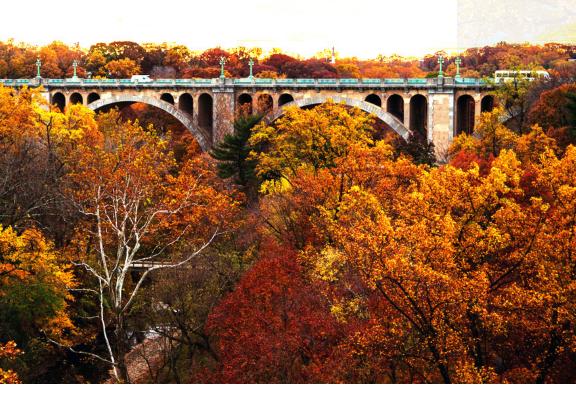


CITIZEN ADVOCATE HANDBOOK

A Guide to Successful Tree Advocacy in the Nation's Capital



Casey Trees

© 2017

Prepared by

Maisie Hughes, Director, Design and Advocacy Suraj K. Sazawal, Policy Advocate Kristin Taddei, Planning Advocate Eliisa Carter, Graphic Designer and Illustrator John Nicoll, Researcher

Previous Editions

Emily Oaksford, Planning Associate Elliot August, Graduate Advocacy Fellow

Report Available Online

www.caseytrees.org/advocate

TABLE OF CONTENTS

A Letter from the Executive Director	4
Why Advocate?	
Restoring Our Tree Canopy	6
Benefits of Urban Trees	
Nature in the City	9
Five Things You Need to Know to Advocate	e13
1. Who Owns that Tree?	14
2. D.C.'s Political Geography	16
3. Key Players	17
4. Law & Order	22
5. Good Design	26
How to Advocate	33
The W.A.R. of Persuasion	
What You Can Do	36
Appendices	
Appendix A: Useful Terms	
Appendix B: Works Cited	iii

A LETTER FROM THE EXECUTIVE DIRECTOR



Dear Tree Advocate,

Trees do more than just keep us cool, manage stormwater, and control pollution. They encourage outdoor activity, calm our nerves, and make our homes and streets beautiful. In fact, they enrich our lives in ways we are just beginning to understand.

The legacy of D.C.'s trees began in 1790 when Pierre L'Enfant designed the city with grand tree-lined boulevards. In 1870, the last governor of D.C., Alexander "Boss" Shepherd, graced the city's streets

and parks by planting 60,000 trees. More recently, Mayors Anthony Williams, Vincent C. Gray and Muriel Bower committed to increasing the city's canopy to 40% by 2032, and have invested significant time and resources to ensure we achieve that goal.

These successes, however, did not come easily. It took thousands of hours and hundreds of Tree Advocates pushing the city to do more, and now it's your turn!

Casey Trees' advocates work to improve D.C.'s canopy one tree at a time. Armed with a keen knowledge of what it takes for urban trees to thrive, and the city laws, regulations, and processes that cover trees, our Tree Advocates continually work for better tree protection, management, and care city-wide.

Since our founding, Casey Trees has engaged residents at the neighborhood and city scale to effect positive change. Notable examples include: A city-wide inventory of 100,000 street trees; passage of the Urban Forestry Preservation Act of 2002 and its successor, the Tree Canopy Protection Amendment Act of 2016; and protection of more than 40 mature trees at the site of the 12th & Allison townhome development in the Michigan Park neighborhood

Pairing this guide with Casey Trees' classes and support will turn your passion for trees into persuasive advocacy, giving you the tools to effectively influence decisions that impact trees in your neighborhood and around the city. Welcome to the team, Tree Advocate – and thank you for your commitment to restoring, enhancing, and protecting our City of Trees!

Mark Busciano Executive Director

WHY ADVOCATE?

Advocacy works. Tree advocates have successfully fought to restore the city's tree planting budget, improve local and city-wide plans, and require developers to include green spaces on large developments in the District.



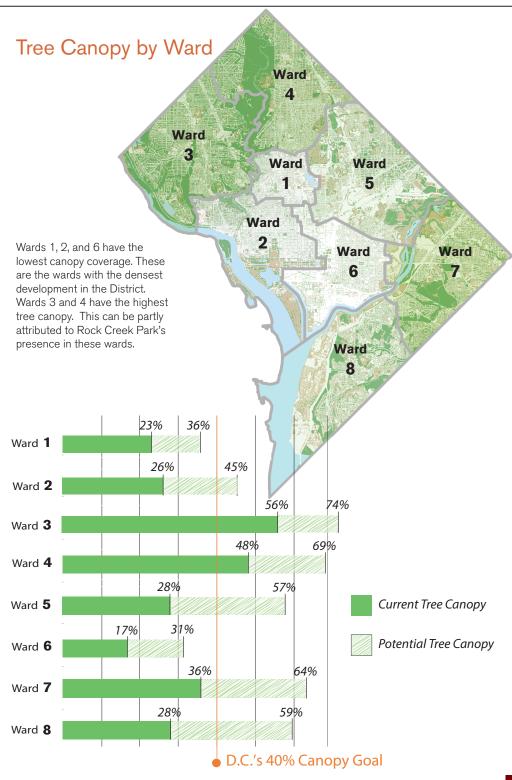
Restoring Our Tree Canopy

From 1950 to today, the District's tree canopy dropped from 50% to 36%. D.C. is now covered by more asphalt, rooftops, and sidewalks than tree cover. Reaching a citywide, 40% tree canopy will provide a cleaner, cooler, and healthier future for every citizen of D.C.

While the District's canopy has been declining, research continues to prove how important trees are to our neighborhoods and communities. We know that trees help manage stormwater, decrease cooling costs, clean air, reduce noise, improve mental wellbeing, and increase home values—and the list goes on.

The greatest challenge to achieving the 40% canopy goal is not planting a sufficient number of trees, it's protecting them. As a city we continue to exceed the number of annual plantings required to reach the goal. However, as our city develops, we are losing mature trees faster than newly-planted ones can grow. *That's where you come in.*

We need your help to ensure the city develops in a way that benefits both residents and the environment. Through effective communication with developers, legislatures, and other decision makers your voice will help us re-tree D.C. for future generations.



Benefits of Urban Trees

Our city's trees do more than just look beautiful.



Clean Air

Trees remove carbon dioxide from the air and produce oxygen. Trees also intercept airborne pollutants common to cities.



Absorb Stormwater

Trees absorb stormwater runoff, reducing erosion and pollution in our waterways. A healthy tree canopy means cleaner rivers and less investment in costly infrastructure.



Save Energy

Trees provide shade, saving District residents and businesses a cool \$3.5 million annually in energy costs.



Mitigate Climate Change

It is estimated that the city's trees sequester approximately 19,000 tons of carbon each year in the District. That's the equivalent of removing the exhaust from 3,700 cars.



Create Healthier Communities

Green spaces help residents combat stress, anxiety, and depression. Exposure to trees and nature aids concentration by reducing mental fatigue. Access to nature is also associated with fewer sick days and faster recovery times.



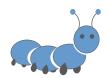
Calm Traffic

Tree-lined streets have a traffic calming effect, which keeps drivers and pedestrians safe.



Build Better Business

Trees attract businesses and tourists. People linger and shop longer at businesses that are surrounded by trees.

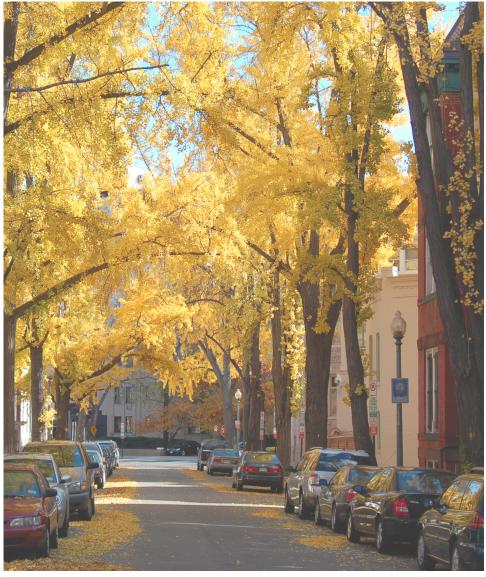


Support Wildlife

Trees provide food, homes, and shelter for many native and migratory animals.

Nature in the City

By shading waterways, building soil, and decomposing at the end of their lives, trees create habitats that support a wide range of animals. Street trees and forested parks contribute to the city's Sustainable D.C. initiative, which aims to create an "integrated, District-wide ecosystem." As a tree advocate, you can identify opportunities to plant trees in areas that will expand and reconnect habitat patches throughout the city. You can also recommend planting tree species that are known to support wildlife by referencing the Habitat Indicators column in Casey Trees' Urban Tree Selection Guide.



Trees Support Wildlife

Trees Feed Wildlife:

Insects, birds, and mammals rely on fruit and nut-bearing trees like Serviceberry, Holly, Oak, and American beech.

are a key food source for birds, small mammals, reptiles, and amphibians.

 Evergreens and other trees produce sap, buds, and seeds which are eaten by birds, insects, and mammals.

Trees Shelter Wildlife:

 Large long-living trees like oaks offer stable homes for wildlife.

Evergreen trees offer a protective cover during winter months.



Photograph © 2014 Susan Austin Roth



Notes

FIVE THINGS YOU NEED TO KNOW TO ADVOCATE

Here is what you need to know to make a big impact with your advocacy.

- 1. Who Owns that Tree?
- 2. D.C.'s Political Geography
- 3. The Key Players
- 4. Law & Order
- 5. Good Design



1. Who Owns that Tree?

To protect a tree in the District, you will need to know who owns it.

Private Property Owners:

Private properties in the District, including homes and businesses, provide the best opportunity for growing the city's trees because they have the most available planting space, good soils, and property owners likely to care for trees.

Federal Properties:

U.S. National Park Service (NPS) maintains the trees on approximately 6,800 acres of land in the District, including the National Mall, Rock Creek Park, The Fort Circle Parks, and other circles and squares citywide.

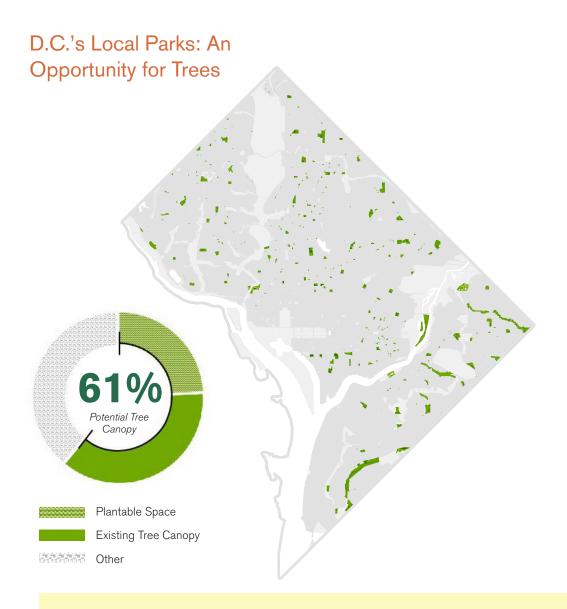
U.S. National Arboretum is a public garden, research facility, and urban green space administered by the U.S. Department of Agriculture's Agricultural Research Service. The Arboretum maintains many valuable and one-of-a-kind collections of trees and plants on its 446 acres in Northeast D.C.

District of Columbia:

Urban Forestry Administration (UFA) is responsible for maintaining D.C.'s street trees, which account for about 7% of the city's tree canopy. UFA is also authorized to plant trees on other D.C.-owned properties, including local parks and schools.

Department of Parks and Recreation (DPR) is responsible for 900 acres of city-owned parks, recreation centers, athletic fields, playgrounds, and community gardens which comprise roughly 10% of open space in the District.

Department of General Services (DGS) is the property management department for the city. DGS oversees capital improvement and construction projects on District-owned land, including parks and schools.

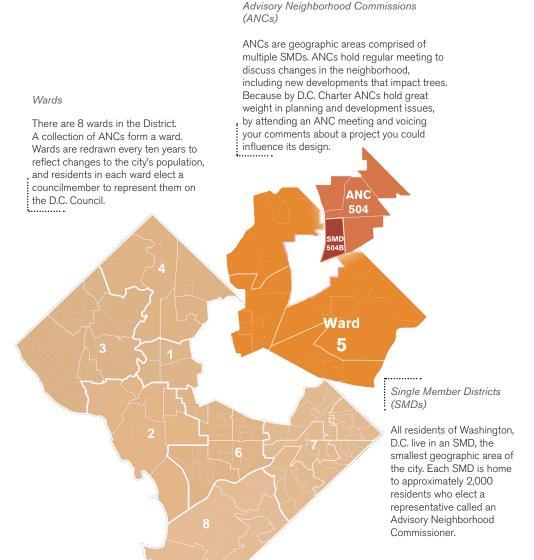


D.C.'s Parks and Open Space

Parks are important neighborhood amenities deserving of our collective attention and investment. Both federally-owned and city-owned parks provide tangible benefits to the nation's capital. But a significant portion of D.C.'s city-owned parks lack tree canopy. In fact, 87 of D.C.'s local parks have less than 20 percent canopy. Planting trees in these parks, which have significant planting space, will increase park use, reduce upkeep needs, and help the city achieve healthy tree canopy.

2. D.C.'s Political Geography

Knowing your local leaders allows you to help make trees a priority in you neighborhood and citywide.



3. The Key Players

Engaging with city leaders about the issues impacting D.C.'s trees is the best way to turn targets into allies.

Agencies:

Department of Energy and Environment (DOEE)

DOEE is responsible for enforcing local and federal environmental laws and regulations, like the Municipal Separate Storm Sewer System (MS4) permit issued by the U.S. Environmental Protection Agency (EPA). DOEE is home to the RiverSmart Homes and Tree Rebate programs, offering residents free or low cost trees to beautify their homes and help the city reduce stormwater runoff. This department also develops the District's plans as a blueprint for environmental policy.

District Department of Transportation (DDOT)

This agency houses the Urban Forestry Administration (UFA) which plants and maintains the city's trees, including street trees and trees in District-owned schools and parks. UFA also employs arborists who respond to requests for tree inspections and pruning. Maintaining DDOT's tree planting budget is essential for growing our city's tree canopy.

Office of Planning (OP)

OP guides development, preservation, and revitalization for the District. OP creates the Comprehensive Plan for the District, neighborhood and area plans, and reviews and provides recommendations on large developments. These are opportunities to green the planning process by asking for tree canopy goals, wildlife corridors, and green infrastructure.

Zoning Commission

Zoning Commission is responsible for oversight and adjudication of zoning matters in the District, including review and approval of D.C.'s zoning regulations and Planned Unit Developments (PUDs). Advocates have an opportunity to recommend trees in development plans when developers request a zoning change through the PUD process.

Board of Zoning Adjustment (BZA)

The BZA is an independent, quasi-judicial body empowered to grant relief from the strict application of the zoning regulations. Variances or special requests are primarily handled by the BZA. BZA hearings are opportunities to advocate for the trees in a specific development that is seeking a zoning variance.

The Decision-Making Process:

Advisory Neighborhood Commissions (ANCs)

One of the most important places to advocate for trees is at Advisory Neighborhood Commission (ANC) meetings. An ANC is a local government body that considers a variety of issues and makes recommendations to the D.C. Council, the Zoning Commission, and District agencies. Advisory Neighborhood Commissioners are elected for two year terms by the residents of their ANC. ANCs hold monthly meetings to discuss neighborhood issues, like development projects and street improvements. At these meetings, you can voice your opinions to city leaders and residents on issues affecting trees in your neighborhood.

D.C. Council

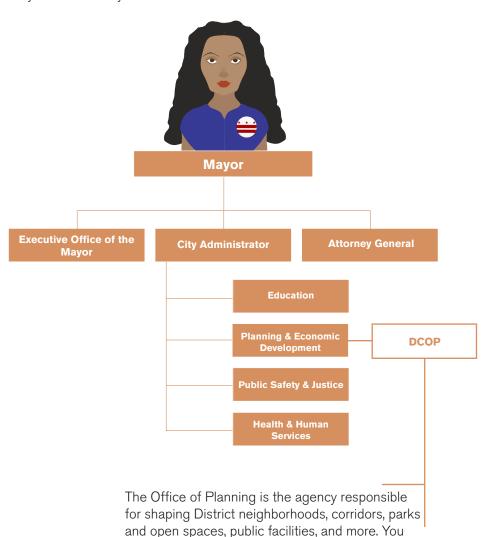
As the legislative branch of local government, the Council enacts laws, holds public hearings, approves the annual budget, and oversees the operations of all District government agencies. The Council is composed of thirteen members: eight ward Councilmembers and five at-large Councilmembers (including the chairperson). Each councilmember is elected by District residents to four-year terms.

Council Committees

Much of the work of the D.C. Council is done in committees. The Council's committees are responsible for overseeing the performance and budgets of government agencies. The Committee on Transportation and the Environment, for example, considers legislation pertaining to transportation, infrastructure, the environment, local parks and the city's trees. This includes considering tree-focused legislation and overseeing the agencies that undertake work related to trees, such as the District Department of Transportation's Urban Forestry Administration (DDOT, UFA), the Department of Energy and Environment (DOEE), the Department of Parks and Recreation (DPR), and D.C. Water. Each spring, committees also play a key role in reviewing the Mayor's proposed annual budget for the District. Committees hold review periods with public hearings. These hearings are opportunities for advocates to provide comments.

The Mayor

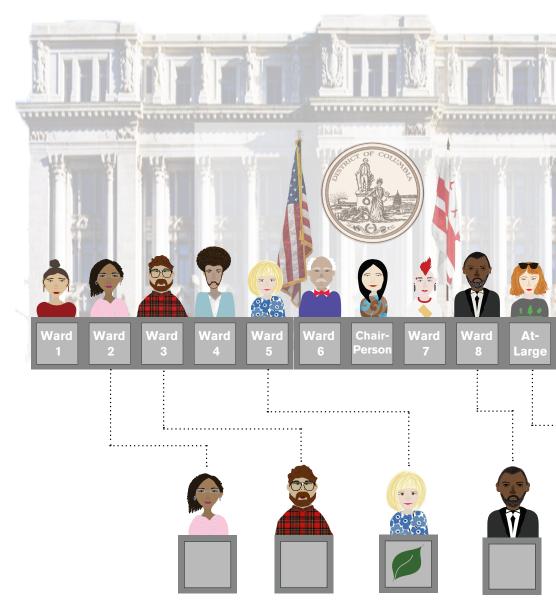
The Mayor, or chief executive of the District of Columbia, is tasked with enforcing city laws, issuing orders, and has the power to veto bills passed by the D.C. Council and propose new laws. The mayor also manages city agencies. Mayors serve four year terms.



can engage in the planning process to guide urban design, land use, and historic preservation plans to

benefit trees.

Council of the District of Columbia



Committee on Transportation & the Environm

Council Committees





Committee of the Whole



Business, Consumer & Regulatory Affairs



Education



Finance & Revenue



Health & Human Services



Housing & Community Development



Judiciary



Transportation & the Environment



4. Law & Order

D.C. has laws and policies designed to counter tree canopy loss citywide. Being familiar with these laws and regulations will allow you to know when and how to stand up for trees.

Tree Laws

Large trees on private property are protected under D.C. law. Commonly referred to as the Tree Bill, the Urban Forest Preservation Act of 2002 established a permitting process to discourage the removal of mature trees. Money generated through permits and fines are put into the city's Tree Fund, which is used to plant new trees on District-owned properties. The Tree Canopy Protection Amendment Act of 2016 expands the protections established in the Tree Bill to more trees citywide.

Special Trees



- Are between 44 and 99.9 inches in circumference
- Are located on private property
- Require a removal permit to be cut down

Removal Fee: \$55/inch of

circumference

Fine: \$300/inch of circumference

for unlawful removal

Heritage Trees



- Are greater than 100 inches in circumference
- Are located on private property
- Cannot be removed without permission from the mayor unless deemed hazardous by a certified arborist

Removal Fee: N/A

Fine: \$300/inch of circumference for

unlawful removal

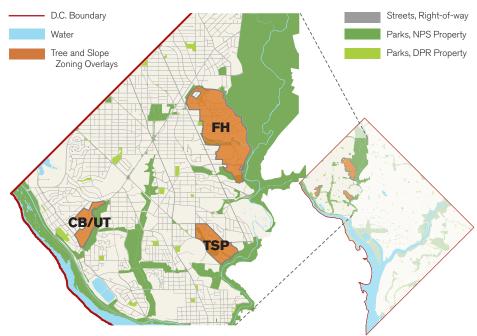
The Green Area Ratio (GAR)

The Green Area Ratio is a zoning regulation that lessens the negative environmental impact of intensive urban development. Buildings that qualify must achieve a designated GAR score, varying by zoning district and calculated using a formula based on the green elements selected and the area of the site they cover. A variety of green elements qualify for the GAR, including trees, vegetated roofs, and bioretention.

Tree and Slope Zoning Overlays

Three heavily forested neighborhoods in Northwest D.C. have an extra layer of protection that safeguards large trees and slopes. Tree and Slope Zoning Overlays help these communities retain their natural beauty by limiting the number of large trees property owners can remove. Mature trees provide soil stability and prevent erosion.

Tree and Slope Zoning Overlays

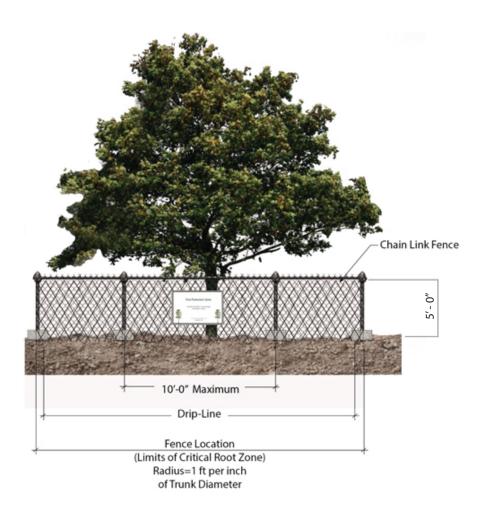


TSP: Tree+Slope Protection **FH**: Forest Hills Tree+Slope Protection **CB/UT**: Chain Bridge Rd/ University Terrace

Elements of Good Tree Protection

Proper protection keeps the tree's critical root zone (CRZ) safe. This zone extends past the tree's dripline (the edge of the canopy) to ensure that the tree and its root system are not damaged, giving it a better chance to survive. The best tree protection uses metal fencing that extends beyond the tree's dripline to prevent damage and soil compaction near the tree.

Our city's trees are especially vulnerable to damage during construction; therefore, it is essential they be properly protected at work sites. This means erecting fencing that guards the tree trunk and its critical root zone, and keeping out all construction materials from this area. Orange plastic fencing is commonly used to protect trees during construction. However, metal fencing is the most effective at preventing damage.





Example of Good Tree Protection

Protecting Trees During Construction Activities

To keep our city green and beautiful, trees must be properly protected when they are near construction work. If left unprotected, trees on construction sites can easily be damaged or even killed by vehicles and materials.

Good tree protection begins before construction starts; developers and contractors should provide protection for all the trees on the site. You can advocate that all tree protection at a work site meets DDOT's official standards (DDOT Tree Protection Fence – Elevation Standard. DWG No. 608.10).

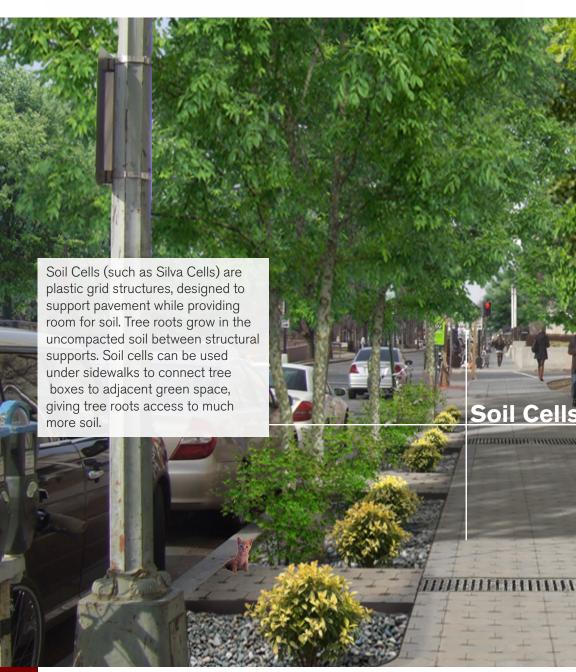
General Tree Damage

Trees on public property are protected against general damage by law. This may include accidental damage or vandalism, such as posting a sign to a tree with a nail. You play an essential role in keeping our city's trees healthy by reporting any tree damage you see.

If you witness unlawful tree damage, report the issue to the Mayor's Service Request Center by calling 311 or going online to www.311.dc.gov. The city also offers a 311 smartphone app to enable users to report issues while on the go.

5. Good Design

Good design allows urban trees to grow larger and live longer. You can improve new development projects by asking designers to plan for trees.



Technologies

You can advocate for the use of products that allow trees along streets, in parking lots, and in plazas to access more soil.



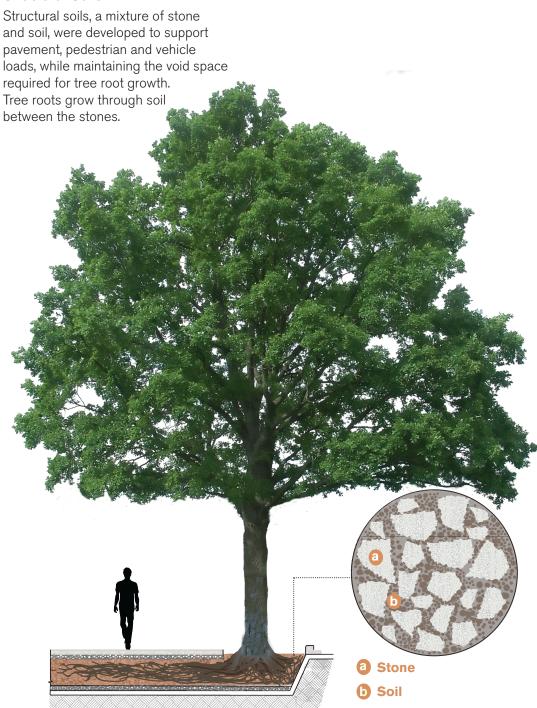
What's Going on Underground?

Soil Cells

Soil cells are plastic underground structures that allow tree roots to grow in uncompacted soils under pavement.



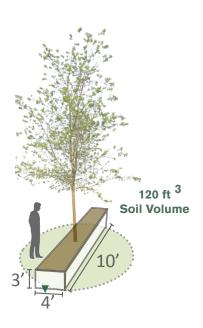
Structural Soils

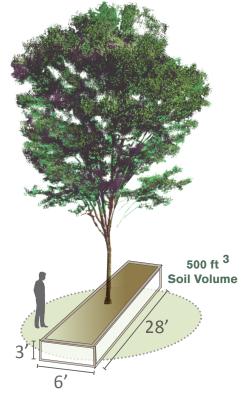


Bigger Tree Boxes

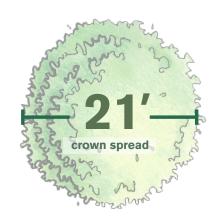
When a tree has sufficient soil and space for its roots, it can absorb more nutrients and its canopy can grow to be healthy. In dense urban areas, trees often have little soil available due to small planting spaces. You can ask designers, developers, and decision makers for large soil volume and good soil

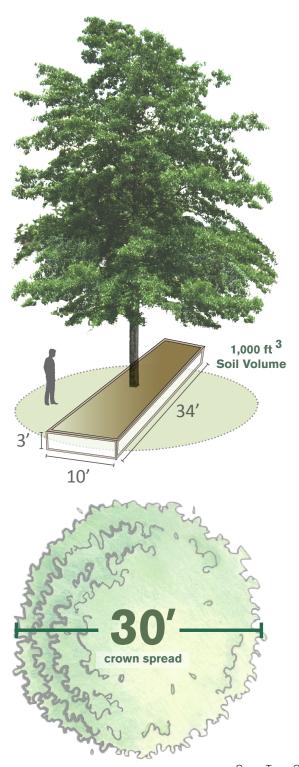
during the design process.











Notes

HOW TO ADVOCATE

Your success depends on a well-crafted, inspirational message delivered to the right people at the right time. Be persuasive so that your efforts make a big impact.



The W.A.R. of Persuasion

Mastering the art of persuasion will not only make you an effective advocate, but will also allow you to inspire others to join your cause.

If you want to be heard, your message should be organized and easy to understand. Casey Trees recommends using a short formula for quickly arranging your thoughts: **The W.A.R. of Persuasion.**

1. Start with Why:

As a tree advocate, expressing why you dedicate your time to a cause you believe in will help you to connect with your target on a personal level.

When your request matches your ethics, your target understands that you are driven by values that are important to you. Perhaps you



believe people are intimately connected with nature and that if a city fails to care for the natural environment, it fails to care for its citizens. Maybe your "why" is simply that you love the aesthetic beauty of trees and want all people to have the opportunity to marvel at their infinite complexities.

By starting with why, you hook your audience. Explain your personal why below:

2. Cleary State the Action:

The next step is to clearly and concisely state the action you want your target to take. The simpler your ask, the easier it is for your target to say yes.

To make it even easier for your target to say yes, consider what steps you want your target to take and do as much work as you can on their behalf, in advance of your request.



For example, if you want the language in a piece of legislation to be modified, consider drafting the changes yourself, so that your target can simply cut and paste your recommendations. If you want trees planted in a new development project, consider providing the number, type, and location of trees. This makes it easier for the designer or landscape architect to update the plans. Casey Trees' advocacy team is always available to help you refine your ask.

3. State a Result that Makes Your Target Feel Like a Hero:

Targets of advocacy are people too; a well-crafted "result" will inspire and energize them, making them feel like their action is heroic.

Understanding your target's motivation is essential to successful persuasion. If your target has a green agenda or is passionate about improving community health, you could say "this action will make D.C. a leader



in sustainability," or "this action will create community health benefits for years to come."

End on a strong note and you will be remembered and successful.

What You Can Do

The most powerful action you can take to protect and enhance tree canopy is to speak on behalf of trees whenever you have an opportunity. Below are the most common venues to advocate for trees in the city.

ANC Meetings

Your ANC meets monthly to discuss new developments and neighborhood issues. The ANC makes recommendations to the D.C. Council, the Zoning Commission, and various District agencies, based on public input at these meetings. ANCs are a great place to bring up tree-related issues.

Neighborhood, Community and Civic Associations

Most neighborhoods have citizen-led associations to share information and foster community engagement. Representatives from various District agencies and the D.C. Council often attend these meetings to discuss community issues and initiatives. If new development is slated for a neighborhood, developers will often share their plans with the community at these meetings. These are opportunities to encourage greener community design or inspire neighborhoods to plant trees in their yards.

Planned Unit Developments (PUDs)

The intent of PUDs is to encourage high-quality developments with public benefits. When a PUD is approved by the city, it allows developers greater flexibility to design outside of the zoning rules they would otherwise be required to follow. For example, developers may be granted allowance to construct a building with a taller height or a greater density than is normally allowed in the project's zone. In exchange for this flexibility, the developer must provide significant benefits to the community on-site, such as by providing a public park. D.C.'s Zoning Commission requires that PUDs go through a comprehensive public review process. Because PUDs must provide public benefits, these developments are often presented at local ANC meetings to gain public input on the project and the benefits package. Tree advocates can ask for new trees or tree preservation as a public benefit in PUD projects. The developer can set aside land for a community park, or provide a streetscape design that manages stormwater with street trees.

Hearings

The DC Office of Planning, Zoning Commission, Board of Zoning Adjustment, Department of Energy and Environment, Department of Parks and Recreation, Department of Transportation, and the National Park Service hold hearings on various topics including city plans, developments, policies, and initiatives. Any in-person testimony or submitted public comments will be part of the official public record.

D.C. Council

The D.C. Council offers many opportunities to testify on legislative, regulatory, performance or budget concerns. Most often your testimony will be directed to the Committee on Transportation and the Environment since this committee oversees the Department of Energy and Environment, the Department of Transportation (and its Urban Forestry Administration), and the Department of Parks and Recreation. Testifying before the Council can have a big impact. It is also the Council's chance to hear directly from the people they were elected to represent, and to ask clarifying questions in person.

If you cannot attend these meetings in person, you can often submit written testimony, call, or email your political representative to make your opinion count. Policies are written around the concerns raised most often by the public. If more tree advocates become part of the public record, issues that impact trees will become higher priorities for the D.C. Council.

D.C. is Planned

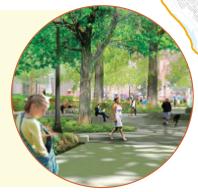
Decisions about D.C.'s growth and development are made through a collaborative process between residents and city officials. Plans are crafted for developments at the local, street, neighborhood, and city scales. Input from residents on these plans is essential for improving quality of life in the District.

Site Scale Development Plans

From building renovations and Planned Unit Developments to the redesign of parks and open spaces, there is ample opportunity for the public to shape individual development plans. Tree Advocates can ask for new trees or tree preservation as a public benefit in the community outreach process. In many cases, developers will set aside land for a community park, or provide a streetscape design that manages stormwater with trees.

Franklin Square

Because of Franklin Park's central location, the National Park Service, the District of Columbia, and the Downtown Business Improvement District sought to redesign the park to better serve the community and improve city living. After several public meetings, three potential designs were created, prioritizing the requests of D.C. residents.



Neighborhood & Small Area Plans

Neighborhood plans guide the urban design, land use, and framework of large sections of the city. This level of planning is often a community-based process that seeks to meet the needs of residents and address issues raised at community meetings. As a community member, you can guide the future of your neighborhood by getting involved in this process.

Southwest Neighborhood Plan

The Southwest Neighborhood Plan is a Small Area Plan to shape the future of the neighborhood. It reflects community aspirations, District-wide goals and market opportunities. It is a community based plan to enhance parks, pedestrian and street connections, integrate community amenities, and guide the direction of future growth. The Southwest neighborhood has many opportunities to expand and enhance the tree canopy, improve parks and green spaces and incorporate more sustainable design in future development, all of which are addressed in the Plan.

Transportation Plans

The District Department of Transportation (DDOT) maintains D.C.'s road and sidewalk network. Because trees line our

streets, these transportation plans are opportunities to ask for more soil volume and better tree protection.

Florida Ave NE

In 2013, DDOT sought to improve the safety, design, and operation of Florida Avenue NE. A multimodal safety and planning study was conducted first, then three public meetings were held at key stages in the planning process, allowing resident input to guide the final design.

Comprehensive Plan

To guide D.C.'s future growth and development, the Office of Planning amends the Comprehensive Plan every four years. There is tremendous opportunity to support the protection of open space and make long-range impacts by becoming involved when the Plan is being amended. The Comprehensive Plan dictates policy in areas of transportation, infrastructure, land use, recreation, housing and more and is designed to meet the needs and goals of D.C. residents.

Comprehensive Plan

The Comprehensive Plan of the National Capital is comprised of District Elements and Federal Elements, both of which provide opportunity for public input. In 2015 the Federal Elements were updated through the public comment process to include stronger tree planting and tree protection language.

Natural Resource & Open Space Plans

Many of D.C.'s policies are guided by plans created by various departments and agencies. These plans accept input from residents and are opportunities to include trees in the official language governing the city.

Sustainable D.C.: Created by the Department of Energy and Environment and the Office of Planning, this plan guides strategies to make D.C. the most sustainable city in the nation including the goal of achieving a 40% tree canopy by 2032

Capital Space Plan: The National Capital Planning Commission along with the National Park Service and District of Columbia initiated this plan to improve parks and open space throughout the city.

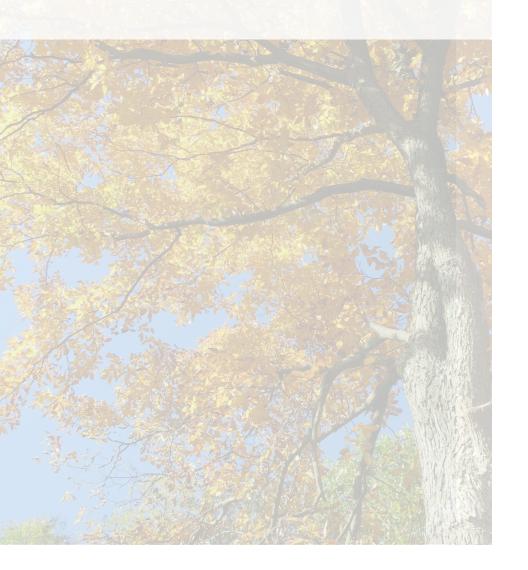
Play D.C.: A citywide project initiated by the Department of Recreation and Department of General Services focused on improving the city's playgrounds and recreation spaces.

Wildlife Action Plan: Developed by DOEE, this is the District's plan to protect wildlife and preserve habitat. Conserving trees is critical to this effort. The plan is updated every 10 years based on monitoring and data collection.

APPENDICES

Appe	ndix A	A :	Useful	Terms		
------	--------	------------	--------	--------------	--	--

Appendix B: Works Citediii



Appendix A: Useful Terms

Arborist: A professional who specializes in the cultivation, management, and study of individual trees. Arborists are responsible for managing trees in green spaces on public land in communities. You can contact the municipal arborist responsible for your ward with any concerns about planting, pruning, or removing trees.

Biodiversity: The variety of lifeforms in an environment. If an environment has higher biodiversity, such as a wide variety of tree species, organisms and communities in that environment are more resilient to pests, diseases, and natural disasters.

Bioretention: Capturing stormwater is one of the greatest benefits urban trees provide. Bioretention areas, such as rain gardens and curb-side bioretention, can be designed into urban landscapes to collect water and divert it in instead of flowing into sewer systems.

Charrette: A collaborative process where participants can review the proposed site and help design a project.

DBH (diameter at breast height): A standard measure of the diameter of the trunk of a standing tree. Breast height is measured at 4.5 feet above the ground.

Green Area Ratio: A zoning regulation that lessens the negative environmental impact of intensive urban development. New buildings, as well as some interior renovations and additions that require a certificate of occupancy, must meet the GAR standards. Site designs are required to achieve a certain score, varying by zoning district and calculated using a formula based on the green elements selected and the area of the site they cover. A number of different green elements qualify for the GAR, including permeable surfaces, vegetated roofs, bioretention and trees.

Low Impact Development (LID): Design and engineering that works with nature to manage stormwater.

Mixed Use: A development in one or several buildings that combines several revenue-producing uses that are integrated into a comprehensive plan, such as a project with elements of housing, retail, and office space.

Planned Unit Development (PUD): See page 36.

Public Right-of-way (ROW): The public right-of-way (ROW) consists of the travel lanes, on-street parking, sidewalk area, and other public space situated between the property lines on either side of a street. Street trees are a part of the public ROW.

Stormwater Runoff: Excess stormwater runs over lawns, streets and enters the sewer system. In urban areas, the high level of impervious surfaces cause a large volume of stormwater runoff to overload treatment plants during heavy storms, and can cause polluted stormwater to enter rivers untreated. Directing stormwater to bioretention areas can combat polluting overflows.

Suspended Sidewalk: Sidewalk that is reinforced and supported with piers or other structures so that it does not rely on compacted subgrade soil for support, and does not impact tree roots. Suspended sidewalks can incorporate soil cells and structural soils.

Tree Canopy Protection Amendment Act of 2016: The District's tree law, which establishes a permit and fine process for removal of Special Trees (any tree between 44 and 100 inches in circumference). This legislation also defines Heritage Trees as any tree over 100 inches in circumference, and makes it illegal to remove Heritage Trees except in very few circumstances.

Tree Fund: Revenue collected through tree removal permits and fines finances the District's Tree Fund, managed by the Urban Forestry Administration. The primary function of the tree fund is to plant replacement trees on District-owned land, including along streets, on parks and on school property, and on private land in coordination with DOEE. The Tree Fund cannot be used for any governmental purpose other than tree planting, tree survival checks, hazardous tree removal and any associated costs. Developments often have to pay for permits to remove Special Trees (see Tree Canopy Protection Amendment Act of 2016). Permit money goes into the tree fund and can be spent on planting replacement trees near the site.

Tree Canopy: The layer of leaves, branches, and stems that cover the ground when viewed from above

Tree Canopy Goal: The Sustainable D.C. plan's goal of achieving 40% of the city covered by tree canopy by the year 2032.

Urban Forest: All of the trees (street trees, park trees, and private trees) within a city proper.

Urban Heat Island: Metropolitan areas are hotter than nearby rural due to increased paving, traffic, and lower tree cover.

Utility Pruning: The pruning of branches by utility companies so they do not interfere with high-voltage electric lines. Advocates can ask for electricity wires to instead be buried underground.

Volcano Mulching: An improper mulching method in which mulch is piled in a mound around a tree's trunk. This can cause problems by encouraging roots to grow up into the mulch (as opposed to growing outward in ground soil), and also may shed water away from the critical root zone.

Zoning Code: Construction and land use requirements based on location.

Appendix B: Works Cited

- "About the Council" Council of the District of Columbia. DC.gov. Web. 6 September, 2016. http://www.dccouncil.us/
- "About Us." National Capital Planning Commission. *U.S. National Park Service.* Web. 6 September 2016. http://www.ncpc.gov
- Bassuk, Nina et. al. Using CU-Structural Soil in the Urban Environment. 2005, Cornell University Urban Horticulture Institute. Print.
- Capital Space Plan: A Park System for the Nation's Capital. National Capital Planning Commission, Government of the District of Columbia, National Park Service. Washington, D.C. 1 April 2010. Print.
- A Citizens Guide to Transportation Decision Making in the Metropolitan Washington Region. National Capital Region Transportation Planning Board, 2008. Print.
- "DC GIS Services." Office of the Chief Technology Officer. DC.gov. Web. 24 August, 2016. http://octo.dc.gov/service/dc-gis-services/
- Department of Energy & Environment. The District of Columbia. Web. 23 August 2016. http://doee.dc.gov/
- Department of Energy and Environment, DC Office of Planning. Sustainable DC Plan. The Government of the District of Columbia. Washington, D.C. April 2012. Print.
- Department of General Services. The District of Columbia. Web. 23 August 2016. http://dgs.dc.gov/
- Department of Parks and Recreation. The District of Columbia. Web. 23 August 2016. http://dpr.dc.gov/
- Play DC Master Plan. Department of Parks and Recreation, Department of General Services. Washington, D.C. March 2014. Print.
- District Department of Transportation. Florida Avenue, NE Multimodal Transportation Study. The Government of the District of Columbia. February 2015. Web. 6 September 2016. http://www.floridaavesafety.org/
- District of Columbia. Committee on Transportation and the Environment. *Tree Canopy Protection Amendment Act of 2016*. D.C. Act 21-386. Washington, D.C., 4 May, 2016. Print.
- District of Columbia. Committee on Transportation and the Environment. *Urban Forest Preservation Act of 2002*. Volume 50, Number 5. D.C. ACT 14-614. Washington, D.C., 22 January, 2003. Print.
- District of Columbia. DC Office of Planning. *The Comprehensive Plan for the National Capital: District Elements*. Section 3(D) of Bill 16-876. Washington, D.C., 19 December, 2006. Print.
- Effective Advocacy at All Levels of Government. Center for Lobbying in the Public Interest, W.K. Kellogg Foundation, May 2008. Web. http://www2.wkkf.org/advocacyhandbook/index.html
- Environmental Protection Agency. Permit for the District of Columbia Municipal Separate Storm Sewer System. 9 November, 2012. Washington, D.C. Print.
- Executive Office of the Mayor. The District of Columbia. Web. August 23, 2016. http://mayor.dc.gov/
- Franklin Park Vision and Transformation Plan. National Park Service, the District of Columbia, Downtown Business Improvement District. Washington, D.C. December 2015. Print.
- "Green Area Ratio Overview." Department of Energy & Environment. DC.gov. Web. 24 August, 2016. http://doee.dc.gov/GAR
- Green Issue Briefs. Casey Trees, 2008. Web. 24 August 2016. http://caseytrees.org/issues/
- Greenhouse Gas Emissions from a Typical Passenger Vehicle. Office of Transportation and Air Quality, U.S. Environmental Protection Agency. EPA-420-F-11-041. 2014, Ann Arbor, Ml. Print. http://www.epa.gov/otaq/climate/documents/420f11041.pdf

- Hughes, Maisie et. al. *Urban Tree Selection Guide: A Designer's List of Appropriate Trees for the Urban Mid-Atlantic.* Casey Trees, 2015. Print.
- i-Tree Eco. I-Tree Tools for Assessing and Managing Forests & Community Trees. Web. 24 August 2016. https://www.itreetools.org/eco/
- Let's Make Our Votes Count! The League of Women Voters of the District of Columbia. 2012. Washington, DC. Print
- Lilly, Sharon J. Arborists' Certification Study Guide. International Society of Arboriculture. 2010. Champaign, IL. Print.
- Lindsay, Patricia and Bassuk, Nina. "Specifying Soil Volumes to Meet the Water Needs of Mature Urban Street Trees and Trees in Containers." *Journal of Arboriculture* 17(6) (1991), 141-149. Print.
- National Capital Regional Office. U.S. National Park Service. Web. Mar 26, 2013. http://www.nps.gov/ncro/
- Office of Planning. The District of Columbia. Web. August 23, 2016. http://planning.dc.gov/
- Office of Planning. Council Approved Southwest Neighborhood Plan. The Government of the District of Columbia. Washington, D.C. 14 July 2014. Print.
- Ossi, Damien et. al. District of Columbia Wildlife Action Plan: A Conservation Strategy for Washington, D.C. Department of Energy and Environment, Government of the District of Columbia. Washington, D.C., 2015. Print.
- "Overview and Timeline of the DC Budget Process." Citizens Guide to the DC Budget. DC Fiscal Policy Institute, March 2013. Print. http://www.dcfpi.org/wp-content/uploads/2013/03/3-27-13-Overview-and-Timeline-DCBudgetProcess.pdf
- Sanders, Jessica and Buscaino, Mark. Tree Report Card 2015. Casey Trees, 29 April 2016. Print.
- "Standards and Guidelines." District Department of Transportation. DC.gov. Web. 24 August 2016. http://ddot.dc.gov/page/standards-and-guidelines>
- Trowbridge, Peter J. and Bassuk, Nina. *Trees in the Urban Landsdcape: Site Assessment, Design, and Installation.* John Wiley Sons, Inc., Hoboken, New Jersey, 2004. Print.
- Upchurch, Meredith et. al. Tree Space Design: Growing the Tree Out of the Box. Casey Trees, 2008. Print.
- Urban, James. "Bringing Order to the Technical Dysfunction within the Urban Forest." *Journal of Arboriculture*, 18(2) (1992), 85-90. Print.
- Urban, James. Up By Roots: Healthy Soils and Trees in the Built Environment. International Society of Arboriculture, 2008. Print.
- Urban Ecosystem Analysis for the Washington DC Metropolitan Area. American Forests. Feb 2002. Web. http://www.systemecology.com/4_Past_Projects/AF_WashingtonDC2.pdf
- Urban Forestry Administration. District Department of Transportation, The District of Columbia. Web. August 23, 2016. http://ddot.dc.gov/page/ddot-urban-forestry-administration-ufa
- Wilson, Alex et al. Green Development: Integrating Ecology and Real Estate. John Wiley & Sons, 1998. Print
- Zoning Commission. Office of Zoning, The District of Columbia. Web. August 23, 2016. http://dcoz.dc.gov/services/zoning/commish.shtm
- "Zoning in the District of Columbia." DC Office of Zoning. The District of Columbia. 2011. Washington, DC. Print.

Images

Cover	Lehner, Matthew. Autumn Descends on DC. 2013, Digital, Matthew Lehner Photography. Web. 6 September 2016. http://www.matthewlehner.photography/
Page 11	Roth, Susan Austin. <i>Autumn in Rock Creek Park</i> . 2014, Digital, Web. 8 September 2016. http://photos.flowerphotographer.net/Nature/Autumn-in-Rock-Creek-Park/i-qdLsh9M/A
Page 11	Siegmund, Walter. Celastrina ladon. April 2006, Digital, Web. 14 September 2016. https://upload.wikimedia.org/wikipedia/commons/c/c1/Celastrina_ladon_03745.JPG
Page 26-27	Lightle, Mary. 19th & E Street NW Before & After. 2012. Casey Trees.
Page 25	Australis Tree Management. <i>Tree Protection Zone</i> . Digital. Web, 14 September 2016. http://www.australistrees.com.au/reports.Tree%20Protection.html
Page 30	Deep Root Partners L.P. Silva Cells. 2006.

MOLES		

WHO WE ARE

Casey Trees is a Washington D.C.-based nonprofit, established to restore, enhance, and protect the tree canopy of the nation's capital.

To fulfill this mission, we plant trees, engage thousands of volunteers of all ages in tree planting and care, provide year-round continuing education courses, monitor the city's tree canopy, development interactive online tree tools and work with elected officials, developers, community groups to protect and care for existing trees and to encourage the addition of new ones.

