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	Urban Tree Risk Management
	A Comprehensive Framework Part I
	Mississippi Urban Forest Council Urban Forestry and Green Infrastructure Conference Mississippi Museum of Natural Science
X	Jackson, Mississippi February 7-8, 2012 February 7-8, 2012
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This discussion of a comprehensive risk management program that can support local management & disaster planning is based on **Urban Tree Risk Management: A Community Guide to Program Design and Implementation** (Chapter Two)... and will guide city & urban forest managers through the development & implementation of the current (arboricultural) industry standard program for risk management...

Have any of you seen a tree and thought "that looks dangerous?" or "that might hurt someone?" If so, you did a risk assessment... What action was taken after your assessment?

This presentation will outline the "framework" for urban tree risk management that moves "assessment" to "mitigation" (i.e. appropriate action).

Urban Forestry South is the Southern Region's urban & community forestry Technology Transfer Center which supports U&CF programs through state agencies and municipalities.

In this presentation I'll define the topic of tree risk, discuss tree risk management in a broader context, introduce the steps in the "guide", and conclude with the current list of arboricultural standards related to urban tree risk management. I'll conclude with a definition of urban tree risk management.

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Presentation Outline – Part I Definitions Planning & Management – Tree Risk The 10 Steps Resources & Standards Summarize the Risk Management Framework

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Definitions Risk... is the combination of the likelihood of an event and the severity of the potential consequences. In the context of trees, risk is the likelihood of a conflict or tree failure occurring and affecting a target, and the severity of the associated consequences – injury, damage, disruption.

Risk (from ISA BMP: Tree Risk Assessment) ...

- Probabilities involved
- An event
- Consequences (harm) with some level of severity (or concern)

Conflict... e.g. tree obstructs stop sign visibility at intersection, or tree limbs/branches touching power distribution lines

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Definitions

Hazard... Is a likely source of harm (or the consequence).

In relation to trees, a hazard is the tree part(s) identified as a likely source of harm.

Hazard (from ISA BMP: Tree Risk Assessment)...

• What is the likely source (e.g. limb, branch, whole tree) of the assessed harm (i.e. consequence)

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Definitions

Risk Assessment... is the systematic process to identify, analyze, and evaluate tree risk.

... is the process of inspecting and evaluating the structural condition of trees and the harm that could occur when a failure occurs.

Tree Risk Evaluation... Is the process of comparing the assessed risk against a given risk criteria to determine the significance of the risk (a key concept is "threshold"). Risk assessment is the "next" step after the urban tree risk management framework "sets the stage"...

Assessment and evaluation (from ISA BMP: Tree Risk Assessment)...

- Systematic process
- Identify
- Analyze
- Evaluate
- There are standards (i.e. ANSI A300 Part 9) that should be followed when developing this assessment process

Evaluation (from ISA BMP: Tree Risk Assessment)...

 Comparing the assessed risk to your experience and/or expectations (i.e. risk threshold; how much harm is acceptable to you)

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Any questions or comments...

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Assess and mitigate to avoid consequences...

- Damage
- Interruption
- Injury

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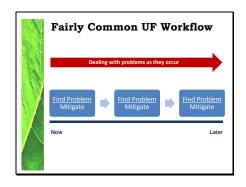


Take care of trees (i.e. management) on your own schedule...

- Budget implications
- Workforce scheduling implications

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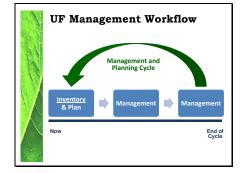


A common approach to urban forest management (workflow or timeline):

•deal with problems as they arise (i.e. "putting out fires")

May be appropriate for very small management areas or ownerships, or as the tree resource changes over time (i.e. there are ways to rationalize this approach!).

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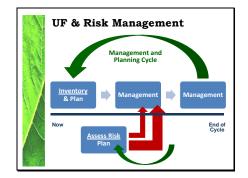


A recommended urban forest management workflow (or timeline):

- inventory the resource of interest (i.e. entire city, a park)
- develop a management plan
 - with short-term action plan for a specific time period (i.e. cycle)
 - plan will have long-term goals, objectives, and strategies
- manage your urban tree resource over the management/planning cycle
 - tree planting
 - mulching
 - young tree pruning
 - pruning mid-aged to mature trees
 - removals (for a variety of reasons; problems (i.e. risk), construction, redesign)
 - special areas or purposes (riparian areas, parks, watershed protection, carbon, pedestrian amenities)

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An urban forest management workflow (or timeline) that adds Urban Tree Risk Management:

- inventory the resource of interest (i.e. entire city, a park)
- develop a management plan
 - with short-term action plan for a specific time period (i.e. cycle)
 - plan will have long-term goals, objectives, and strategies
- manage your urban tree resource over the management/planning cycle
 - tree planting
 - mulching
 - young tree pruning
 - pruning mid-aged to mature trees
 - removals (for a variety of reasons; problems (i.e. risk), construction, redesign)
 - risk mitigation
 - special areas or purposes (riparian areas, parks, watershed protection, carbon, pedestrian amenities)
 - inventory and develop a separate risk management plan
 - this feeds into your management cycle
 - the risk management cycle may be shorter than your urban forest management cycle

Cities that choose risk avoidance either ignore those risks (i.e. "act of god"), or will eliminate all risk in the area of interest by removing all trees; others will manage tree risk so that benefits of the trees can be retained with some acceptable level of risk that is within the communities threshold of concern.

It is **NOT** necessary to practice risk avoidance in order to manage your urban forest, be better prepared for disasters, and maintain UF ecosystem services.

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Tree Risk Management

Communities can deal with risk & their identified hazards in several ways:

Risk Avoidance
 Risk Management

Your community decides how to management trees to reduce undesirable consequences.

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Any questions or comments...

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Risk Management Program Design A Ten Step Process

- 1. Assess the tree resource
- Review current management practices
 Assess fiscal and human resources
- 4. Identify program goals
- 5. Formulate a tree risk management strategy
- 6. Prioritize inspection and corrective action
- Select a tree rating system
 Write a comprehensive risk policy
- 9. Implement the tree risk management strategy
- 10. Evaluate program effectiveness

From Urban Tree Risk Management (A Community Guide to Program Design and Implementation)... Jill Pokorny, 2003

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What Do You Have Assess the tree resource Review management practices Assess fiscal & human resources

A risk management plan does not a have to be a detailed tree assessment; the "big picture" is OK. But, can be the same baseline that supports your UF management plan. With some additional information.

May need to determine value to justify the risk and management strategies; i-Tree Eco, Streets

Assess the tree resource

A planning element & assessment:

- Recent data (current inventory)
- Can be complete inventory or sample
- Baseline study to collect general information:
 - species
 - size classes
 - condition (risk associated)
 - maintenance needs (pruning, removal) & cost
 - Urban forest value (i-Tree Eco/Streets)

For urban forest management:

- Written policy
- Plans
- Ordinances
- Goals & strategies

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- particularly relating to public safety
- Look across all for common goals
 - look at other community departments

Review current tree care budget:

- Look at estimated costs from your assessment
 - deficient?
- Include costs/resources for inspections
- Mitigation at "higher" level
- Improved establishment & young tree care as part of risk management

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😽 What Do You Want

- Identify program goals
- Formulate a risk strategyPrioritize inspections & actions
- Prioritize inspections & a

Locally, develop a "picture" of your community tree risk management program.

Disaster related UF and EM objectives should be identified.

Community working group/tree board:

- What will our risk management program accomplish
- Goals & strategies (get specific)

Guiding principals:

- Increase public safety
- Promote tree health & sustainability

Prevent hazardous defects:

- Sound arboricultural practices
 - site
 - species
 - planting
 - young tree care
 - mature care
- Corrective actions
 - young tree care
 - address target issues
 - prune & remove

Tree risk zones:

- Trees
- Roads & streets
- Occupancy
 - people
 - places or sites (buildings)

Standardizing your risk inspections based on current arboricultural standards:

- Matheny & Clark (1994)
- ANSI A300 (Part 9)-2011 Tree Risk Assessment
 Tree Structure
- Best Management Practices: Tree Risk Assessment

The "No target, No risk" concept applies for disaster planning also.

Importance of standardized method:

- Repeatable
- Reliable
- Easier to maintain trained staff
- Standardize record keeping & data
 - convenience
 - accuracy

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Getting What You Want

- Select a tree rating system
- Write a risk policy
- Implement the tree risk strategiesEvaluate program effectiveness

Photographic Guide (12 point)

- Target (0-4) No target, No risk
- Size of part (1-4)
- Probability of failure (1-4)

Critical element!

The act of writing your risk policy is an important step that can refine your objectives, goals, and strategies. It makes it available to other municipal managers and staff, elected officials, and residents.

The tree risk specification that adheres to ANSI A300 (Part 9)-2011 can be the basis for this more detailed policy

Write, adopt, and enforce this policy:

- Must support all other policy & documents
- Community responsibility
- Administration (who is responsible)
- Rating system specified
- Inspection methods and schedules
- Process for corrective actions
- Action appeals
- How to handle violations of the policy

Proper implementation requires resources and demands documentation (see ANSI A300 (Part 9)-2011 Tree Risk Assessment).

Your local EM may have access to state mitigation funds for some of this work identified.

Resources:

- Staff
- Training
- Documentation

Implementation documentation:

- Inspections
- Actions
- Failures

Common outcomes from a well designed and implemented tree risk management plan.

These are disaster-related outcomes also.

Outcome based measurements & evaluation:

- Increased public safety
- Improved tree health

Indicators (for measurement):

- Decline in number of high-risk trees
- Reduction in number of trees needing hazard pruning
- Reduction in storm damage (debris)

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Any questions on the ten steps...

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Resources: Tree Risk Management Urban Tree Risk Management: A Community Guide to Program Design and Implementation - NA-TP-030-03 - Jill D. Pokomy, USDA Forest Service, St. Paul, MN - 2003 Prime on Risk Analysis: decidion Making Under Uncertainty (Chapter 1) - CRC Press - Charles Yoe - 2012 ANSI A300 (Part Py-2011) Tree Risk Assessment a. Tree Structure Assessment - TCIA - 2011 Best Management Practices: Tree Risk Assessment - ISA - T. Smiley, N. Mathemy, S. Lilly - 2012 A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas (2Pe Edition) - ISA - N. Matheny, J. Clark - 1994 Guide for Plant Appraisal (9th Edition) - ISA for CTLA - 2000 ISDA Forest Service - 1994

Use current arboricultural standards when developing your urban tree risk management plan

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Current standards for risk assessment and management are based on ISO 31010 components:

•Communication and consultation

- •Risk assessment
- Monitoring and review

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Definitions
Urban Tree Risk Management is the comprehensive framework for communicating, assessing, monitoring risk, and mitigating hazards associated with that risk.

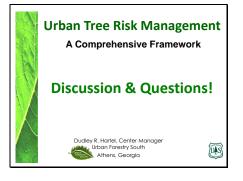
Urban Tree Risk Management defined (drh 2012)...

- Comprehensive "framework" (i.e. steps to follow, the recipe)
- Communication of risk (to managers, public)
- Tree risk assessment by qualified, trained, and experienced arborists or urban foresters
- Monitoring risk (i.e. temporal, repetitive, observant)
- Evaluating hazards (to your threshold) and mitigating those hazards
- Important concept is: prioritization

Any final questions or comments about this introduction to urban tree risk management?

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A PDF of this presentation will be at www.UrbanForestrySouth.org .

"Quick Search" with 'urban tree risk' (no quotes).

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