

Philly Tree Plan

Growing Our Urban Forest



LETTER FROM THE COMMISSIONER

On behalf of the City of Philadelphia, I am pleased to present the Philly Tree Plan: Growing Our Urban Forest.

The Philly Tree Plan represents a collaborative vision to improve quality of life for Philadelphia residents, now and into the future. Passionate advocates, qualified experts, and dedicated partners worked together for three years to create this vision for a more resilient and sustainable city.

This kind of strategic effort for Philadelphia's urban forest has never been done before, and it is time! There is a growing body of evidence proving that trees are critical to public health. They reduce the deadly effects of heat, remove pollution from the air, and more. The Philly Tree Plan comes at a critical moment for our City, when the urban forest is shrinking. Thanks to a recent tree canopy analysis, we know that Philadelphia lost over 1,000 football fields worth of tree cover between 2008 and 2018. We also know that trees are not fairly distributed across the city, with fewer trees in areas where they could provide the most benefit. The Philly Tree Plan seeks to bring the benefits of trees to all communities.

The strategies and recommendations of the Philly Tree Plan are based on a process that included the voices of thousands of Philadelphia residents and community leaders. We listened as residents spoke about their experiences with trees in the city, both the joys and challenges. The recommendations of this plan are a direct response to that listening process. The strategies of this plan prioritize community leadership to bring trees to neighborhoods that need them the most in ways that support them the best. We will need consistent support from these informed, engaged, and empowered residents to bring the goals of the plan to fruition.

On behalf of Philadelphia Parks & Recreation, I am grateful to everyone who participated in this planning process and look forward to advancing these critical and ambitious efforts together.



Kathryn Ott Lovell
Commissioner, Philadelphia Parks & Recreation
February 2023

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Special thanks to over 100 individuals and organizations that gave time to provide insight as part of the Steering Committee or participating in stakeholder meetings. A full list of participants can be found in the appendix.

Land Acknowledgment

Welcome to Lenapehoking (Land of the Lenape)! The city of Philadelphia sits within the traditional territory of the Lenape people. Also known as the Grandfathers and regarded as one of the oldest indigenous communities of the east coast, the Lenape people lived in harmony with the land for thousands of years before Europeans reached America's shores. We recognize the Lenape people as the original people of this land and honor their legacy in creating the city we all know today. Lenape agricultural practices shaped the parks and natural habitat we enjoy today, and many of the paved roads we travel down were once walking trails the Lenape used to travel through their territory.

We recognize the Lenape and their pivotal role in creating this city through their relationship with William Penn and the Great Treaty of Shackamaxon which is memorialized today at Penn Treaty Park. We acknowledge the Lenape people's continued presence in their ancestral territory despite colonialism, modern-day borders, broken treaties, and relocations. They are still here and they will continue to have a deep connection to this land. The Philly Tree Plan hopes to honor and support their communities through our policies and practices as we learn to be better allies.

And YOU!

Thousands of voices helped shape this plan. THANK YOU to the community members, stakeholders, community organizations, neighborhood ambassadors, institutions, students, experts, and City staff and leadership that contributed to the development of this plan.



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PHILLY TREE PLAN EXECUTIVE SUMMARY

The livability of our city depends on a healthy and well cared-for urban forest. It provides protection from the heat, improves mental and physical health, and it is a key tool in combating climate change. **But between 2008 and 2018, Philadelphia's urban forest shrunk by 6%.** That's equal to 1,000 football fields worth of tree canopy. And the tree canopy we do have is not fairly distributed across the city. Some neighborhoods have under 5% tree canopy, and others have 45% or more.

The Philly Tree Plan is a response to these challenges. It is a 10-year strategic plan for the growth and care of our urban forest **Three key values guide the Plan: environmental justice, community engagement, and sustainability.** The Philly Tree Plan aims to bring the benefits of trees to communities that need them the most, in the ways that support them the best.

Community-led approach

Over 9,000 residents helped to guide the goals of the Philly Tree Plan. They generously shared their concerns, ideas, and stories. There were many ways for residents to get involved.



7,000+ survey responses in **8** languages



847 residents participated in **32** community meetings



22 ambassadors from **5** neighborhoods



28 Community Voices Committee members gave **300+** hours of time



7 topic-based workshops with **122** different organizations



500+ virtual open house presentation views

Plan goals and select recommendations

- 1 COORDINATE support for trees**
- » Prioritize working with communities that will benefit the most
 - » Create a new City Forester position
 - » Improve coordination among public agencies

- 2 PROTECT the existing and future urban forest**
- » Protect trees during development
 - » Protect public forests and natural lands
 - » Help residents care for mature trees on their property

- 3 GROW the urban forest equitably across the city**
- » Increase tree planting during development
 - » Care for newly planted trees
 - » Prioritize large, impactful street tree plantings
 - » Plan for a resilient future forest

- 4 REDUCE the burden of trees on residents**
- » Improve maintenance of public trees
 - » Hire a sidewalk coordinator
 - » Support hazardous tree removal on private property

- 5 INVEST in people and communities**
- » Improve pathways to careers in urban forestry
 - » Expand career discovery opportunities

- 6 COMMUNICATE with residents and improve customer service**
- » Improve communication with residents about public tree work
 - » Provide a public interactive tree map
 - » Hire more customer service staff

- 7 ADVOCATE for communities to benefit from the urban forest**
- » Establish an Urban Forestry Advisory Committee
 - » Hire urban forestry community organizers
 - » Connect nearby neighbors to natural lands

- 8 CELEBRATE and support the ways communities are engaging with trees**
- » Engage cultural, spiritual, and arts institutions
 - » Support access to food-producing trees
 - » Uplift stories from Philadelphia's many diverse communities

Key terms

Urban forest

All of the trees in an urban area, including trees in yards, along streets, in parks, and in alleys.

Environmental justice

Protection from environmental and health hazards regardless of race or income. Equal access to the decision-making process and a healthy environment for life, work, and play.

Tree canopy cover

The part of the land that is covered by tree leaves and branches from a bird's-eye view.

The urban forest is public infrastructure

Trees are the only investment cities can make that increase in value over time. They are an effective tool to address many urban challenges, from public health to economic development.



Our protection from heat

There is a 22-degree difference between the hottest and the coolest places in Philly. Heat causes severe illness and death in communities with extreme summer temperatures.



A tool to improve mental health and wellness

Seeing green leaves reduces heart rates and can improve concentration and focus for children.



The air filter for the city

Neighborhoods with fewer trees have higher rates of asthma and chronic obstructive pulmonary disease (COPD).



Part of spiritual & cultural practices

Trees are part of our folklore and our understanding of ourselves and our community.



Key to combating climate change

Philadelphia's urban forest stores an estimated 2.6 million tons of carbon dioxide (a primary greenhouse gas) and removes and stores an additional 99,000 tons of carbon dioxide per year.



Integral to the health of our watersheds

Trees in our neighborhoods and forests manage stormwater by slowing it down, soaking it up, filtering it, and evaporating it into the air.

An investment in our future

The Philly Tree Plan outlines a life-changing investment in public health and quality of life for Philadelphia neighborhoods. If we start now, the trees we plant today will take 30 years to provide the maximum environmental benefits to our communities. The average cost of reaching this tree canopy in 30 years is \$25.5 million per year. For comparison, this is less than 0.5% of the fiscal year 2022 City budget.

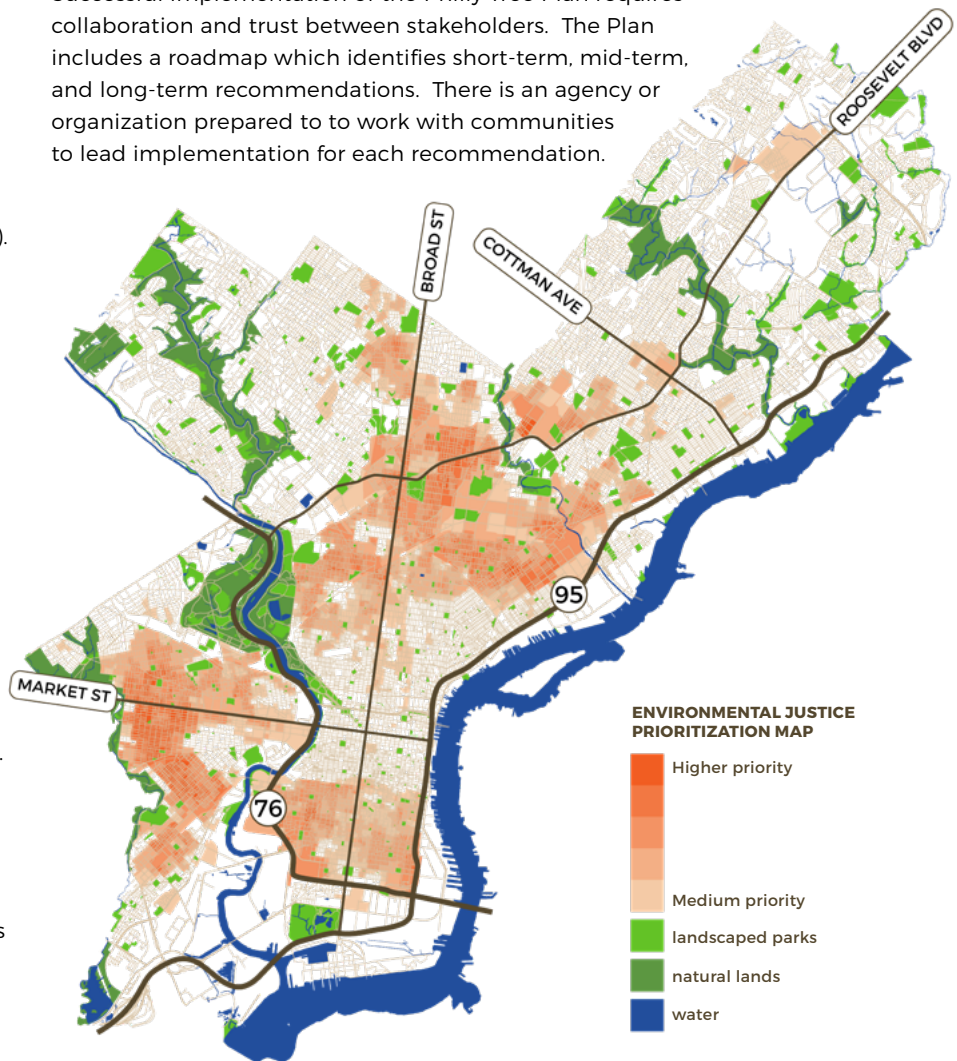
This 30-year investment in trees could have the following benefits:



Our Future Forest

The Philly Tree Plan has recommendations to grow and care for the urban forest across the entire city. But there are areas of the city where extra support can make a big difference. The City and non-profit partners will focus on working with these priority communities. These residents stand to gain the most benefits from increased tree canopy.

Successful implementation of the Philly Tree Plan requires collaboration and trust between stakeholders. The Plan includes a roadmap which identifies short-term, mid-term, and long-term recommendations. There is an agency or organization prepared to work with communities to lead implementation for each recommendation.





INTRODUCTION



WHAT IS THE PHILLY TREE PLAN?

This document is a 10-year strategic plan for the planting and care of Philadelphia's urban forest. It was created by a Project Team of City, state, federal, and non-profit partners, along with multiple subcommittees, a Community Voices Steering Committee, and a consultant team, all guided by values of environmental justice, community engagement, and sustainability.

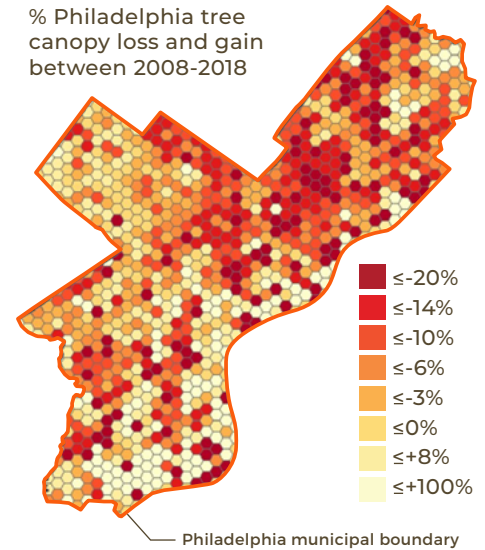
WHY DO WE NEED A PLAN FOR TREES?

Philadelphia's urban forest is shrinking

Philadelphia lost 6% of its tree canopy in the past decade alone. The trees lost represent 1,000 football fields worth of tree canopy. Trees are being lost as a result of development, lack of maintenance, removal of yard trees, invasive pests and diseases, the effects of climate change, and other threats. A large amount of tree canopy was lost on residential land, with a significant decrease in our street tree canopy as well.

1,000
football fields worth
of tree canopy loss
between 2008-2018

% Philadelphia tree canopy loss and gain between 2008-2018

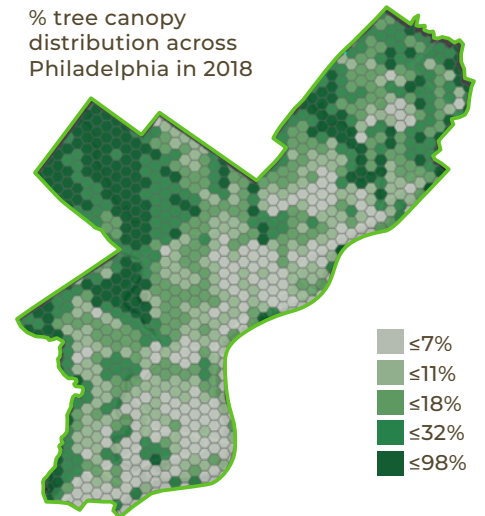


Philadelphia's urban forest is not equitably distributed

Philadelphia has 20% tree canopy citywide, but it is not equitably distributed across the city. Some neighborhoods have under 5% tree canopy, and others have 45% or more. Areas of the city that are more dense, with more industrial activity have low amounts of tree canopy, and areas of the city that have more park land and less density have higher amounts of tree canopy.

20%
of Philadelphia is
covered by tree canopy

% tree canopy distribution across Philadelphia in 2018



A healthy urban forest is crucial to the livability of Philadelphia

The urban forest is a critical part of our public health infrastructure, and a key tool in combating climate change. Trees are also part of the social fabric of our city. Many residents have relationships with specific trees or forests. Trees mark time, define places, link to memories, and integrate into cultural practices. Trees are part of the city's identity and keep us rooted in the ecology of our region.

data source for maps above: Tree Canopy Assessment Report (2019)

WHAT IS THE URBAN FOREST?

An **urban forest** is the collection of all of the trees that grow in a city. Every tree in Philadelphia is part of the urban forest, including those found on streets, in parks, along river banks, in natural areas, and even the trees that grow in alleys and vacant lots. **Tree canopy** is the layer of branches and leaves that you can see if you look up when you are under a tree.

The urban forest is critical public infrastructure

The benefits of trees increase exponentially over time as they mature, and they are effective tools to address a wide variety of goals for multiple city agencies, from stormwater management to public health and economic development. Trees are the only investment cities can make that increase in value over time.



The air filter for the city

Philadelphia's urban forest removes an estimated 513 tons of air pollution per year, a \$19 million annual value. Neighborhoods with fewer trees have higher rates of asthma and chronic obstructive pulmonary disease (COPD). Reducing pollution and increasing the tree canopy needs to happen together to improve air quality and respiratory health.



Our protection from heat

There is a 22-degree difference between the hottest and the coolest places in Philly. Heat causes severe illness and death in communities with extreme summer temperatures. The hottest places are often in communities experiencing poverty where the cost of cooling is a significant burden.



A source of nutrition

Community gardens and orchards across the city provide fresh fruit and vegetables to residents who do not have access to fresh food. Urban orchards, food forests, and fruiting street trees can provide a source of nutrition and enjoyment.



Habitat for pollinators & migratory birds

Thousands of species of animals need trees as part of their life cycle. Species include pollinators like honey bees and butterflies and birds that migrate through our region on the Atlantic Flyway and rely on trees for a safe place to rest. Native trees provide the highest quality habitat and food source for wildlife.



Integral to the health of our watersheds

Trees are an important part of the natural water cycle and contribute to the health of our watersheds. Trees in our neighborhoods and forests manage stormwater by slowing it down, soaking it up, filtering it, and evaporating it into the air. Trees in the riparian zone along our creeks and streams help reduce streambank erosion, protect trails and infrastructure, provide habitat, and reduce pollutants.



A factor in improving mental health and emotional wellness

Trees and green space significantly impact our mental health and emotional well-being. Seeing green leaves reduces heart rates and can improve concentration and focus for children. Medical professionals have begun prescribing spending time in nature to enhance overall health.



Key to combating climate change

Philadelphia's urban forest stores an estimated 2.6 million tons of carbon dioxide (a primary greenhouse gas) and removes and stores an additional 99,000 tons of carbon dioxide per year. Trees are our best defense against the effects of climate change and our best tool to address the causes of climate change.



Part of spiritual & cultural practices

Trees are deeply embedded in many cultures and feature prominently in religious texts. Trees are part of our folklore and our understanding of ourselves and our community. Trees can connect to the idea of home, even if one's ancestral home is far away.

A BRIEF HISTORY OF TREES AND PHILADELPHIA

The land on which Philadelphia sits has been a forest for millennia. The urban forest of modern-day Philadelphia has been altered dramatically by human activities, including the indigenous Nanticoke Lenni Lenape (the Lenape people), colonists, and immigrants. The forest that remains is critical to sustaining life and supporting Philadelphia’s human and non-human residents. The patterns of forest removal, retention, disruption, and regeneration link to both natural and human histories. Understanding this history provides insight into planning for the growth and stewardship of the urban forest into the future.

The indigenous forest

Once, forests, meadows, and wetlands almost entirely covered the mid-Atlantic region of the North American continent. Over the last 10,000 or more years, the native Lenape people stewarded and shaped these forests for the benefit of the people and other species that lived in these woods. The Lenape people traditionally practiced complex land management systems, including burning, seasonal migrations to mitigate land overuse, and eco-friendly farming. Although many of the species that thrived in the Lenape-stewarded forests still grow in our region today, the indigenous forests would have looked very different. Oaks, American chestnuts, hemlocks, and poplars reached up to two hundred feet tall, some with trunks approaching 10 feet in diameter.

A “Greene Country Towne”

The founding of the City of Philadelphia began with the 1682 Treaty of Shackamaxon, also called Penn’s Treaty, an agreement between William Penn and Tamanend of the Lenape people.

Upon Philadelphia’s founding William Penn envisioned “that [Philadelphia] may be a greene country towne which will never be burnt and always be wholesome.”

When William Penn laid out Philadelphia’s streets in a symmetrical grid in 1683, five green park squares, still present today, were important components of the city plan, and the streets were named after native tree species. The original city squares were



planted and beautified in the 1800s through advocacy of community leaders and civic organizations.

Development patterns and tree equity

In the late 1800s, Philadelphia was a manufacturing powerhouse. Large parts of the city developed with production as the primary focus. Forested riverbanks were cleared, and new facilities and housing built for

industrial workers left little room for trees. Philadelphia neighborhoods which developed around industry, like Kensington, Fishtown, Harrowgate, Manayunk, and Tacony, remain some of the most challenging neighborhoods for incorporating trees.

Rosehill Street, north from Cambria Street, 1911. The houses in this photo were typical of working-class Kensington. The Carruth Endurance Mills, located at Rosehill and Indiana, is in the distance

Photo courtesy East Falls Local



By the 1950s, manufacturing in Philadelphia had slowed down dramatically. A substantial decrease in population, combined with misinvestment in the form of federal urban renewal policies that demolished housing, resulted in large areas of vacant land. In many neighborhoods, redevelopment never came. Some residents adopted vacant lots and transformed them into gardens, but much of the vacant land was left unattended, and an unintentional, unmanaged tree canopy quickly grew. These trees created hardship by damaging infrastructure and contributing to safety concerns. The decrease in population also reduced the tax base that funded the City's tree and parks maintenance. The legacy of unmanaged trees remains a barrier to gaining trust for new plantings among residents. At the same time, suburban-style developments at the city's fringes encouraged some residents to stay within city limits. These developments advertised larger yards and shade trees, which increased the overall urban tree canopy. These neighborhoods continue to have higher tree

canopy cover and more available planting space, although even these neighborhoods have seen substantial tree loss in the past decade.

Today, Philadelphia is a dense urban environment with a mix of planted trees and natural forested spaces. The City plants and cares for street trees, park trees, and public green stormwater infrastructure through the work of Philadelphia Parks & Recreation and the Philadelphia Water Department. Similar to many other large cities, Philadelphia has more trees in higher-income, white-majority areas and fewer trees in lower-income, Black and Brown-majority neighborhoods. This contributes to physical and mental health and economic inequities among residents.

Parks and natural areas

Fairmount Park was formed starting in 1844 to protect the city's drinking water in response to the yellow fever epidemic. This was an innovative approach to providing potable water to residents, setting the stage for the current emphasis on green stormwater infrastructure in the

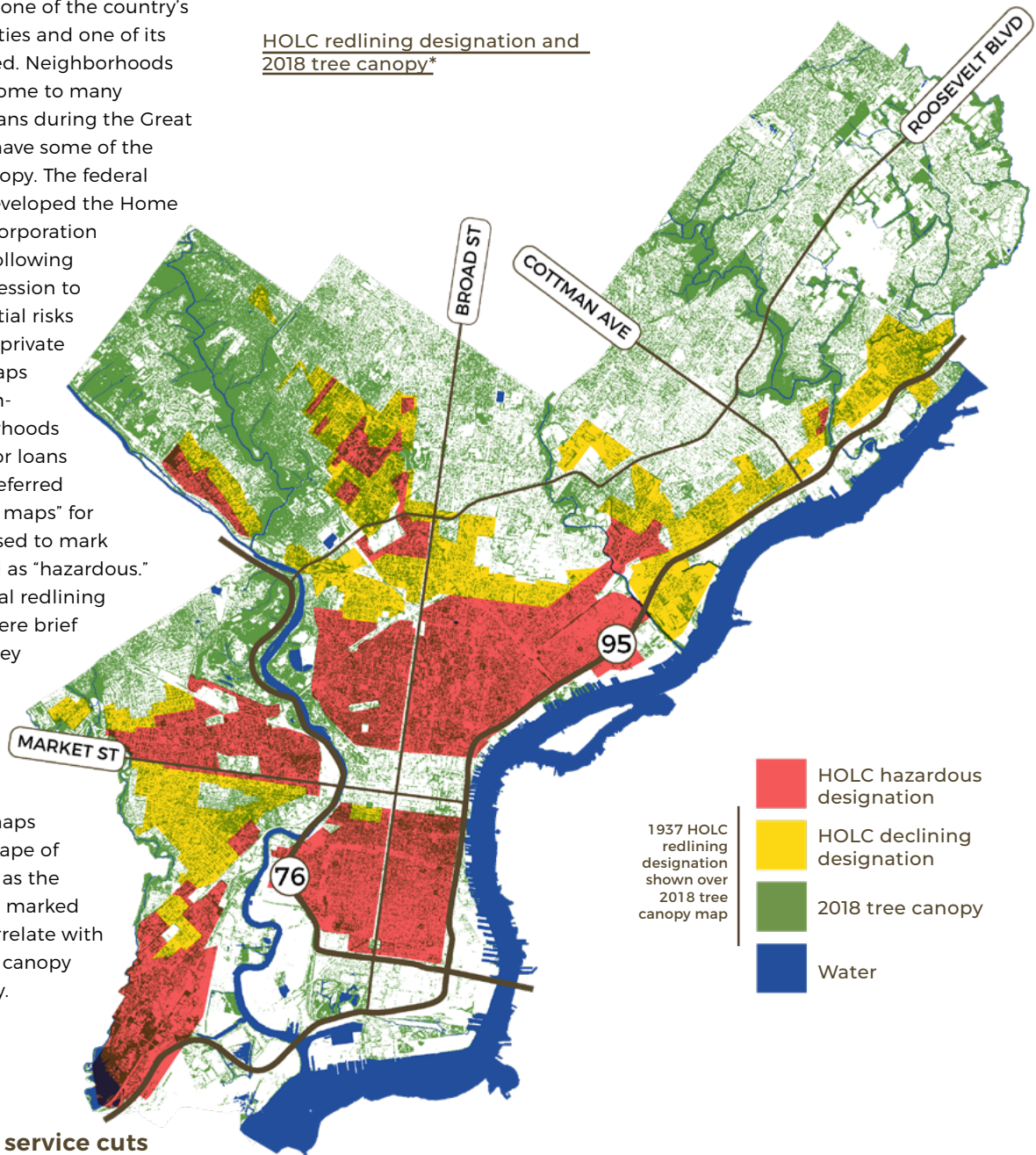
Philadelphia Water Department's Green City, Clean Waters plan. In the 1880's civic and community leaders advocated to preserve scenic river edge landscapes and improve access to park land. In response, the City expanded the park system to add small neighborhood parks and large watershed parks around Philadelphia's creeks. The watershed parks (including Cobbs Creek Park, Wissahickon Valley Park, Pennypack Creek Park, Poquessing Creek Park, and Tacony Creek Park) protect and filter Philadelphia's water and provide essential habitat for wildlife and recreation opportunities for city residents. Environmental movements in the 1950-70s led to the creation of additional park land, including the Schuylkill Center for Environmental Education, John Heinz National Wildlife Refuge, and Benjamin Rush State Park. Philadelphia's parks contain 40% of the city's tree canopy* and remain important places to gather, commune with nature, and recreate.

* See appendix (page 99) for tree canopy data

Trees and systemic racism and segregation

Philadelphia is one of the country's most diverse cities and one of its most segregated. Neighborhoods that became home to many African Americans during the Great Migration still have some of the lowest tree canopy. The federal government developed the Home Owners Loan Corporation (HOLC) maps following the Great Depression to evaluate potential risks for federal and private loans. These maps designated non-white neighborhoods as higher risk for loans and are often referred to as "redlining maps" for the red color used to mark areas identified as "hazardous." While the formal redlining designations were brief (1935-1940), they reflect lending practices that have continued through to today. These maps reflect a landscape of discrimination, as the neighborhoods marked "hazardous" correlate with the lowest tree canopy areas of the city.

HOLC redlining designation and 2018 tree canopy*



Budget and service cuts

Public sentiment toward trees and green spaces in Philadelphia is related to the history of defunding City services.

In 1960 the Fairmount Park Commission (now Philadelphia Parks & Recreation) received 2.26% of the City's annual operating budget to manage over 8,000 acres of parkland within the city. By 1980 that number

had been reduced to 0.71%, and then to 0.32% in 2009. These deep cuts reduced staff by 66%, which seeded mistrust among residents as the City struggled to adequately maintain public parks and trees. These cuts particularly affected low-income neighborhoods that bordered natural areas, as residents saw them become sources of stress instead of places

of relaxation and restoration. Many residents still perceive natural areas as unsafe or places to be avoided.

Budget cuts continue to affect the overall health of Philadelphia's park system: The Trust for Public Land ranks the top 100 American park systems annually, and Philadelphia's rank fell from 18th in 2019 to 32nd in 2022.

Community and non-profit led greening

Many residents and community organizations across the city have taken on stewarding the city's forests, especially as funding for City services has waned. Neighbors work together to transform empty lots into green oases, remove nuisance trees from alleys, and plant trees in neighborhood parks and along the streets. Many large organizations have worked to support residents in greening efforts. The Pennsylvania Horticultural Society has supported greening in Philadelphia for nearly 200 years and trains residents to plant street trees through their Tree Tenders program. In the past decade they have focused their efforts in neighborhoods that face the greatest challenges. Today, the

Pennsylvania Horticultural Society supports more than 80 Tree Tenders volunteer groups who plant over 1,500 trees per year in the city and region. In 2012, TreePhilly was created as a joint program between Philadelphia Parks & Recreation and Fairmount Park Conservancy to support Philadelphians in growing trees in their own yards. Fairmount Park Conservancy and Philadelphia Parks & Recreation also partner to support the Park Friends Network, volunteer groups who care for parks and recreation centers across the city, and the Natural Lands Group, which restores and manages natural lands across the city. In 2013 PowerCorpsPHL was launched, an equity-focused, workforce development program that provides support for urban

greening and tree care projects alongside Philadelphia Parks & Recreation and the Philadelphia Water Department. These full-time AmeriCorps volunteers are recruited from Philadelphia neighborhoods and provide over 60,000 hours of service per year to public green space projects.

Philadelphia is full of residents who have deep cultural, spiritual, and ancestral connections to trees and have been doing the work of stewarding Philadelphia's forests. These connections and experiences impact the character of the urban forest and should continue to be a guide for how to incorporate trees into communities in the future.



TreePhilly tree giveaway at Frankford Pause Park

Philadelphia Parks & Recreation



Tree in Norris Square

Philadelphia Parks & Recreation

ENGAGEMENT PROCESS



CITYWIDE ENGAGEMENT PROCESS

The goals and recommendations in the Philly Tree Plan were formed in response to an extensive engagement process, developed in collaboration with community leaders and residents in the spring and summer of 2021. The community engagement approach encompassed a range of different opportunities that were developed to meet communities and stakeholders where they are. Philadelphia residents generously gave their time and expertise to share their concerns, ideas, and stories that have shaped the goals of this plan. The level of response shows that Philadelphia residents care deeply about trees and are eager to continue to be a part of the process of growing the urban forest.

Over 9,000 residents participated in guiding the recommendations and goals of the Philly Tree Plan

Community voices steering committee

This committee, made up of 28 resident tree advocates from across the city, guided the project from the engagement process to plan development. Members had a keen eye toward their neighborhoods and an interest in the urban forest. They shared their community-focused expertise and held the plan accountable for the needs, concerns, and hopes of their community.

28 committee members
300+ hours of input



Virtual open house & engagement hub

A temporary website was developed as an engagement hub to share information and facilitate an online discussion during the height of the COVID-19 pandemic. This site held a series of presentations that provided context for understanding the urban forest, including historical practices that shape what we know and experience today. The site also acted as an engagement hub with details on all the other engagement opportunities.

500+ open house presentation views



Stakeholder workshops

Subject-matter experts from urban forestry and related fields shared the goals and challenges they face in planting, maintaining, and educating people about the urban forest. These stakeholders helped identify shared metrics and strategies to address inequities and support the growth and care of the urban forest.

7 topic-based workshops
122 different organizations



Neighborhood ambassadors

Residents from 5 neighborhoods, ranging in ages from 16-74, joined the consultant team as Philly Tree Plan Neighborhood Ambassadors for a 6-week stipended program to represent and advocate for the needs and concerns of their communities. They met regularly for focused discussions, conducted interviews with their family and neighbors, shared their personal experiences with the urban forest, and walked the streets of their neighborhoods for in-depth conversations.

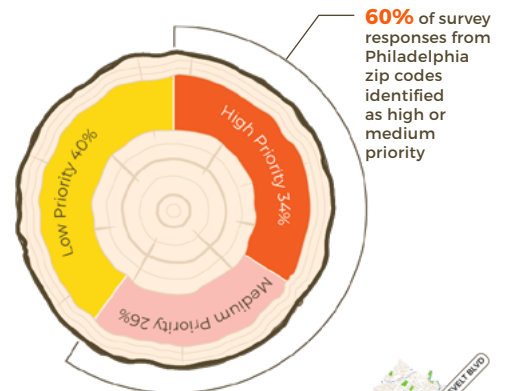
- 22 ambassadors
- 5 neighborhoods
- 62 interviews



Citywide survey

A comprehensive survey, offered in 8 different languages, gathered information from over 7,000 individuals that live, work, or go to school in Philadelphia. Although participants could complete it in under 6 minutes, because of the time taken to share stories, folktales, and poetry, the average time to complete the survey was 19 minutes. The survey results represent over 2,000 hours of residents' time, demonstrating the value and importance of the urban forest and people's eagerness to share their stories, opinions, and concerns.

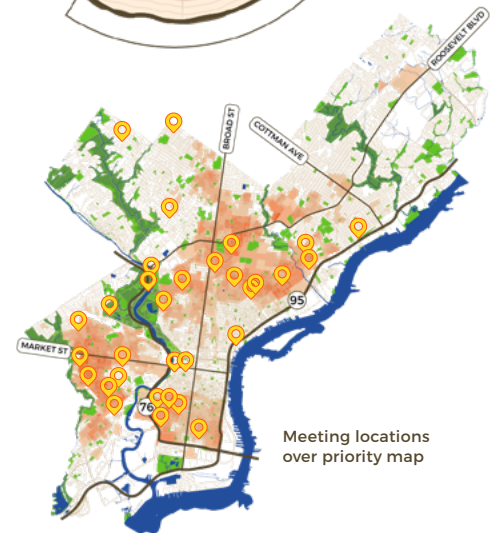
- 7,000+ survey responses
- 8 languages



Community meetings tour

The Project Team visited regularly-occurring community meetings in priority areas (for more information about priority areas, see section 1.2 of this plan) to share information about the Philly Tree Plan. The majority of the time at these meetings was spent in open dialogue about impacts of the urban forest on residents' lives.

- 847 residents participated
- 32 community meetings



#PhillyTreeStories photo challenge

An Instagram photo challenge encouraged amateur photographers to document their relationship with the urban forest. A jury of Philadelphia photographers selected winners, and the public chose an audience choice winner. #PhillyTreeStories was the least time-consuming way for anyone to participate in guiding the Philly Tree Plan, allowing residents to share their personal narratives and experiences.

- 180+ submissions



ENGAGEMENT TAKEAWAYS

Common themes emerged throughout the engagement process and were continually reinforced through survey data, stories, and conversations. These themes have been summarized below as the key takeaways.

Residents recognize the value of trees and see access to trees as an environmental justice issue.

Key Points:

- » The tree canopy is not equitably distributed and communities notice
- » Planting the right tree in the right place is key to building public support for trees
- » Planting and caring for trees in parks and other public spaces demonstrates an investment in communities
- » Trees in parks and on streets are aging and are not being replaced
- » Trees are often excluded from development projects
- » Watering and care for trees in the first years after planting is not consistent and leads to high rates of loss

When trees are not protected communities feel the loss.

Key Points:

- » Many Philadelphia residents have stories about how the loss of a tree has impacted them
- » Communities notice when trees are removed to make way for development
- » The City does not have the staff resources to enforce tree protection
- » Community orchards represent significant investments of time, energy, and resources, but they are vulnerable to removal
- » The city's natural lands are vitally important to residents and are in need of protection

Trees can be a burden on homeowners, outweighing the benefit.

Key Points:

- » The City needs to show that it can manage existing trees to build support for planting new ones
- » Trees in vacant lots and alleys spaces can lead to property damage and safety concerns
- » Trees can be a source of tension between neighbors
- » Not everyone has the physical or financial capacity to care for trees or plant trees on their property
- » Sidewalk damage is a primary reason for not accepting a free tree

“

Trees make people feel good about where they live.

- Ambassador interview

An ancient tree often carries the memories of several generations of a family.

- Survey, 19113

People without financial means cannot pay for safe and proper maintenance.

- Survey, 19130

”

Investment in the urban forest needs to include an investment in people.

Key Points:

- » Community-based organizations are ready to support the work of growing the urban forest
- » Planting and caring for neighborhood trees should support jobs
- » Opportunities to gain experience and access to jobs in the green economy (including urban forestry) will support residents long-term

There is a lack of clarity, consistency, and coordination of all activities impacting trees in Philadelphia.

Key Points:

- » The work of tree champions and advocates at the City and non-profit partners should be coordinated to address issues of tree equity
- » The permitting process for including trees as part of land development is not clear and there are missed opportunities
- » Removal or heavy pruning of trees for utility conflicts is distressing to residents and can be avoided through better coordination

Communication is key to building trust.

Key Points:

- » Residents are frustrated when they are not able to know the status of their requests for tree work
- » Residents care about trees and want to be informed of the purpose of tree pruning and removals
- » Residents do not know where to go for information or concerns about trees
- » Communities are not always aware of planned tree planting projects

Communities want the tools to advocate for themselves.

Key Points:

- » Environmental education is viewed as a way to support more advocates, encourage leadership, and change systems of environmental injustice
- » Residents need more support to be able to benefit from available services and programs
- » Communities want a seat at the table for making decisions about the urban forest in their neighborhoods

Philadelphians have deep connections to trees.

Key Points:

- » Trees are celebrated through arts, culture, and spiritual practice
- » Fruit and nut orchards can be centers of community
- » There are already many environmental educators and leaders
- » Everyone in Philadelphia has a tree story

“

Create living-wage jobs based on stewardship of trees.

- Survey, 19147

It doesn't seem like all the trees being planted are in the right conditions for them to thrive.

- Survey, 19106

Need to be able to have direct lines of communication between communities and the City.

- Survey, 19149

If you grew up with something, you know the value. If you didn't, or you weren't taught, you don't see; it's as simple as education.

- Ambassador interview

In Chinese culture, the Ginkgo tree is a symbol of scholarship and learning. I love to see Ginkgo trees in my neighborhood and near schools because they remind me of all the young scholars in our community.

- Survey, 19130

”

PHILLY TREE PLAN GOALS

The goals of the Philly Tree Plan are a direct response to all of the insight and information that was shared by residents, stakeholders, non-profit partners, and community leaders during the engagement phase. All of the recommendations of this plan have been developed to accomplish the following goals:

1 | **COORDINATE**
support for trees

2 | **PROTECT**
the existing and future urban forest

3 | **GROW**
the urban forest equitably
across the city

4 | **REDUCE**
the burden of trees on residents

5

INVEST

in people and communities

6

COMMUNICATE

with residents and improve
customer service

7

ADVOCATE

for communities to benefit from
the urban forest

8

CELEBRATE

and support the ways communities
are engaging with trees



1

goal

COORDINATE
support for trees

1.1

ESTABLISH A NEW CITY FORESTER POSITION AND SUPPORT TEAM

A common thread throughout the engagement process was the need for a single point of contact at the City for all tree-related programs and activities. This includes tree planting, tree care, utility work, green stormwater infrastructure, ecological restoration, and development. Existing requirements in the Philadelphia zoning code are confusing and currently overseen by three different City agencies (Philadelphia Parks & Recreation, Philadelphia City Planning Commission, and Department of Licenses & Inspections).

A City Forester position and support team should be created to serve as a central point of contact for all tree-related activities at the City. This will allow for greater efficiency, avoid potential conflicts with multiple City agencies and utilities working in the right of way, streamline engagement with residents, and promote community-friendly development. Depending on where in the City this team sits, legislation may need to be passed to give staff the authority to inspect and enforce tree planting, protection, and replacement requirements on private land during development.

With funding for these positions, the following work could be performed:

Coordinate all tree-related programs and activities

Coordination will include communicating with other City agencies and utilities that work in the right of way and on public property, maintaining websites, maps, and informational resources used for communication with residents, and managing the proposed Tree Fund (see 3.2), which will provide financial support for implementing recommendations in this plan. Maintenance of communications materials and maps will require dedicated customer service (see 6.2) and data management staff.

Oversee tree-related development activities.

This will include consolidating and expanding development plan review, inspection, and enforcement of tree-related requirements in the zoning code. Expanding development oversight will require dedicated plan review and inspection staff. This plan is also recommending updates to the tree planting and replacement requirements (see 3.3) in the Philadelphia zoning code and these staff will be needed to meet the demand for new permit applications that these recommendations will create.

Implement the Philly Tree Plan

Implementation will include working closely with City agencies, non-profit partners, and the proposed Urban Forestry Advisory Committee (see 7.1), including hosting regular convenings of stakeholders. The City Forester and support team will be responsible for tracking progress toward the goals of the Philly Tree Plan, and adjusting the goals as needed in response to ongoing improvement and feedback.

See appendix (page 101) for a summary of similar positions in other cities, including Arlington VA, Washington DC, and Providence RI

1.2

PRIORITIZE DISINVESTED AREAS

The urban forest is not equitably distributed across the City of Philadelphia. Areas with less tree canopy experience higher average temperatures, up to 22 degrees between neighborhoods, and have lower physical and mental health outcomes. These areas are often in communities experiencing poverty where the cost of planting and caring for trees is a significant burden. The Community Voices Steering Committee collaborated with the consultant team and the Project Team to identify the city's most vulnerable areas.

These areas, and adjacent public lands, should be prioritized for investments in tree planting, care, and programming to achieve equitable tree canopy growth across the city. Because the analysis did not include social suitability (where and if people want trees in these areas), community engagement strategies should be guided by, but not be limited to, the boundaries of these priority areas.

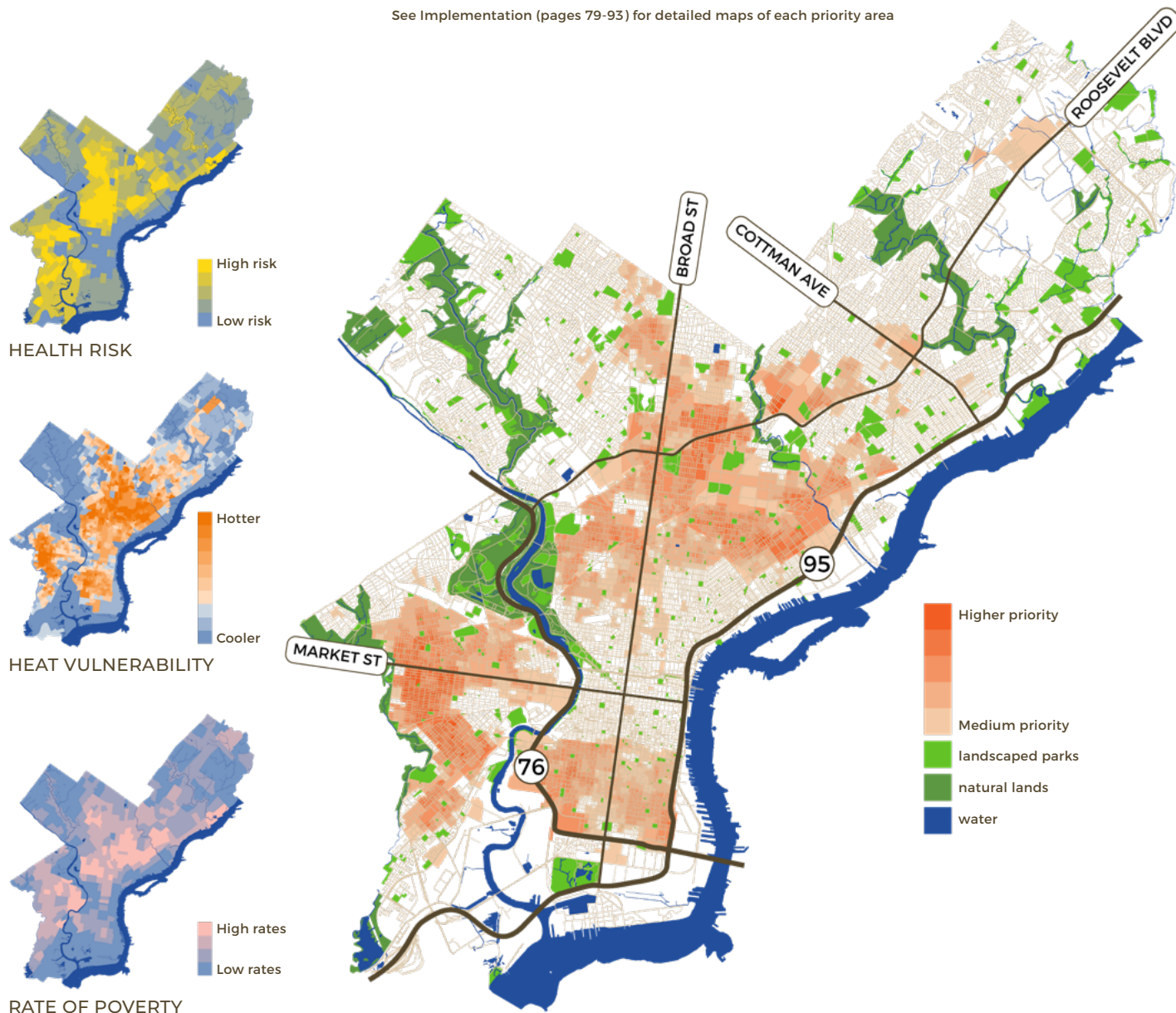
PRIORITY MAP

The map overlays the following key factors that demonstrate where an increased tree canopy can provide the most benefit.

- » Tree canopy cover
- » Heat exposure & vulnerability
- » Air quality
- » Health risk (asthma, mental health, cancer)
- » Income
- » Impervious surface

See appendix (page 107) for data sources

See Implementation (pages 79-93) for detailed maps of each priority area



1.3

IMPROVE COORDINATION AMONG PUBLIC AGENCIES

The City is ultimately responsible for all public trees, but many entities impact trees as part of their regular operation. Lack of coordination can lead to unnecessary damage or removal of trees and create conditions that make it challenging to include trees in the future. Planning for trees begins with updating existing guidelines, management systems, and planning processes. Improved coordination will also greatly benefit residents, who often struggle with the competing goals of different City departments as they take on the work of planting and caring for public trees.

1.3.a Update Complete Streets Design Handbook

This document guides the design of streets in Philadelphia and includes street trees as a recommended treatment for the road edge. The Complete Streets Design Handbook should be updated to be consistent with the tree-related policies and guidelines of other agencies, and it should be expanded to include additional best practices.

Specific Recommendations:

- » Create a new Street Tree Planting Diagram that is consistent with Philadelphia Parks & Recreation guidelines and the Philadelphia Water Department's green stormwater infrastructure design standards and maximizes allowable planting space while maintaining safety.
- » Include minimum soil volume requirements and tree pit design guidelines (see 3.4).
- » Include tree protection guidelines for construction activities (see 2.1).

1.3.b Integrate City data sets

Public agencies, including Philadelphia Parks & Recreation, Philadelphia Water Department, Department of Licenses & Inspections, and the Department of Streets, should coordinate closely to share data and plans for capital projects, street tree planting, and green stormwater infrastructure efforts. With improved coordination, larger green infrastructure projects

can be prioritized for greater impact, and individual trees can be planted where larger projects are not feasible.

Data management staff on the City Forester's support team (see 1.1) are critical to improving coordination in the right of way. The Philadelphia Water Department and Streets Department use a GIS-based asset-management system called Cityworks to manage utility coordination and avoid conflicts in the public right-of-way. Philadelphia Parks & Recreation also recently began using Cityworks and completed the first inventory of the location, size, and species of the city's street and park trees in a century. These city agencies should integrate their Cityworks data sets and include tree protection zones around street trees to prevent conflicts with root systems and automatically trigger an arborist inspection before right of way construction that will impact trees.

1.3.c Require tree planting, protection, and replacement on developments in parks and open space

Parks and natural areas represent 40% of the city's current tree canopy*. But existing tree planting, protection, and replacement requirements in the zoning code do not apply to parks or open space, the majority of which are owned by the City. The zoning code should be amended to require the same tree-related requirements on developments in parks and open space as it does for private development, while permitting some flexibility for meeting the

requirements by planting nearby, if on-site tree replacement is not possible.

1.3.d Develop an approval process for street tree planting around school district property

The School District of Philadelphia is a critical partner in growing Philly's tree canopy. Schools are areas where parents and communities gather and are the environments where our children spend much of their time. Increasing the tree canopy cover around schools will substantially impact the health and well-being of children. Schools and campuses across the city only have 17% tree canopy cover, which is less than the citywide tree canopy cover of 20%. Schools in the priority areas (see 1.2) identified in this plan have even lower tree canopy cover, at 5.5%.

Philadelphia Parks & Recreation and the School District of Philadelphia should develop a formalized process to facilitate street tree plantings around school properties, as well as coordination with Philadelphia Water Department green stormwater infrastructure projects. This effort should be supported and supplemented by parent support groups, the Trust for Public Land, and Pennsylvania Horticultural Society Tree Tenders. Partners should prioritize plantings around schools in priority areas (see 1.2).

* See appendix (page 99) for interactive tree canopy map and (page 107) for canopy data by management unit.

1.4

IMPROVE COORDINATION AMONG STAKEHOLDER GROUPS

There is a diverse and complex ecosystem of stakeholders working in the field of urban forestry in Philadelphia, including City, state and federal agencies, large and small non-profit organizations, universities, community leaders, and volunteers. This large stakeholder group is a strength, but it can also cause confusion as residents are unsure of who to contact for different services and support, like planting, maintenance, and removal.

Coordination amongst all of these stakeholders is needed in order to streamline communications, scale up operations, and meet the goals of this plan. City agencies like Philadelphia Parks & Recreation and the Philadelphia Water Department should convene regularly with non-profit organizations like the Pennsylvania Horticultural Society and Fairmount Park Conservancy, and advocacy organizations like the Parks & Rec Heroes Fund to collaborate across programs and coordinate public communications and advocacy efforts. This group should also include local urban forestry and urban greening researchers like the USDA Forest Service Philadelphia Field Station and universities to partner on studies around program evaluation and impacts. This group convening should be integrated with the Urban Forestry Advisory Committee (see 7.1) to ensure accountability and community involvement.



The Pennsylvania Horticultural Society's Tree Tenders program has worked with volunteer-based community groups to plant and care for thousands of street trees throughout Philadelphia neighborhoods since 1993

Pennsylvania Horticultural Society

1.5

MINIMIZE CONFLICTS BETWEEN STREET TREES AND UTILITIES

Streets and sidewalks are where people and vehicles travel and also where most of our public utilities connect people to services like water and electricity. Trees are part of the public infrastructure that shares this space, both above ground with branches and leaves and below ground with their root systems. Work performed on or around trees during utility maintenance and road work can cause damage to trees that may lead to hazardous conditions, structural failure, and reduced life expectancy. Increased coordination with utilities is imperative to ensuring the health and longevity of the street trees.

1.5.a

Include street tree conditions in PA One Call (“Call-Before-You-Dig,” 811)

Developers and construction companies call the PA One Call system to find out the location of utilities and other infrastructure so it can be protected during construction. Trees need to be recognized as part of the public infrastructure to be protected. The City should provide existing tree conditions, including the critical root zone, to incorporate into the PA One Call database. These should be marked, along with all utilities, before digging activity occurs.

1.5.b

Hire a Utility Tree Coordinator

Utility companies need to protect their infrastructure to provide consistent service and maintain public safety. This sometimes requires cutting tree roots, and pruning or removing trees.

A new Utility Tree Coordinator staff position should be created to work with utility companies to find the right balance between utility needs, hazard reduction, and tree health.

Responsibilities of the Utility Tree Coordinator:

- » Monitor and inspect tree pruning work for line clearance and work with utility contractors to follow best management practices.
- » Act as liaison between the public and the entities responsible for overhead wires to clarify roles,

assist residents in filing claims, and direct requests about utility pruning to the correct entity.

- » Support supplemental training for tree workers hired by utilities and work with them to follow International Society of Arboriculture (ISA) and American National Standards Institute (ANSI) standards, and adhere to the ISA code of ethics.
- » Monitor and inspect utility work that impacts root systems to assure compliance with tree protection requirements. Utility contractors should be held responsible for the recommended fees and fines applied during the development process for any damage resulting from work performed (see 2.1.d).
- » Ensure utility companies comply with resident notification requirements in advance of public tree work, as recommended in this plan (see 6.1).
- » Coordinate tree pruning and protection in advance of utility work. All utility companies should notify the City of above and below ground utility maintenance, construction, and road work that may impact trees. The Coordinator should work with Philadelphia Parks & Recreation arborist crews to proactively prune or protect public trees that may be impacted, when this can be done safely (ex: away from energized wires).

1.5.c

Support strategic burial of power lines

There are many competing demands for space on city streets. When designing the right of way, the City prioritizes clear sightlines for the safety of vehicle operators and pedestrians. Tall trees allow for the clearest sightlines, and also have branches that start above signage which is important on commercial corridors. When there are overhead wires, only small trees can be planted underneath, so burying power lines on wider streets and commercial corridors can provide opportunities for taller trees to be planted. The City should explore opportunities to work with utility companies to incentivize the burial of overhead utilities.

“

The City should work with utility crews who trim trees so they do a better job addressing the trees’ needs.

- Survey, 19143

”

“

We want better coordination on siting of infrastructure to increase planting opportunities for trees.

- Mentioned at multiple meetings including:
- West Passyunk Neighbors Association Meeting
 - Friends of Lanier Park

”





2

goal

PROTECT

the existing and future urban forest

2.1

PROTECT TREES IN DEVELOPMENT, PLANNING, DESIGN, AND CONSTRUCTION

Only a tiny fraction of the trees that make up Philadelphia’s urban forest have any kind of legal protection. In order to prevent more tree canopy loss, more trees should be legally protected during development, design requirements should be updated to include tree protection plans, and newly planted trees should be cared for during their establishment period. Creation of the City Forester and support team (see 1.1) is critical for implementation of the recommendations listed here.

See appendix (page 101-102) for a summary of existing City of Philadelphia tree protection requirements and those in other cities, including Atlanta, GA, Baltimore, MD, and Washington DC.

2.1.a Expand heritage tree protections during development

Philadelphia regulations currently define a heritage tree as a tree that is 24 inches in diameter at breast height (DBH – a standard forestry measure of a tree trunk’s size) from a list of 31 native and important species to Philadelphia. There are special protections for heritage trees under the current zoning code, including a public notification process before removal. However, according to a report from the USDA Forest Service, The Urban Forest of Philadelphia, only 6% of trees in the city are 24 inches DBH or larger. The heritage tree list should be expanded to include more trees by lowering the DBH that triggers heritage tree designation, and including more species of tree on the list. The number of developments that are subject to heritage tree protection requirements should also be expanded by removing the exception for single-family and two-family lots, and lowering the lot size minimum that triggers these requirements.

See appendix (page 104) for tree protection plan guidelines

2.1.b Protect food-bearing trees

Residents throughout all engagement opportunities mentioned the role of food-bearing trees in addressing food deserts and connecting people to their culture and history (see 8.2). Planting and tending orchards is often a multi-generational investment in time and energy. Fruit and nut trees take many years to bear food and even longer to produce it in quantity. Food-bearing trees can be protected through updates to land use code definitions and City data sets, adjustments to City land acquisition and disposition policies, improvement of the role of the Philadelphia Land Bank, and expansion of local and state historic designations.



83% of survey respondents **support requiring community approval** for removal of any large trees

“

We used to plant seeds in our gardens. You would see the seeds grow. You get to the point where the seeds that you planted, produce the fruit that you could eat. It’s life coming full circle.

- Ambassador interview

It’s like a scar, when [trees are] wiped out of a certain area or neighborhood.

- Ambassador interview

”

“

In Grays Ferry big trees are the most important because they connect us to our past and provide shade in this heat island. Letting a developer remove a large tree and replacing it with one [small] tree is not acceptable.

- Survey, 19146

”

2.1.c Increase incentives for preserving large trees

Tree preservation credits are given to developers to protect mature, healthy trees as part of a development project. Currently, this calculation undervalues large trees by capping credits such that all trees over 12 inches DBH only receive 12 inches of preservation credit. Tree preservation credits should be provided to developers at a 1:1 rate to incentivize tree preservation over tree removal and replacement.

2.1.d Require and enforce tree protection plans

Planning for tree preservation during the design phase is the best way to reduce tree canopy loss during development. Trees can also be fatally damaged during the construction process, although it can take years for them to show the signs of damage. During construction, the leading cause of tree death is damage to the root system caused by soil compaction or grade change. Setting requirements for tree protection during construction will provide a tool for minimizing damage to trees.

Currently, there is no tree protection plan required for the standard building permit submission. All building permit applications should require a tree protection plan as part of the civil engineering drawing set (“C” series), including protection of the critical root zone (CRZ) of existing trees under certain circumstances.

Regular site inspections should be performed during construction to ensure that tree protection measures are in line with submitted plans. Violation of tree protection plans should be added to the list of actions that trigger penalties or issuance of a stop work order. In addition, residents should be able to report violations of tree protection plans during construction via 311 to alert inspectors of any violations occurring between scheduled site inspections.

See appendix (page 104) for tree protection plan guidelines

2.1.e Develop establishment care requirements for development

Developers should be required to care for newly planted trees during the establishment care period, including regular watering, staking, structural pruning, and management of pests and diseases.

The following contracts should be required as part of the closeout documentation necessary to issue the certificate of occupancy for a development.

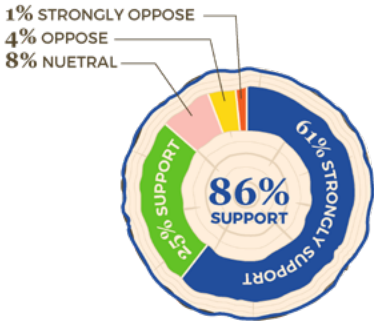
Tree replacement contract

The contractor that installs the trees for each development should be required to replace trees that die within the first two years of planting.

Establishment care contract

Developers should have a contract to provide establishment care for newly planted trees.

Because this work requires minimal training, equipment, and supplies, it can easily be done by small businesses, youth programs, or workforce development programs. The City and non-profit partners should develop a list of trusted establishment care providers identified by region to direct work to partners that employ local community members (see 5.1.a).



86% of survey respondents support requiring protection plans for all on-site trees during development projects

2.2

RESTORE AND PROTECT NATURAL LANDS

Philadelphia's forests, meadows, wetlands, and waterways make up almost 6,000 acres of natural lands. Natural lands include watershed parks such as Fairmount Park, Wissahickon Valley Park, Pennypack Creek Park, Tacony Creek Park, Cobbs Creek Park, Poquessing Creek Park, and other large parks such as FDR Park. They make up 60% of the city's parkland and 34% of its total tree canopy.*

Natural lands have a significant impact on our city. They are not only vital to the function of the biological systems that support all life in our region, but they provide opportunities for Philadelphians to escape into nature for recreation and relaxation. Natural lands prevent erosion, provide us with clean water, purify the air we breathe, and reduce the impacts of climate change on the entire city.

Although we call these areas "natural lands," this name does not accurately represent the reality that most of these areas do not fully function as balanced, self-sustaining, and healthy ecosystems. Natural lands are ecologically distinct from other types of urban tree canopy and require different assessment and management protocols. Human intervention is necessary to protect our natural lands.

The Natural Lands Group is a small team within Philadelphia Parks & Recreation and Fairmount Park Conservancy who work to restore and protect our natural lands. They work in partnership with the Philadelphia Water Department and other city agencies, non-profit organizations and programs like PowerCorpsPHL, state and federal agencies, and dedicated volunteers. This partnership includes planting native species, removing invasive species like choking vines and pests like Emerald Ash Borer and Spotted Lanternfly, and mitigating impacts of the overabundant deer population, as well as riparian corridor enhancement, such as stream restoration and floodplain reconnection. The City and partners should fund and support the management, restoration, and preservation of natural lands to reduce the risk of losing this invaluable resource.

2.2.a

Increase natural lands staff capacity

Currently, there are only three full-time Philadelphia Parks & Recreation staff members and two full-time Fairmount Park Conservancy staff members in the Natural Lands Group responsible for managing and protecting 5,600 acres of forest, meadows, and streams. Staffing should be increased, along with funding for site maintenance, invasive species control, deer management, and monitoring for threats to vulnerable forests. Increased staffing for the Natural Lands Group also allows them to leverage the work of skilled volunteers in organizations like Friends of the Wissahickon, and workforce development programs like PowerCorpsPHL, exponentially increasing the resources available to manage natural lands.

2.2.b

Commission comprehensive assessment and monitoring protocol for natural lands

The last comprehensive assessment of the city's natural lands occurred in the 1990s, and conditions have changed significantly since then. The Natural Lands Restoration and Environmental Education Program (NLREEP), was led by the Academy of Natural Sciences and included a plan to restore natural lands in Philadelphia's watershed parks and expand environmental education programs.

Today, the Natural Lands Group is only able to manage and monitor 800 acres of the 5,600 acres of natural lands in Philadelphia's park system. A comprehensive mapping and assessment of the city's natural areas must happen in order to address current and future threats, strategically deploy resources, and develop proactive management strategies for this vital resource. This assessment needs to be coupled

with a robust monitoring protocol to detect emerging threats like invasive pests and diseases, and protect the entire resource as conditions change. Monitoring is increasingly important as the impacts of climate change cause conditions to change faster and faster. Fairmount Park Conservancy should be a lead partner to the City in this work, leveraging their programs and staff to educate and engage residents.

“

The Wissahickon is an amazing refuge and place of solace and joy for several generations of my family.

- Survey, 19128

”

* See appendix (page 99) for interactive tree canopy map and (page 107) for canopy data by management unit.

2.2.c

Increase fundraising capacity and diversify funding for natural lands

Funding to support the management of Philadelphia’s natural lands primarily comes from state impact fees, state and foundation grants, and corporate sponsorships. There is limited capacity in the Natural Lands Group to take advantage of increasingly available state and federal grant opportunities, because there is no dedicated grant administration staff to apply for and administer them. The City should hire a grant administrator for the Natural Lands Group in order to increase the Group’s capacity to take advantage of funding opportunities and diversify the types of funding that support

natural lands work. Additionally, Philadelphia is the only county in Pennsylvania without a state-designated Conservation District. This designation gives counties access to state technical and financial resources to preserve natural areas in addition to other efforts to grow the tree canopy, improve soil and water quality, provide access to food-producing trees, and improve wildlife habitats. The City, Fairmount Park Conservancy, and partners should explore creating a Conservation District for Philadelphia County to support natural land preservation and other natural resources work.

2.2.d

Expand long-term strategies to reduce impacts of deer

Philadelphia trees and forests are subject to intense pressure from overabundant white-tailed deer populations. Absent any predators, regional deer populations have skyrocketed far outside healthy thresholds in the last 50 years, contributing to the widespread growth of invasive plants, reduction of biodiversity, and the severe depletion of young saplings that are needed to become the forests of our future. Long-term solutions are needed to reduce deer impacts on our forests.

The City and Fairmount Park Conservancy, along with the state Department of Conservation and Natural Resources and regional partners like the Friends of the Wissahickon should expand their existing partnerships with adjacent counties and municipalities to adopt a regional management approach, recognizing overabundance as a regional issue with large scale impacts. Philadelphia Parks & Recreation should expand efforts to control deer within its forested sites, to promote the growth of young trees and discourage invasive plants. The City and its partners should also explore the creation of a community deer management strategy, to broaden the management strategy and bring in new partners.



Wissahickon Valley Park near Germantown

Philadelphia Parks & Recreation

2.3

SUPPORT RESIDENTS TO CARE FOR MATURE TREES ON PRIVATE PROPERTY

Mature trees have different needs and pose different challenges to residents than young trees. Homeowners often remove large, mature trees on their property based on fears or misconceptions about the risks of the tree falling. But mature trees offer the most environmental benefits in the form of cooling, noise and air filtration, wind barriers and wildlife habitat. Much of the tree canopy growth in Philadelphia over the past decade came from existing trees growing bigger, and a majority of Philadelphia’s existing tree canopy grows on residential land. In the next decade, resident support for preserving large trees could play a huge role in the growth of Philadelphia’s tree canopy.

The City should identify and collaborate with partners such as the Pennsylvania Horticultural Society to develop new programs and communication materials to educate residents about the benefits of large trees and provide support to preserve this invaluable resource. These materials and strategies should stress the importance of hiring certified arborists to do professional risk assessments and maintenance on mature trees instead of unnecessary removal. Support could also be provided to residents to prune or care for mature trees, with a focus on priority areas (see 1.2), contingent on income.



3

goal

G R O W

the urban forest equitably
across the city

3.1

WORK WITH COMMUNITIES TO GROW NEW TREE CANOPY

The unfair distribution of tree canopy in Philadelphia is a public health emergency that requires collaboration and trust between the City, non-profit partners, and residents. It also requires time, as it can take a tree 30 years or more to provide the maximum possible shade, cooling, and air quality benefits to residents. Urgent action is needed today to build the tree canopy that will protect future generations of Philadelphia residents from ongoing generational public health problems and the worsening effects of climate change. Currently, many Philadelphians hesitate before accepting new trees because of past disinvestment and misinvestment which put the burden of caring for trees onto residents (see Goal 4). The recommendations in this plan need to be taken at the 'speed of trust' to address residents' public health and quality of life concerns without further burdening, displacing, or disrespecting them. To build this trust, the City and non-profit partners must work together with communities to bring the benefits of trees to them in the ways that support them the best.

See appendix (page 104) for information to support community and issue-based organizations that have genuine connections to their communities.

3.1.a

Work towards a benchmark of 30% tree canopy in every neighborhood based on proven benefits to communities

Increasing Philadelphia's tree canopy cover to 30% is a goal in both *Philadelphia 2035: the comprehensive plan for Philadelphia* and the *Greenworks Philadelphia* plan. The environmental and health benefits of 30% tree canopy cover are well documented. A recent study projected that 403 premature deaths could be avoided each year if every neighborhood met this goal.

For this reason, 30% tree canopy should be used as a benchmark for urban forestry efforts, and calculations for tree planting should be made for 30 years because that is the time required for many trees to reach maturity and provide the full benefits to residents. Analysis shows a 30% tree canopy cover is physically possible (see page 74), but communities may have varying visions for where trees should be growing in their neighborhood. Residents must be engaged as equal partners to develop tree canopy growth strategies at local levels. Existing networks like the PHS Tree Tenders volunteers can be leveraged to ensure residents are involved in local canopy growth and stewardship plans.*

3.1.b

Prioritize equitable tree canopy growth

This plan contains recommendations to increase and improve the quality of the urban forest across the entire city. However, there are areas of the city where special attention is needed to reduce disparities between neighborhoods that currently benefit from a healthy urban forest and those that do not (see 1.2). How tree canopy growth happens can be the difference between supporting communities and burdening them.

Progress has been made in the past decade with the Pennsylvania Horticultural Society, the TreePhilly program and other non-profit partners working to identify neighborhoods with the lowest tree canopy for outreach, education, and tree plantings and giveaways. The City and non-profit partners should continue to prioritize developing relationships and collaborating with communities that have faced the greatest disinvestment and misinvestment and stand to gain the most health and quality of life benefits from increased tree canopy. Rebuilding trust and relationships like this will take time but will result in better outcomes and a more equitable tree canopy in the long run.

“

I see the stark contrast in Philadelphia of neighborhoods with trees and those without. I have walked treeless Philadelphia streets that are hot and desert-like, parched and empty in the summer sun.

- Survey, 19129

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* See appendix (page 99) for interactive tree canopy map and (page 107) for canopy data by management unit.

3.2

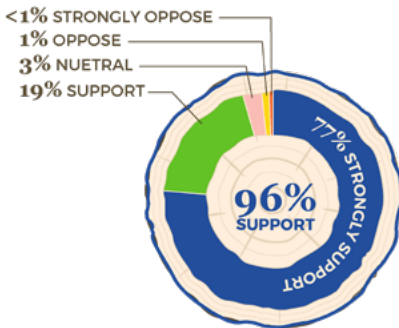
EXPAND THE CITY'S EXISTING TREE FUND

Meeting the ambitious goals of this plan will require a significant investment from the City, state, federal government, foundations, and more. The zoning code updates recommended in this plan can support community-friendly development and have the potential to create new sources of revenue from the development process. This revenue needs to be captured in a way that it can supply a long-term, reliable source of funding for tree canopy growth and care (see 3.5 and 3.7).

The current system of collecting a deposit for required street trees during development is cumbersome for the City and confusing for developers. Often money is left unclaimed and has to be released to the state instead of being used to plant new trees. The zoning code also requires developers to replace trees that are removed during development, but it is not always physically possible to plant the full replacement amount. Developers can apply for a variance to remove trees without replacement by demonstrating that it is a hardship. In these scenarios, the value of the lost tree canopy should be captured and used to grow the urban forest on public lands. The zoning code should be amended to offer a fee-in-lieu of tree planting option, only if the developer can demonstrate that planting and replacement of trees on site is not possible.

The existing tree fund should be transitioned into a more versatile tool for achieving the goals of this plan, emphasizing investment in the priority areas (see 1.2). A portion of the revenue collected should also fund the development plan review, inspection, and enforcement process through the creation of the City Forester position and support team (see 1.1). The amount and type of fees that are charged for tree planting as part of the development process should be re-evaluated, and developers should be charged for the embodied cost of planting a new tree. This includes the cost of the tree, site preparation, equipment, establishment period labor, and administrative cost for managing the development review and inspection process, all of which results in a high cost per tree, which will create a greater incentive for tree preservation and planting.

See appendix (page 103) for tree fund precedents and (page 104) for tree fund cost considerations.



96% of survey responses **support the development of a Tree Fund** to collect fees and support urban forest growth



@Treejawns #PhillyTreeStories

3.3

STRENGTHEN TREE PLANTING AND REPLACEMENT REQUIREMENTS FOR DEVELOPMENT

Development is constantly shaping and reshaping our city. Many of the oldest trees on our streets were planted as part of residential developments in the past. Including trees as part of real estate development can be one of the most effective ways of growing the urban forest. The zoning code should be updated to strengthen tree planting requirements and create a lasting investment in the urban forest. Creation of the City Forester and support team (see 1.1) is critical for implementation and enforcement of the recommendations listed here.

See appendix (page 102-103) for a summary of existing City of Philadelphia tree planting requirements and those in other cities, including Atlanta GA, Baltimore MD, Portland OR, and Washington DC.

3.3.a Lower lot size minimum for tree planting and replacement requirements

Most of Philadelphia's land area consists of small residential lots. Between 2008 and 2018, residential lands had a net loss of over 700 acres of tree canopy, far more than any other land use in the city over that period. Currently, development on lots under 5,000 square feet and on lots being developed for single-family and two-family houses is exempt from tree planting and replacement requirements. In order to increase the number of trees being planted and replaced during development, these exceptions should be removed, and the lot size minimum that triggers tree planting and replacement should be lowered.

3.3.b Reduce the minimum linear frontage and allowable distance between street trees

Currently, the zoning code requires one street tree to be planted for every 35 feet of linear street frontage in a new development. This distance is more than twice the median frontage length of new construction permits from the past 15 years*. The zoning code should be updated to reduce the linear frontage requirement and reduce the allowable distance between street trees, which will provide more opportunities for including trees in new development.

3.3.c Increase on-site planting requirements

Currently, the zoning code does not require any trees to be planted in the interior of new development (other than landscape buffers between land types, and trees required for parking lots). However, new tree plantings on development sites can be used as a compliance measure to meet the Philadelphia Water Department's Stormwater Regulations and to increase the amount of stormwater billing credit for the property. The zoning code should be amended to require yard trees to be planted in open areas of a development and reduce the distance between trees required for landscape buffers and parking lots. These changes will provide more opportunity for including trees in new development.

3.3.d Amend the Philadelphia code and development review process to prioritize street trees

In the current development plan review process, Philadelphia Parks & Recreation arborists review proposed plans for street tree locations after the plans have been reviewed and approved by the Department of Streets, Philadelphia City Planning Commission, and Philadelphia Water Department. This means that before an arborist can decide where street trees are best located around the development, many decisions that

may lead to conflicts with potential tree locations (such as the locations of utilities, curb cuts, stairs, and outdoor lighting) have already been finalized. As a consequence of these conflicts, developers are often allowed to plant fewer street trees than would otherwise be mandated by the zoning code. The parts of the Philadelphia Code and development review process that impact right of way design should be amended such that the review for street trees occurs alongside review of utilities and allows more room for successful street tree plantings.

3.3.e Require replacement of trees that are removed from a lot before a permit application

Currently, developers are required to document existing vegetation on a lot as part of the zoning permit application. However, there is potential for developers to remove trees from a lot before they submit their permit application to avoid tree replacement requirements. The City should explore ways to document pre-permit tree removal to ensure that all trees removed for a development project are subject to tree replacement requirements.

* See appendix (page 104) for additional data on median lot frontages.

3.4

DEVELOP TREE PLANTING DESIGN STANDARDS

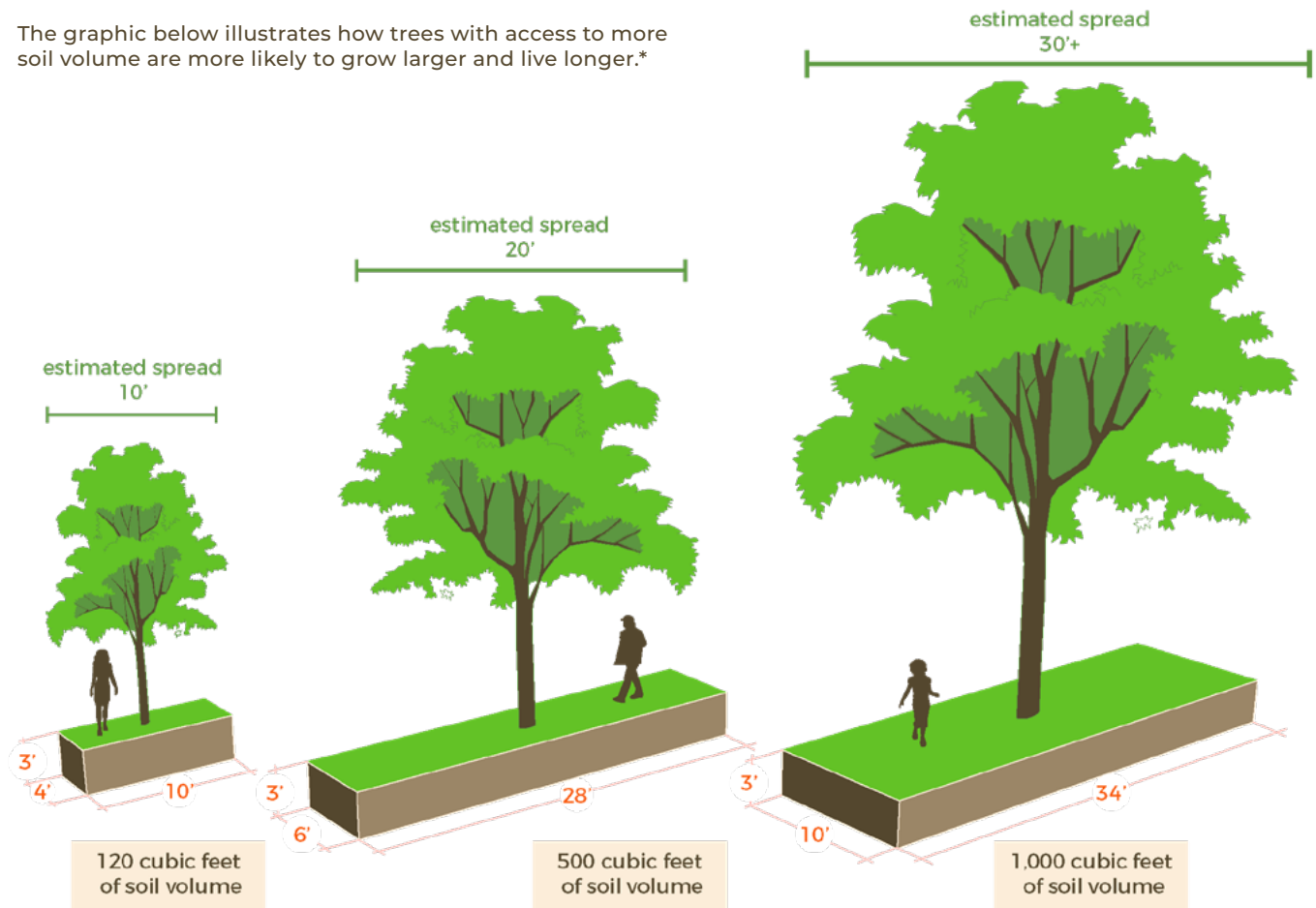
Providing trees with the right growing conditions is critical to surviving and thriving in the city. Good design also reduces conflicts with utilities and sidewalks by providing trees with the space and resources they need to reach maturity. Tree planting design standards are an important tool for ensuring consistency and quality across all development projects that include trees, as well as City and non-profit partner-led planting efforts. Currently, there are no City-approved tree planting design standards referenced in the zoning code, outside of regulations for street tree locations in the right of way.

Tree planting design standards should be developed that follow best practices identified by the International Society of Arboriculture (ISA) and other best practices guides like the *Philadelphia Water Department's Stormwater Regulations and Landscape Guidelines*. The standards should prioritize planting tree species that are large at maturity whenever space allows in order to provide the most benefits to city residents. They should be developed in collaboration with ISA-certified arborists and urban forestry experts employed by the City and non-profit partners, and be subject to review and revision every ten years to align with new developments in research and practice. These standards should be referenced in the zoning code and the building permit checklist as requirements for new planting.

Components of new tree planting design standards:

- » Soil volume and tree pit requirements (prioritizing larger volumes and pit sizes)
- » Tree planting techniques, tree stock, mulching, and staking
- » New and updated approved tree lists, which: include different sub-lists for streets, parks, yards, and landscape buffers; prioritize improving public health; prioritize climate-resilient species; require a minimum percent of plantings to be native species; prioritize diversity to avoid monoculture; and consider the social and cultural value of trees

The graphic below illustrates how trees with access to more soil volume are more likely to grow larger and live longer.*



*See appendix (page 106) for tree planting design standards.

3.5

PRIORITIZE ESTABLISHMENT CARE OF NEWLY PLANTED TREES

Providing consistent care for newly planted trees during the first three to five years, known as the establishment period, dramatically increases their chance of reaching maturity. Establishment care can be challenging, especially in places like parks that do not always have easy access to water. Philadelphia Water Department provides ongoing maintenance for the trees they plant in their green stormwater infrastructure installations, and Philadelphia Parks & Recreation tree planting contracts include follow-up care and a warranty for the first year. But after the first year, and for all trees planted through non-profit groups, street and park tree establishment care activities are performed by residents and volunteers like Park Friends groups and Pennsylvania Horticultural Society Tree Tenders groups.

The City and non-profit partners should coordinate and expand requirements and programs for establishment tree care to protect investments in trees. (See Goal 5 for recommendations on expanding and strengthening the local workforce to perform this care and other urban forestry work).

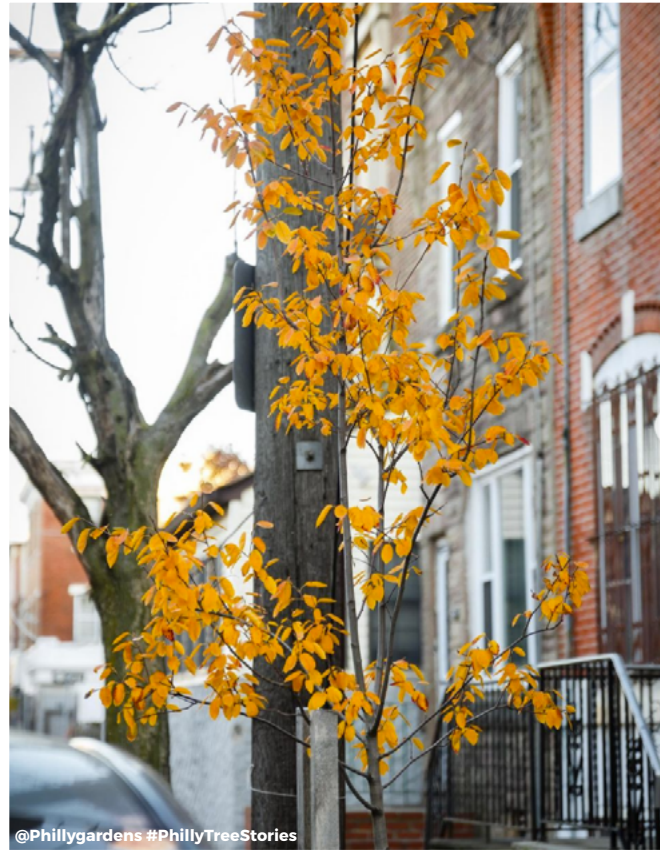
“

We know we have to water the newly planted trees in the very first weeks. It seems trees are abandoned immediately after planting, negating all the hard work.

- Survey, 19106

”





3.6

PRIORITIZE LARGE-SCALE STREET TREE PLANTING

Trees planted along sidewalks and medians define neighborhoods and allow our streets to function as public social spaces. They are also one of the best defenses against summer heat and provide relief from pavement and buildings. The importance of street trees is even more pronounced in neighborhoods with dense housing and little yard space, where street trees can be the only source of tree canopy where residents live, work, and walk. Street tree planting requires coordination with property owners and can be one of the most challenging places for tree canopy growth. Planting street trees along an entire block provides immediate impact and benefit to a community and makes it easier to care for young trees during the first years of establishment. The benefits of trees are also magnified when they are planted in groups. Tree canopy that is connected and covers pavement has a much more significant effect on lowering heat, and trees planted together support each other and have greater resistance to drought and other stresses. City departments, including Philadelphia Parks & Recreation, Philadelphia Water Department, Department of Streets, and Department of Commerce along with non-profit partners should coordinate these strategies to create larger, more impactful street tree plantings, alongside other City investments, such as complete streets and green stormwater infrastructure. Efforts should be made to attract state and federal grants to supplement City capital funds for these street tree plantings.

3.6.a

Organize tree planting for entire residential blocks

The newly-created “Philadelphia Street Tree Opportunity Map” (see appendix, page 99) could be used to identify blocks that are high priority and have the space for large-scale street tree planting, but residents should lead the effort to decide which blocks are chosen. The City and non-profit partners like the Pennsylvania Horticultural Society, whose network of Tree Tender leaders exists for the purpose of organizing neighbors around tree-planting, should support residents in organizing their neighbors, including support for renters to advocate for street tree planting where they live.

3.6.b

Implement proactive street tree planting on commercial corridors

Commercial corridors are gathering places at the heart of many neighborhoods and can define the character of a community. Sidewalks are also typically wider than on residential streets and have more planting space. Currently, street tree planting is only done at the request of the property owner, but many business owners do not own the property they use. Philadelphia Parks & Recreation, Department of Commerce, Pennsylvania Horticultural Society and other partners should collaborate with businesses and community groups to implement proactive tree plantings, but still give property owners the opportunity to opt out of the planting if they do not want a street tree in front of their property.

3.6.c

Fully stock street trees around public facilities

Planting street trees in sidewalks around large public properties (like schools and parks) demonstrates the benefits of trees to communities and builds resident support for future planting efforts in that neighborhood. Large-scale tree plantings can be streamlined in these places because there is a single landowner. Planting trees on streets near parks and natural areas will increase the environmental benefits of the trees by creating more connected tree canopy and encouraging people to visit and become more involved in their local green spaces. Street trees should be planted in all available spots in the sidewalks around public facilities, starting with the priority areas (see 1.2).

“

The streets in my neighborhood are too narrow, but putting trees on the wide commercial streets would be a game changer for this neighborhood.

- Ambassador interview

”



A section of Allegheny Ave. without any street trees, observed on neighborhood walkshop

3.7

PLAN FOR A RESILIENT FUTURE FOREST

Proactive, long-term planning is required to support a healthy urban forest as large as Philadelphia's. This can only be done with a reliable, sustained source of high level funding, succession planning to plant trees of various ages in our park system, and a relationship with local plant nurseries to supply a diverse, climate-resilient selection of trees.

3.7.a

Increase City funds for public tree planting and establishment care

Many Philadelphia residents do not have private outdoor space, especially in priority areas (see 1.2). Public spaces like streets, neighborhood parks, recreation centers, and trails are where many Philadelphia residents access green space and experience the benefits of trees. But a large number of the trees in Philadelphia's park system are mature or overmature, meaning that they are approaching the end of their lives, growth is slowing down, and they are beginning to decline. Without young trees to replace it, the tree canopy is in danger of completely disappearing.

The existing capital budget for public tree planting is insufficient and needs to be increased in order to implement the recommendations in this plan and ensure that Philadelphia's urban forest persists into the future. More Philadelphia Parks & Recreation arborists need to be hired (see 4.1) in order for new trees to be planted and cared for, and a line item in the City's Operating budget should be created for contracting with local groups to provide establishment care for new trees.

“

Southwest needs more investment in local parks. The trees are old and there is something that can be done.

- Ambassador interview

”

3.7.b

Develop succession planting plans for neighborhood parks, recreation centers, and trails

Neighborhood parks in priority areas (see 1.2) have a tree canopy cover of 21.6%. Every park and recreation center in the city should strive to achieve 30% tree canopy cover even if there are active recreational activities that are the primary feature.

Currently, tree planting in neighborhood parks, recreation centers, and along trails is done by a large group of City and non-profit stakeholder groups. Philadelphia Parks & Recreation capital projects and Philadelphia Water Department green stormwater infrastructure projects have trees incorporated in their design. Non-profit organizations like Riverfront North Partnership, Tookany/Tacony-Frankford Watershed Partnership and Philadelphia Orchard Project plant trees in the park system. And volunteers plant trees through programs like Love Your Park, a bi-annual program of park cleaning and greening events hosted by the volunteer-led Park Friends Network. Only parks with an existing Park Friends Group can host a Love Your Park event, which creates disparities in opportunities for tree plantings in parks across the city.

The City should work with Fairmount Park Conservancy, the Pennsylvania Department of Conservation and Natural Resources, and other partners to fundraise and develop succession planting plans for neighborhood parks, recreation centers, and trails, beginning with those in priority areas.

A succession planting plan outlines a staggered planting schedule over time, so there are trees of different ages growing at the site. Succession plans should also include climate-resilient species that will survive the hotter and wetter climate in Philadelphia's future. These plans will allow for much-needed proactive coordination of tree planting and establishment care across the many different stakeholder groups, and will ensure that tree canopy will persist into the future. Succession plans should be informed by community outreach (see 7.2).

3.7.c

Plant more native and climate-resilient species through contract growing

Currently, the City and its contractors purchase hundreds of trees from local nurseries at the beginning of each planting season (spring and fall). But the existing funding level and mechanism restricts them to choosing from the species available that season, and has them competing for trees with all of the other landscapers and arborists in the region. Often, the City and its contractors have to substitute for less-desirable species due to lack of availability. There are also many native and climate-resilient species that are just not available at local nurseries. The City should explore contract growing, or entering into a formal agreement to grow plants for future projects, with one or more local nurseries. Contract growing would allow the City to plant a wider variety of species, and obtain high quality trees grown to their specifications.



4

goal

REDUCE

the burden of trees on residents

4.1

DEVELOP A PROACTIVE INSPECTION CYCLE FOR MAINTENANCE OF PUBLIC TREES

Managing and maintaining the existing urban forest is equally as important as planting the next generation of trees. The City is responsible for the planting and care of all public trees, which account for 53% of the total tree canopy*. Philadelphia Water Department provides ongoing maintenance for the trees they plant in their green stormwater infrastructure installations. Public trees include street trees, park trees, trees on City facilities, and forests on natural lands. These trees require significantly more frequent maintenance than the City is currently able to provide. Residents repeated the need for better maintenance of existing public trees in every part of the community engagement process for this plan.

Currently, maintenance of most public trees is reactionary, responding to requests made through the City's 311 call system. Residents can request street and park tree planting, pruning, or removal, and arborists from Philadelphia Parks & Recreation inspect each request and approve or deny it. But this system exacerbates inequities, directing more resources to people who have more time and understand the request system.

Philadelphia residents across the city would benefit from a proactive inspection cycle for street and park trees. Inspecting and maintaining trees on a regular cycle will improve public safety, reduce the risk and costs associated with damage caused by trees, and reduce the number of costly emergency responses. A regular and transparent inspection cycle will build trust with residents and significantly reduce their hesitation to accept new trees. Achieving this will require additional staff to inspect trees, and more staff to scale up communication with residents (see 6.1 and 6.2). Efforts should be made to attract state and federal grants to supplement City operating funds for public tree maintenance.

4.1.a Conduct study to determine street tree inspection cycle and maintenance funding levels

Philadelphia Parks & Recreation recently released the Philadelphia Tree Inventory, which includes the location, DBH, and species of all 112,000+ of the city's street trees. This data represents the first citywide street tree inventory in a century, and it can be leveraged for proactive and data-driven tree management. This data should be analyzed to determine the ideal inspection cycle for street trees based on size, species, and age distribution patterns across the city, and used to inform yearly City budget requests.

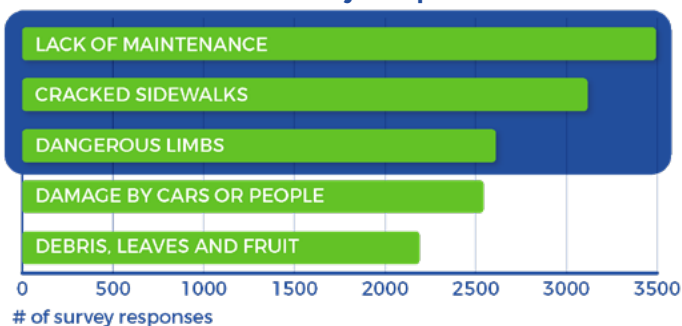
4.1.b Hire more Philadelphia Parks & Recreation street tree inspectors

Street trees planted along sidewalks and medians make up almost 10% of the city's total tree canopy cover. They exist in a space constrained by pavement and utilities and are subject to damage from vehicles, people, and animals. Philadelphia Parks & Recreation street tree inspectors evaluate street tree planting, pruning, and removal requests and review plans submitted by developers to approve required street trees. More street tree inspectors are needed to meet the current demand for inspections and to transition to a proactive inspection cycle for every street tree.

4.1.c Catch-up with the backlog of street tree pruning and removal requests

A large backlog of street tree pruning requests with wait times spanning years has left many Philadelphians feeling reluctant to welcome a tree next to their property. Funding is needed to address the backlog of street tree pruning and removal requests, starting with those in priority areas (see 1.2) in order to build trust in the places that could benefit most. Addressing the backlog of requests will also allow Philadelphia Parks & Recreation to improve wait times and communication with residents.

Survey response to
"What tree-related issues do you experience?"



* See appendix (page 99) for interactive tree canopy map and (page 107) for canopy data by management unit.



4.1.d
Prioritize street tree maintenance on commercial corridors

Commercial corridors often have wider streets and sidewalks and can be ideal places for street trees. Many store owners are reluctant to support tree planting if they believe that the tree will block the visibility of their storefront. Proactive maintenance of trees on commercial corridors to maintain views and address the concerns of business owners can prevent trees from being removed and build trust with residents and businesses. Street tree pruning and removal on commercial corridors should be prioritized, especially in priority areas (see 1.2).

4.1.e
Hire more Philadelphia Parks & Recreation park arborists

Philadelphia Parks & Recreation park arborists are responsible for park tree planting, removal, and pruning. These crews will also respond to emergencies, such as a downed tree over a road. Currently, only three regional crews of arborists maintain all the trees in all 135 neighborhood parks and recreation centers. This number of staff represents a decrease from prior staffing levels and is insufficient to proactively manage the City’s public trees. Additional park arborist crews (along with vehicles and associated equipment) are required to bring the workforce back to previous levels and to accommodate the increased maintenance needed for future tree canopy growth based on the recommendations of this plan.

“
You have to nurture the trees that exist before you can even think about adding more.

- Ambassador interview

”

4.2

CREATE TREE CARE AND SUPPORT PROGRAMS FOR RESIDENTS

Most people in Philadelphia believe that trees have value. However, for many, the burden can outweigh the benefits. The community engagement process for this plan has shown that the risks associated with trees are a significant barrier to residents' desire to accept responsibility for a new tree. However, planting trees on sidewalks and residential property is critical to increasing tree canopy citywide. Residents need more resources and assistance to alleviate their most common concerns and build the trust that is needed for them to accept new trees on and around their property.

4.2.a

Support yard tree selection, planting, and establishment care

Planting a tree in your yard is a long-term commitment. Residents can be hesitant to take this step due to a lack of knowledge about tree varieties and concerns about tree care. Over the past decade, the TreePhilly Program from Philadelphia Parks & Recreation and Fairmount Park Conservancy has distributed over 25,000 trees to residents to plant in their yards. The program provides print, online, and in-person information about how to plant and care for a tree at their giveaway events, but residents reported through the community engagement process for this plan that they need more support. The City, Fairmount Park Conservancy, Pennsylvania Horticultural Society, and other partners should explore new ways to assist residents with choosing the right tree for their yard, identifying the right place, and planting it the right way. This could include a full-service yard tree delivery, planting, and maintenance program for qualifying residents. Neighborhood parks are a fantastic resource for hands-on learning opportunities where residents can learn tree care best practices.



“

The lack of control and knowledge about trees causes anxiety. A home is the biggest investment we make. We don't want to gamble with it.

- Tacony Creek Park Keeper Mtg

”

“

People don't want a new tree because of past experiences of trees rotting, falling, or breaking up concrete.

- Ambassador interview

”

4.2.b Hire a sidewalk coordinator

The Philadelphia Code states that the City is responsible for street tree maintenance and the property owner is responsible for maintaining their sidewalks “in a safe condition.” But many Philadelphians experience cracked and lifted sidewalks around trees in their neighborhood. Deteriorated sidewalks can require costly repairs by homeowners and pose accessibility issues for even able-bodied Philadelphians, and these conditions can make getting around incredibly difficult for the 16% of Philadelphia residents who have a disability, especially those in wheelchairs. In addition, many property owners do not have the resources to repair their sidewalks.

The City should hire a Sidewalk Coordinator to develop a strategy to support sidewalk repair programs for residents. The Coordinator should conduct a study to (1) determine the amount of tree-affected sidewalk square footage in the city, (2) determine the costs and staffing needed to inspect and assess sidewalks, (3) evaluate and certify contractors able to perform the work in manner that is safe for homeowners, pedestrians, and trees, and (4) identify potential sources of funding.

“

The risk is not worth the reward.

- Ambassador interview

”

4.2.c Assist with pruning and removal of hazardous trees on private property

Trees that are poorly maintained or growing in the wrong spot can sometimes pose a hazard to residents and neighbors of the property they are growing on. This includes trees in alleys, abandoned yards, and unmaintained vacant lots. Residents with dangerous trees often face an emergency with a hefty price tag and a lack of support options.

The City should explore setting aside money from the Tree Fund (see 3.2) to support residents in an emergency, especially in priority areas (see 1.2). Funds could be used to prune or remove trees that are impacting the quality of life and public safety on private property for eligible residents, based on income.



81% of survey responses **support public assistance for tree-related damage** to private property



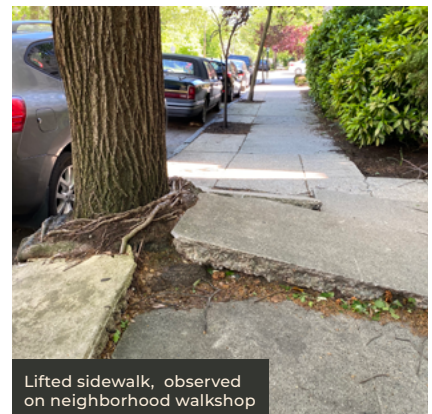
Tree growing out of building, neighborhood walkshop in Strawberry Mansion



Trees in vacant lot @Stocakes #PhillyTreeStories



Overgrown vacant lot, observed on neighborhood walkshop



Lifted sidewalk, observed on neighborhood walkshop

4.2.d

Assist with the removal of small conflicts to make space for new street trees

Not all locations are appropriate for a new street tree. Sometimes there are space limitations like narrow sidewalks, utilities, or street signs that prevent a tree from being planted. But sometimes there are more easily fix-able issues, like an old tree stump or a leftover metal tree grate, that can be removed to make space for a new tree. The City, the Pennsylvania Horticultural Society, and other partners should coordinate and explore state, federal, corporate or foundation funding sources to assist residents in removing these smaller conflicts to make space for more trees along our city streets.

4.2.e

Explore options for removing young invasive trees

Many plants that cause the most burden to residents and our ecosystem are invasive species, meaning that they spread, multiply, and grow so quickly they can become costly to remove in only a few years.

They can quickly invade natural areas, parks, and private property and are often found growing out of cracks in sidewalks and buildings. An Ailanthus tree (Tree of Heaven, one of the most invasive trees in the city) can produce approximately 10 million seeds by the time it is 40 years old! In addition to reproducing rapidly, trees such as Ailanthus are allelopathic, meaning they produce a chemical that prevents the seeds of other species from growing. Many residents have invasive trees growing on their property or in adjacent alleys that threaten their homes, but that they cannot afford to remove.

Removal of young invasive tree species requires minimal training and equipment and offers an opportunity for local employment. The City should identify and collaborate with partners such as the Pennsylvania Horticultural Society to provide education to increase residents' awareness and identification skills so they can remove invasive trees from their property before they become a threat. Support for removal of young invasive trees should also be included in yard tree support programs (see 4.2.a) and community-based tree care programs (see 5.1.a).

Low income and poor neighborhoods severely lack trees and/or are only over grown with weeds and brush.

- Survey, 19147



Goats from the Philly Goat Project help to clear vegetation, Kembel Park

Philadelphia Parks & Recreation

“

A few very invasive species of trees are common in West Philly. It's difficult to keep them under control in my yard because they're all around. They grow out of foundations and give my neighbors a bad impression of trees.

- Survey, 19104

”



South Kensington Community Partners, PHS Landcare Program Partners

Pennsylvania Horticultural Society



5

goal

INVEST

in people and communities

5.1

EXPAND LOCAL CAREER OPPORTUNITIES

Investment in the urban forest should directly support residents and the local economy. Many Philadelphia residents and businesses are ready, willing, and able to be a part of the workforce that will grow and support the urban forest.

5.1.a

Expand paid community-based tree care programs

Newly planted trees need to be watered for the first 3 years and pruned frequently to avoid future structural problems that pose a risk to public safety. This kind of establishment care requires minimal training and equipment. The City, the Pennsylvania Horticultural Society and other partners should explore state, federal, corporate or foundation funding to supplement City funds (see 3.7.a) in order to develop paid programs for community-based organizations, workforce development programs, and local small businesses to perform establishment care of street and park trees.

As an example, the Taking Care of Business (TCB) Clean Corridors Program from the Department of Commerce currently supports commercial corridor improvements and beautification. This program could be expanded to include tree care, including providing training, equipment, and supplies to community groups in the TCB program.



UC Green Corps

5.1.b

Create opportunities for smaller businesses to bid on tree contracts

City contracts for tree work (like planting, pruning, and removal of street trees) often go to large companies based outside of Philadelphia because those companies have the staff capacity to service large areas of the city. If more Philadelphia Parks & Recreation street tree inspectors are hired (see 4.1.b), smaller districts could be drawn, creating more opportunities for small, neighborhood-based businesses to win City tree contracts.



85% of survey responses **support direct payments to community groups** for tree maintenance and planting



Philadelphia Department of Commerce Taking Care of Business Program

5.1.c

Expand same-day work and pay resident employment programs

Same-day work and pay programs can be a way to introduce residents to the tree care industry while providing an opportunity to earn money. Philly Tree Plan Neighborhood Ambassadors stated that these programs would be welcome in their communities, but they should be developed to support further career advancement. In 2020, The Pennsylvania Horticultural Society piloted a same-day work and pay program that should be expanded and can serve as a model for the development of similar programs for tree planting and establishment care across the city.

5.1.d

Provide stipends for volunteers

Tree planting and stewardship programs rely heavily on volunteers, and volunteers should continue to play an important part in the growth and care of the urban forest. Offering stipends for volunteer work in certain situations can reduce barriers to participation to those who may not have the capacity to volunteer their time, and engage more residents in urban forestry. The City and non-profit partners should include money for volunteer stipends in their fundraising efforts for urban forestry programs.

5.2

IMPROVE PATHWAY TO CAREERS IN URBAN FORESTRY

Expanding access to employment opportunities and providing clear pathways to full-time careers in urban forestry is one of the most important ways the plan's recommendations can have a lasting impact on communities. There are simple steps that can be taken to reduce the hurdles that have stood in the way of residents who are interested in urban forestry careers but have faced challenges in the past.

5.2.a

Evaluate urban forestry job specifications

Urban forestry positions often require specific academic experience and/or advanced skills like tree climbing that are difficult to obtain and create a high barrier to entry. The job specifications for entry-level positions should be assessed to expand the list of approved qualifications, remove initial barriers, and reward obtaining skills on the job, such as climbing, aerial lift, and Tree Risk Assessment certifications. This will allow residents with varied skill levels, experience, and educational backgrounds access to jobs in the field of urban forestry.

In addition, organizations that are staffed and led by employees who reflect the diversity of experiences of the people they serve are better able to create and implement programs that reflect the needs and experiences of those communities. To better serve all Philadelphians, City and non-profit urban forestry programs must have staff at all levels who reflect the communities their programs seek to serve. The City and non-profit partners should evaluate their recruitment and hiring practices to ensure access for under-represented applicants, and prioritize applicants who have experience living and working in the neighborhoods they will serve. They should diversify leadership teams by promoting staff who bring perspectives and experiences that are reflective of program participants but are under-represented within the existing leadership.

5.2.b

Support the transition from workforce development programs to full-time employment

There is already a robust network of non-profit organizations and City agencies offering workforce development programs, but more support is needed to make sure the alumni of these programs settle into a full-time career. Changes can be made on the program side and the employer side to improve the success of full-time placements for workforce development alumni. PowerCorpsPHL should take the lead on the following actions to strengthen the transition from workforce development program to full-time employment.

Convene program providers and potential employers

Regular convenings would facilitate ongoing coordination and communication between workforce development program providers and employers. Private companies that receive City contracts could be required to participate in these convenings and incentivized to hire program alumni.

“

Create jobs for residents to clean their neighborhood, to prune and care for trees that pay fair wages. I can name teens on the block that would want that job.

- Strawberry Mansion community meeting

”

Externships

Expanding externship opportunities, where non-profit partner organizations pay graduates of workforce development programs for a trial period in the private workforce, can help support job placement. Non-profit partners should include more externships in their workforce development programming. The City should follow this model to include contractors hired for public work.

Mentorships

Mentors make a difference in helping people achieve their career goals. They can give personal guidance and be a consistent point of contact for new employees, which can be critical to staying on a career path. Non-profit partners should include mentorship opportunities in their workforce development programming.

Curriculum alignment

Employers should coordinate with workforce development programs to advise on curriculum to meet the job requirements for urban forestry positions.

Employee retention

A job does not become a career if employers fail to retain and invest in employees. Exploring retention rates of employees at tree care companies (with special attention to retention of Philadelphia-residing, BIPOC, women, and LGBTQ+ employees) can inform placement of workforce development program graduates.

5.3

EXPAND CAREER DISCOVERY OPPORTUNITIES

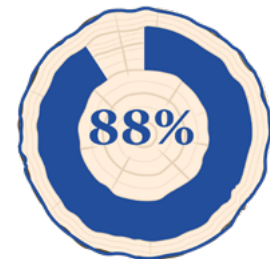
Hands-on environmental programming for youth was the most requested new program in the community engagement process for this plan. Planting and caring for trees is a perfect opportunity to provide hands-on programming to youth, while also introducing them to the many different jobs available in the field of urban forestry.

The Pennsylvania Horticultural Society and other non-profit partners should expand career discovery programs like pre-apprenticeships for youth to introduce young residents to job opportunities in urban forestry and related environmental fields. These should include skills-building opportunities and connections to workforce development opportunities along with career and college counseling services.



Toekany/Tacony-Frankford Watershed Partnership, Inc.

PowerCorpsPHL is a City of Philadelphia AmeriCorps initiative that is a paid workforce development program that teaches career and technical skills through environmental stewardship.



88% of survey responses **support more green jobs** and job training for Philadelphia residents



Arbor Day at Wissinoming Park

Philadelphia Parks & Recreation



Central High School Students at Wister Woods

Philadelphia Parks & Recreation

“

Create an environment for the children where they can explore, learn about and from nature.

- Carol White, Community Voices Committee member

”



Lori Maple Hayes, Director of Urban Forestry, Philadelphia Parks & Recreation

Sabina Louise Pierce

“

The face of urban tree tending needs to look increasingly like urban communities. The more it does, the more powerful the movement can become.

- Faith Communities & Climate Witness Project

”



6

goal

COMMUNICATE

with residents and improve customer service

6.1

IMPROVE COMMUNICATION WITH RESIDENTS IN ADVANCE OF TREE WORK

The community engagement effort for this plan clearly shows that Philadelphians care deeply about the public trees in their neighborhood, and they feel frustrated when they are not informed in advance of tree work that directly affects the quality of life in their community. While there are some communication systems in place to provide information about tree work to residents in advance, the community engagement effort for this plan suggests that existing practices are not sufficient to make residents feel informed.

The City should communicate about public tree work in a transparent and accountable way. Communications should be accessible to residents of differing abilities and easily understood by community members with different English language proficiency and literacy levels. The following categories of work should require resident notification:

See appendix (page 106) for recommended notifications to residents.

Street tree planting, pruning, and removal

The City and non-profit partners should explore ways to improve communication with residents in advance of street tree work at their address (this does not include emergency response work).

Heritage tree removal

Large trees provide enormous benefits to a neighborhood and their removal negatively impacts residents across property lines. Even though it is not always possible or practical for developers to preserve heritage trees in design and planning, residents should be informed when a heritage tree will be removed as part of development and receive information about the tree replacement plan for the tree.

Capital and restoration projects impacting public trees

Capital improvements or restoration projects that remove trees in public spaces can be distressing to residents. The City should place signage at the location where trees are to be removed that includes information about the project and contact information of a customer service representative who can answer questions (see 6.2). The City should also distribute this information to nearby Registered Community Organizations and community-based organizations.

6.2

HIRE MORE PHILADELPHIA PARKS & RECREATION CUSTOMER SERVICE STAFF

In 2021 alone, Philadelphia Parks & Recreation received almost 6,000 requests from 311 (of which, 66% were street or park tree related), along with thousands of direct phone calls and emails about trees from residents. Currently, there are 2 full-time staff who manage and direct tree-related requests at Philadelphia Parks & Recreation, making reactive communication difficult to keep up with, and proactive communication almost impossible.

More customer service representatives are needed to provide fast, proactive, and accurate information to residents. These new staff would improve customer service for residents who want the status of their tree requests or are looking to report hazardous tree conditions. New staff could also: provide proactive resident notification in advance of public tree work; receive complaints about violations of tree protection requirements during development and utility work; connect residents with free tree and education programs, workforce development opportunities, and other resources for tree care or maintenance; and assist residents with resolving tree-related disputes, providing resources for a range of possible services and solutions.

6.3

PROVIDE A PUBLICLY ACCESSIBLE, INTERACTIVE TREE MAP

According to the community outreach effort for this plan, residents want more frequent updates on the status of their public tree planting and maintenance requests.

The City and the Pennsylvania Horticultural Society should fundraise for and create a publicly accessible online tree map to provide up-to-date information on tree-related activities in parks and on streets. Technical support should be provided by the USDA Forest Service. This map could include the status of inspection requests for tree planting, pruning, and removal, information about newly planted trees by the City and Pennsylvania Horticultural Society Tree Tenders volunteers, and information about upcoming tree maintenance by the City and utilities. Data management staff on the City Forester's support team (see 1.1) need to be hired to keep this map up to date.



6.4

PRODUCE PHILLY TREE PLAN REPORT CARDS

The City departments, state and federal agencies, and non-profit organizations involved in creating this plan should be held accountable for implementation of the plan to each other and to the general public.

The City should be responsible for producing report cards on implementation progress every three years. The report cards should be publicly available and consolidate reporting from City agencies, non-profit partners, community organizations, and other plan partners. Letter grades should be assigned based on whether the efforts are on track with the planned timeline or falling behind. Metrics should be developed in partnership with the Urban Forest Advisory Committee (see 7.1), the Department of Public Health, local researchers, and other stakeholders.



Herb White, arborist, talking to Strawberry Mansion students at neighborhood walkshop

“
It would be really helpful for residents to [have] someone they can call and ask. Better yet, it would be great if they had up-front information and communication about processes that impact them. Would be great for people to be able to report tree issues to ears that are knowledgeable, can understand concerns, and also act.

- Survey, 19125

”



Photo for PHS, courtesy of Julia Lehman

7

goal

ADVOCATE

for communities to benefit
from the urban forest

7.1

ESTABLISH AN URBAN FORESTRY ADVISORY COMMITTEE

An Urban Forestry Advisory Committee is needed to hold the City and partners accountable for achieving the goals set forth in this plan in an equitable and community-focused manner. The Committee should also ensure coordination between City Departments and provide technical expertise in advancement of the goals of this plan. The Committee should include voting members that are residents who reflect the demographics of their neighborhood, are able to represent the interests of their communities, and have the capacity to act as a liaison between their community and the City. Subject matter experts in urban forestry and arboriculture should also be included as non-voting members. The committee member selection process should ensure access for Black, Indigenous, and People of Color (BIPOC) community leaders so these residents can have a role in decision-making.

Committee members should advise on programs and policies, report back on public sentiment toward ongoing efforts, and advocate for equitable distribution of programs and resources. They should help draft and advocate for policy. Committee members should participate in updating this plan as needed to account for changing conditions. They should review and share report cards (see 6.4) and advise on outreach and engagement strategies, including creating and distributing materials.

See appendix (page 103) for summary of similar committees in other cities, including Portland, OR, Washington DC and Los Angeles, CA and (page 106) for additional details about forming the committee, selection criteria, and compensation.

7.2

HIRE URBAN FORESTRY COMMUNITY ORGANIZERS

Many Philadelphia neighborhoods have faced systemic disinvestment and misinvestment, leaving them distrustful of the City, and hesitant to invest in new tree planting efforts. Working directly with residents to understand concerns and develop solutions is essential to rebuilding trust and ensuring that future tree canopy growth supports residents. Urban forestry community organizers can communicate and collaborate with residents to help them access City tree services, fund and implement community-led projects, connect residents with job opportunities, and provide subject-matter expertise at community meetings. They can also support renters to engage their landlords to plant and care for trees and communicate with other public agencies to facilitate tree planting and care at schools, PHA housing, and commercial corridors. Urban forestry community organizers are most needed in priority areas (see 1.2) to build trust with residents and increase tree canopy in the places that need it the most in the ways that support residents the best.

The City, the Pennsylvania Horticultural Society, and other partners should increase the number of community organizers on staff to support community-led tree canopy growth and maintain open communication with residents.



“
Basing our work in environmental and climate justice brings people in and creates space for collaboration and coalition building.

- Sharrieff Ali,
Community Voices
Committee member

”

7.3

CONNECT NEARBY NEIGHBORS TO NATURAL LANDS

Philadelphia's park system is one of the city's greatest treasures. City residents can access natural lands like forests, wetlands, and meadows without leaving the city boundary. These natural lands support the health and well-being of all residents and offer benefits such as stress reduction and opportunities for social connection.

During the community outreach process for this plan, residents shared hundreds of stories full of appreciation for our natural lands. These areas of relief are unparalleled in value, especially during an unprecedented pandemic. The City, Pennsylvania Department of Conservation and Natural Resources, Fairmount Park Conservancy, and other non-profit partners like Tookany/Tacony-Frankford Watershed Partnership and Riverfront North Partnership should increase outreach efforts to attract nearby neighbors into the city's natural lands. Additional Natural Lands Group staff (see 2.2.a) and environmental education staff are critical to the success of this recommendation.

Improve entrances to natural areas

This could include improving safe access to parks through signage, lighting, and regular trash pick-up, along with street tree plantings that create a connected tree canopy corridor between the natural areas and the nearby neighborhood. Partners should explore state, federal, corporate, and foundation funding to supplement City funds for implementation of this recommendation.

Expand programming and stewardship opportunities

Connect with local community-based organizations to determine programming that would interest

near neighbors, encourage them to spend time in natural areas, and deepen their connection to the parks they love.

Set participation metrics

Set participation metrics for natural lands programming to prioritize near-neighbor participation, and ensure that program participants

reflect the adjacent neighborhood demographics.

Connect with nearby schools and afterschool programs

Reach out to schools within walking distance to collaborate on environmental education programming and nature appreciation opportunities.

“ I look forward to bringing my son [to the Wissahickon] to identify trees, learn about ecosystems, and bask in the beauty and awe that comes from even a small forest. ”

- Survey, 19128



Philadelphia Parks & Recreation

7.4

INCREASE OPPORTUNITIES FOR ENVIRONMENTAL EDUCATION FOR YOUTH

Cultivating the next generation of stewards and advocates is as important as growing the next generation of trees. Philly Tree Plan Neighborhood Ambassadors identified environmental education as a crucial part of how systems are changed to create a future that is more environmentally just.

7.4.a

Integrate environmental education and greening into school curriculum and programs

Schools play a critical role in inspiring curiosity and lifelong learning about environmental science. There are a few small changes that could make a big impact in supporting the School District of Philadelphia and charter schools to include a more robust curriculum around environmental education and utilize the school grounds to support environmental learning.

Adopt Eco-Schools USA framework

Schools should adopt the National Wildlife Federation Eco-Schools USA program. This program provides a framework for educators to implement sustainable practices and programs within their school, with students taking the lead at each step along the way. Eco-Schools is supported by the Pennsylvania Department of Education and can be directly integrated into existing curriculum.

Connect students with hands-on schoolyard greening opportunities

School curricula and after-school programs should include opportunities for students to participate in schoolyard greening. This could include tree planting, tree adoption programs (on or off campus), participatory design of schoolyards, and plant propagation. Schoolyards should also be included as part of the learning spaces for children as a living laboratory for observation and experimentation.



Penn Alexander students gather and communicate data on schoolyard trees

Stephanie Kearney

“

Children are eager to learn about trees, and they bring that knowledge back home to their families.

- Ambassador interview

We need more assertive public education about the importance of plant life.

- Survey, 19106

”

7.4.b

Improve accessibility of hands-on environmental programming for youth

Youth engaged during the community outreach process for this plan voiced support for programs that had hands-on experiences. The City and non-profit partners currently offer environmental education programs for youth. However, these programs are not easily accessed by youth from all areas of the city. The City and non-profit partners should support bringing programs to youth where they live.

Increase accessibility of programming

Philadelphia Parks & Recreation and non-profit partners offer weekend and after-school programs and summer camps at recreation centers and parks across the city, providing critical support for parents who need quality childcare. These programs should be expanded to include opportunities for hands-on environmental experiences. The

facilities, access and signage at these sites should also be improved to create safer and more welcoming experiences for children and families. Additional environmental education staff at Philadelphia Parks & Recreation and non-profit organizations will be needed to provide these programs.

Support existing program leaders

There are already many organizations and individuals providing programs for youth that are embedded in their communities. Many of these organizations have the trust of their communities and are able to have a meaningful impact on the lives of young people. Although these programs may not focus on greening or environmental issues, there are opportunities to integrate greening or environmental education in ways that support the mission of the organization.

7.4.c

Support environmental advocacy among young people

Young people are already mobilizing to advocate for environmental causes across the city, and there are organizations such as Sunrise Movement that support this advocacy. The Pennsylvania Horticultural Society and non-profit partners should explore ways to support these organizations to spread awareness and increase participation in environmental advocacy.

Lift up environmental leaders who reflect the communities they serve

All students engaged in environmental education deserve to feel safe, seen, and included. For this reason, educators with similar experiences and cultural backgrounds of residents should be in positions of responsibility and decision-making.



Arbor Day at Wissinoming Park

Philadelphia Parks & Recreation



@Apartofmeboutique #PhillyTreeStories



@yardbeautifulphilly #PhillyTreeStories



@hrphotography304 #PhillyTreeStories



@theladydaunts #PhillyTreeStories



@Jefferson_wildlife #PhillyTreeStories



@onreetwotrees #PhillyTreeStories



@Kellymeerbott #PhillyTreeStories



@phillygardens #PhillyTreeStories



@leeloo_is_a_brat #PhillyTreeStories



@Nickjmal #PhillyTreeStories



@phillygarden #PhillyTreeStories #PhillyTreeStories



@r.a.baran #PhillyTreeStories

8

goal

CELEBRATE

and support the ways communities
are engaging with trees

8.1

ENGAGE CULTURAL, SPIRITUAL, AND ARTS INSTITUTIONS

The natural world inspires art and cultural practice, but arts and culture organizations are often not part of the traditional network of environmental advocates. Faith-based organizations also have close connections to their communities and frequently share the values of environmental stewardship but are also not a traditional partner of environmental organizations.

The City and non-profit partners should prioritize engaging with cultural leaders, elders, faith-based organizations, and artists to promote creative and spiritual expression in environmental education and stewardship. The City should celebrate the traditions and connections residents have to trees and the natural world and make space for cultural, spiritual, and creative leaders to build and showcase these values through urban forestry programming, and experiential and educational opportunities.

8.2

SUPPORT ACCESS TO FOOD-PRODUCING TREES

The practice of planting and growing food is culturally significant to many and an opportunity for a closer connection with trees. The ability to cultivate food-producing trees needs to be protected and supported in order to nurture personal and cultural connections to trees.

8.2.a

Provide support to residents for fruit and nut tree care

The TreePhilly Program has distributed thousands of fruit and nut trees to residents in the past decade as part of their yard tree giveaways. But most fruit and nut trees require ongoing care (yearly pruning and pest and disease management) which can become burdensome for residents. The Philadelphia Orchard Project plants and cares for community orchards across the city and provides educational materials and workshops to community partners, volunteers, and city residents. The City should explore ways to fund and support the Philadelphia Orchard Project and other non-profit partners to expand their programming to offer more resources to community groups and residents, including those who have received a fruit or nut tree through the TreePhilly program. Support could include answering residents' questions and giving workshops and classes, and should be focused in the priority areas identified in this plan.

8.2.b

Expand opportunities to establish food forests on public lands

A food forest is full of food-producing and medicinal trees and perennial plants, designed to mimic the multi-layered nature of a forest. There are several community-led and publicly-accessible food forests across Philadelphia. The City should streamline the approval process for community groups that want to establish food forests on public lands, and explore opportunities to plant native food-producing trees along forest edges.

“

People regularly ask me why there aren't more fruit trees on the street or in parks so that people can get food.

- Survey, 19104

”



Philadelphia Orchard Project, Orchard Planting

Philadelphia Orchard Project

8.3

CONTINUE TO COLLECT AND SHARE RESIDENTS' STORIES

When residents were asked to share their experiences and relationships with the urban forest during the community outreach process for this plan, they responded with enthusiasm. They shared thousands of stories and photos, including poems, folklore, cultural farming practices, stories of tragedy, and stories of celebration. Philadelphians care deeply about the trees that are part of their daily lives, lament the ones that are no longer there, and feel the disparity between neighborhoods regarding tree canopy cover. These stories strongly impacted the development of this plan, and community engagement should continue to be a key focus as the City and partners implement the recommendations of this plan.

The City should develop and implement an annual communication campaign that highlights and celebrates the stories of individuals who develop, organize, and participate in growing and caring for the urban forest. These should be shared through social and traditional media and be lifted up to influence and inspire residents' future action and involvement in the urban forest.

“
中国有句古话叫十年育树，百年育人
There is an old saying in China called “Ten years to nurture trees, one-hundred years to nurture people.”
” - Survey, 19122

“
creci viendo muchos arboles en mi infancia y ahora ver solo cemento me aterra especialmente en epocas de calor hacen falta la frescura de los árboles!!
I grew up seeing many trees in my childhood and now seeing only cement terrifies me, especially in times of heat, the freshness of the trees is needed!
” - Survey, 19111

“
When I was kid trees were places of power to us. They were meeting places. They were where you hid or a base during a game. They were where we went to sit in the shade when it was too hot and our parents wanted us to go out and play. We'd pick up the fallen branches and make things. We'd toss the nuts as a way to play. We'd watch the animals who ran in and out and gave them names.
” - Survey, 19154





IMPLEMENTATION



PHILLY TREE PLAN IMPLEMENTATION ROAD MAP

The Philly Tree Plan is a 10 year strategic plan with recommendations that are interconnected and require close coordination between City agencies, organizations, and individuals. The recommendations of this plan are categorized into short-term, mid-term, and long-term goals to provide a road map for implementation.

SHORT-TERM = 1-3 YEARS

Short-term recommendations require few inputs and can be achieved relatively easily. Many of the recommendations in this category are required to set the stage for future progress.

MID-TERM = 3-5 YEARS

Mid-term recommendations may require more time to organize, raise funds, or build capacity. Many of these recommendations are dependent on the completion of short-term recommendations.

LONG-TERM = 5-10 YEARS

These recommendations are the most ambitious and are frequently the end result of years of preparation. Many of these recommendations are the most impactful with the greatest benefit.

Leaders and partners

Each recommendation of the Philly Tree Plan needs a champion to lead the work of implementation as well as support from partners that have a shared interest in the goals of this plan. The road map matrix on the following pages identifies agencies and organizations that are best suited to lead, as well as those best suited to support each recommendation. These agencies and organizations are listed below along with the abbreviations used in the matrix.

CC	City Council	PECO	Philadelphia Electric Company
COM	Philadelphia Department of Commerce	PGW	Philadelphia Gas Works
CBO	Community Based Organizations	PHA	Philadelphia Housing Authority
DCNR	Pennsylvania Department of Conservation and Natural Resources	PHS	Pennsylvania Horticultural Society
FS	USDA Forest Service	POP	Philadelphia Orchard Project
FPC	Fairmount Park Conservancy	PPR	Philadelphia Parks & Recreation
L&I	Philadelphia Department of Licenses and Inspections	PRHF	Parks & Rec Heroes Fund
OTIS	Philadelphia Office of Transportation, Infrastructure, & Sustainability	PWD	Philadelphia Water Department
PC	PowercorpsPHL	SDP	School District of Philadelphia
PCPC	Philadelphia City Planning Commission	STR	Philadelphia Department of Streets
PDPH	Philadelphia Department of Public Health	TPL	Trust for Public Land
		UFAC	Urban Forest Advisory Committee

GOAL	LEAD	PARTNERS	SHORT	MID	LONG
Goal 1 - COORDINATE support for trees					
1.1 Establish a new City Forester position and support team	PPR	PCPC, CC	●		
1.2 Prioritize disinvested areas	All		●		
1.3.a Update Complete Streets Design Handbook	OTIS	PPR, PWD		●	
1.3.b Integrate City data sets	PPR	PWD, STR			●
1.3.c Require tree planting, protection, and replacement on developments in parks and open space	PCPC	PPR, L&I, CC	●		
1.3.d Develop an approval process for street tree planting around school district property	PPR, SDP	PHS, TPL		●	
1.4 Improve coordination among stakeholder groups	All		●		
1.5.a Include street tree conditions in PA One Call ("Call-Before-You-Dig," 811)	PA1Call	PPR			●
1.5.b Hire a Utility Tree Coordinator	PPR	PECO, PGW, PWD		●	
1.5.c Support strategic burial of power lines	PPR	PECO			●
Goal 2 - PROTECT the existing and future urban forest					
2.1.a Expand heritage tree protections during development	PPR	PCPC, CC	●		
2.1.b Protect food-bearing trees	PPR	PCPC, CC, POP			●
2.1.c Increase incentives for preserving large trees	PPR	PCPC, CC	●		
2.1.d Require and enforce tree protection plans	PPR	L&I, CC			●
2.1.e Develop establishment care requirements for development	PPR	PCPC, CC		●	
2.2.a Increase natural lands staff capacity	PPR	FPC			●
2.2.b Commission comprehensive assessment and monitoring protocol for natural lands	PPR	FPC, FS		●	
2.2.c Increase fundraising capacity and diversify funding for natural lands	PPR, FPC	DCNR			●
2.2.d Expand long-term strategies to reduce impacts of deer	PPR, FPC	DCNR, CBO		●	
2.3 Support residents to care for mature trees on private property	PPR, PHS	CBO	●		
Goal 3 - GROW the urban forest equitably across the city					
3.1.a Work towards a benchmark of 30% tree canopy in every neighborhood based on proven benefits to communities	All				●
3.1.b Prioritize equitable tree canopy growth	All		●		
3.2 Expand the City's existing Tree Fund	PPR	PCPC, L&I, CC, PRHF	●		
3.3.a Lower lot size minimum for tree planting and replacement requirements	PPR	PCPC, CC		●	
3.3.b Reduce the minimum linear frontage and allowable distance between street trees	PPR	PCPC, CC		●	
3.3.c Increase on-site planting requirements	PPR	PCPC, CC	●		
3.3.d Amend the Philadelphia code and development review process to prioritize street trees	PPR	L&I, STR, PCPC, PWD		●	
3.3.e Require replacement of trees that are removed from a lot before a permit application	PPR	PCPC, CC		●	
3.4 Develop tree planting design standards	PPR	PCPC, PHS, PWD			●
3.5 Prioritize establishment care of newly planted trees	PPR	PCPC, CC, PHS, CBO		●	
3.6.a Organize tree planting for entire residential blocks	PPR, PHS	All	●		
3.6.b Implement proactive street tree planting on commercial corridors	PPR	PHS, COM	●		
3.6.c Fully stock street trees around public facilities	PPR	All			●
3.7.a Increase City funds for public tree planting and establishment care	PPR	PHS, PRHF	●		
3.7.b Develop succession planting plans for neighborhood parks, recreation centers, and trails	PPR	PHS, DCNR, CBO, FPC			●
3.7.c Plant more native and climate-resilient species through contract growing	PPR			●	

GOAL	LEAD	PARTNERS	SHORT	MID	LONG	
Goal 4 - REDUCE the burden of trees on residents						
4.1.a	Conduct study to determine street tree inspection cycle and maintenance funding levels	PPR	PHS, FS		●	
4.1.b	Hire more Philadelphia Parks & Recreation street tree inspectors	PPR			●	
4.1.c	Catch-up with the backlog of street tree pruning and removal requests	PPR		●		
4.1.d	Prioritize street tree maintenance on commercial corridors	PPR	COM	●		
4.1.e	Hire more Philadelphia Parks & Recreation park arborists	PPR			●	
4.2.a	Support yard tree selection, planting, and establishment care	PHS	FPC, PPR, FS, CBO		●	
4.2.b	Hire a sidewalk coordinator	OTIS	PPR, STR		●	
4.2.c	Assist with pruning and removal of hazardous trees on private property	PPR	PHS, DCNR			●
4.2.d	Assist with the removal of small conflicts to make space for new street trees	PPR	PHS		●	
4.2.e	Explore options for removing young invasive trees	PPR	PHS	●		
Goal 5 - INVEST in people and communities						
5.1.a	Expand paid community-based tree care programs	PPR, PHS	FPC, COM		●	
5.1.b	Create opportunities for smaller businesses to bid on tree contracts	PPR	COM, PHS			●
5.1.c	Expand same-day work and pay resident employment programs	PHS		●		
5.1.d	Provide stipends for volunteers	All		●		
5.2.a	Evaluate urban forestry job specifications	All				●
5.2.b	Support the transition from workforce development programs to full-time employment	PC	All	●		
5.3	Expand career discovery opportunities	PHS	CBO		●	
Goal 6 - COMMUNICATE with residents and improve customer service						
6.1	Improve communication with residents in advance of tree work	PPR, PWD	PHS		●	
6.2	Hire more Philadelphia Parks & Recreation customer service staff	PPR		●		
6.3	Provide a publicly accessible, interactive tree map	PPR	PHS, FS			●
6.4	Produce Philly Tree Plan Report Cards	PPR	FS, UFAC, PDPH	●		
Goal 7 - ADVOCATE for communities to benefit from the urban forest						
7.1	Establish an Urban Forestry Advisory Committee	PPR	All	●		
7.2	Hire urban forestry community organizers	PPR, PHS	CBO	●		
7.3	Connect nearby neighbors to natural lands	PPR	DCNR, FPC, PDPH, CBO			●
7.4.a	Integrate environmental education and greening into school curriculum and programs	SDP, CBO	PHS			●
7.4.b	Improve accessibility of hands-on environmental programming for youth	PPR, CBO	FPC, PHS		●	
7.4.c	Support environmental advocacy among young people	PHS	SDP, CBO, FPC	●		
Goal 8 - CELEBRATE and support the ways communities are engaging with trees						
8.1	Engage cultural, spiritual, and arts institutions	All		●		
8.2.a	Provide support to residents for fruit and nut tree care	PPR	POP		●	
8.2.b	Expand opportunities to establish food forests on public lands	PPR	POP, PHS			●
8.3	Continue to collect and share residents' stories	PPR	PHS, FS	●		

PHILADELPHIA PARKS & RECREATION STAFFING NEEDS

Philadelphia Parks & Recreation has been functioning with below-optimal staffing levels for many decades, due to drastic staffing and budget reductions in the late 20th century. Key recommendations of the Philly Tree Plan require an increase in funding for Philadelphia Parks & Recreation staff. This staffing increase can take place over time to meet the goals of the Plan.

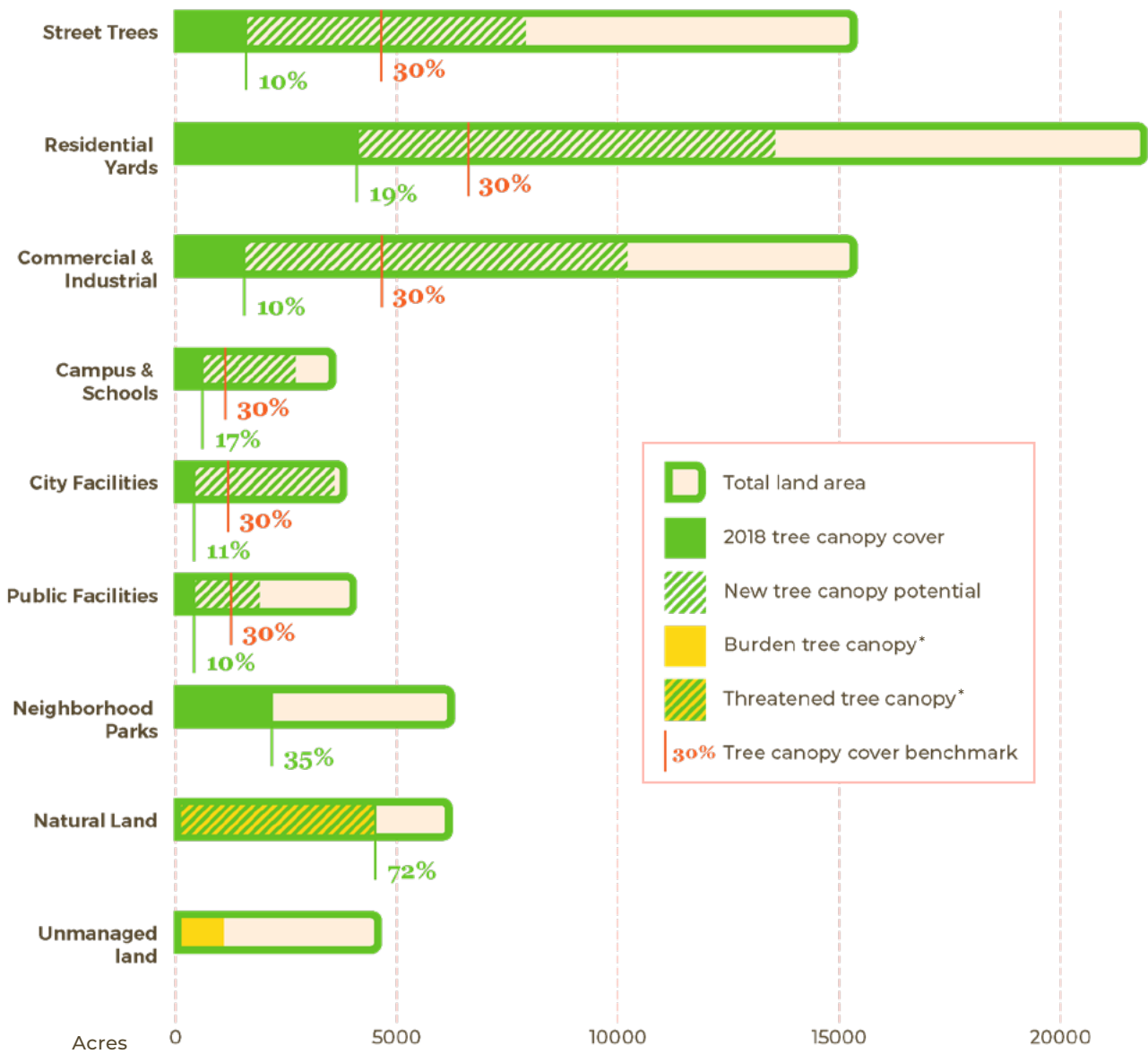
Team	Goal	Description	#
SHORT-TERM		1-3 Years	
City Forester team	1.1	City Forester	1
	1.1	Development Plan Review Manager	1
	1.1	Development Plan Inspector	4
	1.1	Philly Tree Plan Implementation Coordinator	1
	1.1	Tree Data Manager	1
Community Forestry	7.2	Urban Forestry Community Organizer	4
	6.2	Customer Service Manager	1
	6.2	Customer Care Representative	3
Natural Lands	2.2.c	Grants Manager	1
	2.2.a	Environmental Scientist	1
	2.2.a	Environmental Restoration Crew Chief	1
	2.2.a	Environmental Restoration Crew Member	3
	2.2.a	Greenhouse/Nursery Attendant	1
	2.3.a	Natural Lands Contract Manager	1
Total short term staff increase			24
MID-TERM		3-5 Years	
Community Forestry	7.2	Urban Forestry Community Organizer	3
Street Trees	4.1.b	Street Tree Inspector	3
	1.5.b	Utility Tree Coordinator	1
Park Tree Crews	4.1.e	Park Arborist	1
	4.1.e	Park Tree Crew Chief	2
	4.1.e	Heavy Equipment Operator	1
	4.1.e	Park Tree Maintenance Worker	6
	4.1.e	Park Tree Grounds Worker	2
Natural Lands	2.2.a	Environmental Restoration Crew Chief	1
	2.2.a	Environmental Restoration Crew Member	3
	2.2.a	Environmental Restoration Regional Manager	1
Environmental Education	2.2.a	Environmental Scientist	2
	2.2.a	Greenhouse/Nursery Attendant	1
	7.4.b	Environmental Education Outreach Coordinator	3
Total mid term staff increase			30
LONG-TERM		5-10 Years	
Natural Lands	2.2.a	Environmental Restoration Crew Chief	3
	2.2.a	Environmental Restoration Crew Member	9
	2.2.a	Environmental Restoration Regional Manager	1
Total long term staff increase			13
Total combined staff increase over 10 years			67

MANAGEMENT UNITS

Philadelphia’s urban forest exists across many different land areas. These areas, called “management units,” are based on land use, ownership, and jurisdiction. Each requires different strategies that consider each unique condition. Many recommendations in this plan impact all or some of the management units, while others focus on one in particular.

This plan evaluated management units across the city and determined the potential capacity for new tree planting in each unit. A 30% tree canopy cover is used as a consistent benchmark for understanding tree canopy disparities across management units because the environmental and health benefits of reaching this goal are well documented.

All canopy cover percent values reported in this plan are based on the 2018 data derived from LIDAR, which can be found at [OpenDataPhilly](https://opendata.philly.gov/).



* See appendix (page 108) for definition of burden tree canopy and threatened tree canopy

The following definitions give additional information about each management unit and identify the key recommendations that will have the greatest impact on canopy growth in each unit.

Street trees

Street trees include all of the trees in the public right-of-way, including streets, curbs, medians, and sidewalks. These trees are managed and maintained by Philadelphia Parks & Recreation (or Philadelphia Water Department if trees are installed as part of green stormwater infrastructure). However, property owners have the final say in whether trees are planted on the sidewalk adjacent to their property.

- » Improve coordination among public agencies (see 1.3)
- » Minimize conflicts between street trees and utilities (see 1.5)
- » Strengthen tree planting and replacement requirements for development (see 3.3)
- » Develop tree planting design standards (see 3.4)
- » Prioritize large-scale street tree planting (see 3.6)
- » Develop a proactive inspection cycle for maintenance of public trees (see 4.1)
- » Create tree care and support programs for residents (see 4.2)
- » Expand local career opportunities (see 5.1)
- » Improve communication with residents in advance of tree work (see 6.1)
- » Hire urban forestry community organizers (see 7.2)

Residential Yards

Residential yards include the front and rear yards of residential buildings such as row homes and duplexes with three or fewer units. These trees belong to the property owner, and only the property owner can decide to plant new trees or remove existing ones (with the exception of tree planting requirements during development).

- » Protect trees in development, planning, design, and construction (see 2.1)
- » Support residents to care for mature trees on private property (see 2.3)
- » Strengthen tree planting and replacement requirements for development (see 3.3)
- » Create tree care and support programs for residents (see 4.2)
- » Support access to food-producing trees (see 8.2)

Private Commercial & Industrial

Private commercial and industrial properties are owned and managed by private businesses, such as office buildings, restaurants, and retail stores. This also includes apartment

buildings and rental properties with more than three rental units. The area of potential new tree canopy includes all space on private commercial or industrial property that is not covered by a building or existing tree canopy.

- » Protect trees in development, planning, design, and construction (see 2.1)
- » Strengthen tree planting and replacement requirements for development (see 3.3)

Campuses & Schools

Campuses and schools include all the School District of Philadelphia properties and charter schools, private schools, and university campuses.

Trees on properties overseen by the School District of Philadelphia are maintained through private landscape contracts. The decision to plant new trees is a choice made by each individual school.

- » Improve coordination among public agencies (see 1.3)
- » Prioritize large-scale street tree planting (see 3.6)
- » Hire urban forestry community organizers (see 7.2)

City Facilities

City facilities include areas owned and managed by the City, such as agency offices, police stations, and maintenance facilities.

- » Improve coordination among public agencies (see 1.3)
- » Protect trees in development, planning, design, and construction (see 2.1)
- » Strengthen tree planting and replacement requirements for development (see 3.3)
- » Prioritize establishment care of newly planted trees (see 3.5)
- » Plan for a resilient future forest (see 3.7)
- » Develop a proactive inspection cycle for maintenance of public trees (see 4.1)

Public Facilities

Public facilities include property managed by agencies or organizations that serve the public but are not part of the City government, such as transit stations, hospitals, and public housing developments. Planting on this area requires approval from landowners.

- » Develop tree planting design standards (see 3.4)
- » Prioritize establishment care of newly planted trees (see 3.5)
- » Prioritize large-scale street tree planting (see 3.6)
- » Hire urban forestry community organizers (see 7.2)

Neighborhood Parks

Neighborhood parks include all landscaped parks in Philadelphia, including ballfields, courts, open lawns, picnic areas, and recreation centers. Philadelphia Parks and Recreation manages these spaces.

- » Improve coordination among public agencies (see 1.3)
- » Work with communities to grow new tree canopy (see 3.1)
- » Prioritize establishment care of newly planted trees (see 3.5)
- » Prioritize large-scale street tree planting (see 3.6)
- » Plan for a resilient future forest (see 3.7)
- » Develop a proactive inspection cycle for maintenance of public trees (see 4.1)
- » Hire urban forestry community organizers (see 7.2)

Natural Land

Natural land includes natural areas within the public park system managed by Philadelphia Parks & Recreation, such as the Wissahickon Valley Park and Pennypack Park. It also contains natural areas that are federally managed, such as the John Heinz National Reserve, and natural lands managed by private non-profits such as the Schuylkill Center for Environmental Education.

- » Improve coordination among public agencies (see 1.3)
- » Restore and protect natural lands (see 2.2)
- » Develop a proactive inspection cycle for maintenance of public trees (see 4.1)
- » Hire urban forestry community organizers (see 7.2)

Unmanaged land

Unmanaged land includes trees on vacant lots that are not maintained and alleys where ownership is unclear. Trees in these locations usually consist of undesirable tree species that pose risks to houses and infrastructure.

- » Create tree care and support programs for residents (see 4.2)
- » Expand local career opportunities (see 5.1)

CITYWIDE TREE CANOPY GROWTH COST PROJECTIONS

The future growth of Philadelphia’s tree canopy requires all partners to work together to plant and care for new trees across the city, and the cost will be distributed among all partners. Calculating the cost of growing the urban tree canopy is complex and the following projections are provided as a tool to understand the order of magnitude of the challenge.

Calculating the complete cost of planting a tree by management unit

The cost of planting a tree and providing establishment care depends on many factors, including where a tree is planted, how it is planted, and who is planting it. The complete cost of planting trees in each Management Unit has been estimated for the purposes of developing cost projections for growing the urban forest over the next 30 years. The estimated complete cost by management unit is lower than the “embodied cost” referenced in recommendation 3.2 of this plan because the complete cost does not include staff time of City employees or regulatory review costs. The following factors are considered as part of estimating the complete cost of planting a tree in each management unit:

- » Tree size - larger trees cost more to transport and require more labor to plant them
- » Equipment - some trees can be planted using hand tools while others require heavy equipment
- » Tree pit preparation - trees that are planted in spaces that are dominated by pavement require more resources to make space for root systems
- » Ease of establishment care - easy access to water is the primary factor in the cost of caring for young trees
- » Non-profit support - non-profit organizations can often plant trees at a lower cost than the City

management unit	requires a large caliper tree	requires heavy equipment	requires engineered tree pit	requires more inputs for establishment care	less opportunity for non-profit planting	estimated complete cost/tree
Street Trees	X	X	X	X		\$ 900
Residential Yards						\$ 100
Campuses & Schools	X			X		\$ 800
City Facilities	X	X		X	X	\$ 800
Public Facilities	X	X		X		\$ 800
Neighborhood Parks				X		\$ 500

Planting trees in parks and natural lands

Parks and natural areas make up over 40% of the total tree canopy in Philadelphia. Natural Lands have an average tree canopy cover of 72% and Neighborhood Parks have 35%. In these areas, new trees must be planted to maintain the existing tree canopy and to increase the overall health and resiliency of the urban forest. In Neighborhood Parks, new trees must be planted to replace those that are lost. In Natural Lands, large areas need to be restored and planted with native and adaptive species if these areas are going to continue to function and provide vital ecosystem services for future generations.

management unit	2018 canopy cover %	2018 rate of canopy loss	# trees to plant to replace canopy lost annually	estimated complete cost/tree	annual cost to replace canopy loss
Neighborhood Parks	35%	12%	2,747	\$ 500	\$ 1,373,000

management unit	2018 canopy cover %	# acres of canopy cover	# acres added annually to reach full management by 2050	estimated management cost / acre	annual cost of management
Natural Lands	72%	4,517	151	26,000	\$ 3,915,000

Phased cost projections for tree canopy growth

The following cost projection is based on reaching 30% tree canopy cover in all management units over a 30 year time period. These projections take into account projected tree canopy loss rates, growth rates of existing trees, and mortality rates of newly planted trees. The average cost of reaching 30% tree canopy cover in 30 years is \$25.5 million / year. For comparison, this represents less than 0.5% of the City budget for FY 2022. The funding to accomplish this tree canopy growth will come from many sources, including foundations, state and federal grants, City budgets, corporate sponsorships, and development fees. Recommendations that call for City funding will need to go through the standard budget process to receive City funds.

2030 CANOPY PROJECTION

management unit	2018 canopy cover %	2030 canopy cover target %	# trees to reach canopy 2030 target	estimated complete cost/tree	cost to reach 2030 target
Street Trees	10%	17%	142,241	\$ 900	\$ 128,017,000
Residential Yards	19%	23%	136,162	\$ 100	\$ 13,616,000
Commercial Industrial	10%	17%	134,251	\$ 500	\$ 67,125,000
Campuses & Schools	17%	21%	21,675	\$ 800	\$ 17,340,000
City Facilities	11%	18%	30,863	\$ 800	\$ 24,690,000
Public Facilities	10%	17%	37,820	\$ 800	\$ 30,256,000
tree planting cost subtotal					\$ 281,044,000
private development contribution*					\$ (34,902,000)
total cost to reach 2030 target					\$ 246,142,000

2040 CANOPY PROJECTION

management unit	2018 canopy cover %	2040 canopy cover target %	# trees to reach canopy 2040 target	estimated complete cost/tree	cost to reach 2040 target
Street Trees	10%	23%	146,529	\$ 900	\$ 131,876,000
Residential Yards	19%	26%	124,488	\$ 100	\$ 12,449,000
Commercial Industrial	10%	23%	130,929	\$ 500	\$ 65,464,000
Campuses & Schools	17%	26%	24,742	\$ 800	\$ 19,794,000
City Facilities	11%	24%	30,982	\$ 800	\$ 24,786,000
Public Facilities	10%	23%	36,851	\$ 800	\$ 29,481,000
tree planting cost subtotal					\$ 283,850,000
private development contribution*					\$ (34,902,000)
total cost to reach 2040 target					\$ 248,948,000

2050 CANOPY PROJECTION

management unit	2018 canopy cover %	2050 canopy cover target %	# trees to reach canopy 2050 target	estimated complete cost/tree	cost to reach 2050 target
Street Trees	10%	30%	169,277	\$ 900	\$ 152,350,000
Residential Yards	19%	30%	138,086	\$ 100	\$ 13,809,000
Commercial Industrial	10%	30%	121,544	\$ 500	\$ 60,772,000
Campuses & Schools	17%	30%	23,638	\$ 800	\$ 18,911,000
City Facilities	11%	30%	31,101	\$ 800	\$ 24,881,000
Public Facilities	10%	30%	40,599	\$ 800	\$ 32,480,000
tree planting cost subtotal					\$ 303,203,000
private development contribution*					\$ (34,902,000)
total cost to reach 2050 target					\$ 268,301,000

* Includes the value of trees planted and fee-in-lieu paid referenced in goal 3.2

Calculated benefits

400 premature deaths avoided / year based on the combined health impacts of a tree canopy cover of 30% in Philadelphia.

+

1,000 full time jobs over the course of 30 years.

+

\$20 million / year in combined environmental benefits including reduced air pollution, carbon sequestration, reduction in residential energy consumption, and stormwater management.

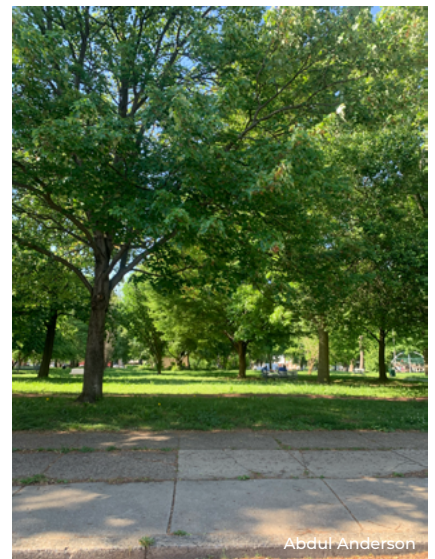
+

\$50 million / year in captured value from reduced robbery and theft based on a projected 12% reduction in crime associated with increased tree canopy cover.

PRIORITY AREA TREE CANOPY ANALYSIS AND COST PROJECTIONS

The Philly Tree Plan identifies areas of priority to support equity in tree canopy growth and management (see 1.2). Tree canopy growth in these areas will have the most significant impact on public health, wellbeing, and quality of life. Planning for tree canopy growth must happen in collaboration with the communities that live in these areas (see 3.1) to reduce the potential for burden and increase benefit.

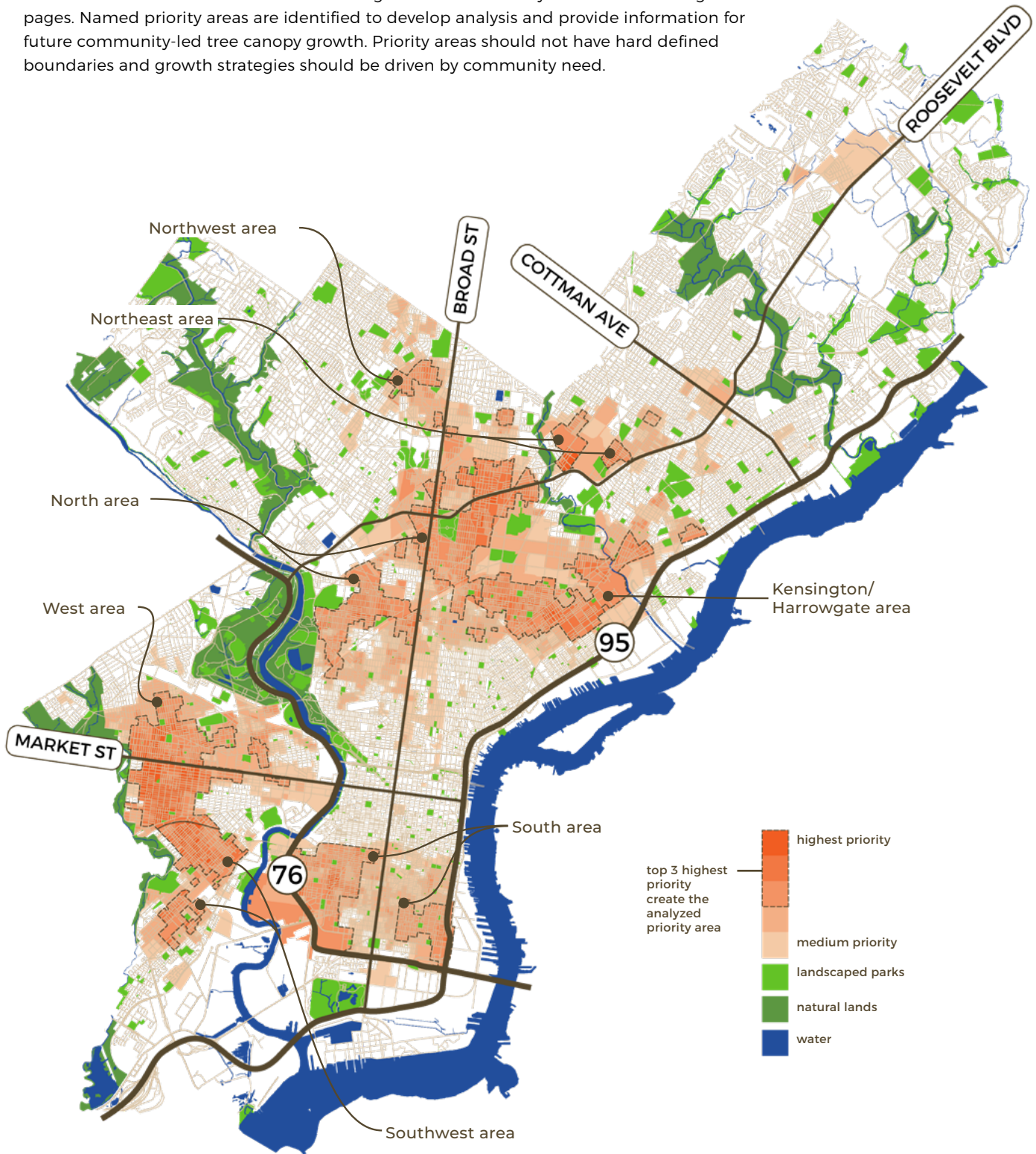
The following pages contain analysis of the existing tree canopy in the areas with the highest priority. This is intended to be used as a tool for setting the stage for a community-led planning process that will guide how and where tree canopy growth should occur to support the specific needs of each unique neighborhood and community.



Photos of trees in different neighborhoods of Philadelphia taken by Neighborhood Ambassadors

PRIORITY ANALYSIS AREAS

Dashed lines show the boundaries of the regions that were analyzed in the following pages. Named priority areas are identified to develop analysis and provide information for future community-led tree canopy growth. Priority areas should not have hard defined boundaries and growth strategies should be driven by community need.

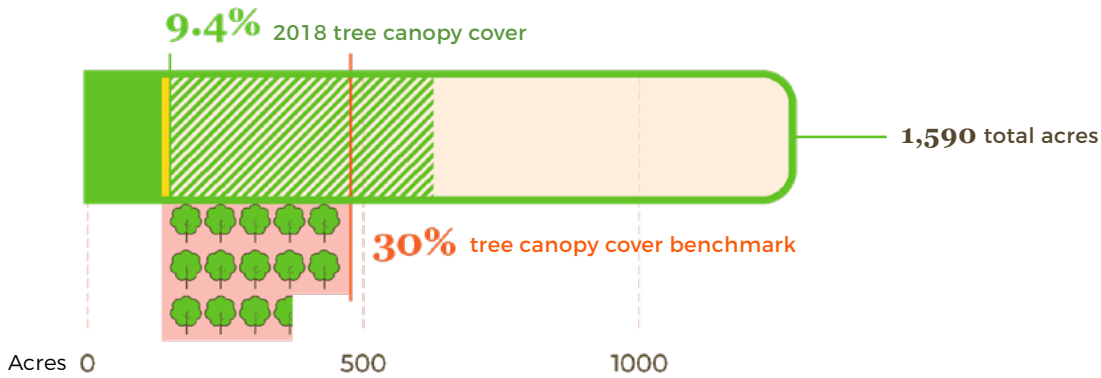


Priority area analysis - WEST

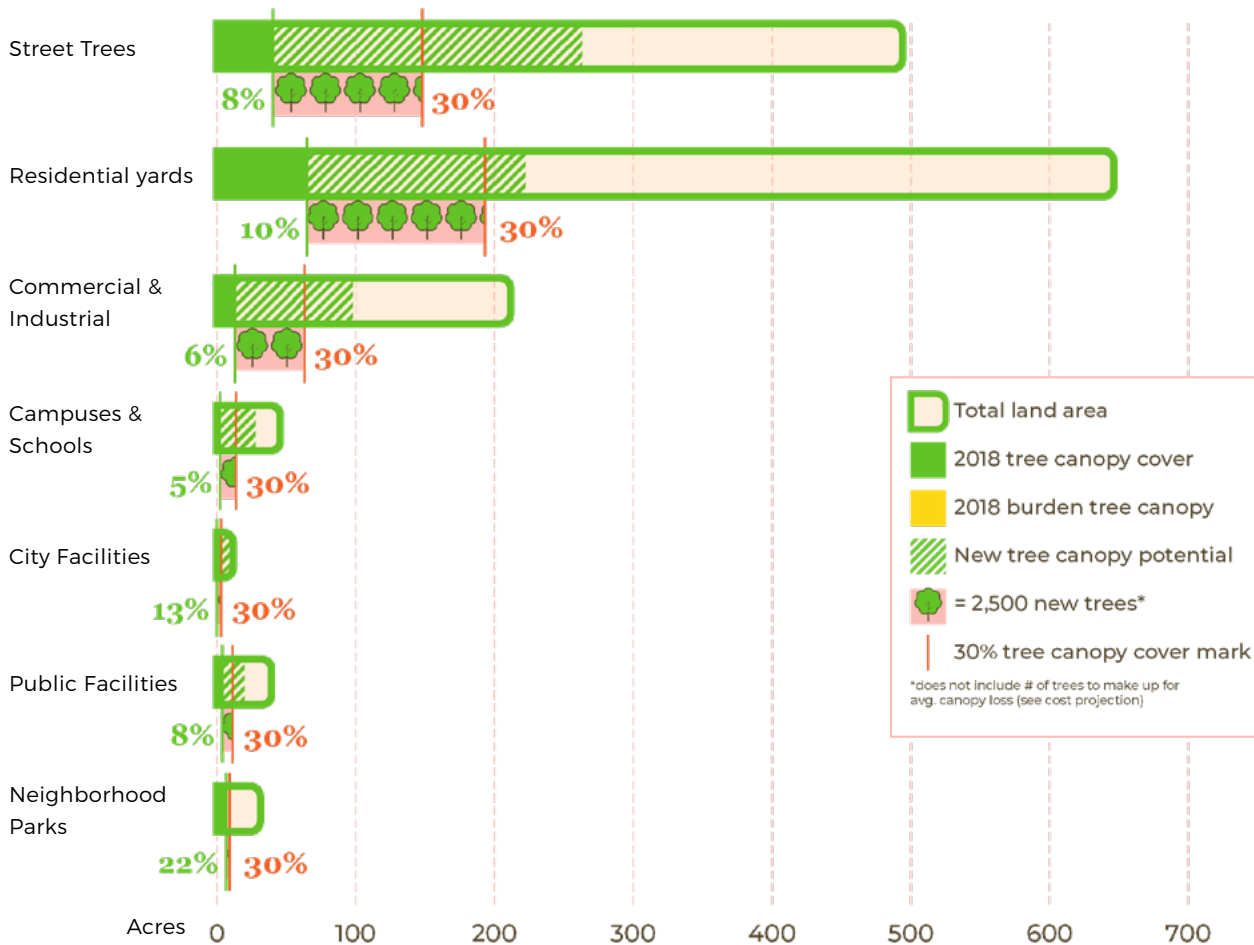
This area is characterized by two-story row homes with small front and rear yards. The commercial corridors and most residential streets are two to four lanes with only a few one way streets and alleys. Many existing trees are over mature and near the end of their life. Cobbs Creek Park is a significant asset to this community, providing access to a large contiguous forest.

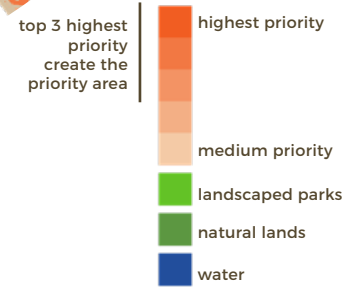
To achieve the 30% tree canopy goal strategies must be identified for new tree planting along the streets, in residential yards, and to replace aging or dying trees. Over the past decade, street trees have experienced the greatest percentage of loss with a 15% decline from 2008-2018.

TOTAL CANOPY



CANOPY BREAKDOWN





Schools

- Andrew Hamilton School
- Boys Latin Charter Middle School
- Commodore Barry Elementary School
- Holmes School
- John P. Turner Middle School
- KIPP West Phila Prep Charter School

- Mastery Charter School Harrity Elementary
- Sayre Junior High School
- Tilden Middle School
- Universal Bluford Charter School
- Universal Daroff Charter School
- W. C. Bryant Promise Academy

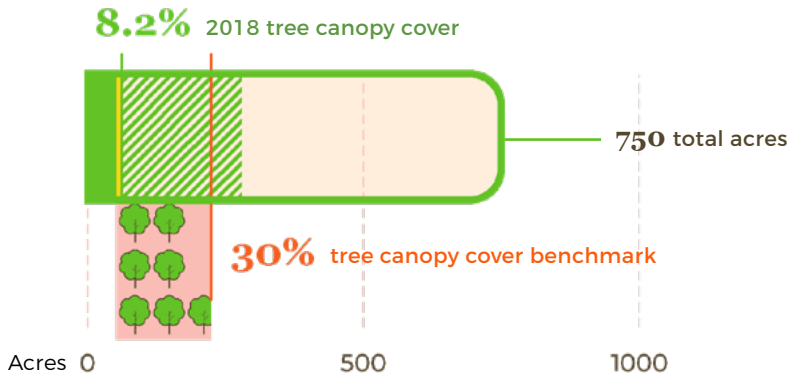
- W.C. Longstreth Elementary School
- West Philadelphia Achievement Charter Elementary School

Priority area analysis - SOUTHWEST

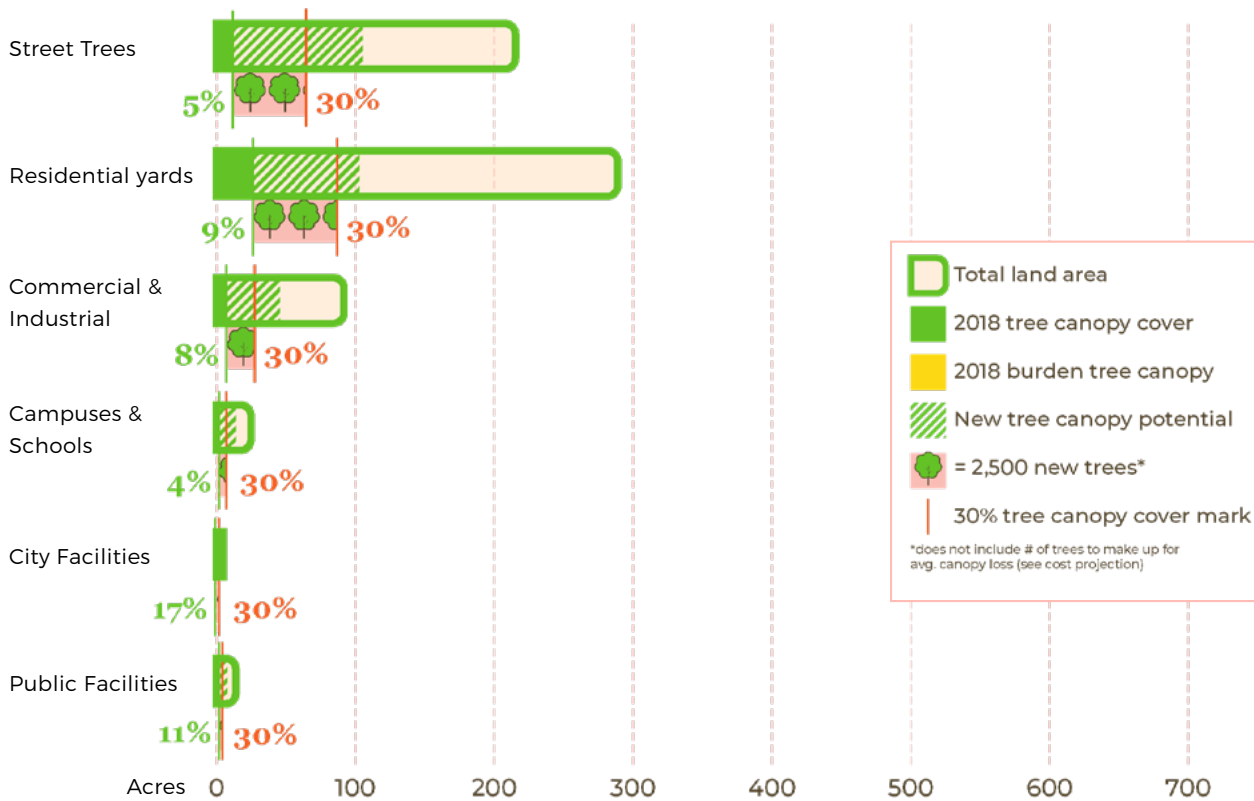
This area is characterized by two- or three-story row homes, commercial corridors with surface parking, and large industrial areas.

To achieve the 30% tree canopy goal strategies must be identified for new tree planting along the streets, in residential yards, and in collaboration with landlords and other commercial or industrial land owners. Opportunities for green corridors that connect the neighborhood to Cobbs Creek Park, Bartram's Garden or other green spaces should be considered.

TOTAL CANOPY



CANOPY BREAKDOWN





Schools

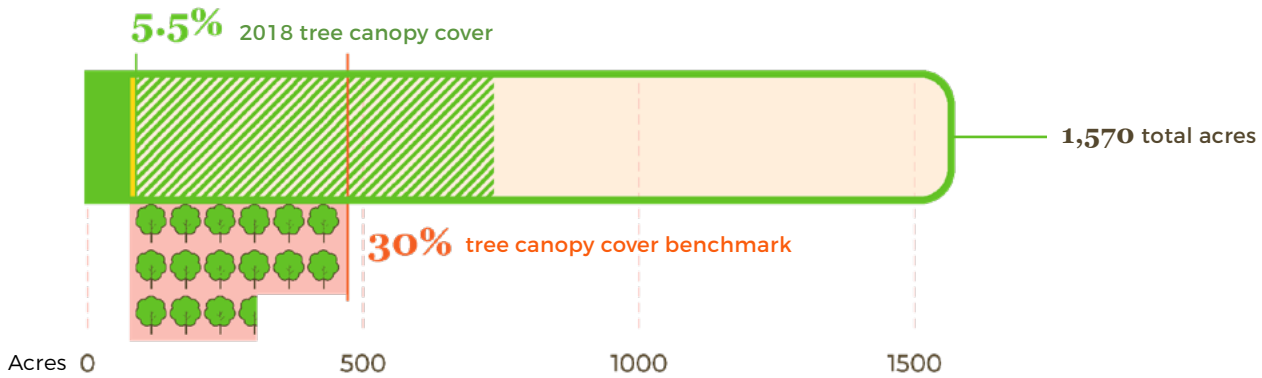
- John M. Patterson Elementary School
- Stages Community School
- Thomas G. Morton Elementary School
- Tilden Middle School

Priority area analysis - SOUTH

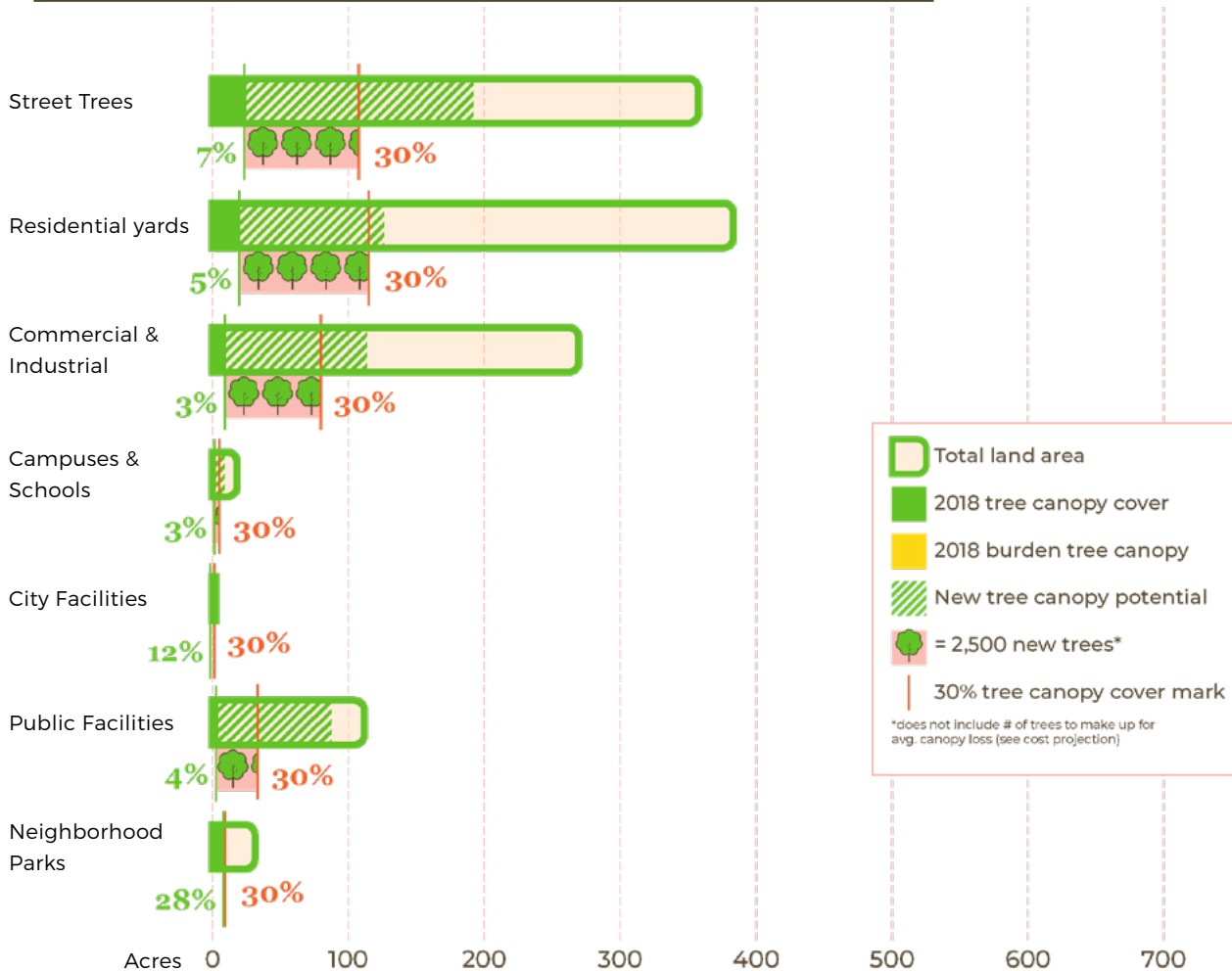
This area is characterized by row homes with front stoops and small rear yards or alleys. Buildings are densely built along narrow streets with narrow sidewalks. It is adjacent to areas of air pollution including highways and industry. This area has the lowest total tree canopy cover in the city at only 5.5% and very high development pressure.

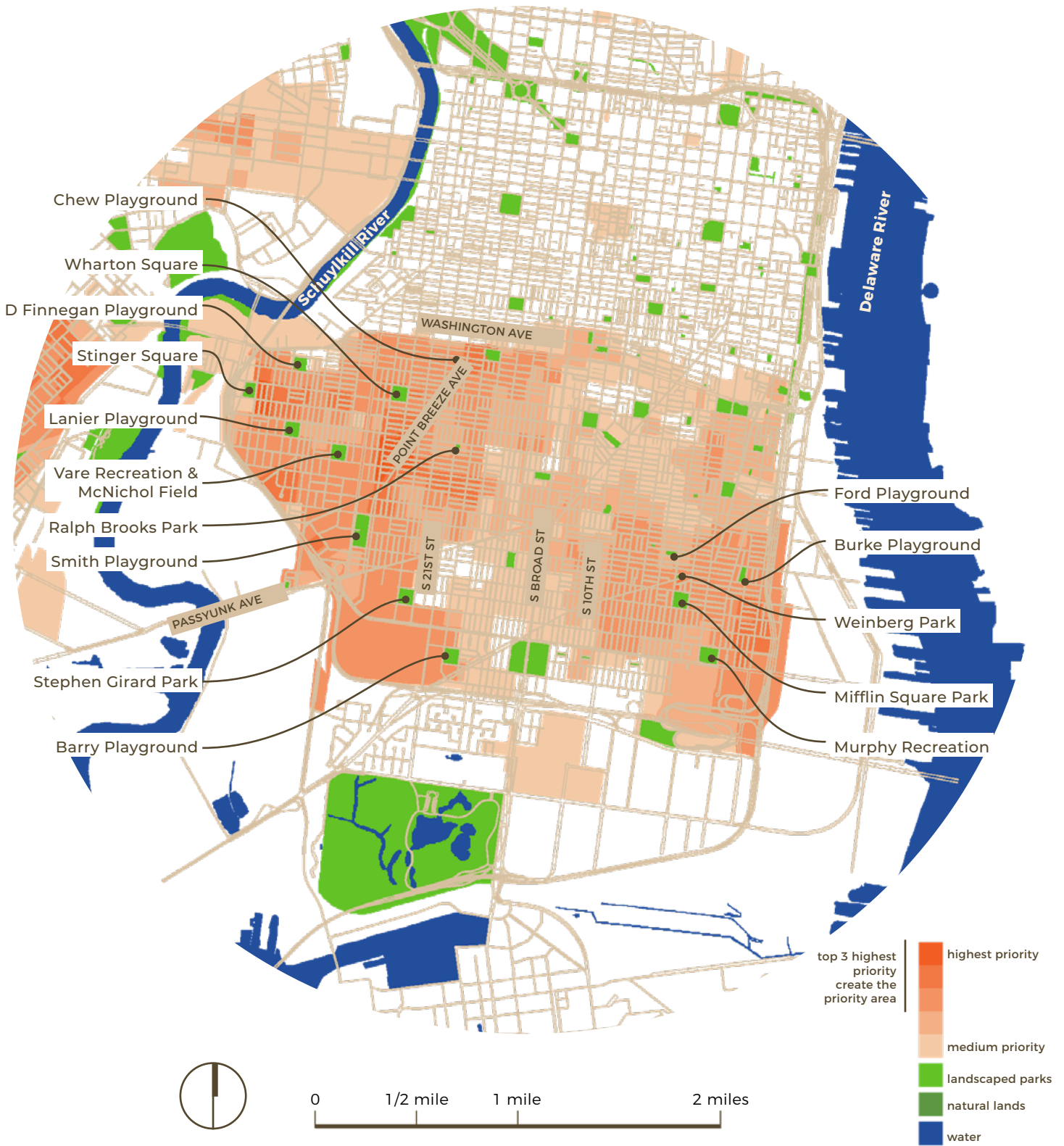
To achieve the 30% tree canopy goal strategies must be identified for new tree planting along the streets, in residential yards, and in collaboration with landlords and other commercial or industrial land owners. There are also opportunities to increase tree canopy in collaboration with Philadelphia Housing Authority and within existing Parks.

TOTAL CANOPY



CANOPY BREAKDOWN





Schools

- Charles Y. Audenried High School
- Children's School
- Delaphine McDaniel School
- Francis Scott Key School
- Furness High School

- G.W Childs Elementary School
- George W. Sharswood
- Girard Academic Music Program
- John H. Taggart
- Mitchell Elementary Middle School

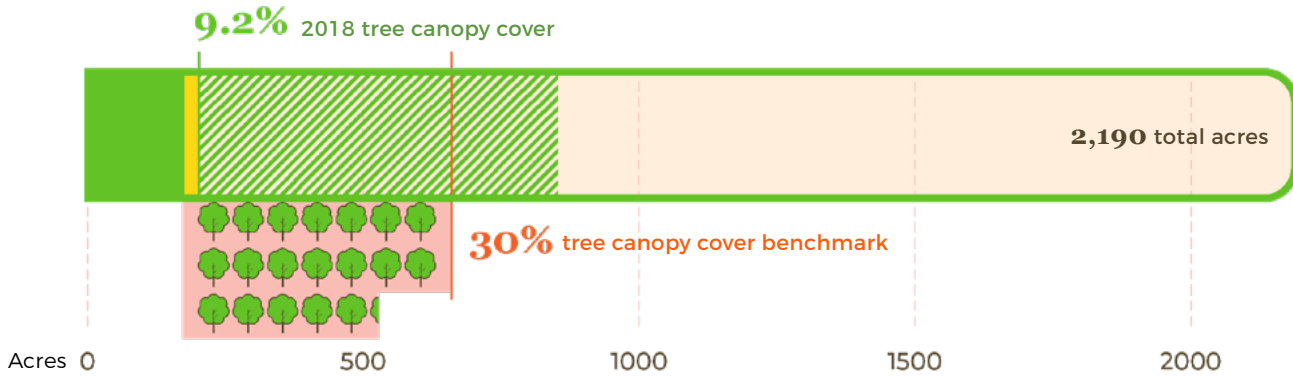
- Preparatory Charter School
- Project P.L.A.Y. School
- St. Gabriel School
- Universal Audenried Charter School
- Universal Vare Charter School

Priority area analysis - NORTH

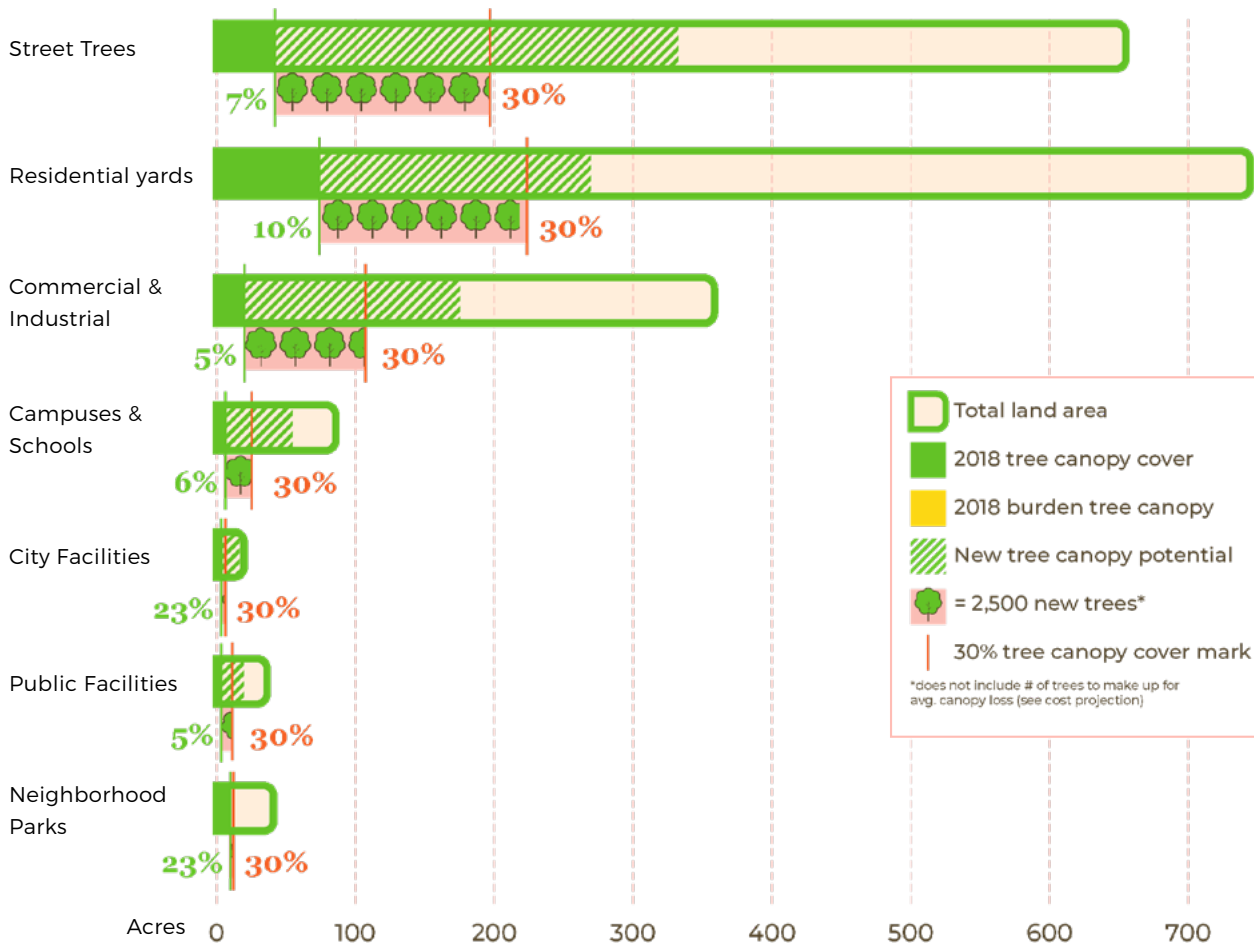
This area encompasses many different neighborhoods. It is characterized by row houses and areas of high vacancy with a significant amount of unmanaged tree canopy in vacant lots. There are several large parks within proximity including Hunting Park and Fairmount Park, but opportunities for access to parks within the area are limited.

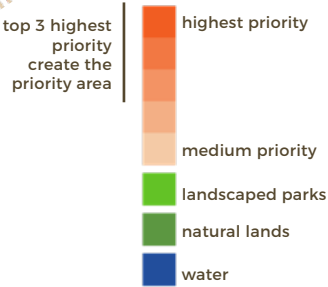
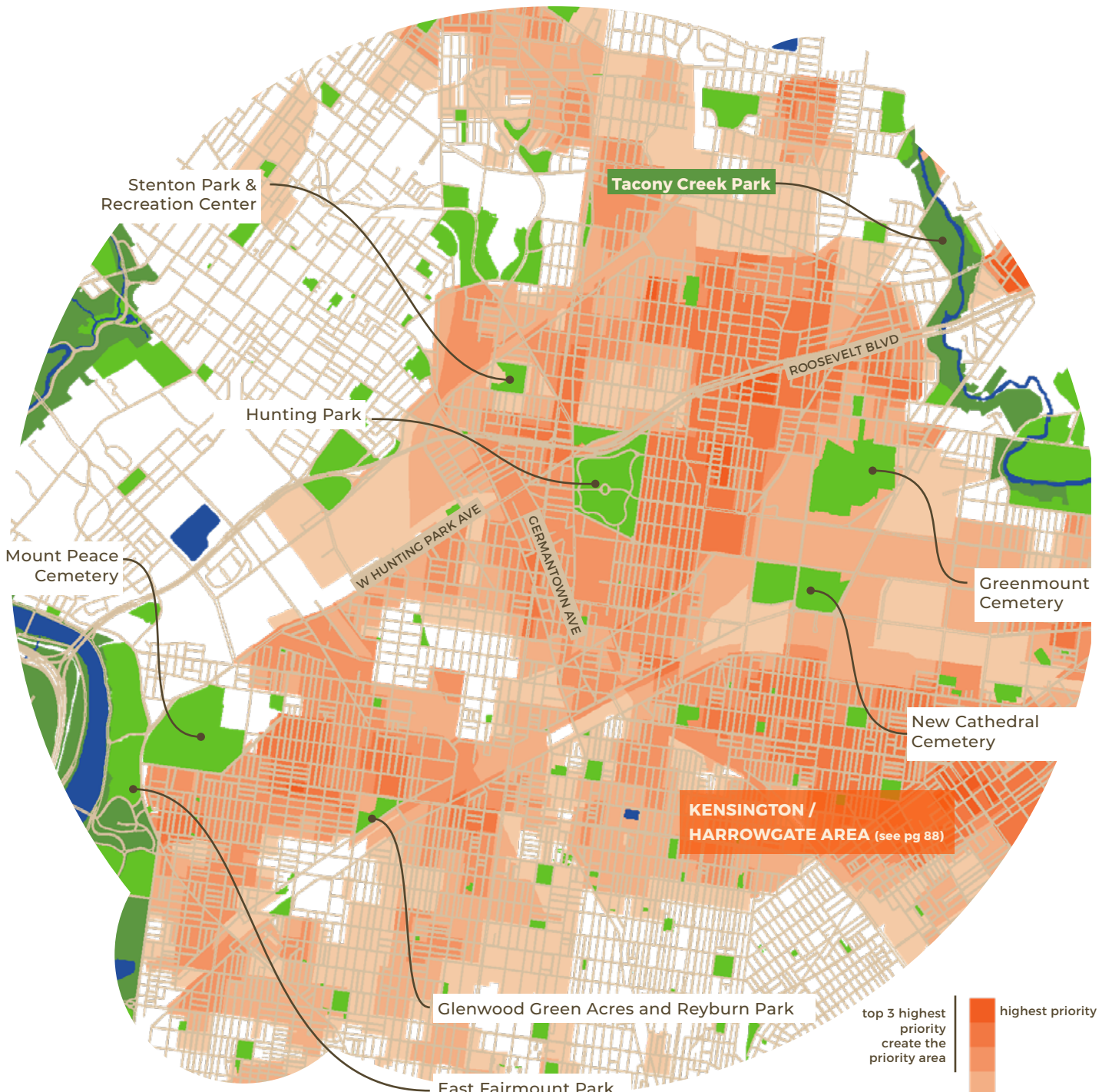
To achieve the 30% tree canopy goal strategies must be identified for new tree planting along the streets, in residential yards, and in collaboration with landlords and other commercial or industrial land owners. Providing support to deal with unmanaged tree canopy should be a priority. Vacant lots may present an opportunity to for new green spaces. Given the number of schools, opportunities to collaborate with schoolyard greening efforts should also be considered.

TOTAL CANOPY



CANOPY BREAKDOWN





Schools

- Alexander K. McClure Elementary
- Andrew J. Morrison School
- ASPIRA, Inc. of Pennsylvania
- Bayard Taylor School
- Carson Valley School
- Cayuga Elementary School
- Cooke Junior High School
- Dr. Ethel D. Allen School
- Esperanza Cyber Charter School
- Grover Cleveland Mastery Charter School

- Harold O. Davis Christian School & Development Center
- Hunting Park Christian Academy
- Hunting Park Christian Academy
- Jay Cooke Elementary School
- KIPP Philadelphia Elementary Academy
- Lancaster Bible College
- Little Flower High School
- LOGAN Hope School
- Mary McLeod Bethune School
- Mastery Prep Elementary Charter School

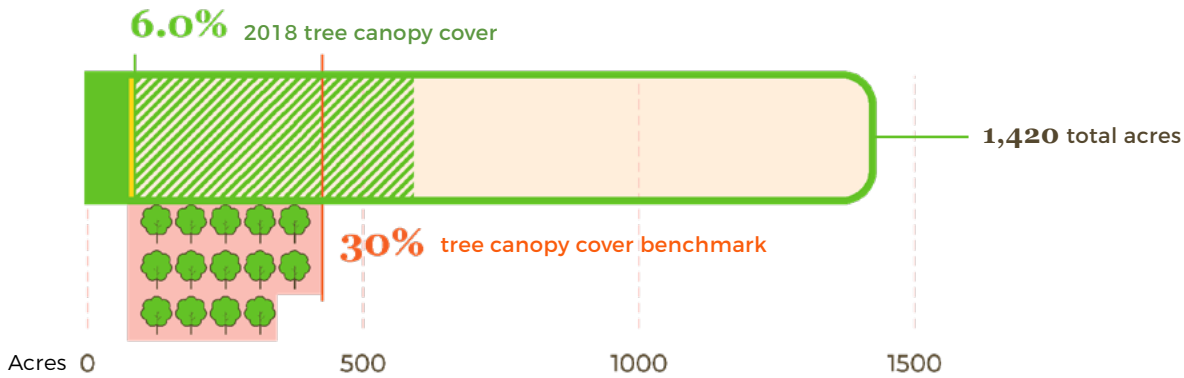
- Multicultural Academy Charter School
- Munoz-Marin Luis Elementary School
- Potter-Thomas Elementary School
- Saint Henry's School
- St. Martin de Porres School
- Stages Community School
- Strawberry Mansion High School
- Timothy Academy
- TM Peirce School
- Vocation Career Prep School

Priority area analysis - KENSINGTON / HARROWGATE

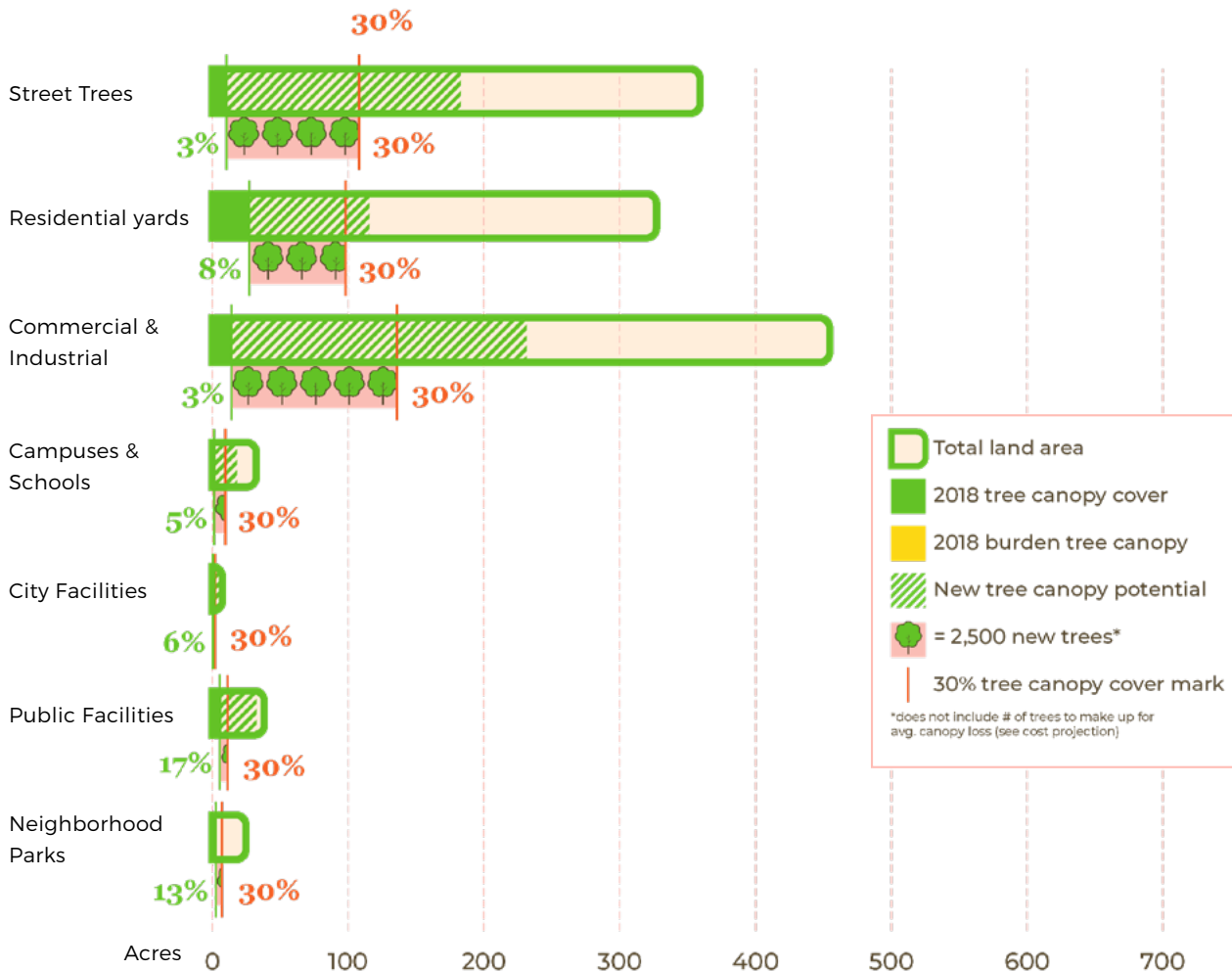
This area is characterized by row homes with front stoops and small rear yards or alleys. Residential streets are narrow while many commercial corridors are much wider. There is a high volume of industrial areas and vacancy.

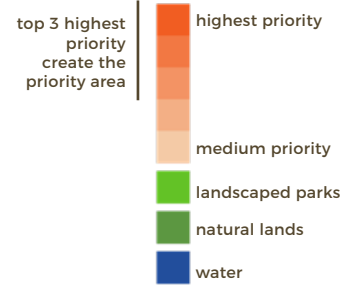
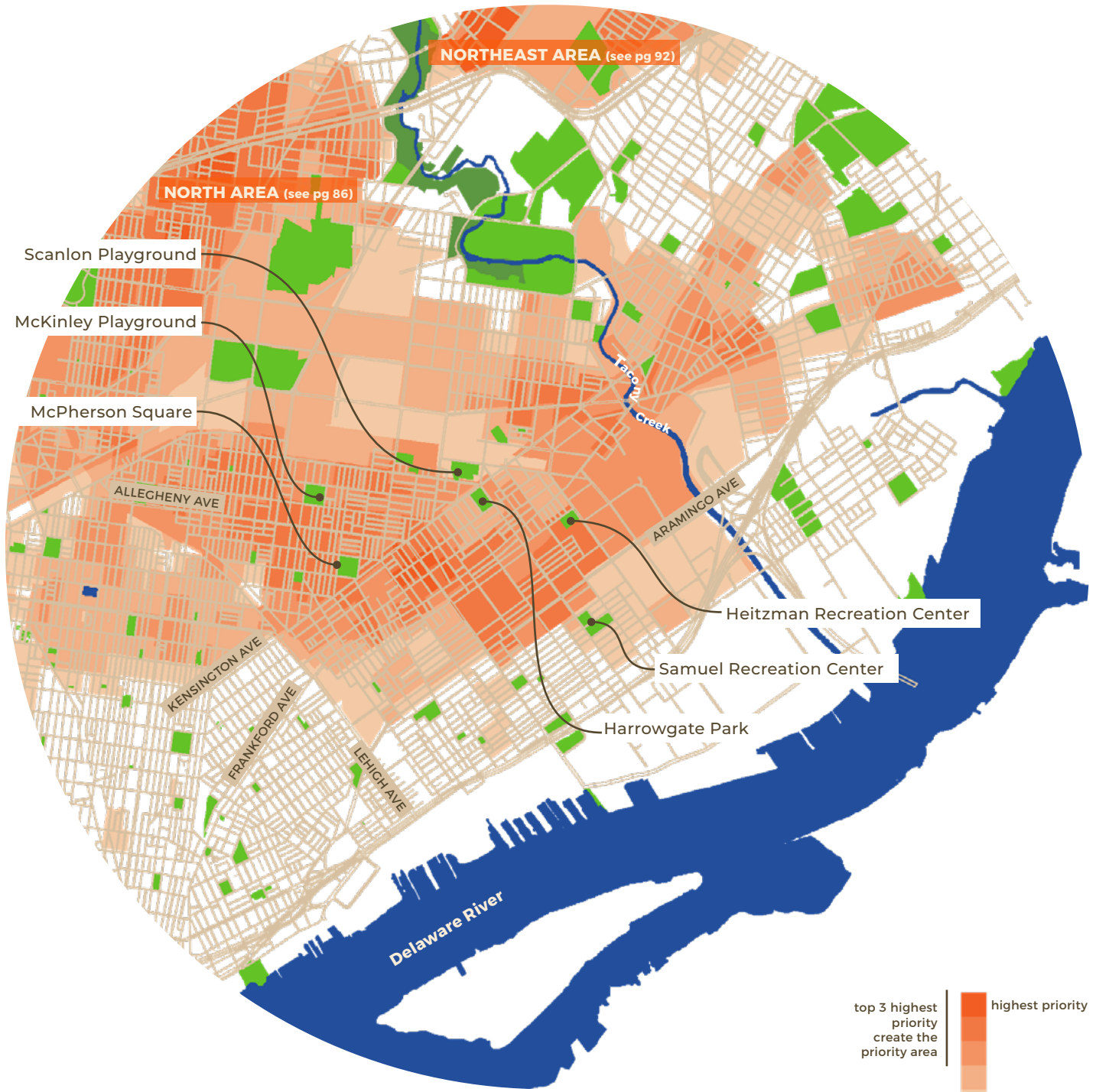
To achieve the 30% tree canopy goal strategies must be identified for new tree planting along the streets, in residential yards, and in collaboration with landlords and other commercial or industrial land owners. This area has been experiencing extreme pressure from the opioid crisis which needs to be considered when developing strategies.

TOTAL CANOPY



CANOPY BREAKDOWN





Schools

- Allen M. Stearne School
- Conwell Middle School
- Deep Roots Charter School
- Esperanza Academy Charter School
- Frances E. Willard Elementary School
- Franklin Town Charter School

- Hopkinson School
- Horn School
- John H. Webster School
- Jones Alternative School
- Lewis Elkin Elementary School
- NSCA Willard Annex

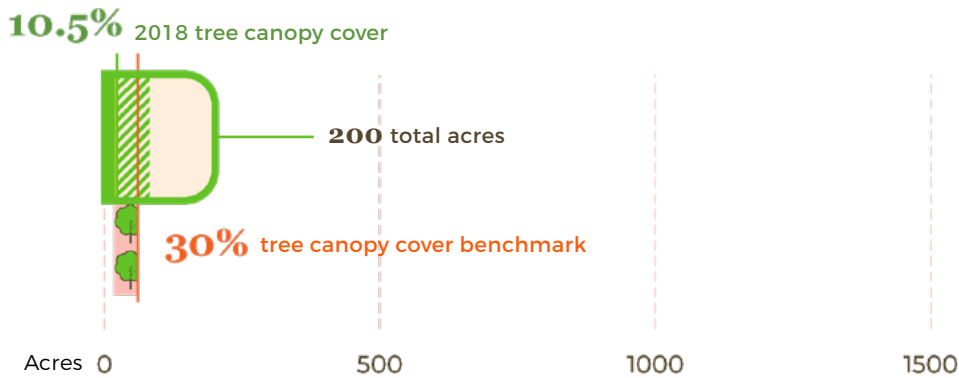
- Philip Sheridan School
- Powers School

Priority area analysis - NORTHWEST

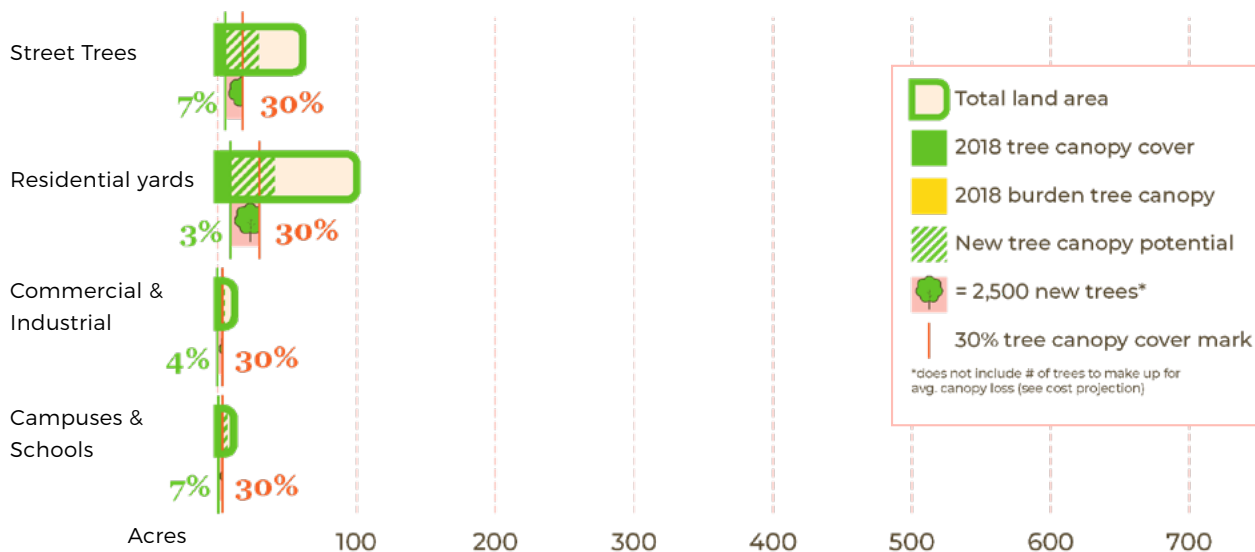
This area is characterized by two story row homes with small front yards and ample rear yards with drivable alleys. The streets are wide with some narrow sidewalks.

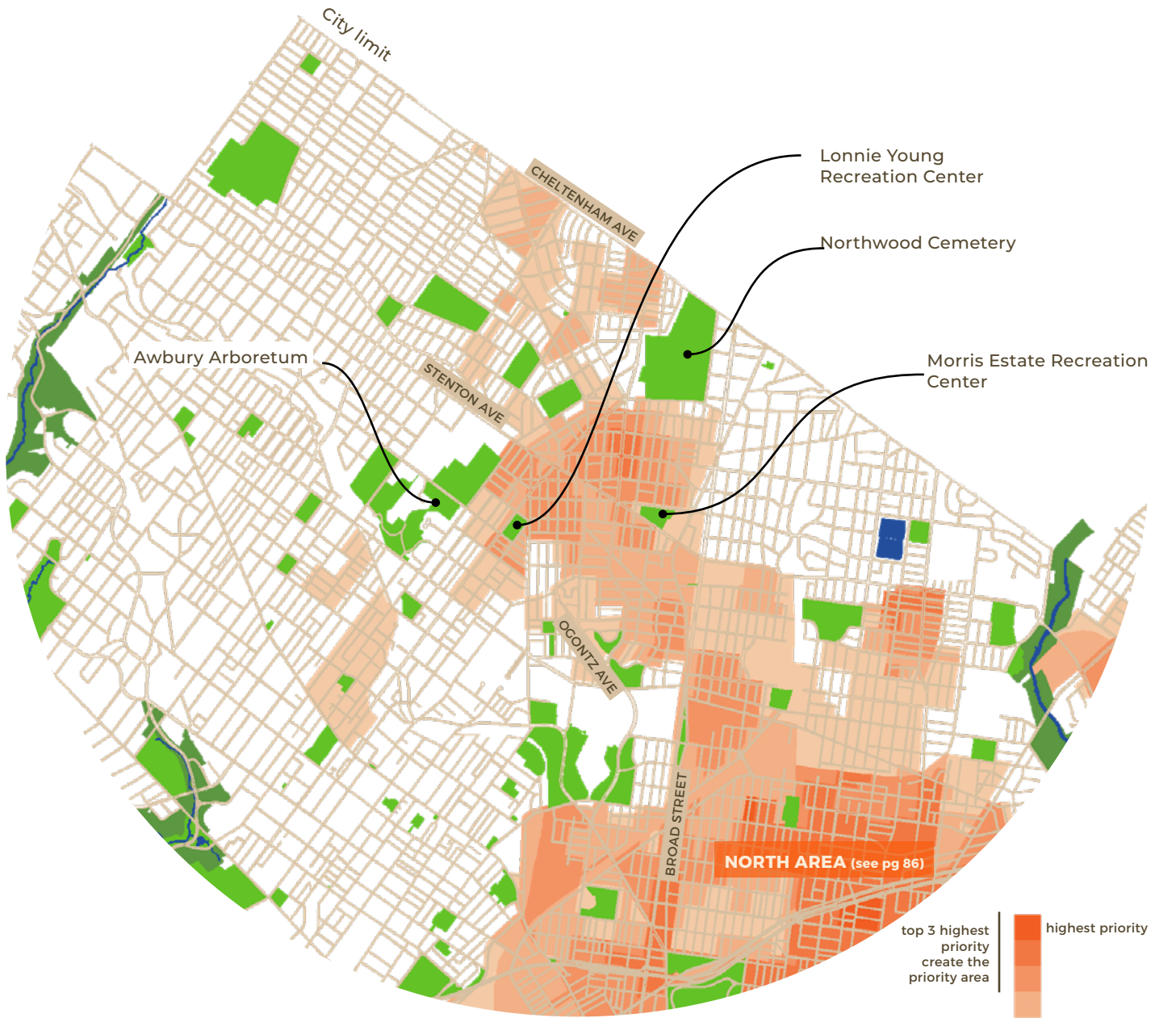
To achieve the 30% tree canopy goal strategies must be identified for new tree planting along the streets and in residential yards.

TOTAL CANOPY



CANOPY BREAKDOWN





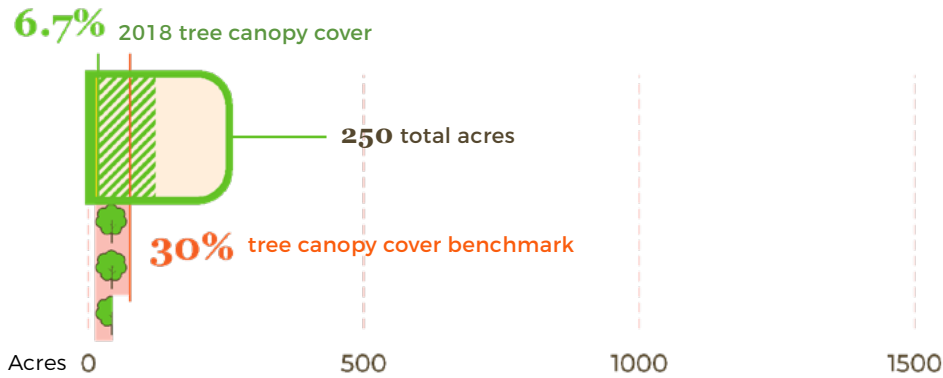
Schools
 John L. Kinsey School
 Wagner Middle School

Priority area analysis - NORTHEAST

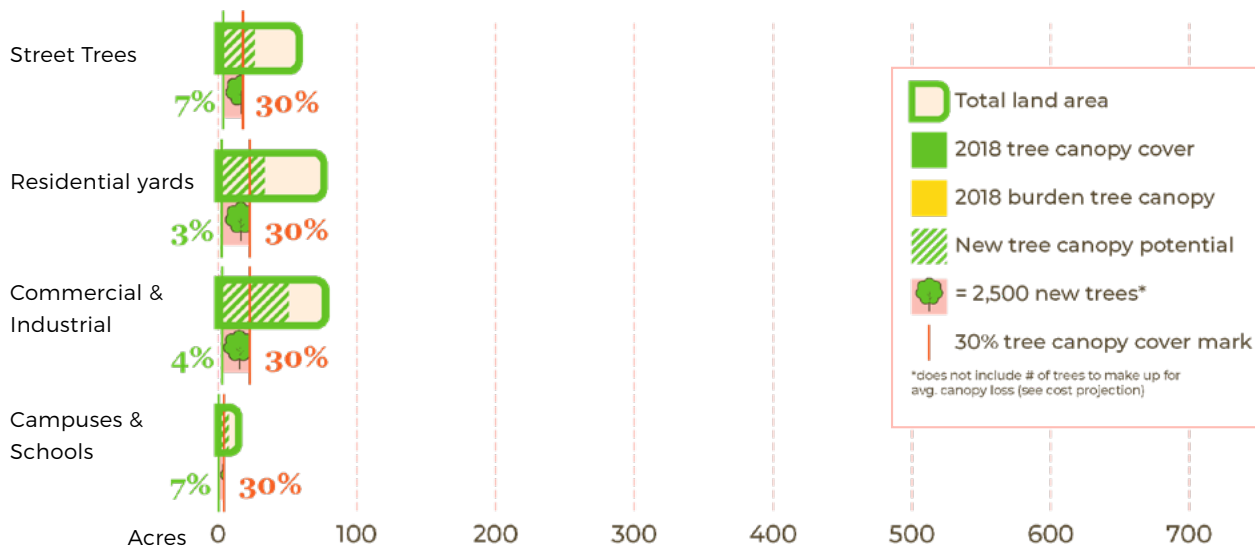
This area is characterized by two story homes with moderate front yards and paved back alleys with rear parking. The residential streets are wide with narrow sidewalks while the commercial corridors have very wide sidewalks and surface parking lots.

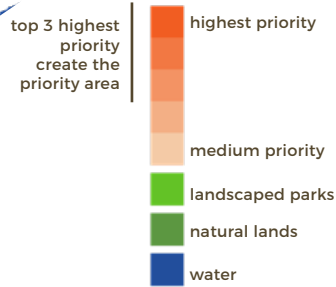
To achieve the 30% tree canopy goal strategies must be identified for new tree planting in residential yards, and commercial streets, and in collaboration with landlords and other commercial or industrial land owners.

TOTAL CANOPY



CANOPY BREAKDOWN





Schools

- International Christian High School
- Samuel Fels High School
- Thomas Creighton School

Priority area cost projections

The following cost projections are based on the priority area analysis of the canopy in each of the management units. The projections are based on the target of reaching 30% canopy cover in each management unit over a 30 year time period. These projections include projected canopy loss rates, growth rates of existing trees, and mortality rates of newly planted trees. These projections are intended to be used as a tool for understanding the order of magnitude of the challenge.

The total cost total to reach 30% canopy cover in all of the priority areas is approximately \$98 million.

WEST AREA

management unit	2018 canopy cover %	# trees to reach 30% canopy cover	estimated complete cost/tree	total cost to reach 2030 target	annual cost to reach 30% in 30 years
Street Trees	8%	13,454	\$ 900	\$ 12,108,000	\$ 404,000
Residential Yards	10%	15,359	\$ 100	\$ 1,536,000	\$ 51,000
Commercial & Industrial	6%	5,831	\$ 500	\$ 2,915,000	\$ 97,000
Campuses & Schools	5%	1,316	\$ 800	\$ 1,053,000	\$ 35,000
City Facilities	13%	230	\$ 800	\$ 184,000	\$ 6,000
Public Facilities	8%	1,051	\$ 800	\$ 840,000	\$ 28,000
Neighborhood Parks	22%	289	\$ 500	\$ 144,000	\$ 5,000
Total planting cost to reach 30% canopy cover					\$ 18,780,000
Total annual planting cost to reach 30% canopy cover in 30 years					\$ 626,000

SOUTHWEST AREA

management unit	2018 canopy cover %	# trees to reach 30% canopy cover	estimated complete cost/tree	total cost to reach 2030 target	annual cost to reach 30% in 30 years
Street Trees	5%	6,513	\$ 900	\$ 5,862,000	\$ 195,000
Residential Yards	9%	7,211	\$ 100	\$ 721,000	\$ 24,000
Commercial & Industrial	8%	2,389	\$ 500	\$ 1,195,000	\$ 40,000
Campuses & Schools	4%	714	\$ 800	\$ 571,000	\$ 19,000
City Facilities	17%	84	\$ 800	\$ 67,000	\$ 2,000
Public Facilities	11%	327	\$ 800	\$ 261,000	\$ 9,000
Neighborhood Parks	NA	-	\$ 500	\$ -	\$ -
Total planting cost to reach 30% canopy cover					\$ 8,677,000
Total annual planting cost to reach 30% canopy cover in 30 years					\$ 289,000

SOUTH AREA

management unit	2018 canopy cover %	# trees to reach 30% canopy cover	estimated complete cost/tree	total cost to reach 2030 target	annual cost to reach 30% in 30 years
Street Trees	7%	10,238	\$ 900	\$ 9,214,000	\$ 307,000
Residential Yards	5%	11,130	\$ 100	\$ 1,113,000	\$ 37,000
Commercial & Industrial	3%	8,344	\$ 500	\$ 4,172,000	\$ 139,000
Campuses & Schools	3%	574	\$ 800	\$ 459,000	\$ 15,000
City Facilities	12%	54	\$ 800	\$ 43,000	\$ 1,000
Public Facilities	4%	3,447	\$ 800	\$ 2,758,000	\$ 92,000
Neighborhood Parks	28%	59	\$ 500	\$ 30,000	\$ 1,000
Total planting cost to reach 30% canopy cover					\$ 17,789,000
Total annual planting cost to reach 30% canopy cover in 30 years					\$ 592,000

NORTH AREA

management unit	2018 canopy cover %	# trees to reach 30% canopy cover	estimated complete cost/tree	total cost to reach 2030 target	annual cost to reach 30% in 30 years
Street Trees	7%	19,056	\$ 900	\$ 17,150,000	\$ 572,000
Residential Yards	10%	17,728	\$ 100	\$ 1,773,000	\$ 59,000
Commercial & Industrial	5%	10,258	\$ 500	\$ 5,129,000	\$ 171,000
Campuses & Schools	6%	2,377	\$ 800	\$ 1,902,000	\$ 63,000
City Facilities	23%	162	\$ 800	\$ 130,000	\$ 4,000
Public Facilities	5%	1,061	\$ 800	\$ 849,000	\$ 28,000
Neighborhood Parks	23%	311	\$ 500	\$ 156,000	\$ 5,000
Total planting cost to reach 30% canopy cover					\$ 27,089,000
Total annual planting cost to reach 30% canopy cover in 30 years					\$ 902,000

KENSINGTON / HARROWGATE AREA

management unit	2018 canopy cover %	# trees to reach 30% canopy cover	estimated complete cost/tree	total cost to reach 2030 target	annual cost to reach 30% in 30 years
Street Trees	3%	11,759	\$ 900	\$ 10,583,000	\$ 353,000
Residential Yards	8%	8,333	\$ 100	\$ 833,000	\$ 28,000
Commercial & Industrial	3%	14,131	\$ 500	\$ 7,065,000	\$ 236,000
Campuses & Schools	5%	926	\$ 800	\$ 741,000	\$ 25,000
City Facilities	6%	206	\$ 800	\$ 165,000	\$ 6,000
Public Facilities	17%	596	\$ 800	\$ 476,000	\$ 16,000
Neighborhood Parks	13%	413	\$ 500	\$ 206,000	\$ 7,000
Total planting cost to reach 30% canopy cover					\$ 20,069,000
Total annual planting cost to reach 30% canopy cover in 30 years					\$ 671,000

NORTHWEST AREA

management unit	2018 canopy cover %	# trees to reach 30% canopy cover	estimated complete cost/tree	total cost to reach 2030 target	annual cost to reach 30% in 30 years
Street Trees	7%	1,560	\$ 900	\$ 1,404,000	\$ 47,000
Residential Yards	3%	2,386	\$ 100	\$ 239,000	\$ 8,000
Commercial & Industrial	4%	355	\$ 500	\$ 177,000	\$ 6,000
Campuses & Schools	7%	280	\$ 800	\$ 224,000	\$ 7,000
City Facilities	NA	-	\$ 800	\$ -	\$ -
Public Facilities	10%	13	\$ 800	\$ 10,000	\$ 300
Neighborhood Parks	NA	-	\$ 500	\$ -	\$ -
Total planting cost to reach 30% canopy cover					\$ 2,054,000
Total annual planting cost to reach 30% canopy cover in 30 years					\$ 68,300

NORTHEAST AREA

management unit	2018 canopy cover %	# trees to reach 30% canopy cover	estimated complete cost/tree	total cost to reach 2030 target	annual cost to reach 30% in 30 years
Street Trees	7%	1,667	\$ 900	\$ 1,500,000	\$ 50,000
Residential Yards	3%	2,336	\$ 100	\$ 234,000	\$ 8,000
Commercial & Industrial	4%	2,342	\$ 500	\$ 1,171,000	\$ 39,000
Campuses & Schools	7%	398	\$ 800	\$ 318,000	\$ 11,000
City Facilities	NA	-	\$ 800	\$ -	\$ -
Public Facilities	10%	108	\$ 800	\$ 86,000	\$ 3,000
Neighborhood Parks	NA	-	\$ 500	\$ -	\$ -
Total planting cost to reach 30% canopy cover					\$ 3,309,000
Total annual planting cost to reach 30% canopy cover in 30 years					\$ 111,000





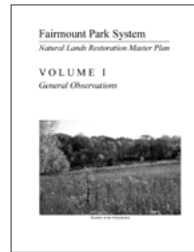
APPENDIX

RELATED DOCUMENTS



A Report on the City of Philadelphia's Existing and Possible Tree Canopy, 2011

This tree canopy assessment was commissioned by Philadelphia Parks & Recreation. It used 2008 LiDAR (light detection and ranging) data. The assessment showed that Philadelphia had 20% tree canopy across the city, and residential land had the most open space for new tree canopy to grow.



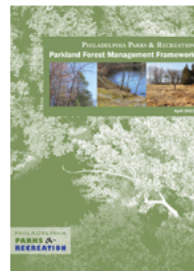
Fairmount Park System Natural Lands Restoration Plan, 1999

This plan was created as a part of the Natural Lands Restoration and Environmental Education Program (NLREEP) to guide the restoration of the seven watershed parks in the Philadelphia Parks & Recreation system and to build or enhance environmental education centers to both interpret the natural systems in the park system and build a larger constituency to help with its protection.



Tree Canopy Assessment, 2019

This tree canopy assessment was commissioned by Philadelphia Parks & Recreation. It used LiDAR (light detection and ranging) data from 2018 and 2008 to show the existing tree canopy and the change in tree canopy over ten years. The assessment showed that Philadelphia lost 6% of its tree canopy cover since 2008, demonstrating that protecting Philadelphia's existing tree canopy is crucial to ensuring future tree canopy.



Parkland Forest Management Framework, 2013

This is a set of recommendations and a management framework to achieve a viable, self-perpetuating, native-dominated, and resilient forest ecosystem in natural areas that Philadelphia Parks & Recreation manage. Many of the projects described in this document have been implemented. The Philly Tree Plan builds off the work that has been completed and highlights needs that have not been met.



Philadelphia Tree Summit Report, 2019

This report summarizes the results of the Philadelphia Tree Summit, an urban forest stakeholder engagement event convened by the Philly Tree Plan project team in response to the information released in the Tree Canopy Assessment earlier that year. This event was the first step in developing the goals for the Philly Tree Plan effort. It provided direction for emphasizing equity and environmental justice in the planning process.



Philadelphia 2035: the comprehensive plan for Philadelphia, 2012

This is the City of Philadelphia's comprehensive plan for managing growth, development, and investment, created by the Philadelphia City Planning Commission. It references a desired 30% tree canopy for the City of Philadelphia.



Complete Streets Design Handbook, 2017

The Handbook is a toolbox and guide for community groups looking to improve their neighborhood streets, developers looking to build a new project, and City employees designing a new street to meet 21st Century transportation standards. This document includes street tree placement guidelines.



Growing From the Root: Philadelphia's Urban Agriculture Plan, not yet released

This plan is being created by Philadelphia Parks & Recreation and aims to uplift Philadelphia's rich urban farming and gardening history. It will clearly define the resources, policies, processes, and programs necessary to sustain future generations. This plan was under development when completing the Philly Tree Plan.



Green Stormwater Infrastructure Strategic Framework, 2022

This is the Philadelphia Water Department's plan for reducing sewer overflows to waterways by implementing green infrastructure stormwater management measures. This plan provides strategies for addressing the various types of land use and landowners and managers through programs, incentives, and design guides. The management units in this document are the basis for management units in the Philly Tree Plan.



Greenworks Philadelphia, 2009

This plan was created by the Mayor's Office of Sustainability and is a long-term vision for a healthy, efficient, and green Philadelphia for all. This plan also references a desired 30% tree canopy cover for the City of Philadelphia.

PUBLICLY AVAILABLE MAPS

Philadelphia Street Tree Planting Opportunity Map

<https://experience.arcgis.com/experience/c0b572d8313b47e2bac75113f7e65130>

This map was created by the Pennsylvania Horticultural Society and Philadelphia Parks & Recreation to help guide Tree Tenders and other community leaders in their urban forestry planning and advocacy efforts. Users can see the following data on this map:

- » Street Tree Priority Layer: Displays city streets with the highest to the lowest need for trees and greenscapes
- » Priority Areas Layer: Displays areas of the city (city blocks) with the highest to the lowest need for additional tree canopy
- » Planting Opportunity Layer: Displays how much space is available (percentage) on any given street for adding trees or other greenery

Philadelphia Interactive Tree Canopy Map

<http://treecanopy.myphillypark.org/>

This map was created by Azavea for Fairmount Park Conservancy and Philadelphia Parks & Recreation with the goal of making the most up to date tree canopy data more accessible and useful to residents at the neighborhood level. Users can see the following data on this map:

- » Current tree canopy as of 2018
- » Change in tree canopy between 2008 and 2018
- » Heat exposure
- » US Census Bureau socioeconomic data
- » Asthma rates

PROGRAM HIGHLIGHTS

Esperanza's NeighborCare program provides small grants to improve block conditions. The program gives up to \$1000 to blocks for special projects. A resident leader collects neighbor signatures and applies for the program. Esperanza then orders and delivers the materials they need to realize their desired project. Relationships built through this program have allowed Esperanza to organize block-wide tree plantings, install alternative shade structures, and help create and improve community green spaces.

The Friends of the Wissahickon (FOW) is an official park partner of Philadelphia Parks & Recreation, working to conserve and improve the 1800-acre Wissahickon Valley Park since 1924. FOW staff and volunteers work with expert contractors and environmental scientists to mitigate stormwater runoff into the watershed, reduce erosion, manage the deer herd, and address the impacts on the native habitat posed by climate change.

The Trust for Public Land's **Heat Response** project engages community members in Fairhill, Grays Ferry and Southeast Philadelphia to create public art that addresses the question: "Why should we care about urban heat and what can we do about it?" A team of four local artists listen to community voices and help creatively amplify their lived experiences to drive policy change and achieve equity across Philadelphia neighborhoods in response to rising temperatures.

Love Your Park is a collaboration between Fairmount Park Conservancy, Philadelphia Parks & Recreation, and Philadelphia's Park Friends Network. The three groups work together to support communities in activating Philly's neighborhood parks and watershed natural areas, with a special focus on inviting Philadelphians to get involved by volunteering. The flagship events are Love Your Park Week in May and the Love Your Park Fall Service Day in November, which includes over 5,000 volunteers. The year-round Neighborhood Park Stewardship program supports a network of 135 community-run park friends groups.

The Parks & Rec Heroes Fund (formerly the Philadelphia Parks Alliance) campaigns for outstanding parks, recreation, and open space to make Philadelphia a healthy, vibrant, and sustainable city for all. The Fund is working toward three main goals: to increase programming at parks and recreation centers, to increase tree canopy across the city, and to create safe, clean, and ready-to-use parks and recreation sites.

The Philadelphia Orchard Project (POP) works with community-based groups and volunteers to plan and plant orchards filled with useful and edible perennial plants. POP provides orchard design assistance, plant materials, and training in orchard care, helping city residents

to increase control over their own food resources. Community organizations own, maintain, and harvest the orchards, expanding community-based food production, environmental benefits, and opportunities for nature education.

Philadelphia Taking Care of Business (PHL TCB) Clean Corridors Program funds community-based nonprofits to sweep sidewalks and remove litter within neighborhood commercial corridors. Neighborhood residents serve as cleaning ambassadors, earn a minimum living wage (\$15/hr), work a regular schedule, and get paid workforce training related to their work. The Department of Commerce provides funding for this city-wide program with support from City Council.

The Philly Goat Project (PGP) provides opportunities for residents to connect to nature in a dynamic and novel way by using goats. PGP offers a variety of ways that visitors of all capacities and ages can enjoy and experience Goats for the Greater Good by providing grazing, animal-assisted therapy and wellness events, environmental and educational experiences, and community engagement opportunities.

PHS Philadelphia LandCare program is a workforce development program from the Pennsylvania Horticultural Society (PHS) that offers hands-on training in landscape maintenance, soft skills, and leadership training. It also provides connections to

PROGRAM HIGHLIGHTS (continued)

social support services and jobs with PHS employment partners. Many employer partners help clean, green, and maintain vacant lots through the PHS Philadelphia LandCare Program. Through working with this program, graduates are helping to make healthier and more livable neighborhoods for residents.

PowerCorpsPHL connects people to careers and advances the community. Seeded by the City of Philadelphia and operated by EducationWorks, PowerCorpsPHL engages out-of-school or out-of-work 18- to 30-year-olds. Using service as the strategy to provide immersive, paid 4- to 24-month work and technical training experiences, PowerCorpsPHL prepares and connects graduates to living wage jobs in clean energy, green infrastructure, the environment, and community-based careers.

Riverfront North Partnership is a non-profit organization created in 1995 to complete and sustain the riverfront trail and network of parks along the Delaware River that connects residents of urban neighborhoods to nature. They are transforming once neglected post-industrial landscapes into usable community space, offering unparalleled recreational, community building, and environmental education opportunities.

The **Roots Tree Crew** is a partnership of Bartram's Garden and the Pennsylvania Horticultural Society, with funding from the Knight Foundation. The Roots Tree Crew is a paid internship for teens in Southwest Philadelphia. The primary focus is educating them to be ambassadors in their communities. They complete the Pennsylvania Horticultural Society's Tree Tenders training and a curriculum that leans into the intersectionality of trees, botany and identification, art and design, politics, and cultural significance. In addition to learning about trees, interns lead a tree walk, plant trees in the neighborhood, create art, canvas for tree planting sign-ups, and meet professionals in the field.

The Pennsylvania Horticultural Society's **S(tree)etwork** is a multi-year, public art project rooted in Philadelphia whose aim is to animate how we live among trees; how we perceive them; and how we imagine our future cohabitation. The project incorporates a series of public programs and workshops, public service announcements, and a built intervention to create a new dialogue around the vital role of trees in urban communities.

Same Day Work & Pay is a workforce development program run by the Pennsylvania Horticultural Society with funding from the City of Philadelphia and in collaboration with multiple community organizations. Residents receive \$100 per day to perform daily work assignments such as clearing vacant lots, cleaning street corridors, and completing other community improvement tasks.

The **Tookany/Tacony-Frankford Watershed Partnership** (TTF) educates neighbors and stakeholders about clean water issues and connects watershed residents and communities to their creeks through hands-on education, stewardship, restoration, and advocacy. TTF takes care of and improves the impaired waterways across 30 square miles, from the headwaters in Abington, Cheltenham, Jenkintown, Rockledge, and Springfield in Montgomery County - to neighborhoods in North, Northeast, and Northwest Philadelphia.

The Pennsylvania Horticultural Society's (PHS) **Tree Tenders Program** has worked with community groups to plant and care for trees since 1993. The program provides tree planting and care training to residents. It supports the tree planting efforts of trained volunteer groups by coordinating with the City, supplying trees, and cutting concrete for new tree pits. Over 6,000 trained Tree Tenders across the region plant over 2,500 trees each year, with over 40 active groups in Philadelphia. Many Tree Tenders groups also participate in Tree Checkers, a monitoring program to assess the health of each recently planted tree, and Pruning Clubs to maintain young trees.

TreePhilly is a community forestry program managed by Philadelphia Parks & Recreation in partnership with Fairmount Park Conservancy. TreePhilly empowers Philadelphia community members to enrich life in their neighborhoods through the planting, care of, and connection with trees. The program works to achieve an equitable tree canopy by providing free, accessible yard trees and nurturing relationships between neighbors, institutions, and the land.

The **UC Green Corps** is a paid summer job program managed by UC Green. UC Green empowers volunteer stewardship in University City and its surrounding communities through partnerships and education. The UC Green Corps program aims to offer environmental education and job training to local youth while providing establishment care for newly planted trees. Research has demonstrated that trees maintained by the UC Green Corps have excellent establishment survival.

South Kensington Community Partners is a place-based organization in South Kensington, Philadelphia that acts as the neighborhood "help desk" and works to catalyze community engagement and action in their neighborhood. Their mission is to: connect their community to resources and opportunities, the land, and each other; act as, and encourage others to become engaged stewards of the neighborhood; and advocate for responsible development that builds upon the physical, social and economic fabric of the neighborhood.

PRECEDENTS

City Forester precedents (Recommendation 1.1)

Arlington County, VA

Arlington county functions more like a city than a county as it is entirely built out. The Urban Forest Manager is in the Department of Parks and Recreation. That position and its supporting team oversee the following:

- » Development of the Urban Forest Management Plan, which is an element of the Comprehensive Plan
- » Management of street trees
- » Management of park trees (NOTE: the Natural Resources Manager manages natural resources in the park system)
- » Tree planting
- » Volunteer management, in-house, and via NGOs
- » Review of building permits for compliance with tree preservation and mitigation requirements

Washington, DC

The DC State Forester also serves as the District Department of Transportation (DDOT) Associate Director for Urban Forestry. DDOT's Urban Forestry Division oversees:

- » Inventory and management of the street, park, and school trees
- » Coordinates with NGOs that work with volunteers
- » Review of building permits for compliance with tree preservation and mitigation requirements

Providence, RI

Providence has a City Forester in the Department of Recreation and Parks' Forestry Division. The City Arborist oversees:

- » Management of street and park trees
- » Tree planting and volunteer coordination via the Providence Neighborhood Planting Program
- » Review of building permits for compliance with tree preservation and mitigation requirements

Tree protection policy precedents (Recommendation 2.1)

Philadelphia, PA (for comparison)

General Approach

Tree-related requirements in the City of Philadelphia's zoning code apply to developments of 5,000 square feet or more, except for lots with a principal single-family, two-family, parks and open space, or urban agriculture use. The City also requires permits for street tree planting, pruning, and removal.

Tree Removal Criteria

Heritage trees, which are specified in a list generated by the City, can be removed without special exception approval if they are dead, damaged, diseased, or interfere with public services or safety. All other heritage trees require special exception approval by the Zoning Board. Heritage tree removal is allowed if it is demonstrated that the site cannot be practically redesigned to protect the heritage tree.

Replacement Policy

All trees of 2.5 DBH or higher that are removed must be replaced, and the total caliper before construction must be equal to the total caliper after.

Enforcement Approach

The City of Philadelphia can withhold a building permit until a site plan is submitted. Fines may be authorized for violations of the tree ordinance.

Atlanta, GA

General Approach

Atlanta's main approach to tree regulation includes protecting individual trees through permits and protecting large swaths of trees on sites undergoing construction. The City of Atlanta requires individual tree permits to remove any tree (dead or alive) on public property and any tree with DBH of 6 inches or more on private property. Site plans are required for construction and related activities. The regulations apply to all private and public property subject to city regulation, including public school property, public housing property, parks, rights-of-way, and easements granted to other private or public entities, including public utilities, except where superseded by franchise agreements. Special requirements apply to the Department of Watershed Management, especially for activities necessary to comply with the Combined Sewer Overflow Consent Decree.

Tree Removal Criteria

Trees can be removed if:

- » The tree is located within the buildable area of the lot and the applicant has been granted a building, landscaping, or other permit to make improvements otherwise permissible under all applicable ordinances of the city;

- » The tree is located in that portion of the setback or required yard area of the lot that must be used for vehicular ingress and egress or for the installation of utilities that cannot be accomplished in a manner allowing preservation of the tree;
- » The tree is diseased or unsafe

Replacement Policy

All permit applications for the removal of healthy trees require a replacement plan. The priority of replacement activities is as follows: replace the tree on-site, replace the tree off-site, or provide recompense according to a tree formula stipulated in the tree ordinance that is based on the difference between the total diameter at breast height of the trees removed or destroyed and the total caliper inches of the trees replaced onsite.

Enforcement Approach

The City Forester and City Arborist have police power in enforcing the tree ordinance. Financial penalties are imposed when a tree is removed without a permit. The formulas for calculating fines for tree violations are outlined specifically in the tree ordinance. The Certificate of Occupancy is withheld for development sites that are not in compliance.

Tree protection policy precedents (continued)

Baltimore, MD

General Approach

Baltimore's main approach to tree regulation includes protecting trees on sites undergoing construction. The City requires a Forest Stand Delineation and a Forest Conservation Plan for developments greater than 5,000 square feet. Forest Conservation Plans require retention, reforestation, or afforestation depending on the land use category of the development lot, its size, and the total amount of forested land on the development site. The City also requires protection of "specimen trees", which are trees having a diameter measured at 4.5 feet above the ground of 20 inches or more or trees having 75% or more of the diameter of the current state champion tree of that species. The regulations apply to private developments and to public utilities, with some exceptions.

Tree Removal Criteria

The State Forest Conservation Act establishes conservation thresholds. These are not minimum limits for forest retention. Rather, they represent points at which the penalty for clearing increases. Conversely, any forest retained above the threshold is credited toward the reforestation requirement at a greater rate. These thresholds are factored in during the development of the Forest Conservation Plan. Specimen trees are protected under the Forest Conservation Act. In Baltimore

City, an administrative variance must be granted by the Director of Planning to remove any specimen tree that is subject to Forest Conservation.

Replacement Policy

If retention techniques have been exhausted, trees must be replaced per the Forest Conservation Plan. The priority of replacement activities is as follows: replace the tree on-site; replace the tree off-site where the private property owner agrees to preserve the plantings in perpetuity via a forest conservation easement; establish an off-site forest conservation easement; purchase credit from an approved forest conservation bank, or pay a fee-in-lieu at a rate of \$600 per tree required for afforestation and/or reforestation, and \$300 per inch required for specimen tree mitigation. No mitigation is required for the removal of a tree that is certified in poor condition, considered invasive, infested or diseased, interferes with utility easements or services, or deemed hazardous by a certified arborist.

Enforcement Approach

Baltimore enforces its regulations using multiple approaches. Before the issuance of a grading or building permit, the permittee must provide financial security in the form of a bond for the protected trees on the property. The Certificate of Occupancy is withheld if the Forest Conservation Plan is not followed. Fines for ordinance violations are also issued.

Washington, DC

General Approach

Washington, DC's primary approach to tree regulation is through individual tree permits. All public and private properties are subject to the regulations. Public utilities are exempt from the Special Tree Permit requirement (see more below under "removal criteria").

Tree Removal Criteria

A "Special Tree" (a tree with a circumference between 44 inches and 100 inches) can be removed if it is hazardous, if the species has been identified by regulation as appropriate for removal, OR if the applicant paid into the Tree Fund an amount not less than \$55 for each inch of the circumference of the Special Tree in question. A "Heritage Tree" (a tree with a circumference of 100 inches or more) can be removed if it is hazardous, or if the species has been identified, by regulation, as appropriate for removal. A Heritage Tree may also be removed if it is physically relocated to a different site.

Replacement Policy

N/A. DC's policy emphasizes protection rather than replacement.

Enforcement Approach

Fines of not less than \$300 per inch of the circumference of the trees in question are charged.

Tree planting policy precedents (Recommendations 3.3 and 3.4)

Philadelphia, PA (for comparison)

For developments of 5,000 square feet or more, except for lots with a principal single-family, two-family, parks, and open space, or urban agriculture use, Philadelphia requires at least one street tree per 35 ft. of linear frontage. Street trees may be placed at regular or irregular intervals, provided there is at least 15 ft. of space between tree trunks. Where any of these standards conflict with the regulations of the Streets Department or the Department of Parks and Recreation, the least restrictive regulation governs. For street trees, the City collects a deposit from the developer which goes into a trust fund. If the trees are planted as expected, then the deposit is returned. Otherwise, the deposit can be used by the City for planting activities.

For parking lots, where perimeter screening is required, trees must be provided within the required landscaped

area at a rate of at least one tree per 35 ft. of linear street frontage. In addition, a minimum of 10% of the parking lot area must be landscaped, with a minimum of one tree per 300 sq. ft. of interior landscaped area. A minimum of thirty percent (30%) of the required trees shall include deciduous shade trees from Philadelphia Parks & Recreation's Recommended Street Tree List. Landscape buffers are required when specific types of different land uses are adjacent to each other. Buffers can consist of natural materials or wall/fence/berm or vegetated screen.

Atlanta, GA

In Atlanta, GA, the City sets a minimum tree cover per zoning district that ranges between 35 and 90 inches per acre. In any request for a permit for construction in which no trees are proposed to be removed, or in cases where trees are being removed but the total tree cover on the lot

is less than the minimum tree cover per zoning district, the city arborist requires an afforestation standard such that the minimum tree cover per zoning district is satisfied.

Baltimore, MD

In Baltimore, MD, Forest Conservation Plans require retention, reforestation, or afforestation depending on the land use category of the development lot, its size, the total amount of forested land on the development site, and the conservation and afforestation thresholds which are determined by State law.

Washington, DC

Washington DC has no documented requirement for new tree plantings, focusing instead on the protection of existing trees.

Tree planting policy precedents (continued)

Portland, OR

In Portland, OR, new developments are subject to a tree density standard ranging between 10% for industrial developments and 40% for one and two-family residential developments. Portland also requires the tree area to be planted with a combination of large, medium, or small canopy trees at specified rates and designates a minimum area per tree depending on tree size. Any proposed change in width in a public

street right-of-way or any other proposed street improvement must include tree and landscape planting. The City requires that one street tree be planted or retained per 25 linear feet of street frontage. When the required number of trees cannot be planted for any project, a fee in lieu of planting may be required. For City projects, required trees that cannot be planted within the improvement area may be planted elsewhere in the same watershed instead of paying a fee in lieu of planting.

Tree Fund precedents (Recommendation 3.2)

Each of the following benchmark cities employs a fee-in-lieu policy in which the revenues are directed to a tree fund which is used to support various tree-related programs and activities.

Atlanta, GA

In Atlanta, GA, the City's Tree Trust Fund is paid through fines from ordinance violations and fees-in-lieu of tree planting. Proceeds from the Tree Trust Fund are used to pay for tree planting programs and related salaries. All permit applications for the removal of healthy trees require a replacement plan. The fee-in-lieu of tree planting is one option for fulfilling the requirements of this plan. The priority of replacement activities is as follows: replace the tree on-site, replace the tree off-site, OR provide recompense according to a tree formula stipulated in the tree ordinance that is based on the difference between the total diameter at breast height of the trees removed or destroyed and the total caliper inches of the trees replaced onsite. Additional plantings may be required beyond the replacement

requirement to meet minimum coverage standards. These additional plantings may also be addressed through fees-in-lieu of tree planting after certain on-site tree planting criteria are met.

Portland, OR

In Portland, OR, there are two tree funds generated from fees for private property trees and street trees respectively. Each one is a dedicated fund separate from the General Fund and both are funded through fees-in-lieu of tree planting. The fee per tree is the entire cost of establishing a new tree in accordance with standards described by the City Forester. This cost includes materials and labor necessary to plant the tree and to maintain it for 5 years. The fee is reviewed annually and, if necessary, adjusted to reflect current costs.

Washington, DC

In Washington, DC, the DC Tree Fund is separate from the General Fund of the District of Columbia and is funded through fees-in-lieu of tree planting. A "Special Tree" (a tree with a circumference between 44 inches and 100 inches) can be removed if it is hazardous or if the species has been identified by regulation as appropriate for removal, OR if the applicant paid into the Tree Fund an amount not less than \$55 for each inch of the circumference of the Special Tree in question. Fees are not an option for removal of a "Heritage Tree" (a tree with a circumference of 100 inches or more). Heritage Trees can only be removed if they are hazardous, if the species has been identified, by regulation, as appropriate for removal, or if it is physically relocated to a different site.

Urban Forestry Advisory Committee precedents (Recommendation 7.1)

LOCATION	NAME	VOTING MEMBERS	MAKEUP	RESPONSIBILITIES
Portland, OR	Urban Forestry Commission	11	Community representatives only	<ul style="list-style-type: none"> Appeals board for tree permits. Nominates new and approves removal of Heritage Trees Plays a significant role in updates to the City's Urban Forest Management Plan.
Washington, D.C.	Urban Forestry Advisory Council	12	Community Representatives - 4 City Representatives - 8	<ul style="list-style-type: none"> Ensures coordination between District agencies responsible for tree goals and partners. Provides input on the 5-year urban forest report and master plan.
Los Angeles, CA	Community Forest Advisory Committee	15	Community Representatives - 15 City Representatives (non voting) - 11	<ul style="list-style-type: none"> Develops policies to expand and improve LA's urban forest and enhance biodiversity. Promotes equitable distribution of the urban forest. Helps community members work with City on tree issues. Advocates for tree-related funding. Reviews and comments on specific projects in the City. Advocates for urban forestry and biodiversity as key city priorities that address public health and the climate crisis.

ADDITIONAL INFORMATION

Tree protection plan guidelines (Recommendation 2.1)

Tree protection plan guidelines should use the International Society of Arboriculture (ISA) resources as a starting point and be created in partnership with ISA Certified Arborists and experts in the field. The guidelines should be revisited regularly to ensure adherence to current best practices. Tree protection plans should include the following:

- » Calculations for the critical root zone (CRZ)
- » Calculations for maximum allowable disturbance of CRZ
- » Acceptable tree protection fence
- » Methods for mitigating compaction on CRZ
- » Acceptable trenching and boring methods through CRZ
- » Crown pruning for construction access
- » Root pruning
- » Post-construction watering
- » Sidewalk repair solutions that protect trees and tree roots (possibilities include shaving the top of the concrete or installing a ramp to even the surface and reduce tripping hazards; increasing the distance from the tree to the edge of the sidewalk by either narrowing the sidewalk or rerouting it around the tree; or raising sidewalks near the tree to allow root growth beneath)

Support community and issue-based organizations that have genuine connections to their communities (Recommendation 3.1)

Community partnerships are essential to supporting the urban forest. Philadelphia is full of grassroots organizations already engaging and building trust with residents. By providing these organizations with resources and training, they can become a part of the network of support for the urban forest.

The City and non-profit partners should consider these criteria when identifying groups to partner with.

Represents a specific neighborhood

The organization should be place-based. The area that the organization serves should be geographically defined.

Has leadership that is representative of the community

The organization's leadership should reflect the demographics of the community they serve. The administration and most staff should live in the neighborhood where they provide services.

Has a consistent rate of participation.

Meetings or events hosted by the organization should record high attendance and participation. If the organization offers programs, there should be a record of involvement that shows significant public interest. .

Represents marginalized communities

Organizations representing historically marginalized communities such as immigrants, Black, Indigenous, People of Color (BIPOC), and non-English speaking communities should be prioritized.

Tree Fund embodied cost calculation (Recommendation 3.2)

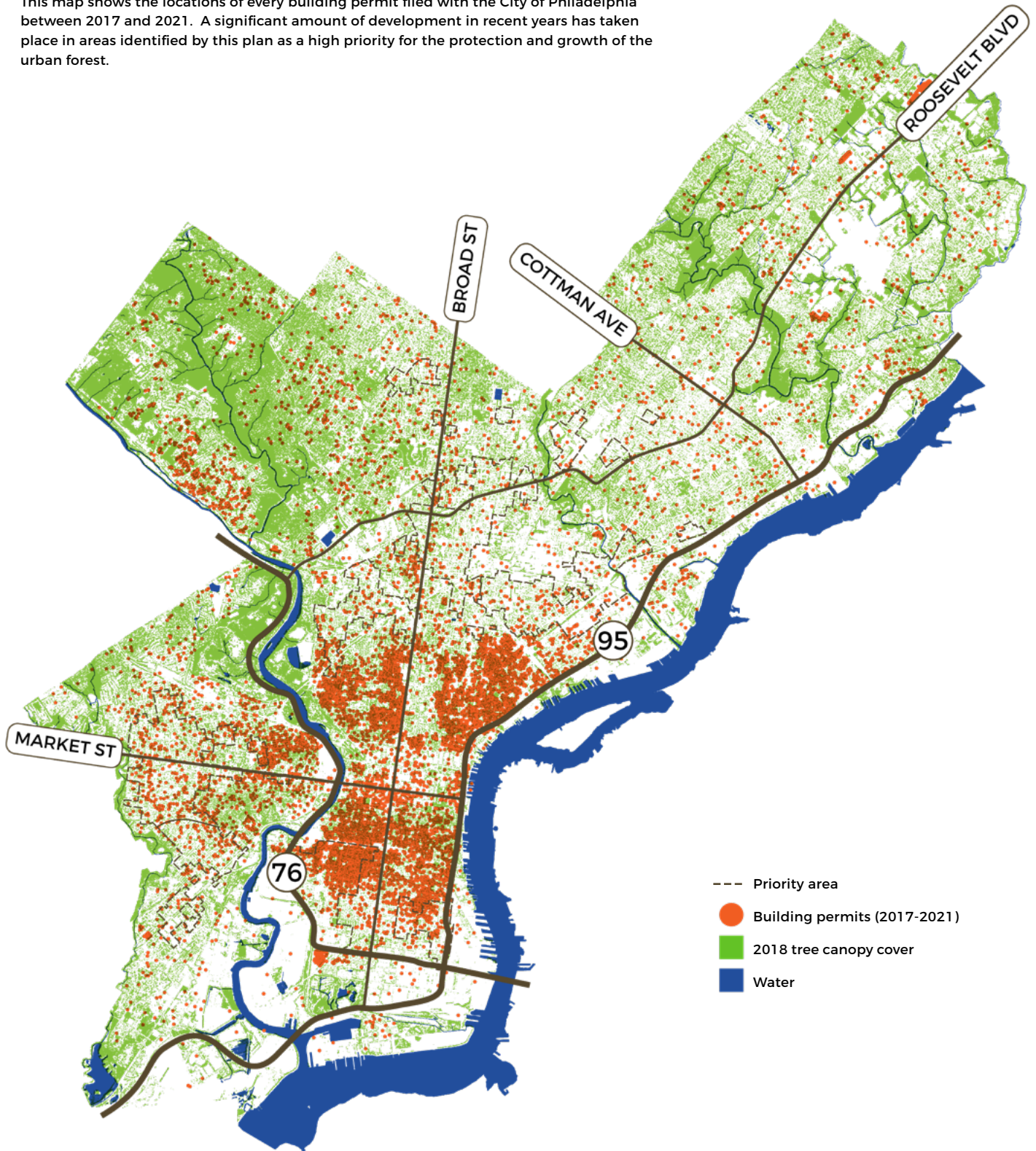
Rates should be based on appraisal costs as determined in the ISA Mid-Atlantic Chapter Guide as well as the embodied cost to Philadelphia Parks & Recreation of planting one tree and maintaining it through the establishment period, managing, review and enforcement.

Median frontage length for new construction permits from 2007-2021 (Recommendation 3.3.b)

Year	Median Frontage Length
2007	13.92
2008	16.00
2009	17.96
2010	16.10
2011	2.63
2012	16.55
2013	16.83
2014	17.00
2015	16.07
2016	15.32
2017	16.30
2018	15.95
2019	16.41
2020	16.33
2021	16.20

DEVELOPMENT MAP

This map shows the locations of every building permit filed with the City of Philadelphia between 2017 and 2021. A significant amount of development in recent years has taken place in areas identified by this plan as a high priority for the protection and growth of the urban forest.



ADDITIONAL INFORMATION (continued)

Tree planting design standards (Recommendation 3.4)

Planting guidelines should be in accordance with ISA planting standards. Those can be found here: <https://www.isa-arbor.com/education/onlineresources/cadplanningspecifications#Planting>.

Soil volume and tree pit requirements

Tree pits should be a minimum of 3' wide and follow the Complete Streets Design Guide for minimum sidewalk clearance for ADA accessibility. While 1,000 cu. ft. of soil has been identified as the amount of rooting volume needed for large trees to thrive. This can be difficult to attain in the urban environment. Connected pits should be created whenever possible to allow for a maximum amount of access to rooting volume. A minimum of 600 cu. ft. of soil volume should be provided for all new tree pits constructed as part of new construction development projects.

"Tree Space Design: Growing the Tree Out of the Box," developed by Casey Trees, is a good example of design recommendations to provide street trees with adequate soil volume while maintaining sufficient space for pedestrian circulation. The document includes a matrix of soil volume recommendations and root-friendly design methods intended for inclusion in design standards. It uses in individual projects, intending to yield larger, healthier trees and minimize damage to paved surfaces.

<https://caseytrees.org/resources-list/tree-space-design-growing-tree-box/>

Communication with residents (Recommendation 6.1)

Tree planting

Notifications should include:

- » Contact information for organizations performing tree planting
- » Contact information for questions or comments
- » Information about what to expect and how to participate
- » Date of tree planting
- » Tree species to be planted
- » Reason for tree species (if different from requested species)
- » The organization performing establishment care (if applicable)
- » Resources for new tree care

Additional methods of communication can include visual marking on the sidewalk.

Utility maintenance tree work

Notifications should include:

- » Date of scheduled work
- » Name of the utility company performing the work
- » Description of why the work is taking place
- » Information on resources on best practices for line clearing
- » Contact information for questions or comments

Tree maintenance or removal

Notifications should include:

- » Date of scheduled work
- » Description of the work (removals should include a reason)
- » Resources for information on best practices for pruning
- » Contact information for questions or comments

Heritage Tree removal

Notifications should include:

- » Location of Heritage Tree
- » Date, time, and location of RCO meeting
- » Resources for information regarding the special exception process

Urban Forestry Advisory Committee (Recommendation 7.1)

Formation of the committee

The Philadelphia Home Rule Charter provides for establishing independent boards and commissions and for departmental boards and commissions (Article III, Chapter 1). These are amended or approved by voters and subsequently by Council. This recommendation is in lieu of pursuing a ballot initiative. In addition, according to City Code § 3-917. Additional Advisory Boards, "The Mayor may upon the request of the head of any department or of his own volition appoint a board of seven citizens to act in an advisory capacity to such department regarding the department's work or any specified phase of it."

Selection criteria

Resident committee members should represent the City's diversity in age, race, ethnic background, sexual orientation, disability, culture, geography, language, and more. A significant number of these committee members should be residents from priority areas as identified by the Philly Tree Plan.

Resident committee members should have a commitment to working with diverse populations, consensus building, community engagement, and equity.

Compensation

All voting resident representatives should be compensated for their time. This should account for all community outreach and coordination efforts that they will participate in regular outside meetings.

Data sources for priority map

Layer	Weight	Source	URL	Notes
Heat exposure	2	Phila	https://hip.phila.gov/EmergencyResponse/HeatVulnerabilityIndex	From City's heat vulnerability study
Tree canopy cover	1	Phila, 2018	https://www.opendataphilly.org/dataset/ppr-tree-canopy	From City's 2018 urban tree canopy assessment
Traffic volumes	1	DVRPC, 2017-2019	https://www.dvrpc.org/Traffic/VehicleTravelMonitoring/	Inverse-distance weighted raster to generate traffic volume surface raster
Air quality	1	EPA, 2019	https://aqs.epa.gov/aqsweb/airdata/download_files.html#Annual	Inverse-distance weighted raster to generate pm2.5 surface
Asthma	.33	CDC, 2017	https://www.cdc.gov/500Cities/	Model-based estimates for current asthma among adults aged >=18 years
Poor Mental Health	.33	CDC, 2017	https://www.cdc.gov/500Cities/	Model-based estimates for mental health not good for >=14 days among adults aged >=18 years
Cancer	.33	CDC, 2017	https://www.cdc.gov/500Cities/	Model-based estimates for cancer (excluding skin cancer) among adults aged >=18 years
Income	1	Census, 2014-2018	https://censusreporter.org/data/table/?table=B19013&geo_ids=150 16000US4260000#	Medium household income
Impervious surface	1	Phila, 2015	https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=1136	Impervious surface, percent BC

2018 canopy data by management unit

Management Unit	Description	Total land area (acres)	Total tree canopy (acres)	% Tree canopy cover
Street trees	The public ROW from parcel to parcel	15,383	1,613	<u>10.48%</u>
Residential Yards	Front and rear yards of residential buildings such as row homes and duplexes with three or fewer units	21,975	4,147	<u>18.87%</u>
Private Commercial & Industrial	Land owned by commercial businesses including apartment buildings	15,434	1,561	<u>10.11%</u>
Campuses and Schools	All property owned by the School District of Philadelphia, charter schools, private schools, and university campuses	3,627	601	<u>16.58%</u>
City Facilities	Land owned and managed by the City, such as agency offices, police stations, and maintenance facilities	3,877	444	<u>11.46%</u>
Public Facilities	Land owned and managed by agencies or organizations that serve the public but are not part of the City government, such as transit stations, hospitals, and public housing developments	4,101	400	<u>9.76%</u>
Neighborhood Parks	Landscaped parks managed by PPR, including ballfields, courts, open lawns, picnic areas, and recreation centers	6,302	2,180	<u>34.59%</u>
Natural Land	All natural areas managed by PPR Natural Lands Group, also federal nature reserves and natural lands managed by private non-profits	6,243	4,517	<u>72.35%</u>
Unmanaged Land	Vacant land (excludes LandCare) and alleys	4,647	1,084	<u>23.33%</u>

GLOSSARY OF TERMS

Arborist

"Certified Arborists are individuals who have achieved a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. Certified Arborists must also continue their education to maintain their certification and adhere to a Code of Ethics. Therefore, they are more likely to be up to date on the latest techniques in arboriculture." ¹

BIPOC

"BIPOC stands for Black, Indigenous, and people of color. Pronounced "bye-pock." It is a term specific to the United States, intended to center the experiences of Black and Indigenous groups and demonstrate solidarity between communities of color." ²

Building permit review

When an individual or company applies for a building permit, the corresponding local government agency reviews the application to make sure the proposed changes comply with all local zoning laws, land use standards, and construction ordinances.

Burden tree canopy

Burden Tree Canopy is a term used in this plan to describe tree canopy that is present in unmanaged land. Trees on unmanaged land often present a burden to residents.

Certificate of Occupancy

A certificate of occupancy is a certificate issued by a local authority indicating that a building meets building-code requirements. Such a certificate is usually required to occupy the facility, sign a contract to sell it, and close a mortgage on the property.

Climate change

Climate change describes a change in the average climate patterns and conditions, such as temperature and rainfall, in a region over a long period. In particular, a change apparent from the mid to late 20th century onwards which is mainly attributed to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels. Climate change has made a significant and long-lasting change in the Earth's climate and weather patterns.

Design standards

Design standards are a set of generally accepted uniform procedures, dimensions, materials, or parts that directly affect the design of a product or process. This set of recommendations helps set expectations for how or what is required.

Details and specifications

Details and specifications are the drawings and text that are the legal description of a design prepared by an architect, landscape architect, or engineer. They describe the required features, material, design, and other particulars of a product or process.

Development

Development means changing the character of the land from its existing condition by the construction or placement of a building or buildings.

Disinvestment

Disinvestment is the purposeful withdrawal of investment from communities.

Displacement

Displacement refers to the forced relocation of existing residents and businesses out of a neighborhood as formal or informal redevelopment occurs. It may result from gentrification, the informal redevelopment that occurs when new and typically more affluent people move into a community. It is often criticized because the current residents have limited options to buy or rent equivalent housing in alternative areas at the same price. If they stay, prices for products, services, and taxes in the local area rise, and existing social networks are disturbed.

Ecosystem

An ecosystem is a geographic area where a group of organisms live and interact with each other. The ecosystem, or bubble of life, consists of plants, animals, and other organisms as well as weather and landscapes unique to each specific environment.

Ecosystem services

When ecosystems function, they provide "services." They clean water and air, decompose waste and cycle nutrients; generate soils and renew their fertility; regulate disease-carrying organisms; moderate weather extremes, and contribute to climate stability and biological diversity.

Equity

"The term "equity" refers to fairness and justice and is distinguished from equality. Whereas equality means providing the same to all, equity means recognizing that we do not all start from the same place and must acknowledge and make adjustments to imbalances. The process is ongoing, requiring us to identify and overcome intentional and unintentional barriers arising from bias or systemic structures." ³

Environmental justice

"Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys the same degree of protection from environmental and health hazards, and equal access to the decision-making process to have a healthy environment in which to live, learn, and work." ⁴

Fee-in-lieu

A fee-in-lieu means a payment of money in place of meeting all or part of the standards required by an ordinance.

Gentrification

"Gentrification is a process in which a poor area (as of a city) experiences an influx of middle-class or wealthy people who renovate and rebuild homes and businesses. This often results in increased property values and the displacement of pre-existing, usually poorer, residents." ⁵

GIS

"A geographic information system (GIS) is a system that creates, manages, analyzes, and maps all types of data. GIS connects data to a map, integrating location data (where things are) with all types of descriptive information (what things are like there). GIS helps people understand patterns, relationships, and geographic context related to types of information." ⁶

Green stormwater infrastructure

"Green stormwater infrastructure (GSI) is an approach to managing stormwater runoff in ways that mimic the natural environment as much as possible, using plants, soil, and stone to filter and manage stormwater more effectively, reducing how much enters our sewer systems, and protecting our rivers and streams." ⁷

Heritage tree

A heritage tree is a tree that has been awarded special status. The characteristics that make trees sufficiently "special" to justify heritage listing can be many and varied but broadly include size, visual importance, scientific and/or cultural value.

Invasive species

An invasive species is an organism that harms the natural environment by becoming overpopulated and spreading beyond its natural range. Many invasive species are also non-native. Invasive plants, pests, and diseases in urban forests cause negative ecological, economic, and human health impacts.

LIDAR

"LiDAR stands for Light Detection And Ranging. It's a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses, combined with other data recorded by the airborne system, generate precise, three-dimensional information about the shape of the Earth and its surface characteristics." ⁸ LiDAR generates geospatial products, such as tree canopy models, digital elevation models, building models, and contours.

Mature tree

A mature tree has grown to its approximate full height and canopy size, as determined by species and site factors.

Misinvestment

Misinvestment is an unfair or unwise investment.

Native Species

Native species are those that are indigenous to a given habitat, ecosystem, or region, and were not introduced by humans. In contrast, non-native species come from other ecosystems or regions, and were introduced by people, whether intentionally or unintentionally.

Natural lands

Natural lands means an area of relatively undeveloped land. Typically, natural lands have substantially retained their characteristics as provided by nature or have been substantially restored or can be feasibly restored to a near-natural condition. Natural lands provide value from their wildlife, scenic, open space, parkland, or recreational characteristics.

Non-profit

"A nonprofit is an organization that uses its surplus revenues to further achieve its purpose or mission, rather than distributing its surplus income to the organization's directors as profit." ⁹

Public lands

Public lands are areas of land and water that today are owned collectively by U.S. citizens and managed by government agencies. Public lands are different from private lands owned by an individual, a business, or another type of non-governmental organization.

Public tree

A public tree is a tree within a public park, greenway, or other property owned by a governmental agency or dedicated to public use. Street trees located in the public right-of-way are considered public trees.

Right-of-way

The right-of-way (ROW) is the public area between buildings that make up our sidewalks and streets. The public ROW is the legal right to pass along a route or grounds. This is established through an easement granted or reserved over the land for public transportation purposes. The ROW can be a highway, street, sidewalk, path, bike trail, rail transport, canal, electrical transmission lines, oil and gas pipelines.

Soil volume

Soil volume is the amount of soil that a tree's roots can reach. Trees need an adequate volume of oxygen-rich soil to thrive. Minimum soil volume practices are a powerful tool for advocates to leverage better growing conditions for trees, especially in urban areas.

Stormwater

"Stormwater refers to the runoff of water generated from rain and snowmelt events that flow over land or impervious surfaces, such as paved streets, parking lots, and building rooftops, and does not soak into the ground." ¹⁰

Street tree

A street tree is a tree planted in a cut out or planting strip in the sidewalk in the public right-of-way, or in a street median.

Street tree permit

A street tree permit is an authorization granted from the City to do something to a street tree. A street tree permit is required to plant, prune, and remove a tree planted on the street in Philadelphia.

Structural racism

Structural racism shapes and affects the lives, wellbeing, and life chances of people of color. It is a system in which public policies, institutional practices, and cultural representations are normalized to benefit white people and disadvantage people of color. It replicates the racial hierarchy established more than 400 years ago through slavery and colonialism, placing white people at the top and Black people at the bottom. Structural racism is not something that a few people or institutions choose to practice. Instead, it has been a feature of the social, economic, and political systems in which we all exist.

GLOSSARY OF TERMS (continued)

Succession plan

A succession plan considers the forest conditions beyond the life of the existing trees that make up the urban forest. Succession planning includes the development of policies and procedures for the urban forest to improve its operations and increase its value, evaluating species for locations where they will serve the best purpose, and a continual process of replacement planting.

Sustainability

Sustainability is the ability to preserve the integrity of natural resources and systems so they are neither depleted nor damaged, ensuring future generations a healthy and clean environment.

Threatened tree canopy

This is a designation used in this Plan for an area of tree canopy in natural areas that has not been fully assessed for vulnerability to known threats such as pests, diseases, or competition from invasive species.

Tree canopy

Tree canopy refers to the branches and leaves of a tree. It is measured by the total area of the tree or trees where the leaves and outermost branches extend, also known as the “dripline.” Many trees can join together to form an aggregate tree canopy area. Urban tree canopy cover refers to the portion of a city or neighborhood’s land that is covered by tree canopy from a bird’s-eye view.

Tree pit

“The site where a tree is planted. This can be a sidewalk cut or planting strip for a street tree, or the area surrounding the trunk for a park, yard, or restoration tree.”¹¹

Urban agriculture

Urban agriculture, urban farming, and urban gardening are loosely defined as the production, distribution, and marketing of food and other products in or around urban areas.

Urban forest

“The term “urban forest” refers to all trees within a densely populated area, including trees in parks, on streetways, and on private property.”¹²

Urban forestry

Urban forestry is a planned approach for the development and maintenance of the urban forest, including all elements of green infrastructure within a community, to optimize the resulting benefits in social, environmental, public health, economic, and aesthetic terms.

Utility

Utilities mean useful features or something useful to the home such as electricity, gas, water, cable, and telephone. The space where the lines and pipes contain these utilities overlap with those of trees in the public right-of-way.

Yard tree

“A yard tree is planted in the ground on private property.”¹³

Workforce development

Workforce development includes initiatives that educate and train individuals to meet the needs of current and future businesses and industries to maintain a sustainable competitive economic environment. Workforce development focuses on individuals’ ability to grow their skills and develop the tools they need for business success.

Zoning Code

The zoning code is a document that lists all the regulations and laws that govern how the land can be used and maps out exactly what the boundaries of the area’s different zones are.

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ADDITIONAL ACKNOWLEDGMENTS

Stakeholder Workshops

Stakeholders from the following organizations participated in virtual workshops (listed by topic):

Allies and Advocates

- » Action Tank
- » Audubon Pennsylvania
- » BioPhilly
- » Clean Air Council
- » Conservation Voters of Pennsylvania
- » Neighborhood Gardens Trust
- » Occupy PHA
- » Pennsylvania Environmental Council
- » Pennsylvania Horticultural Society
- » Pennsylvania Interfaith Power and Light
- » Philadelphia Association of Community Development Corporations
- » Philadelphia Center for Gun Violence Reporting
- » Philadelphia Department of Public Health
- » Philadelphia Office of Sustainability
- » Temple University College of Public Health
- » The Chesapeake Bay Foundation
- » The William Penn Foundation
- » Urban Health Lab at the Perelman School of Medicine at the University of Pennsylvania
- » USDA Forest Service, Northern Research Station, Philadelphia Field Station

City Core

- » Community Life Improvement Program
- » Philadelphia Department of Public Property
- » Philadelphia Department of Licenses & Inspection
- » Philadelphia Managing Director's Office
- » Philadelphia Office of Sustainability
- » Philadelphia Office of Transportation, Infrastructure, and Sustainability
- » PA One Call
- » Philadelphia Electric Company (PECO)
- » Pennsylvania Department of Transportation (PennDOT)
- » Philadelphia City Planning Commission

- » Philadelphia Gas Works
- » Philadelphia Parks & Recreation
- » Philadelphia Department of Streets
- » Philadelphia Water Department
- » Rebuild
- » Southeastern Pennsylvania Transportation Authority (SEPTA)

City Lands, Parks, Gardens, Cemeteries, and Arboreta

- » Awbury Arboretum
- » Bartram's Garden
- » Delaware River Waterfront Corporation
- » Philadelphia Department of Public Property
- » Free Library of Philadelphia
- » Hunting Park Community Garden
- » Laurel Hill & West Laurel Hill Cemetery
- » Morris Arboretum of the University of Pennsylvania
- » Mount Moriah Cemetery
- » Philadelphia City Planning Commission
- » Pennsylvania Department of Conservation & Natural Resources
- » Pennsylvania Horticultural Society
- » Philadelphia Housing Authority
- » Philadelphia Housing Development Corporation
- » Philadelphia Industrial Development Corporation
- » Philadelphia Parks & Recreation
- » The School District of Philadelphia
- » The Schuylkill Center for Environmental Education
- » The Woodlands
- » USDA Forest Service, Northern Research Station, Philadelphia Field Station

Development

- » Brandywine Realty Trust
- » Building Industry Association
- » Center City District
- » D3 Developers
- » Hilco Redevelopment Partners
- » JDT International
- » Lomax Real Estate Partners
- » Mosaic Development Partners
- » Pearl Properties
- » Shift Capital
- » Temple University
- » University City District
- » University of Pennsylvania
- » Wexford Science and Technology

Education

- » After School All Stars
- » Bartram's Garden
- » Fairmount Water Works Interpretive Center
- » Overbrook Environmental Education Center
- » Pennsylvania Horticultural Society
- » PowerCorpsPHL
- » Philadelphia Orchard Project
- » Philadelphia Parks & Recreation
- » Philadelphia Water Department
- » The School District of Philadelphia
- » The Schuylkill Center for Environmental Education

Natural Lands

- » Academy of Natural Sciences of Drexel University
- » Audubon Pennsylvania
- » Fairmount Park Conservancy
- » Friends of Pennypack Park
- » Friends of the Wissahickon
- » John Heinz National Wildlife Refuge
- » Morris Arboretum of the University of Pennsylvania
- » Natural Lands Trust
- » Pennsylvania Department of Conservation and Natural Resources
- » Philadelphia Parks & Recreation
- » Philadelphia Water Department
- » Riverfront North Partnership
- » The Nature Conservancy
- » Tookany/Tacony-Frankford Watershed Partnership
- » TreeNortheast

Program Providers

- » Fairmount Park Conservancy
- » Pennsylvania Horticultural Society
- » Philadelphia Department of Public Health
- » Philadelphia Orchard Project
- » Philadelphia Parks & Recreation
- » Philadelphia Water Department
- » Riverfront North Partnership
- » Tookany/Tacony-Frankford Watershed Partnership
- » Tree Tenders Advisory Committee
- » Trust for Public Land
- » Urban Tree Connection

ADDITIONAL ACKNOWLEDGMENTS (continued)

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Desiré, Photographer

Melissa Holman, Admin for @igers_philly

Albert Lee, Photographer

David Maialetti | Photographer, The Philadelphia Inquirer

Ken McFarlane, Photographer

Winners:

@yesjarrodgreen, 1st place

@stephramones, 2nd place

@buildingbok, 3rd place

@Geo_f16, Audience choice

Honorable Mentions:

@trev.takes.photos

@kellymeerbott

@theladydaunts

@danarummery

@minigoldendoodlerio

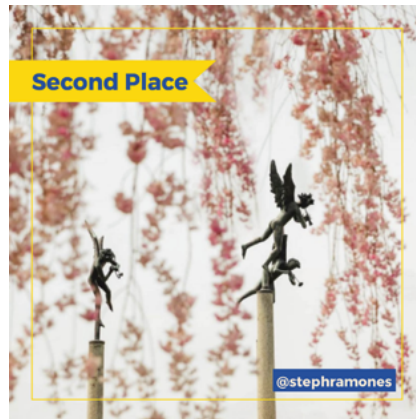
@Allen_rue

@denisewalkshilly



It's all about the Juneberry trees. Since my kiddo was one year old, we've delighted at hitting up the neighborhood trees at the end of the spring, with them up on my shoulders, eating to our hearts' content. Kiddo number two might be ready for finger foods just in time for this year's harvest!

- @yesjarrodgreen



"You can cut all the flowers but you cannot keep spring from coming" Pablo Neruda

When I'm most drained, these are words I think about. This past week has been exhausting in so many ways, but the flowers remind us that we can always bloom again.

- @stephramones



John went to Bok and graduated class of 1968. He still lives in the neighborhood... When the school closed in 2013 he wanted something to grow anew and planted a tree in honor of his plumbing teacher Mr. Robert Dale. When we learned the history, we added a plaque and had a dedication day. John brought hoagies told stories about his Bok days. The tree grows bigger every day and the history lives on.

- @buildingbok

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