



# ORDINANCES & DESIGN STANDARDS WORKSHOP

## Designing Effective Tree Ordinances

Presented by:

**Chad Meadows**

919-967-9188

**C L A R I O N**

Alliance for Community Trees

Green Infrastructure Summit

April 21, 2010

# Session Overview

---

- **Legal Considerations**
- **Identifying Basis: Why Save Trees?**
- **Economic Benefits**
- **Elements of an Effective Ordinance**



# LEGAL CONSIDERATIONS: AUTHORITY

---

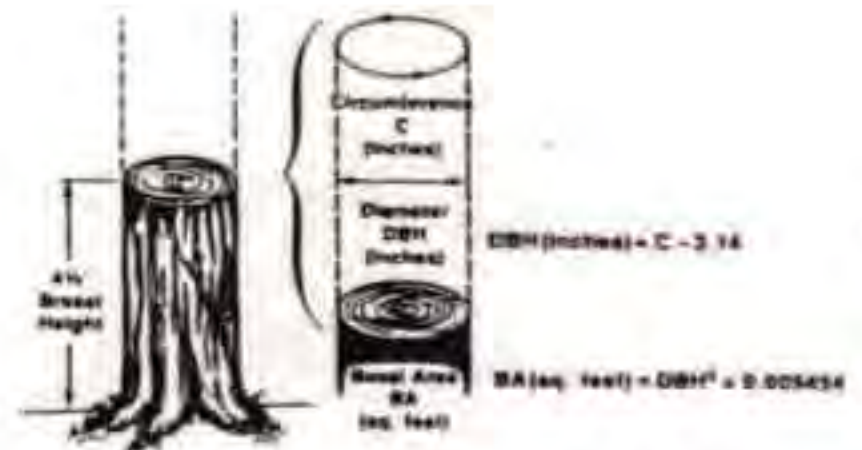
- **ARE YOU AUTHORIZED TO PROTECT TREES?**
  - Courts are Fairly Deferential
    - *State Constitutional Home Rule Powers*
    - *Statutory Home Rule Powers*
    - *Zoning Enabling Legislation*



# LEGAL CONSIDERATIONS: CLEAR STANDARDS TEST

- ARE THE STANDARDS CLEAR AND UNDERSTANDABLE?

- Due Process = Average person does not have to guess at what is being required of them



# LEGAL CONSIDERATIONS: TAKINGS

---

- **FIFTH AMENDMENT: “NOR SHALL PRIVATE PROPERTY BE TAKEN FOR PUBLIC USE WITHOUT JUST COMPENSATION.”**
  - Modern decisions very favorable to local governments if regulations allow a reasonable use of property



# IDENTIFYING BASIS FOR PROTECTION: WHY SAVE TREES?

- ENVIRONMENTAL ISSUES AND SUSTAINABILITY
- ECONOMIC BENEFITS
- COMMUNITY AESTHETICS



# IDENTIFYING BASIS FOR PROTECTION: WHY SAVE TREES?

- **INCORPORATE REASONS INTO ORDINANCE**
- **IDENTIFY WHY THE TREE PROTECTION REGULATION IS BEING ADOPTED**
- **USE MULTIPLE REASONS**



# ECONOMIC BENEFITS OF PROTECTING TREES

- Higher tax revenues
- Energy cost savings
- Ease compliance with federal requirements
- Reduce stormwater management costs
- Reduce street repaving costs
- Collection of fines and fees-in-lieu
- Future sale or banking of carbon offsets



# HIGHER TAX REVENUES

---

- **Healthy, mature trees add between 10 and 23 percent to a property's value – US Forest Service [1]**
- **Rental housing along tree-lined streets rents for higher prices and has lower turnover [2]**
- **Office complexes with high-quality landscapes (including trees) rent for 7% higher rates, on average [3]**
- **Inclusion of trees within retail areas helps attract shoppers who pay 8% to 11% more for goods and services [4]**

# ENERGY COST SAVINGS

- **Mature trees help to reduce air conditioning costs by up to 35% [5]**
- **Helps to remove the need for peak demand facilities**



# COMPLIANCE WITH FEDERAL REQUIREMENTS

---

- **A tree shading a building reduces the production of CO<sub>2</sub> (through reduced energy demands) in an amount equivalent to the total carbon uptake of 15 forest trees [7]**
- **Existing trees in Charlotte, NC remove air pollutants at a rate that would cost approximately \$43.8 million per year to duplicate [6]**



# REDUCE STORMWATER MANAGEMENT COSTS

- **Trees are nonstructural stormwater quality management devices that absorb stormwater**
- **Urban “greening” efforts in D.C. reduced stormwater flows by 10% (1.2 billion gallons) over the 30-year life of the facilities [8]**
- **Public trees in D.C. provide stormwater management savings of \$3.7 million, annually [9]**
- **Retention of existing trees in Charlotte, NC saved the city over \$1.47 billion in stormwater management infrastructure [10]**



# REDUCE STREET RE-PAVING COSTS

- **Shaded streets require less maintenance and can save up to 60% of repaving costs over 30 years [11]**



# COLLECTION OF FINES AND FEES

- **Fines from tree-removal violations and payment of fees-in-lieu of tree retention can be used to defray public tree purchase costs**



## **SALE OR BANKING OF CARBON OFFSETS**

---

- **American Clean Energy and Security Act of 2009 calls for a mandatory cap and trade system with enhanced development of carbon capture/ sequestration**
- ***Regional Greenhouse Gas Initiative: 10-state regional effort in New England to lessen greenhouse gas emissions, along with nation's first cap and trade system for electric utilities***
- **This kind of system sets the stage for the use of tree preservation as an offset to greenhouse gas production that could be banked or sold**

# ELEMENTS OF AN EFFECTIVE TREE PROTECTION ORDINANCE

---

- **FINDINGS/PURPOSE**      Why Save Trees?
- **APPLICABILITY**      Define what type of trees/sizes are protected
- **PROCEDURE**      How are development proposals reviewed?
- **STANDARDS**      What are the minimum requirements?
- **INCENTIVES**      Reasons to save more trees than the minimum?
- **PROTECTION**      Protect before and during construction
- **MITIGATION**      What happens when removal is unavoidable?
- **ENFORCEMENT**      What happens when trees aren't protected?

# TIMING

---

- **Clear Cutting prior to Development**
- **Tree Protection During Construction**
- **Upon Completion of Development**
- **Long Term Operation**



# APPROACHES

---

- **Mandatory**
- **Mandatory, Where Feasible**
- **Voluntary**
- **Incentive-Based**
- **Blended**



# **FUNCTIONS**

- **Existing Canopy Retention**
- **Retention of Specimen/  
Landmark Trees**
- **Reforestation**
- **Blended**



# CANOPY RETENTION STANDARDS

- Requires retaining a percentage of the existing tree canopy during and after development
- Establishes a “Tree Protection Zone”
- Retention in Priority Areas

TABLE 5-2: TREE CANOPY RETENTION STANDARDS

Existing Tree Canopy Cover (as a percentage of the total site size)	Minimum Required Tree Canopy Retention by Zoning District [1] (as a percentage of the total tree canopy cover)		
	AG, ER, R-1, R-2, R-3, R-6, RX, & OR	GO, NC, CC, GC, MN, ML, MR, & CI	LI & HI
	80% - 100%	30%	15%
60% - 79%	36%	18%	13%
40% - 59%	45%	22%	14%
20% - 39%	48%	24%	15%
19% or less	54%	26%	16%



# SPECIMEN/HERITAGE TREES

- Prohibits removal of Specimen/ Heritage Trees except in isolated cases
- Establishes minimum size thresholds (for canopy and understory trees)
- Applied to all public and private lands
- Protects critical root zone
- Accelerated mitigation for removal



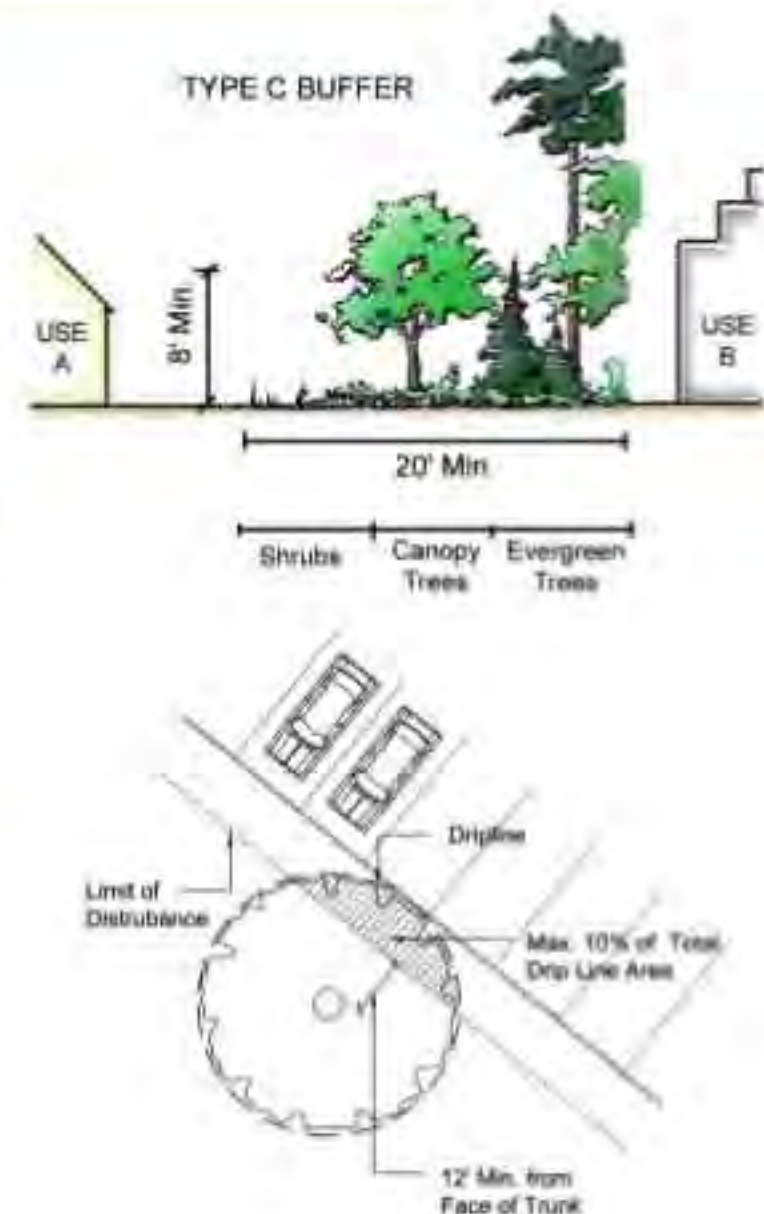
# REFORESTATION

---

- Strongly encourage retaining canopy, but allows for removal and replacement
- Establish a “Tree Protection Zone” for reforested areas
- Key to reforestation standards are number, type, and size of replacement trees

# INCENTIVES FOR ACCELERATED PROTECTION/RETENTION

- Accelerated credit towards landscaping requirements
- Ability to reduce setbacks or required yards to retain trees
- Ability to reduce parking requirements to protect root zones



# MITIGATION – WHEN TREES MUST BE REMOVED

- Replacement Tree Requirements
  - Accidental versus intentional
  - Scaled according to sizes removed
  - Location requirements
- Off-site Planting
- Performance Guarantees
- Tree Banks



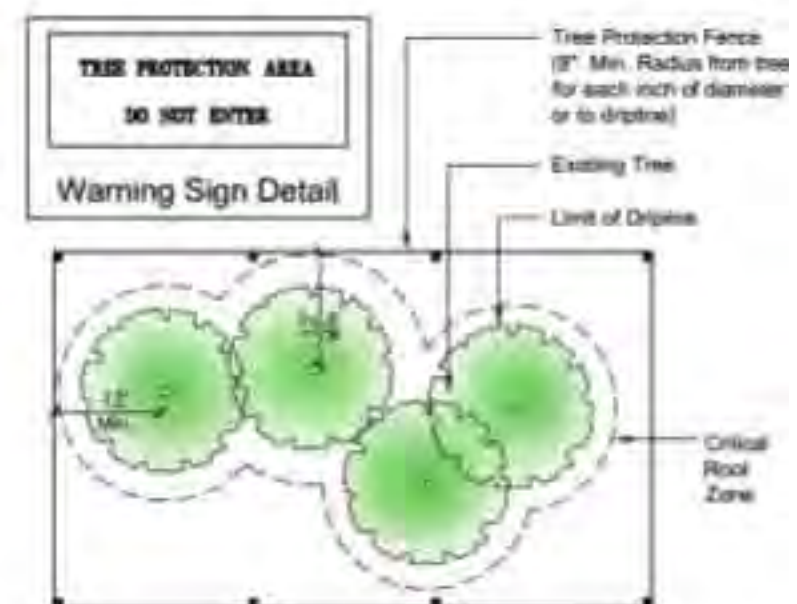
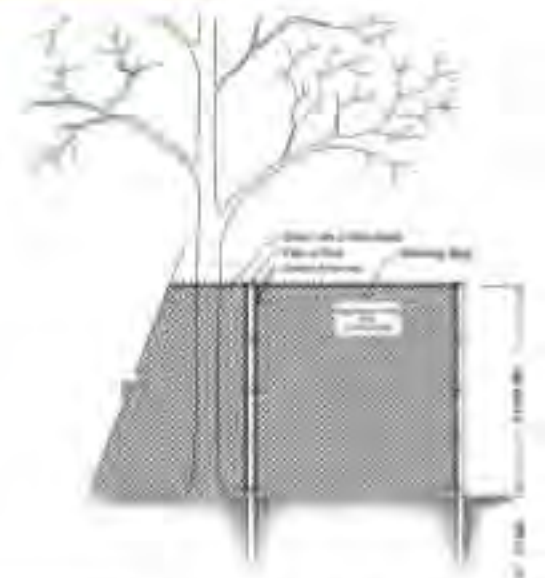
# TREE PROTECTION DURING CONSTRUCTION

- Fencing
- Inspection
- Limits of Disturbance



# ENFORCEMENT

- Inspection of Tree Protection Measures –before permit issuance
- Distinguish between accidental versus intentional damage/removal
- Mitigation and punitive responses needed
- Inspection after one year



# HALLMARKS OF AN EFFECTIVE ORDINANCE

- Predictability
- Consistency
- Flexibility



## **HALLMARKS OF AN EFFECTIVE ORDINANCE - PREDICTABILITY**

---

- **Plain English**
- **Clear Purpose & Intent**
- **Applicability/Exemptions Specified**
- **Voluntary vs. Mandatory Compliance**
- **Clear, Logical Procedure**
- **Clear Standards**
- **Enforcement Regimen**
- **Discussion of Violations**

## **HALLMARKS OF AN EFFECTIVE ORDINANCE - CONSISTENCY**

---

- **With Policy Guidance**
- **With Political Realities**
- **With Other Development Standards**
- **With Enforcement Capacity**
- **With Natural Conditions**

# HALLMARKS OF AN EFFECTIVE ORDINANCE - FLEXIBILITY

- **Alternative Forms of Compliance**
- **Mitigation Standards**
- **Incentives**



**Questions?**



# Notes:

1. USDA Forest Service. "A Technical Guide to urban Community Forestry: Urban and Community Forestry: Improving Our Quality of Life." <http://www.na.fs.fed.us/Spfo/pubs/uf/techguide/toc.htm>. 1993.
2. Ross, Jaime. "Forging Alliances between Environmental and Affordable Housing Interests." May 1, 2002.
3. Laverne and Winson-Geideman, Robert J. and Kimberly. "The Influence of Trees and Landscaping on Rental Rates at Office Buildings." *Journal of Arboriculture* 29(5). September 2003.
4. Wolf, Kathleen. "Public Response to the Urban Forest in Inner-City Business Districts." *Journal of Arboriculture* 29(3). May 2003.
5. Duerksen, Christopher & Richman, Suzanne. "Tree Conservation Ordinances: Land Use Regulations Go Green." *Planning Advisory Report* 446. 1993.
6. USDA Forest Service & American Forests. "Urban Ecosystem Analysis: Mecklenburg County, North Carolina." [http://www.americanforests.org/downloads/rea/AF\\_Charlotte.pdf](http://www.americanforests.org/downloads/rea/AF_Charlotte.pdf). 2003.
7. National Arbor Day Foundation
8. Deutsh, Barbara et al. "The green Bull-Out Model: Quantifying the Stormwater Management benefits of Trees and Green Roofs in Washington, D.C." May 15, 2007.
9. [www.urbanforestcoalition.org](http://www.urbanforestcoalition.org)
10. USDA Forest Service & American Forests. "Urban Ecosystem Analysis: Mecklenburg County, North Carolina." [http://www.americanforests.org/downloads/rea/AF\\_Charlotte.pdf](http://www.americanforests.org/downloads/rea/AF_Charlotte.pdf). 2003.
11. McPherson, G. and Muchnick, J. "Effects of Street Tree Shade on Asphalt and Concrete Pavement." *Journal of Arboriculture* 31(6). November 2005