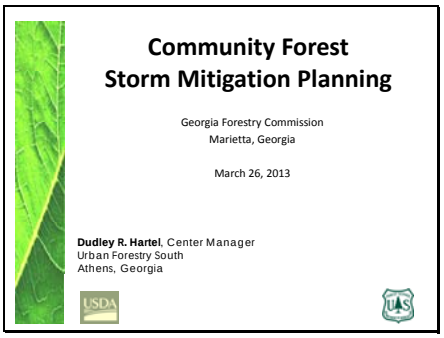
Slide 1



This Powerpoint contains two presentations for the Georgia Forestry Commission workshop series on Storm Mitigation Planning.

The first is a short review of the workbook section beginning on Page 25 that guides users through the development of a storm mitigation map.

The second is a discussion of disaster response/recovery experiences of the Urban Forest Strike Teams (UFST) related to disaster planning.

This presentation is a modification of the March 19th workshop in Gainesville.

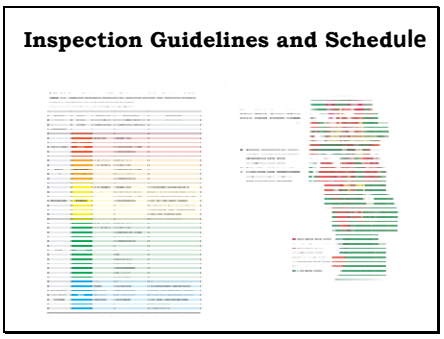
Slide 2

The purpose of the storm mitigation map is provide local managers with a tool that can be used to identify, prioritize, and mitigate public areas associated with disaster response that are most vulnerable to tree failure.

The map is designed to be a "first pass" tool. This means that it is used as a guide for inspections that might include:

- Pre-Level I Risk Assessment (e.g. Google Maps – Street View)
  - Street segment of concern (yes/no)
- Level I Risk Assessment – drive-by/walk-by
  - Tree counts by diameter class
  - Trees of Concern/No Trees of Concern
  - Obvious mitigation needed (prune or remove)
  - Specific Level II's
- Level II Risk Assessment
  - Risk rating
  - Tree prioritization
  - Mitigation

Slide 3



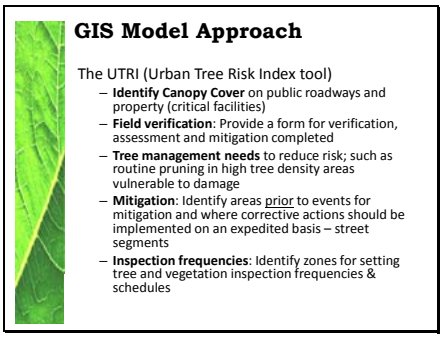
The development of **risk zone mapping** was identified in the 2003 Urban Tree Risk Management guide from the Northeastern Area.

The results of an urban tree risk management program would include risk zone classification and prioritization.
This example exercise was competed by a small group on paper maps based on their collective knowledge of their community; tree risk zones look at the public and private areas within the community boundary.
Level of risk posed to public safety is based on risk criteria like:

- Roadway characteristics,
- Public use and occupancy,
- Tree resource characteristics, and
- Location factors (tree/infrastructure conflicts).

Reference:
Urban Tree Risk Management: A Community Guide to Program Design and Implementation; Jill Pororny, St. Paul, MN, USDA Forest Service , NA-TP-03-03.

Slide 4



A modification of the Urban Tree Risk Management guide for **regional mapping to support disaster planning** lead to the development of the Urban Tree Risk Index model.

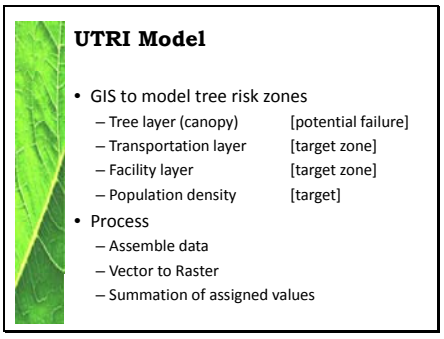
How the UTRI GIS model is implemented:

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

Reference:

Rachel Barker, Regional Urban Forester
Central Alabama Regional Planning & Development Commission (CARPDC)
Montgomery Alabama (US)

Slide 5



GIS models work with layers, and the model assembles 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 functions as surrogates for rating street segments as "potential" areas of concern, inspection, and subsequent mitigation.

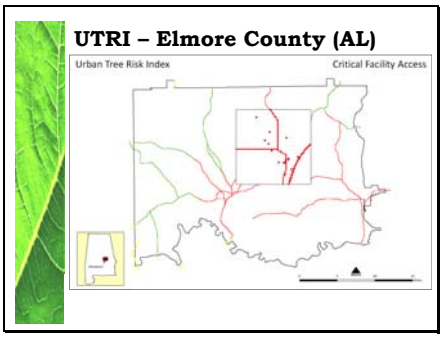
The transportation layer (since the analysis is primarily disaster response oriented) and the facility layers establish the "target zones" when trees are present.
Population density is a surrogate for (target) occupancy; that is, the higher the population density the more frequently people (as pedestrians, 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 have a finer resolution; and also should be more current:

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

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

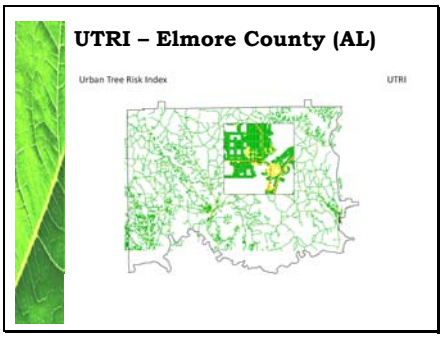
Slide 6



The facility access layer with the downtown Wetumpka area as an example detail.

This layer (and index component) represents the routes need to access the critical facilities.

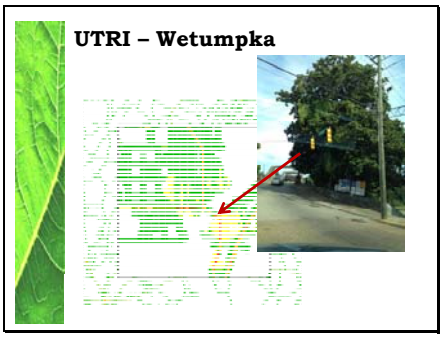
Slide 7



The final UTRI rating layer with the downtown Wetumpka area as an example detail.

Red identifies street segments (i.e. blocks) with the highest risk; followed by orange, yellow, and green.

Slide 8



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

Pre-Level I Risk Assessment is used to verify the GIS model and identify segments for Level I or Level II inspections.

Mitigation can then be prioritized based on Level I or II assessments.

Slide 9

Community storm mitigation mapping

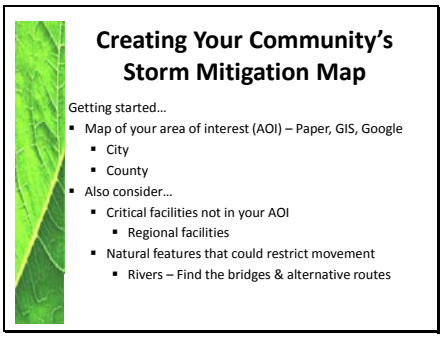
In the context of disaster response, you should consider:

- Critical facilities
- Population density
- Routes to access facilities and people
- Tree canopy or tree locations

Sources for this data include:

- Aerial photography (e.g. most current NAIP or local digital orthophotos)
- Your county's Hazard Mitigation Plan, or the local emergency manager
- Department of Homeland Security – HSIP Gold 2012 (set of 5 DVDs that includes infrastructure, roads, points of interest, and population (day & nighttime).

Slide 10

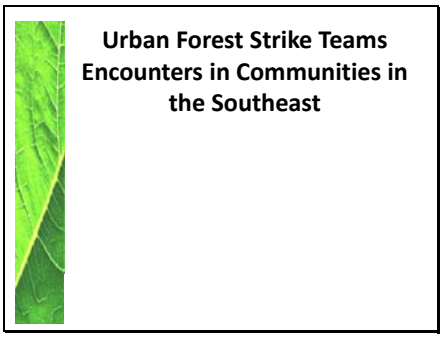


Obtain a map (paper, digital) that includes your community (i.e. area of interest).

Delineate your community; then mark facilities, roads, population, and trees.

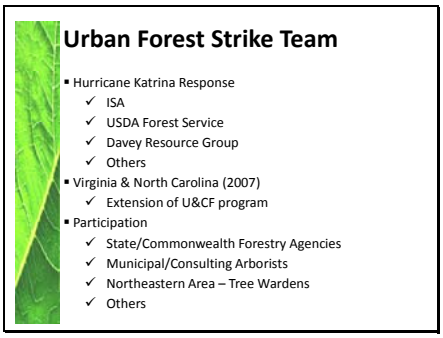
Consider facilities outside your area and the routes needed to reach them following a disaster; also consider natural features like rivers and the bridges that cross them that may be particularly vulnerable.

Slide 11



This is the second section of the Powerpoint; a discussion of disaster response/recovery experiences of the Urban Forest Strike Teams (UFST) related to disaster planning

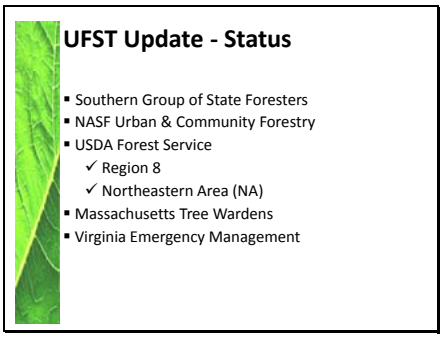
Slide 12



UFST (Urban Forest Strike Team) is a disaster response and recovery project initiated by the U&CF programs in Virginia and North Carolina in 2007 and supported by the Southern Group of State Foresters (USDA FS Region 8). The UFST concept has been implemented by the northeastern and mid-western states (USDA FS Northeastern Area) and the regional programs are operated as a single program with shared resources.

Urban Forest Strike Teams (UFST) are composed of state forestry agency certified arborists and urban foresters trained to make urban tree risk and damage assessments following natural disasters. In many states, municipal and consulting arborists have participated. The concept has been adopted by the Northeastern Area (USDA FS) and in that region extension foresters and tree wardens are also trained in UFST techniques. UFST equipment, methodology, and training workshops are now coordinated between the two regions.

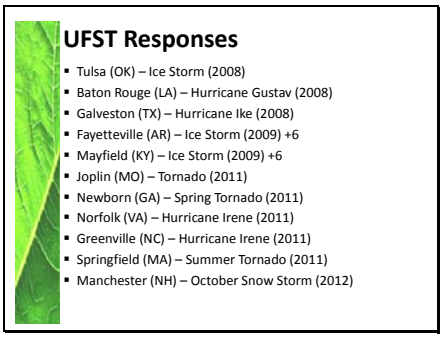
Slide 13



Primary participation includes:

- Southern Group of State Foresters (southern UFST Advisory Committee)
- National Association of State Foresters (NASF) Urban & Community Forestry Committee
- USDA Forest Service
    - Athens, Georgia
    - Durham, New Hampshire
    - St. Paul, Minnesota
- Massachusetts Tree Wardens & Foresters Association
- Virginia Emergency Management (VDEM) – Debris Manager and EMAC Coordinator

Slide 14



Where we have helped communities following natural disasters…

Ice, wind, and snow!

Slide 15

The UFST experiences fall into three categories:

- Planning & preparation
- Internal (i.e. community) organization
- Level of UF management, particularly urban tree risk management

Within these three overall categories we have observed several key areas that affect disaster response (relative to our involvement on behalf of the community).

Size and capacity of staff…

While staff size is typically a function of community size and not to controllable, their capacity (i.e. how much can they accomplish in a given time, and their professional limits) is more of a function of planning & organization. We have seen, and worked with a range of staff sizes and capacity, and capacity is by far the important element.

Capacity can be extended with contracts, and when these are in place then initial response and then recovery can proceed regardless of the staff limitations (i..e often during a disaster the staff's regular duties are superseded with more immediate disaster–related community needs).

UFST responses are at the request of the community (made through the U&CF Coordinator in the state forestry agency; Susan Granbery in Georgia) and we function as a "contractor" to expand the staff's capacity.

Also, working with a city manager, public works director, or city arborist that has decision, purchasing, and coordination authority (during the disaster) makes UFST work go more smoothly (i.e. efficiency).

Community management…

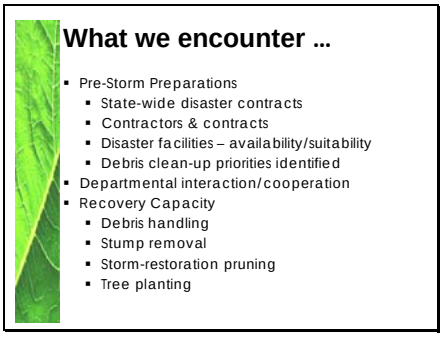
A community's overall policy (attitude) on (tree) risk really is the controlling factor on how the community responds to a disaster, and how UFST (or other contractors/volunteers) can provide assistance. The "Urban Tree Risk Management: A Community Guide to Program Design and Implementation (Jill Pokorny)" has a good discussion on risk policy development as part of a comprehensive urban tre risk management program.

Then, any written management plans, particularly that include inventories, can be useful during disaster response/recovery. These can be used by staff (or UFST) to organize work for in-house or contract debris crews, communicate with FEMA (maybe!), and provide consulting contractors and UFST valuable information for more efficient response.

Your connection with state agencies (particularly forestry and emergency management) are critical; these connections, introductions, and discussions must occur prior to the disaster (i.e. in planning).

Your FEMA connections are NOT made pre-disaster; but, creating a good, solid relationship when they show up at your door step (i.e. the day after the storm) can be important. Even if you have contracted out the management of the disaster to an engineering firm the lead community management and debris manager should still be on FEMA Field Debris Manager's radar; in necessary give them office space next to your office.

Slide 16

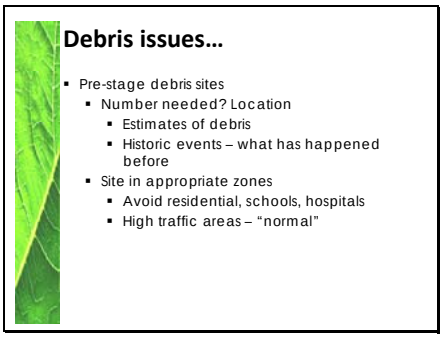


Pre-storm preparations…

Departmental interaction…

Capacity needs beyond FEMA's presence in your community…

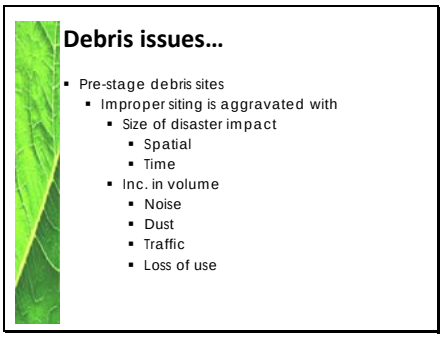
Slide 17



During disaster planning, identify potential debris storage areas that are:

- Located optimally for expected debris (your best guess and multiple locations will work)
- Large enough to handle x% of your maximum debris (where x is a number between 20 – 40 % probably)
    - You will have to estimate maximum debris based on inventory data that you have, or street segment sampling coupled with a local volume table (then converted to loose debris)
    - Based on past storm history & records (you do have them!)
- In locations that don't create NEW problems for your community:
    - "Normal" traffic considerations
    - Proximity to critical facilities is NOT good

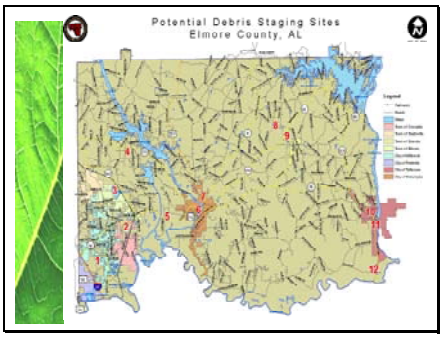
Slide 18



During disaster planning, identify potential debris storage areas that are:

- In locations that don't create NEW problems for your community:
  - Truck traffic
  - Noise
  - Dust
  - Critical facilities
  - Loss of use (for extended periods) – It may take longer than you think to move debris from a temporary storage/staging site

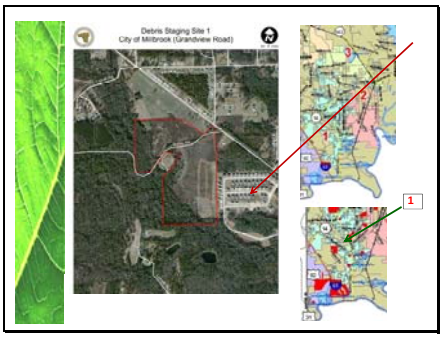
Slide 19



An example form CARPDC using UTRI modeling to help locate potential sites.

This sites shows the 12 most viable debris staging sites that can then be related to population density, tree canopy, road access, or the UTRI index by street segment.

Slide 20



iled study of one of those sites.

is an example within the City of Millbrook. This site is currently owned by the school board for a future school. It is open pasture primarily with access to a state highway.

adjacent sub-division AND also downwind; this could be a problem; if debris is placed immediately west of the [property line.

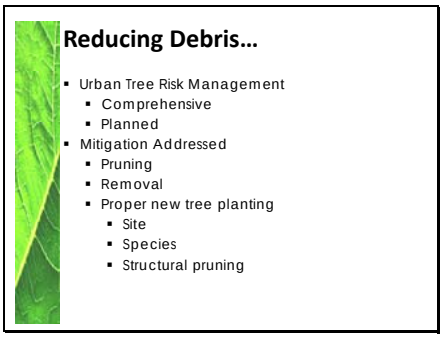
otherwise:

Good access to site (major county road)

Very large even with sub-division restrictions

Located in densely populated area of county where it wil be necessary to clear debris to return to "normal" community activity

Slide 21



How can you reduce debris, short of removing every tree in the community! (NOT a good idea; see benefits discussion)

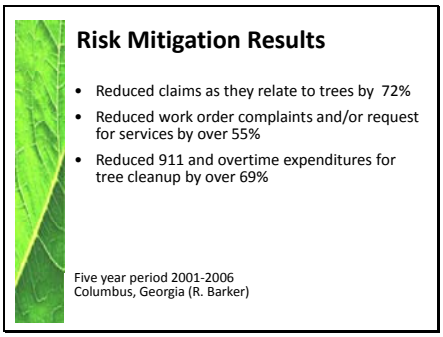
Urban Tree Risk Management, a compete, comprehensive approach, will move you steadily toward debris reduction, greater public safety, and less frequent interruption of services for:

- Tree "problems" during normal weather conditions can be virtually eliminated
- Staff responses and debris following "typical" severe storms will be significantly reduced
- Disaster debris following extraordinary storm events (state & federal disaster declarations) will be reduced

Mitigation is primarily:

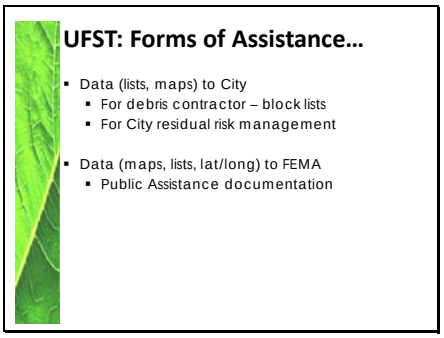
- Pruning (deadwood and structural integrity)
  - Manage your young trees aggressively
- Removals
- Some other activity may be warranted

Slide 22



Here are some measured results from an aggressive tree risk management program in Columbus, Georgia (from Rachel Barker).
I show these to demonstrate the measured success a tree risk management plan can have for a community.
These results are "normal" and "typical" weather results even without a disaster declaration-sized storm.

Slide 23



Urban Forest Strike Teams (UFST) provides data to a community that can be used:

- To work directly with debris contractors (assuming your community has a direct contract, or management of that activity)
- To provide to FEMA as documentation for Public Assistance (PA) reimbursement
- To manage residual risk following debris clean-up
- To plan for post-storm tree management (e.g. restoration pruning)

Slide 24

Let's open the floor for questions, comments, and discussion.

Slide 25

Please feel free to contact me, or search on-line.
Search for:

- disaster
- UTRI
- mitigation

Slide 26

Some additional "slides" that may be useful depending on questions during the presentation.

Assess and mitigate to avoid consequences…

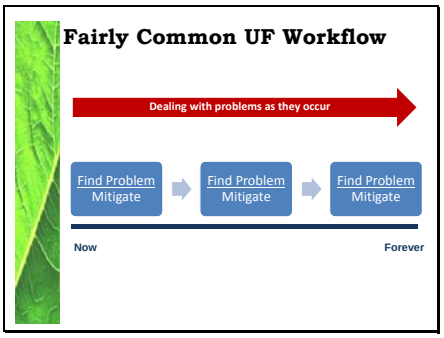
- Damage
- Interruption
- Injury

Slide 27

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

- Budget implications
- Workforce scheduling implications

Slide 28

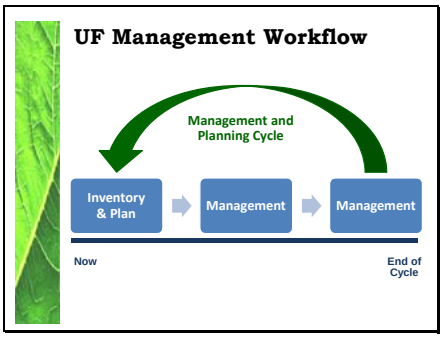


A common approach to urban forest management (workflow or timeline):

- 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!).

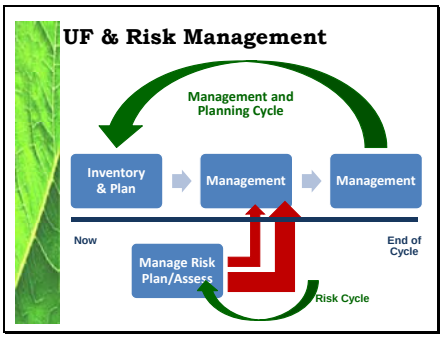
Slide 29



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)
  - **risk assessment, mitigate** (during normal management activities; no specific goals, objectives, strategies, timeframe)
  - special areas or purposes (riparian areas, parks, watershed protection, carbon, pedestrian amenities)

Slide 30



An urban forest management workflow (or timeline) that adds comprehensive 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 management: policy, plan (objectives, strategies, & timeframe), assess, mitigate, review & revise risk plan**
  - 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