERICAN FORESTS used the current condition of a 13% tree canopy, 29% impervious surface and 71% open space/meadow and compared this with the planting plan developed by the project partners. CITYgreen was used to grow the trees to 20 and 30 years and calculate the environmental benefits of the two scenarios.

The new planting plan, which includes oaks, maples, fringe trees, as well as shrubs and ground cover increases the tree canopy to 25% initially. The new planting provides immediate environmental benefits reducing summer temperature along the path by 4 degrees F., slowing stormwater runoff, reducing air pollution and absorbing atmospheric carbon. When the trees are grown to 20 and 30 years, their environmental benefits become substantial. Once the planted landscape grows for 20 and 30 years, temperature drops 12 and 15 degrees F respectively. At 30 years of growth, the tree canopy adjacent to the path will add $215 to air pollution value annually and over $3,200 in storm water runoff mitigation.

Arabia Mt. Multi-Use Trail Environmental Benefits Under Different Tree Canopy Conditions

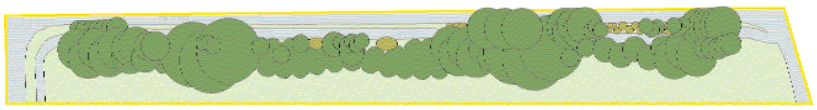
Condition	% Tree Canopy	Est. Surface Temp. (°F)	Air Pollution Removal (annual)	Stormwater Savings * Total	Stormwater Savings * Annual	Carbon Storage (total tons)	Carbon Sequestration (annual lbs.)
Current Condition	13	96.3	$69	$9,390	$819	13	200
With New Planting	25	91.8	$134	$10,346	$902	31	380
Current + New + 20 years growth	45	84.3	$243	$12,072	$1,052	33	1,500
Current + New + 30 years growth	53	81.3	$284	$12,598	$1,098	53	800

**Annual Stormwater savings is based on financing over 20 years at 6%*
**Based on a $2 per cubic foot construction cost to build stormwater retention facilities*



Arabia Mt. Multi Use Trail, with existing 13% tree canopy

N →



Arabia Mt. Multi Use Trail, with new planting grown for 30 years.

When the new planting is grown for 30 years, temperatures along the trail will decrease 15° F, reduce stormwater runoff and improve air quality.

Using This Information With The Model Urban Forest

The Regional Ecosystem Analysis of Atlanta Metropolitan Area that AMERICAN FORESTS conducted in 2001 from Landsat satellite and aerial imagery allowed us to measure tree canopy trends over the last three decades. The message from that analysis was clear; the region had lost a significant percentage of its heavy tree cover, the ecology was in a state of decline and the cost of this declining natural system is costly to residents.

The Georgia Model Urban Forest offers a method for promoting the green infrastructure at the site level. AMERICAN FORESTS' Urban Ecosystem Analysis quantifies how increasing tree canopy in new and retrofit design can increase future environmental and economic benefits.

Local agencies, citizen groups and decision makers are encouraged to use the information provided to better understand the relationship between trees and the environmental services that they provide. In addition, AMERICAN FORESTS recommends other ways in which the local community can use the Urban Ecosystem Analysis for future community planning:

■ Use trees as a valuable and essential element of the green infrastructure. Consider the dollar values associated with trees when making land use and design decisions.

■ Implement innovative land-use planning techniques, design solutions and engineering guidelines for saving existing trees and planting new ones.

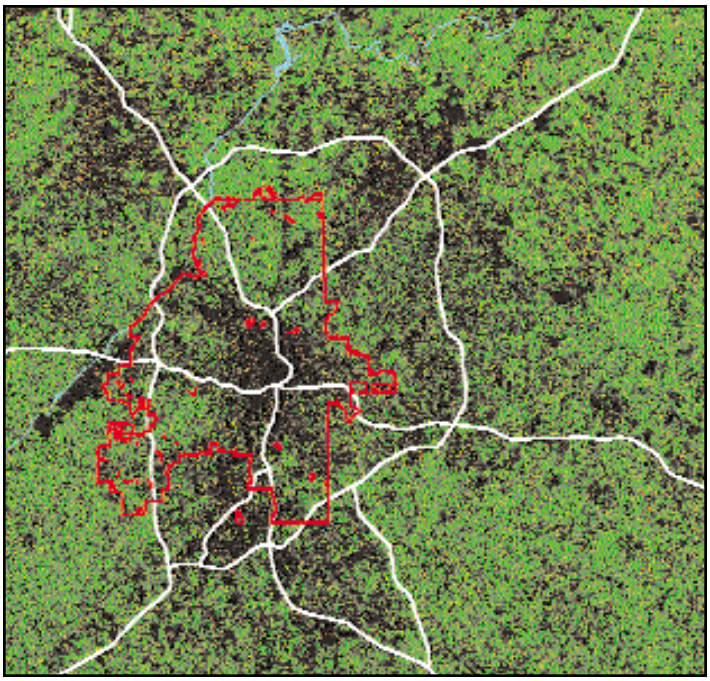
■ Set goals in order to increase and conserve tree canopy cover in urban areas, both in new development and in retrofit

Develop urban tree canopy goals for Atlanta based on AMERICAN FORESTS' guidelines for eastern US:
40% tree canopy overall
50% tree canopy in suburban residential zones
25% tree canopy I urban residential zones
15% tree canopy in the central business district

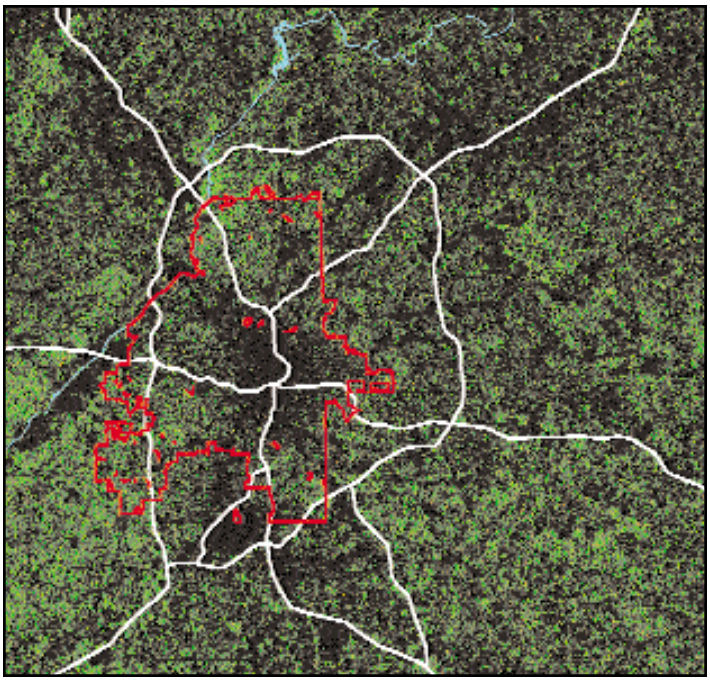
■ Utilize CITYgreen software and the AMERICAN FORESTS' Urban Ecosystem Analysis technique as a means of involving the community in the planning process

■ Expand the capacity and usefulness of this analysis by conducting UEA's using aerial imagery and high resolution, multi-spectral satellite imagery for citywide and countywide planning, as well as local site planning.

Regional Changes in Tree Cover



Landsat MSS 1974 80 Meter Pixel Resolution



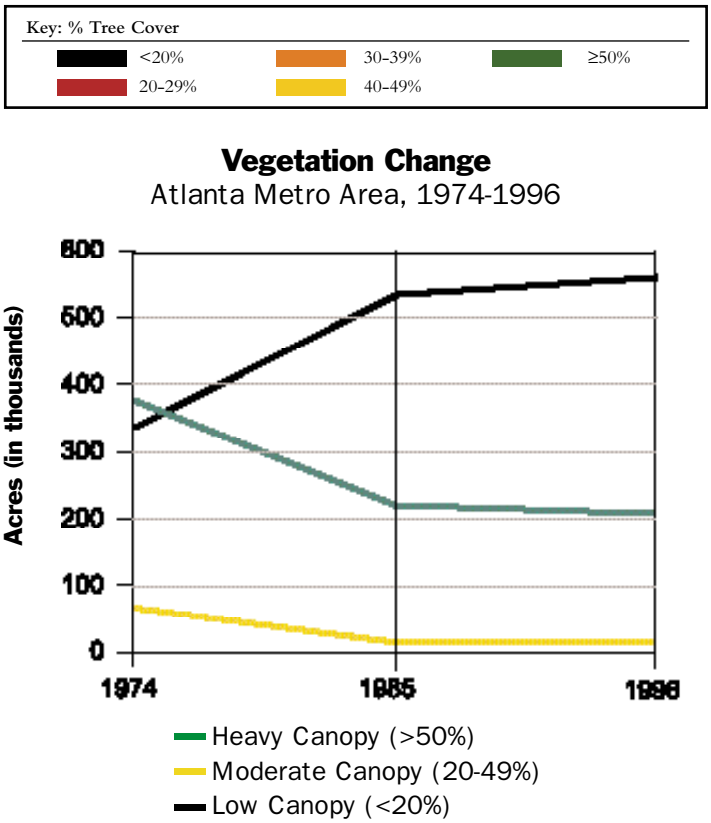
Landsat TM 1996 30 Meter Pixel Resolution

In 2001, AMERICAN FORESTS conducted a regional study of the Atlanta Metropolitan Area including 775,000 acres centered on the City of Atlanta. The study determined how the landscape had changed over time and calculated the impact of the changes on community management costs.

Major Findings:

- Heavy tree cover declined from 48% in 1974 to 26% in 1996 (green areas) and low canopy areas increased from 44% in 1974 to 71% in 1996 (black areas).
- The tree loss resulted in a 33% increase in stormwater runoff (from each 2 year peak storm event). Costs to build stormwater retention facilities to intercept an increase would cost $1.18 billion ($2/cubic ft. of storage).
- Lost tree canopy would have removed 11 million pounds of pollutants annually at a value of approximately $28 million per year.
- Summer residential energy savings as a result of tree shade is estimated at $2.8 million annually.

The Landsat satellite images provide valuable public policy information showing general tree loss trends and resulting lost benefits. Since planning is implemented at a site level, individual projects can increase tree canopy cover and increase environmental benefits. Taken as a whole, the Atlanta community could reverse these trends, improve environmental quality and reduce their gray infrastructure costs.



The change in vegetation depicted in the satellite images is represented in this line graph.

Analysis Methodology

Ecological Structure Classification

AMERICAN FORESTS' tree canopy analysis is based on the assessment of "ecological structures"—unique combinations of land use and land cover patterns. Each combination performs ecological functions differently and is therefore assigned a different value. For example, a site with heavy tree canopy provides more stormwater reduction benefits than one with lighter tree canopy and more impervious surface.

Data Used

For the original study conducted in 2001, Landsat Satellite TM (30 meter pixel) and MSS (80 meter pixel) images were used as the source of land cover data. AMERICAN FORESTS used a subpixel classification technique and divided land cover into nine vegetation categories.

For the three study sites, the project partners provided maps. These paper maps were scanned into a digital form. AMERICAN FORESTS' staff digitized the land cover data—trees, impervious surfaces, houses, parking lots, bike trail etc. onto the plan. Project partners provided the designs for improving tree canopy cover and strategically siting trees for energy conservation.

AMERICAN FORESTS developed CITYgreen® software to help communities analyze the value of local trees and vegetation as part of urban infrastructure. CITYgreen is an application of ArcView for Windows, a Geographic Information Systems (GIS) software developed by ESRI.

Analysis Formulas

CITYgreen version 5.0 used vector data created for documenting the land covers of the three study sites. The following formulas are incorporated into CITYgreen software.

TR-55 for Stormwater Runoff: The stormwater runoff calculations incorporate formulas from the Urban Hydrology of Small Watersheds model, (TR-55) developed by the US Natural Resources Conservation Service (NRCS), formerly known as the US Soil Conservation Service. Don Woodward, P.E., a hydrologic engineer with NRCS, customized the formulas to determine the benefits of trees and other urban vegetation with respect to stormwater management.

UFORE Model for Air Pollution: CITYgreen uses formulas from a model developed by David Nowak, PhD, and USDA Forest Service. The model estimates how many pounds of ozone, sulfur dioxide, nitrogen dioxide, and carbon monoxide are deposited in tree canopies as well as the amount of carbon sequestered. The urban forest effects (UFORE) model is based on data collected in 50 US cities. Dollar values for air pollutants are based on averaging the externality costs set by the State Public Service Commission in each state. Externality costs, are the indirect costs to society, such as rising health care expenditures as a result of air pollutants' detrimental effects on human health.

Energy Conservation: CITYgreen uses formulas for energy conservation developed by E. Gregory McPherson, PhD, and USDA Forest Service. The program estimates benefits of trees from direct shading of single-family residential buildings less than three stories tall. A 1-5 energy rating is assigned each tree based on distance and orientation from building, and its ability to shade a window and/or an air conditioner. Each home's annual energy use is multiplied by each associated tree's multiplier (interpolated from McPherson's research) to produce an estimate of dollar and kilowatt-hour savings per household. Annual energy costs for air conditioning are obtained from the local utility company or from the U.S. Department of Energy.

Avoided Carbon: CITYgreen avoided carbon module begins with kWh savings estimated in the energy module. Because different fuel sources emit different levels of carbon per unit of electricity production, the impact of a conserved kWh will vary depending o local fuel sources. To account for this, the amount of saved kWh from the energy module is multiplied by Energy Information Administration (EIA) data for state level fuel sources used I electricity production.

Temperature Modeling
Dr. Jeffery Luvall, National Aeronautical and Space Administration (NASA), used remote sensing to measure surface radiant temperatures emitted from satellite imagery. Temperatures were measured in the upper one-third of the tree canopy and approximates air temperature but can vary depending on tree species, wind and other conditions.

Luvall, recorded the surface radiant temperatures of trees at Southside Shopping Mall in Atlanta for 0%, 30%, and 80% tree canopy conditions. Temperatures were recorded on May 11, 1997; the air temperature was 76 degrees F. These temperature/canopy correlations established a trend that were used to model the three demonstration study sites under current and planted conditions to derive temperature differences.

As a comparison to Luvall's data, Trees Atlanta measured summer afternoon asphalt temperatures at Turner Field parking lot and the Midtown Promenade Shopping Center in Atlanta. The air temperature ranged from the mid-to upper 80's. Temperatures were recorded on sunny and cloudy days. This data is not sufficient to create a model, but provided a useful comparison of sun and shade temperatures.

Acknowledgements

Several agencies and organizations participated in the Georgia Urban Forest Model, providing expertise in planning, planting, video documentation, development of educational materials and public relations. Partners include:

Arabia Mountain Heritage Alliance, Trees Atlanta, Georgia Forestry Commission, Park Pride, Georgia Urban Forest Council, and Habitat for Humanity.

For our analysis, special thanks to Jeffrey Luvall, Senior Scientist, National Aeronautical and Space Administration (NASA) who provided temperature information under different tree canopy conditions in Atlanta and to Trees Atlanta for gathering additional temperature information.

For More Information

AMERICAN FORESTS, founded in 1875, is the oldest national nonprofit citizen conservation organization. Its three centers–Global ReLeaf, Urban Forestry, and Forest Policy–mobilize people to improve the environment by planting and caring for trees.

AMERICAN FORESTS' CITYgreen software provides individuals, organizations, and agencies with a powerful tool to evaluate development and restoration strategies and impacts on urban ecosystems. AMERICAN FORESTS offers regional training workshops and technical support for CITYgreen and is a certified ESRI developer and reseller of ArcView products. For further information contact:

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Macon, GA 31202-0819
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Website: www.gfc.state.ga.us


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Tree Assessment Reports

Right of Ways

Brook Run Park

Dunwoody Nature Center

Windwood Hollow Park

Vernon Oaks Park

Donaldson-Bannister Park

North Dekalb Cultural Arts Center

Perimeter Center East Park

Rochelle Drive Dead End Trail

Dunwoody
Smart people – Smart city

Tree Assessment

Road Right of Ways

Submitted by:
Arborguard Tree Specialists
June 2012

Solutions Naturally
Arborguard
Tree Specialists

Ecological Planning Group

AEC

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Introduction

A tree assessment was conducted on road right of way specimen and hazardous or potentially hazardous trees throughout the City of Dunwoody in early 2012. The rule of thumb for road right of way is 10 feet from the back of the street curb. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 326 trees identified as either specimen trees or trees of concern within the city right of ways. The trees consist of 27 species. The most common tree species are Dogwood and Southern Red Oak. The inventory was completed using GIS and GPS technology. This report is intended as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Right of Ways Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	326
Number of Species	27
Most Common Species	Dogwood & Silver Maple
Most common diameter	6"-10" (28% of all trees)
Largest diameter	54"
Condition	Good=36 Fair=269 Poor=21
Maintenance Priority Levels *	1=31 2=52 3=213 4=30

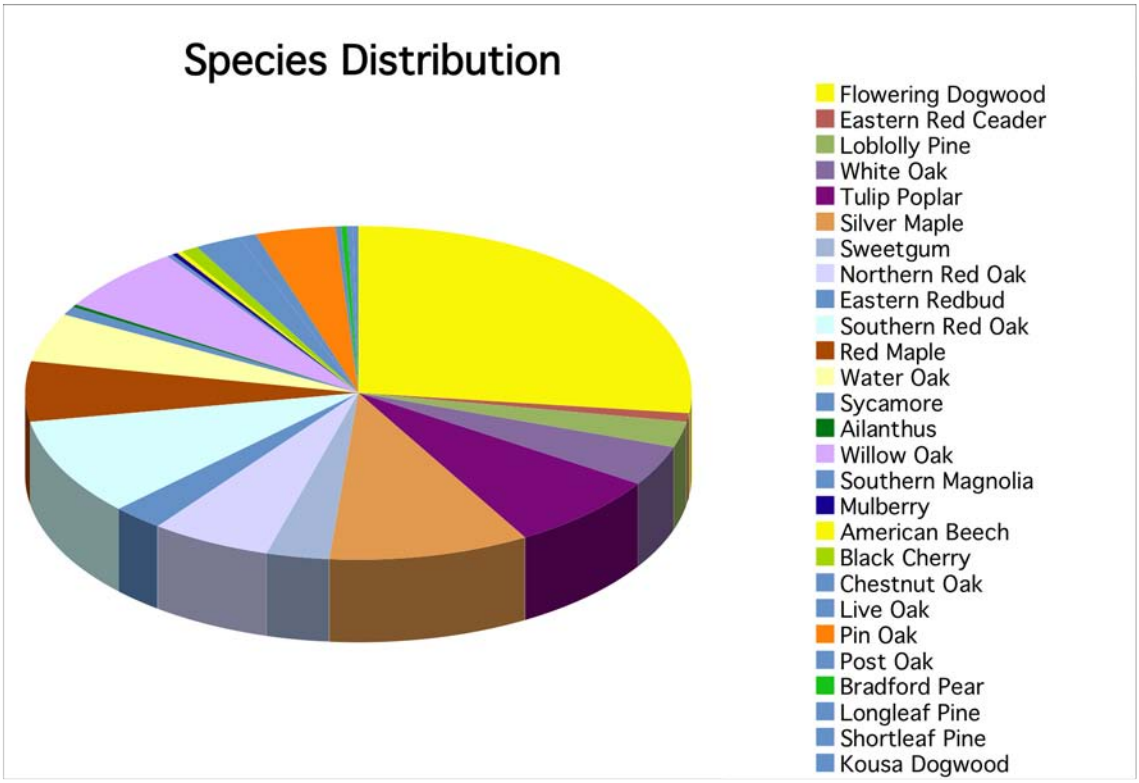
Results

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(* See page 6 for more information of Maintenance Priority Levels)

Species Distribution

There are 27 different species of tree surveyed along the road right of ways. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



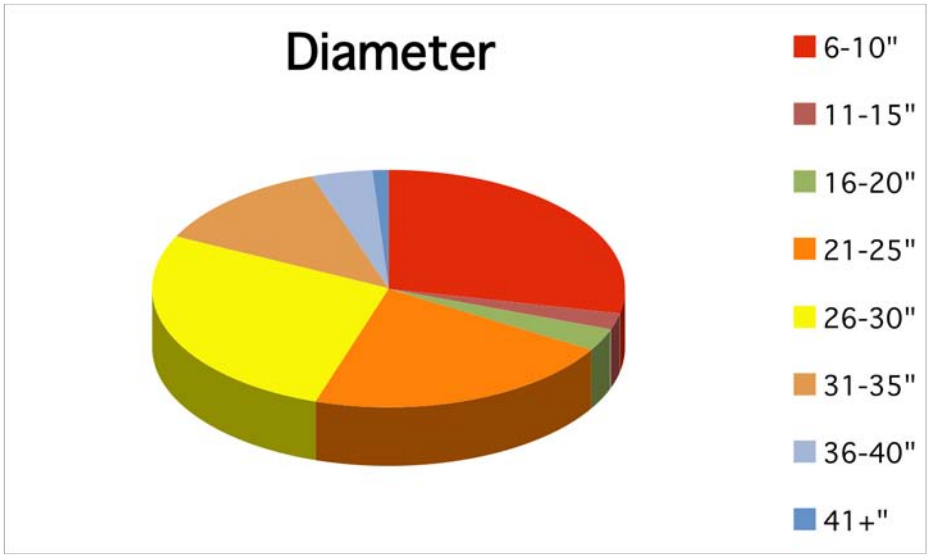
Amount of Trees Per Species

Species	Number of Trees
Dogwood	89
Kousa Dogwood	1
Eastern Red Ceader	2
Loblolly Pine	8
Longleaf Pine	1
Shortleaf Pine	1
White Oak	13
Tulip Poplar	24
Silver Maple	32
Sweetgum	10
Northern Red Oak	19
Eastern Redbud	8
Southern Red Oak	31
Red Maple	19
Water Oak	15
Sycamore	3
Ailanthus	1
Willow Oak	20
Southern Magnolia	1
Mulberry	1
American Beech	1
Black Cherry	3
Chestnut Oak	7
Live Oak	3
Pin Oak	12
Post Oak	1

Diameters

The Specimen trees along the road right of ways range from 6 to 54 inches in diameter. The majority of the trees (28%) are between 6 and 10 inches in diameter.

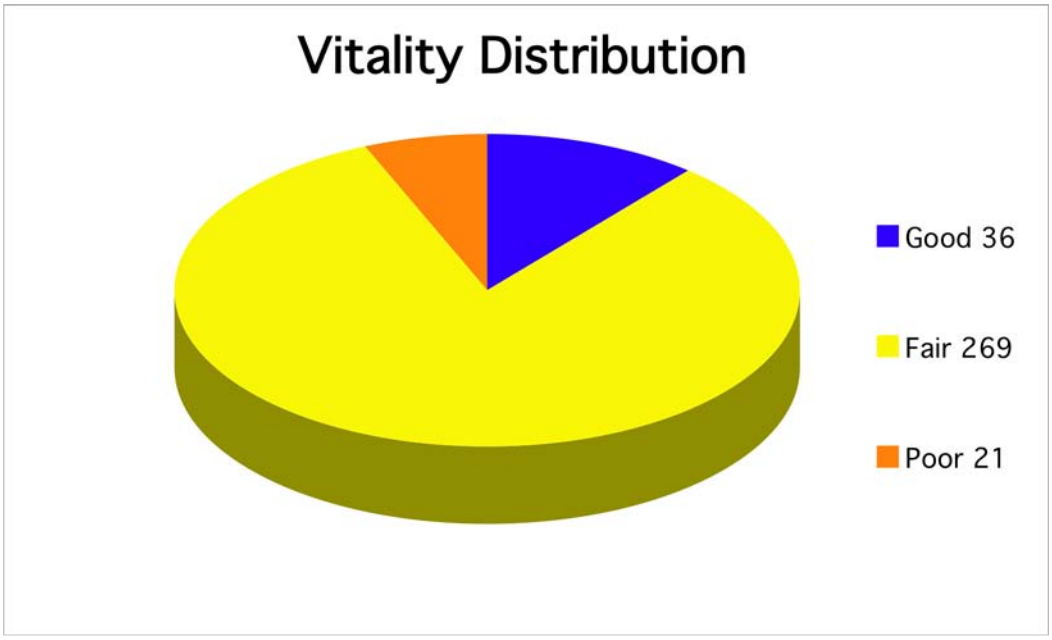
Diameter	Amount
6-10″	92
11-15″	8
16-20″	10
21-25″	69
26-30″	89
31-35″	41
36-40″	13
41″+	4



Vitality Rating

Of the trees surveyed, 11% are in good condition, 83% are in fair condition, 6% are in poor condition. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	36
Fair	269
Poor	21



Maintenance Priorities

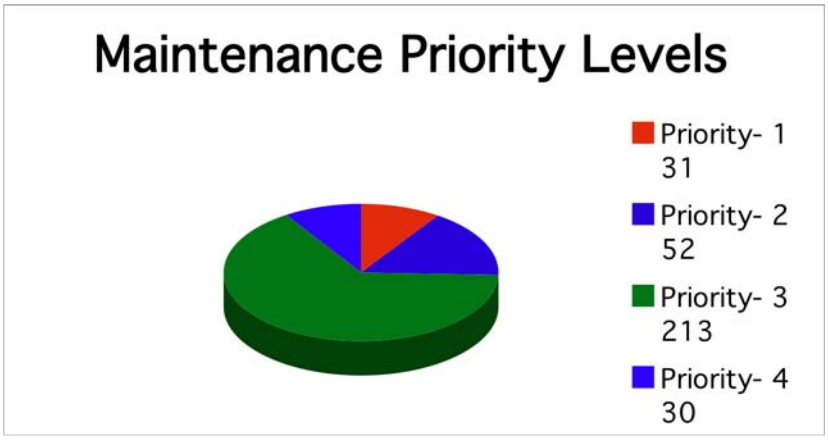
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	31
Priority 2	52
Priority 3	213
Priority 4	30



Recommendations

The City of Dunwoody has an estimated 150 miles of public road right of ways that were assessed. The assessed trees were found to be in a location up to approximately 10' from the back of curbing and or the edge of sidewalks. Approximately 80 trees were found to be dead or in poor condition and will require immediate action to insure the safety and well being of the general public who make use of these spaces. Approximately 200 trees will require maintenance over the course of the next six months to remove dead limbs.

Many of these identified trees are found to be adjacent to private residential properties. Typically, the soils within these rights of ways were found to be somewhat compacted, droughty and unfertile. In these areas, there does not appear to be a significant amount of foot traffic. The soil compaction present is likely due to the operation of lawn maintenance equipment over the soil for several decades.

Generally, on the rights of ways, focus should be placed on pruning and removing dangerous trees, followed by a pruning program. A plant health care program should be considered, as a number of declining specimen trees found on the rights of ways will benefit from supplemental nutrient applications.

Maintenance Schedule

The following budgets for tree removal and tree pruning are reflective of standard tree care rates typical of fully insured and highly qualified local arborists. These trees are located on rights of ways and in some locations there is a high level of vehicular traffic which will require traffic control during the pruning/removal operations. It is expected that to satisfactorily complete this work it will require a time budget of approximately 1 months Please keep in mind that this program should be prioritized by greatest need first with the less critical tree care needs subsequently completed as budgets and timing permits.

Hazard tree removal site wide (approximately 13 trees):

- Labor: $23000
- Wood Disposal: $2500
- Equipment: $8000

Tree pruning site wide (approximately 70 trees):

- Labor: $16000
- Equipment: $3000

Plant Health Care site wide (approximately 15 trees):

- Soil fracturing/feeding: $2500 per application, should be completed at least 2 times annually for the first year.
- Insect suppressant sprays for high profile trees to be determined with the aid of City Arborist (approximately 15 trees): $340 per application, 5 applications annually are required for effective treatment.
- 3 risk assessments to determine structural integrity of specific trees: $900

Total estimated budget Pruning/Removal: $52500
Total estimated budget for Plant Health Care: $7600

Appendix A

Common Name – Latin Name Key

Common Name	Trees - Latin	Native/ Adaptive
Dogwood	*Cornus florida*	YES
Eastern Redbud	*Cercis canadensis*	YES
Water Oak	*Quercus nigra*	YES
Eastern Red Cedar	*Juniperus virginiana*	YES
White Oak	*Quercus alba*	YES
Kousa Dogwood	*Cornus kousa*	NO
Southern Magnolia	*Magnolia grandiflora*	YES
Red Maple	*Acer rubrum*	YES
American Beech	*Fagus grandifolia*	YES
Silver Maple	*Acer saccharinum*	YES
Post Oak	*Quercus stellata*	YES
Willow Oak	*Quercus phellos*	YES
Loblolly Pine	*Pinus taeda*	YES
Longleaf Pine	*Pinus palustris*	YES
Shortleaf Pine	*Pinus echinata*	YES
Tulip Poplar	*Liriodendron tulipifera*	YES
Sweetgum	*Liquidambar styraciflua*	YES
Northern Red Oak	*Quercus rubra*	YES
Southern Red Oak	*Quercus falcate*	YES
Sycamore	*Platanus occidentalis*	YES
Ailanthus	*Ailanthus altissima*	NO
Mulberry	*Morus rubra*	YES
Black Cherry	*Prunus serotina*	YES
Chestnut Oak	*Quercus prinus*	YES
Live Oak	*Quercus virginiana*	YES
Pin Oak	*Quercus palustris*	YES
Bradford Pear	*Pyrus calleryana*	NO

Appendix B

The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
1	Dogwood-Flowering	7	0	0	0	Fair	Prune & remove vines	2	Dead scaffolds, vines	2471 Brookhurst Dr.
2	Eastern Red Cedar	9	0	0	0	Fair	Prune-Deadwood	3	Tip dieback	2471 Brookhurst Dr.
3	Pine-Loblolly	33	0	0	0	Fair	Soil therapy	3	Large limb diverges from main trunk at app 5'	2471 Brookhurst Dr.
4	Dogwood-Flowering	6	0	0	0	Poor	Remove	1	Tree is >50% dead, deep cavity	2471 Brookhurst Dr.
5	Dogwood-Flowering	7	0	0	0	Poor	Prune	2	Sparse, deadwood	2442 Brookhurst Dr.
6	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Sparse, deadwood	2442 Brookhurst Dr.
7	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Wound at 1'	2442 Brookhurst Dr.
8	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Wound at base, weak union	2442 Brookhurst Dr.
9	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	2442 Brookhurst Dr.
10	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Deadwood, trunk cavity	2419 Brookhurst Dr.
11	Dogwood-Flowering	6	6	0	0	Fair	Prune	3	Deadwood	2419 Brookhurst Dr.
12	Dogwood-Flowering	8	0	0	0	Fair	Prune	1	Large amount of deadwood, vines	2419 Brookhurst Dr.
13	Dogwood-Flowering	8	0	0	0	Poor	Prune	2	Tree is 50% dead	2401 Brookhurst Dr.
14	Dogwood-Flowering	6	5	0	0	Poor	Prune	2	Deadwood	2401 Brookhurst Dr.
15	Oak-White	32	0	0	0	Fair	Prune	3	Asymmetrical canopy, stub cuts	4435 Huntington Dr.
16	Tulip Tree-Poplar	19	34	0	0	Fair	Prune	3	Codominant, deadwood	4492 Haverstraw Dr.
17	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Deadwood, loose bark, poor pruning cuts	4474 Haverstraw
18	Dogwood-Flowering	6	6	6	4	Fair	Prune & remove vines	2	Vine covered, deadwood	Haverstraw Ct. Cul de sac
19	Tulip Tree-Poplar	30	0	0	0	Fair	Prune & remove vines	2	Vine covered, deadwood	2488 King's Point Dr.
20	Maple-Silver	13	14	0	0	Fair	Prune	3	Codominant at 5', deadwood	2488 Flintshire Ct.
21	Dogwood-Flowering	7	0	0	0	Fair	None	3	Wounds on scaffold limbs	2445 Flintshire Ct.
22	Dogwood-Flowering	8	0	0	0	Good	None	4		2445 Flintshire Ct.
23	Sweetgum	24	0	0	0	Fair	None	3	Small cavity at base	2404 King's Point Dr.
24	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Deadwood, trunk cavity at 5'	2388 King's Point Dr.
25	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Deadwood	4570 King's Point Dr.
26	Oak-Northern Red	33	0	0	0	Poor	Remove	1	Leans toward N. Peachtree and has a large hazardous cavity opening at app 25ft that extends through the tree. Tree is hazardous.	N. Peachtree Rd. Brookhurst Dr.
27	Redbud	9	7	0	0	Fair	Prune	2	Dead scaffold, low limbs over sidewalk	4629 N. Peachtree Rd.
28	Oak-Southern Red	33	0	0	0	Fair	Prune	3	Deadwood, asymmetrical canopy	2308 N. Peachtree Rd.
29	Maple-Red	33	0	0	0	Fair	Prune	3	Trunk cavities, deadwood	4638 Ellsbury Dr.
30	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Sparse canopy, deadwood	4638 Ellsbury Dr.
31	Oak-Southern Red	29	0	0	0	Fair	None	4	Major canopy elevation has occurred	4626 Norwalk Dr.
32	Oak-Southern Red	30	0	0	0	Fair	Prune	3	Deadwood	4645 Norwalk Dr.
33	Oak-Southern Red	30	0	0	0	Fair	Soil therapy	3	Lean, cavity at base	4669 Norwalk Dr.
34	Maple-Silver	26	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, codominant at 7'	2580 Riverglenn Cir
35	Oak-Southern Red	30	0	0	0	Fair	Risk Assessment	1	Cavity at base, lower trunk failed sounding test, trunk sounds hollow	2391 Riverglenn Cir.
36	Oak-White	29	0	0	0	Good	None	4	Swollen area at base	2395 Ledgewood Dr.
37	Dogwood-Flowering	8	0	0	0	Fair	Soil therapy	3	Small trunk cavities	4769 Dunover Cir.
38	Dogwood-Flowering	8	0	0	0	Fair	Soil therapy	3	Codominant	4756 Dunover Cir.
39	Dogwood-Flowering	8	0	0	0	Fair	Risk Assessment	1	Large cavity & codominant at base	4669 Dunover Cir.
40	Maple-Red	24	0	0	0	Fair	Install Cable	2	Codominant at 7'	2419 Dunover Cir.
41	Oak-Water	54	0	0	0	Good	Prune	3	Deadwood	4630 Sharon Valley Ct.
42	Dogwood-Flowering	6	7	0	0	Fair	Soil therapy	3	Codominant at 2 feet	4522 Holliston Rd.
43	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Touching utility lines	4572 Amberly Ct. South
44	Redbud	16	0	0	0	Fair	Prune & remove vines	2	Vine covered, leaning toward road, deadwood	Across 4569 Amberly Ct. South
45	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Utility pruning, 60% of canopy is missing	4579 Amberly Ct.
46	Sycamore-American	24	0	0	0	Good	None	4		2636 Holliston Ct.

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47	Tulip Tree-Poplar	30	0	0	0	Fair	Soil therapy	3	Tip dieback	Across from 2636 Laurelwood Rd.
48	Tulip Tree-Poplar	30	12	0	0	Fair	Remove vines	2	Codominant at base with weak union, vines	Across from 2623 Laurelwood Rd.
49	Tulip Tree-Poplar	35	0	0	0	Fair	Remove vines	2	Vines	2608 Laurelwood Rd.
50	Oak-Southern Red	26	0	0	0	Poor	Remove	1	Cavity in trunk at 5', mistletoe, 50% of canopy is dead, leans toward road.	2608 Laurelwood Rd.
51	Dogwood-Flowering	8	7	0	0	Fair	Soil therapy	3	Codominant at 2 feet	4689 Eidson Rd.
52	Ailanthus	18	0	0	0	Fair	Prune	2	Lean, deadwood, asymmetrical canopy, invasive species	2588 Andover Dr.
53	Redbud	15	0	0	0	Fair	Prune	3	Small amount of deadwood	4719 Andalusia Pl.
54	Dogwood-Flowering	11	4	0	0	Good	None	4		4744 Andalusia Ct.
55	Dogwood-Flowering	9	8	6	0	Fair	Prune	3	Small amount of deadwood	2670 Stonehenge Way
56	Maple-Red	24	0	0	0	Fair	Prune	3	mistletoe	4607 Stonehenge Dr.
57	Oak-Willow	24	0	0	0	Fair	Soil therapy	3	Conflicting with utilities, wound at base	W. Madison Dr. & Tilly Mill Rd.
58	Oak-Southern Red	24	0	0	0	Fair	Soil therapy	3	Cavity at base, codominant @ 25', deadwood	Peeler Rd. Cherry Hill Ln.
59	Tulip Tree-Poplar	28	0	0	0	Fair	Prune	3	Asymmetrical canopy, deadwood	Peeler Rd. Cherry Hill Ln.
60	Tulip Tree-Poplar	27	0	0	0	Good	None	4		Peeler Rd. Cherry Hill Ln.
61	Oak-White	27	0	0	0	Fair	None	4	Codominant at 6 feet	Peeler Rd. Cherry Hill Ln.
62	Tulip Tree-Poplar	27	0	0	0	Fair	Prune	3	Deadwood	Peeler Rd. Cherry Hill Ln.
63	Oak-Southern Red	43	0	0	0	Good	None	3	Codominant at 6 feet	Peeler Rd. Cherry Hill Ln.
64	Tulip Tree-Poplar	30	0	0	0	Fair	Remove vines	2	Sparse canopy, vines	2485 Glenbonnie Dr.
65	Dogwood-Flowering	7	0	0	0	Good	None	4		4898 Coldstream Dr.
66	Dogwood-Flowering	7	6	6	0	Fair	Prune	3	Deadwood	4951 Firth Ln.
67	Dogwood-Flowering	6	9	0	0	Fair	Prune	3	Deadwood	4951 Firth Ln.
68	Dogwood-Flowering	11	9	0	0	Fair	Prune	3	Deadwood	4951 Firth Ln.
69	Magnolia-Southern	23	0	0	0	Fair	Prune	3	Codominant at 5 feet	4928 Coldstream Dr.
70	Oak-Water	27	0	0	0	Fair	Prune	3	Pruned for utilities	4928 Coldstream Dr.
71	Dogwood-Flowering	6	5	0	0	Fair	Prune	3	Deadwood	4961 Coldstream Dr.
72	Dogwood-Flowering	6	0	0	0	Fair	Soil therapy	3	Cavity in trunk at 2'	4903 Coldstream Dr.
73	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Deadwood	4903 Coldstream Dr.
74	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Deadwood	4903 Coldstream Dr.
75	Eastern Red Cedar	11	0	0	0	Fair	Prune	3	Growing into utility lines	4961 Coldstream Dr.
76	Dogwood-Flowering	6	5	0	0	Fair	Soil therapy	3	Basal wound	4961 Coldstream Dr.
77	Dogwood-Flowering	6	0	0	0	Fair	Soil therapy	3	Sparse asymmetrical canopy	4970 Coldstream Dr.
78	Dogwood-Flowering	7	8	0	0	Fair	Prune	3	Deadwood	4970 Coldstream Dr.
79	Dogwood-Flowering	7	7	0	0	Fair	Prune	3	Deadwood	2433 Maclauren Cir.
80	Eastern Redbud	10	11	0	0	Fair	Risk Assessment	1	Cavities at 1'	4884 Maclaren Cir.
81	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Deadwood	5029 Lakeside Dr.
82	Oak-Northern Red	26	0	0	0	Fair	Prune-Structural	3	Lean & asymmetrical canopy	5094 Lakeside Dr.
83	Tulip Tree-Poplar	21	0	0	0	Fair	Soil therapy	2	Lean over road, asymmetrical canopy, trunk bow	4973 Lakebrook Dr.
84	Maple-Silver	34	12	0	0	Fair	Cable	3	Codominant	2574 Bentbrook Ct.
85	Oak-Southern Red	28	0	0	0	Fair	Soil therapy	3	Lean & asymmetrical canopy	4904 Lakeside Dr.
86	Oak-Southern Red	25	0	0	0	Fair	Soil therapy	3	Cavity at base, broken scaffolds	4904 Lakeside Dr.
87	Oak-Willow	40	0	0	0	Fair	Soil therapy	3	Codominant	2976 Four Oaks Dr.
88	Oak-Southern Red	30	0	0	0	Fair	Prune	3	Mistletoe and deadwood	5053 Glaze Dr.
89	Oak-Southern Red	24	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	5053 Glaze Dr.
90	Mulberry	31	0	0	0	Fair	Prune-Deadwood	3	Deadwood	2920 Fontainbleau Dr.
91	Dogwood-Flowering	6	6	0	0	Fair	Prune-Deadwood	3	Codominant at 1',deadwood	5238 Sanlee Ln.
92	Dogwood-Flowering	10	0	0	0	Fair	Prune-Deadwood	3	Deadwood	5238 Sanlee Ln.
93	Dogwood-Flowering	6	5	4	0	Fair	Prune-Deadwood	3	Deadwood	5238 Sanlee Ln.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
94	Dogwood-Flowering	10	0	0	0	Fair	Prune-Deadwood	3	Deadwood	5233 Arrie Way
95	Maple-Red	27	0	0	0	Fair	Soil therapy	3	Codominant at 5 feet	5240 Arrie Way
96	Maple-Silver	26	0	0	0	Fair	Soil therapy	3	Pruned for utilities	5225 Arrie Way
97	Maple-Silver	22	12	8	8	Fair	Soil therapy	3	multiple stems	5225 Arrie Way
98	Oak-Northern Red	27	0	0	0	Fair	Soil therapy	3	Lean toward road, cavity at 25 feet, asymmetric canopy	2932 Sumac Dr.
99	Oak-Northern Red	30	0	0	0	Fair	Soil therapy	3	Has had extensive pruning for line clearance	2932 Sumac Dr.
100	Oak-White	35	0	0	0	Fair	Soil therapy	3	Small foliage, epitomic sprouts	4892 Lakeside Dr.
101	Tulip Tree-Poplar	25	0	0	0	Fair	Soil therapy	3	Seam in lower trunk	2746 Fleur de lis Way
102	Oak-White	26	0	0	0	Fair	Soil therapy	3	Canopy elevation pruning for utilities and driveway	2473 Fontainbleau Dr.
103	Maple-Silver	33	0	0	0	Fair	Soil therapy	3	App 40% canopy has been removed for line clearance	5027 Chestnut Forest Ct.
104	Tulip Tree-Poplar	33	0	0	0	Fair	Prune	3	Asymmetrical canopy, tip dieback, deadwood	5056 Heatherdale Ln.
105	Oak-Southern Red	30	0	0	0	Fair	Soil therapy	3	Deadwood, trunk is overlapping driveway	2416 Delverton Dr.
106	Oak-Water	21	0	0	0	Poor	Remove	1	Tree is >50% dead	4955 Delverton Ct.
107	Pine-Loblolly	20	19	0	0	Fair	Soil therapy	3	Weak union, driveway is being damaged	2420 Leisure Lake Dr.
108	Beech-American	43	0	0	0	Fair	Soil therapy	3	Cavity in base of tree	2364 Leisure Lane
109	Oak-Water	33	0	0	0	Poor	Remove	1	Excessively pruned, topped, poor form, declining rapidly	2339 Welton Pl.
110	Maple-Red	34	0	0	0	Fair	Soil therapy	3	Multiple stems	5351 N. Peachtree Rd.
111	Maple-Red	26	0	0	0	Good	None	4		2335 Little Brooke Dr.
112	Maple-Red	24	0	0	0	Good	None	4		5215 Waterford Dr.
113	Oak-Southern Red	28	0	0	0	Fair	Soil therapy	3	Tip dieback	4843 Tilly Mill Rd.
114	Cherry-Black	11	0	0	0	Poor	Remove	1	Lean and trunk decay	4853 Tilly Mill Rd.
115	Oak-White	24	0	0	0	Fair	Remove vines	2	Vines	4863 Tilly Mill Rd.
116	Oak-Northern Red	24	0	0	0	Fair	Soil therapy	3	Utility pruning	5424 Tilly Mill Rd.
117	Oak-Northern Red	25	0	0	0	Fair	Soil therapy	3	Utility pruning	5424 Tilly Mill Rd.
118	Maple-Red	25	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	Holland Ct. & Tilly Mill Rd.
119	Oak-Water	40	0	0	0	Good	Prune	3	Mistletoe, tip dieback	Jett Ferry Rd. & Mt. Vernon Rd.
120	Pine-Loblolly	39	0	0	0	Fair	Prune, Remove vines	2	Vines, deadwood	2015 Trumbull Dr.
121	Maple-Red	18	14	0	0	Fair	Soil therapy	3	Codominant	1814 Trumbull Dr.
122	Pine-Longleaf	19	0	0		Fair	Prune	3	Lean, deadwood, asymmetrical canopy, wound at base	1814 Trumbull Dr.
123	Pine-Loblolly	21	0	0	0	Fair	Prune	3	Lean, deadwood, asymmetrical canopy, wound at base	1814 Trumbull Dr.
124	Oak-Southern Red	29	0	0	0	Fair	Prune	2	Limbs growing into roadway	1840 Trumbull Dr.
125	Maple-Silver	28	0	0	0	Fair	Prune	3	Asymmetrical canopy, tip dieback, deadwood	5070 Hensley Dr.
126	Maple-Red	24	0	0	0	Fair	Soil therapy	3	Codominant	5204 Meadowlake Dr.
127	Oak-Southern Red	19	0	0	0	Poor	Remove	1	Leaning over road way >50% dead	5144 Meadowlake Ln.
128	Oak-Southern Red	30	0	0	0	Fair	Prune	3	Deadwood	5101 Meadowlake Ln.
129	Maple-Red	27	0	0	0	Poor	Prune or Remove	1	Codominant at 4', weak union, cavity at 12', trunk decay, deadwood, mistletoe	5307 Lake Springs Dr.
130	Oak-Northern Red	23	0	0	0	Poor	Remove	1	Excessively pruned, topped, poor form, declining rapidly	Lake Springs Way & Tilly Mill Rd.
131	Maple-Red	24	0	0	0	Poor	Remove	1	Excessively pruned, topped, poor form, declining rapidly	Lake Springs Way & Tilly Mill Rd.
132	Oak-Northern Red	39	0	0	0	Fair	Prune	3	Mistletoe, codominant	5088 Vernon Oaks Dr.
133	Oak-Northern Red	37	0	0	0	Fair	Prune	3	Mistletoe, tip dieback	5039 Damon Pl.
134	Maple-Red	35	0	0	0	Poor	Prune & soil therapy	1	Cavity in trunk, tip dieback, mistletoe, root decay, asymmetrical canopy	1630 Damon Pl.
135	Sweetgum	25	0	0	0	Fair	Prune	1	Limbs growing into roadway, deadwood	1605 Damon Pl.
136	Tulip Tree-Poplar	27	0	0	0	Fair	Prune	2	Deadwood, cavity at base, lean	5138 Vernon Springs Dr.
137	Oak-Northern Red	27	12	0	0	Fair	Prune	3	Codominant, deadwood	Mt. Vernon Way & Cedarhurst Dr.
138	Oak-Chestnut	27	0	0	0	Fair	Prune, remove vines	2	Low limbs in roadway, vines	5031 Wickford Dr.
139	Oak-Southern Red	29	0	0	0	Fair	Prune	3	Deadwood	5181 Wellshire Pl.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
140	Maple-Red	24	0	0	0	Fair	Soil therapy	3	Codominant	1610 Wellshire Ln.
141	Oak-Southern Red	28	0	0	0	Good	None	4		4165 Chestnut Ridge
142	Sycamore-American	32	0	0	0	Fair	Prune	3	Deadwood	4900 Chestnut Ridge
143	Oak-Water	29	0	0	0	Fair	Soil therapy	3	Pruned for utilities	1571 Springfield Ct.
144	Oak-White	33	0	0	0	Fair	Soil therapy	3	Pruned for utilities	1940 Village Creek Ct.
145	Sweetgum	28	0	0	0	Fair	Remove vines	2	Pruned for utilities, vines	4721 Olde Village Ln.
146	Oak-White	27	0	0	0	Fair	Soil therapy	3	Pruned for utilities, sparse canopy	1828 Olde Village Run
147	Maple-Silver	25	0	0	0	Good	None	4		4754 Vermack Ridge
148	Maple-Silver	39	0	0	0	Fair	Prune	3	Trunk cavity, deadwood	4854 Leeds Ct.
149	Oak-Water	30	0	0	0	Fair	Prune	3	Deadwood	4883 Millbrook Dr.
150	Tulip Tree-Poplar	31	0	0	0	Fair	Prune	3	Root decay, deadwood	2138 Strasburg Ct.
151	Oak-Water	40	0	0	0	Fair	Prune	3	Deadwood	1888 Peeler Rd.
152	Oak-Northern Red	27	0	0	0	Fair	Soil therapy	3	Tip dieback	4471 Village Dr.
153	Oak-Northern Red	27	0	0	0	Fair	Prune	3	Deadwood	4471 Village Dr.
154	Oak-Northern Red	25	0	0	0	Fair	Prune	3	Deadwood	4477 Village Dr.
155	Oak-Live	40	0	0	0	Fair	Prune	3	Deadwood	4477 Village Dr.
156	Oak-Willow	25	0	0	0	Fair	Soil therapy	3	Damaging driveway, deadwood	4483 Village Dr.
157	Oak-Southern Red	31	0	0	0	Fair	Prune	3	Excessively pruned , mistletoe	Chamblee Dunwoody Rd. & Old Spring Hse Ln.
158	Tulip Tree-Poplar	27	0	0	0	Fair	Soil therapy	3	Excessively pruned	1582 Bishop Hollow Run
159	Tulip Tree-Poplar	30	0	0	0	Good	Prune	3	Asymmetrical canopy, deadwood	1506 Rochelle Dr.
160	Oak-Southern Red	35	0	0	0	Fair	Soil therapy	3	Buckling sidewalk	1771 N. Springs Dr.
161	Sweetgum	26	0	0	0	Fair	Soil therapy	3	Scaffold wound at 18',	4614 King's Down Ct.
162	Tulip Tree-Poplar	32	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	King's Down Rd. & King's Down Cir.
163	Tulip Tree-Poplar	24	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	King's Down Rd. & King's Down Cir.
164	Maple-Silver	32	0	0	0	Fair	Soil therapy	3	Multiple stems, sparse canopy	1442 Ridgemont Rd.
165	Pine-Loblolly	28	0	0	0	Fair	Soil therapy	3	50% of trunk wounded, 50% of canopy is missing	Ridgemont Rd. & King's Down Rd.
166	Oak-White	24	0	0	0	Fair	Prune	3	Low amount of dead limbs	5049 Sirron Ct.
167	Oak-Northern Red	24	0	0	0	Fair	None	4	Buckling driveway	1632 Shadow Ct.
168	Oak-Southern Red	28	0	0	0	Fair	Prune	2	Low limbs in roadway, damage to sidewalk, broken stubs	4917 Chamblee Dunwoody Rd.
169	Oak-Southern Red	28	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	4917 Chamblee Dunwoody Rd.
170	Pine-Loblolly	33	0	0	0	Fair	Soil therapy	3	swollen trunk at 20'	Shadow Bend & Chamblee Dunwoody Rd.
171	Pine-Loblolly	31	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	4673 Devonshire Rd.
172	Pine-Loblolly	30	0	0	0	Fair	Remove vines	2	Vines	1308 Valley View Rd.
173	Tulip Tree-Poplar	25	0	0	0	Fair	Remove vines	2	Vines	1308 Valley View Rd.
174	Sweetgum	22	16	10	0	Fair	Soil therapy	3	Multi stem with weak unions	1320 Valley View Rd.
175	Oak-Water	39	0	0	0	Good	None	4		Ashford Dunwoody Rd. & Ravinia North
176	Oak-Water	34	0	0	0	Good	None	4		Ashford Dunwoody Rd. & Ravinia North
177	Oak-Pin	24	0	0	0	Poor	Prune & soil therapy	1	App 50% of the tree is dead, large amounts of hangers	1 Perimeter Ctr. East @ Bank of America
178	Oak-Pin	34	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	Median of Perimeter Ctr. East @ Ashford-Dunwoody Rd.
179	Oak-Southern Red	26	0	0	0	Good	None	4		Perimeter Ctr East at Alexander Apts.
180	Oak-Willow	30	0	0	0	Fair	Soil therapy	3	Impacted by recent sidewalk construction	Perimeter Ctr East at Alexander Apts.
181	Tulip Tree-Poplar	51	0	0	0	Fair	Soil therapy	3	Codominant at 7', cable has been installed	Perimeter Ctr East at Alexander Apts.
182	Oak-White	26	0	0	0	Good	None	4		Perimeter Ctr East at Alexander Apts.
183	Oak-Northern Red	24	1	0	0	Fair	Prune	3	Restricted root space, deadwood	Perimeter Ctr East at Park Place
184	Maple-Red	27	0	0	0	Fair	Prune	3	Codominant at 15', deadwood	Median tree at 64 Perimeter Ctr East.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
185	Oak-Pin	29	0	0	0	Fair	Prune	3	Restricted root space, deadwood	Median at Ashford Dunwoody Rd. & Perimeter Ctr. North
186	Oak-Willow	24	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	Median at Peachtree Ctr. North at Ashford Dunwoody Rd
187	Oak-Willow	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs over roadway	Median at Peachtree Ctr. North at Ashford Dunwoody Rd
188	Oak-Willow	29	0	0	0	Fair	Prune	2	Low limbs, deadwood	Ashford Dunwoody Rd. & Perimeter Ctr. North
189	Oak-Willow	28	0	0	0	Fair	Prune	2	Low limbs, deadwood	Ashford Dunwoody Rd. & Perimeter Ctr. North
190	Oak-Willow	26	0	0	0	Fair	Prune	2	Low limbs, deadwood	Ashford Dunwoody Rd. & Perimeter Ctr. North
191	Oak-Willow	24	0	0	0	Fair	Prune	3	Deadwood	Valley View Rd. & Ashford Dunwoody Rd.
192	Oak-Willow	34	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	Perimeter Ctr. West median near Ashford Dunwoody Rd.
193	Oak-Willow	29	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	Perimeter Ctr. West median near Ashford Dunwoody Rd.
194	Maple-Silver	28	0	0	0	Fair	Prune	3	Mistletoe and deadwood	Perimeter Ctr. West median near Ashford Dunwoody Rd.
195	Oak-Pin	35	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
196	Oak-Pin	25	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
197	Oak-Pin	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
198	Oak-Pin	25	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
199	Oak-Live	34	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
200	Oak-White	27	0	0	0	Fair	Prune	3	Deadwood, asymmetrical canopy	Dunwoody Station Dr. & Mt. Vernon Rd.
201	Maple-Silver	25	0	0	0	Fair	Soil therapy	3	Cavities at base, sparse canopy, tip dieback	1160 Atcheson Ln.
202	Maple-Silver	26	0	0	0	Fair	Soil therapy	3	Pruned for utilities, cavity at 4', tip dieback	4834 Topeka Ct.
203	Maple-Silver	28	0	0	0	Fair	Soil therapy	3	Pruned for utilities, mistletoe, wounds on roots	1123 Atcheson Ln
204	Maple-Silver	12	12	13	14	Poor	Prune or Remove	1	Multi stemmed with weak union + fungal fruiting bodies	Across from 1441 Mile Post Rd.
205	Maple-Red	26	0	0	0	Fair	Soil therapy	3	Vertical wound at base 5' tall, tip dieback	Across from 1441 Mile Post Rd.
206	Maple-Silver	25	0	0	0	Fair	Prune	3	Deadwood	1441 Mile Post Rd.
207	Oak-Pin	29	0	0	0	Fair	Prune	3	Mistletoe	1358 Mile Post Rd.
208	Maple-Silver	27	0	0	0	Fair	Prune	3	Deadwood	1169 Mile Post Rd.
209	Oak-Chestnut	23	24	0	0	Fair	Soil therapy	3	Codominant at 2', tip dieback	6930 Hunter's Branch Dr.
210	Sycamore-American	24	0	0	0	Fair	Soil therapy	3	Wounds on roots	1071 Winding Branch Ln.
211	Oak-Chestnut	24	0	0	0	Fair	Soil therapy	3	Wounds on roots	5153 Hidden Branches Cir.
212	Cherry	36	0	0	0	Fair	Prune & remove vines	1	Low limbs in roadway, vines	5163 Hidden Branches Cir.
213	Maple-Silver	25	0	0	0	Fair	Soil therapy	3	Pruned for utility lines	4968 Twin Branches Way
214	Maple-Silver	32	0	0	0	Good	None	4		5027 Old Branch Ct.
215	Oak-Post	34	0	0	0	Fair	Soil therapy	3	Sparse, epicormic sprouts, tip dieback	5591 Chamblee Dunwoody Rd.
216	Maple-Red	26	0	0	0	Fair	Prune	2	Limbs are touching utility lines	5229 Wynterhall Cir.
217	Oak-Willow	25	0	0	0	Good	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
218	Oak-Willow	25	0	0	0	Good	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
219	Oak-Willow	24	0	0	0	Good	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
220	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
221	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
222	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
223	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
224	Oak-Water	25	0	0	0	Fair	None	4	Pruned for utility lines	Chamblee Dunwoody Rd. & Harris Cir.
225	Oak-Southern Red	37	0	0	0	Fair	Soil therapy	3	Codominant	5334 Harris Cir.
226	Maple-Silver	31	0	0	0	Fair	Soil therapy	3	large scaffold limb at 6'with weak attachment	5334 Harris Cir.
227	Tulip Tree-Poplar	34	0	0	0	Fair	Soil therapy	3	Tip dieback	1136 Aurora
228	Pine-Shortleaf	14	0	0	0	Poor	Remove	1	50% of the tree is dead, growing into utility lines	Roberts Dr. & Manor Oaks Ct.
229	Sweetgum	25	0	0	0	Fair	Prune	3	Root damage, dead scaffold limbs, tip dieback	5658 Mill Trace Dr.
230	Oak-Northern Red	36	0	0	0	Good	Soil therapy	3	Codominant with weak union	5652 Mill Trace Dr.
231	Oak-Northern Red	36	0	0	0	Fair	Prune	2	Large amount of deadwood	5640 Mill Trace Dr.
232	Oak-Southern Red	24	0	0	0	Good	Soil therapy	3		1318 Witham Rd.
233	Sweetgum	24	0	0	0	Fair	Soil therapy	3	Buckling curb, limited root space	1318 Witham Rd.
234	Bradford Pear	24	0	0	0	Fair	Soil therapy	3	Pruned for utility lines	5466 Bunky Way
235	Redbud	18	16	0	0	Poor	Remove	1	Multiple cavities in trunk, 50% of tree is dead	5527 Bunky Way
236	Tulip Tree-Poplar	29	0	0	0	Fair	Prune	3	Deadwood, buckling driveway	1709 Withmere Way
237	Oak-Water	32	0	0	0	Fair	Prune	1	Limbs in roadway, vines, deadwood	1758 Withmere Way
238	Maple-Silver	32	0	0	0	Fair	Soil therapy	3	Cavity in trunk at 3'	1532 Summerset Dr.
239	Maple-Silver	24	17	16	15	Fair	Cable	2	Multi stem at ground level	1573 Summerset Dr.
240	Oak-Water	24	0	0	0	Fair	Soil therapy	3	Pruned for utilities	1564 Biddle Ct.
241	Maple-Red	26	0	0	0	Fair	Prune	2	Deadwood, Low limbs	1423 Vernon Ridge Close
242	Oak-Pin	28	0	0	0	Fair	Prune	3	Deadwood	1439 Dunwoody Village Pkwy
243	Oak-Northern Red	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	1428 Dunwoody Village Pkwy
244	Maple-Silver	17	11	8	0	Fair	Prune & soil therapy	3	Weak union with included bark, tip dieback, low limbs	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
245	Oak-Pin	24	0	0	0	Fair	Prune	3	Deadwood	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
246	Oak-Pin	31	0	0	0	Fair	Prune	2	Deadwood, Low limbs, asymmetrical canopy	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
247	Oak-Pin	26		0	0	Fair	Prune	3	Deadwood, asymmetrical canopy	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
248	Cherry-Black	26	0	0	0	Fair	Soil therapy	3	Codominant, contacting adjacent tree, cavity at 30'	1409 Holly Bank Cir.
249	Tulip Tree-Poplar	34	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, cavity at base, pruned for utilities	1187 Verdon Dr.
250	Maple-Silver	27	0	0	0	Fair	Prune & remove vines	2	Ivy, mistletoe, contacting utilities	1290 Verdon Dr.
251	Maple-Silver	30	0	0	0	Fair	Soil therapy	3	Tip dieback, sparse canopy	1349 Wyntercreek Rd.
252	Maple-Silver	32	0	0	0	Fair	Prune	2	Asymmetrical canopy, low limbs in roadway,	1367 Wyntercreek Ln.
253	Maple-Red	25	0	0	0	Fair	Prune	3	Sparse canopy, deadwood	Wyntercreek Dr. & Wyntercreek Rd.
254	Oak-Southern Red	33	0	0	0	Fair	Prune	2	Asymmetrical canopy, low limbs in roadway, lean	Meadowcreek Ln. Cul de sac
255	Oak-Chestnut	27	0	0	0	Fair	Prune	1	Low limbs in roadway, asymmetrical canopy	Mt. Vernon Rd. & Vernon Oaks Dr.
256	Oak-Chestnut	24	0	0	0	Fair	Prune	1	Low limbs in roadway, asymmetrical canopy	Mt. Vernon Rd. & Vernon Oaks Dr.
257	Oak-Water	28	0	0	0	Fair	Prune	3	Asymmetrical canopy, deadwood	1781 Mt. Vernon Rd.
258	Oak-Southern Red	34	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	1748 Mt. Vernon Rd.
259	Oak-Water	27	0	0	0	Fair	Prune	1	Low limbs in roadway, cavity at base, deadwood	1749 Mt. Vernon Rd

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
260	Sweetgum	26	0	0	0	Poor	Remove	1	Large cavity in trunk at 2', fungal fruiting bodies, 50% of canopy missing	1719 Mt. Vernon Rd.
261	Oak-Southern Red	24	0	0	0	Poor	Remove	1	Cavity at base, fungal fruiting bodies, cavity at 8', deadwood	Mt. Vernon Rd. & Forest Springs Dr.
262	Oak-Willow	31	0	0	0	Fair	Prune	1	Low limbs in roadway, deadwood	5337 Cedar Chase
263	Redbud	24	0	0	0	Fair	Prune	3	Deadwood, sparse canopy, lean	1827 Forest Springs Ct.
264	Sweetgum	26	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, lean, tip dieback	1708 Houghton Ct. North
265	Maple-Silver	32	0	0	0	Fair	Soil therapy	3	Trunk wound, lead has been removed	5381 Forest Springs Dr.
266	Oak-Northern Red	29	0	0	0	Fair	Prune	3	Mistletoe deadwood	5380 Forest Springs Dr.
267	Maple-Silver	29	0	0	0	Fair	Prune	3	Deadwood, weak scaffold unions	1819 Vancroft Ct.
268	Maple-Silver	26	0	0	0	Fair	Prune	3	Tip dieback, deadwood,	1859 Vancroft Ct.
269	Oak-White	29	0	0	0	Fair	Soil therapy	2	Large wound at trunk base, loose bark	1890 Baynham Dr.
270	Oak-White	25	0	0	0	Good	None	4		5723 Stapleton Dr.
271	Tulip Tree-Poplar	24	0	0	0	Fair	Soil therapy	3	Cavities in some scaffold limbs	1831 Trowbridge Cove
272	Maple-Silver	22	20	0	0	Fair	Soil therapy	3	Codominant at 3', lead removed, cavity at 2'	Durrett Way & Durrett Dr.
273	Maple-Silver	28	0	0	0	Fair	Prune	3	Deadwood	1742 Tolleson Ct.
274	Oak-Live	20	20	0	0	Fair	Prune	1	Codominant at 1', tree is touching a utility pole and utilities	1741 Tolleson Ct.
275	Oak-Chestnut	24	0	0	0	Fair	Prune	1	Low limbs in roadway, deadwood,	5530 Woodsong Tr.
276	Oak-Chestnut	23	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, lean	5538 Woodsong Tr.
277	Maple-Silver	24	0	0	0	Good	None	4		5598 Woodsong Tr.
278	Sweetgum	26	0	0	0	Fair	Prune	3	Tip dieback, deadwood	5640 Woodsong Tr.
279	Oak-Southern Red	28	0	0	0	Fair	Prune	1	Low limbs in roadway, asymmetrical canopy, deadwood	Womack Rd. west of Village Creek Dr.
280	Oak-Southern Red	27	0	0	0	Poor	Remove	1	50% of tree is dead, cavity at base	Womack Rd.west of Village Creek Dr.
491	Dogwood-Flowering	8	8	0	0	Fair	Prune	3	Tip dieback, deadwood	1559 Chadwell Ct.
492	Dogwood-Flowering	6	6	0	0	Fair	Prune	3	Deadwood	1559 Chadwell Ct.
493	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Deadwood	4838 King's Down Rd.
494	Dogwood-Flowering	6	0	0	0	Fair	Remove vines	2	Vines	4838 King's Down Rd.
495	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	4360 Valley View Ct.
496	Dogwood-Flowering	6	0	0	0	Good	None	4		1441 Mile Post Road
497	Dogwood-Flowering	8	0	0	0	Fair	Soil Therapy	3	Tip dieback	1441 Mile Post Road
498	Dogwood-Flowering	9	0	0	0	Fair	Soil Therapy	3	Tip dieback	Mile Post Dr. & Dunwoody Station Dr.
499	Dogwood-Flowering	6	6	6	0	Fair	Prune	3	Touching utility lines and pole	1226 Mile Post Dr.
500	Dogwood-Flowering	6	5	0	0	Good	None	4		1100 Mile Post Rd.
501	Dogwood-Flowering	9	0	0	0	Good	None	4		1100 Mile Post Dr.
502	Dogwood-Flowering	6	5	0	0	Good	None	4		Layfield Ct. Cul de sac
503	Dogwood-Flowering	8	0	0	0	Good	None	4		Layfield Ct. Cul de sac
504	Dogwood-Flowering	9	0	0	0	Good	None	4		Layfield Ct. Cul de sac
505	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Rubbing against adjacent Tree	Trail Ridge Ln. & Hidden Branches Dr.
506	Dogwood-Flowering	10	0	0	0	Fair	Soil Therapy	3	Trunk wounds at 6'	1047 Winding Branch Ct.
507	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	5028 Pine Bark Cir.
508	Dogwood-Kousa	6	8	0	0	Fair	Prune	3	Touching utility lines	4980 Hidden Branches Cir.
509	Dogwood-Flowering	10	0	0	0	Fair	Prune	3	Touching utility lines	4980 Hidden Branches Cir.
510	Dogwood-Flowering	6	8	0	0	Fair	Prune	3	Touching utility lines	1409 Holly Bank Cir.
511	Dogwood-Flowering	1	7	0	0	Fair	Prune	3	Touching utility lines	1160 Bordeau Ct.
512	Dogwood-Flowering	6	8	0	0	Fair	Prune	3	Deadwood	1160 Bordeau Ct.
513	Dogwood-Flowering	5	6	0	0	Fair	Prune	3	Deadwood	1160 Bordeau Ct.
514	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Deadwood, Tip dieback	1160 Bordeau Ct.
515	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Deadwood	1160 Bordeau Ct.
516	Dogwood-Flowering	7	0	0	0	Good	None	4		1160 Bordeau Ct.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
517	Dogwood-Flowering	7	7	8	0	Fair	Prune	3	Deadwood, Tip dieback	1128 Verdon Dr.
518	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Touching utility lines	5526 Whitewood Ct.
519	Dogwood-Flowering	7	7	0	0	Good	Prune	3	Touching utility lines	5560 Aurora Ln.
520	Dogwood-Flowering	6	6	0	0	Fair	Prune	3	Touching utility lines	5560 Aurora Ln.
521	Dogwood-Flowering	8	8	0	0	Fair	Prune	3	Deadwood, Tip dieback	5638 Quennsborough Dr.
522	Dogwood-Flowering	8	0	0	0	Good	None	4		5166 Meadowcreek Dr.
523	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Touching utility lines	1753 Wilder Ct.
524	Dogwood-Flowering	8	5	0	0	Fair	Prune	3	Touching utility lines, deadwood, growing over curb	1742 Dunbridge Ct.
525	Redbud	10	8	7	0	Fair	Prune	3	Stub cuts, deadwood, trunk wound at 2'	5675 Durrett Dr.
526	Dogwood-Flowering	7	5	0	0	Fair	Prune	3	Tip dieback	5675 Durrett Dr.
527	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Tip dieback	5675 Durrett Dr.
528	Dogwood-Flowering	7	6	0	0	Good	None	4		1639 Durrett Way
529	Dogwood-Flowering	5	7	0	0	Fair	Prune	3	Touching utility lines and pole	5552 Woodsong Trail
530	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Tip dieback	5552 Woodsong Trail
531	Redbud	10	0	0	0	Fair	Prune	3	Tip dieback, aerial wound	5304 Vernon Lake Dr.
532	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Trunk wound at base, touching utility lines	5233 Forest Springs Dr.
533	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	5233 Forest Springs Dr.
534	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines and pole	5218 Forest Springs Dr.
535	Dogwood-Flowering	8	7	0	0	Fair	Prune	3	Deadwood, codominant at base	5406 Hallford Dr.
536	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	5406 Hallford Dr.

Tree #	Species	DBH	DBH2	DBH 3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
4	Dogwood-Flowering	6	0	0	0	Poor	Remove	1	Tree is >50% dead, deep cavity	2471 Brookhurst Dr.
26	Oak-Northern Red	33	0	0	0	Poor	Remove	1	Leans toward N. Peachtree and has a large hazardous cavity opening at app 25ft that extends through the tree. Tree is hazardous.	N. Peachtree Rd. Brookhurst Dr.
50	Oak-Southern Red	26	0	0	0	Poor	Remove	1	Cavity in trunk at 5', mistletoe, 50% of canopy is dead, leans toward road.	2608 Laurelwood Rd.
106	Oak-Water	21	0	0	0	Poor	Remove	1	Tree is >50% dead	4955 Delverton Ct.
109	Oak-Water	33	0	0	0	Poor	Remove	1	Excessively pruned, topped, poor form, declining rapidly	2339 Welton Pl.
114	Cherry-Black	11	0	0	0	Poor	Remove	1	Lean and trunk decay	4853 Tilly Mill Rd.
127	Oak-Southern Red	19	0	0	0	Poor	Remove	1	Leaning over road way >50% dead	5144 Meadowlake Ln.
130	Oak-Northern Red	23	0	0	0	Poor	Remove	1	Excessively pruned, topped, poor form, declining rapidly	Lake Springs Way & Tilly Mill Rd.
131	Maple-Red	24	0	0	0	Poor	Remove	1	Excessively pruned, topped, poor form, declining rapidly	Lake Springs Way & Tilly Mill Rd.
204	Maple-Silver	12	12	13	14	Poor	Remove	1	Multi stemmed with weak union + fungal fruiting bodies	Across from 1441 Mile Post Rd.
260	Sweetgum	26	0	0	0	Poor	Remove	1	Large cavity in trunk at 2', fungal fruiting bodies, 50% of canopy missing	1719 Mt. Vernon Rd.
261	Oak-Southern Red	24	0	0	0	Poor	Remove	1	Cavity at base, fungal fruiting bodies, cavity at 8', deadwood	Mt. Vernon Rd. & Forest Springs Dr.
280	Oak-Southern Red	27	0	0	0	Poor	Remove	1	50% of tree is dead, cavity at base	Womack Rd.west of Village Creek Dr.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
1	Dogwood-Flowering	7	0	0	0	Fair	Prune & remove vines	2	Dead scaffolds, vines	2471 Brookhurst Dr.
2	Eastern Red Cedar	9	0	0	0	Fair	Prune-Deadwood	3	Tip dieback	2471 Brookhurst Dr.
11	Dogwood-Flowering	6	6	0	0	Fair	Prune	3	Deadwood	2419 Brookhurst Dr.
12	Dogwood-Flowering	8	0	0	0	Fair	Prune	1	Large amount of deadwood, vines	2419 Brookhurst Dr.
13	Dogwood-Flowering	8	0	0	0	Poor	Prune	2	Tree is 50% dead	2401 Brookhurst Dr.
14	Dogwood-Flowering	6	5	0	0	Poor	Prune	2	Deadwood	2401 Brookhurst Dr.
15	Oak-White	32	0	0	0	Fair	Prune	3	Asymmetrical canopy, stub cuts	4435 Huntington Dr.
16	Tulip Tree-Poplar	19	34	0	0	Fair	Prune	3	Codominant, deadwood	4492 Haverstraw Dr.
17	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Deadwood, loose bark, poor pruning cuts	4474 Haverstraw
18	Dogwood-Flowering	6	6	6	4	Fair	Prune & remove vines	2	Vine covered, deadwood	Haverstraw Ct. Cul de sac
19	Tulip Tree-Poplar	30	0	0	0	Fair	Prune & remove vines	2	Vine covered, deadwood	2488 King's Point Dr.
20	Maple-Silver	13	14	0	0	Fair	Prune	3	Codominant at 5', deadwood	2488 Flintshire Ct.
24	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Deadwood, trunk cavity at 5'	2388 King's Point Dr.
25	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Deadwood	4570 King's Point Dr.
27	Redbud	9	7	0	0	Fair	Prune	2	Dead scaffold, low limbs over sidewalk	4629 N. Peachtree Rd.
28	Oak-Southern Red	33	0	0	0	Fair	Prune	3	Deadwood, asymmetrical canopy	2308 N. Peachtree Rd.
29	Maple-Red	33	0	0	0	Fair	Prune	3	Trunk cavities, deadwood	4638 Ellsbury Dr.
30	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Sparse canopy, deadwood	4638 Ellsbury Dr.
32	Oak-Southern Red	30	0	0	0	Fair	Prune	3	Deadwood	4645 Norwalk Dr.
40	Maple-Red	24	0	0	0	Fair	Install Cable	2	Codominant at 7'	2419 Dunover Cir.
41	Oak-Water	54	0	0	0	Good	Prune	3	Deadwood	4630 Sharon Valley Ct.
44	Redbud	16	0	0	0	Fair	Prune & remove vines	2		Across 4569 Amberly Ct. South
48	Tulip Tree-Poplar	30	12	0	0	Fair	Remove vines	2	Codominant at base with weak union, vines	Across from 2623 Laurelwood Rd.
49	Tulip Tree-Poplar	35	0	0	0	Fair	Remove vines	2	Vines	2608 Laurelwood Rd.
52	Ailanthus	18	0	0	0	Fair	Prune	2	Lean, deadwood, asymmetrical canopy, invasive species	2588 Andover Dr.
53	Redbud	15	0	0	0	Fair	Prune	3	Small amount of deadwood	4719 Andalusia Pl.
55	Dogwood-Flowering	9	8	6	0	Fair	Prune	3	Small amount of deadwood	2670 Stonehenge Way
56	Maple-Red	24	0	0	0	Fair	Prune	3	mistletoe	4607 Stonehenge Dr.
59	Tulip Tree-Poplar	28	0	0	0	Fair	Prune	3	Asymmetrical canopy, deadwood	Peeler Rd. Cherry Hill Ln.
62	Tulip Tree-Poplar	27	0	0	0	Fair	Prune	3	Deadwood	Peeler Rd. Cherry Hill Ln.
64	Tulip Tree-Poplar	30	0	0	0	Fair	Remove vines	2	Sparse canopy, vines	2485 Glenbonnie Dr.
66	Dogwood-Flowering	7	6	6	0	Fair	Prune	3	Deadwood	4951 Firth Ln.
67	Dogwood-Flowering	6	9	0	0	Fair	Prune	3	Deadwood	4951 Firth Ln.
68	Dogwood-Flowering	11	9	0	0	Fair	Prune	3	Deadwood	4951 Firth Ln.
69	Magnolia-Southern	23	0	0	0	Fair	Prune	3	Codominant at 5 feet	4928 Coldstream Dr.
70	Oak-Water	27	0	0	0	Fair	Prune	3	Pruned for utilities	4928 Coldstream Dr.
71	Dogwood-Flowering	6	5	0	0	Fair	Prune	3	Deadwood	4961 Coldstream Dr.
73	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Deadwood	4903 Coldstream Dr.
74	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Deadwood	4903 Coldstream Dr.
75	Eastern Red Cedar	11	0	0	0	Fair	Prune	3	Growing into utility lines	4961 Coldstream Dr.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
78	Dogwood-Flowering	7	8	0	0	Fair	Prune	3	Deadwood	4970 Coldstream Dr.
79	Dogwood-Flowering	7	7	0	0	Fair	Prune	3	Deadwood	2433 Maclauren Cir.
81	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Deadwood	5029 Lakeside Dr.
82	Oak-Northern Red	26	0	0	0	Fair	Prune-Structural	3	Lean & asymmetrical canopy	5094 Lakeside Dr.
84	Maple-Silver	34	12	0	0	Fair	Cable	3	Codominant	2574 Bentbrook Ct.
88	Oak-Southern Red	30	0	0	0	Fair	Prune	3	Mistletoe and deadwood	5053 Glaze Dr.
90	Mulberry	31	0	0	0	Fair	Prune-Deadwood	3	Deadwood	2920 Fontainbleau Dr.
91	Dogwood-Flowering	6	6	0	0	Fair	Prune-Deadwood	3	Codominant at 1',deadwood	5238 Sanlee Ln.
92	Dogwood-Flowering	10	0	0	0	Fair	Prune-Deadwood	3	Deadwood	5238 Sanlee Ln.
93	Dogwood-Flowering	6	5	4	0	Fair	Prune-Deadwood	3	Deadwood	5238 Sanlee Ln.
94	Dogwood-Flowering	10	0	0	0	Fair	Prune-Deadwood	3	Deadwood	5233 Arrie Way
104	Tulip Tree-Poplar	33	0	0	0	Fair	Prune	3	Asymmetrical canopy, tip dieback, deadwood	5056 Heatherdale Ln.
115	Oak-White	24	0	0	0	Fair	Remove vines	2	Vines	4863 Tilly Mill Rd.
119	Oak-Water	40	0	0	0	Good	Prune	3	Mistletoe, tip dieback	Jett Ferry Rd. & Mt. Vernon Rd.
120	Pine-Loblolly	39	0	0	0	Fair	Prune, Remove vines	2	Vines, deadwood	2015 Trumbull Dr.
122	Pine-Longleaf	19	0	0		Fair	Prune	3	Lean, deadwood, asymmetrical canopy, wound at base	1814 Trumbull Dr.
123	Pine-Loblolly	21	0	0	0	Fair	Prune	3	Lean, deadwood, asymmetrical canopy, wound at base	1814 Trumbull Dr.
124	Oak-Southern Red	29	0	0	0	Fair	Prune	2	Limbs growing into roadway	1840 Trumbull Dr.
125	Maple-Silver	28	0	0	0	Fair	Prune	3	Asymmetrical canopy, tip dieback, deadwood	5070 Hensley Dr.
128	Oak-Southern Red	30	0	0	0	Fair	Prune	3	Deadwood	5101 Meadowlake Ln.
129	Maple-Red	27	0	0	0	Poor	Prune	1	Codominant at 4', weak union, cavity at 12', trunk decay, deadwood, mistletoe	5307 Lake Springs Dr.
130	Oak-Northern Red	23	0	0	0	Poor	Prune	1	Excessively pruned, topped, poor form, declining rapidly	Lake Springs Way & Tilly Mill Rd.
131	Maple-Red	24	0	0	0	Poor	Prune	1	Excessively pruned, topped, poor form, declining rapidly	Lake Springs Way & Tilly Mill Rd.
132	Oak-Northern Red	39	0	0	0	Fair	Prune	3	Mistletoe, codominant	5088 Vernon Oaks Dr.
133	Oak-Northern Red	37	0	0	0	Fair	Prune	3	Mistletoe, tip dieback	5039 Damon Pl.
134	Maple-Red	35	0	0	0	Poor	Prune & soil therapy	1	Cavity in trunk, tip dieback, mistletoe, root decay, asymmetrical canopy	1630 Damon Pl.
135	Sweetgum	25	0	0	0	Fair	Prune	1	Limbs growing into roadway, deadwood	1605 Damon Pl.
136	Tulip Tree-Poplar	27	0	0	0	Fair	Prune	2	Deadwood, cavity at base, lean	5138 Vernon Springs Dr.
137	Oak-Northern Red	27	12	0	0	Fair	Prune	3	Codominant, deadwood	Mt. Vernon Way & Cedarhurst Dr.
138	Oak-Chestnut	27	0	0	0	Fair	Prune, remove vines	2	Low limbs in roadway, vines	5031 Wickford Dr.
139	Oak-Southern Red	29	0	0	0	Fair	Prune	3	Deadwood	5181 Wellshire Pl.
142	Sycamore-American	32	0	0	0	Fair	Prune	3	Deadwood	4900 Chestnut Ridge
145	Sweetgum	28	0	0	0	Fair	Remove vines	2	Pruned for utilities, vines	4721 Olde Village Ln.
148	Maple-Silver	39	0	0	0	Fair	Prune	3	Trunk cavity, deadwood	4854 Leeds Ct.
149	Oak-Water	30	0	0	0	Fair	Prune	3	Deadwood	4883 Millbrook Dr.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
150	Tulip Tree-Poplar	31	0	0	0	Fair	Prune	3	Root decay, deadwood	2138 Strasburg Ct.
151	Oak-Water	40	0	0	0	Fair	Prune	3	Deadwood	1888 Peeler Rd.
153	Oak-Northern Red	27	0	0	0	Fair	Prune	3	Deadwood	4471 Village Dr.
154	Oak-Northern Red	25	0	0	0	Fair	Prune	3	Deadwood	4477 Village Dr.
155	Oak-Live	40	0	0	0	Fair	Prune	3	Deadwood	4477 Village Dr.
157	Oak-Southern Red	31	0	0	0	Fair	Prune	3	Excessively pruned , mistletoe	Chamblee Dunwoody Rd. & Old Spring House Ln.
159	Tulip Tree-Poplar	30	0	0	0	Good	Prune	3	Asymmetrical canopy, deadwood	1506 Rochelle Dr.
166	Oak-White	24	0	0	0	Fair	Prune	3	Low amount of dead limbs	5049 Sirron Ct.
168	Oak-Southern Red	28	0	0	0	Fair	Prune	2	Low limbs in roadway, damage to sidewalk, broken stubs	4917 Chamblee Dunwoody Rd.
172	Pine-Loblolly	30	0	0	0	Fair	Remove vines	2	Vines	1308 Valley View Rd.
173	Tulip Tree-Poplar	25	0	0	0	Fair	Remove vines	2	Vines	1308 Valley View Rd.
177	Oak-Pin	24	0	0	0	Poor	Prune & soil therapy	1	App 50% of the tree is dead, large amounts of hangers	1 Perimeter Ctr. East @ Bank of America
178	Oak-Pin	34	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	Median of Perimeter Ctr. East @ Ashford-Dunwoody Rd.
183	Oak-Northern Red	24	1	0	0	Fair	Prune	3	Restricted root space, deadwood	Perimeter Ctr East at Park Place
184	Maple-Red	27	0	0	0	Fair	Prune	3	Codominant at 15', deadwood	Median tree at 64 Perimeter Ctr East.
185	Oak-Pin	29	0	0	0	Fair	Prune	3	Restricted root space, deadwood	Median at Ashford Dunwoody Rd. & Perimeter Ctr. North
186	Oak-Willow	24	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	Median at Peachtree Ctr. North at Ashford Dunwoody Rd
187	Oak-Willow	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs over roadway	Median at Peachtree Ctr. North at Ashford Dunwoody Rd
188	Oak-Willow	29	0	0	0	Fair	Prune	2	Low limbs, deadwood	Ashford Dunwoody Rd. & Perimeter Ctr. North
189	Oak-Willow	28	0	0	0	Fair	Prune	2	Low limbs, deadwood	Ashford Dunwoody Rd. & Perimeter Ctr. North
190	Oak-Willow	26	0	0	0	Fair	Prune	2	Low limbs, deadwood	Ashford Dunwoody Rd. & Perimeter Ctr. North
191	Oak-Willow	24	0	0	0	Fair	Prune	3	Deadwood	Valley View Rd. & Ashford Dunwoody Rd.
194	Maple-Silver	28	0	0	0	Fair	Prune	3	Mistletoe and deadwood	Perimeter Ctr. West median near Ashford Dunwoody Rd
195	Oak-Pin	35	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
196	Oak-Pin	25	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
197	Oak-Pin	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
198	Oak-Pin	25	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
199	Oak-Live	34	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
200	Oak-White	27	0	0	0	Fair	Prune	3	Deadwood, asymmetrical canopy	Dunwoody Station Dr. & Mt. Vernon Rd.
206	Maple-Silver	25	0	0	0	Fair	Prune	3	Deadwood	1441 Mile Post Rd.
207	Oak-Pin	29	0	0	0	Fair	Prune	3	Mistletoe	1358 Mile Post Rd.
208	Maple-Silver	27	0	0	0	Fair	Prune	3	Deadwood	1169 Mile Post Rd.
212	Cherry	36	0	0	0	Fair	Prune & remove vines	1	Low limbs in roadway, vines	5163 Hidden Branches Cir.
216	Maple-Red	26	0	0	0	Fair	Prune	2	Limbs are touching utility lines	5229 Wynterhall Cir.
217	Oak-Willow	25	0	0	0	Good	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
218	Oak-Willow	25	0	0	0	Good	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
219	Oak-Willow	24	0	0	0	Good	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
220	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
221	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
222	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
223	Oak-Willow	25	0	0	0	Fair	Prune	2	Limbs are growing into road way	Dunwoody Walk & Chamblee Dunwoody Rd.
224	Oak-Water	25	0	0	0	Fair	None	4	Pruned for utility lines	Chamblee Dunwoody Rd. & Harris Cir.
229	Sweetgum	25	0	0	0	Fair	Prune	3	Root damage, dead scaffold limbs, tip dieback	5658 Mill Trace Dr.
231	Oak-Northern Red	36	0	0	0	Fair	Prune	2	Large amount of deadwood	5640 Mill Trace Dr.
236	Tulip Tree-Poplar	29	0	0	0	Fair	Prune	3	Deadwood, buckling driveway	1709 Withmere Way
237	Oak-Water	32	0	0	0	Fair	Prune	1	Limbs in roadway, vines, deadwood	1758 Withmere Way
239	Maple-Silver	24	17	16	15	Fair	Cable	2	Multi stem at ground level	1573 Summerset Dr.
241	Maple-Red	26	0	0	0	Fair	Prune	2	Deadwood, Low limbs	1423 Vernon Ridge Close
242	Oak-Pin	28	0	0	0	Fair	Prune	3	Deadwood	1439 Dunwoody Village Pkwy
243	Oak-Northern Red	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	1428 Dunwoody Village Pkwy
244	Maple-Silver	17	11	8	0	Fair	Prune & soil therapy	3	Weak union with included bark, tip dieback, low limbs	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
245	Oak-Pin	24	0	0	0	Fair	Prune	3	Deadwood	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
246	Oak-Pin	31	0	0	0	Fair	Prune	2	Deadwood, Low limbs, asymmetrical canopy	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
247	Oak-Pin	26		0	0	Fair	Prune	3	Deadwood, asymmetrical canopy	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
250	Maple-Silver	27	0	0	0	Fair	Prune & remove vines	2	Ivy, mistletoe, contacting utilities	1290 Verdon Dr.
252	Maple-Silver	32	0	0	0	Fair	Prune	2	Asymmetrical canopy, low limbs in roadway	1367 Wyntercreek Ln.
253	Maple-Red	25	0	0	0	Fair	Prune	3	Sparse canopy, deadwood	Wyntercreek Dr. & Wyntercreek Rd.
254	Oak-Southern Red	33	0	0	0	Fair	Prune	2	Asymmetrical canopy, low limbs in roadway	Meadowcreek Ln. Cul de sac
255	Oak-Chestnut	27	0	0	0	Fair	Prune	1	Low limbs in roadway, asymmetrical canopy	Mt. Vernon Rd. & Vernon Oaks Dr.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
256	Oak-Chestnut	24	0	0	0	Fair	Prune	1	Low limbs in roadway, asymmetrical canopy	Mt. Vernon Rd. & Vernon Oaks Dr.
257	Oak-Water	28	0	0	0	Fair	Prune	3	Asymmetrical canopy, deadwood	1781 Mt. Vernon Rd.
259	Oak-Water	27	0	0	0	Fair	Prune	1	Low limbs in roadway, cavity at base, deadwood	1749 Mt. Vernon Rd
262	Oak-Willow	31	0	0	0	Fair	Prune	1	Low limbs in roadway, deadwood	5337 Cedar Chase
263	Redbud	24	0	0	0	Fair	Prune	3	Deadwood, sparse canopy, lean	1827 Forest Springs Ct.
266	Oak-Northern Red	29	0	0	0	Fair	Prune	3	Mistletoe deadwood	5380 Forest Springs Dr.
267	Maple-Silver	29	0	0	0	Fair	Prune	3	Deadwood, weak scaffold unions	1819 Vancroft Ct.
268	Maple-Silver	26	0	0	0	Fair	Prune	3	Tip dieback, deadwood	1859 Vancroft Ct.
273	Maple-Silver	28	0	0	0	Fair	Prune	3	Deadwood	1742 Tolleson Ct.
274	Oak-Live	20	20	0	0	Fair	Prune	1	Codominant at 1', tree is touching a utility pole and utilities	1741 Tolleson Ct.
275	Oak-Chestnut	24	0	0	0	Fair	Prune	1	Low limbs in roadway, deadwood	5530 Woodsong Tr.
278	Sweetgum	26	0	0	0	Fair	Prune	3	Tip dieback, deadwood	5640 Woodsong Tr.
279	Oak-Southern Red	28	0	0	0	Fair	Prune	1	Low limbs in roadway, asymmetrical canopy, deadwood	Womack Rd. west of Village Creek Dr.
491	Dogwood-Flowering	8	8	0	0	Fair	Prune	3	Tip dieback, deadwood	1559 Chadwell Ct.
492	Dogwood-Flowering	6	6	0	0	Fair	Prune	3	Deadwood	1559 Chadwell Ct.
493	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Deadwood	4838 King's Down Rd.
494	Dogwood-Flowering	6	0	0	0	Fair	Remove vines	2	Vines	4838 King's Down Rd.
495	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	4360 Valley View Ct.
499	Dogwood-Flowering	6	6	6	0	Fair	Prune	3	Touching utility lines and pole	1226 Mile Post Dr.
505	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Rubbing against adjacent Tree	Trail Ridge Ln. & Hidden Branches Dr.
507	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	5028 Pine Bark Cir.
508	Dogwood-Kousa	6	8	0	0	Fair	Prune	3	Touching utility lines	4980 Hidden Branches Cir.
509	Dogwood-Flowering	10	0	0	0	Fair	Prune	3	Touching utility lines	4980 Hidden Branches Cir.
510	Dogwood-Flowering	6	8	0	0	Fair	Prune	3	Touching utility lines	1409 Holly Bank Cir.
511	Dogwood-Flowering	1	7	0	0	Fair	Prune	3	Touching utility lines	1160 Bordeau Ct.
512	Dogwood-Flowering	6	8	0	0	Fair	Prune	3	Deadwood	1160 Bordeau Ct.
513	Dogwood-Flowering	5	6	0	0	Fair	Prune	3	Deadwood	1160 Bordeau Ct.
514	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Deadwood, Tip dieback	1160 Bordeau Ct.
515	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Deadwood	1160 Bordeau Ct.
517	Dogwood-Flowering	7	7	8	0	Fair	Prune	3	Deadwood, Tip dieback	1128 Verdon Dr.
518	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Touching utility lines	5526 Whitewood Ct.
519	Dogwood-Flowering	7	7	0	0	Good	Prune	3	Touching utility lines	5560 Aurora Ln.
520	Dogwood-Flowering	6	6	0	0	Fair	Prune	3	Touching utility lines	5560 Aurora Ln.
521	Dogwood-Flowering	8	8	0	0	Fair	Prune	3	Deadwood, Tip dieback	5638 Quennsborough Dr.
523	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Touching utility lines	1753 Wilder Ct.
524	Dogwood-Flowering	8	5	0	0	Fair	Prune	3	Touching utility lines, deadwood, growing over curb	1742 Dunbridge Ct.
525	Redbud	10	8	7	0	Fair	Prune	3	Stub cuts, deadwood, trunk wound at 2'	5675 Durrett Dr.
526	Dogwood-Flowering	7	5	0	0	Fair	Prune	3	Tip dieback	5675 Durrett Dr.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
527	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Tip dieback	5675 Durrett Dr.
529	Dogwood-Flowering	5	7	0	0	Fair	Prune	3	Touching utility lines and pole	5552 Woodsong Trail
530	Dogwood-Flowering	6	0	0	0	Fair	Prune	3	Tip dieback	5552 Woodsong Trail
531	Redbud	10	0	0	0	Fair	Prune	3	Tip dieback, aerial wound	5304 Vernon Lake Dr.
532	Dogwood-Flowering	7	0	0	0	Fair	Prune	3	Trunk wound at base, touching utility lines	5233 Forest Springs Dr.
533	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	5233 Forest Springs Dr.
534	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines and pole	5218 Forest Springs Dr.
535	Dogwood-Flowering	8	7	0	0	Fair	Prune	3	Deadwood, codominant at base	5406 Hallford Dr.
536	Dogwood-Flowering	8	0	0	0	Fair	Prune	3	Touching utility lines	5406 Hallford Dr.

Tree #	Species	DBH	DBH2	DBH3	DBH 4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
3	Pine-Loblolly	33	0	0	0	Fair	Soil therapy	3	Large limb diverges from main trunk at app 5'	2471 Brookhurst Dr.
6	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Sparse, deadwood	2442 Brookhurst Dr.
7	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Wound at 1'	2442 Brookhurst Dr.
8	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Wound at base, weak union	2442 Brookhurst Dr.
9	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	2442 Brookhurst Dr.
10	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Deadwood, trunk cavity	2419 Brookhurst Dr.
33	Oak-Southern Red	30	0	0	0	Fair	Soil therapy	3	Lean, cavity at base	4669 Norwalk Dr.
34	Maple-Silver	26	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, codominant at 7'	2580 Riverglenn Cir
35	Oak-Southern Red	30	0	0	0	Fair	Risk Assessment	1	Cavity at base, lower trunk failed sounding test, trunk sounds hollow	2391 Riverglenn Cir.
37	Dogwood-Flowering	8	0	0	0	Fair	Soil therapy	3	Small trunk cavities	4769 Dunover Cir.
38	Dogwood-Flowering	8	0	0	0	Fair	Soil therapy	3	Codominant	4756 Dunover Cir.
39	Dogwood-Flowering	8	0	0	0	Fair	Risk Assessment	1	Large cavity & codominant at base	4669 Dunover Cir.
42	Dogwood-Flowering	6	7	0	0	Fair	Soil therapy	3	Codominant at 2 feet	4522 Holliston Rd.
43	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Touching utility lines	4572 Amberly Ct. South
45	Dogwood-Flowering	7	0	0	0	Fair	Soil therapy	3	Utility pruning, 60% of canopy is missing	4579 Amberly Ct.
47	Tulip Tree-Poplar	30	0	0	0	Fair	Soil therapy	3	Tip dieback	Across from 2636 Laurelwood Rd.
51	Dogwood-Flowering	8	7	0	0	Fair	Soil therapy	3	Codominant at 2 feet	4689 Eidson Rd.
57	Oak-Willow	24	0	0	0	Fair	Soil therapy	3	Conflicting with utilities, wound at base	W. Madison Dr. & Tilly Mill Rd.
58	Oak-Southern Red	24	0	0	0	Fair	Soil therapy	3	Cavity at base, codominant @ 25', deadwood	Peeler Rd. Cherry Hill Ln.
72	Dogwood-Flowering	6	0	0	0	Fair	Soil therapy	3	Cavity in trunk at 2'	4903 Coldstream Dr.
76	Dogwood-Flowering	6	5	0	0	Fair	Soil therapy	3	Basal wound	4961 Coldstream Dr.
77	Dogwood-Flowering	6	0	0	0	Fair	Soil therapy	3	Sparse asymmetrical canopy	4970 Coldstream Dr.
80	Eastern Redbud	10	11	0	0	Fair	Risk Assessment	1	Cavities at 1'	4884 Maclaren Cir.
83	Tulip Tree-Poplar	21	0	0	0	Fair	Soil therapy	2	Lean over road, asymmetrical canopy, trunk bow	4973 Lakebrook Dr.
85	Oak-Southern Red	28	0	0	0	Fair	Soil therapy	3	Lean & asymmetrical canopy	4904 Lakeside Dr.
86	Oak-Southern Red	25	0	0	0	Fair	Soil therapy	3	Cavity at base, broken scaffolds	4904 Lakeside Dr.
87	Oak-Willow	40	0	0	0	Fair	Soil therapy	3	Codominant	2976 Four Oaks Dr.
89	Oak-Southern Red	24	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	5053 Glaze Dr.
95	Maple-Red	27	0	0	0	Fair	Soil therapy	3	Codominant at 5 feet	5240 Arrie Way
96	Maple-Silver	26	0	0	0	Fair	Soil therapy	3	Pruned for utilities	5225 Arrie Way
97	Maple-Silver	22	12	8	8	Fair	Soil therapy	3	multiple stems	5225 Arrie Way
98	Oak-Northern Red	27	0	0	0	Fair	Soil therapy	3	Lean toward road, cavity at 25 feet, asymmetric canopy	2932 Sumac Dr.
99	Oak-Northern Red	30	0	0	0	Fair	Soil therapy	3	Has had extensive pruning for line clearance	2932 Sumac Dr.
100	Oak-White	35	0	0	0	Fair	Soil therapy	3	Small foliage, epitomic sprouts	4892 Lakeside Dr.
101	Tulip Tree-Poplar	25	0	0	0	Fair	Soil therapy	3	Seam in lower trunk	2746 Fleur de lis Way
102	Oak-White	26	0	0	0	Fair	Soil therapy	3	Canopy elevation pruning for utilities and driveway	2473 Fontainbleau Dr.
103	Maple-Silver	33	0	0	0	Fair	Soil therapy	3	App 40% canopy has been removed for line clearance	5027 Chestnut Forest Ct.

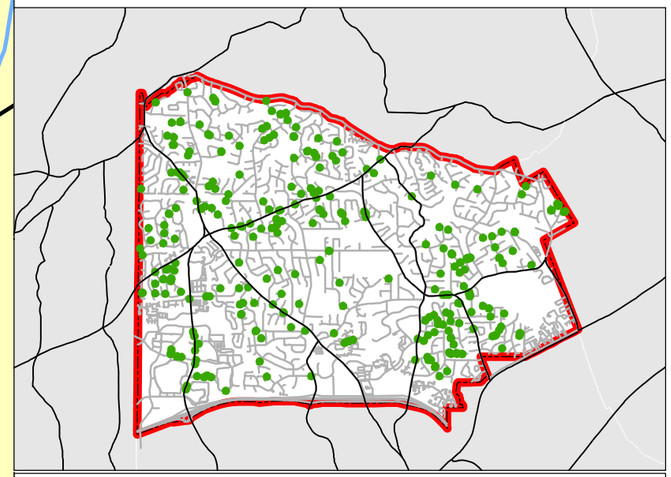
Tree #	Species	DBH	DBH2	DBH3	DBH 4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
105	Oak-Southern Red	30	0	0	0	Fair	Soil therapy	3	Deadwood, trunk is overlapping driveway	2416 Delverton Dr.
107	Pine-Loblolly	20	19	0	0	Fair	Soil therapy	3	Weak union, driveway is being damaged	2420 Leisure Lake Dr.
108	Beech-American	43	0	0	0	Fair	Soil therapy	3	Cavity in base of tree	2364 Leisure Lane
110	Maple-Red	34	0	0	0	Fair	Soil therapy	3	Multiple stems	5351 N. Peachtree Rd.
113	Oak-Southern Red	28	0	0	0	Fair	Soil therapy	3	Tip dieback	4843 Tilly Mill Rd.
116	Oak-Northern Red	24	0	0	0	Fair	Soil therapy	3	Utility pruning	5424 Tilly Mill Rd.
117	Oak-Northern Red	25	0	0	0	Fair	Soil therapy	3	Utility pruning	5424 Tilly Mill Rd.
118	Maple-Red	25	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	Holland Ct. & Tilly Mill Rd.
121	Maple-Red	18	14	0	0	Fair	Soil therapy	3	Codominant	1814 Trumbull Dr.
126	Maple-Red	24	0	0	0	Fair	Soil therapy	3	Codominant	5204 Meadowlake Dr.
134	Maple-Red	35	0	0	0	Poor	Prune & soil therapy	1	Cavity in trunk, tip dieback, mistletoe, root decay, asymmetrical canopy	1630 Damon Pl.
140	Maple-Red	24	0	0	0	Fair	Soil therapy	3	Codominant	1610 Wellshire Ln.
143	Oak-Water	29	0	0	0	Fair	Soil therapy	3	Pruned for utilities	1571 Springfield Ct.
144	Oak-White	33	0	0	0	Fair	Soil therapy	3	Pruned for utilities	1940 Village Creek Ct.
146	Oak-White	27	0	0	0	Fair	Soil therapy	3	Pruned for utilities, sparse canopy	1828 Olde Village Run
152	Oak-Northern Red	27	0	0	0	Fair	Soil therapy	3	Tip dieback	4471 Village Dr.
156	Oak-Willow	25	0	0	0	Fair	Soil therapy	3	Damaging driveway, deadwood	4483 Village Dr.
158	Tulip Tree-Poplar	27	0	0	0	Fair	Soil therapy	3	Excessively pruned	1582 Bishop Hollow Run
160	Oak-Southern Red	35	0	0	0	Fair	Soil therapy	3	Buckling sidewalk	1771 N. Springs Dr.
161	Sweetgum	26	0	0	0	Fair	Soil therapy	3	Scaffold wound at 18',	4614 King's Down Ct.
162	Tulip Tree-Poplar	32	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	King's Down Rd. & King's Down Cir.
163	Tulip Tree-Poplar	24	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	King's Down Rd. & King's Down Cir.
164	Maple-Silver	32	0	0	0	Fair	Soil therapy	3	Multiple stems, sparse canopy	1442 Ridgemont Rd.
165	Pine-Loblolly	28	0	0	0	Fair	Soil therapy	3	50% of trunk wounded, 50% of canopy is missing	Ridgemont Rd. & King's Down Rd.
169	Oak-Southern Red	28	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	4917 Chamblee Dunwoody Rd.
170	Pine-Loblolly	33	0	0	0	Fair	Soil therapy	3	swollen trunk at 20'	Shadow Bend & Chamblee Dunwoody Rd.
171	Pine-Loblolly	31	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	4673 Devonshire Rd.
174	Sweetgum	22	16	10	0	Fair	Soil therapy	3	Multi stem with weak unions	1320 Valley View Rd.
177	Oak-Pin	24	0	0	0	Poor	Prune & soil therapy	1	App 50% of the tree is dead, large amounts of hangers	1 Perimeter Ctr. East @ Bank of America
178	Oak-Pin	34	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	Median of Perimeter Ctr. East @ Ashford-Dunwoody Rd.
180	Oak-Willow	30	0	0	0	Fair	Soil therapy	3	Impacted by recent sidewalk construction	Perimeter Ctr East at Alexander Apts.
181	Tulip Tree-Poplar	51	0	0	0	Fair	Soil therapy	3	Codominant at 7', cable has been installed	Perimeter Ctr East at Alexander Apts.
186	Oak-Willow	24	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	Median at Peachtree Ctr. North at Ashford Dunwoody Rd

Tree #	Species	DBH	DBH2	DBH3	DBH 4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
187	Oak-Willow	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs over roadway	Median at Peachtree Ctr. North at Ashford Dunwoody Rd
192	Oak-Willow	34	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	Perimeter Ctr. West median near Ashford Dunwoody Rd.
193	Oak-Willow	29	0	0	0	Fair	Soil therapy	3	Sparse canopy, tip dieback	Perimeter Ctr. West median near Ashford Dunwoody Rd.
195	Oak-Pin	35	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
196	Oak-Pin	25	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
197	Oak-Pin	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
198	Oak-Pin	25	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
199	Oak-Live	34	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root sparse, deadwood, mistletoe, low limbs	Median at Perimeter Ctr Place at Perimeter Ctr. West
201	Maple-Silver	25	0	0	0	Fair	Soil therapy	3	Cavities at base, sparse canopy, tip dieback	1160 Atcheson Ln.
202	Maple-Silver	26	0	0	0	Fair	Soil therapy	3	Pruned for utilities, cavity at 4', tip dieback	4834 Topeka Ct.
203	Maple-Silver	28	0	0	0	Fair	Soil therapy	3	Pruned for utilities, mistletoe, wounds on roots	1123 Atcheson Ln
205	Maple-Red	26	0	0	0	Fair	Soil therapy	3	Vertical wound at base 5' tall, tip dieback	Across from 1441 Mile Post Rd.
209	Oak-Chestnut	23	24	0	0	Fair	Soil therapy	3	Codominant at 2', tip dieback	6930 Hunter's Branch Dr.
210	Sycamore-American	24	0	0	0	Fair	Soil therapy	3	Wounds on roots	1071 Winding Branch Ln.
211	Oak-Chestnut	24	0	0	0	Fair	Soil therapy	3	Wounds on roots	5153 Hidden Branches Cir.
213	Maple-Silver	25	0	0	0	Fair	Soil therapy	3	Pruned for utility lines	4968 Twin Branches Way
215	Oak-Post	34	0	0	0	Fair	Soil therapy	3	Sparse, epicormic sprouts, tip dieback	5591 Chamblee Dunwoody Rd.
225	Oak-Southern Red	37	0	0	0	Fair	Soil therapy	3	Codominant	5334 Harris Cir.
226	Maple-Silver	31	0	0	0	Fair	Soil therapy	3	large scaffold limb at 6'with weak attachment	5334 Harris Cir.
227	Tulip Tree-Poplar	34	0	0	0	Fair	Soil therapy	3	Tip dieback	1136 Aurora
230	Oak-Northern Red	36	0	0	0	Good	Soil therapy	3	Codominant with weak union	5652 Mill Trace Dr.
232	Oak-Southern Red	24	0	0	0	Good	Soil therapy	3		1318 Witham Rd.
233	Sweetgum	24	0	0	0	Fair	Soil therapy	3	Buckling curb, limited root space	1318 Witham Rd.
234	Bradford Pear	24	0	0	0	Fair	Soil therapy	3	Pruned for utility lines	5466 Bunky Way
238	Maple-Silver	32	0	0	0	Fair	Soil therapy	3	Cavity in trunk at 3'	1532 Summerset Dr.
240	Oak-Water	24	0	0	0	Fair	Soil therapy	3	Pruned for utilities	1564 Biddle Ct.
243	Oak-Northern Red	28	0	0	0	Fair	Prune & soil therapy	2	Median tree with limited root space, deadwood, mistletoe, low limbs over roadway	1428 Dunwoody Village Pkwy
244	Maple-Silver	17	11	8	0	Fair	Prune & soil therapy	3	Weak union with included bark, tip dieback, low limbs	Dunwoody Village Pkwy & Chamblee Dunwoody Rd.
248	Cherry-Black	26	0	0	0	Fair	Soil therapy	3	Codominant, contacting adjacent tree, cavity at 30'	1409 Holly Bank Cir.

Tree #	Species	DBH	DBH2	DBH3	DBH 4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
249	Tulip Tree-Poplar	34	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, cavity at base, pruned for utilities	1187 Verdon Dr.
251	Maple-Silver	30	0	0	0	Fair	Soil therapy	3	Tip dieback, sparse canopy	1349 Wyntercreek Rd.
258	Oak-Southern Red	34	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy	1748 Mt. Vernon Rd.
264	Sweetgum	26	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, lean, tip dieback	1708 Houghton Ct. North
265	Maple-Silver	32	0	0	0	Fair	Soil therapy	3	Trunk wound, lead has been removed	5381 Forest Springs Dr.
269	Oak-White	29	0	0	0	Fair	Soil therapy	2	Large wound at trunk base, loose bark	1890 Baynham Dr.
271	Tulip Tree-Poplar	24	0	0	0	Fair	Soil therapy	3	Cavities in some scaffold limbs	1831 Trowbridge Cove
272	Maple-Silver	22	20	0	0	Fair	Soil therapy	3	Codominant at 3', lead removed, cavity at 2'	Durrett Way & Durrett Dr.
276	Oak-Chestnut	23	0	0	0	Fair	Soil therapy	3	Asymmetrical canopy, lean	5538 Woodsong Tr.
497	Dogwood-Flowering	8	0	0	0	Fair	Soil Therapy	3	Tip dieback	1441 Mile Post Road
498	Dogwood-Flowering	9	0	0	0	Fair	Soil Therapy	3	Tip dieback	Mile Post Dr. & Dunwoody Station Dr.
506	Dogwood-Flowering	10	0	0	0	Fair	Soil Therapy	3	Trunk wounds at 6'	1047 Winding Branch Ct.

Maintenance Priority

City of Dunwoody



Maintenance Priority Level

Right-of-Way Trees

Priority 1

Priority 2

Priority 3

Priority 4

Legend

- Dunwoody City Limits
- Maintenance Zones
- Parcels
- Lakes / Water Features
- Major Roads
- Roads
- Railroads

N

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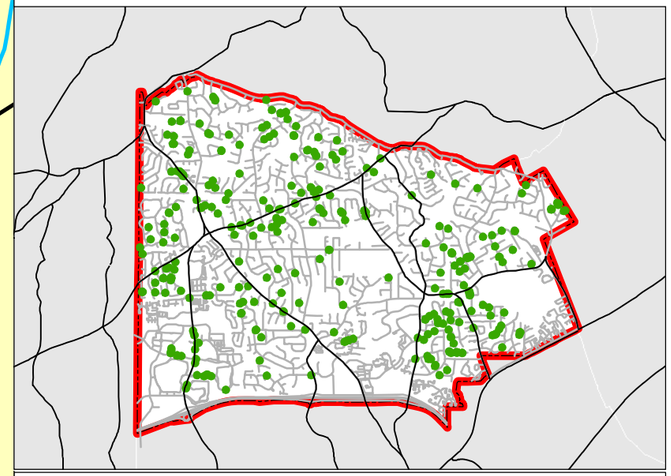
Maintenance Priority

City of Dunwoody



Maintenance Priority Level

Right-of-Way Trees

Priority 1

Priority 2

Priority 3

Priority 4

Legend

- Roads
- Major Roads
- Railroads
- Parcels
- Lakes / Water Features
- Dunwoody City Limits

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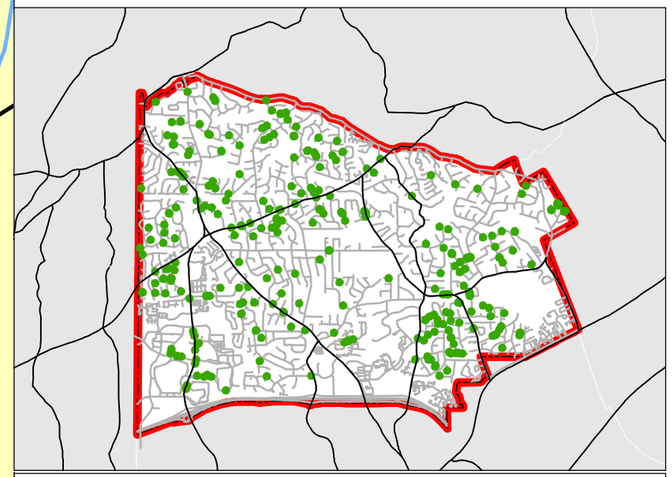
Maintenance Priorities 2, 3, & 4

City of Dunwoody



Maintenance Priority Level

Right-of-Way Trees

Priority 1

Priority 2

Priority 3

Priority 4

Legend

- Dunwoody City Limits
- Maintenance Zones
- Parcels
- Lakes / Water Features
- Major Roads
- Roads
- Railroads

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Tree Assessment

Brook Run Park

Submitted by:
Arborguard Tree Specialists
June 2012

Solutions Naturally
Arborguard
Tree Specialists

Ecological Planning Group

AEC

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Introduction

A tree assessment was conducted on trees in high pedestrian, traffic and recreational areas within Brook Run Park. Specimen trees within the park were also assessed. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 446 trees inventoried within Brook Run Park. The trees consist of 23 species. The most common tree species are Northern Red Oak and White Oak. The inventory was completed using GIS and GPS technology. Trees located within the dog park could not be GPS located due to canopy density, which prevented an adequate signal to record tree locations. This report is intended as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Brook Run Park Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	446
Number of Species	23
Most Common Species	Northern Red Oak & White Oak
Most common diameter	11"-15" (20% of all trees)
Largest diameter	49"
Condition	Good=79 Fair=188 Poor=82 Dead=97
Maintenance Priority Levels *	1=222 2=106 3=50 4=68

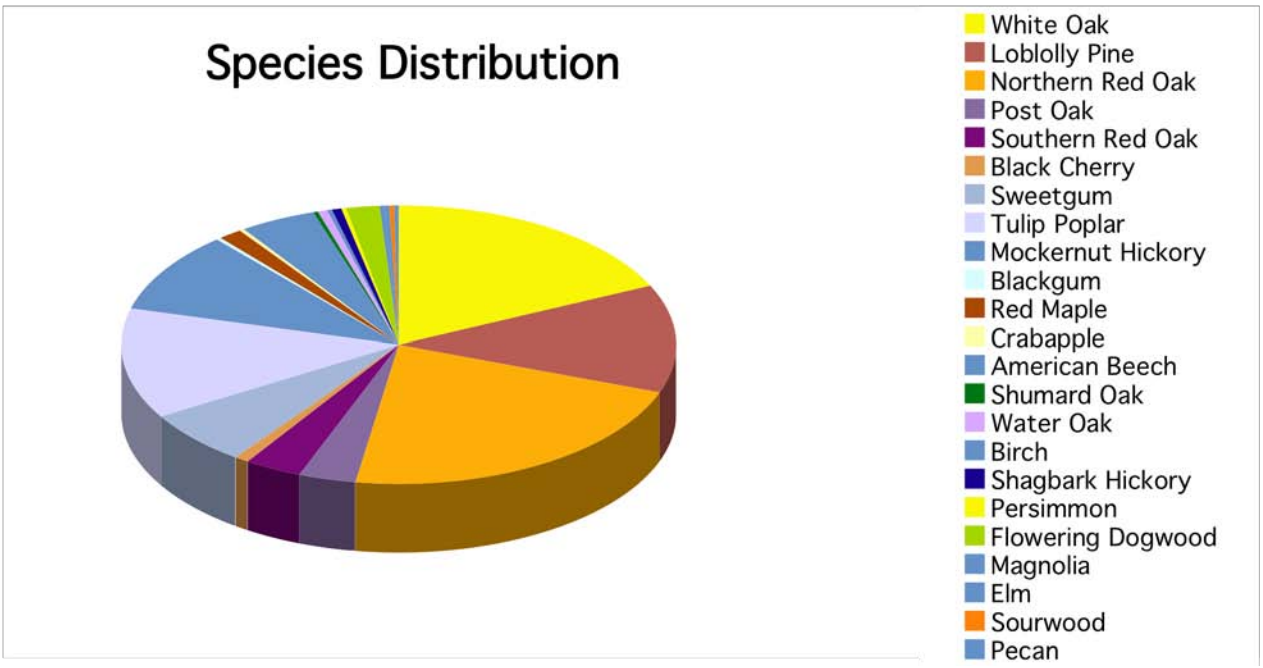
Results:

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(* See page 6 for more information of Maintenance Priority Levels)

Species Distribution

There are 23 different species of tree surveyed inside Brook Run Park. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



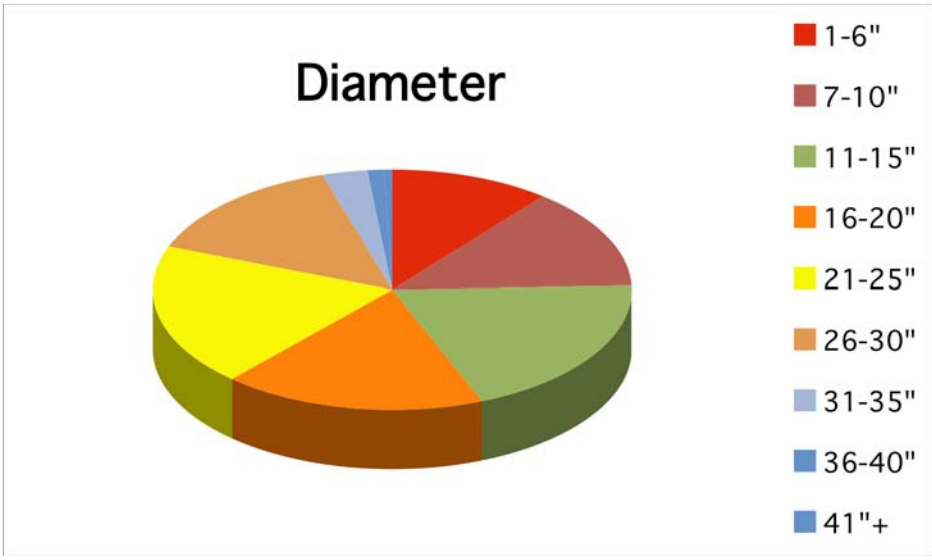
Amount of Trees Per Species

Species	Number of Trees
White Oak	80
Loblolly Pine	56
Northern Red Oak	98
Post Oak	15
Southern Red Oak	15
Black Cherry	4
Sweetgum	28
Tulip Poplar	57
Mockernut Hickory	42
Blackgum	2
Red Maple	6
Crabapple	1
American Beech	20
Shumard Oak	1
Water Oak	3
Birch	1
Shagbark Hickory	2
Persimmon	1
Flowering Dogwood	9
Magnolia	1
Elm	2
Sourwood	1
Pecan	1

Diameters

The inventoried trees range from 3 to 49 inches in diameter. The majority of the trees (20%) are between 11 and 15 inches in diameter.

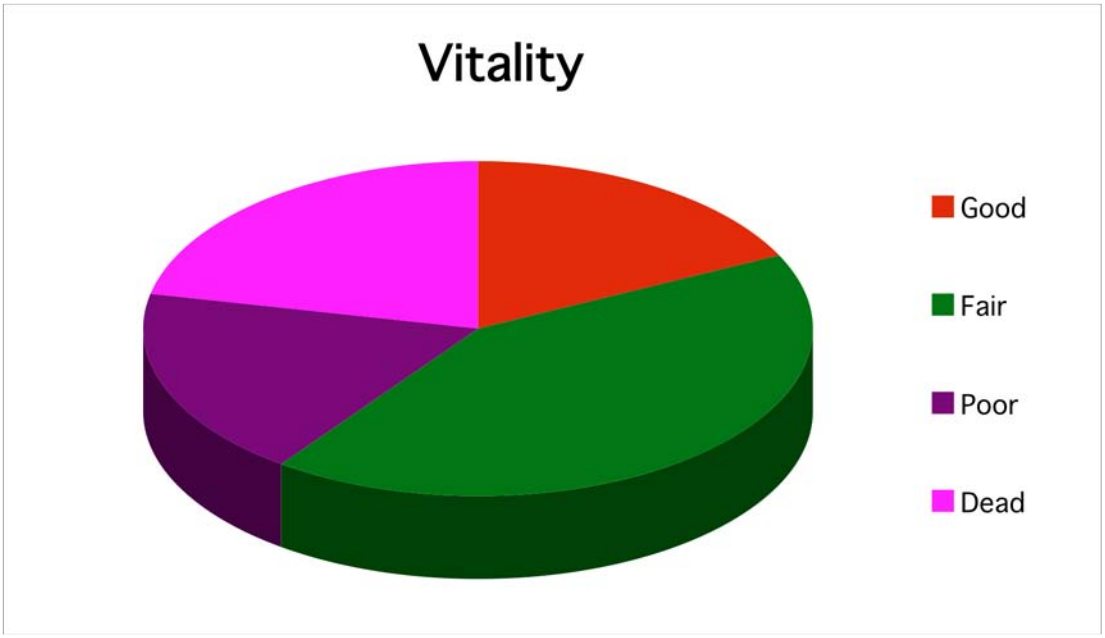
Diameter	Amount
1-6”	48
7-10”	61
11-15”	87
16-20”	79
21-25”	85
26-30”	65
31-35”	14
36-40”	5
41”+	2



Vitality Rating

Of the trees surveyed, 18% are in good condition, 42% are in fair condition, 18% are in poor condition and 22% are dead. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	79
Fair	188
Poor	82
Dead	97



Maintenance Priorities

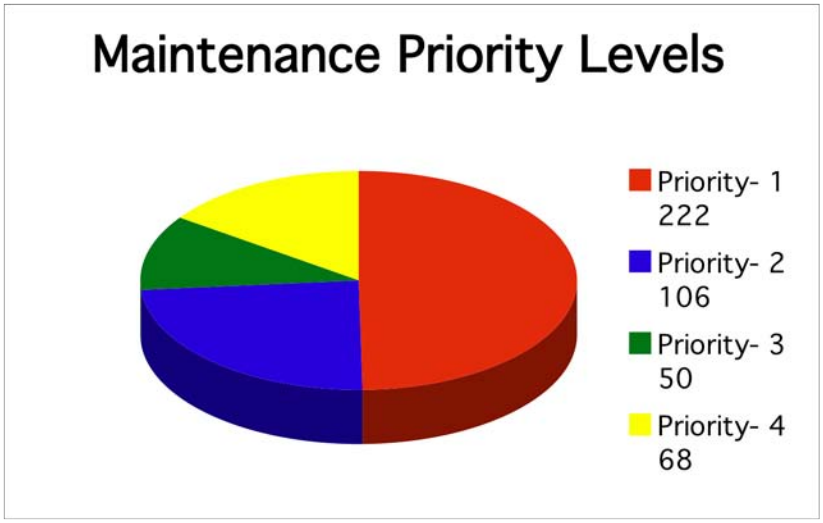
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	222
Priority 2	106
Priority 3	50
Priority 4	68



Recommendations

This park consists of approximately 120 acres with a mixture of actively used public spaces with large areas of woodlands. Areas of active use include the playground, skatepark, dog park, paved trails and community garden space. It is the intent of established green spaces and parkland to invite young and old people alike to engage in activities that include playing in the woods and under trees and enjoying expansive well maintained areas of turf.

Areas where there is a high frequency of pedestrian traffic such as around and in the playground area and the dog park are typified by extremely compacted soils. These soils are droughty, highly erodible and unfertile. The most obvious manifestation of these soil conditions can be seen in the large number of dead, poor and fair condition trees identified around these high activity areas.

Remediating compacted soils in high use areas requires the review of how the areas are currently being used by the general public and then determining an effective strategy that limits access to specific areas desirable of protection or protecting the soil surfaces with suitable materials to insure that soil compaction, once relieved will not occur again.

Playground Area:

The playground is constructed on a highly compacted clay soil. It appears at one time that wood chips may have been spread over some of the currently exposed soil surfaces but has since washed away. The rolling nature of the landscape makes it difficult to maintain a mulch layer on these slopes. A jute matting with a hardy grass over seed could be employed in these areas, with wood chip mulch being utilized on the more level soil surfaces. Single stand alone trees that are still in fairly good condition should be fenced off in some fashion to keep foot traffic to a minimum in this type of area. Larger groups of trees should be well mulched and is where pedestrian activities could be encouraged. It is much easier to keep mulch in place around groups of trees. To improve the vigor of the remaining trees, it is recommended that a functional drip type of irrigation system be established and a combined program of soil fracturing and feeding undertaken as soon as possible. It must be remembered that the site must be stabilized and mulched so that any soil fracturing efforts will not be compromised later by heavy foot traffic over unprotected areas.

Dog Park Area:

The dog park is currently enclosed by a chain link fence. The area is quite extensive and is situated on a gently rolling topography that over all grades down-slope. The entire area is located within the woods comprising of small to large hardwood trees.

The areas within the chain link fence and the location at the main entrance to the dog park is typified by extremely compacted and eroded soils. Due to the severe soil compaction these soils are droughty and a significant portion of any rainfall landing in the area simply runs off the soil surface leaving little to no water for usage by the trees. In many locations the buttress roots of large trees are being exposed as a result of soil erosion and damage to these roots is occurring from pedestrian traffic and chewing by dogs. Approximately 90 trees within the dog park and immediately around the perimeter of the park have been identified as being dead or in poor condition. These trees are recommended for removal. This high number of dead and poor condition trees is the direct result of such extremely poor, highly compacted soil conditions.

Should the dog park be continuously to be used in this way, it can be expected that within 7 to 10 years, all trees in this area will be dead.

To mitigate this condition it is recommended that:

- The soil around all large trees be fractured and the trees placed on a nutrient replenishment program
- The soil surfaces in the entire dog park be covered with a 4” layer of hardwood wood mulch
- Suitable temporary drip irrigation be installed around the trees to begin deep watering program
- Complete the above recommendations then discontinue the use of this dog park for several years
- Construct a new dog park in a similar location, then begin a several year rotation between dog parks to let the trees and soils recover from the effects of soil compaction

Maintenance Schedule

This park has approximately 200 trees that require immediate attention and approximately 100 trees that will require attention within the year.

The areas with the most frequent usage include the play ground, skateboard park, picnic pavilions walking trails, sidewalks and parking lots will be the first to be addressed by the removal of dead trees and subsequent tree pruning. It is expected that to satisfactorily complete this work will require a time budget of approximately 2 months. In some instances along foot paths in the wooded areas, the most cost effective method to manage the pruning and tree removal debris will be to leave all such debris in the woods so as to create wildlife habitats, this would include selectively leaving taller tree stubs in place as wood pecker habitats.

The following budgets for tree removal and tree pruning are reflective of standard tree care rates typical of fully insured and highly qualified local arborists. Please keep in mind that this program should be prioritized by greatest need first and then completed as budgets and timing allows.

Hazard tree removal site wide (approximately 150 trees):
- Labor: $40000
- Wood Disposal: $7000
- Equipment: $10000

Tree pruning site wide (approximately 130 trees):
- Labor: $25000
- Equipment: $2500

Plant Health Care site wide (approximately 150 trees):
- Soil fracturing/feeding: $15000 per application should be completed at least 2 times annually for the first year.
- Insect suppressant sprays for high profile trees to be determined with the aid of City Arborist (approximately 50 trees): $1360 per application, 5 applications annually are required for effective treatment.

Total estimated budget Pruning/Removal: $84500
Total estimated budget for Plant Health Care: $37000

Appendix A

Common Name – Latin Name Key

Common Name	Trees - Latin	Native/ Adaptive
White Oak	*Quercus alba*	YES
Loblolly Pine	*Pinus taeda*	YES
Northern Red Oak	*Quercus rubra*	YES
Red Maple	*Acer rubrum*	YES
American Beech	*Fagus grandifolia*	YES
Post Oak	*Quercus Stellata*	YES
Tulip Poplar	*Liriodendron tulipifera*	YES
Sweetgum	*Liquidambar styraciflua*	YES
Southern Red Oak	*Quercus falcata*	YES
Blackgum	*Nyssa sylvatica*	YES
Shumard Oak	*Quercus shumardi*	YES
Crabapple	*Malus domestica*	YES
Black Cherry	*Prunus serotina*	YES
Mockernut Hickory	*Carya tomentosa*	YES
Shagbark Hickory	*Carya ovata*	YES
Persimmon	*Diospyros virginiana*	YES
Flowering Dogwood	*Cornus floridae*	YES
Magnolia	*Magnolia grandiflora*	YES
American Elm	*Ulmus americana*	YES
Water Oak	*Quercus nigra*	YES
Paper Birch	*Betula papyrifera*	YES
Sourwood	*Oxydendrum arboreum*	YES
Pecan	*Carya illinoinensis*	YES

Appendix B

The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and located utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
281	Oak-White	35			Fair	Prune-Deadwood	2	Deadwood, Tip dieback	Brook Run Park entrance
282	Pine-Loblolly	15			Fair	Prune-Deadwood	2	Deadwood, Asymmetrical canopy	Brook Run Park entrance
283	Oak-White	14			Fair	Soil Therapy	3	Cavity+Decay at base, lean toward road	Brook Run Park entrance
284	Oak-Northern Red	19			Poor	Remove	1	Large cavity with extensive decay in lower trunk	Brook Run Park entrance
285	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
286	Oak-Northern Red	9			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
287	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
288	Oak-Post	14			Fair	Prune-Deadwood	2	Leaning toward roadway, tip dieback	Brook Run Park entrance
289	Oak-Post	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
290	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
291	Oak-White	9			Fair	Prune-Deadwood	3	Growing into neighboring tree, deadwood	Brook Run Park entrance
292	Oak-Northern Red	17			Fair	Prune-Deadwood	1	Limited root space, dead limbs over roadway	Brook Run Park entrance
293	Oak-Northern Red	10			Poor	Prune-Deadwood	2	Wound at base, bleeding cankers, deadwood, lean	Brook Run Park entrance
294	Oak-Northern Red	9			Poor	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
295	Oak-Northern Red	12			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
296	Oak-Northern Red	14			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
297	Oak-Northern Red	14			Poor	Remove	1	Cavity at 3', lean over sidewalk, deadwood, 50% dead	Brook Run Park entrance
298	Oak-Northern Red	17			Poor	Remove	1	Dead scaffold limbs over sidewalk, 50% dead,	Brook Run Park entrance
299	Oak-Northern Red	20			Fair	Soil Therapy	3	Cavity at base, lean	Sidewalk to playground
300	Pine-Loblolly	12			Dead	Remove	1	Tree is dead	Sidewalk to playground
301	Oak-Northern Red	4			Dead	Remove	1	Tree is dead	Sidewalk to playground
302	Oak-Northern Red	4			Dead	Remove	1	Tree is dead	Sidewalk to playground
303	Oak-Northern Red	9			Fair	Prune-Deadwood	2	Cavity at 6', deadwood	Activity field
304	Oak-Post	17			Fair	Prune-Deadwood	2	Cavity at 6', deadwood	Activity field
305	Cherry-Black	5			Fair	Prune-Deadwood	1	Deadwood over sidewalk, lean	Activity field
306	Oak-White	9			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Activity field
307	Oak-Southern Red	20			Fair	Prune & Install cable	1	Deadwood over sidewalk, codominant at 15'	Activity field
308	Oak-Southern Red	4			Dead	Remove	1	Tree is dead	Activity field
309	Pine-Loblolly	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Activity field
310	Sweetgum	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Activity field
311	Pine-Loblolly	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
312	Pine-Loblolly	17			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
313	Tulip Tree-Poplar	10			Dead	Remove	1	Tree is splitting in half, high risk of failure	Peeler Rd. + N. Peachtree
314	Pine-Loblolly	26			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
315	Pine-Loblolly	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
316	Pine-Loblolly	22			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
317	Tulip Tree-Poplar	12			Dead	Remove	1	Tree is dead	Peeler Rd. + N. Peachtree
318	Tulip Tree-Poplar	12			Poor	Remove	2	Tree is 50% dead	Peeler Rd. + N. Peachtree
319	Pine-Loblolly	16	18		Fair	Cable	3	Codominant at base with weak union	Peeler Rd. + N. Peachtree
320	Sweetgum	12	13		Fair	Cable	3	Codominant at base with weak union	Peeler Rd. + N. Peachtree
321	Tulip Tree-Poplar	15			Poor	Soil Therapy	2	Tip dieback, asymmetrical canopy, cavity + decay	Peeler Rd. + N. Peachtree
322	Pine-Loblolly	16			Fair	None	3	Touching adjacent tree	Peeler Rd. + N. Peachtree
323	Tulip Tree-Poplar	8			Dead	Remove	1	Tree is dead	Peeler Rd. + N. Peachtree

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
324	Tulip Tree-Poplar	7			Poor	Remove	2	Tree is 50% dead	Peeler Rd. + N. Peachtree
325	Pine-Loblolly	26			Fair	Prune	2	Deadwood near sidewalk	Activity field
326	Cherry-Black	9			Poor	Remove	1	Tree is 50% dead	Activity field
327	Pine-Loblolly	7			Fair	Prune	1	Large cavity in lower trunk, deadwood near sidewalk	Activity field
328	Oak-Southern Red	7			Fair	Prune-Deadwood	1	Top of tree is dead	Activity field
329	Oak-Northern Red	8			Dead	Remove	1	Multiple bleeding cankers, tree is 75% dead	Activity field
330	Pine-Loblolly	18			Dead	Remove	1	Tree is dead	Activity field
331	Oak-Northern Red	10			Dead	Remove	1	Tree is dead	Playground
332	Hickory	15			Fair	Soil Therapy	2	Large trunk wound, tip dieback, compacted soil	Playground
333	Hickory	9			Fair	Prune-Deadwood	1	Dead limbs near playground	Playground
334	Blackgum	13			Fair	Prune-Deadwood	1	Dead limbs over play area, trunk wound, compacted soil	Playground
335	Oak-White	12			Fair	Soil Therapy	1	Top is dead, compacted soil	Playground
336	Oak-White	16			Fair	Prune-Deadwood	1	Tip dieback, deadwood near play area	Playground
337	Oak-White	11			Fair	Soil Therapy	2	Tip dieback, compacted soil	Playground
338	Oak-White	17			Fair	Soil Therapy	2	Tip dieback, compacted soil, asymmetrical canopy	Playground
339	Cherry-Black	14			Poor	Remove	1	Tree is 50% dead, lean,	Playground
340	Oak-White	15			Fair	Soil Therapy	2	Tip dieback, compacted soil, asymmetrical canopy	Playground
341	Tulip Tree-Poplar	12			Fair	Soil Therapy	2	Tip dieback, compacted soil, asymmetrical canopy	Playground
342	Oak-Northern Red	19			Fair	Prune-Deadwood	1	Deadwood near sidewalk	Playground
343	Hickory	14			Poor	Remove	1	Large trunk cavity with extensive decay	Playground
344	Hickory	16			Fair	Soil Therapy	2	Trunk wounds, lean toward parking area	Playground restrooms
345	Cherry-Black	15			Fair	Prune-Deadwood	1	Tip dieback, deadwood over sidewalk	Playground restrooms
346	Oak-White	15			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Playground restrooms
347	Oak-White	18			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Playground restrooms
348	Oak-White	13			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Playground sidewalk
349	Oak-Northern Red	20			Dead	Remove	1	Majority of the tree is dead	Playground sidewalk
350	Oak-Northern Red	19			Poor	Remove	1	70% of canopy is missing, tip dieback	Playground sidewalk
351	Oak-Post	6			Poor	Remove	1	Top is dead, deadwood, tip dieback	Playground sidewalk
352	Oak-White	19			Fair	Prune-Deadwood	1	Dead limbs near playground	Playground sidewalk
353	Oak-Northern Red	10			Fair	Prune-Deadwood	1	Dead limbs near playground	Playground sidewalk
354	Hickory	19			Poor	Remove	1	Lean, cavity at base, internal decay	Playground sidewalk
355	Oak-White	6			Fair	Soil Therapy	2	Growing into tree #54 causing wound	Playground sidewalk
356	Oak-Northern Red	18			Poor	Remove	1	Cavities at 20' & 30', leaning on adjacent tree, deadwood	Playground sidewalk
357	Oak-Southern Red	6			Poor	Remove	1	Top is dead	Playground sidewalk
358	Oak-Southern Red	23			Fair	Prune-Deadwood	1	Deadwood near sidewalk	Playground sidewalk
359	Oak-Northern Red	11			Fair	Soil Therapy	2	Cavity at base, asymmetrical canopy	Playground parking
360	Oak-Post	20			Poor	Remove	1	Tip dieback crown to base, dead limbs over parking area	Playground parking
361	Oak-Northern Red	24			Fair	Prune-Deadwood	2	Lean toward road, asymmetrical canopy	Brook Run Park entrance
362	Oak-Northern Red	16			Fair	Prune-Deadwood	1	Dead limbs over sidewalk	Brook Run Park entrance
363	Oak-Southern Red	22			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk	Brook Run Park entrance
364	Oak-Southern Red	20			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk	Brook Run Park entrance
365	Oak-Post	16			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk, cavity at base	Brook Run Park entrance
366	Oak-Northern Red	16			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk, lean	Brook Run Park entrance

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
367	Oak-Post	18			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk	Brook Run Park entrance
368	Sweetgum	18			Dead	Remove	1	Leaning on neighboring tree	Woods near entrance
369	Hickory	18			Poor	Remove	1	Large cavity in base 80% hollow	Woods near entrance
370	Tulip Tree-Poplar	22			Poor	Remove	1	Tree is 50% dead	Skate park near playground
371	Tulip Tree-Poplar	11			Dead	Remove	1	Tree is dead	Skate park parking lot
372	Oak-Northern Red	14			Dead	Remove	1	Tree is 50% dead	Skate park parking lot
373	Tulip Tree-Poplar	14			Dead	Remove	1	Tree is dead	Skate park parking lot
374	Tulip Tree-Poplar	16			Poor	Remove	1	Leaning into roadway	Road behind skate park
375	Oak-Northern Red	16			Dead	Remove	1	Tree is dead	Rear of school bldg at loading dock
376	Oak-Northern Red	34			Fair	Prune-Deadwood	2	Deadwood, Tip dieback	Lower parking lot
377	Sweetgum	25			Fair	Prune-Deadwood	2	Deadwood, Tip dieback	Lower parking lot
378	Pine-Loblolly	24			Dead	Remove	1	Tree is dead	Community garden sidewalk
379	Oak-White	36			Good	None	4		Community garden
380	Oak-Southern Red	27			Fair	None	3	Missing 50% of canopy	Community garden
381	Oak-Southern Red	34			Fair	Prune-Deadwood	2	Deadwood	Community garden
382	Maple-Red	27			Fair	Prune-Deadwood	2	Cavities at base, deadwood	Walking trails
383	Tulip Tree-Poplar	22			Poor	Remove	1	Majority of the tree is dead	Walking trails
384	Crabapple	8	8		Poor	Remove	1	Covered in ivy and leaning over road	Walking trails
385	Oak-White	30			Fair	Prune-Deadwood	2	Deadwood	Woods
386	Oak-Northern Red	36			Good	None	4		Woods
387	Tulip Tree-Poplar	28			Fair	Soil Therapy	3	Lean, sparse canopy	Woods
388	Sweetgum	30			Good	None	4		Woods
389	Tulip Tree-Poplar	25			Good	None	4		Woods
390	Tulip Tree-Poplar	24			Good	None	4		Woods
391	Beech-American	26			Good	None	4		Woods
392	Sweetgum	24			Good	None	4		Woods
393	Oak-Northern Red	27			Good	None	4		Woods
394	Oak-Northern Red	26			Fair	Prune-Deadwood	2	Sparse Canopy, Deadwood	Woods
395	Oak-White	25			Good	None	4		Walkway/woods
396	Oak-White	20			Dead	Remove	1	Tree is dead	Walkway/woods
397	Tulip Tree-Poplar	24			Dead	Remove	1	Tree is dead	Dog park
398	Oak-Northern Red	30			Fair	Prune-Deadwood	2	Deadwood, wound at base	Dog park
399	Oak-Northern Red	14			Dead	Remove	1	Tree is dead	Dog park
400	Oak-Northern Red	43			Poor	Remove	1	Multi leads with weak union, hollow at base, hazardous	Dog park/ pavilion
401	Oak-Northern Red	29			Fair	Prune-Deadwood	2	Deadwood	Dog park
402	Oak-White	28			Good	None	4		Dog park
403	Oak-White	25			Good	None	4		Dog park
404	Oak-White	17			Fair	Prune-Deadwood	1	Deadwood over foot path	Dog park
405	Oak-Northern Red	30			Good	None	4		Dog park
406	Oak-Northern Red	26			Good	None	4		Dog park
407	Tulip Tree-Poplar	27			Fair	Prune-Deadwood	2	Deadwood, Sparse canopy	Dog park
408	Oak-White	29			Fair	Prune-Deadwood	2	Deadwood, trunk bow	Dog park
409	Oak-Northern Red	25			Fair	Prune-Deadwood	2	Deadwood	Dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
410	Blackgum	17			Poor	Remove	1	Large cavity at base, trunk is hollow	Dog park
411	Oak-Northern Red	22			Dead	Remove	1	Tree is dead	Dog park back gate
412	Oak-Northern Red	20			Dead	Remove	1	Tree is dead	Dog park back gate
413	Tulip Tree-Poplar	29			Poor	Remove	1	Large cavity at base, trunk is hollow	Dog park
414	Oak-Northern Red	26			Good	None	4		Dog park
415	Tulip Tree-Poplar	26	24		Fair	Soil Therapy	3	Codominant	Dormitory path
416	Oak-Northern Red	26			Good	None	4		Dormitory path
417	Tulip Tree-Poplar	27			Good	None	4		Dormitory path
418	Pine-Loblolly	17			Dead	Remove	1	Tree is dead	Dormitory path
419	Pine-Loblolly	24			Dead	Remove	1	Tree is dead	Dormitory path
420	Oak-Shumard	8			Fair	Soil Decompaction	2	Compact soil	Dormitory path
501	Oak-Post	22			Fair	Prune-Deadwood	2	Deadwood over path to park	Beside dog park sign
502	Oak-Northern Red	16			Dead	Remove	1	Dead tree	Path to dog park entrance
503	Oak-Southern Red	11			Poor	Prune-Deadwood	1	Deadwood over path to park	Path to dog park entrance
504	Oak-Post	6			Dead	Remove	1	Dead tree	Dog park entrance
505	Oak-Northern Red	16			Fair	None	3	Wounds on roots	Dog park entrance
507	Oak-Post	3			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
508	Oak-Post	9			Poor	Remove	1	Rapidly declining, compacted soil	Inside fenced area of dog park
509	Hickory	3			Fair	Fair	1	Leaning on tree, compacted soil	Inside fenced area of dog park
510	Oak-White	3			Fair	Prune-Deadwood	1	Dead scaffolds, compacted soil	Inside fenced area of dog park
511	Hickory	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
512	Tulip Tree-Poplar	16			Fair	Prune-Deadwood	3	Limbs on fence, wounds on bark, compacted soil	Inside fenced area of dog park
513	Sweetgum	10	5		Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
514	Oak-Northern Red	20	15	10	Fair	Cable	1	Multistem, compacted soil	Inside fenced area of dog park
515	Tulip Tree-Poplar	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
516	Oak-Northern Red	14			Poor	Remove	2	Bent trunk, leaning, compacted soil	Inside fenced area of dog park
517	Hickory	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
518	Pine-Loblolly	20			Fair	Prune-Deadwood	1	Dead limbs over path, compacted soil	Inside fenced area of dog park
519	Beech-American	17	5		Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
520	Oak-White	13			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
521	Tulip Tree-Poplar	22			Poor	Remove	1	Dead limbs over path, compacted soil	Inside fenced area of dog park
522	Sweetgum	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
523	Oak-White	22			Fair	Prune-Deadwood	3	Dead limbs over path, compacted soil	Inside fenced area of dog park
524	Sweetgum	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
525	Tulip Tree-Poplar	15			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
526	Maple-Red	8			Poor	Remove	1	Severe lean, compacted soil	Inside fenced area of dog park
527	Oak-White	6			Poor	Remove	1	Leaning over trail, compacted soil	Inside fenced area of dog park
528	Oak-White	26			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
529	Elm	8			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
530	Oak-White	7			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
531	Oak-Southern Red	15			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
532	Beech-American	17			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
533	Tulip Tree-Poplar	24			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
535	Beech-American	20			Fair	Prune-Deadwood	2	Dead limbs over sitting area, compacted soil	Inside fenced area of dog park
536	Oak-White	23			Fair	Prune-Deadwood	2	Dead limbs over sitting area, compacted soil	Inside fenced area of dog park
537	Pine-Loblolly	14			Poor	Remove	1	Declining, compacted soil	Inside fenced area of dog park
538	Oak-Post	5			Poor	Remove	2	Severe lean, compacted soil	Inside fenced area of dog park
539	Hickory	11			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
540	Oak-White	18			Fair	Prune-Deadwood	1	Deadwood over path, compacted soil	Inside fenced area of dog park
541	Sweetgum	10			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
542	Oak-White	16			Fair	Prune-Deadwood	2	Wounds on roots, compacted soil	Inside fenced area of dog park
543	Oak-Northern Red	23			Poor	Remove	1	Buttress roots critical, compacted soil	Inside fenced area of dog park
544	Tulip Tree-Poplar	16			Poor	Remove	1	Declining, compacted soil	Inside fenced area of dog park
545	Hickory	6	4		Poor	Remove	1	50% dead, compacted soil	Inside fenced area of dog park
546	Hickory	8			Fair	None	2	Large wound at 3 feet, compacted soil	Inside fenced area of dog park
547	Oak-White	20			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
548	Tulip Tree-Poplar	11			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
549	Pine-Loblolly	10			Fair	Prune-Deadwood	1	Dead limbs over trail, compacted soil	Inside fenced area of dog park
550	Sweetgum	3			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
551	Hickory	4			Poor	Remove	1	Severe lean, compacted soil	Inside fenced area of dog park
552	Oak-Northern Red	26			Fair	Prune-Deadwood	2	Specimen, compacted soil	Inside fenced area of dog park
553	Hickory	7			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
554	Oak-Post	7			Fair	None	2	Wounds on trunk, compacted soil	Inside fenced area of dog park
555	Beech-American	10			Fair	Prune-Deadwood	1	Deadwood over sitting area, compacted soil	Inside fenced area of dog park
556	Oak-Northern Red	23			Poor	Remove	1	Base is hollow, compacted soil	Inside fenced area of dog park
557	Beech-American	16			Poor	Remove	1	Wound at union of codominant leads, compacted soil	Inside fenced area of dog park
558	Oak-Northern Red	21			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
560	Sweetgum	13	8		Poor	Remove	1	Fungus and insects in trunk, compacted soil	Inside fenced area of dog park
562	Dogwood-Flowering	5			Poor	Remove	2	Top is broken, compacted soil	Inside fenced area of dog park
563	Hickory	6			Poor	Remove	2	Leaning on mature tree , compacted soil	Inside fenced area of dog park
564	Oak-White	5			Fair	Remove	2	Decay and cavity at base, compacted soil	Inside fenced area of dog park
565	Oak-Northern Red	16			Fair	Prune-Deadwood	1	Dead scaffold limb over trail, compacted soil	Inside fenced area of dog park
566	Hickory	8			Fair	Remove	1	Top broken, compacted soil	Inside fenced area of dog park
567	Sweetgum	13			Poor	Remove	1	Cavities on roots, broken roots, compacted soil	Inside fenced area of dog park
569	Hickory	4			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
570	Maple-Red	4			Poor	Remove	1	Leaning over trail, decay at base, compacted soil	Inside fenced area of dog park
571	Persimmon	10			Poor	Remove	1	Tree is 75% dead, compacted soil	Inside fenced area of dog park
572	Oak-Northern Red	16			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
573	Hickory	17			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
574	Hickory	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
575	Oak-White	20			Fair	Prune-Deadwood	1	Large dead scaffold over trail, compacted soil	Inside fenced area of dog park
576	Oak-White	19			Fair	Prune-Deadwood	1	Deadwood over trail, compacted soil	Inside fenced area of dog park
577	Hickory	19			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
578	Pine-Loblolly	19			Fair	Prune-Deadwood	1	Dead scaffold limbs over trail, compacted soil	Inside fenced area of dog park
579	Oak-White	22	16		Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
580	Oak-White	11			Fair	Cable	2	Codominant at 20 feet, compacted soil	Inside fenced area of dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
581	Oak-White	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
583	Dogwood-Flowering	2			Dead	Remove	2	Dead tree, compacted soil	Inside fenced area of dog park
585	Beech-American	5			Poor	Remove	1	Top broken and hanging down, compacted soil	Inside fenced area of dog park
586	Oak-Northern Red	21			Fair	Cable	2	Codominant at 20 feet, compacted soil	Inside fenced area of dog park
587	Hickory	4			Poor	Remove	2	50% dead, compacted soil	Inside fenced area of dog park
588	Hickory	20			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
589	Hickory	20			Fair	Prune-Deadwood	1	Dead scaffold limbs over trail, compacted soil	Inside fenced area of dog park
590	Oak-White	25	14	12	Fair	Prune-Deadwood	1	Dead limbs over trail, compacted soil	Inside fenced area of dog park
591	Hickory	7			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
592	Tulip Tree-Poplar	21			Poor	Remove	1	Crooked trunk, large dead limb, compacted soil	Inside fenced area of dog park
593	Magnolia	3			Poor	Remove	3	Wounds on trunk exposing cambium, compacted soil	Inside fenced area of dog park
594	Oak-Northern Red	19			Fair	Prune-Deadwood	1	Dead scaffold limb over trail, compacted soil	Inside fenced area of dog park
595	Oak-White	24			Fair	Prune-Deadwood	1	Dead scaffold limb over trail, compacted soil	Inside fenced area of dog park
596	Oak-White	36			Dead	Grind Stump	1	Large stump leaning over	Inside fenced area of dog park
598	Dogwood-Flowering	3			Dead	Remove	1	Leaning over trail, compacted soil	Inside fenced area of dog park
599	Hickory	13	6		Fair	Remove	1	Wounds on roots, broken roots, compacted soil	Inside fenced area of dog park
600	Dogwood-Flowering	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
601	Hickory	4			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
602	Oak-White	21			Fair	Prune-Deadwood	1	Large dead scaffold over trail, compacted soil	Inside fenced area of dog park
603	Beech-American	6			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
605	Beech-American	17			Fair	Prune-Deadwood	1	large dead scaffold over trail, compacted soil	Inside fenced area of dog park
606	Beech-American	17			Fair	Prune-Deadwood	3	broken stub, compacted soil	Inside fenced area of dog park
607	Beech-American	8	8		Fair	Prune-Deadwood	1	1 leader is dead, compacted soil	Inside fenced area of dog park
608	Oak-White	17			Fair	None	3	vertical wound at 30 feet, compacted soil	Inside fenced area of dog park
609	Sweetgum	14			Poor	Remove	1	75% canopy missing, compacted soil	Inside fenced area of dog park
610	Beech-American	7			Poor	Remove	2	top broken out, compacted soil	Inside fenced area of dog park
611	Beech-American	14	6		Fair	Cable	2	wounds on roots,weak union, compacted soil	Inside fenced area of dog park
612	Hickory	12			Fair	None	3	large wound at 3 feet, compacted soil	Inside fenced area of dog park
613	Hickory	8			Good	None	3	crooked trunk, wounds on trunk, compacted soil	Inside fenced area of dog park
615	Oak-White	19			Fair	Prune-Deadwood	1	large dead scaffold over trail, compacted soil	Inside fenced area of dog park
616	Hickory	7			Poor	Remove	1	poor form, base is hollow, compacted soil	Inside fenced area of dog park
617	Hickory	9			Poor	Remove	2	broken roots, wounds on trunk, compacted soil	Inside fenced area of dog park
619	Hickory	7			Fair	Remove	2	leaning over trail, compacted soil	Inside fenced area of dog park
620	Tulip Tree-Poplar	11			Poor	Remove	1	hollow trunk, near sitting area, compacted soil	Inside fenced area of dog park
621	Hickory	7			Poor	Remove	1	broken roots and decay at roots, compacted soil	Inside fenced area of dog park
622	Tulip Tree-Poplar	16			Fair	Prune-Deadwood	2	dead limbs over trail, compacted soil	Inside fenced area of dog park
623	Oak-Northern Red	21			Fair	Prune-Deadwood	1	dead scaffold limbs over trail, compacted soil	Inside fenced area of dog park
624	Hickory	4			Poor	Remove	2	50% dead, compacted soil	Inside fenced area of dog park
625	Hickory	8			Fair	None	3	wounds on roots, compacted soil	Inside fenced area of dog park
626	Hickory	3			Fair	Remove	2	wounds on roots, deadwood, compacted soil	Inside fenced area of dog park
627	Hickory	6			Poor	Remove	1	leaning over sitting area, compacted soil	Inside fenced area of dog park
629	Oak-Northern Red	9			Fair	Prune-Deadwood	2	Dead scaffold over trail, compacted soil	Inside fenced area of dog park
630	Hickory	8			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
631	Pine-Loblolly	17			Fair	Prune-Deadwood	1	Dead stubs and scaffold limbs, compacted soil	Inside fenced area of dog park
632	Pine-Loblolly	15			Fair	Prune-Deadwood	1	Dead stubs and scaffold limbs, compacted soil	Inside fenced area of dog park
633	Tulip Tree-Poplar	7			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
635	Hickory	3			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
636	Beech-American	3			Poor	Remove	2	Top broken out, compacted soil	Inside fenced area of dog park
637	Hickory	4			Poor	Remove	1	Cavity and decay at base, compacted soil	Inside fenced area of dog park
638	Beech-American	7			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
639	Tulip Tree-Poplar	22			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
640	Hickory	2			Poor	Remove	2	50% dead, decay at base, compacted soil	Inside fenced area of dog park
641	Oak-Northern Red	12			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
642	Hickory	21			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
643	Dogwood-Flowering	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
644	Oak-White	27			Fair	Cable	1	Weak union and dead limbs, compacted soil	Inside fenced area of dog park
645	Sweetgum	24			Fair	None	4	Specimen, compacted soil	Inside fenced area of dog park
646	Oak-Northern Red	14			Fair	Prune-Deadwood	1	Dead scaffold limb, compacted soil	Inside fenced area of dog park
647	Oak-Southern Red	28			Fair	Prune-Deadwood	1	Deadwood over trail	Outside of dog park
648	Oak-Post	14			Poor	Prune-Deadwood	1	Deadwood over trail	Outside of dog park
649	Oak-White	23			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
650	Oak-Northern Red	14			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park
651	Oak-Northern Red	21			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
652	Oak-Post	5			Dead	Remove	1	Dead	Outside of dog park
653	Sweetgum	15			Poor	Remove	1	Cavity in trunk at 6 feet	Outside of dog park
654	Oak-Northern Red	14			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
655	Sweetgum	8			Dead	Remove	1	Leaning over on adjacent tree	Outside of dog park
656	Oak-White	12			Dead	Remove	1	Dead tree	Outside of dog park
657	Dogwood-Flowering	4	4	4	Dead	Remove	1	Dead tree	Outside of dog park
658	Oak-Northern Red	25			Fair	None	3	Specimen	Outside of dog park
659	Oak-White	25			Good	None	3	Specimen	Outside of dog park
660	Maple-Red	10			Poor	Remove	2	Multiple cavities	Outside of dog park
661	Sweetgum	11	15		Poor	Remove	1	Hollow at base	Outside of dog park
662	Oak-Northern Red	10			Poor	Remove	2	Top broken	Outside of dog park
663	Sweetgum	16			Poor	Prune-Deadwood	2	Deadwood over trail	Outside of dog park
664	Pine-Loblolly	24			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park
665	Oak-Water	20			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park
666	Oak-Northern Red	30			Fair	Cut Vines	3	Vines growing on trunk	Outside of dog park
667	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park
668	Sweetgum	15			Poor	Remove	2	Dead limbs over trail	Outside of dog park
669	Sweetgum	12			Dead	Remove	1	Dead tree	Outside of dog park
670	Oak-White	20			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
671	Oak-White	18			Fair	Prune-Structural	2	Leaning overcars	Outside of dog park
672	Tulip Tree-Poplar	20			Fair	None	3	Decay at base	Outside of dog park
673	Birch-Paper	14			Poor	Remove	1	50% dead	Outside of dog park
674	Oak-Northern Red	24			Dead	Remove	1	Dead tree	Outside of dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
675	Beech-American	32			Good	None	3	Specimen	Dog park rear entrance
676	Hickory-Shagbark	15			Poor	Remove	1	Leaning on adjacent tree	Dog park rear entrance
677	Beech-American	23			Poor	Remove	1	Cavity in lower trunk	Dog park rear fence
678	Beech-American	30			Poor	Remove	1	Trunk splitting apart	Dog park rear fence
679	Oak-White	26			Good	None	3	Specimen	Dog park rear fence
680	Beech-American	27			Fair	None	3	Specimen	Dog park rear fence
681	Hickory-Shagbark	26			Good	None	3	Specimen	Dog park rear fence
682	Oak-Northern Red	11	22		Fair	Prune-Deadwood	2	Dead limbs over trail	Dog park rear fence
683	Beech-American	24			Fair	None	3	Large bleeding cavity	Dog park rear fence
684	Tulip Tree-Poplar	24			Good	None	4	Specimen	Dormitory path
685	Oak-Northern Red	29			Poor	Risk Assessment	1	Risk assessment	Dormitory path
686	Oak-Northern Red	28			Good	None	4	Specimen	Dormitory path
687	Elm-American	24			Fair	Cable	2	Cable	Dormitory path
688	Tulip Tree-Poplar	13			Poor	Remove	1	Hazardous	Dormitory path
689	Tulip Tree-Poplar	31			Good	Remove Vines	1	Specimen	Dormitory path
690	Sweetgum	25			Good	Remove Vines	1	Specimen	Dormitory path
691	Sourwood	7			Good	Prune Deadwood	1	Dead limbs over path	Dormitory path
692	Tulip Tree-Poplar	27			Poor	Remove	1	Cavity	Dormitory path
693	Tulip Tree-Poplar	31			Good	None	4		Dormitory path
694	Pine-Loblolly	11			Dead	Remove	1	Dead	Dormitory path
695	Pine-Loblolly	25			Fair	Remove	2	Canker and cavity	Dormitory path
696	Pine-Loblolly	23			Dead	Remove	1	Remove	Dormitory path
697	Pine-Loblolly	14			Dead	Remove	1	Dead	Dormitory path
698	Pine-Loblolly	30			Fair	Prune Deadwood	3	Specimen	Dormitory path
699	Pine-Loblolly	30			Fair	Prune Deadwood	3	Specimen	Dormitory path
700	Maple-Red	14			Poor	Prune Deadwood	1	Leaning over AC unit	Dormitory path
701	Pine-Loblolly	30			Good	None	4	Specimen	Dormitory path
702	Tulip Tree-Poplar	26			Good	None	4	Specimen	Dormitory path
703	Pine-Loblolly	30			Good	None	4	Specimen	Dormitory path
704	Pine-Loblolly	25			Dead	Remove	1	Dead	Dormitory path
705	Pine-Loblolly	30			Good	Prune Deadwood	4	Specimen	Dormitory path
706	Oak-White	37			Good	Prune Deadwood	4	Specimen	Dormitory path
707	Pine-Loblolly	12			Dead	Remove	1	Dead	Dormitory path
708	Pine-Loblolly	12			Fair	Prune Deadwood	3	Dead limbs near sidewalks	Dormitory path
709	Oak-Water	11			Fair	Prune Deadwood	3	Dead limbs near sidewalks	Dormitory path
710	Sweetgum	25			Good	None	4	Specimen	Dormitory path
711	Tulip Tree-Poplar	12			Poor	Remove	2	Leaning over trail	Woods at dormitory
712	Oak-Southern Red	49			Fair	Prune Deadwood	2	Deadwood over trail	Woods at dormitory
713	Hickory-Mockernut	27			Good	None	4	Specimen	Old tennis courts
714	Sweetgum	26			Good	None	4	Specimen	Old tennis courts
715	Sweetgum	25			Good	None	4	Specimen	Old tennis courts
716	Sweetgum	25			Good	None	4	Specimen	Old tennis courts
717	Oak-Water	24			Good	None	4	Specimen	Woods

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
718	Pine-Loblolly	8			Dead	Remove	1	Dead	Woods
719	Pine-Loblolly	14			Dead	Remove	1	Dead	Woods
720	Tulip Tree-Poplar	21			Dead	Remove	1	Lightning strike	Woods
721	Oak-Northern Red	18			Dead	Remove	1	Dead	Woods
722	Oak-Northern Red	10			Dead	Remove	1	Dead	Old tennis courts
723	Pine-Loblolly	10			Dead	Remove	1	Dead	Old tennis courts
724	Pine-Loblolly	15			Dead	Remove	1	Dead	Old tennis courts
725	Pine-Loblolly	14			Dead	Remove	1	Dead	Old tennis courts
726	Oak-White	25			Poor	Remove	1	Large cavity opening at base	Old tennis courts
727	Maple-Red	8			Poor	Remove	2		Old tennis courts
728	Pine-Loblolly	12			Dead	Remove	1	Dead	Peachford Rd
729	Oak-Northern Red	10			Fair	Prune Deadwood	2		Pavilion
730	Pine-Loblolly	18			Dead	Remove	1	Dead	Pavilion
731	Pine-Loblolly	13			Dead	Remove	1	Dead	Pavilion
732	Pine-Loblolly	8			Dead	Remove	1	Dead	Pavilion
733	Pine-Loblolly	6			Dead	Remove	1	Dead	Pavilion
734	Pine-Loblolly	15			Dead	Prune Deadwood	1		Pavilion
735	Pine-Loblolly	10			Dead	Remove	1	Dead	Pavilion
736	Pine-Loblolly	14			Dead	Remove	1	Dead	Pavilion
737	Oak-Northern Red	17			Dead	Remove	1	Dead	Pavilion
738	Oak-White	13			Dead	Remove	1	Dead	Pavilion
739	Pine-Loblolly	15			Dead	Remove	1	Dead	Community garden
740	Pine-Loblolly	8			Dead	Prune Deadwood	1		Community garden
741	Oak-Northern Red	26			Good	None	4	Specimen	Community garden
742	Oak-Northern Red	8			Dead	Remove	1	Dead	Community garden
743	Oak-White	24			Good	None	4	Specimen	Community garden
744	Oak-Northern Red	27			Good	None	4	Specimen	Community garden
745	Oak-Northern Red	28			Good	None	4	Specimen	Community garden
746	Oak-White	25			Good	None	4	Specimen	Community garden
747	Oak-White	24			Good	None	4	Specimen	Community garden
748	Oak-White	25			Good	Remove Vines	2	Specimen	Community garden
749	Oak-White	26			Good	Remove Vines	2	Specimen	Community garden
750	Pine-Loblolly	12			Dead	Remove	1	Dead	Community garden
751	Tulip Tree-Poplar	8			Dead	Remove	1	Dead	Community garden
752	Pine-Loblolly	12			Dead	Remove	1	Dead	Community garden
753	Sweetgum	30			Good	Remove Vines	3	Specimen	Community garden
754	Oak-White	24			Fair	Remove Vines	2	Specimen	Community garden path
755	Tulip Tree-Poplar	32			Fair	None	4	Specimen	Community garden path
756	Oak-White	31			Good	None	4	Specimen	Honeybees
757	Oak-White	28			Good	None	4	Specimen	Honeybees
758	Oak-White	35			Good	None	4	Specimen	Honeybees
759	Oak-White	25			Good	None	4	Specimen	Honeybees
760	Oak-White	28			Good	None	4	Specimen	Honeybees

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
761	Oak-Northern Red	30			Good	None	4	Specimen	Honeybees
762	Oak-Northern Red	24			Good	None	4	Specimen	Rear field
763	Dogwood-Flowering	12			Fair	Prune Deadwood	3	Specimen	Rear field
764	Oak-White	26			Fair	Remove Vines	2	Specimen tree with poison ivy	Rear field
765	Oak-Northern Red	24			Fair	Prune Deadwood	3	Cankers on roots	Rear field
766	Oak-Northern Red	24			Fair	Prune Deadwood	3	Specimen	Rear field
767	Oak-White	24			Fair	Prune Deadwood	3	Specimen	Rear field
768	Tulip Tree-Poplar	33			Fair	Prune Deadwood	3	Specimen	Rear field
769	Oak-White	35			Good	None	4	Specimen	Rear field
770	Oak-White	24			Fair	Remove Vines	2	Vines on trunk	Rear field
771	Oak-White	27			Good	None	4	Specimen	Rear field
772	Oak-Northern Red	25			Good	None	4	Specimen	Rear field
773	Tulip Tree-Poplar	27			Good	Prune Deadwood	4	Specimen	Rear field
774	Tulip Tree-Poplar	33			Fair	Cable	3	Codominant	Rear field
775	Tulip Tree-Poplar	25			Fair	Cable	3	Codominant	Rear field
776	Oak-Northern Red	26			Fair	Prune Deadwood	2	Specimen	Rear field
777	Tulip Tree-Poplar	25			Good	None	4	Specimen	Rear field
778	Oak-Northern Red	24			Good	None	4	Specimen	Rear field
779	Oak-Northern Red	28			Good	None	4	Specimen	Rear field
780	Tulip Tree-Poplar	28			Good	None	4	Specimen	Rear field
781	Oak-Northern Red	25			Fair	Remove Vines	3	Codominant	Rear field
782	Oak-White	35			Good	Remove Vines	3	Specimen	Rear field
783	Tulip Tree-Poplar	30			Fair	Prune Deadwood	4	Specimen	Rear field
784	Oak-White	37			Fair	Prune Deadwood	3	Specimen	Rear field
785	Oak-Northern Red	26			Fair	Prune Deadwood	3	Specimen	Rear field
786	Oak-White	25			Fair	Prune Deadwood	3	Specimen	Rear field
787	Oak-White	24			Good	None	4	Specimen	Rear field
788	Oak-White	32			Good	None	4	Specimen	Rear field
789	Oak-White	26			Good	None	4	Specimen	Rear field
790	Tulip Tree-Poplar	24			Good	None	4	Specimen	Rear field
791	Tulip Tree-Poplar	25			Good	None	4	Specimen	Rear field
792	Oak-Northern Red	28			Good	None	4	Specimen	Rear field
793	Oak-White	24			Good	None	4	Specimen	Rear field
794	Oak-White	24			Good	None	4	Specimen	Rear field
795	Oak-Northern Red	25			Good	None	4	Specimen	Rear field
796	Tulip Tree-Poplar	25			Good	None	4	Specimen	Rear field
797	Tulip Tree-Poplar	24			Fair	None	4	Specimen	Rear field
798	Tulip Tree-Poplar	24			Good	None	4	Specimen	Rear field
799	Tulip Tree-Poplar	28			Good	None	4	Specimen	Rear field
800	Oak-Northern Red	19			Dead	Remove	1	Has been climbed with climbing spikes	Playground
801	Pecan	14			Poor	Remove	1	Hazardous due to a large trunk cavity opening several feet in length	Playground
802	Oak-Northern Red	17			Poor	Remove	2	Majority of tree is dead	Playground
803	Oak-Southern Red	25			Good	Prune Deadwood	3	Small amount of dead limbs	Between park and Peeler Road

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
805	Tulip Tree-Poplar	11			Dead	Remove	1	Dead	Between Peeler Road and parkinglot
806	Oak-Northern Red	28			Fair	Prune Deadwood	3	Small amount of dead wood	By old school
807	Dogwood-Flowering	8			Fair	Prune Deadwood	3	Small cavity in trunk	By old school
809	Oak-Southern Red	10			Dead	Remove	1	Dead and covered with vines	By old school
810	Sweetgum	23			Fair	Remove	1	Large cavity in lower trunk	By old school
810	Pine-Loblolly	19			Dead	Remove	1	Dead	Pavillion
811	Pine-Loblolly	14			Dead	Remove	1	Dead	Pavilion
812	Pine-Loblolly	14			Dead	Remove	1	Dead	Pavilion
813	Pine-Loblolly	10			Dead	Remove	1	Dead	Rear field
814	Oak-Northern Red	14			Dead	Remove	1	Dead	Rear field
815	Oak-White	28			Fair	Cable	2	Codominant at 6 ft	Rear field
815	Oak-Northern Red	25			Poor	None	4	Cavity in trunk 10 ft high	Rear field
817	Dogwood-Flowering	6			Good	Prune Deadwood	3	Dead Limbs	Rear field
818	Oak-Northern Red	28			Good	Prune Deadwood	3	Dead Limbs	Near vegetable garden
819	Oak-Northern Red	27			Good	Prune Deadwood	3	Dead Limbs	Across road from dog park parking lot
845	Oak-White	22			Poor	Remove	1	Hazardous due to a trunk cavity along the entrie trunk	Community garden sidewalk

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
284	Oak-Northern Red	19			Poor	Remove	1	Large cavity with extensive decay in lower trunk	Brook Run Park entrance
297	Oak-Northern Red	14			Poor	Remove	1	Cavity at 3', lean over sidewalk, deadwood, 50% dead	Brook Run Park entrance
298	Oak-Northern Red	17			Poor	Remove	1	Dead scaffold limbs over sidewalk, 50% dead,	Brook Run Park entrance
300	Pine-Loblolly	12			Dead	Remove	1	Tree is dead	Sidewalk to playground
301	Oak-Northern Red	4			Dead	Remove	1	Tree is dead	Sidewalk to playground
302	Oak-Northern Red	4			Dead	Remove	1	Tree is dead	Sidewalk to playground
308	Oak-Southern Red	4			Dead	Remove	1	Tree is dead	Activity field
313	Tulip Tree-Poplar	10			Dead	Remove	1	Tree is splitting in half, high risk of failure	Peeler Rd. + N. Peachtree
317	Tulip Tree-Poplar	12			Dead	Remove	1	Tree is dead	Peeler Rd. + N. Peachtree
318	Tulip Tree-Poplar	12			Poor	Remove	2	Tree is 50% dead	Peeler Rd. + N. Peachtree
323	Tulip Tree-Poplar	8			Dead	Remove	1	Tree is dead	Peeler Rd. + N. Peachtree
324	Tulip Tree-Poplar	7			Poor	Remove	2	Tree is 50% dead	Peeler Rd. + N. Peachtree
326	Cherry-Black	9			Poor	Remove	1	Tree is 50% dead	Activity field
329	Oak-Northern Red	8			Dead	Remove	1	Multiple bleeding cankers, tree is 75% dead	Activity field
330	Pine-Loblolly	18			Dead	Remove	1	Tree is dead	Activity field
331	Oak-Northern Red	10			Dead	Remove	1	Tree is dead	Playground
339	Cherry-Black	14			Poor	Remove	1	Tree is 50% dead, lean,	Playground
343	Hickory	14			Poor	Remove	1	Large trunk cavity with extensive decay	Playground
349	Oak-Northern Red	20			Dead	Remove	1	Majority of the tree is dead	Playground sidewalk
350	Oak-Northern Red	19			Poor	Remove	1	70% of canopy is missing, tip dieback	Playground sidewalk
351	Oak-Post	6			Poor	Remove	1	Top is dead, deadwood, tip dieback	Playground sidewalk
354	Hickory	19			Poor	Remove	1	Lean, cavity at base, internal decay	Playground sidewalk
356	Oak-Northern Red	18			Poor	Remove	1	Cavities at 20' & 30', leaning on adjacent tree	Playground sidewalk
357	Oak-Southern Red	6			Poor	Remove	1	Top is dead	Playground sidewalk
360	Oak-Post	20			Poor	Remove	1	Tip dieback crown to base, dead limbs over parking area	Playground parking
368	Sweetgum	18			Dead	Remove	1	Leaning on neighboring tree	Woods near entrance
369	Hickory	18			Poor	Remove	1	Large cavity in base 80% hollow	Woods near entrance
370	Tulip Tree-Poplar	22			Poor	Remove	1	Tree is 50% dead	Skate park near playground
371	Tulip Tree-Poplar	11			Dead	Remove	1	Tree is dead	Skate park parking lot
372	Oak-Northern Red	14			Dead	Remove	1	Tree is 50% dead	Skate park parking lot
373	Tulip Tree-Poplar	14			Dead	Remove	1	Tree is dead	Skate park parking lot
374	Tulip Tree-Poplar	16			Poor	Remove	1	Leaning into roadway	Road behind skate park
375	Oak-Northern Red	16			Dead	Remove	1	Tree is dead	Rear of school bldg at loading dock
378	Pine-Loblolly	24			Dead	Remove	1	Tree is dead	Community garden sidewalk
383	Tulip Tree-Poplar	22			Poor	Remove	1	Majority of the tree is dead	Walking trails
384	Crabapple	8	8		Poor	Remove	1	Covered in ivy and leaning over road	Walking trails
396	Oak-White	20			Dead	Remove	1	Tree is dead	Walkway/woods
397	Tulip Tree-Poplar	24			Dead	Remove	1	Tree is dead	Dog park
399	Oak-Northern Red	14			Dead	Remove	1	Tree is dead	Dog park
400	Oak-Northern Red	43			Poor	Remove	1	Multi leads with weak union, hollow at base, hazardous	Dog park/ pavilion
410	Blackgum	17			Poor	Remove	1	Large cavity at base, trunk is hollow	Dog park
411	Oak-Northern Red	22			Dead	Remove	1	Tree is dead	Dog park back gate
412	Oak-Northern Red	20			Dead	Remove	1	Tree is dead	Dog park back gate
413	Tulip Tree-Poplar	29			Poor	Remove	1	Large cavity at base, trunk is hollow	Dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
418	Pine-Loblolly	17			Dead	Remove	1	Tree is dead	Dormitory path
419	Pine-Loblolly	24			Dead	Remove	1	Tree is dead	Dormitory path
502	Oak-Northern Red	16			Dead	Remove	1	Dead tree	Path to dog park entrance
504	Oak-Post	6			Dead	Remove	1	Dead tree	Dog park entrance
507	Oak-Post	3			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
508	Oak-Post	9			Poor	Remove	1	Rapidly declining, compacted soil	Inside fenced area of dog park
511	Hickory	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
513	Sweetgum	10	5		Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
515	Tulip Tree-Poplar	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
516	Oak-Northern Red	14			Poor	Remove	2	Bent trunk, leaning, compacted soil	Inside fenced area of dog park
517	Hickory	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
521	Tulip Tree-Poplar	22			Poor	Remove	1	Dead limbs over path, compacted soil	Inside fenced area of dog park
522	Sweetgum	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
524	Sweetgum	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
525	Tulip Tree-Poplar	15			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
526	Maple-Red	8			Poor	Remove	1	Severe lean, compacted soil	Inside fenced area of dog park
527	Oak-White	6			Poor	Remove	1	Leaning over trail, compacted soil	Inside fenced area of dog park
530	Oak-White	7			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
533	Tulip Tree-Poplar	24			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
537	Pine-Loblolly	14			Poor	Remove	1	Declining, compacted soil	Inside fenced area of dog park
538	Oak-Post	5			Poor	Remove	2	Severe lean, compacted soil	Inside fenced area of dog park
539	Hickory	11			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
541	Sweetgum	10			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
543	Oak-Northern Red	23			Poor	Remove	1	Buttress roots critical, compacted soil	Inside fenced area of dog park
544	Tulip Tree-Poplar	16			Poor	Remove	1	Declining, compacted soil	Inside fenced area of dog park
545	Hickory	6	4		Poor	Remove	1	50% dead, compacted soil	Inside fenced area of dog park
550	Sweetgum	3			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
551	Hickory	4			Poor	Remove	1	Severe lean, compacted soil	Inside fenced area of dog park
556	Oak-Northern Red	23			Poor	Remove	1	Base is hollow, compacted soil	Inside fenced area of dog park
557	Beech-American	16			Poor	Remove	1	Wound at union of codominant leads, compacted soil	Inside fenced area of dog park
560	Sweetgum	13	8		Poor	Remove	1	Fungus and insects in trunk, compacted soil	Inside fenced area of dog park
562	Dogwood-Flowering	5			Poor	Remove	2	Top is broken, compacted soil	Inside fenced area of dog park
563	Hickory	6			Poor	Remove	2	Leaning on mature tree , compacted soil	Inside fenced area of dog park
564	Oak-White	5			Fair	Remove	2	Decay and cavity at base, compacted soil	Inside fenced area of dog park
566	Hickory	8			Fair	Remove	1	Top broken, compacted soil	Inside fenced area of dog park
567	Sweetgum	13			Poor	Remove	1	Cavities on roots, broken roots, compacted soil	Inside fenced area of dog park
569	Hickory	4			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
570	Maple-Red	4			Poor	Remove	1	Leaning over trail, decay at base, compacted soil	Inside fenced area of dog park
571	Persimmon	10			Poor	Remove	1	Tree is 75% dead, compacted soil	Inside fenced area of dog park
572	Oak-Northern Red	16			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
574	Hickory	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
581	Oak-White	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
583	Dogwood-Flowering	2			Dead	Remove	2	Dead tree, compacted soil	Inside fenced area of dog park
585	Beech-American	5			Poor	Remove	1	Top broken and hanging down, compacted soil	Inside fenced area of dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
587	Hickory	4			Poor	Remove	2	50% dead, compacted soil	Inside fenced area of dog park
588	Hickory	20			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
592	Tulip Tree-Poplar	21			Poor	Remove	1	Crooked trunk, large dead limb, compacted soil	Inside fenced area of dog park
593	Magnolia	3			Poor	Remove	3	Wounds on trunk exposing cambium, compacted soil	Inside fenced area of dog park
598	Dogwood-Flowering	3			Dead	Remove	1	Leaning over trail, compacted soil	Inside fenced area of dog park
599	Hickory	13	6		Fair	Remove	1	Wounds on roots, broken roots, compacted soil	Inside fenced area of dog park
600	Dogwood-Flowering	2			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
601	Hickory	4			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
603	Beech-American	6			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
609	Sweetgum	14			Poor	Remove	1	75% canopy missing, compacted soil	Inside fenced area of dog park
610	Beech-American	7			Poor	Remove	2	top broken out, compacted soil	Inside fenced area of dog park
616	Hickory	7			Poor	Remove	1	poor form, base is hollow, compacted soil	Inside fenced area of dog park
617	Hickory	9			Poor	Remove	2	broken roots, wounds on trunk, compacted soil	Inside fenced area of dog park
619	Hickory	7			Fair	Remove	2	leaning over trail, compacted soil	Inside fenced area of dog park
620	Tulip Tree-Poplar	11			Poor	Remove	1	hollow trunk, near sitting area, compacted soil	Inside fenced area of dog park
621	Hickory	7			Poor	Remove	1	broken roots and decay at roots, compacted soil	Inside fenced area of dog park
624	Hickory	4			Poor	Remove	2	50% dead, compacted soil	Inside fenced area of dog park
626	Hickory	3			Fair	Remove	2	wounds on roots, deadwood, compacted soil	Inside fenced area of dog park
627	Hickory	6			Poor	Remove	1	leaning over sitting area, compacted soil	Inside fenced area of dog park
630	Hickory	8			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
635	Hickory	3			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
636	Beech-American	3			Poor	Remove	2	Top broken out, compacted soil	Inside fenced area of dog park
637	Hickory	4			Poor	Remove	1	Cavity and decay at base, compacted soil	Inside fenced area of dog park
638	Beech-American	7			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
640	Hickory	2			Poor	Remove	2	50% dead, decay at base, compacted soil	Inside fenced area of dog park
643	Dogwood-Flowering	5			Dead	Remove	1	Dead tree, compacted soil	Inside fenced area of dog park
652	Oak-Post	5			Dead	Remove	1	Dead	Outside of dog park
653	Sweetgum	15			Poor	Remove	1	Cavity in trunk at 6 feet	Outside of dog park
655	Sweetgum	8			Dead	Remove	1	Leaning over on adjacent tree	Outside of dog park
656	Oak-White	12			Dead	Remove	1	Dead tree	Outside of dog park
657	Dogwood-Flowering	4	4	4	Dead	Remove	1	Dead tree	Outside of dog park
660	Maple-Red	10			Poor	Remove	2	Multiple cavities	Outside of dog park
661	Sweetgum	11	15		Poor	Remove	1	Hollow at base	Outside of dog park
662	Oak-Northern Red	10			Poor	Remove	2	Top broken	Outside of dog park
668	Sweetgum	15			Poor	Remove	2	Dead limbs over trail	Outside of dog park
669	Sweetgum	12			Dead	Remove	1	Dead tree	Outside of dog park
673	Birch-Paper	14			Poor	Remove	1	50% dead	Outside of dog park
674	Oak-Northern Red	24			Dead	Remove	1	Dead tree	Outside of dog park
676	Hickory-Shagbark	15			Poor	Remove	1	Leaning on adjacent tree	Dog park rear entrance
677	Beech-American	23			Poor	Remove	1	Cavity in lower trunk	Dog park rear fence
678	Beech-American	30			Poor	Remove	1	Trunk splitting apart	Dog park rear fence
688	Tulip Tree-Poplar	13			Poor	Remove	1	Hazardous	Dormitory path
692	Tulip Tree-Poplar	27			Poor	Remove	1	Cavity	Dormitory path
694	Pine-Loblolly	11			Dead	Remove	1	Dead	Dormitory path

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
695	Pine-Loblolly	25			Fair	Remove	2	Canker and cavity	Dormitory path
696	Pine-Loblolly	23			Dead	Remove	1	Remove	Dormitory path
697	Pine-Loblolly	14			Dead	Remove	1	Dead	Dormitory path
704	Pine-Loblolly	25			Dead	Remove	1	Dead	Dormitory path
707	Pine-Loblolly	12			Dead	Remove	1	Dead	Dormitory path
711	Tulip Tree-Poplar	12			Poor	Remove	2	Leaning over trail	Woods at dormitory
718	Pine-Loblolly	8			Dead	Remove	1	Dead	Woods
719	Pine-Loblolly	14			Dead	Remove	1	Dead	Woods
720	Tulip Tree-Poplar	21			Dead	Remove	1	Lightning strike	Woods
721	Oak-Northern Red	18			Dead	Remove	1	Dead	Woods
722	Oak-Northern Red	10			Dead	Remove	1	Dead	Old tennis courts
723	Pine-Loblolly	10			Dead	Remove	1	Dead	Old tennis courts
724	Pine-Loblolly	15			Dead	Remove	1	Dead	Old tennis courts
725	Pine-Loblolly	14			Dead	Remove	1	Dead	Old tennis courts
726	Oak-White	25			Poor	Remove	1	Large cavity opening at base	Old tennis courts
727	Maple-Red	8			Poor	Remove	2		Old tennis courts
728	Pine-Loblolly	12			Dead	Remove	1	Dead	Peachford Rd
730	Pine-Loblolly	18			Dead	Remove	1	Dead	Pavilion
731	Pine-Loblolly	13			Dead	Remove	1	Dead	Pavilion
732	Pine-Loblolly	8			Dead	Remove	1	Dead	Pavilion
733	Pine-Loblolly	6			Dead	Remove	1	Dead	Pavilion
734	Pine-Loblolly	15			Dead	Remove	1	Dead	Pavilion
735	Pine-Loblolly	10			Dead	Remove	1	Dead	Pavilion
736	Pine-Loblolly	14			Dead	Remove	1	Dead	Pavilion
737	Oak-Northern Red	17			Dead	Remove	1	Dead	Pavilion
738	Oak-White	13			Dead	Remove	1	Dead	Pavilion
739	Pine-Loblolly	15			Dead	Remove	1	Dead	Community garden
740	Pine-Loblolly	8			Dead	Remove	1	Dead	Community garden
742	Oak-Northern Red	8			Dead	Remove	1	Dead	Community garden
750	Pine-Loblolly	12			Dead	Remove	1	Dead	Community garden
751	Tulip Tree-Poplar	8			Dead	Remove	1	Dead	Community garden
752	Pine-Loblolly	12			Dead	Remove	1	Dead	Community garden
800	Oak-Northern Red	19			Dead	Remove	1	Has been climbed with climbing spikes	Playground
801	Pecan	14			Poor	Remove	1	Hazardous due to a large trunk cavity opening several feet in length	Playground
802	Oak-Northern Red	17			Poor	Remove	2	Majority of tree is dead	Playground
805	Tulip Tree-Poplar	11			Dead	Remove	1	Dead	Between Peeler Road and parkinglot
809	Oak-Southern Red	10			Dead	Remove	1	Dead and covered with vines	By old school
810	Sweetgum	23			Fair	Remove	1	Large cavity in lower trunk	By old school
810	Pine-Loblolly	19			Dead	Remove	1	Dead	Pavillion
811	Pine-Loblolly	14			Dead	Remove	1	Dead	Pavilion
812	Pine-Loblolly	14			Dead	Remove	1	Dead	Pavilion
813	Pine-Loblolly	10			Dead	Remove	1	Dead	Rear field
814	Oak-Northern Red	14			Dead	Remove	1	Dead	Rear field

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
845	Oak-White	22			Poor	Remove	1	Hazardous due to a trunk cavity along the entrie trunk	Community garden sidewalk

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
281	Oak-White	35			Fair	Prune-Deadwood	2	Deadwood, Tip dieback	Brook Run Park entrance
282	Pine-Loblolly	15			Fair	Prune-Deadwood	2	Deadwood, Asymmetrical canopy	Brook Run Park entrance
285	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
286	Oak-Northern Red	9			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
287	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
288	Oak-Post	14			Fair	Prune-Deadwood	2	Leaning toward roadway, tip dieback	Brook Run Park entrance
289	Oak-Post	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
290	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
291	Oak-White	9			Fair	Prune-Deadwood	3	Growing into neighboring tree, deadwood	Brook Run Park entrance
292	Oak-Northern Red	17			Fair	Prune-Deadwood	1	Limited root space, dead limbs over roadway	Brook Run Park entrance
293	Oak-Northern Red	10			Poor	Prune-Deadwood	2	Wound at base, bleeding cankers, deadwood, lean	Brook Run Park entrance
294	Oak-Northern Red	9			Poor	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
295	Oak-Northern Red	12			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
296	Oak-Northern Red	14			Fair	Prune-Deadwood	1	Dead scaffold limbs over sidewalk	Brook Run Park entrance
303	Oak-Northern Red	9			Fair	Prune-Deadwood	2	Cavity at 6', deadwood	Activity field
304	Oak-Post	17			Fair	Prune-Deadwood	2	Cavity at 6', deadwood	Activity field
305	Cherry-Black	5			Fair	Prune-Deadwood	1	Deadwood over sidewalk, lean	Activity field
306	Oak-White	9			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Activity field
307	Oak-Southern Red	20			Fair	Prune & Install cable	1	Deadwood over sidewalk, codominant at 15'	Activity field
309	Pine-Loblolly	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Activity field
310	Sweetgum	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Activity field
311	Pine-Loblolly	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
312	Pine-Loblolly	17			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
314	Pine-Loblolly	26			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
315	Pine-Loblolly	20			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
316	Pine-Loblolly	22			Fair	Prune-Deadwood	2	Deadwood near sidewalk	Peeler Rd. + N. Peachtree
318	Tulip Tree-Poplar	12			Poor	Prune or Remove	2	Tree is 50% dead	Peeler Rd. + N. Peachtree
319	Pine-Loblolly	16	18		Fair	Cable	3	Codominant at base with weak union	Peeler Rd. + N. Peachtree
320	Sweetgum	12	13		Fair	Cable	3	Codominant at base with weak union	Peeler Rd. + N. Peachtree
325	Pine-Loblolly	26			Fair	Prune	2	Deadwood near sidewalk	Activity field
327	Pine-Loblolly	7			Fair	Prune	1	Large cavity in lower trunk, deadwood near sidewalk	Activity field
328	Oak-Southern Red	7			Fair	Prune-Deadwood	1	Top of tree is dead	Activity field
333	Hickory	9			Fair	Prune-Deadwood	1	Dead limbs near playground	Playground
334	Blackgum	13			Fair	Prune-Deadwood	1	Dead limbs over play area, trunk wound, compacted soil	Playground
336	Oak-White	16			Fair	Prune-Deadwood	1	Tip dieback, deadwood near play area	Playground
342	Oak-Northern Red	19			Fair	Prune-Deadwood	1	Deadwood near sidewalk	Playground
345	Cherry-Black	15			Fair	Prune-Deadwood	1	Tip dieback, deadwood over sidewalk	Playground restrooms
346	Oak-White	15			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Playground restrooms
347	Oak-White	18			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Playground restrooms
348	Oak-White	13			Fair	Prune-Deadwood	1	Deadwood over sidewalk	Playground sidewalk
352	Oak-White	19			Fair	Prune-Deadwood	1	Dead limbs near playground	Playground sidewalk
353	Oak-Northern Red	10			Fair	Prune-Deadwood	1	Dead limbs near playground	Playground sidewalk

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
358	Oak-Southern Red	23			Fair	Prune-Deadwood	1	Deadwood near sidewalk	Playground sidewalk
361	Oak-Northern Red	24			Fair	Prune-Deadwood	2	Lean toward road, asymmetrical canopy	Brook Run Park entrance
362	Oak-Northern Red	16			Fair	Prune-Deadwood	1	Dead limbs over sidewalk	Brook Run Park entrance
363	Oak-Southern Red	22			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk	Brook Run Park entrance
364	Oak-Southern Red	20			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk	Brook Run Park entrance
365	Oak-Post	16			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk, cavity at base	Brook Run Park entrance
366	Oak-Northern Red	16			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk, lean	Brook Run Park entrance
367	Oak-Post	18			Fair	Prune-Deadwood	1	Dead limbs over road and sidewalk	Brook Run Park entrance
376	Oak-Northern Red	34			Fair	Prune-Deadwood	2	Deadwood, Tip dieback	Lower parking lot
377	Sweetgum	25			Fair	Prune-Deadwood	2	Deadwood, Tip dieback	Lower parking lot
381	Oak-Southern Red	34			Fair	Prune-Deadwood	2	Deadwood	Community garden
382	Maple-Red	27			Fair	Prune-Deadwood	2	Cavities at base, deadwood	Walking trails
385	Oak-White	30			Fair	Prune-Deadwood	2	Deadwood	Woods
394	Oak-Northern Red	26			Fair	Prune-Deadwood	2	Sparse Canopy, Deadwood	Woods
398	Oak-Northern Red	30			Fair	Prune-Deadwood	2	Deadwood, wound at base	Dog park
401	Oak-Northern Red	29			Fair	Prune-Deadwood	2	Deadwood	Dog park
404	Oak-White	17			Fair	Prune-Deadwood	1	Deadwood over foot path	Dog park
407	Tulip Tree-Poplar	27			Fair	Prune-Deadwood	2	Deadwood, Sparse canopy	Dog park
408	Oak-White	29			Fair	Prune-Deadwood	2	Deadwood, trunk bow	Dog park
409	Oak-Northern Red	25			Fair	Prune-Deadwood	2	Deadwood	Dog park
501	Oak-Post	22			Fair	Prune-Deadwood	2	Deadwood over path to park	Beside dog park sign
503	Oak-Southern Red	11			Poor	Prune-Deadwood	1	Deadwood over path to park	Path to dog park entrance
510	Oak-White	3			Fair	Prune-Deadwood	1	Dead scaffolds, compacted soil	Inside fenced area of dog park
512	Tulip Tree-Poplar	16			Fair	Prune-Deadwood	3	Limbs on fence, wounds on bark, compacted soil	Inside fenced area of dog park
514	Oak-Northern Red	20	15	10	Fair	Cable	1	Multistem, compacted soil	Inside fenced area of dog park
518	Pine-Loblolly	20			Fair	Prune-Deadwood	1	Dead limbs over path, compacted soil	Inside fenced area of dog park
519	Beech-American	17	5		Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
520	Oak-White	13			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
523	Oak-White	22			Fair	Prune-Deadwood	3	Dead limbs over path, compacted soil	Inside fenced area of dog park
528	Oak-White	26			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
529	Elm	8			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
531	Oak-Southern Red	15			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
532	Beech-American	17			Fair	Prune-Deadwood	2	Dead limbs over path, compacted soil	Inside fenced area of dog park
535	Beech-American	20			Fair	Prune-Deadwood	2	Dead limbs over sitting area, compacted soil	Inside fenced area of dog park
536	Oak-White	23			Fair	Prune-Deadwood	2	Dead limbs over sitting area, compacted soil	Inside fenced area of dog park
540	Oak-White	18			Fair	Prune-Deadwood	1	Deadwood over path, compacted soil	Inside fenced area of dog park
542	Oak-White	16			Fair	Prune-Deadwood	2	Wounds on roots, compacted soil	Inside fenced area of dog park
547	Oak-White	20			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
548	Tulip Tree-Poplar	11			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
549	Pine-Loblolly	10			Fair	Prune-Deadwood	1	Dead limbs over trail, compacted soil	Inside fenced area of dog park
552	Oak-Northern Red	26			Fair	Prune-Deadwood	2	Specimen, compacted soil	Inside fenced area of dog park
553	Hickory	7			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
555	Beech-American	10			Fair	Prune-Deadwood	1	Deadwood over sitting area, compacted soil	Inside fenced area of dog park
558	Oak-Northern Red	21			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
565	Oak-Northern Red	16			Fair	Prune-Deadwood	1	Dead scaffold limb over trail, compacted soil	Inside fenced area of dog park
573	Hickory	17			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
575	Oak-White	20			Fair	Prune-Deadwood	1	Large dead scaffold over trail, compacted soil	Inside fenced area of dog park
576	Oak-White	19			Fair	Prune-Deadwood	1	Deadwood over trail, compacted soil	Inside fenced area of dog park
577	Hickory	19			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
578	Pine-Loblolly	19			Fair	Prune-Deadwood	1	Dead scaffold limbs over trail, compacted soil	Inside fenced area of dog park
579	Oak-White	22	16		Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
580	Oak-White	11			Fair	Cable	2	Codominant at 20 feet, compacted soil	Inside fenced area of dog park
586	Oak-Northern Red	21			Fair	Cable	2	Codominant at 20 feet, compacted soil	Inside fenced area of dog park
589	Hickory	20			Fair	Prune-Deadwood	1	Dead scaffold limbs over trail, compacted soil	Inside fenced area of dog park
590	Oak-White	25	14	12	Fair	Prune-Deadwood	1	Dead limbs over trail, compacted soil	Inside fenced area of dog park
591	Hickory	7			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
594	Oak-Northern Red	19			Fair	Prune-Deadwood	1	Dead scaffold limb over trail, compacted soil	Inside fenced area of dog park
595	Oak-White	24			Fair	Prune-Deadwood	1	Dead scaffold limb over trail, compacted soil	Inside fenced area of dog park
602	Oak-White	21			Fair	Prune-Deadwood	1	Large dead scaffold over trail, compacted soil	Inside fenced area of dog park
605	Beech-American	17			Fair	Prune-Deadwood	1	large dead scaffold over trail, compacted soil	Inside fenced area of dog park
606	Beech-American	17			Fair	Prune-Deadwood	3	broken stub, compacted soil	Inside fenced area of dog park
607	Beech-American	8	8		Fair	Prune-Deadwood	1	1 leader is dead, compacted soil	Inside fenced area of dog park
611	Beech-American	14	6		Fair	Cable	2	wounds on roots,weak union, compacted soil	Inside fenced area of dog park
615	Oak-White	19			Fair	Prune-Deadwood	1	large dead scaffold over trail, compacted soil	Inside fenced area of dog park
622	Tulip Tree-Poplar	16			Fair	Prune-Deadwood	2	dead limbs over trail, compacted soil	Inside fenced area of dog park
623	Oak-Northern Red	21			Fair	Prune-Deadwood	1	dead scaffold limbs over trail, compacted soil	Inside fenced area of dog park
629	Oak-Northern Red	9			Fair	Prune-Deadwood	2	Dead scaffold over trail, compacted soil	Inside fenced area of dog park
631	Pine-Loblolly	17			Fair	Prune-Deadwood	1	Dead stubs and scaffold limbs, compacted soil	Inside fenced area of dog park
632	Pine-Loblolly	15			Fair	Prune-Deadwood	1	Dead stubs and scaffold limbs, compacted soil	Inside fenced area of dog park
633	Tulip Tree-Poplar	7			Fair	Prune-Deadwood	2	Dead limbs over trail, compacted soil	Inside fenced area of dog park
639	Tulip Tree-Poplar	22			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
641	Oak-Northern Red	12			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
642	Hickory	21			Fair	Prune-Deadwood	2	Deadwood over trail, compacted soil	Inside fenced area of dog park
644	Oak-White	27			Fair	Cable	1	Weak union and dead limbs, compacted soil	Inside fenced area of dog park
646	Oak-Northern Red	14			Fair	Prune-Deadwood	1	Dead scaffold limb, compacted soil	Inside fenced area of dog park
647	Oak-Southern Red	28			Fair	Prune-Deadwood	1	Deadwood over trail	Outside of dog park
648	Oak-Post	14			Poor	Prune-Deadwood	1	Deadwood over trail	Outside of dog park
649	Oak-White	23			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
650	Oak-Northern Red	14			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park
651	Oak-Northern Red	21			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
654	Oak-Northern Red	14			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
663	Sweetgum	16			Poor	Prune-Deadwood	2	Deadwood over trail	Outside of dog park
664	Pine-Loblolly	24			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park
665	Oak-Water	20			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park

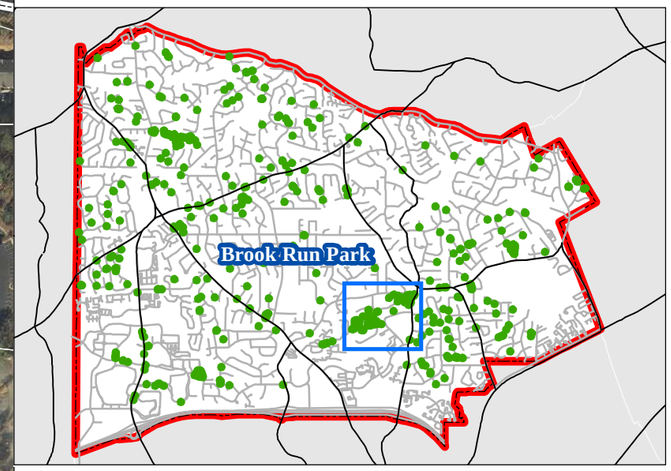
Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
666	Oak-Northern Red	30			Fair	Cut Vines	3	Vines growing on trunk	Outside of dog park
667	Oak-Northern Red	15			Fair	Prune-Deadwood	1	Dead limbs over trail	Outside of dog park
670	Oak-White	20			Fair	Prune-Deadwood	2	Dead limbs over trail	Outside of dog park
671	Oak-White	18			Fair	Prune-Structural	2	Leaning overcars	Outside of dog park
682	Oak-Northern Red	11	22		Fair	Prune-Deadwood	2	Dead limbs over trail	Dog park rear fence
685	Oak-Northern Red	29			Poor	Risk Assessment	1	Risk assessment	Dormitory path
687	Elm-American	24			Fair	Cable	2	Cable	Dormitory path
689	Tulip Tree-Poplar	31			Good	Remove Vines	1	Specimen	Dormitory path
690	Sweetgum	25			Good	Remove Vines	1	Specimen	Dormitory path
691	Sourwood	7			Good	Prune Deadwood	1	Dead limbs over path	Dormitory path
698	Pine-Loblolly	30			Fair	Prune Deadwood	3	Specimen	Dormitory path
699	Pine-Loblolly	30			Fair	Prune Deadwood	3	Specimen	Dormitory path
700	Maple-Red	14			Poor	Prune Deadwood	1	Leaning over AC unit	Dormitory path
705	Pine-Loblolly	30			Good	Prune Deadwood	4	Specimen	Dormitory path
706	Oak-White	37			Good	Prune Deadwood	4	Specimen	Dormitory path
708	Pine-Loblolly	12			Fair	Prune Deadwood	3	Dead limbs near sidewalks	Dormitory path
709	Oak-Water	11			Fair	Prune Deadwood	3	Dead limbs near sidewalks	Dormitory path
712	Oak-Southern Red	49			Fair	Prune Deadwood	2	Deadwood over trail	Woods at dormitory
729	Oak-Northern Red	10			Fair	Prune Deadwood	2		Pavilion
734	Pine-Loblolly	15			Dead	Prune Deadwood	1		Pavilion
740	Pine-Loblolly	8			Dead	Prune Deadwood	1		Community garden
748	Oak-White	25			Good	Remove Vines	2	Specimen	Community garden
749	Oak-White	26			Good	Remove Vines	2	Specimen	Community garden
753	Sweetgum	30			Good	Remove Vines	3	Specimen	Community garden
754	Oak-White	24			Fair	Remove Vines	2	Specimen	Community garden path
763	Dogwood-Flowering	12			Fair	Prune Deadwood	3	Specimen	Rear field
764	Oak-White	26			Fair	Remove Vines	2	Specimen tree with poison ivy	Rear field
765	Oak-Northern Red	24			Fair	Prune Deadwood	3	Cankers on roots	Rear field
766	Oak-Northern Red	24			Fair	Prune Deadwood	3	Specimen	Rear field
767	Oak-White	24			Fair	Prune Deadwood	3	Specimen	Rear field
768	Tulip Tree-Poplar	33			Fair	Prune Deadwood	3	Specimen	Rear field
770	Oak-White	24			Fair	Remove Vines	2	Vines on trunk	Rear field
773	Tulip Tree-Poplar	27			Good	Prune Deadwood	4	Specimen	Rear field
774	Tulip Tree-Poplar	33			Fair	Cable	3	Codominant	Rear field
775	Tulip Tree-Poplar	25			Fair	Cable	3	Codominant	Rear field
776	Oak-Northern Red	26			Fair	Prune Deadwood	2	Specimen	Rear field
781	Oak-Northern Red	25			Fair	Remove Vines	3	Codominant	Rear field
782	Oak-White	35			Good	Remove Vines	3	Specimen	Rear field
783	Tulip Tree-Poplar	30			Fair	Prune Deadwood	4	Specimen	Rear field
784	Oak-White	37			Fair	Prune Deadwood	3	Specimen	Rear field
785	Oak-Northern Red	26			Fair	Prune Deadwood	3	Specimen	Rear field
786	Oak-White	25			Fair	Prune Deadwood	3	Specimen	Rear field

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
803	Oak-Southern Red	25			Good	Prune Deadwood	3	Small amount of dead limbs	Between park and Peeler Road
806	Oak-Northern Red	28			Fair	Prune Deadwood	3	Small amount of dead wood	By old school
807	Dogwood-Flowering	8			Fair	Prune Deadwood	3	Small cavity in trunk	By old school
815	Oak-White	28			Fair	Cable	2	Codominant at 6 ft	Rear field
817	Dogwood-Flowering	6			Good	Prune Deadwood	3	Dead Limbs	Rear field
818	Oak-Northern Red	28			Good	Prune Deadwood	3	Dead Limbs	Near vegetable garden
819	Oak-Northern Red	27			Good	Prune Deadwood	3	Dead Limbs	Across road from dog park parking lot

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Priority	Comments	Location
283	Oak-White	14			Fair	Soil Therapy	3	Cavity+Decay at base, lean toward road	Brook Run Park entrance
299	Oak-Northern Red	20			Fair	Soil Therapy	3	Cavity at base, lean	Sidewalk to playground
321	Tulip Tree-Poplar	15			Poor	Soil Therapy	2	Tip dieback, asymmetrical canopy, cavity + decay	Peeler Rd. + N. Peachtree
332	Hickory	15			Fair	Soil Therapy	2	Large trunk wound, tip dieback, compacted soil	Playground
335	Oak-White	12			Fair	Soil Therapy	1	Top is dead, compacted soil	Playground
337	Oak-White	11			Fair	Soil Therapy	2	Tip dieback, compacted soil	Playground
338	Oak-White	17			Fair	Soil Therapy	2	Tip dieback, compacted soil, asymmetrical canopy	Playground
340	Oak-White	15			Fair	Soil Therapy	2	Tip dieback, compacted soil, asymmetrical canopy	Playground
341	Tulip Tree-Poplar	12			Fair	Soil Therapy	2	Tip dieback, compacted soil, asymmetrical canopy	Playground
344	Hickory	16			Fair	Soil Therapy	2	Trunk wounds, lean toward parking area	Playground restrooms
355	Oak-White	6			Fair	Soil Therapy	2	Growing into tree #54 causing wound	Playground sidewalk
359	Oak-Northern Red	11			Fair	Soil Therapy	2	Cavity at base, asymmetrical canopy	Playground parking
387	Tulip Tree-Poplar	28			Fair	Soil Therapy	3	Lean, sparse canopy	Woods
415	Tulip Tree-Poplar	26	24		Fair	Soil Therapy	3	Codominant	Dormitory path
420	Oak-Shumard	8			Fair	Soil Decompaction	2	Compact soil	Dormitory path

Maintenance Priority

City of Dunwoody



Maintenance Priority Level

Brook Run Park

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Railroads

Parcels

Lakes / Water Features

1 inch = 300 feet

N

Dunwoody
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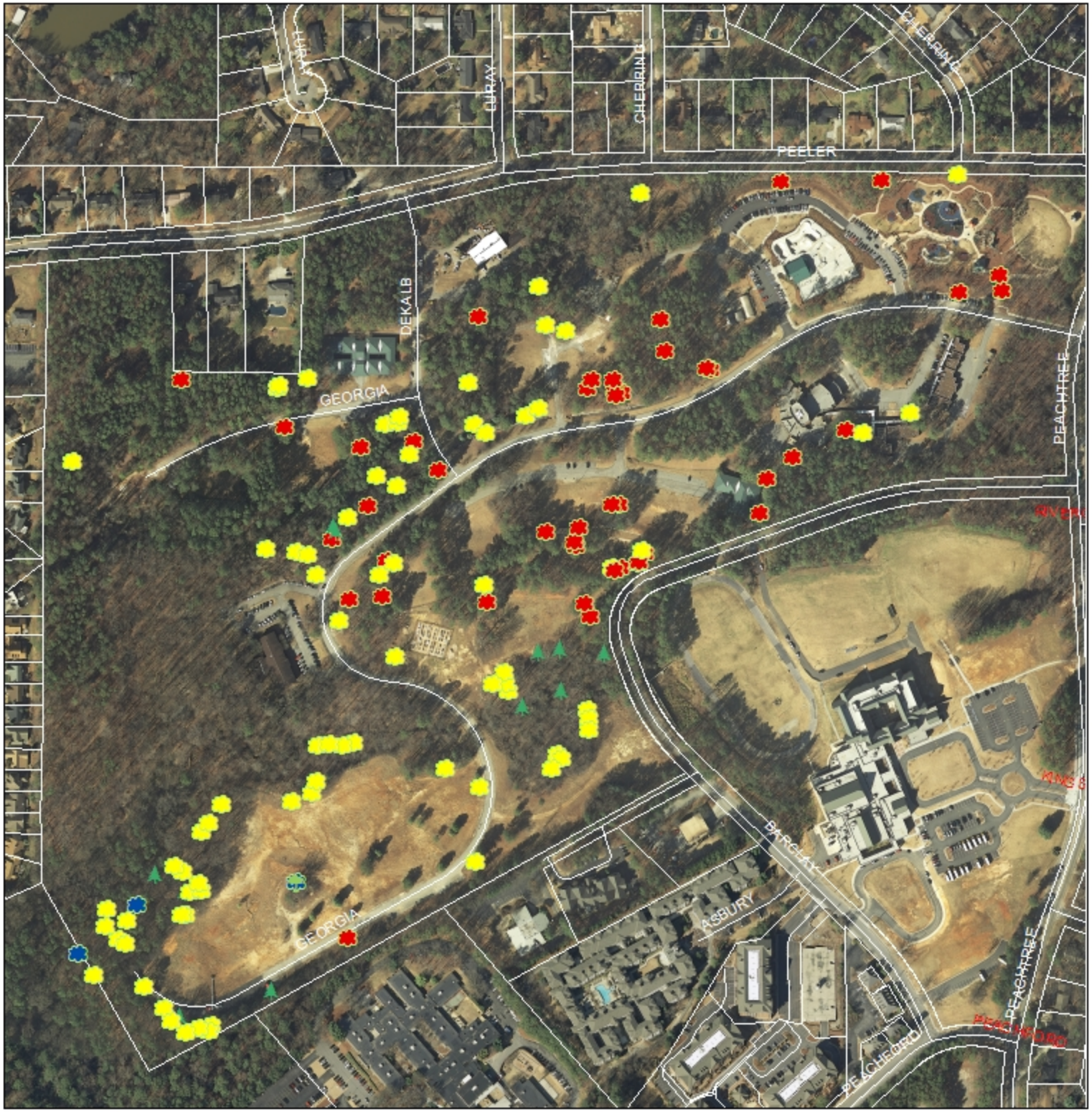
Ecological Planning Group

AEC



Brookrun Park

Hardwood

- Cable
- Prune Deadwood
- Remove
- Remove Vines

Brookrun Park

- Hardwood
- Softwood

Dunwoody
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Tree Assessment

Dunwoody Nature Center

Submitted by:
Arborguard Tree Specialists
June 2012

Solutions Naturally
Arborguard
Tree Specialists

Ecological Planning Group

AEC

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Introduction

A tree assessment was conducted on trees in high pedestrian, traffic and recreational areas within the Dunwoody Nature Center. Specimen trees within the nature center were also located. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 130 trees inventoried within the Nature Center. The trees consist of 15 species. The most common tree species are Tulip Poplar and Sourwood. The inventory was completed using GIS and GPS technology. This report is intended to be used as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Dunwoody Nature Center Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	130
Number of Species	15
Most Common Species	Tulip Poplar & Sourwood
Most common diameter	26"-30" (23% of all trees)
Largest diameter	50"
Condition	Good=52 Fair=40 Poor=6 Dead=22
Maintenance Priority Levels *	1=38 2=20 3=13 4=59

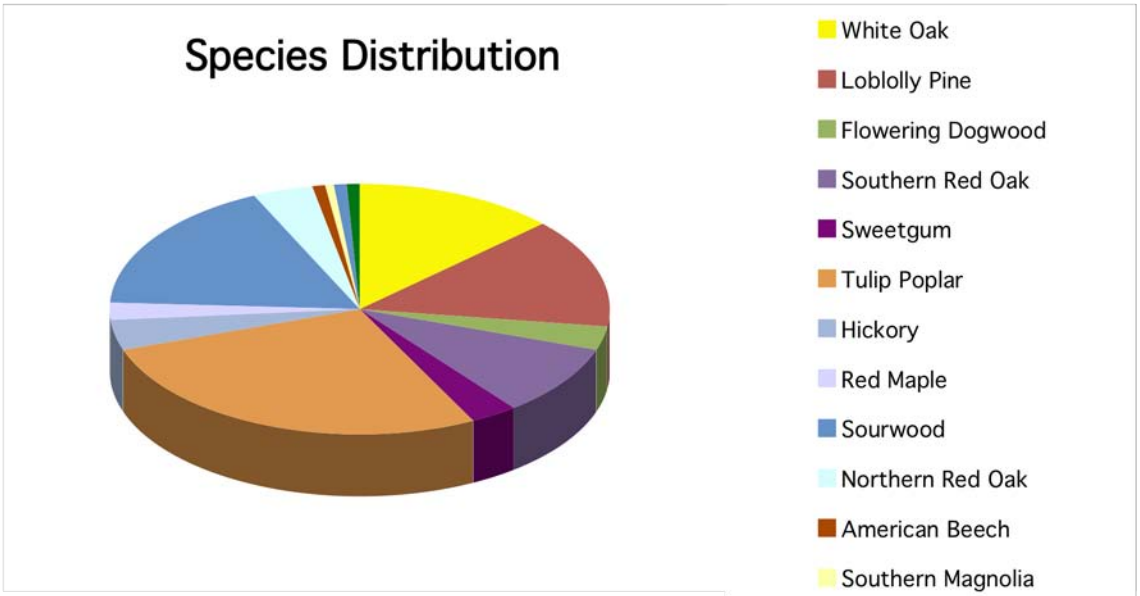
Results

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(* See page 6 for more information of Maintenance Priority Levels)

Species Distribution

There are 15 different species of tree surveyed inside Dunwoody Nature Center. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



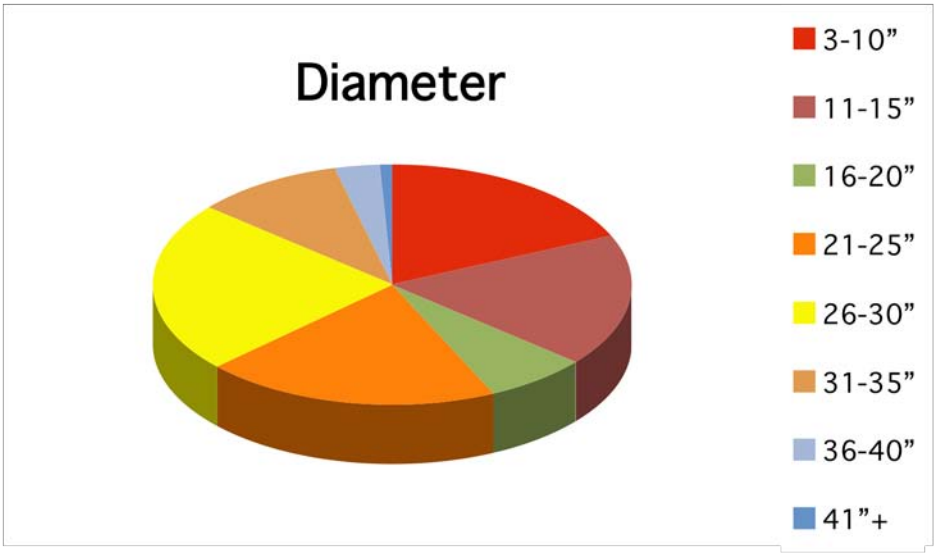
Amount of Trees Per Species

Species	Number of Trees
White Oak	17
Loblolly Pine	18
Flowering Dogwood	4
Southern Red Oak	12
Sweetgum	4
Tulip Poplar	35
Hickory	5
Red Maple	3
Sourwood	22
Northern Red Oak	5
American Beech	1
Southern Magnolia	1
Black Cherry	1
Black Locust	1
Post Oak	1

Diameters

The inventoried trees range from 3 to 50 inches in diameter. The majority of the trees (23%) are between 26 and 30 inches in diameter.

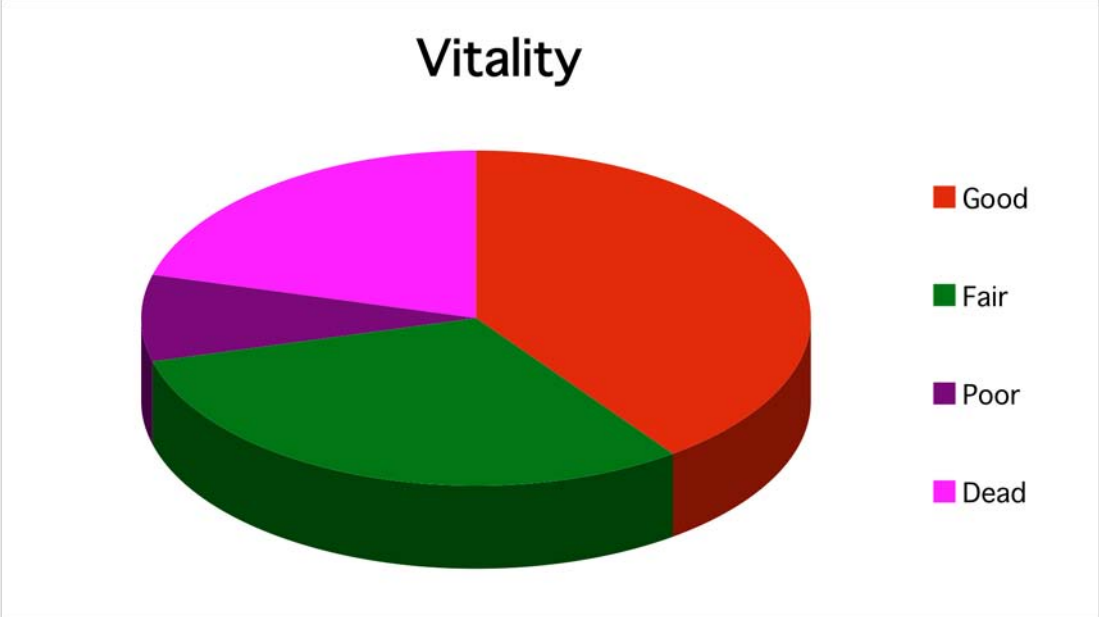
Diameter	Amount
3-10”	24
11-15”	23
16-20”	9
21-25”	26
26-30”	30
31-35”	13
36-40”	4
41”+	1



Vitality Rating

Of the trees surveyed, 40% are in good condition, 31% are in fair condition, 8% are in poor condition and 21% are dead. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	52
Fair	40
Poor	11
Dead	27



Maintenance Priorities

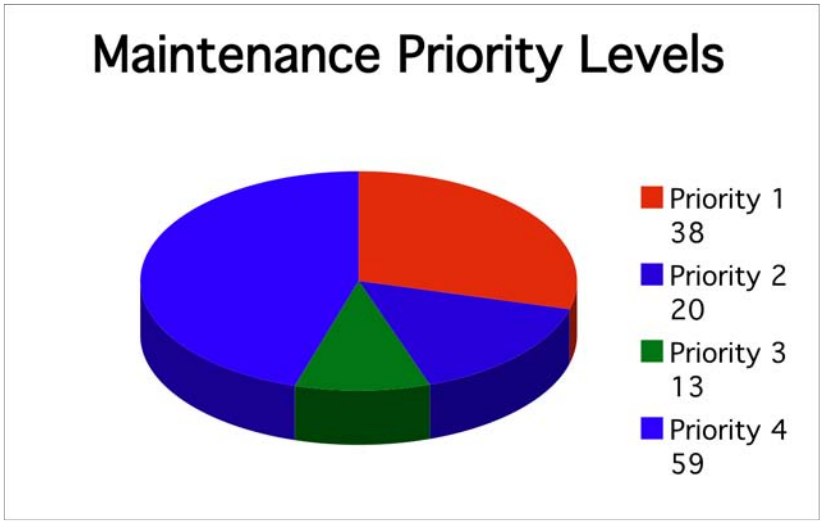
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	38
Priority 2	20
Priority 3	13
Priority 4	59



Maintenance Schedule

This 35 acre park is currently occupied by a variety of structures, activity areas and walking trails. 28 trees were identified as needing pruning or removal at this location. It is recommended that an additional 7 trees receive organic nutrients to help improve their vigor

The following budget for tree pruning and removal is reflective of standard tree care rates typical of fully insured and highly qualified local arborists. It is expected that to satisfactorily complete this work it will require a time budget of approximately 3 days.

Remove approximately 9 trees as needed along footpaths in woods, leave debris in woods as wildlife habitat where appropriate:

- Labor: $7800

Prune dead limbs over sidewalk and install steel support cables as needed:

- Labor: $8280

Provide twice annually supplemental organic nutrients to approximately 7 specimen trees:

- $1180

Total estimated removal, pruning and fertilization budget: $17260

Appendix A

Common Name – Latin Name Key

Common Name	Trees - Latin	Native/ Adaptive
White Oak	*Quercus alba*	YES
Loblolly Pine	*Pinus taeda*	YES
Red Maple	*Acer rubrum*	YES
Tulip Poplar	*Liriodendron tulipifera*	YES
Sweetgum	*Liquidambar styraciflua*	YES
Southern Red Oak	*Quercus falcata*	YES
Flowering Dogwood	*Cornus florida*	YES
Mockernut Hickory	*Carya tomentosa*	YES
Northern Red Oak	Quercus rubra	YES
American Beech	Fagus grandifolia	YES
Southern Magnolia	Mangolia grandiflora	YES
Black Cherry	Prunus serotina	YES
Black Locust	Robinia pseudoacacia	YES
Post Oak	Quercus stellata	YES
Sourwood	Oxydendrum arboreum	YES

Appendix B

The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
452	Pine-Loblolly	30	0	Fair	Prune deadwood	2	Canker at 2 feet high, deadwood stubs.	DNC driveway
453	Tulip Tree-Poplar	30	0	Fair	Soil therapy	3	Tip dieback	DNC driveway
454	Tulip Tree-Poplar	29	0	Fair	Soil therapy	3	Tip dieback	DNC driveway
455	Tulip Tree-Poplar	32	0	Fair	Prune deadwood	2	Deadwood, tip dieback	DNC entrance
456	Dogwood-Flowering	12	0	Fair	Prune deadwood	2	Deadwood over sidewalk	DNC entrance
457	Maple-Red	27	0	Fair	Cable leads	2	Multi stem with weak union and included bark	DNC entrance
458	Sweetgum	32	0	Fair	Prune deadwood	2	Deadwood over trail	DNC trailhead
459	Tulip Tree-Poplar	26	0	Good	None	4		DNC trailhead
460	Sweetgum	33	0	Good	None	4		DNC trailhead
461	Tulip Tree-Poplar	24	0	Fair	Prune deadwood	2	Dead scaffold over trail	DNC trailhead
462	Oak-White	27	0	Fair	Cable	2	Codominant at 10 ft. weak union, included bark	DNC trailhead
463	Maple-Red	24	0	Good	None	4		DNC trailhead
464	Tulip Tree-Poplar	30	0	Fair	Prune deadwood	2	Wounds on trunk at base, deadwood	DNC trailhead
465	Pine-Loblolly	30	0	Fair	Prune deadwood	3	Deadwood, codominant at 30 feet	DNC trailhead
466	Tulip Tree-Poplar	28	0	Fair	Soil therapy	3	Tip dieback	DNC trail boardwalk
467	Pine-Loblolly	14	0	Fair	Prune deadwood	3	Dead limbs over seats	DNC trail behind kiosk
468	Tulip Tree-Poplar	24	0	Fair	Prune deadwood	2	Dead limbs over trail	DNC-orange trail
469	Pine-Loblolly	12	0	Dead	Remove	1	Hazard	DNC-orange trail
470	Pine-Loblolly	23	0	Poor	Insecticide sprays	2	Boring beetles	DNC-orange trail at playground
471	Tulip Tree-Poplar	30	0	Fair	Prune deadwood	2	Dead limbs over trail	DNC-orange trail
472	Hickory	14	0	Dead	Remove	1	Hazard	DNC-orange trail
473	Oak-White	32	0	Fair	Prune deadwood	2	Dead limbs over trail	DNC-orange trail
474	Oak-Southern Red	14	0	Poor	Remove	1	Hazard	DNC-orange trail
475	Pine-Loblolly	12	0	Dead	Remove	1	Hazard	DNC-red trail
476	Hickory	13	0	Poor	Remove	1	Leaning over trail with cavity in base	DNC-red trail
477	Pine-Loblolly	18	0	Poor	Remove	1	Large canker in lower trunk	DNC-red and orange trail crossing
478	Oak-Southern Red	18	22	Dead	Remove	1	Hazard	DNC-red trail
479	Oak-Southern Red	31	0	Dead	Remove	1	Hazard	DNC-red trail
480	Oak-White	31	0	Fair	Prune deadwood	2	Deadwood, trunk wound at base	DNC-white trail
481	Tulip Tree-Poplar	20	0	Poor	Remove	1	60 % of base decayed, large cavity	DNC-white trail
482	Oak-White	20	0	Fair	Prune deadwood	2	Large dead scaffold over trail	DNC-white trail at bridge
483	Oak-White	30	0	Good	None	4		DNC-white trail at meadow
484	Tulip Tree-Poplar	24	0	Fair	Soil therapy	3	Crooked trunk, sparse canopy	DNC-white trail at meadow
485	Oak-Southern Red	30	0	Fair	Soil therapy	3	Asymmetrical canopy, sparse foliage	DNC-white trail at meadow
486	Oak-Southern Red	27	0	Fair	Soil therapy	3	Asymmetrical canopy, sparse foliage	DNC-white trail at meadow
487	Oak-Southern Red	27	0	Fair	Prune deadwood	2	Asymmetrical canopy, deadwood	DNC-white trail at meadow
488	Oak-Southern Red	26	0	Fair	Prune deadwood	2	Deadwood	DNC-white trail at meadow
489	Oak-Southern Red	34	0	Fair	Prune deadwood	2	Sparse canopy, deadwood	DNC-white trail at meadow
490	Oak-Southern Red	32	0	Fair	Cable leads	2	Codominant at 7ft	DNC- driveway entrance
846	Tulip Tree-Poplar	40	0	Fair	Prune Deadwood	3	Specimen	DNC trailhead
847	Tulip Tree-Poplar	26	0	Fair	None	1	Cavity at base needs resistograph inspection	DNC trail head
848	Pine-Loblolly	40	0	Fair	Prune Deadwood	3	Dead limbs over trail	DNC Trail head
849	Tulip Tree-Poplar	31	0	Good	None	4		Red trail at tree house
850	Tulip Tree-Poplar	24	0	Fair	None	4	Canopy Suppression	Red trail creek bank
851	Tulip Tree-Poplar	28	0	Fair	None	4	15° lean over creek	Red trail creek bank
852	Pine-Loblolly	14	0	Dead	Remove	1	Dead	Yellow trail
853	Tulip Tree-Poplar	28	0	Good	None	4		Yellow trail
854	Tulip Tree-Poplar	24	0	Good	None	4		Yellow trail
855	Tulip Tree-Poplar	25	0	Good	None	4		Yellow trail
856	Dogwood-Flowering	3	0	Dead	Remove	1	Dead	Yellow trail
857	Pine-Loblolly	18	0	Dead	Remove	1	Dead	Yellow trail
858	Pine-Loblolly	18	0	Dead	Remove	1	Dead	Red trail
859	Pine-Loblolly	18	0	Poor	Remove	1	Lower trunk significantly decayed	Orange trail
860	Sweetgum	15	0	Dead	Remove	1	Dead	Orange trail
861	Pine-Loblolly	12	0	Dead	Remove	1	Dead	Orange trail
862	Pine-Loblolly	12	0	Dead	Remove	1	Dead	Orange trail
863	Sourwood	6	0	Good	None	4		Orange trail
864	Sourwood	8	0	Good	None	4		Orange trail
865	Sourwood	7	0	Good	None	4		Orange trail
866	Sourwood	8	0	Poor	None	4	50° lean	Orange trail
867	Sourwood	8	0	Fair	Remove Vines	3	20° lean, vines	Orange trail
868	Sourwood	10	0	Good	Remove Vines	4	Vines	Orange trail

Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
869	Sourwood	6	0	Good	None	4		Orange trail
870	Oak-White	20	0	Dead	Remove	1	Dead	Orange trail
871	Tulip Tree-Poplar	24	0	Good	None	4		Orange trail
872	Tulip Tree-Poplar	24	0	Fair	None	4	Sparse canopy	Orange trail
873	Tulip Tree-Poplar	28	0	Good	None	4		Orange trail
874	Tulip Tree-Poplar	37	0	Fair	Cable	3	Co-dominant	Orange trail
875	Oak-Southern Red	25	0	Good	None	4		Orange trail
876	Tulip Tree-Poplar	30	0	Fair	Cable	4	Co-dominant	Orange trail
877	Sourwood	8	0	Good	None	4		Orange trail
878	Sourwood	6	0	Good	None	4		Orange trail
879	Sourwood	11	0	Good	None	4	Co-dominant	Red trail
880	Sourwood	10	0	Good	None	4		Red trail
881	Sourwood	6	0	Good	None	4		Red trail
882	Sourwood	11	0	Good	None	4		Red trail
883	Tulip Tree-Poplar	24	0	Good	None	4		Red trail
884	Sourwood	11	0	Good	None	4		Red trail
885	Sourwood	6	0	Good	None	4		Red trail
886	Oak-Northern Red	24	0	Good	None	4		Red trail
887	Oak-Northern Red	25	0	Good	None	4		Red trail
888	Hickory-Mockernut	10	0	Dead	Remove	1	Dead	Red trail
889	Tulip Tree-Poplar	25	0	Good	None	4		Red trail
890	Oak-Southern Red	14	0	Dead	Remove	1	Dead	Red trail
891	Oak-Northern Red	26	0	Good	None	4		Red trail
892	Oak-Southern Red	28	0	Dead	Remove	1	Dead	Red trail
893	Oak-Northern Red	22	0	Dead	Remove	1	Dead	Red trail
894	Sweetgum	15	0	Dead	Remove	1	Dead	Red trail
895	Oak-White	26	0	Good	None	4		Red trail
896	Tulip Tree-Poplar	31	0	Good	None	4		Red trail
897	Oak-White	31	0	Fair	None	4	Area of decay at base	Red trail
898	Sourwood	9	0	Good	None	4		Red trail
899	Sourwood	6	0	Good	None	4		Red trail
900	Sourwood	10	0	Dead	Remove	1	Dead	orange trail
901	Oak-White	24	0	Fair	Prune Deadwood	2	Dead limbs over trail	Orange trail
902	Oak-White	32	0	Good	None	4		Orange trail
903	Oak-White	26	0	Good	None	4		Orange trail
904	Sourwood	8	0	Good	None	4		Orange trail
905	Oak-White	10	0	Dead	Remove	1	Dead	Orange trail
906	Oak-White	24	0	Good	None	4		Orange trail
907	Sourwood	6	0	Good	None	4		Orange trail
908	Sourwood	6	0	Good	None	4		Orange trail
909	Beech-American	24	0	Fair	None	4	Two buttress roots with decay	Near creek and orange trail
910	Oak-Northern Red	23	0	Poor	Remove	1	Cavity with decay in lower trunk	Near creek and orange trail
911	Oak-White	27	0	Good	None	4		creek bank near bridge orange/white trail
912	Oak-White	24	0	Good	None	1		Near wildcat bridge
913	Tulip Tree-Poplar	27	0	Good	None	4		White trail
914	Oak-White	27	0	Good	None	4		White trail
915	Pine-Loblolly	15	0	Dead	Remove	1	Dead	White trail
916	Pine-Loblolly	14	0	Dead	Remove	1	Dead	White trail
917	Pine-Loblolly	12	0	Dead	Remove	1	Dead	White trail
914	Oak-White	27	0	Good	None	4		White trail
919	Hickory	10	0	Dead	Remove	1	Dead	White path
920	Tulip Tree-Poplar	50	0	Good	None	4		White trail
921	Dogwood-Flowering	6	0	Dead	Remove	1	Dead	White trail
922	Pine-Loblolly	12	0	Dead	Remove	1	Dead	White trail
923	Black Locust	15	0	Poor	Remove	1		White trail
924	Magnolia-Southern	24	0	Good	None	4		End of white trail
925	Maple-Red	37	0	Fair	Cable	3		Info box\teaching area near garden
926	Cherry-Black	24	0	Poor	Remove Vines	1	Tree canopy is covered in wisteria	Near training area\info box
927	Hickory	17	0	Dead	Remove	1	Dead	Near chain link fence near info box
928	Tulip Tree-Poplar	30	0	Fair	None	4	Asymmetrical canopy	Chain link fence behind info box
929	Tulip Tree-Poplar	24	0	Good	Remove Vines	2	Covered in vines	Behind raised bed garden

Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
930	Tulip Tree-Poplar	25	0	Good	None	4		Between raised beds and road
931	Oak-Post	13	0	Poor	Remove	1	Severe trunk decay	Left of entrance
932	Sourwood	13	0	Good	None	4		Right of paved road near parking lot
933	Dogwood-Flowering	7	0	Good	None	4		Right of paved road
934	Tulip Tree-Poplar	27	0	Fair	None	4	Lean	Bee boxs
935	Tulip Tree-Poplar	34	0	Good	None	4	Poison ivy	Bee box
936	Tulip Tree-Poplar	25	0	Good	None	4		Parking lot

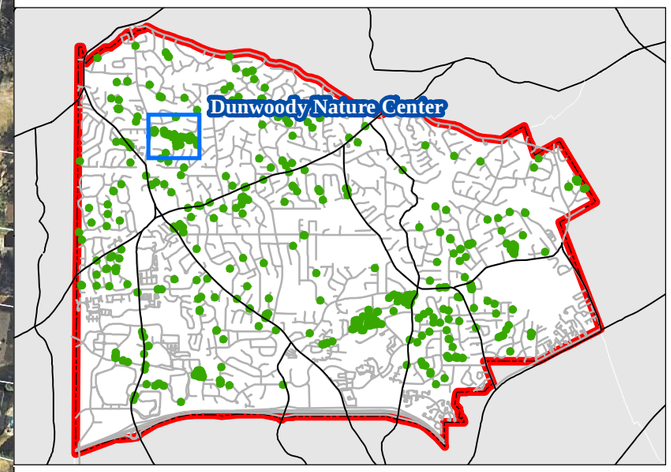
Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
469	Pine-Loblolly	12	0	Dead	Remove	1	Hazard	DNC-orange trail
472	Hickory	14	0	Dead	Remove	1	Hazard	DNC-orange trail
474	Oak-Southern Red	14	0	Poor	Remove	1	Hazard	DNC-orange trail
475	Pine-Loblolly	12	0	Dead	Remove	1	Hazard	DNC-red trail
476	Hickory	13	0	Poor	Remove	1	Leaning over trail with cavity in base	DNC-red trail
477	Pine-Loblolly	18	0	Poor	Remove	1	Large canker in lower trunk	DNC-red and orange trail crossing
478	Oak-Southern Red	18	22	Dead	Remove	1	Hazard	DNC-red trail
479	Oak-Southern Red	31	0	Dead	Remove	1	Hazard	DNC-red trail
481	Tulip Tree-Poplar	20	0	Poor	Remove	1	60 % of base decayed, large cavity	DNC-white trail
852	Pine-Loblolly	14	0	Dead	Remove	1	Dead	Yellow trail
856	Dogwood-Flowering	3	0	Dead	Remove	1	Dead	Yellow trail
857	Pine-Loblolly	18	0	Dead	Remove	1	Dead	Yellow trail
858	Pine-Loblolly	18	0	Dead	Remove	1	Dead	Red trail
859	Pine-Loblolly	18	0	Poor	Remove	1	Lower trunk significantly decayed	Orange trail
860	Sweetgum	15	0	Dead	Remove	1	Dead	Orange trail
861	Pine-Loblolly	12	0	Dead	Remove	1	Dead	Orange trail
862	Pine-Loblolly	12	0	Dead	Remove	1	Dead	Orange trail
870	Oak-White	20	0	Dead	Remove	1	Dead	Orange trail
888	Hickory-Mockernut	10	0	Dead	Remove	1	Dead	Red trail
890	Oak-Southern Red	14	0	Dead	Remove	1	Dead	Red trail
892	Oak-Southern Red	28	0	Dead	Remove	1	Dead	Red trail
893	Oak-Northern Red	22	0	Dead	Remove	1	Dead	Red trail
894	Sweetgum	15	0	Dead	Remove	1	Dead	Red trail
900	Sourwood	10	0	Dead	Remove	1	Dead	orange trail
905	Oak-White	10	0	Dead	Remove	1	Dead	Orange trail
910	Oak-Northern Red	23	0	Poor	Remove	1	Cavity with decay in lower trunk	Near creek and orange trail
915	Pine-Loblolly	15	0	Dead	Remove	1	Dead	White trail
916	Pine-Loblolly	14	0	Dead	Remove	1	Dead	White trail
917	Pine-Loblolly	12	0	Dead	Remove	1	Dead	White trail
919	Hickory	10	0	Dead	Remove	1	Dead	White path
921	Dogwood-Flowering	6	0	Dead	Remove	1	Dead	White trail
922	Pine-Loblolly	12	0	Dead	Remove	1	Dead	White trail
923	Black Locust	15	0	Poor	Remove	1		White trail
927	Hickory	17	0	Dead	Remove	1	Dead	Near chain link fence near info box
931	Oak-Post	13	0	Poor	Remove	1	Severe trunk decay	Left of entrance

Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
452	Pine-Loblolly	30	0	Fair	Prune deadwood	2	Canker at 2 feet high, deadwood stubs.	DNC driveway
455	Tulip Tree-Poplar	32	0	Fair	Prune deadwood	2	Deadwood, tip dieback	DNC entrance
456	Dogwood-Flowering	12	0	Fair	Prune deadwood	2	Deadwood over sidewalk	DNC entrance
457	Maple-Red	27	0	Fair	Cable	2	Multi stem with weak union and included bark	DNC entrance
458	Sweetgum	32	0	Fair	Prune deadwood	2	Deadwood over trail	DNC trailhead
461	Tulip Tree-Poplar	24	0	Fair	Prune deadwood	2	Dead scaffold over trail	DNC trailhead
462	Oak-White	27	0	Fair	Cable	2	Codominant at 10 ft. weak union, included bark	DNC trailhead
464	Tulip Tree-Poplar	30	0	Fair	Prune deadwood	2	Wounds on trunk at base, deadwood	DNC trailhead
465	Pine-Loblolly	30	0	Fair	Prune deadwood	3	Deadwood, codominant at 30 feet	DNC trailhead
467	Pine-Loblolly	14	0	Fair	Prune deadwood	3	Dead limbs over seats	DNC trail behind kiosk
468	Tulip Tree-Poplar	24	0	Fair	Prune deadwood	2	Dead limbs over trail	DNC-orange trail
471	Tulip Tree-Poplar	30	0	Fair	Prune deadwood	2	Dead limbs over trail	DNC-orange trail
473	Oak-White	32	0	Fair	Prune deadwood	2	Dead limbs over trail	DNC-orange trail
480	Oak-White	31	0	Fair	Prune deadwood	2	Deadwood, trunk wound at base	DNC-white trail
482	Oak-White	20	0	Fair	Prune deadwood	2	Large dead scaffold over trail	DNC-white trail at bridge
487	Oak-Southern Red	27	0	Fair	Prune deadwood	2	Asymmetrical canopy, deadwood	DNC-white trail at meadow
488	Oak-Southern Red	26	0	Fair	Prune deadwood	2	Deadwood	DNC-white trail at meadow
489	Oak-Southern Red	34	0	Fair	Prune deadwood	2	Sparse canopy, deadwood	DNC-white trail at meadow
490	Oak-Southern Red	32	0	Fair	Cable	2	Codominant at 7ft	DNC- driveway entrance
846	Tulip Tree-Poplar	40	0	Fair	Prune Deadwood	3	Specimen	DNC trailhead
848	Pine-Loblolly	40	0	Fair	Prune Deadwood	3	Dead limbs over trail	DNC Trail head
867	Sourwood	8	0	Fair	Remove Vines	3	20° lean, vines	Orange trail
868	Sourwood	10	0	Good	Remove Vines	4	Vines	Orange trail
874	Tulip Tree-Poplar	37	0	Fair	Cable	3	Co-dominant	Orange trail
876	Tulip Tree-Poplar	30	0	Fair	Cable	4	Co-dominant	Orange trail
901	Oak-White	24	0	Fair	Prune Deadwood	2	Dead limbs over trail	Orange trail
925	Maple-Red	37	0	Fair	Cable	3		Info box\teaching area near garden
926	Cherry-Black	24	0	Poor	Remove Vines	1	Tree canopy is covered in wisteria	Near training area\info box
929	Tulip Tree-Poplar	24	0	Good	Remove Vines	2	Covered in vines	Behind raised bed garden

Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
453	Tulip Tree-Poplar	30	0	Fair	Soil therapy	3	Tip dieback	DNC driveway
454	Tulip Tree-Poplar	29	0	Fair	Soil therapy	3	Tip dieback	DNC driveway
466	Tulip Tree-Poplar	28	0	Fair	Soil therapy	3	Tip dieback	DNC trail boardwalk
470	Pine-Loblolly	23	0	Poor	Insecticide sprays	2	Boring beetles	DNC-orange trail at playground
484	Tulip Tree-Poplar	24	0	Fair	Soil therapy	3	Crooked trunk, sparse canopy	DNC-white trail at meadow
485	Oak-Southern Red	30	0	Fair	Soil therapy	3	Asymmetrical canopy, sparse foliage	DNC-white trail at meadow
486	Oak-Southern Red	27	0	Fair	Soil therapy	3	Asymmetrical canopy, sparse foliage	DNC-white trail at meadow

Maintenance Priority

City of Dunwoody



Maintenance Priority Level

Dunwoody Nature Center

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Railroads

Parcels

Lakes / Water Features

1 inch = 200 feet

N

Dunwoody

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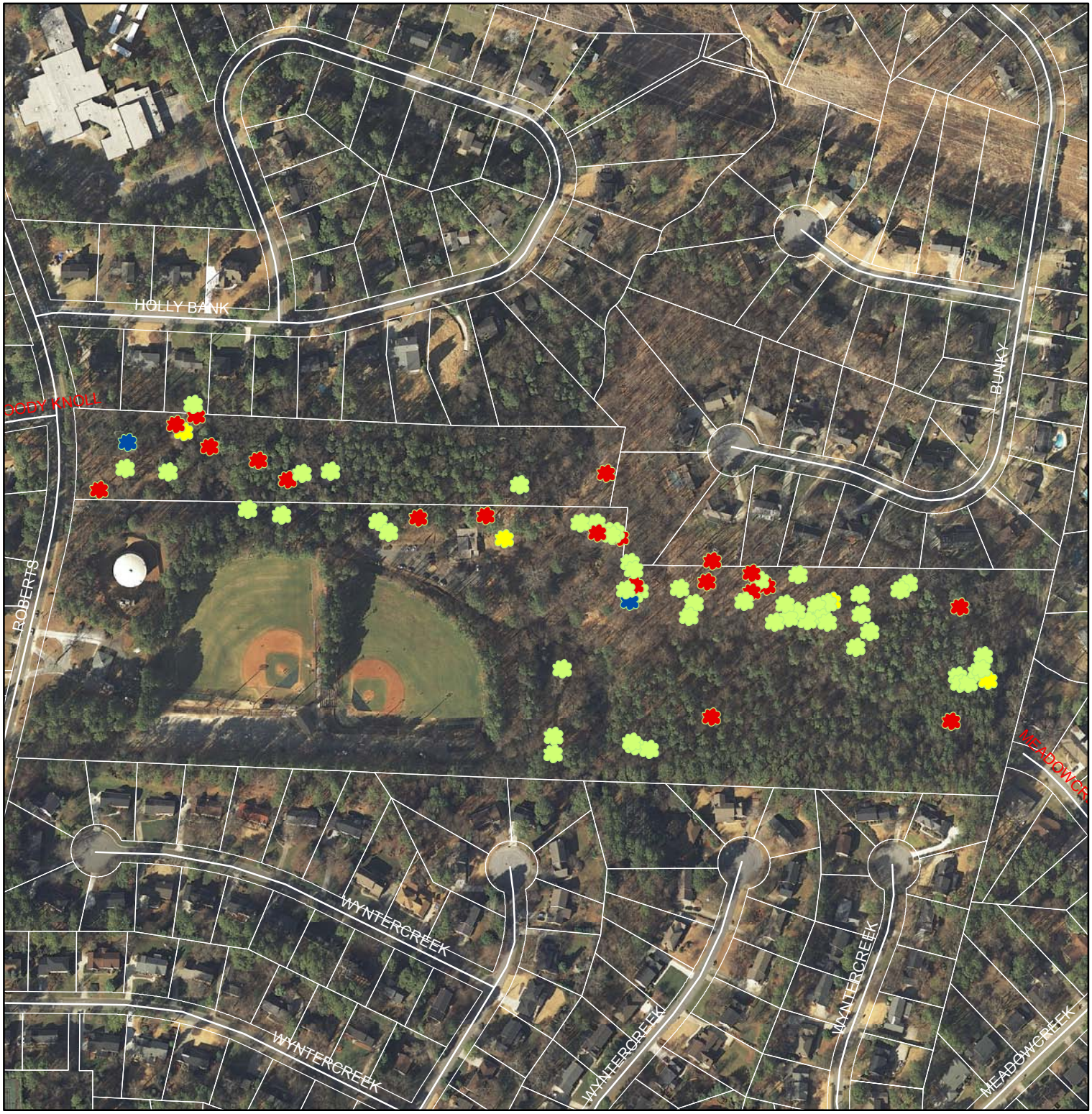
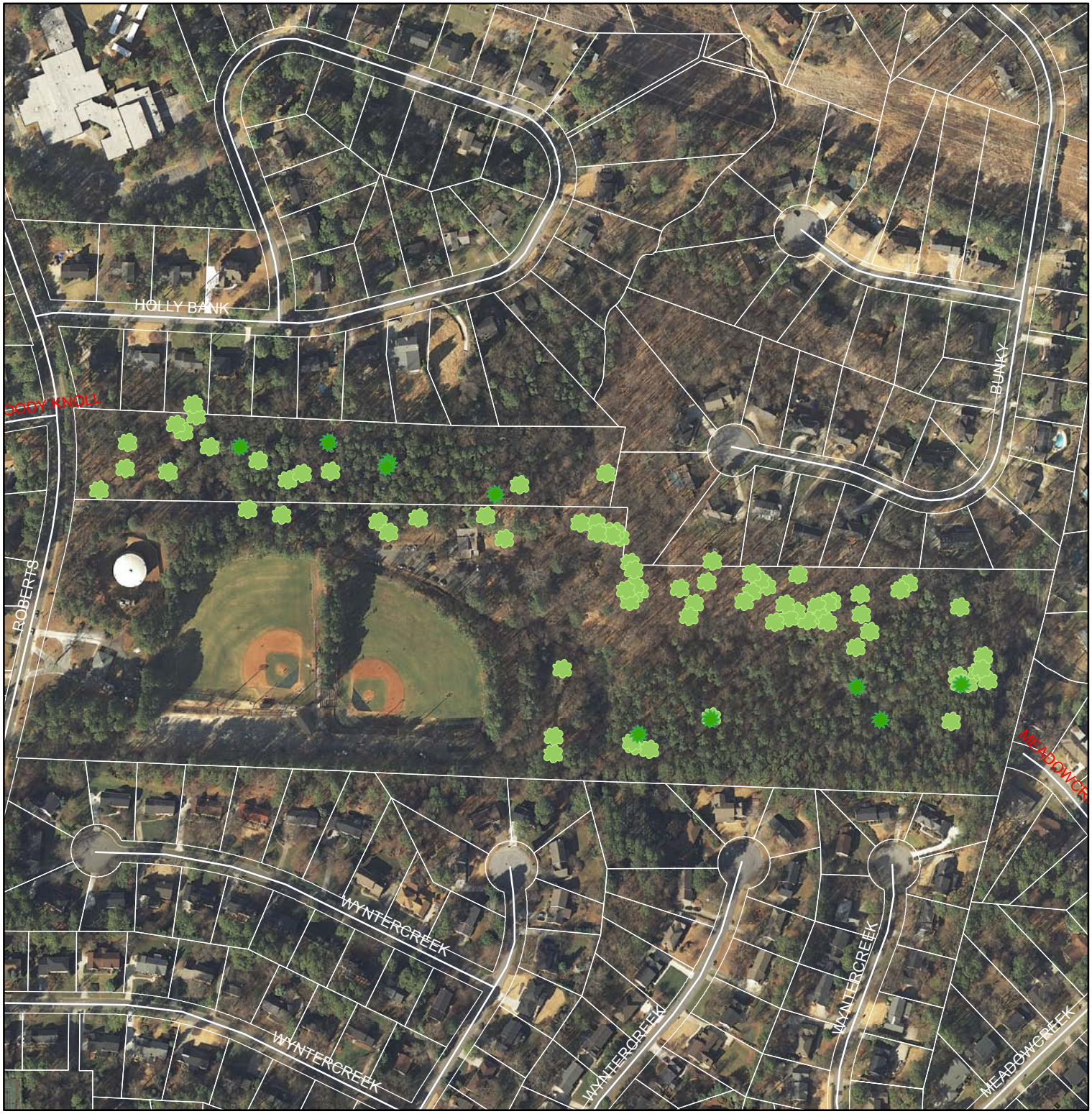


Nature Center

Maintenance Priorites

- 1
- 2
- 3
- 4



Nature Center

- Nature Center Softwood
- Nature Center Hardwood

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Tree Assessment

Windwood Hollow Park

Submitted by:
Arborguard Tree Specialists
June 2012

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Introduction

A tree assessment was conducted on trees in high pedestrian, traffic and recreational areas within Windwood Hollow Park. Specimen trees within the park were also located. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 20 trees inventoried within Windwood Hollow Park. The trees consist of 6 species. The most common tree species are Southern Red Oak and Post Oak. The inventory was completed using GIS and GPS technology. This report is intended to be used as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Windwood Park Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	20
Number of Species	6
Most Common Species	Southern Red Oak & Post Oak
Most common diameter	16"-20" (35% of all trees)
Largest diameter	31"
Condition	Good=0 Fair=14 Poor=4 Dead=2
Maintenance Priority Levels *	1=11 2=9 3=0 4=0

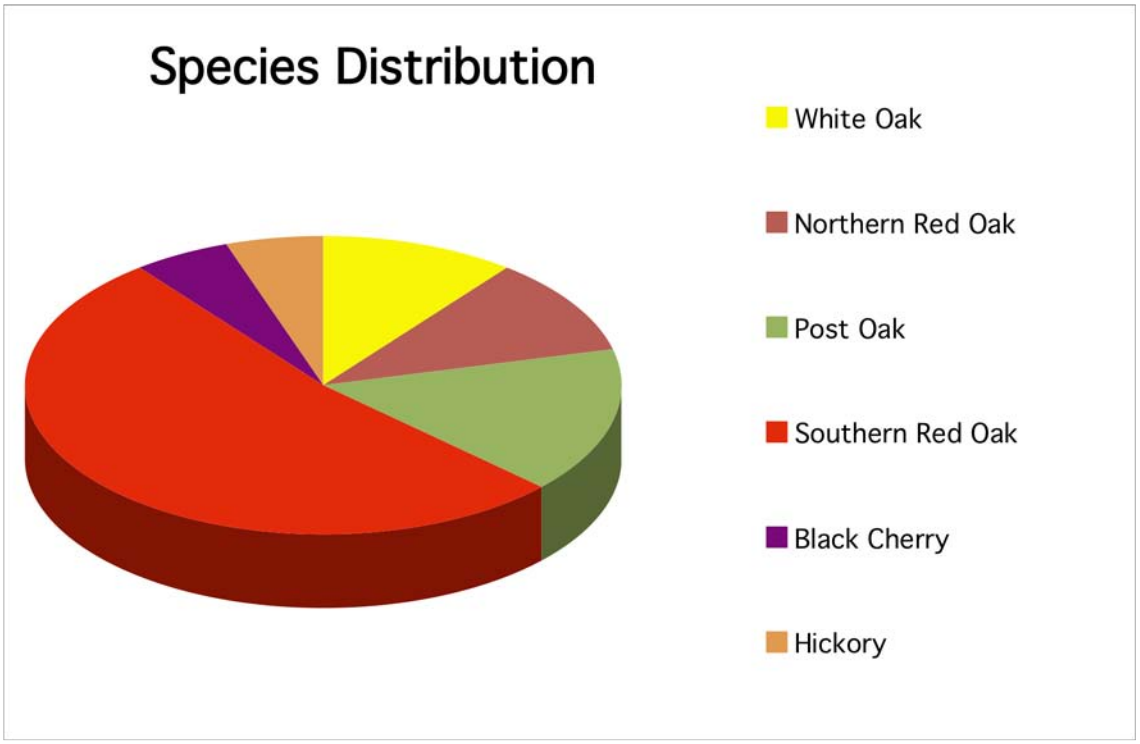
Results

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(*See page 5 for more information of Maintenance Priority Levels)

Species Distribution

There are 6 different species of tree surveyed inside Windwood Hollow Park. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



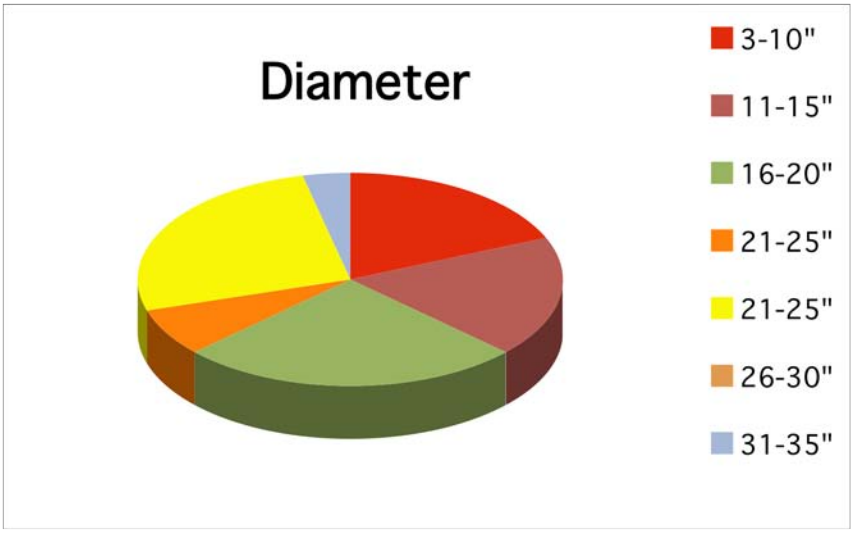
Amount of Trees Per Species

Species	Number of Trees
White Oak	2
Northern Red Oak	2
Post Oak	3
Southern Red Oak	10
Black Cherry	1
Hickory	2

Diameters

The inventoried trees range from 3 to 31 inches in diameter. The majority of the trees (35%) are between 16 and 20 inches in diameter.

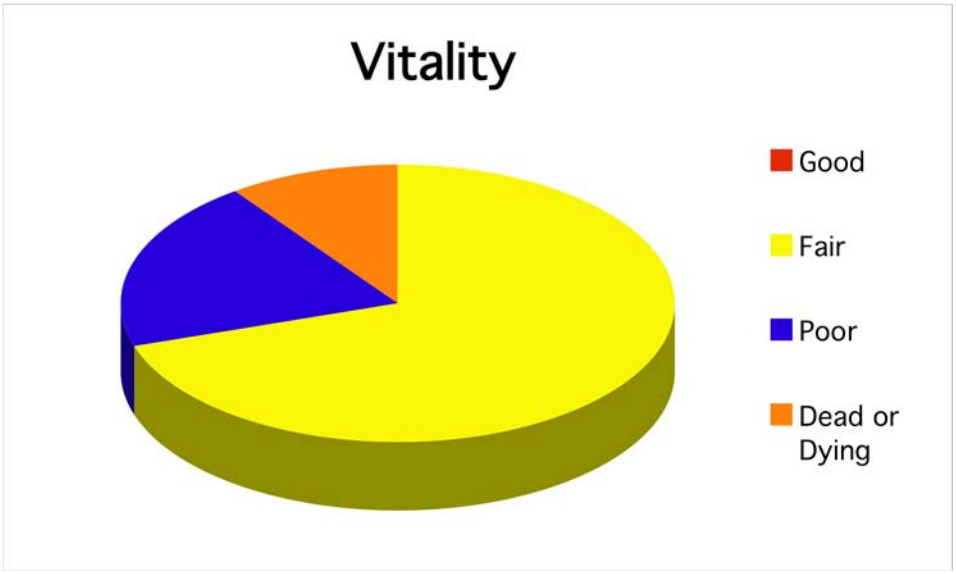
Diameter	Amount
3-10”	5
11-15”	5
16-20”	7
21-25”	2
26-30”	0
31-35”	1



Vitality Rating

Of the trees surveyed, 0% are in good condition, 70% are in fair condition, 20% are in poor condition and 10% are dead. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	0
Fair	14
Poor	4
Dead	2



Maintenance Priorities

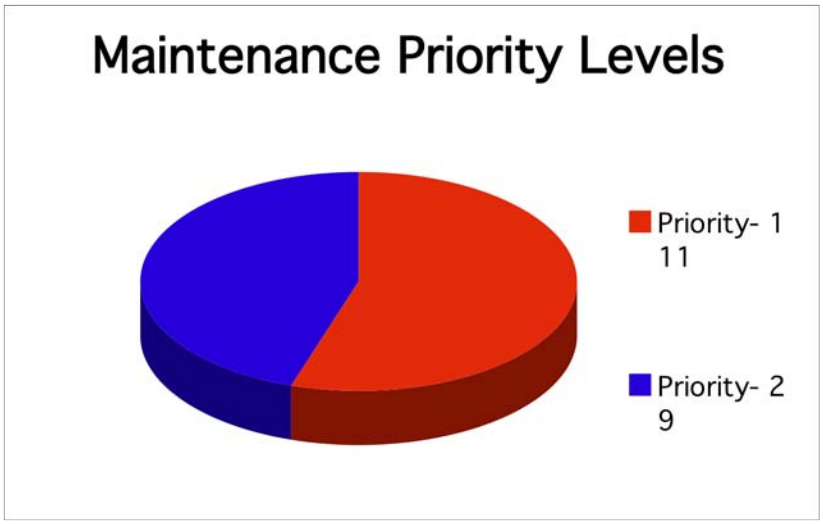
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	11
Priority 2	9
Priority 3	0
Priority 4	0



Maintenance Schedule

This 11 acre park is currently occupied by a tennis court, playground picnic pavilion and walking trails. Twenty trees were identified as needing pruning or removal at this location.

The following budget for tree pruning is reflective of standard tree care rates typical of fully insured and highly qualified local arborists. It is expected that to satisfactorily complete this work it will require a time budget of approximately 3 days.

Remove approximately 6 trees as needed, leave debris in woods as wildlife habitat where appropriate:

- Labor: $1950

Prune dead limbs over sidewalk as needed:

- Labor: $3900

Total estimated removal and pruning budget: $5850

Appendix A

Common Name – Latin Name Key

Common Name	Trees - Latin	Native/Adaptive
White Oak	*Quercus alba*	YES
Northern Red Oak	*Quercus rubra*	YES
Post Oak	*Quercus stellata*	YES
Southern Red Oak	*Quercus falcata*	YES
Black Cherry	*Prunus serotina*	YES
Mockernut Hickory	*Carya tomentosa*	YES

Appendix B

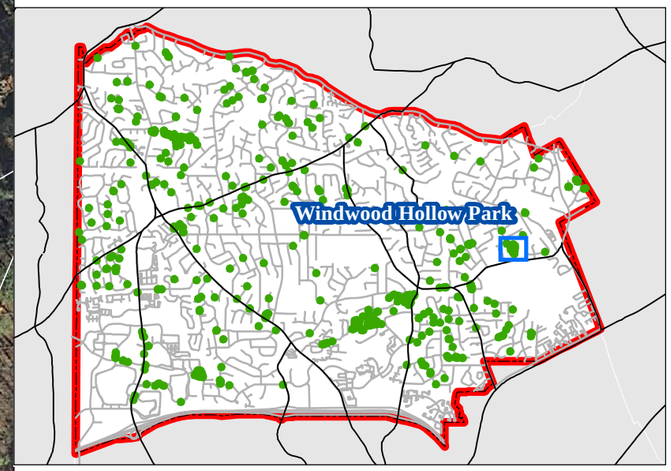
The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and located utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	DBH2	DBH3	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
421	Oak-White	14	8	6	Fair	Prune low limbs	2	Multistem, weak union with included bark, low limbs over roadway	Entrance to Windwood Park
422	Oak-Southern Red	6	0	0	Poor	Remove	1	Mistletoe, low limbs over road, 50% dead	Entrance to Windwood Park
423	Oak-Southern Red	13	0	0	Fair	Prune low limbs	2	Low limbs over road	Entrance to Windwood Park
424	Cherry-Black	7	0	0	Fair	Prune deadwood	2	Low limbs over road	Entrance to Windwood Park
425	Oak-Northern Red	12	0	0	Fair	Prune deadwood	2	Dead limbs over road	Entrance to Windwood Park
426	Oak-Southern Red	19	0	0	Fair	Prune deadwood	2	Low limbs over road	Entrance to Windwood Park
427	Oak-White	24	0	0	Fair	Prune deadwood	2	Dead limbs over sidewalk	Windwood Park Tennis Court
428	Oak-Southern Red	17	0	0	Fair	Prune deadwood	1	Dead limbs over sidewalk	Windwood Park Tennis Court
429	Oak-Southern Red	17	0	0	Poor	Remove	1	Top broken out at 30 feet high	Windwood Park activity field
430	Oak-Southern Red	13	12	8	Poor	Cable leads	2	Multistem at base, weak union, included bark	Windwood Park activity field
431	Oak-Southern Red	3	0	0	Dead	Remove	1	Dead tree beside sidewalk to playground	Windwood Park sidewalk to playground
432	Oak-Post	13	0	0	Fair	Prune deadwood	1	Dead scaffold limbs over sidewalk	Windwood Park sidewalk to playground
433	Oak-Post	18	0	0	Fair	Prune deadwood	1	Dead limbs over playground	Windwood Park playground
434	Oak-Post	18	0	0	Poor	Prune deadwood	2	Aerial cavity at 15 ft., wound at base	Windwood Park activity field near treeline
435	Oak-Southern Red	18	0	0	Fair	Prune deadwood	2	Dead scaffold limbs	Windwood Park activity field near treeline
436	Oak-Southern Red	22	0	0	Fair	Prune deadwood	1	Dead limbs over playground	Windwood Park playground and pavilion
437	Oak-Southern Red	31	0	0	Fair	Prune deadwood	1	Dead limbs over pavilion	Windwood Park pavilion
438	Oak-Northern Red	17	0	0	Dead	Remove	1	Hazard	Windwood Park behind playground
439	Hickory	8	0	0	Fair	Remove	1	Cavity in base	Windwood Park sidewalk
440	Hickory	6	0	0	Fair	Remove	1	Cavity in base	Windwood Park sidewalk

Maintenance Priority

City of Dunwoody



Maintenance Priority Level

Windwood Hollow Park

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Railroads

Parcels

Lakes / Water Features

1 inch = 100 feet

N

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Tree Assessment

Vernon Oaks Park

Submitted by:
Arborguard Tree Specialists
June 2012

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Introduction

A tree assessment was conducted on trees in high pedestrian, traffic and recreational areas within Vernon Oaks Park. Specimen trees within the park were also assessed. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 11 trees inventoried within Vernon Oaks Park. The trees consist of 7 species. The most common tree species are Tulip Poplar and White Oak. The inventory was completed using GIS and GPS technology. This report is intended to be used as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Vernon Oaks Park Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	11
Number of Species	7
Most Common Species	Tulip Poplar & White Oak
Most common diameter	26"-30" (36% of all trees)
Largest diameter	41"
Condition	Good=0 Fair=10 Poor=1 Dead=0
Maintenance Priority Levels *	1=3 2=3 3=1 4=4

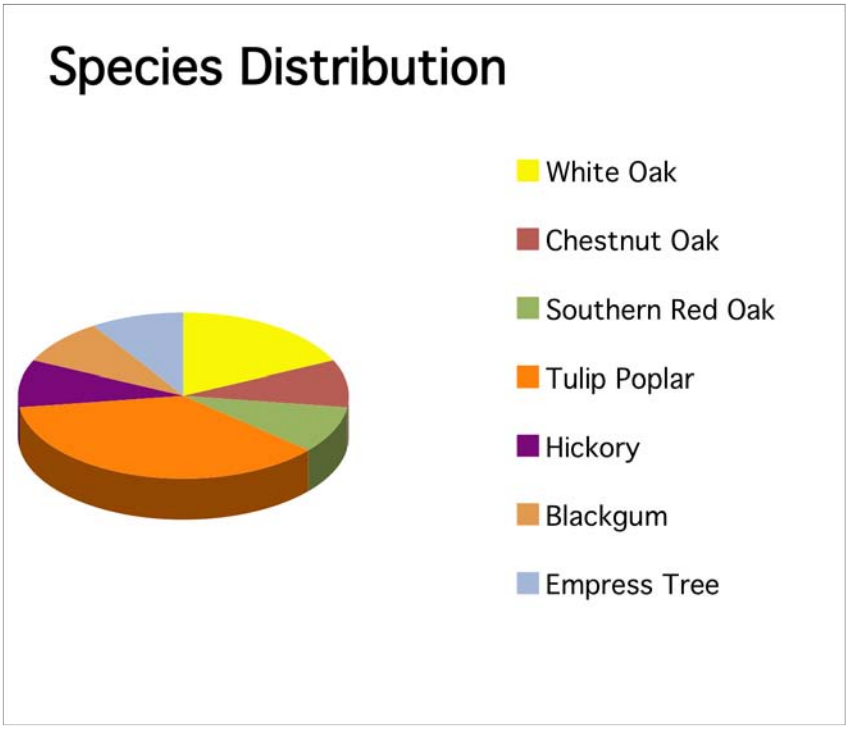
Results

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(*See page 5 for more information of Maintenance Priority Levels)

Species Distribution

There are 7 different species of tree surveyed inside Vernon Oaks Park. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



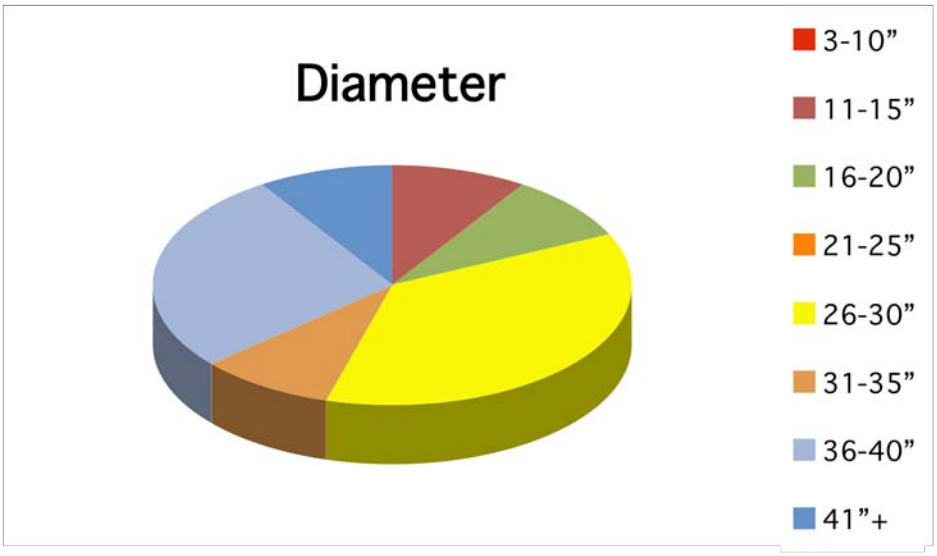
Amount of Trees Per Species

Species	Number of Trees
White Oak	2
Chestnut Oak	1
Southern Red Oak	1
Tulip Poplar	4
Hickory	1
Blackgum	1
Empress Tree	1

Diameters

The inventoried trees range from 12 to 41 inches in diameter. The majority of the trees (36%) are between 26 and 30 inches in diameter.

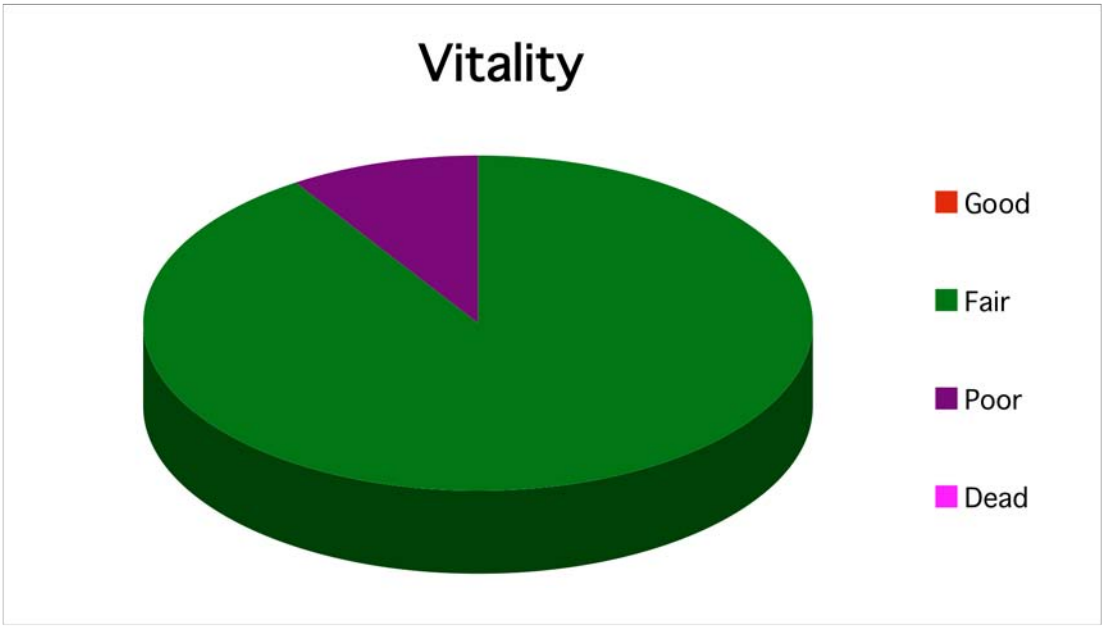
Diameter	Amount
3-10″	0
11-15″	1
16-20″	1
21-25″	0
26-30″	4
31-35″	1
36-40″	3
41″+	1



Vitality Rating

Of the trees surveyed, 0% are in good condition, 91% are in fair condition, 9% are in poor condition and 0% are dead. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	0
Fair	10
Poor	1
Dead	0



Maintenance Priorities

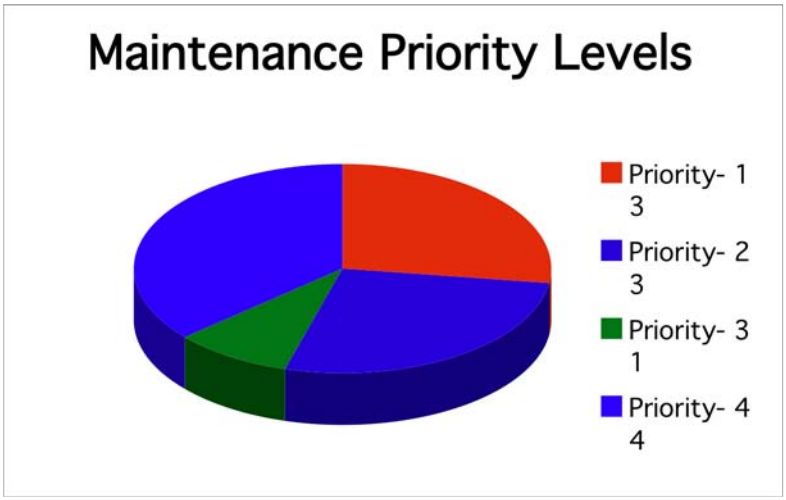
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	3
Priority 2	3
Priority 3	1
Priority 4	4



Maintenance Schedule

This park is approximately one-half acre in size and sits well below grade at the intersection two secondary roads. It is utilized on a regular basis as a walking trail. The 11 trees identified on this site consist primarily of tulip poplar and white oak trees. There is tree pruning recommended for the removal of dead branches over pathways, a recommendation to perform a Resistograph analysis on two specimen trees and a recommendation to remove one tree.

There is also one specimen sized tulip poplar tree that would benefit from the twice annual application of organic nutrients.

The following budget for tree pruning and removal is reflective of standard tree care rates typical of fully insured and highly qualified local arborists. It is expected that to satisfactorily complete this work it will require a time budget of approximately 1 day.

Prune dead limbs on 3 trees, remove one empress tree:

- Labor: $1950

Resistrograph analysis: $590

Twice annual application of organic nutrients for on tulip poplar tree: $590

Total estimated budget: $3130

Appendix A

Common Name – Latin Name Key

Common Name	Trees - Latin	Native/Adaptive
White Oak	*Quercus alba*	YES
Tulip Poplar	*Liriodendron tulipifera*	YES
Chestnut Oak	*Quercus prinus*	YES
Southern Red Oak	*Quercus falcata*	YES
Blackgum	*Nyssa sylvatica*	YES
Empress Tree	*Paulownia tomentosa*	NO
Black Cherry	*Prunus serotina*	YES
Mockernut Hickory	*Carya tomentosa*	YES

Appendix B

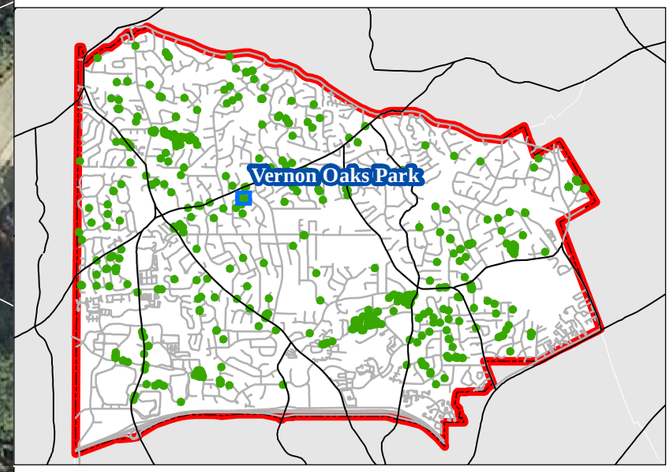
The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and located utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
441	Oak-White	41	Fair	Prune deadwood	2	Deadwood over path, cavity at base	Vernon Oaks Park entrance
442	Tulip Tree-Poplar	37	Fair	Soil therapy	3	Sparse canopy, tip dieback	Vernon Oaks Park entrance
443	Blackgum	12	Fair	None	4	Cavity in base	Vernon Oaks Park entrance
444	Tulip Tree-Poplar	35	Fair	None	4	On steep slope	Vernon Oaks Park entrance
445	Tulip Tree-Poplar	36	Fair	Prune deadwood	2	Lawnmower wounds on roots, dead scaffold limbs	Vernon Oaks Park entrance
446	Oak-White	27	Fair	Prune deadwood	2	Dead scaffold limbs	Vernon Oaks Park entrance
447	Hickory	27	Fair	None	4	Approximate 45 degree lean over the creek	Vernon Oaks Path
448	Tulip Tree-Poplar	28	Fair	None	4	Sparse canopy, tip dieback	Vernon Oaks Park beside creek
449	Empress Tree	17	Poor	Remove	1	Two cavities in base, tree base is hollow	Vernon Oaks Park beside creek
450	Oak-Chestnut	27	Fair	Risk assessment	1	Lean towards road, cavity at base	Vernon Oaks Park entrance
451	Oak-Southern Red	36	Fair	Risk assessment	1	Cavity in base	Vernon Oaks Park entrance

Maintenance Priority

City of Dunwoody



Maintenance Priority Level

Vernon Oaks Park

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Railroads

Parcels

Lakes / Water Features

1 inch = 50 feet

N

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Tree Assessment

Donaldson-Bannister Park

Submitted by:
Arborguard Tree Specialists
June 2012

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Introduction

A tree assessment was conducted on trees in high pedestrian, traffic and recreational areas within Donaldson-Bannister Park. Specimen trees within the park were also assessed. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 7 trees inventoried within Donaldson-Bannister Park. The trees consist of 5 species. The most common tree species are Northern Red Oak and White Oak. The inventory was completed using GIS and GPS technology. This report is intended to be used as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Donaldson-Bannister Park Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	7
Number of Species	5
Most Common Species	Southern Magnolia
Most common diameter	26"-30" (57% of all trees)
Largest diameter	42"
Condition	Good=0 Fair=5 Poor=2 Dead=0
Maintenance Priority Levels *	1=2 2=5 3=0 4=0

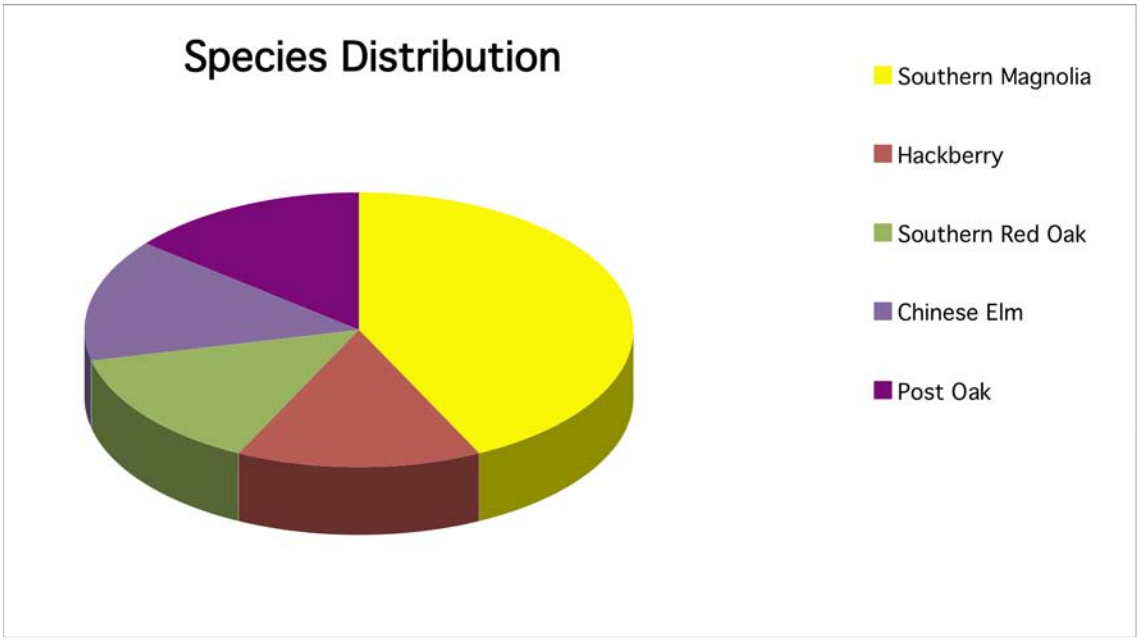
Results

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(*See page 5 for more information of Maintenance Priority Levels)

Species Distribution

There are 5 different species of trees surveyed inside Donaldson-Bannister Park. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



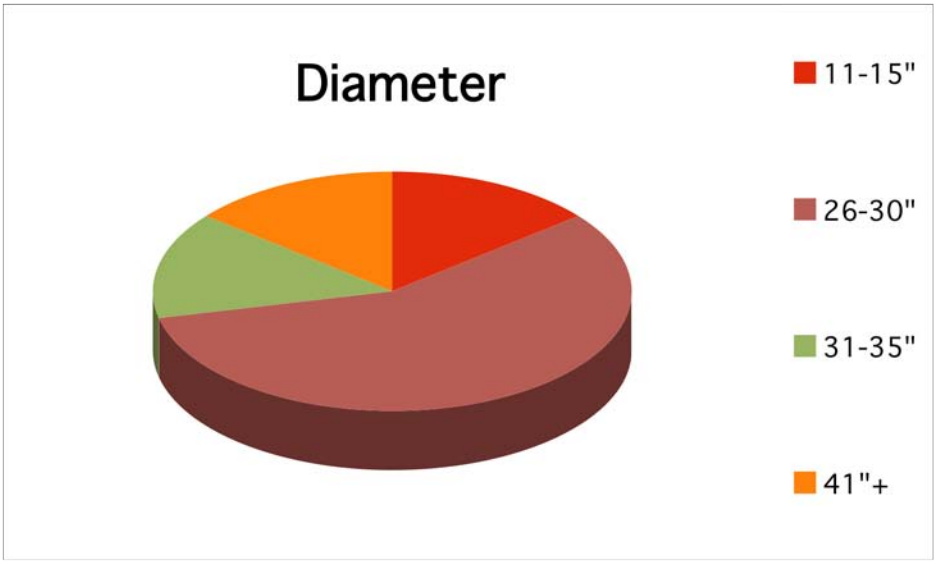
Amount of Trees Per Species

Species	Number of Trees
Post Oak	1
Hackberry	1
Chinese Elm	1
Southern Magnolia	3
Southern Red Oak	1

Diameters

The inventoried trees range from 14 to 42 inches in diameter. The majority of the trees (57%) are between 26 and 30 inches in diameter.

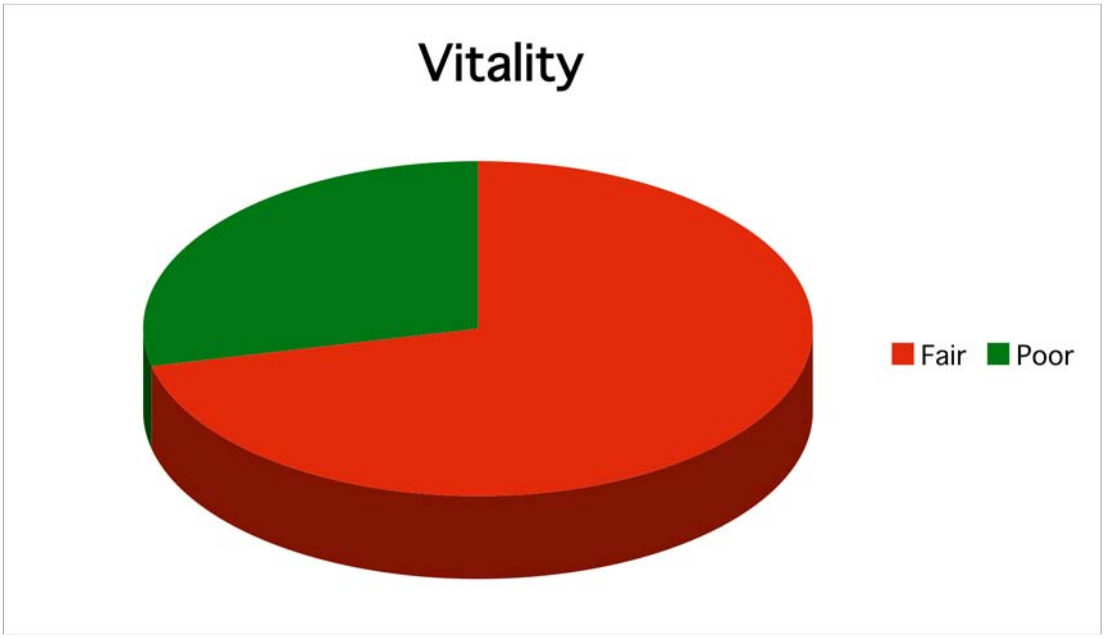
Diameter	Amount
6”- 10”	0
11”-15”	1
16”- 20”	0
21”- 25”	0
26”- 30”	4
31”- 35”	1
36”- 40”	0
+41”=	1
6”- 10”	0



Vitality Rating

Of the trees surveyed, 71% are in fair condition and 29% are in poor condition. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	0
Fair	5
Poor	2
Dead	0



Maintenance Priorities

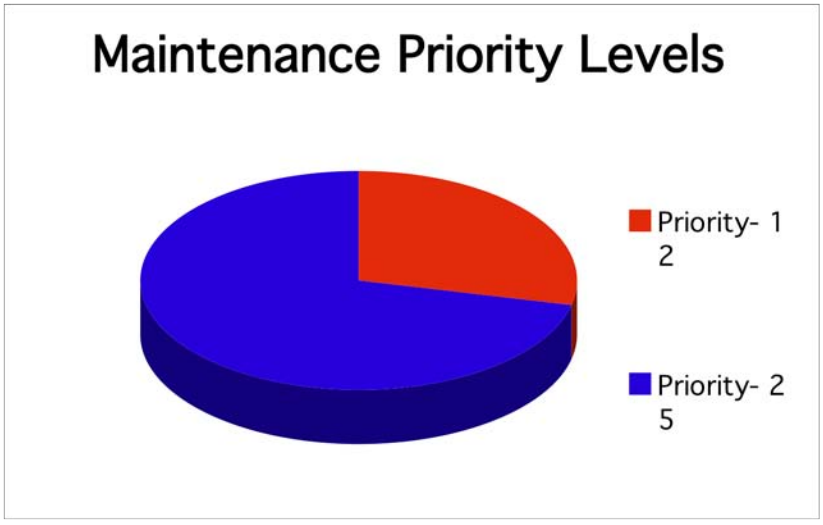
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	2
Priority 2	5
Priority 3	0
Priority 4	0



Maintenance Schedule

This park currently has a number of buildings situated on the property with trees surrounding the perimeter of the property. The 7 trees identified on this site are generally in fair condition with two being in poor condition. No hazardous conditions are present at this time. Although no maintenance would actually be required on this site at this time, there is one specimen sized southern magnolia tree that is hollow and requires a test for structural integrity.

The following budget for tree pruning is reflective of standard tree care rates typical of fully insured and highly qualified local arborists. It is expected that to satisfactorily complete this work it will require a time budget of approximately 1 day.

Prune dead limbs and cut vines on 5 trees, cable on southern magnolia:

- Labor: $1950
- Materials: $160
- Risk assessment for one southern magnolia: $295

Total estimated budget: $2405

Appendix A

Common Name – Latin Name Key

Trees – Common	Latin Name	Native/ Adaptive
Southern Magnolia	*Magnolia grandiflora*	YES
Southern Red Oak	*Quercus rubra*	YES
Post Oak	*Quercus stellata*	YES
Hackberry	*Celtis occidentalis*	YES
Chinese Elm	*Ulmus parvifolia*	YES

Appendix B

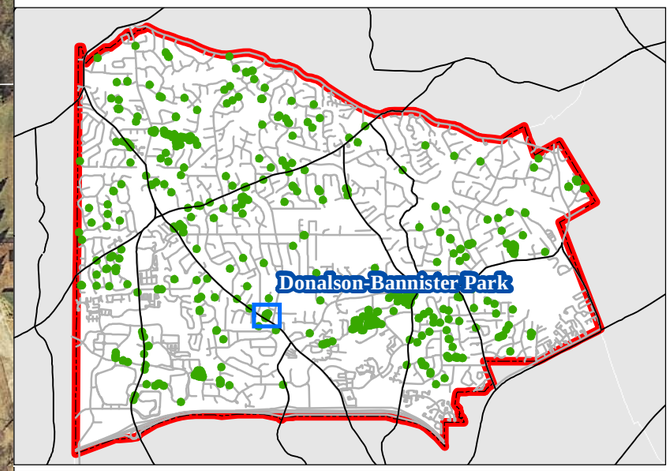
The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

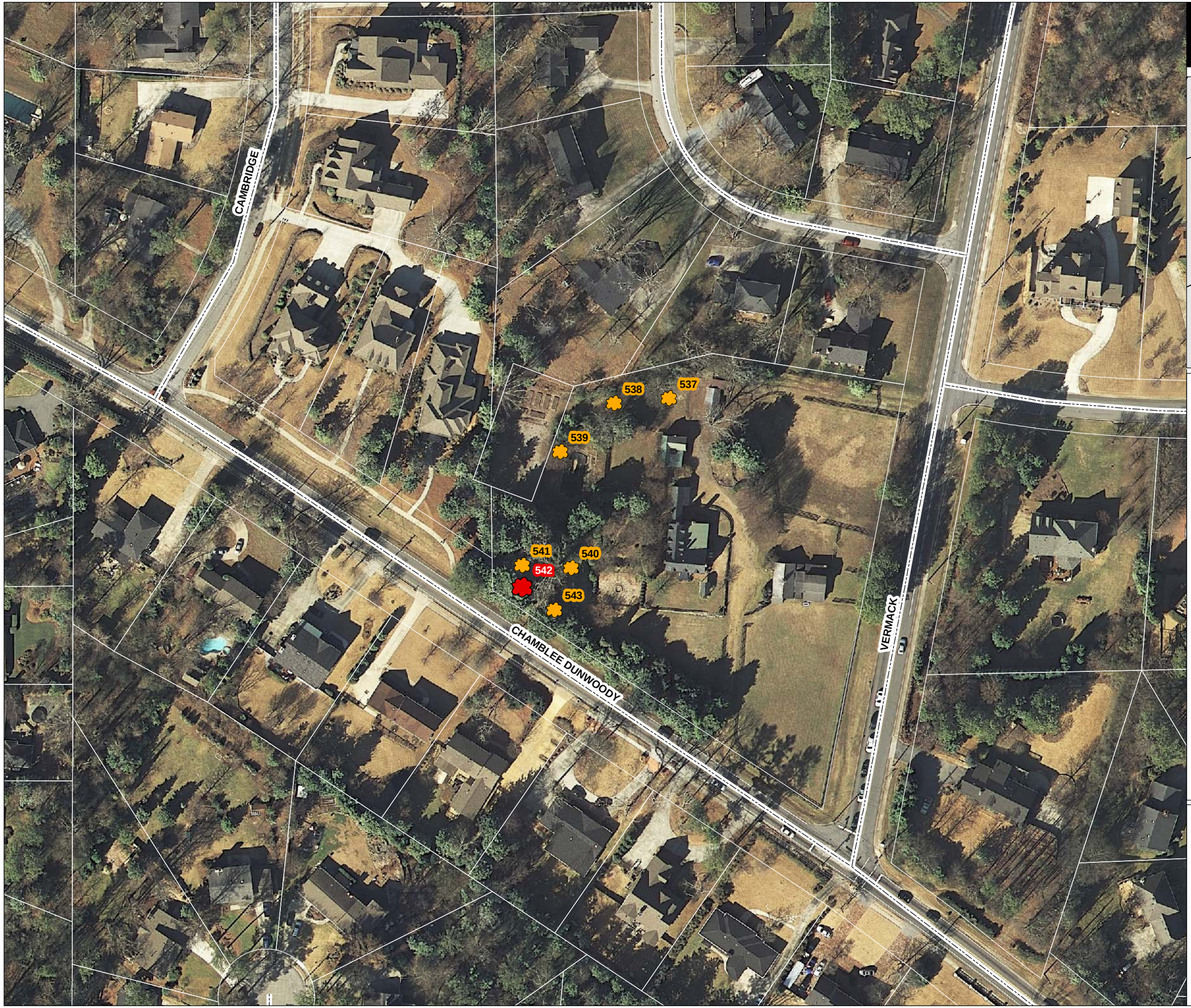
Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and located utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
537	Oak-Post	27	Fair	Prune deadwood	2	Deadwood, ivy overtaking trunk	Donadson-Bannister Park backyard fence
538	Hackberry	26	Fair	Prune deadwood	2	Deadwood, ivy overtaking trunk	Donaldson-Bannister Park backyard fence
539	Elm-Chinese	14	Poor	Insecticide sprays	2	Large lead fell from tree creating a large wound	Donaldson-Banister Park beside pool
540	Oak-Southern Red	42	Fair	Prune deadwood	2	Deadwood, tip dieback, broken scaffolds	Donaldson-Bannister park- garden
541	Magnolia-Southern	34	Fair	Cable leads	2	Codominant at 5 ft	Donaldson-Bannister park-garden
542	Magnolia-Southern	29	Poor	Risk assessment	1	Large cavity in base/decay	Donaldson-Bannister park-garden
543	Magnolia-Southern	30	Fair	Prune deadwood	2	Deadwood, ivy overtaking trunk	Donaldson-Bannister park-garden

Maintenance Priority

City of Dunwoody





Maintenance Priority Level

Donalson - Bannister Park

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Parcels

Railroads

Lakes / Water Features

1 inch = 100 feet

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Tree Assessment

North DeKalb Cultural Arts Center

Submitted by:
Arborguard Tree Specialists
June 2012

Solutions Naturally
Arborguard Tree Specialists

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Introduction

A tree assessment was conducted on trees in high pedestrian, traffic and recreational areas within North Dekalb Cultural Arts Center. Specimen trees were located. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 11 trees inventoried. The trees consist of 6 species. The most common tree species are Flowering Dogwood and Maple. The inventory was completed using GIS and GPS technology. This report is intended as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

North Dekalb Cultural Arts Center Urban Forest Summary	
Feature	Measure
Number of Trees Surveyed	11
Number of Species	6
Most Common Species	Flowering Dogwood
Most common diameter	3"-10" (45% of all trees)
Largest diameter	27"
Condition	Good=2 Fair=6 Poor=2 Dead=1
Maintenance Priority Levels *	1=2 2=7 3=0 4=2

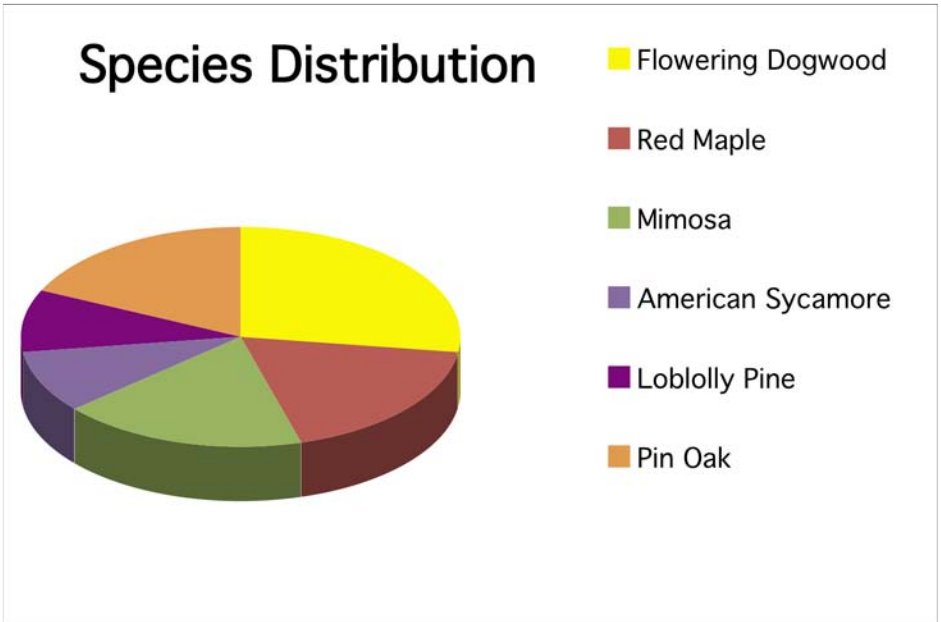
Results:

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(*See page 5 for more information of Maintenance Priority Levels)

Species Distribution

There are 6 different species of tree surveyed inside North Dekalb Cultural Arts Center. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



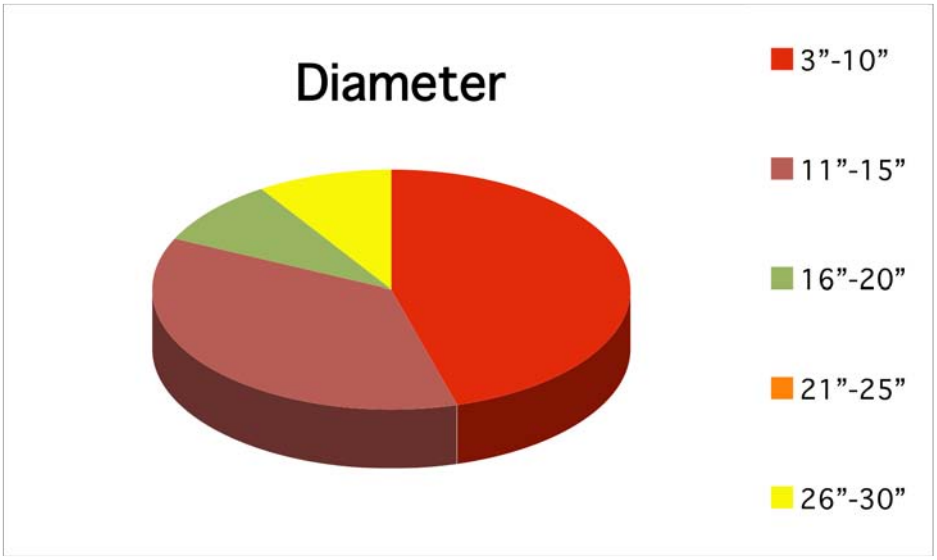
Amount of Trees Per Species

Species	Number of Trees
Flowering Dogwood	3
Red Maple	2
Mimosa	2
American Sycamore	1
Loblolly Pine	1
Pin Oak	2

Diameters

The inventoried trees range from 5 to 27 inches in diameter. The majority of the trees (45%) are between 3 and 10 inches in diameter.

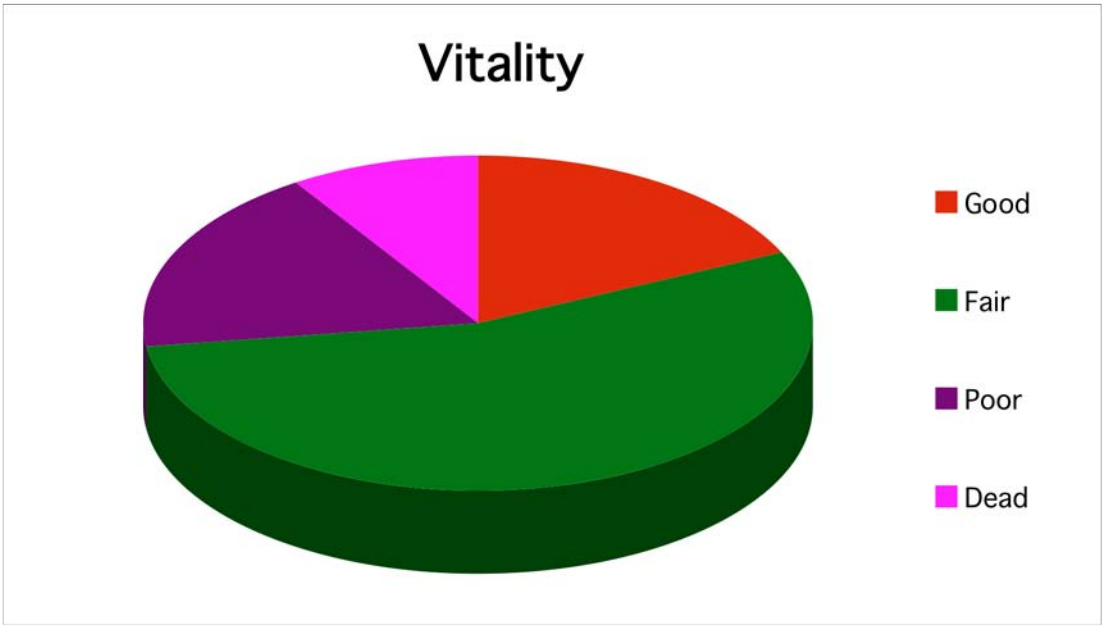
Diameter	Amount
3”-10”	5
11”-15”	4
16”-20”	1
21”-25”	0
26”-30”	1



Vitality Rating

Of the trees surveyed, 18% are in good condition, 55% are in fair condition, 18% are in poor condition and 9% are dead. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	2
Fair	6
Poor	2
Dead	1



Maintenance Priorities

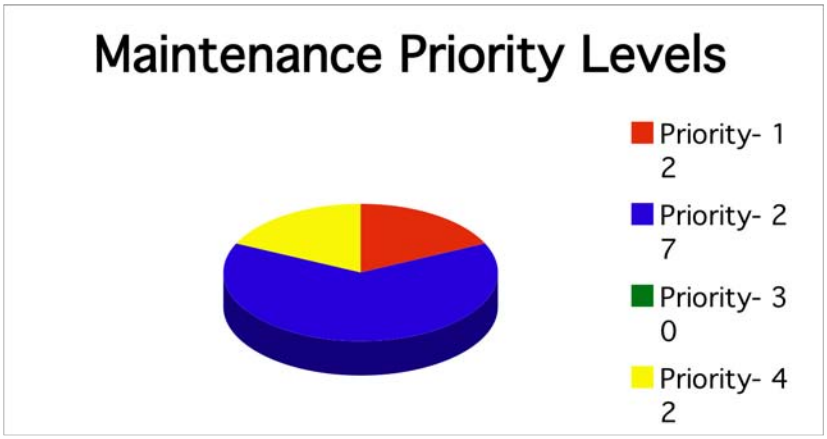
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	2
Priority 2	7
Priority 3	0
Priority 4	2



Maintenance Schedule

11 trees were identified at this location as either meeting the specimen tree size criteria or requiring some type of tree maintenance. One tree was found to need immediate removal seven trees are recommended for pruning as well as three trees recommended for the application of organic nutrients to help improve their vigor.

The following budget for tree pruning and removal is reflective of standard tree care rates typical of fully insured and highly qualified local arborists. It is expected that to satisfactorily complete this work it will require a time budget of approximately 2 days.

Prune dead limbs, install steel support cables and prune trees as needed, remove one dead pine:

- Labor: $4160

Provide organic nutrients to approximately 3 trees twice annually: $590

Total estimated budget: $4750

Appendix A

Common Name – Latin Name Key

Common Name	Trees – Latin	Native/Adaptive
Flowering Dogwood	*Cornus florida*	YES
Loblolly Pine	*Pinus taeda*	YES
Pin Oak	*Quercus rubra*	YES
Red Maple	*Acer rubrum*	YES
Mimosa	*Mimosa pudica*	NO
American Sycamore	*Platanus occidentalis*	YES

Appendix B

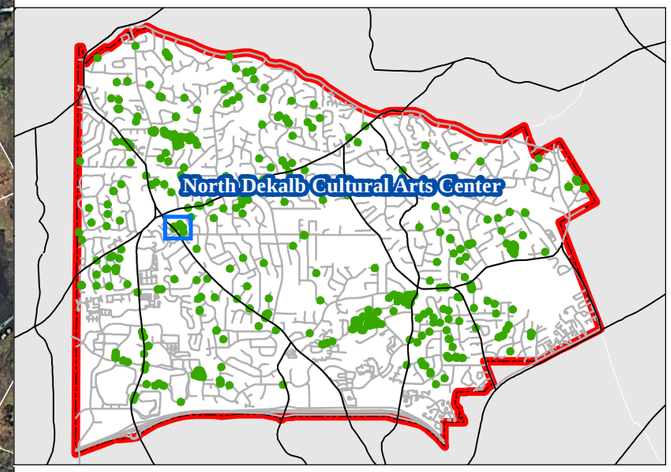
The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and located utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	DBH2	DBH3	DBH4	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
544	Dogwood-Flowering	8	6	6	6	Fair	Soil therapy	2	Cavities in trunk	NDCAC-parking
545	Maple-Red	17	18	9	0	Fair	Cable leads	1	Cavities in trunk	NDCAC-parking
546	Maple-Red	27	0	0	0	Fair	Prune deadwood	2	Deadwood, aerial cavity in scaffold limb	NDCAC-parking
547	Dogwood-Flowering	5	7	0	0	Good	None	4		NDCAC-courtyard
548	Dogwood-Flowering	6	0	0	0	Good	None	4		NDCAC-courtyard
549	Sycamore-American	11	15	0	0	Fair	Cable leads	2	Weak union, included bark	NDCAC-courtyard
550	Pine-Loblolly	11	0	0	0	Dead	Removal	1	Hazard	NDCAC-rear fence
551	Oak-Pin	10	0	0	0	Poor	Soil therapy/Prune	2	Sparse canopy/ deadwood	NDCAC-corner of bldg
552	Oak-Pin	11	0	0	0	Poor	Soil therapy/Prune	2	Sparse canopy/ deadwood	NDCAC-corner of bldg
553	Mimosa	10	0	0	0	Fair	Prune low limbs	2	Low limbs near dumpster	NDCAC-fence near dumpster
554	Mimosa	12	0	0	0	Fair	Prune low limbs	2	Low limbs near dumpster	NDCAC-fence near dumpster

Maintenance Priority

City of Dunwoody



Maintenance Priority Level

North Dekalb Cultural Arts Center

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Railroads

Parcels

Lakes / Water Features

1 inch = 100 feet

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Tree Assessment

Perimeter Center East Park

Submitted by:
Arborguard Tree Specialists
June 2012

Solutions Naturally
Arborguard
Tree Specialists

Ecological Planning Group

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Introduction

A tree assessment was conducted on trees within the future site of Perimeter Center East Park. Specimen trees within the park were also located. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 28 trees inventoried within Perimeter Center East Park. The trees consist of 6 species. The most common tree species is Loblolly Pine. The inventory was completed using GIS and GPS technology. This report is intended as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Perimeter Center East Park Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	28
Number of Species	6
Most Common Species	Northern Red Oak
Most common diameter	26"-30" (43% of all trees)
Largest diameter	38"
Condition	Good=7 Fair=18 Poor=2 Dead=1
Maintenance Priority Levels *	1=1 2=0 3=19 4=8

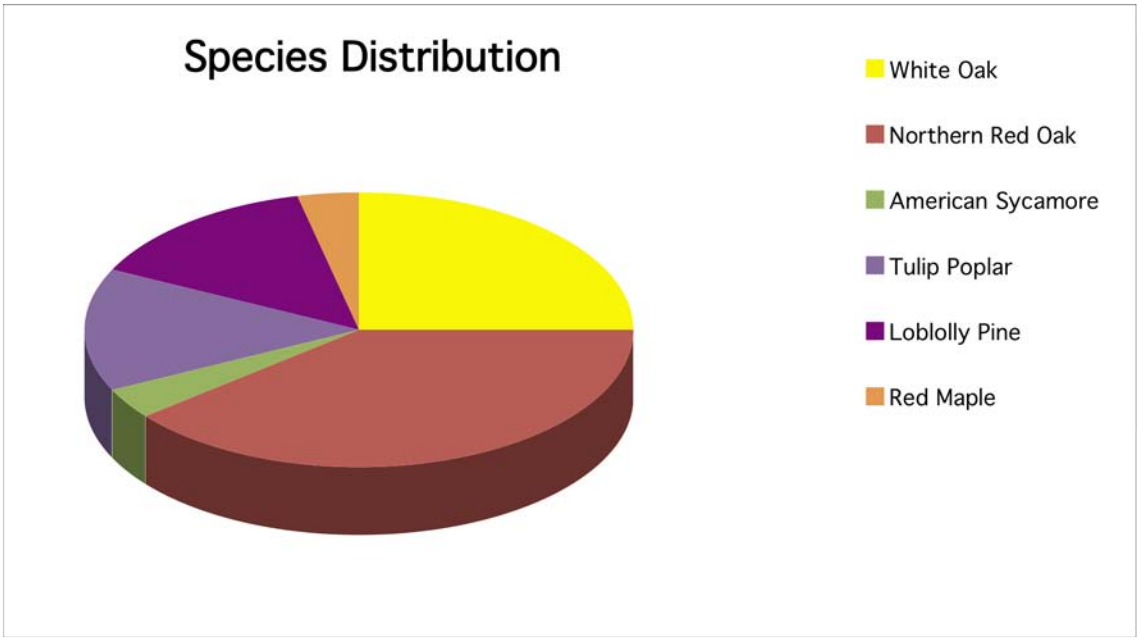
Results

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(*See page 5 for more information of Maintenance Priority Levels)

Species Distribution

There are 6 different species of tree surveyed inside Perimeter Center East Park. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



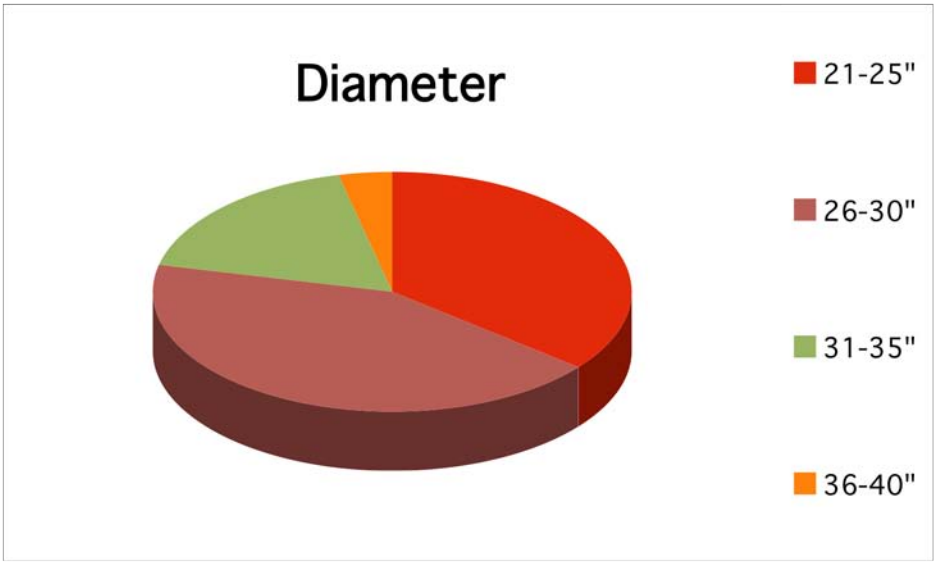
Amount of Trees Per Species

Species	Number of Trees
White Oak	7
Loblolly Pine	4
Northern Red Oak	11
Tulip Poplar	4
Red Maple	1
American Sycamore	1

Diameters

The inventoried trees range from 24 to 38 inches in diameter. The majority of the trees (43%) are between 16 and 20 inches in diameter.

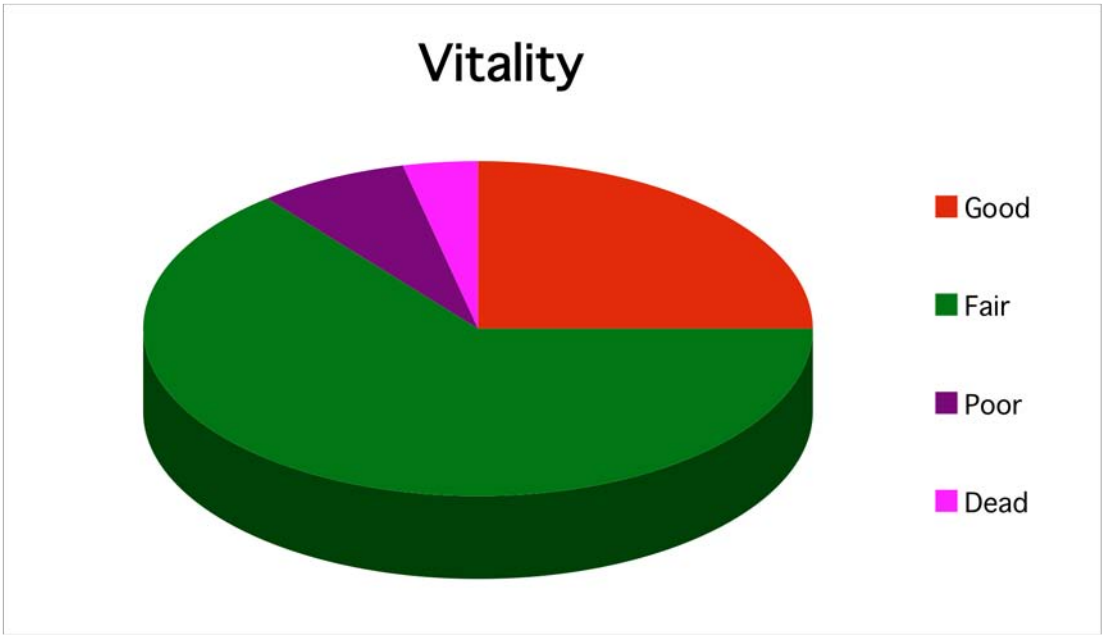
Diameter	Amount
1-6”	0
7-10”	0
11-15”	0
16-20”	0
21-25”	10
26-30”	12
31-35”	5
36-40”	1
41”+	0



Vitality Rating

Of the trees surveyed, 25% are in good condition, 64% are in fair condition, 7% are in poor condition and 4% are dead. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	7
Fair	18
Poor	2
Dead	1



Maintenance Priorities

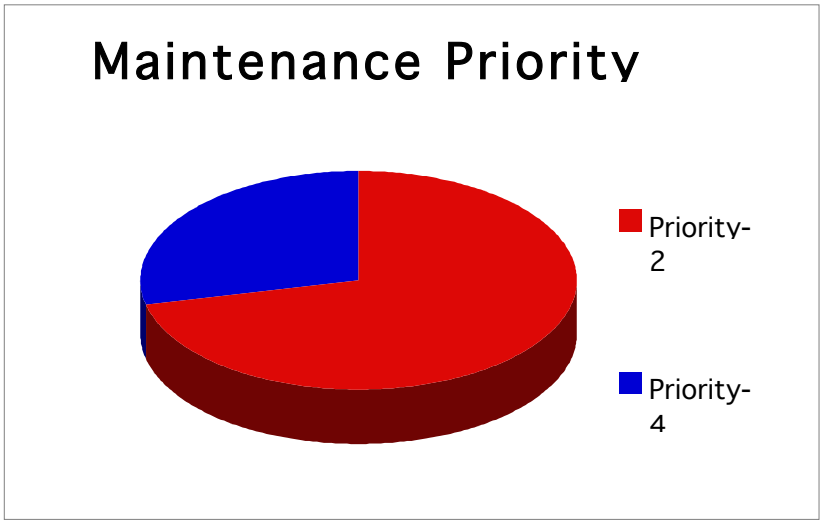
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	0
Priority 2	0
Priority 3	20
Priority 4	8



Maintenance Schedule

This park is currently an undeveloped wooded tract of land. The 28 trees identified on this site consist primarily of specimen size trees. Although no maintenance would actually be required on this site at this time, there were three trees identified as needing removal should the budget allow for it. As these trees are in an undeveloped wooded location, it is recommended that they be felled and left lay on the ground.

The following budgets for tree removal are reflective of standard tree care rates typical of fully insured and highly qualified local arborists. It is expected that to satisfactorily complete this work it will require a time budget of approximately 1 day.

Removal of 3 dead and dying trees:

- Labor: $1950

Total estimated budget Removal: $1950

Appendix A

Common Name – Latin Name Key

Trees - Latin	Common Name	Native/Adaptive
White Oak	*Quercus alba*	YES
Loblolly Pine	*Pinus taeda*	YES
Northern Red Oak	*Quercus rubra*	YES
Red Maple	*Acer rubrum*	YES
American Sycamore	*Platanus occidentalis*	YES
Tulip Poplar	*Liriodendron tulipfera*	YES

Appendix B

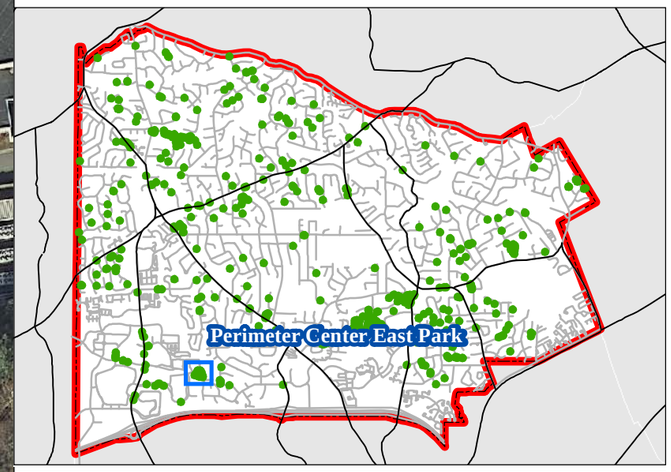
The inventory is a compilation of information gathered about the trees. All trees were located utilizing GPS technology and the following data parameters recorded for each tree.

Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and utilizing GPS technology.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
564	Oak-Northern Red	38	0	Fair	Prune-Deadwood	3	Poison ivy, Deadwood	Perimeter Center E
565	Oak-White	27	0	Good	None	4		Perimeter Center E
566	Oak-Northern Red	27	0	Fair	Prune-Deadwood	3	Dead scaffold branch	Perimeter Center E
567	Oak-Northern Red	24	0	Good	None	4		Perimeter Center E
568	Oak-White	24	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
569	Oak-White	27	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
570	Oak-White	24	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
571	Oak-Northern Red	24	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
572	Oak-Northern Red	24	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
573	Oak-Northern Red	30	0	Good	None	4		Perimeter Center E
574	Tulip Tree-Poplar	30	0	Fair	None	4	Epicormic sprouts	Perimeter Center E
575	Oak-White	27	0	Good	Prune-Deadwood, Remove vines	3	Ivy covering trunk, Deadwood	Perimeter Center E
576	Oak-Northern Red	30	0	Good	None	4		Perimeter Center E
577	Sycamore-American	25	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
578	Tulip Tree-Poplar	28	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
579	Pine-Loblolly	31	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
580	Maple-Red	27	0	Poor	Remove	3	Cavities at base, lean	Perimeter Center E
581	Tulip Tree-Poplar	28	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
582	Pine-Loblolly	22	0	Dead	Remove	3	Dead	Perimeter Center E
583	Pine-Loblolly	30	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
584	Pine-Loblolly	25	29	Poor	Remove	3	>75% Dead, Codominant	Perimeter Center E
585	Tulip Tree-Poplar	34	0	Good	None	4		Perimeter Center E
586	Oak-Northern Red	32	0	Good	None	4		Perimeter Center E
587	Oak-White	35	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
588	Oak-White	34	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
589	Oak-Northern Red	25	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
590	Oak-Northern Red	24	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E
591	Oak-Northern Red	26	0	Fair	Prune-Deadwood	3	Deadwood	Perimeter Center E

Maintenance Priority

City of Dunwoody



PERIMETER CENTER EAST

OLD GEORGETOWN

CONGRESS

564 591 590 589 586 587 565 566 569 568 570 567 588 585 571 573 572 575 574 576 577 584 579 580 583 578 581 582

Maintenance Priority Level

Perimeter Center East Park

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Railroads

Parcels

Lakes / Water Features

1 inch = 100 feet

N

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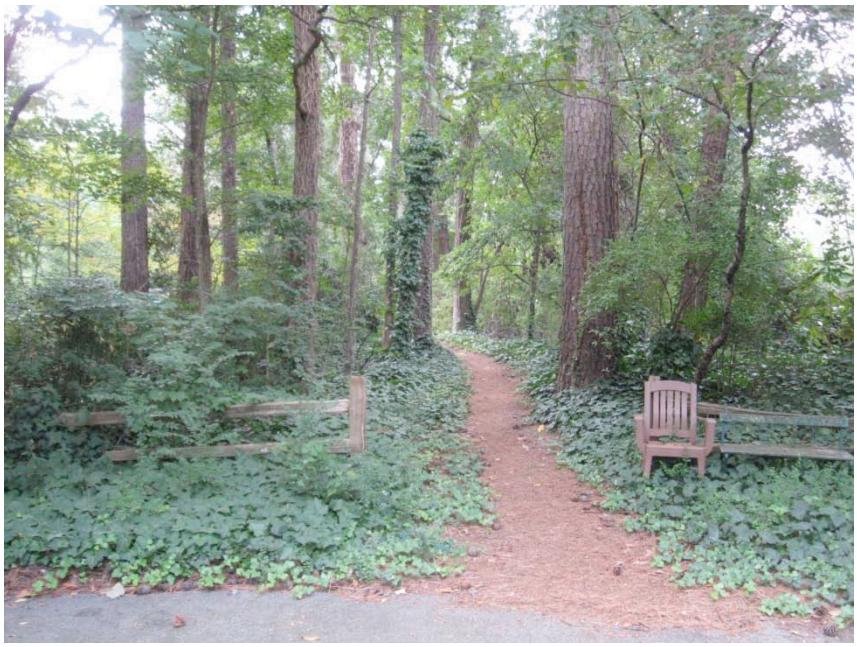
Tree Assessment

Rochelle Drive Dead End Trail



Submitted by:
Arborguard Tree Specialists
June 2012

Solutions Naturally
Arborguard
Tree Specialists

Ecological Planning Group

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Species Distribution	2
Diameter Values	3
Vitality Ratings	4
Maintenance Priority Levels	5
Recommendations	6
Appendix A Latin Names	7
Appendix B Data	8

Introduction

A tree assessment was conducted on trees along the trail between the Rochelle Drive dead end and Bishop Hollow Run. Specimen trees along the trail were also located. Specimen tree criteria is defined in the City of Dunwoody Tree Ordinance Section 16-195(h) as follows: hardwood trees ≥24" diameter at breast height (DBH), softwood trees ≥30" DBH and flowering understory trees ≥6" DBH.

There were a total of 9 trees inventoried along the trail. The trees consist of 3 species. The most common tree species is Loblolly Pine. The inventory was completed using GIS and GPS technology. This report is intended to be used as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Rochelle Drive Dead End Trail Urban Forest Summary	
Feature	**Measure**
Number of Trees Surveyed	9
Number of Species	3
Most Common Species	Loblolly Pine
Most common diameter	16"-20" (78% of all trees)
Largest diameter	26"
Condition	Good=0 Fair=8 Poor=1 Dead=0
Maintenance Priority Levels *	1=1 2=3 3=4 4=1

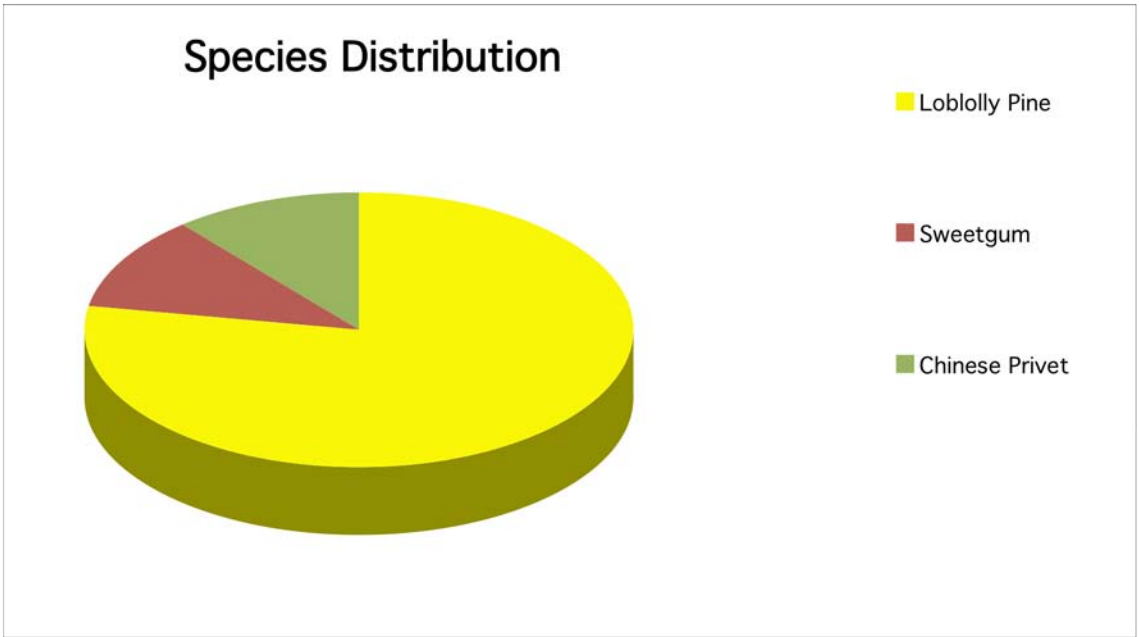
Results

The data from this survey is shown in its entirety in Appendix B of this report. The following information has been taken from the data and summarized where relevant.

(*See page 5 for more information of Maintenance Priority Levels)

Species Distribution

There are 3 different species of tree surveyed along Rochelle Drive Dead End Trail. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



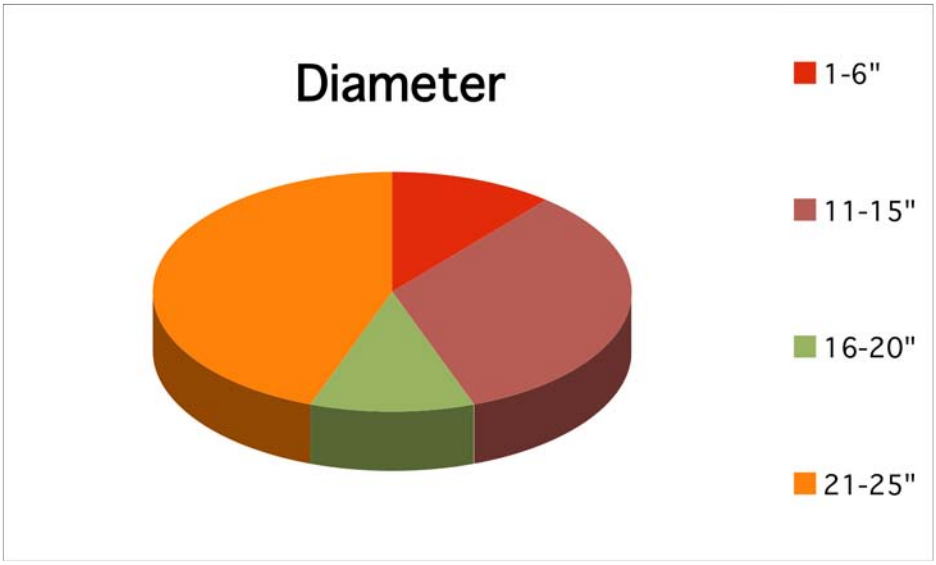
Amount of Trees Per Species

Species	Number of Trees
Loblolly Pine	7
Sweetgum	1
Privet	1

Diameters

The inventoried trees range from 6 to 26 inches in diameter. The majority of the trees (44%) are between 21 and 25 inches in diameter.

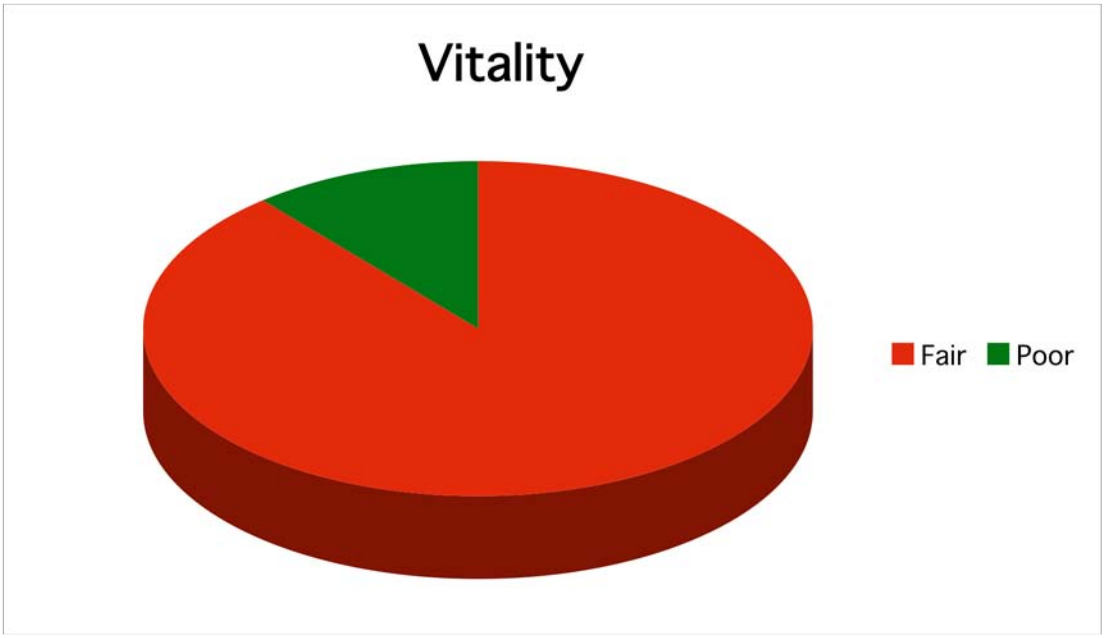
Diameter	Amount
1-6″	1
7-10″	0
11-15″	3
16-20″	1
21-25″	4
26-30″	0
31-35″	0
36-40″	0
41″+	0



Vitality Rating

Of the trees surveyed, 0% are in good condition, 89% are in fair condition, 11% are in poor condition and 0% are dead. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.

Vitality	Amount
Good	0
Fair	8
Poor	1
Dead	0



Maintenance Priorities

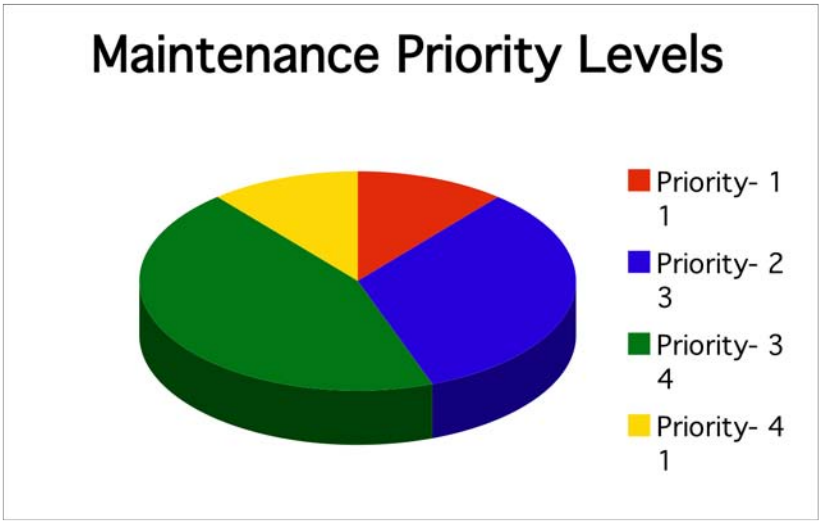
Priority 1= Action is required as soon as possible. These trees may be dead, hazardous, in need of a risk assessment using Resistograph technology or requires pruning or other actions as soon as possible.

Priority 2= These trees will require action in the near future.

Priority 3= Maintenance priorities 1-2 should be addressed before maintenance priority 3.

Priority 4= Maintenance is not required at this time.

Maintenance Priority	Amount
Priority 1	1
Priority 2	3
Priority 3	4
Priority 4	1



Recommendations

This trail is currently an undeveloped wooded tract of land. It is however utilized on a regular basis as a walking trail. The 9 trees identified on this site consist primarily of loblolly pine trees. Although no maintenance would actually be required on this site at this time, there is one privet bush growing into the power line that needs pruning by a Georgia Power subcontractor and then removed should the budget allow for it. The balance of the trees would require cutting the vines on the tree stem and pruning to remove dead branches.

The following budget for tree pruning is reflective of standard tree care rates typical of fully insured and highly qualified local arborists. It is expected that to satisfactorily complete this work it will require a time budget of approximately 1 day.

Prune dead limbs and cut vines on 7 loblolly pine trees, remove one privet bush:

- Labor: $1950

Total estimated removal budget: $1950

Appendix A

Common Name – Latin Name Key

Trees – Common Name	Latin Name	Native/Adaptive
Loblolly Pine	*Pinus taeda*	YES
Sweetgum	*Liquidambar styraciflua*	YES
Chinese Privet	*Ligustrum sinensis*	NO

Appendix B

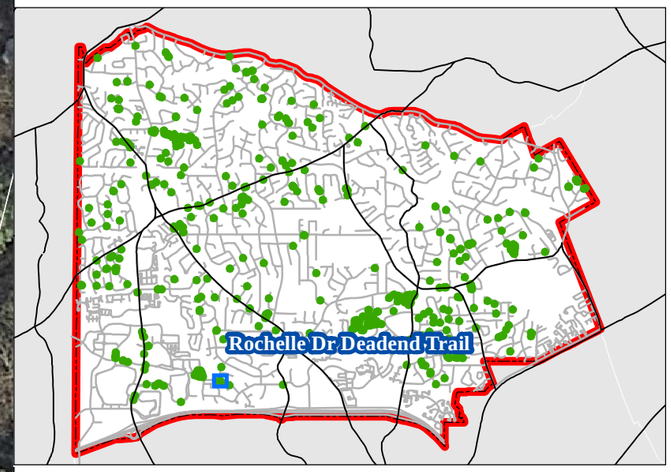
The inventory is a compilation of information gathered about the trees. All specimen trees were located utilizing GPS technology and the following data parameters recorded for each tree.

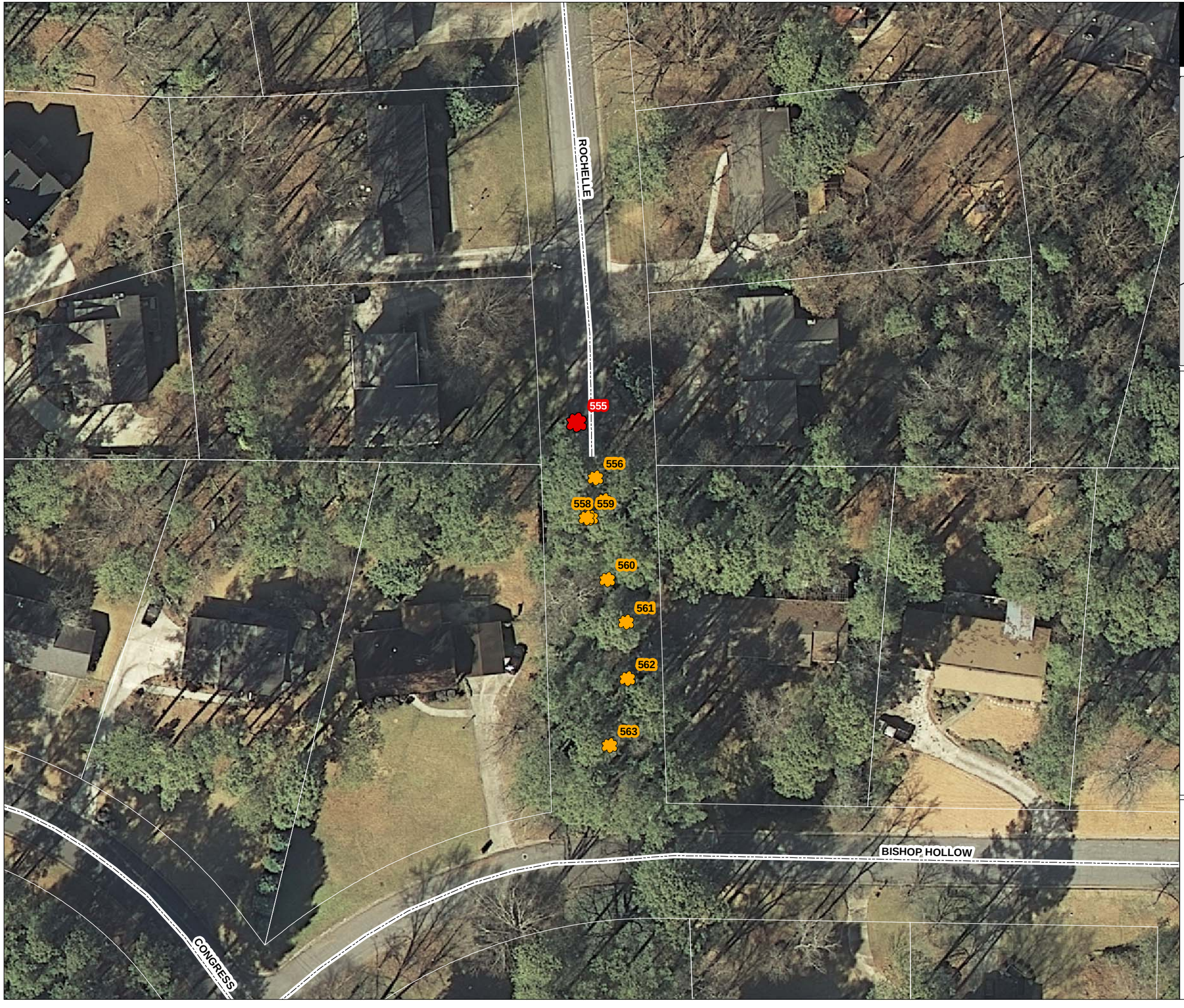
Term	Description
Tree No.	All trees were numbered with an aluminum tag bearing a unique number and located using a GPS system.
Species	Listed as the North American common name.
DBH	Diameter of trunk in inches, measured at 4.5' feet above average soil level. Measurements were taken using a forestry diameter tape.
Vitality	Good ..... Tree has excellent vigor and is actively growing without any serious pathogenic problems. Tree exhibits a structural form that is safe and typical of the species. Fair ..... Tree is in moderate health, but may have a minor pathogenic problem. Some insects and disease could be present. Tree may have minor structural defects, but does not exhibit optimal form for the species in an urban environment. A tree in fair condition may not react favorably to site developments or additional stress. Poor ..... Tree's vigor is low to moderate. It may also have moderate to severe structural defects or a form that is undesirable for the species. Some trees in poor condition are not recoverable and could degrade into a state of advanced decline leading to death.
Maintenance Recommendations	Any maintenance needed; such as pruning, soil therapy, install cables or removal.
Maintenance Priority	Urgency of the required maintenance rated from 1 to 4.
Comments	Any other additional notes about the tree that were not adequately addressed in the other fields.
Location	Specifies where the trees can be found such as by address or approxiamte location in a park.

Tree #	Species	DBH	DBH2	Vitality	Mtnc Rec	Mtnc Prior	Comments	Location
555	Privet	6	6	Poor	Removal	1	Growing into utility lines	Trail between Rochelle Dr. and Bishop Hollow Run
556	Pine-Loblolly	14	0	Fair	Remove Vines	3	Vines on trunk	Trail between Rochelle Dr. and Bishop Hollow Run
557	Pine-Loblolly	21	0	Fair	Prune-Deadwood, remove vines	3	Vines on trunk, Deadwood	Trail between Rochelle Dr. and Bishop Hollow Run
558	Pine-Loblolly	12	0	Fair	Prune-Deadwood, remove vines	3	Vines on trunk, Deadwood	Trail between Rochelle Dr. and Bishop Hollow Run
559	Pine-Loblolly	18	0	Fair	Prune-Deadwood, remove vines	3	Vines on trunk, Deadwood	Trail between Rochelle Dr. and Bishop Hollow Run
560	Sweetgum	25	0	Fair	None	4	Bowed Trunk	Trail between Rochelle Dr. and Bishop Hollow Run
561	Pine-Loblolly	26	0	Fair	Prune-Deadwood	2	Deadwood over trail	Trail between Rochelle Dr. and Bishop Hollow Run
562	Pine-Loblolly	13	0	Fair	Prune-Deadwood	2	Deadwood over trail	Trail between Rochelle Dr. and Bishop Hollow Run
563	Pine-Loblolly	23	0	Fair	Prune-Deadwood	2	Deadwood over trail	Trail between Rochelle Dr. and Bishop Hollow Run

Maintenance Priority

City of Dunwoody





Maintenance Priority Level

Rochelle Dr Deadend Trail

Priority 1

Priority 2

Priority 3

Priority 4

Legend

Roads

Railroads

Parcels

Lakes / Water Features

1 inch = 50 feet

N

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Disk/Instructions

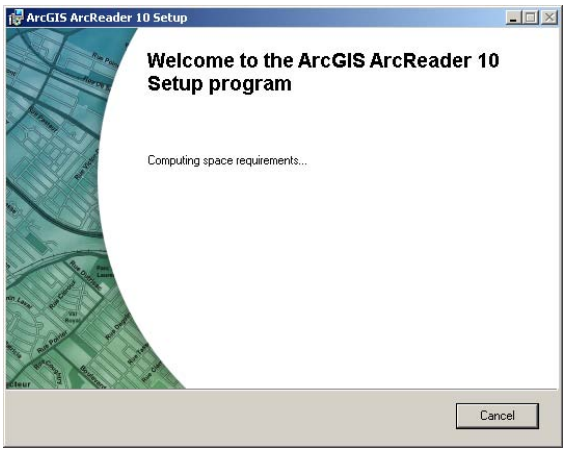
ArcReader 10 Installation Guidelines

Installation and Setup Instructions

ArcReader 10 can be installed from different media options; 1.) Direct download from ESRI at http://www.esri.com/software/arcgis/arcreader/download, 2.) CD or DVD media, 3.) Flash-drive or Thumb-drive.

Installing ArcReader 10 with CD, DVD, or a Flash-drive are all the same procedure. Insert the media into the computer where ArcReader 10 will be installed, open that drive location and double click on setup.exe the icon should appear with a small globe icon as shown.

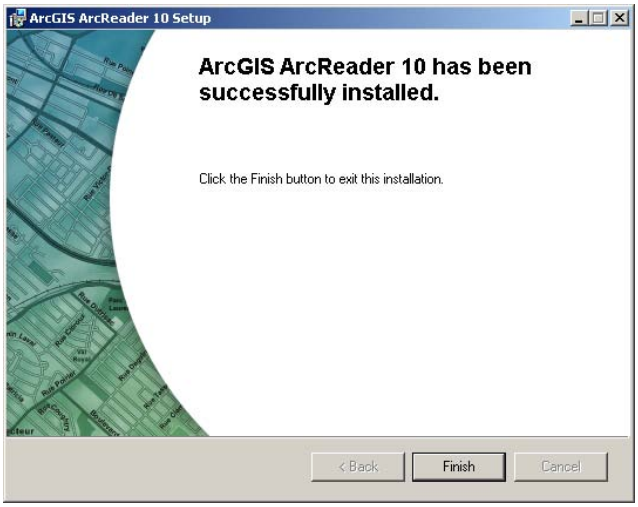
After starting the Setup.exe program you will see the ArcGIS ArcReader 10 Setup dialog box open. The dialog box will compute needed space and then continue into several dialog boxes that offer the user different installation options. To proceed with the standard installation accept the license agreement and continue to choose next through each of the screens accepting all the default choices.



By choosing all of the default settings the setup program will install the ArcReader 10 software in the location listed below:

C:\Program Files\ArcGIS\ArcReader10.0

The installation will take a few minutes to run and it should give you a confirmation that ArcReader 10 has been installed.



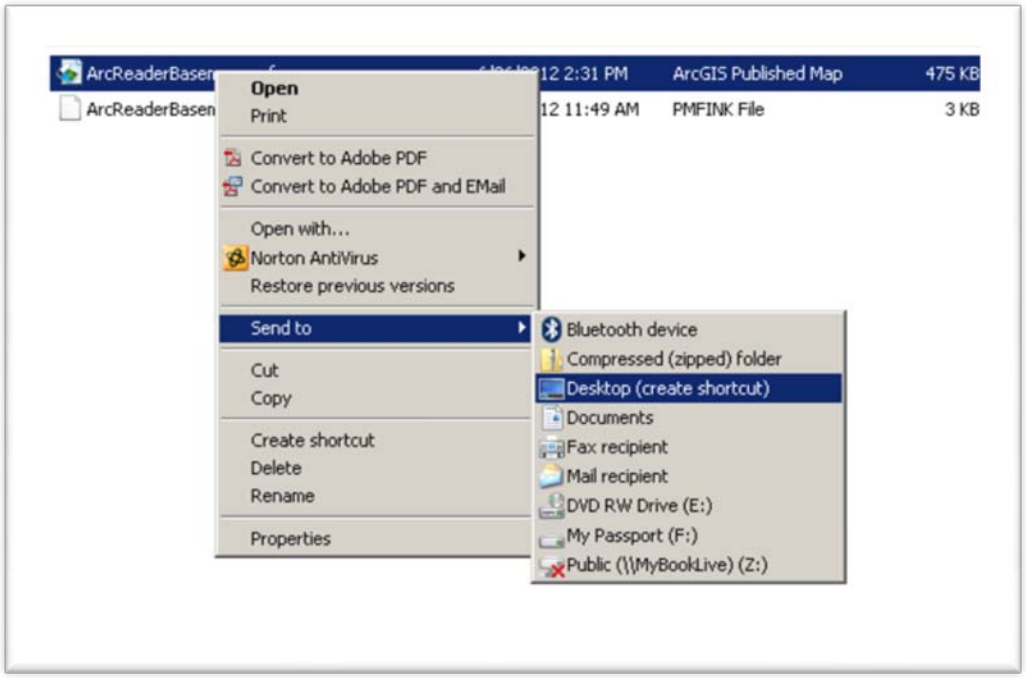
Project Setup

An ArcReader 10 deliverable from Ecological Planning Group will include the software installation as described above as well as the actual project data.

The ArcReader 10 project data will contain two folders as illustrated to the left, those two folders will need to be copied to the computer or a designated location on the network.. Copy both folders to the desired location:

For Example: C:\GIS\ArcReader\
- Or -
N:\GIS\ArcReader\

After both folders have completely copied to the desired location, navigate to the pmf folder and view the contents. Inside the pmf folder there will be a single file. Select this file and right click. In the pop-up menu select Send to then choose Desktop (create shortcut), as shown below.

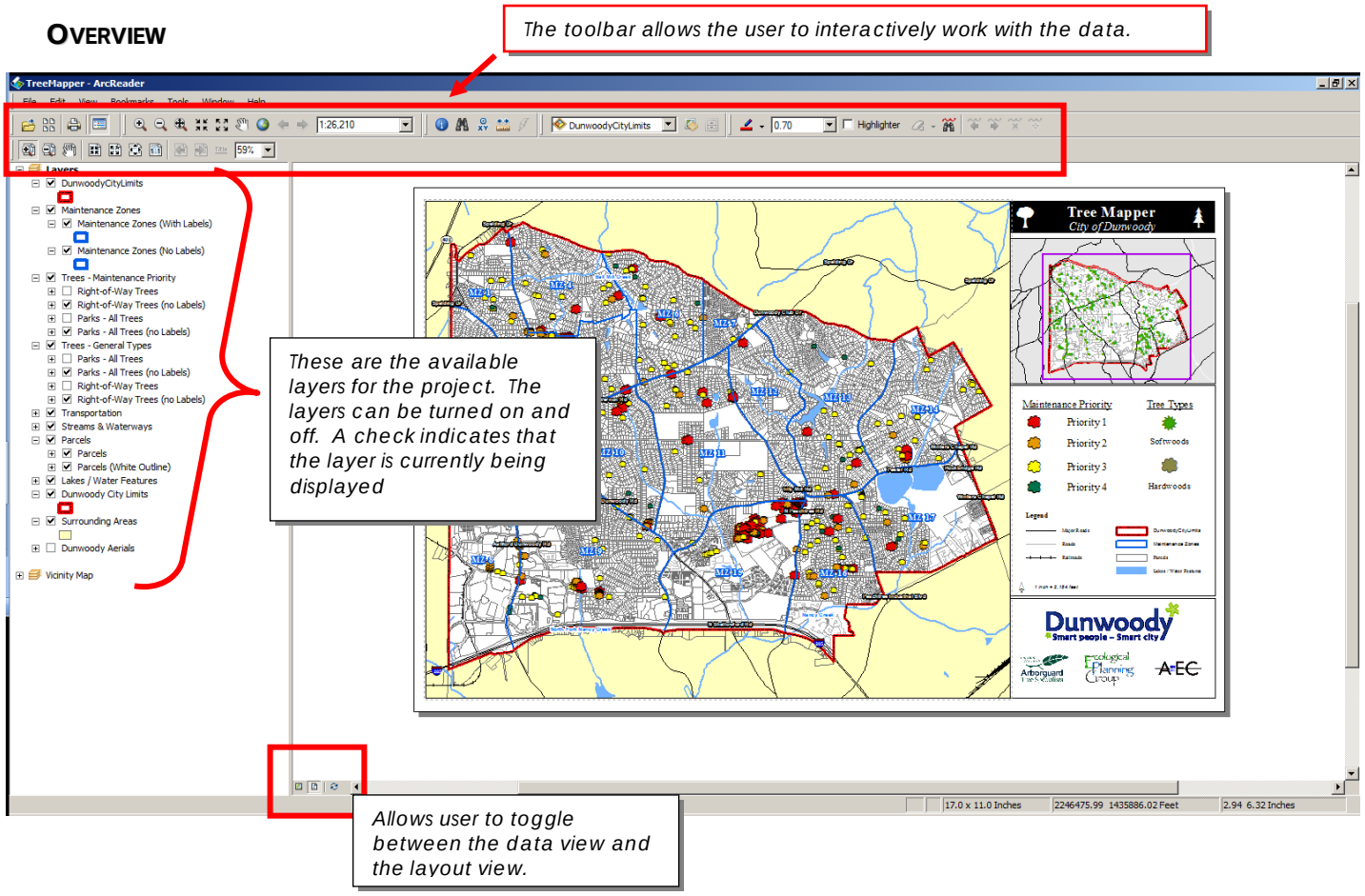


The result of this action will be a link on the desktop that will directly open the ArcReader project in the installed program ArcReader 10.0. For help using ArcReader please see the Arc Reader 10 Guidelines document that was also included in the deliverables.

ARC READER

GENERAL RULES AND GUIDELINES

OVERVIEW



THE NAVIGATION TOOLBAR
(THE NAVIGATION TOOLBAR IS ACTIVE IN BOTH DATA AND LAYOUT VIEWS)

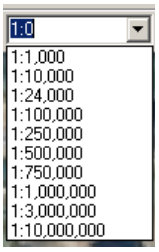
INTERACTIVE ZOOM TOOLS. USER MUST HOLD DOWN LEFT MOUSE BUTTON AND DRAG A BOX IN ORDER TO ZOOM IN/OUT ON THE MAP.

AUTOMATIC ZOOM TOOLS. MAP WILL AUTOMATICALLY ZOOM IN/OUT ONE FRAME AT A TIME WITH EACH CLICK OF THE MOUSE.

PAN TOOL. ALLOWS USER TO MOVE THE MAP AROUND THE DISPLAY AREA WITHOUT CHANGING THE SCALE.

ZOOM TO FULL EXTENT. RETURNS THE MAP TO THE FULL EXTENT. FOR EXAMPLE, IF ZOOMED IN ON A SELECTED AREA, THIS TOOL WILL RETURN THE MAP TO THE FULL CITY OR COUNTY VIEW.

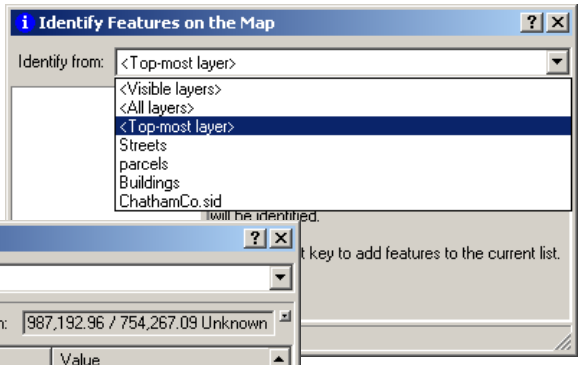
GO BACK/GO NEXT TOOLS. RETURNS USER BACK/FORWARD TO LAST VIEWING EXTENT.



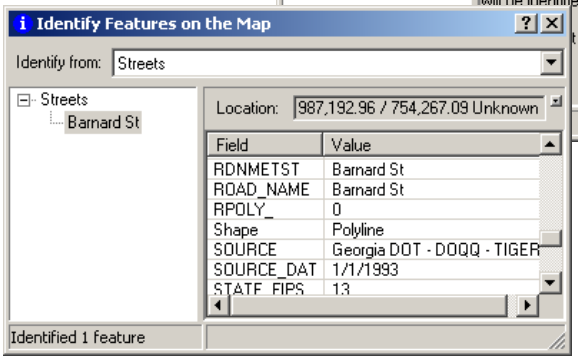
SCALE SELECT TOOL. ALLOWS THE USER TO SELECT SPECIFIC SCALE FROM A DROP DOWN MENU. ONCE THE SCALE IS SELECTED, THE MAP WILL AUTOMATICALLY ZOOM TO THE SELECTED SCALE.

THE DATA TOOLBAR
(THE DATA TOOLBAR IS ACTIVE IN BOTH DATA AND LAYOUT VIEWS)

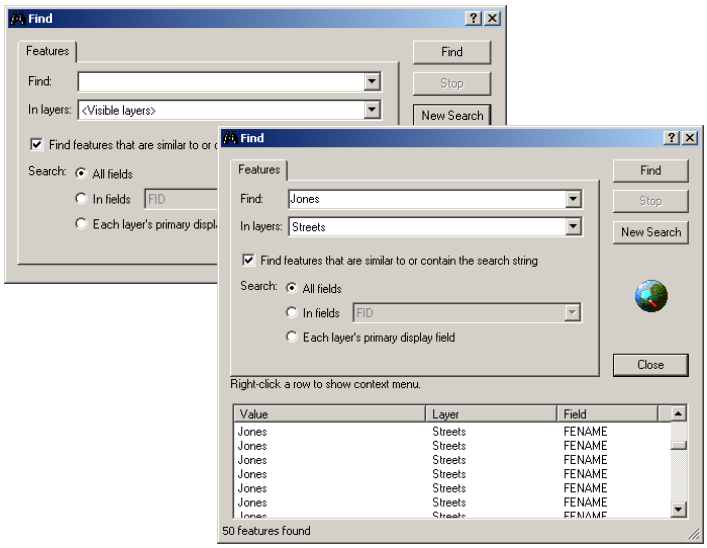
IDENTIFY TOOL. SELECT THIS TOOL AND CLICK A FEATURE ON THE MAP TO DISPLAY ATTRIBUTES ABOUT THE SELECTED FEATURE …



A DIALOG WILL DISPLAY AFTER SELECTING THE IDENTIFY TOOL. THE DROP DOWN LIST CONTAINS ALL LAYERS IN THE VIEW. SELECT THE LAYER YOU WISH TO IDENTIFY FEATURES IN FROM THIS DROP DOWN LIST AND THEN CLICK ON A FEATURE ON THE MAP.



FIND TOOL.



A DIALOG WILL DISPLAY AFTER SELECTING THE FIND TOOL. IN THE LAYERS DROP DOWN LIST, SELECT THE LAYER YOU WISH TO SEARCH (*YOU CAN SEARCH MORE THAN ONE LAYER IF DESIRED).

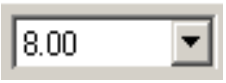
IN THE TEXT LINE LABELED 'FIND', TYPE THE NAME OF THE FEATURE TO SEARCH FOR. IN THIS EXAMPLE, STREETS ARE BEING SEARCHED FOR 'JONES.' ALL RECORDS LOCATED ARE LISTED IN THE BOX AT THE BOTTOM OF THE DIALOG. RIGHT-CLICKING A RECORD IN THE BOX PRESENTS MORE OPTIONS SUCH AS ZOOMING TO THE FEATURE, IDENTIFYING, ETC).

MEASURE TOOL. ALLOWS THE USER TO MEASURE DISTANCES. SELECT THE MEASURE TOOL AND CLICK A PLACE ON THE MAP TO START MEASURING FROM. CLICK THE MOUSE AGAIN TO CREATE A NEW LINE SEGMENT (IE. MAKE A TURN). THE MEASUREMENT OF CURRENT LINE SEGMENT WILL BE DISPLAYED ALONG WITH THE TOTAL DISTANCE. DOUBLE-CLICK THE MOUSE TO FINISH THE MEASUREMENT. (*NOTE – THE LINE AND DISTANCES WILL DISAPPEAR AFTER DOUBLE-CLICKING THE MOUSE). THE MEASURE TOOL IS ALSO CAPABLE OF MEASURING AREAS OR DISTANCES AND THE USER MAY SELECT FROM SEVERAL DIFFERENT UNIT TYPES.

Go To X,Y Tool. Allows user to enter an x,y coordinate, the map will be centered based on the coordinate.

THE MARKUP TOOLBAR
(THE MARKUP TOOLBAR IS ACTIVE IN BOTH DATA AND LAYOUT VIEWS)

THE PEN TOOL. ALLOWS USER TO SKETCH OR WRITE DIRECTLY ON THE MAP OR LAYOUT. THE PEN TOOL IS NOT PERMANENT AND IT IS NOT SAVED WHEN THE PROJECT IS SAVED. THE USER CAN EXPORT THE MAP TO A PDF AND THE RESULTS OF THE PEN TOOL WILL ALWAYS BE IN THE PDF VERSION. THE SMALL BLACK ARROW NEXT TO THE PEN TOOL ALLOWS THE USER TO CHOOSE THE COLOR OF THE PEN WHILE USING THE PEN TOOL.



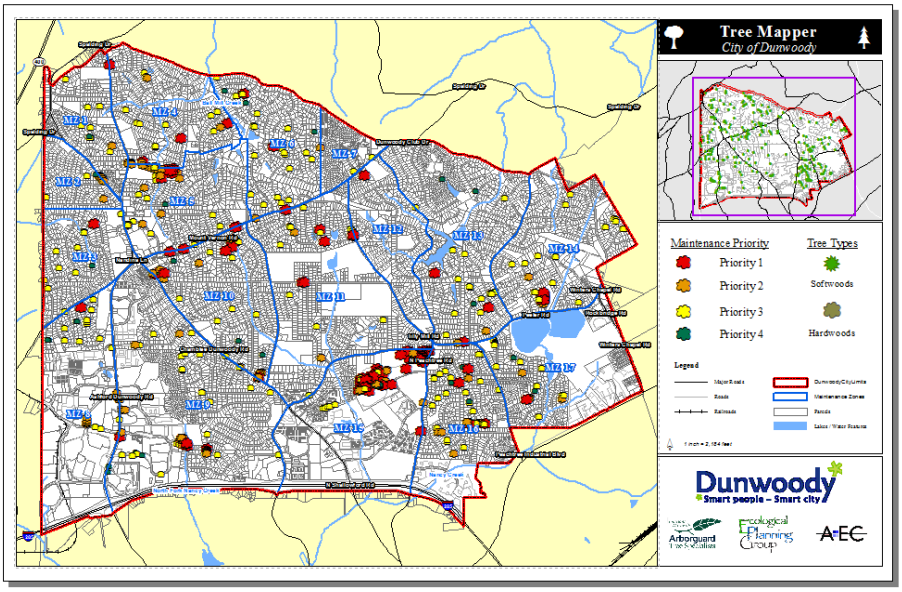
THE CHANGE MARKUP WIDTH TOOL. THIS DROPDOWN ALLOWS THE USER TO QUICKLY CHANGE THE WIDTH OF THE PEN TOOL, THE LOWER THE NUMBER THE THINNER THE LINE.

THE HIGHLIGHTER CHECKBOX. THIS CHECKBOX TOGGLES BETWEEN A SEMI-TRANSPARENT LINE AND AN OPAQUE LINE. IF HIGHLIGHTER IS SELECTED THE USER WILL BE ABLE TO SEE MAP FEATURES THROUGH THE LINE, IF IT IS NOT SELECTED THE PORTION OF THE MAP BEHIND THE LINE WILL BE BLOCKED OUT.

THE ERASER TOOL. THIS TOOL ALLOWS THE USER TO DELETE ANY MARKS CREATED WITH THE PEN TOOL. THIS TOOL ALSO HAS A SMALL BLACK ARROW BESIDE IT THAT ALLOWS THE USER TO CHOOSE HOW THICK OF A SWATH THE ERASER SHOULD USE.

THE LAYOUT

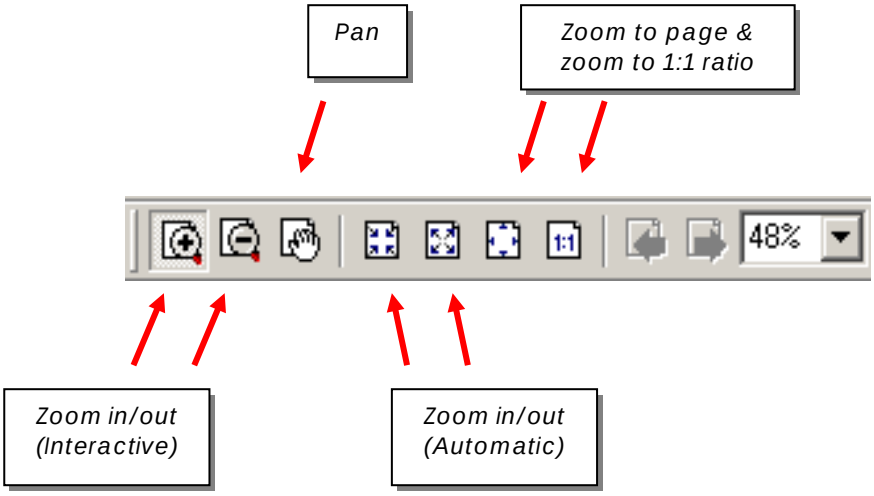
THE LAYOUT VIEW IS SET UP TO LOOK LIKE A PIECE OF PAPER AND PROVIDES A NICER MAP FOR PRINTING. IT WILL INCLUDE THE LEGEND, NORTH ARROW, TITLE, ETC.



THE LAYOUT TOOLBAR

THE TOOLS IN THE LAYOUT TOOLBAR ARE SIMILAR TO THOSE ON THE MAIN TOOLBAR. HOWEVER, THE SELECTED OPERATION WILL ONLY BE PERFORMED ON THE 'PIECE OF PAPER.' FOR EXAMPLE, USING THE ZOOM IN TOOL FROM THE LAYOUT TOOLBAR WILL ONLY ZOOM IN TO THE SELECTED SPACE ON THE PIECE OF PAPER AS OPPOSED TO ZOOMING IN TO THAT AREA ON THE MAP.

* NOTE: TOOLS FROM THE MAIN TOOLBAR CAN STILL BE USED WHILE IN THE LAYOUT VIEW.



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Email: ed@ecologicalplanning.net