Strategic Tree Canopy Plan

JUNE 2025

The City of

Petersburg, Virginia

Prepared by the Green Infrastructure Center Inc.

Green Infrastructure Center

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Executive Summary

The urban forest is a critical asset for healthy, resilient, and sustainable cities. Trees provide benefits that directly support public health by cleaning the air, filtering and reducing stormwater runoff, reducing urban temperatures, and fostering greater economic development. However, these benefits are at risk because tree canopy cover is declining across many U.S. localities. This *Strategic Tree Canopy Plan* provides data and strategies for maintaining and restoring tree canopy in Petersburg.

This plan is the culmination of a nine-month planning process that included workshops and strategic planning sessions led by the Green Infrastructure Center Inc. (GIC) with City of Petersburg staff and community partners. The public was engaged in this process through outreach events, a community open house and community interviews. The extent of urban forest cover was determined by analyzing aerial imagery to map the City's land cover. Open space was evaluated to determine the Potential Planting Area where future trees might be planted, along with assessments of the environmental and social benefits the City's trees provide. Strategies for retaining, protecting, and restoring tree canopy coverage were created.

City Goal

The City of Petersburg currently has 45% tree canopy coverage city-wide. Currently planned development will cause canopy loss of 2%. The city will then maintain canopy cover at 43% over the next 20 years. Tree planting will be needed to maintain 43% canopy because trees will still die from pests, storms, landowner removals, additional development, or old age. The City will manage losses to maintain 43% tree canopy coverage by:

1. Ensuring stewardship of Petersburg's public trees to protect their health and longevity.
2. Expanding community knowledge about the importance of trees and proper tree care.
3. Increasing the preservation of large trees before and during development projects.
4. Planting trees along transportation corridors, pedestrian routes, and business districts.
5. Expanding equitable access to tree benefits by increasing tree canopy in low-canopy communities.

How Trees Benefit the City

Tree canopy provides benefits such as cleaner air, urban cooling, stormwater capture, wildlife habitat, and natural beauty. This plan quantifies and identifies strategies to increase these benefits.

Air Quality

Trees sequester carbon and clean the air of particulate matter and ground-level ozone. Each year, Petersburg's trees remove:

- 29,144 metric tons of carbon
- 170,041 lbs. of ground-level ozone (O_3)
- 33,948 lbs. of airborne particulate matter (including PM2.5 and PM 10)

Urban Cooling

Excessive pavement and lack of shade create urban heat islands. Petersburg's trees counter urban heating by shading hot areas. Tree canopy cover lowers surface temperatures and cools the city.

Stormwater Uptake

Trees capture rainfall and filter pollutants. During a ten-year/24-hour rainfall event (5.15 inches) the City's trees:

- soak up 56.1 million gallons of water
- reduce runoff pollution loads for nitrogen by 26%, phosphorus by 34%, and sediment by 20%

Canopy Goals

Petersburg's goal is to manage loss by maintaining tree canopy coverage at 43% over the next 20 years. This goal requires planting:

- 200 trees on city-owned land annually
- 800 additional trees on private property through education and tree giveaways

Tree Canopy and Potential Planting Area

The City of Petersburg now has baseline data to identify opportunities to plant new trees for shade, energy savings, increased stormwater uptake, and improved air and water quality.

Introduction

The City of Petersburg was founded in 1748 as a port city along the banks of the Appomattox River at the bottom of the falls that demarcate the Fall Line between the Coastal Plain and Piedmont regions of Virginia. The land here was cared for by Native Americans of the Appamatuck tribe (Chu 2021) before 1645, when the Fort Henry trading post, was built on the site that would become Petersburg. Tobacco was an important industry and export for the City from its founding through the 1980s (Historic Petersburg Foundation 2025). Surviving battles from the Revolutionary and Civil Wars, Petersburg has a rich and complex history. Both before and after the Civil War, Petersburg was a destination for "free blacks" in Virginia. The city served as an important stop on the Underground Railroad, and the port provided opportunities for enslaved people to escape northward. The city was also very active in protests against "Jim Crow Laws" during the Civil Rights Movement. Petersburg's storied past can be experienced today through its historic downtown, churches, homes, cemeteries, and battlefields.

This City also has a wealth of natural features, including urban trees, parks, forests, wetlands, lakes, streams, and rivers that provide social, economic, and ecological benefits to residents while creating a sense of place. By protecting and restoring its natural features and historic sites, Petersburg can ensure a healthy, green, and vibrant future.

The Strategic Tree Canopy Plan supports the City's Comprehensive Plan 2044, PetersburgNEXT, by encouraging economic growth while conserving its natural assets through the preservation and expansion of the City's tree canopy. This plan calls for the increase of trees in underserved areas to address urban heat islands, stormwater runoff, and erosion in alignment with the PetersburgNEXT's objectives.

> ***PetersburgNEXT Objective 8.5:***
> **"Improve the environmental resilience and sustainability efforts to protect residents and property owners from the long-term effects of climate change."**

Petersburg Fast Facts

Population: 33,309 people*
Total City Area: 23.1 sq. miles
Land Area: 22.7 sq. miles
Lakes/Ponds: 103 acres
Wetlands & Marshes: 729 acres
Streams: 45 miles
Tree Canopy: 6,462 acres
Potential Planting Area: 2,040 acres
Impervious Surfaces: 3,555 acres

(U.S. Census 2023 estimate)

The Historic Hustings Courthouse (*above*) sits at the center of the Courthouse Historic District in downtown.

Tree Benefits

Trees benefit communities ecologically, economically, and socially. Some of the many benefits include:

- Cleaner air and water
- Enhanced natural beauty
- Bird and wildlife habitat
- Reduced city heat
- Reduced levels of crime
- Reduced traffic accidents
- Increased revenues from sales and property taxes
- Lower vacancy rates
- Improved mental health and focus
- Improved metabolic function
- Increased access to outdoor fitness opportunities.

Trees Are Green Infrastructure

Trees and other vegetation serve as the City's "green infrastructure." Just as localities manage gray infrastructure (roads, sidewalks, bridges, and pipes), they should also manage vegetation as infrastructure. Trees support a vibrant, safe, and healthy community while adding to its historic character. They enhance sustainability by filtering stormwater and reducing runoff, cooling streets, cleaning the air, capturing carbon emissions, and increasing property values.

Large canopy trees provide greater benefits than smaller trees. The USDA Forest Service found that in 2025 dollars, a large tree is worth $7,411 in annual benefits while a small tree is worth just $450 (Center for Urban Forest Research and Southern Center for Urban Forestry Research & Information 2006).

Gray vs. Green

The image on the left shows the City of Petersburg's gray infrastructure, including buildings and roads. Classified high-resolution satellite imagery (*on the right*) adds the City's green infrastructure (trees and other vegetation). This green infrastructure provides cleaner air and water, energy savings, and natural beauty.

Trees filter and clean stormwater runoff before it enters surface waters, ensuring healthy rivers and creeks for recreation and habitat.

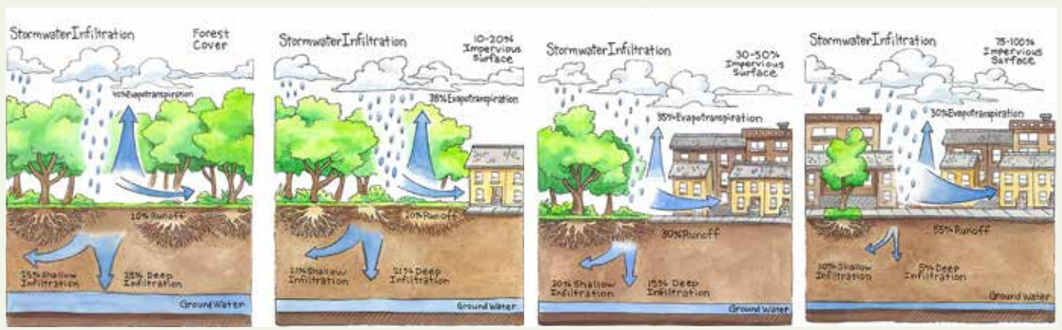
Reducing Stormwater Runoff and Filtering Pollutants

Trees protect cities from problems associated with stormwater runoff. As forested land is converted to impervious surfaces, such as roads, buildings and parking lots, urban stormwater runoff increases. Excess stormwater runoff can cause temperature spikes in receiving waters, increased pollution of surface and ground waters, and greater potential for flooding.

Trees reduce nitrogen, phosphorus, and sediment in stormwater by filtering runoff of these pollutants. Increased loads of nutrients in stormwater runoff reduce oxygen in surface water, causing harm to fish and other aquatic life. Nitrogen and phosphorus can cause harmful algal blooms, while sediment can clog fish gills, smother aquatic life, and necessitate additional dredging of canals and waterways. As tree cover is lost and impervious areas expand, excessive urban runoff of these harmful pollutants greatly increases. The presence of trees means fewer pollutants enter the City's many watersheds, including the Appomattox River, James River, and eventually the Chesapeake Bay.

The average annual precipitation in Petersburg is 46.43 inches (National Weather Service 2025). Much of this runoff flows into the sewer system, transporting surface pollutants from the land to local waterways. Large paved areas contribute significant volumes to this runoff. While stormwater ponds and other best management practices (BMPs) are designed to mimic natural land cover rainfall release by detaining and filtering runoff, they do not fully replicate pre-development hydrology. In addition, older parts of the City may lack updated stormwater management practices required for new developments, so not all runoff is captured or treated before it flows into open waterways.

Infiltration Rates with Development



Runoff increases as land is developed. *Graphic adapted by GIC. Data Source: U.S. EPA Watershed Academy 2025.*

Excess impervious areas cause hotter temperatures and increased runoff. This parking lot could be retrofitted to add more trees, bioswales, and pervious surfaces that allow water to seep into the ground.

This grassed swale allows water to soak into the ground, thereby reducing neighborhood flooding and pollution of nearby Harrison Creek.

Since trees filter stormwater and reduce overall flows, planting or conserving trees is a natural, cost-effective way to mitigate stormwater. Each tree plays an important role in stormwater management. Based on the GIC's review of canopy rainfall interception studies, a typical street tree's crown can intercept between 760 and 4,000 gallons of water per year, depending on the tree's species and age.

The river birch tree on this residential property provides stormwater management benefits for this home and the surrounding watershed.

Buffering Storm Damage with Green Infrastructure – Trees!

Another benefit of conserving trees and forests is buffering against storms and reducing losses from flooding. According to the U.S. Environmental Protection Agency (EPA), excessive stormwater causes increased flooding, property damage, and public safety hazards. The EPA recommends ways to use trees to manage stormwater in its book *Stormwater to Street Trees*. https://www.epa.gov/sites/default/files/2015-11/documents/stormwater2streettrees.pdf

Retaining trees and forests along streams prevents erosion and provides key habitat for fish, birds, animals, and people too. A community can categorize their trees as "green infrastructure" to help justify spending money on city trees because they function as natural infrastructure by reducing standing water, preventing erosion, serving as windbreaks, and shading areas to reduce excessive temperatures.

In some cases, FEMA has reimbursed communities for lost tree cover when those trees were part of identified infrastructure, such as when a stream restoration project was damaged by a hurricane and the community had already identified the planted trees as infrastructure. To qualify, trees must be inventoried, have records of maintenance, and be specifically utilized for stormwater management, buffers, or other "green infrastructure" functions. Trees should also be recognized as infrastructure in policy documents such as the Comprehensive Plan, the Capital Improvement Plan (CIP), and even the City's tree ordinances.

Riparian buffers prevent stream erosion and reduce the risk of flooding.

Improving Air Quality, Public Health, and Economic Values

Trees Clean the Air

Higher tree canopy cover is correlated with better air quality. Trees reduce ground-level ozone (O_3) while filtering out fine particulate matter, which can damage lungs and lead to respiratory distress and conditions such as asthma. In fact, well-treed neighborhoods have lower rates of respiratory illness (Rao et al. 2014). Trees capture such greenhouse gases as sulfur dioxide and carbon dioxide. These gases contribute to a warming planet and are associated with health problems from excessive heat. Trees also sequester carbon by storing it as wood, preventing its release into the atmosphere and mitigating the impact of climate change.

Trees Cool the City

Tree shade provides important refuge for children and the elderly during hot summers. Excessive heat can lead to heat stress, especially affecting infants and children up to four years of age, and people 65 years of age and older, or people with obesity or other health issues. (Centers for Disease Control and Prevention 2024).

Tree canopy shades streets, sidewalks, parking lots, and homes, making urban locations cooler and more pleasant for outdoor activities, such as hiking, gardening and playing in city parks. Multiple studies have found significant cooling (2-7°F) and energy savings from shade trees in cities (McPherson et al. 1997, Akbari et al. 2001). Individual trees can transpire hundreds of liters of water per day, which represents a cooling effect equivalent to the energy needed to power two average household central air-conditioning units (Ellison et al. 2017). Proper tree placement can reduce summer air conditioning costs by up to 35% (Arbor Day Foundation 2025). Pavement shaded by trees has a longer lifespan than pavement in full sun, reducing maintenance costs of roadways and sidewalks (McPherson and Muchnick 2005).

Trees Improve Cognitive Function

Exposure to green spaces such as parks or treed landscapes for just 20 minutes a day can significantly improve cognitive function, emphasizing the need for green spaces around schools, allowing children to learn to their best ability. People with Attention Deficit Hyperactivity Disorder (ADHD) benefit from exposure to greenspace. Children who regularly play in green spaces have milder symptoms of ADHD (Faber, Taylor, and Kuo 2011).

The City's trees reduce temperatures during hot summers through evapotranspiration and by casting shade.

Well-treed sidewalks encourage people to walk and shop.

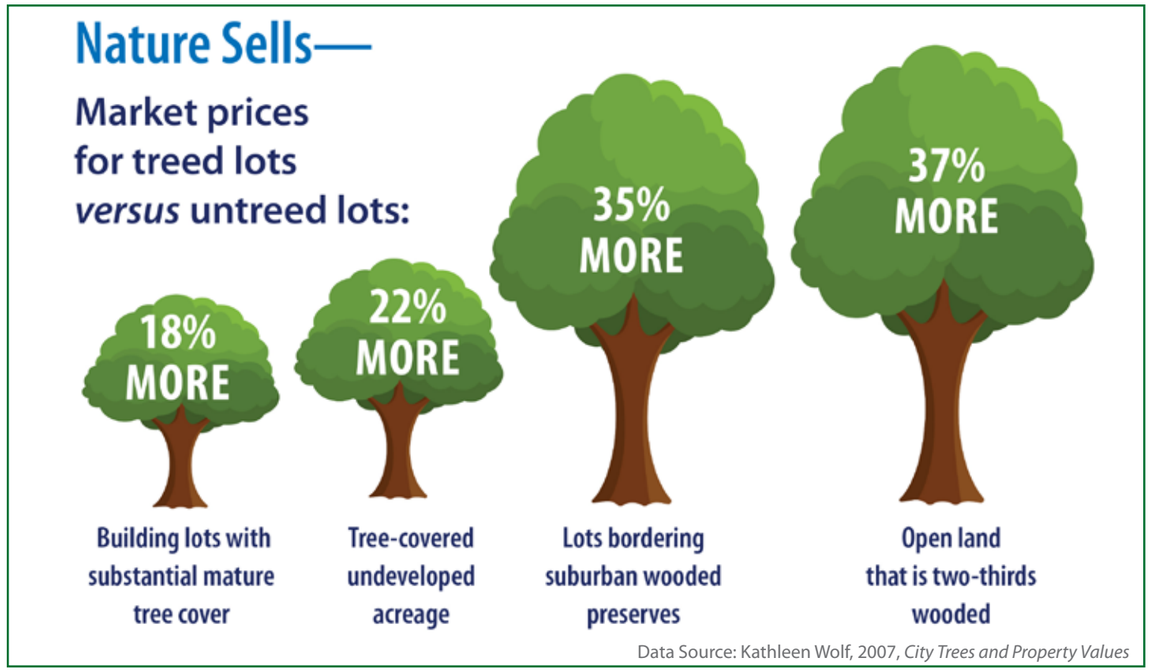
Trees Improve Walkability

Trees result in people walking more and walking farther. The cooler temperatures, aesthetics, and traffic slowing effect increase a community's walkability, which is a priority of the City of Petersburg. When trees are not present on a street, people perceive distances to be longer, hotter, and less pleasant, making pedestrians less inclined to walk than if streets are well-treed (Tilt, Unfried, and Roca 2007).

Home buyers will pay more for homes with mature trees.

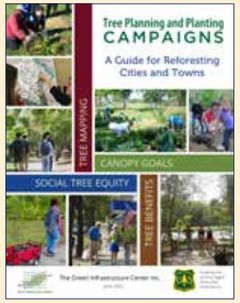
Trees Increase Property Values

Developments that include green space or natural areas in their plans sell homes faster and for higher profits than those that take the more traditional approach of building over an entire area without conserving natural space (Benedict and McMahon 2006). Individual trees and forested open spaces make lots more valuable. Trees on developed lots add about 18% to property assessments and real estate value. (Wolf 2007). [*See the Nature Sells graphic, below.*]



Preventing "Green Gentrification"

The fear of gentrification is often a concern when it comes to community planting projects in lower-income neighborhoods. The concern is that beautifying a neighborhood with numerous shade trees, adding street medians with more trees, planting trees in front yards, and having more parks and other open spaces nearby will raise property values and make houses unaffordable for low-income families, spur landlords to raise rents and result in property tax increases. As a result, some people have argued against planting trees in low-income and minority communities. However, that is really a counter-productive argument. Should we use that same argument to deny those neighborhoods streetlights, sidewalks or good policing? Everyone has the right to cleaner air, cooler summers, less flooding, lower energy costs and the general social wellbeing that trees provide – regardless of their race or income. Higher house prices actually help those who already own their homes to accumulate capital. To learn more about how to prevent "green gentrification", see the GIC's *Tree Campaign Guide* https://gicinc.org/books/tree-planning-and-planting-campaigns/



Instead of keeping places less treed and more polluted, cities should address the sources of those problems associated with affordability. One example would be an agreement with landlords not to raise rents within five years of a planting project; another would be to engage the community housing and development staff in providing more affordable housing. One city put a moratorium on raising real estate taxes in the low-income neighborhood surrounding a new park built with extensive community input. The GIC has worked to improve public housing and partnered with housing authorities to provide more affordable housing.

People shop longer and spend more in treed commercial shopping districts.

Trees provide shade and make shopping districts more walkable.

Trees Pay Us Back

As the City considers the cost of planting and caring for more trees, it's important to note that "every dollar invested in planting a tree results in an average return on investment of $2.25" (Endreny 2018). In fact, even a newly planted tree will immediately begin to provide benefits. So, while the City will need to expend more funds to increase and maintain its canopy coverage, those trees will more than pay their way. This includes increases in property values, and thus in property tax revenues, more tourism revenue, rejuvenation of business districts, and new businesses attracted to the City. For example, people were seen to shop longer and spend more in treed commercial shopping districts, which benefits the City through increased sales revenues (Wolf 2007). Planting trees should not be seen in isolation, but as part of a wider cycle of urban renewal and growth, in which trees spur development and raise incomes, business sales and that "feel-good factor", which can, in turn, lead to a desire for more trees, parks and outdoor leisure facilities. Trees help turn a downward spiral into an upward spiral, as part of a City's renewed sense of pride and prosperity.

Trees add to the historic character of established neighborhoods.

Tree Canopy Analysis Methods

The tree canopy analysis was performed to map current tree canopy, quantify the ecosystem services these trees provide, map potential planting areas, and estimate potential future canopy based on plantable areas. These new tree canopy data can be used to analyze urban cooling, walkability, and street tree plantings; or to inform area plans, urban forestry planning, and the City's Comprehensive Plan updates.

Satellite imagery from the National Agricultural Imagery Program (NAIP) distributed by the USDA Farm Service Agency was classified to determine the types and extent of different land covers in Petersburg. The land cover map was created at 1-meter resolution using NAIP imagery from October 13, 2023. An ArcGIS Pro extension named Feature Analyst was used to classify the image using a supervised classification approach. In addition, various vector data were used where possible (e.g. sidewalks, driveways, and other impervious surfaces). The tree canopy was mapped at 97% accuracy, with an overall land cover accuracy of 86%.

Potential planting area at a church.

Determining Plantable Acreage

Potential Planting Areas

In urban areas, a realistic goal for expanding urban canopy depends on an accurate assessment of the total plantable open area. A Potential Planting Area (PPA) map estimates areas where it may be feasible to plant trees. The PPA is estimated by selecting land cover types that have space available for planting trees and accounts for the overlap of canopy (canopy that is intermingled or a large canopy tree that partially covers an understory tree).

Of the nine land cover types mapped, only pervious and bare earth were considered for the PPA. However, some paved areas could be removed or reduced, soils conditioned, and then used to plant new trees. For example, a parking lot could be redesigned in order to accommodate more tree canopy to absorb and clean stormwater runoff and provide shade for cars.

Eligible planting areas are also limited by their proximity to features that interfere with a tree's natural growth (such as buildings) or where a tree might affect the feature, such as power lines, street signs, or road junctions. The GIC buffers potential planting areas to exclude trees from these features. City staff and the GIC reviewed the draft PPA map and removed playing fields, cemeteries, and other land uses where trees would not be appropriate. The resulting PPA represents the maximum potential places trees can be planted and grow to full size.

Based on an analysis of existing pervious surfaces, 14% of the City's land area, or 6,462 acres, could be planted with additional trees. The GIC recommends that no more than half the available PPA, 7% or 3,231 acres, is realistic to plant, since many other uses, such as vegetable gardens or swimming pools, require full sun.

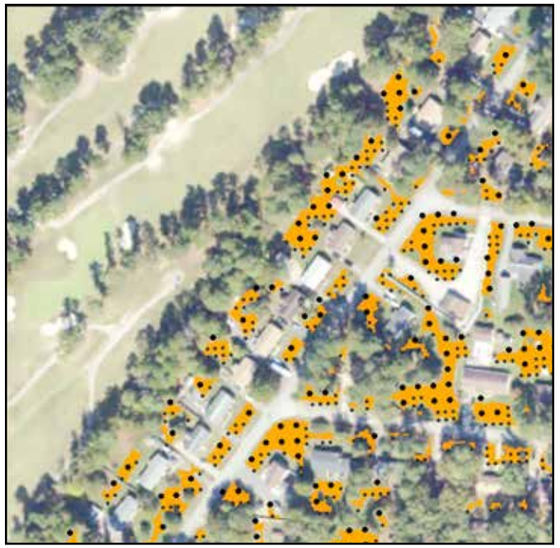
Potential Planting Spots

Potential Planting Spots (PPS) are created from the PPA. A GIS modeling process is applied to select spots where a tree can be planted, depending on the desired mature size. For this analysis, expected canopy spreads of 20ft. and 40ft. diameter for individual mature trees were used, with priority given to 40 ft. diameter trees, since larger trees provide more benefits.

Potential Canopy Area

The Potential Canopy Area (PCA) is created from the PPS. Once the PPS are selected, a buffer around each point is created to represent the mature canopy spread. For this analysis, that buffer radius is either 10ft. or 20ft., which represents a 20ft. or 40ft. diameter canopy. These individual tree canopies are then merged to form a Potential Canopy Area.

NAIP Aerial Image, 2023



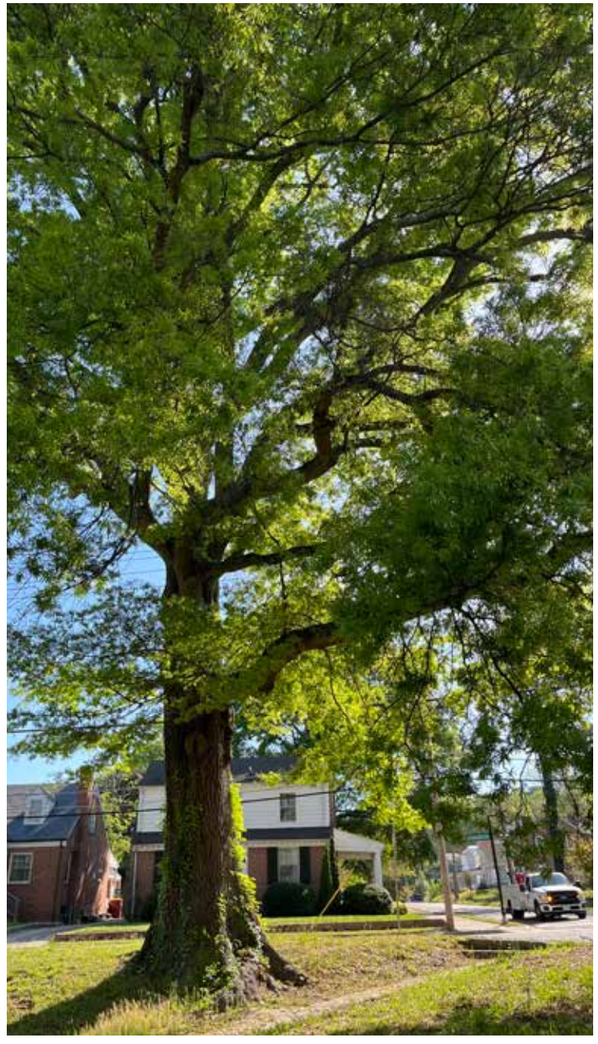
Potential Planting Spots (PPS)

Potential Planting Area (PPA)

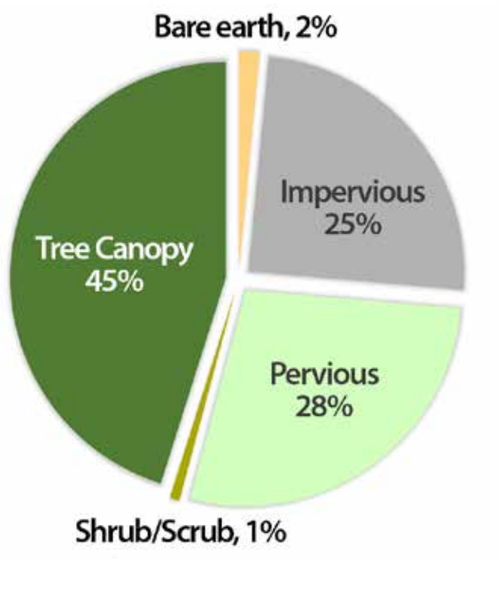
Potential Canopy Area (PCA)

There are many places in the City where new trees can be planted, such as at Walnut Hill Elementary School and Petersburg High school.

Canopy Analysis Maps and Findings



One mature tree can absorb thousands of gallons of water per year.



The Tree Canopy Analysis has been used to plan the City's target tree canopy goal and will act as a benchmark to gauge the future status of the City's tree canopy. An ArcGIS geodatabase with digital shape files produced during the study has been provided to the City.

In addition, the City received tree canopy statistics for the following areas:

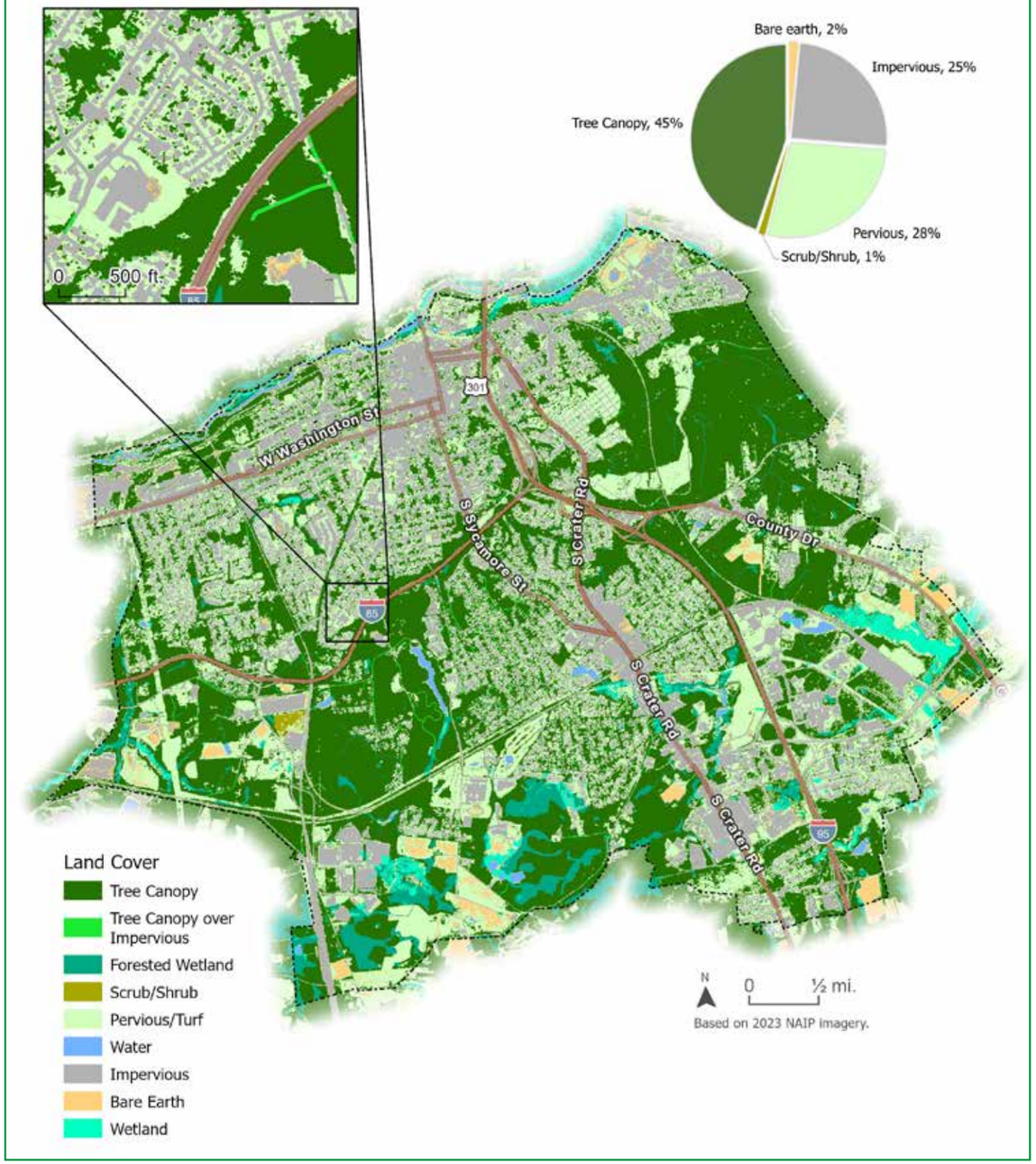
- Parcels
- Parks
- Schools
- Streets
- Neighborhoods

The Tree Canopy Analysis can inform tree planting decisions to meet many objectives, such as walkability, greenhouse gas emission reduction, energy savings, urban heat reduction, and economic revitalization.

The following five pages contain Petersburg's Tree Canopy Analysis Maps.

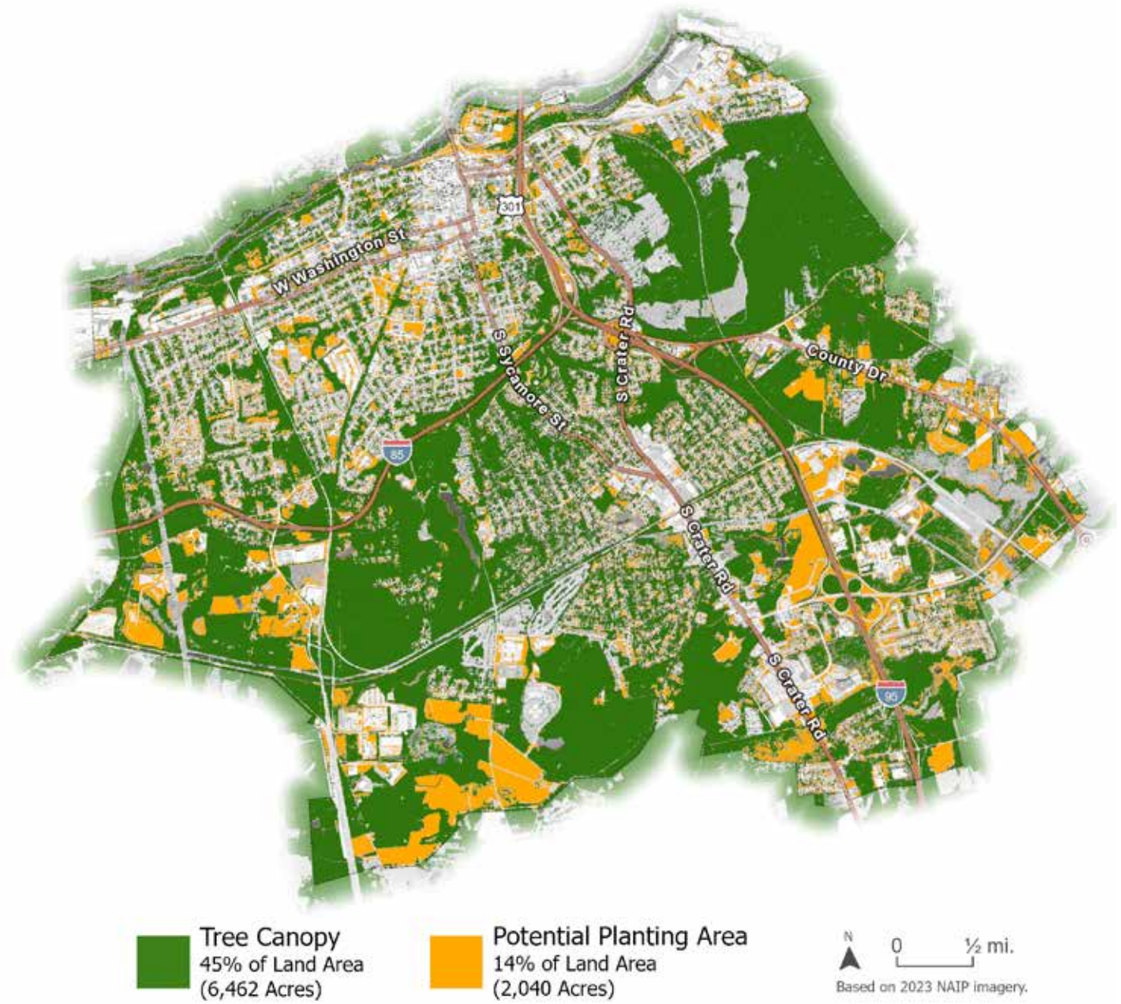
City Land Cover

GIC classified 9 land cover types for the City of Petersburg from 2023 NAIP aerial imagery.



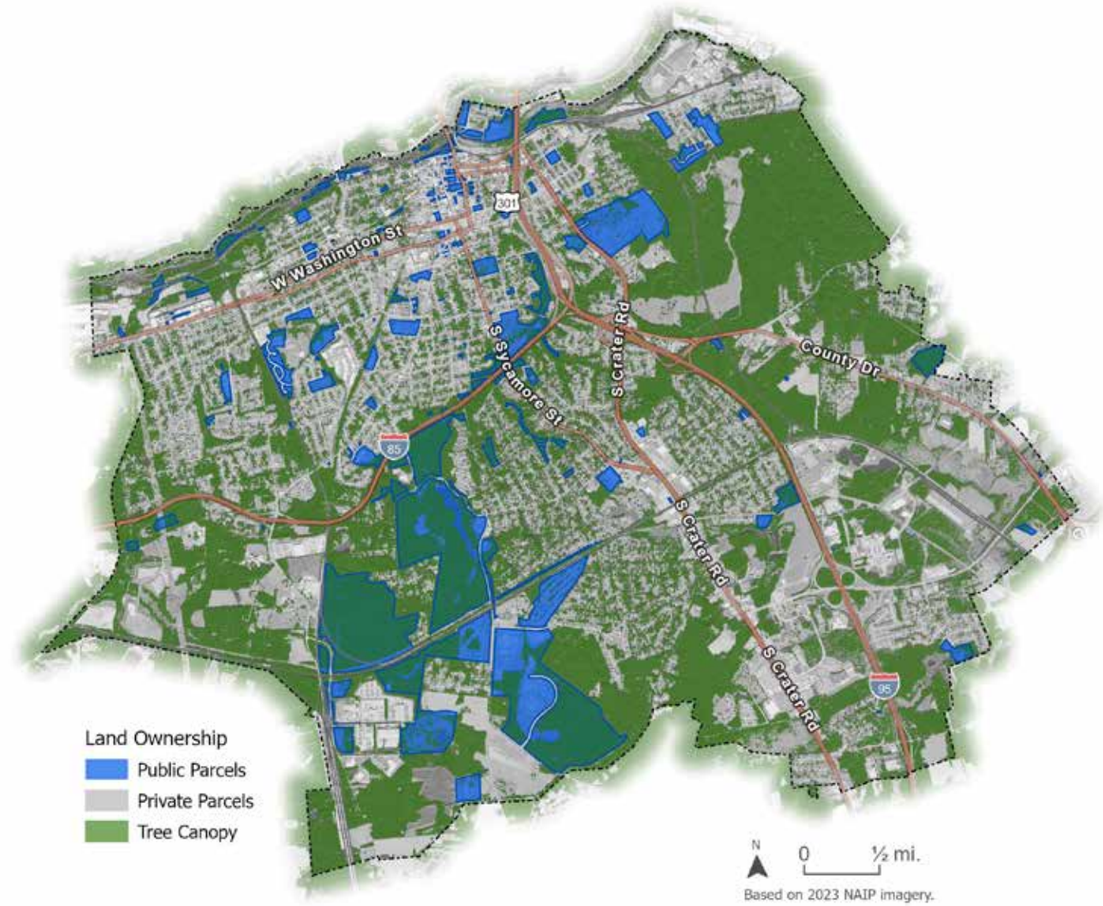
City Tree Canopy and Potential Planting Areas

Existing tree canopy (green) and potential planting area (orange) were determined based on land cover data and input from the City. Potential planting areas (PPA) depict areas where it may be possible to plant trees. All sites would need to be confirmed in the field prior to planting. The map shows PPA on both private and public lands.



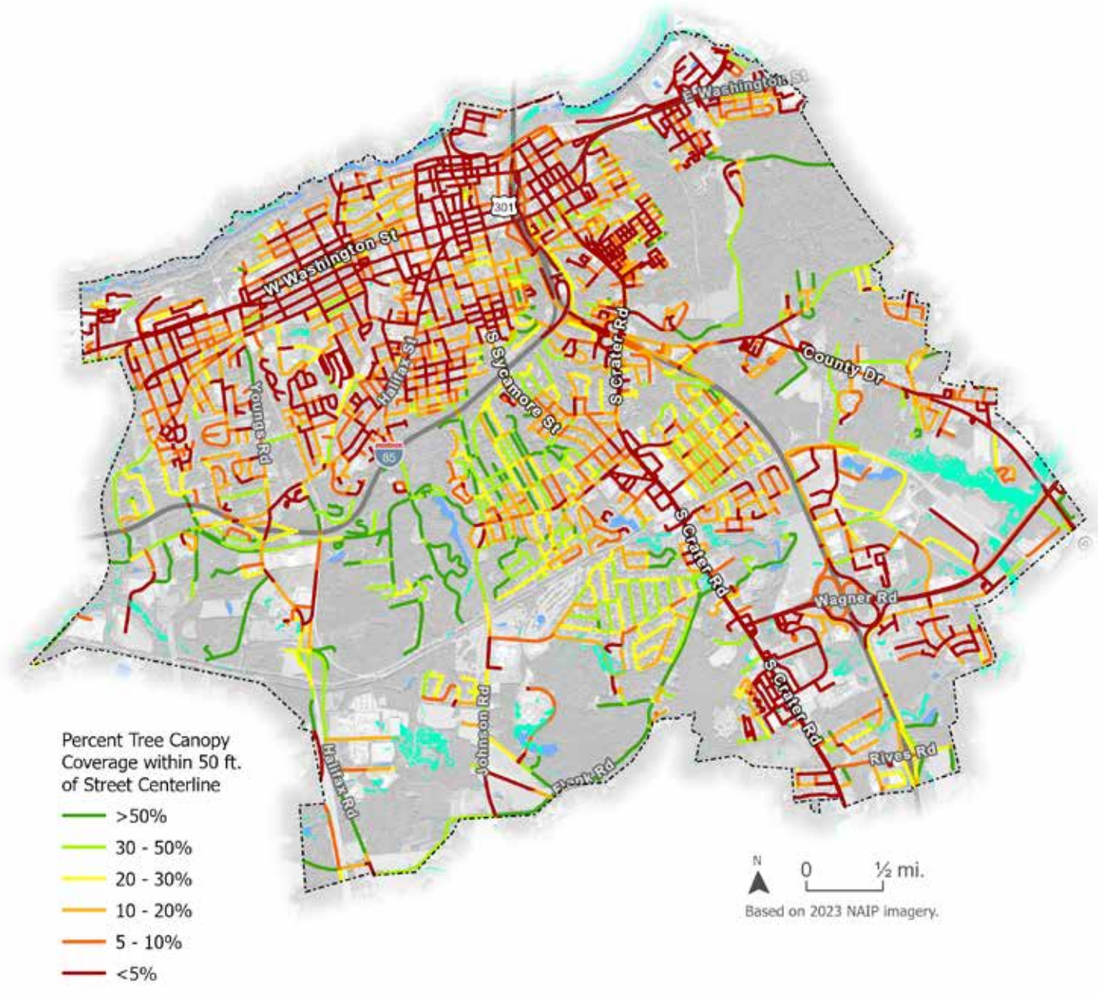
Public and Private Land

On average, publicly owned land makes up 20%, while privately owned land makes up 80%, of the total land in a city. This map shows a breakout of public and private land in Petersburg. To successfully meet Petersburg's tree canopy goal to maintain 43% tree canopy, saving existing trees and planting trees must occur on both public and private land.



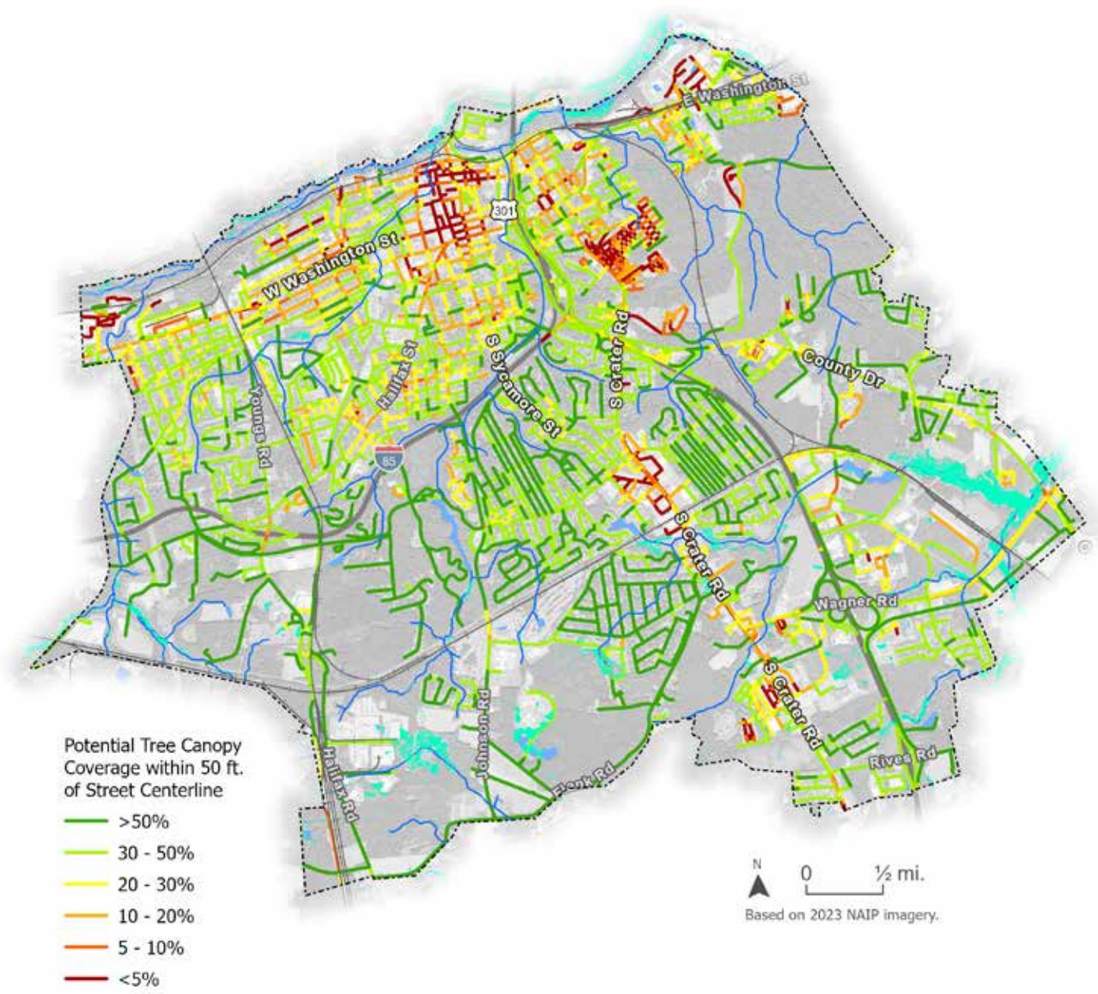
Existing Tree Canopy Coverage Along Streets

Streets that have the most canopy (dark green) and those that have the least canopy (red). Streets that lack good tree coverage can be targeted as appropriate for planting to facilitate specific City objectives, such as safe routes to school or beautifying a shopping district.



Potential Tree Canopy Coverage Along Streets

If all potential planting areas within 50ft. of every road's center line were planted, this is what the canopy coverage along streets would look like.



Tree Canopy Coverage by Park

Tree canopy for each City park. Parks with trees promote physical and mental health and provide shaded areas for children to play.

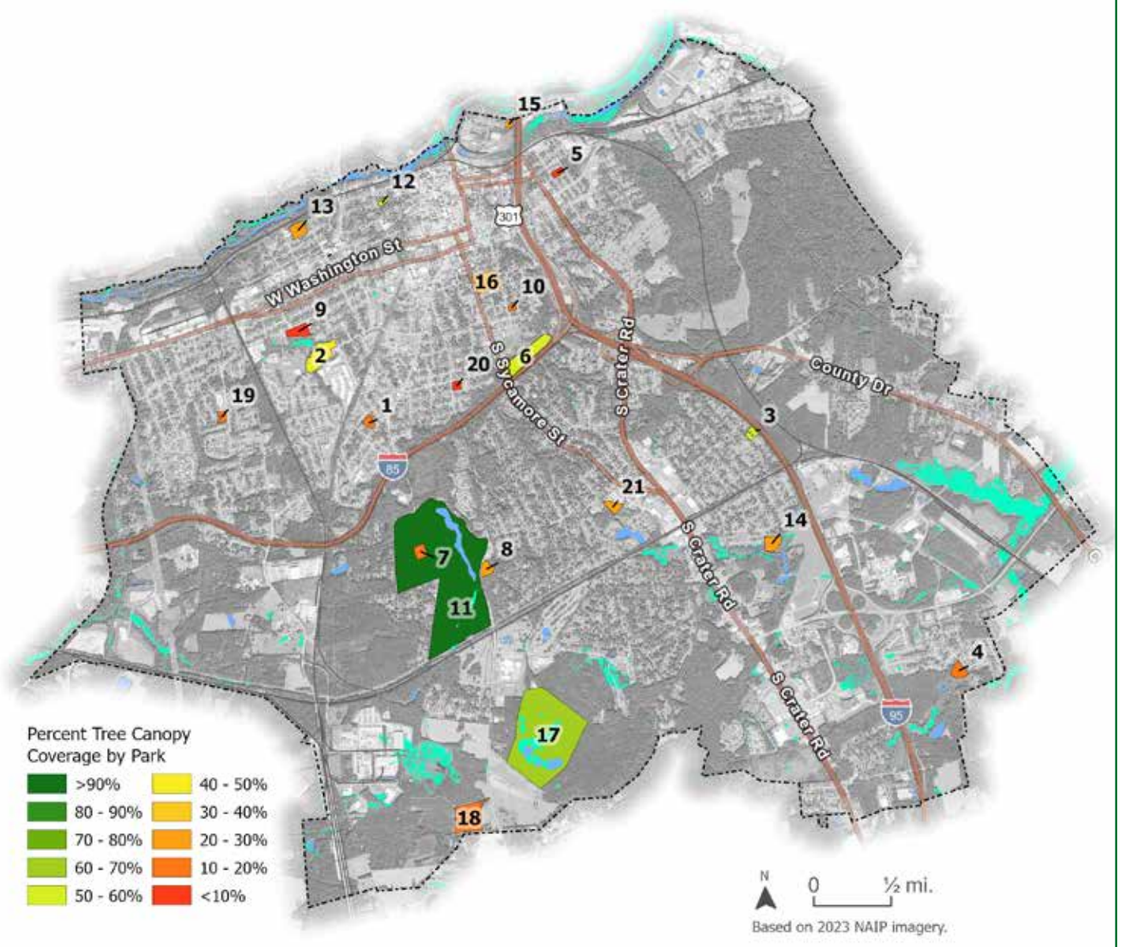
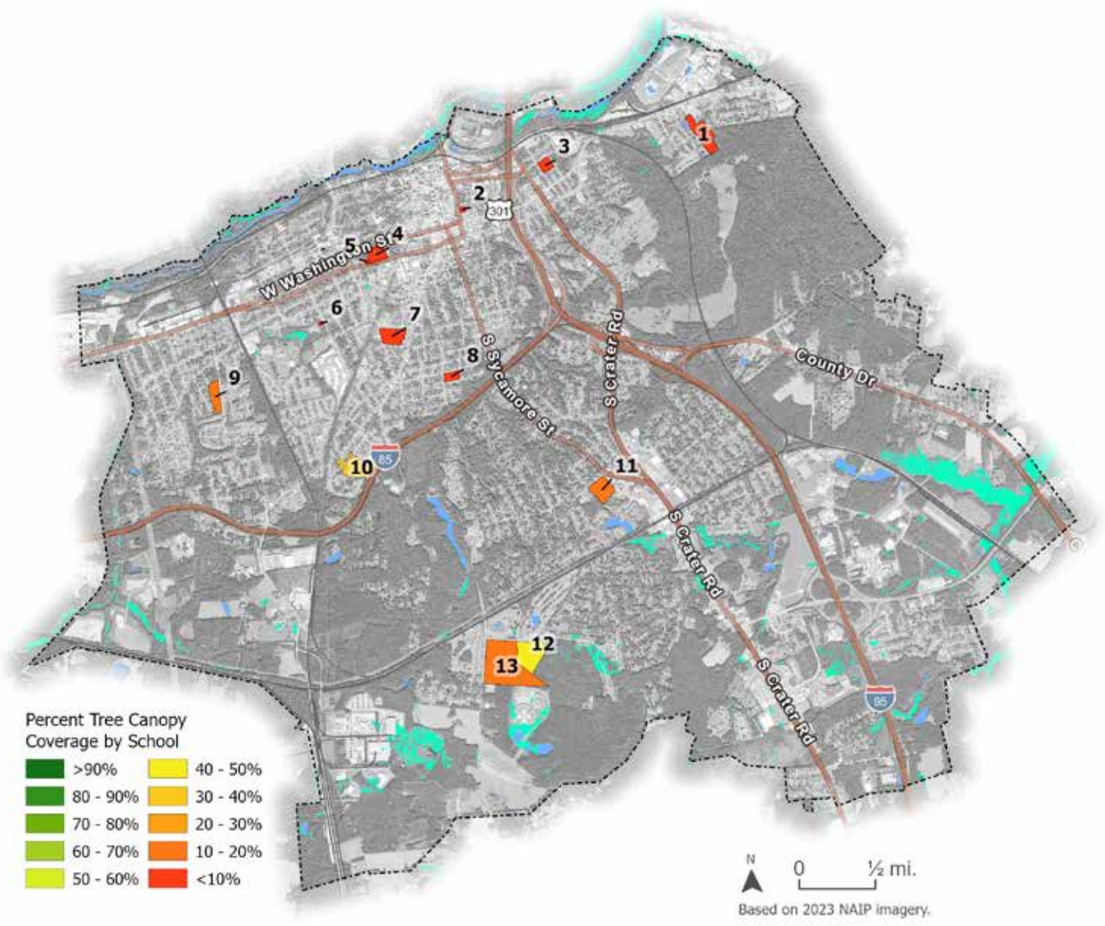


Table 1 Petersburg City Parks

Mapcode #	Name	Address	Percent Tree Canopy (Current)	Potential Tree Canopy Coverage	PPA Acres	Small Trees That Could Be Planted	Large Trees That Could Be Planted	Total Potential To Plant Trees
1	A.P. Hill Community Center / Playground	1297 Halifax St.	17%	74%	1.3	66	71	137
2	Albert Jones/Peabody Field	806 Augusta Ave.	44%	90%	5.4	149	301	450
3	Anderson Playground	2122 Anderson St.	54%	95%	0.9	27	52	79
4	Berkley Manor Neighborhood Park	Normandy Drive	16%	50%	1.1	106	62	168
5	Blandford Playground	816 E. Bank St.	2%	72%	1.2	42	66	108
6	Cameron Field	909 S. Sycamore St.	53%	85%	4.3	257	229	486
7	Cooper Field	1612-1698 Defense Rd.	12%	20%	0.2	12	12	24
8	Day Field	1214 Johnson Ave.	21%	48%	0.6	63	39	102
9	Farmer Street Playground	1216 Farmer St.	10%	80%	3.5	181	184	365
10	Jefferson Street Playground	534 Clinton St.	16%	75%	0.6	42	31	73
11	Legends Park	1614 Defense Road	91%	95%	5.8	610	321	931
12	Low Street Park	361 Low St.	40%	84%	0.4	35	19	54
13	McKenzie Street Playground	901 McKenzie St.	27%	85%	2.7	88	146	234
14	Oakhurst Playground	499 Blackwater Dr.	24%	72%	2.4	75	131	206
15	Pocahontas Park	800 Magazine Rd.	28%	96%	0.7	39	41	80
16	Poplar Lawn Park	351 S. Sycamore St.	27%	89%	6.2	325	332	657
17	Sports Complex	100 Ball Park Rd.	65%	71%	4.9	378	269	647
18	St. Vincent/Flank Rd. Ballfield	1555 Flank Rd.	16%	97%	14.7	308	808	1116
19	Stuart Playground	100 Pleasants Ln.	16%	80%	1.2	95	57	152
20	Virginia Avenue Playground	1000 Diamond St.	0%	75%	1.4	16	85	101
21	Walnut Hill Playground	300 W. South Blvd.	24%	73%	1.6	43	87	130

Tree Canopy Coverage by School

Planting at school sites can save energy costs for cooling and boost student concentration and learning.



Exposure to green spaces for 20 minutes a day can improve childrens' cognitive function.

Table 2 Petersburg City Schools

Mapcode #	Name	Address	Percent Tree Canopy (Current)	Potential Tree Canopy Coverage	PPA Acres	Small Trees That Could Be Planted	Large Trees That Could Be Planted	Total Potential To Plant Trees
1	Lakemont Elementary School	51 Gibbons Ave	10%	66%	6.4	260	347	607
2	Saint Joseph Catholic School	123 Franklin St	0%	0%	0	0	0	0
3	Blandford Academy	816 Bank St E	1%	48%	1.6	75	89	164
4	Appomattox Regional Governor's School	512 Washington St W	6%	45%	2.1	177	106	283
5	Pittman Academy	35 Pine St	0%	7%	0.0	2	2	4
6	Bishop Payne Divinity School (historical)	416-22 West St S	6%	7%	0.0	1	0	1
7	Peabody Middle School	725 Wesley St	1%	47%	4.1	118	219	337
8	Westview Early Childhood Learning Center	1000 Diamond St	2%	51%	1.6	30	95	125
9	Pleasants Lane Elementary School	100 Pleasants Ln	10%	48%	2.2	149	122	271
10	Cool Spring Elementary School	1450 Talley Ave	36%	75%	4.9	245	279	524
11	Walnut Hill Elementary School	300 South Blvd	14%	52%	3.3	151	183	334
12	Vernon Johns Middle School	3101 Homestead Dr	42%	67%	3.5	214	182	396
13	Petersburg High School	3101 Johnson Rd	18%	51%	12.9	577	702	1279

Walnut Hill Elementary School

Calculating Environmental Benefits

Stormwater Uptake

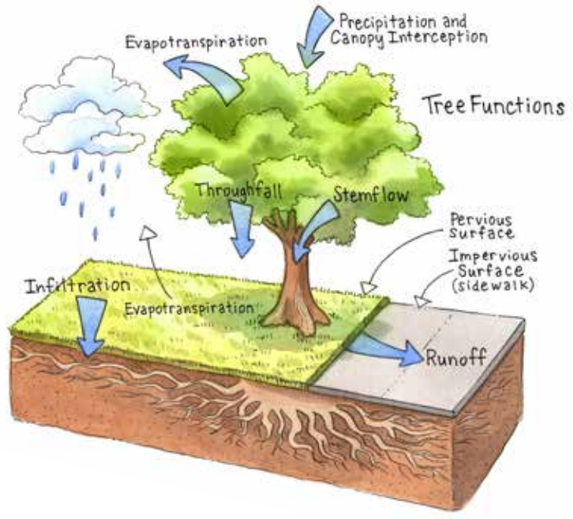
Trees and forests are the best land cover for taking up urban stormwater and are recognized as such by forestry scientists and civil engineers (Kuehler 2017, 2016). Tree canopy stormwater interception varies from 100% at the beginning of a rainfall event to about 3% at maximum rain intensity (Xiao et al. 2000).

Trees help capture and filter stormwater runoff. The Trees and Stormwater (TSW) Tool developed by the GIC estimates the stormwater interception, infiltration, and runoff of different land cover types. This methodology uses a modified version of the "curve number" approach, originally developed by the Natural Resources Conservation Service (NRCS) which factors in impacts of hydrologic soil groups, land cover types, hydrologic condition, and design/management practices that impact runoff. The modified TR55 curve numbers (CN) include a factor for canopy interception. This approach allows for more detailed assessments of stormwater uptake based on the landscape conditions of the City's forests. It distinguishes whether the trees are within a forest, a lawn setting, a forested wetland, or over pavement, such as streets or sidewalks. This is because the conditions and the soils in which the tree is living affect the amount of water the tree can intercept. For more about this methodology, please visit: https://gicinc.org/projects/resiliency/trees-and-stormwater/

The GIC used its TSW Tool to model stormwater and pollution reductions by city tree canopy. The model shows that, during a 10-year/24-hour rainfall event (5.15 inches), trees take up 56.1 million gallons of runoff, or about 85 Olympic swimming pools of water. Petersburg's trees capture:

- **52,664 nitrogen lbs. annually**
- **4,306 phosphorus lbs. annually**
- **2,569 sediment tons annually**

The TSW Tool takes into account the interaction of land cover and hydrologic soil conditions within each watershed. The TSW Tool can also be used to run 'what-if' scenarios, specifically losses of tree canopy from development or storm damage, or increases in tree canopy from additional tree planting.



Lawn trees in a park soak up more stormwater than trees over pavement.

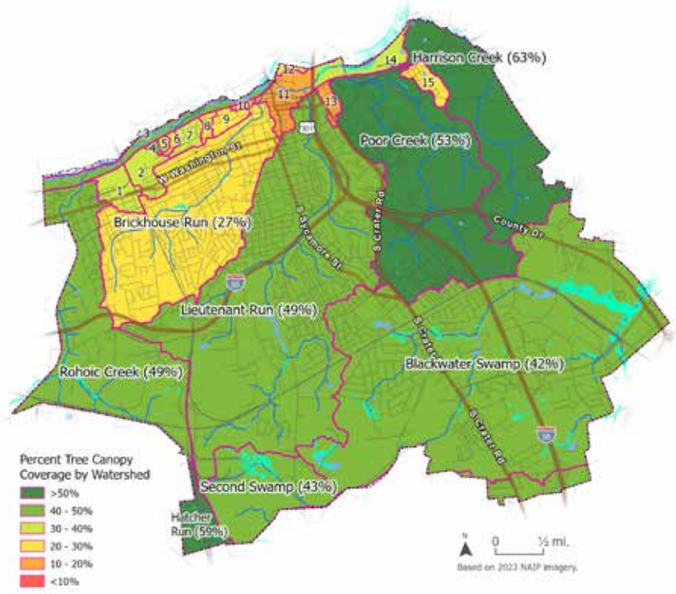
Tree Canopy Coverage by Watershed

The conditions under and around a tree, such as the size of its planting box, the amount and type of open space, surface soils, drainage and root spread affect the infiltration of water. The TSW Tool uses plantable open spaces to determine how many more trees could be planted and how much additional nitrogen, phosphorus, and sediment pollutants new trees and their surrounding soils could absorb.

Removal of mature trees and existing forests results in the greatest increase in stormwater runoff. As more land is developed, the City should maximize tree conservation and encourage new tree plantings to maintain surface water quality and groundwater recharge. The following maps use soil types and tree cover to show the areas where it is most important to retain trees for stormwater uptake and areas where tree planting will have the most benefits for stormwater uptake.

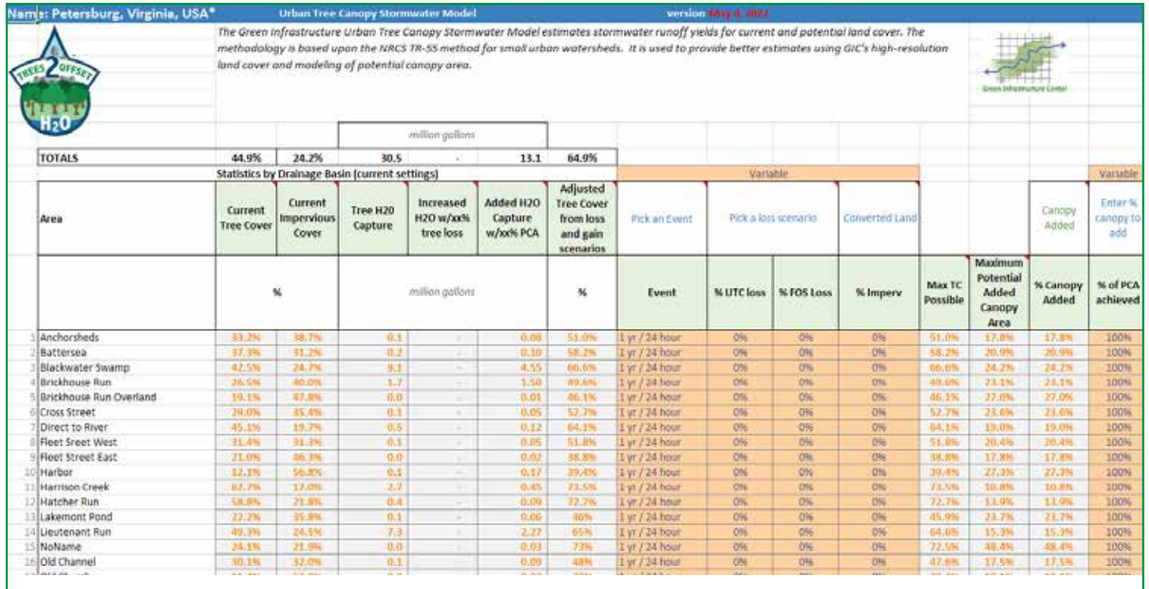
Tree Canopy Coverage by Watershed

The City can use the TSW Tool for running scenarios and setting objectives at the watershed scale, for planting trees, and for evaluating consequences of tree loss, as it pertains to stormwater runoff.



Legends Park is a mostly undeveloped 330-acre park. This forested acreage is the best land cover type for stormwater uptake.

The TSW model is a tool for seeing the stormwater impacts of adding or losing tree canopy and the resulting pollution increases or decreases.



Name: Petersburg, Virginia, USA* — Urban Tree Canopy Stormwater Model — version May 4, 2022

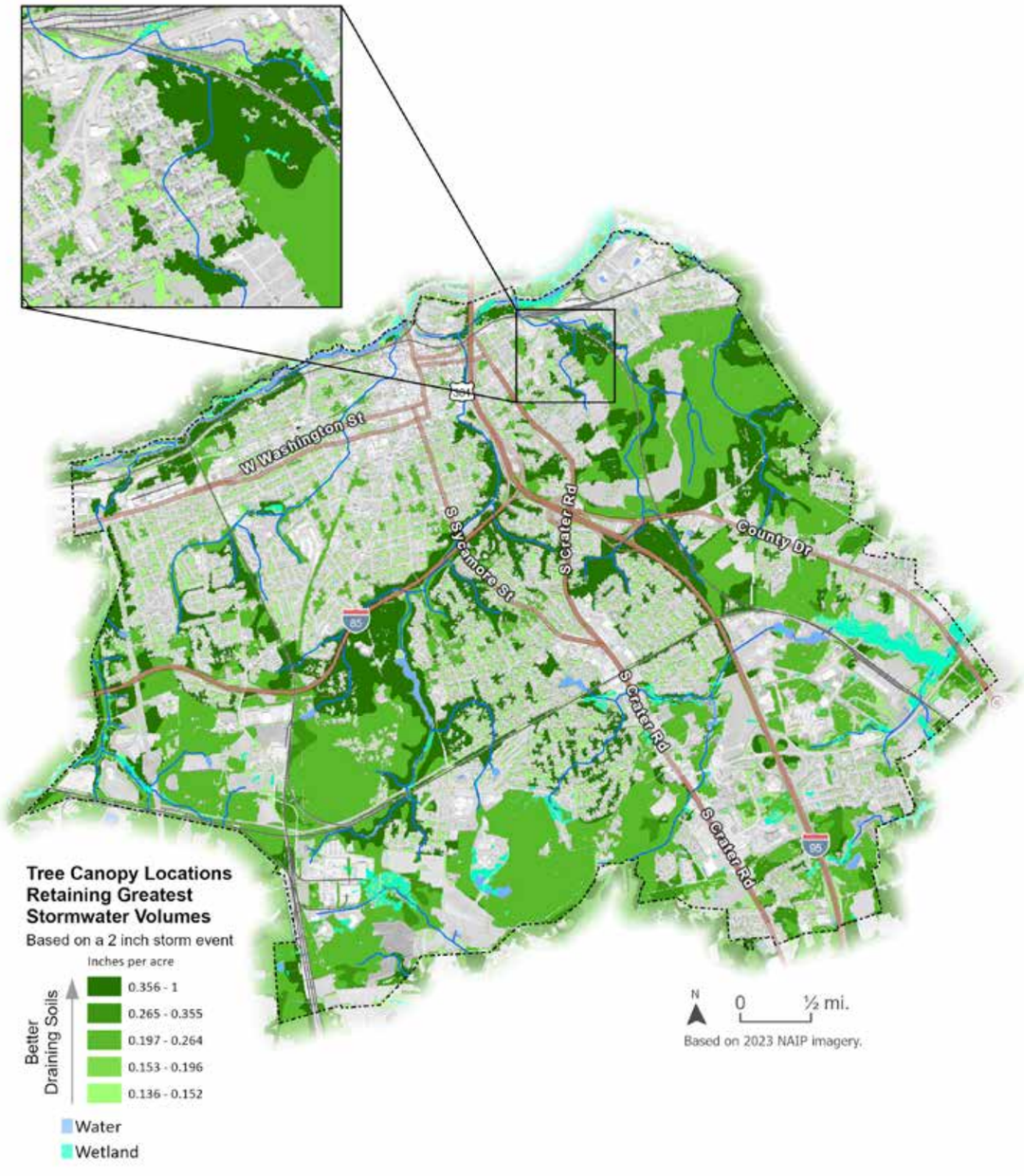
The Green Infrastructure Urban Tree Canopy Stormwater Model estimates stormwater runoff yields for current and potential land cover. The methodology is based upon the NRCS TR-55 method for small urban watersheds. It is used to provide better estimates using GIC's high-resolution land cover and modeling of potential canopy area.

	Area	Current Tree Cover	Current Impervious Cover	Tree H20 Capture	Increased H20 w/xx% tree loss	Added H20 Capture w/xx% PCA	Adjusted Tree Cover from loss and gain scenarios	Pick an Event	Pick a loss scenario		Converted Land			Canopy Added	Variable: Enter % canopy to add
		%		million gallons			%	Event	% UTC loss	% FOS Loss	% Imperv	Max TC Possible	Maximum Potential Added Canopy Area	% Canopy Added	% of PCA achieved
	TOTALS	44.9%	24.2%	30.5	-	13.1	64.9%								
	Statistics by Drainage Basin (current settings)							Variable							Variable
1	Anchorsheds	33.2%	38.7%	0.1	-	0.08	51.0%	1 yr / 24 hour	0%	0%	0%	51.0%	17.8%	17.8%	100%
2	Battersea	37.3%	31.2%	0.2	-	0.10	58.2%	1 yr / 24 hour	0%	0%	0%	58.2%	20.9%	20.9%	100%
3	Blackwater Swamp	42.5%	24.7%	9.1	-	4.55	66.6%	1 yr / 24 hour	0%	0%	0%	66.6%	24.2%	24.2%	100%
4	Brickhouse Run	26.5%	40.0%	1.7	-	1.50	49.6%	1 yr / 24 hour	0%	0%	0%	49.6%	23.1%	23.1%	100%
5	Brickhouse Run Overland	19.1%	47.8%	0.0	-	0.01	46.1%	1 yr / 24 hour	0%	0%	0%	46.1%	27.0%	27.0%	100%
6	Cross Street	29.0%	35.4%	0.1	-	0.05	52.7%	1 yr / 24 hour	0%	0%	0%	52.7%	23.6%	23.6%	100%
7	Direct to River	45.1%	19.7%	0.5	-	0.12	64.1%	1 yr / 24 hour	0%	0%	0%	64.1%	19.0%	19.0%	100%
8	Fleet Sreet West	31.4%	31.3%	0.1	-	0.05	51.8%	1 yr / 24 hour	0%	0%	0%	51.8%	20.4%	20.4%	100%
9	Fleet Street East	21.0%	46.3%	0.0	-	0.02	38.8%	1 yr / 24 hour	0%	0%	0%	38.8%	17.8%	17.8%	100%
10	Harbor	12.1%	56.8%	0.1	-	0.17	39.4%	1 yr / 24 hour	0%	0%	0%	39.4%	27.3%	27.3%	100%
11	Harrison Creek	62.7%	17.0%	2.7	-	0.45	73.5%	1 yr / 24 hour	0%	0%	0%	73.5%	10.8%	10.8%	100%
12	Hatcher Run	58.8%	21.8%	0.4	-	0.09	72.7%	1 yr / 24 hour	0%	0%	0%	72.7%	13.9%	13.9%	100%
13	Lakemont Pond	22.2%	35.8%	0.1	-	0.06	46%	1 yr / 24 hour	0%	0%	0%	45.9%	23.7%	23.7%	100%
14	Lieutenant Run	49.3%	24.5%	7.3	-	2.27	65%	1 yr / 24 hour	0%	0%	0%	64.6%	15.3%	15.3%	100%
15	NoName	24.1%	21.9%	0.0	-	0.03	73%	1 yr / 24 hour	0%	0%	0%	72.5%	48.4%	48.4%	100%
16	Old Channel	30.1%	52.0%	0.1	-	0.09	48%	1 yr / 24 hour	0%	0%	0%	47.8%	17.5%	17.5%	100%

The TSW Tool allows the City to model water uptake by the existing canopy and impacts from changes, whether positive (adding trees) or negative (removing trees).

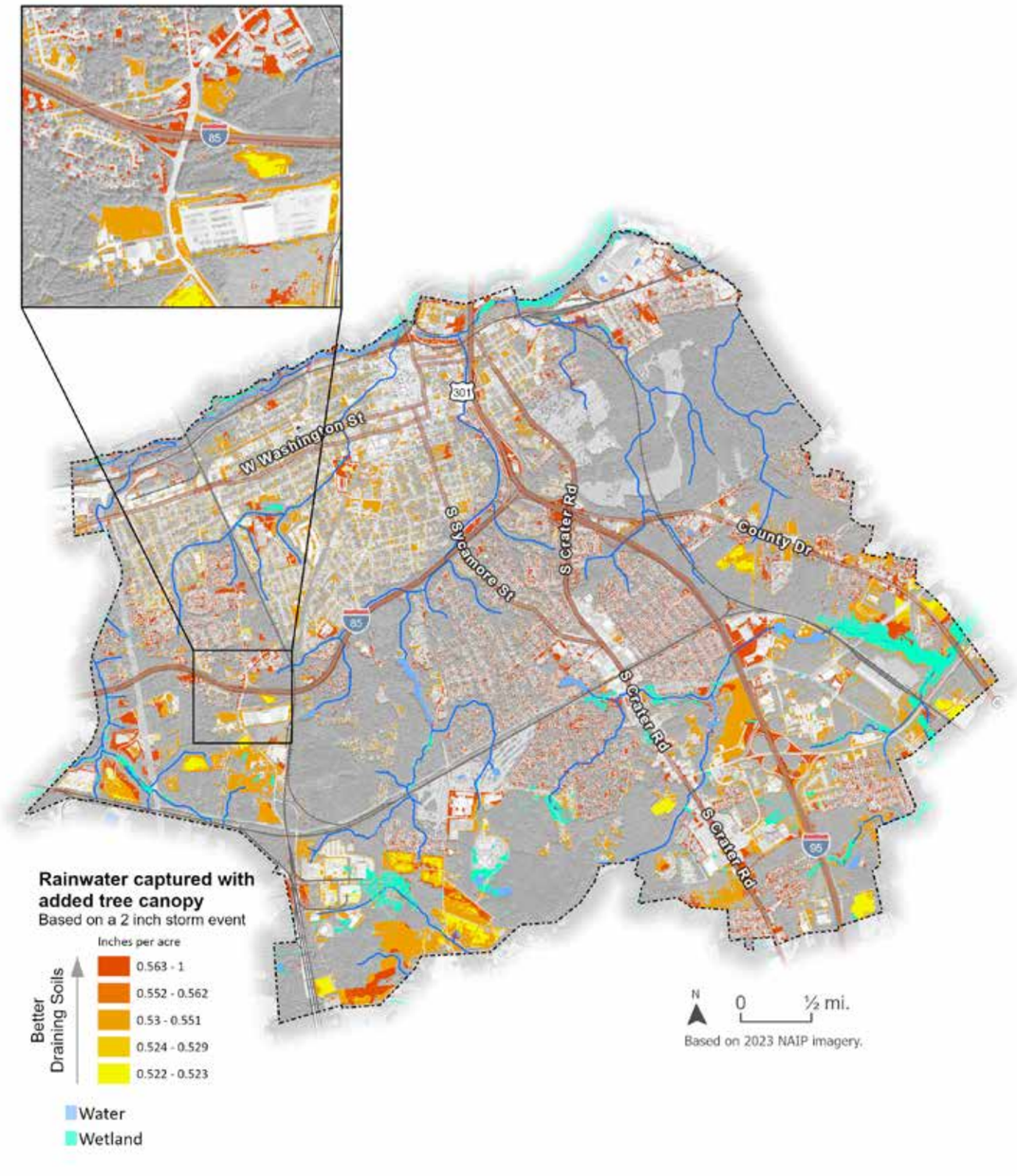
Best Tree Canopy to Save for Stormwater Infiltration

The TSW Tool was applied to map the locations where tree conservation will result in the greatest amount of stormwater capture and infiltration (dark green).



Best Tree Planting Locations for Stormwater Infiltration

The TSW Tool was applied to map locations where planting trees will result in the greatest amount of stormwater capture and infiltration (red).



Air Quality

Air pollution removal values were calculated by applying the pollution removal values for each acre of tree cover from the i-Tree model. i-Tree is a peer-reviewed software suite from the USDA Forest Service that provides urban and rural forestry assessment tools.

Trees mitigate climate change by storing carbon in their tissue and sequestering atmospheric carbon from carbon dioxide (CO_2) in new tree growth. Current trees in the City are storing 274,248 metric tons of carbon that will be released back into the atmosphere when these trees die. Trees also capture particulate matter, ground-level ozone (O_3), nitrogen dioxide, and sulfur dioxide from the air, resulting in better air quality and healthier neighborhoods.

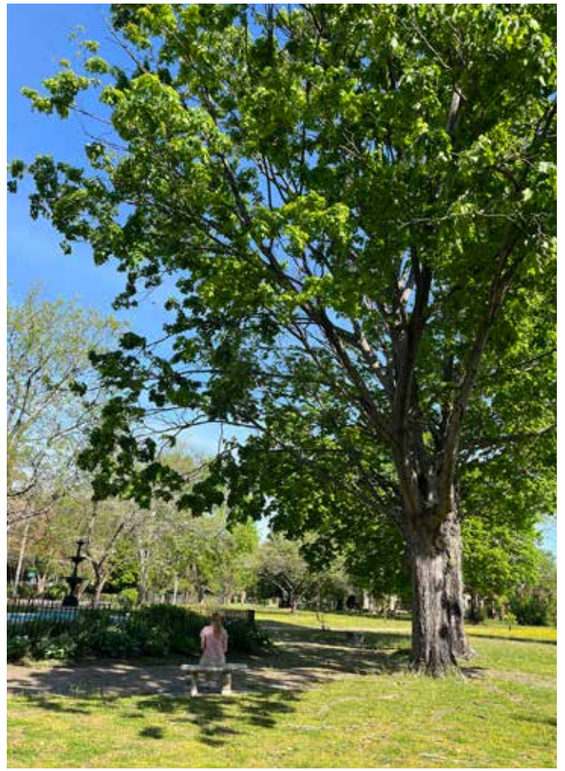
Air pollution and greenhouse gases removed annually by trees in Petersburg						
CO (carbon monoxide)	**NO_2** (nitrogen dioxide)	**O_3** (ozone)	**PM_{10}** (particulate matter 10 microns)	**$PM_{2.5}$** (particulate matter 2.5 microns)	**SO_2** (sulphur dioxide)	**C seq** (carbon sequestered)
3,786 lbs	13,111 lbs	170,041 lbs	25,712 lbs	7,786 lbs	11,302 lbs	29,144 MT

Investments in canopy at the neighborhood level can improve the respiratory health of residents.

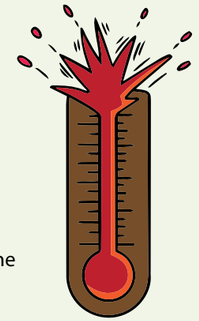
Well-treed neighborhoods have cleaner air and lower rates of asthma.

Urban Heat and Equity

Urban heat is a growing concern as extreme heat continues to increase in Virginia with the changing climate. In Petersburg, the number of days above 100˚F is projected to rise from the historic average of 15 per year to 89 per year by the year 2070. To reduce temperatures, the City can plant trees to cool the landscape. Inequities in the distribution of tree canopy and opportunities to correct them can be identified through tree canopy data, surface temperature data, and U.S. Census data that provides race and income statistics.



How much hotter is your hometown now than when you were born?



This interactive online tool allows a user to put in their hometown and birthdate to see how their hometown has changed since then and how much hotter it may get. The tool provides the average number of days over 90°F.

https://www.nytimes.com/interactive/2018/08/30/climate/how-much-hotter-is-your-hometown.html

Extreme Heat

Where we are now	Where we are currently headed		If bold action is taken
Historically 1971-2000	Midcentury 2036-2065	Late Century 2070-2099	Extreme heat limited to
Average days per year temperatures over 100˚F			
15 days	**60** days	**89** days	**47** days

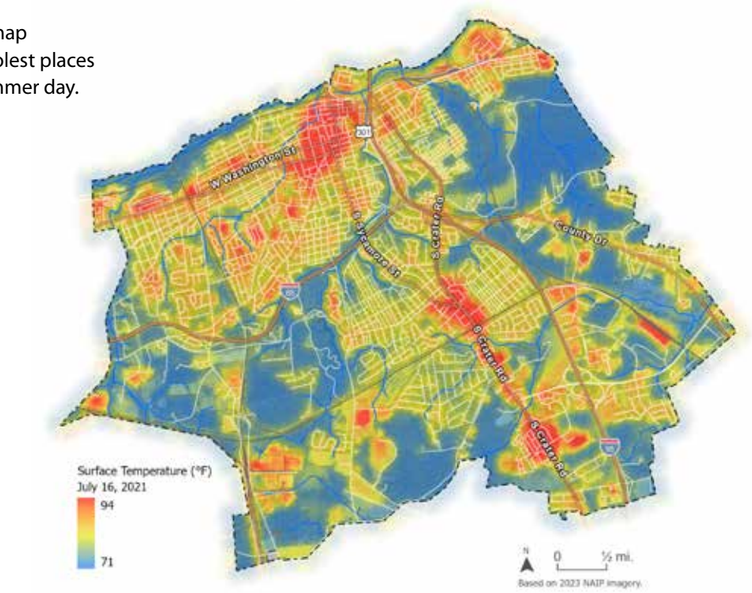
In this table "bold action" refers to reductions in greenhouse gases through energy conservation. It does not consider the effects of planting more trees. Source: Union of Concerned Scientists. *2019, Killer Heat Interactive Tool*.

What is tree equity?

Tree equity ensures all communities have access to the benefits that trees provide. Areas that have been under-resourced, having fewer trees and more heat than the rest of the City, are the focus of tree-planting efforts.

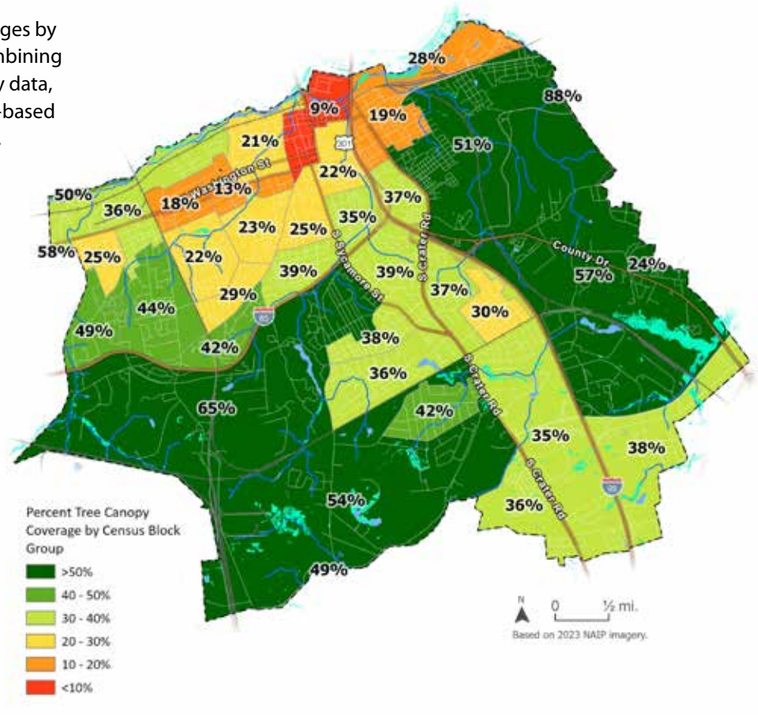
Surface Temperature

The surface temperature map captures the hottest to coolest places in the City on a typical summer day.



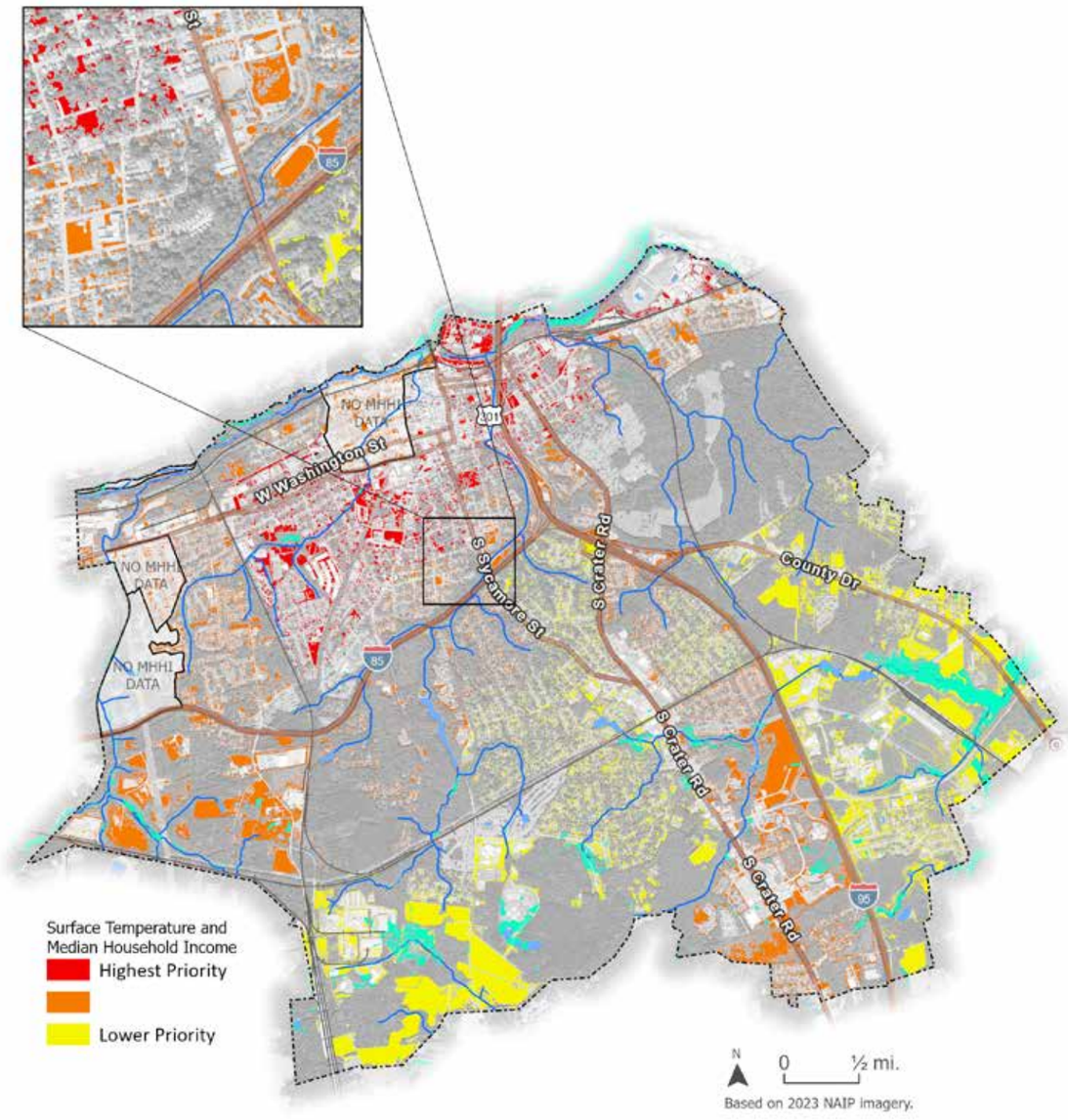
Tree Canopy Coverage by Census Block Group

Tree canopy cover percentages by Census Block Group. By combining U.S. Census and tree canopy data, the City can identify equity-based tree planting opportunities.



Heat and Income Priority Tree Planting Locations

This map uses surface temperature data and median household income data to prioritize potential tree planting areas.



Planning and Engagement Process

The City of Petersburg and the GIC partnered in a nine-month effort to create this *Strategic Tree Canopy Plan*. Advisory committees made up of representatives from City staff and local community partners met to discuss priorities. They engaged in a series of seven workshops from the winter of 2023 to the summer of 2024 to evaluate tree canopy cover, determine plantable areas, set a canopy goal and evaluate policies and practices that support tree canopy cover. In the fall of 2024, the GIC attended community events and held an open house. City leadership was briefed throughout the process with periodic memos and presentations to the City Council.

Maps beginning on page 17 show the results of the Tree Canopy Analysis. An assessment of the ecosystem services provided by city trees included:

- **A stormwater analysis**
- **A surface temperature map**
- **An air quality analysis**

Results of these analyses are found on pages 26-33. They were then used to identify opportunities to maximize benefits from future tree planting and retention. In addition, GIC staff conducted a code and ordinances audit to evaluate the impact of City policies and ordinances on trees, tree care and tree protection. The audit, developed by GIC and used across the U.S., shows which policies contribute to a healthy tree cover and which lead to excessive imperviousness and less green space. Results of the audit were used to inform the final tree canopy cover strategies.

Advisory Committee

During the planning process, a City Advisory Committee (City staff) and a Community Advisory Committee (local community partners) merged into a single Program Advisory Committee. This committee consisted of representatives from Petersburg's Public Works Department and the Planning & Community Development Department. Local partners included the Friends of the Lower Appomattox River, Petersburg Healthy Options Partnerships, Petersburg League of Urban Growers, and Virginia State University. Committee members attended workshops and check-ins throughout the planning process and assisted with event organization, information gatherings, and a public open house event. The advisory committee reviewed the maps, data, and community input to develop the Strategic Tree Canopy Plan objectives and strategies for a healthier Petersburg.

Advisory committee member Naomi Siodmok, Director of Planning and Community Development, handing out candy and getting input from the community at the local Trunk or Treat event.

Community Partners

Throughout the planning process, the City and the GIC met with key community partners to discuss current initiatives and opportunities to work together for a healthier, greener city. Community partners provided support with stewardship, plantings, funding, and outreach. Community partner organizations included:

- **Anu Foundation**
- **Crater Health District**
- **Crater Planning District Commission**
- **Friends of the Lower Appomattox River (FOLAR)**
- **Petersburg Healthy Options Partnerships (PHOPs)**
- **Petersburg League of Urban Growers (PLUG) and Petersburg Is Growing Inc.**
- **Virginia State University and the Positive Roots Program**
- **Virginia Environmental Justice Collaborative**
- **United Parents Against Lead (UPAL)**

Public Engagement

Community input and feedback are foundational to the Strategic Tree Canopy Plan. In addition to the planning work undertaken by the advisory committee, this planning process included opportunities for public learning, engagement, and feedback.

In September 2024, the City of Petersburg hosted an open house at the Petersburg Public Library, which included speakers from the Richmond community-based environmental justice organization, Southside ReLeaf, the Virginia Environmental Justice Collaborative, UPAL, and the Crater Health District, as well as a presentation from the GIC that introduced the project and provided comment stations at which members could provide comments about tree canopy maps, ecosystem services, and potential planting areas. The open house was organized with support from the advisory committee, the GIC, PHOPs, Petersburg is Growing, River Street Market, FOLAR, Health Living and Learning Center, Market at PPL, and the University of Virginia's Institute for Engagement and Negotiation.

In addition to the open house, the GIC partnered with Virginia State University to gather public input at a tree giveaway event. Tree recipients were shown Petersburg's tree canopy maps and provided further comments on potential public tree planting projects and other green infrastructure needs. Lastly, the GIC participated in the Petersburg's Trunk-or-Treat event as part of its public input outreach, where families were given candy for their input on tree-related questions. Handouts were also distributed at these events requesting further comments on Petersburg's tree canopy.

The public open house included information sharing, discussion, and opportunities for feedback. Photos by Claire Downey of the University of Virginia.

Summary of Community Findings

During the nine-month planning process, the City and GIC staff participated in four public outreach events: the Greening Petersburg Open House, Trunk-or-Treat, a Virginia State University tree giveaway, and the Pink and Red Walk. Over 220 votes from community members were recorded. The questions below received the most input.

The following is a summary of public input, while a full suite of comments can be found in Appendix C.

Q1: Where should more trees be planted?

There were five options for this question: parks, schools, streets/sidewalks, neighborhoods, and businesses. The results: parks (50 votes), schools (49 votes), streets/sidewalks (31 votes), neighborhoods (24 votes), and businesses (15 votes).

Q2: Where would you like to see more trees?

This question referred to areas on a neighborhood scale. The most requested neighborhoods were: Downtown/Wythe (25 votes) and Delectable Heights (9 votes).

Q3. Which schools need more trees?

Several schools were specifically mentioned by the public as needing more shade: Cool Springs Elementary School (8 votes), Pleasants Lane Elementary School (8 votes), Walnut Hill Elementary School (5 votes), and Blandford Academy (4 votes).

Q4. Which parks need more trees?

Only a few parks were mentioned: Sports Complex (4 votes), Farmer Street Park (2 votes), and Poplar Lawn Park (2 votes).

Q5. Additional comments.

There were many individual comments given regarding specific areas and concerns. Common themes were the problems of invasive vines (English ivy; kudzu), retention of large trees on private property in Walnut Hill, and tree conservation during new development. Lastly, there was a large amount of interest in a re-greening project for Halifax Triangle.

Goal and Implementation Strategies

The City of Petersburg's goal is to manage tree loss by maintaining tree canopy coverage at 43% over the next 20 years.

Newly planted trees in Farmer Street Park help meet the goal of planting 200 trees annually on City-owned land.

Recent national data show urban and suburban tree canopy cover is trending downwards at a rate of 175,000 acres lost per year – approximately 36 million trees lost annually (Nowack and Greenfield 2012). Trees are lost due to development, disease, storms, and old age. Petersburg is no exception. Given projected development projects, Petersburg may lose up to 2% of its tree canopy cover. Fortunately, this loss can be managed to maintain canopy at 43%, and this plan outlines strategies to do so.

The City of Petersburg's goal is to manage tree loss by maintaining tree canopy coverage at 43% over the next 20 years.

This goal accounts for development projects planned by 2025. Beyond 2025, preserving overall city canopy coverage requires replacing trees that are lost. Achieving this goal requires a coordinated effort by both the City and private property owners. Since city-owned land makes up about 20% of the total land area, the City is committed to replanting 20% of any annual tree loss, while the remaining 80% will be replanted on private property by residents, businesses, and developers. Estimating annual tree loss at 1,000 trees, the City will plant 200 trees per year on city owned land and will engage with private landowners and businesses through outreach, education, and tree giveaways to encourage the planting of 800 trees per year on private property.

As this is a new program, the first few years of planting may be less and then a gradual increase in effort will be needed. As the City's capacity and the urban forestry program expand, the number of trees planted each year is expected to increase. A tree planting campaign will be developed in partnership with the community to achieve the goal. The newly appointed City Arborist will be responsible for implementing these strategies and monitoring progress towards the 2045 tree canopy coverage goal.

The tree canopy goal and objectives for Petersburg's urban forest are on the following pages.

These, and other practices, will provide long-term care, protection, and best planting practices for the urban forest, and will ensure that investments in city trees pay dividends by reducing stormwater runoff, cleaning the air and water, lowering energy bills, raising property values, and providing natural beauty long into the future.

Many streets and public properties, such as this bus stop, school, and private yard, have room for more trees to add shade, beauty, and improve air quality.

Goal: Maintain tree canopy cover at 43% over the next 20 years.

1 OBJECTIVE 1: Hire a city arborist to manage City trees.

- **Action**: Apply for a Virginia Department of Forestry Grant for a City Arborist position.
  - **Responsible party**: Planning and Community Development.
- **Action**: Assign the City Arborist the duties of overseeing all tree care, conservation, and plantings on City properties and providing public outreach and education. After a year, assess the need to establish a permanent City Arborist position in the City budget.
  - **Responsible parties:** Planning and Community Development, Public Works.

2 OBJECTIVE 2: Increase the City's capacity to care for newly planted trees in public projects.

- **Action**: Utilize the Petersburg summer intern program to help with summer tree watering needs.
  - **Responsible parties**: Petersburg School District Family and Community Director, Public Works, and City Arborist.
- **Action**: Coordinate the use of fire hydrants for watering.
  - **Responsible parties**: Fire Marshall, Public Works, and City Arborist.
- **Action**: Coordinate watering supply to trees when fire trucks need routine purging.
  - **Responsible parties**: Fire Marshall, Public Works, and City Arborist.
- **Action**: Create an Urban Forestry Division within Public Works.
  - **Responsible parties**: Public Works.

Residents and the Fire Department work together to plant trees at Farmer Street Park.

Improperly pruned trees are more vulnerable to disease and failure.

3 OBJECTIVE 3: Train city staff in methods of green infrastructure vegetation management.

- **Action**: Encourage support staff to obtain tree-related certifications by allowing the use of paid work time for training activities.
  - **Responsible party**: Public Works and City Arborist.
- **Action**: Create standard operating procedures for tree-related care.
  - **Responsible party**: Public Works and City Arborist.
- **Action**: Provide staff with green infrastructure management training opportunities. Potential partners include the GIC and Friends of the Lower Appomattox
  - **Responsible parties**: Public Works, and City Arborist.

4 OBJECTIVE 4: Ensure long term success by following a "right tree right place" policy in land development and planning.

- **Action**: Expand and utilize the City's approved tree species lists for new plantings.
  - **Responsible party**: Planning and Community Development and Public Works and City Arborist.
- **Action**: Adopt and regularly update the tree ordinance.
  - **Responsible party**: Planning and Community Development and City Arborist.

Tree City USA Requirements:

1. Establish a tree board or city department to oversee tree care.
2. Adopt a public tree care ordinance.
3. Allocate an annual budget for tree care and planting of at least $2 per capita.
4. Host an annual Arbor Day event and pass and recite a proclamation.

5 OBJECTIVE 5: Expand community knowledge and support for tree planting and maintenance.

- **Action**: Apply to the Arbor Day Foundation to designate Petersburg as a Tree City USA.
  - **Responsible party**: Planning and Community Development.
- **Action**: Create a City Tree Board, headed by a Certified Arborist, to expand the City's capacity to address tree-related matters.
  - **Responsible party**: Planning and Community Development.
- **Action**: Host an annual Arbor Day Event.
  - **Responsible parties**: Recreation, Special Events & Volunteerism, Tree Board, and City Arborist.
- **Action**: Establish a tree budget to be funded by the City Council.
  - **Responsible parties**: Public Works and City Arborist.

Vice Mayor Darrin Hill and Dr. Alton Hart, Crater District Health Director, offered a city resolution proclaiming the City's first Arbor Day at Petersburg's 2025 Arbor Day Celebration.

6 OBJECTIVE 6: Expand community involvement in tree stewardship.

- **Action**: Create a tree information webpage on the City's website, providing links to helpful resources for tree care, Certified Arborists, the City approved tree species list, and City policies.
  - **Responsible parties**: Communications Department, City Arborist, and Tree Board.
- **Action**: Expand support for tree stewardship events and programs hosted by local organizations, such as Friends of the Lower Appomattox River.
  - **Responsible parties**: Public Works, City Arborist, and Tree Board.
- **Action**: Create the Adopt-a-Tree program as part of the Adopt-a-Street and Adopt-a-Spot program.
  - **Responsible parties**: Public Works Street Division, City Arborist, and Tree Board.
- **Action**: Direct efforts for youth to learn about, and care for, trees by using the VA Department of Forestry's Project Learning Tree and other materials to create tree planting programs with local community partners.
  - **Responsible party**: City Arborist.

Newly Planted Tree at Poplar Lawn.

7 OBJECTIVE 7:
Increase the preservation of large trees before and during development projects.

- **Action**: Provide tree preservation incentives to developers, such as stormwater utility fee credits and density and height bonuses.
  - **Responsible party**: Planning and Community Development.
- **Action**: Advertise tree conservation and plantings as a BMP.
  - **Responsible party**: Public Works Stormwater Division.
- **Action**: Investigate and adopt 'tree save' incentives in the appropriate city ordinances.
  - **Responsible party**: Planning and Community Development.

- **Action**: Require development projects with more than 25 acres of disturbance to consult with a City Arborist or another sustainability staff member about the benefits of retaining trees on site and other incentives.
  - **Responsible party**: Planning and Community Development.
- **Action**: Establish requirements for meetings before the site plan is created to identify trees to protect ahead of site design and development.
  - **Responsible parties**: Planning and Community Development and City Arborist.
- **Action**: (Long Term): Increase City staff capacity to strengthen tree protection planning and enforcement during development.
  - **Responsible party**: Planning and Community Development.
- **Action**: Collect data annually on how mature trees save the City money to support allocation of funds for staff positions.
  - **Responsible parties**: Public Works, City Arborist, and the Tree Board.
- **Action**: (Long Term): Expand tree protection requirements in the Chesapeake Bay watershed to the entire city.
  - **Responsible party**: Planning and Community Development.
- **Action**: Adopt new ordinance language to expand tree protection requirements.
  - **Responsible party**: Planning and Community Development and City Arborist.

Tree canopy maps at the Petersburg Public Library with sticky note comments from the community.

This Washington Street transportation corridor could be enhanced with new tree plantings.

8 OBJECTIVE 8:
Plant trees along transportation corridors, pedestrian routes, and business districts to beautify the City's entryways and welcome visitors.

- **Action**: Partner with the Crater Planning District Commission to plant trees along the E. Washington Street entry corridor.
  - **Responsible parties**: Public Works and Planning and Community Development.
- **Action**: Apply for grants to create a green space in Halifax Triangle as a demonstration project for impervious surface reduction and green infrastructure.
  - **Responsible parties**: Planning and Community Development, Green Infrastructure Center, and Community Partners.
- **Action**: Improve walkability by targeting tree planting along pedestrian routes to schools such as Cool Springs and Walnut Hill Elementary Schools, churches, and in business districts.
  - **Responsible parties**: Crater Planning District Commission, City Arborist, Public Works, and Planning and Community Development.

9 OBJECTIVE 9:
Expand the equitable distribution of tree benefits across Petersburg by increasing tree canopy in low-canopy communities.

- **Action**: Use urban heat maps to prioritize tree plantings that can offer the greatest cooling benefits to the City and solicit grants for trees and green infrastructure.
  - **Responsible party**: Planning and Community Development and City Arborist.
- **Action**: Apply for grants to plant trees to reduce urban heat in public parks.
  - **Responsible parties**: Recreation, Special Events & Volunteerism Department.
- **Action**: Promote grant-funded tree giveaways for low-treed communities. Potential partners include Virginia State University and the Green Infrastructure Center.
  - **Responsible party**: Planning and Community Development and City Arborist.
- **Action**: Plant food forests in various communities by coordinating with partners, including Virginia State University, Petersburg League of Urban Growers.
  - **Responsible parties**: Planning and Community Development and GIC.
- **Action**: Encourage citizens to plant trees with locally supported incentives by partnering with local businesses to offer items such as free beverages and other prizes for planting a tree, as part of the Arbor Day celebration.
  - **Responsible parties**: Tree Board, City Arborist.

Community partners sharing information at the Greening Petersburg Open House.

Conclusion

Petersburg has new data and strategies in this plan to guide the management of its urban forest. Implementing these tree strategies will ensure that current and future residents enjoy the continued benefits of trees and a healthy, sustainable, and beautiful city for all.

This plan is a living document that is intended to be integrated into on-going staff work plans, annual budgets, grant proposals, and partnerships with outside agencies. It is recommended that an implementation committee or Tree Board meet at least quarterly to document the plan's progress and adapt its strategies as needed.

Appendixes

Appendix A: Funding Opportunities

For tree campaigns to be successful, there must be dedicated funds. These funds can come from a variety of sources; including federal, state, local, and private resources. Examples of these opportunities are listed below.

Virginia Department of Forestry

- Virginia Trees for Clean Water Grant Program
- Urban and Community Forestry Grant Program
- Emerald Ash Borer Cost-Share Program

For more information: https://dof.virginia.gov/urban-community-forestry/urban-forestry-community-assistance/financial-assistance-for-urban-and-community-forestry-projects

Virginia Environmental Endowment

- James River Water Quality Improvement Program
- Virginia Program
- Various grants, updated yearly

For more information: https://www.vee.org

Dominion Energy Charitable Foundation

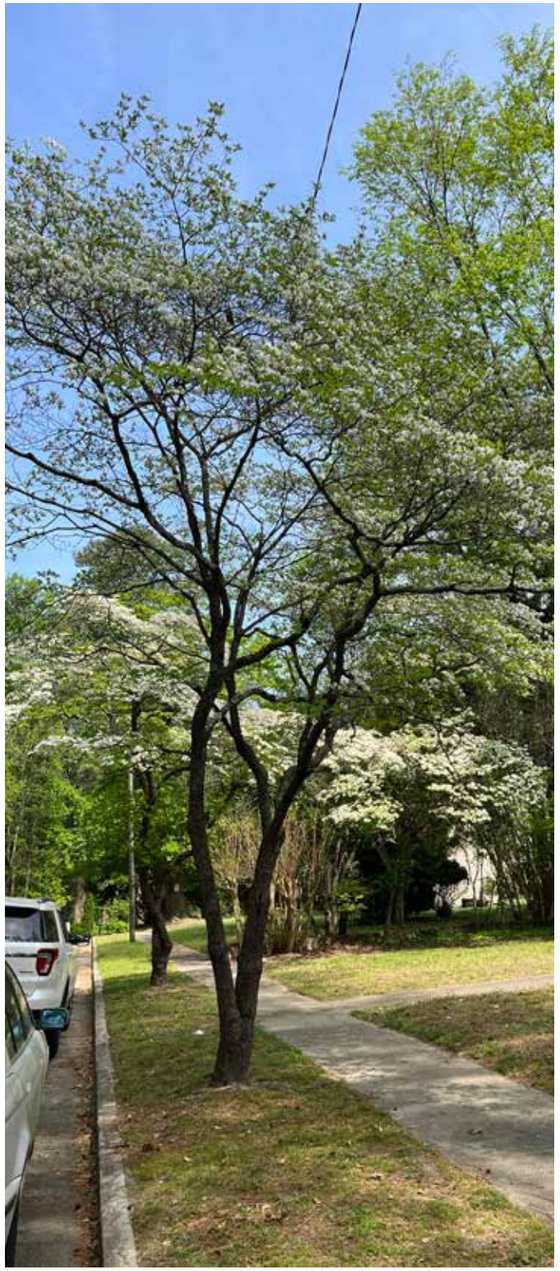
- A yearly fund awarded to environmental stewardship, educational, and community renewal projects. https://www.dominionenergy.com/our-company/customers-and-community/charitable-foundation

Chesapeake Bay Trust

- Distributes various grants to improve the environmental health of the Chesapeake Bay. Sources of funds are dependent on specific grants. https://cbtrust.org/grants

The Cameron Foundation

- A foundation local to Petersburg that "strives to transform the Tri-Cities and surrounding counties into a healthy, vibrant and economically vital region by strategically leveraging resources for community impact." https://camfound.org



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Appendix C: Community Feedback

The following questions were posed to the community at four separate events in 2024: Greening Petersburg Open House, Trunk-or-Treat, a Virginia State University tree giveaway, and Pink and Red Walk. Below is a compilation of all questions and public input not included in the Summary of Community Findings.

Q1: Where would you like to see more trees (neighborhoods)?

Neighborhood	Votes
Downtown/Wythe	25
Delectable Heights	9
S. Crater Road Corridor	8
Walnut Hill	6
Blandford	5
Cool Springs	4
Poplar Lawn Park	4
Pocahontas	4
Westview	4
Harding Street	3
Arlington	3
Legends Park	3
Pin Oaks	3
Blandford	3
East Walnut Hill	3
Westview	3
Battersea	2
East Gillfield	2
Harding Street	2
High Street/Grove Avenue	2
Oakhurst	2
Pecan Acres	2
Poplar Lawn Park	2
Squirrel Level	2
Folly Castle	1
Bunker Hill	1
Magnolia Farms	1
Mount Vernon	1
National Battlefield	1
Rome Street	1
Round	1
West Gillfield	1
Western Hills	1
Spring Street	1
Pembroke	1
Anchor Industrial Park	1
Battlefield Park	1
Puddledock Road	1

Q2. Which schools need more trees?

School	Votes
Cool Springs Elementary	8
Pleasants Lane Elementary	8
Walnut Hill Elementary	5
Blandford Academy	4
Westview Early Childhood Center	4
Lakemont Elementary	2
Petersburg High School	2
Appomattox Governor's School	1

Q3: Which parks need more trees?

Park	Votes
Sports Complex	4
Farmer Street Park	2
Poplar Lawn Park	2
Bird Park	1
Blandford Playground	1
Legends Park	1
Low Street Park	1
Jefferson Street Park	1
Virginia Avenue Playground	1

Additional Park Comments

The Sports Complex picnic area is too hot.

Many people believe parks are closed to the public. There is a lack of communication or welcoming it citizens.

African American citizens do not feel welcome at Legends Park due to past segregation practices.

Access to parks is lacking.

Virginia Grove playground isn't safe to the public.

Poplar Lawn Park had a large planting but the City maintenance team killed many with excessive use of weed whackers.

Q4: Which streets need more shade?

Street	Votes
Halifax Street	5
Sycamore Street In General	3
Sycamore Street Between Wythe and Washington	2
Washington Street In General	2
E. Washington Street	2
W. Washington Street	1
Wythe Street Entrance Ramp to I-95	1
Low Street	1
Guarantee St.	1
Porterville Street Between Halifax Street and Harding Street	1
Wagner Road	1
E. Washington Street Entrance	1
Ferndale Avenue	1
Albert Jones Off of West Street	1
Squirrel Level Off Ramp of I-85	1
Lincoln Street	1
Myrick Avenue	1

Additional Street Comments

A community was stewarding the trees between Sycamore Street between Wythe and Washington Street as well as the alleyway trees. There is indignation at their removal and the request for their replacement.

Claremont and East Tuckahoe city triangle lost a tree due to lightning. There needs to be a replacement.

Brandon Avenue and East Boulevard need goats or other assistance with English ivy.

Leavenworth Street between Dupuy Road and Church Street has a flooding issue.

Q5: Which additional sites need more trees?

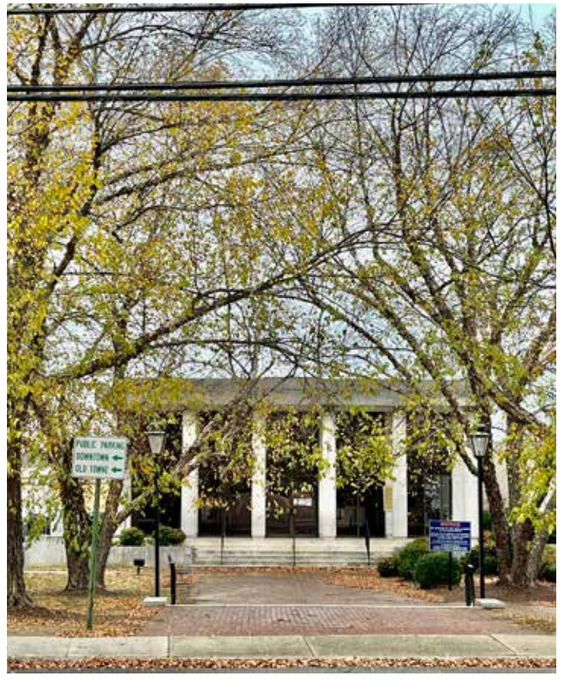
Sites	Votes
Halifax Triangle	5
Low Income Housing (Pecan Acres)	2
Low Income Housing (Pin Oaks)	2
Sycamore Street Alley	2
Parking Lots	2
YMCA	1
Appomattox River Harbor	1
Industrial and Office Complexes	1
Library	1
Courthouse	1

Additional Site Comments

The courthouse and City Hall have beautiful birch trees and large willow oaks. There is concern regarding their conservation during construction.

Halifax Triangle has too much concrete that needs to be broken up.

Ferndale has frequent floods and very little trees.



Q6. Share your thoughts on the goals and strategies of Greening Petersburg!

Goals	Supportive Votes	Indifferent Votes	Opposing Votes	Notes
Goal 1: Ensure the proper stewardship of Petersburg's public trees to maintain tree health, safety, and beauty.	13	0	0	N/A
Goal 2: Conserve large trees to maximize tree benefits, such as reducing stormwater runoff, urban cooling, and air pollution reduction.	13	0	0	N/A
Goal 3: Expand community knowledge on the importance of trees and their proper care to increase health, tree safety, and beauty in Petersburg.	14	0	0	Additional support was noted for the creation of a tree board.
Goal 4: Increase the tree canopy benefits of beautification, lower temperatures, cleaner air, walkability, public transport, and increased shopping by planting trees along transportation corridors and business districts throughout the City.	14	0	0	There was opposition for plantings in the median on E. Washington and any crepe myrtles.
Goal 5: Expand tree benefits equitably across Petersburg by focusing on increasing tree canopy in communities where canopy is lower than the City's canopy cover average of 42%	14	1	0	There was additional support for promoting grand funded tree giveaways.

Additional Comments
There needs to be an official tree species list shared with the public. There is also interest in a tree board.
Gravel lots and other permeable driveway methods should be allowed in residential driveways
New development in Ramblewood and CSX RR needs to conserve more trees. Call Tim Beck for more information.
Eureka and Bunker Hill is filled with invasive species with poor canopy.
There need to be more food forests.
Walnut Hill is losing large trees due to new homeowners. There needs to be education outreach on the importance of big trees, like a Big Tree Tour.
There needs to be outreach on the dangers of English ivy and its removal.