

BOROUGH OF GLEN RIDGE

Community Forest Master Plan

DECEMBER 15, 2014

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Cover Image: *Glen Ridge Shade Tree Commission, Spring 2014*
Photo Contest taken by resident Iris Orellana on Clark Street

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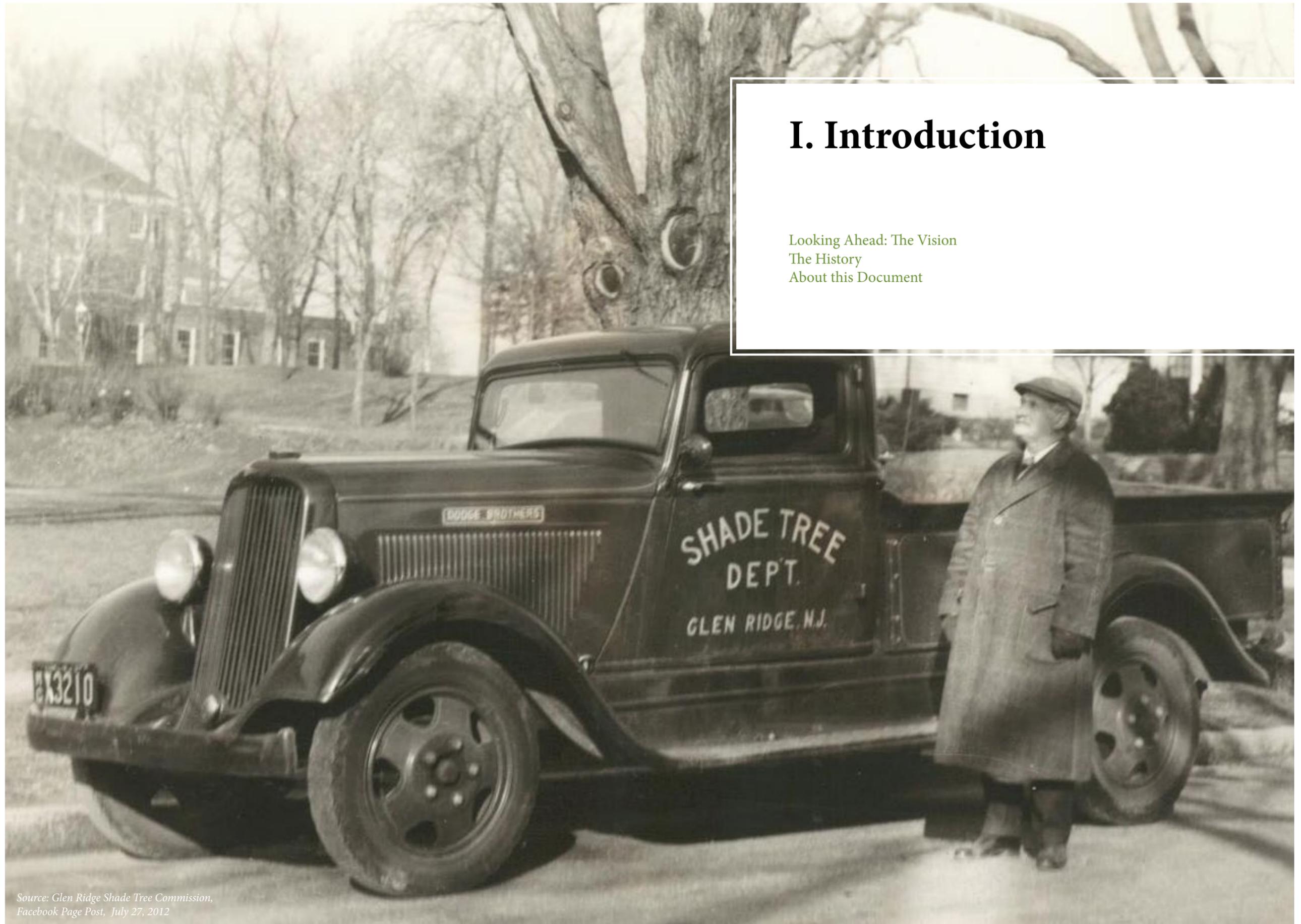
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I. Introduction

Looking Ahead: The Vision
The History
About this Document

“The time has come when we should understand that skill and foresight should control what is so frequently left to chance; that there is real art in the making of a town; and that it behooves this generation to master and practice it.”

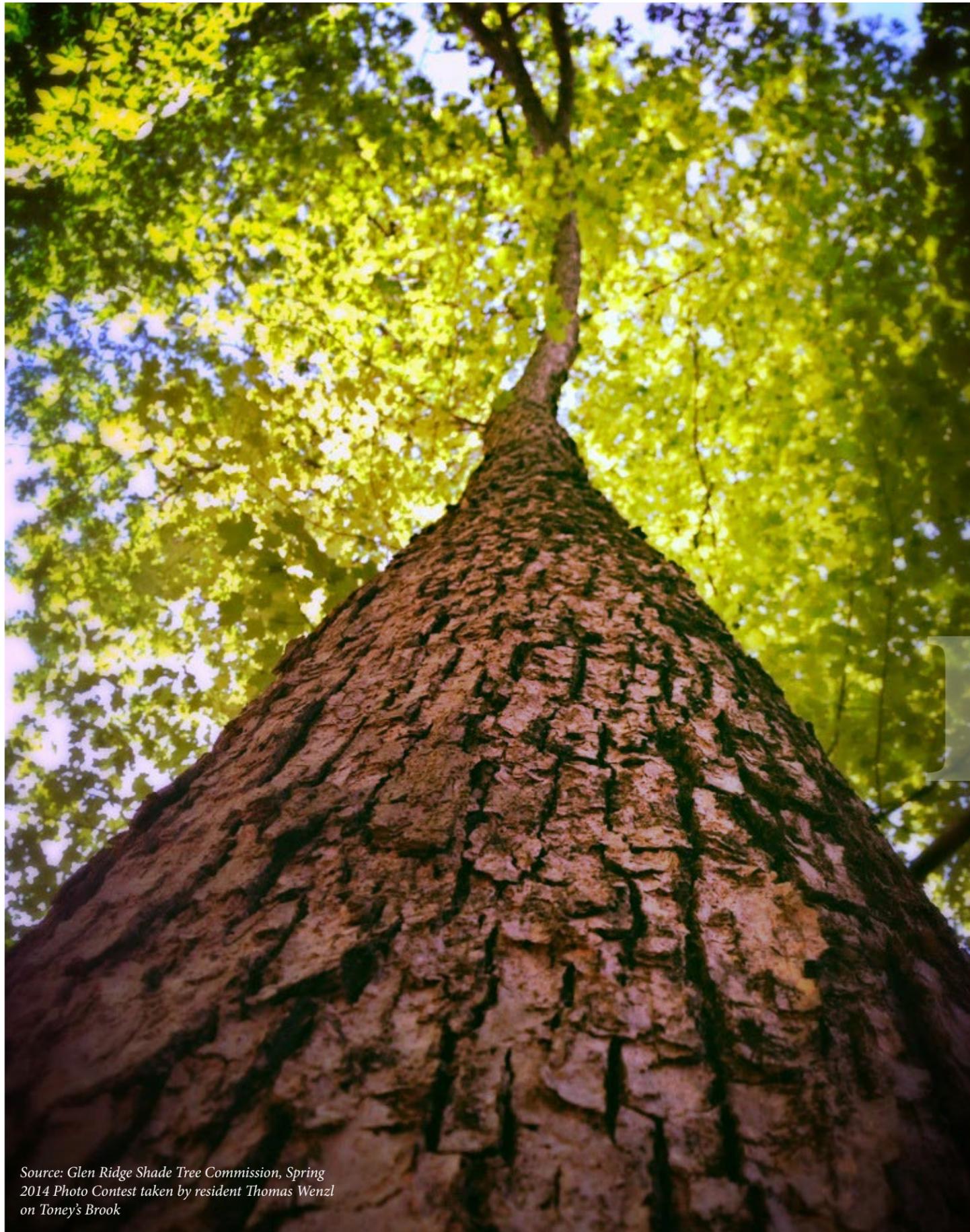
~Publication Committee,
Glen Ridge: The Preservation of Its Natural Beauty and Its Improvement as a Place of Residence, 1909.



Source: Glen Ridge Shade Tree Commission,
Facebook Page Post, July 27, 2012

“Glen Ridge has added much by an enlightened public policy and united civic spirit that are seldom found in such a highly developed form in so small a place. Foresight, generous public expenditure and wisdom have given to the present generation and insured to the future certain public advantages of great value.”

~John Nolen, Landscape Architect, 1909



Source: Glen Ridge Shade Tree Commission, Spring 2014 Photo Contest taken by resident Thomas Wenzl on Toney's Brook

Looking Ahead: The Vision

“The public shade trees of Glen Ridge are the community’s heritage and responsibility. The Shade Tree Commission is charged with developing a flexible strategic plan, practical goals and defined steps to ensure that shade trees are planted, maintained and monitored over time. This commitment to healthy trees represents a long-term investment in the beauty, biodiversity and historic character of Glen Ridge.

The Glen Ridge community forest is one of the Borough’s greatest assets. The trees have gone from a pleasant Borough wide amenity to an environmental imperative in this time of climate change. The nearly 3,700 trees that line our streets serve many important functions including cleaning the air we breathe, shading our streets, cooling our homes, slowing stormwater run-off and adding to property values among other benefits. Yet, this valuable asset is in decline with nearly 60 trees dying and being removed each year. Faced with an aging tree population, a Maple dominant monoculture subject to pests and disease related problems, and severely constrained planting strips between the road and sidewalks, we face a sizable challenge to ensure that the beauty of Glen Ridge is maintained for future generations.” (Glen Ridge Shade Tree Commission)

Goals

The Glen Ridge Community Forest Master Plan outlines recommendations for protecting one of Borough’s greatest assets. In particular, this document addresses the following goals for the management of public shade trees in Glen Ridge.

1. To preserve the Borough’s historic character by planting and caring for its public shade trees [Refer to pg 31]
2. Identify, celebrate and preserve unique street trees and stands of historic trees as “Heritage Trees” [Refer to pg 33]
3. To define gateway streets and intersections through the use of specialized and well-maintained ornamental planting designs for these areas [Refer to pg 35]
4. To develop rules, standards and strategies for shade tree plantings and maintenance in order to expand the tree canopy throughout the Borough [Refer to pg 37]

The Background

Since the Borough was founded in 1895, the residents of Glen Ridge have recognized the value of establishing and maintaining an urban forest around their homes, businesses, and public infrastructure. Early residents endeavored to establish Glen Ridge as the ideal residential community. The founders envisioned a community built around the concept of creating a “residential park”. The urban forest was considered one of the standard municipal services. This, in addition to a planned pattern of growth, ensured that the Borough of Glen Ridge would remain a highly desirable place to live. Many of the stately street trees soaring over the Borough’s streets and sidewalks today are a direct result of the pursuit of this ideal.

The History of Glen Ridge Shade Trees

In 1909, a small group of residents contracted John Nolen, an esteemed Landscape Architect and Planner, to develop recommendations for the design and future planning of Glen Ridge. Nolen had become known for his work in town planning, especially in locations that possessed and hoped to maintain rural or pastoral characteristics. In Nolen’s 1909 report, *Glen Ridge: The Preservation of its Natural Beauty and its Improvement as a Place of Residence*, he recommended that Glen Ridge pursue thirteen initiatives in order to actively plan for the future and avoid mistakes that he felt plagued other municipalities as they grew. One of

the thirteen initiatives that Nolen suggested was the creation of a Shade Tree Commission that would guide the planting and maintenance of the Borough’s street trees. This recommendation was derived from the physical characteristics the Borough, in particular, the majestic street trees which so essentially complimented the “museum-like quality” of the town: its architecture, cobblestone gutters, slate sidewalks, large shade trees and period gas street lamps.

On February 14, 1910, the Glen Ridge Borough Council officially established a Shade Tree Commission consisting of three residents: M.T. Baldwin, M.B. Colson and H.E. Davis. At the same time, the Council also allocated a total of \$250 for tree trimming. In 1911, the Commission proposed the Borough’s first Shade Tree Ordinance, and it was approved by the Council in May of the same year. The Ordinance set forth terms and conditions for the planting, care and maintenance of street trees as well as trees in the Borough’s public parks. In 1914, the Commission conducted the Borough’s first shade-tree census. The census identified a total of 3,738



Figure 1. Nolen’s suggestion for a tree-lined, “Rural Store Center” near Bloomfield Avenue, as presented in his report, *Glen Ridge: The Preservation of its Natural Beauty and its Improvement as a Place of Residence*.

trees in the public right of way. Each tree was valued at approximately \$30, amounting roughly to a total of \$120,000. Mr. Alfred Gaskill, the New Jersey State Forester, stated that, at the time, the Borough possessed a significant number of well-established and well-developed trees, unusual when compared with other communities in the State. Furthermore, Gaskill applauded the Borough for its valuation of public trees, as it was higher than any other community’s tree census results submission (Glen Ridge Historical Society, 2012).

The Shade Tree Commission

In 1941, the Shade Tree Commission was replaced by a Shade Tree Division in the Department of Public Works. The latter was then eliminated in the 1960’s due to financial reasons. At that point, the Borough Council assumed responsibility for street trees and continued management until the second commission was appointed in 2010. In November of that year, the commission was created and accepted expanded roles and responsibilities. The current Shade Tree Commission, a five-member body, is charged with developing a flexible strategic plan, practical goals and methods to ensure that shade trees are planted, maintained and monitored over time. This commitment to healthy trees represents a long-term investment in the beauty, biodiversity and historic character of Glen Ridge (Glen Ridge Historical Society, 2012).

Tree City, USA

From 1999 to the present, Glen Ridge has been consistently listed as an Arbor Day Foundation “Tree City USA” Community (Arbor Day Foundation). To qualify, communities must have a tree board or department, a tree ordinance, a community forestry program with a minimum budget of \$2 per capita, and an Arbor Day observance or proclamation. The Tree City USA program provides direction, assistance, and national recognition to communities by supporting the framework for a sustainable urban forest. The Borough and its Shade Tree Commission are committed to maintaining this designation as a source of community pride for future generations.

About This Document

The Shade Tree Commission developed the Community Forest Master Plan to establish a strategy for preserving and expanding street trees in Glen Ridge. This plan was developed as a direct result of the Glen Ridge Sustainability Plan Element of the Master Plan Re-Examination Report and the street tree inventory conducted by the Borough in 2011 and updated in 2013. This document is not intended to be an all inclusive assessment of the existing tree stock. Instead, it should be used as a guide to understanding the general conditions of the community forest - and the steps that should be taken to maintain and expand it. The Borough has committed to funding the installation of 1,000 new trees over the upcoming 5-year period between 2014 and 2019. This document is geared specifically towards the planting of these 1,000 trees, but is also intended to be a planting guide for many years beyond that. It is recommended that the Street Tree Inventory be updated annually and this document be revisited every four years as the conditions within the community evolve. The policies and strategies set forth in this document should be reviewed for their effectiveness in addressing the goals set forth on page 7 and the results and trends identified in the Street Tree Inventory.

Relationship to Other Documents

The 2003 *Glen Ridge Master Plan* and the 2010 *Glen Ridge Master Plan Re-Examination Report* provide a guide for future development and preservation of key areas of the community in order to enhance its quality of life. The plans strive to maintain and build upon the positive characteristics of Glen Ridge and provide a framework to meet the challenges of planning into the future. The 2010 *Master Plan Re-Examination Report* mentions shade tree management. The report suggests that the Borough maintain and manage street trees on an intergenerational life cycle basis and ensure that each

street tree planting space is utilized by tree planting. The report also notes that Toney's Brook and the Glen should remain in their natural state. The re-examination report was officially adopted by the Borough of Glen Ridge on July 21, 2010.

The Sustainability Plan Element of the 2010 Master Plan Re-Examination Report offers guidance on the street trees of Glen Ridge. First and foremost, it warns that the Borough's street trees are in critical condition. It estimates that Glen Ridge will lose most of its Maples as well as its mature Oak population along Ridgewood Avenue by 2015. The plan recommends establishing a more aggressive tree management plan with the following elements:

- Inventory the location, variety and condition of each street tree;
- Preserve streetscapes by sustaining mature trees while planting for age and biodiversity;
- Maintain the Borough's "Approved Status" in the DEP's Community Forestry Program;
- Plant a tree for every tree removed as soon as practical;
- License tree-service companies and landscapers to better monitor unwarranted and reckless damage to street trees;
- Encourage residents to take stewardship over the street trees planted in front of their houses;
- Promote tree planting on private property;
- Educate residents on the environmental importance of trees;
- Inform residents on methods for promoting tree growth with irrigation.



Figure 2. Trees of diverse ages at Mead Terrace and Highland Avenue. Photo from Shade Tree Commission's 2013 Fall Photo Contest taken by resident Iris Orellana on Mead Terrace.



II. The Legacy We've Inherited

Impact of Shade Trees on Glen Ridge
Condition of Existing Shade Trees
Species Diversity
Tree Sizes
Grow Space and Condition
Challenges To Overcome

“The true meaning of life is to plant trees, under whose shade you do not expect to sit.”

~Nelson Henderson

Source: Glen Ridge Shade Tree Commission, Fall 2013 Photo Contest taken by resident Timothy Delorm on Hamilton Road

Impact of Shade Trees on Glen Ridge

Shade trees in Glen Ridge provide a number of environmental, economic and social benefits, but more importantly, they define the character of this community. The Borough's current Shade Tree Commission recently undertook a census of public street trees in Glen Ridge, documenting each tree's species, diameter at breast height (DBH), condition, and planting context. Just over 3,000 trees were inventoried. According to a replacement value analysis run by i-Tree Streets, the combined value of Glen Ridge's public street trees is approximately \$19.5 million.

Social Benefits

Shade trees create a more comfortable environment for the residents of Glen Ridge. Studies have shown that trees encourage individuals to linger and spend more time outside. In a residential community like Glen Ridge, this creates more opportunities for neighbors to interact outdoors. Furthermore, as more pedestrians are present on the streets, there tends to be an increased feeling of neighborhood safety. This is most evident on Ridgewood Avenue where the substantial canopy shades the routes of many joggers, walkers and cyclists.

Environmental Benefits

During summer months, trees can block up to 90% of the sun's energy from reaching the ground below. They provide shade from direct sunlight and mitigate the influence of Northern New Jersey's urban heat island effect. Trees are also noted for improving air quality, producing oxygen and sequestering carbon. An "i-Tree Air Quality Analysis" estimates that Glen Ridge's trees sequester 1,897 pounds of O₃ (ozone gas), 812 pounds of NO₂ (Nitrogen Dioxide), 943 pounds of PM₁₀ (particulate matter) and 309 pounds of SO₂ (sulfur dioxide), as well as over 925,000 pounds of CO₂ each year. Furthermore, large trees can store over 100 gallons of rainwater, reducing stormwater runoff. According to an "i-Tree Stormwater Report", Glen Ridge's street

trees intercept approximately 6.8 million gallons of stormwater each year, reducing impacts on the Borough's sewer system.

Economic Benefits

Glen Ridge's tree-lined streets help make the Borough one of the most desirable communities in Northern New Jersey. Studies have shown that home values near mature street trees are higher than those in areas where there are none. Furthermore, trees shade adjacent buildings, naturally cooling them in hot months, decreasing energy consumption and saving consumers money.

The overall return on a municipality's street tree investment can be significant. For example, nearby New York City's recent tree expansion campaign estimates that there is a \$5.60 return for every dollar spent on tree planting and care (MTNYC). Considering the savings from energy reductions, CO₂, air quality, stormwater and aesthetic benefits, an i-Tree benefits report estimates that each Glen Ridge street tree averages approximately \$160 per tree in gross savings per year, a total of \$500,000 for all trees combined.



Figure 2. A hawk soars above the trees. Photo from Shade Tree Commission's 2014 Winter Photo Contest by resident Dina DeShan.

Condition of Existing Shade Trees

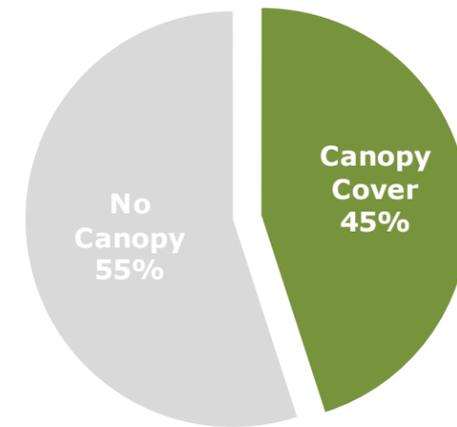
The percentage of land area that is covered by tree canopy in full-leaf situations versus the percentage of land area that is uncovered of tree canopy, is often used by towns and cities to evaluate the condition of the urban forest. Approximately forty-five percent of Glen Ridge's land area is covered by tree canopy, a number that is well above the average for cities and towns across the country. For example, New York City has a canopy coverage of 21%. Philadelphia's land is 20% covered by canopy. Washington, D.C. has 36% coverage. Pittsburgh's coverage is close to Glen Ridge's at 42% (National Geographic). Nearly one-quarter (22%) of the Borough's canopy cover comes from trees that shade the public right-of-way, such as streets and sidewalks. The remainder comes from trees that are outside of the right-of-way including private properties and public spaces such as parks.

Gaps in Canopy Coverage

There are opportunities to expand the Borough's canopy coverage within the public right-of-way. Figure 3 illustrates an analysis of small, medium and large gaps in the Borough's canopy cover along public streets and sidewalks. Gaps in canopy cover are likely to indicate that street trees do not exist in that location. However, in some cases, young trees may exist and have not yet established a canopy spread sufficient to shade the sidewalk and/or street. For that reason, Figure 3 also identifies individual trees, classified by size (DBH, see page 20). This helps determine if gaps in canopy cover are related to a lack of street trees, or simply young street trees that have not yet become established.

Portions of Washington Street, Benson Street, Bay Avenue, Sunset Avenue, Harvard Street, Yantecaw Avenue, Watchung Avenue, and Wildwood Terrace have been identified as streets with considerable gaps in canopy coverage and areas where existing street trees do not exist. These areas are shown in red. Streets with gaps that are less significant have been indicated using orange and yellow. Once these gaps were identified, a phased 5-Year Planting Strategy was developed (Refer to page 48). The Glen Ridge Canopy Cover Analysis and 5-Year Planting Strategy were provided to the Borough as a supplement to this report in both Large Format and digitally (.PDF).

45% Overall Canopy Coverage



22% of the Borough's canopy coverage comes from its street trees.

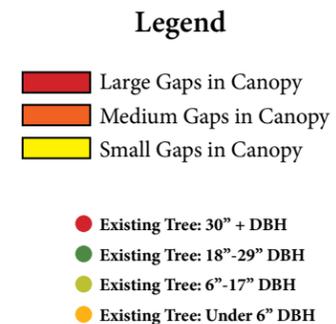


Figure 3. Glen Ridge Canopy Cover Analysis

Species Diversity

The 2012 inventory of publicly-owned street trees registered the location, species, size, planting context and condition of 3,069 trees located with the public right-of-way. The locations of trees were identified by latitude and longitude coordinates, and then mapped using a Geographical Information Systems (GIS). The inventory was updated in 2013 and the number of trees registered was reduced to 2952. It is assumed that this reduction was due to the impacts from two major storms.

Maple and Oak trees dominate the public urban forest in Glen Ridge. Collectively they comprise over 60% of the Borough's trees. Maple, Oaks, Planetrees and Cherry trees, the top four most common families (Aceraceae, Fagaceae, Platanaceae and Rosaceae), account for over 75% of the shade trees in Glen Ridge. Furthermore, there is little species diversity within the top families. Red, Sugar and Norway Maples comprise over 90% of all Maples (and nearly 40% of all trees). Pin Oaks dominate the Oak family and comprise just over 85% of all oaks.

The probability that Glen Ridge will lose its mature Red Oaks by 2015 is a special concern flagged in the Sustainability Element of the Master Plan. Red Oaks have certainly declined since the early 1900s. According to the Glen Ridge Historical Society, one of the first plantings managed by the founding Shade Tree Commission consisted of 224 Red Oaks on Ridgewood Avenue north of Bay Street. Today, only 37 Red Oaks in total remain in Glen Ridge. Of the 37, approximately 20 are extremely mature trees (>18" DBH). The remaining 17 Red Oaks were planted more recently and are younger in age.

Top 10 Species

Over 50 different species of street trees were identified in Glen Ridge and recorded in the adjusted 2013 inventory. The top 10 species, account for 80% of all street trees in the Borough. And, as mentioned, the majority of the Borough's trees are Pin Oak, Red Maple, Sugar Maple, Norway Maple, or London Planetrees. Figure 4 identifies the locations of all street trees in Glen Ridge, and illustrates by color the locations of the top 10 tree species in the Borough.

10 tree species comprise 80% of all street trees in Glen Ridge.

Top 10 Species (● = 50 Trees)

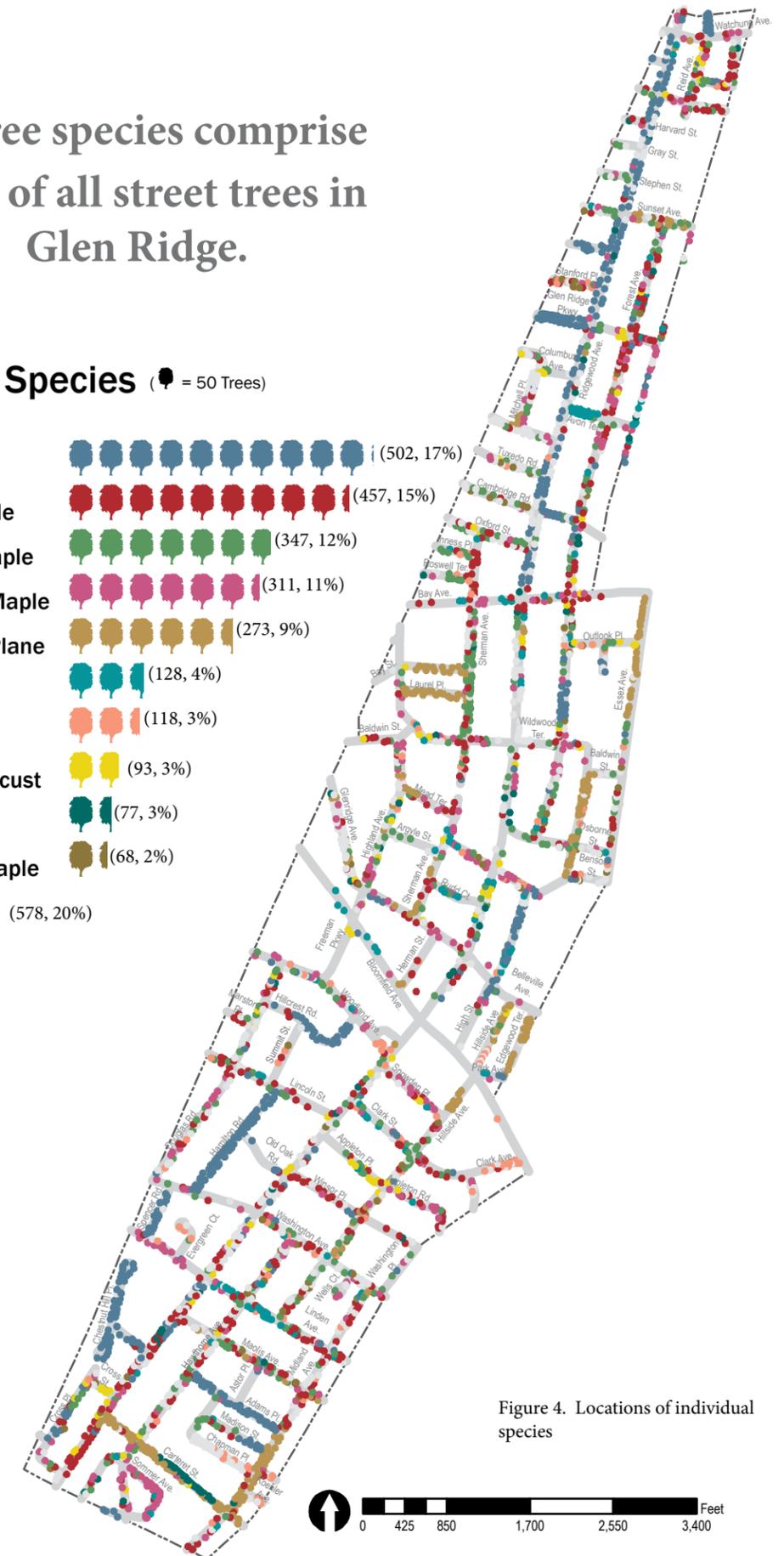
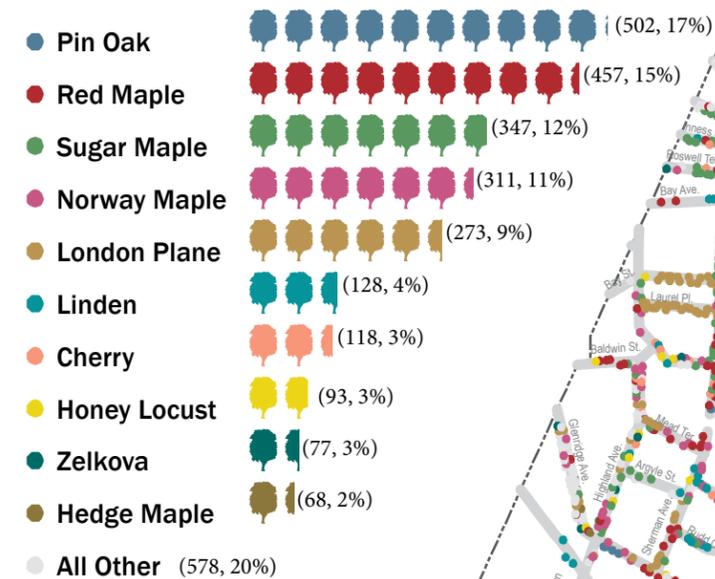


Figure 4. Locations of individual species

Tree Sizes

The 2013 tree inventory measured the diameter at breast height (DBH) of each individual street tree in Glen Ridge. For the purpose of this plan, the DBH sizes have been broken down into four classes, <6" DBH, 6" to 17" DBH, 18" to 29" DBH and 30" and over DBH. While the data collected suggested that the range of tree sizes appear to be evenly distributed across each of the four classes, there is a perception and appearance that the streets have either very large or very small street trees.

Over 60% of street trees in Glen Ridge are small or mid-sized trees that are under 18" DBH. They appear to be well distributed throughout the Borough, except when in the presence of much larger trees. Trees over 30" DBH tend to be clustered together along specific streets or sections of streets. The shade created by large trees make establishing smaller trees challenging as large trees shade out smaller ones. These stands of large trees can be easily identified by clusters of red points in Figure 6.



Figure 5. Picture series of several different trees representing DBH size classes in Glen Ridge

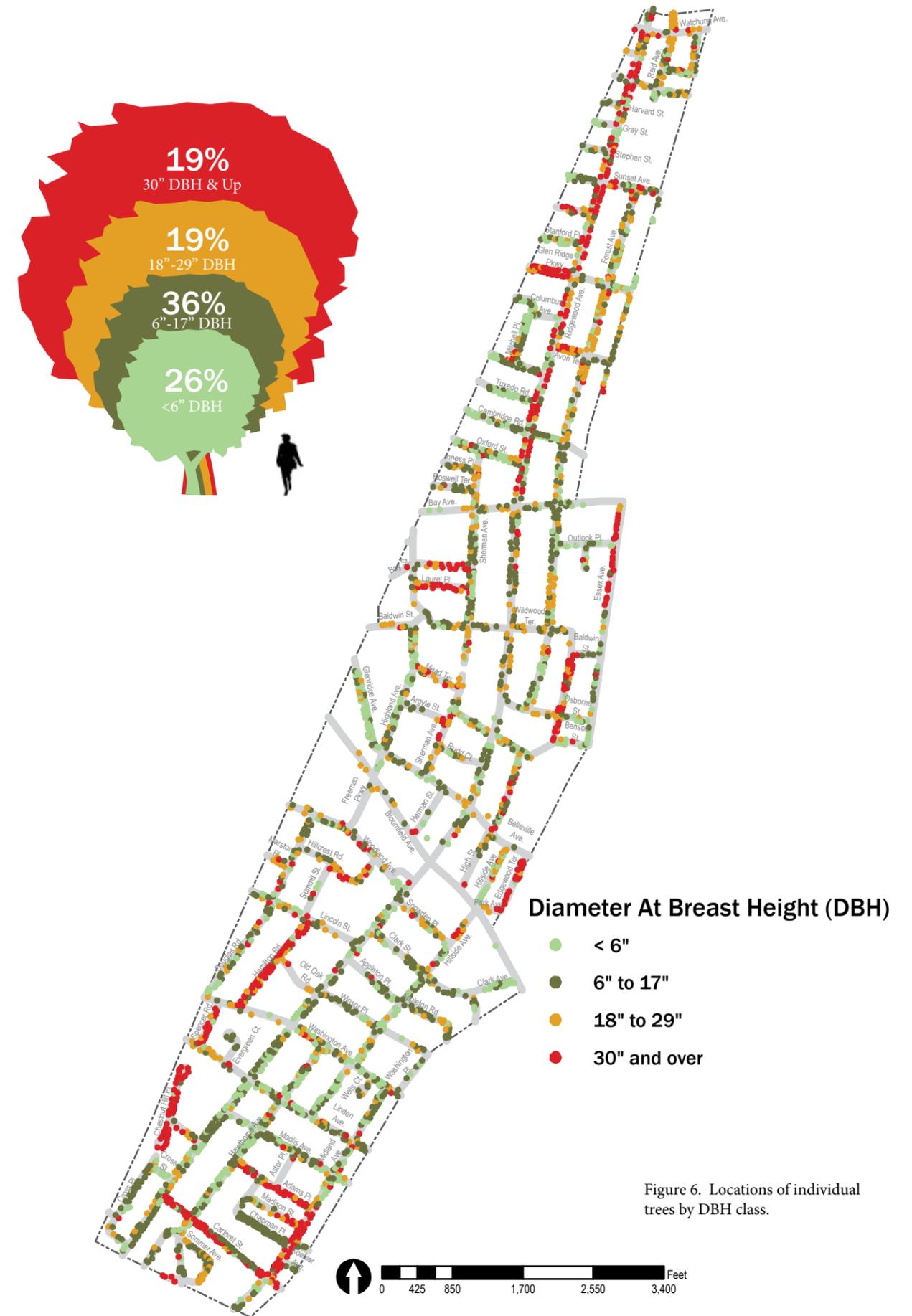


Figure 6. Locations of individual trees by DBH class.

Historically Significant Tree Stands

Throughout the Borough, there are a number of streets that have stands of large shade trees, with DBH measurements 30 inches and greater (Figure 6). These striking historic tree stands are one of the most notable features of the Borough's historic character. The effect created by these stately trees is reminiscent of a cathedral's buttressed and vaulted ceiling. The stands contribute significantly to the canopy coverage in their locations and provide dense shade. The notable stands are located at Adams Place, Carteret Street, Chestnut Hill Place, Clinton Road, Essex Avenue, Glen Ridge Parkway, Hamilton Road, Hathaway Place, High Street, Laurel Place, Madison Street, Midland Avenue, Ridgewood Avenue, Spencer Road, and Stanford Place (Figure 7). These stands are located within six general areas as listed below. In most cases, these trees have outgrown the planting area and have heaved the sidewalk, cracked the curbs and have encroached upon the stone gutters. Many of these trees may be nearing the end of their life cycle and require special care if they are to remain. Further, a strategy for interplanting the next generation of trees should be established.



1. Ridgewood Avenue

Large and stately Pin Oaks, primarily between Prescott Street and Bay Avenue, characterize Ridgewood Avenue. Sugar Maples on the northern reaches of the avenue and Norway Maples at cross street intersections are also common. The width of planting strips are generous, averaging approximately seven feet wide. Because it is a primary thoroughfare and has become a much celebrated symbol of Glen Ridge, maintaining stands along this street is of particular importance.



2. Eastern Border

Essex Avenue, Clinton Road and High Street comprise a significant tree stand along the eastern edge of Glen Ridge. Essex Avenue and Clinton Street are characterized by large London Planetrees and narrow planting strips, averaging approximately 3.5 feet wide. High Street consists of Pin Oaks. The planting strips on High Street average 4.5 feet wide.

3. Southern Border

Adams Place, Madison Street, Midland Avenue and Carteret Street make up the historic stands in the southern neighborhoods. Adams Place is planted with Pin Oaks and Carteret Street is lined with London Planetrees. Madison Street includes a mix of Pin Oaks, Red Maples and Sugar Maples. Midland Avenue is characterized by London Planetrees. The streets have similar planting conditions that range from 5-6 feet wide. Carteret Street has one of the longest and most significant stands of Plane Trees in the Borough, with the exception of recently planted Zelkova trees that line the edge of Carteret Park.



4. Western Edge

Chestnut Hill Place, Spencer Road and Hamilton Road claim the western edge of the Borough. Each of these streets is lined with Pin Oaks. Both Chestnut Hill Place and Spencer Road have planting strips averaging from 4.5 to 5 feet. Hamilton Road, though, contains a mixture of planting strip sizes, with the majority measuring less than 4 feet in width.

5. Hathaway Place And Laurel Place

Hathaway and Laurel Place are dominated by London Planetrees. The majority of planting strips on both of these streets average 4.5 feet in width.

6. Glen Ridge Parkway And Stanford Place

With planting strips that range from 5' to 5.5' wide, Glen Ridge Parkway is dominated by Pin Oaks, while Stanford Place has a mixture of species with few large and medium-sized trees.



“Never say there is nothing beautiful in the world anymore. There is always something to make you wonder in the shape of a tree, the trembling of a leaf.”

~Albert Schweitzer



Source: Glen Ridge Shade Tree Commission, Winter 2014 Photo Contest taken by resident Karin Robinson on Ridgewood Avenue.

Challenges to Overcome

Despite the historical importance of shade trees in Glen Ridge and the well established tree canopy, there are significant challenges to overcome to ensure that future generations enjoy this amenity.

- The lack of a defined planting strategy has left many of the streets with inconsistent and somewhat random planting patterns. This approach threatens the Borough's historic "park-like" character.
- Some residents have developed an aversion to large shade trees or planting new shade trees near their homes after recent storms such as Hurricane Irene and Hurricane Sandy.
- A significant population of large shade trees are reaching the end of their life cycle. Dense shade cast by these trees make planting between these trees to establish the next generation of shade trees a challenge.
- The heavy planting of single species has left an Oak and Maple dominant landscape throughout the Borough.
- Narrow planting strips along the roads leave limited space for shade trees. Additionally, many large shade trees have outgrown their planting strip and are damaging adjacent curbs and sidewalks.



III. Continuing This Legacy

- Maintaining the Historic Character
- Celebrating Heritage Trees
- Highlighting Gateways Streets and Intersections
- Guiding Future Shade Tree Planting

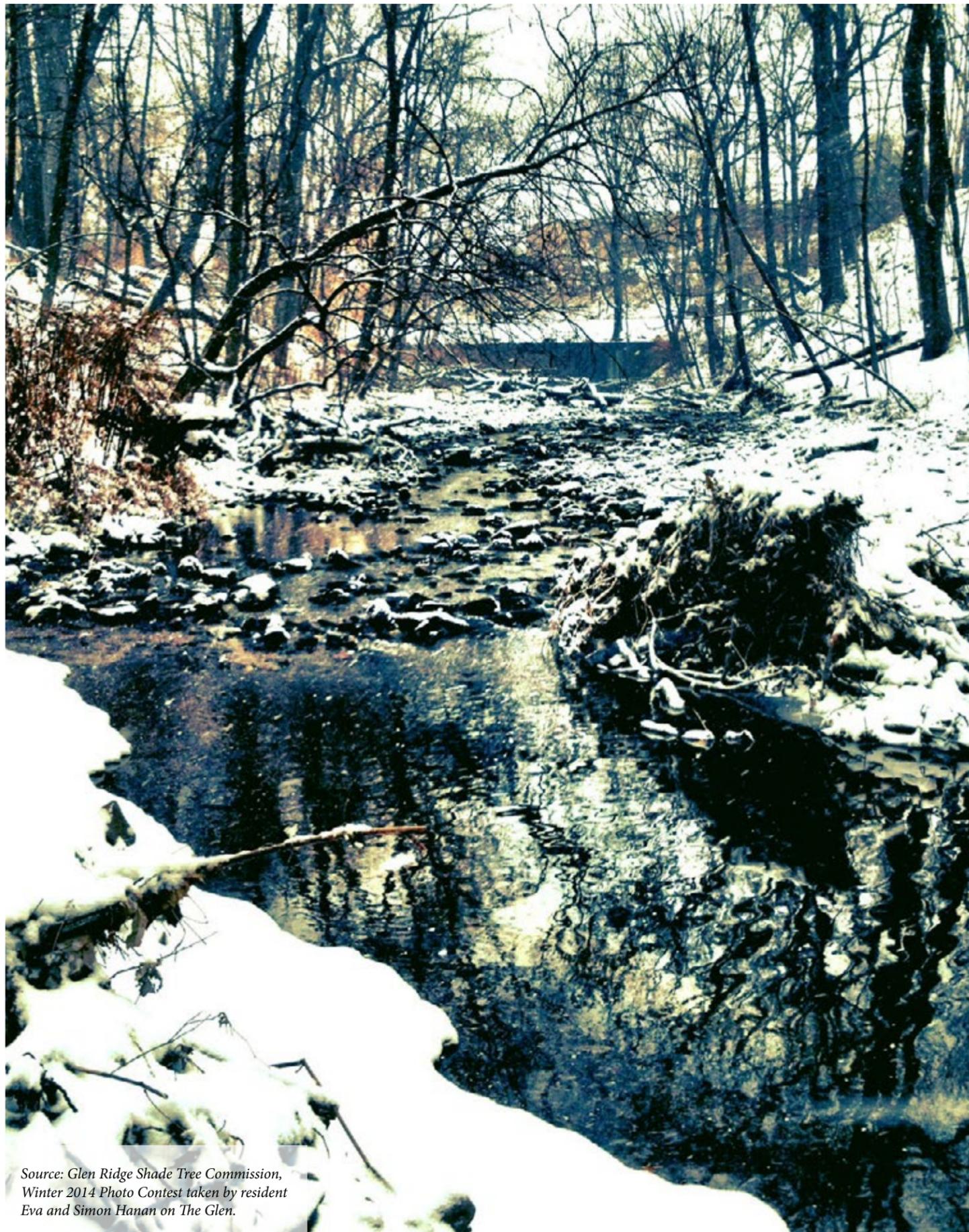
“The best time to plant a tree was 20 years ago. The second best time is now.”

~Chinese Proverb

Source: Glen Ridge Shade Tree Commission, Facebook Page Post, July 27, 2012

*“The creation of a
thousand forests is in
one acorn”*

~Ralph Waldo Emerson



Source: Glen Ridge Shade Tree Commission,
Winter 2014 Photo Contest taken by resident
Eva and Simon Hanan on The Glen.

The following pages outline a series of broad goals. Each of the goals is paired with a list of “policies,” or action items that should guide the maintenance and growth of the Glen Ridge Community Forest.

Maintaining the Historic Character

When Glen Ridge was founded, it was envisioned as a “residential park.” Today, much of the pastoral and “park-like” character exists in the center of the Borough near the intersections of Ridgewood and Bloomfield Avenues. “The Glen” sets the tone for this park-like setting. The natural pattern of the tree planting around The Glen tends to be irregular and random with small groupings of diverse species.

As one moves further north and south, away from the center of the Borough, the pattern of street tree planting becomes more structured. Trees are planted at a regular spacing of 30’ to 40’ on center and there is less diversity in tree form. Future planting should recognize the existing condition and follow this pattern to the greatest extent possible. (Refer to page 39 for suggested Planting Patterns)

Policies

- Enhance the “park-like” character and the irregular planting pattern in the center of the Borough at the intersection of Bloomfield Avenue and Ridgewood Avenue and extend outward for several blocks utilizing The Glen as an aesthetic reference.
- Expand the public awareness and education campaign through the following means:
 - Achieve “Tree City USA” status every year
 - Observe Arbor Day with a resolution passed by Mayor and Council and the symbolic planting of one tree
 - Participate in the Borough Eco-Fair
 - Publish press releases regarding the milestones that the Shade Tree Commission has achieved
 - Host special awareness and/or fund raising events and programs (i.e. Cocktail Socials, Shade Tree Photo Contests)
 - Engage the schools and school children by offering to participate or host an assembly or classroom activity (i.e. plant a sappling etc)

“These trees are magnificent, but even more magnificent is the sublime and moving space between them, as though with their growth it too increased.”

~Gaston Bachelard, *The Poetics of Space*



Source: Glen Ridge Shade Tree Commission, Fall 2014 Photo Contest taken by resident Dina DeShan on Glen Ridge Parkway.

Celebrating Heritage Trees

As identified in the “Historically Significant Tree Stands” section of this document (Page 22), pockets of stately tree stands adorn Glen Ridge streets and offer both aesthetic and environmental benefits. In order to protect, celebrate and acknowledge the importance of historically significant individual trees and/or groups of trees based on their age, size or horticultural significance, the Shade Tree Commission should establish a program or policy around the concept of Heritage Trees. Such a policy or program might serve as a method to protect significant trees. It may also serve as an opportunity to create awareness about the importance of shade trees.

Policies

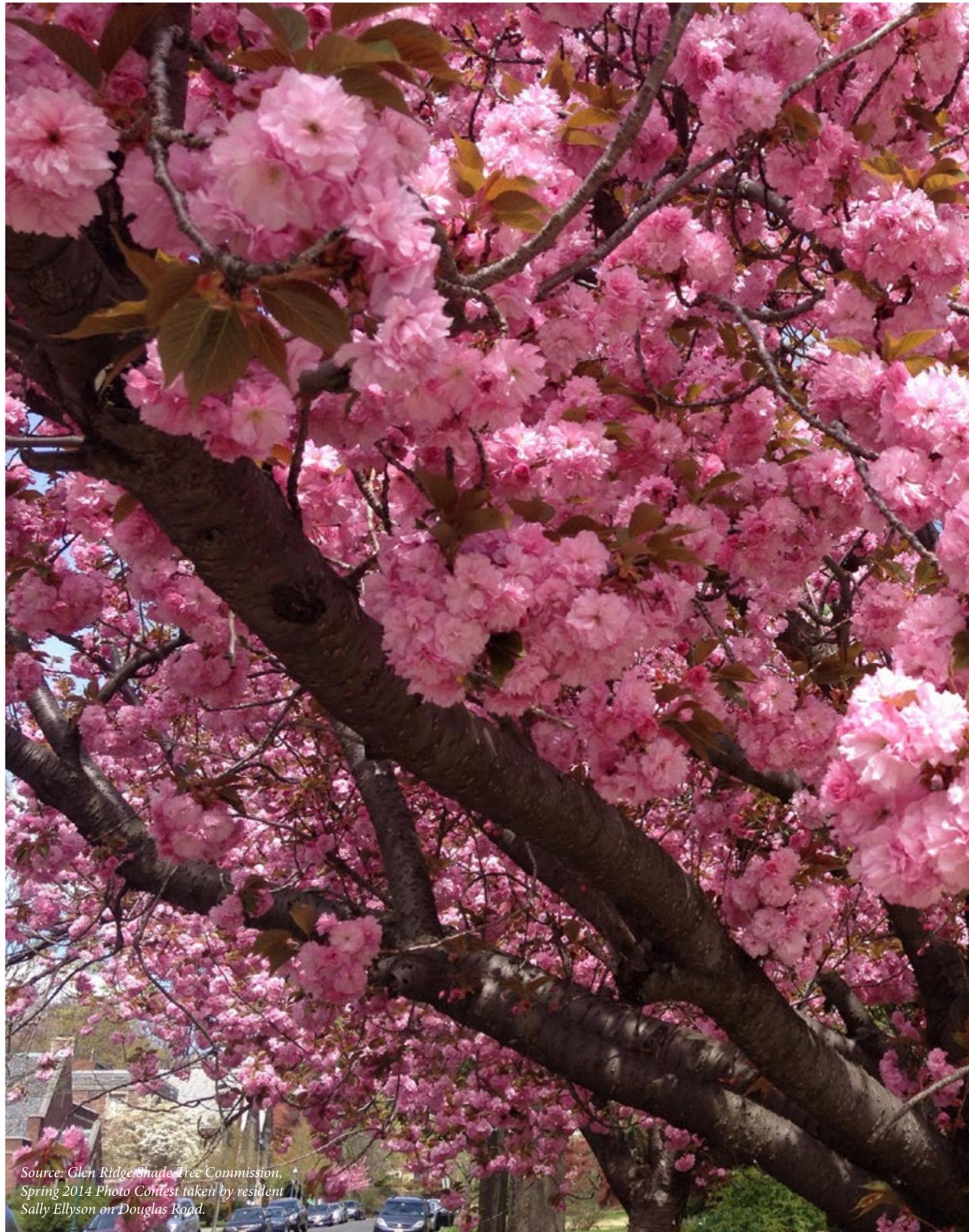
- Establish an educational Heritage Tree program overseen by the Shade Tree Commission
- Develop a process for the nomination and designation of public trees or stands of trees as Heritage Trees.
- Define the means by which Heritage Trees will be recognized and used to raise community awareness about their exceptional characteristics and contributions to the character, history and community of Glen Ridge.
- Determine the reach and purpose of this designation. Will it include regulatory restrictions? Will it layout particular preservation strategies?
- Adopt a definition for a “Heritage Tree”. This should include trees that:
 - Represent specimens that are rare in Northern NJ
 - Possess unique characteristics or special significance
 - Are of a significant size and/or make a significant and an outstanding aesthetic impact on the setting and are exceptional specimens in good condition and health.
 - Give special significance to a historic building or district because of their age and/or character.

Key Resource

Information and resources for establishing a Heritage Tree Program can be found on the American Forests website at <http://www.americanforests.org/bigtrees/tree-protection-toolkit/establish-a-heritage-tree-or-champion-big-tree-program/>

*“The clearest way into
the Universe is through a
forest wilderness.”*

~John Muir



Source: Glen Ridge Shade Tree Commission,
Spring 2014 Photo Contest taken by resident
Sally Ellyson on Douglas Road.

Highlighting Gateway Streets and Intersections

The primary streets that pass from adjacent communities through Glen Ridge offer opportunities to establish identifiable “gateways” into the Borough. Key intersections at these streets should showcase the beautiful trees of Glen Ridge while underscoring the “Residential Park” character. The Shade Tree Commission defined the Gateway Streets as:

- Bay Avenue
- Bloomfield Avenue
- Ridgewood Avenue
- Washington Street
- Watchung Avenue
- Glen Ridge Avenue / Belleville Avenue

Policies

- Gateway Streets should be planted with ornamental and/or specimen trees. These trees have been identified on the Approved Street Tree List on page 47.
- The intersections where Gateway Streets intersect with other key neighborhood streets should utilize flowering understory trees, trees with unique form or bark and/or trees with interesting Fall color.
- Additional maintenance resources should be allocated to the upkeep of Gateway Streets and Intersections.
- Signage and educational/awareness features such as a “Tree City USA” or “Heritage Tree” signs should be focused at key intersections.

“A man does not plant a tree for himself. He plants it for posterity.”

~Alexander Smith



Guiding Future Shade Tree Planting

The following section outlines the strategies and methods used for planting shade trees in Glen Ridge. There are many conditions that influence how, when, where and what street tree should be planted. For this reason, this section has been divided into the following strategies:

- Planting Pattern (pg. 38)
- Tree Placement (pg. 40)
- Planting Methods (pg. 42)
- Tree Selection (pg. 45)
- 5-Year Planting Plan (pg. 48)

Policies

- Establish a program that provides additional resources and attention to these streets. This program may include:
 - Additional maintenance resources to ensure these streets are pristine.
 - Signage and educational/awareness features such as a “Tree City USA” or “Heritage Tree” signs.
 - Unique design interventions such as flowing understory trees or rare species.
 - Additional funds set aside for new planting on these streets annually.
 - Collaboration with adjacent businesses and property owners.

Planting Pattern

As the Borough expands its shade tree canopy, it is important that the planting patterns build upon the historic character and planting patterns throughout the Borough. Streets located closer to The Glen and the center of the Borough tend to have more irregular and diverse “park-like” planting patterns. This pattern should utilize The Glen as an aesthetic reference. The streets and neighborhoods in the north and south ends of the Borough tend to have more structured and regular planting patterns. These patterns can be seen on streets such as Carteret Street and Glen Ridge Parkway.

In an effort to structure these patterns and use them to guide future planting, this plan identifies three primary planting patterns (Figure 10). When planting a particular street, the pattern best suited for that street should be selected. The 5-Year Planting Strategy indicates the recommended pattern for each street using the following abbreviations:

1. Structured - Uniform Planting: “SU”
2. Structured - Diverse Planting: “SD”
3. Irregular - Diverse Planting: “ID”

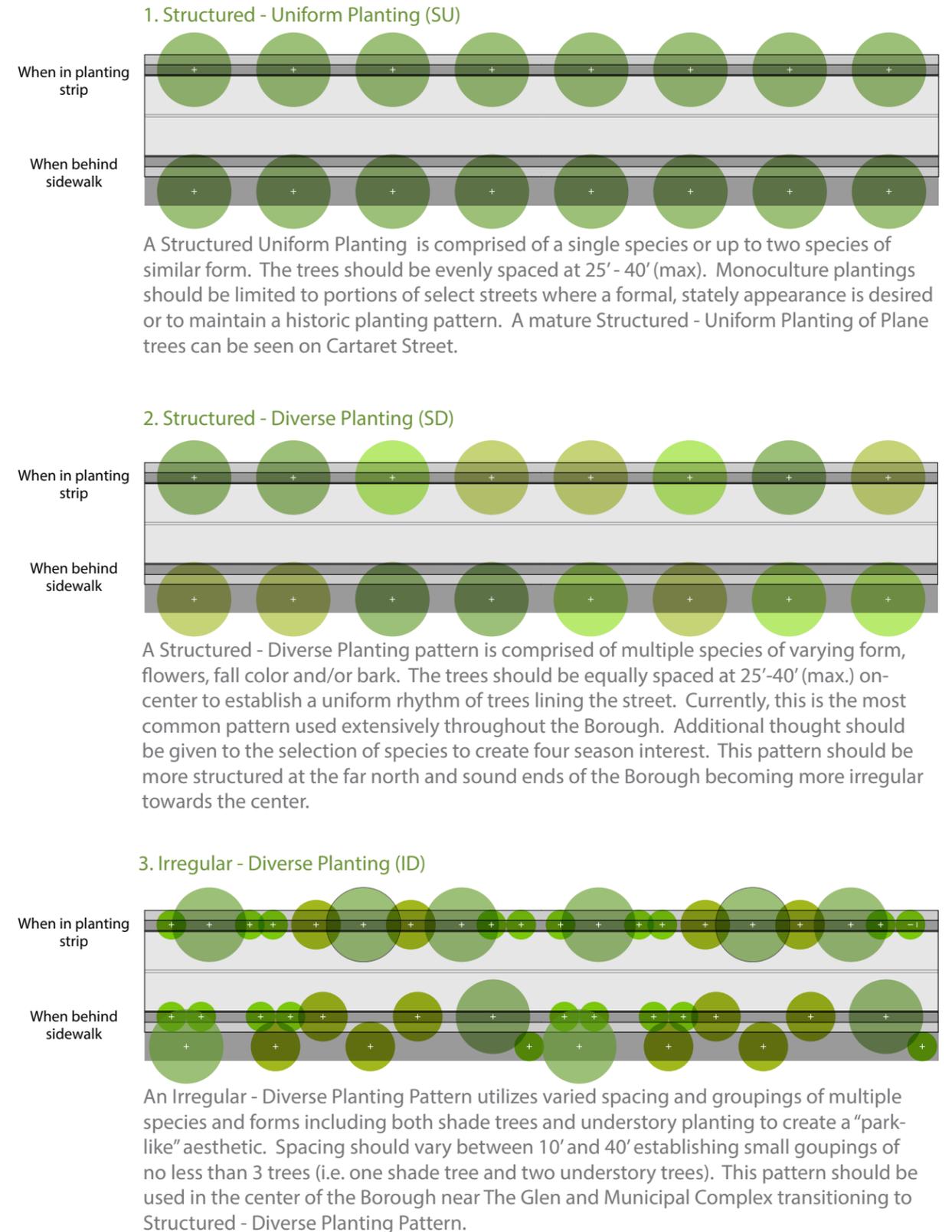


Figure 10. Suggested Planting Patterns

Tree Placement

As discussed in the Grow Space and Condition section of this study (pg 24), the planting strip width and conditions vary greatly throughout the Borough. Currently, the Borough plants street trees exclusively within the planting strip despite its width. In order to ensure that newly planted street trees are provided the best possible planting environment, it is recommended that the Borough consider alternative planting locations or “Tree Placement” as follows (Figure 11):

A. Planting Strip or Tree Pit (between the sidewalk and curb): This is the most common planting location as it creates a buffer between pedestrians and the roadway. A minimum planting area of 4’x6’ is recommended for this condition. If 4’ of width is not available, it is recommended that the tree is placed behind the sidewalk (Option C or D). Special care should be taken in the selection and pruning of the tree to ensure that the branches will not be hit and damaged by passing trucks.

B. Center Median: Center medians can be integrated on any roadway with sufficient width. A minimum width of 8’ is recommended for curbed medians. Trees should be carefully selected so that the branches do not protrude into the roadway. For medians less than 10’ in width, small trees or trees with columnar or upright forms are recommended.

C. Behind Sidewalk (between sidewalk and property line if space exists): This is the preferred location if the planting strip is less than 4’ width, and there is sufficient space between the sidewalk and property line/ROW. This location is particularly useful if large open lawns are present to provide ample space for root growth.

D. Planting Street Trees on Private Property: This placement is preferred when the planting strip is less than 4’ in width and there is not sufficient space between the sidewalk and ROW. The Borough should coordinate with homeowners to plant the trees in the front yard of adjacent private property. For example, in Montclair, NJ a home owner can request a street tree from the Township in exchange for the responsibility of maintenance. The tree will be planted in the home owner’s front yard near the sidewalk effectively shading the street. A fine example of this can be seen on Hathaway Place and Laurel Place.

A note regarding planting strip widths and “road diets”:

Many roadways throughout the Borough of Glen Ridge have excessive pavement widths. When considering making roadway improvements, the Borough should first review the existing pavement width and the current planting strip width. Whenever feasible, the Borough should consider reducing the pavement width and increasing the planting strip width. While the upfront cost for this “road diet” may be more expensive than simply repaving, there are many far reaching, long-term benefits. These benefits include: better shade tree planting conditions; reduced travel speeds (traffic calming); reduced impervious surface and storm water run-off; and a reduction in overall roadway maintenance costs.

The Borough should refer to the New Jersey Residential Site Improvement Standards (RSIS) or the most current acceptable regulation to determine appropriate pavement widths, (see <http://www.state.nj.us/dca/divisions/codes/offices/rsis.html>)

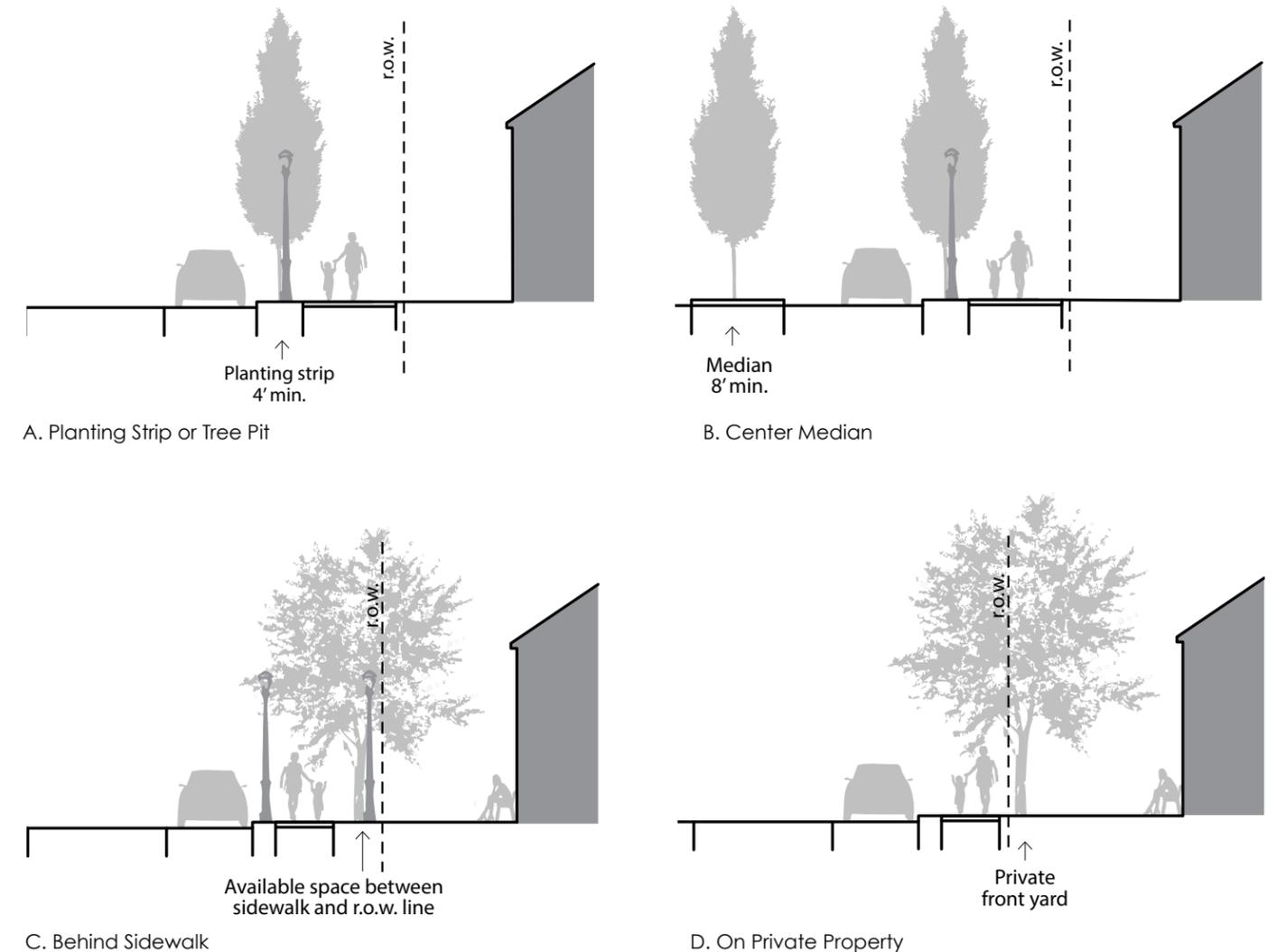
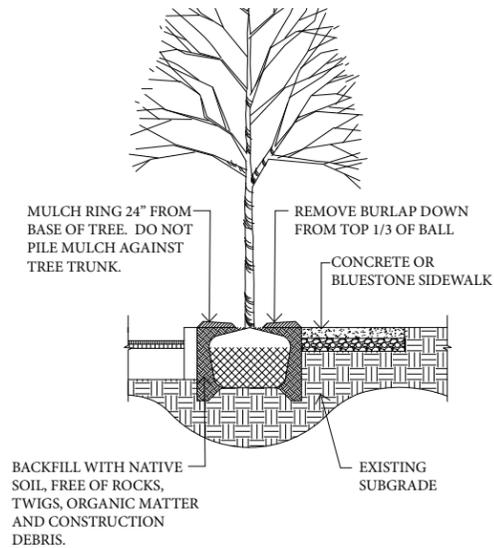


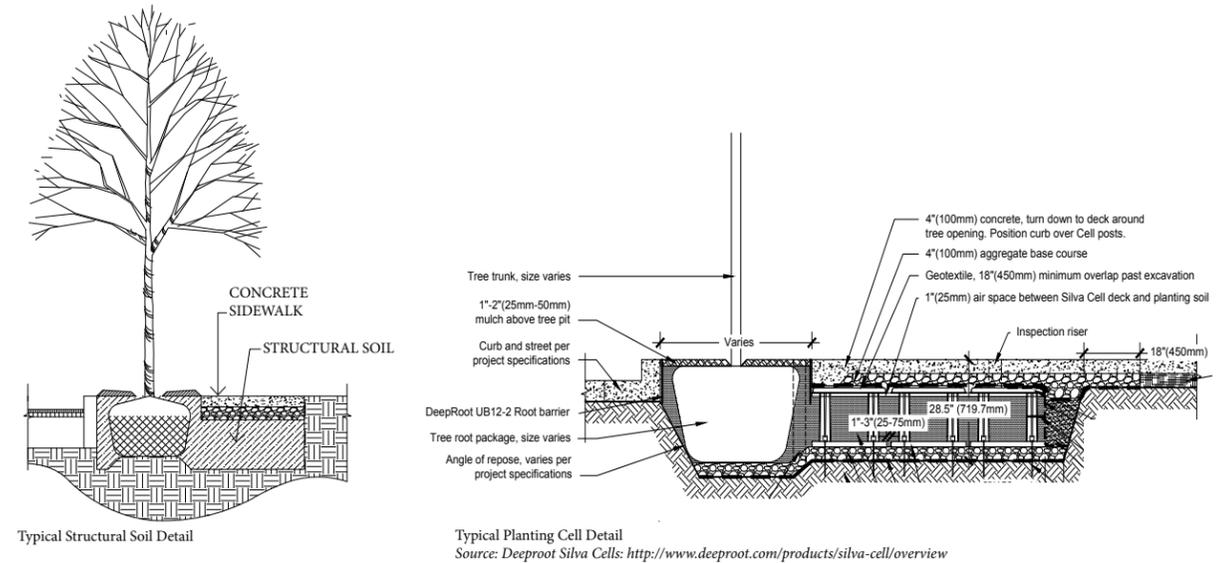
Figure 11. Tree placement diagrams representing four common conditions suggested for planting the right tree in the right place.

Planting Methods and Root Protection

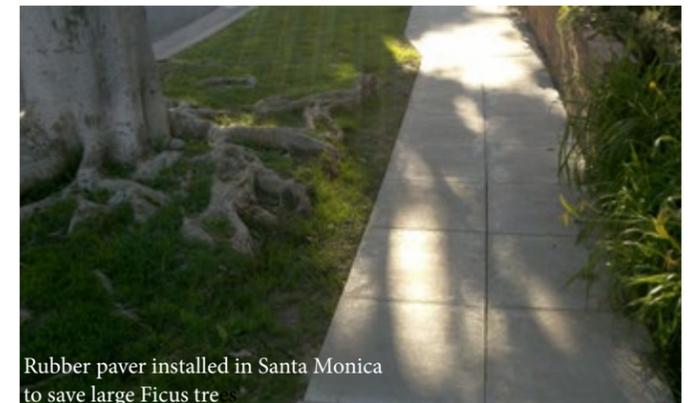
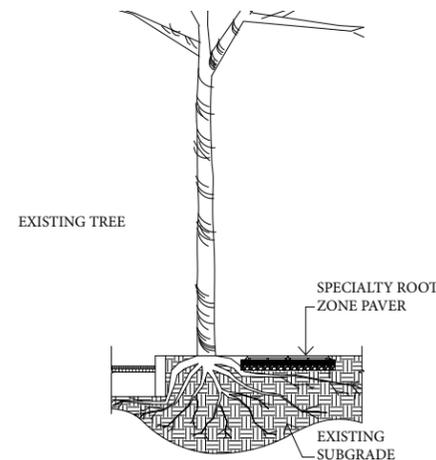
The conditions for planting shade trees throughout the Borough have evolved since the founding of the first commission in 1910. Increased vehicular traffic, comprehensive sidewalk networks, and roadway pollutants are just a few of the elements affecting the health of new and existing trees. Proper tree handling, soil preparation, backfilling and mulching are essential to the health and longevity of shade trees as well as minimizing impacts to adjacent sidewalks and curbs. Additionally, in many locations throughout the borough, large shade trees have heaved adjacent sidewalks. As these sidewalks are replaced, additional consideration should be given to the use of alternative paving methods that minimize current and future impacts to the root zone.



1. Standard Planting Detail: Proper tree handling, soil preparation, backfilling and mulching are essential to the health and longevity of shade trees as well as minimizing impacts to adjacent sidewalks and curbs. This illustration shows the proper technique for tree planting. Improper mulching of existing trees is a common issue throughout the Borough. It is important that residents do not pile mulch up against the tree trunk, but instead create a “bowl” or “bagel” around the base of the tree (see images below).



2. Structural Soil or Planting Cells: The use of structural soil and/or planting cells (i.e. SilvaCells or equal) may be considered in locations that either have planting strips of less than 4' or where large shade trees are proposed that require expansive root zones. The structural soil or planting cells provide “voids” and minimize soil compaction. This encourages roots to expand down and beneath the sidewalk rather than staying on the surface and damaging or heaving the sidewalks. It should be noted that these are relatively new products and should be tested for effectiveness before utilizing them Borough-wide.



3. Root Zone Protection: Many of the larger trees throughout the Borough have begun heaving and cracking the adjacent sidewalk. The Borough should use particular caution when removing and replacing sidewalks in these areas. Sample specifications have been provided on the following page. In areas with Heritage Trees (Refer to pg. 33), the Borough should consider testing the use of special pavers, such as rubber pavers, that are lightweight, flexible and have been designed to minimize impacts to existing roots (pictured above).

Below is a sample specification that may be adapted by the Borough and incorporated into construction specifications for sidewalk and curb replacement, roadway repaving, cobble gutter repair and other street related construction improvements that may impact existing shade trees. Please note that this is a sample specification to be used as a general guideline only. It should be adapted and revised to address the specific needs of the Borough or project.

SAMPLE SPECIFICATION

Existing Tree Protection during and after Construction

The contractor is responsible to hire a Certified Arborist (CA), Certified Tree Expert (CTE) or Certified Forester (CF) to oversee all construction within the drip line of any trees over 12" caliper that are indicated to require "Tree Protection" on the construction plan. The CTE shall report to the Borough Representative (CTE, CF, CA) and shall oversee all work to ensure it is in compliance with this section of the specifications and with industry standard best practices for tree protection.

All trees to remain shall be protected in accordance with ANSI A300.

The CTE shall establish a pre- and post- construction fertilization and tree care plan and schedule that will ensure the long term health of the trees. This may include, but not be limited to, fertilization, deep root feeding and fertilizing, tree and root pruning, stabilization testing etc. These requirements shall be submitted to the Borough for approval prior to construction.

A protective barrier of chain link fencing shall be installed around the drip line of protected tree(s). The fencing can be moved within the drip line if authorized by the Arborist but no closer than 2' from the trunk of any tree. This enclosed area (confirmed by the arborist) is the Tree Protection Zone (TPZ).

Demolition, excavation and construction within the TPZ shall be by hand or using compressed air. This includes all sidewalk, asphalt and curb removal. Machine demolition, excavation and digging is not permitted within the TPZ. Exceptions to this may be submitted by the contractor's CTE to the Borough for review. If the contractor must dig or excavate around mature trees, air tools shall be used to expose tree roots so the roots can be seen and worked around safely to avoid damage.

When roots over 1" in diameter are encountered, either inside or outside of the TPZ, the arborist shall be notified and the roots shall be hand trimmed, making clear, clean cuts through the roots. Trenches or cuts that expose roots shall be filled within 24 hours, but where this is not possible, the side of the trench adjacent to the trees shall be kept shaded with four layers of dampened, untreated burlap, wetted as frequently as necessary to keep the burlap wet. Any exposed feeder roots and perinial roots should be covered in soil and wet wraps to keep mycorrhizae colonies alive. Any work within the TPZ that requires machinery shall be limited to a mini excavator or small tractor mounted backhoe as approved by the CTE and Borough.

Trucks and heavy machinery shall not be permitted to park or travel within the TPZ.

Tree Selection

The Borough of Glen Ridge maintains a comprehensive list of street trees that are approved for use in Glen Ridge. When selecting a tree from this list, there are four primary considerations as follows:

- 1. Planting Condition:** As discussed in the "Grow Space and Condition" section of this report, the planting strips throughout the Borough range from 1 foot to 8' in width. The proper tree should be selected based on the available planting strip width. If the planting strip is less than 4' in width, then alternative locations should be considered such as planting outside of the sidewalk or on private property (refer to Tree Placement, Pg. 39). The approved street tree list below identifies the appropriate species grouped by available planting strip width.
- 2. Species Diversity:** To ensure proper species diversity, no genus or species should exceed 20% of the total tree population (roughly). If a particular genus/species begins approaching 20%, then a temporary moratorium should be placed on planting that particular genus or species. Currently, Maple trees (*Acer* sp.) comprise more than 40% of the total tree population. Therefore, a temporary moratorium should be placed on planting Maple trees until this percentage drops within acceptable guidelines. Oak tree species were planted by the Borough's founders as the dominant species to shade the wider avenues and streets. Given the high percentage of Oaks, planting should be judiciously implemented with an emphasis on maintaining historic and "Heritage" tree stands.
- 3. Existing Adjacent Street Trees:** Existing street trees line the streets throughout the Borough and in most cases the new trees will be planted between the existing ones. These existing trees should be studied and will influence the tree selection. The first consideration is the genus and species of the existing trees. Wherever possible, the planting of a single species (monoculture planting) should be avoided. However, on select occasions where a particular formal or historic aesthetic is desired, monoculture planting may be permitted at the discretion of the Shade Tree Commission and Borough Arborist. The second consideration is access to sunlight and the impact that the shade cast from larger trees will have on the newly planted trees. Finally, the condition of existing trees should be evaluated and considered. If a particular tree is not performing well in this location, then that genus or species (or trees with similar characteristics) should be avoided.

4. **Tree Form:** The goal of planting shade trees is to provide as much cover over the roadway as possible. For this reason, whenever feasible, large and broad form shade trees should be used. This is particularly important on wide streets. If the planting strip is narrow (less than 4') and not conducive to planting a large shade tree, then the Borough should consider alternate tree placement options such as planting on private property prior to suggesting small or medium trees. (Refer to Tree Placement pg. 40)
5. **Aesthetics:** The aesthetic features of each tree, such as flowers, bark and fall color, will help define the character of the street. Trees should be selected to achieve the desired aesthetic for a particular corridor. Care should be taken when selecting trees for Gateway Streets and Intersections (pg. 35). The Approved Street Trees list on page 47

Approved Street Trees

Below is the complete list of approved street trees. For more information on each of the trees listed below, please refer to the *Glen Ridge Street Tree Resource Booklet*.

Understory Small and Medium Trees for Planting Areas larger than 2' x 6'

American Yellowwood
Cladrastis kentukea

Amur Maackia
Maackia amurensis

Cherries*
Prunus spp.

Crabapples*
Malus spp.

Crimean Linden
Tilia xeuchlora

Dogwoods*
Cornus spp.

Eastern Redbud*
Cercis canadensis

Golden Raintree
Koelreuteria paniculata

Hackberry
Celtis occidentalis

Hawthorns*
Crataegus spp.

Hop Hornbeam
Ostrya virginiana

Japanese Snowbell*
Styrax japonicus

Maple, Amur
Acer ginnala 'Flame'

Maple, Hedge
Acer campestre

Purpleleaf Plum*
Prunus cerasifera

Redspire Pear*
Pyrus calleryana 'Redspire'

Large Shade Trees for Planting Area Larger than 4' x 6'

Black Tupelo
Nyssa sylvatica

Dawn Redwood
Metasequoia glyptostroboides

Elms
Ulmus spp.

Ginkgo
Ginkgo biloba

Hardy Rubber Tree
Eucommia ulmoides

Honeylocust
Gleditsia triacanthos

Kentucky Coffee Tree "Prarie Titan"
Gymnocladus dioica

Katsura Tree
Cercidiphyllum japonicum

Lindens
Tilia spp.

London Planetree
Platanus x acerfolia

Maple, Red
Acer rubrum

Maple, Sugar
Acer saccharum

Oak, Pin
Quercus palustris

Oak, Red
Quercus rubra

Oak, Shingle
Quercus imbricaria

Oak, Willow
Quercus phellos

Pagoda Tree
Styphnolobium japonicum

Sweetgum
Liquidambar styraciflua 'Rotundiloba'

Japanese Zelkova
Zelkova serrata

* **"Gateway Trees":** These trees should be used for Gateway Street and Intersection planting as outlined on page 35.

5-Year Planting Plan

The following table shows the proposed implementation and phasing for the planting of 1000 trees from 2014-2019. This plan should be updated annually based on the actual plantings that occur each year. In addition, a new 5-Year Planting Plan should be developed during the fourth year of the current plan.

| Number Key | Location in Need | | | Existing | | | | Quantity | Type | Tree Type | Unique Planting | Species | Position | Pattern |
|----------------------|--------------------|--------------------|--------------------|----------|----------------|-----------------|---------------|------------|-------------|-----------|-----------------|---------|----------|---------|
| | Street Name | From | To | Side | Heritage Trees | Strip Condition | Cobble Gutter | | | | | | | |
| 2014 Planting | | | | | | | | | | | | | | |
| | Appleton Place | Ridgewood Avenue | Hillside Avenue | B | | 4 | x | 10 | Infill | US | | | S | ID |
| | Clark Street | Ridgewood Avenue | Thomas Street | B | | 4-6 | x | 30 | Mass | SH/US | | | S/B | ID |
| | Hillside Avenue | Bloomfield Avenue | Belleville Avenue | B | | 3 | | 14 | Infill | SH/US | | | S/B | ID |
| | Lincoln Street | Western border | Douglas Road | N | | 2-3 | | 5 | Infill | SH/US | | | S/B | FD |
| | Ridgewood Avenue | Snowden Place | Washington Street | B | x | 4-5 | | 35 | Infill/Mass | SH | | | S | FD |
| | Ridgewood Avenue | Municipal Building | Snowden Place | B | x | n/a | | 25 | Mass | SH | x | | S | FD |
| | Summit Street | Woodland Avenue | Lincoln Street | B | | 2-3 | | 12 | Infill | SH | | | S | FD |
| | Washington Street | Western border | Ridgewood Avenue | B | | 1-3 | | 10 | Infill | SH | | | S | FD |
| | Washington Street | Ridgewood Avenue | Eastern border | B | | 4-5 | | 20 | Infill | SH | | | S | ID |
| | Winsor Place | Ridgewood Avenue | Hillside Avenue | B | | 2 | x | 12 | Infill | SH/US | | | S/B | ID |
| | Woodland Avenue | Western border | Ridgewood Avenue | B | | 2-4 | x | 35 | Infill | SH | | | S/B | FD |
| | | | | | | | | 208 | | | | | | |
| 2015 Planting | | | | | | | | | | | | | | |
| | Argyle Place | Highland Avenue | Sherman Avenue | B | | 2 | x | 8 | Infill | SH/US | | | S/B | ID |
| | Baldwin Street | Highland Avenue | Glenridge Avenue | B | | 4-6 | | 20 | Mass | SH/US | | | S | ID |
| | Baldwin Street | Ridgewood Avenue | Clinton Road | B | | 4-6 | x | 2 | Mass | SH/US | | | S | ID |
| | Belleville Avenue | Highland Avenue | Herman Street | B | | 4-6 | | 22 | Mass | SH/US | | | S/B | ID |
| | Bloomfield Avenue | Western border | Highland Avenue | B | | n/a | | 40 | Mass | SH/US | | | S/B | ID |
| | Bloomfield Avenue | Highland Avenue | Herman Street | N | | 4 | | 20 | Mass | SH | | | S | ID |
| | Bloomfield Avenue | Herman Street | High Street | B | | n/a | | 20 | Mass | SH | | | S | ID |
| | Bloomfield Avenue | High Street | Eastern Border | B | | n/a | | 20 | Mass | SH | | | S/B | ID |
| | High Street | Wildwood Terrace | Belleville Avenue | B | | 2-3 | | 10 | Infill | US | x | | S | SU |
| | Ridgewood Avenue | Baldwin Street | Municipal Building | B | x | 4-6 | | 30 | Infill/Mass | SH | | | S | SD |
| | Rudd Court | Sherman Avenue | Ridgewood Avenue | B | | 3 | | 16 | Mass | SH/US | | | B | ID |
| | | | | | | | | 208 | | | | | | |
| 2016 Planting | | | | | | | | | | | | | | |
| | Appleton Place | Ridgewood Avenue | Hillside Avenue | B | | 2 | x | 15 | Infill | SH/US | | | S/B | ID |
| | Appleton Place | Hillside Avenue | Winsor Place | B | | 2 | | 12 | Infill | SH/US | | | S/B | ID |
| | Bay Avenue | Walnut Crescent | Sherman Avenue | B | | 4-6 | | 25 | Mass | SH/US | x | | S/B | ID |
| | Bay Avenue | Sherman Avenue | Ridgewood Avenue | B | | 4 | | 25 | Mass | SH | | | S | FD |
| | Bay Avenue | Ridgewood Avenue | border | B | | 4 | | 50 | Mass | SH | | | B | FD |
| | Douglas Road | Woodland Avenue | Lincoln Street | B | | 3-4 | | 12 | Infill | SH | | | S | ID |
| | Douglas Road | Lincoln Street | Washington Street | B | | 3-4 | | 18 | Infill | SH | | | S | ID |
| | Forest Avenue | Bay Avenue | Outlook Place | W | | 3-4 | | 5 | Infill | SH | | | S | FD |
| | Outlook Place | Forest Avenue | Essex Avenue | B | | 3 | | 21 | Mass | SH | | | B | FD |
| | Ridgewood Avenue | Bay Avenue | Baldwin Street | B | x | 4-5 | | 20 | Infill/Mass | SH | | | S | SD |
| | Winsor Place | Hillside Avenue | Washington Place | B | | 5 | x | 10 | Mass | SH/US | | | S/B | ID |
| | | | | | | | | 213 | | | | | | |
| 2017 Planting | | | | | | | | | | | | | | |
| | Ardsley Road | Mitchell Place | Ridgewood Avenue | B | | 4-9 | | 5 | Infill | SH | | | B | FD |
| | Astor Place | Maolis Avenue | Adams Place | B | | NA | | 20 | Mass | SH | x | | S | FM |
| | Avon Place | Forest Avenue | Stonehouse Road | N | | 4 | | 6 | SH | | | | S | FD |
| | Cambridge Road | Forest Avenue | Eastern Border | B | | 6 | | 10 | Infill | SH/US | | | B | ID |
| | Columbus Avenue | Western border | Mitchell Place | N | | 4 | | 5 | Mass | SH | | | B | FD |
| | Columbus Avenue | Mitchell Place | Ridgewood Avenue | B | | 4 | | 6 | Infill | SH | | | S/B | FD |
| | Forest Avenue | Avon Place | Bay Ave | B | | 4-5 | | 12 | SH | | | | S | FD |
| | Glen Ridge Parkway | Ridgewood Avenue | Stonehouse Road | B | x | 4-9 | | 14 | Mass | SH | | | S/B | FD |
| | Linden Avenue | Evergreen Court | Ridgewood Avenue | B | | 6 | | 12 | Mass | SH/US | | | S | ID |
| | Linden Avenue | Ridgewood Avenue | Midland Avenue | B | | 2-4 | x | 18 | Infill | SH/US | | | S/B | ID |
| | Maolis Avenue | Ridgewood Avenue | Hawthorne Avenue | S | | 3 | x | 10 | Infill | SH/US | | | B | ID |
| | Maolis Avenue | Hawthorne Avenue | Eastern Border | B | | 4-5 | x | 10 | Infill | SH/US | | | S/B | ID |
| | Ridgewood Avenue | Glen Ridge Parkway | Bay Avenue | B | x | 4-6 | | 8 | Infill | SH | | | S | FD |
| | Roswell Terrace | Walnut Crescent | Sherman Avenue | B | | 3 | | 18 | Infill | SH | | | S/B | ID |
| | Sherman Avenue | Roswell Terrace | Oxford Street | B | | 3 | | 12 | Mass | SH | | | B | FD |
| | | | | | | | | 166 | | | | | | |
| 2018 Planting | | | | | | | | | | | | | | |
| | Burnett Street | Oakwood Avenue | Forest Avenue | S | | 4 | | 8 | Mass | SH | | | S/B | FD |
| | Chapman Place | Adams Place | Lorraine Street | B | | 4 | | 26 | Mass | SH | x | | S/B | FD |
| | Cross Place | Willow Street | Ridgewood Avenue | B | | 3 | | 12 | Infill | SH | | | S/B | FD |
| | Cross Street | Willow Street | Ridgewood Avenue | B | | 5 | | 10 | Mass | SH | x | | S | FD |
| | Clairidge Court | Western border | Ridgewood Avenue | B | | 4 | | 4 | Infill | SH | | | S | FD |
| | Dodd Street | Western border | Ridgewood Avenue | S | | 5 | | 5 | Mass | SH | | | S | FD |
| | Forest Avenue | Sunset Avenue | Glen Ridge Parkway | B | | 5 | | 15 | SH | | | | S | FD |
| | Harvard Street | Western border | Ridgewood Avenue | B | | 4 | | 3 | Infill | SH | | | S/B | FD |
| | Hawthorne Avenue | Adams Place | Carterett Street | B | | 5 | | 36 | Infill/Mass | SH | | | S | FD |
| | Madison Street | Chapman Place | Midland Avenue | B | x | 3 | | 8 | Infill | SH | x | | S | FD |
| | Midland Avenue | Southern Border | Cartaret Street | B | x | 5 | | 14 | Infill | SH | | | S | FD |
| | Oakwood Ave | Watchung | Burnett | B | | 5 | | 14 | Infill/Mass | SH | | | S/P | FD |
| | Ridgewood Avenue | Brookdale Park | Watchung Avenue | B | x | 5 | | 5 | Infill | SH | | | S | FD |
| | Ridgewood Avenue | Watchung Avenue | Glen Ridge Parkway | B | x | | | 7 | Infill | SH | | | S | FD |
| | Sommer Avenue | Glen Park Road | Glen Park Road | B | | 5 | | 20 | Infill/Mass | SH | | | S | FD |
| | Watchung Avenue | Oakwood Avenue | Ridgewood Avenue | B | | 9 | | 10 | Gateway | SH/US | | | B | FD |
| | | | | | | | | 197 | | | | | | |

Figure 13. Suggested planting strategy by street based on canopy gaps.



IV. Appendix

Additional Maps and Figures
Bibliography

“I like trees because they seem more resigned to the way they have to live than other things do.”

~Willa Cather, 1913

Source: Glen Ridge Shade Tree Commission, Winter 2014 Photo Contest taken by resident Iris Orellana on Mead Terrace.

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