The scope of Urban Foresters and Arborists has evolved into so much more than just trees. We must know how to work with others, be able to convey our needs, and balance that with the needs of other departments.
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1. Benefits and Costs of Trees
2. Appraisal and Valuation
3. Planning
4. Regulatory and Legal Issues
5. Management
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Benefits of Trees

- What are 3 environmental benefits of trees?
- Improve air quality
- Sequester carbon
- Conserve energy (shade, wind protection)
- Cool air
- Provide habitat for wildlife
What are 3 economic benefits of trees?
- Increase property value
- Attract visitors
- Defer maintenance on hard scape
Appraisal and Valuation

- How much is this tree worth?
- Trunk Formula Method
- CTLA-10th edition
- Council of Tree and Landscape Appraisers
Value = Basic Tree Cost x Species Rating % x Condition Rating % x Location Rating %

A 10" diameter Sugar Maple, excellent health and form, specimen tree in a city park.
- I-TREE
- STRATUM- $ amounts for energy, air quality, CO2 reductions etc.
- UFORE- Urban Forest Effects; pollution and carbon sequestration
Environmental Improvement

- Aesthetics
- Tree Benefits
- Planning the Urban Forest
- Protecting the Urban Forest
- Quantify the Resource
Regulatory and Legal Issues

Documentation
Risk Management

- A risk management plan
- Pruning rotation
- Tree inspection
- Inventory
Public Safety

- Manage tree risk- Target and object
- Tree Maintenance- 5 year pruning rotation
- Emergency Response- What is your plan
Tree Risk Management

- Hazard trees. Is there a target?
- Dead or Broken limbs
- Tree/infrastructure conflicts
- Managing effect of exotic species – E.A.B., DED
- Tree risk certification
### ISA Basic Tree Risk Assessment Form

**Client**

**Address/Tree location**

**Tree species**

**Assessor(s)**

**Date**

**Time**

**Sheet of**

**Tree no.**

**dbh**

**Height**

**Crown spread dia.**

**Time frame**

**Tools used**

#### Target Assessment

<table>
<thead>
<tr>
<th>Target number</th>
<th>Target description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
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<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

#### Site Factors

<table>
<thead>
<tr>
<th>History of failures</th>
<th>Topography</th>
<th>Flat</th>
<th>Slope</th>
<th>% Aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site changes</td>
<td>None</td>
<td>Grade change</td>
<td>Site clearing</td>
<td>Changed soil hydrology</td>
</tr>
<tr>
<td>Soil conditions</td>
<td>Limited volume</td>
<td>Saturated</td>
<td>Shallow</td>
<td>Compacted</td>
</tr>
<tr>
<td>Prevailing wind direction</td>
<td>Common weather</td>
<td>Strong winds</td>
<td>Ice</td>
<td>Snow</td>
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</tbody>
</table>

#### Tree Health and Species Profile

<table>
<thead>
<tr>
<th>Vigor</th>
<th>Low</th>
<th>Normal</th>
<th>High</th>
<th>Foliage</th>
<th>None (seasonal)</th>
<th>None (dead)</th>
<th>Normal</th>
<th>%</th>
<th>Chlorotic</th>
<th>%</th>
<th>Necrotic</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Pests</td>
<td></td>
<td></td>
<td></td>
<td>Species failure profile</td>
<td>Branches</td>
<td>Trunk</td>
<td>Roots</td>
<td>Describe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Load Factors

<table>
<thead>
<tr>
<th>Wind exposure</th>
<th>Protected</th>
<th>Partial</th>
<th>Full</th>
<th>Wind tunneling</th>
<th>Relative crown size</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Crown density</th>
<th>Sparse</th>
<th>Normal</th>
<th>Dense</th>
<th>Interior branches</th>
<th>Few</th>
<th>Normal</th>
<th>Dense</th>
<th>Vines/Mistletoe/Moss</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Recent or planned change in load factors</td>
<td></td>
<td></td>
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#### Tree Defects and Conditions Affecting the Likelihood of Failure

**Crown and Branches**

- Unbalanced crown
- Dead twigs/branches
- Broken/Hangers
- Over-extended branches
- Pruning history
- Crown cleaned
- Thinned
- Reduced
- Flush cuts

**Trunk**

- Dead/Missing bark
- Abnormal bark texture/color
- Codominant stems
- Included bark
- Sapwood damage/decay
- Gankers/Galls/Beaks
- Sap oozes
- Lightning damage
- Heartwood decay
- Conks/Mushrooms
- Cavity/Nest hole
- Poor taper
- Lean
- Corrected?

**Roots and Root Collar**

- Collar buried/Not visible
- Depth
- Stem girdling
- Dead
- Decay
- Conks/Mushrooms
- Ooze
- Cavity
- % circ.
- Cracks
- Cut/Damaged roots
- Distance from trunk
- Root plate lifting
- Soil weakness

**Response growth**

**Main concern(s)**

**Likelihood of failure**

<table>
<thead>
<tr>
<th>Load on defect</th>
<th>N/A</th>
<th>Minor</th>
<th>Moderate</th>
<th>Significant</th>
<th>Imminent</th>
</tr>
</thead>
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**Likelihood of failure**

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Page 1 of 2
Tree risk assessors should make a decision on whether the tree is removed, pruned or no work is needed?

T or F
Ordinances

- Legal regulations
- Put in place to help protect trees and management
- Tree care practices
A typical tree ordinance covers the jurisdiction's authority and:

a) Establish penalties for noncompliance
b) Specify the responsibility for enforcement
c) Describe conditions and requirements of ordinance
d) All
Preservation and Standards

- Use ANSI standards and Best Management practices to uphold all tree work.
ANSI Standards

- ANSI A300 tree care (9 parts)
- ANSI Z133.1 safety
- ANSI Z60.1 nursery
BMP’s

- Best management practices
- Tree risk assessment
- Pest management
- Inventories
- Pruning
- Planting
Management

- Planting (consider the amount of work)
- Pruning Rotation
- Risk Assessment - What is your priority
- Protection
- Disease/Pests
- Inventory
Trees, Planning and Construction

- Getting involved with planning
- Implement a proper design
- Protecting Trees from construction damage

TPZ, CRZ
Name 2 methods of determining the TPZ

a) Drip line and root protection method
b) Trunk formula method and drip line
c) Trunk formula and critical root zone method
If a tree has a dbh of 18 and a tolerance factor of 12, what is the radius from the trunk that the TPZ should be?

a) 216 in
b) 1.5 feet
c) 30 in
In regards to tree diversity, what is the rule of thumb for percentage of family, genus and species?

a) 40-20-5  
b) 50-20-20  
c) 30-20-10
Planning the Urban Forest

- Forestry master plans
- Species diversity - no more than 30-20-10
- Sustainability
- Canopy cover goal
- Maximize tree benefits
Tree Maintenance

- Planting
- Pruning cycle
- Tree removals
- Mulch rings
- Mitigate compaction, girdling root
- ANSI Standards
- Certified Arborist
Planting

- Right tree, right place
- Proper planting procedure (ANSI A300)
- Can you maintain the trees you have?
Emergency Response

- Storm damage – wind, ice, snow, flooding
- Emergency response plan
- Hazardous work conditions
- Restoration pruning
“You cannot manage what you do not know you have”

- First step
- Tree Inventory
- GIS to manage info
- Management tool
- Quantify cost/benefit ratio using I-tree
- Planning tool
Administrative Duties

- Manage people and work with many different departments
- Work with the public
- Work with volunteers
- Prepare budgets
- Oversee Contracts
- Tree valuation
- Risk assessments
- Develop specifications
A pruning cycle of X years has been studied to be the most economic and efficient?
Managers of a valuable resource
Plays an intricate role in the safety and
well being of our community.

Questions?