

Welcome!

UFMP Advisory Group

Workshop 2 of 3 - The Players
March 23, 2023, 8:00 - 10:00 a.m.

AGENDA

- Welcome & Introductions (5 mins.)
- Presentation (20 mins.)
- Group Discussions (90 mins.)

KnoxvilleTreePlan.org

KNOXVILLE URBAN FOREST MASTER PLAN

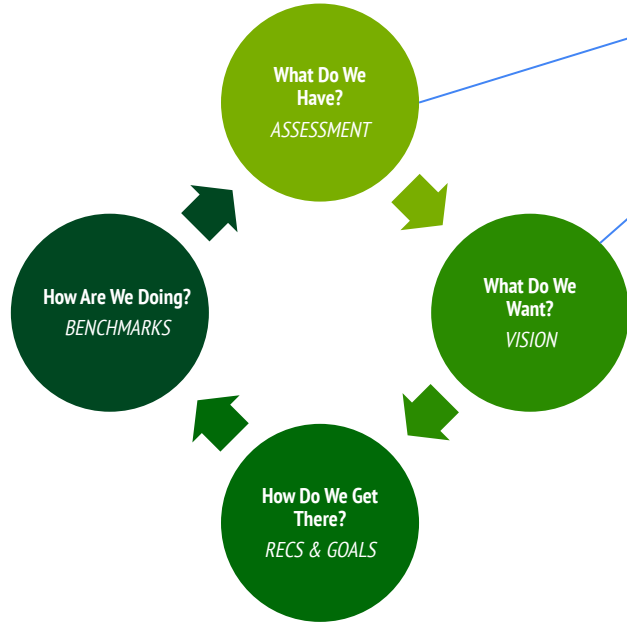


SAVE THE DATE

Workshop #3: Thursday, Apr. 20th, 8-10 am

Discovery: Self Assessment Approach

#1 Adaptive Management



#2 Structure for Self Assessment

How sustainable is Knoxville's urban forest?

The Trees

The Players

The Management Approach

RECAP OF LAST WORKSHOP

The Trees - February 23, 2023

Indicators of a Sustainable Urban Forest related to The Trees

“The Trees” Topic Presentation (15 mins.)

- Assessment Score Results:
 - 21 indicators at Low Score
 - 1 indicators in Moderate
 - 4 indicators in Good

Three Group Discussions (90 mins.)

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



KNOXVILLE (TN) Indicators of a Sustainable Urban Forest		Assessed Score			
		Low	Mod.	Good	
The Trees	Urban Tree Canopy Cover				
	Equitable Distribution				
	Streets & Parks <i>(public, landscape)</i>	Age/Size Distribution			
		Condition			
		Diversity / Pest Vulnerability			
		Suitability - Overhead	No data		
		Suitability - Ground Level	No data		
		Suitability - Soil Conditions	No data		
	Natural Areas / Woodlands <i>(public or private)</i>	Suitability - Invasives			
		Suitability - Climate Adaptability			
		Age/Size Distribution	No data		
		Condition	No data		
		Diversity / Pest Vulnerability	No data		
		Suitability - Overhead	No data		
	All Other Lands <i>(primarily private)</i>	Suitability - Ground Level	No data		
		Suitability - Soil Conditions	No data		
		Suitability - Invasives	TBD		
		Suitability - Climate Adaptability	No data		
		Age/Size Distribution	No data		
		Condition	No data		
	Neighborhood Action	Diversity / Pest Vulnerability	No data		
Suitability - Overhead		No data			
Suitability - Ground Level		No data			
Suitability - Soil Conditions		No data			
Suitability - Invasives		No data			
Suitability - Climate Adaptability		No data			
Program					
City-Owned Trees (ROWs)					
Management					
Assessment & Response					

Recap of Workshop #1

The Trees: February 23, 2023

EMERGING GOALS/PRIORITIES

- **More trees.** Many ideas on focus areas - schools, urban core, subdivisions, areas in most need, where people walk/bike.
- **Better quality tree canopy.** To ensure longevity.
- **Development that accounts for and preserves trees.**
- **Focus on equity and environmental justice.** Important that all in Knoxville have access to the services trees provide.
- **More awareness on role of trees.** Lots of ideas of audiences to target.
- **Use trees in ecosystem restoration and climate resilience.** Ensure trees a part of eco and climate work in Knoxville.
- **Utilize partnerships.** Find stewards with direct connection to public.
- **Financial assistance for tree care.** Low-income homeowners with mature trees.
- **Find creative and alternative spaces to add tree canopy.** Decreasing impervious surfaces, adjusting roads/sidewalk infrastructure, rooftops, community gardens.

CHALLENGES

- Not enough resources.
- Lack of knowledge.
- Lack of engagement.
- Lost canopy in development.
- Conflicting priorities and space constraints.
- Trees on private property.
- Political climate
- Climate change

SOLUTIONS

- More engagement and better communication/education.
- Assistance in tree care.
- Better policy/enforcement.
- Funding.
- More space for trees.
- More data.

Today's Topic: The Players

Self Assessment Structure

9 Indicators of a Sustainable Urban Forest

Best Practice or Industry Standard

Low, Moderate or Good based on that Standard

Knoxville Conditions Today

URBAN FOREST SUSTAINABILITY MATRIX
Worksheet to Assess the Sustainability of the Knoxville Urban Forest

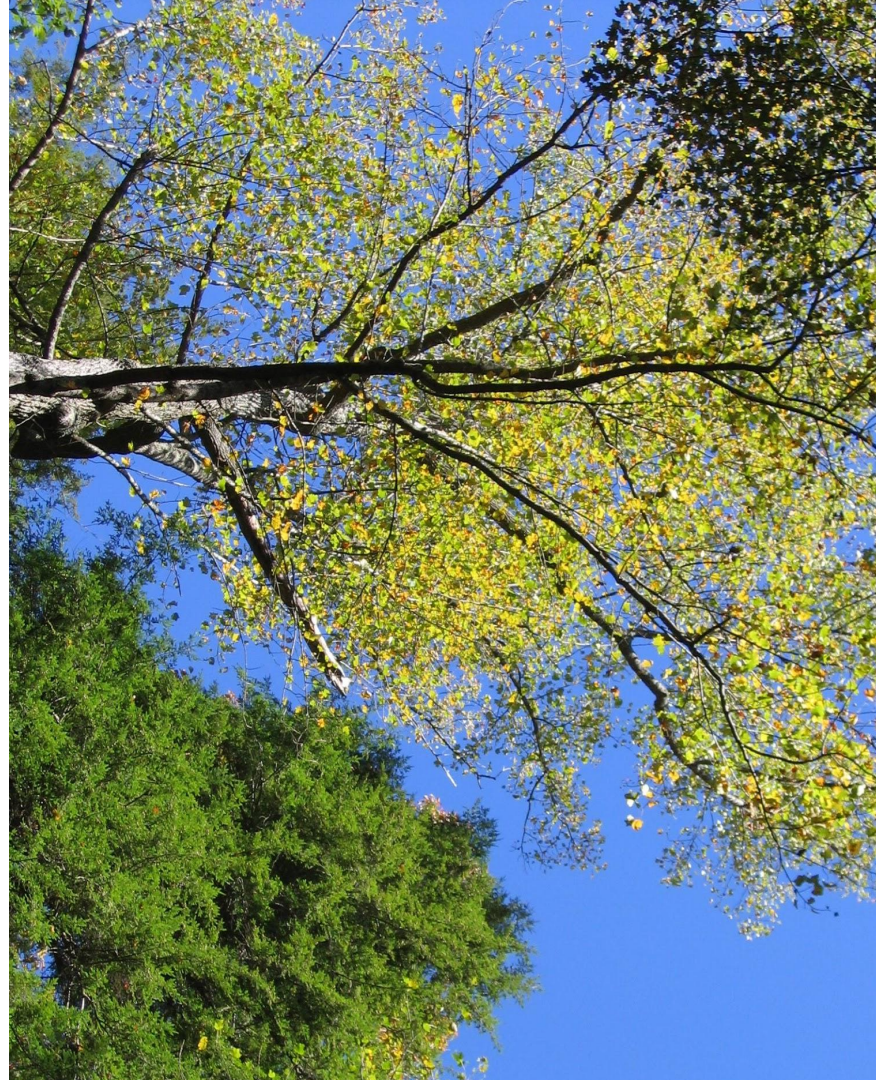
9 INDICATORS OF A SUSTAINABLE URBAN FOREST THE PLAYERS	Overall Objective or Industry Standard	Performance Levels			Knoxville Today
		Low	Moderate	Good	
Neighborhood Action	Citizens understand, cooperate, and participate in urban forest management at the neighborhood level. Urban forestry is a neighborhood-scale issue.	Little or no citizen involvement or neighborhood action.	Some active groups are engaged in advancing urban forestry activity, but with no unified set of goals or priorities.	The majority of all neighborhoods are organized, connected, and working towards a unified set of goals and priorities.	
2. Large Private & Institutional Landholder Involvement	Large, private, and institutional landholders embrace citywide goals and objectives through targeted resource management plans.	Large private land holders are unaware of potential influence in the urban forest. No large private land management plans are currently in place.	Education materials and advice is available to large private landholders. Few large private landholders or institutions have management plans in place.	Clear and concise goals are established for large private land holders through direct education and assistance programs. Key landholders and institutions have management plans in place.	
3. Green Industry Involvement	The green industry works together to advance citywide urban forest goals and objectives. The city and its partners capitalize on local green industry expertise and innovation.	Little or no involvement from green industry leaders to advance local urban forestry goals.	Some partnerships are in place to advance local urban forestry goals, but more often for the short-term.	Long-term committed partnerships are working to advance local urban forestry goals.	
4. City Department & Agency Cooperation	All city departments and agencies cooperate to advance citywide urban forestry goals and objectives.	Conflicting goals and/or actions among city departments and agencies.	Informal teams among departments and agencies are communicating and implementing common goals on a project-specific basis.	Common goals and collaboration occur across all departments and agencies. City policy and actions are implemented by formal interdepartmental and interagency working teams of all city	

KNOXVILLE (TN) Indicators of a Sustainable Urban Forest		Assessed Score			
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	Equitable Distribution				
	Streets & Parks <i>(public, landscape)</i>	Age/Size Distribution			
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		Suitability - Invasives	TRD		
		Suitability - Climate Adaptability	No data		
		Age/Size Distribution	No data		
		Condition	No data		
	The Players	Neighborhood Action			
		Large Landholder Involvement			
		Green Industry Involvement			
		City Department/Agency Cooperation			
Funder Engagement					
Utility Engagement					
Developer Engagement					
Public Awareness					
Regional Collaboration					
The Mgmt Approach		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					

Knoxville Trees

SOLUTIONS to Urban Challenges

- 01 | Public Health
- 02 | Heat Stress in Communities
- 03 | Improving Quality of Life & Neighborhood Revitalization
- 04 | Improving Walkability
- 05 | Aging in Place
- 06 | Successful Business Districts
- 07 | Flooding Reduction with Green Infrastructure
- 08 | Carbon Sequestration / GHG Reduction



Knoxville Trees

Key Piece of Improving Human Health

Existing trees in Knoxville removes about **1.4 million pounds of pollutants** each year, **valued at \$4,800,000** of annual benefits.

(County - 9.2 million pounds / \$18 million)

01 | POLLUTION REDUCTION

- **Air quality improvements:** Tree canopy filters the air and **removes up to 60% of street-level air pollution** including carbon dioxide, ozone, nitrogen dioxide, sulphur dioxide (a component of smog), and small particulate matter (PM, i.e., dust, ash, dirt, pollen, and smoke).
- Ozone and particulates can especially **aggravate existing respiratory conditions (like asthma) and create long-term chronic health problems** according to the American Lung Association.
- New York City saw **a decrease of almost 30% of asthma in young children** after increasing its tree canopy through installation of over 300 trees per square kilometer.
- A 2020 Harvard University study showed that long-term exposure to air pollution (PM2.5 specifically) **increases the risk of death in those with COVID-19.**
- The American Lung Association has found “growing evidence that vehicle emissions coming directly from those highways may be higher than in the community as a whole, **increasing the risk of harm to people who live or work near busy roads.**”
- **Water quality improvements:** Polluted water is a major cause of human health issues and degrades the local ecology.

02 | HEAT/TEMPERATURE MANAGEMENT. Urban areas with trees are 15-25°F cooler

03 | DIRECT MENTAL / PHYSICAL HEALTH IMPACTS

- Urban trees create feelings of relaxation and well-being, and provide environments that encourage outdoor activities.
- Studies have 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.**
 - Trees have also been shown to have a **calming and healing effect on ADHD adults and teens.**

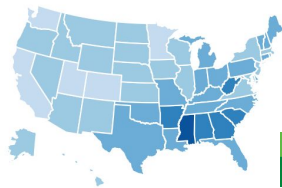


Knoxville Trees

Key Piece of Heat Reduction

Low-Income Energy Burden (% of Income)

4%-6% 6%-8% 8%-10% 10%-12% 12%-14%

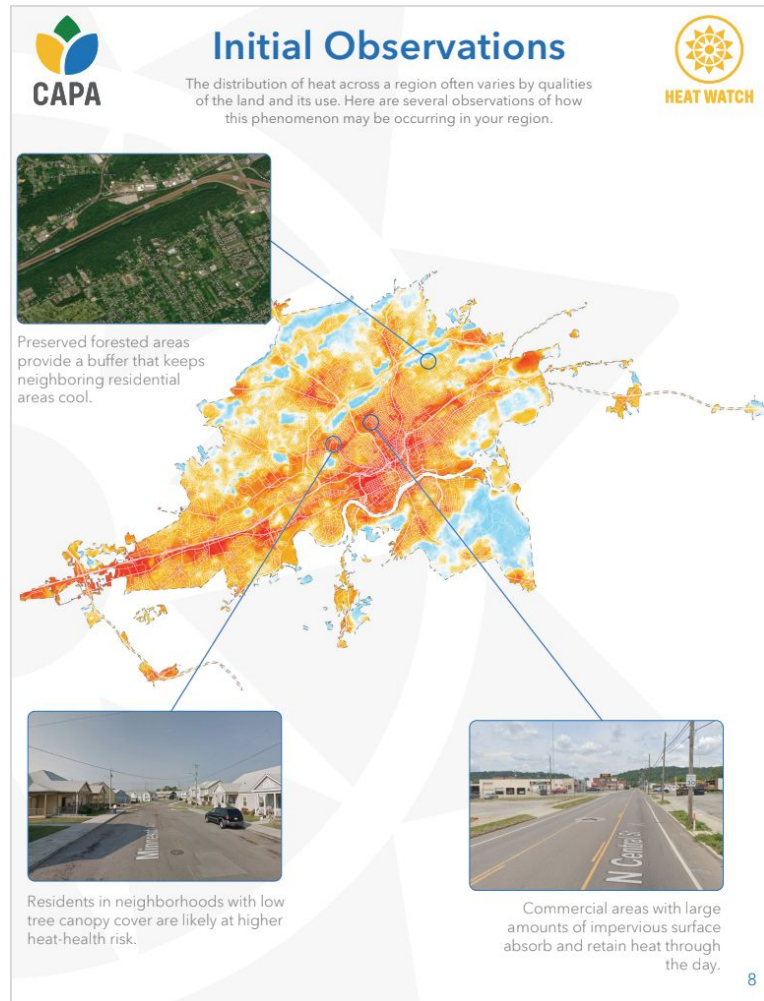


Urban areas without trees are 15-25°F hotter than nearby, less developed areas. Heat stress has been proven to cause significant public health problems and even mortality.

- Each year, **more Americans die from extreme heat** than all other natural disasters combined (i.e., hurricanes, floods, tornadoes, lightning).
- The cooling effect of one healthy tree is equivalent to **10 room-sized air conditioners operating 20 hours a day.**
- The shade of properly-placed trees can **save residents up to 58% on daytime air conditioning costs**, while mobile homeowners can save up to 65%.

CRITICAL to Vulnerable Groups - Trees are part of EQUITY Conversation!

- **All Knoxville must have access.**
- **AGE.** Those **over 65 or under age 5** are especially vulnerable to heat-related health problems.
- **INCOME.** Low income households have high “energy burden.” One recent study found that low-income households face an energy burden three times higher than other households.



Knoxville Trees

Improving Quality of Life & Neighborhood Revitalization

01 | ...via ambient temperatures (15-25 degree reduction)

02 | ...via less noise and pollution from nearby highways

A 100-foot-wide, 45-foot high densely-planted tree buffer can reduce highway noise by 50%. Up to 60% reduction in air pollution.

03 | ...via stronger sense of community

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.

04 | ...via less crime

A Baltimore study found that a 10% increase in tree canopy was associated with a roughly 12% decrease in crime.

Another study showed outdoor areas populated with trees tend to suffer less from graffiti, vandalism, and littering than their treeless neighbors.

05 | ...via real estate values

Trees increase residential property and commercial rental values by an average of 7%.



Knoxville Trees

Improving Walkability



01 | COMFORT (pleasant experience)

...via shade: temperature reductions 15-25 degrees

...via ambience: pleasant surroundings matter in vibrant communities

...via noise reduction: A 100-foot-wide, 45-foot high densely-planted tree buffer can reduce highway noise by 50%.

02 | SAFETY

...via slower traffic: According to the Federal Highway Administration, tree canopy along a street provides a narrowing speed control measure by creating a “psycho-perceptive sense of enclosure” that discourages speeding.

...via less aggressive driving: 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.

What does walkability mean to Charlotteans?

Over 500 people participated in a visual preference survey to help determine the specific characteristics of a Safe, Useful and Inviting walk. Participants were asked to choose from among 11 different options in each category, or write in their own. The percentages listed below indicate the percent of participants who voted for that option as their top choice in each category. In each case, the top three images in each category - Safe, Useful, and Inviting - account for over half of the total vote.

SAFE - What types of treatments make you feel safest when you walk?



#1 Sidewalks: (36%)



#2 Planting Strip
(buffer from cars): (13%)



#3 Streetlights: (13%)

USEFUL - If you could, what places and activities would you walk to?



#1 Grocery Store/Market: (20%)



#2 Restaurant/Bar: (19%)



#3 Park/Greenway: (15%)

INVITING - What types of features make a walk comfortable and attractive?



#1 Street Trees: (25%)



#2 Wide Pathways: (22%)



#3 Buildings and Activities near
the Sidewalk: (14%)

Knoxville Trees

Important to Aging Populations

02 | ...via moderated temperatures

15-25 degrees less

02 | ...shaded rest areas

i.e. benches under trees

02 | ...via slower traffic



AARP

Join

Renew

Help Benefits



Login



AARP Livability Fact Sheet - Street Trees

To quote a Chinese proverb, "The best time to plant a tree was 20 years ago. The second best time is now." Here's why tree-lined streets matter

AARP Livable Communities

Is there a tree on the street where you live? Hopefully there's a least one tree, ideally there are many!

In a neighborhood setting, street trees provide shade, safety, greenery, storm mitigation, energy savings and fresh air. Trees also buffer street noise, enhance privacy and help hide unattractive views. (What would you rather look at? A tree or a brick wall?)

The U.S. Forest Service estimates that the presence of street trees increases adjacent home values by an average of \$13,000. The National Main Street Center reports that a good tree canopy can increase retail sales by 12 cents on the dollar in large cities and 9 cents on the dollar in small ones

Street Trees

LIVABILITY FACT SHEET

There are many benefits to having trees on your street. They provide shade, safety, greenery, storm mitigation, energy savings and fresh air. Trees also buffer street noise, enhance privacy and help hide unattractive views. (What would you rather look at? A tree or a brick wall?)



Knoxville Trees

More Successful Business Districts

Consumers showed a **willingness to pay 11% more** for goods and **shopped for a longer period of time** in shaded and landscaped business districts.

Consumers also **felt that the quality of products was better** in business districts surrounded by trees.

Where would YOU rather shop?



Knoxville Trees

Reductions in Flooding

...intercept rain a number of ways

- **Holding water** (on leaves, trunk) to delay water reaching ground
- **Better ground infiltration** thanks to roots and leaf litter
- **Using water** - rain is absorbed into tree itself
- **Reduces erosion** from runoff
- **Cleans runoff** - especially important around streams, etc.

Especially important with our cities growing and climate warming resulting in more storm events.

- Reductions in **stormwater management costs accounted for over 60% of the environmental services** provided by street trees.
- A single **oak tree can absorb over 40,000 gallons** of stormwater each year.

NOTE: Put them where they can do the most!

Existing trees in Knoxville intercept / avoid **2.2 billion gallons of runoff** each year, **valued at \$3,100,000** annually.

(County - 14.6 billion gallons / \$12 million)



Knoxville Trees

Carbon Sequestration / GHG Reduction

Reducing/Slowing Climate Change by intercepting CO₂ in a number of ways (mitigation)

- One large tree can **absorb** 48 lbs of CO₂ every year to make sugars for food. AND release O₂ in the process.
- One acre of trees **stores** the same amount of carbon dioxide released by driving 26,000 miles.

Planting new trees is one of many avenues to reduce atmospheric carbon dioxide (CO₂).

Adapting to climate change (KEY)

- Temperature reductions & air and water quality improvements

Trees are a part of climate change goals.



Existing trees in Knoxville:

STORES:

767,000 tons of carbon, valued at \$130 million.

ABSORBS (“sequesters”) ANNUALLY:

4,000 tons of CO₂, valued at \$3.6 million annually.

County:

Stores 5.5 million tons / \$946 million

Sequesters 100,000 tons annually / \$17 million annually



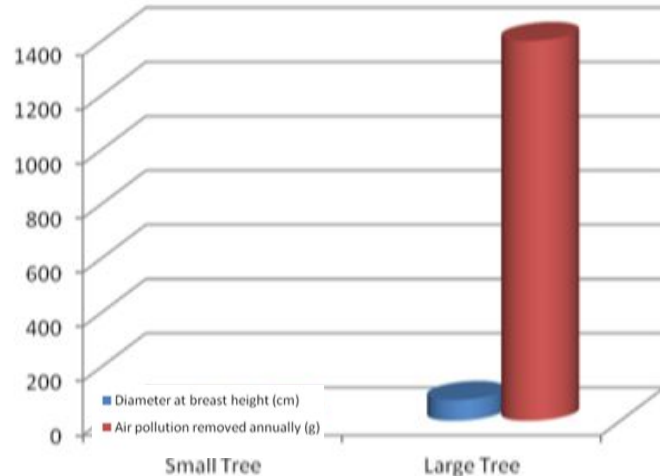
Knoxville Trees

Two Important Points to Note

1. Mature trees do more.

Larger, mature trees provide exponentially more services.
Preservation of existing trees is extremely important!

A 30" diameter oak removes 70 times more pollutants from the air than a 8" diameter oak.



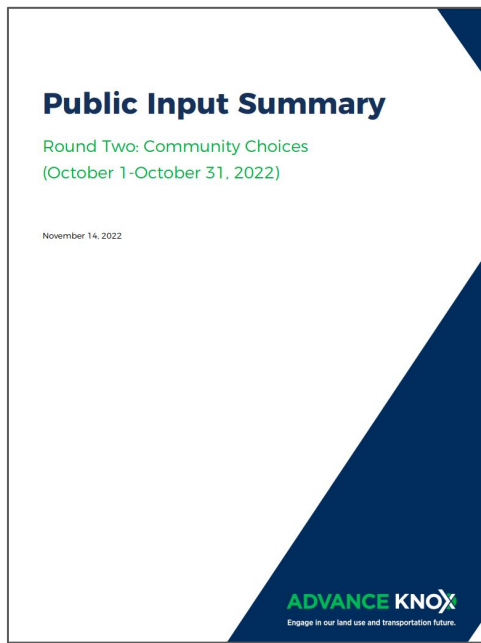
2. Trees pay off.

Positive ROI: A five-city study found that cities accrued benefits ranging from \$1.50–\$3.00 for every one dollar invested in trees (EPA 2015).



Advance Knox

Round Two - Community Priorities



Community Choices/Priorities

1. **Infrastructure Investment**

Efficient infrastructure investments that support and anticipate planned growth and are maintained through strategic, fiscally responsible decisions.

2. **Conservation**

Conservation of natural areas and resources that include ridges and valleys, rivers and streams, wetlands, historic and agricultural assets and scenic views.

3. **Housing Options**

Housing and neighborhood options that meet a wide range of types, locations, and affordability to meet the need of a growing and changing population.

4. **Community Character**

Strong places with distinct identities, including natural areas and development that range from employment centers to rural communities and include walkable neighborhoods and mixed-use centers.

5. **Transportation**

A safe and connected transportation system that provides options and supports a growing community.

6. **Economic Growth**

A growing and resilient economy with sustained business investments and diverse employment opportunities, strengthening the county's fiscal health and services.

7. **Recreation**

A connected network of greenways, parks, and water trails that provide recreational opportunities.

8. **Workforce**

Educational opportunities that attract, foster, and retain an engaged and successful workforce.



Today's Topic: Players

The Human Side of the Urban Forest

Indicator: Neighborhood Action

Objective: Citizens understand, cooperate, and participate in urban forest management at the neighborhood level. Urban forestry is a neighborhood-scale issue.

- Local non-profit organizations working at neighborhood level
- Local community hubs
- Local champions
- Faith-based groups
- Civic associations
- City - Office of Neighborhood Empowerment, Neighborhood Advisory Board
- Others?



City's Neighborhood Advisory Council

Scottish Pike Neighborhood
Old North Knoxville
Norwood Homeowners Assoc.
Downtown Knoxville Alliance
Historic Fourth and Gill
Lonsdale Neighborhood Assoc.
Fourth and Gill Neighborhood
Norwood Community Assoc.
Mechanicsville Community Association
Historic Gibbs Drive
Cumberland Estates Neighborhood
Deane Hill Neighborhood
Inskip Community
Old North Knoxville
Parkridge Community
South Haven Neighborhood Assoc.
Williams Creek Community Assoc.

SEED seeks to provide pathways out of poverty for young adults through career readiness training, environmental education and community engagement.

Indicator: Large Private Landholders

Objective: Large, private, and institutional landholders embrace citywide goals and objectives through targeted resource management plans.

- Private Companies
- Parks
- School Districts
- Universities
- Transportation (roads, airports, rail, etc.)
- Hospitals, Golf Courses, etc.
- Public

Large Landowners in Knoxville

Knoxville Community Development Corp KCDC
University of Tennessee (excluding medical center)
Knox County Schools
Tennessee Department of Transportation (Region 1)
Knox County
Legacy Parks Foundation
Aslan Foundation
Tennova Health
East Tennessee Childrens Hospital
Fort Sanders
University of Tennessee Medical Center
Zoo Knoxville
Lakeshore Park Conservancy
Knoxville Botanic Gardens
DOW Chemical
Knoxville Housing Authority
Baxter Properties LP
State of Tennessee
Simon Property Group
Amazon
Golf Courses

Indicator: Green Industry Involvement

Objective: The green industry works together to advance citywide urban forest goals and objectives. The city and its partners capitalize on local green industry expertise and innovation.

- Landscape Architects (ASLA)
- Nurseries
- Tree Services / Arborists
- Green Industry Education Entities (ie UT)
- Landscaping / Grounds Management Industry
- UT Extension



Indicator: City / Agency Cooperation

Objective: All city departments and public agencies cooperate to advance citywide urban forestry goals and objectives.



Within the City:

- Neighborhood Empowerment
- Mayor's Office
- Office of Sustainability
- Public Service
- Parks and Recreation
- Civil Engineering
- Engineering & Transportation
- Plans Review & Inspections
- Office of Neighborhoods
- Urban Wilderness Coordinator
- Communications
- City Council

Agencies / Other Entities

- Planning (City/County)
- TN Dept. of Transportation
- Knox County Health Department
- Knoxville Community Dev. Corp (Housing Authority)
- Knoxville Public Building Authority
- Knox County Schools



Indicator: Funder Engagement

Objective: Local funders are engaged and invested in urban forestry initiatives. Funding is adequate to implement care citywide for the urban forest.

- City
- State/Federal
- Foundations
- Private Corporations
- Non-Profits
- Individuals



ASLAN FOUNDATION



Indicator: Utility Engagement

Objective: All utilities are aware of and vested in the urban forest and cooperate to advance citywide urban forest goals and objectives.

- Water/Sewer/Energy/Communications (cable, internet, phone)
- Knoxville Utilities Board, Tennessee Valley Authority



Indicator: Developer Engagement

Objective: The development community is aware of and vested in the urban forest and cooperates to advance citywide urban forest goals and objectives.

- Builders
- Engineers
- Architects
- Realtors



KNOXVILLE AREA
ASSOCIATION OF REALTORS®

Indicator: Public Awareness

Objective: The general public understands the benefits of trees and advocates for the role and importance of the urban forest.

“Trees ruin the sidewalk.”

“They block the sign for my business.”

“Trees cost me money.”

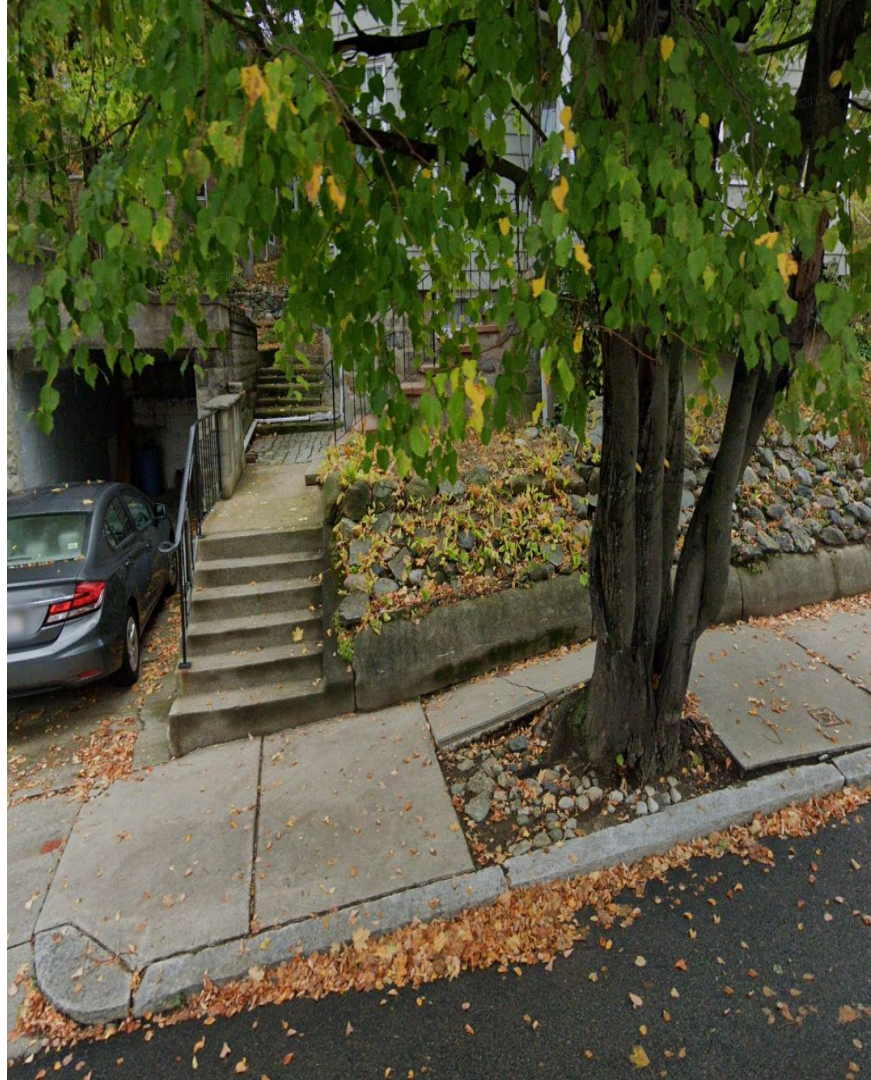
“Trees are dirty, messy.”

“Trees attract unwanted animals.”

“Trees break water and sewer pipes.”

“Trees block the sun.”

“Trees make my asthma worse.”



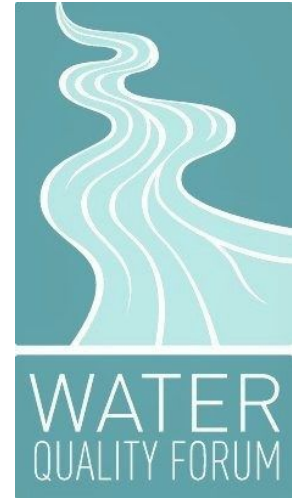
Indicator: Regional Collaboration

Objective: Neighboring communities and regional groups are actively cooperating and interacting to advance the region's stake in the city's urban forest.

- Watershed groups
- Regional council of governments
- Schools
- Parks
- County, surrounding municipalities
- Utilities
- Recreation Groups



KNOX COUNTY
TENNESSEE



"Partnering to protect, restore, and enhance the waterways of East Tennessee"





Your turn.

Two Group Discussions

Discussion 1: Scoring Player Categories (60 mins)

1. Where are we today – Low, Moderate or Good?
2. What are some ways to improve, get us to the next level?

Discussion 2: Outreach Messaging (30 mins)



Discussion 2 - Messaging

30 minutes

SCENARIO: Imagine you are tasked with convincing people in the community to preserve, plant, care and prioritize trees.

- What are the five most important points or messages the public needs to hear (or be asked to do) first to really make a difference.
- What messages will resonate most?
- How would you word them to appeal to real people?

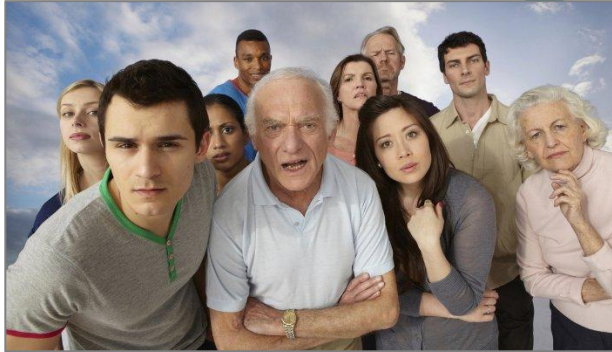
CHALLENGES

- Not enough resources.
- Lack of knowledge
- Lack of engagement
- Lost canopy in development
- Conflicting priorities and space constraints
- Trees on private property
- Political climate
- Climate change

SOLUTIONS

- More engagement and education
- Assistance in tree care
- Better policy/enforcement
- Funding
- More space for trees
- More data

Messaging Tip #1: Focus on the end game.



Economic Prosperity

Healthy Family

Vibrant Community

Messaging Tip #1: Focus on the end game.



People don't buy WHAT you do, they buy WHY you do it.

Messaging Tip #2: Limit quantity of messages.

The Rule of 7

Prospects need to see your brand or hear your message at least 7 times before they buy from you.

ALSO: Repetitive and Consistency is Key

- 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.

Next Steps

Homework

- 1. Additional Comments**
 - a. Turn in paper comment form
 - b. rachel@urbancanopyworks.com
- 2. Last Workshop**
 - a. Workshop #3: Apr. 20th, 8-10 am
- 3. Upcoming Public Events**
- 4. Engage your Network**
 - a. Invite Us Over! (available through July)
 - b. Spread the Word www.KnoxvilleTreePlan.org and give Input online input form (on website)

KNOXVILLE
URBAN FOREST MASTER PLAN

Home UFMP Process About Knoxville Trees Plan Updates Get Involved You Tell Us

**KNOXVILLE
URBAN
FOREST
MASTER PLAN**

Knoxville is investing in trees for the long term.

Trees and tree canopy play a very significant role as city infrastructure in Knoxville, especially as we face the impacts of climate change.

Trees are one of the best ways to reduce the heat island effect and air pollution, which together have huge impacts on public health. Trees also play a key role in intercepting stormwater to prevent flooding and water pollution, and can improve quality of life in many other ways.

However, the tree canopy in Knoxville has seen a lot of changes in the last decade, and is

NEXT UP

Community Kick Off Event Success!
The community project kick-off event was a success with almost 100 attendees braving the rainy weather to