

# URBAN FORESTRY MASTER PLAN

**Advisory Group Workshop #2  
March 5, 2020**

## **Save the Date for the Third Workshop**

The Management Approach  
Thursday, April 2nd, 8-10 a.m.

**[www.ColumbusUFMP.org](http://www.ColumbusUFMP.org)**



# About the Project

## Why a Master Plan?



- Benefits Provided to Community by Tree Canopy
- Expected Population Growth in Columbus
- One of the Fastest Growing Heat Island in the US
- Importance of Future Climate Resiliency
- Striving for Equity
- Partnerships Needed for Progress

## TREES IN COLUMBUS CURRENTLY PROVIDE OVER \$36 MILLION IN BENEFITS AND SERVICES TO CITIZENS EACH YEAR.

### Columbus Tree Benefits

		Units (lbs)	Unit	Value (\$)
AIR QUALITY IMPROVEMENTS	AIR: Carbon Dioxide removed (CO <sub>2</sub> )	31,700	lbs.	\$21,062
	AIR: Nitrogen Dioxide removed (NO <sub>2</sub> )	70,620	lbs.	\$22,891
	AIR: Ozone removed (O <sub>3</sub> )	1,384,840	lbs.	\$2,104,116
	Sulfur Dioxide removed (SO <sub>2</sub> )	206,780	lbs.	\$17,891
	Particulates removed (dust, dirt, soot, smoke, liquid droplets) (PM <sub>10</sub> )	797,700	lbs.	\$2,491,337
CARBON ABSORPTION	Carbon Sequestration (CO <sub>2</sub> removed from air, held in plant tissue)	137,272	tons	\$2,658,038
STORMWATER INTERCEPTION	Avoided Stormwater Runoff (intercepted by trees)	331,183,583	gals.	\$29,475,339

**Total Annual Benefits \$36,790,675**

Carbon Storage Over Lifetime of Trees 4,256,530 tons \$82,420,631

## About the Project

# Tree Canopy Services

### **Reducing Water Pollution**

As cities grow, the amount of land that naturally absorbs rainwater (i.e., lawns, parks, fields, woods) tends to shrink, while hard surfaces that cause rain to runoff (i.e., roads, buildings, parking lots) increase in area. After flowing over roads, parking lots, and lawns, rainwater accumulates fertilizers, oil, chemicals, grass clippings, litter, pet waste, and other contaminants, polluting the local lakes and streams. One mature deciduous tree can intercept over 500 gallons of rainwater a year, while a tree that holds leaves all year round (e.g., pine, magnolia) can intercept up to 4,000 gallons per year (Seitz 2008).

### **Reducing Air Pollution**

Trees can remove up to 60% of street-level air pollution, including carbon dioxide, ozone, nitrogen dioxide, sulfuric dioxide (a component of smog), and particulate matter (i.e., dust, ash, dirt, pollen, and smoke) (Coder 1996).

### **Alleviation of Heat Stress**

Heat stress has been proven to cause significant public health problems and even mortality. In fact, each year, more Americans die from extreme heat than all other natural disasters combined (i.e., hurricanes, floods, tornadoes, lightning). Urban trees are widely accepted as one of the most effective long-term solutions to reducing the effects of urban heat islands, and can lower ambient temperatures by 20–45°F (EPA 2015).

### **Energy Savings**

Trees provide energy savings by reducing cooling and heating costs, both through their shade as well as emissions of moisture. In fact, the cooling effect of one healthy tree is equivalent to 10 room-sized air conditioners operating 20 hours a day (North Carolina State University 2012). The shade of properly-placed trees can save homeowners up to 58% on daytime air conditioning costs, while mobile homeowners can save up to 65% (Smith 1999).

### **More Successful Business Districts**

In multiple studies, consumers showed a willingness to pay 11% more for goods and shopped for a longer period of time in shaded and landscaped business districts (Wolf 1998b, 1999, and 2003).

### **Higher Property Values**

Trees increase residential property and commercial rental values by an average of 7% (Wolf 2007).

### **Improved Public Health (Mental and Physical)**

Trees have been shown to create healthy environments for people by improving air quality and reducing heat island effects. New York City saw a significant decrease of asthma in young children (-29%) after increasing its tree canopy through the installation of over 300 trees for each square kilometer (Lovasi et al. 2008). Studies have also shown that individuals with views or access to greenspace tend to be healthier; employees experience 23% less sick time and greater job satisfaction, and hospital patients recover faster with fewer drugs (Ulrich 1984).

# About the Project

# Tree Canopy Services

## **Urban Trees Make Streets Safer and More Walkable**

In an age where walkability and pedestrian-friendly areas tend to draw the most people, tree cover is a powerful tool in revitalizing districts and neighborhoods. Urban trees have been shown to slow traffic and help ensure safe, walkable streets in communities. Traffic speeds and driver stress levels have been reported to be lower on tree-lined streets, contributing to a reduction in road rage and aggressive driving (Wolf 1998a, Kuo and Sullivan 2001). According to the Federal Highway Administration, tree canopy along a street discourages speeding (U.S. Department of Transportation 2015). The buffers between walking areas and driving lanes created by trees also make streets feel safer for pedestrians and cyclists.

## **Reductions in Crime Rates**

A study in Baltimore found that a 10% increase in tree canopy was associated with a roughly 12% decrease in crime. It has also been shown that outdoor areas populated with trees tend to suffer from less graffiti, vandalism, and littering than their treeless neighbors (PHS 2015).

## **Noise/Pollution Reduction**

Pollution and noise from busy roadways and rail lines can create unhealthy and undesirable conditions for those living nearby (ALA 2015). Buffers of trees reduce both noise and pollution. A 100-foot-wide, 45-foot-high densely-planted tree buffer can reduce highway noise by 50% (NC State 2012).

## **Stronger Communities**

Tree-lined streets can create stronger communities and attract new residents. While less quantifiable, the tree benefits related to community building are no less important than other services. One study showed that residents of apartment buildings surrounded by trees reported knowing their neighbors better, socializing with them more often, having stronger community, and feeling safer and better adjusted than did residents of more barren, but otherwise identical areas (Kuo and Sullivan 2001).

## **Wildlife Habitat**

Trees are an essential component to habitat and conservation in urban areas. They intercept and clean large quantities of polluted stormwater, preventing further degradation to vital aquatic and terrestrial habitats. Additionally, as smaller forests are connected through planned or informal urban greenways, trees provide essential habitat to a range of birds, pollinators, and other wildlife that feed on insects (Dolan 2015). A healthy wildlife population indicates a healthy place for people to live too.

# About the Project

# Project Timeline

## Phase I: Project Set Up (October/November 2019)

## Phase II: Team Establishment (October-December 2019)

## Phase III: Discovery (January - April 2020)

- Data Analysis & Internal Operations Review
- UTC, Inventory Data and Threats Assessment
- Community Engagement
  - Advisory Group Workshop #1: The Trees - January 30
  - Advisory Group Workshop #2: The Players - March 5
  - Advisory Group Workshop #3: The Management Approach - April 2
  - Let's Talk Trees Public Open House - March 4
  - One-on-one Interviews
  - Small Group Speaking Circuit

## Phase IV: Synthesis & Recommendations / Plan (April -June 2020)

Two Deliverables:

- State of the Urban Forest Report
- Urban Forest Action Plan

# Input Sources



### Urban Tree Canopy (UTC) Assessment

An analysis of the amount of tree canopy that covers Columbus, first completed in 2015 using 2013 aerial imagery. Canopy cover as of 2013: 22%



### City Inventory of Public Trees

Complete inventory of all public trees (street and parks), collected by physically visiting each tree and collecting data that is stored in a GIS-based system. Last completed in 1998, totaling over 127,000 trees.



### Community Input

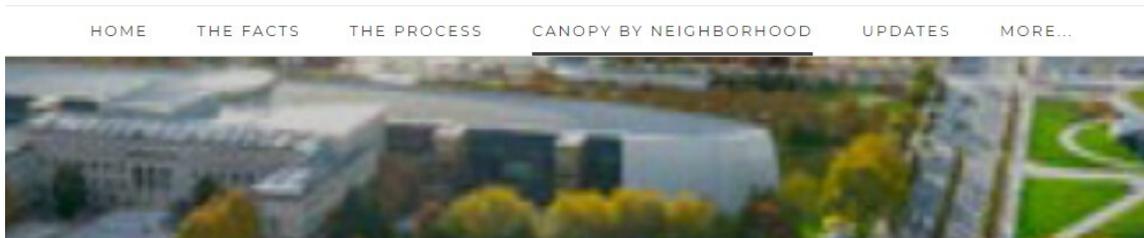
Input from the community is being obtained through three Advisory Group workshops, multiple one-on-one interviews, a public meeting (March 4th), and online comments through the project website - [www.ColumbusUFMP.org](http://www.ColumbusUFMP.org).

Existing city plans and initiatives will also be considered and serve as guiding factors for this effort.

# Update Interactive Canopy Map at ColumbusUFMP.org



## Columbus Urban Forestry Master Plan



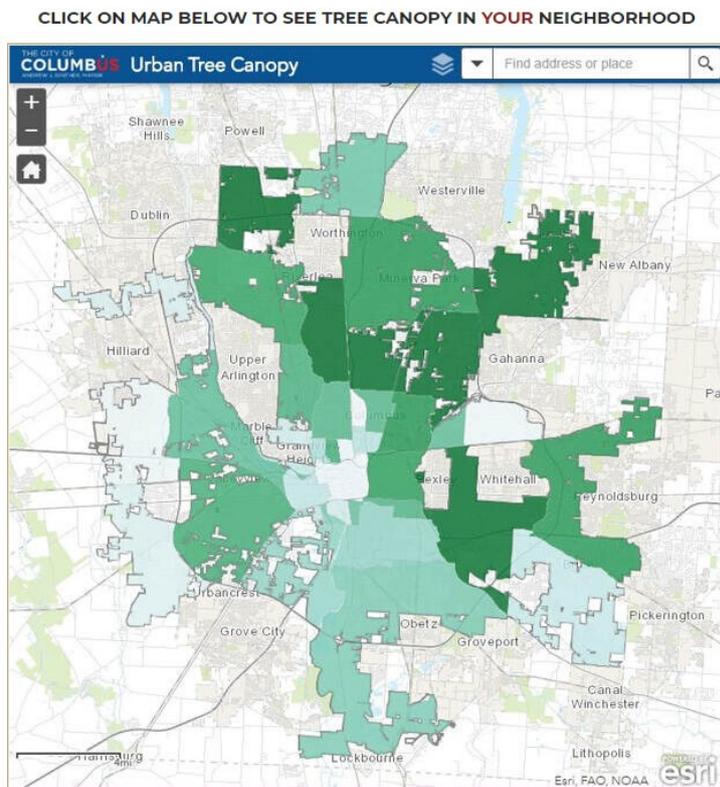
## HOW MUCH TREE CANOPY IS IN **YOUR** NEIGHBORHOOD?

How much tree canopy does your own neighborhood have within Columbus? The map below shows canopy cover by Columbus Communities. See how yours compares.

VARYING  
COVERAGE  
9%-41%

Tree canopy by neighborhoods in Columbus vary greatly, from 9% at the lowest to 41% in the areas with the most tree cover. This disparity in distribution of tree canopy across the city means that not all residents have access to the benefits trees currently provide.

**NEW INTERACTIVE TREE CANOPY MAPI** Click on the map at right to go to an interactive map where users can click on an area or enter an address within Columbus city limits to find out the local tree canopy cover levels.



Update

# Recap of Workshop #1

## INDICATORS OF A SUSTAINABLE URBAN FOREST: THE TREES

**Topic Presentation: The Trees (15 mins.)**

**Three Group Discussions (90 mins.)**

- Discussion 1: Priorities and Goals
- Discussion 2: How to Reach Goals: Challenges
- Discussion 3: How to Reach Goals: Solutions/Ideas

COLUMBUS Indicators of a Sustainable Urban Forest		Assessed Performance Level		
		Low	Mod.	Good
<b>The Trees</b>	Urban Tree Canopy Cover	■		
	Equitable Distribution	■		
	Age Distribution	■		
	Condition of Publicly Owned Trees		■	
	Condition of Publicly-Owned Natural Areas	■		
	Trees on Private Property		■	
	Diversity / Pest Vulnerability		■	
	Suitability - Overhead	■		
	Suitability - Ground Level	■		
	Suitability - Soil Conditions	■		
	Suitability - Invasives		■	
	Suitability - Climate Change Adaptability			■
	<b>The Players</b>	Neighborhood Action		
Large Private & Institutional Landholder Involvement				
Green Industry Involvement				
City Department/Agency Cooperation				
Funder Engagement				
Utility Engagement				
Developer Engagement				
Public Awareness				
Regional Collaboration				
<b>The Mgmt Approach</b>	Tree Inventory			
	Canopy Assessment			
	Management Plan			
	Risk Management Program			
	Maintenance of Publicly-Owned Trees (ROWS)			
	Planting Program			
	Tree Protection Policy			
	City Staffing and Equipment			
	Funding			
	Disaster Preparedness & Response			
	Communications			

# Update

# Recap of Workshop #1

The overarching themes that emerged from the three 30-minute group discussions at the first workshop are briefly summarized below. Handouts, presentation and a more complete meeting summary can be found at [www.ColumbusUFMP.org/the-process.html](http://www.ColumbusUFMP.org/the-process.html).

## EMERGING PRIORITIES

### **Grow the Canopy**

Increase the tree canopy & equitable distribution across all neighborhoods.

### **Ensure Longevity**

Make sure trees last for the long term: right tree, right place.

### **More Protection Measures**

Preserve existing trees.

### **Better Data Needed**

Existing is out of date (2013 canopy data, 1998 inventory data). Share data with the community.

### **Community Engagement is Key**

Build trust & involve all stakeholders.

### **Dedication of More Resources (Budget, Staffing, etc.)**

Treat the urban forest as vital city infrastructure.

### **Education**

Many do not understand the roles and value of trees in urban quality of life.

## CHALLENGES

Lack of awareness  
Protection systems lacking  
Resources (budgeting, staffing)  
Scale of work required  
Available data  
Available nursery stock  
Competing interests  
Expected changes within city

## SOLUTIONS

Address regulations  
Engage neighborhoods  
Explore new funding sources  
Improve city management  
Partner with existing initiatives & organizations  
Better, proactive street and community design

## Today's Topic

# The Players

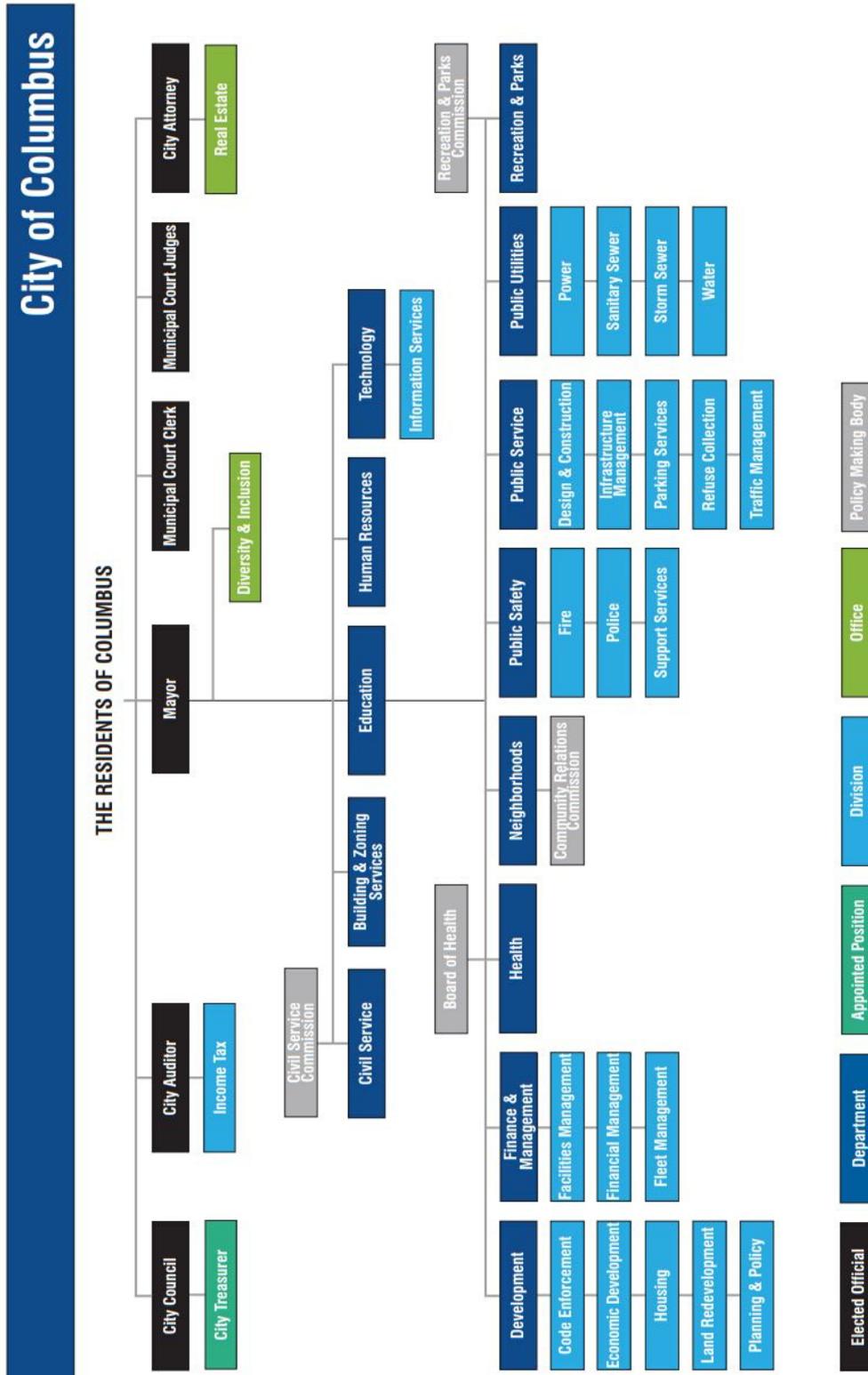
## LARGE LANDHOLDERS

<b>PARCEL OWNER</b>	<b>ACRES</b>	<b>Canopy Acres</b>	<b>% of Land Covered by Tree Canopy</b>
CITY OF COLUMBUS	10,674	4,193	39%
COLUMBUS REGIONAL AIRPORT	3,250	224	7%
STATE OF OHIO	2,770	410	15%
PFK COMPANY I&II LLC	2,151	179	8%
BOARD OF PARK	1,694	822	49%
COLUMBUS LIMESTONE INC	1,476	214	14%
BOARD OF EDUCATION OF THE	1,331	150	11%
PENNSYLVANIA LINES LLC	831	151	18%
STATE OF OHIO - OSU	797	102	13%
HERRMANN EDWARD J BISHOP	752	127	17%
CSX TRANSPORTATION INC	724	163	23%
NORFOLK & WESTERN RY CO	394	95	24%
MARBLE CLIFF CANYON LLC	377	116	31%
STATE OF OHIO OEC	344	24	7%
MCDOWELL THOMAS A	340	49	14%
COLUMBUS & SOUTHERN	296	42	14%
WESTERN PROPERTY LLC	266	11	4%
DISTRIBUTION LAND CORP	264	40	15%
NEW YORK CENTRAL LINES	238	49	21%
COLUMBUS COUNTRY CLUB INC	233	91	39%
HICKORY BLUFF FARMS LP	224	104	46%
WILDERMUTH JERRY TR	222	6	3%
MORSO HOLDING CO	216	84	39%
NHAH FARM PARTNERSHIP LTD	215	12	6%
LAMP THOMAS R	209	6	3%

# Today's Topic

# The Players

## CITY DEPARTMENTS

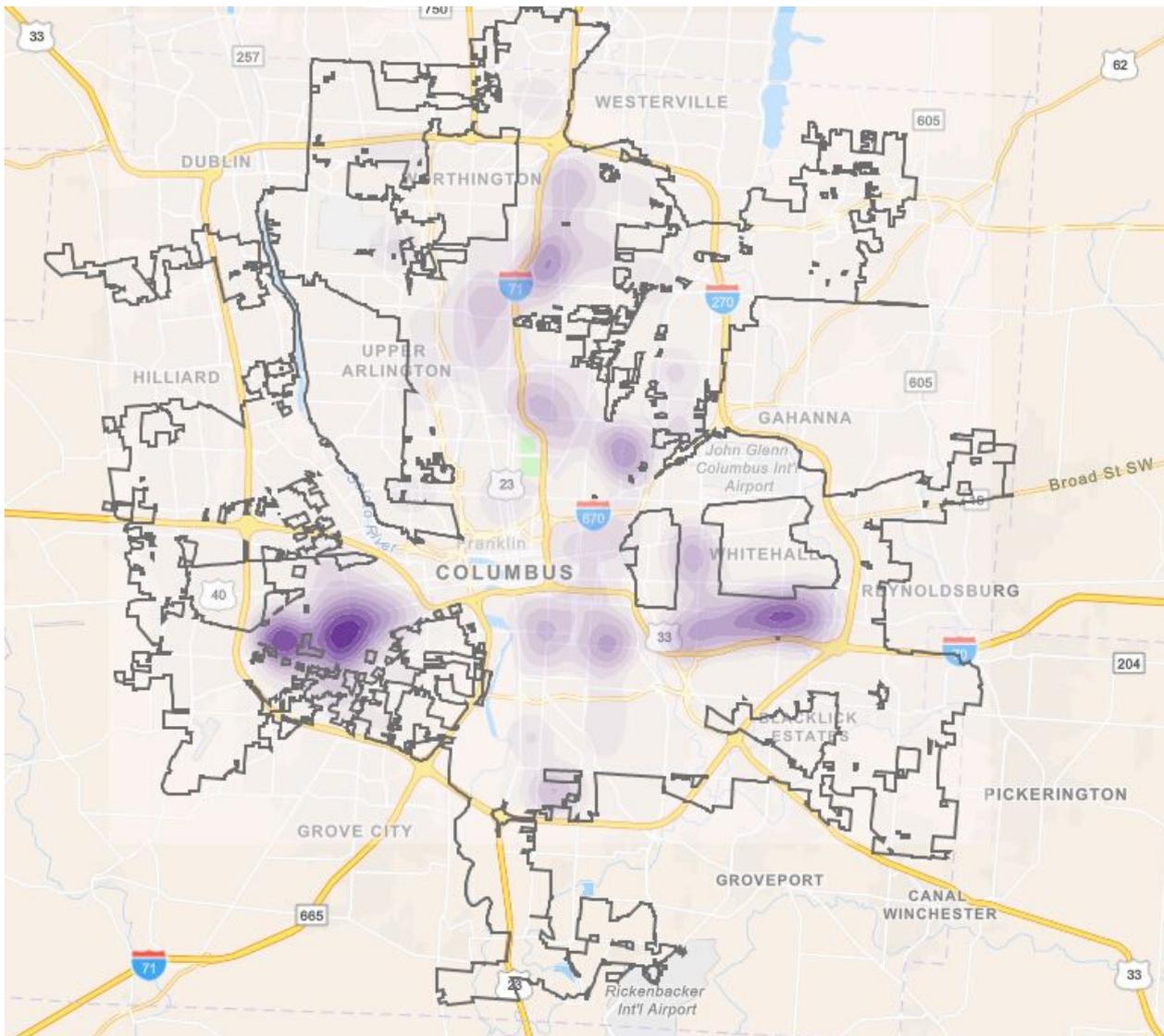
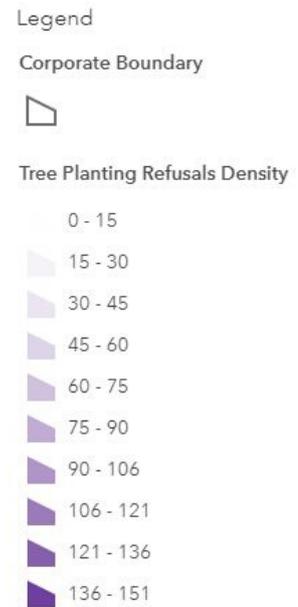


# Today's Topic

# The Players

## TREE REFUSAL MAP

The heat map below shows the locations of street tree planting refusals received by city staff since 1999. This period represents a total of 3,669 refusals.



## Discussion Topic

# Education / Awareness

## CONCEPT #1: RULE OF SEVEN

### A. Repetition

The Marketing Rule of Seven is a reminder that your prospective buyer needs to hear or see your marketing message at least seven times before they buy from you. This is an old concept. Today the number is likely significantly higher.

### B. Consistent Message

Branding and marketing efforts need to be repetitive and consistent.

- The message must be exactly the same every time.
- The message should come from every direction.
- The offer or ask should be the same every time.
- The logo/icon needs to be displayed prominently and consistently.

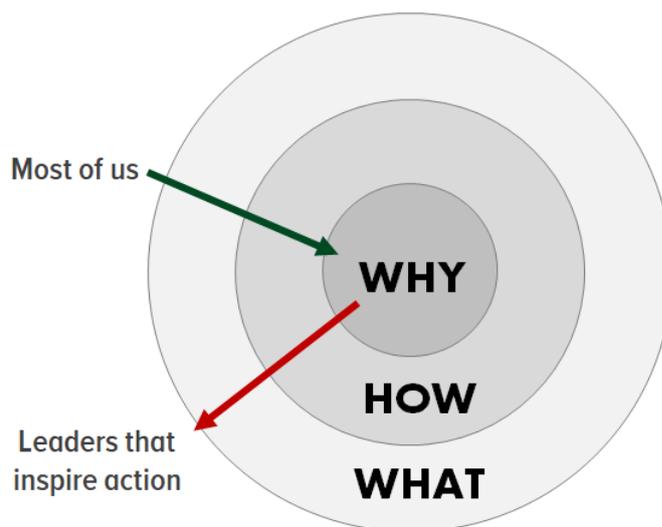
The point: The number of messages should be limited.

## CONCEPT #2: FOCUS AND LEAD WITH THE END GAME / THE WHY

**People don't buy  
WHAT you do.  
They buy WHY you  
do it.**

### SIMON SINEK'S GOLDEN CIRCLE

Simon Sinek, a leadership expert, explores how leaders can inspire cooperation, trust and change. His Golden Circle depicts his interpretation of how the most successful organizations think, act and communicate.



# Discussion Topic

# Education / Awareness

## CONCEPT #3: CORRECT TREE SPEAK

### TREE SPEAK

- Urban forest →
- Stormwater management →
- Mitigation →
- Canopy →
- DBH →
- Air quality →
- Water quality →
- Impervious surfaces →
- Local Waterways →
- UTC / Canopy Assessment →

### EVERYONE ELSE

- Trees within the city
- Water pollution & flooding
- Correcting or lessening
- Amount of trees and associate benefits
- Age/size of tree
- Asthma
- Polluted water, dead lakes
- Roads/buildings
- Olentangy River
- Amount of trees within the city

## CONCEPT #4: CONNECTION & FUN GO A LONG WAY

