URBAN FORESTRY

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.

Table of Contents

1. Benefits and Costs of Trees
2. Appraisal and Valuation
3. Planning
4. Regulatory and Legal Issues
5. Management
6. Information and Education

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

http://www.hort.purdue.edu/ext/HO_201.pdf

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 _____ Date _____ Time _____

Address / Tree location _____ Tree no. _____ Sheet _____ of _____

Tree species _____ dbh _____ Height _____ Crown spread dia. _____

Assessor(s) _____ Time frame _____ Tools used _____

Target Assessment

Target number	Target description	Target zone: Target within drip line	Target zone: Target within 1 x Ht.	Target zone: Target within 1.5 x Ht.	Occupancy rate (1 – rare, 2 – occasional, 3 – frequent, 4 – constant)	Practical to move target?	Restriction practical?
1							
2							
3							
4							

Site Factors

History of failures _____ Topography Flat ☐ Slope ☐ _____% Aspect _____

Site changes None ☐ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe _____

Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☐ _____% Describe _____

Prevailing wind direction _____ Common weather Strong winds ☐ Ice ☐ Snow ☐ Heavy rain ☐ Describe _____

Tree Health and Species Profile

Vigor Low ☐ Normal ☐ High ☐ Foliage None (seasonal) ☐ None (dead) ☐ Normal _____% Chlorotic _____% Necrotic _____%

Pests _____ Abiotic _____

Species failure profile Branches ☐ Trunk ☐ Roots ☐ Describe _____

Load Factors

Wind exposure Protected ☐ Partial ☐ Full ☐ Wind funneling ☐ _____ Relative crown size Small ☐ Medium ☐ Large ☐

Crown density Sparse ☐ Normal ☐ Dense ☐ Interior branches Few ☐ Normal ☐ Dense ☐ Vines/Mistletoe/Moss ☐ _____

Recent or planned change in load factors _____

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐ LCR _____%

Dead twigs/branches ☐ _____% overall Max. dia. _____

Broken/Hangers Number _____ Max. dia. _____

Over-extended branches ☐

Pruning history

Crown cleaned ☐ Thinned ☐ Raised ☐

Reduced ☐ Topped ☐ Lion-tailed ☐

Flush cuts ☐ Other _____

Cracks ☐ _____ Lightning damage ☐

Codominant ☐ _____ Included bark ☐

Weak attachments ☐ _____ Cavity/Nest hole _____% circ.

Previous branch failures ☐ _____ Similar branches present ☐

Dead/Missing bark ☐ Cankers/Galls/Burls ☐ Sapwood damage/decay ☐

Conks ☐ Heartwood decay ☐ _____

Response growth _____

Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐

Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

— Trunk —

Dead/Missing bark ☐ Abnormal bark texture/color ☐

Codominant stems ☐ Included bark ☐ Cracks ☐

Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐

Lightning damage ☐ Heartwood decay ☐ Conks/Mushrooms ☐

Cavity/Nest hole _____% circ. Depth _____ Poor taper ☐

Lean _____° Corrected? _____

Response growth _____

Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐

Likelihood of failure

Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

— 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) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐

Likelihood of failure

Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

- 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 jurisdictions 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

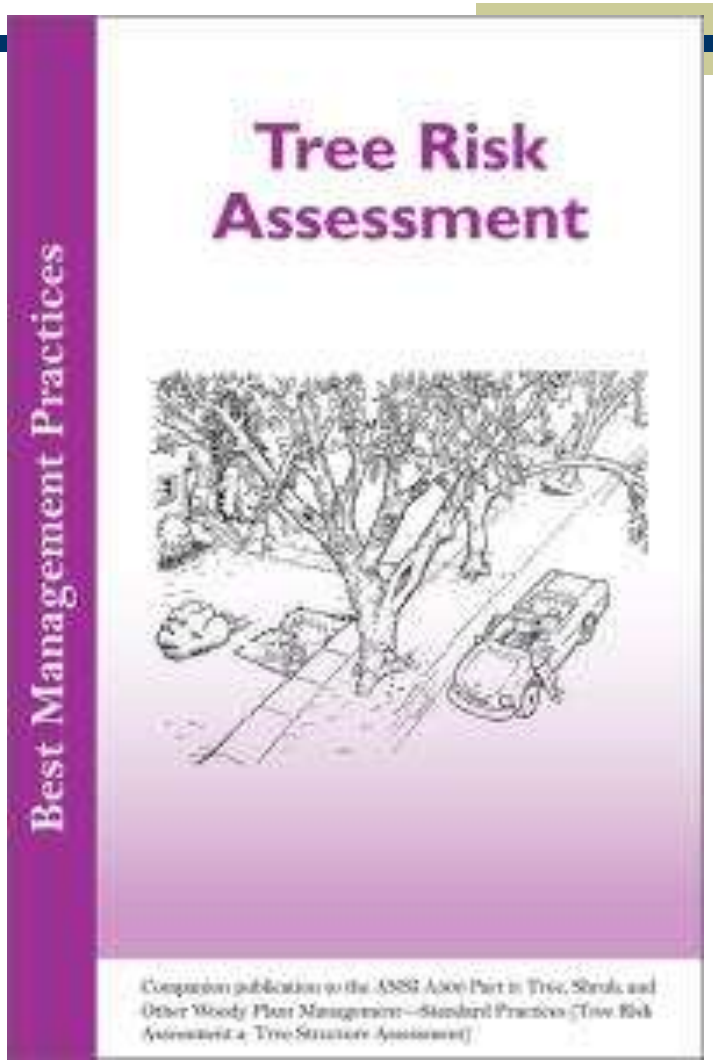
- Use ANSI standards and Best Management practices to uphold all tree work.

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

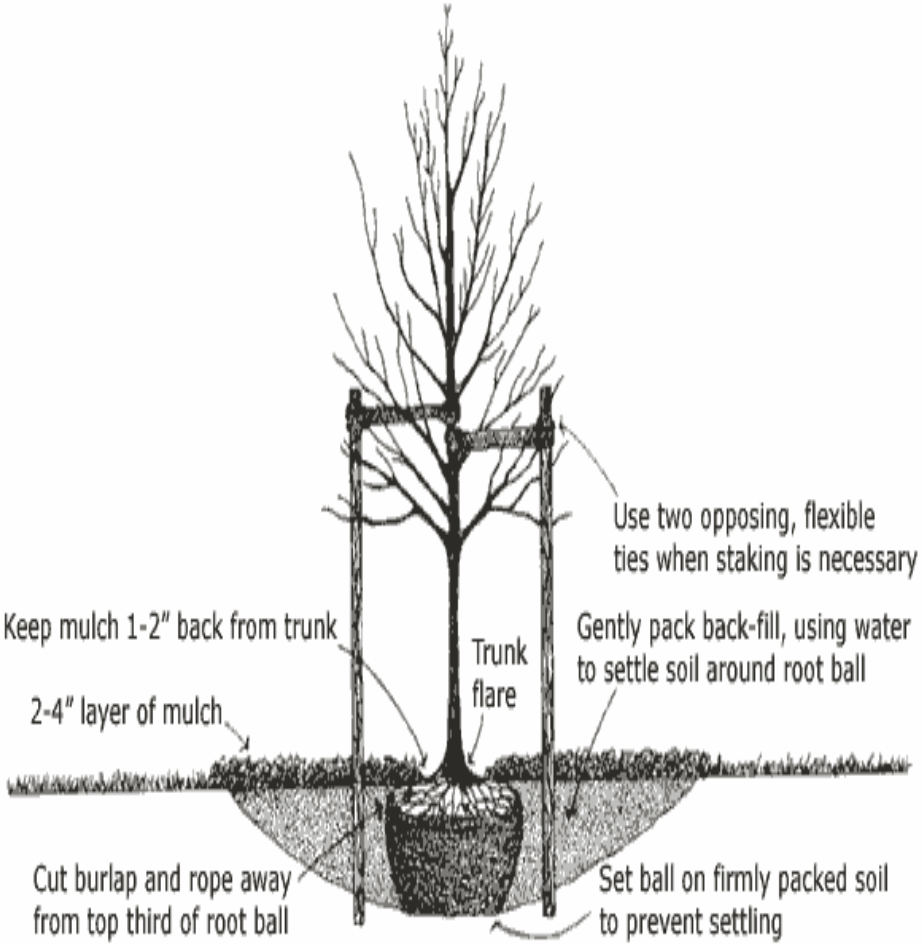
- Forestry master plans
- Species diversity- no more than 30-20-10
- Sustainability
- Canopy cover goal
- Maximize tree benefits

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”

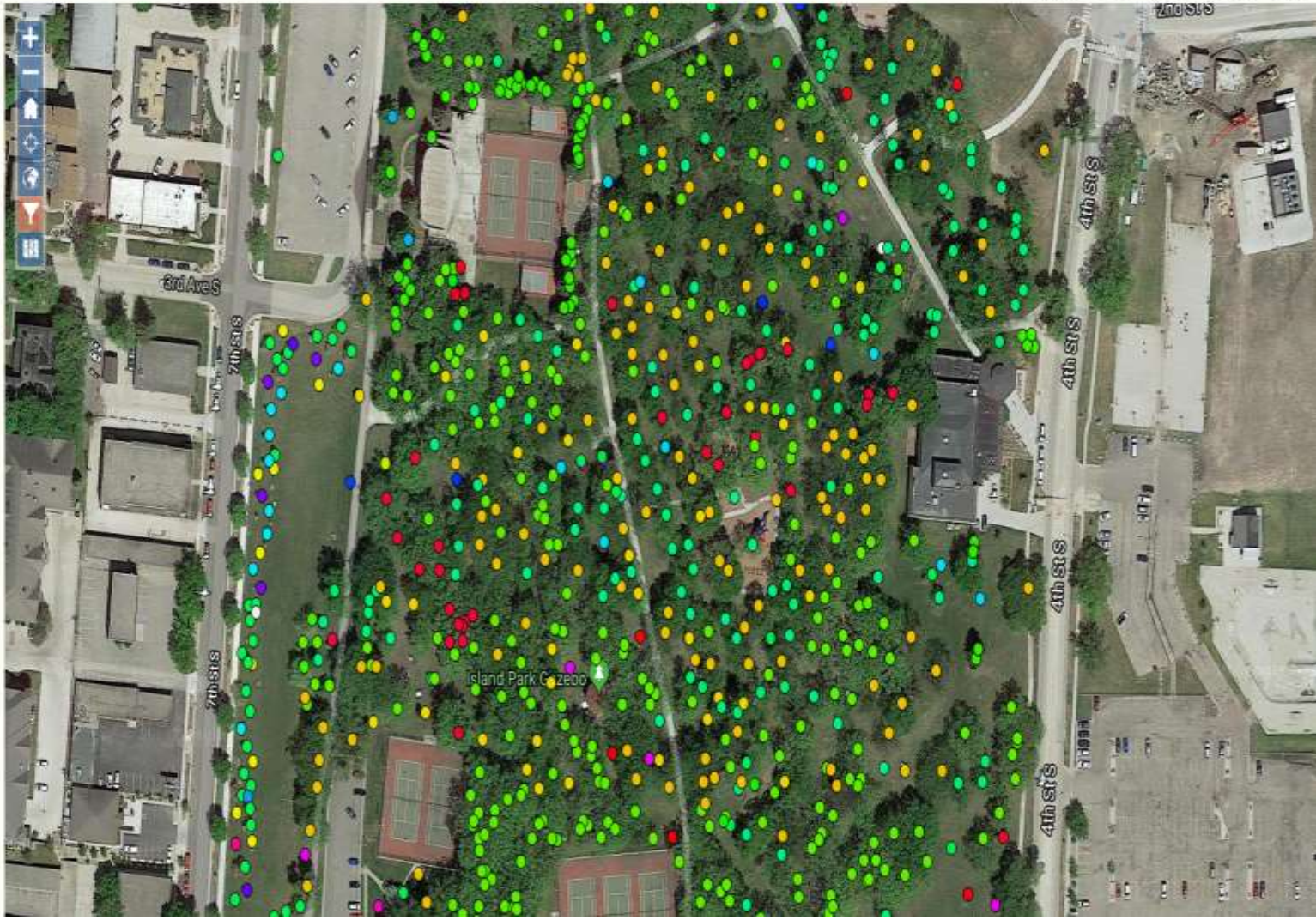
- First step
- Tree Inventory
- GIS to manage info
- Management tool
- Quantify cost/benefit ratio using I-tree
- Planning tool

Tools Stats Data EAB

Fargo, ND

Offline Add Move Request Log Out

- The Basics
- In The Map
- Measure and Graphics
- Print and Map Labels
  - Labels
  - Print
- My Data



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?

Conclusion…

Managers of a valuable resource

Plays an intricate role in the safety and well being of our community.

Questions?