CITY OF TRENTON

Management Plan for Forests and Trees

Fourth Edition 2022 - 2032









The Delaware Valley Regional Planning Commission

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Executive Summary

Trenton's Management Plan for Forests and Trees outlines the City's vision and prioritized goals to protect and grow its tree cover or "community forest." It describes the current structure of the forest, the function these trees provide to the surrounding community, and goals and actions for the management of these trees. This plan is an important tool for Trenton municipal officials, nonprofit staff, private business owners, and the general public as it identifies the challenges and opportunities of the community forest and prioritizes actions for future improvement.

The plan was created in partnership with municipal officials, county and state partners, environmental organizations, local business owners, and private residents as well as the Trenton Green Team. Documents used to prepare this plan include the Trenton municipal code, the *Trenton 250 Master Plan*, and several Trenton neighborhood plans. The maps contained in this plan illustrate the extent of tree cover throughout Trenton and how this tree cover relates to a wide variety of community factors such as health care facilities, schools, demographic information, and flood prone areas. The plan concludes with goals and actions of the community to improve the quality of the community forest over the next ten years. The top three goals and actions are: taking care of public trees, planting new trees, and engaging partners for planting and maintenance.

This plan still awaits the inclusion of the Trenton tree inventory which will give more detailed information on the species, health, and number of trees in the City.

This plan is the fourth version of Trenton's community forestry management plan. The first was approved in 2005, the second was approved in 2010, and the third was approved in 2019.

CHAPTER 1:

Introduction

This section outlines the mission statement and purpose of this plan, as well as the plan outreach and development process.

Mission Statement

Old mission statement:

Trenton desires to create a better quality of life for the residents of the City by establishing a comprehensive

and professional Community Forestry Program, thereby providing a healthy and pleasant environment in Trenton through the management of its tree resource.

New mission statement, using comments from Trenton TreeKeepers workshop attendees¹:

As the capital of New Jersey, Trenton will establish a comprehensive and professional Community Forestry Program in order to improve water quality, reduce flooding, provide shade for hot days, beautify the City, and support the ecology of the City and region. We, as a community of residents, workers, and visitors, will partner to accomplish these goals and create a better quality of life through the management of our tree resource.

What is a community forest?

A community forest, also known as an urban forest, includes all of the trees in a municipality often found in such areas as parks and protected lands, along streets, and in privately-owned properties. Together, these individual trees or clusters of trees make up a collective "green infrastructure" in the municipality that is also connected to green infrastructure in the region where the municipality resides. This green infrastructure benefits people and wildlife. Healthy trees in a community forest can help filter air and water, absorb stormwater, cool people and property, provide habitat, increase property values, and provide a calming and beautiful presence to a landscape. Unlike many examples of infrastructure created by humans, these benefits frequently increase over time.

Community Forestry Management Plan Overview

In New Jersey, community forestry management plans are enabled under the New Jersey Shade Tree and Community Forestry Assistance Act of 1996.² The New Jersey State Forest Service Urban and Community Forestry Program (NJUCF) and the Community Forestry Management Plan Guidelines Committee oversee the development of the plans and ensure that they meet basic requirements.

¹ Trenton TreeKeepers is a half-day basic tree planting and care course held by New Jersey Tree Foundation. Attendees are volunteers involved in trees in their communities and neighborhoods.

² New Jersey Shade Tree and Community Forestry Assistance Act of 1996.

Benefits of the Plan

When a community forestry management plan is approved by NJUCF, the municipality becomes eligible for liability protection from legal action related to tree risks, and for grant funding to implement the plan.³ To continue to be eligible for these benefits, municipalities must update their community forestry management plans regularly, provide annual updates on progress, and undergo continuing education on tree topics.

Planning Process

This version of the community forestry management plan outlines Trenton's vision, goals, and implementation for 2019–2029. The update process began with a kickoff meeting at the February 2019 meeting of the Trenton Green Team. The Green Team was the main point of contact during the planning process.

Plan Outreach and Development

Initial outreach to the public and stakeholders included two site visits of important tree sites – one on foot in the downtown and one by car in surrounding neighborhoods – in June and July 2019, a guided discussion at New Jersey Tree Foundation's Trenton TreeKeeper workshop in July 2019, and a stakeholder workshop at Isles, Inc.'s in July 2019. These meetings formed the basis for the first draft of the plan. (See Appendix A for the content of these meetings.) Following the completion of the first draft, a second round of outreach was completed in June of 2020 that developed the prioritized the goals and actions.

A second draft was completed in November 2020. Following the completion of this draft, the plan was put on hold awaiting completion of the comprehensive Trenton tree inventory. However, due to delays in execution of the inventory, a decision was made in late 2021 to formally publish the plan without the completed inventory.

³ New Jersey Department of Environmental Protection, "Community Forestry Management Plans," nj.gov/dep/parksandforests/forest/community/pdf files/cf act benefits.pdf

CHAPTER 2: Community Forest Overview and Background

This section outlines information about Trenton's tree cover challenges.

Tree Cover

According to high-resolution landcover data developed by the University of Vermont Spatial Analysis Lab, Trenton has 1,403 acres of tree canopy, or 27 percent of Trenton's total land area (about 5,225 acres, or 8.2 square miles). This area includes canopy cover over structures, roads, and other impervious surfaces. For an overview of tree canopy area in relation to other land cover types in Trenton, refer to Table 1 below and Figure 1 on page 6.

Trenton			
Land Cover Type	Area (acres)	Percent of Total Area	
Water	375.8	7.2%	
Wetlands	1.4	0.03%	
Tree Canopy	1,078.3	20.6%	
Scrub-Shrub	2.9	0.06%	
Low Vegetation	784.7	15%	
Barren	10.9	0.2%	
Structures	878.6	16.8%	
Other Impervious Surfaces	899.6	17.2%	
Roads	868.3	16.6%	
Tree Canopy Over Structures	11.4	0.2%	
Tree Canopy Over Other Impervious Surfaces	83.9	1.6%	
Tree Canopy Over Roads	229.1	4.4%	
Total	5,225	100%	

Table 1: Land Cover in Trenton

Source: University of Vermont Spatial Analysis Lab, 2016. drbproject.org/products/

Trenton's tree cover is not distributed evenly. The geographic distribution of tree canopy and the impact this has on a range of issues is explored further through the following series of maps.





Addressing Community Challenges with Trees

Schools, Healthcare Facilities, Childcare Facilities

The following maps illustrate the density of tree canopy cover within a quarter-mile radius of school, childcare, and healthcare facilities in Trenton. The maps were created using land cover data from the University of Vermont (UVM) Spatial Analysis Laboratory (SAL). For the purposes of this analysis, several land cover types were combined and classified as 'Other Land Cover Types' as displayed in the legend of each map; these include pervious surfaces like emergent wetlands, scrub-shrub, barren, and low-vegetation land as well as impervious surfaces such as roads, structures, and parking lots. The tree canopy classification includes all types of tree cover, i.e., tree canopy, tree canopy over structures, tree canopy over roads, and tree canopy over other impervious surfaces.

Figures 2, 3, and 4 on the following pages illustrate that tree cover density near schools, healthcare facilities, and childcare facilities is unevenly distributed. Some areas near these facilities have parks that are well-forested, some have nearby streets lined with trees, but other areas have few to no trees. Because they often serve populations that are especially vulnerable to adverse health outcomes due to environmental factors, school, childcare, and healthcare facilities that exist in areas with low tree cover are ideal locations for focused tree planting.

Table 2 provides the total percentage of tree canopy cover and the tree cover density near schools, childcare facilities, and healthcare facilities (within a quarter-mile radius):

Total Tree Cover (% of total land area)	Average Tree Cover Density near Schools (%)	Average Tree Cover Density near Healthcare Facilities (%)	Average Tree Cover Density near Childcare Facilities (%)
26.8	30.4	23.5	23.5

 Table 2: Tree Cover in Relation to Schools, Healthcare Facilities, and Childcare Facilities

Sources: University of Vermont Spatial Analysis Lab, 2016; DVRPC

The average density of tree cover relative to school, childcare, and healthcare facilities is similar to the overall City average. However, there is a significant range between the lowest and highest densities, with certain areas and facilities having more tree canopy than others. The three facilities with the lowest density of tree cover (for each respective facility type) exist in neighborhoods with more limited tree cover, such as Pennington/Prospect, Mill Hill, Chambersburg, Chestnut Park, and much of South Trenton. Facilities with the highest tree-cover density are located in the neighborhoods of Hill Crest, Hiltonia, West End, and Greenwood/Hamilton.











Figure 4: Tree Cover Density near Childcare Facilities

Heat Island Effect

Figure 5 illustrates the potential urban heat island effect (HIE) in Trenton. The urban HIE categories ('Low', 'Low-Medium', 'Medium-High', 'High') were developed based on grid cell values using the NJDEP's 2012 Land Use/Land Cover dataset. Each cell in a 100-meter grid covering the map area was populated with a point value based on the percent of impervious surface in that cell, where the amount of impervious surface was assumed based on the type of land use/land cover that NJDEP mapped. Comparison of this map with the tree cover map reveals that areas with a higher density of tree canopy have lower potential for urban heat island effect. This trend is especially apparent along the D & R Canal in Northwest Trenton, particularly in the area of Cadwalader Park, which has dense tree canopy cover, as well as in the highly vegetated Riverview Cemetery. The area surrounding Assunpink Creek in East Trenton exhibits lower potential for urban HIE. Neighborhoods with the highest potential HIE (which correspond to lowest density of tree canopy cover) include Chestnut Park, Franklin Park, Chambersburg, and Mill Hill.





Asthma

An important vulnerability to consider when assessing the air-quality benefits of increased tree cover is asthma, which is extremely prevalent in Trenton. According to the New Jersey Department of Health (NJDOH), as of 2014 the rate of asthma prevalence among adults in Mercer County was about the same as the state average (8.8 percent). However, at 10.8 percent, asthma prevalence in Trenton is considerably higher than the state average. Additionally, asthma-related emergency department visits in Trenton were more than 150 percent higher than the state average. Figure 6 provides a closer look at asthma prevalence, with percentages displayed at the census-tract level. The highest asthma rates are in the area of Pennington/Prospect, Stuyvesant/Prospect, West End, and Cadwalader Heights, particularly along Route 31 and Prospect Street. Because trees are proven to improve air quality, increasing the tree canopy cover in these areas may benefit community members that suffer from asthma.





Stormwater

Due to increased amounts of impervious surfaces, overwhelmed drainage systems, runoff from other places, and changing weather conditions, managing stormwater is a challenge for urban areas. Located at the confluence of the Assunpink Creek and the Delaware River, nearly 20 percent of the Trenton's population is located within a floodplain (and 50 percent of the land in Trenton that contains transportation, communication, and utility infrastructure). Trenton experiences repeated flooding throughout parts of Downtown, Cadwalader Park, and along the Delaware River. Recent projects such as exposing (or daylighting) Assunpink Creek and promoting green infrastructure have helped mitigate these issues.

Primary causes of this flooding are the high amount of impervious surfaces (over 50 percent) and an aging combined sewer system which struggles to handle heavy rainfall. These issues translate into millions of gallons of water every year flooding streets, homes, businesses, and government buildings.

Mitigating stormwater runoff is a substantial undertaking beyond the scope of any one solution, but trees can play an important part. Most useful during periods of slow and steady rainfall where water sits long enough to absorb into the ground, a single tree can consume thousands of gallons of water per year. But during times of heavy rainstorms, trees can slow down the flow of water and their roots can reduce the amount of soil erosion.

Illustrating the topography, distribution of impervious surfaces, and location of floodplains are Figures 7, 8 and 9. These three maps define areas where trees could potentially be more impactful. Many of the areas along the waterfront are both low lying and within or close to a floodplain. Also, many northern sections of Trenton from Cadwalader Park to North Trenton contain areas of steep slopes which can concentrate and increase the force of flowing stormwater. Parts of Downtown and Mill Hill also contain large tracts of parking lots and other impervious surfaces. This combination of factors can help prioritize tree plantings in areas where they would help mitigate stormwater the most effectively.

Figure 7: Topography











Available Land for Planting and Maintaining Trees

Protected open space and trail corridors

Illustrated in Figure 10, Trenton has 464 acres of protected open space, 7.5 miles of existing trails, and 2.5 miles of planned trails as part of the regional Circuit trail network. These parks and trails constitute a large portion of Trenton's outdoor recreational resources and are prime areas for planting additional trees to provide cooling shade and appealing views for trail users.

According to the tree cover data from the University of Vermont (UVM) Spatial Analysis Laboratory (SAL), Trenton has a range of density of tree cover in its parks and along its regional trails. Cadwalader Park has a relatively abundant tree cover that should continue to be maintained. Other parks, such as sections of George Page Park, could benefit from additional trees for shade. Substantial tree cover already exists along trail segments such as the Delaware and Raritan Canal State Park Trail in Northwest Trenton, but segments in Northeast Trenton are candidates for additional trees to provide shade.



Figure 10: Tree Cover in Preserved Open Space and Along Circuit Trails

CHAPTER 3:

Community Forestry Management Program

Trenton's current tree management system is a mix of public and private organizations with overlapping formal and informal responsibilities. This Chapter describes these roles and responsibilities as well as tree planting strategies, budget considerations, and how trees are presented in Trenton's municipal plans and regulations.

Trenton has a varied mixture of trees. The composition includes various species, a range of ages, and degrees of healthiness. Because of the past planting efforts of Trees for Trenton and the ongoing planting efforts of organizations like New Jersey Tree Foundation, Cadwalader Park Alliance, and Isles, Inc., there are many high-quality trees in Trenton.

During public meetings for this plan, participants felt strongly about trees, both in the positive contributions of healthy trees throughout Trenton and in the negative contributions of decaying risk or hazard trees to their properties and neighborhoods. Residents who attended the New Jersey Tree Foundation's July TreeKeepers workshop described trees as an "*essentia*l" and "*integral part*" of the neighborhood. They noted the benefits that trees offered in managing stormwater, cooling the City, improving the quality of life, adding beauty, and making pedestrians more comfortable. A lack of trees in neighborhoods made one resident think about their absence and motivated her to want to add more.

While acknowledging the benefits of trees, these same residents also observed the burdens of trees. One attendee commented that she "appreciated them in parks, but along the streets, older trees had become a financial challenge for many residents to maintain." Many residents do not have the resources to keep street trees in good condition.

Residents and City staff alike have observed trees in parks and on streets significantly declining in the past five years. Lack of proper maintenance and scarce planting, as well as the threats and challenges posed by bacterial leaf scorch caused by the bacterium *Xylella fastidiosa*, and lately by the emerald ash borer, have affected the health of Trenton's trees.

Trenton had a much larger street tree program in past decades, and according to one resident at the TreeKeepers workshop, "*neighbors would get on the City's tree maintenance schedule and know someone competent was coming.*" Resources have been substantially cut for tree maintenance, but the Shade Tree Bureau at the Division of Natural Resources is bouncing back with additional financial support.

Program Administration

Trenton Division of Natural Resources

The Division of Natural Resources is the public entity charged with overseeing the care of Trenton's tree resources. They cooperate with the Mayor and City Council, the Department of Public Works, and many other boards and agencies throughout City and County government

The City of Trenton Green Team

The Green Team has been instrumental in the development of this plan and is the main contact with the New Jersey Forest Service for community forest initiatives. It consists of residents, Trenton staff, and other local or regional environmental advocates. Established in 2011 by the Trenton City Council as part of the statewide Sustainable Jersey program, their primary objective is to engage the community around projects that improve the local environment and quality of life.

Table 3 outlines the City groups and individuals that provide support to the City's trees.

Table 3: Tree Program Support

Person/Organization	Role	
Local Government		
Mayor and Council	 Review the policies and plans of the Department of Recreation, Natural Resources and Culture. Approve annual budgets for all Departments in the City of Trenton. 	
Chief of Staff	1.) Authorizes positions to be filled, approves budgets as recommended by the Business Administrator, and works with Departments to establish overall policy for Trenton.	
Business Administrator	 Reviews the plans and policies of all the Departments, including the Department of Recreation, Natural Resources and Culture (in which the Division of Natural Resources is located). Recommends the annual budget submitted to the Mayor and Council. 	
Department of Recreation, Natural Resources, and Culture, Division of Natural Resources	 The Trenton Shade Tree Crews are under the umbrella of the Division of Natural Resources. They are the authoritative agency for all community trees on municipal streets, rights-of-way, parks, or other public properties. Their duties include: Taking full responsibility in the planting, removal and general maintenance of City trees, and advise outside agencies working in Trenton. Developing and recommend the policies and goals that will preserve and develop Trenton's tree resource. Performing public outreach to foster better understanding and care for Trenton's trees on both public and private properties. Assisting in the handling of any complaints or requests received for work on City trees. Developing and review annual budgets with the Business Administrator and submit them to the Mayor and Council. Developing and oversee all Arbor Day and Earth Day activities. Performing the day-to-day maintenance on Trenton's trees. Working with the Department of Public Works and the Department of Housing and Economic Development to review tree and landscape projects in the Trenton. 	

Municipal Shade Tree Manager (Shade Tree Supervisor)	 Reviews any requests for tree planting, removal, or maintenance and makes the necessary inspections. Supervises and inspects all work done by the Shade Tree Crew and private contractors on City properties. Develops annual plans and budget requests for tree maintenance costs. 		
Shade Tree Crew	 Responsible for tree removal, pruning and brush clean-up along municipal roadways and on City properties. Responsible for some planting and upkeep of young trees along municipal roadways and on City properties. Reporting of any tree hazards or other problems to the Municipal Shade Tree Manager immediately. 		
Public Works Department	 Responsible for small tree removal, pruning and brush clean-up along municipal roadways and on City properties. Responsible for assistance with storm clean-up efforts. Reporting of any tree hazards or other problems to the Director of Public Works immediately. 		
Private Organizations			
Private Tree Contractors	 Generally, most tree care and maintenance activities are done in-house, or by Mercer County or NJDOT Tree Crews, but when difficult or large climbing jobs arise, private contractors may be deemed necessary on a case-by-case basis. Private contractors are responsible for the following: 1.) Provide proof of appropriate insurance, certifications, and licenses as necessary to the appropriate department heads. 2.) Report prior to and following all work performed to the appropriate department supervisor. 3.) Complete all work in a safe and timely manner according to all applicable safety standards set by OSHA or ANSI, as they pertain to tree care operations. 4.) Follow all current arboricultural practices and recommendations. 5.) Report all problems directly to appropriate department head. 		
Utility Contractors	 Must notify the Mercer County Engineering Department or Mercer County Shade Tree, Trenton Superintendent of Public Works and the Trenton Division of Natural Resources prior to the start of any non-emergency work. Must follow all current arboricultural practices and recommendations, specifically, ANSI ZI33.1 safety standards and ANSI A300 pruning standards. May assist the Public Works Department and Division of Natural Resources Tree Crews in clearing trees to a safe distance from their facilities when necessary. 		
Residents, Business Owners, and Other Property Owners	 Continue to report all requests for planting, removal or maintenance to the Division of Natural Resources. Assist in follow-up care to the newly planted trees on adjacent properties or in county or City rights-of-way. 		
County Government			
The Mercer County Board of Chosen Freeholders	 Tree maintenance along county roadways will be referred back to Mercer County. The care and maintenance of those trees will follow the plan outlined in Mercer County's Shade Tree Management Plan or county ordinances or care resolutions. 1.) Responsible for appointment of the Mercer County Division of Natural Resources. 2.) Authorizes new policies and plans and approves annual budgets. 		

 Helps review new plans and policies of the Mercer County Shade Tree Commission. Recommends the annual budget submitted to the Board of Chosen Freeholders. 		
 Reviews any requests for tree planting, removal or maintenance and makes the necessary inspections. Supervises and inspect all work done by Mercer County Shade Tree Crew, and private contractors on county properties. Develops annual plans and budget requests for tree maintenance costs. 		
 Responsible for tree removal and pruning in county rights-of-way and other county facilities. Report any tree hazards or other problems to the appropriate department supervisor immediately. 		
State Government		
1.) Responsible for the care and removal of all trees along all state roadways and rights-of-way.		
Non-profit		
1.) Work with the Division of Natural Resources to help educate the public on the benefits of trees.		

Source: City of Trenton, 2019

Care of Public Trees

Division of Responsibility for Maintaining the Public Right-of-Way

One attendee at New Jersey Tree Foundation's July TreeKeepers meeting commented that "*residents expect the City to take on the burden of maintenance of its public trees.*" And with some exceptions, this expectation is warranted. In the Tree chapter (Chapter 287) of The City of Trenton's municipal code, the Department of Recreation, Natural Resources and Culture has "complete power and authority" over trees planted in public parks, parking strips, and greens or grounds in the public rights-of-way; and generally, they are fiscally responsible for the maintenance of those particular trees.

However, residents are responsible for trimming tree limbs that grow into or over a public "thoroughfare" from their private property and the City can bill the resident if the resident does not comply. City officials can order a resident to cut down a hazardous privately-owned tree, and it is the responsibility of the owner to pay for its removal.

There are also some instances where property owners have to work with the City officials in regards to street trees and the damage they may cause to public property. Generally speaking, property owners are responsible for repairing damage done to public sidewalks, curbs, and gutters that abut their property. If the damage was caused by a street tree which the property owner requested to have removed and the request is declined, then the City will assume the cost of fixing the damage. If the damage is caused by a currently existing street tree or one that has been previously removed, then the City may assume the cost of replacing that sidewalk, curb, or gutter but only as site and financial conditions may warrant. The sidewalk inspector for Trenton maintains a list of sidewalks that require repair and a sidewalk repair contract is bid each year.

City of Trenton Shade Tree Bureau

Overseen by the Director of the Division of Natural Resources, the Shade Tree Bureau in Trenton's Division of Natural Resources is the main group responsible for the care of Trenton's publicly-owned trees and includes three staff that tend to all public trees. As of September 2019, the Division of Natural Resources has been seeking to expand the Shade Tree Bureau staff with the addition of a forester with licensed tree expertise.

With its current budget and staffing, the Shade Tree Bureau primarily has a reactive role, responding mainly to emergencies, calls from residents, and removing hazard trees. When time allows, Bureau staff are able to undertake pruning themselves, reducing the need for contract pruning.

Tree Service Requests

Tree service requests are typically related to hazards, and generally come from residents, staff, City Council, and the administration. The requests are channeled to the Shade Tree Bureau to provide an evaluation on each tree's condition. Trees are given a priority based on their condition, location, damage to private/public property, and resident need. They are then placed on a priorities list. Maintenance scheduling is determined by this priority list and is overseen by the Shade Tree Superintendent.

Hazardous trees are given top priority. Hazards are defined as dead trees; trees with 50 percent dead wood, large hangers, or any significant structural defects; trees that are blocking traffic signals and signs; and other trees obstructing the public right-of-way or damaging property.

Removals in general require a great deal of staff time. One staff member tops the tree and chips the branches. At a later date, another staff member removes the trunk. When possible, small-sized wood is left at the curb for residents to use as firewood, but large wood is disposed. A third site visit is required to grind the stump.

Other Hazard Management Strategies

Currently, there are no formal plans in place for tree care following disasters. In case of any large-scale disasters, city officials follow plans developed by Mercer County or the Trenton Office of Emergency Management. These may include sections on removing tree debris to provide access for emergency vehicles, but do not delve into tree care specifics.

To date, there is also no formal insect and disease management plan, and any insect or disease outbreaks are handled on a case-by-case basis. For example, there is an annual program to treat Lindens for aphids, and ash trees that have been damaged by emerald ash borer are planned to be removed. Diagnosis and consultation would be sought from New Jersey State Department of Agriculture, Rutgers Cooperative Extension Service, or a New Jersey Certified Tree Expert; and treatment would follow their recommendations. In the event of an outbreak, state or federal assistance would need to be requested.

Other groups sometimes assist with recovery from weather-related hazards. The Shade Tree Bureau relies on assistance from Mercer County tree crews, utility tree crews, City park maintenance staff, and occasionally the Public Works staff to handle major damage from storms.

Tree care along utility corridors is an important issue. Utility companies need to ensure that power lines are clear of entanglements in order to reduce damage and ensure continuity of operations. As such, they have adopted tree care standards to help maintain healthy trees around their infrastructure. The tree care work itself is often contracted to different companies though, which results in a wide range of quality of tree care.

One resident commented that "the foresters hired by utility companies know what to do regarding appropriate tree maintenance, but this knowledge does not filter down to the crews that do the work on the ground, resulting in pruning that is unsightly, over-aggressive, or otherwise damaging to trees."

Tree Inventory

To date, no formal tree inventory exists leaving the Shade Tree Bureau largely unaware of the number and condition of trees throughout the City.

As a plan for a full inventory is established, there will also be a need for training in computer-based applications for the personnel who create and manage the inventory. These may include iTree and a mapping program like ArcGIS.

Tree Product Management

Trenton provides a leaf pickup service for neighborhoods with larger yards and trees that produce more leaves, but there is no citywide program. Residents currently bag their leaves in brown paper bags to be collected and composted, but any rainfall means that the leaves then must be bagged in plastic and sent to the landfill as a result. The Shade Tree Bureau has a large wood chipper and is developing a composting strategy.

Tree Planting

Trenton's budget currently does not provide enough funds to replace lost trees or plant new ones. To fill this gap, the nonprofit groups, especially Isles, Inc., the New Jersey Tree Foundation, and the Cadwalader Park Alliance, have been responsible for the tree planting in the past several years. These organizations work with residents and provide notification of large-scale tree plantings. Residents, often in the form of neighborhood or civic groups, also have local planting programs. The Old Mill Hill Society has planted most, if not all, of the newer trees on its block.

For many years, Trenton has also held an annual Arbor Day celebration in partnership with Trees for Trenton and Isles, Inc. The City has also been a member of the Tree City USA program since 1992, which promotes city pride in its tree cover.

The City of Trenton Public Works Department and Housing & Development Department include tree planting in many of their large projects. These may be major park renovations, street repair projects, streetscape improvements, or new housing projects. The Natural Resources staff works on these projects to choose the tree species, size and location. When funding is not available for trees, the project managers are encouraged to leave tree planting strips for future planting.

Tree Regulations and Compliance

The following Trenton plans and ordinances were reviewed for tree-related content:

- Trenton Municipal Code
- Complete Streets in the City of Trenton: Existing Conditions Analysis, May 2018
- Trenton 250 Master Plan, 2017
- Mercer County Hazard Mitigation Plan, 2016
- Trenton Natural Resources Inventory, 2015
- Trenton Green Infrastructure Study, 2014 (2017 Update)
- Climate Action Plan for the City of Trenton, 2010
- Trenton Hazard Mitigation Plan, 2008

Simultaneous to the preparation of this document, DVRPC is working with NJDOT to develop a Complete Streets guideline for Trenton. Trenton's Green Team and other partners have been involved in the creation of this guideline, and have advocated to include information and guidance on planting street trees.

In Trenton, the Municipal Code, the *Trenton 250 Master Plan*, and other municipal plans all ensure that trees are included in the planning process. In the Municipal Code, attention is given to assigning roles and responsibilities for tree care and replacement, listing development requirements, and encouraging sustainable landscape practices. The *Trenton 250 Master Plan* includes an environmental section that contains useful information and several key recommendations related to trees.

One challenge that partners using these plans face is that several are not comprehensive to the entire City of Trenton, instead focusing their recommendations on specific neighborhoods. This approach may provide challenges to implementing a successful city-wide tree program.

Despite the incorporation of trees in the above documents, residents and professionals acknowledge a lack of municipal capacity and budget to carry through with the regulations and recommendations that are included.

Professional and/or Partner Training

The New Jersey Community Forestry Council requires ongoing training for municipal workers and volunteers on trees, community forests, and related issues as an aspect of participating in the community forestry management plan program. This training ensures that City staff and residents are familiar with the best practices for planting and maintaining trees.

Dan Fatton, of Trenton Green Initiatives, Randy Baum, from the Cadwalader Park Alliance, and Maria Richardson, Director of the Department of Recreation, Natural Resources, and Culture have attended the New Jersey Community Forestry Council's Core training and will continue with the accreditation program. The New Jersey Community Forestry Council Training and Accreditation Program is an eight-hour core training program that gives participants an overview of the New Jersey Shade Tree and Community Forestry Assistance Act, background on community forestry and shade tree committees, legal aspects of managing trees, and recognition of hazardous situations. It must be attended by a minimum of two persons representing Trenton: one municipal official and one shade tree committee member, board member, or volunteer from the community.

Besides the individuals mentioned above, two Shade Tree personnel attended the CAA (Committee for the Advancement of Arboriculture) climbing school for continuing education training in chainsaw safety, first aid and CPR, electrical hazard training, and climbing techniques. Staff members are encouraged to participate in continuing education classes on hazard identification and any advanced technical training concerning modern arboricultural practices. Shade Tree Bureau employees have attended various training programs, including Hazardous Tree Evaluation, Tree Appraisal, Building with Trees, and Construction Management.

Residents' Experience with Tree Care

Residents and stakeholders who participated in the outreach for this plan emphasized the need for more maintenance as a first step before trying to expand the tree planting program. Because the Shade Tree Bureau cannot respond to all maintenance requests, there are many unresolved tree issues, and according to some residents and stakeholders, this has eroded residents' support for trees.

One attendee commented, "*if people never see trees maintained, they will always think of trees as problematic and never value them*". Attendees at the outreach events shared the following observations:

"some residents are concerned about paying for sidewalk restoration requirements, as they are legally responsible for maintaining their section of sidewalk. Some are concerned about cleaning up leaf litter and don't want that responsibility. Some residents consider the large, old trees on their block to be a poor match for the location, and argue that removal is the best option for preventing property damage in the future". As such, many residents refuse to have new trees planted in front of their house.

There are also many residents who support trees and would like to see the tree planting program expanded. Of the residents who attended the New Jersey Tree Foundation's July TreeKeepers meeting, the majority took responsibility for maintaining the trees around where they live and on their property. Trenton officials rely on civic groups to help water new trees and look out for vandalism. The Old Mill Hill Society has a strong program for neighborhood tree planting and maintenance. Other neighborhood residents in Hiltonia, Hillcrest, Cadwalader Heights, Franklin Park, and Villa Park support tree maintenance.

Another group that has provided support for trees is the Trenton Green Team, which is composed of residents, as well as City, nonprofit, and academic employees. The Green Team is connected with the Sustainable Jersey program, which awards points and ratings to municipalities for participating in a variety of environmentally focused programs, including a shade tree program.

Current Budget and Resources

The Shade tree Bureau's budget provides for tree care. The Bureau's budget, including new hires and expenditures, is approved by the Trenton's Department of Community Affairs. In turn, Trenton's budget is under the control of a state committee.

The Fiscal Year (FY)2018 budget for the Division of Natural Resources was \$895,061.02, including salaries and materials for park maintenance, and Shade Tree Bureau expenses. Of this total, \$282,529 was allocated to the Shade Tree Bureau, with details as shown in Table 4.

Budget Item	Cost	
Salaries		
Department Director (20%)	\$21,800	
Tree Supervisor	\$56,086	
Tree Climbers	\$161,443	
Total Salaries	\$239,329	
Materials		
Equipment Maintenance	\$14,200	
Trees	\$0	
Consultant	\$12,000	
Hardware	\$7,000	
Equipment	\$10,000	

 Table 4: City of Trenton Shade Tree Bureau FY2018 Budget

Materials		
Equipment Maintenance	\$14,200	
Trees	\$0	
Consultant	\$12,000	
Hardware	\$7,000	
Equipment	\$10,000	

Total Materials	\$43,200
Total Shade Tree Budget	\$282,529
Source: City of Trenton, 2019	

Beyond this budget, there is also in-kind work from volunteers and residents on public and privately-owned trees, as well as salaried work from staff members at partner nonprofits, including Isles, Inc., Cadwalader Park Alliance, and New Jersey Tree Foundation. However, these expenditures cannot be easily tracked.
CHAPTER 4:

Tree Program SWOT Analysis

During the research and outreach for this plan, many important lessons and points of information were collected. Several of these have already been listed in previous chapters, but are covered here in a traditional SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to show a more comprehensive picture of the community forestry system in Trenton. The points below should not be considered as exhaustive, but as a compilation of the information that was highlighted during research and outreach.

Strengths

- Large number of involved people with forestry backgrounds.
- There is abundant energy and creative ways to improve the community forestry program.
- There are historically significant, unique, and large trees; healthy older and middle-aged trees; and well-maintained young trees.

Weaknesses

- Lack of specific attention on trees from City staff and community members due to the many environmental needs throughout Trenton.
- Lack of personnel or funding to proactively maintain the community forest.
- Liability issues may fall on individual property owners.
- Negative perceptions about tree maintenance from private property owners.

Opportunities

- There remains institutional memory among City staff and community members about the strengths of
 past municipal forestry programs.
- Residents and stakeholders are enthusiastic about the positive impact trees can provide for challenges such as stormwater management, food access, air quality, and urban heat islands.
- Expansion of public outreach and engagement programs can foster increased appreciation for trees and increase the number of people helping to steward them.
- Strong connections with New Jersey Tree Foundation and other community groups can help fill labor and budget shortfalls.
- Availability of funding, educational materials, and guidance from New Jersey Forest Service.
- Supporting for open space and trees in Municipal Codes and plans.

Threats

• Trenton's current tree maintenance program may result in the City losing more trees than they are gaining.

- Restoring pre COVID-19 levels of action, priorities, and personnel to Trenton's community forestry management program.
- External threats such as the effects of climate change (heat, flooding) and new pests will require attention.

CHAPTER 5:

Goals and Actions

This section describes the Goals and Actions for the next ten years to fulfill the Mission Statement for this plan laid out in Chapter 1. It is informed by the observations and brainstormed ideas of residents and professional stakeholders from public outreach sessions that were held over the course of two years and provides a blueprint of action for municipal officials, tree related organizations, and private individuals (See Appendix A for minutes from these meetings).

The five Goals of this plan were created by organizing comments from interviews and public meetings into common themes. They are listed in order of priority (See Appendix B) and are:

- 1) Care for Existing Public Trees.
- 2) Plant New Trees.
- 3) Engage Partners.
- 4) Conduct Internal Training.
- 5) Comply with Regulations and Requirements.

The Goals are then broken into (1) near-term actions that Trenton officials and tree stakeholders can focus on immediately and (2) ongoing actions that should be focused on in the near- and long-term depending on available resources and opportunities. In other words, the near-term actions are ones that could be focused on over the next five years, whereas the ongoing actions would become priorities in five to ten years.

Note, many of the general actions for both categories are the same, while the more specific actions differ. In some cases, the specific actions are followed by more details, steps, or informal suggestions on how to complete the actions.

Full List of Prioritized Goals and Actions

Goal 1: Care for Existing Public Trees

Near-term Actions

- 1. Expand staff capacity for tree maintenance.
 - a. Work with other departments to enable the Shade Tree Bureau to find a qualified forester.
 - Waive the residency requirement, or search for a licensed position with a forestry background which doesn't carry a strict residency requirement.
- 2. Proactively maintain community forest.
 - a. Draft plans and protocols for a tree care program and hazard identification plan.
 - b. Use inventory results to inform a maintenance strategy, which may evolve as information on Trenton's urban forest is supplemented over time.
 - c. Create a centralized location for all documents and plans for future use.
- 3. Complete a comprehensive tree inventory.
 - a. Use the "spot" or "sample-based" inventory NJDEP has arranged to complete as part of this plan as an initial source for the comprehensive inventory.
 - Include a complete inventory of Trenton's public trees within the citywide inventory for use by Shade Tree Bureau staff
 - Gather and input inventory information into the iTree program
 - b. Determine where inventory data will be stored, and which groups will be able to add to the data and have access to the data. Formalize this information in a policy.
 - c. Acquire equipment and/or software that may be needed to manage the inventory.
- 4. Manage Tree Risks.
 - a. Continue to remove dead and dying trees throughout Trenton.
 - b. Using results of inventory, develop a "triage" strategy for caring for Trenton's old trees, determining which to prioritize for protection and care, which to remove because of ongoing or likely future hazards, and which can be left alone for the short-term.
 - c. Create a tree risk management plan in partnership with other stakeholders, especially those in emergency management.
 - Develop a mutual definition and understanding of how storms and other disasters may affect trees, as well as protocols to respond to these tree hazards.

Ongoing Actions

For this section and the other ongoing sections, continue implementing the near-term actions as relevant.

- 1. Expand staff capacity of the City for tree maintenance.
 - a. Hire additional shade tree personnel to a level where tree resources can be effectively cared for.
- 2. Proactively maintain community forest.
 - a. Continue using inventory to prioritize tree maintenance needs.
 - b. Maintain the health and extend the useful lifespan of existing trees.
 - c. Focus early proactive maintenance efforts on public parks.
 - d. Update the current resident request system.
 - e. Make needed equipment purchases: a new bucket truck, a stump grinder, a mechanical wood splitter, and upgrade and replace existing chippers.
 - f. Improve road salt application processes in Trenton to reduce tree damage.
- 3. Maintain the tree inventory.
 - a. Expand the tree details that are tracked in the inventory.
 - b. Continue maintaining and updating the inventory.
 - c. With assistance from the partners in Trenton who are planting trees, record all newly planted trees on public property.
- 4. Manage tree risks.
 - a. Have all identified hazards remediated by pruning, removal, or other appropriate methods in a timely fashion.
 - b. Identify possible tree and sidewalk conflicts.
 - c. Create an integrated pest management plan.
- 5. Use, distribute, and dispose of tree products.
 - a. Explore private partnerships that can reuse, recycle, compost, or dispose of tree products at a large scale.
 - b. Create and advertise a social media platform for letting residents and other property owners know when and where tree products are available for pickup.
 - c. Develop a process for branch recycling or disposal, including a process to manage branches that fall on private property.
 - d. Develop a process to manage firewood.
 - Acquire a mechanical wood splitter to turn "waste wood" into firewood for residents.

- Identify a location for stockpiling wood and establish a procedure for pickup.
- e. Manage leaf compost.
 - Reestablish the composting program at the Department of Public Works yard or look for another location for storing compost.
- f. Establish a pick up and/or drop-off location for residents to bring leaf/tree waste.
 - Continue using wood chips in public parks and community gardens.
 - Conduct outreach to other community gardens and private property owners to see if they are interested in picking up wood chips.
 - Work with the City's Division of Solid Waste Management to collect Christmas trees in garbage trucks and chip the trees.
 - Determine a central drop-off location where residents can drop off wood and get chips and advertise location once determined.

Goal 2: Plant New Trees

Near-Term Actions

- 1. Support existing planting partnerships.
 - a. Share information on priority neighborhoods, streets, and other areas for planting, as determined by inventory and community outreach.
 - b. Discuss preferences for species used.
 - c. Assist with grant applications or other fundraising for new trees.
 - d. Assist with community outreach related to plantings.
 - e. Participate in plantings when time allows.

Ongoing Actions

- 1. Develop a tree-planting plan.
 - a. Use existing data to determine priority areas.
 - b. Use "Right Tree in the Right Place" resources (see Appendix C).
 - Plant flowering native trees that support local pollinators.
 - c. Create a tree planting schedule using prioritized tree-planting list.
 - Include plantings for special events, such as Arbor Day and Memorial Day.
 - Develop a diverse list of acceptable trees for street tree planting and share this list with tree planting partners, especially Planning Board and Zoning Board members.
 - d. Identify areas for tree planting.

- Target areas that are already set up to accommodate trees, such as open tree pits or places where hazard tree have been recently removed.
- Target areas that will address combined sewer overflow.
- Add trees to create a more pleasant walking environment.
 - Replenish street trees that were removed in the past.
 - Use trees to make the downtown friendlier to walk through.
- Refer to Appendix A for specific sites and areas mentioned by the Shade Tree Advisory Board, residents, and other stakeholders during outreach meetings.
- e. Using New Jersey Shade Tree Federation's "Trees for NJ Streets" (latest edition) and other available publications, develop specifications for tree planting.
- 2. Implement planting plan.
 - a. Conduct education.
 - Add signage describing the tree species and benefits that the tree provides.
 - b. Strive to plant more trees than are removed or lost annually.
 - c. Use contractors, volunteers, Shade Tree Bureau employees, and partnering organizations to plant trees.
 - d. Take advantage of ongoing right-of-way reconstruction projects for roads or utilities to time the planting of trees.
 - e. Construct enhanced tree pits to capture stormwater runoff in areas that flood.

Goal 3: Engage Partners

Near-Term Actions

- 1. Increase the number of residents and private property owners interested in trees.
 - a. Care for public trees to positively influence residents' perceptions of trees.
 - b. Expand on existing public outreach programs through (for example) local businesses; local media outlets; public or private schools; local organizations, groups, and clubs; and religious groups.
 - Promote tree updates on social media, especially through the Department of Public Works and Department of Recreation.
 - Develop fact sheets for use by Trenton's Communication Office.

- c. Continue Trenton's presence at Arbor Day, Memorial Day, Earth Day, and other tree, environmental, or cultural celebrations, such as Cyclovia, East Trenton Collaborative/Recreation Department block party, Brunswick Ave Day, African American Cultural Festival, Art All Night, and the Back to School Extravaganza.
- d. Share information that addresses residents' concerns, such as the values that trees provide from a stormwater perspective.
- e. Use print and electronic media to promote tree activities.
- f. Update the City's website and Green Team webpage to provide more information to readers.
 - Provide the community forestry management plan on the Shade Tree Advisory webpage and with other municipal plans so that potential partners who could help implement the plan are aware of it.
 - Post tree forms and applications.
 - Advertise local treerelated meetings and activities.
 - Link to tree care organizations, such as the International Society of Arboriculture,

Financial Assistance for Tree Maintenance

Several precedents exist for programs to help residents maintain their trees. **Habitat for Humanity** provides no-interest loans and volunteer labor to families for home preservation needs. These loans are disbursed based on income, need, and willingness to help with the project, and can be used for tree trimming and hazardous tree removal. Each program is operated by the local chapter of Habitat for Humanity and can vary, but some examples are Fauquier County (VA) Habitat for Humanity and North Central Iowa Habitat for Humanity.

The **City of Cleveland Department of Aging** partners with the City's **Department of Public Works** to provide hazardous tree and branch removal services to low-income seniors and adults with disabilities. This program is funded through the US Department of Housing and Urban Development and requires interested and eligible participants to submit a written application with income and home ownership verification. Charlotte NC, and New York City, NY also have municipal programs to help with tree repair, but funding is generally limited and repairs are prioritized based on severity of damage.

Further reading:

- fauquierhabitat.org/what-wedo/programs/home-repair-service.html
- nycgovparks.org/services/forestry/treessidewalks-program
- city.cleveland.oh.us/sites/default/files/forms _publications/CTAPSTreeProgramApplication. pdf
- wbtv.com/2019/01/04/charlotte-testing-outpilot-program-that-helps-homeowners-withtrouble-trees

National Arbor Day Foundation, and the New Jersey State Forest Service Community Forestry bulletin board.

 Provide tree care tips from the Arbor Day Foundation and International Society of Arboriculture.

- Advertise City-approved tree species for planting.
- 2. Help residents and private property owners better maintain their trees.
 - a. Continue working with community groups and other interested parties on neighborhood maintenance projects.
 - b. Communicate responsibility for trees in the right-of-way, differentiating between the City's and property owners' responsibilities.
 - c. Continue supporting New Jersey Tree Foundation in running educational workshops like Trenton TreeKeepers.
 - Expand the reach of workshops to specific neighborhoods, business owners, or other groups that have not previously attended.
- 3. Coordinate partner efforts.
 - a. Build relationships and trust between the City and residents so that trees are seen as a value rather than a liability.
 - Engage neighborhood groups that support trees.
 - Strategically plan volunteer work.
 - Meet with local volunteer groups to discuss tasks that they can do and tasks that require the City or professional services.
 - b. Work with partners to advocate for the health and maintenance of trees to bolster resources.
 - c. Organize meetings with the Green Team, municipal and county staff from different divisions/departments, planning and zoning boards, nonprofit tree-planting or City greening partners, and local property owners and residents, as well as public officials when relevant. Discuss implementation of the plan and coordination between countywide, citywide, and neighborhood efforts.
 - d. Conduct regular outreach and engagement with utility companies. (See Appendix E for more guidance and resources from other communities.)
 - Choose a well-connected liaison (or liaising group) at the City who has a background in tree management and will share utility updates with residents and other City staff as well as collect resident or elected official concerns and share them with the utility.
 - Reach out to the local utility company to begin a proactive removal and replacement plan for trees in conflict with overhead conductors.
 - Ask utilities to conduct a tree audit of problem utility corridor areas with City staff and residents walking along utility corridors and identifying areas of tree and line conflicts as well as priority areas where aesthetic appearances should be prioritized.
 - Confirm tree pruning practices with the utilities and contractors.
 - Encourage City staff in the Department of Public Works to complete line clearance certification so they can do small-scale tree trimming work near power lines in the City.

Ongoing Actions

1. Increase the number of residents and private property owners interested in trees.

- a. Provide education and outreach to school-aged children and youth. Potential partners include Trenton Public Schools, Girl Scouts, Boy Scouts, and local colleges.
- b. Increase fun and interactive tree programming in public education curriculums.
- c. Provide tree planting educational opportunities to residents of public housing, such as through demonstration projects in public housing to convert spaces into green spaces.
- d. Instill pride in the Trenton's trees.
 - Achieve Tree City USA status and strive for Growth Awards
- e. Engage residents through neighborhood leaf clean-ups in the fall and spring and recycle leaves afterward.
- f. Form a relationship with local media outlets.
 - Submit regular press releases about community tree events, educational workshops, and/or essential tree information to local media outlets, including newspapers, radio stations, and television.
 - Invite local media to attend Arbor Day events and all other tree-related programs and partnerships within Trenton.
- 2. Help residents and private property owners better maintain their trees.
 - a. Provide educational resources for homeowners on the following topics:
 - Tree identification.
 - Education/guidance on "right tree in the right place" so that the volume that new trees take up at full growth better fits their surroundings.
 - Education on proper management practices.
 - Strategies and procedures for the removal of trees, as well as who to call if the property owner cannot do this work on their own.
 - How to protect against, identify, report, and respond to insect and disease threats like emerald ash borer and oak blight.
 - Maintaining personal safety around hazard trees.
 - A pruning course, with participants being assigned pruning tools so that minor structural pruning could be performed on young trees.
 - With the approval of the City, provide training for resident groups to learn how to do minor pruning of lines of sight along street corridors; this was done in past administrations.
 - b. Create an insurance or funding program for lower-income residents that will cover costs for trees outside their homes that might damage property or need to be removed.
- 3. Coordinate partner efforts.
 - a. Develop a tree care relationship with Mercer County, which owns many streets and parcels in Trenton.

- Look for allies at the county level who are interested in trees and would want to work with Trenton, for example the Shade Tree Unit of the county's Highway Division or the County Park Commission.
- Advocate for planting and maintaining trees in county-owned parcels in Trenton.
- Coordinate with Mercer County on the creation of a countywide forestry management plan or on any updates to plans that could have an impact on trees.
- b. Explore a cost-sharing agreement between multiple municipalities in Mercer County.
- c. Conduct outreach to landscape architects and other members of site planning teams for upcoming development projects.
 - Provide these professionals with information to help them choose the right tree in the right place.
- d. Partner with the Trenton Free Public Library to provide tree education to residents.
 - Place this Forestry Management plan on reserve at the library.
 - Host educational sessions on trees.
 - Build up the library's resources on tree care.

Goal 4: Conduct Internal Training

Near-Term Actions

- 1. Complete required credential maintenance.
 - a. Prioritize the following individuals and groups for training opportunities as part of this plan: Green Team members, tree planting organizations and volunteers, Shade Tree Bureau employees responsible for tree maintenance, and the two or more Core trained individuals.
 - b. Assure at least one municipal official obtains Core certification.

Ongoing Actions

- 1. Consistently engage planning and zoning board members on tree-related matters.
 - a. Engage planning and zoning board members in yearly or biannual training sessions on treerelated ordinances to inform them on these matters.
 - Topics could include:
 - Provide resources on "right tree in the right place" topics.
 - What trees should be approved.
 - What factors are important to consider when planting trees.
 - b. Green Team members, New Jersey Tree Foundation staff, or other tree advocates should provide general information on tree benefits to City staff and elected officials.
 - c. Include the Mayor, Council and members of the Planning Board in the Shade Tree Federation Meeting and add in training opportunities at the end.
- 2. Expand upon fundamental knowledge of City staff.

- a. Allow for City staff from the Shade Tree Bureau, Division of Natural Resources and/or Public Works Department to attend the New Jersey Shade Tree Federation Meeting for Core training and credential maintenance.
- b. Begin a program of in-house training for the Division of Natural Resources and Public Works Department with the use of consultants and safety trainers.
 - Training needs should be responsive to issues that come up from the previous year.
- c. Fulfill needed training topics:
 - Ongoing safety and skill-building training for Shade Tree Bureau staff.
 - Proper pruning and equipment safety.
 - Tree identification and hazard tree identification.
 - Electrical hazard awareness.
 - Pest management program.
 - Pest identification and control, especially for emerald ash borer and oak blight.
 - Fertilizer methods and requirements.
 - Integrated pest management (IPM) basics.
 - Use of iTree, ArcGIS, Microsoft Excel, or other software applications used for citywide inventory.
 - Training for road maintenance crews on reducing impacts to trees during street cleaning.

Goal 5: Comply with Tree Regulations and Requirements

Short-Term Actions

- 1. Clearly communicate regulations on tree maintenance responsibility.
 - a. Be transparent about the current regulations stating that regular street tree maintenance is a shared responsibility between the City and residents.
 - b. Advocate to update this regulation to be written more clearly in Trenton's ordinance, and/or have a drawing depicting the location of trees relative to houses, yards, sidewalks, streets, etc. to clarify where residents can reasonably expect the City to maintain a tree and where maintenance is the resident's responsibility.
- 2. Enforce existing regulations.
 - a. Provide resources to the Planning Board to help it better review the role of trees in development applications and ensure compliance with existing regulations.
- 3. Remain in compliance.
 - a. Maintain compliance with the New Jersey Shade Tree and Community Forestry Assistance Act by updating the community forestry management plan regularly.
- 4. Monitor municipal plans that are pending revision to ensure that tree care is added into the update.

Ongoing Actions

- 1. Create and/or amend tree protection ordinances.
 - a. Review sample ordinances from other municipalities to get a sense of the language that others have used for each of the topics desired.
 - b. Conduct outreach to residents and municipal staff and officials about the positive effects of a new or updated ordinance and determine the citywide level of support.
 - c. Establish a committee to review and suggest changes and additions to current tree care ordinances, as well as new ordinances.
 - Ordinances or ordinance amendments could include:
 - Heritage Tree Ordinance.
 - Updated Approved Species Planting List.
 - A No Net Loss ordinance to replace trees lost to development.
- 2. Enforce existing regulations.
 - a. Establish and continue an annual meeting with the Planning Board, Shade Tree Bureau, and Trenton Green Team to coordinate enforcement of tree regulations and discuss changes.
- 3. Create a Shade Tree Commission.
 - a. Establish an outreach process and timeline to gather support from residents and City officials for creating a shade tree commission.
 - b. Act on the above process and timeline, to create a shade tree commission.
- 4. Advocate for statewide regulations.
 - a. Be a voice for improvement to statewide laws and policies related to tree protection, especially statewide standards for utility pruning.

CHAPTER 6:

Next Steps

Future Budget and Resources

The majority of the work listed in the goals and actions mentioned in earlier chapters requires additional funding sources. As mentioned previously, the Shade Tree Bureau receives Trenton's dedicated funding for trees.

The City may also allocate funding to other departments that ultimately goes to tree maintenance, such as within the Department of Public Works. There is also paid staff time for local and regional tree advocacy organizations, as well as in-kind work from local volunteer hours.

Rarely does a city have a large enough municipal budget to act on all of its goals for its community forest. Advocating for an increase in budget is itself an additional ongoing project that may require the work of a variety of residents and community groups. In the meantime, the City may be able to use grants, which provide temporary influxes of funding. (See Appendix G for funding resources available as of the publication of this plan).

Stakeholders should review available funding and personnel resources on an ongoing basis to see which goals and actions from the community forestry management plan are achievable with what is available, and will continue to do so as circumstances change.

Timeline

The plan implementation timeline presented in Chapter 5 estimates implementation in the near term following the publication of this plan and as ongoing work throughout the full ten-year scope of this plan, noting that the capacity of the City may change.

Ongoing Review and Adaptation of Program

It is recommended that a committee of key stakeholders in Trenton form to meet quarterly or twice a year to discuss the progress that is being made to implement the community forestry management plan. Stakeholders should include members of the Green Team, municipal staff, planning and zoning boards, nonprofit tree-planting or City greening partners, and representative local property owners and residents. Elected officials and state or county officials could be asked to attend periodically when their input is needed.

The committee can use these meetings to get support for new projects, talk about ongoing or upcoming projects, reflect on the success of recently completed projects, and come to consensus on revisions to the plan or changes to future projects that may be needed.

This committee would also be well-positioned to create the regular plan implementation updates that are required by the New Jersey Shade Tree and Community Forestry Assistance Act, and conduct future updates to this community forestry management plan.

Appendix A Notes from Outreach

Appendix A: Notes from Outreach

New Jersey Tree Foundation: TreeKeepers Workshop, July 20, 2019



City of Trenton, Mercer County, NJ Community Forestry Management Plan New Jersey Tree Foundation: TreeKeepers Workshop

Saturday, July 20, 2019 Isles, Inc., 33 Tucker Street 9:00 AM

Meeting Minutes

Attendees: 7 residents of Trenton NJ Tree Foundation: Lisa Simms, Crystal Wessel, Meredith Brown Isles, Inc.: Jim Simon DVRPC: Melissa Andrews, Miles Owen

How would you describe the impact of trees in your neighborhood?

- Essential, improve quality of life and cityscape, make pedestrians want to be there –he puts in a lot of effort to plant and maintain for that reason
- Integral part of the neighborhood (Cadwalader Heights)
- Where there are no trees, makes her think about absence, how to get more trees
- In E. Trenton during a tree planting session, people were focused on negative impacts had to show benefits but hazards loom large
- Cooling part of trees important brick/asphalt holds heat, trees make a difference
- In Goosetown neighborhood, trees were put in centuries ago, problem now is
 maintenance but neighbors don't have the resources to maintain [*implied that street*trees aren't preferred in the neighborhood] but you can go to parks and enjoy benefits of
 trees

What are the reasons you want to see more trees in your city?

• Stormwater management

Who maintains the trees at your home? (show of hands)

- You do: 6
- You do, with some help from professional tree services: 3
- A professional tree company: 0
- Nature takes care of your trees: 2
- Your landlord takes care of your trees: 1
- The city takes care of your trees: 4, when a crisis occurs
 - City hasn't planted trees in Mill Hill they are all resident planted
 - Residents expect city to maintain burden of maintenance



What is a top reason you or your neighbors might choose not to plant a new tree, or might choose to remove a tree on your property?

- Sidewalk issues
- Top reason to remove roots cause problem with plumbing

What do you think are some of the best ways to encourage others to plant and protect trees on their property?

- Education, making it fun
- Today's weather (hot)
- Emphasize beauty of canopy, economics
- Money residents will see higher return when reselling house
- Work with the city government get capacity to maintain trees? Grants, partnerships?
 - Trenton used to have full tree department, with climbers and pruners residents could get on their schedule and know someone competent was coming
 - City dealt with the "big stuff" related to trees
- If people never see trees maintained, they will always think of trees as problematic and never value them
- Bring attention and pride back, like through a Tree City USA program
- Get Scouts, colleges, Isles involved
- A lot of the population is in public housing and don't see trees in their community
- Green stormwater infrastructure
- Architecture and design of public housing there are some examples of apartment courtyards with a complete absence of trees
 - [Paris has addressed this recently through mini-forests]
- Educate people in public housing demonstration projects to convert spaces into green spaces

What are some of the most important things that you and your neighbors can do to better maintain the trees that are in your yard or neighborhood? What kind of support do you need to accomplish this?

• Support: City could send out information on trees, for example through some of the mailings that they already do, related to public health issues like water quality, asthma, pollen allergies

What are some of the most important things that the City of Trenton can do to better maintain the trees that are in your neighborhood?

- Maintain parks better so residents can have access to clean, well-maintained parks
- In the city, street trees are maintained better than park trees very few trees are left in parks



How could property owners in neighboring municipalities (throughout Mercer County) work together to share knowledge or other resources to maintain the region's trees?

- Mercer County should help fund trees
- Wealthier municipalities should support less wealthy ones in funding trees
- County-owned parcels in Trenton should be planted
- Other counties have forestry management plans what about Mercer?
- Mercer County is looking for ways to engage more in the city maintain parks to take pressure off city?

Comments on mission statement: "Trenton desires to create a better quality of life for the residents of the city by establishing a comprehensive and professional Community Forestry Program, thereby providing a healthy and pleasant environment in Trenton through the management of its tree resource."

- Like that it incorporates management
- Needs to mention environment, climate change
- No mention of partnerships or the word "community"
- No mention of "how"
- Should use the phrase "will" rather than "desires to" otherwise, it's a hope and dream
- Change words to make the issue of trees a holistic approach need to look regionally,
- globally
- Focusing on "Trenton" makes this a "Trenton problem"
- "As the capitol of NJ, we will create a better quality of life" use municipal pride, municipal branding
- Acknowledge that everyone is responsible for the environment

Other questions/comments:

- Desire to see maintenance included in the plan
- Interested in knowing how close trees need to be to provide benefits
- Contact: Wanda McNeill, Marketing and Community Outreach Director at Mercer
 County Park Commission
- Information about the Community Forestry Management Act discussed; concern about the financial impact to residents if municipalities complying with CFMPs are protected from liability
- More resident outreach is needed regarding the CFMP
- Most of the attendees did not know about the CFMP before this meeting

Trenton Community Forestry Management Plan Stakeholders Meeting, July 31, 2019

Notes from July 31 Trenton Stakeholder Meeting

Attendees:

Jean Shaddow, Isles Jim Simon, Isles Julie Krause, NJDEP Liz Pyshnik, RCE WRP Kandyce Perry, NJ Future Carrie Sargeant, NJDEP UCF Chris Linn, DVRPC Melissa Andrews, DVRPC Miles Owen, DVRPC

Ice breaker: What is a top-priority maintenance project that should be implemented right away?

- Street tree inventory
- Trenton hires their forester and they manage the data: they didn't get adequate candidates to qualify because of the city's residency requirement
- Trenton starts to hire staff to care for its trees, or starts working with other entities who will do the work: there are only 3 people currently on the staff and they can't handle storms there is still debris on the streets from 3 years ago
- Increase capacity for maintaining
- Focus on State St between Sullivan Way and Hamilton St create a progressive planting plan
- No one is planting trees [interpretation that the attendee wants more groups to plant trees]
- Taking care of dead/dying trees no one will want trees if that is their experience
- Better relationship-building and trust-building between the city and residents so that trees are seen as a value rather than liability: education on proper management also needed
- Plantings along E. State St., especially from a state worker perspective
- Concerted effort and progress for plantings each year so there is a net gain of trees; replacement of dying ones would start in Year 1

Group discussions on implementation of plan

Actions included in current plan

- Tree care of public (street and park) trees
- Monitoring the condition of trees, factors that can damage them
- Managing tree risks: planning for risks, responding to risks (i.e., emergency management)

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- · Planting trees: planning where to plant, doing the planting
- Planting trees in light of specific types of benefits that trees can offer
- · Coordination and support of tree maintenance on private properties
- · Ongoing training of professional partners in best practices for maintenance
- Ensuring compliance with tree regulations in land development process
- Establishing a complete tree inventory (census): identification, mapping

Questions discussed for each action

- What are some of the main things that are happening right now with this action? (Are the slides and what's written in the plan accurate?)
- · Who is doing this work; how is it divided up among partners?
- What changes related to this action would help Trenton better meet its mission and goals?
- Who would be involved in making these changes happen?
- · What can you do with the resources do you have for this action right now?
- How can you grow your resources to get to what you want to have done in the next 5-10 years?
- What additional information do you need to start moving forward with this action?
- Optional: What are likely timelines for each task?

Mission Statement

Potential rewrite of mission statement

Care of public trees(section 9D)

- Maintenance is reactive
 - City probably still maintains trees in response to tree-related complaints or requests from the mayor's office
 - Unsure if there is a maintenance plan
- Recent changes in city structure make it hard to assess who is in charge of what or what the current workflow is like
 - Remnants of shade tree bureau is doing the work
 - Includes Enrique and 2 colleagues. They are also trying to hire a forester
 - DPW responds to requests currently
 - In the past:
 - At the Shade Tree Bureau's peak, there was a forester/superintendent, a tree supervisor that brought the technical skill and knowledge of following safety procedures, 4 tree climbers, 2 ground men, and a horticulturalist
 - Shade Tree Bureau had (and still has) its own budget
 - The Shade Tree Bureau started as a unit in Public Works.
 - Doug Palmer created the Dept. of R, NR, C

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- It was somewhat odd for the Shade Tree Bureau to be working in a dept "focused on sidewalks" - sometimes the goals of the two groups were at odds
- The enabling structure for the Shade Tree Bureau is still in place and could be built upon

 Regarding the difficulty that the city has had in hiring a forester who lives in the city - for licensed positions, the residency requirement can be waived, but a forester doesn't require a license.

- Could change the request and search for a licensed position with forestry background, including a certified tree expert or landscape architect.
- The mayor is trying to relax the residency requirements but is getting
- pushback for city council the rationale being that they want to hire local.
- What groups could be tapped to advocate for a stronger Shade Tree Bureau?
 - Old Mill Hill Society already has a strong program for neighborhood tree planting/maintenance: Jean, Judy, Greg are current contacts.
 - Neighborhoods in the past who were very pro-tree planting included Hiltonia, Hillcrest, Cadwalader Heights, Franklin Park, Villa Park.
 - Could also communicate with the Trenton Council of Civic Associations.
 - Make a shade tree committee/commission composed of residents that welcome the public - instill pride through tree planting, Arbor Day
 - It's expected that there will be negative resident input in the beginning because maintenance work has fallen to the wayside
 - Green Team is another resident/tree-focused group it gets points from Sustainable Jersey for a shade tree program, as well as eligibility for grants
 - Trenton also has an established structure (though currently nonfunctioning) with the Open Space Advisory Board. People have been working with the Association of New Jersey Environmental Commissions to establish an environmental commission within that structure - the commission could provide support and oversight of development and its impact on trees [group discussion afterward determined that a shade tree committee/commission or a joint shade tree/environmental commission would be more effective]
- Interest in working with the zoning board, planning board
- Interest in determining if the city would allow repurposing of the Open Space Advisory Board
 - Trenton may not allow commissions to form
 - The Open Space Advisory Board stopped working when Randy Baum was retained to review plans. Now that he's not doing that, Jean wasn't sure if anyone has taken over that role - there isn't much development happening.
 - There may be more in the near future, however.
- · City needs to increase staff and/or its funds for tree maintenance

- Ideally, 1 crew for each of the 4 wards plus 1 crew for the parks, creating a 5-year rotation for pruning (division by ward boundaries)
- Equipment is needed for each crew could be shared initially, though it's not ideal
- 3-step process for tree removal can be made less time-intensive if there is a larger crew involved
- Goals
 - #1 doesnt fit in this category
 - Should at least cut off the end to read "Install healthy, viable trees into the landscape"
 - #2 should move to previous section
- Things to include in the section:
 - There should be more information about tree care and Standard Operating Procedures
 - Include mention of road salt
 - Training about where to pile snow during street clearing
 - Training in general for road maintenance crews
- DPW is too spread out to adequately care for trees
- Look into creating a permanent ordinance to establish a shade tree commission
- What tasks can volunteers do vs what tasks will require the city/professional services
- Top priority should be dealing with trees that are "imminent dangers"
- Emerald ash borer and oak blight are issues in Trenton, and if you don't start treating the tree when it's healthy, you probably can't save it. A lot of old trees in the city and region may be lost this way.
- Tree care affects resident perceptions of trees
- There is no citywide leaf pickup service or a place for residents to drop off trees
 - There is a leaf pickup service for neighborhoods with bigger yards and trees that produce more leaves
 - Residents bag their leaves in brown paper bags to be recycled, but they stay out for a while and become wet. Residents have to bag them with plastic when that happens, and then the sanitation department has to pick them up.
 - Maybe the sanitation dept could be an ally? Make the case for money saved from picking up all of these wet leaf bags as a way of making a convincing argument to have leaf drop-off program?
 - o Who is the head of the sanitation department who could be contacted?
 - The sanitation department used to collect Christmas trees in garbage trucks; shade tree staff would chip 80,000 trees
 - If you were a resident and had branches to get rid of, you could bundle it and it would go into the garbage, but at least it was picked up
 - The shade tree staff used to put extra firewood-sized pieces of wood at the curb for residents after removing a tree
 - The shade tree bureau now has a large chipper



- The city has to dispose of chips, but the compost yard had to get shut down [so they are going to landfill]
 - Isles used to take chips for gardens
 - Some places, like the Atlantic County utility and Hamilton Township, have a central facility where chips can get picked up. People bring their own waste, city could control what goes in and out, maybe Public Works could do this? They already have a drop-off location for oil, TVs, etc and chips could be added if space allows.
 - Another issue residents may not know about the TV/oil/etc drop-off location
- May also be worth looking into private partnerships for waste collection, like Trenton Biogas
- Maybe a social media platform could play a role in letting residents know when a pile of firewood or wood chips are available

Monitoring existing trees

- Monitoring connects to maintenance (which doesn't exist)
- There used to be a running maintenance list dead trees got priority
- NJDEP will provide an inventory
- The question is who will own the inventory and maintain it
- DPW should use the inventory
- "Goals" could be "actions" under the inventory
- Include "maintain the inventory" as an action
- Inventory should inform maintenance
- Throughout the plan, the specific goals can more often be described as actions
- Maintaining relationships with new and existing partners is important for this

Managing tree risk

- Need to define what is a hazard
- Need to define what is a storm or disaster
- Make it a point to connect to emergency services
 - To help create a vegetation management plan which is required by FEMA for disaster assistance
- Do residents have to be responsible for trees within the public ROW?
- Rely on assistance from DPW and parks
- Dan Fatton coordinating with utility crews should be part of the plan
- Utility crews need to stop butchering trees
- Guidance needed for utility contractors or subcontractors to correctly prune trees
- In a past conversation that Jean had with PSE&G, they said pruning standards have to be increased to hurricane (possibly Sandy)-level standards have to prune so that utilities aren't affected by trees in something like 100-mph winds (worst-case scenario standards)

- "Right tree in the right place" vis-a-vis utility wires doesn't always work because small trees can still grow up into wires - large trees can be trained to grow around wires
- Long-term goal should be to change statewide standards for utility pruning Trenton can continue to advocate to state lawmakers
- With the ok of the city, they'd like to have training for resident groups to learn how to do
 minor pruning of lines of sight. Jean used to do this.
- · City can create a plan/agreement for the utilities pruning practices
- Need better coordination between utilities, city gov, FEMA, and local emergency services
- Utility foresters know what to do
 - o Its what happens on the ground that is the problem
 - Many towns work with utilities to establish their own agreements

Planting Trees

- Separate out tree planting and maintenance
 - Prioritize one over the other
- Carrie S. talked about a pint glass she received at an event in Ohio
 - Had a graphic that showed you need to build a tree maintenance program before a tree planting program
- More consideration of enhanced tree pits/GSI
- More consideration for selection criteria and/or site prioritization
 - Heat island effect, air quality resonated with Melissa's group as priorities for choosing planting sites for trees
 - Focus on streets with concrete and impervious surfaces
 - N. Clinton corridor (recently planted) was a recent example of a high-priority corridor for planting - open tree pits, close to manufacturing/waste processing, lots of impervious road surface. Still not completely planted because utilities in the way on some stretches or neighbors refused to take trees
- · Isles Inc, Cadwalader Park, NJ Tree Foundation are the only tree planters in the city
 - Trees for Trenton only exists on paper
 - A partner in the city doesn't exist
- · Possible partnership with county lots of streets in the city are county-owned
 - Mercer County Public Works Department has a shade tree bureau
 - The current Executive Director of the County Park Commissioner, Aaron Watson, is interested in finding opportunities to plant trees and distribute funds - especially projects with an equity perspective
- In Newark, the policy is that anyone who takes down a tree has to replace it or pay a fee that goes to future tree plantings
- NJDOT is supposed to follow complete streets protocol
 - DVRPC is working on an update and we have met with them to talk about how trees can be incorporated into the guidelines; any thoughts from the Green Team or other partners are welcomed. Kandyce is already involved
- · City used to take care of trees immediately after they were planted

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· The city could use an opt-out policy for tree planting

Regulatory compliance

- Development projects need to be reviewed to make sure they are considering trees
 This would be helped by establishing a shade tree commission
- Need more city input to really give advice on this section
- How can we increase the functioning of these organizations?
- The city already has ordinances in place to protect trees and require their planting in development projects, how do we get the planning commission to enforce this?
 - A shade tree commission can help with this by reviewing development applications

Inventory

- Whoever Trenton hires as forester will have to learn the inventory (both the actual trees and creating the inventory) from scratch - not an easy task
 - Inventory has to be periodically updated and maintained
- In the short term, can partners do this as part of their daily activities?
 - For example, Isles has an ongoing vacant property inventory, could they add a layer/question for tree hazards that they observe? There is a possibility that this could work. City Public Works would ideally be doing this.
 - o Isles uses handheld tablets in the field, could add other fields
- The City Housing and Economic Development department has a GIS mapping system that could house a tree layer - they already track sewer, water, vacant properties
- · Colleges could be tapped to help do a street tree inventory
 - Newark has a public effort to train high school students to inventory trees

General

- Questions about whether Trees for Trenton even exists anymore. Does anybody know anything about NJDOT tree crews?
- Make sure future CFMPs don't reference specific grant programs
 - In case that grant program isn't funded one year, or is eliminated

Most important topics to add to the plan based on group discussion

Creating a shade tree commission to review the role of trees in development applications (in the interim, the Planning Board can play that role)

Determining and communicating ownership/responsibility for trees in the right-of-way - city vs residents

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Appendix B Results of the Goals and Actions Survey

Appendix B: Results of the Goals and Actions Survey

Results of Trenton CFMP Goal Prioritization Survey

The Trenton Goal Prioritization Survey was conducted by DVRPC from May to June of 2020. It was prepared using SurveyMonkey and the results were analyzed and presented by DVRPC to Trenton Green Team Members on June 29, 2020 and are shown in Table B-1. Each Goal and Action was scored from one to five, with five being the highest priority level.

Goal	Score	Action	Score
		• Expand staff capacity of the City for maintaining trees.	4.44
		Proactively maintain community forest.	4.22
Care for Public Trees	4.82	Conduct a tree inventory.	4.11
		Manage tree risks.	4.11
		• Use, distribute, and dispose of tree products.	3.22
		Develop a tree planting plan for Trenton.	4.75
Plant New Trees	4.45	• Implement planting plan.	4
		• Support existing planting partnerships.	4
Engage Partners in Planting and Maintenance	4.36	Get more residents and private property owners interested in trees.	4.63
		Help residents and private property owners better maintain their trees.	4.13
		•Coordinate partner efforts.	4.13
		•Conduct ongoing training of City staff and officials.	4.5
Conduct Internal Training	4.27	•Expand upon fundamental knowledge of City Staff.	4.38
		•Complete required credentialed maintenance.	3.88
		 Clearly communicate regulations on tree maintenance responsibility. 	4.38
		Create or amend ordinances to protect trees.	4.25
Comply with and Enforce Regulations and Requirements		Enforce existing regulations.	4
	4.09	4.09 • Remain in compliance.	3.88
		Create a Shade Tree Commission.	3.75
		Update municipal plans to include trees.	3.75
		Advocate for statewide regulations.	2.57

Table B-1: Results of Trento	n CFMP Goal	Prioritization	Survey
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Appendix C "Right Tree in the Right Place" Guidance

Appendix C: "Right Tree in the Right Place" Guidance

Several state and regional organizations provide guidance to property owners for determining the tree species and varieties most likely to thrive on their properties or along a street right-of-way next to them. This appendix provides general guidelines, factors to consider, and recommended species for different situations.

Climate Factors

The USDA Agricultural Research Service and Oregon State University's PRISM Climate Group jointly develop a plant hardiness zone map, which reflects the plants most likely to thrive in extreme cold temperatures in specific locations across the country.⁴ The map was most recently updated in 2012 to reflect the current climate, based on temperature data from 1976 – 2005. According to this updated map, Trenton is in Zone 7a.⁵ Tree species selections should use those Zone guidelines. Tree nurseries and providers can provide information on which trees are appropriate for Zone 7.

Climate change will likely cause the USDA to continue to shift its plant hardiness zones, and future decades may favor trees that currently live farther south. The Climate Change Response Framework, a multiorganizational research effort led by the Northern Institute of Applied Climate Science, used two climate change scenarios in combination with two forest impact models to predict how tree species may fare in the future.⁶ They focused on the mid-Atlantic region, including the Coastal Plain subregion where Trenton resides.⁷ Based on their climate models, these researchers estimate that such tree species as Eastern redbud and Pin oak may have an increase of more than 20 percent in density in the region by 2100. The researchers do note, however, that the models don't show other factors that may reduce the future viability of those species, such as droughts or invasive species.

Pest-Vulnerable Species

Check which tree-favoring pests are common or growing in population in order to avoid the trees they favor. Currently, pest species like emerald ash borer and hemlock wooly adelgid are prevalent in the area, while spotted lanternfly populations are growing, so it is inadvisable to plant their host species. These include ash for emerald ash borer and hemlock for the hemlock wooly adelgid. Unfortunately, spotted lanternflies favor a wide variety of trees, including tree of heaven, its preferred host; but also, apple, plum, cherry, peach, apricot, grape, and pine species.

Site-Specific Factors

Different trees are also more or less appropriate to highly local, site-specific factors.

⁴ planthardiness.ars.usda.gov/PHZMWeb/AboutWhatsNew.aspx

⁵ planthardiness.ars.usda.gov/PHZMWeb/Maps.aspx

⁶ Butler-Leopold et al. (in review). Mid-Atlantic forest ecosystem vulnerability assessment and synthesis: a report from the Mid-Atlantic Climate Change Response Framework, Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. forestadaptation.org/mid-atlantic/vulnerability-assessment

⁷ forestadaptation.org/learn/resource-finder/climate-change-projections-individual-tree-species-mid-atlantic-region,

forestadaptation.org/sites/default/files/MidAtlantic tree species Coastal%20Plains.pdf

Soil Chemistry

Soil testing kits to determine the soil's nutrients and pH can be purchased from the local county office of Rutgers New Jersey Agricultural Experiment Station (NJAES) Cooperative Extension.⁸ Alternatively, pH meters can be purchased from various online retailers. Soil pH typically ranges from 5.5 (acidic) to 8.5 (alkaline).

Soil Drainage

To determine soil drainage rates, dig a hole 18 inches deep, fill with water, let drain completely, then refill with water and time how long it takes for the water to drain. If the soil drains in less than 2 hours, it is considered fast-draining, and if it drains in 18 hours or more, it is considered slow-draining.

Sun Exposure

Determining sun exposure is simple but time-intensive, and involves monitoring over the course of a day where your site gets full sun, partial sun/shade, and full shade.

Tree Characteristics Affecting Maintenance

Property owners should be aware of the types of materials that their preferred tree species will produce in a given year. The volume of leaves, flowers, and fruits that a tree drops can vary greatly. Furthermore, some trees produce pollen that can affect air quality for people with allergies or other sensitivities.

Another consideration affecting long-term maintenance is a tree's growth rate. Slow-growing species typically live longer than fast-growing species and require fewer instances of replacement over time. If a property owner plans to own and maintain a property for decades or generations (such as a school or religious institution), this consolidation becomes more important.

Spacing Guidelines

Choose a planting spot at least three feet from pavement or fencing on all sides and 25 feet from overhead utilities if the tree will grow taller than 30 feet.

See Table C-1: Basic Spacing Guide for guidance on spacing trees away from buildings or "plant massings" (other trees).⁹ Note that this guidance does not discuss buildings above one story.

⁸ njaes.rutgers.edu/soil-testing-lab/kits.php

⁹ arborday.org/trees/righttreeandplace/size.cfm

Table C-1: Basic Spacing Guide

TREE SIZE	SPACING PLANT MASSINGS	MIN. SPACING FROM WALL OF 1-STORY BUILDING	MIN. SPACING FROM CORNER OF 1-STORY BUILDING
Small trees (30' or less)	6-15'	8-10'	6-8'
Medium trees (30-70')	30-40'	15'	12'
Large trees (70' or more)	40-50'	20'	15'

The basic spacing guide from various distances and various tree heights

Source: Arbor Day Foundation

The shape of a tree—whether it has a narrow or wide canopy spread—also further determines how close it should be planted to other structures or utilities. Trees that are column-shaped or oval, like the Lombardy poplar or sugar maple, may fit into tighter spaces than trees that are round or v-shaped, like the white oak or hackberry.¹⁰

Check with your local underground utility services to make sure that there are no buried wires or pipes carrying water, sewage, gas, or electricity where you want to plant. New Jersey law requires anyone conducting major digging work to call "811" or 800-272-1000 between three to ten business days before starting work. This communication system helps prevent loss of life or property from damaged utilities.

Appropriate Species

The New Jersey Tree Foundation keeps a list of tree species that adapt well to urban areas, and a list of species that typically grow under utility lines. See Table C-2: Urban-Tolerant Trees and Table C-3: Utility-Friendly Trees.

¹⁰ arborday.org/shopping/trees/treewizard/intro.cfm

Table C-2: Urban-Tolerant Trees

Latin Name	Common Name	Notes	
Large Species			
Ginkgo biloba	Ginko		
Quercus species	Oaks: Pin, Red, White, Swamp white, Chestnut, Willow		
Ulmus Americana	American elm		
Ulmus parvifolia	Lacebark elm	Can be invasive	
Zelkova serrata	Zelkova		
Medium-Sized Species			
Acer pseudoplatanus	Sycamore maple		
Acer rubrum	Red maple		
Acer x freemanii	Freeman maple		
Aesculus x carnea	Red horse-chestnut		
Carpinus betulus	European hornbeam	Tree form or branched up	
Celtis occidentalis	Hackberry		
Cercidiphyllum japonicum	Katsura tree		
Cladrastis kentukea	Yellowwood		
Nyssa sylvatica	Blackgum		
Ostrya virginiana	American hophornbeam		
Tilia cordata	Littleleaf linden		
Small Species (for most, you must specify single-stem, tree form)			
Acer buergerianum	Trident maple		
Acer campestre	Hedge maple		
Acer tartaricum	Amur maple		
Amelanchier canadensis	Serviceberry		
Carpinus caroliniana	American hornbeam		
Cercis Canadensis	Eastern redbud		
Cotinus obovatus	American smoketree		
Crataegus viridis	Winter king hawthorn		
Parrotia persica	Persian parrotia		
Styrax japonica	Japanese snowbell		
Syringa reticulata	Japanese tree lilac		

Source: New Jersey Tree Foundation

Table C-3: Utility-Friendly Trees

Latin Name	Common Name
Acer buergeranum	Trident maple
Acer campestre	Hedge maple
Acer ginnala	Amur maple
Acer Griseum	Paperbark maple
Acer Henryi	Henry maple
Acer leucoderme	Chalkbark maple
Acer nikoense	Nikko maple
Acer palmatum	Japanese maple
Acer tataricum	Tatarian maple
Acer truncatum	Purpleblow maple
Amelanchier Autumn Brilliance	Autumn brilliance serviceberry
Amelanchier Prince Charles	Prince Charles serviceberry
Amelanchier Princess Diana	Princess Diana serviceberry
Carpinus caroliniana	American hornbeam
Cercis can. Forest Pansy	Forest pansy red bud
Cercis reniformis Oklahome	Oklahoma redbud
Chionanthus virginicus	White fringetree
Cornus florida selections	American dogwoods
Cornus kousa selections	Kousa dogwood
Cornus Rutgers Selections	Rutgers dogwod
Cotinus obovatus	American smoketree
Crataegus Winter King	Winter king hawthorn
Halesia tetraptera	Carolina silverbell
Lagerstroemia spp.	Crapemyrtle
Maackia amurensis	Amur maackia
Malus selections	Crabapples
Parrotia persica	Persian parrotia
Prunus Autumnalis	Autumn flowering cherry
Prunus cerasifera	Cherry plum
Prunus Kwanzan	Kwanzan cherry
Prunus Okame	Okame cherry
Prunus sarg. Columnaris	Columnar sergeant cherry
Prunus Sargentii	Sargent cherry
Prunus virgiana 'Canada Red'	Chokecherry
Prunus yedoensis	Yoshino cherry
Styrax japonica	Japanese snowbell
Syringa reticulate	Japanese tree lilac

Source: New Jersey Tree Foundation

The Philadelphia Department of Parks and Recreation's list of approved street trees¹¹ is a similar source that provides some additional species. A somewhat different resource worth considering is the Arbor Day Foundation's online tree finder application,¹² which is a series of questions that uses many of the regional and site-specific factors that are described above to help the user pick appropriate species.

¹¹ phila.gov/media/20171115163232/PPR_Approved_Street_Tree_List.pdf
¹² arborday.org/shopping/trees/treewizard/intro.cfm

Appendix D Municipal Training Resources

Appendix D: Resources for Training Municipal Staff

Table D-1 contains statewide and national sources that Trenton's tree experts and advocates can use to build their skills in managing the community forest.

Organization	Webpage	Notes
International Society of Arboriculture	njaisa.com isa-arbor.com/Credentials/ Maintaining-Credentials isa-arbor.com/store/shop	Provides resources on maintaining credentials for a variety of forestry- related tracks. ISA also sells educational materials.
New Jersey Shade Tree Federation	njstf.org	Annual conference provides continuing education opportunities.
NJDEP Bureau of Compliance and Enforcement	nj.gov/dep/enforcement/cetraining.html	The Bureau of Compliance & Enforcement hosts trainings in state regulations that may be of use for staff or volunteers managing the city's urban forest.
NJDEP Division of Water Quality	nj.gov/dep/stormwater/training.htm	The Division of Water Quality hosts trainings on stormwater management regulations and best management practices.
Rutgers New Jersey Agricultural Experimental Station: Office of Continuing Professional Education	cpe.rutgers.edu	The Office of Continuing Professional Education for Rutgers University's Agricultural Experiment Service provides a range of courses, certificates, and special programs for individuals to learn more about topics related to agriculture and administration.
The Committee for the Advancement of Arboriculture	caanj.org/training.php	CAANJ provides courses in arboriculture subjects as well as Licensed Tree Expert certification prep classes.
Tree Care Industry Association	tcia.org/TCIA tcia.org/TCIA/Education_Events/TCIA/ Education_Events/Education_Events.aspx?hkey=106e 5769-a387-460a-9d7c-d498206b1f75	Provides educational resources for its own Tree Care Academy training program, many of which could be applied to personnel involved with maintaining tree care equipment.

Table D-1: Resources for Training Municipal Staff
Appendix E Strengthening Relationships with Utility Companies

Appendix E: Strengthening Relationships with Utility Companies

Strengthening relationships between municipal officials, private citizens, and utility companies will help the quality of tree care around utility infrastructure. Table E-1 sources include information on regulatory changes over the past decade that have influenced utilities' work in municipalities.

Organization	Webpage	Notes
Arbor Day Foundation: Tree Line USA	arborday.org/programs/treelineusa	A program to recognize best practices in utility arboriculture. Provides guidance for utilities and communities, and information for utilities interested in applying.
International Society of Arboriculture	treesaregood.com/portals/0/docs/treecare/ Avoiding_Conflicts.pdf	Introductory resource for residents, elected officials, or other tree "laypeople" on avoiding tree and utility conflicts
National Public Radio	npr.org/2012/07/25/157342073/utilities-customers-at- odds-over-downed-trees	Radio transcript describing federal regulations that require public utilities to cut back trees around power lines These were put in place after a 2003 power outage, caused by a tree hitting a major power line, that affected 55 million people throughout the Northeast and Canada. Utilities can be fined up to \$1 million per day for not cutting trees.
New Jersey State Legislature	njleg.state.nj.us/2018/Bills/ A3000/2558_I1.HTM njspotlight.com/2018/09/18-09-20-utilities-in-nj-to-be- allowed-get-more-aggressive-trimming-trees-clearing- vegetation/	Bill A-2558, passed in September 2019, allows public utilities to be more proactive in cutting back trees. It prevents homeowners and shade tree groups from interfering in or restricting an electric utility's removal, replacement, or maintenance of vegetation.
PSE&G: Right Tree, Right Place	nj.pseg.com/safetyandreliability/reliability/ treetrimming/righttreerightplace	Guidance on species that are less likely to cause conflicts with utility lines.
Utah State University Forestry Extension	forestry.usu.edu/files/knowledge-about-pruning.pdf	An academic article from USU about utility pruning; education and communication between partners is key.

Table E-1: Strengthening Relationships with Utility Companies

Appendix F Resources for Educators

Appendix F: Resources for Educators

The information found in Table F-1 can be used to support Trenton's schoolteachers in developing treerelated curriculums.

Organization	Webpage	Notes		
Arbor Day Foundation: Carly's Kids Corner	arborday.org/kids	Carly's Kids Corner is an interactive website where kids and teachers can engage in interactive tree games, download and print activity sheets, and learn more about the resources of the Arbor Day Foundation. The interactive games help students learn about and identify trees around the world, while the activity sheets are designed for a younger audience and feature coloring and maze exercises.		
New York Times Learning Network	nytimes.com/spotlight/learning-science- math			
	lesson-lovely-as-a-tree-defining-and- appreciating-trees/	A long-running set of articles, created by <i>New York</i> <i>Times</i> staff, incorporating news and school subjects. Some of the sources may be dated or New York-specific and may require updating or customizing to local needs, but the lessons		
	learning.blogs.nytimes.com/1999/04/06/its- a-jungle-out-there/			
	learning.blogs.nytimes.com/2004/08/03/bio nic-trees/	themselves remain relevant.		
	learning.blogs.nytimes.com/2010/01/20/nat ures-call-drawing-inspiration-from-avatar- to-study-and-create-organisms/			
NJDEP: State Environmental Education Directory (SEEDS)	nj.gov/dep/seeds/syhart/ outclass.htm	SEEDS, which was developed by NJDEP, is an extensive resource list for educators to create and deliver lessons using outdoor classrooms. The site focuses on wildlife, plants, water, and fertilizers, and provides examples of programs that schools around the state and country have started in their classrooms.		
Project Learning Tree	plt.org state.nj.us/dep/parksandforests/ forest/plt.html	Project Learning Tree is a nationwide program that helps educators design and deliver educational programs about trees and the environment. In New Jersey, educators can attend workshops where they learn environmental education skills and gain resources for instructing students on these topics. Part of this program also provides resources for students to be active participants, starting school "green teams" to create environmental improvement projects.		

Table F-1: Resources for Educators

This campaign, created by USDA and Ad Council, seeks to provide resources to parents of tweens, as well as others in an educator role, to encourage appreciation for the outdoors. The resources page includes activities that could be used in a classroom setting.

USDA Forest

Service: Discover

the Forest

discovertheforest.org



Appendix G: Funding Sources

Table G-1 describes ongoing funding programs, as well as unconventional sources, that can be used to implement some of the plan's actions.

Source	Webpage	Notes
New Jersey Urban and Community Forestry Stewardship Grant Program	state.nj.us/dep/parksandforest s/forest/community/grants- csip.htm	Once communities and shade tree commissions have completed Community Forestry Management Plans and had them approved by the NJDEP, they are eligible for New Jersey Urban and Community Forestry Stewardship Grants. These competitive grants assist with implementing the plan through projects that strongly link best management practices with urban forestry goals and only projects that are carried out on public property owned or maintained by a municipal or county government are eligible. The two types of grants are Resiliency Planning Grants (up to \$10,000) and Reforestation and Tree Planting Grants (up to \$30,000).
Robert Wood Johnson Foundation	rwjf.org/en/our-focus- areas/focus-areas/ healthy-communities.html	The Robert Wood Johnson Foundation is a public health-focused philanthropy that provides funds to a wide array of programs. It has three broad aims: discover and explore creative solutions, spread model interventions, and conduct research and evaluation. The focus areas of these grants are in health systems, healthy communities, healthy children and families, and leadership for better health. Since community forests have well-defined public health benefits, the foundation may provide multiple grant opportunities.
TREE (Tree Research and Education Endowment) Fund	treefund.org	The TREE Fund is a charitable grantmaking organization dedicated to supporting urban and community forests by providing funding to scientific research on urban tree care issues, education programs relating to trees, and scholarships for students aspiring to be tree care professionals. Since its founding in 2002, the TREE Fund has awarded \$4.4 million in research grants, education grants, and scholarships to better equip professional arborists and citizens to properly care for trees. They are currently prioritizing programs focusing on inquiry and exploration in order to advance the wider knowledge base about urban forests.

USDA/NRCS
Regional
Conservation
Partnership
Program

USDA:

Recvcling

Municipal Trees

nrcs.usda.gov/wps/ portal/nrcs/main/national/ programs/financial/rcpp/

fs.usda.gov/naspf/publications /recycling-municipal-trees

William Penn Foundation williampennfoundation.org/wh at-we-fund-watershedprotection This grant program promotes innovative conservation programs related to land management/restoration, land rentals, easements, and public works/watersheds. The grant applications are evaluated based on impact, partner contributions, innovation, and partner qualifications and must be carried out on agricultural or non-industrial private forest land.

This resource is a guide for marketing sawlogs from street tree removals in municipalities. One innovative way for municipalities to supplement their tree maintenance and planting budgets make street tree removals available to artisans, construction professionals, and community groups. Often, the wood contained in trees that have been removed from the street has value to different groups depending on its type, quality, quantity, and size. As the report recognizes, selling a log "as is" exceeds to potential return of selling the log as firewood or mulch by two to four times. Creating a program like this requires flexibility, patience, and creativity (as well as access to a saw mill and industry professionals willing to partake), but it can result in a reliable revenue stream and a commercial industry engaged in the efficient management of street trees.

The William Penn Foundation was founded in 1945 and is dedicated to improving the quality of life in the Greater Philadelphia region. In 2018, they provided over \$100 million in grant payments which are mostly divided into three main areas of Creative Communities, Great Learning, and Watershed Protection. Each of these areas may provide opportunities for groups seeking to plant trees and connect their neighborhoods to the community forest around them. Current grant recipients like the New Jersey Tree Foundation have used the Watershed Protection grant fund to plant trees along the Circuit Trail network.

Appendix H Tree Hazard and Liability Statement

Appendix H: Tree Hazard and Liability Statement

Street trees and trees in public open spaces are vital to the urban community; however, it is essential to recognize the need for regular tree care and maintenance. As trees grow and mature, it is inevitable that the maintenance needs will increase and that ultimately the mature trees will require removal and replacement. A healthy community forest contributes to the environmental health and economic vitality of a city and proper maintenance reduces potential public safety hazards. The City of Trenton has a limited tree care budget and recognizes that all of the needs may not be immediately attainable. It is the intent of this plan to focus available resources to the greatest need and to work towards a healthy forest with commensurate reduced risks to public safety.

Our intent is to become more proactive in the management and care of our tree resource. Through inventory and hazard management, we will take corrective action toward reducing risk and limiting hazardous conditions, thereby preventing dangerous situations from occurring. Following this plan will demonstrate that the City of Trenton is devoting reasonable levels of resources in a planned manner to reduce the number of tree-related hazards, thereby reducing its exposure to liabilities.

City of Trenton: Management Plan for Forests and Trees

Publication Number: 19044

Date Published: July 2022

Geographic Area Covered: City of Trenton, New Jersey

Key Words:

Forests, Trees, Community Forestry, Street Trees, Parks, Open Space, Stormwater Flooding, Urban Heat Island, Environmental Justice, Community Health

Abstract:

This management plan is a municipal document that outlines the community's vision and prioritized goals to protect and grow the City's tree cover or "community forest." In this context, the "community forest" is within municipal boundaries and includes publicly managed trees along streets and in parks, as well as privately managed trees on private properties. Integrating data from a variety of local, state, and national government sources as well as private research organizations with several stakeholder meetings and on the ground assessments, this plan presents an in-depth existing conditions assessment of the condition of Camden's community forest as well as a series of goals which have been prioritized by local residents and organizations. The plan is intended to be proactive, and outlines the work that these varied partners want to accomplish to improve their forest cover.

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