GET TO KNOW GREENBELT'S URBAN FOREST

2018

Maintaining and Enhancing Greenbelt's Urban Oasis

Greenbelt's trees are iconic features of this historic community, creating an urban oasis that provides a high quality of life to residents. Our vision is to develop a tree master plan for streets and other public areas in the City of Greenbelt. This plan will provide for the care, preservation, pruning, planting, and replanting of trees. The tree master plan will also foster the sustainability of Greenbelt's urban forest. Our goal is to maintain and expand upon this legacy, both today and for future generations. – Greenbelt's Urban Forest Vision Statement

Greenbelt recently completed an urban forest master plan, which follows an urban tree canopy (UTC) assessment in 2007, a partial volunteer street tree inventory in 2013, an assessment of forest preserve health in 2016. This master plan is the next logical step to care for and preserve this iconic feature of Greenbelt and to provide guidance to best manage and nurture this iconic city identity.

The following pages provide a summary of study findings, next steps, and how all can work to maintain Greenbelt as a vibrant community and protect its unique character and heritage.

THIS DOCUMENT PROVIDES ONLY A SUMMARY OF THE URBAN FOREST MASTER PLAN. TO READ THE FULL PLAN, PLEASE visit www.GreenbeltMD.gov.

Greenbelt, Maryland,

located northeast of Washington D.C., is one of America's first planned communities. The city was specifically designed to promote sustainability, greenspace, and community interaction. Greenbelt citizens have remained active in local greening efforts, which has preserved the city's charm.

Tree canopy in Greenbelt is high – over 60% - compared to many cities of all sizes in the United States. As planned, the tree canopy is one of Greenbelt's most iconic features, and as such must be carefully preserved, as noted in the vision statement on the previous page.

Tree Canopies in Other Cities for Comparison	% Canopy Cover	Year Assessed
Greenbelt, MD	*62%*	*2007*
Charlotte, NC	47%	2012
Mamaroneck, NY	46%	2016
Annapolis, MD	42%	2006
Pittsburgh, PA	40%	2011
Easton, MD	27%	2014
Asbury Park, NJ	23%	2013
Easton, MD	27%	2014
Philadelphia, PA	20%	2011

Land Cover
- Tree Canopy
- Grass/Shrub
- Water
- Impervious Surfaces
- Bare Earth

What's the Issue?

Many ask "so what's the problem" when canopy levels are so high? Tree canopy is a living system, susceptible to many stresses. The risks from storms, insects and disease, a warming climate, land development, and human interactions are high and inevitable. Significant canopy cover like Greenbelt enjoys only happens after decades of growth, though losses can happen quickly. Once canopy is lost, it can take decades to recover, and those losses mean losses in the benefits those trees provide to the community (see Why Trees inset).

Map (Left) of Greenbelt's 2007 Urban Tree Canopy Cover. Source University of Vermont.

Why Trees?

Trees are significant city infrastructure for three reasons:

1. **Trees Provide Effective and Low-Cost Solutions to a Myriad of Urban Issues.** Urban trees have been proven to be an effective tool in improving quality of life from reducing and remediating pollution, to improving public health, increasing property values, and even improving business districts. The multifaceted benefits of urban trees affect many town management areas and can be used to address several issues at once.

2. **Trees are a Smart Investment.** On an annual basis, Greenbelt urban canopy removes almost 40,000 pounds of air pollutants, intercepts almost 40 million gallons of runoff, and sequesters nearly 2,300 tons of carbon dioxide. These services provide $1.3 million a year to the town of Greenbelt.

3. **Trees Increase in Value Over Time.** Unlike other human-made infrastructure, trees increase in value as they mature and grow due to the additional benefits provided by larger trees. Tree benefits exponentially increase as they grow in stature and capacity, unlike traditional town infrastructure such as roads and bridges that deteriorate with age.

What Challenges Do We Face?

Greenbelt faces a number of challenges affecting the urban forest's long-term viability, which, if unaddressed, could lead to a decrease in the overall canopy. These challenges include:

1 **Lack of Diversity (Species and Age).** This can mean higher susceptibility to pest and diseases and risks for huge losses if one of the dominant species is targeted.

2 **Lack of Data for Risk Management and Public Safety**. Public trees must be regularly evaluated to prevent injury or damage. Greenbelt's challenge to minimize risk to reasonable levels stems from a lack of complete inventory data for all public trees, and from insufficient staffing levels and/or availability to perform risk assessments and mitigation on a regular basis.

3 **Pests & Invasive Species.** While diversity is the first key to pest and disease management, proactive actions to deal with issues like emerald ash borer, bacterial leaf scorch, invasive pears, and others are needed to minimize potential future losses.

4 **Limited Resources.** Community goals for tree pruning, plant health care, routine inspections, reduced tree risks, debris collection, tree planting and new tree care, and wood waste disposal are high. Related staffing, equipment, and funding, however, is limited.

5 **Future Development.** Despite the fact that most land has been developed, woodlands and mature tree canopy are at risk. Additionally, local forest preserves are not protected in perpetuity. Without clear measures of proactive protection in place, there is a risk of future canopy loss.

6 **Shared Right-of-Way Space with Utilities.** A hotly debated issue from the public, a more intensive public outreach and education on the strategy to share this space with utilities is needed.

What Do We Get From Our Trees?

On an annual basis, Greenbelt's existing urban tree canopy removes over 240,000 lbs. of air pollutants, intercepts over 37 million gallons of stormwater, and sequesters 2.28 tons of carbon from the atmosphere each year. These annual benefits are calculated at *almost $1.3 million in services to Greenbelt residents.*

Additionally, over the life of the canopy, Greenbelt's trees will store almost 95,000 tons of additional carbon, valued at just under $12 million.

Compare these benefits to the $187,000 that Greenbelt spends on its public trees annually, and one can see that Greenbelt can expect positive returns on further investment in its tree infrastructure.

Benefits Provided by Greenbelt's Tree Canopy	Quantity	Unit	Amount
AIR: Carbon Monoxide (CO) Removed	6,402	Lbs.	$4,268
AIR: Nitrogen Dioxide (NO2) Removed	29,451	Lbs.	$6,358
AIR: Ozone (O3) Removed	115,780	Lbs.	$139,113
AIR: Sulfur Dioxide (SO2) Removed	13,368	Lbs.	$615
AIR: Dust, Soot, Etc. Removed	39,281	Lbs.	$524,327
STORMWATER: Reduction of Runoff	37,459,544	Gallons	$334,738
CARBON: Sequestered	2,280	Tons	$288,028
Annual Benefits Value			**$1,297,449**
CARBON: Storage Over Canopy's Lifetime (not an annual benefit)	94,879	Tons	$11,984,730
Total Benefits Value Overall			**$13,282,179**

State of Greenbelt's Urban Forest

Greenbelt has been a Tree City USA for the past 17 years. The city has in place an Advisory Committee on Trees (ACT), a tree care ordinance, a community forestry program, and an Arbor Day celebration.

As of 2007, Greenbelt has relativity high canopy cover at 62%. However, 33% of the city is covered by impervious surfaces that repel stormwater (roads, buildings, etc.). The tree canopy cover analysis is presented in the table below.
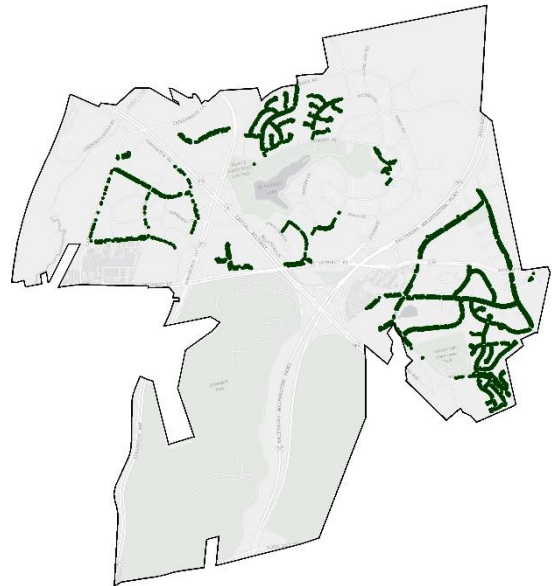

Street Tree Inventory Data

Greenbelt Land Cover	2007 (U. of Vermont)	
	Acres	Percent
Impervious Surfaces (roads, buildings, etc.)	1,346	33%
Tree Canopy	2,516	62%
Low Vegetation (grass, shrubs, fields)	162	4%
Bare Earth (construction)	0	0%
Water	41	1%
Total	4,065	100%

The Tree Canopy is not Equally Distributed

Equitable distribution of tree canopy and care trees is important to ensure everyone receives benefits from Greenbelt's urban forest. While overall canopy is high, is not equally distributed across the land uses. Two land uses, "housing" and "culture and recreation", have most of the city's tree canopy cover at 26% and 18% tree canopy cover, respectively. If the forest preserves and Greenbelt National Park are removed from the city's overall tree canopy calculation, canopy coverage of the developed areas in Greenbelt drops to about 43%. Additionally, over one-third of the city's total tree canopy is located on land designated for housing with tree canopy covering 64% all housing lands . Future losses of greenspace and possible redevelopment of private housing could dramatically reduce Greenbelt's overall tree canopy coverage.
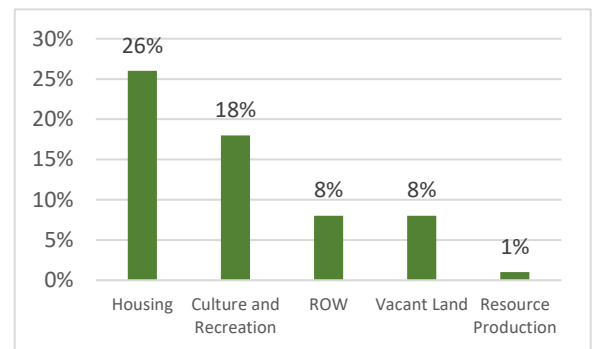
Figure 1. Land Uses Making Up Greenbelt's ~62% Tree Canopy Cover.

Data are Currently Incomplete

All trees on public lands and managed by the city were considered during the development of this plan, along with current management practices of public trees. Approximately 2,700 trees had been inventoried (by University of Maryland students over a week period) mostly on the east side; however, the city estimates that this is only about half of the trees on public land in Greenbelt. Current inventory was therefore projected to 5,000 trees holding the same ratios and distribution. While this is a good start, a professional inventory by a certified arborist is needed to assess risk and maintenance needs to ensure public safety. This data is also required for effective day-to-day management as well as long-range planning and is critical for maintaining public safety. The inventory process will also identify potential planting sites throughout the city.

Public trees are in Generally Good Condition

Overall, tree health is good with almost 80% of trees being in either 'great' or 'good' condition, though this assessment was made by the volunteers mentioned earlier. Only a very small percentage are in 'poor' condition or are dying.

Tree Condition	# of Trees	% of Trees	Estimated Greenbelt
Great	365	13.2%	662
Good	1,803	65.4%	3,271
Fair	308	11.2%	559
Poor	82	3.0%	149
Dying	11	0.4%	20
Att. Req'd	10	0.4%	18
Removed	64	2.3%	116
NO DATA	113	4.1%	205

Diversity of Species is Low

The diversity of Greenbelt's public trees is relatively low. The composition of a tree population city-wide should follow the general "10-20-30 Rule" for diversity: a single species should represent no more than 10% of the urban forest, a single genus no more than 20%, and a single family no
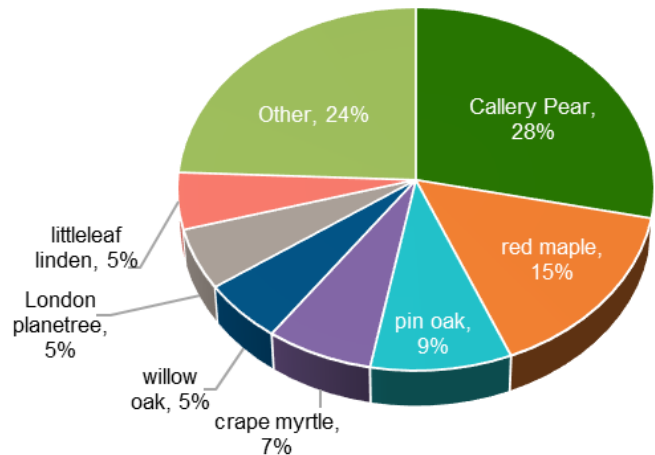
more than 30%. Red maple and Callery pear exceed the recommended 10% species threshold, with pin oak just approaching the limit. The *Pyrus* (pear) and *Acer* (maple) genera also exceed the recommended 20% thresholds.

Better Age Distribution Needed

A tree population with an ideal distribution would have an abundance of newly planted and young trees, and lower numbers of established, maturing, and mature trees (Richards 1983). However, in Greenbelt, the largest group of trees are between 9"-17". All other groups are underrepresented in the public tree population.

Players Within Greenbelt's Urban Forest

There are a number of groups active within Greenbelt that touch the urban forest at some level throughout the year. These are important players to identify as they can provide a starting point for outreach, education, and potential project partnerships.

- City: Public Works, Planning, Advisory Committee on Trees
- Forest Preserve Advisory Board
- Commercial Property Owners including Greenbelt Homes, Inc. (GHI)
- Prince George's County, Federal Gov't
- Utilities: PepCo, Water, Sewer, etc.

What Do We Want in the Future?

The need for a healthy tree canopy in Greenbelt is clear, as well as threats facing the urban forest. Before setting strategies of action, a vision was clarified by the Advisory Committee on Trees alongside city staff:

"Greenbelt's trees are iconic features of this historic community, creating an urban oasis that provides a high quality of life to residents. Our vision is to develop a tree master plan for streets and other public areas in the City of Greenbelt. This plan will provide for the care, preservation, pruning, planting, and replanting of trees. The tree master plan will also foster the sustainability of Greenbelt's urban forest. Our goal is to maintain and expand upon this legacy, both today and for future generations."

Next Steps

The recommended next steps that follow are intended to be a set of pragmatic solutions to achieve Greenbelt's vision for a healthy urban forest, but within the context of the threats and current conditions existing in Greenbelt today. As canopy is currently high, preservation and ongoing planting should be the primary focus over the coming years. Goals can be achieved through implementation of the following strategies:

STRATEGY 1: INSTITUTE A SYSTEMATIC CYCLICAL TREE CARE PROGRAM

Reacting only to requests, storms, or when a tree dies is inefficient and can lead to a decline in the condition of the urban forest. Proactive management plans have been shown to reduce costs, increase public safety, reduce utility outages from storms, and improve the health and appearance of the urban environment.

STRATEGY 2: COMPLETE INVENTORY

Tree inventory data are the basis for all decision making and budgeting for public tree care. Currently, only 50% of trees have been inventoried by volunteers, and critical data that must be collected by trained professionals are missing. With expanded data fields and a complete inventory, Greenbelt will be able to institute a long-range, proactive plan to better manage this important asset, but also to ensure public safety as well.

STRATEGY 3: DEVELOP A FORMAL RISK MANAGEMENT PROGRAM

Greenbelt should establish a documented process for assessing, monitoring, and mitigating high-risk public trees. While trees that have been properly cared for throughout their life generally pose little safety concern, there is always some risk associated with maintaining large-diameter, overmature trees in public use areas. A well-defined program is critical to public safety.

STRATEGY 4: REFINE A PLANT HEALTH CARE/MATURE TREE CARE PROGRAM

Based on the many benefits trees have been shown to provide, a purposeful plant health care program should be put in place that schedules regular inspections and proactive care. This is important both for all trees in Greenbelt, and especially for the large mature trees in the community.

STRATEGY 5: DEFINE A STRATEGIC TREE PLANTING PLAN

A simple master tree planting plan based on updated and complete inventory data (including vacant planting sites) will ensure proper species diversity as trees are removed and new planting campaigns commence. Planting new trees will also increase diversity in the age/size of trees present in Greenbelt.

STRATEGY 6: UPDATED TREE PROTECTION ORDINANCE

Greenbelt has an ordinance in place that generally provides for the protection and proper treatment of street and park trees, but lacks important elements that would strengthen it and better reflects the community's goals and current industry standards.

STRATEGY 7: LESSEN CONFLICT BETWEEN TREES & UTILITIES

Conflict between utilities and trees is continuous in all urban areas thanks to poor tree selection and placement. To avoid service outages, poorly sited trees can be severely pruned or removed as a result. To lessen this conflict within Greenbelt, all conflict sites should be identified, cooperative efforts should be used to remove dangerous trees under utility lines, and a joint outreach program should be initiated in partnership with PepCo.

STRATEGY 8: CONTINUE WORKING TOWARD A COMPLETE STREETS POLICY

Complete streets policies incorporate tree canopy into larger public space planning in a thoughtful and comprehensive way. The city has made some efforts to institute complete streets policies, like the conceptual Cherrywood Lane Complete & Green Street project study, completed in December 2015. The Complete Streets is a movement that should continue, especially in advance of large potential developments like the relocation of the FBI complex.

STRATEGY 9: RECOGNIZE ROLE IN REGION AND ADDRESS FOREST PRESERVE FUTURES

Greenbelt is part of a larger corridor of natural areas that extends all the way to Baltimore. Currently, Greenbelt benefits significantly from Greenbelt Park and Patuxent Wildlife Refuge, which gives Greenbelt its high canopy cover. However, these preserves are not protected in perpetuity. They can legally be sold and developed. Greenbelt should consider options for a more permanent conservation solution in coming years, as this has the potential for significant canopy loss.

STRATEGY 10: EXPLORE OPTIONS FOR FURTHERING WOOD WASTE UTILIZATION

Currently, tree waste (wood and leaves) produced and/or collected from city operations are transported to a designated holding area and ground into woodchips annually by a hired service at a not-unsubstantial annual cost. These chips aren't used up each year, so available space dwindles. The city should explore other waste options, potentially partnering with other local entities, private businesses, recycling firms, and surrounding communities to learn or share services. Additionally, increase promotion of the use of the available wood chips locally and regionally.

STRATEGY 11: DEVELOP AND IMPLEMENT AN OUTREACH PLAN

A large percentage of the tree canopy is located on private property, and real progress long term requires action by private property owners. There are multiple ways to engage the public. Topics or messages must first be defined, then avenues of targeted communication to deliver those messages determined and finally implemented. Greenbelt should focus on messaging, avenues of communications, and partnerships for this strategy.

All Strategies have been organized and prioritized into a 5-year timeline, which can be found in the full-length master plan.
Additional information and further details on each strategy can be found in the full-length plan as well. This document provides only a summary of Greenbelt's Urban Forest Master Plan.
TO READ THE FULL PLAN, PLEASE visit www.GreenbeltMD.gov.