RHODE ISLAND **TREE EQUITY**

FUNDING, FINANCING, AND POLICY GUIDE

The Rhode Island State House, Providence, RI. Credit: Belikova Oksana.

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CHARITABLE FOUNDATION

RHODE ISLAND
INFRASTRUCTURE BANK

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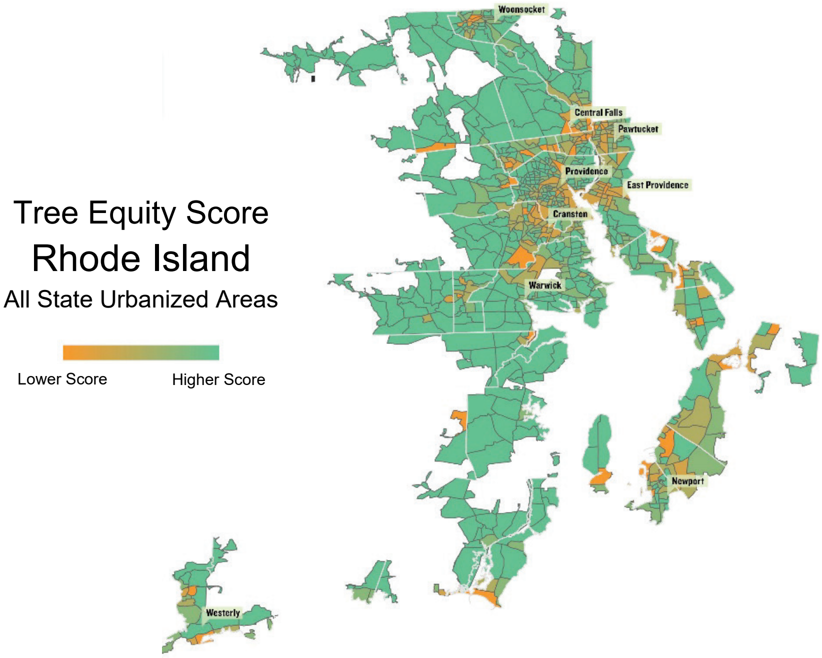
Executive Summary

This Guide assists the state, municipalities, and non-profit organizations of Rhode Island, particularly communities with low tree canopy coverage as identified through American Forests' **Tree Equity Score Analyzer** (TESA) tool, in identifying funding, financing, and policy mechanisms to further tree planting, maintenance, and preservation goals. While this Guide provides mechanisms with national relevance, recommendations are made specifically with Rhode Island in mind, ultimately providing a national model for determining locally specific urban forestry funding and policy opportunities.

In this Guide, urban forests are defined as the trees and forests within urban and suburban communities. These trees and forests come in all shapes and sizes. Urban forests can include "urban parks, street trees, landscaped boulevards, gardens, river and coastal promenades, greenways, river corridors, wetlands, nature preserves, shelterbelts of trees, and working trees at former industrial sites."[1]



Tree Equity Scores for all urbanized neighborhoods in RI. Credit: American Forests.

Urban forests make up 10% of Rhode Island's total forested land, approximately 36,817 acres, and provide a variety of benefits, including clean air and water; cultural, ecological, and economic value; climate change mitigation; and human health benefits. However, these urban forests have experienced disturbance and degradation, and are overlooked compared to their non-urban counterparts.[2] With the support of the Doris Duke Charitable Foundation, Rhode Island Infrastructure Bank has collaborated with American Forests, the oldest national non-profit conservation organization in the United States, to create implementation capacity for urban forestry work locally through this review of current and potential funding, finance, and policy mechanisms.

Rhode Island Infrastructure Bank is RI’s central hub for financing infrastructure improvements for municipalities, businesses, and homeowners. The Bank leverages capital in a revolving fund to offer innovative financing for infrastructure-based projects such as water & wastewater, road & bridge, energy efficiency & renewable energy, and brownfield remediation. These quality of life projects improve state infrastructure, create jobs, promote economic development and enhance the environment.

This Guide provides information on making the case for trees, current urban forestry funding and policy mechanisms in Rhode Island, nationally utilized urban forestry funding and policy mechanisms, RI specific recommendations, as well as state and federal resources. In doing so, the Guide accomplishes four key goals, including:

1) **Acknowledging** and highlighting the financial and political support for urban forestry that is already present in each level of government;
2) **Identifying** current in-state funding, financing, and policy mechanisms that could be further supporting tree planting, maintenance, and preservation efforts;
3) **Focusing** on promoting mechanisms and delivering recommendations that can be utilized by the state, municipalities, and local non-profit organizations; and
4) **Seeking** out innovative, up-and-coming mechanisms that Rhode Island can implement to strengthen its support for urban forestry.

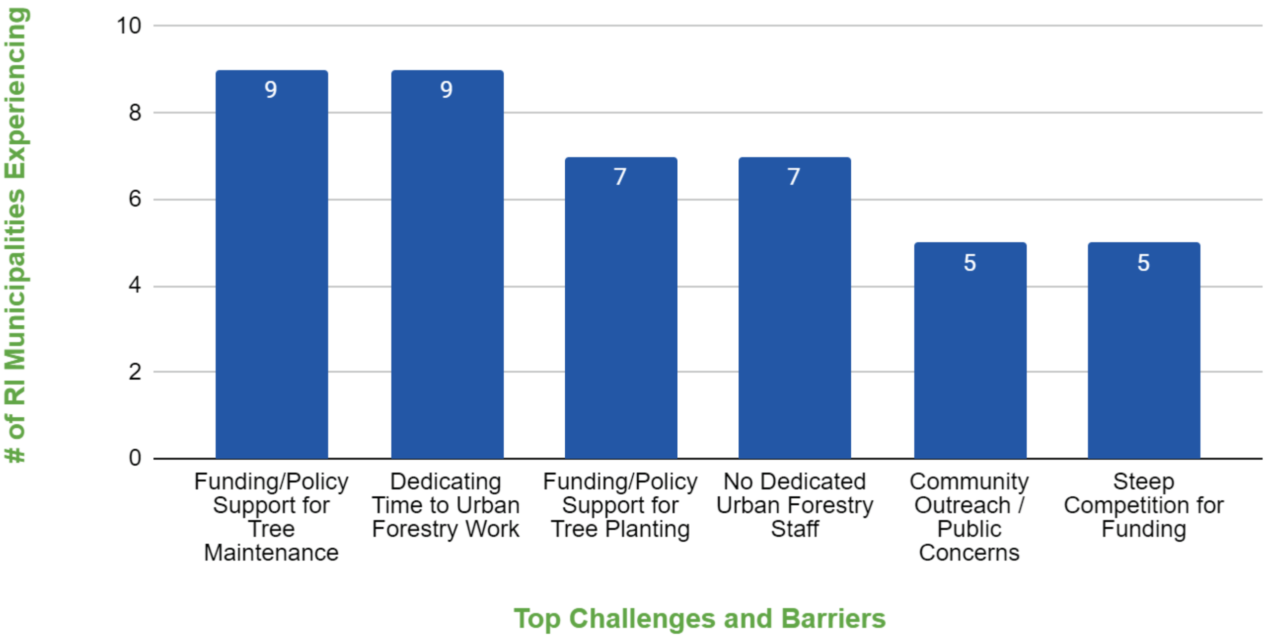
In Section II, “**Making the Case**,” the need for Tree Equity is emphasized. In addition, four key questions are posed for consideration in conveying the need for funding and policy support for urban forestry:

1) **What** is your message?
2) **Why** should your program be given more funding?
3) **How** are you presenting it?
4) **Who** are you presenting it to?

Fact sheets summarizing the benefits of urban trees and the components of sustainable urban forestry to help make the case for trees are provided in Appendix A of this document.

Section III, “**Urban Forestry in RI**,” provides information on current state and municipal resources for urban forestry. Local case studies are shared from three Rhode Island municipalities. Challenges and barriers are also identified at the state and municipal level. The top challenges/barriers identified regarding urban forestry in RI include:

Top Challenges and Barriers to Urban Forestry in Surveyed RI Municipalities



In Section IV, “**National Mechanisms**,” funding, financing, policy, and planning mechanisms that support urban forestry nationally are compiled and defined, and examples are provided. Mechanisms currently used widely across Rhode Island, as well as national urban forestry funding and policy opportunities which RI could explore, are noted.

In response to this analysis, Section V, “**Recommendations**,” provides discussion regarding which national opportunities could most achieve Tree Equity benefits in RI. This section weighs considerations such as Rhode Island’s municipally identified challenges, state resources, and needed urban forestry outcomes, as well as offers insight and resources addressing the social equity benefits and limitations of each national approach. This Guide expects that Rhode Island’s commonly used mechanisms, as noted in Section IV, “National Mechanisms,” will continue to be implemented, and recommends the state and municipalities provide increased equity consideration as they continue to apply these existing approaches.

Section VI, “**Resources**,” provides links to resources offering implementation assistance, as well as a compilation of grant, loan, and foundation resources. **Rhode Island Department of Environmental Management’s Urban and Community Forestry Program** can be contacted for further information regarding implementation guidance and state offered grants.

RECOMMENDED FOR RHODE ISLAND

Existing Mechanisms Benefiting Urban Forestry in RI:

- **Funding / Financing**
  - City/Town Budget
  - Grants
  - Capital Improvement Project Budgets
  - Donations / Fundraising
- **Policy / Planning**
  - Street Tree Ordinances
  - Municipal Zoning
  - Tree Protection Ordinances
  - Low Impact Development
  - Comprehensive Planning
  - RI General Law Title 2

National Opportunities:

- **Funding / Financing**
  - Corporate & Foundation Partnerships
  - City Forest Credits Carbon Credits
  - Grant Sources Focused on Tree Co-Benefits
  - Clean Water & Drinking Water State Revolving Fund
  - Loans & Bridge Loans
  - Environmental Impact Bonds
  - Stormwater Utility Fees
  - Parking Benefits Districts
  - Special Taxes
  - Developer’s Fees
  - Business Improvement Districts
- **Policy / Planning**
  - Urban Forestry Plans
  - Smart Growth Planning
  - Incentives / Cost Shares
  - Transit Oriented Development
  - Invasive Species Municipal Policy
  - Forest Preservation Ordinances

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RI Tree Equity Funding, Financing, and Policy Guide

INTRODUCTION

This Guide responds to the need for sustained and thriving urban forests to achieve climate and health benefits in Rhode Island urban communities. In particular, this Guide assists communities with low tree canopy coverage, as identified through American Forests' **Tree Equity Score Analyzer** (TESA) tool, in finding funding, financing, and policy mechanisms to further tree planting, maintenance, and preservation. While this Guide provides mechanisms with national relevance, recommendations are made specifically with Rhode Island in mind, providing a national model for determining locally specific urban forestry funding and policy opportunities.

In this Guide, urban forests are defined as the trees and forests within urban and suburban communities. Urban forests make up 10% of Rhode Island's total forested land, at approximately 36,817 acres. Further, across all urban and community land in Rhode Island, 286,000 acres, tree canopy coverage is at 52%. These urban forests provide a wide variety of community benefits, including:

1. Clean Air
2. Clean Water
3. Economic Value
4. Climate Change Mitigation
5. Human Health and Well Being
6. Cultural Value
7. Wildlife Habitat

However, urban forests face a variety of challenges. These areas are heavily disturbed by humans and contain invasive species alongside native generalist trees, shrubs, and herbs. Human activity and overuse of these areas has resulted in degraded understory layers. Further, not being categorized as established ecological communities, urban forests are often overlooked compared to their non-urban counterparts.[1]

With the support of the Doris Duke Charitable Foundation, steps have been taken nationally to encourage the growth of urban forests and their climate and health benefits. American Forests has taken the lead on the creation of the **Tree Equity Score Analyzer** tool, which identifies priority areas for new tree planting through analysis of canopy

Credit: RI Commerce.

coverage, population density, income, employment, race, age, and surface temperature.[2] This organization is also leading federal policy advancements to support Tree Equity programs. The U.S. Forest Service Northern Institute of Applied Climate Science (NIACS) is leading the creation of an UCF Forestry Guide for Climate Mitigation and Health publication, which provides an integrated forestry model to optimize climate mitigation, forest health, climate resilience, and public health.

Rhode Island is the first state to utilize these new tools, publications, and findings created through the Doris Duke Charitable Foundation's support. As a part of this local demonstration, in 2020, Rhode Island Infrastructure Bank began collaboration with American Forests to create implementation capacity for urban forestry work locally through a review of current and potential funding and policy mechanisms. After seven months of investigation, collaboration, and analysis, we developed the Rhode Island Tree Equity Funding, Financing, and Policy Guide, which provides an analysis of mechanisms for furthering urban forestry in the state and identifies innovative mechanisms Rhode Island could add to its repertoire.

This Guide provides the state, municipalities, and local non-profit organizations with an overview of the current funding, financing, and policy mechanisms used for urban forestry in Rhode Island, as well as barriers to implementation of these mechanisms, and identification of underutilized resources. Further, this Guide delivers a summary of mechanisms used nationally, a gap analysis indicating where Rhode Island could improve, and examples showcasing how other areas of the nation have successfully utilized innovative mechanisms. Recommendations for Rhode Island are presented, and a summary of state and federal resources is also provided.

The recommendations put forward in this Guide consider the current challenges of local urban forestry stakeholders, build on the knowledge of those working in the state, municipalities, and non-profit organizations, and draw on recent studies and reports. As part of this process, urban forestry stakeholders across the state were interviewed; lessons learned from these conversations were many and are reflected throughout this document.

The compilation of funding, financing, and policy mechanisms for urban forestry presented here will assist tree advocates statewide in strengthening support for tree planting, maintenance, and preservation work. With increased access to funding and policy support mechanisms, urban forests will be able to grow, survive, and thrive in the areas that need them most, increasing Tree Equity for all Rhode Island.

Credit: Providence Neighborhood Planting Program.

GUIDE DEVELOPMENT PROCESS

The RI Tree Equity Funding, Financing, and Policy Guide was developed by Rhode Island Infrastructure Bank, in collaboration with American Forests and with input from urban forestry stakeholders across the state. The core goals of this work were as follows:

1) **Acknowledge** and highlight the financial and political support for urban forestry that is already present in each level of government;
2) **Identify** current in-state funding, financing, and policy mechanisms that could be further supporting tree planting, maintenance, and preservation efforts;
3) **Focus** on promoting mechanisms and delivering recommendations that can be utilized by the state, municipalities, and local non-profit organizations; and
4) **Seek** out innovative, up-and-coming mechanisms that Rhode Island can implement to strengthen its support for urban forestry

Goal 1: Acknowledge

The Guide development process began with a series of phone and video call interviews completed with urban forestry stakeholders across the state. Stakeholders at the state and municipal level were interviewed, both from government and non-profit organizations. The initial group of stakeholders interviewed were those in the Urban Forests for Climate and Health working group led by American Forests; further interviewees were identified through snowball sampling. Each stakeholder was asked a variation of the following questions:

- What funding resources support your urban forestry work?
- What policies, ordinances, or statutes most regularly influence your day to day work?
- What challenges do you experience in your work?
- What would be most helpful to you in an urban forestry policy and funding guide?

The goal of these interviews was to listen to urban forestry professionals, learn what funding and policy has supported this work in Rhode Island in the past, identify the current needs and barriers, and structure the Guide to meet these needs. Information from these interviews is summarized in Section III, “Urban Forestry in Rhode Island.”

Goal 2: Identify

Urban forestry stakeholders were not the only individuals interviewed for the creation of this Guide. In order to identify other funding, financing, and policy mechanisms that could be utilized for urban forestry, several Rhode Island state government departments and organizations were also interviewed. These departments and organizations were selected by examining cross-departmental collaboration on urban forestry and climate adaptation in other U.S. Climate Alliance states (the U.S. Climate Alliance is a bipartisan coalition of 25 governors committed to reducing greenhouse gas emissions consistent with the goals of the Paris Agreement).[3] RI state departments and organizations selected for this round of interviews included the Department of

Health, Department of Environmental Management, Department of Administration, Department of Transportation, Rhode Island Commerce, and Rhode Island Infrastructure Bank.

Interviewees were asked a variation of the following questions:

- What are the programs, grants, and assistance offered to municipalities through your department?
- What funding sources and policies have been useful to your work?
- What are some current intersection points between your work and urban forestry? This could include air quality improvement, stormwater management, green infrastructure, street and roadway improvements, etc.
- What is the potential for increased collaboration on urban forestry work?

These conversations deepened understanding of the programs that parallel urban forestry efforts and fostered open discussion about inter-departmental collaboration to support urban forestry and Tree Equity. Discussions were effective and energized, sparking ideas such as introducing new programmatic priorities, pairing implementation projects with current scientific studies, and writing co-departmental grant applications to establish new tree planting programs.

Goals 3-4: Focus + Seek

The final component of this Guide development process involved seeking out nationally used funding, financing, and policy resources that benefit states, municipalities, and local non-profit organizations. Several reports have been authored studying support mechanisms for urban forestry, particularly in regard to funding - some with national relevance, others with local focus. These reports were reviewed, and the mechanisms presented by these works are organized and compiled in this document.

In an effort to deliver a document with both Rhode Island focus and national relevance, national mechanisms were cross referenced with local urban forestry programs to generate a gap analysis. A survey of 14 RI municipalities, conducted in January of 2021, was used to gather information for the gap analysis, and included questions on current municipal urban forestry challenges, funding mechanisms, and policy mechanisms. (Survey questions were informed by previous interviews, as described in Goals 1 and 2.) This analysis highlights which mechanisms are not widely utilized in the state, and provides national examples to illustrate how these mechanisms have been implemented elsewhere. The gap analysis provides the foundation for the Rhode Island specific recommendations in this document.

FUNDING, FINANCING, & POLICY FOR TREE EQUITY

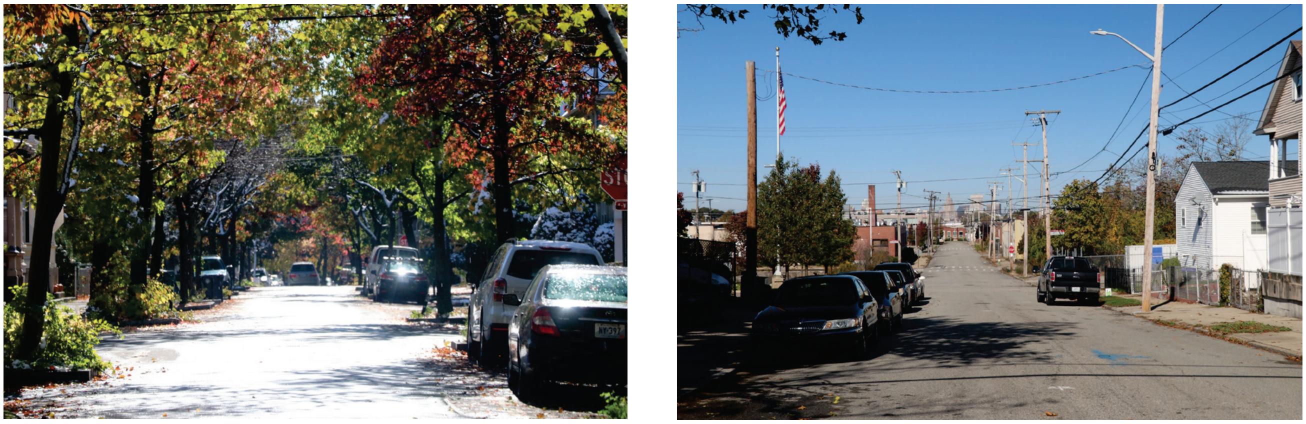
MAKING THE CASE FOR TREES

A 100% Tree Equity Score: Tree canopy in Willow Street neighborhood of Providence, Rhode Island. Credit: Eben Dente.

Making the Case for Trees

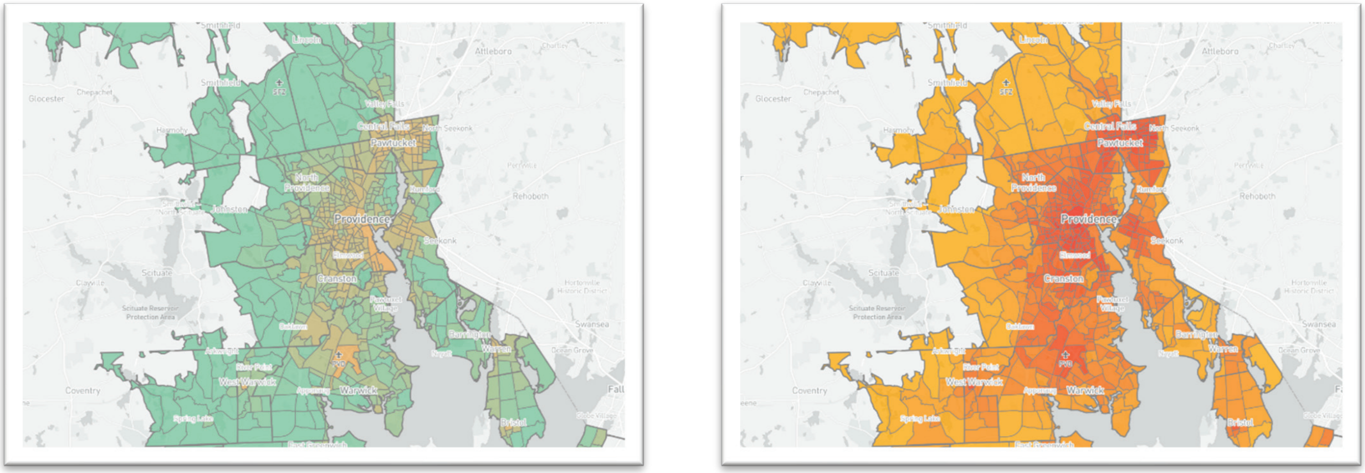
THE NEED FOR TREE EQUITY

Given the various benefits of urban forests, particularly to human health and well-being, the equitable distribution of trees within urban areas is absolutely critical. Although 140 million acres of America's forests are located in urban and suburban areas, in American cities maps of tree cover are often closely associated with maps of income and race. Neighborhoods home to predominantly Black, Indigenous, and People of Color (BIPOC) or individuals with low incomes don't have as many trees as other neighborhoods home to predominantly white, high income individuals.[1] Many of these low canopy neighborhoods were subject to redlining, a process of local, state, and federal government policies that disenfranchised and discouraged home ownership and financing for Black Americans and other communities of color. Neighborhoods were often further subjected to impacts of highway infrastructure and transit corridors, lack of local investment and services, and condemnation, which led to the decline of urban tree canopy cover.[2]



Left photo: Providence, RI: Tree Equity Score 100 with 35% tree canopy cover; Right photo: Providence, RI, Tree Equity Score 60 with 9% tree canopy cover. Credit: Eben Dente / American Forests.

The resulting poor air quality and increased temperatures experienced by those without access to trees has led to pollution and heat related illnesses and deaths. Poor air quality can cause conditions such as asthma, which can further exacerbate social equity gaps. In 2018, approximately 10,000 deaths could be attributed to poor air quality across the United States.[3] Rhode Island specifically has the ninth-highest prevalence of children with asthma nationwide (10.9%), and Black and Hispanic children are the most likely to visit the emergency room or be hospitalized due to asthma. High temperatures are associated with negative health impacts, including heat cramps, exhaustion, and stroke, and even heat-related death.[4] It is projected that 1200 heat related deaths are prevented nationally each year due to trees, as well as countless other heat related illnesses - however, these benefits can only be realized in areas able to maintain healthy tree canopy coverage.[5]


Smithfield
Lincoln
Attleboro
Glocester
Chepachet
Central Falls
Pawtucket
North Providence
Providence
Rehoboth
Seekonk
Cranston
Scituate
Warren
Barrington
Swansea
Coventry
West Warwick
Warwick
Bristol

Left photo: Map of RI Tree Canopy; Right photo: Map of RI Surface Temperature. Credit: American Forests, 2021.

Medical conditions caused by air pollution and heat also come with significant economic costs to afflicted individuals and the local medical system. For instance, a 2017 study published in the Annals of the American Thoracic Society reported that the economic cost of asthma is $3,266 per asthmatic person per year.[6]

In addition to these physical health impacts, individuals without access to trees also cannot access the many other co-benefits of urban forests, including water filtration, economic value, social cohesion, climate change adaptation, mental health improvement, flood reduction, and cultural value.

To address this social inequity, American Forests is creating national programs and tools to enhance **Tree Equity** - or the presence and care of "trees in every part of every city." Tree Equity ensures that "everybody benefits from the power of trees to fulfill basic needs, such as breathing fresh air and drinking clean water."[7] American Forests' **Tree Equity Score** and **Tree Equity Score Analyzer** were established as "a way to measure how well a neighborhood or municipality is ensuring that the benefits of urban tree canopy are reaching low income communities, populations of color, and other populations that are particularly susceptible to extreme heat and other conditions."[8]

Tree Equity can help address a variety of national issues such as social inequality, environmental injustice, and climate change, making it well poised to become a favorable approach nationwide for tackling these challenging problems. The various co-benefits provided by trees make them the ideal protectors of urban health, environment, ecology, economy, and resilience.

WHAT TO CONSIDER IN MAKING YOUR CASE

While those reading this document are likely already familiar with the many benefits trees can provide, making the case for trees to government officials, corporate partners, and community members alike is essential for successfully pursuing funding, financing, and policy support.

In her "Funding Your Urban Forest Program," Jennifer Gulick, Senior Consulting Urban Forester at Davey Resource Group, highlights 4 main questions to consider when crafting your funding, financing, or policy proposal:

1. **What is your message?**
2. **Why should your program be given more funding?**
3. **How are you presenting it?**
4. **Who are you presenting it to?**

In creating your urban forestry message, whether for a written proposal or for an initial conversation on a new funding or policy measure, it is important to emphasize that trees have multiple co-benefits which bring value now and increase in value in the future. When trees are introduced as profit yielding assets, particularly when this can be backed by benefits data (such as a demonstrated return on investment, or ROI, from a nearby municipality), elected officials and municipal administrators can back urban forestry as a worthwhile investment. Further, given the multiple benefits of trees, urban forests can be utilized as a key part of the solution for a variety of initiatives, including economic development, stormwater management, water and air quality, climate change adaptation, public health issues, energy use, carbon reduction, and social justice.[9]

When crafting the presentation of your message, it is important to emphasize the human factor, showing implications of trees beyond data and statistics. However, clarity is key - when demonstrating budgeting needs, be specific rather than taking a "sky is falling" approach. Focus clearly on trees' contribution to the greater good and the municipality's priorities, using data to back up these appeals when possible.[10]

Successful presentation approaches can vary widely. Narrative can be used to describe the future implications of not stewarding urban forests (ex. invasive species yielding dead trees, which leads to lack of flood protection during extreme weather, etc.). Personalizing the problem (ex. using resident testimonials) and putting a price tag on inaction (ex. the cost of storm recovery without preventative tree maintenance) can also help the presentation of your message. Conveying that all infrastructure, including trees, is essential, and therefore should be considered on the same level for funding, is another approach.[11]

Whichever approach you choose, consider partnering with others to craft and deliver the presentation of your message. By gaining the support of traditional and non-traditional partners, your message has less risk of push back and a stronger chance at success. Depending on your audience, consider rallying support from municipal officials (such as planning, public works, financial management, emergency management, etc.), non-profit organizations, community members, stormwater utilities, power companies, philanthropic organizations, and corporate foundations. Non-profits are especially valuable partners, given their ability to make community connections, gain community support, and educate policy makers.[12]

Appendix A provides diagrammatic overviews of concepts useful to making the case for urban forestry funding, geared towards decision makers at the municipal and state level. These worksheets on the Benefits of Urban Forests and the Components of Sustainable Urban Forestry can be drawn from, printed, or otherwise shared to assist in conveying the need to support trees in urban areas.

FUNDING, FINANCING, & POLICY FOR TREE EQUITY

URBAN FORESTRY IN RI

Providence RI cityscape. Credit: Tupungato.

Urban Forestry in Rhode Island

OVERVIEW

While urban forestry programming in Rhode Island is not a recent development, the small scale of many of RI's communities has meant that programs have been slow to develop, except in the larger, more urban areas of the state. The oldest programs, located in Providence and Newport, were originally called Tree Care programs and focused on providing beautification, shade, and soot reduction to urban areas in the 1900s. Providence established its first City Forester position in 1907.

The Cooperative Forestry Assistance Act of 1978 (PL 95-313), Section 9, and the 1990 Farm Bill brought stronger recognition to the need for urban forestry nationwide, establishing the Urban and Community Forestry Program (UCF).[1] Through U.S. Department of Agriculture Forest Service (USFS) funds, this UCF program provided support for two state positions (a UCF State Coordinator and a Volunteer Coordinator position), a Champion Tree Program, and a state Urban Forest Council. Rhode Island's UCF Program Coordinator is now housed within the Rhode Island Department of Environmental Management's Division of Forest Environment (DFE). Rhode Island's Volunteer Coordinator position, Champion Tree Program, and UCF Council were accomplished by the creation of the RI Urban and Community Forestry Council, which was established through a cooperative agreement with the state. This organization, created in 1994 and granted non-profit, tax exempt, 501c(3) status, is now known as the RI Tree Council.[2]

Urban forestry efforts have only grown since the introduction of the Urban and Community Forestry Program. For instance, as of 2014, in accordance with RI General Law 2-14-2, all RI municipalities are required to have a tree warden that is a licensed arborist. Tree Wardens engage in the business or practice of all phases of tree care. Additionally, despite receiving baseline funding from the U.S. Forest Service (due to Rhode Island's small size), Rhode Island has been able to deliver a small subgrant program for municipalities, non-profits, and educational organizations.[3]

To provide a snapshot of Rhode Island's current urban forestry efforts, the following sections detail Rhode Island's current urban forestry needs, support mechanisms, and barriers at both the state and local levels. Case studies are provided for three of Rhode Island's current municipal urban forestry programs, in Providence, Newport, and Bristol.

Woonsocket RI Arbor Day 2019 Credit: Office of Governor Gina M. Raimondo.

RHODE ISLAND STATE URBAN FORESTRY

Statewide Funding and Policy Support Mechanisms

At the state level, Rhode Island provides four key sources of support for urban forestry work: the state Urban and Community Forestry (UCF) Program, the RI Tree Council, the UCF grant, and the Energy Saving Trees Giveaway. The UCF Program provides oversight for statewide urban forestry activities.

- **The UCF Program Coordinator** manages program delivery and provides technical knowledge and support to municipalities. Support is delivered through workshops and presentations; field visits; urban tree inventory training and support; outreach regarding invasive species; ordinance and planning assistance; and grant management. The Program Coordinator also manages arborist licensure, which requires that anyone working in RI as an arborist is licensed in the state, having taken an exam and maintained yearly licensing fees.[4]
- **The RI Tree Council** completes volunteer coordination and management, the Tree Steward Education Program, the Champion Tree Program, and the State Arbor Day Celebration.[5]
- **The UCF Grant** annually provides approximately 10 subgrants of $2,000-$4,000 each, totaling $30,000, to assist municipalities with urban forestry planning, education/outreach, and tree planting efforts.[6]
- **The Energy Saving Tree Giveaway** provides free trees twice a year to local residents who request them, providing quantified air quality and energy savings benefits.[7]

Funding for Rhode Island statewide urban forestry primarily comes from the **U.S. Forest Service**, the state **Division of Forest Environment** budget, and the **Regional Greenhouse Gas Initiative** (RGGI). U.S. Forest Service and Division of Forest Environment funds support the Urban and Community Forestry program, and with it the UCF Program Coordinator salary, the RI Tree Council, and the UCF grant. RGGI funds, distributed through RI's Office of Energy Resources and RIDEM's Division of Air Resources, support the Energy Saving Trees Giveaway. In addition, funds from the **RI Foundation** (via the Helen Walker Raleigh Tree Care Trust Fund) support the RI Tree Council's Champion Tree Program.[8]

State policy for urban forestry is detailed in **Title 2** of the State of Rhode Island General Laws, "Agricultural and Forestry." This Title includes processes for arborist licensure and the establishment of municipal tree warden roles.[9]

State Identified Urban Forestry Challenges & Barriers

In interviews, state urban forestry staff and partners cited several funding and policy challenges to achieving Tree Equity, both at the state and the municipal level.

Funding challenges cited:

- Limitations to access of further federal funding based on RI's small size and program capacity
- State funding supports staff but not program delivery or outreach
- Need for state funding to support larger planning and management efforts needed by RI municipalities
- Competitive nature of grants at both the state and municipal level, as well as among non-profit organizations
- Not enough staff to pursue further increased urban forestry funding
- Municipalities are not always able to secure a match for grant applications due to lack of funds

Policy challenges cited:

- Lack of strong relationship between urban forestry and the general assembly compared to wetlands and farming; some lack of urban forestry awareness at the state level
- Energy Saving Trees Giveaway as currently implemented mainly benefits those who are computer literate and affluent
- State and municipal urban forestry staff don't have enough influence over policy decisions in their jurisdiction
- Tree City USA requirements can be open ended (e.g. per capita spending can be used on reactive rather than proactive urban forestry practices)
- Municipal urban forestry programs are often structured to be more reactive than proactive (e.g. focusing more on response to community complaints rather than on implementing tree maintenance that would prevent future issues)
- Staff overwhelmed; need for more funding and access to trained professionals to handle increasing workload
- Low state staff capacity to enforce urban forestry policy

State staff and partners also cited barriers to pursuing further urban forestry funding and policy, including:

- Municipalities can be hesitant to take on the burden of maintaining trees
- Some resistance to trees / public buy-in challenges
- Barriers to communities accessing existing resources (language, technology, administrative process); lack of hiring translation specialists
- Limited communication between tree wardens and the public; contractual limitations and reactive management limiting tree warden availability to the public
- State needs more resources to provide education regarding tree health, how to identify unhealthy trees, and the dangers of under maintained trees
- Coordination regarding urban forestry between utility companies and local organizations can be challenging
- Public hearings regarding trees can become tense

State Identified Urban Forestry Needs

In response to these challenges and barriers, state staff and partners identified the following key immediate needs:

- Increased community outreach regarding community concerns about trees; increased dialogue between municipalities and residents
- Increased education regarding tree health and benefits, as needed
- Increased urban forestry staff capacity and political voice
- Equitable access to state urban forestry resources (e.g. via translations, outreach that is not computer dependent)
- Hiring of translation specialists at the state and municipal level to ensure equitable distribution of urban forestry materials and equitable compensation for translation services
- Establishing a requirement for annual public tree wardens reports, to ensure public is up to date on current local urban forestry activities
- A transition from reactive to proactive urban forestry practices statewide
- Pairing tree planting with tree maintenance

RHODE ISLAND MUNICIPAL URBAN FORESTRY

Case Study: Providence, RI

Providence: A Snapshot

PROVIDENCE

The City of Providence, at 18.4 square miles, is home to a population of nearly 180,000 individuals. At **27% canopy cover,** Providence currently has a **Tree Equity score of 89/100** according to American Forests' Tree Equity Score Analyzer.[10]

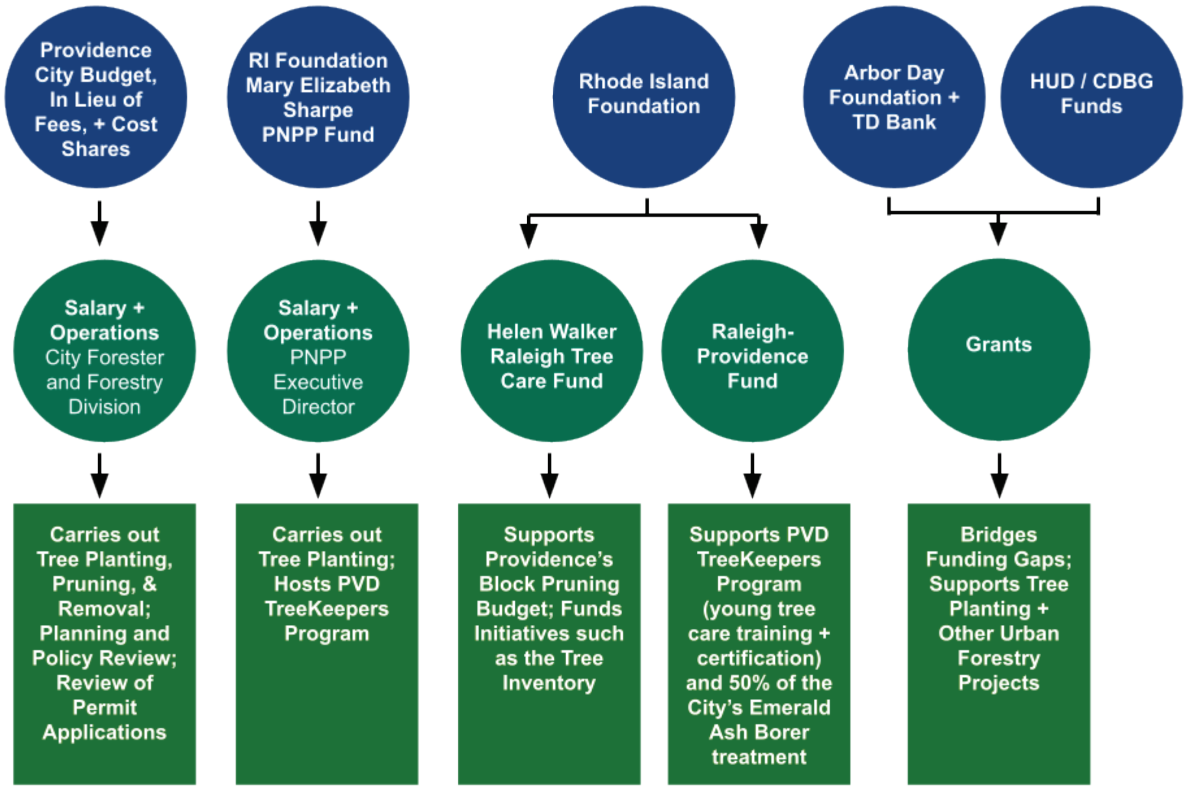
Providence: Funding and Policy Support Mechanisms

SERVICES: Providence delivers urban forestry services through the combined efforts of City officials and private partners. The City's urban forestry program is led by the City Forester, who works as a part of the **Forestry Division of the City Parks Department**.[11] In this role, the City Forester manages a crew of 15, completing tree planting, pruning, and removal as necessary. The City Forester also completes tree planning and policy review for the City, including zoning activities and the introduction of new tree ordinances, and reviews permit applications for development that impacts trees. In addition, through partnership with the RI Foundation's Mary Elizabeth Sharpe PNPP Fund, the City empowers the **Providence Neighborhood Planting Program** (PNPP) to deliver further tree planting and tree planting related activities.[12] Key services provided by the City and PNPP are as follows:

- **Block Pruning Program:** The Block Pruning Program is conducted on a 10 year cycle, with 10% of City trees being pruned annually (2500 trees).[13]
- **Tree Service Requests:** Providence residents can contact the Forestry division to request a tree removal, stump removal, fallen branch pick-up, or other tree services for public trees.[14]
- **Street Tree Planting:** Tree planting is offered through three approaches, including Match Cost Planting, Full Cost Planting, and Neighborhood Group Planting.[15]
    - **Match Cost Planting:** Residents pay half the cost of the new street tree. The City pays the other half and provides sidewalk preparation, soil replacement, and planting services.[16]
    - **Full Cost Planting:** Residents file a free permit with the City to plant a new street tree, then pay the full cost of the tree. Tree planting is conducted by the resident, but the City will help with siting and tree selection.[17]
    - **Neighborhood Group Planting:** Through the PNPP, residents can apply to hold a Saturday neighborhood tree planting on their street. This program is held semiannually, in the spring and in the fall.[18]
- **Providence TreeKeepers:** This program, managed through PNPP, provides training on ground level pruning and young tree care, culminating in certification as a Tree Keeper.[19]

FUNDING: The City funds urban forestry efforts through the City Budget (via the Parks Department), the Mary Elizabeth Sharpe PNPP Fund (a RI Foundation endowment, specific to Providence), the Helen Walker Raleigh Tree Care Trust (a statewide endowment through the RI Foundation), and a smaller annual grant from the RI Foundation called the Raleigh-Providence fund.

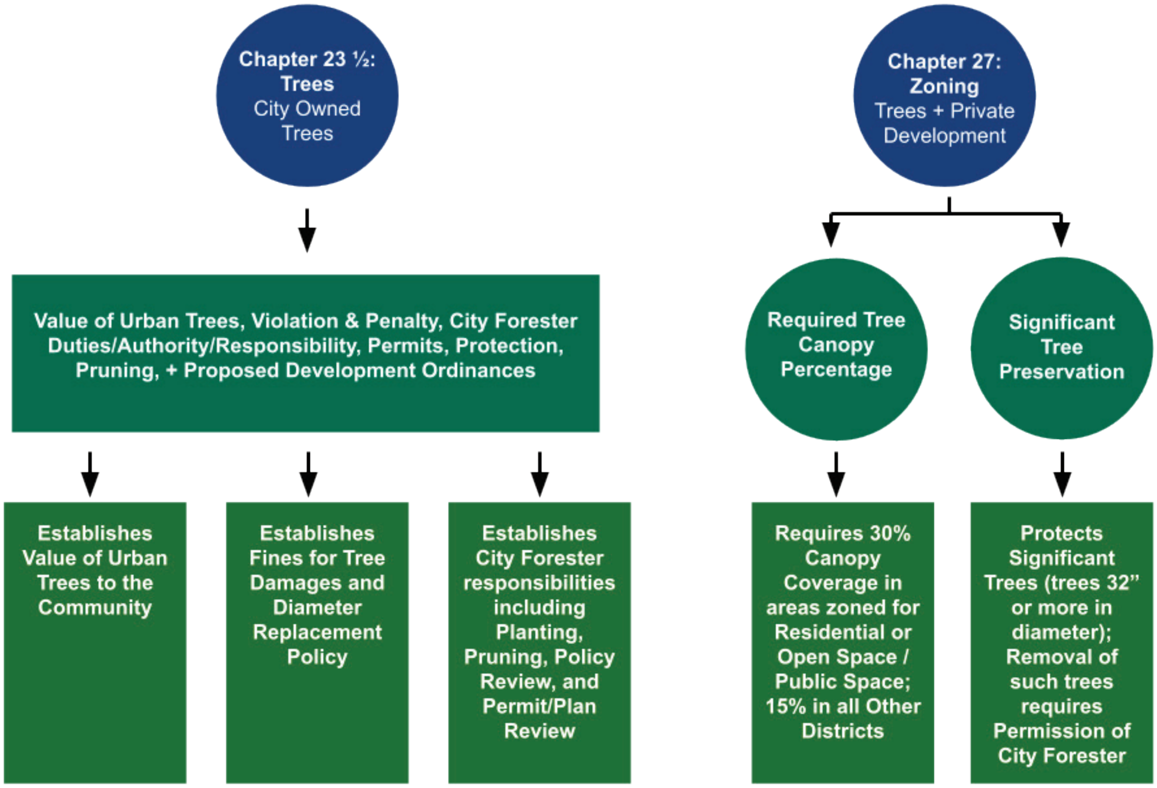
- **The City Budget** provides the support for the salaries and operations of the City Forester and their crew. **In Lieu of Fees** and **Cost Shares** further support city tree planting operations.
- The RI Foundation Mary Elizabeth Sharpe PNPP Fund supports the salary of the PNPP staff salaries and operations.[20]
- The RI Foundation Helen Walker Raleigh Tree Care Trust supports half of Providence's block pruning budget (50/50 with the City Budget).[21]
- The RI Foundation Raleigh-Providence Fund supports the PVD Treekeepers program through PNPP, which trains volunteers how to do ground level pruning and care for young trees (awarding them a certificate allowing them to prune City trees at the program's culmination). It also provides a 50% match for the treatment of Emerald Ash Borer.[22]
- **Grant funding** bridges funding gaps and supports one time projects. Funds from the Arbor Day Foundation and TD Bank, as well as from the CDBG Block Grant, have been utilized.[23]


Providence City Budget, In Lieu of Fees, + Cost Shares
RI Foundation Mary Elizabeth Sharpe PNPP Fund
Rhode Island Foundation
Arbor Day Foundation + TD Bank
HUD / CDBG Funds
Salary + Operations City Forester and Forestry Division
Salary + Operations PNPP Executive Director
Helen Walker Raleigh Tree Care Fund
Raleigh-Providence Fund
Grants
Carries out Tree Planting, Pruning, & Removal; Planning and Policy Review; Review of Permit Applications
Carries out Tree Planting; Hosts PVD TreeKeepers Program
Supports Providence's Block Pruning Budget; Funds Initiatives such as the Tree Inventory
Supports PVD TreeKeepers Program (young tree care training + certification) and 50% of the City's Emerald Ash Borer treatment
Bridges Funding Gaps; Supports Tree Planting + Other Urban Forestry Projects

City of Providence Urban Forestry - Funding

POLICY: The City of Providence has a variety of policies which benefit its urban forestry efforts. These policies are grouped under two chapters in the City code. [Chapter 23 ½, "Trees,"] delivers policy regarding City owned trees. [Chapter 27, "Zoning,"] provides policies applying to trees on private land, particularly regarding private development. Ordinances establish:

- **Policy for Public Trees**[24]
    - **The Value of Urban Trees** in providing economic, health, psychological, and pollution reduction benefits
    - **Violations & Penalties** for unlawful tree damage or removal, including a diameter equivalent replacement requirement via planting or in lieu of fees
    - **The City Forester** position, including duties, authority, and responsibilities
    - **Permit Requirements**
    - **Tree Protection & Pruning** guidelines
    - **Proposed Development** guidelines
- **Policy for Private Development & Trees**[25]
    - **Required Tree Canopy Percentage**, which obligates developers to maintain 30% canopy cover in residential areas and 15% in commercial/industrial areas
    - **Significant Tree Protection**, which protects trees over 32" in diameter on both public and private land


Chapter 23 ½: Trees
City Owned Trees
Chapter 27: Zoning
Trees + Private Development
Value of Urban Trees, Violation & Penalty, City Forester Duties/Authority/Responsibility, Permits, Protection, Pruning, + Proposed Development Ordinances
Required Tree Canopy Percentage
Significant Tree Preservation
Establishes Value of Urban Trees to the Community
Establishes Fines for Tree Damages and Diameter Replacement Policy
Establishes City Forester responsibilities including Planting, Pruning, Policy Review, and Permit/Plan Review
Requires 30% Canopy Coverage in areas zoned for Residential or Open Space / Public Space; 15% in all Other Districts
Protects Significant Trees (trees 32" or more in diameter); Removal of such trees requires Permission of City Forester

City of Providence Urban Forestry - Policy

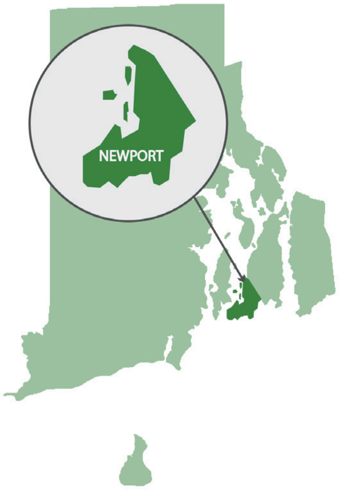
Providence: Future Goals

Providence's urban forestry program aims to:

- Make tree planting strategic, focused on the low canopy neighborhoods that need trees most (achieving Tree Equity)
- Increase planting on private property to accomplish this task
- Seek funding for the PVD Tree Plan, which will determine priority areas where trees need to be maintained or protected
- Continue supporting workforce development and youth engagement to combat future predicted shortages of urban forestry professionals
- Motivate private property owners to be more engaged in stewarding the urban forest

Credit: Providence Neighborhood Planting Program.

Case Study: Newport, RI



Newport: A Snapshot

The City of Newport, at 7.67 square miles, is home to a population of approximately 25,000 individuals. At **25% canopy cover,** Newport currently has a **Tree Equity score of 79/100** according to American Forests' Tree Equity Score Analyzer.[26]

Newport: Funding and Policy Support Mechanisms

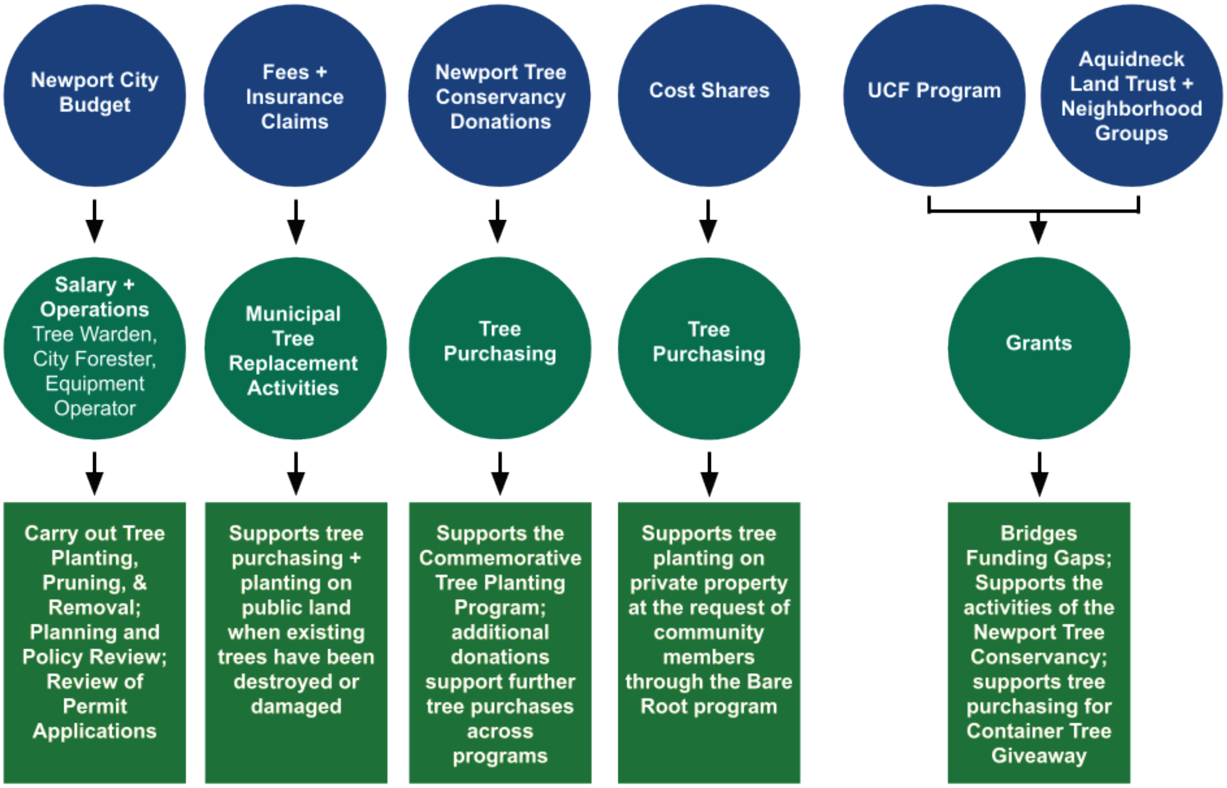
SERVICES: The City of Newport delivers urban forestry services through the combined efforts of City officials and non-profit partners. Municipal efforts are headed by the Parks, Grounds, and Forestry Division (a part of the Department of Public Services), led by the Superintendent, and non-profit efforts are headed by the Newport Tree Conservancy.[27] Key services provided are as follows:

- **Container Tree Giveaway Program:** The Container Tree Giveaway Program, also known as the Specimen Tree Restoration Program, provides tree plantings on private property. Containers are delivered in the Fall to people's houses for planting by the property owner. Tree species are selected for site suitability and rareness, to diversify the urban forest canopy of Newport's citywide arboretum.[28]
- **Bare Root Tree Planting Program:** In the Bare Root Tree Planting Program, bare root trees are obtained from nurseries and planted with municipal expertise. These trees are planted on public roadsides or set back up to 20' onto private property (allowed through a setback tree planting ordinance). Tree plantings are requested by property owners, who pay for the tree at a significant discount.[29]
- **Commemorative Tree Planting Program:** This program, run by the Newport Tree Conservancy, provides memorial tree plantings in exchange for a donation. A certificate of donation and a memorial ceremony are offered.[30]
- **Tree Pruning and Removal:** The City offers tree maintenance work on public trees upon request and permits for such work on private property.[31]

FUNDING: Newport primarily receives funds for its services through the City Budget, insurance claims, Urban and Community Forestry grants (previously America the Beautiful grants), cost shares, and donations.

- **The City Budget** supports the salaries of the Superintendent of the Parks, Grounds, and Forestry Department (who also serves as the City's Tree Warden), the City Forester, and the Labor Equipment Operator. These positions deliver municipal urban forestry efforts, such as tree planting and maintenance activities (however, these funds do not support purchase of trees).
- **Insurance Claims** are used to cover damages when trees are damaged or destroyed by vehicles.

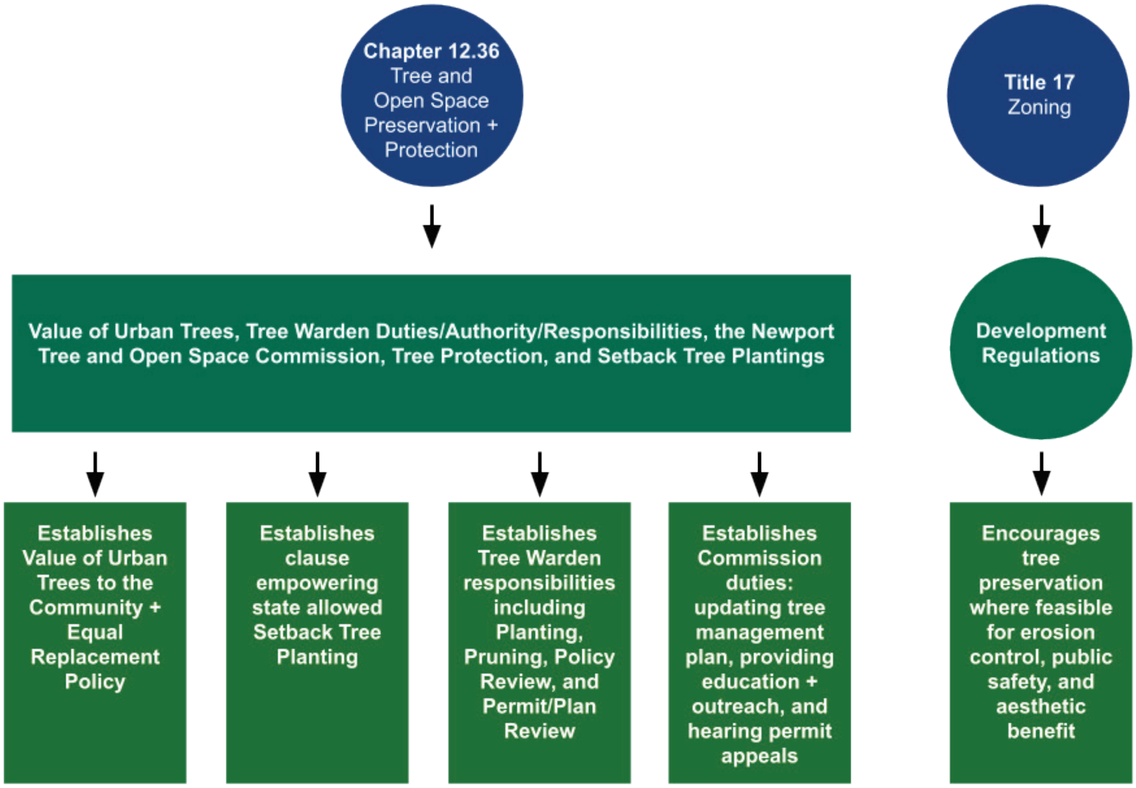
- **Grants** support regular, annual tree planting. Urban and Community Forestry grants and merit grants from local organizations (such as the Aquidneck Land Trust and neighborhood groups) help to fund these tree plantings.[32]
- **Cost Shares** are utilized by the Tree Conservancy in the Bare Root Tree Planting Program; private property owners pay a reduced rate to purchase a tree, which municipal officials deliver and install along the public frontage of that property.[33] In the past, the City has had cost shares with utility companies to support tree maintenance and planting: shared labor between the City and the power company was used to remove trees identified as hazards by both parties, and the power company supported the cost of replanting.
- **Donations** are generated through the Commemorative Tree Planting Program to support tree planting efforts. The Tree Conservancy also accepts "anytime" donations through its website, and the City accepts donations for urban forestry efforts as well.[34]
- **Fees** are collected when residents or developers want to remove trees (ex. to put in a new driveway, etc.) and do not have room to replant. These fees allow the City to replant trees elsewhere.


Newport City Budget
Fees + Insurance Claims
Newport Tree Conservancy Donations
Cost Shares
UCF Program
Aquidneck Land Trust + Neighborhood Groups
Salary + Operations Tree Warden, City Forester, Equipment Operator
Municipal Tree Replacement Activities
Tree Purchasing
Tree Purchasing
Grants
Carry out Tree Planting, Pruning, & Removal; Planning and Policy Review; Review of Permit Applications
Supports tree purchasing + planting on public land when existing trees have been destroyed or damaged
Supports the Commemorative Tree Planting Program; additional donations support further tree purchases across programs
Supports tree planting on private property at the request of community members through the Bare Root program
Bridges Funding Gaps; Supports the activities of the Newport Tree Conservancy; supports tree purchasing for Container Tree Giveaway

City of Newport Urban Forestry - Funding

POLICY: Within Newport's municipal code, many ordinances have been implemented to further urban forestry. The City's Chapter 12. 36, "Tree and Open Space Preservation and Protection," and Title 17, "Zoning,"[35] contain ordinances establishing:

- **The Value of the Urban Forest**
- **The Newport Tree and Open Space Commission** - this Commission is responsible for updating the City's annual tree management and planting plan, which is incorporated into the City's Capital Improvement Budget and annual operating budget; managing the City's Arbor Day program and celebration; providing education; advising the City Council on matters regarding trees; and hearing permit appeals.
- **Tree Protection** regulation
- **Equal Replacement** requirement in response to tree damages (direct replacement or in lieu of fees).
- **Setback Tree Plantings** that allow for tree plantings by the municipality up to 20' from public right of ways on private property (provided property owner consent is obtained).
- **Development Regulations** with mention of tree preservation where feasible for erosion control, public safety, aesthetic benefit, including a street tree planting requirement and overlay district in the Ocean Drive District Critical Area.


Chapter 12.36 Tree and Open Space Preservation + Protection
Title 17 Zoning
Value of Urban Trees, Tree Warden Duties/Authority/Responsibilities, the Newport Tree and Open Space Commission, Tree Protection, and Setback Tree Plantings
Development Regulations
Establishes Value of Urban Trees to the Community + Equal Replacement Policy
Establishes clause empowering state allowed Setback Tree Planting
Establishes Tree Warden responsibilities including Planting, Pruning, Policy Review, and Permit/Plan Review
Establishes Commission duties: updating tree management plan, providing education + outreach, and hearing permit appeals
Encourages tree preservation where feasible for erosion control, public safety, and aesthetic benefit

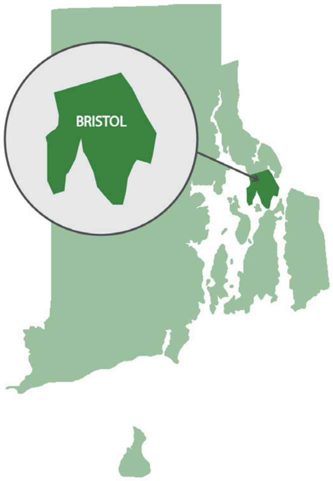
City of Newport Urban Forestry - Policy

Newport: Future Goals

Newport's urban forestry program seeks to:

- Gain more funding for tree maintenance and planting, particularly in low income communities
- Achieve no net loss of trees; accomplish this through standing replacement funds
- Expand staff capacity to handle maintenance, particularly single tree requests, in order to free up City Forester for management responsibilities
- Consider supporting a gas tax, carbon tax, or real estate transfer tax for urban forestry work
- Improve intergovernmental communication regarding City trees
- Increase tree planting on private property, focusing on increasing the number of native, healthy trees in fertile soils; reduce maintenance need by planting trees where they will thrive
- Slow the increase of impervious areas, ideally putting landscaping, green infrastructure, and urban forestry earlier in the design process; preserve living permeable soils; and provide space for the urban canopy
- Emphasize the incorporation of trees into green infrastructure projects in order to improve bay health, reduce beach closures, and manage stormwater
- Increase replanting in currently forested areas to counteract damages from invasive pests
- Increase overall tree diversity, including number of native or non-invasive trees; incorporate non-native, non-invasive trees to protect against invasive pests that prey on native trees
- Further address threats from invasive pests such as Emerald Ash Borer, Asian Longhorn Beetle, and Beech Leaf Disease (caused by *Litylenchus crenatae mccannii*)
- Increase outreach, providing more education on tree planting, seeking more public input and community engagement, and providing more follow-up on the Container Tree Giveaway Program
- Provide tree establishment care including mulching, weeding, and watering through the Newport Tree Conservancy
- Develop a landscape plan for the entire City
- Improve Tree Equity in Newport

Case Study: Bristol, RI



Bristol: A Snapshot

The Town of Bristol, at 9.83 square miles, is home to a population of approximately 22,000 individuals. At **44% canopy cover**, Bristol currently has a **Tree Equity score of 79/100** according to American Forests' Tree Equity Score Analyzer.[36]

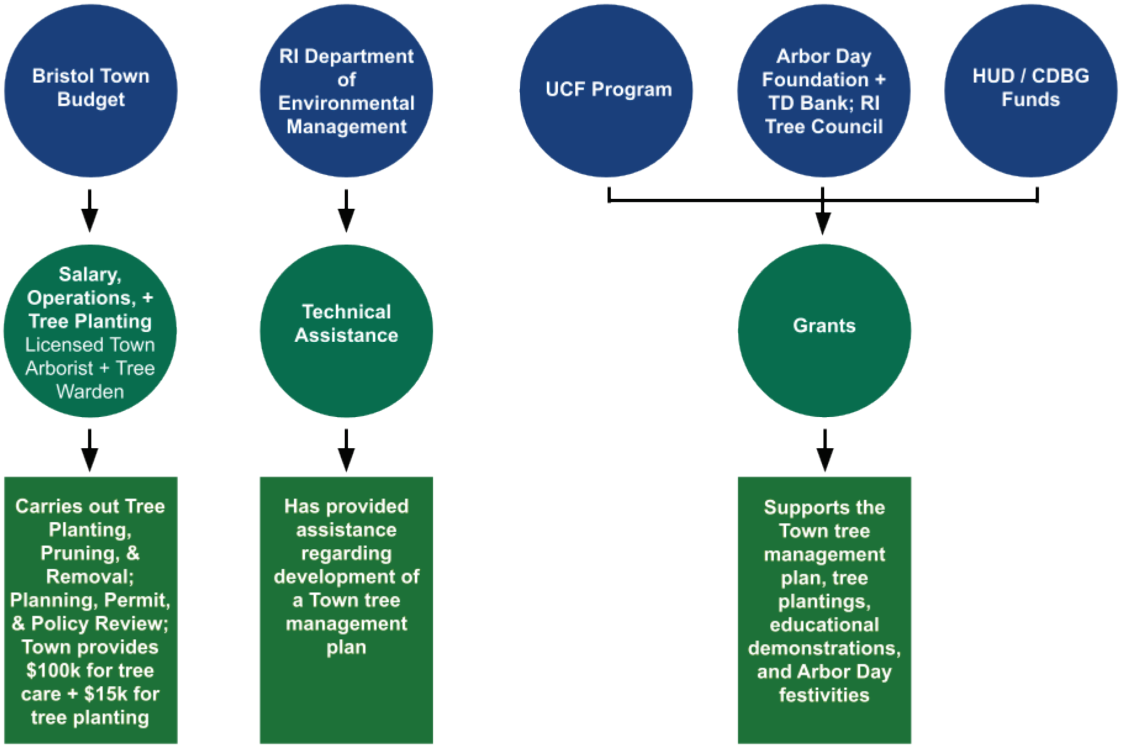
Bristol: Funding and Policy Support Mechanisms

SERVICES: The Town of Bristol provides urban forestry services through the leadership of the **Department of Community Development** (DCD), the **Department of Public Works**, and the part time Tree Warden.[37] The Principal Planner in the DCD and the Tree Warden are the point persons for townwide urban forestry efforts, and Bristol's DPW has one licensed arborist on staff who manages tree care and preservation. The **Conservation Commission**, a mainly volunteer effort, also assists with managing tree planting, tree requests, tree inventory, review of environmentally sensitive project proposals, and preparation of the tree management plan (in development).[38] Key services provided are as follows:

- **Tree Planting:** The Conservation Commission runs the Town's tree planting program, taking tree requests from residents and keeping spreadsheets of these requests. The physical tree planting is carried out by the town DPW under direction of the Tree Warden, and plantings take place in areas that will be maintained, such as along roads, in public areas, or on 20' setbacks. The historic downtown is a particular focus area for tree planting.[39]
- **Tree Removal:** The Town DPW provides removal services for public trees upon resident request after inspection and approval by the Tree Warden. Removal of smaller trees is conducted by municipal staff, and work on larger trees may be conducted by contractors.[40]
- **Tree Inspection & Trimming:** The Town also offers tree inspection services upon resident request. Residents can contact the Tree Warden if public trees are in need of inspection. Trimming work on smaller trees is conducted by municipal staff, and work on larger trees is conducted by contractors.[41]
- **Tree Management Plan:** The Conservation Commission is in the process of developing a management plan that includes % canopy cover and brings a stronger focus on preventative maintenance to the town's current urban forestry efforts. RIDEM has provided guidance on this initiative.[42]

FUNDING: The Town of Bristol funds its urban forestry work through the Town budget, grants, cost shares, and partnership with state government and non-profits.

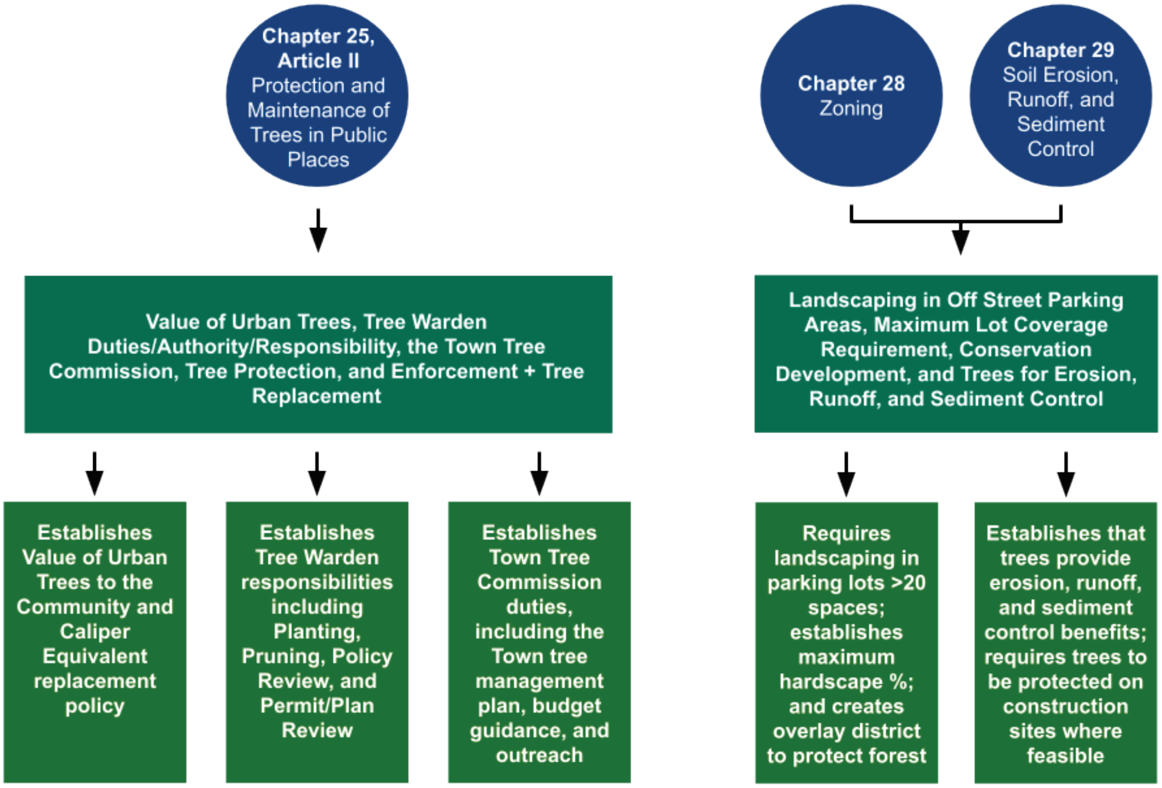
- **The Town Budget** supports urban forestry through an $100k line item in DPW for tree care, preservation, pruning, and removal. This work was previously contracted out, but the Town is transitioning to completing this work in house. The funding supports salary for a licensed arborist, as well as tree maintenance equipment and training to use this equipment. The Town also allocates $15k a year to tree planting, which DPW carries out - this supports the planting of about 30-40 trees annually.
- **Grant funding** has supported a wide variety of urban forestry efforts in Bristol. Urban and Community Forestry grants (previously America the Beautiful grants) have supported the draft of the Town's tree management plan; as a Tree City USA participating municipality (as with Providence and Newport), Bristol has increased access to this funding. The TD Bank Green Streets grant, through the Arbor Day Foundation, supported a large tree planting and urban forestry educational demonstration in 2017 within low to moderate income neighborhoods. Community Development Block Grant funding has also been used to support tree planting.[43]
- RI Department of Environmental Management has provided Bristol with technical assistance to draft their tree management plan.[44]
- RI Tree Council supports the Arbor Day Celebration in Bristol and many tree plantings.[45]


Bristol Town Budget
RI Department of Environmental Management
UCF Program
Arbor Day Foundation + TD Bank; RI Tree Council
HUD / CDBG Funds
Salary, Operations, + Tree Planting Licensed Town Arborist + Tree Warden
Technical Assistance
Grants
Carries out Tree Planting, Pruning, & Removal; Planning, Permit, & Policy Review; Town provides $100k for tree care + $15k for tree planting
Has provided assistance regarding development of a Town tree management plan
Supports the Town tree management plan, tree plantings, educational demonstrations, and Arbor Day festivities

Town of Bristol Urban Forestry - Funding

POLICY: Bristol has several policies supporting urban forestry. Many of these are similar to those implemented in Providence and Newport, with variations, given Bristol's status as a town rather than a city. The core of Bristol's ordinances regarding trees are in **Chapter 25, Article II, "Protection and Maintenance of Trees in Public Places," Chapter 28, "Zoning,"** and **Chapter 29, "Soil Erosion, Runoff, and Sediment Control,"** which establish:[46]

- **Value of Urban Trees**
- **The Tree Warden** position, which is responsible for enforcement of tree ordinances; tree planting, maintenance, and trimming; and serves on the Tree Commission. While there is not a specific Town ordinance for setback tree planting (20' from public right of ways, on private property), the Town Council did adopt a setback tree planting policy in 2015, and this is allowed by RI General Law - the Tree Warden therefore also conducts setback tree plantings upon resident request.
- **The Town Tree Commission** - Bristol Conservation Commission and Tree Warden act as the Town Tree Commission. The Commission is tasked with developing a master tree management plan; preparing budgetary recommendations and administrative guidelines; and conducting outreach.
- **Tree Protection**
- **Enforcement & Tree Replacement**, requiring replacement of trees removed, destroyed or damaged by unauthorized activity with 3.5 to 6 inch caliper trees (totaling equivalent caliper removed).
- **Landscaping in Off-Street Parking Areas** - this policy requires parking areas with more than 20 spaces, located in any zone, to be landscaped with trees, shrubs, and other vegetation.
- **The Maximum Lot Coverage Requirement** requires developers to limit hardscape and structures to a particular percentage of the site.
- **Trees for Erosion, Runoff, and Sediment Control** - this policy establishes trees as relevant to erosion, runoff, and sediment control, and requires trees to be maintained on construction sites wherever feasible.
- **Conservation Development** - within the Resource Conservation and Creative Development Overlay, Conservation Development projects are required. These projects, among a variety of goals, work to conserve existing woodland.


Chapter 25, Article II
Protection and Maintenance of Trees in Public Places
Chapter 28
Zoning
Chapter 29
Soil Erosion, Runoff, and Sediment Control
Value of Urban Trees, Tree Warden Duties/Authority/Responsibility, the Town Tree Commission, Tree Protection, and Enforcement + Tree Replacement
Landscaping in Off Street Parking Areas, Maximum Lot Coverage Requirement, Conservation Development, and Trees for Erosion, Runoff, and Sediment Control
Establishes Value of Urban Trees to the Community and Caliper Equivalent replacement policy
Establishes Tree Warden responsibilities including Planting, Pruning, Policy Review, and Permit/Plan Review
Establishes Town Tree Commission duties, including the Town tree management plan, budget guidance, and outreach
Requires landscaping in parking lots >20 spaces; establishes maximum hardscape %; and creates overlay district to protect forest
Establishes that trees provide erosion, runoff, and sediment control benefits; requires trees to be protected on construction sites where feasible

Town of Bristol Urban Forestry - Policy

Bristol: Future Goals

Bristol’s urban forestry program aims to:

- Support urban Tree Equity efforts
- Consider including urban forestry in the comprehensive plan
- Use current administration support and widespread community engagement regarding trees to move urban forestry forward townwide

Municipally Identified Challenges & Barriers

Interviewed municipalities identified a number of challenges and barriers to urban forestry work, both within their jurisdictions and in other Rhode Island municipalities. Challenges and barriers identified by municipal staff and partners are detailed below.

Funding & Policy Challenges

FUNDING

- Limited or absent city or town budget support for tree planting
- Lack of strong funding for tree maintenance in some municipalities
- Where support is present for tree maintenance, it is limited (municipalities are falling behind on maintenance activities)
- Funding for urban forestry has lessened or dried up over the years
- Grant applications can be time consuming
- Staff capacity is limited; need more time, more advocates searching for funding and completing maintenance tasks; dedicated department and funding stream necessary
- In many cases, there is no dedicated staff person for urban forestry
- Grant awards are not reliably sizable enough to support the amount of tree planting and maintenance needed to produce citywide benefits
- Lack of capacity to manage and expand programs
- Lack of ability to find and support a new employee
- Lack of prioritization of urban forestry funding by municipal or state leadership
- Tree warden positions unpaid, underpaid, or part time
- Increased up front funding needed to shift from reactive to proactive spending

POLICY

- Low personnel capacity to review permit applications or enforce ordinances
- Property owners with small lots are not always subject to tree regulations, or violations on these properties go unenforced
- Contractors are not always aware of municipal tree policy, particularly new employees
- Lack of strong intergovernmental communication can lead to under maintained, under regulated, and under enforced areas, specifically where state and municipal land meets (such as along state roads) or in other areas where both state and municipal work occurs
- Lack of strong interdepartmental communication and prioritization of trees
- Postings before tree removals may appear late or not at all; this is under enforced
- Upper administration needs to prioritize trees to push policy forward
- Urban forestry programs are often structured to be reactive, responding to complaints, rather than proactive, completing preventative maintenance

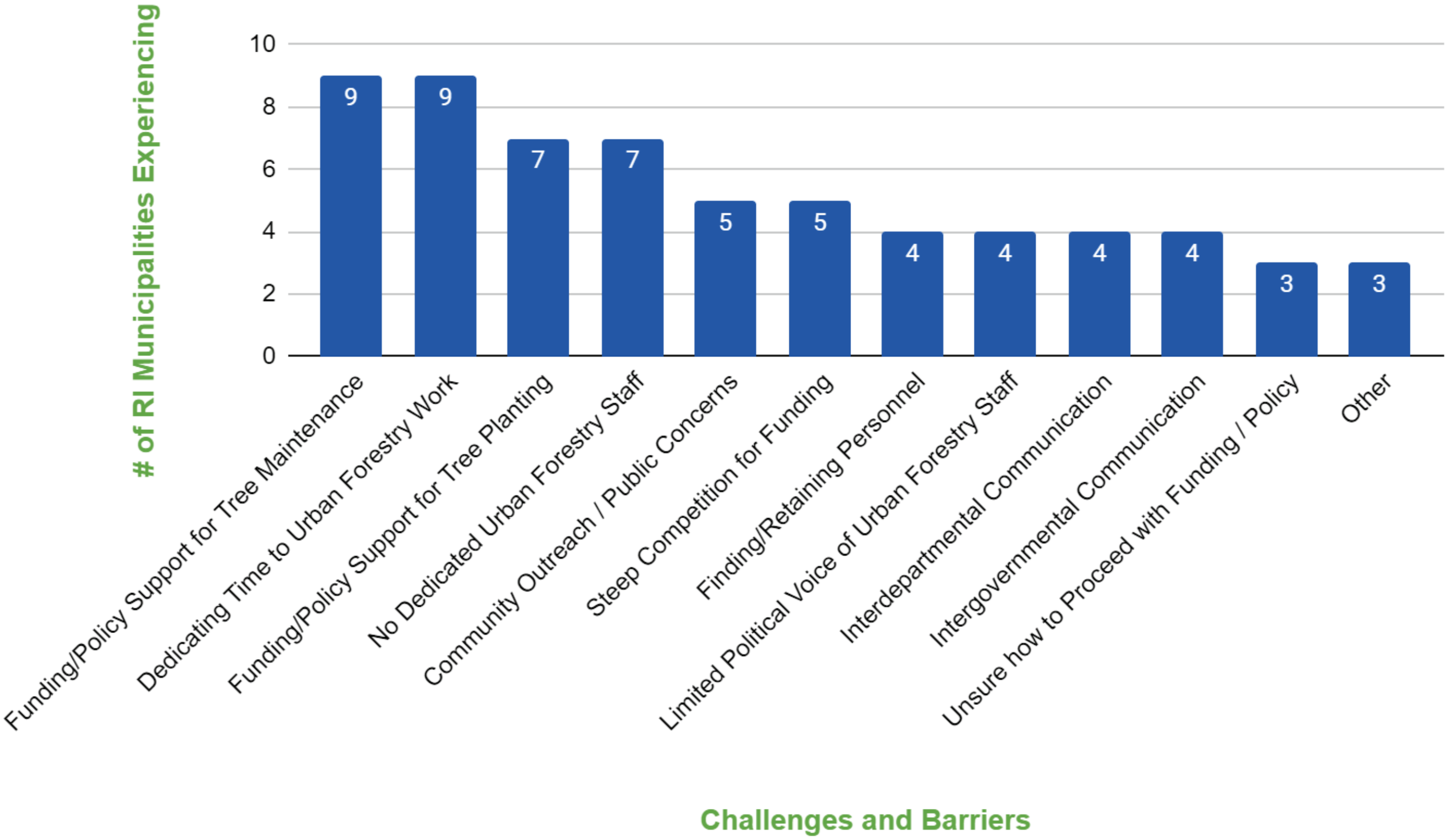
Barriers

- Tree maintenance can be burdensome and expensive for municipalities
- Trees need to be replaced semi-regularly due to natural die off
- Downed trees can't be replaced in the same spot immediately (underground root system needs to decay)
- Future anticipated shortages of tree workers
- Lack of tree trimmers with the required training
- Resident concerns about trees damaging clay sewer pipelines
- Resident and municipal concerns about sidewalk damage (cracking or lifting)
- Residents do not always want trees
- Old infrastructure that can be damaged by tree roots
- Increased climate-related threats including competition from invasive species and pests (such as Emerald Ash Borer, Asian Longhorn Beetle, and Beech Leaf Disease caused by *Litylenchus crenatae mccannii*), as well as threat of tree diseases
- Improper tree planting (planting beneath a shade tree, selecting inappropriate tree species beneath overhead utilities, etc.)
- Limited advocacy for urban forestry within RI Department of Transportation
- Limited communication between utilities companies and local governments; need for increased coordination
- Landscaping is often done as addendum at the end of a project
- When green infrastructure projects use compacted soils, infiltration is not improved
- Occasionally entire lots are paved in efforts to move on-street parking off-street
- Green infrastructure projects can involve cutting down trees to plant grasses or other herbaceous plants, which are less beneficial for stormwater management
- Municipalities do not always hire professionals to fill urban forestry positions
- Lack of strong connection between municipal urban forestry programs; need for establishment of a RI Tree Warden Association
- Not enough follow-up after tree planting projects (to water, maintain, and evaluate success)
- Many calls to municipal leadership about tree complaints

Highest Ranking Municipal Challenges and Barriers

In a survey conducted by RIIB and American Forests in January of 2021 (across 14 RI urban and suburban municipalities), Rhode Island municipal representatives were asked “What challenges do you experience in your urban forestry work?” Multiple choice selections were crafted based on previous RIIB interviews with municipalities. Participants were directed to select all answers that applied. Figure 1 documents the results.

Figure 1. Challenges and Barriers to Urban Forestry in Surveyed RI Municipalities



FUNDING, FINANCING, & POLICY FOR TREE EQUITY

NATIONAL MECHANISMS

Aerial panorama of Providence skyline at sunset. Credit: Mihai Andritoiu / Adobe Stock.

Funding, Financing, and Policy Mechanisms

NATIONALLY IDENTIFIED MECHANISMS

Support mechanisms such as funding, financing, and policy can help entities to overcome challenges and barriers, as well as accomplish future goals. Funding can bring projects or plans to life and can assist in hiring personnel, while financing can provide the up front capital needed to fund construction costs on projects otherwise funded through reimbursement grants. Policies can help establish more secure internal funding sources, create urban forestry positions, and promote tree preservation.

Across the U.S., states and municipalities have been hard at work finding support mechanisms for urban forestry, which is often underfunded and under regulated. Guides have been written on the subject at various levels of government, as well as by non-profit organizations and private consultants.[1] Figure 2 summarizes mechanisms that have been identified and utilized nationally to support urban forestry efforts.

Figure 2. Nationally Identified Mechanisms to Support Urban Forestry

FUNDING & FINANCING MECHANISMS

TAXES AND FEES

General Taxes
Special Taxes (ex. estate transfer tax allocated to forestry special fund)
Tax Increment Financing
Special Assessments (ex. landscape and lighting assessment)
Service Fees (ex. stormwater utility fee)
User Fees (ex. beach fee, parking fee)
Administrative Fees (ex. permit review fee)
Impact Fees (ex. developer fee)
Fines
Carbon Offsets / Cap-and-Trade (ex. City Forest Credits)

GRANTS AND PHILANTHROPY

Grants
Corporate Partnerships

FUNDRAISING

Donations
Fundraising Events
Municipal Sales (ex. wood product sales)

MUNICIPAL BUDGET

City / Town Budget
Special Fund
Capital Improvement Project Budget

SPECIAL DISTRICTS

Government Districts
Business and Neighborhood Districts

DEBT FINANCING

Municipal Bonds
Revolving Fund / Loans (ex. Efficient Building Fund)

POLICY & PLANNING MECHANISMS

ORDINANCES & REGULATION

Street Tree Ordinances
Tree Protection Ordinances
Viewshed Ordinances
Forest Conservation Ordinances
Municipal Zoning / Development Regulations
Invasive Species Ordinance
Establishment of Forestry Position, Council, or Committee

PLANNING

Low Impact Development
Smart Growth Plans / Sustainable Land Use Plans
Transit Oriented Development
Urban Forestry in Comprehensive Plan
Urban Forestry / Tree Management Plans

OUTREACH

Volunteer Engagement
Partnerships
Incentives (ex. planting cost share, utility fee reduction)
Education and Assistance for Landowners
Tree Steward Certifications

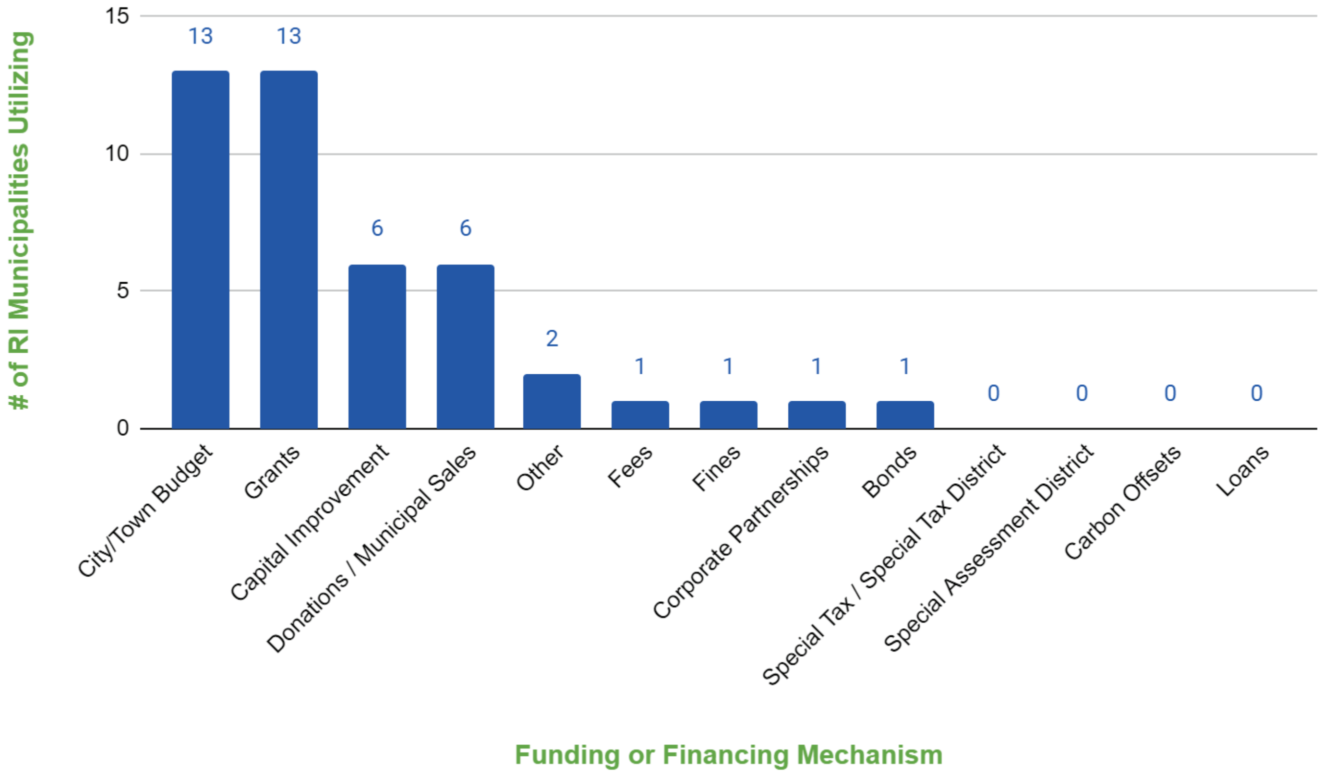
RHODE ISLAND: A GAP ANALYSIS

Some of the mechanisms that have been utilized nationally to support urban forestry are already being used here in Rhode Island. To acknowledge urban forestry support already in place in the state, as well as to identify national opportunities, RIIB has conducted a statewide gap analysis of urban forestry funding, financing, and policy mechanisms. **The following provides an overview of mechanisms currently used widely in RI, as well as national opportunities that could potentially be further utilized by RI municipalities for urban forestry**, providing definitions and examples of each approach. **In this section, all nationally identified mechanisms are equally explored -** Section V, "Recommendations," narrows mechanisms to those that both most successfully support Tree Equity goals and are best fits for Rhode Island.

Funding & Financing Mechanisms Across Rhode Island

In a January 2021 survey, Rhode Island municipal representatives were asked "What types of funding or financing resources support your urban forestry work (including personnel, equipment, trees, etc. for tree planting and maintenance)?" Participants were directed to select all answers that applied. Figure 3 documents the results.

Figure 3. Urban Forestry Funding/Financing Mechanisms used by RI Municipalities



Funding & Financing Mechanisms Commonly Utilized in Rhode Island

Across the 14 urban and suburban Rhode Island municipalities surveyed, the following mechanisms were most commonly utilized to financially support urban forestry programs, projects, and other initiatives:

- **City/Town Budget:** The municipal budget accounts for expected revenues and allocates resources to particular expenditures. It is supported by general taxes.[2] Interviewed municipalities reported this funding mainly being used to support **urban forestry personnel, maintenance programs, and tree planting**.

- **Grants:** Non-repayable funds given by a federal or state government department, corporation, or foundation, to a recipient (municipality, non-profit, school, business, or community member). Interviewed municipalities reported utilizing grants such as **Community Development Block Grants**, **Urban and Community Forestry Grants**, and **Arbor Day Foundation Grants**.[3] This funding has been mainly used to support **tree planting efforts**.

- **Capital Improvement Project Budgets:** The municipal CIP Budget allocates funds for infrastructure projects.[4] Interviewed municipalities reported this funding being used to support **tree planting projects** associated with other capital improvement efforts.

- **Donations/Fundraising/Municipal Sales:** Gifts to benefit a cause, often given to a non-profit or foundation, or purchases of municipal goods to support local efforts. It should be noted that any donations to a public entity must be held in a trust or endowment - Providence, RI has done this through the **RI Foundation**.[5] Interviewed municipalities reported these funds being used to support a variety of activities, including **tree planting, tree maintenance, and educational programs.**

Nationally Utilized Funding & Financing Mechanisms

Several national funding and financing opportunities were not as commonly utilized by the 14 urban and suburban Rhode Island municipalities surveyed. The following list provides overviews of these mechanisms and examples of how each has been used nationally for urban forestry:

- **Special Assessment Districts:** Special assessment districts distribute payment for **an urban forestry maintenance program or project** across those receiving benefits from that program or project. These districts can be initiated by government entities or by community petition, and can cover a block or an entire municipality.[6] An example of an assessment district would be this citywide **Landscape and Lighting Assessment District** in Oakland, California.[7] Other types of districts, such as Business Improvement Districts (BIDs) - see this one in **Washington DC** - also can go far for urban forests.[8] For more examples of BIDs, see Downtown Denver's **BID Tree Health Program** and New York City's **Hudson Square** BID.[9]

- **Special Taxes / Tax Increment Financing:** Special taxes utilize either all or partial funds from a tax to support a particular effort, generally through putting revenues into a Special Fund rather than the General Fund/Budget.[10] These taxes can support **urban forestry projects, personnel, maintenance, or preservation**. These taxes are generally implemented across a municipality, delivering broader benefits than special assessment districts; however, similarly to special assessments, special taxes can be implemented as districts in which payment for programs or projects supported is distributed across those who would benefit.[11] In November 2016, through Measure A, the County of Los Angeles, CA levied a 1.5 cent per sqft parcel tax on development to protect, enhance, and maintain the urban tree canopy and open spaces; read more about **Measure A here**.[12] Tax increment financing, a different but related funding technique, specifically uses tax increases over time to fund a particular program or project.[13]

- **Fines:** Payments made in response to damages or destruction of assets. In terms of urban forestry, fines can cover illegal, unpermitted, or accidental tree removal, including **unexpected construction damages and automobile damages** - the value of the tree, the cost of clean up, and associated administrative costs.[25] Newport, RI submits **insurance claims to recover tree losses**.

- **Fees:** There are four key types of fees that can support **urban forestry projects and maintenance programs**:

  1. **User Fees**
  2. **Service Fees**
  3. **Administrative Fees**
  4. **Impact Fees**

  The following page provides a summary of these four fee types.

Fee Typology	Description	Example(s)
User Fee	Non-property based fees paid to the owner of a facility for its use. Examples include highway and bridge tolls, or parking meters.[14]	Take a look at this information from Boston, MA on Parking Benefits Districts for an example of how these fees can benefit trees.[15]
Service Fee	Charges on property owners for the cost of providing particular services. One approach gaining interest is a Stormwater Utility Fee.[16]	Stormwater Utility Fees are being considered in Rhode Island (see the Upper Narragansett Bay Regional Stormwater Management District study).[17] See how Lenexa, KS found success using a Stormwater Utility Fee.[18] Another approach is introducing a specific Urban Forestry Fee - see Madison, WI's Urban Forestry Special Charge for an example.[19]
Administrative Fee	Charges for the review of development permit applications, plans, and site inspections. Examples include Permit Review Fees, Plan Review Fees, Site Inspection Fees, License Fees, and Registration Fees.[20]	Austin, TX provides a thorough fee schedule for its Tree Permitting process.[21] Oswego, OR also has fees for a variety of permit types for tree-related issues.[22]
Impact Fee	Charges for disturbances to or increased pressures on municipal landscape, trees, or public facilities. Examples of these fees include Developer's Fees and Utility Company Fees.[23]	Smithfield, RI and Johnston, RI both have Developer's Fee ordinances. However, it is important to note that in RI, these fees must be used to fund capital improvements - in order to use these fees to support urban forestry, municipalities must have trees named a capital improvement.[24]

- **Carbon Offsets and Cap & Trade:** Cap-and-trade programs put a legal cap on carbon emissions and allow emission allowance auctions to major emitters; this also allows the sale of credits to those who exceed their allowances.[26] Credit sales can support **urban forestry projects, maintenance, or preservation**. These sales can be delivered through voluntary programs such as **City Forest Credits**, which issues third-party verified carbon credits from tree planting and preservation projects.[27] See how **King County, WA** is preserving its urban forests with this method.[28] **Shoreline, WA** is conducting tree planting with this method.[29]

- **Corporate and Foundation Partnerships:** Partnerships can involve collaboration between a government agency and a private-sector company, non-profit, or foundation that can be used to fund **urban forestry project, planning, or preservation efforts, as well as urban forestry personnel.**[30] Providence, RI has significant collaborations with the **RI Foundation** and utilizes Arbor Day Foundation grants to communities served by **TD Bank**.[31] Companies such as **Kaiser Permanente** regularly support environmental stewardship and community health initiatives, including trees.[32] Further, the City Forest Credits' **Impact Certification** process helps bridge the gap between municipalities and funders looking to support greening initiatives that are rooted in social equity - see how **Boise, ID** is utilizing this method to support tree planting.[33]

- **Loans:** Funds to be borrowed and paid back over time. Loans can bridge funding gaps when an entity is completing an **urban forestry project** with a reimbursement grant. In Rhode Island, this is already being done with green infrastructure projects through the Infrastructure Bank's interest-free **Stormwater Accelerator** program.[43]

- **Revolving Funds:** A loan fund is a source of money from which loans are made for projects; in revolving funds, the fund source is continually replenished by loan repayments, making funds continually accessible. Rhode Island Infrastructure Bank offers **Clean Water and Drinking Water Revolving Funds** that are capitalized by EPA and can support **urban forest projects and preservation**.[44] Both of these programs offer a certain amount of principal forgiveness annually; further, Clean Water revolving funds prioritize green projects through the **Green Project Reserve**. Camden, NJ has utilized the **Clean Water SRF** for tree planting and **presented this work** with the EPA in 2017.[45]

- **Municipal Bonds:** There are four key types of municipal bonds that can support **urban forestry projects and preservation**:

  1. **General Obligation Bonds**
  2. **Revenue Bonds**
  3. **Green Bonds**
  4. **Environmental Impact Bonds**

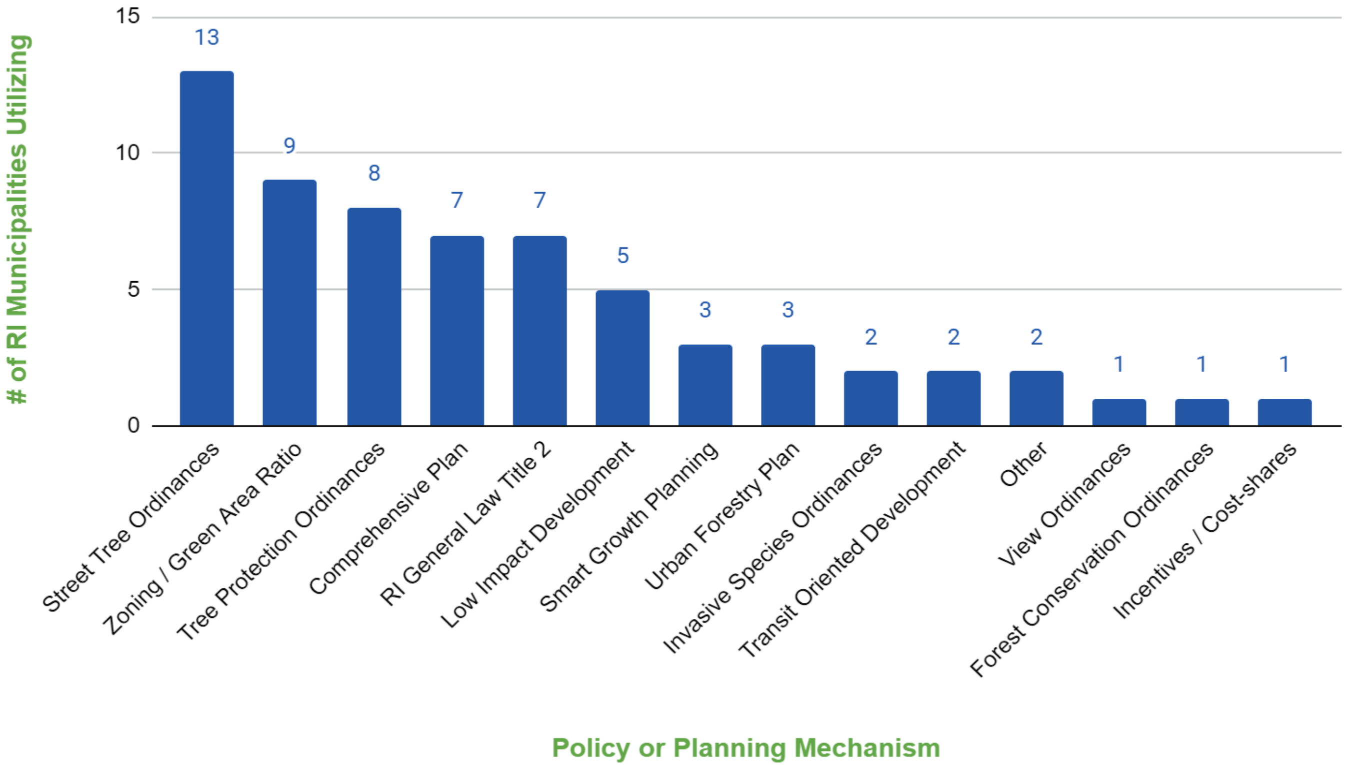
  The following page provides a summary of these four bond types.

Bond Typology	Description	Example(s)
General Obligation Bond	GO bonds are backed solely by the credit and taxing power of the issuing jurisdiction rather than the revenue from a given project.[34] These bonds would be a good option to accelerate projects already funded by a tax.	In 2008, San Francisco issued the Clean and Safe Parks bond, which dedicated funds to tree planting and maintenance acceleration as part of the **Park Forestry Program**.[35] For a successful example in RI at the state level, see **Rhode Island's 2018 Green Bond**.[36]
Revenue Bond	A category of municipal bond supported by the revenue from a specific project.[37] These bonds would be a good option for tree plantings associated with other capital improvements that will bring in revenue.	In 2016, San Francisco's Public Utilities Commission authorized a **Wastewater Revenue Bond** which included spending on green infrastructure and plantings for stormwater management. This Revenue Bond was also certified as a Green Bond (see below).[38]
Green Bond	These fixed income bonds support environmental and climate based projects.[39]	Groups such as the Conservation Fund are paving the way towards utilizing Green Bonds increasingly for forestry at the state level - they have completed successful preservation in New York, Alabama, Virginia, Maine, and Minnesota via their **Working Forest Fund**.[40]
Environmental Impact Bond	These bonds utilize a "Pay for Success" model, in which the return paid to private investors depends on the project's performance in meeting certain criteria.[41] This method shifts project performance risk to a private party.	Hampton, VA successfully implemented **Environmental Impact Bonds** for vegetation projects with stormwater benefits with the help of Quantified Ventures in 2020.[42]

Policy & Planning Mechanisms Across Rhode Island

In the January 2021 survey, Rhode Island municipal urban forestry representatives were asked "What types of policies, ordinances, or statutes most impact your urban forestry work?" Participants were directed to select all answers that applied. Figure 4 documents the results.

Figure 4. Urban Forestry Policy/Planning Mechanisms Used by RI Municipalities



Policy & Planning Mechanisms Commonly Utilized in Rhode Island

Across the 14 urban and suburban Rhode Island municipalities surveyed, the following mechanisms were most commonly utilized to provide policy support urban forestry programs, projects, and other initiatives:

- **Street Tree Ordinances:** These ordinances and clauses include the **planting, maintenance, and removal of trees** within public rights-of-way, on other public lands, or on setbacks.[46] Interviewed municipalities reported utilizing **Setback Tree Planting** clauses in local ordinances that fall into this category. These clauses, allowed by state statute (Section 2-4-10 RI General Laws), empower Rhode Island municipalities to plant up to 20’ from the right of way on private property.[47]

RHODE ISLAND
TREE COUNCIL
Trees Are Cool
Trees Are Cool

Mayor Allan Fung chats with Bill and Sandra Katz following a ceremony celebrating the 200th tree planting in Cranston’s Neighborhood Tree Planting Program, July 2020. Credit: Cranston Herald.

- **Municipal Zoning:** Zoning ordinances, particularly those involving new development, can help **protect urban trees**. Two commonly used approaches addressing tree cover retention or installation are tree density requirements and canopy cover requirements.[48] Interviewed municipalities reported usage of canopy coverage requirements, in which certain land use areas are required to maintain a particular square footage of vegetated space. Providence, RI's Zoning ordinance includes a **% Canopy Coverage** clause that provides a good example, requiring 15-30% canopy coverage depending on the zoning.[49] The tree density method establishes the number of trees required for the type or size of property developed - this method is used in **Forsyth County, GA**.[50]

- **Tree Protection Ordinances:** Tree protection ordinances and clauses are focused on providing protection for individual trees and stands of trees, often on private and developing properties, and may require that a permit be obtained before protected trees can be removed, encroached upon, or in some cases, pruned.[51] As evidenced by their namesake, these ordinances and clauses promote **tree preservation**, usually for native trees, trees of a particular size, and/or trees with historical significance.[52] Interviewed municipalities reported using clauses protecting **defined significant trees** over a certain diameter measure, such as in Providence, RI's Zoning ordinance, as well as implementing **tree replacement requirements**.[53] Some municipalities have dedicated Tree Protection ordinances - see **Bloomfield, MI's** ordinance for a national example.[54]

- **Low Impact Development:** LID refers to design practices that mimic natural processes to manage stormwater through increasing infiltration and evapotranspiration. Generally, this refers to green infrastructure solutions. LID can incorporate trees as a component, increasing **tree planting**. Rhode Island municipalities most often reference RI's **Low Impact Design Manual** to implement this approach.[55]

- **Comprehensive Planning:** This planning process determines community goals and community development aspirations, laying out requirements for zoning and future land use. Comprehensive planning can assist in **goal setting for tree planting, maintenance, or preservation**. In Rhode Island, the state provides **standards for municipal Comprehensive Plans**, including identifying forest areas and identifying natural resource goals.[56]

- **RI General Law Title 2:** RI General Law Title 2, "**Agriculture and Forestry**," is a state statute that provides several subsections regulating **arborist licensure and establishing statewide municipal tree wardens**.[57]

Nationally Utilized Policy & Planning Mechanisms

Several national policy and planning opportunities were not as commonly utilized by the 14 urban and suburban Rhode Island municipalities surveyed. The following list provides overviews of these mechanisms and examples of how each has been used nationally for urban forestry:

- **View Ordinances:** These ordinances provide preventative language to help resolve conflicts between property owners regarding trees that block views or sunlight, effectively helping to **preserve trees**.[58] This clause supporting **View Preservation** from a Zoning ordinance in Rolling Hills, CA provides an in depth example, which discusses tree pruning techniques and mediation.[59]

- **Forest Preservation Ordinances:** These ordinances and clauses require developers to incorporate, map, and protect existing forestland in their design process, and are helpful in achieving **tree preservation** goals. One example of this approach can be seen in Washington County, MD - their **Forest Conservation** ordinance provides protection against clear cutting over 20,000 square feet.[60] In many cases, incentives have been useful in encouraging tree preservation. Such tree retention incentives, as shown in this example in **Grant Pass, OR**, can strengthen Forest Preservation Ordinances.[61]

- **Incentives / Cost-shares:** Incentives and cost shares are opportunities for give and take with the community. These can come in the form of **planting or maintaining trees.** Cost shares may involve property owners or utility companies sharing the cost of a new tree or tree maintenance. Incentives may include lessened municipal service fees for every tree a property owner plants, etc.[62] Portland, OR's Treebate program is a good example of a **Stormwater Utility Fee Incentive**.[63]

- **Invasive Species Municipal Policy:** Such policy aims to reduce the amount of invasive vegetation being planted in a municipality, effectively **preserving the existing urban forest**. This goal can be accomplished through prohibiting the sale or planting of invasive vegetation in the municipality. Places such as Union Springs, AL have established such policy through a clause which **requires tree replacements to be non-invasive**.[64]

- **Transit Oriented Development:** This type of development focuses on the creation of pedestrian friendly, mixed-use communities centered around train infrastructure. Through the creation of compact, walkable and bikeable infrastructure, **street tree planting** can be easily incorporated.[65] Central Falls, RI and Pawtucket, RI have already pursued this route, establishing a joint **Transit Oriented Development District**, for which they have already begun street tree planting.[66]

- **Smart Growth Planning:** Smart growth helps create communities that exist sustainably within their surrounding ecosystems, are healthy places to live, and are accessible to people across physical and social differences including income, race, ability, and age.[67] This approach can aid the **preservation of urban forest land and tree planting efforts**. Steps have been made towards this in Rhode Island at the state and municipal level. **GrowSmart RI** provides a hub for this method, and RIDEM has authored **reports** on the topic.[68] Many RI municipalities have established ordinances incorporating this approach: see Exeter's **Conservation Development** ordinance and Central Falls' **Green and Complete Streets Ordinance**.[69]

Mayor Diossa signs into law New England's first Green and Complete Streets Ordinance in Central Falls, RI. Credit: City of Central Falls, 2018.

- **Urban Forestry Plans:** These plans work alongside comprehensive plans to clarify and push forward urban forestry goals. Such plans can include **tree inventories, tree planting goals, tree maintenance goals, or general identification of urban forestry program strengths, challenges, and needs**. Pittsburg, PA has an excellent **Urban Forest Master Plan**. Closer to home, Cambridge, MA has also completed an **Urban Forest Plan** to complement their comprehensive plan.[70]

FUNDING, FINANCING, & POLICY FOR TREE EQUITY

RECOMMENDATIONS FOR RI

A 100% Tree Equity Score: Tree canopy between Benefit Street and Brook Street in Providence, RI. Credit: Eben Dente.

Recommendations for Rhode Island

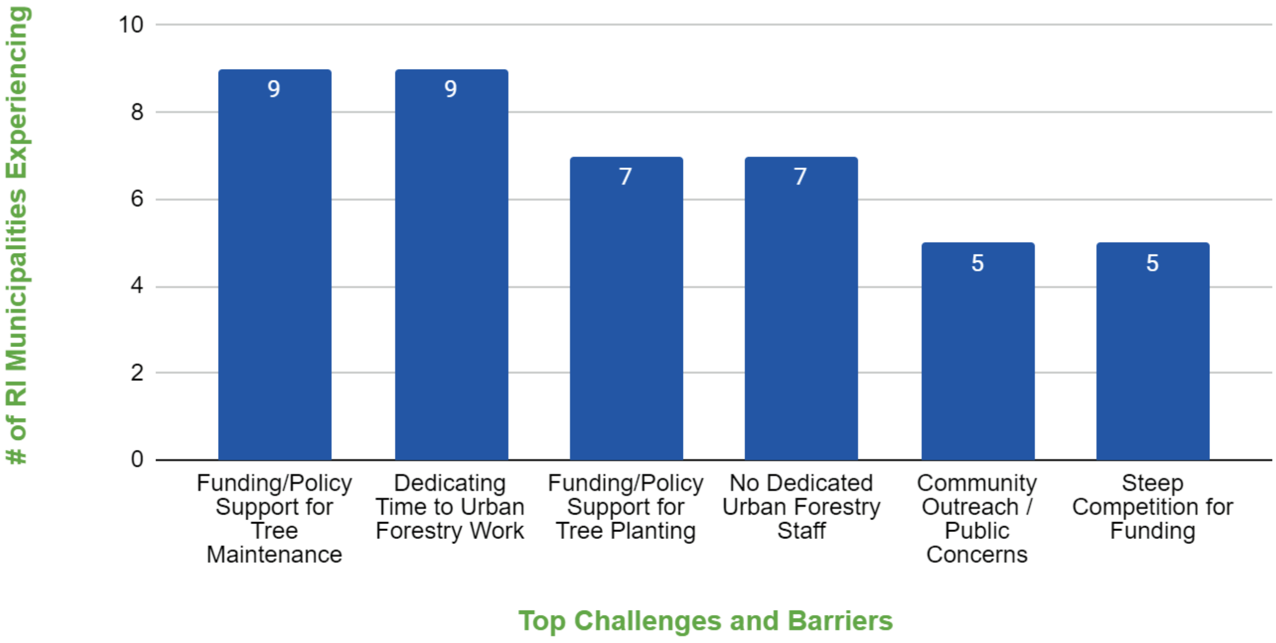
BASIS OF RECOMMENDATIONS

The following components were utilized to narrow identified **national opportunities** (see Section IV, “National Mechanisms”) into a list of promising, locally relevant funding and policy recommendations that have potential to boost Rhode Island’s Tree Equity. **These national opportunities were recommended for their ability to deliver Tree Equity (trees in every part of every municipality) in Rhode Island, based on their 1. Applicability to RI’s urban forestry goals (namely, increased support for tree maintenance), 2. Ability to be implemented in RI, and 3. Ability to provide socially equitable outcomes.** While not all recommendations fully meet each of these three criteria, this Guide aims to provide a balance of techniques that bring external support to disenfranchised areas with consistent, locally driven mechanisms that can support regular, ongoing activities (such as maintenance). All **commonly** used urban forestry funding and policy mechanisms in RI (as noted in “National Mechanisms”) are expected to continue to be implemented, given local applicability; this Guide recommends that these existing mechanisms are given careful social equity consideration as needed locally to achieve maximum Tree Equity benefits.

Interviews and Survey

As mentioned in Section III, “Urban Forestry in Rhode Island,” the top urban forestry challenges and barriers facing RI municipalities included, according to our **January 2021 Survey**:

Figure 5: Top Challenges and Barriers to Urban Forestry in Surveyed RI Municipalities



Interviewed state/municipal staff and partners echoed many of these concerns, particularly discussing lack of time for urban forestry responsibilities, lack of funding for tree planting, public concern about trees, and steep competition for funds.

American Forests Rhode Island Learning Lab

In February 2021, American Forests held a **Learning Lab** with 14 urban and suburban Rhode Island municipalities to discuss new urban forestry tools. Rhode Island Infrastructure Bank presented participating municipalities with a variety of national funding, financing, policy, and planning mechanisms, then asked them, through a series of questions, to consider how they might fund an urban forest initiative they are currently planning. In this activity, municipalities noted further concerns and interests, which included:

CONCERNS

- Funding is unlikely to come from within the municipalities
- Bonds cover one time, large projects, while municipalities need to cover multiple, smaller projects over time
- In some cases, urban forestry policy is in place, but there is no urban forestry staff or advocate to enforce
- Property rights can be a concern in terms of new policy or particular projects

INTERESTS

- Strengthening urban forestry in comprehensive plans / state-provided model language and examples for this work
- State or American Forests administered City Forest Credits programs
- Use of Impact Fees and Stormwater Utility Fees
- Urban forestry needs to be part of the Zoning and Green & Complete Streets ordinances
- Funding for a temporary urban forestry staff person (~2 years) could get work started

Statewide Urban Forestry Potential

Along with these municipal challenges, barriers, concerns, and interests, the Bank considered conversations with departments statewide about state-level programs that could go further for urban forestry as part of these recommendations. Across state departments, suggestions were as follows:

- Rhode Island Division of Statewide Planning
  - Inclusion of urban forestry in Comprehensive Plans
  - Prioritizing urban forestry as part of the Transportation Improvement Program with RIDOT[1]
- Rhode Island Department of Environmental Management
  - Utilizing Section 319 (Clean Water Act) Grants through RIDEM's Nonpoint Source Implementation Grants Program for urban forestry, particularly buffers[2]
- Rhode Island Department of Health
  - Utilizing Preventive Health and Health Services Block Grant funds to assist Health Equity Zones in the implementation of tree plantings, outdoor classrooms, and related school curriculum[3]
- Rhode Island Department of Transportation
  - Establishing trees as worth more stormwater credit than grasses and grey solutions within DEM (potentially through a recognition of above ground project features, or through a Tree Equity score requirement) for Section 319 Grants[4]
  - Inclusion of common street tree planting barriers, such as sightlines, telephone lines, ADA requirements, compaction area needed for roadways and sidewalks, etc. within urban forestry plans to define plantable area
  - Use of Consent Decree to further green infrastructure and urban forestry work over the next 10 years; use of Consent Decree and partnerships to provide longer establishment periods and increased maintenance for trees[5]
- Rhode Island Commerce
  - Networking with local businesses to encourage urban forestry support, including management and protection of existing trees
  - Possible revival of the Main Street RI Streetscape Improvement Fund for commercial districts, should funding become available[6]
- Rhode Island Infrastructure Bank
  - The Clean Water and Drinking Water SRFs can be utilized more for forest preservation and tree planting[7]
  - The Efficient Building Fund and Stormwater Project Accelerator support tree planting[8]
  - The Municipal Road and Bridge Revolving Fund has potential to support tree planting and maintenance[9]
  - The Municipal Resilience Program provides Action Grants that can support tree planting[10]

RECOMMENDATIONS

Listed below are the mechanisms selected by this Guide for their potential to deliver Tree Equity. Details regarding types of urban forestry work supported (maintenance, planting, personnel, and/or preservation), ease of implementation in Rhode Island, and any social equity benefits are noted in each section.

Funding & Financing Mechanism Recommendations for RI Municipalities

Mechanisms Common in RI Tree Maintenance · Tree Planting · Tree Personnel · Tree Preservation

This Guide anticipates that RI's most frequently used funding and financing mechanisms for urban forestry (**City/Town Budget**, **Grants**, **Capital Improvement Budget**, and **Donations/Fundraising/Municipal Sales**) will continue to be implemented. While these mechanisms have delivered funding successes, further social equity consideration can be given to their future implementation. Resources on how to boost social equity success for such mechanisms (which include information on community outreach, inclusion, diversity, equitable fund distribution to disenfranchised areas, among other related topics) can be found in Section VI, "Resources," under "Guidance for Social Equity and Urban Forestry."

Partnerships Tree Maintenance · Tree Planting · Tree Personnel · Tree Preservation

Partnerships have already been used successfully in Rhode Island to support urban forestry. Groundwork RI has partnered with **United Natural Foods (UNFI), TD Bank, MetLife, and Bank of America** to support urban forestry projects, and Providence, RI works with the **RI Foundation** to support both tree planting and tree maintenance.[11] To seek a Corporate Partnership, potential urban forestry projects or programs can be discussed directly with corporate community engagement or social responsibility departments to see if priorities are aligned. Corporate Partnerships can also be made through a third party program, such as **City Forest Credits' Impact Certification** program - such programs ensure corporations that their funded urban forestry projects are delivering anticipated health, equity, and environmental benefits.[12] **American Forests** can also provide corporate connections for urban forestry support.[13] In addition to corporations, there are also a number of foundations supporting environmental initiatives in RI - links to foundation partners who have supported previous urban forestry or environmental efforts in RI can be found in Section VI, "Resources." Foundations prioritizing environmental, climate, physical or mental health, economic, or social equity benefits may have interest in partnering.[14] While both Corporate and Foundation Partnerships have strong social equity potential given their ability to bring funds into historically disenfranchised communities, limited BIPOC leadership, low engagement of partner entities owned or chaired by BIPOC individuals, and not aligning supported projects with Tree Equity goals can lead to less equitable outcomes.[15] The **Tree Equity Score Analyzer** can identify equitable and effective locations for partner supported urban forestry projects.[16]

City Forest Credits Carbon Credits Tree Maintenance · Tree Planting · Tree Preservation

Carbon credits allow private sectors to convey social responsibility and offset emissions by supporting urban forestry. Through this mechanism, entities that have polluted can purchase credits that will be applied to carbon reducing projects such as tree planting. The **City Forest Credits' Carbon Credit** program is a good example - this voluntary program provides municipalities with third-party verified carbon credits, which can be sold to the private sector to support local tree planting and preservation projects. These funds are non-restrictive and can also be used to fund long term maintenance or other priorities identified by frontline community members.[17] There are many pathways that could be pursued to determine a local operator for this type of program - a City Forest Credit program could be housed in a state department, quasi-public organization, or non-profit, or could be managed regionally by groups of municipalities working collaboratively. With this support structure, City Forest Credits could provide a path for smaller municipalities and properties to begin utilizing carbon offsets (which previously have struggled to do so).[18] While carbon credit programs have potential to deliver large urban forestry successes at little cost to communities, urban forestry initiatives unsupported by ongoing maintenance, evaluation, and monitoring can experience losses of trees. In carbon credit supported projects, tree fatalities lead to losses of both carbon credit revenue and the carbon sequestration benefits that these credits aim to provide.[19]

Grant Sources Focused on Tree Co-Benefits Tree Planting · Tree Preservation

While this Guide has already detailed some grants used in Rhode Island to support urban forestry, grant sources that focus on tree benefits, rather than the trees themselves, provide additional pathways for pursuing funding. Federal and state grants focusing on **stormwater management, water quality, air quality, public health, economic development, climate change mitigation, and social equity** all are potential funding sources for trees, which deliver these benefits. State municipalities such as RI Division of Statewide Planning, RI Department of Health, and RI Department of Environmental Management may be able to provide assistance in accessing such funding sources for urban forestry, through programs such as the **Transportation Improvement Program**, the **Section 319 Nonpoint Source Pollution Grant**, and the **Preventive Health and Health Services Block Grant**.[20] Particular interest recently has been placed on funding connecting trees with public health benefits - for more information, see The Nature Conservancy's **Funding Trees for Health** document.[21] Using such grants for urban forestry efforts can assist in aligning proposals with other social equity goals, especially health equity. For a full list of potential grants to consider that focus on the benefits trees deliver, see Section VI, "Resources."

Clean Water & Drinking Water State Revolving Fund Tree Planting · Tree Preservation

The **Clean Water** and **Drinking Water SRFs** can be used to support watershed restoration projects, climate change adaptation and mitigation projects, and green infrastructure, including street trees.[22] The Clean Water SRF includes a **Green Project Reserve** requirement that prioritizes green project types such as these.[23] However, in RI this SRF has been traditionally underutilized for trees. While the Clean Water and Drinking Water SRFs are loan programs, each year they offer loan forgiveness to eligible loans, creating an opportunity for funding urban forestry projects. Further, in Rhode Island, this loan forgiveness is linked to Green Reserve eligible projects. Both of these SRF programs are managed through **Rhode Island Infrastructure Bank**, which can be contacted for further information.[24]

Loans & Bridge Loans **Tree Planting**

Loans for environmental projects such as tree planting can help cover up front costs to achieve urban forestry project benefits. Rhode Island Infrastructure Bank offers loan programs such as the **Efficient Building Fund** that can support complete energy efficiency projects, including line items like tree planting.[25] One particular type of loan, known as a bridge loan, can be especially useful when awarded grant funds are paid through reimbursement. Bridge loans can cover project construction costs when project completion is a requirement for grant award allocation. Rhode Island Infrastructure Bank offers the **Stormwater Project Accelerator** to provide bridge loans designed to help accelerate green infrastructure implementation, assist partner organizations, and support environmental projects such as tree planting. Municipalities and non-profit organizations are eligible to participate in this program.[26] Rhode Island Infrastructure Bank is available to assist municipalities and other applying entities with any questions or concerns about the approval process for these loans.

Environmental Impact Bonds **Tree Planting · Tree Preservation**

As mentioned in Section IV “National Mechanisms,” environmental impact bonds provide a unique funding opportunity by allowing bond issuers to shift project performance risks to private parties. Private investors provide up front capital, the project is completed by the public entity, and the public entity then repays investors based on achievement of outcomes. If the project performs better than expected, the public issuing entity repays investors; if the project underperforms, the investors pay municipalities a risk sharing payment.[27] Generally, private investors who support EIBs are those who are more interested in achieving charitable outcomes rather than making a profit. These bonds allow municipalities to support projects that are typically difficult to finance, and have potential to benefit municipalities who may struggle with the financial consequences of a project that performs worse than expected. Municipalities may choose to contact a capital firm such as **Quantified Ventures** to draw up an agreement.[28] For more information on how to evaluate bonds with equity in mind, see **San Francisco’s 2018-19 Green Bond evaluation** (which incorporates consideration of the United Nations Sustainable Development Goals).[29] Environmental Impact Bonds occasionally are called Social Impact Bonds when they are for both social and environmental purposes - read more about **Social Impact Bonds here**.[30]

Stormwater Utility **Tree Maintenance · Tree Planting · Tree Personnel · Tree Preservation**

Stormwater Utility Fees are already discussed widely across Rhode Island as part of statewide climate resilience efforts, as seen in the consideration of the **Upper Narragansett Bay Regional Stormwater Management District**.[31] These fees can support tree planting and preservation work that provides stormwater management benefits to the community. A municipality wide Stormwater Utility District can use generated funds to support urban forestry work anywhere in the community where it provides these benefits. In supporting efforts to establish these Stormwater Utility service fees, urban forestry advocates can gain sustainable funding to support their work (particularly tree maintenance). Stormwater Utility Fees have potential to be more equitable than property taxes, as they can be designed to charge based on a parcel's amount of impervious surface coverage / level of contribution to stormwater issues (using the Equivalent Hydrologic Unit approach).[32] The **Natural Resources Defense Council** and the **EPA** have helpful guides on how to effectively implement Stormwater Utility Fees, including more information on fee structuring to achieve equitable outcomes.[33] Baltimore, MD's **Hardship Exemption Program** provides an example of how Stormwater Utility Fees can be offered with low income households in mind. Beyond fair distribution of charges, another concern regarding Stormwater Utility Fees is equitable distribution of generated funds to disenfranchised areas.[34] American Forests' **Tree Equity Score Analyzer** provides identification of these areas that are especially in need of funding and urban forestry projects.[35]

Parking Benefits Districts Tree Maintenance · Tree Planting

Parking Benefits Districts (PBDs) provide the opportunity to collect user fees from an area of the municipality and distribute these funds back to the impacted area for streetscape improvements, including street trees. This approach can be accomplished through parking meters or permits.[36] PBDs can be especially useful in municipalities with a commercial center or transportation hub that brings in visitors. Additionally, funds from Parking Benefits Districts have potential to be used for urban forestry across the municipality, so long as there is still a designated local allocation of funds for work within the district.[37] PBD fees can address the impacts of heavy traffic and car storage in urban areas, as well as distribute street maintenance costs (including tree planting and maintenance) to generally higher income car owning households.[38] For information on creating an effective and equitable PBD with low income motorists in mind, see **Victoria Transport Policy Institute's Parking Pricing Implementation Guidelines**.[39] Also see "**Parking: a Major Barrier to Equitably Oriented Transit**," from the Strong-Prosperous and Resilient Communities Challenge for guidance on how to equitably implement parking fees in relation to other efforts such as Transit Oriented Development Districts (see "Transit Oriented Development" recommendation page 60).[40]

Special Taxes Tree Maintenance · Tree Planting · Tree Personnel · Tree Preservation

Municipalities in Rhode Island, such as **Little Compton** and New Shoreham, already use Special Taxes (in these cases, real estate transfer taxes) to support dedicated environmental efforts.[41] In interviews, Rhode Island municipalities expressed interest in implementing this mechanism to support urban forestry. Whether this approach takes the form of a statewide dedicated tax (such as a gas tax or carbon tax) with municipal allocations, or a municipal dedicated tax (allocating part of an existing tax, like a real estate transfer tax, to urban forestry), there are options to consider to create sustained tax funding for trees (particularly tree maintenance). For more information on how to create equitable Special Taxes with low income households in mind, see AICPA's "**Guiding principles of good tax policy: A framework for evaluating tax proposals**" and Center on Budget and Policy Priority's "**Advancing Racial Equity With State Tax Policy**."[42]

Reliable revenue for urban forestry would help with the completion of urban forestry maintenance and hiring/retention of personnel.

Developer's Fees Tree Maintenance · Tree Planting · Tree Preservation

Among RI municipalities, impact fees were discussed as an area of interest for funding urban forestry in the American Forests Learning Lab. Given that RI state law dictates that Developer's Fees must support capital improvements, and given that many Rhode Island municipalities already use Capital Improvement funds to plant trees, Developer's Fees are a natural match.[43] Developers have recently become more interested in providing benefits to the larger communities in which they are establishing new residences, and have specifically named social equity concerns as a high priority.[44] Developer's Fees can particularly help low Tree Equity Score neighborhoods where new development would have strong impacts to the municipality, (through, for instance, increased impervious area and reduced stormwater management capacity of the site); impact fees would then support green infrastructure and trees that would address said impacts. See the U.S. Department of Housing and Urban Development's "**Impact Fees and Housing Affordability**" for further information on potential methods to address housing affordability concerns when establishing impact fees.[45] For further discussion of Developer's Fees and impact fees generally, see the Sustainable Development Code's **Open Space Impact Fees** webpage.[46]

Business Improvement Districts Tree Maintenance · Tree Planting

Special assessment and special tax districts in residential areas can provide urban forestry improvements and property value increases, but they tend to unevenly benefit the neighborhoods where property owners can afford to pay the additional assessment or tax.[47] Business Improvement Districts (BIDs) have potential to prove more beneficial. BIDs are funded through an assessment or tax that is voluntarily levied across participating commercial property owners, and resulting revenues can support tree planting. After tree planting, local businesses and commercial property owners can experience return on investment through increased foot traffic, purchases, and shaded outdoor seating opportunities.[48] Further, while BID generated funds can only support activities within the BID, these efforts support tree plantings and maintenance in public areas, which can be enjoyed widely by community members.[49] Recommendations for methods to address concerns of potential gentrification can be found in **Greening without Gentrification**, accessible through the Vibrant Cities Lab webpage.[50] An alternate, yet similar option to BIDs could be a Partnership where businesses themselves, rather than commercial property owners, support certain local urban forestry efforts - this approach would also not limit the investment to the commercial area (see "Partnerships" recommendation page 54). In both BIDs and Partnerships, low engagement of commercial entities owned or chaired by BIPOC individuals can lead to less equitable outcomes.[51] Business Improvement Districts and/or Business Partnerships could provide good support for urban forestry specifically in Rhode Island through collaboration with RI Commerce, which can make connections with municipal finance directors and local businesses to further these efforts (which it has previously done through its **Main Street RI Streetscape Improvement Fund**).[52]

Policy & Planning Mechanism Recommendations for RI Municipalities

Mechanisms Common in RI Tree Maintenance · Tree Planting · Tree Personnel · Tree Preservation

This Guide anticipates that Rhode Island's most frequently used policy and planning mechanisms for urban forestry (**Street Tree Ordinances, Municipal Zoning, Tree Protection Ordinances, Low Impact Development, Comprehensive Planning,** and **RI General Law Title 2**) will continue to be implemented. While these mechanisms have delivered policy successes, further equity consideration can be given to their future implementation. Resources on how to boost social equity success for such mechanisms (which provide information on equity in planning efforts, drafting effective policy, income based financial assistance, evaluation, and public reporting) can be found in Section VI, "Resources," under "Guidance for Social Equity and Urban Forestry."

Urban Forestry Plans Tree Maintenance · Tree Planting · Tree Preservation

Municipal Urban Forestry Plans are among the most highly sought after support mechanisms in Rhode Island, at both the state and municipal level. The state's Division of Statewide Planning has expressed interest in making urban forestry a stronger part of Comprehensive Plans, and municipalities have expressed interest in wanting examples from the state of how this could be best accomplished. Some municipalities, including **Providence** and Bristol, have begun their own urban tree plan development process.[53] Such plans can establish a tree inventory, tree maintenance goals, program needs, and future ambitions. To achieve stronger social equity impacts in this process, see Cities4Forests' "**Social Equity Considerations for Cities' Decision Making Related to Inner, Nearby, and Faraway Forests**" for information on how community input and project evaluation can support municipal Urban Forestry Planning efforts.[54]

Smart Growth Planning Tree Planting · Tree Preservation

Rhode Island has completed a number of reports on Smart Growth, as mentioned in Section IV, "National Mechanisms," and **GrowSmart RI** is a leader on this topic for the state.[55] However, while many municipalities have engaged with this topic through policy, with some towns incorporating distinct **Conservation Development** ordinances, this approach could be utilized further for urban forestry.[56] Though developers may currently be required to protect trees or a certain size, Smart Growth planning ordinances could add requirements such as mapping and documenting trees/canopy or requiring connectivity of existing canopy to canopy on adjacent sites, among other considerations, to achieve urban and suburban Tree Equity benefits (the **Tree Equity Score Analyzer** could assist in these efforts).[57] If not already present, Conservation Development ordinances could be drafted and incorporated in these areas to ensure these considerations aren't overlooked. Additionally, any Green and Complete Streets ordinances, generally created for the purpose of achieving benefits such as stormwater management, could be edited to prioritize trees as a stormwater solution.[58] Smart Growth Planning includes particular focus on equitable development, which ensures that all residents are protected from environmental hazards and that people-focused strategies are implemented to achieve positive outcomes for low income communities - this focus can be supported through **Inclusive Economic Development** principles, which prioritize community outreach and involvement.[59] By aligning Smart Growth initiatives with urban forestry initiatives, communities can ensure that trees and their associated benefits are prioritized in neighborhood planning efforts.

Incentives / Cost Shares Tree Maintenance · Tree Planting

Cost Shares (sometimes called match cost planting or subsidized tree planting) provide trees to private property owners at a reduced price by splitting the cost between the municipality and the property owner. These Cost Shares are a good way to focus tree planting on private land, where trees will thrive and require less maintenance in better soil conditions. This is already being done successfully in **Providence, RI** and in **Newport, RI**, in connection with setback tree planting policy.[60] While this approach can ultimately reduce urban forest maintenance need across a municipality by better siting trees further back from roadways on private property, maintenance burden can be put on property owners when this approach is implemented without accompanying establishment and maintenance services (either provided directly or offered through cost-share). See **Visalia, CA**'s work on providing assistance for tree maintenance to low income households, an initiative that was instated alongside the City's required tree maintenance policy.[61] Incentives can also promote focus on tree planting on private land, (such as through reductions to stormwater service fees for each tree planted, as shown in **Portland, OR**,) achieving similar benefits to Cost Shares.[62] Though much like Cost Shares, Incentives have potential to unevenly benefit households that can afford to complete the work required to achieve the Incentive, particularly when income based financial assistance or cost-sharing is not provided to support low income households wanting to participate in the program. However, when carefully implemented, both Cost Shares and Incentives can assist residents who want the benefits of trees on their property, but who can't afford the cost of tree planting on their own.

Transit Oriented Development Tree Maintenance · Tree Planting

Central Falls and Pawtucket have established a **collaborative Transit Oriented Development (TOD) District** in which street tree planting and green infrastructure have been prioritized; their TOD has been successful in pursuing grants for this work from both RIDEM and RIIB.[63] Many other communities in RI are in various stages of TOD study, consideration, and implementation, including Providence and Warwick.[64] TOD Districts can organize communities around compact, walkable infrastructure that lends itself well to urban forestry efforts while also creating a more accessible, less vehicle dependent space.[65] While train stations are often the central focus for TOD Districts, bus routes can also be of focus. Many guides have been authored on Equitable Transit Oriented Development (eTOD) techniques and related TOD strategies (see **UC Davis**, **UC Davis**, **SPARCC**, **SPARCC**, and **New Urbanism Conference: Meeting the Demand for Walkable Places**), which provide helpful information on implementing an equitable TOD District and addressing concerns of potential gentrification. Further equity consideration regarding individual projects located in the TOD District can also support improved equity outcomes.[66]

Invasive Species Municipal Policy Tree Preservation

Diameter replacement ordinances, which require replacement plantings or in lieu of fees if protected trees are damaged or cut down, are in place across many RI municipalities.[67] A small clause requiring replacement plantings to be of non-invasive species could be added to such ordinances.[68] If municipalities wish to take these efforts further, ordinances could be drafted to stop the sale of invasive species within the municipality. By reducing invasive plantings, canopy health and associated tree benefits supporting social equity can be preserved. For assistance with implementation, see the **Climate and Health Species List for Rhode Island Urban Trees**, which notes trees that have climate and health benefits and whether or not they are invasive.[69]

Forest Preservation Ordinances Tree Preservation

Local Forest Preservation Ordinances can reinforce forest conservation as a priority in regards to urban forestry. These ordinances, combined with Smart Growth planning and Conservation Development policy, could aid efforts to preserve existing natural forest resources by putting them first in the design process. This approach, while traditionally of particular benefit to rural areas, has potential to protect any larger lots in suburban areas that offer vegetation density and strengthen ecosystem health. Even “nearby” and “faraway” forests in suburban or rural areas, as defined within Cities4Forests’ **“Social Equity Considerations for Cities’ Decision Making Related to Inner, Nearby, and Faraway Forests,”** can provide denser, downstream urban areas with water quality, flood reduction, erosion control, outdoor recreational, carbon sequestration, and biodiversity benefits.[70] These ordinances are more effective when paired with enforcement to dissuade paying fines for tree replanting rather than preserving existing forest.[71]

CONCLUSION

Funding, financing, and policy opportunities are constantly shifting and changing. This Guide offers one snapshot in time of such opportunities as they relate to urban forestry and, more importantly, Tree Equity. Though this Guide focuses predominantly on mechanisms that are actively implementable or will be in the near future, there are many promising paths to increase Tree Equity that are being forwarded by groups such as American Forests at the federal level. The **Vibrant Cities Lab** webpage is an excellent resource to keep tabs on the most recent progress on achieving Tree Equity.[72]

The recommendations provided for Rhode Island in this Guide are varied, and local municipalities and non-profits will need to hand select which opportunities would work best for their communities. Further, the lens of social equity will need to remain strongly focused throughout the implementation process; beyond this Guide, there is much work for the state and municipalities to do not only in terms of selecting innovative and equitable Tree Equity support tools to use, but also in making their current urban forestry support mechanisms more equitable. For instance, could setback tree planting be paired with citywide setback tree maintenance by the municipality or a local partner? Could information regarding tree giveaway programs be fully translated to meet the needs of Rhode Island's many Portuguese and Spanish speakers, among others? Could tree wardens provide annual reports to the public on local urban forestry activities? While this Guide seeks to provide Rhode Island with a leap forward in possible urban forestry funding and policy mechanisms that could serve Tree Equity goals, implementation of new mechanisms or the altering of existing mechanisms will only be successful with further, even more locally specific consideration focused heavily on social equity needs.

This overview of commonly utilized urban forestry funding and policy mechanisms in Rhode Island, national mechanisms opportunities, and RI specific mechanism recommendations for furthering Tree Equity, provides a look at one state's potential path to supporting Tree Equity efforts. This Guide can also be used as a blueprint for other states to follow in outlining their own routes to Tree Equity funding and policy support. We encourage states to conduct their own local case studies and surveys, use the compiled list of national mechanisms to complete their own gap analysis, and consider their own state needs to select their own recommendations from their least commonly utilized mechanisms. It is the hope of American Forests, the Doris Duke Charitable Foundation, and Rhode Island Infrastructure Bank that the process detailed in this Guide will assist states in finding their own innovative ways to achieve Tree Equity.

FUNDING, FINANCING, & POLICY FOR TREE EQUITY

RESOURCES

Aerial view of tree canopy in Jamestown, RI. Credit: Wangkun Jia / Adobe Stock.

IMPLEMENTATION RESOURCES

General Urban Forestry Implementation Guidance

Vibrant Cities Lab Urban Forestry Toolkit
Rhode Island Forest Action Plan

Guidance on Drafting Urban Forestry Ordinances and Budgets

Guidance on Drafting a Tree Ordinance
Developing Tree Protection Ordinances - North Carolina
Guidance on Drafting a Stormwater Ordinance
Guidance on Budgeting for Urban Forestry

Urban Forestry Case Studies

Urban Forestry Case Studies
EPA - Green Infrastructure Case Studies

Guidance on Growing the Urban Forestry Workforce

Urban Forestry Career Pathways

Guidance on Social Equity and Urban Forestry

Cities4Forests Social Equity Guide
Greening without Gentrification
Investing in Equitable Urban Park Systems
Roadmap for Inclusive Planning
The Dimensions of Urban Green Equity: A Framework for Analysis
Pathway to Parks & Affordable Housing Joint Development
APA’s Knowledgebase Collection on Social Equity

Other Useful Funding Guides

Funding Trees for Health
Climate Adaptation Finance and Investment in California
Financing the Urban Tree Canopy (Chesapeake Bay Region)
Funding Your Urban Forest Program
Financing San Francisco’s Urban Forest
Urban Forestry Budgeting and Funding

GRANT RESOURCES

Arbor Day Foundation Grants***
CDC Preventive Health & Health Services Block Grant***
DOD-U.S. Army Corp of Engineers Planning Assistance to States
DOE Weatherization and Intergovernmental Program
DOI Rivers, Trails, and Conservation Assistance (RTCA) Program
EDA Public Works Program
EPA Clean Water Act Nonpoint Source Grant (Section 319 Grants)***
EPA Healthy Communities Grant
EPA Environmental Justice Small Grants Program
EPA Urban Waters Small Grants Program
EPA Office of Sustainable Communities Greening America's Communities Program
EPA Office of Sustainable Communities Building Blocks Program
EPA Office of Wetlands, Oceans, and Watersheds (OWOW) Funding
EPA Brownfields Grant Program
EPA Superfund Program
FEMA Building Resilient Infrastructure & Communities
FHWA Surface Transportation Block Grant - Transportation Alternatives *(if Governor opt out from Recreational Trails Program)*
FHWA Congestion Mitigation and Air Quality (CMAQ) Program
Five Star And Urban Waters Restoration Grant Program
HUD Community Development Block Grants***
HUD Sustainable Communities Regional Planning Grants
NOAA Community-Based Restoration Program
NOAA Coastal Resilience Grants Program
RIIB Municipal Resilience Program***
USACE Sections 219: Environmental Infrastructure
USDOT Transit Improvement Program***
US DOT Better Utilizing Investments to Leverage Development (BUILD) Grant Program
State provided USFS Urban and Community Forestry Grants***

For more information on these grants, contact your state grant administrators. To learn about additional funding and financing options, visit EPA's Clearinghouse for Environmental Finance.

REVOLVING FUND AND LOAN RESOURCES

EPA Brownfields Revolving Fund
EPA Clean Water SRF***
EPA Drinking Water SRF***
HUD Section 108 Loan Guarantee Program
RIIB Efficient Building Fund***
RIIB Municipal Road and Bridge Revolving Fund***
RIIB Stormwater Accelerator***

FOUNDATION RESOURCES

Arbor Day Foundation***
Rhode Island Foundation***
Prince Charitable Trusts
The AEC Trust
Urban Forest Foundation
Island Foundation

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Appendix A

BENEFITS OF **URBAN FORESTS**

RI TREE EQUITY FUNDING, FINANCING, & POLICY GUIDE

CLEAN AIR Trees absorb air pollutants that harm human health, such as carbon monoxide, nitrogen dioxide, ozone, lead, sulfur dioxide, and particulate matter. Trees provide the strongest pollution removal benefits when dense tree cover is located close to pollution sources. **In 2010, 2,900 tons of pollution was removed by trees in Rhode Island's urban land**, totaling a $27.9 million value in avoided human health costs.

CLEAN WATER Trees protect water quality in two key ways: **(1) trees create a "sponge" for precipitation and runoff by soaking up water and filtering out nutrients, chemicals, and other pollutants; and (2) the roots of live trees help to firmly hold underlying soil in place.** Among northeastern US watersheds, Rhode Island's ranked high for the importance of watersheds and private forests for drinking water supplies and for their ability to produce clean water. More than 80% of the 1.06 million people living in Rhode Island (as of 2017) rely on surface reservoirs for clean drinking water.

ECONOMIC VALUE The presence of larger trees in yards and as street trees can add from 3% to 15% to home values throughout neighborhoods, and **local businesses see an increase in sales and customer satisfaction with a rise in canopy coverage**. People are willing to pay more in property taxes to live near open space and forestland, with passive parks and open spaces generating the greatest premium.

CLIMATE CHANGE MITIGATION When it comes to carbon sequestration, the average acre of Rhode Island forest absorbs 1.3 metric tons of carbon per year from the atmosphere. The 368,000 acres of forestland in Rhode Island sequester nearly 500,0000 metric tons of carbon dioxide each year. Collectively, **Rhode Island's forests offset the annual emissions of more than 100,000 passenger vehicles each year**, equivalent to a significant percentage of Rhode Island passenger vehicle emissions.

HUMAN HEALTH & WELL-BEING Trees provide 3 key health benefits:
1) Mental Health: Studies have shown that walking in forested areas results in lower levels of anxiety and depression. Forest walks reduce stress hormones, decrease blood pressure, and decrease heart rate.
2) Cooling: Trees cool the air through transpiration – the process of water evaporating from plant leaves. A large tree can transpire as much as 100 gallons per day – in a hot, dry climate, this provides the cooling equivalent of running five air conditioners for 20 hours. Trees also provide heat relief through shading. **There is a 2 degree F reduction in ambient air temperature for every 10% increase in urban tree canopy.**
3) Flood Reduction: Trees protect urban communities from flooding by absorbing stormwater that accumulates on city streets due to intense rainfall.

CULTURAL VALUE Human culture gives forests meaning that would not exist in the absence of people. In RI, the strong cultural relationship with forests exists within the indigenous community. In the *Value of RI Forests*, Cassius Spears Jr., a council member of the Narragansett Tribe and a conservationist with the USDA Natural Resources Conservation Service, describes this connection: "In our creation story, the Creator made the first Narragansetts from the earth as a tree...we look to trees to tell us our origins," Spears Jr. said. **"When clear cuts or developments are completed, we don't just think about carbon sequestration or other co-systems services lost... but thousands of years of stories, relations, and substance that was held within those landscapes. This is who we are."** Non-indigenous RI communities also experience cultural relationships with trees and forests. One prominent example is RI's rural communities; forests bring a "sense of place" to these areas. Large and old trees also provide community significance and sense of place. The RI Tree Council's "Champion Tree Registry" provides a database of such trees that are culturally, historically, or biologically notable to RI communities. Additionally, outdoor recreation in RI forests reflects cultural appreciation of these forested landscapes.

WILDLIFE HABITAT Urban forests protect biodiversity by providing connectivity between habitats. **They serve as refuges for both generalist wildlife species impacted by development and urbanization, as well as migrant species, such as the rose-breasted grosbeak, who need wooded places to rest and refuel.** Forested urban parks also provide oases for wildlife - for instance, red foxes and coyotes are a regular sight at Roger Williams Park in Providence. These wildlife play a critical role in ecosystem functions and provide services to humans. **Urban trees support pollinators** which in turn, according to the UN, support 75% of crops across the globe. Wildlife dependent on urban forests also disperse seeds, feed on pests such as ticks, and consume roadkill. Further, wildlife can also improve mental health **- wildlife viewing can alleviate symptoms of stress, anxiety, and depression**, and most city dwellers enjoy and appreciate wildlife in their day-to-day lives. Additionally, two out of three volunteers on wildlife projects report experiencing improved mental wellbeing after six weeks of project participation.

SOURCES

Green Cities, Good Health

"Green Cities, Good Health." University of Washington, August 2018.

Values of RI Forests

"The Value of Rhode Island Forests." Rhode Island Forest Conservation Advisory Committee and the Rhode Island Tree Council, August 2019.

Vibrant Cities Lab

"Resources for Urban Forestry, Trees, and Green Infrastructure." Vibrant Cities Lab, 2021, https://www.vibrantcitieslab.com/.

SUSTAINABLE URBAN FORESTRY
RI TREE EQUITY FUNDING, FINANCING, & POLICY GUIDE

SUSTAINABLE URBAN FORESTRY involves protecting the net benefits of trees and forests at the broadest level. This process includes sustaining the environmental, economic, psychological, physical, ecological, and social benefits that urban forests provide.

Sustainable urban forestry programs have 3 core components:
1. Vegetation Resource, 2. Community Framework, and 3. Resource Management.

VEGETATION RESOURCE

1. **Canopy cover**
2. **Age distribution (a mixture of young and old trees)**
3. **Species mix (biodiversity)**
4. **Native vegetation**

COMMUNITY FRAMEWORK

1. **Public agency cooperation**
2. **Involvement of large private and institutional landholders**
3. **Green industry cooperation**
4. **Neighborhood action**
5. **Citizen-government-business interaction**
6. **Awareness of trees as a community resource**
7. **Regional cooperation**

RESOURCE MANAGEMENT

1. **City wide management plan**
2. **Funding**
3. **Staffing**
4. **Assessment tools**
5. **Protection of existing trees**
6. **Species and site selection**
7. **Standards for tree care**
8. **Citizen safety**
9. **Recycling**

SOURCE

Clark, James R, Nelda P Matheny, Genni Cross, and Victoria Wake. “A Model of Urban Forest Sustainability.” Journal of Arboriculture 23, no. 1 (January 1997). https://www.naturewithin.info/Policy/ClarkSstnabltyModel.pdf.