

Slide 1



Nebraska Arborists Association 2014 Great Plains Conference, Lincoln, NE

Planning for Disaster – The Arborists Professional Role

This presentation is designed for arborists and urban foresters; consulting, commercial, utility, and municipal. The presentation will discuss the risk management role that arborists can play in disaster planning & preparedness.

Some ideas, concepts, and slides presented are attributed to Rachel Barker (formally with Central Alabama Regional Planning and Development Commission) who is now a utility arborist with **ArborMetrics Solutions** (transmission and distribution vegetation management services) based on work she did from 2010-2013. This included the Vegetation Risk Management Plan (VRMP) and the Urban Tree Risk Index (UTRI) GIS tool.

Dudley Hartel – Center Manager of Urban Forestry South in Athens, Georgia.

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

This entire presentation with my notes is available for download from www.UrbanForestrySout.h.org.

- Planning for Disaster – The Arborists Professional Role (NAA 17Jan14).pdf

In the 'search site' box (base of page header on the right) type **NAA** or **Great Plains** for a list of downloads related to my presentations at this conference.

In addition to the presentation there will be two hand-outs:


- 2014 Urban Tree Risk Resources (14Jan14).pdf
- 2013 Disaster Resources for Urban Foresters (13May13).pdf

The final version of this presentation is:

2014 Planning for Disaster - Arborists Professional Role (Lincoln 17Jan14 v1.5 Post Presentation).pptx

These slides may be obtained in Powerpoint format (PPTX) by contacting Dudley Hartel at dhartel@fs.fed.us

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Presentation Outline

- **Professional Arborists – Role, Tools, & Training**
 - ✓ Arborist as “resource” to disaster professionals
 - ✓ Develop, adopt, and use ANSI specs and BMPs
 - ✓ ISA Tree Risk Assessment Qualification (TRAQ)
- **Disaster Planning & Preparedness**
 - ✓ Spatial Relationships & Disasters
 - ✓ Tree Health & Tree Risk
 - ✓ Community Resilience
 - ✓ Urban Tree Risk Management – Prioritized
 - ✓ Urban Tree Canopy and Disasters - Focus

In this presentation we will look at the role arborists can play in disaster planning and preparedness. We'll begin by looking at the unique qualifications that arborists can bring to the disaster planning table...

- The arborist as THE “tree resource” in collaboration with other planning & disaster professionals
- The necessity to adopt, develop, and use appropriate ANSI A300 Standards and arboricultural BMPs
- Tree risk assessment training – TRAQ (ISA PNW TRACE is now equivalent)

Following that, the presentation will focus on UF management practices that influence the impact that disasters have on a community and its urban forest.

We'll discuss a comprehensive approach to urban forest risk management and prioritizing preparedness assessments and mitigation.

We will briefly look at...

- The spatial relationship of trees, people, and property – as it applies to disaster planning & preparedness
- Tree (wood) strength, tree condition, and risk – growing healthy trees
- The strength of the community – your role as part of local resilience to storms & disaster.
-
- A comprehensive urban tree risk management program (Pokorny 2003)
- Using urban tree canopy (UTC) as a tool to focus on disasters – Urban Tree Risk Index (UTRI)

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Professional Resource

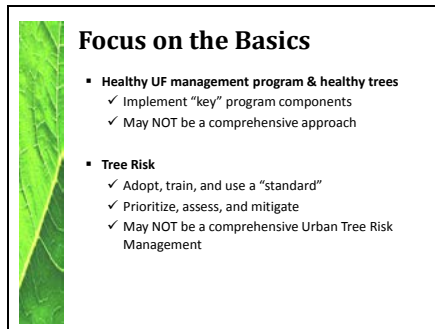
- **Education**
 - ✓ Tree related background
- **Experience**
 - ✓ Work history – accomplishments
- **Certification & Community**
 - ✓ Certified Arborist (ISA, state, or other professional status)
- **Position**
 - ✓ State, county, municipal, consulting, commercial, utility, corporate

How do we get to this “state” where others would solicit or welcome our input?

- Education in forestry, urban forestry, arboriculture, or other related profession
- Not just our work history, but significant accomplishments; specialties
- Attainment of certification by a state or ISA, and the professional “communities” (e.g. state arborist associations, SMA, ISA Chapter) in which we participate.
- Our professional position where we have performed and earned respect (the “go to” person) based on the above and dependability, initiative, and ideas.

Take advantage of what we have accomplished to further your program and your community.

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Focus on the Basics

- **Healthy UF management program & healthy trees**
 - ✓ Implement “key” program components
 - ✓ May NOT be a comprehensive approach
- **Tree Risk**
 - ✓ Adopt, train, and use a “standard”
 - ✓ Prioritize, assess, and mitigate
 - ✓ May NOT be a comprehensive Urban Tree Risk Management

To be effective...

- arborists need to focus on urban forestry & arboricultural basics that can positively affect disaster outcomes, because...
- disaster planning & preparedness for your community is a huge task, and
- involvement of a range of professionals is critical.

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Professional Development


- **Suite of Tree Care Standards**
 - ✓ ANSI A300 Standards
 - ✓ International Society of Arboriculture (ISA) – BMPs or local, adopted standards
- **Tree Risk Assessment**
 - ✓ ANSI A300 Tree Risk Standards (2010/11)
 - ✓ International Society of Arboriculture (ISA) – BMP for Tree Risk Assessment (2011)
 - ✓ TRACE – PNW ISA Chapter (2009)
 - ✓ ISA Tree Risk Assessment Qualification (TRAQ 2013)

Professional Development – Our primary contribution is the effective and efficient management of the urban tree resources based on the current standards.

Preparing ourselves...

- ANSI A300 Standards - planting
- ISA BMP for Risk Assessment
- TRACE (Virginia and Texas)
- ISA Tree Risk Assessment Qualification (credentials)

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ANSI Standards

- American National Standards Institute (ANSI)
- Development of American National Standards (ANS) by accrediting the procedures of standards developing organizations
- Tree Care industry Association (TCIA)
 - ANSI A300 standards are voluntary industry consensus standards (arboriculture)
 - ANSI A300 Standards are divided into multiple parts, each focusing on a specific aspect of woody plant management
- www.TCIA.org

ANSI (American National Standards Institute) accredits organizations to develop voluntary standards for their industry or profession.

TCIA is the accrediting organization for arboriculture and organizes the (ANSI Standards Committee) ASC A300 committee with representatives from a broad and diverse group of industrial and governmental organizations.

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Arboriculture Standards

- Part 1: Pruning (2008) ★
- Part 2: Soil Management (2011) ★
- Part 3: Supplemental Support Systems (2013)
- Part 4: Lightning Protection Systems
- Part 5: Management
- Part 6: Planting & Transplanting ★
- Part 7: Integrated Vegetation Management
- Part 8: Root & Root Zone Management
- Part 9: Tree Risk Management (2011) ★
- Part 10: Integrated Pest Management
- Part 11: Urban Forest Products

Developed (green text), under development (blue text), and being revised (red text).

Visit: <http://www.tcia.org/business/ansi-a300-standards> for descriptions and status

Of greatest importance, day-to-day, are Parts 1, 2, 6, & 9.

Disaster Preparedness Impact:

- Immediate – 9
- Short-term – 1 (mature tree and young tree structural)
- Longer-term - 2 & 6

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UF BMPs & Disaster Planning

BMP development & adoption

- internal to your municipality or organization
- professional organization developed (i.e. TCIA, ISA)
- borrowed & tailored to your situation

From these sources build your manual of accepted practices

Every community (and urban forest manager) should have a basic set of specifications developed from the standards.

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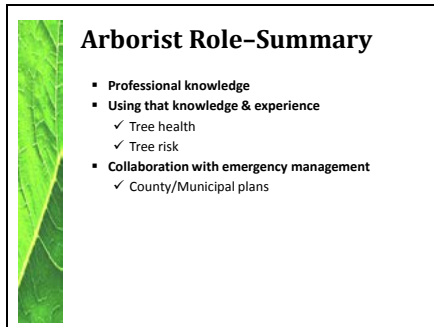
Urban Forestry BMPs & Disaster Planning (Longer-term View)

BMP short list should match your tree/forest health objectives

- site evaluation requirements/techniques
- key species selection criteria
- minimum acceptable tree standards
- tree planting specifications
- first year care – mulch, water, remove stakes
- young tree care – structural pruning cycle(s)
- tree risk management

The essential BMPs and specifications to develop form the standards and professional resources.

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Arborist Role-Summary

- **Professional knowledge**
- **Using that knowledge & experience**
 - ✓ Tree health
 - ✓ Tree risk
- **Collaboration with emergency management**
 - ✓ County/Municipal plans

The first half of this relationship.


Professional arborists bring...

- knowledge to improve tree health and reduce tree risk, to...
- provide information to emergency management that can better prepare communities for disasters and storms.

The third point, collaboration, is usually where we often fall short.

In the second half of this presentation we'll look at specific tools and resources that may help us.

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**Questions,
Comments &
Discussion
???**

USDA

UAS

A brief pause for questions, comments, and discussion!

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Managing Urban Forests

Healthy trees present fewer problems

- sites – evaluate (improve)
- species
- tree quality
- planting
- 1st growing season care (watering, protection)
- young tree care (structural pruning)
- mature tree care (including risk)

Getting to healthy trees...

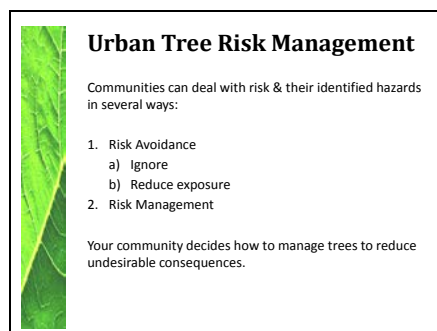
If the objective of the urban forest management program is to optimize tree benefits:

- highest productivity (biomass, shade, stormwater capacity, air pollution)
- lowest investment

Several components:

- site selection & evaluation
- species selection
- tree selection at the nursery (i.e. standards)
- proper planting
- first year care – primarily watering & protection (elapsed time through this step is about 18 months)
- young tree care - structural pruning & protection (add another 3 years for each pruning cycle planned – e.g. 3 prunings will add 9 years)
- mature tree care – including risk management

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Urban Tree Risk Management

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

1. Risk Avoidance
 - a) Ignore
 - b) Reduce exposure
2. Risk Management

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

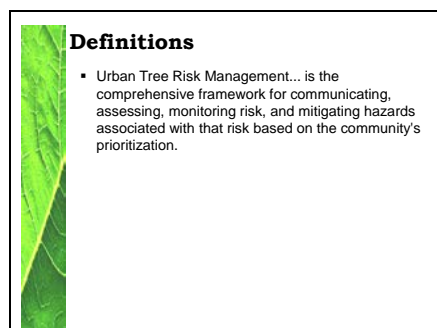
Cities that choose risk avoidance either ignore those risks (i.e. “act of god”), or will eliminate all risk in the area of interest by removing all trees.

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.

An urban tree risk management program is the key and one that we, as professionals, should be able to develop and implement.

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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 based on the community's prioritization.

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 (ISA BMP & TRAQ)
- monitoring risk (i.e. temporal, repetitive, observant)
- evaluating hazards (to your threshold) and mitigating those hazards (prioritization)

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Tree Health vs. Tree Risk

- **UF Management includes...**
 - ✓ Urban forest composition
 - genus/species
 - diameter distribution
 - spatial arrangement
 - ✓ Tree health
 - ✓ Provision of ecosystem services (benefits)
 - ✓ Tree risk mitigation
- **The UF Management component with the most immediate impact on disaster preparedness...**
 - ✓ Tree risk mitigation

Applying our arboricultural background and interest to benefit our community vis-a-vis disasters.

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Storms, Trees, & Conflict

- **Risk in the disaster context is a spatial issue**
 - ✓ Critical facilities
 - Hospitals
 - Public safety
 - Water & sewer
 - Communications
 - ✓ Transportation (emergency response)
 - ✓ Population centers (response & recovery)

Applying our arboricultural background and interest to benefit our community viz a viz disasters.

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Why Manage Tree Risk

- Eliminate urban forestry "feast and famine"...



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

- Budget implications
- Workforce scheduling implications

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Why Manage Tree Risk

- Sustain environmental services...



Even without property or personal damage, storm damage affects environmental services... The reason we plan for and manage urban trees.

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Why Manage Tree Risk

- To avoid consequences...



Assess and mitigate to avoid consequences...

- Damage (to property)
- Interruption (of services like electricity, emergency response, water, communications)
- Injury (or death) to people

This is the disaster connection to risk.

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Risk Mitigation Results

- Reduced claims as they relate to trees by 72%
- Reduced work order complaints and/or request for services by over 55%
- Reduced 911 and overtime expenditures for tree cleanup by over 69%

Five year period 2001-2006
Columbus, Georgia (R. Barker)

Measured results from an aggressive tree risk management program in Columbus, Georgia (from Rachel Barker).

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Collaboration Opportunities

Examples

- Comprehensive Plan
- Hazard Mitigation Plan
- Emergency Response Plan and Exercises
- Debris Management Plan
- Vegetative Risk Management Plan (VRMP)
- UF Management Plan
- Tree Risk Management Plan


Black are more general community plans; red are disaster related plans; blue are plans that require arborist/emergency management collaboration.

These are some of the plans that are often developed and are listed here from the general to the more detailed (i.e. more detailed at the bottom of the list)

There are plenty of opportunities for collaboration between Urban Foresters and Emergency Managers

The two professions can work hand in hand developing the Vegetative Risk Management Plan and implementing risk management specifically geared toward disaster preparedness.

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Tree Risk & Emergency Management

- **County (or regional) Scale**
 - Generalized approach to tree risk assessment
- **Working with Emergency Management**
 - Reduce information to issues of interest
 - Planning/Mitigation
 - Woody debris (how much, where)
 - Response (cleanup)
 - Recovery
 - Prioritization of effort (big picture)

In this portion of the presentation, I will discuss how we can use a landscape scale assessment of tree risk to develop information useful to local emergency managers – Vegetation Management.

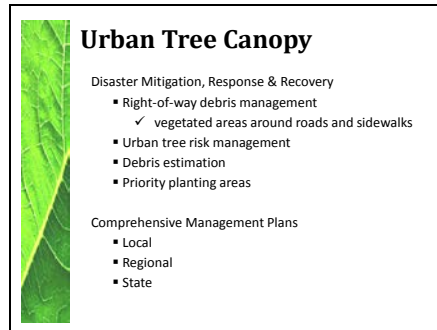
As discussed earlier, we are specifically developing a regional (planning) approach to emergency management support that includes input from professional urban foresters.

In working with EM, we focus on the primary AOI for emergency planning.

These include:

- planning/mitigation
- potential debris (not volume but an index)
- information that will support response (debris removal)
- recovery

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Urban Tree Canopy

- Disaster Mitigation, Response & Recovery
 - Right-of-way debris management
 - ✓ vegetated areas around roads and sidewalks
 - Urban tree risk management
 - Debris estimation
 - Priority planting areas
- Comprehensive Management Plans
 - Local
 - Regional
 - State

Why UTC ?

Useful for a variety of planning efforts in your community.

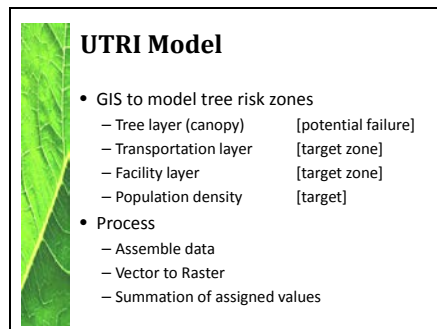
Comprehensive Management Plans – Local plans are essential, and regional plans come into play when local capacity is exceeded (e.g. state mutual aid programs).

Urban Forest Management Plans – Provide canopy baselines and monitoring of management components, goal, objectives, and strategies.

Also a relatively simple measurement component to view your potential for storm related risk is urban tree canopy.

Urban Tree Risk Management – Identifying and reducing tree risk prior to storms, estimating your level of risk (including debris)

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UTRI Model

- GIS to model tree risk zones
 - Tree layer (canopy) [potential failure]
 - Transportation layer [target zone]
 - Facility layer [target zone]
 - Population density [target]
- Process
 - Assemble data
 - Vector to Raster
 - Summation of assigned values

UTRI is a component (GIS model) of the Vegetative Risk Management Plan.

GIS models work with layers, and we assembled readily available data from local, regional, state & national sources.

The UTRI model does not use a tree risk rating system like that needed for a comprehensive risk management program.

However, the GIS layers function as surrogates for rating street segments as “potential” areas of concern, inspection, and subsequent prioritized mitigation.


UTC provides the locations of possible risk trees. The transportation layer (since our analysis is primarily response oriented) and the facility layers establish the “target zones” when trees are present. Population density is a surrogate for (target) occupancy; that is, the higher the population density the more frequently people (as pedestrians, vehicle operators, or in some type of gathering –think park, school) will be in proximity to the trees (before, during and after a disaster).

For any area, you use data available; as the scale becomes more “local” the data should become more detailed and has a finer resolution; and also should be more current:

- canopy
- block tree counts
- individual trees (locations)

The process is the summation of individual layers into a composite rating (for each street segment). Simple!

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GIS Model Approach


The UTRI (Urban Tree Risk Index tool)

- **Field verification worksheet:** Provide a form for verification, assessment and mitigation completed listed by priority (very high, high, moderate, and low)
- **Tree management needs** to reduce risk; such as routine pruning in high tree density areas vulnerable to damage
- **Mitigation:** Identify areas prior to events for mitigation and where corrective actions should be implemented on an expedited basis – street segments
- **Inspection frequencies:** Identify zones for setting tree and vegetation inspection frequencies & schedules


How the UTRI GIS model is implemented:

- The model assessment (via GIS layers) locates the areas of “concern” (potential risk)
- Specific site level inspections identify needs – field verification
- Principal management actions are tree pruning and removal
- Mitigation is prioritized based on UTRI rating
- The street segments with UTRI rating also establish the inspection frequency and scheduling

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UTRI – Wetumpka, Alabama




The downtown Wetumpka area with site verification photo on the south end of the bridge.

The red “dot” in the final UTRI index layer from GIS prompts a “drive-by” (a Level 1 tree risk inspection under ANSI A300 Part 9) to verify, Some “drive-bys” result in Level 2 inspections, Some Level 2’s lead to mitigation.

UTRI is used to quickly locate the street segments of greatest concern for failure during disasters.

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Resources: Tree Risk Management

- ANSI A300 (Part 9)-2011 Tree Risk Assessment; a. Tree Structure Assessment, Tree Care Industry Association, Inc., Londonderry, NH (<http://bit.ly/U904tI>)
- Best Management Practices: Tree Risk Assessment (2011), Smiley, E.T., and N. Matheny, S. Lilly, International Society of Arboriculture, Champaign, IL (<http://bit.ly/PMCimI>)
- Tree Risk Assessment - Manual (2013), Dunster, J. and E.T. Smiley, N. Matheny, and S. Lilly, International Society of Arboriculture, Champaign, IL (i.e. TRAQ)
- Primer on Risk Analysis: Decision Making Under Uncertainty (Chapter 1) – CRC Press - Charles Yoe - 2012

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

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Resources: Tree Risk Management

- Urban Tree Risk Management: A Community Guide to Program Design and Implementation, NA-TP-03-03, J.D. Pokorny (Coordinating Author), 2003, St. Paul, MN [<http://1.usa.gov/OHL8QV>]
- Storms Over The Urban Forest: Planning, Responding, and Regreening--A Community Guide to Natural Disaster Relief
- Vegetation Risk Management Plan (VRMP) Template - (GIS/UTRI approach)
- Urban Forestry Emergency Operations Planning Guide for Storm Response (Hawaii)
- Community Forest Storm Mitigation Planning for Georgia Communities

Resources:

- **Urban Tree Risk Management: A Community Guide to Program Design and Implementation**

<http://www.urbanforestrysouth.org/resources/library/tresources/urban-tree-risk-management-a-community-guide-to-program-design-and-implementation/?searchterm=community%20guide%20pokorny>

[An] illustrated, easy to read training manual for community leaders, administrators, city foresters, parks and public works staff, and private tree care practitioners. The manual is designed to assist communities with the design, adoption and implementation of tree risk management programs, and train field staff to detect, assess, and correct hazardous defects in urban trees. A team of experts in urban forestry, plant pathology and forest health collaborated to produce this manual. Consulting arborists, city foresters, and educators provided extensive review to ensure the information applies to communities of varying sizes and budgets. Examples of tree defects, risk rating systems, and species selection were chosen to depict tree species and conditions that occur in the Northeastern U.S." [from the Preface]

- **Storms Over The Urban Forest: Planning, Responding, and Regreening--A Community Guide to Natural Disaster Relief**

<http://www.urbanforestrysouth.org/resources/library/tresources/storms-over-the-urban-forest-planning-responding-and-regreening-a-community-guide-to-natural-disaster-relief/?searchterm=storms%20over%20the%20urban>

Natural disasters that can occur in the United States include floods, hurricanes, tornadoes, and related high-velocity winds, as well as ice storms. Preparing for these natural disasters, which strike urban forests in large cities and small communities, should involve the cooperative effort of a wide array of municipal agencies, private arboricultural companies, utilities, and volunteers. Principles and methods determining how to mitigate or minimize the impact of natural disasters are critical in determining the capability of communities to respond. Similarly, replanting

the uprooted urban forest also requires a closely coordinated effort of key civic leaders, elected officials, community foresters, and managers of municipal agencies. This manual is intended to assist community leaders and governmental agencies to prepare for natural disasters, respond appropriately when these natural disasters occur, and recover from the subsequent loss of vegetation." (from the Executive Summary, Second Edition)

- **Vegetation Risk Management Plan Template - with Attachment**

<http://www.urbanforestrysouth.org/resources/library/tresources/vegetation-risk-management-plan-template-with-attachment/view>

<http://www.urbanforestrysouth.org/resources/library/tresources/vrmp-and-utri-links-for-documents-archived-webinars>

The Vegetation Risk Management Plan (VRMP) is developed as a tool to help increase public safety after a storm event, maintain optimum urban tree canopy, promote tree health, provide for effective emergency and arboricultural management, and decrease emergency management costs.

Following this plan will decrease emergency management costs, reduce the likelihood of damage from trees, reduce tree debris, and reduce the overall impact of major storms on the urban forest. Trees and the debris accumulated from their destruction is the number one cost to emergency management. The VRMP is a proactive approach to identifying and mitigating trees that are in need of pruning, removal, or inspection. This plan will establish a schedule for areas that are most prone to limit or block access to critical infrastructure located on or associated with major transportation routes, including areas with the highest population.

- **Urban Forestry Emergency Operations Planning Guide for Storm Response**

www.smarttreespecific.org
<http://www.urbanforestrysouth.org/resources/library/tresources/urban-forestry-emergency-operations-planning-guide-for-storm-response>

Section 1: provides urban forestry professionals

concrete approaches when preparing for natural disasters that impact the urban forest. Section 2: describes the process used to develop the guide and includes information about the survey, the interviews, the expert meeting and next steps.

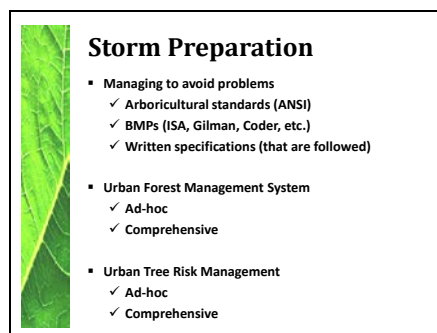
- **Community Forest Storm Mitigation Planning for Georgia Communities**

<http://www.urbanforestrysouth.org/resources/library/tresources/community-forest-storm-mitigation-planning-for-georgia-communities/?searchterm=Community%20Forest%20Storm%20Mitigation%20Planning%20for%20Georgia%20Communities>

<http://www.gatrees.org/community-forests/management/trees-storm-safety/>

Workbook and template to guide community planning and preparation for urban tree mitigation prior to natural disasters. "This Community Forest Storm Mitigation Planning Workbook and the accompanying Community Forest Storm Mitigation Plan Template are intended as tools for Georgia communities to use in assessing their community forest storm readiness, mitigating tree risk and reducing tree-related storm damage, and developing a community forest storm mitigation plan. The workbook guides you through filling in the template, which serves as a basic framework for developing your Community Forest Storm Mitigation plan." [Workbook Introduction]

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Storm Preparation

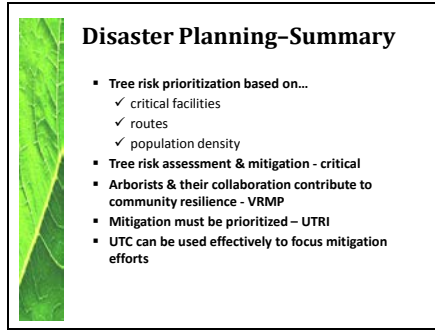
- Managing to avoid problems
 - ✓ Arboricultural standards (ANSI)
 - ✓ BMPs (ISA, Gilman, Coder, etc.)
 - ✓ Written specifications (that are followed)
- Urban Forest Management System
 - ✓ Ad-hoc
 - ✓ Comprehensive
- Urban Tree Risk Management
 - ✓ Ad-hoc
 - ✓ Comprehensive

When preparing for storms and disasters...

- Standards, BMPs, and written specifications are an essential component of an (your) urban forest management system.
- Management can be at a level of sophistication (ad-hoc vs. comprehensive) that is appropriate for your community (capacity, budgets).
- Ad-hoc does NOT imply a "putting out fires" approach (see extra slides 34-36), but a less formal use of ANSI A300 Part 9, ISA BMPs, and our professional capability (TRAQ).

From the arboricultural side, urban tree risk management is the additional component that "rounds out" your storm preparedness portfolio.

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Disaster Planning-Summary

- **Tree risk prioritization based on...**
 - ✓ critical facilities
 - ✓ routes
 - ✓ population density
- **Tree risk assessment & mitigation - critical**
- **Arborists & their collaboration contribute to community resilience - VRMP**
- **Mitigation must be prioritized – UTRI**
- **UTC can be used effectively to focus mitigation efforts**

The first half of this relationship.

- Professional arborists

The second half of this relationship.

- when planning & preparing for disasters, critical facilities, routes, and population density determine priorities...
- while tree health is a primary concern of urban forest managers & arborists, tree risk assessment & mitigation is the most important short-term contribution to disaster preparedness
- professional arborists contribute to community resilience with other professionals, and community characteristics (social, cultural, economic, education)
- tree risk mitigation should be prioritized unless budgets are unlimited!
- urban tree canopy (UTC) can be used to locate priority areas

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Questions, Comments & Discussion ???



A brief pause for questions, comments, and discussion!

Three major components to disaster preparedness...

- Urban forest/tree management for strong trees
- Strong communities that includes professional capacity
- Comprehensive management

Tree ordinances can play a role also. (protecting tree space)

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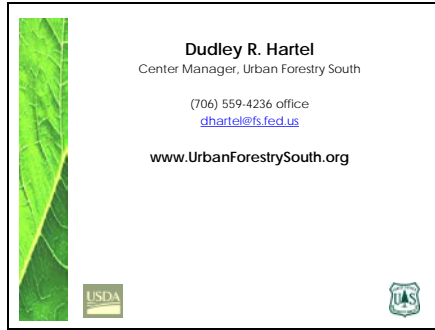


Professional Roles & Disaster

- **Municipal Arborists...**
 - ✓ define & implement comprehensive UF management
 - ✓ adopt professional standards (especially risk)
 - ✓ engage local emergency managers
 - ✓ setup pre-storm contracts
- **Commercial Arborists**
 - ✓ adopt professional standards (especially risk)
 - ✓ participate in community planning for disaster management
 - ✓ implement pre-storm contracts with your municipality/county
- **Consulting Arborists**
 - ✓ adopt professional standards (especially risk)
 - ✓ participate in community planning for disaster management
 - ✓ TRAQ credentials
 - ✓ add comprehensive Urban Tree Risk Management & tree risk to your practice
- **State Agency Arborist/Urban Foresters**
 - ✓ adopt & promote professional standards (especially risk)
 - ✓ participate in state, and regional planning for disaster management
 - ✓ promote comprehensive Urban Tree Risk Management

What are specific roles for professional arborists...

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Please feel free to contact me with questions or comments.

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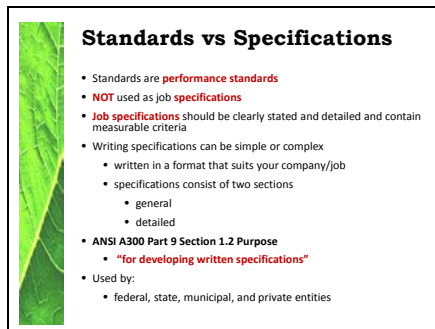
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Extra, discussion slides follow...

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The "standard" clearly identifies the performance standards used to develop arboricultural specifications specific to your job or contract and appropriate for all levels of ownership and consulting.

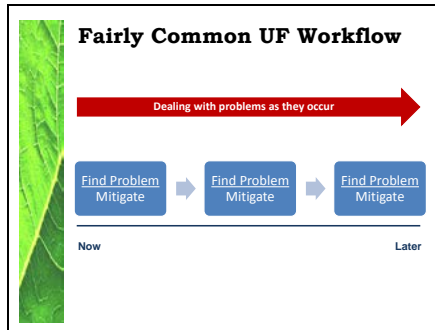
You should not say "Perform a tree risk assessment to the **ANSI A300 (Part 9)-2011 Tree Risk** standard" in an RFP, RFB, proposal, or quotation for professional services.

See Section 1.2 Purpose "for developing written specifications."

Developing and consistently using a risk specification based on the ANSI A300 Standard will:

- reduce misunderstandings related to the scope of the risk evaluation for a tree owner
- clearly define the qualifications of the arborists
- clearly define the assessment techniques to be used
- provide better contract compliance
- reduce the chance for misinterpretation of results (i.e. the written reports)
 - help arborists become more consistent with their risk assessments and with colleagues assessments over time

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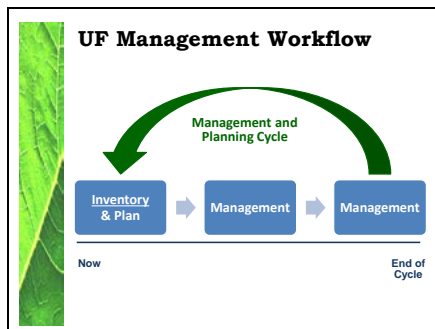


A common approach to urban forest management (workflow or timeline):

- 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!).

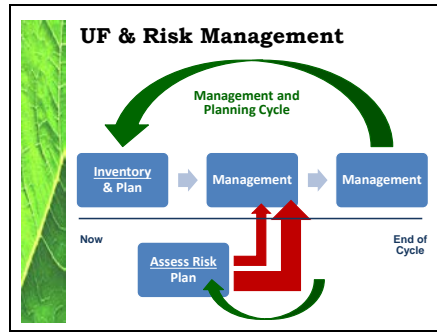
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A recommended urban forest management workflow (or timeline):

- 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)
- implies,,, goals, objectives, strategy, priorities (and budgets)

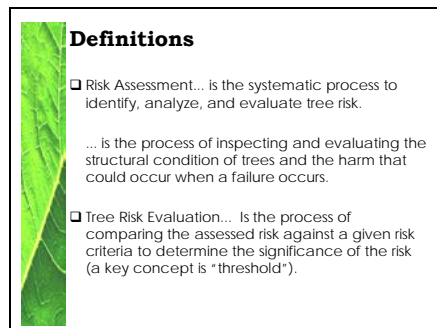
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An urban forest management workflow (or timeline) that adds Urban Tree Risk Management:

- 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

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Risk assessment is the “next” step after the urban tree risk management framework “sets the stage”...

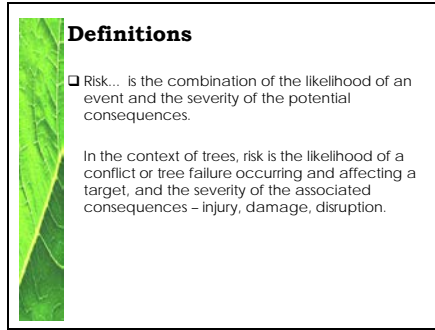
Assessment and evaluation (from ISA BMP: Tree Risk Assessment)...

- 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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Definitions

□ Risk... is the combination of the likelihood of an event and the severity of the potential consequences.

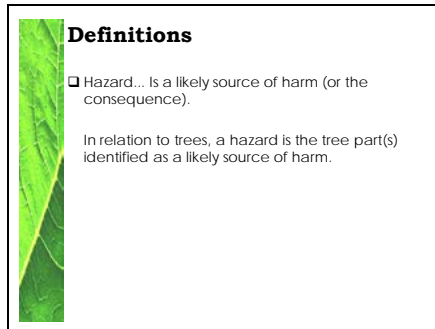
In the context of trees, risk is the likelihood of a conflict or tree failure occurring and affecting a target, and the severity of the associated consequences – injury, damage, disruption.

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

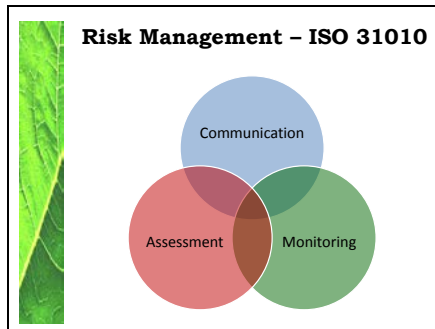
□ Hazard... Is a likely source of harm (or the consequence).

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

- communication and consultation
- risk assessment
- monitoring and review

For arboriculture these include:

- ANSI A300 (Part 9)-2011 Tree Risk Assessment; a. Tree Structure Assessment, Tree Care Industry Association, Inc., Londonderry, NH
- Best Management Practices: Tree Risk Assessment (2011), Smiley, E.T., and N. Matheny, S. Lilly, International Society of Arboriculture, Champaign, IL
- Tree Risk Assessment - Manual (2013), Dunster, J. and E.T. Smiley, N. Matheny, and S. Lilly, International Society of Arboriculture, Champaign, IL (i.e. TRAQ)

The ANSI A300, Part Tree Risk Standard also standardizes the language of risk used by risk management professions; see Primer on Risk Analysis: Decision Making Under Uncertainty (Chapter 1) – Charles Yoe .