



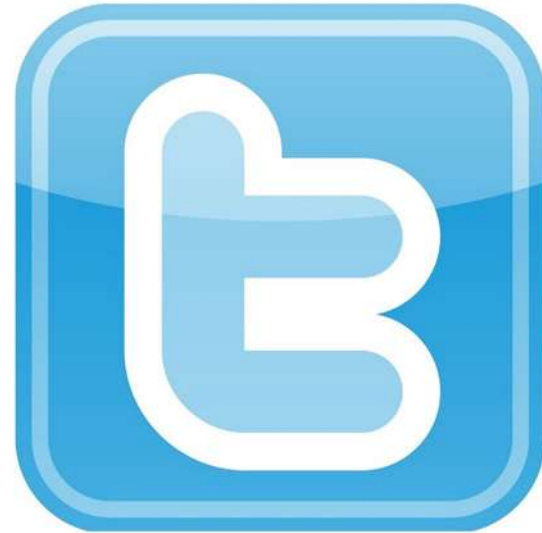
Third Annual Tree Canopy Action Summit

May 19, 2014 – Mahlon Adams Pavilion, Freedom Park

TreesCharlotte & Social Media



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treescharlotte



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@treescharlotte

This fall: Instagram hashtag *treescharlotte*

Visit us at www.treescharlotte.org

Representation

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Adams Outdoor
Carolinas HealthCare System
Catawba Lands Conservancy
Charlotte Housing Authority
Charlotte Latin
Charlotte Tree Advisory Commission
Charlotte Rotary Club & Rotary District 7680
City of Charlotte
Creek ReLeaf
Crescent Communities
Discovery Place
Duke Energy
Elizabeth Community
Gaston County Extension Service
Heartwood
Johnson C Smith University
Kimley Horn
Mecklenburg County Park and Rec
Mecklenburg County Stormwater
Mecklenburg County Soil & Water
NC Forest Service
NC Nursery & Landscape Association
NC Wildlife Federation
Panther Creek Nursery
Project CROWN
Queens Crown
Sierra Club
TreesCharlotte Foundation Board
University of NC Charlotte
Worthington Farms

Summit – Desired Outcomes

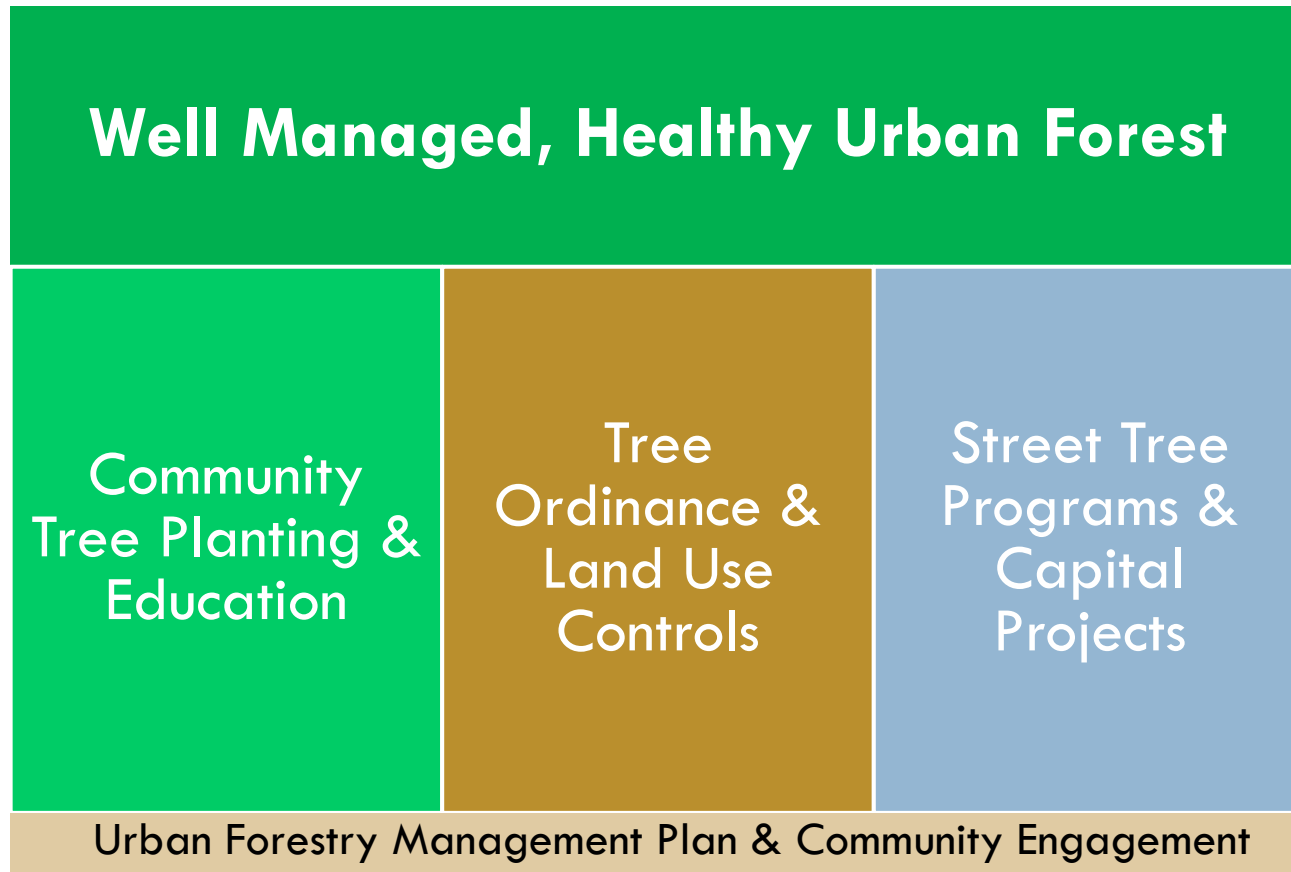
4

- Gain clarity on the City's commitment to the urban forest – Ron Carlee
- Exchange ideas and nurture collaborative relationships
- Gain shared understanding of:
 - Our collective accomplishments & goals
 - Issues important to our urban forest
 - Growing superior trees
 - Key policy & legislative issues
 - Cankerworm & street tree program updates
 - Research topics



It Takes a Synchronized Army

5



Agenda & Handouts Review

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11:00 - 11:05 Setting the Stage – Dave Cable

11:05 - 11:20 Welcome - Ron Carlee, Charlotte City Manager

11:20 - 11:50 Updates, Collective Accomplishments & Goals - Partners

11:50 - 12:10 Growing Superior Trees for TreesCharlotte – Tod Williams & Alan Erwin

-----Pick up lunches-----

12:15 - 12:45 Policy Update: Legislation, Canopy Analysis, Payment in Lieu, Urban Forestry Management Plan – Tim Porter & John Lojko

12:45 - 1:00 Street Tree Program & Cankerworm Update – Don McSween

1:00 - 1:20 Education & Research Topics – Group

1:20 - 1:30 Closing Remarks & Evaluation – Group

Partners for Site Selection

7



Leadership Supporters

8



Carolinan
HealthCare System



**Harris Family
Foundation**



Rotary District 7680
SERVING WEST-CENTRAL
NORTH CAROLINA & THE WORLD



**The Dowd Foundation
Kardous Family
James Family Foundation
Patty and Thrus Morton
Christa Overcash**

Canopy Update

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Aerial Analysis - Tree Canopy Coverage

Area	2003	2008	2012
Mecklenburg County	53%	50%	51%
City of Charlotte	48%	46%	47%

Conclusions:

- The 2008 to 2012 coverage differences are not statistically significant.
- Following decline prior to 2008, there has been no net change in the canopy, consistent with the real estate lull.
- The urban forest is living & ever-changing: trees grow, age-out, and suffer blight and storms.

Canopy Calculus

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- ❑ Community Goal: 50% canopy by 2050
- ❑ City + ETJ = 240,000 acres
- ❑ 1% is 2,400 acres, so 5% is 12,000 tree acres (400 acres per year)
- ❑ Based on 47% coverage and anticipated population growth, 5% target was established
- ❑ NeighborWoods Trees
 - ❑ 40 trees per acre
 - ❑ 5% is 500,000 trees
- ❑ Reforestation Trees
 - ❑ 400 trees per acre
 - ❑ 5% is about 5,000,000 trees



FY 14 Tree Planting Events

Collaborative's Tree Planting Projects

Project Name	Sponsor	Category	Date	Total Trees
Cherry neighborhood	TreesCharlotte	TreeStore	10/12/2013	77
MacIntyre Subdivision	TreesCharlotte	NeighborWoods	10/19/2013	665
Betty Rea Thomas Park	Foundation For The Carolinas	Park	10/25/2013	36
Waddell Language Academy	Carolinas HealthCare System	School	11/1/2013	641
West Charlotte HS	NASCAR, UPS, Wells Fargo	School (Project LIFT)	11/9/2013	637
Oak Valley Community	LandDesign	Charlotte Housing Authority	11/15/2013	26
Mecklenburg County*	Charlotte Public Tree Fund	Reforestation	11/23/2013	2,000
Brawley Farms Subdivision	TreesCharlotte	NeighborWoods	12/7/2013	302
MLK Middle School	District Rotary Clubs	School & TreeStore	2/22/2014	522
Reid Park Academy	Wells Fargo	School & TreeStore	3/22/2014	288
Berewick Phase II	TreesCharlotte	School	3/22/2014	30
Dillehay Courts	Carolinas HealthCare System	Charlotte Housing Authority	3/28/2014	213
Mt. Moriah Church	Center City Partners	Church	3/29/2014	15
WG Byers & Greenville	Crescent Communities	School (Project LIFT) & Park	4/5/2014	190
Welcome Center	City of Charlotte (contract)	NCDOT Project	4/10/2014	37
Thomasboro Academy	Lincoln Harris	School (Project LIFT) & TreeStore	4/12/2014	251
Renaissance Park	City of Charlotte (contract)	Park	4/15/2014	34
Independence Blvd	City of Charlotte (contract)	Reforestation	4/20/2014	1,300
Earth Day Tree Gifts	TreesCharlotte	Seedling give-away	4/22/2014	400
McMullen Greenway	Piedmont Natural Gas	Park	4/25/2014	11
SteeleChase	TreesCharlotte	NeighborWoods TreeStore	4/26/2014	<u>100</u>
				7,775

* This was not a TreesCharlotte event; trees purchased by City via TreesCharlotte budget

2013-2014 TreeMasters



Jacko Ahoy
Patrick Anderson
Stan Armstrong
George Berger
Jeb Blackwell
Sean Bloom
Imani Clenance
Chad Clink
Mary Davis
Michael Dellinger
Laura Domingo
Bruce Elliott
Rowdy Ferguson
Jeff Furr
Patrick George

Brandon Hogan
Chad Holder
Chuck Holtzclaw
Tom Johnson
Andy Kane
Erica Karger
Aaron Keanini
Russ Keanini
Frank Lorch
Jack Meckler
Talcot Mims
Craig Monroe
Georgia Oakes
Kathy Pearce

Shaun Philips
Rob Phocas
Tim Porter
Frank Psaroudis
Tim Richards
Kelly Robertson
Gina Shell
Braedon Shelton
Charles Smith
Carey Terpening Shelton
Leo Thompson
Gary Turner
Greg Watson
Sharon Wilson

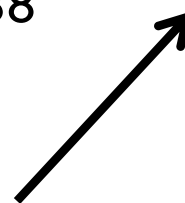
Canopy Calculus – Tree Count Roll-Up

Tree Planting - Tree and Acreage Counts - FY14

	Trees	Acres	%
TreesCharlotte Projects	5,775	95	49%
Creek ReLeaf	2,000	5	3%
Ordinance Trees	1,803	45	23%
Street Trees	1,110	28	14%
CIP Trees	660	17	9%
Park & Recreation	<u>140</u>	<u>4</u>	<u>2%</u>
	11,488	193	100%



VS goal of
400 per year



Canopy Calculus

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Crop Trees - Mecklenburg Cty FY14 NC Forest Service

	Trees	Acres
Reforestation	335,750	616
Harvest	<u>120,000</u>	<u>223</u>
Net	215,750	393



- Includes planting in entire Mecklenburg County
- Trees with shorter lives planted for harvest

Tree Planting Projects – Cumulative

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TreesCharlotte Collaborative - Project Summary

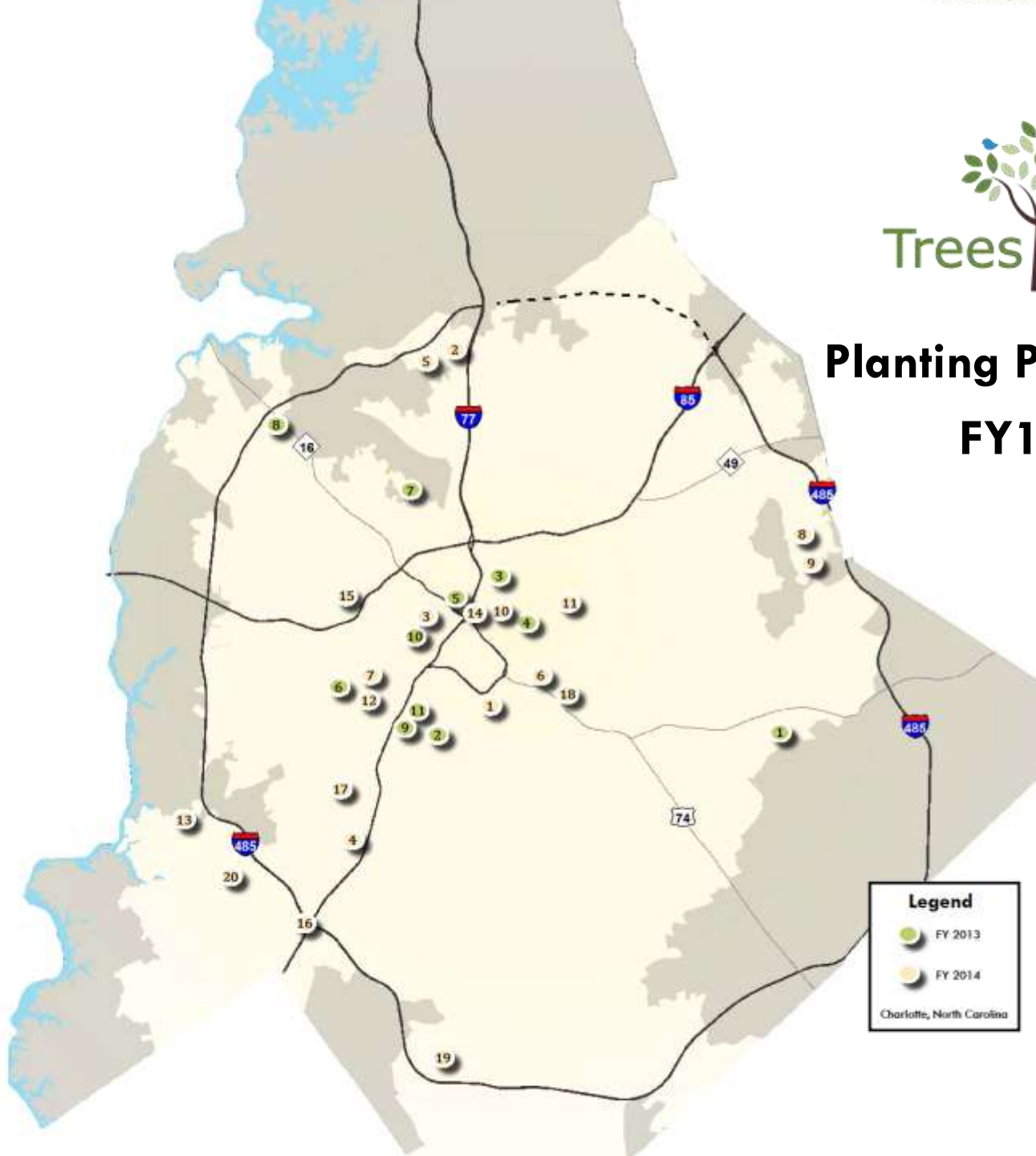
Project Category	Projects*	Trees	
		Count	% Trees
Schools	8	2,509	21%
Neighborhoods	5	1,671	14%
Housing Projects	4	914	8%
Reforestation**	4	5,580	47%
Faith Campuses & Other	4	479	4%
TreeStores	5	427	4%
Parks	<u>7</u>	<u>260</u>	<u>2%</u>
	37	11,840	100%

*Some projects overlap.

** Includes last 2 years of CreekReLeaf.



Planting Project Locations FY14 & FY15



Legend

-  FY 2013
-  FY 2014

Charlotte, North Carolina

Accomplishments Since Inception

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- ❑ Planted 11,000 trees (includes partners)
- ❑ Stewarded trees on public lands
- ❑ Launched Founders' Campaign; raised \$1,192,000
- ❑ Launched and enhanced website
- ❑ Held three Canopy Action Summits
- ❑ Submitted 501c3 application
- ❑ Launched honorary tree program
- ❑ Piloted education program
- ❑ Established efficient & effective partnerships

Collaborative Partners

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- Carolinas HealthCare System
- Charlotte Housing Authority
- Catawba Lands Conservancy
- Center City Partners
- Charlotte Public Tree Fund
- City of Charlotte, including CATS, Charlotte Tree Advisory Commission, CDOT, Landscape Management, Neighborhood & Business Services, Planning, Storm Water, Sustainability and Urban Forestry
- Charlotte Mecklenburg Schools
- Charlotte Arborist Association
- Charlotte Rotary Club and District 7680
- Crescent Communities
- Duke Energy
- Elizabeth Neighborhood
- Hands On Charlotte
- Johnson C Smith University
- Keep Charlotte Beautiful
- Keep Mecklenburg Beautiful
- McColl Center for the Arts
- Mecklenburg County, Parks & Recreation, Storm Water Services, Sustainability
- North Carolina Dept. of Transportation
- North Carolina Nursery & Landscape Association
- North Carolinas Wildlife Federation
- North End Partners
- Project L.I.F.T.
- Queens Crown
- Queens University of Charlotte
- University of North Carolina Charlotte
- NC Forest Service
- Uptown Rotary & District Rotary

FY15 Goals – Board Approved

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- Plant 10,000 trees, including 6,000 NeighborWoods trees
- Meet private fundraising target of \$1.4 MM by YE14
- Broaden awareness & support to sustain TC
- Steward our trees efficiently & measure tree survival
- Develop & implement a strategy for mature canopy
- Advance educational programs
- Establish meaningful partnerships with developers

Partner Report Outs

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What does your agency do to impact trees in Charlotte?
What were your major accomplishments over the last year?
What are your goals for the upcoming 12 months?
As a collaborative, how can we do better?

Adams Outdoor

Carolinas HealthCare System

Catawba Lands Conservancy

Charlotte Housing Authority

Charlotte Latin

Charlotte Tree Advisory Commission

Charlotte Rotary Club & Rotary District 7680

City of Charlotte

Creek ReLeaf

Crescent Communities

Discovery Place

Duke Energy

Elizabeth Community

Gaston County Extension Service

Heartwood

Johnson C Smith University

Kimley Horn

Mecklenburg County Park and Rec

Mecklenburg County Stormwater

Mecklenburg County Soil & Water

NC Forest Service

NC Nursery & Landscape Association

NC Wildlife Federation

Panther Creek Nursery

Project CROWN

Queens Crown

Sierra Club

TreesCharlotte Foundation Board

University of NC Charlotte

Worthington Farms

Partner Report-Outs - CTAC

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- Charlotte Tree Advisory Commission
 - ▣ Advises City Council on tree matters
 - ▣ Proposal: Advise on NeighborWoods grants priorities
 - ▣ Proposal: Coordinate community-wide large scale Arbor Day celebration
 - First Friday following March 15th
 - Support from TreesCharlotte

Partner Report Outs

22

- What does your agency do to impact trees in Charlotte?
- What were your major accomplishments over the last year?
- What are your goals for the upcoming 12 months?
- As a collaborative, how can we do better?

Discussion About Research Needs

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1. Quantify the environmental benefits of the TreesCharlotte collaborative using i-tree or other tool(s).
2. Evaluate the pros and cons of native vs non-native tree species planted in Charlotte's urban core.
3. Identify the best residential neighborhoods for community tree planting events using the aerial canopy data and other social and physical indicators.



Discussion About Research Needs, cont'd

24

4. Identify the strategic implications of Charlotte's recent aerial canopy analysis for management of the urban forest.
5. Identify the best adult and children educational initiatives for TreesCharlotte, building on learnings from other communities.
6. Quantify tree survival rates and recommend best practices to improve tree survival of volunteer planted & maintained trees.
7. Identify the best strategies for addressing the needs of the mature urban forest.
8. Your other?



Closing Discussion

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- Discussion
- Questions?
- Suggestions?





Review of Proposed Tree Legislation

2012 Urban Tree Canopy Report

Payment in Lieu Option & The Tree Ordinance

May 19, 2014



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Review of Proposed Tree Legislation

Repealing **Cities' Ability to Regulate Tree**
Removal, Replacement and Preservation on
Private Property

Proposed Legislation

- Advanced by the Agricultural and Forestry Awareness Study Commission, established by the NC General Assembly
- Eliminates **municipalities' authority to** adopt or enforce any ordinance, rule, regulation, or resolution that regulates the **“removal, replacement, and preservation of trees on private property”**

Hurts our tree canopy

- Proposed legislation would negatively impact Charlotte's tree canopy and the "50 by 50" tree canopy goal
- Most of Charlotte's tree canopy covers private property:
 - Total Tree Canopy = about 47% or 90,000 acres
 - Total Tree Canopy in City ROW = about 5% or 4,500 acres

We need trees to...

1. Clean the air
2. Cool streets and cars
3. Prevent stream erosion*
4. Block things like light, noise and dust
5. Increase property values
6. Add beauty
7. Enhance walkability
8. Help prevent water pollution*
9. Save energy
10. Reduce the cost of meeting our water quality permit*

* Direct link to cost or compliance

Eliminates City's ability to regulate trees on private property

- Post Construction Controls Ordinance
 - Stream Buffers
 - Natural Areas
- Tree Ordinance
 - Tree Save Areas
 - Parking Lot Trees
 - Perimeter Trees
- Zoning Ordinance
 - Vegetative Buffers
 - Conditional Rezoning
- Historic District
- Street trees in right-of-way ?? - Possible unintended impacts

Stream Buffers

No Trees

Trees



Glassy Creek at Barringer Drive

Gar Creek

Parking Lot Trees

No Trees

Trees



2701 Freedom Dr.



West Tyvola Rd. at Yorkmount Rd.

Subdivision Trees

Little to no trees

Trees



Peachtree Hills
Peachtree Rd. at Oakdale Rd.



Highgrove Subdivision
Ballantyne Area

Zoning Buffers

No Trees

Trees

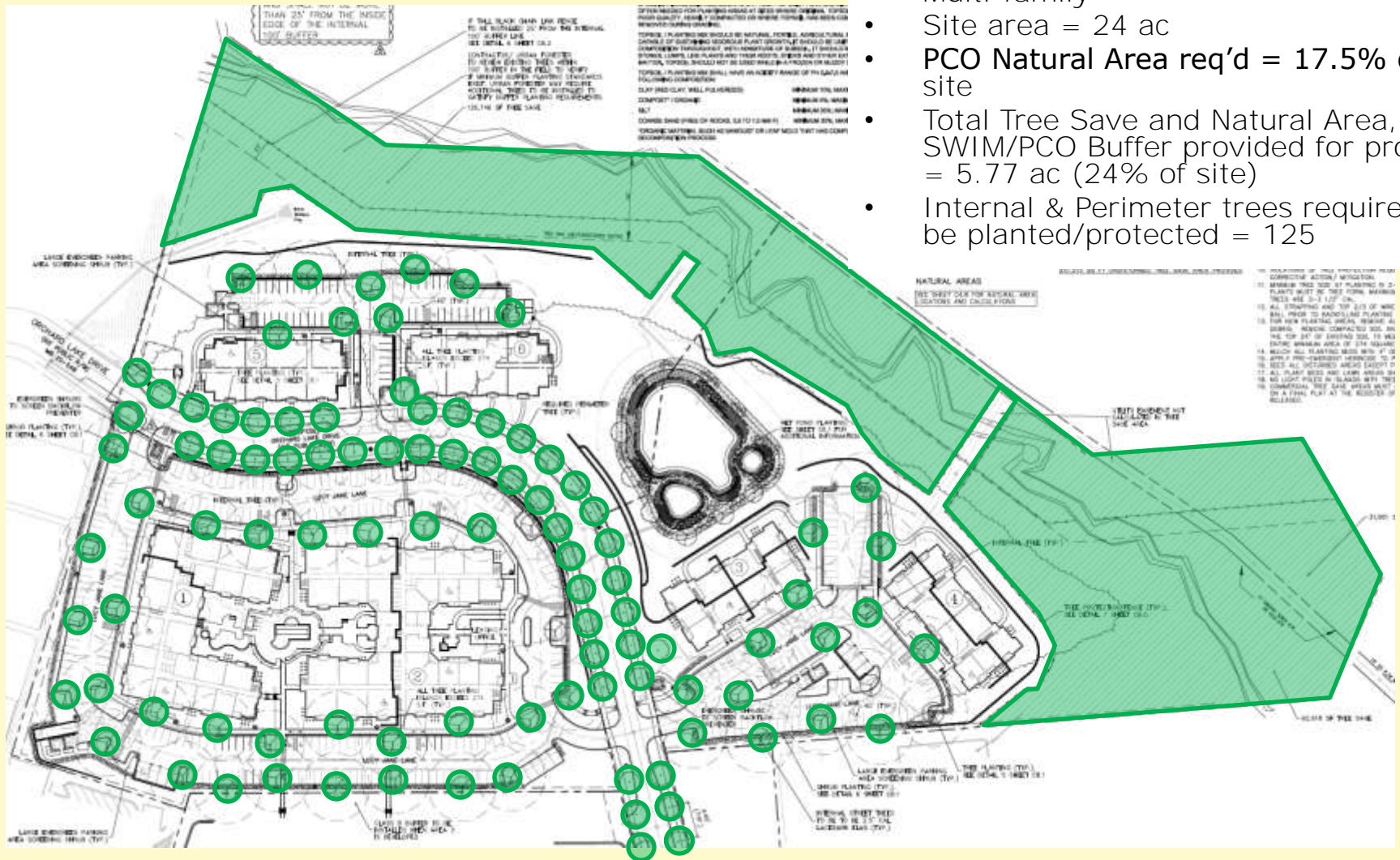


124 West 30th Street

5707 Glenmore Garden Drive

Orchard Park

- Monroe Rd near Sardis Rd. N.
- Multi-family
- Site area = 24 ac
- PCO Natural Area req'd = 17.5% of site
- Total Tree Save and Natural Area, SWIM/PCO Buffer provided for project = 5.77 ac (24% of site)
- Internal & Perimeter trees required to be planted/protected = 125



Orchard Park



Orchard Park





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2012 Urban Tree Canopy Report

- 2012 Urban Tree Canopy Report
 - Better Data
 - Analysis Objectives
 - Analysis Results
 - Conclusions



Report Partners



2008 Canopy Analysis



American Forests

2012 Canopy Analysis



University of Vermont

Report Objectives



How much
tree canopy
do we have?

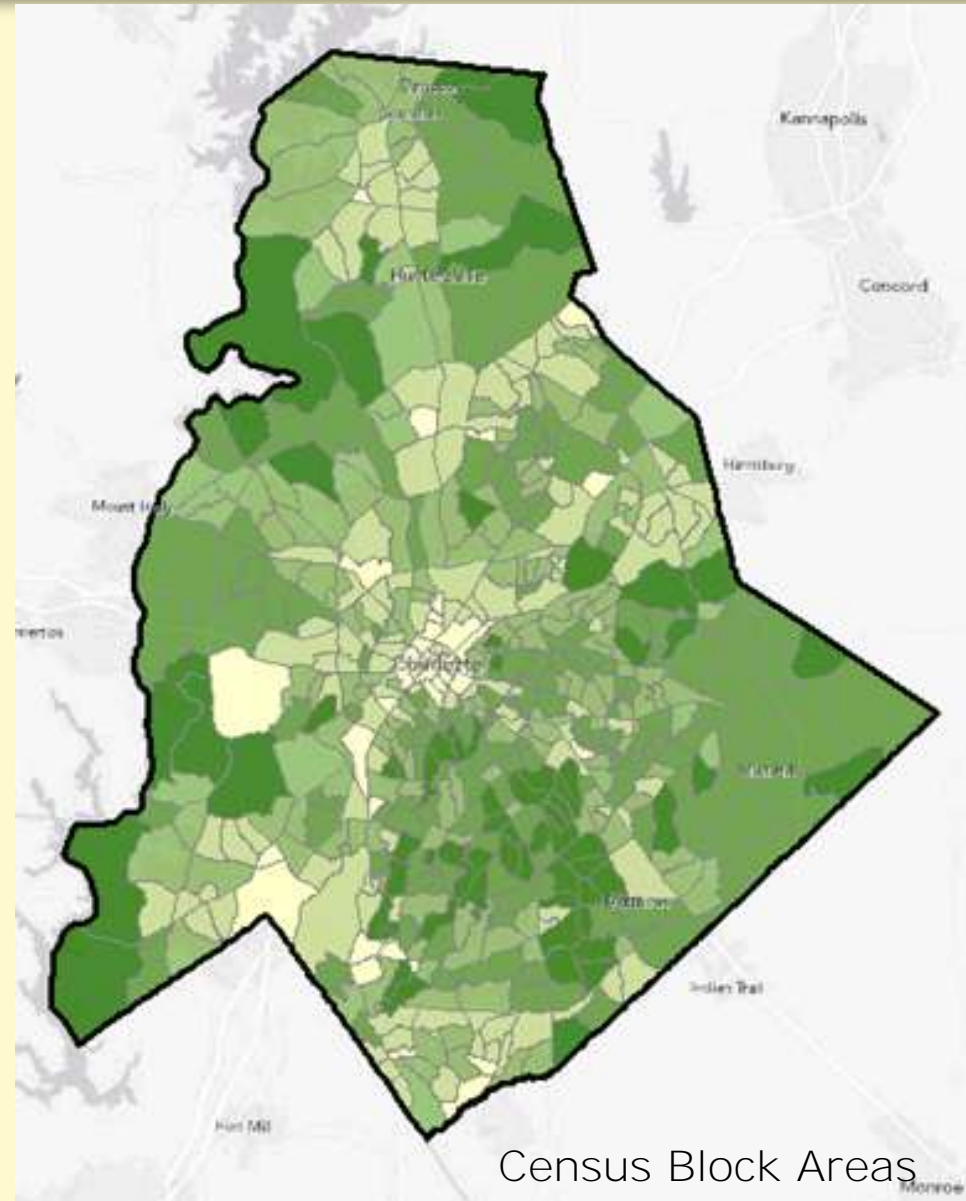
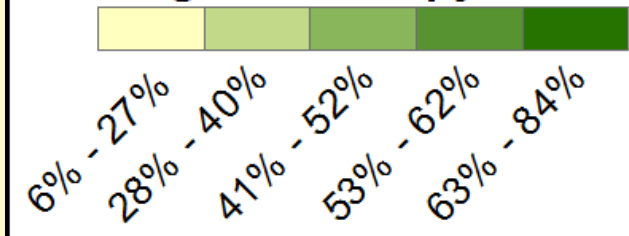


How much
tree canopy
is possible?

The Analysis: Results

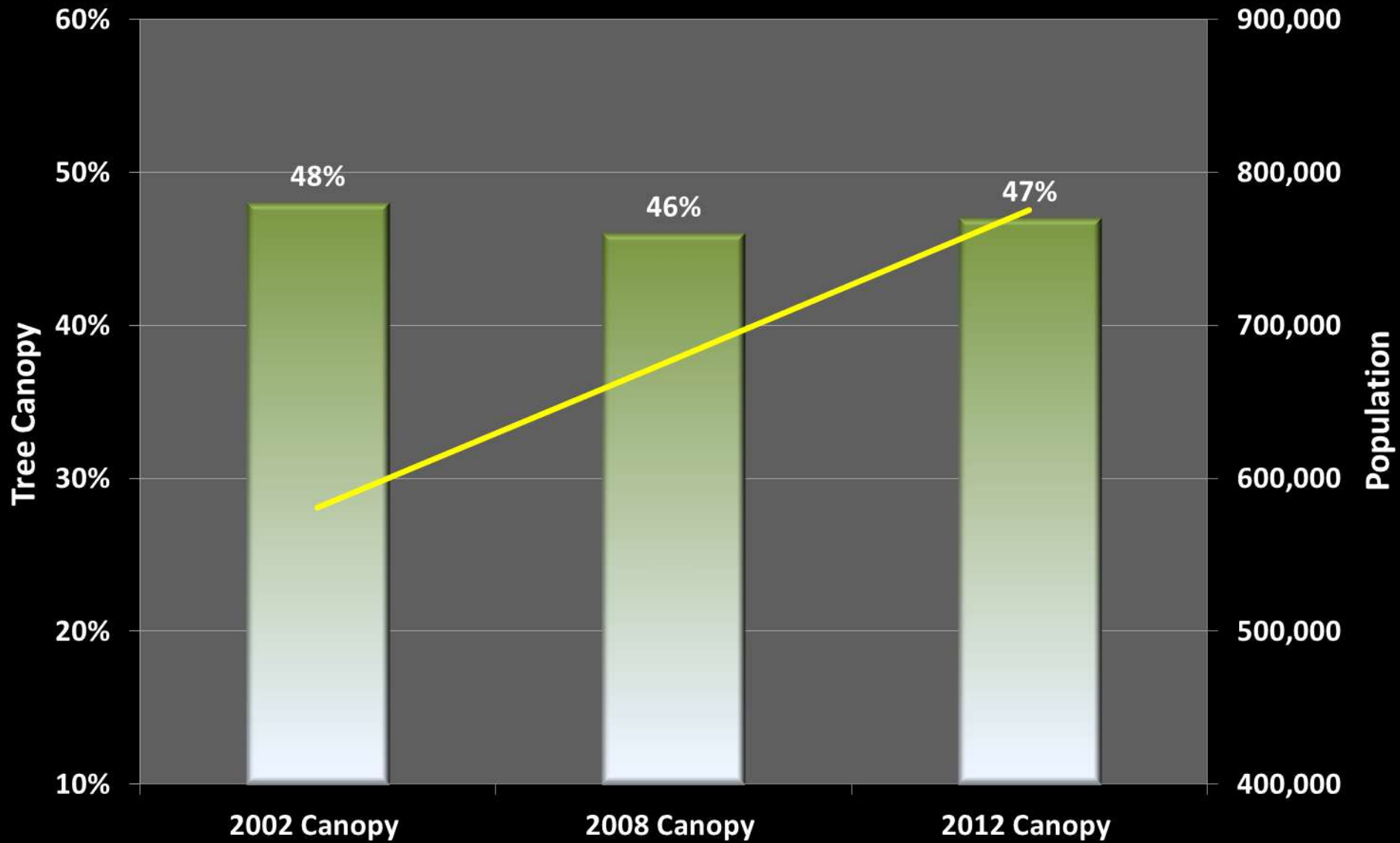
- Tree Canopy
 - City 47%
 - County 51%
 - Margin of error $\leq 1\%$.

Existing Tree Canopy





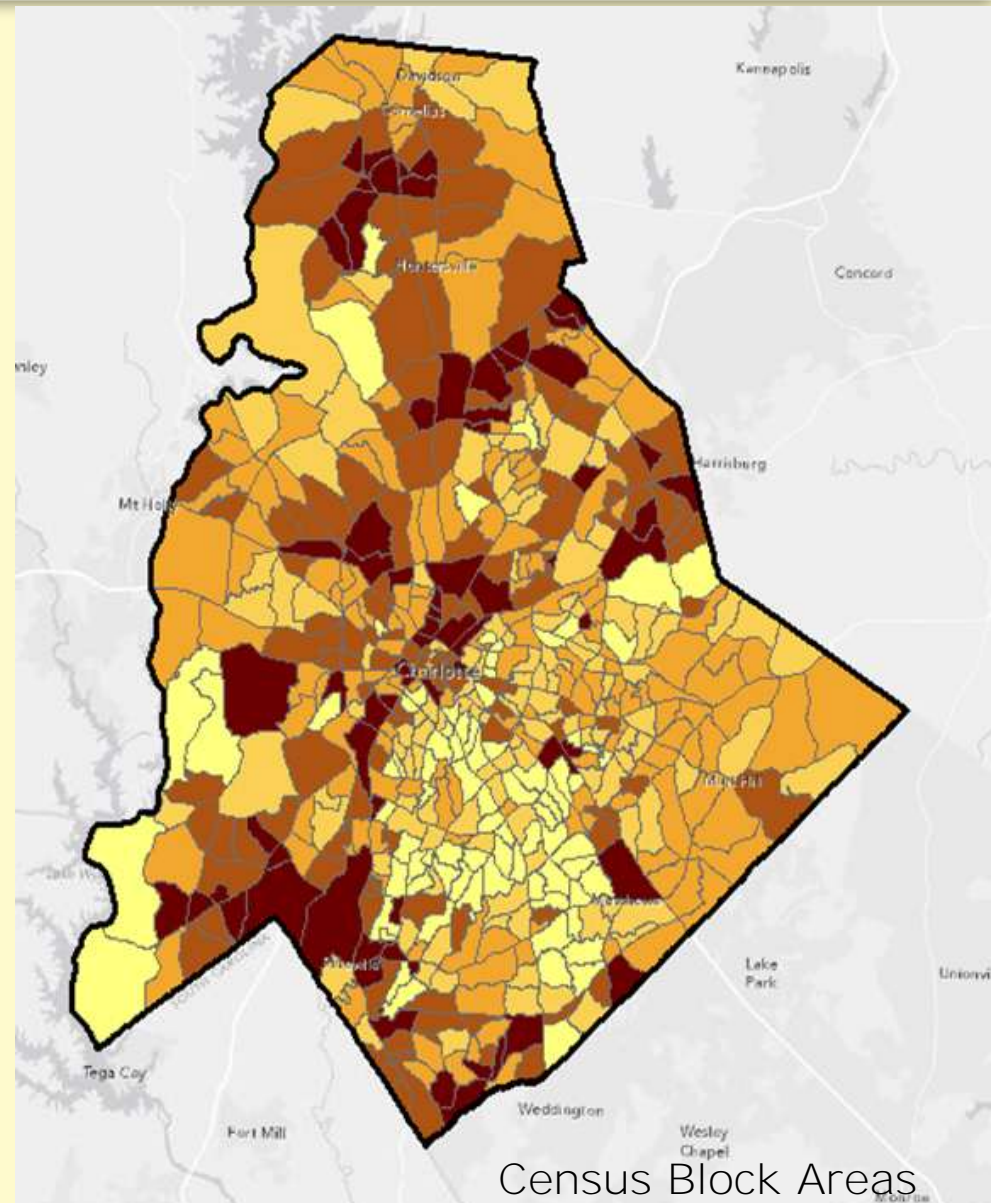
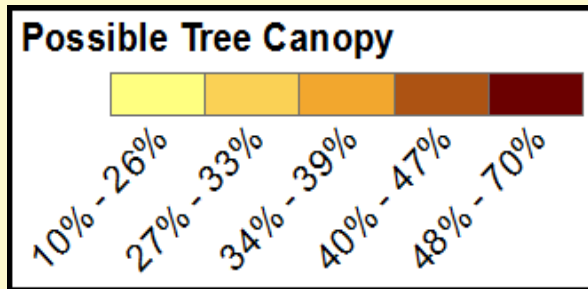
Previous Canopy Studies



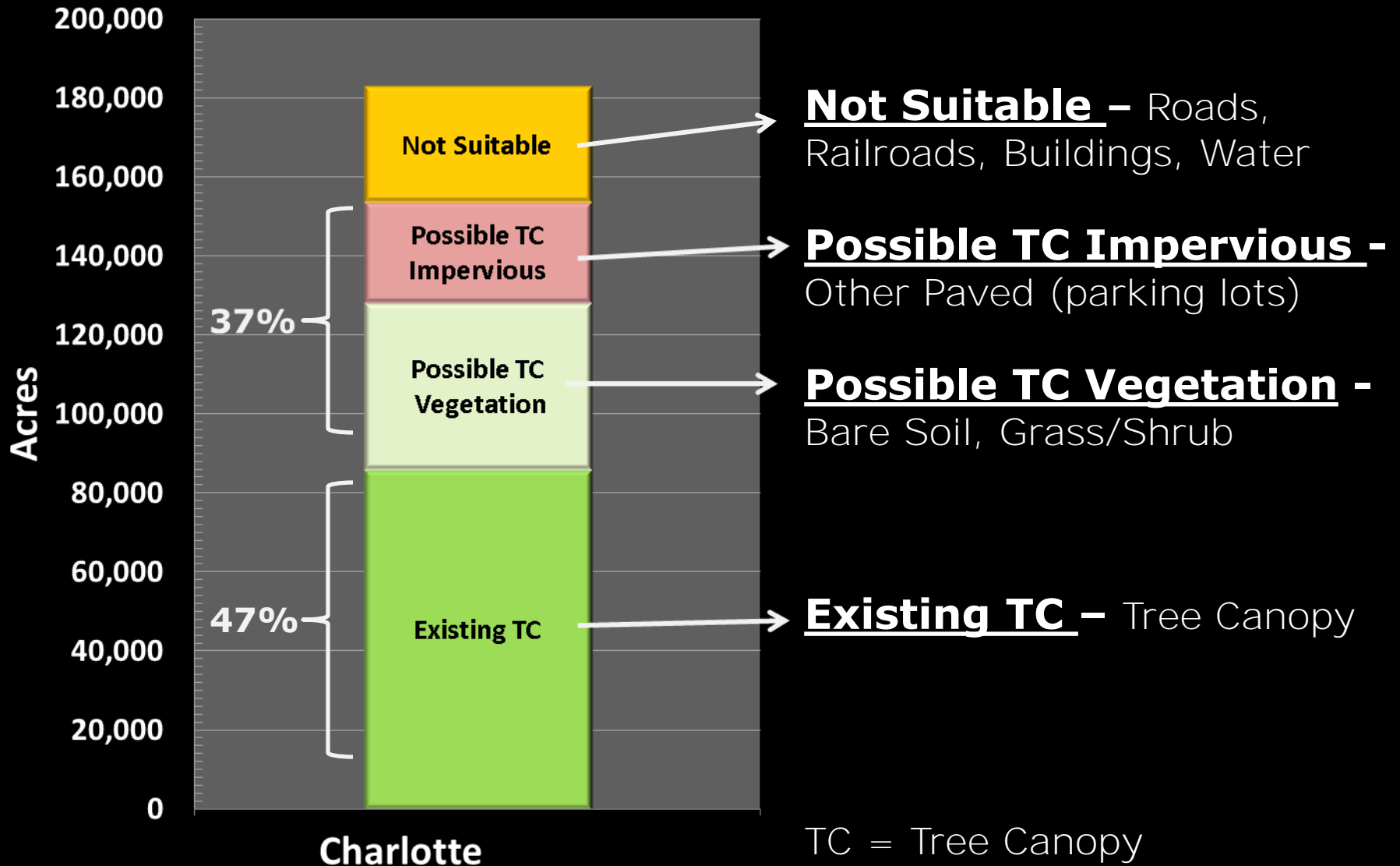
- **Charlotte's tree canopy** compares favorably to other urban areas in the Eastern United States.
 - Charlotte has substantially higher tree canopy compared to major cities such as New York (21%) and Washington D.C. (35%).
 - Charlotte is more similar to less urbanized cities such as Pittsburgh.



- Canopy improvement opportunities exist.

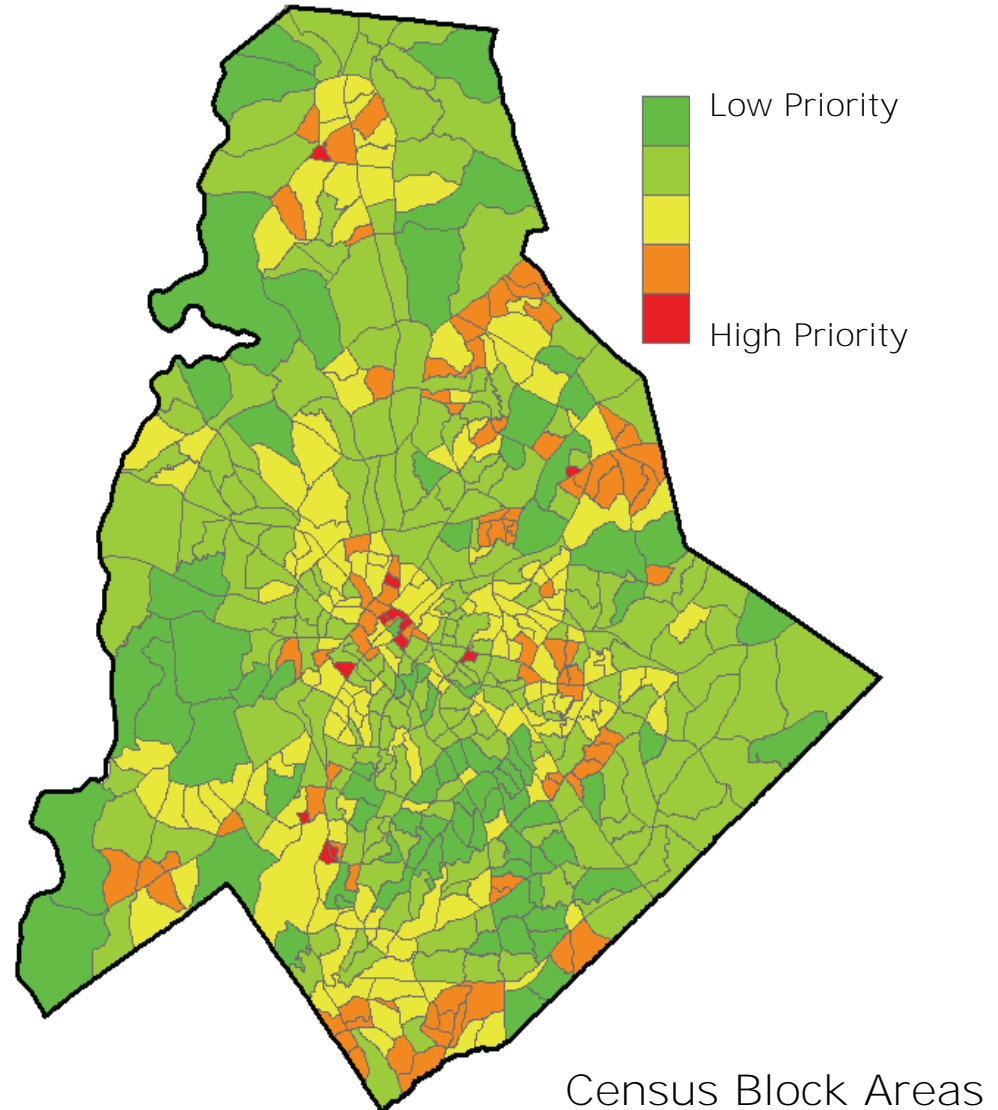


The Analysis: Results



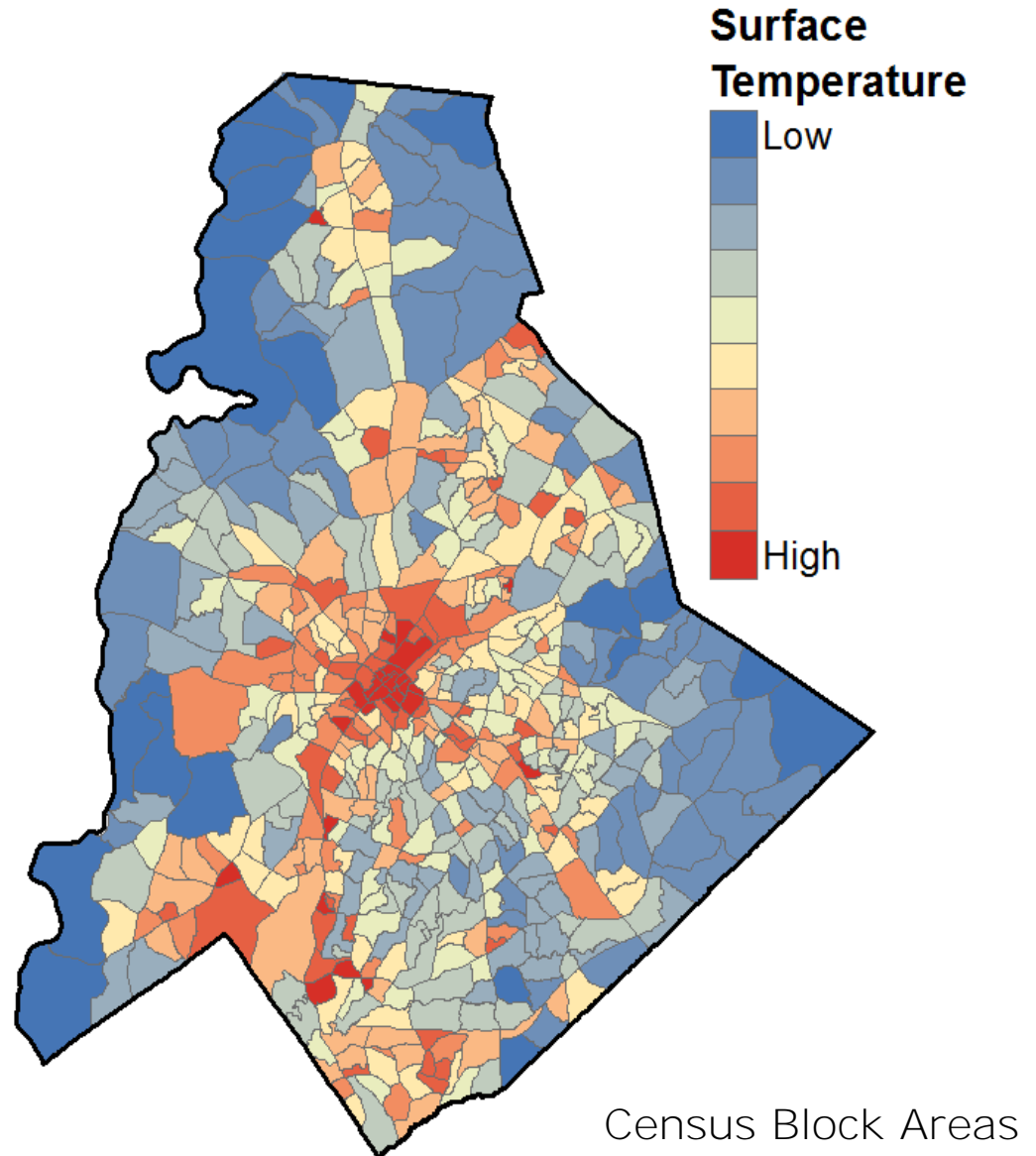
- High quality data provides the opportunity to target areas for increasing tree canopy based on many factors.

Population Density vs Possible Tree Canopy



Report Conclusion # 4

- Tree canopy helps to reduce the urban heat island effect. Increasing tree canopy will reduce energy costs.



- Education will be crucial.



Let's Band Together How you can help control the fall cankerworm population



Tree-Mendous Tips for Tree Planting



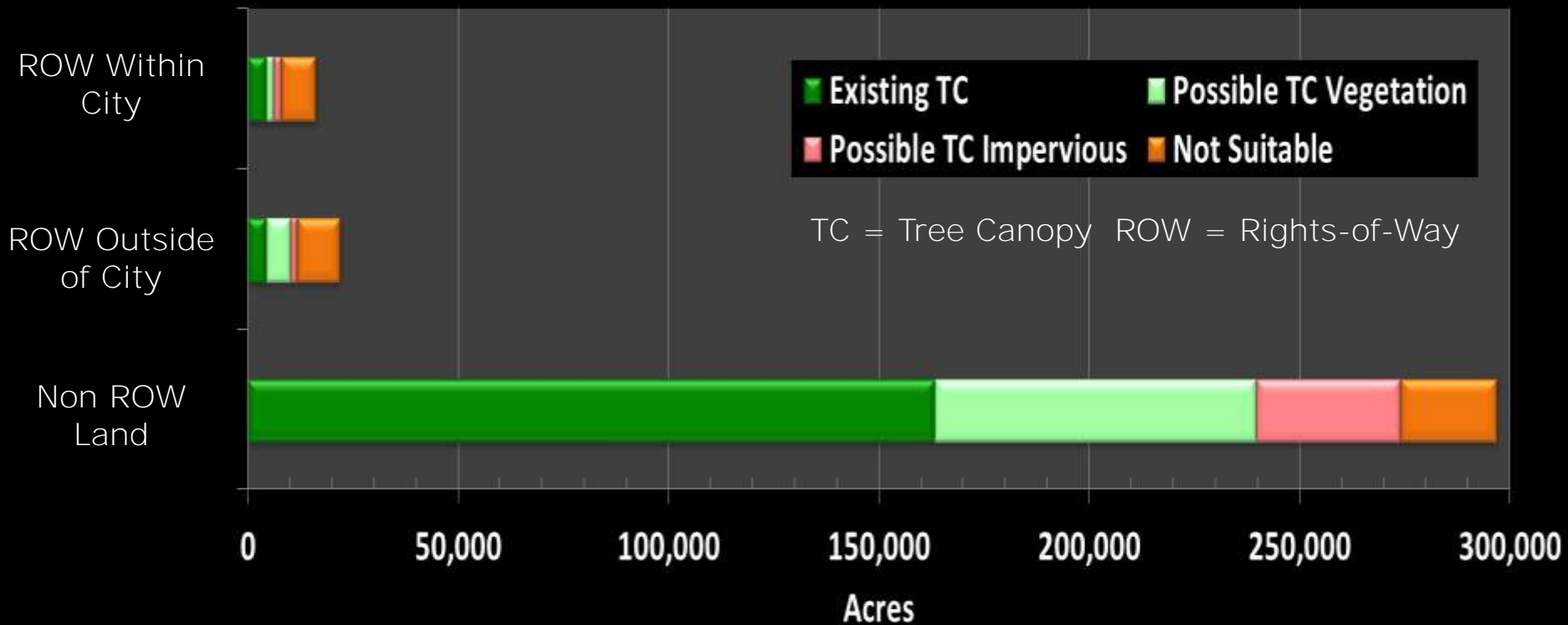
Tree - Mendous Tips

Tree Planting

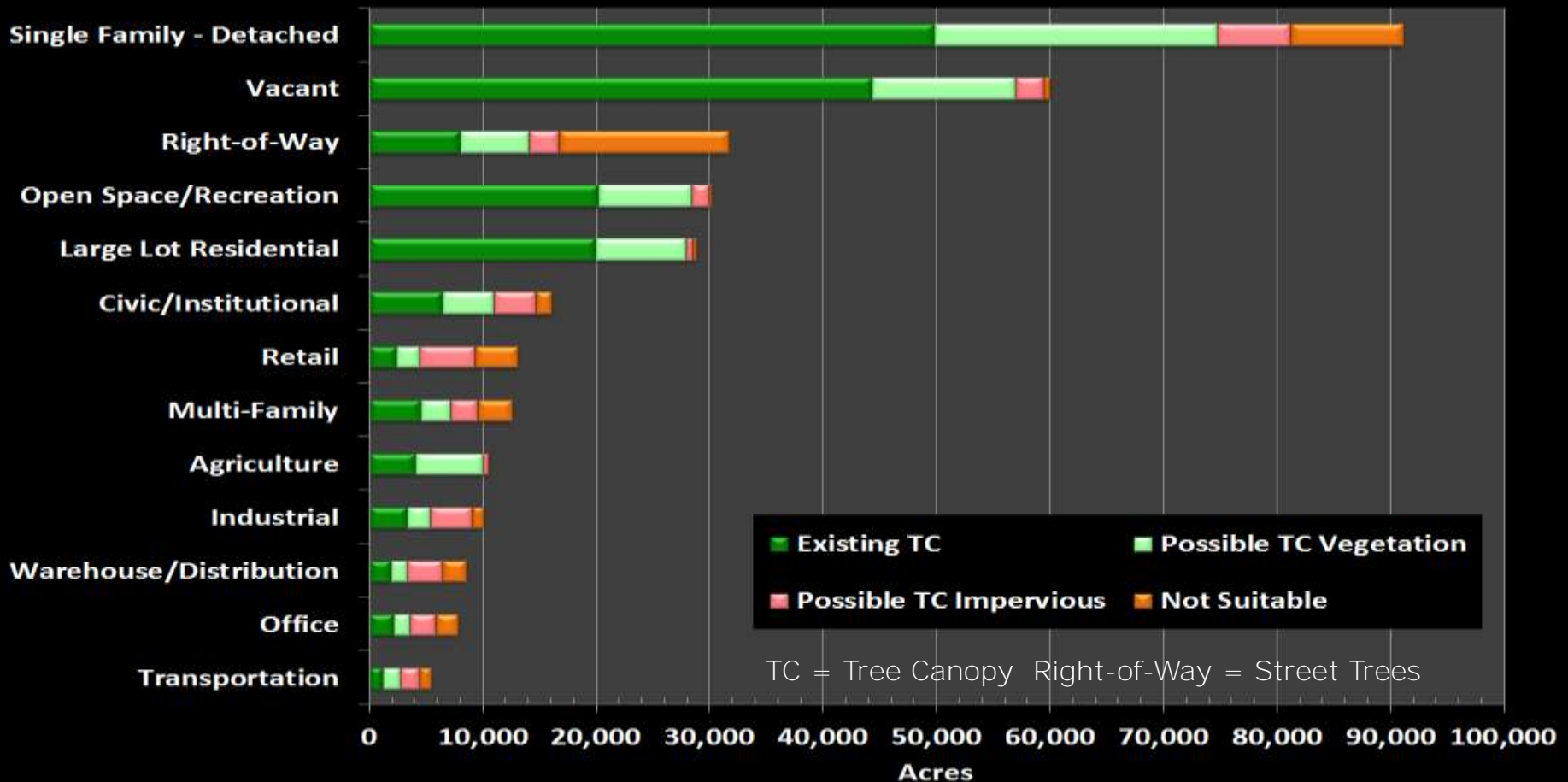
treescharlotte.org

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- The city could substantially improve its tree canopy through an “all lands” approach.

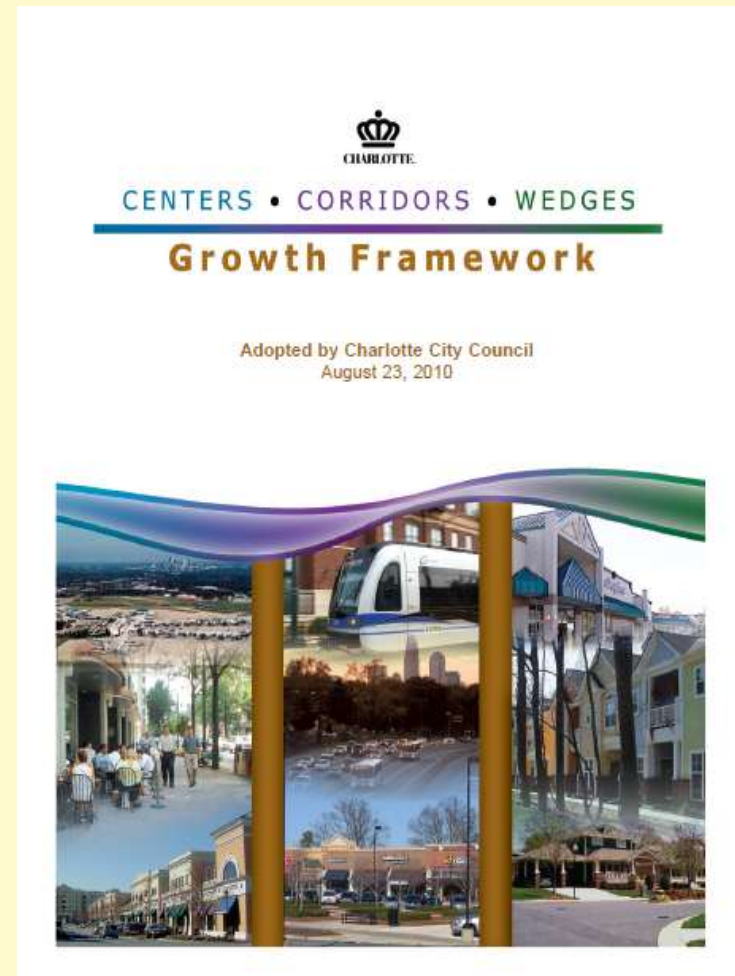
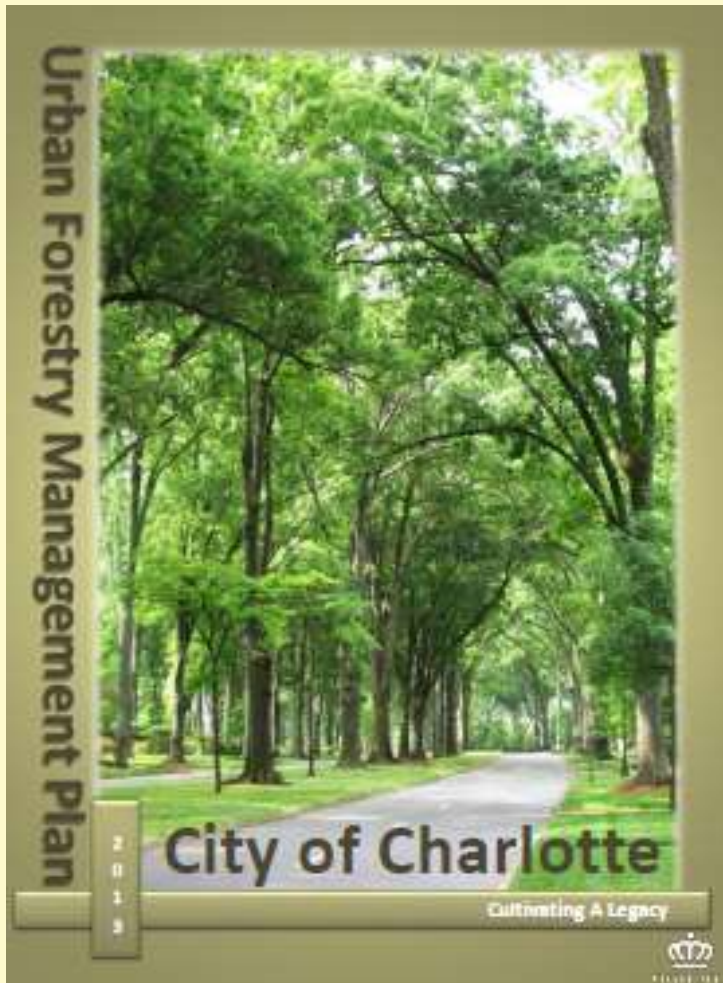


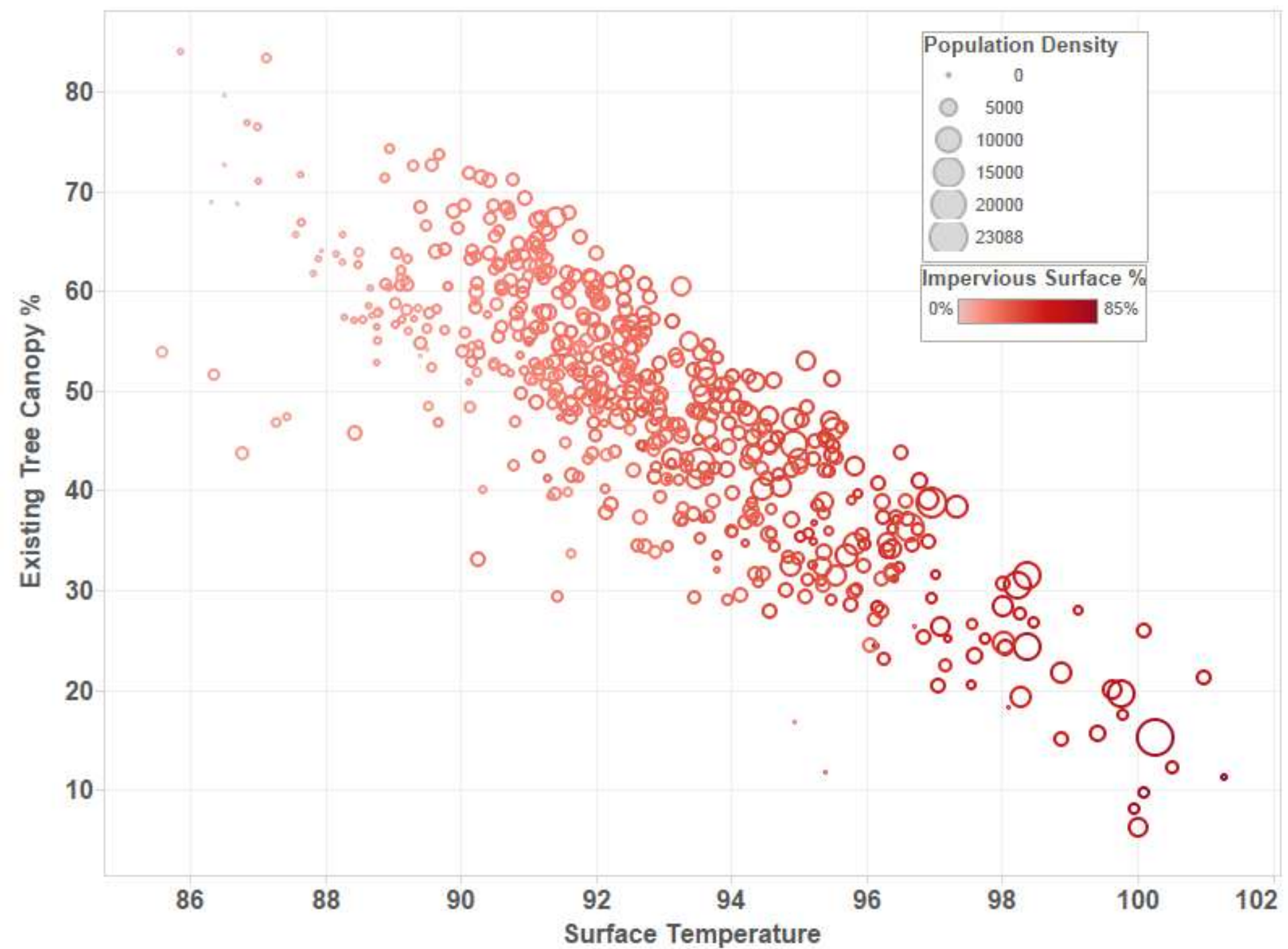
- All land use types could yield additional tree canopy.

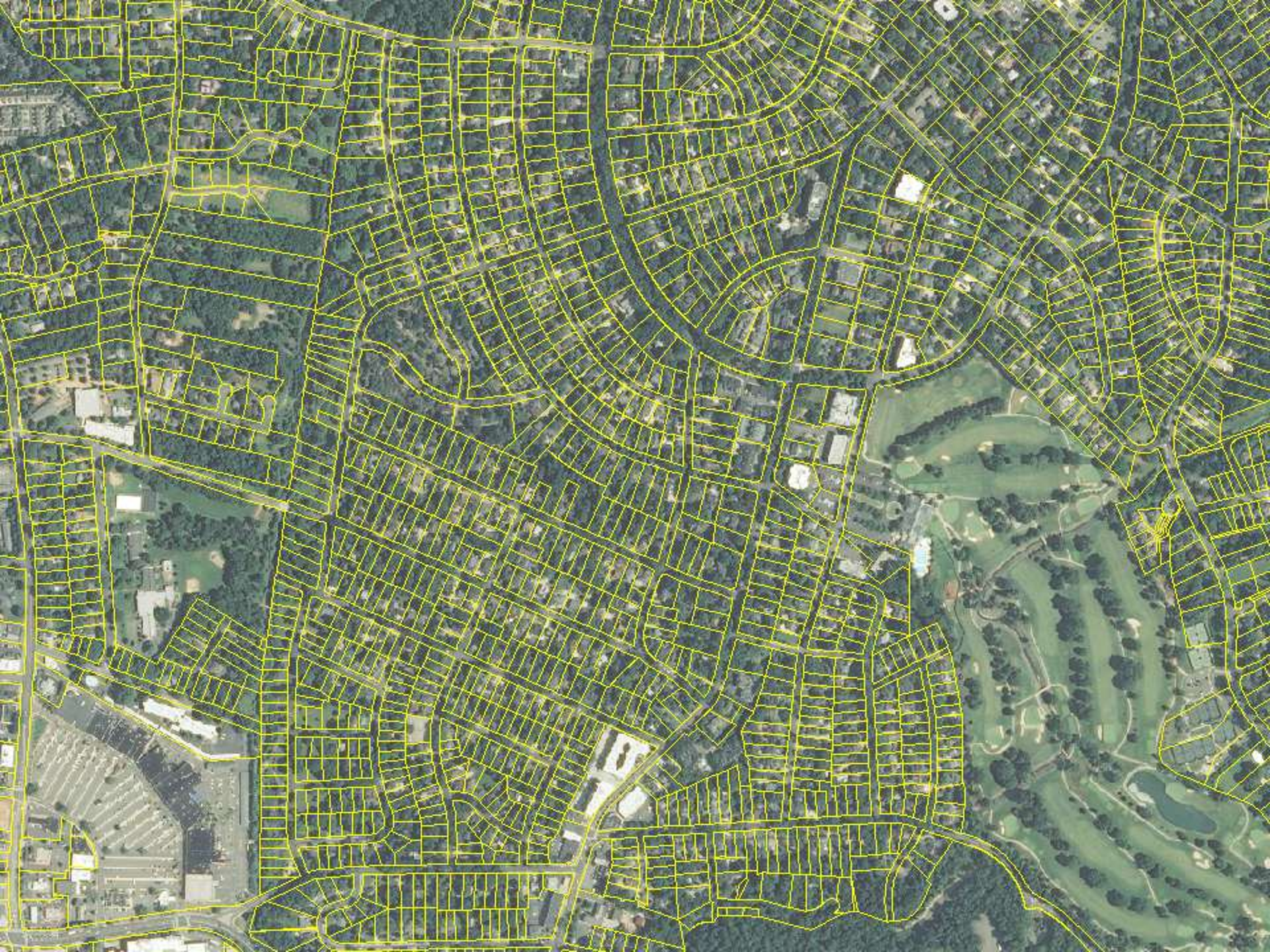


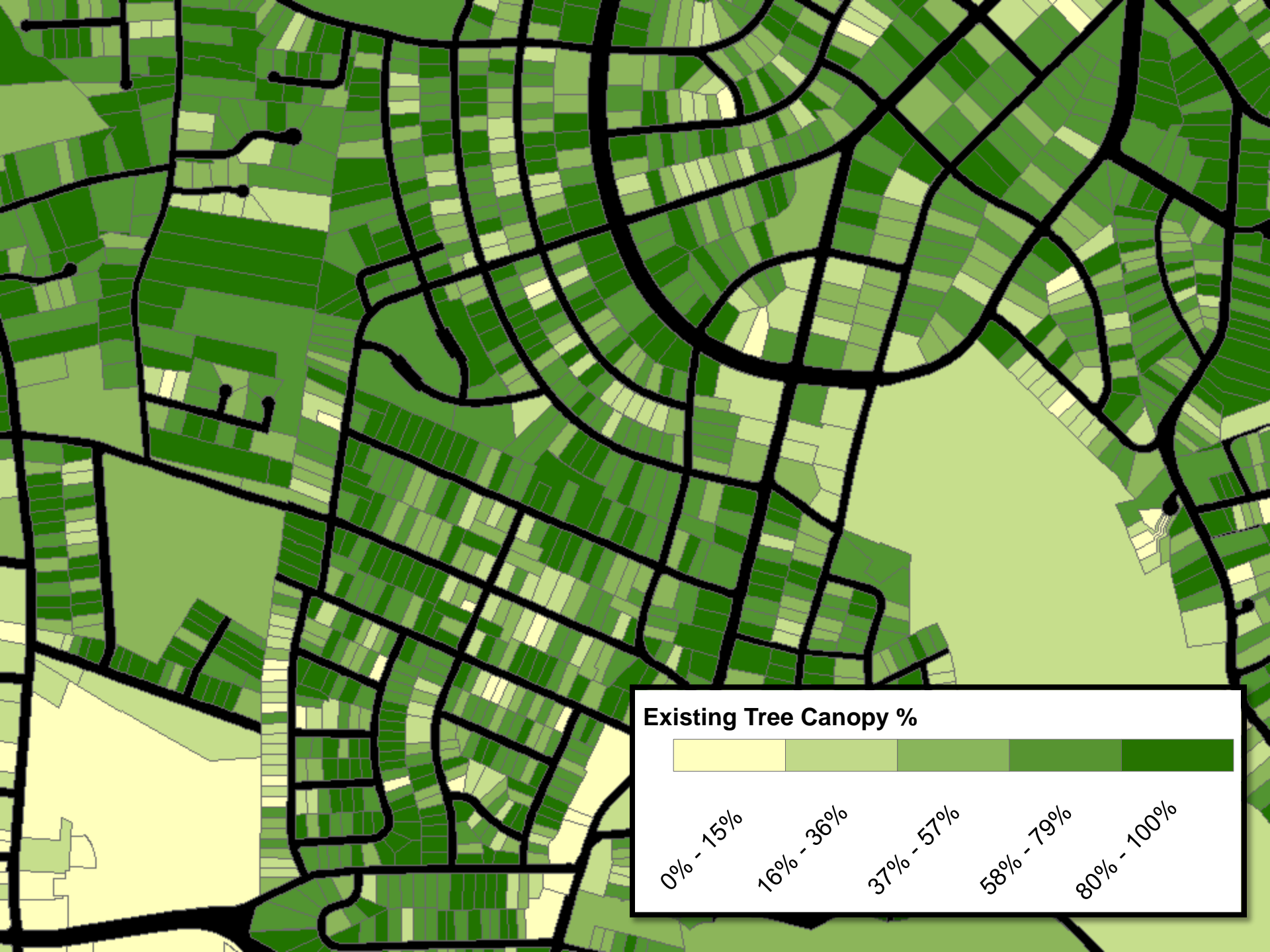
Report Conclusion # 8

- Strategic decisions should balance growth, interests of the canopy, and include the engagement of City residents.









Existing Tree Canopy %



0% - 15%

16% - 36%

37% - 57%

58% - 79%

80% - 100%

Previous Canopy Studies

Canopy Analysis	Cost	Vendor
2002	\$50,000	American Forests
2008	\$50,000	American Forests
2012	\$20,000	University of Vermont Spatial Analysis Lab



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Payment in Lieu Option & The Tree Ordinance



Tree Save Requirement

- Commercial development projects must preserve at least 15% of total site as **tree save** (existing/replanted trees).
- Some development projects have tree save options:
 - Preserve on-site
 - Preserve off-site
 - Payment in Lieu



Payment In Lieu

Purpose: to offer flexibility to the owner/developer by providing an additional option for complying with the 15% tree save requirement.

It is staff's strong preference that tree save occur on-site
when it is feasible to do so

Therefore, payment in lieu should be used as the exception and not the rule.



Payment in Lieu - Partners in the Tree Preservation Fund

Land conservancies: entities that oversee easements that remove development rights in perpetuity.

Easements can be written to tailor to a given **property owner's desired use.**

Catawba Lands Conservancy, Mecklenburg County Parks and Recreation, etc.



How is the Tree Canopy Locked Up?

A conservation easement is a written legal agreement between a nonprofit organization or a governmental agency and a land owner, in which the land owner agrees to restrict future uses of a parcel of land such as removal of trees.

A deed restriction is a legal obligation imposed in a deed by the seller upon the buyer of land to do or not to do something. Such restrictions frequently "run with the land" and are enforceable on subsequent buyers of the property

Payment in Lieu Example

- Total Acreage = 10
- Total Tax value = \$1,000,000
- Tax value per acre = \$100,000

Exceeds
average tax
value per acre
in City, so use
cap value of
\$80,100

PIL Formula

$$\$80,100 \times 10 \text{ acres} \times 15\% = \$12,0150 \text{ fee}$$



Using PIL Funds – Feedback

- Areas To Target
- Existing Canopy vs Open Lands/Tree Planting
- Scoring Systems to Target Viable Properties
- Other Issues to Consider?



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City of Charlotte A City in a Forest

**Donald McSween
City Arborist**

A Managed Forest along City Streets and on Private Property

- **Tree Ordinance
Private Property
and Street Trees**
- **Requires tree
preservation and
planting**
- **Commercial sites**
- **Multi-Family sites**
- **Single Family sub-
divisions**



- **Tree Management**
- **Maintenance of Right of Ways**
- **Landscape Maintenance**
- **CATS Maintenance & Development**
- **Capital Improvement Design**
- **Cemeteries**



Street Tree Maintenance In-House Crews

- **Work Order Pruning**
- **In-House Crews – 5 crews – 14 people**
- **3 Bucket Trucks**
- **2 Conventional Trucks**
- **16-1800 Work Requests Annually**
- **10 week delays in spring and summer**



Street Tree Maintenance In-House Crews

- **Pruning dead limbs out of street trees**
- **Clearing street lights, traffic signals, traffic signs**
- **Clearing sight distance hazards**
- **Emergency On-Call**



Street Tree Maintenance Private Contractors

- **Contracted to Private Tree Companies**
- **Systematic Pruning street by street**
- **Reduces travel time**
- **Most efficient way to prune**



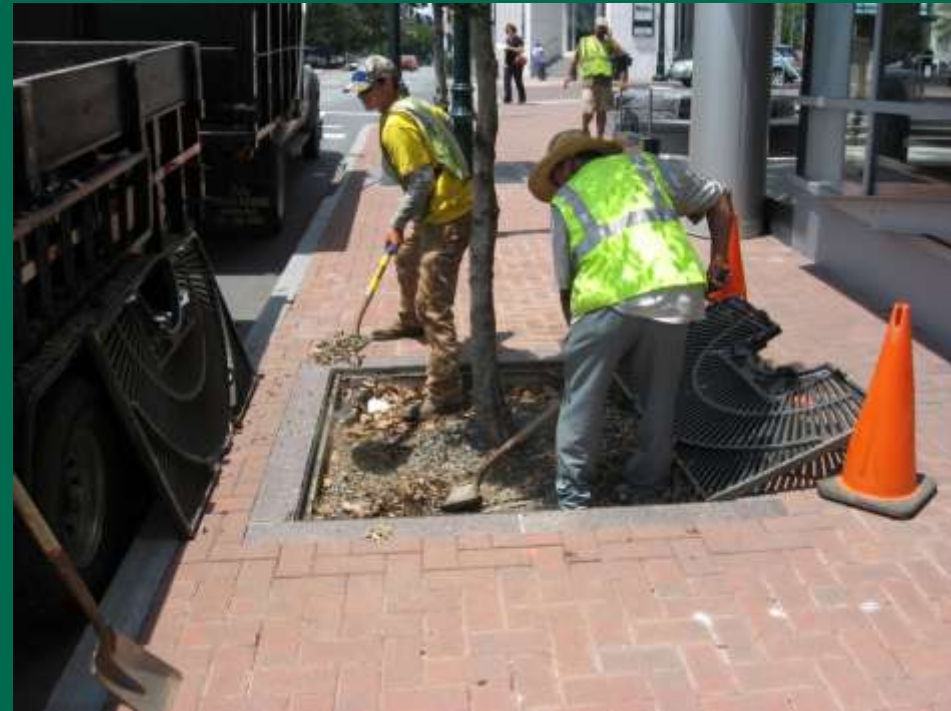
Street Tree Maintenance Private Contractors

- **Removal of 300+ large Street trees annually**
- **Age of Trees**
- **Root rot**
- **Heart rot**
- **Lightning**
- **Unknown damages**



Street Tree Planting

- **Replacement Planting of street trees**
- **1100 street trees planted annually by Tree Management**
- **Purchased from Private Nurseries**
- **Planted by Private Landscape Contractors**
- **Gaining 4,000 new trees per year**



Street Tree Protection Capital Improvement Projects

- **CIP is currently 159**
- **CIP Projects in Neighborhoods – 35 current projects**
- **CIP Projects for Roadways – 42 current projects**
- **Streets Division and CMUD**



Street Tree Protection Private Development

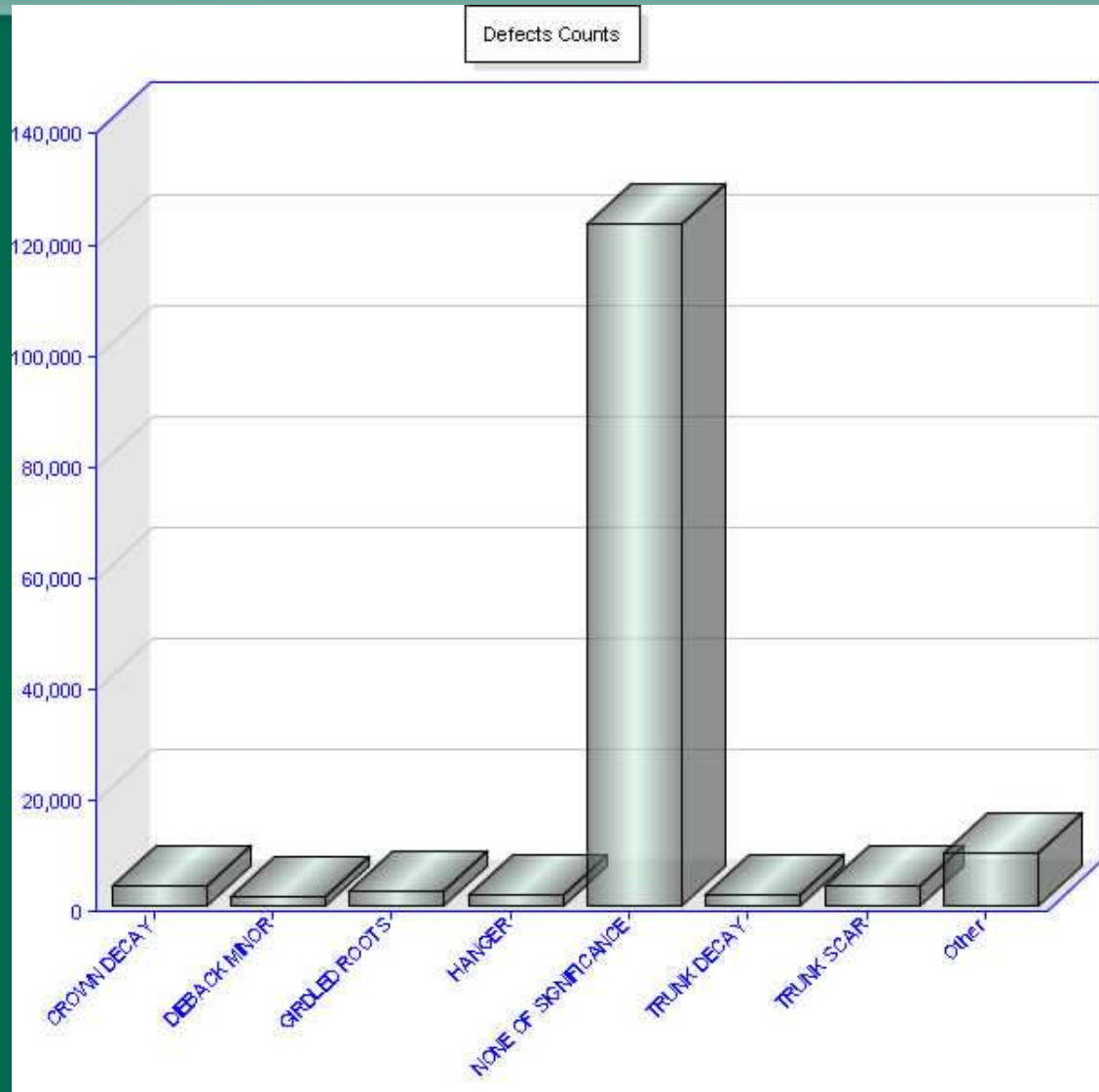
- **311 Private Development Projects**
- **Review plans**
- **Site visits**
- **Urban Design team meetings**
- **Documentation**
- **Construction Inspections**
- **Single Family and Duplex are not reviewed due to staffing**





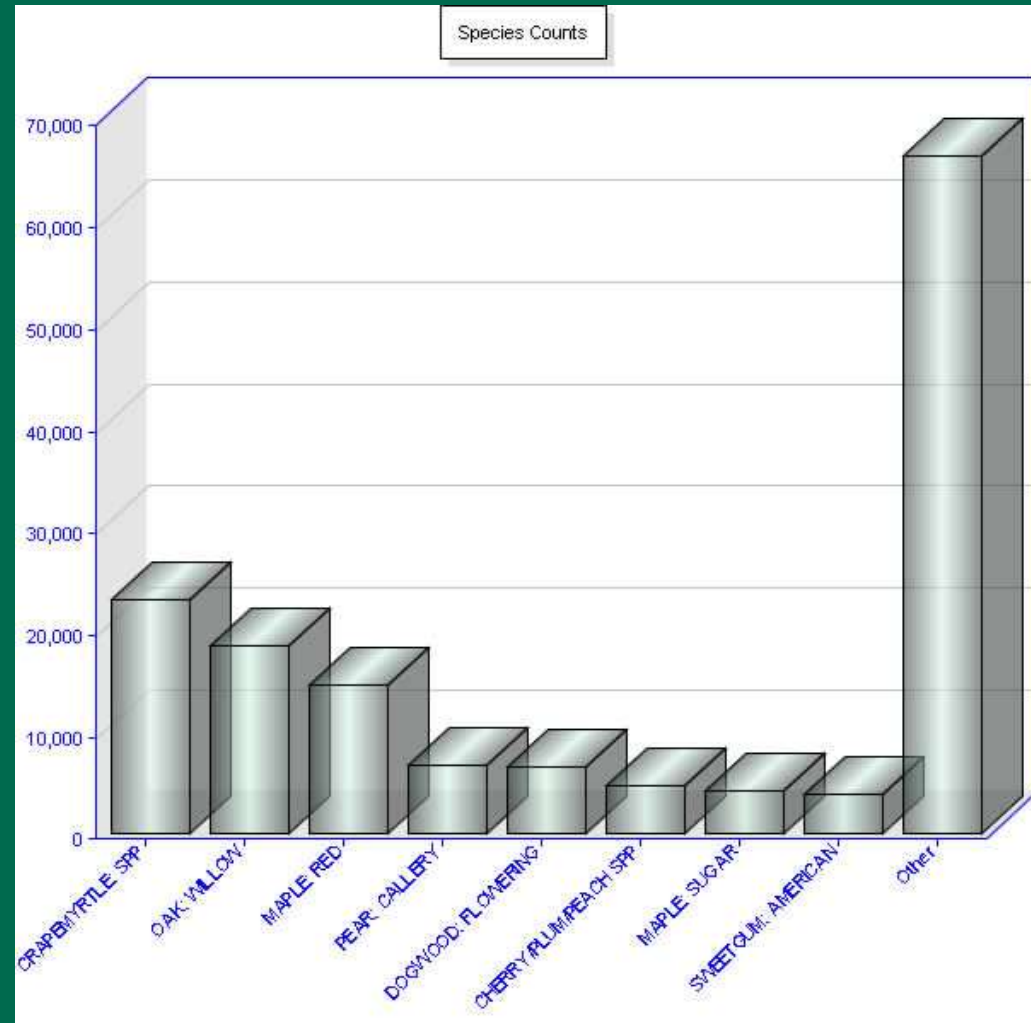
Street Tree Inventory

- **163,000** street trees inventoried (91%)
- **180,000** estimated street trees



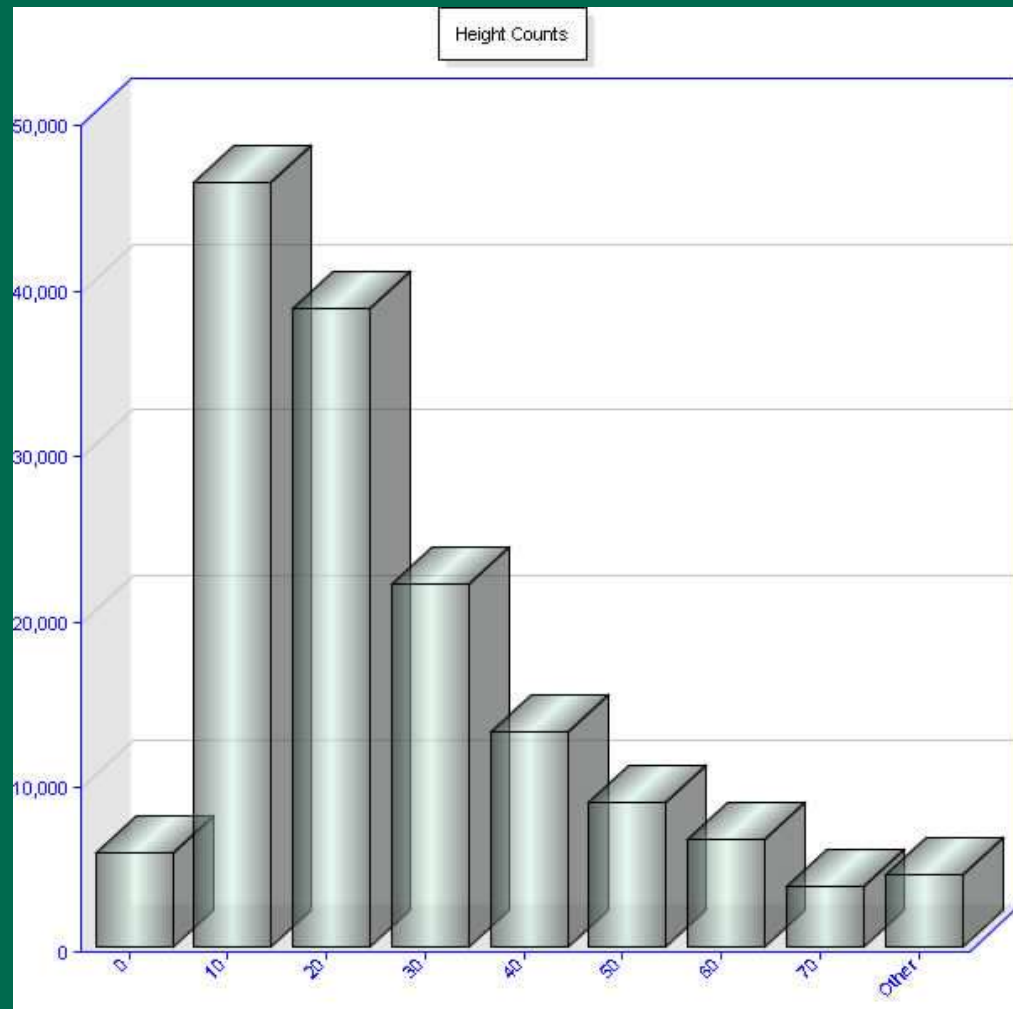
Condition of Street Trees Species Mix

- Highest single species is Crape Myrtle
- Second highest is Willow Oak
- Third highest is Red Maple
- Largest majority are diversified species
- 234 species



Condition of Street Trees Height Distribution

- **85,000 street trees are less than 30 feet tall**
- **92 % of street trees are excellent, good, or fair**



Condition of Street Trees Fall Cankerworm

- **Fall Cankerworm defoliates trees in the early spring**
- **Repeated defoliation leads to high mortality**



Fall Cankerworm

- **90 females/trap is high infestation**
- **3,000 females in some traps in 2013**
- **Current counts in the hundreds**



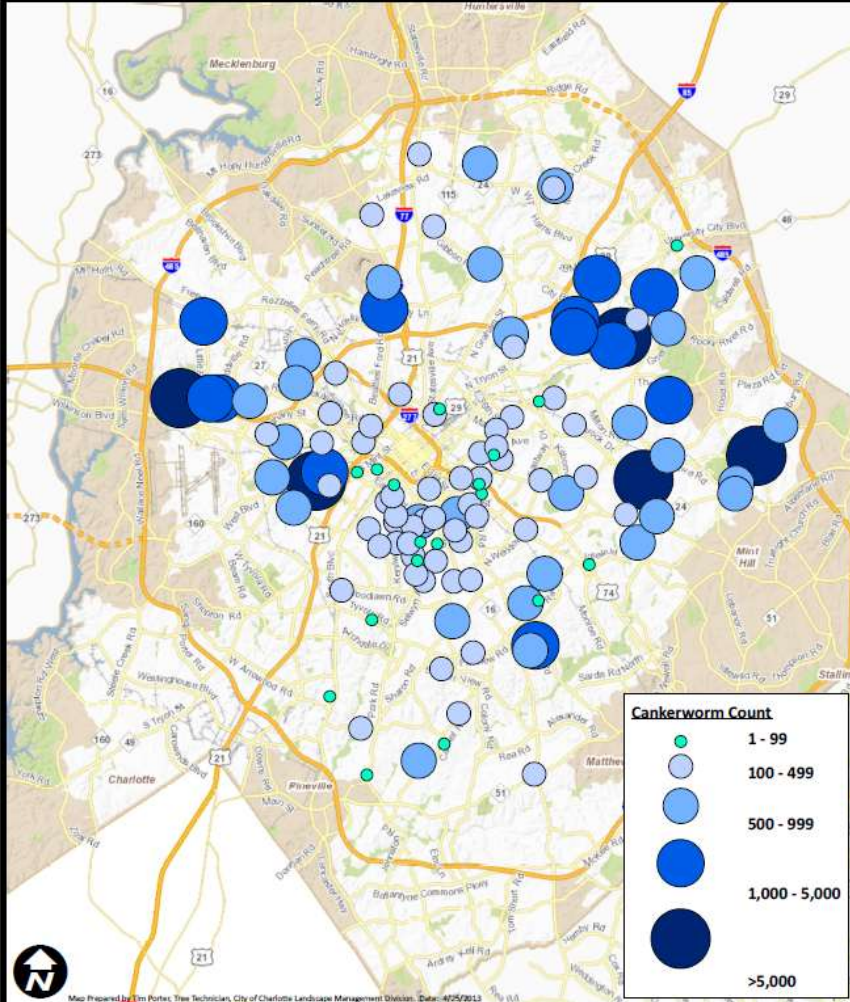


Changing Numbers

2013 Charlotte Cankerworm Monitoring



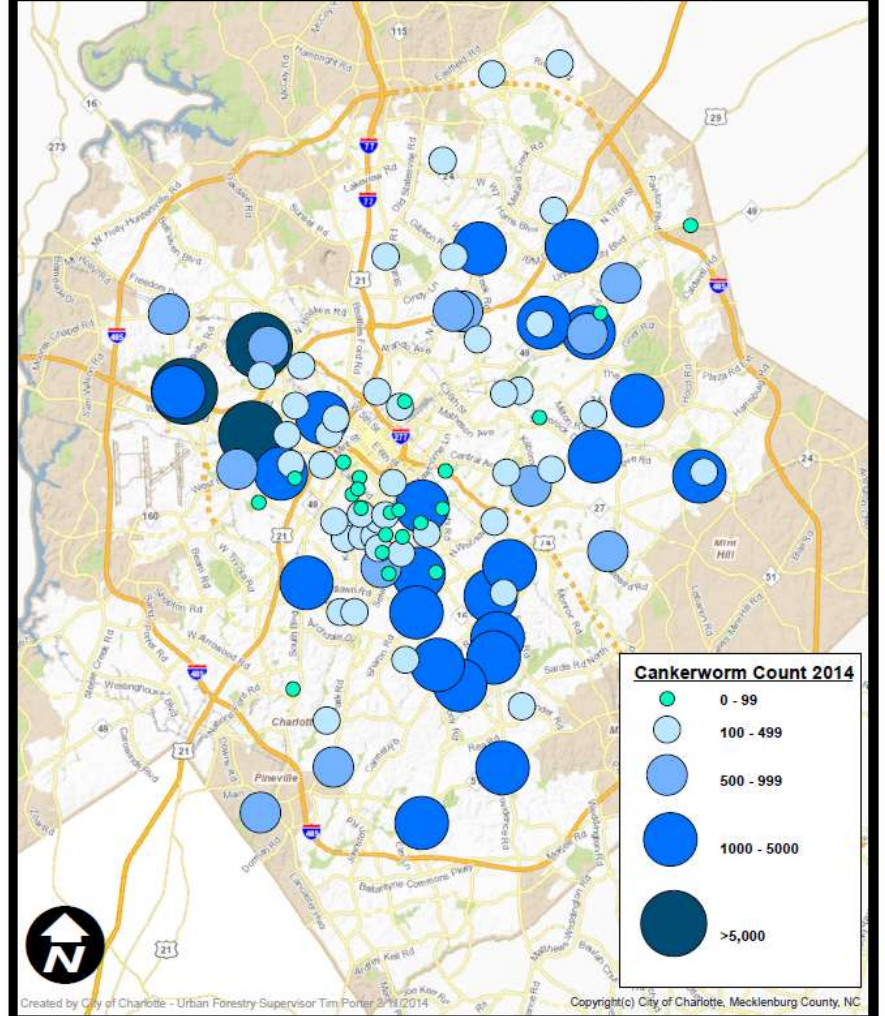
Landscape Management - April 2013



2014 Charlotte Cankerworm Monitoring



Landscape Management - March 2014



- **Trapping**
- **Ground sprays by private arborists**
- **Aerial Sprays**
 - **Based on health of the tree canopy**
 - **Approval of City Manager & City Council**
 - **Approval of EPA, FAA, N.C. Department of Agriculture**
 - **Aerial spray in 2008 of 65,000 acres using Bt cost \$1.5M**



- **Root Rot**
- **Heart Rot**
- **Structural Weakness**
- **Lightning**
- **Mankind**



- **Tree Assessment**
- **Evidence Preparation**
- **Depositions**
- **Court Testimony**



Tree Management Budget Summary

- **Tree Maintenance**
 - **Tree Planting**
 - **Management**
 - **Total** **\$ 3,300,000**
-
- **70% of all work is contracted to private industry**
 - **\$ 4.28 per capita**
 - **\$18.34 per Street Tree**

- **Timeline of Tryon Street Mall**
- **Understanding tree physiology**
- **Designing for success**
- **Designing for Maintenance**
- **Changes Over the Years**
- **Current Challenges**
- **You be the judge**

Timeline for Tryon Street Mall

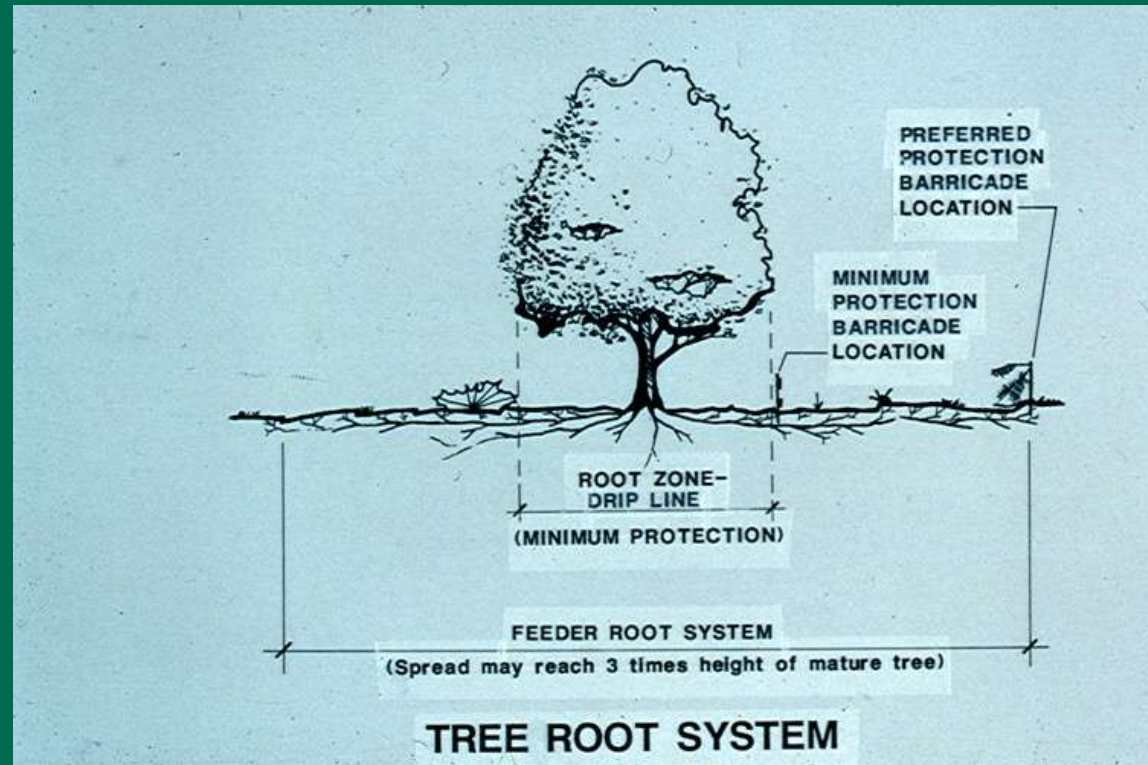
- **1968 Charlotte, N.C.**
- **New planting of Carolina Cherry Laurel**
- **4 foot X 4 foot x 3 foot planters (48 cubic feet)**
- **No water & no drainage**
- **Compaction and pavers**



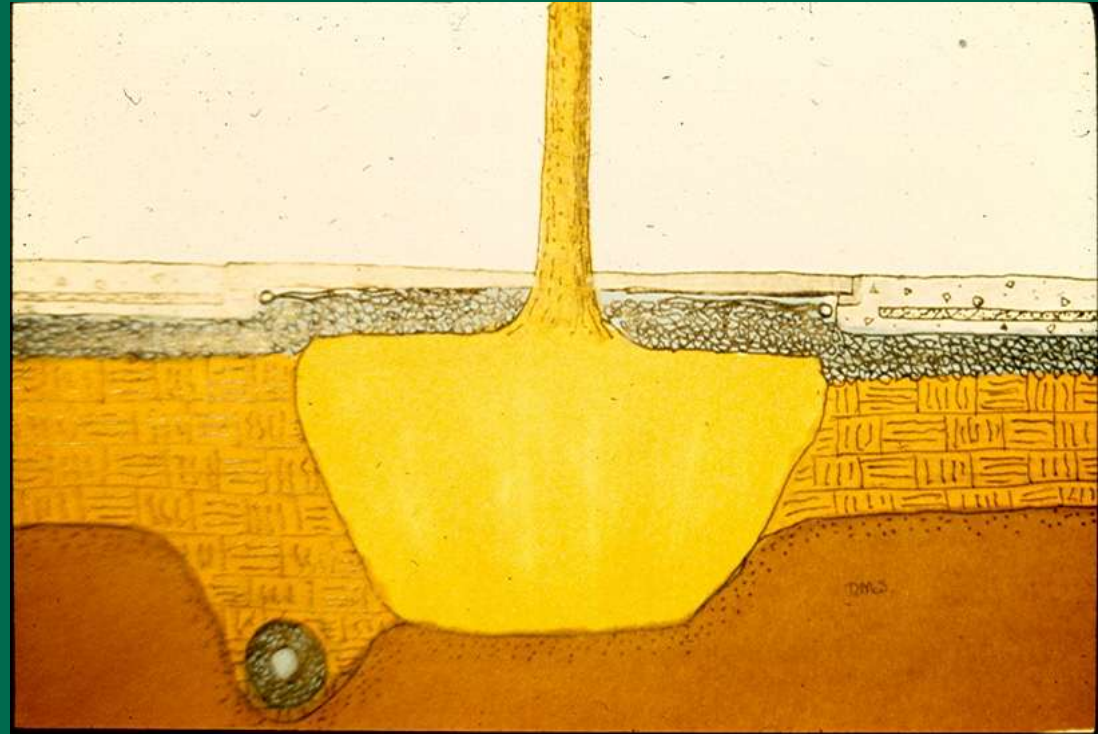
- **City Council wanted Willow Oaks “like Myers Park”**
- **Original design: Five (5) foot circular holes (78 cubic feet)**



- **Wide spread (3x the limb spread)**
- **Naturally shallow in the Piedmont**



- **96 Willow Oaks**
- **3-3.5 and 4-4.5 inch caliper**
- **48 inch root balls**
- **Clay Loam soil**
- **Irrigation**
- **Drainage**
- **Self-supported sidewalks**
- **Aeration**



- Drip irrigation
- Grate removal
- Checking for soil moisture



- Irrigation system
- Tree Grates
- Planter Areas



- **Lecanium Scale**
- **Pruning**



You Be The Judge (before)



You Be The Judge (after)





CHARLOTTE
ENGINEERING & PROPERTY
MANAGEMENT

City of Charlotte A City in a Forest

**Donald McSween
City Arborist**