

Certified Arborist Prep Course

Chapter 14 Urban Forestry

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Urban Forestry

Management of
naturally occurring
and planted trees
and associated
plants in urban areas



Arboriculture

Practice and study of trees and other woody plants in the landscape

What is the difference?

- Arboriculture – focuses on the tree
- Urban Forestry – focuses on the “forest”, or larger populations of trees in urban areas



Urban Forestry & Arboriculture

- The two cross into each practice on a regular basis
- Certified arborists will use both arboricultural knowledge and urban forestry knowledge no matter the job title

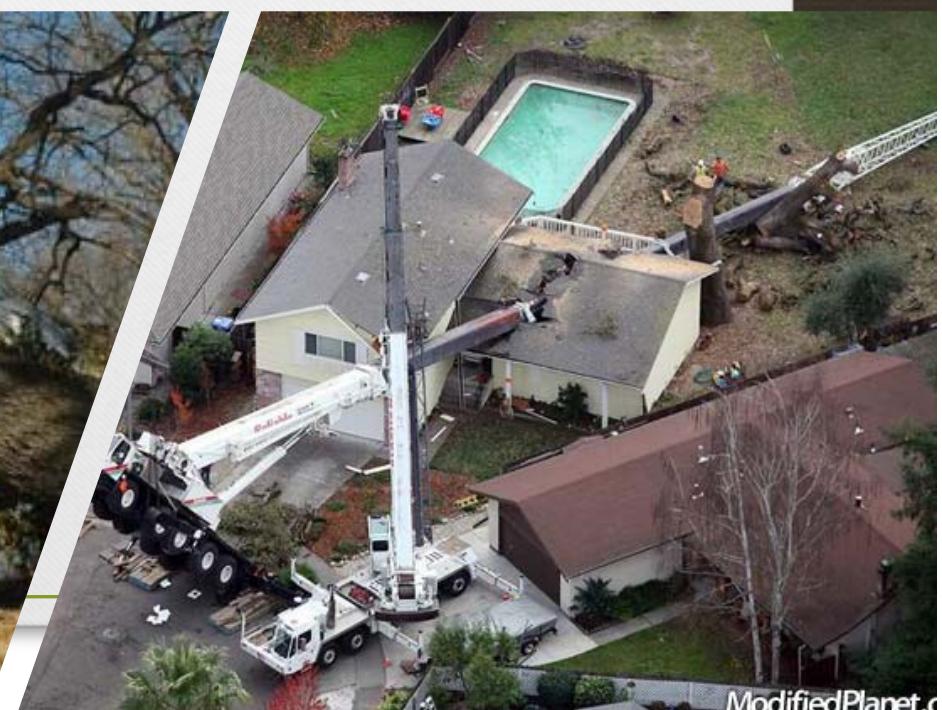


Urban Forestry Outline

- Costs & Benefits of trees
- Valuation & Appraisal of urban trees
- Planning
- Tree Inventory
- Risk Management
- Tree Ordinance
- Urban Forest Management
- Wildlife

Cost Vs. Benefits

- Costs
- -Planting, Maintaining, Managing
- Benefits
- -environmental improvements, aesthetic enhancements, economic savings, and social benefits
- ****Although urban trees are assets, when not managed properly, they can become liability

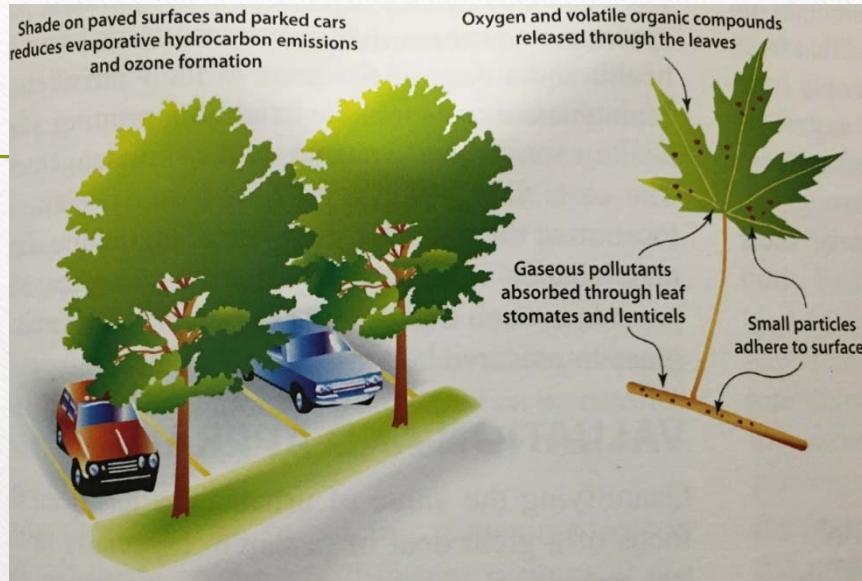




Environmental Benefits

- Improve air quality
- Sequester carbon, reducing greenhouse effect
- Cool the air through evapotranspiration
- Conserve energy by protecting surroundings from sun and wind
- Reduce stormwater runoff and soil erosion
- Provide habitat for wildlife

Improve Air Quality



Trees collect particulate pollutants on their foliage

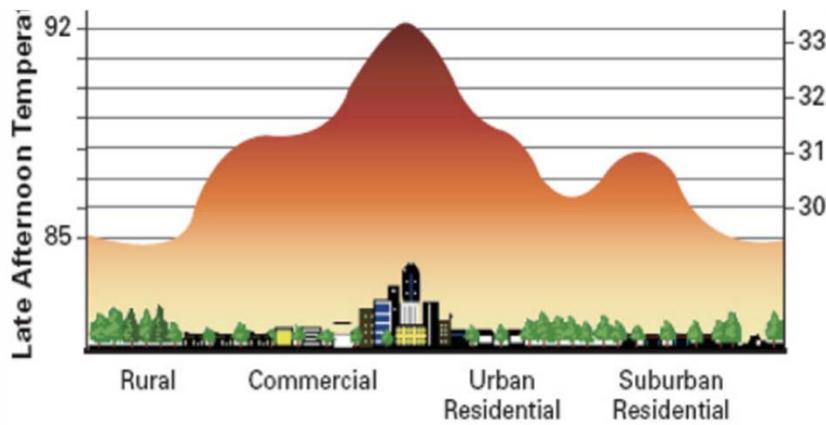
By cooling heat islands, they can also reduce ozone

Carbon Sequestration and Storage

- As they grow, trees take up carbon from CO₂ and store it in form of wood and other tissues.
- Greenhouse Effect _ Carbon in atmosphere has reached levels that trap heat produced by sun
- Some of carbon is returned to atmosphere when trees die or are removed



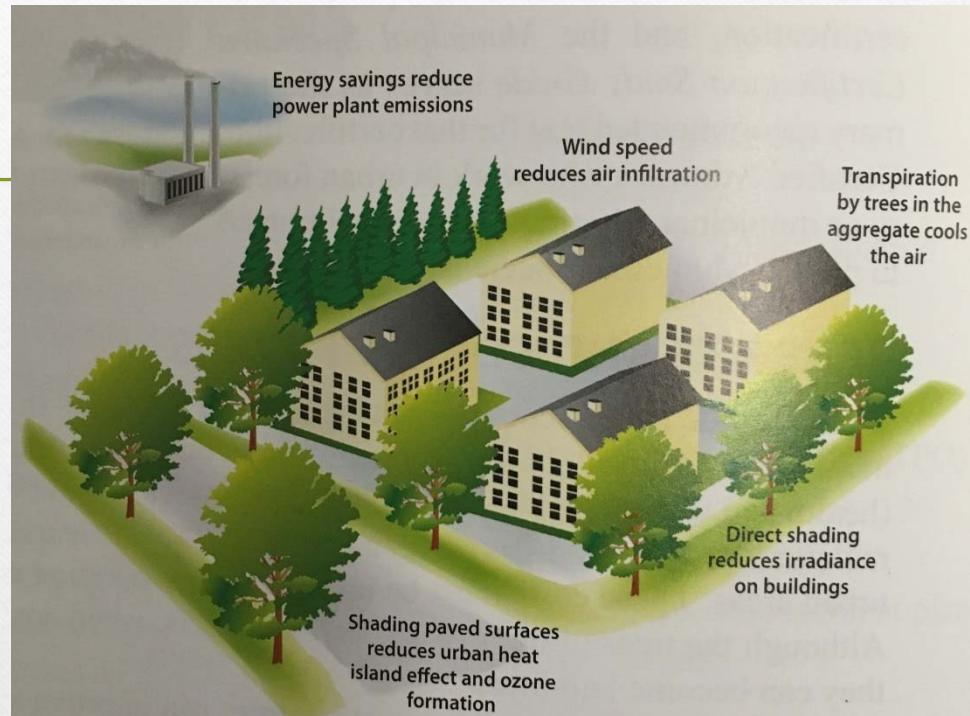
Cool Air



- Trees reduce temperatures by...
 - -shading the ground
 - -transpiration through leaves
- Heat Island Effect

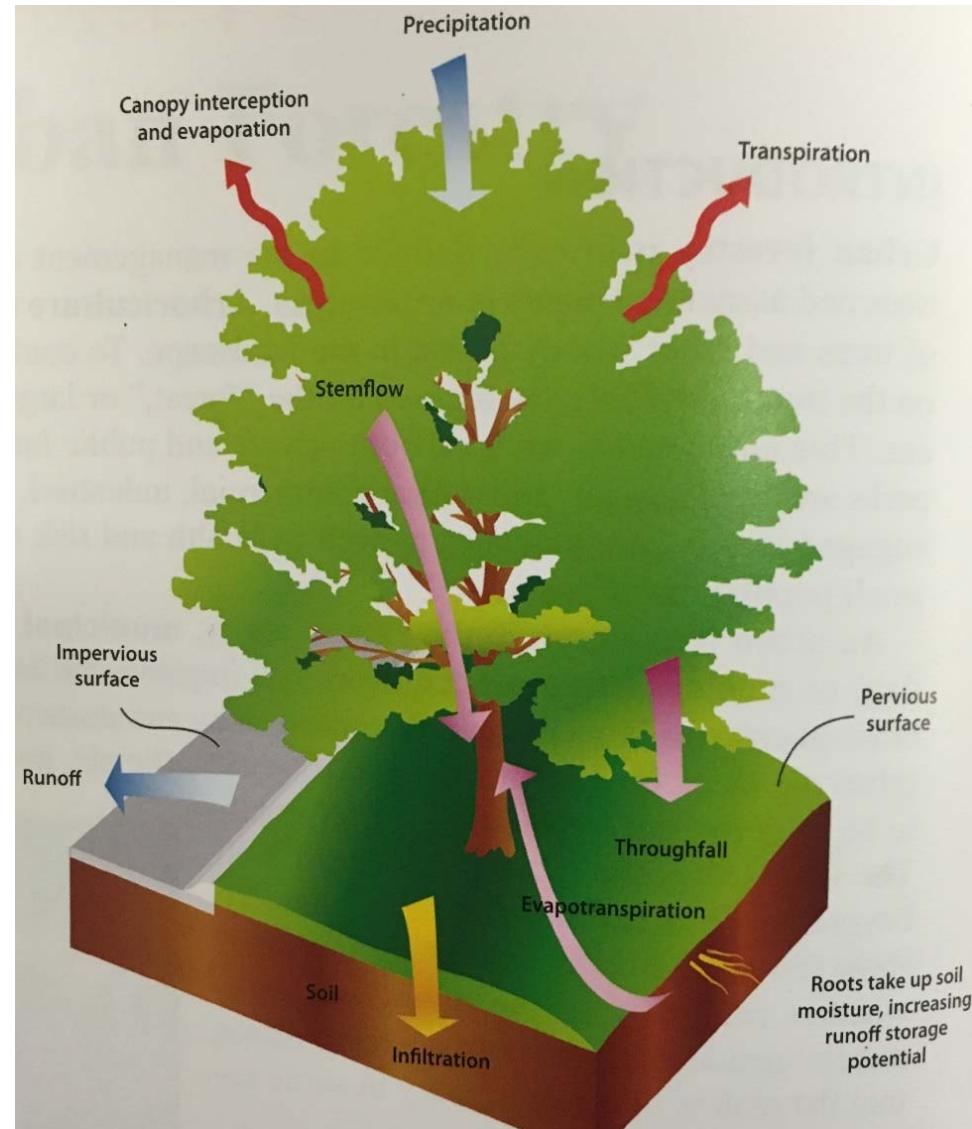
Energy Conservation

By shading buildings and blocking wind, trees reduce energy needs

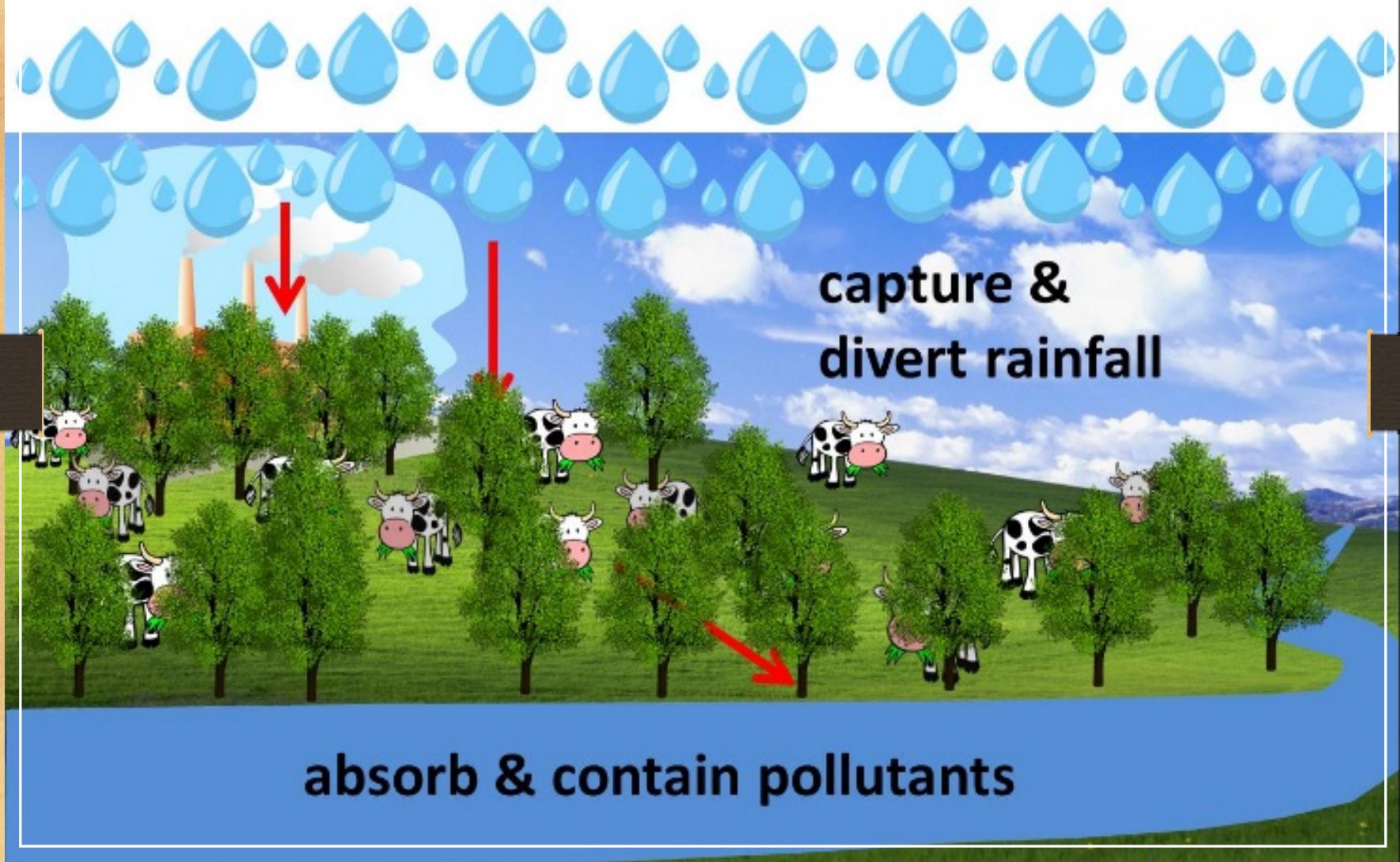


Reduce Runoff and Surface Erosion

- Intercept rainfall, lowering kinetic energy
- Increase infiltration which decreases surface runoff (lowering erosion potential)
- Absorption reduces amount of water wasted through runoff



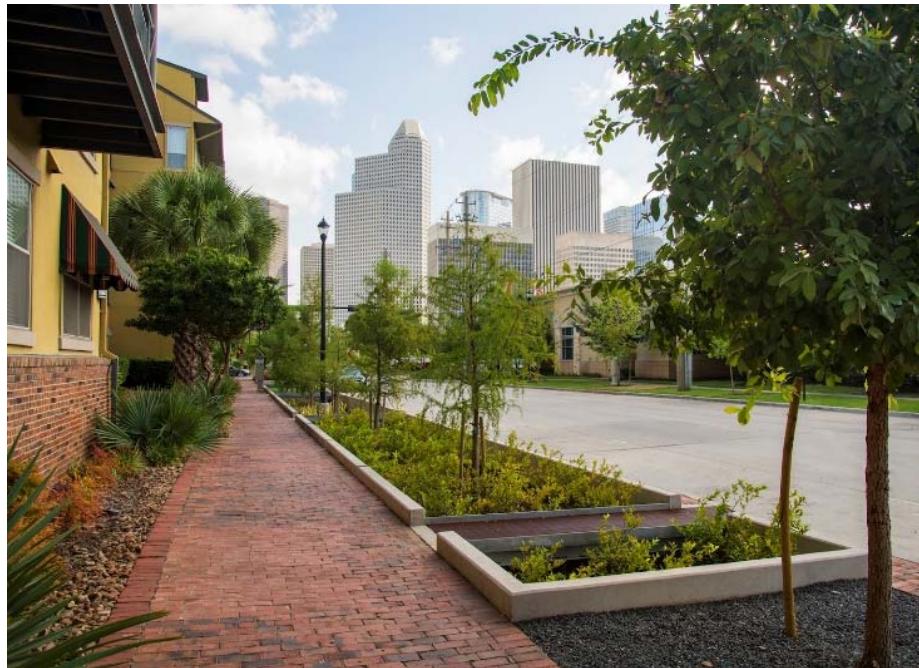
How do Trees Improve Water & Soil Quality?



Aesthetic Benefits

- Beautification
- Screen Unwanted Views





Economic Benefits

- Increase property values
- Attract visitors, businesses, and new residents
- Increase rental of apartments and offices
- Encourage shoppers to linger
- Defer maintenance on materials that are degraded by heat (i.e. pavement)

Increase Property Values

- Realtors, when asked to estimate market value, rate homes on wooded lots at 7% higher
- Predictive modeling shows trees on average add 19% to total value of home
- Assessors valued land at 27% more for wooded parcels







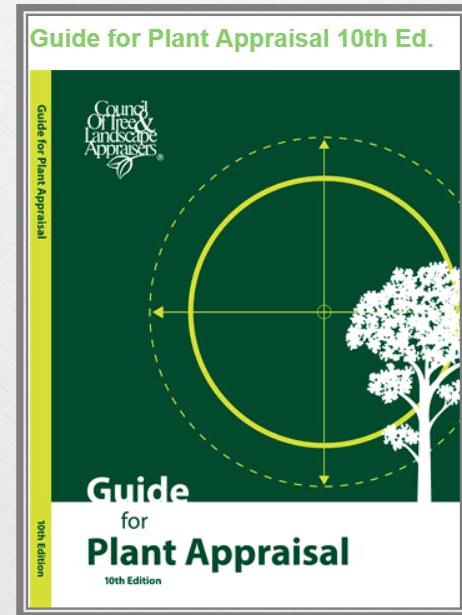
Reduce Maintenance

Psychological & Social Benefits

- Reduce stress and mental fatigue
- Enhance mental health
- Enhance recuperation rates
- Reduce psychological precursors to crime
- Enhance community pride
- Heal and restore communities
- Increase recreational opportunities

Valuation & Appraisal

- NOT TIMBER VALUE
- Quantifying value of urban trees is analyzed a variety of ways and consistency varies across area
- Professional Tree and Plant Appraisers are guided by the Council of Tree and Landscape Appraisers – Guide for Plant Appraisal, 10th Edition
- Value of tree and value of benefits



i- Tree

- USDA Forest Service
- Public Domain software and online applications based on peer reviewed research.
- Set of assessment and management tools that can calculate collective cost-benefit analyses for populations of trees based on inventory and management approaches



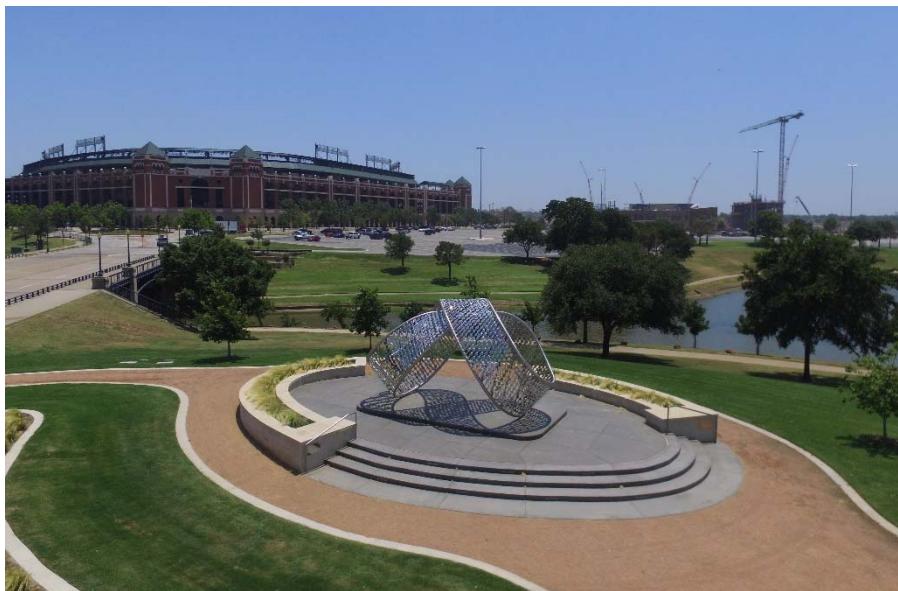
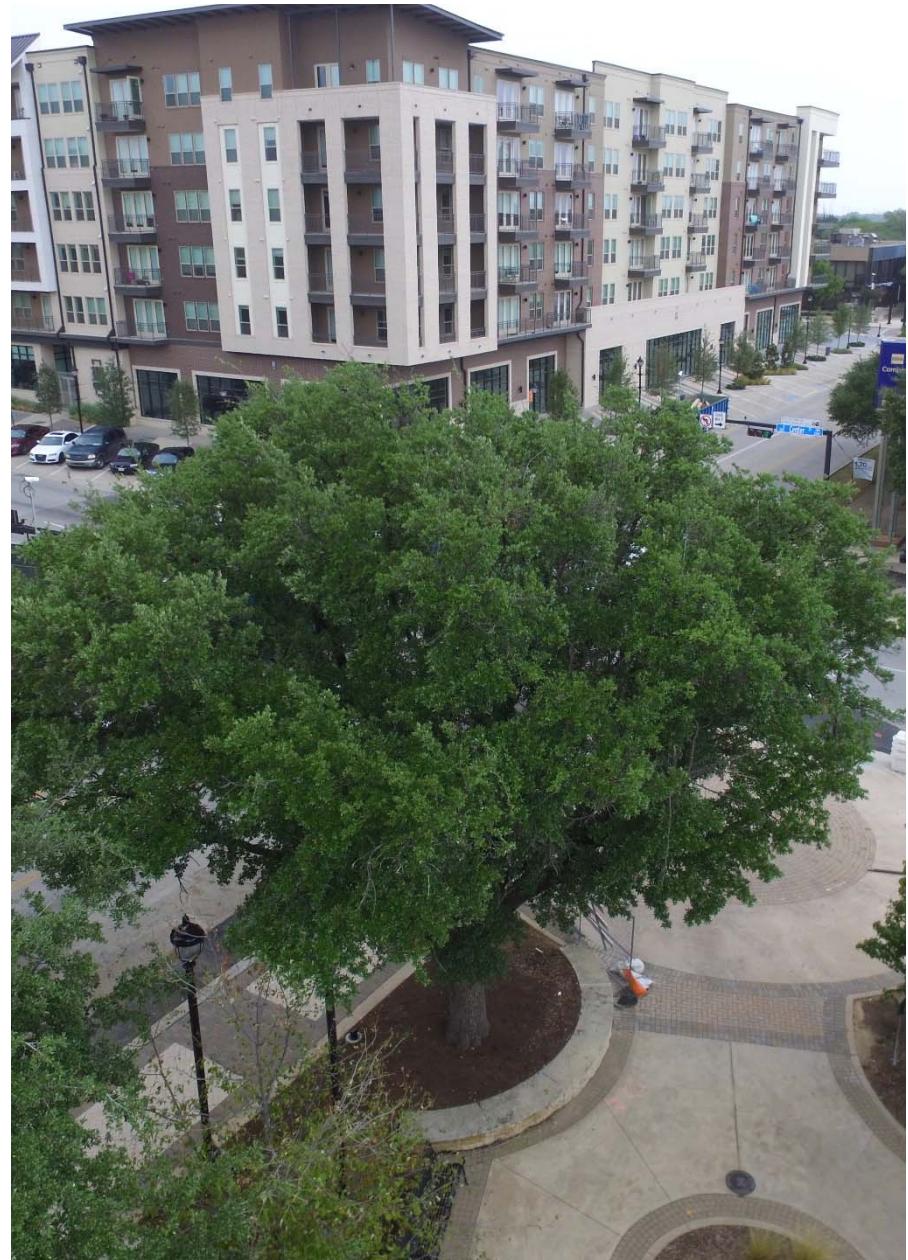
Tree Appraisal

• Council of Tree & Landscape Appraisers

- Several different approaches to appraisal projects – determined by problem.
 - Trunk Formula Method
 - Replacement Cost
 - Cost of Cure
- Factors – Tree Size, Species, Condition, Location
- Professional Qualification (TPAQ) lead by ASCA

Urban Planning

- City planners, Engineers, Landscape Architects, Contractors
- Learn to communicate – different knowledge base
- Simple terminology
- Be able to convey spacing needs (above and below ground)
- Green vs. Gray infrastructure
- Sustainable forestry





Sustainable Forestry

- Value of newly planted trees versus mature trees and the means to reach maturity
- Mimic natural environments
- Right Tree, Right Place
- Tree preservation similar to newly planted tree requirements

Inventories

- Tree Inventory- Record of the location, characteristics, and assessment of individual trees and stands over a well defined area
- Databased with notes that can be updated