

City of Charlotte

Urban Tree Canopy



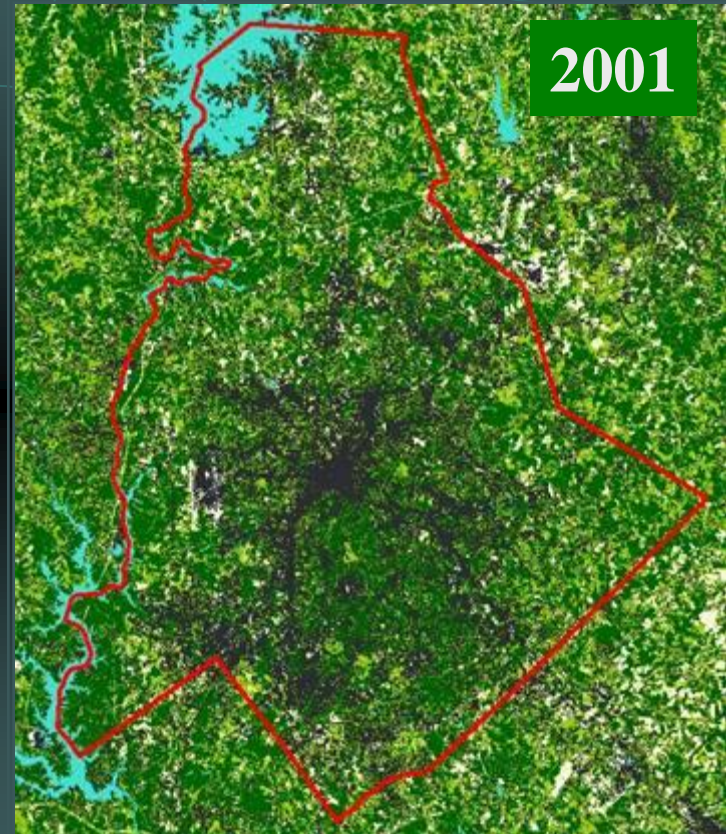
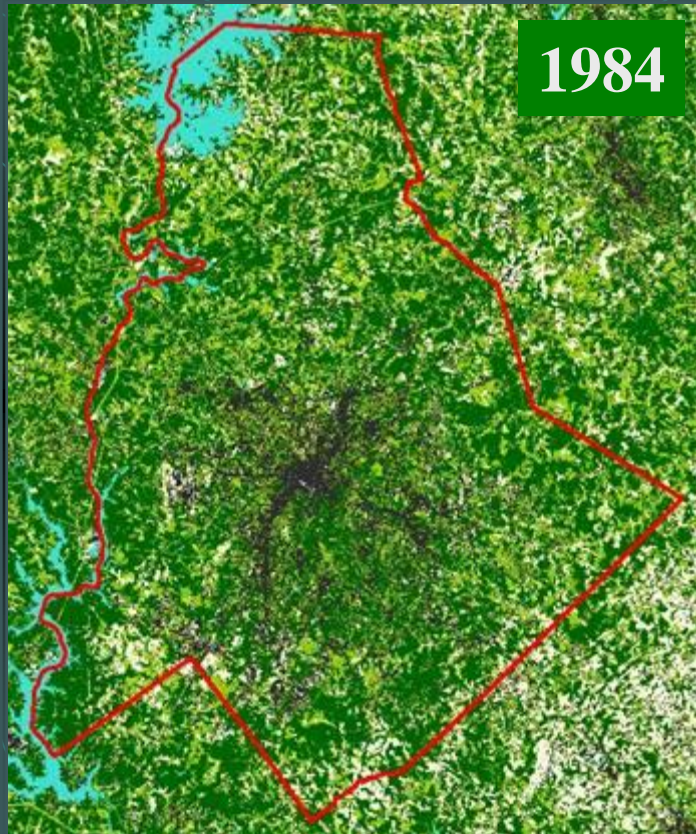
A Little About Charlotte...

- In Mecklenburg County, NC (549 square miles)
- Population of Mecklenburg County is 801,137 and expected to exceed 990,000 by 2010
- Charlotte is the 26th largest city in the US
- 2003 Annual Total Building Permits
 - Residential 15,031
 - Non Residential 3,953
 - Total 18,984



American Forests presented the results of an Urban Ecosystem Analysis for Mecklenburg County in 2003

- Between 1984 and 2001, Mecklenburg County lost 22% tree cover and 22% open space
- Impervious surfaces increased 127%



Charlotte Tree Ordinance

- Adopted in 1978
- Revised in 1987, adding tree preservation requirements to commercial sites
- Revised in 2002, adding requirements for single family subdivisions

Tree Ordinance

Commercial Properties:

- Tree preservation of setbacks - traditionally 20-50 ft wide strip just behind the right of way across front of properties
- Tree planting at a rate of 1 tree/10,000 ft² impervious, perimeter trees along road frontage (existing or new)
- Every parking space within 60 ft of a tree



Tree Ordinance

Single Family Subdivisions:

- Minimum 10% of site must be preserved tree canopy
- Incentive based to encourage saving more than 25% in exchange for density bonuses
- Street trees required on both sides of all streets with 40-50 foot spacing – large maturing shade trees (unless power lines exist)



Challenges for Tree Ordinance

- Increasing amount of Urban development
 - Rezoning suburban to urban
 - More impervious/less green space
- Increasing number of Overlay Districts
 - Transit overlay
 - Pedestrian overlay
 - Rezoning not required
 - More impervious/less green space



Small Scale Analysis

- At final inspection for the CO, protected and new trees will be measured and entered into our CITYgreen application
- The program will grow out the trees and predict canopy cover at 10 and 20 years
- The data collected will give actual examples of what can be expected with the ordinance that we have today



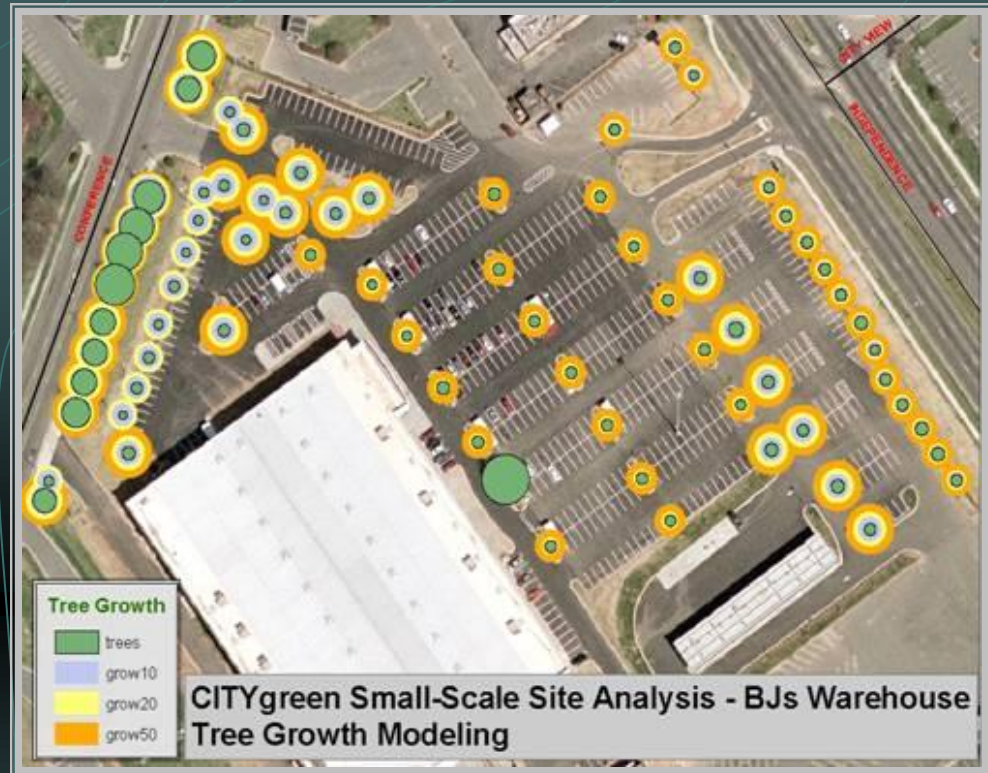
Tree Ordinance Check-up

- CITYgreen analysis performed on this site for 10, 20 and 50 years projection
- Typical drug store – 1.76 ac. site
 - Impervious area – 50,094 sq.ft.
 - Projected tree canopy:
 - 10 yrs – 7%
 - 20 yrs – 9%
 - 50 yrs – 17%



Tree Ordinance Check-up

- Analysis performed on 'big box' store that was redeveloped
 - 8.16 acre site
 - 4% tree canopy
 - 10 years – 7%
 - 20 years – 12%
 - 50 years – 22%



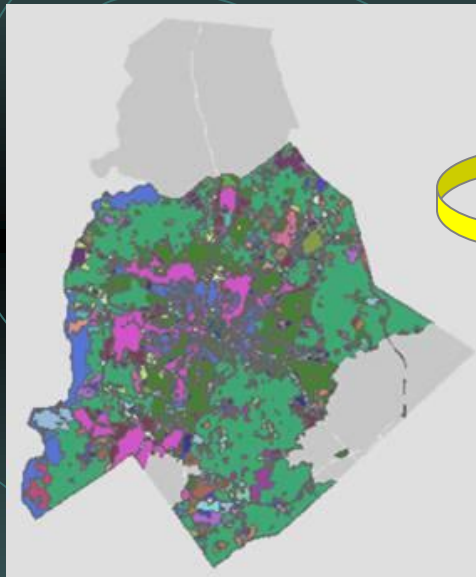
Smart Green-Growth Analysis

- The results of the UEA gave rise to several initiatives regarding plans to maintain, protect and promote new growth in Charlotte's Urban Forest.
- In addition to the small-scale site analyses, a large-scale analysis of Charlotte's "green layer" regarding growth and development projections began in the summer of 2002.
- The objective of this project is to estimate changes to "landcover statistics" as a result of development.

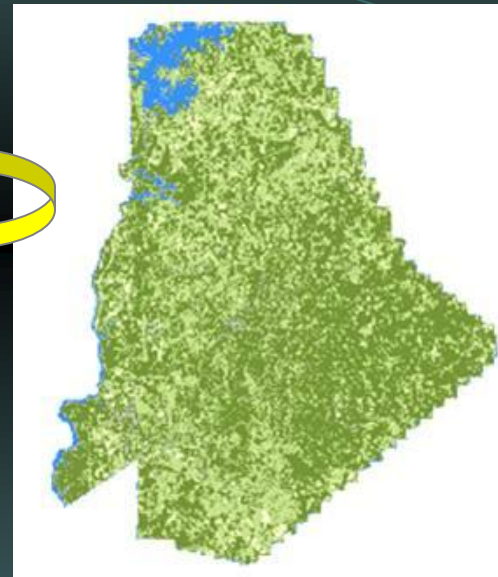
Smart Green-Growth Analysis

The study began by using the CITYgreen software to determine the landcover statistics for developed land in each of Charlotte's Land Use categories.

Land Use Data



Green Data Layer



Smart Green-Growth Analysis

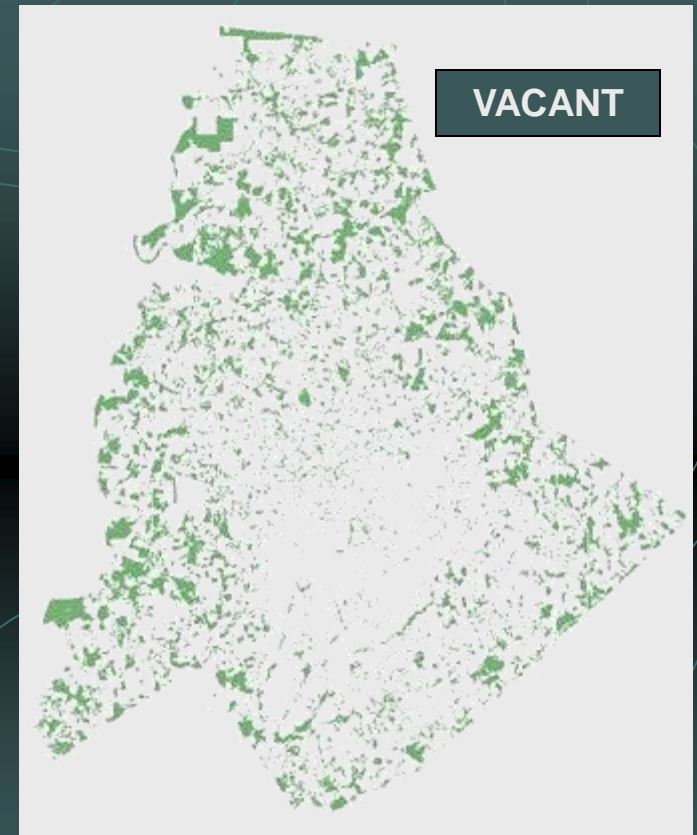
- The land studied in these multiple land use categories was then aggregated into six general land use categories.
- Our “baseline” data is the average tree canopy on **developed** land in each of these categories:

Code	Land Use	Avg Tree Canopy
COM	Commercial	12 %
IND	Industrial	23 %
OFF	Office	35 %
MXU	Mixed Use	21 %
MFM	Multi Family	40 %
SFM	Single Family	53 %

Smart Green-Growth Analysis

- Analyze the **vacant** land in regard to landcover and aggregate to land use categories using Proposed Land Use Data:

Code	Land Use	Avg Tree Canopy
COM	Commercial	40 %
IND	Industrial	41 %
OFF	Office	50 %
MXU	Mixed Use	48 %
MFM	Multi Family	46 %
SFM	Single Family	53 %



Smart Green-Growth Analysis

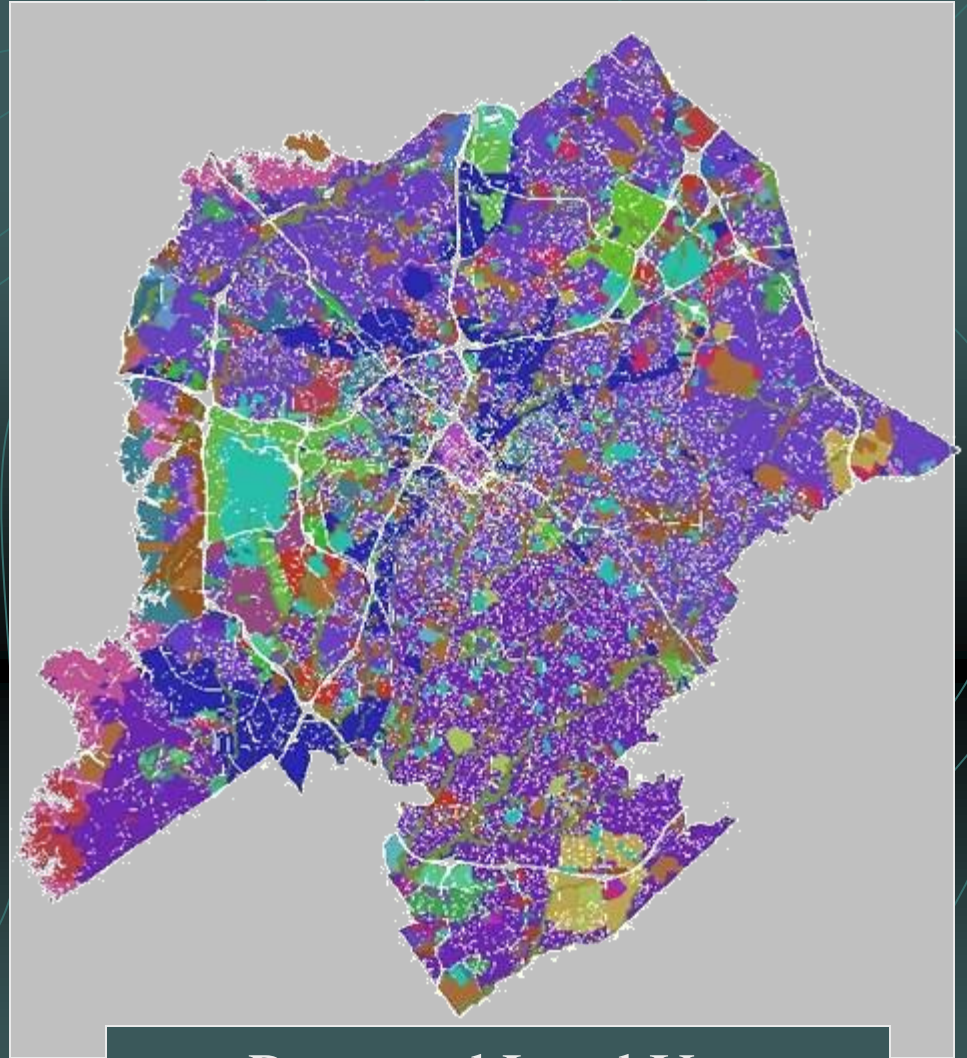
- Note changes to tree canopy in each land use category

Code	Land Use	Tree Canopy Change
COM	Commercial	- 28 %
IND	Industrial	- 18 %
OFF	Office	- 15 %
MXU	Mixed Use	- 27 %
MFM	Multi Family	- 6 %
SFM	Single Family	Nominal

Smart Green-Growth Analysis

Next Steps

- Determine effects of changes on overall tree canopy percentage
- Refine Analysis results in regard to zoning density



Proposed Land Use

In Summary...

The data gathered in both the large-scale and site-by-site analyses will be used to support proposed changes to tree protection measures. Areas to focus on may include:

- Tree Ordinance
- Riparian Buffers
- Greenways
- Tree Preservation Banking

