TREE
REPORT
CARD
2011

Casey Trees is a Washington, D.C.-based nonprofit committed
to restoring, enhancing and protecting the tree canopy of the nation's capital.

We pursue our mission through education, community action and research.

TREE
REPORT
CARD
2011

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INCOMPLETE

I

TREE REPORT CARD 2011

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Casey Trees' Fourth Annual Tree Report Card measures the collective efforts of individuals and organizations, both governmental and non-governmental, that are working to restore, enhance and protect the tree canopy of Washington, D.C.

For this year's **Tree Report Card**, there are four key messages:

- D.C.'s tree canopy is 35 percent overall — unchanged from 2006.

- With multi-agency, individual and nonprofit linkages, tree planting numbers have increased greatly, exceeding the annual planting target by more than 50 percent.

- The health of the District's trees remains strong with more than 82 percent in "Good" to "Excellent" condition.

- Although the effectiveness of D.C.'s **Urban Forest Preservation Act** (UFPA) of 2002 has come under question through internal and external reviews, the city is taking action to rectify the deficiencies.

However, the news is mixed. While the number of trees planted annually has increased and there is momentum to better protect and replace trees lost to removal, the percent of tree canopy remains unchanged.

To make progress toward achieving D.C.'s **tree canopy goal** of 40 percent by 2035, we encourage the District Government and its elected leaders to:

- Pass the **Urban Forestry Administration Reorganization Act** (UFARA) of 2011 to better protect existing trees, replace those that are removed and better track the survival of replacement trees so we can understand if the law is accomplishing its goals.

- Fulfill the **District Department of the Environment**'s (DDOE) legislative mandate by recognizing it as the lead agency for administering Special Tree Removal permits and establishing and monitoring D.C.'s overall tree canopy strategy and policy.

- Allow the **Urban Forestry Administration** within the District Department of Transportation (UFA-DDOT) to focus on its stated mission of establishing and maintaining a full population of street trees in D.C.'s rights-of-way.

To ensure the survival and well-being of the District's trees, which make our city a better place to live, we must monitor our efforts, celebrate our successes and confront our failures. Casey Trees' Tree Report Card is our contribution to those efforts and we hope you will support and join us in our work.

Why a Tree Report Card?

Just as monuments, government buildings and vistas have helped to distinguish the nation's capital, so has its trees. In fact, trees are so much a part of the District's legacy that in the late 1800s, D.C. earned the moniker *City of Trees.*

Unfortunately, D.C.'s trees have suffered because of decades of neglect and development. In 1950, with a population of 800,000 residents, the District boasted a tree canopy of 45 percent — meaning trees shaded almost half of D.C.'s land area. By 2006, D.C.'s population declined to 550,000 people and its tree canopy shrunk to 35 percent. One would think that with less people there would be more trees, but this is not what the data show.

Understanding the importance of trees and the reality that they are not always a top priority, Casey Trees asked: how do we bring attention to our urban forest? How can we ensure that people are informed of the ups and downs of this critical environmental, cultural and social resource? The answer was clear — release an annual **Tree Report Card** that provides an independent assessment of the D.C.'s urban forest.

While performance metrics are never perfect and often controversial, they serve a critical need because without them we will never know if we are achieving our objectives. Casey Trees hopes other cities and towns will establish similar rating systems to help them increase awareness and attain their tree canopy goals, and we stand ready to advise them.

Performance Metrics Used

The District's overall **Tree Report Card** grade is determined by scores given to four performance metrics: Coverage, Health, Planting and Protection. These metrics help us understand if we are on pace to fulfill the District's ambitious but attainable tree canopy goal.

We define the performance metrics used in this Tree Report Card as follows:

- **Tree Coverage** is a measure of the surface of a tree's crown viewed from above. These crowns, also referred to as canopies, are the workhorse of a tree, providing shade, reducing energy consumption, removing particulates, slowing stormwater and generating a host of other benefits.

- **Tree Health** is as it states — a measure of the overall health of trees that make up the tree canopy. While this rating has many implications, fundamentally, trees in "Poor" condition generally do not live as long as those in "Good" to "Excellent" condition.

- **Tree Planting** refers to the number of new trees planted annually to expand the canopy. Trees planted to replace removed trees, such as those done through the Tree Fund, are not included since the intent of those trees is to replace lost canopy, not expand it.

- **Tree Protection** evaluates the effectiveness of the **UFPA**.

Changes

Each year we reexamine the performance metrics to ensure that the evaluation of the activity or condition can be done accurately and truly demonstrates impact.

Since the **First Annual Tree Report Card** was issued in 2009 — assessing tree-related activities conducted in 2008 —Tree Awareness has been a determining performance metric. Several factors have been used to account for the general level of knowledge and participation in tree issues in D.C., including the volume of urban forestry-related requests to the citywide service requests line and the number of environmental advocacy organizations focused on the District.

Despite our best attempts to evaluate Tree Awareness, we have never been completely satisfied with the soundness and significance of the data, and for that reason we did not factor in this metric for the 2011 report.

This decision does not diminish the value we place on informing and engaging individuals on urban forestry issues, rather it illustrates our commitment to presenting reliable and informed conclusions. We will continue to evaluate our ability to capture tree awareness and, if doing so is financially feasible, we will reinstate this metric in future iterations.

Grade Determinations and Meaning

We use a letter grading system most are familiar with: A to F, with A representing excellence and F for failure. The grade I is used to assign credit for efforts underway but not yet complete.

Data Sources

Because the District's Annual **Tree Report Card** grade is a measurement of collective efforts, we use data made available to us from public and private entities. Each contributor is acknowledged in the back of this document.

TREE BENEFIT

Pavement cooled by shade trees reduces the urban heat island effect, making cities more livable and healthy.

TREE BENEFIT

Shoppers, diners and pedestrians are drawn by the beauty of a well-cared-for tree canopy. Destination DC estimates the National Cherry Blossom Festival generated $126 million from tourism in 2011.
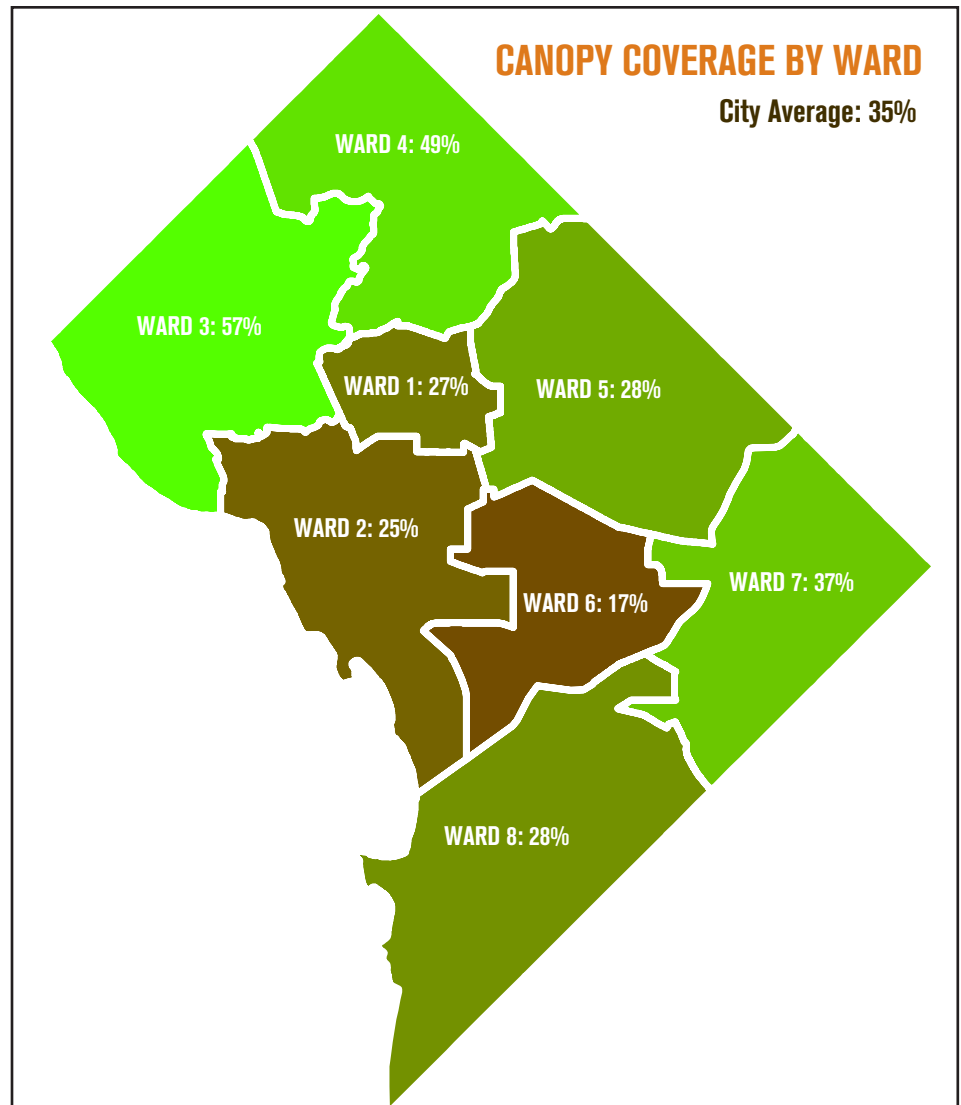
TREE COVERAGE

For generations, foresters and arborists have used images of all types to track the presence or absence of trees over time. Today, even a novice can use Google tools to track the progression of tree canopy within one's neighborhood.

To assess a relatively large area such as Washington, D.C., Casey Trees partners with **The University of Vermont's (UVM) Spatial Analysis Lab**. UVM is a recognized industry leader, and we use them to ensure the integrity of our data.

In 2006, D.C.'s tree canopy covered 35 percent of its total land surface; the 2011 assessment reveals that this percentage is virtually unchanged along with the grade of B+. The real story is that the tree canopy has increased in areas because of natural growth and planting and decreased in others due to removal and death.

Prior to the release of the Fourth Annual Tree Report Card, **UFA-DDOT** issued its own canopy analysis (conducted by a separate entity) that showed coverage growing to 37.5 percent. If UFA-DDOT releases the data from this publicly funded project, we will compare both sets and issue a findings report. Until then, we stand by our estimate of 35 percent.

CANOPY COVERAGE BY WARD

City Average: 35%

WARD 4: 49%
WARD 3: 57%
WARD 1: 27%
WARD 5: 28%
WARD 2: 25%
WARD 7: 37%
WARD 6: 17%
WARD 8: 28%

2011

B+

B+
2010

B+
2009

B
2008

METRIC GRADES

Why Is Tree Coverage Important?

Twenty years of research has revealed that urban forests provide surprising health, social and economic benefits. Trees shade homes and reduce energy consumption. Shaded streets last longer than their non-shaded counterparts. Trees slow stormwater runoff and capture particulates that would otherwise blow freely in the air. Trees have also been linked to increased retail sales in business districts, improved concentration among students and decreased criminal activity.

The research is exciting, but perhaps the best way to understand tree benefits is to consider what the **National Mall** would be like without its American elms or the Tidal Basin without its cherry trees. Washington, D.C. without its trees would not be Washington, D.C., and data is not required to understand that.
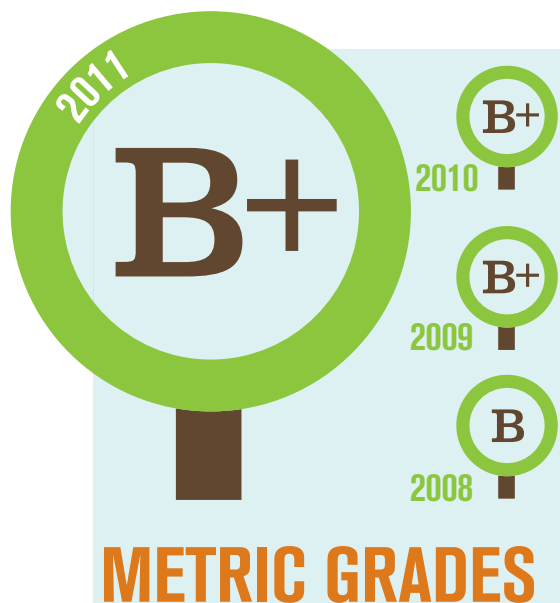
UFA-DDOT: Increasing Canopy, Reducing Stormwater Runoff

Charged with planting and maintaining D.C.'s 140,000 street trees, **UFA-DDOT** spent much of 2011 recovering plantable spaces across the District to boost canopy coverage and mitigate stormwater runoff. Three coordinated projects — Impervious Surface Reduacation, Green Median Renovation and Tree Canopy Renovation — were funded by the American Reinvestment and Recovery Act via the U.S. Environmental Protection Agency through the **Clean Water State Revolving Fund**, and administered by **DDOE**.

Impervious Surface Reduction

As of February 2011, UFA-DDOT has removed three acres of impervious surface across D.C. by expanding the size of existing tree boxes, cutting new tree boxes, adding continuous planting strips along medians and converting contiguous expanses into new green spaces.
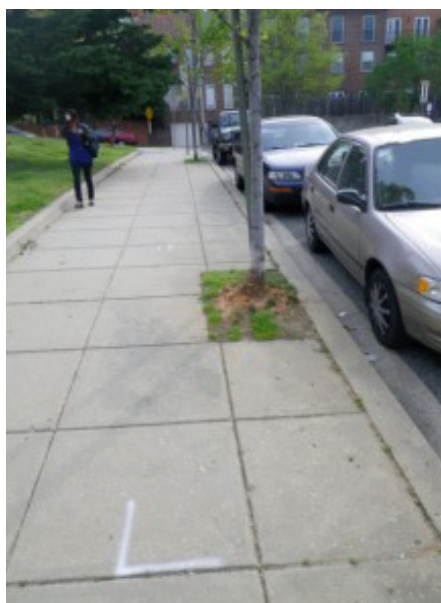

P STREET NW   **BEFORE**   **AFTER**
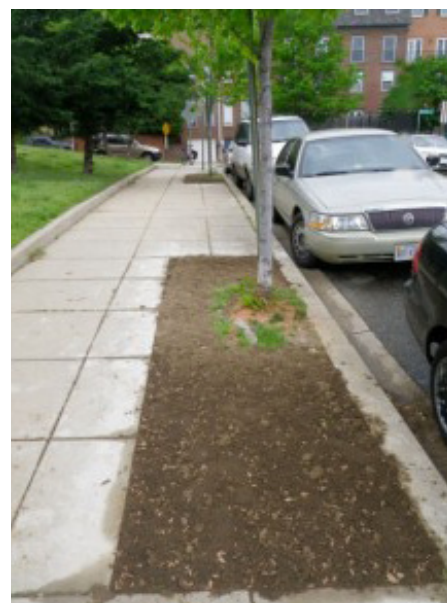

OLD MORGAN SCHOOL WAY NW   **BEFORE**   **AFTER**

Green Median Renovation

Hardscapes such as brick, concrete and pavers were replaced with turf, mulched surfaces and trees. Appearances of blight were also lessened.

CALVERT STREET NW   BEFORE   AFTER

BLADENSBURG ROAD NE   BEFORE   AFTER

Tree Canopy Renovation

Trees intercept water during rain events through their canopies and the soil they grow in, helping to alleviate the strain on our sewer system and streams. Replacing dead and dying trees with new trees and removing and replacing hardscapes with soil will both help boost the city's tree canopy and reduce stormwater runoff.

TREE BENEFIT

**Trees create safer streets. They block wind, reduce glare and provide a barrier between vehicles and pedestrians.**

Casey Trees has committed itself to inventorying trees in 200 randomly located permanent plots across the District every five years.

We have surveyed these plots twice, in 2004 and 2009, using the U.S. Forest Service's **i-Tree Eco Assessment Tool**. The third survey is scheduled for 2013. Each survey assesses the species, size and presence or absence since the last survey of each tree found in the 200 parcels.

The data from our i-Tree Eco Assessment shows that 82.4 percent of D.C.'s tree canopy is in "Good" to "Excellent" condition giving the District a B- grade for Tree Health — a repeat from last year's grade.
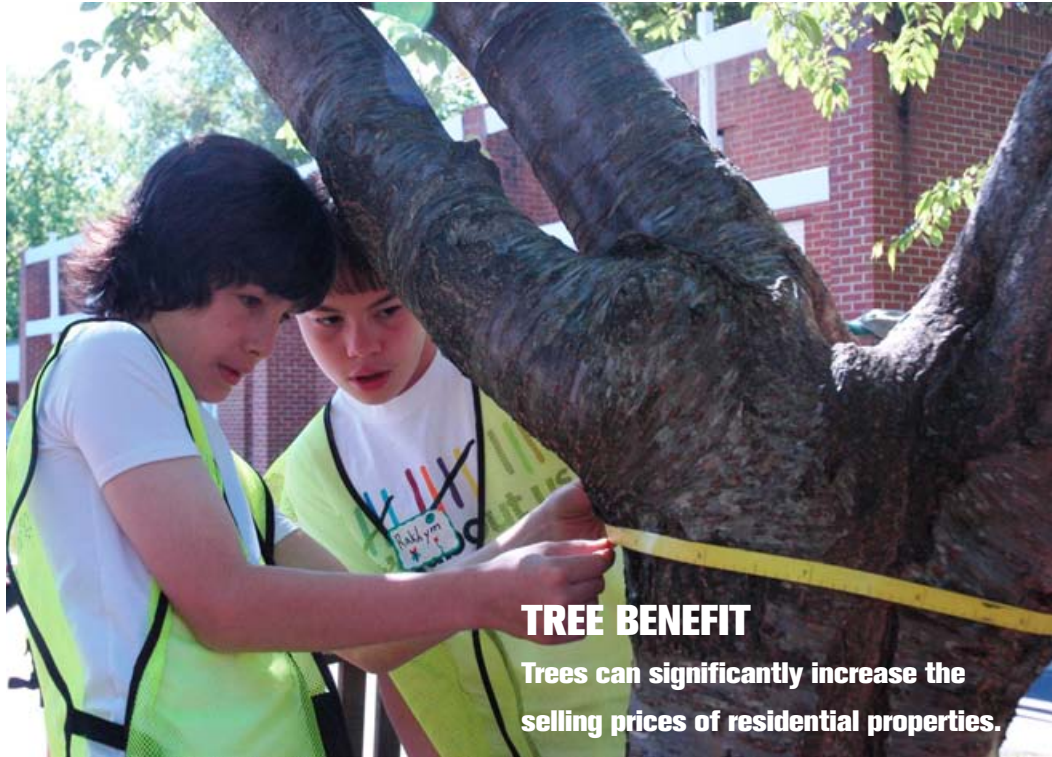
TREE BENEFIT

Trees can significantly increase the selling prices of residential properties.

Why Is Tree Health Important?

Knowing the quantity, types and condition of the trees that make up an urban forest is necessary if the resource is to be preserved.

For example, if data shows large numbers of marginally healthy trees, this would suggest that perhaps a disease or insect is causing widespread damage, which could potentially result in lost tree canopy and associated benefits. In terms of composition, if D.C.'s tree population were 50 percent American elm trees, we could be in trouble. Why? Because with Dutch elm disease still prevalent, it would not be long before these trees would be in danger of dying from the disease.

2011

B–

B– 2010

B– 2009

A+ 2008

METRIC GRADES
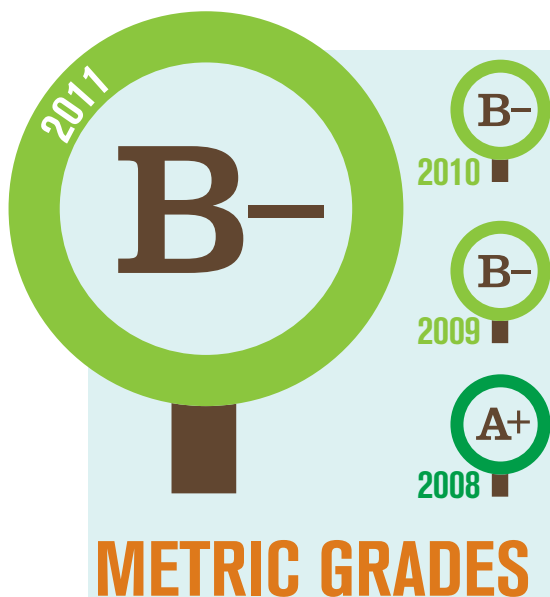
Looming Canopy Threat: Emerald Ash Borer

THE ADULT BEETLE IS DARK METALLIC GREEN, BULLET-SHAPED AND ABOUT 8.5 MM IN LENGTH.

Since the 1990s, the **emerald ash borer** (EAB), a destructive invasive insect, has ravaged America's and Canada's ash tree population, a popular landscaping and streetscape tree. EAB is estimated to have killed tens of millions of ash trees in central and northeastern United States and threatens billions more.

Officially detected in 2002, EAB has spread to 14 states and adjacent parts of Canada in less than a decade. In August 2003, the **Maryland Department of Agriculture** detected EAB during a routine inspection at a Prince George's County nursery and the infested area was immediately placed under federal quarantine.

The quarantine prohibits the movement of any regulated articles, such as firewood that might harbor the insect, into and out of Prince George's County. In August 2011, **the District**, along with Baltimore City and nine additional Maryland counties, was added to the list of areas under federal quarantine for EAB.

THINNING CANOPY AND TOP DIEBACK ARE DIAGNOSTIC SIGNS OF EAB INFESTATION.

LARVAE BURROW INTO THE BARK AFTER HATCHING, EFFECTIVELY GIRDLING THE TREE AND CAUSING DEATH WITHIN TWO YEARS.

What does this mean for D.C.'s tree canopy?

According to our 2006 i-Tree Eco survey, EAB could cost the District as much as $87 million in replacement costs and foregone ecosystem services such as carbon sequestration and stormwater management despite ash trees only making up about 2 percent of D.C.'s urban forest.

However, those that stand to lose the most are D.C.'s property owners. While ash trees are five times more numerous in parks and open spaces than on private property, the average ash tree on private property is more than five times larger in leaf biomass. Significant ash tree loss could spike homeowner utility costs, lower property values and change the character of neighborhoods.

What is being done?

Fortunately, there have been no sightings of the insect in D.C. — not yet anyway.

In anticipation of that, however, the District needs to have programs and information in place to inform homeowners what to do in the event of an EAB outbreak or loss of an ash tree. Additionally, programs should be in place — and some are — to help homeowners replace lost trees with similar species of trees should an ash tree die and have to be removed.

TREE BENEFIT

Environment-based learning and green schoolyards provide substantial academic, developmental and social benefits to children, leading to improved reading and math scores; classroom discipline problems also decline.

For the second straight year, collective tree plantings in D.C. exceeded the minimum number of trees — 8,600 — needed annually to reach the District's **tree canopy goal** of 40 percent by 2035.

In 2011, individuals and groups planted more than 13,608 trees across D.C. resulting in an A+ grade for Tree Planting.

Groups that planted trees reported the following planting numbers:
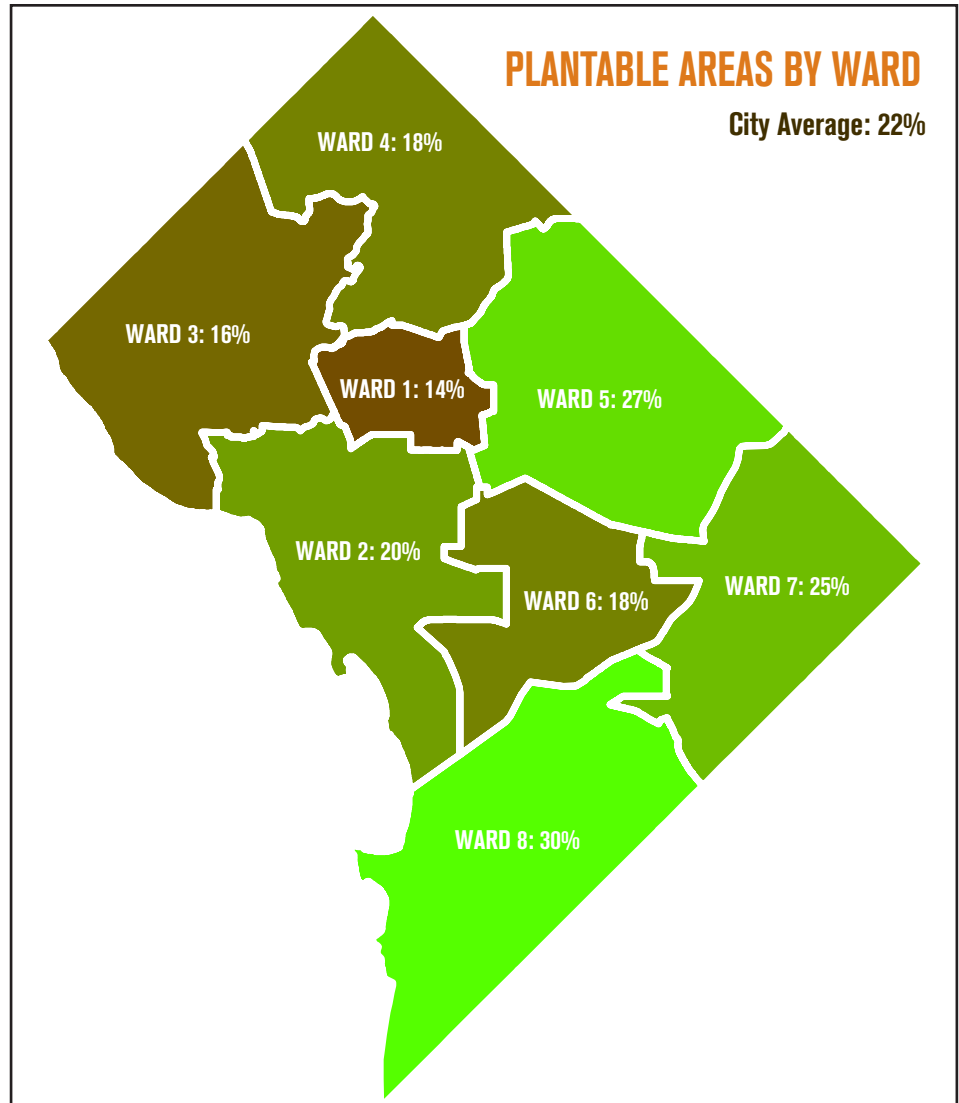
Federal Government

U.S. National Park Service	2,094
General Services Administration	32

Local Government

DDOE	5,107
UFA-DDOT	3,706

Private Entities

American Forests	5
American University	75
Casey Trees	2,544
DC Greenworks	2
TKF Foundation	43

PLANTABLE AREAS BY WARD

City Average: 22%

WARD 4: 18%
WARD 3: 16%
WARD 1: 14%
WARD 5: 27%
WARD 2: 20%
WARD 6: 18%
WARD 7: 25%
WARD 8: 30%

2011
A+

2010 A+
2009 C–
2008 B

METRIC GRADES

Why Is Tree Planting Important?

Each year trees die because of natural and human-induced causes or are removed for development or personal preference. To maintain our existing canopy coverage of 35 percent, dead or dying trees must be replaced with new trees and additional trees must be planted to reach the District's tree canopy goal.

Plantable Spaces

While the District is a dense urban environment, plantable space is plentiful. The plantable area map above highlights the percent of land in each of the city's Wards that can potentially accommodate trees.

Wards 5, 7 and 8 each have roughly 30 percent grass and soil cover — ideal planting locations for trees. Wards 2 and 4 also have plenty of space to explore adding more trees. While not all of these locations will be suitable for a tree, this spatial analysis provides insight on where trees can potentially be accommodated.
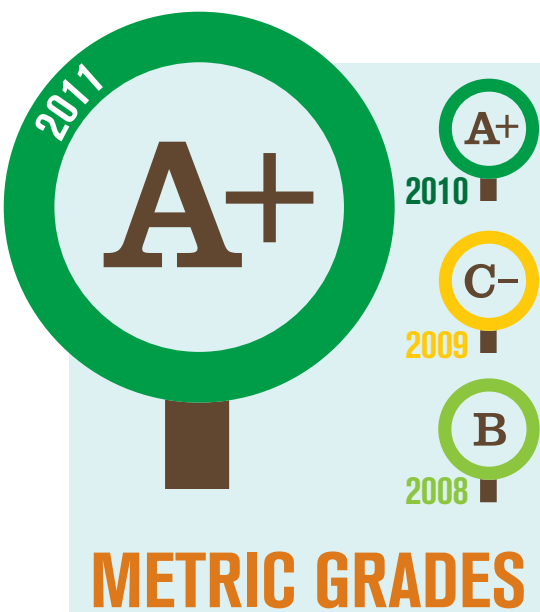
When the **Council of the District of Columbia** passed the **UFPA** in 2002, it intended the legislation to ensure that when healthy, large canopy trees with circumferences greater than 55 inches — deemed Special Trees — were removed for whatever reason, they were replaced through replanting.

The UFPA provided hope that D.C.'s canopy would stabilize so additional plantings could eventually increase the canopy to levels not seen in decades. The effectiveness of the UFPA is the basis for the Tree Protection metric.

While the UFPA is a good law, it has not lived up to its promise. Our **Third Annual Tree Report Card** — for 2010 activity — gave the District a failing grade for Tree Protection because provided data showed that replacement trees were not being tracked for mortality and Tree Fund money was being used to offset general operating budget shortfalls. Supporting this, the Office of the D.C. Auditor's Audit of **UFA-DDOT** found many problems with how the agency is administering the UFPA.

Fortunately there are positive signs on the horizon, particularly the introduction of the **UFARA** by Councilmember Phil Mendelson to address inadequate agency oversight and strengthen some provisions of the UFPA.

While significant deficiencies in protecting trees still continue, in particular inadequate record keeping for replacement trees and their mortality, the Council's strong commitment to passing UFARA must be recognized. As such, we are assigning an Incomplete grade to Tree Protection, which we assume will improve when the UFARA is passed.

TREE BENEFIT

Trees can shade buildings, windows and air-conditioning units. Homes with well-placed trees have annual energy costs that are 8 to 12 percent lower than those without trees.
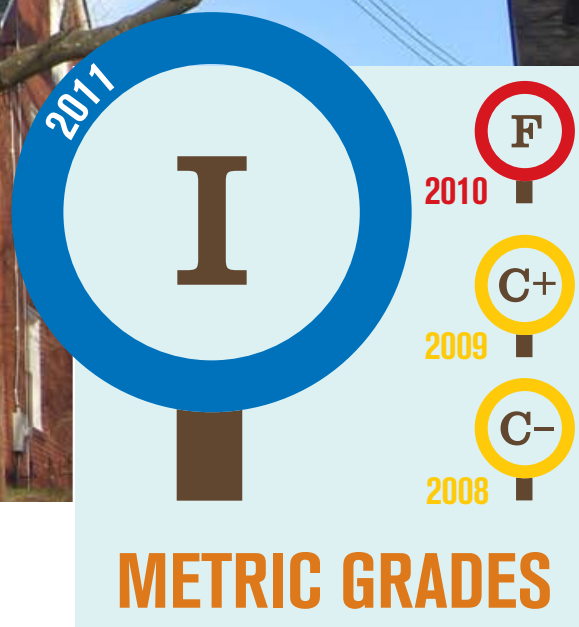
Why Is Tree Protection Important?

Perhaps the best way to think about tree protection is to use land disturbance as an example.

When someone disturbs an area of soil — typically to build something — a permit must be filed. That permit usually requires that the soil be contained so it does not pollute streams, soil roadways or clog storm drains.

If cities allowed soil to be disturbed with no restrictions, the environment would be irreparably damaged and the quality of life for all residents would decline — not just for the individuals disturbing the land.

Similarly, if tree removal was allowed as a matter of right with no plantings required to compensate for the loss, the city's canopy would slowly decline, negatively impacting everyone's quality of life — not just those who removed those trees.

For D.C., tree protection is especially important for two reasons.

First, the city's population is expanding and with more people will come greater development pressures that threaten established tree canopy and open space.

Second, the city has committed itself to expanding its **tree canopy to 40 percent** from the current 35 percent by the year 2035. For this to be achieved, the District must at least maintain its 35 percent base. If it cannot, the hill it must climb to reach the goal becomes much more difficult, and less realistic.

2011
I

2010 — **F**

2009 — **C+**

2008 — **C−**

METRIC GRADES

What Needs to Be Done?

Over the past decade the District has laid the groundwork for preserving and expanding its resource of 2.5 million trees. When analyzed in terms of combined budgets, both public (state/federal) and private, more money is expended per capita in Washington, D.C. on trees than in most cities of its size; it professionally manages its street trees; it is expanding canopy on private lands; it has established an attainable tree canopy goal; and, Mayor Vincent Gray and his agency directors are committed to urban environmental sustainability and civic engagement.

However, despite all these positives, the District's agencies must realign themselves to better coordinate efforts to address trees on the various lands that make up the District.

We recommend the following actions:

- **Release UFA-DDOT from its current task of administering the UFPA.**

  UFA-DDOT's mission of managing the city's 140,000 street trees in the public rights-of-way is a huge job. It will never be completely successful if it must administer a law that lies outside its jurisdiction in the private space.

- **Formally recognize DDOE as the lead agency in charge of all-lands tree policy, including administration of the UFPA, as is prescribed in its enabling legislation.**

  DDOE must build its capacity so it can administer the UFPA, respond to public and private space tree issues outside the rights-of-way, and oversee private property tree canopy preservation and expansion through programs, incentives and legislation.

- **Relocate the D.C. State Forester function to DDOE.**

  The D.C. State Forester's office functions under the umbrella of UFA-DDOT and, as such, is responsible solely for the city's street trees. No other State Forestry office in the U.S. has such a narrowly defined role.

  The federal dollars that support the D.C. State Forester function should benefit all the trees in the District on both public and private lands, not just street trees.

TREE BENEFIT

Trees in schoolyards help foster environmentally responsible behaviors in youth.

Additional Recommendations

In addition to some fundamental agency realignments suggested above, the following additional recommendations remain largely the same as last year's recommendations.

- Pass the **UFARA** and associated regulations to:

  - Collect data showing the locations of replacement trees.

  - Monitor replacement trees to determine their survival rates.

  - Modify mitigation alternatives for replacement trees to an exclusive fee-based system.

  - Reduce the size threshold for Special Trees from 55 inches in circumference to 29 inches.

  - Ensure Tree Fund dollars are not used to supplant existing city budgets for tree planting and maintenance.

  - Update the fee structure for Special Tree Removal permits to account for inflation.

- Implement **DDOE**'s Urban Forest Master Plan, as required under the MS-4 stormwater permit — now three years overdue.

- Develop tree box size standards for rights-of-way construction that follow Casey Trees' **Tree Space Design Report** guidelines.

- Adopt impervious surface maximums for each zoning district to ensure that trees and vegetation may be established in all areas throughout D.C.

Acknowledgements and Credits

The Tree Report Card is an assessment of the efforts of all individuals, groups and organizations, public and private, engaged in planting and caring for trees across the District.

Casey Trees wishes to thank the following list of cooperators who continue to work, either directly or indirectly, in ensuring that D.C. remains our City of Trees:

Federal Government

U.S. National Park Service
U.S. Environmental Protection Agency
U.S. Forest Service

District Government

Council of the District of Columbia
Executive Office of the Mayor of the District of Columbia
District Department of Transportation - Urban Forestry Administration
District Department of the Environment
Office of the District of Columbia Auditor
District Office of Planning
District Office of Zoning
District of Columbia Water and Sewer Authority

Private

American Forests
American University
DC Environmental Network
Groundwork Anacostia
DC Greenworks
Restore Mass Ave
TKF Foundation
Trees for Capitol Hill
Trees for Georgetown

TREE BENEFIT
Trees help green neighborhoods, draw neighbors outdoors and give children nearby spaces for outdoor play.