



Response

Best Management Practices for Municipalities

N.C. Forest Service Urban and Community Forestry

PROTECTION SERIES



1. Initial Damage Assessment, Event Classification

- Complete the initial storm damage assessment to ascertain the scope of damage and resource needs.
- Classify the event according to your event classification.

2. Mobilization

- Secure the resources based on the event classification to fill the task areas required to respond to the event.
- The team leader briefs the team and assigns task areas of responsibility.

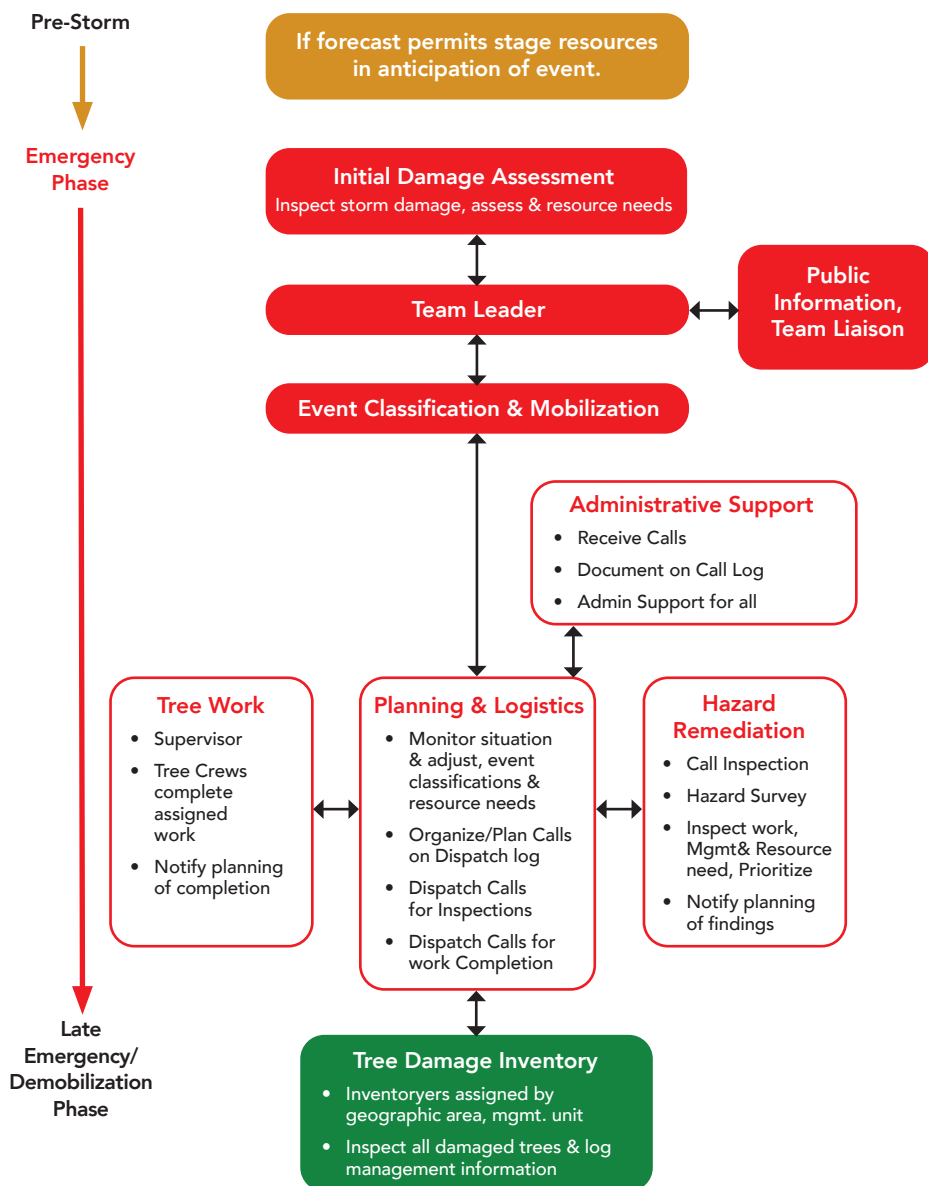
The chart to the right illustrates the chain of command by task areas and tasks to be completed that will take place from now through the response phase.

Resources: Requesting Regional or State Resources

- County Emergency Management Agencies
- N.C. Forest Service
– Contact your NCFS county ranger.
www.ncforestservice.gov

You have completed your readiness work, and you are prepared for expected and unexpected storm events, minor or significant. A tree-damaging event has occurred. Let's get to work, but pause and take note:

- Safety first for you, your staff and the public.
- Help is available and willing.



3. Event Action Planning and Operations

The following chart provides event action planning and operational guidance by activity and event class.

- Team leader and planning team work each of the activities according to the event class.
- Increase the event classification and mobilize additional resources as necessary.
- Decrease the event classification as the workload dictates, demobilizing resources until the response phase can be declared finished and the recovery phase begins.

Initial Damage Assessment	<ul style="list-style-type: none"> • On-call staff receives calls and performs damage assessment. • Conducts windshield survey to quantify the damage, scope and resources needed 		
Event Class	CLASS ONE (1)	CLASS TWO (2)	CLASS THREE (3)
	Damage remediation can be managed by urban forestry response team.	Damage remediation requires all community resources and possibly some outside resources.	Damage remediation requires outside assistance.
Mobilization	<ul style="list-style-type: none"> • Partial or full urban forestry response team 	<ul style="list-style-type: none"> • Community emergency response team • Full urban forestry response team • May require outside resources 	<ul style="list-style-type: none"> • County/State emergency response team • Community emergency response team • Full urban forestry response team
Incident Action Plan			
Management Units	Quadrants or not required	Storm Management Units required	Storm Management Units required
Storm Damage Assessments	<p><i>Hazard Remediation</i></p> <ul style="list-style-type: none"> • Call Inspection as call received or by quadrant • Hazard Survey by management unit may be required. <p>Post-inspection of damaged trees may be warranted.</p>	<p><i>Hazard Remediation</i></p> <ul style="list-style-type: none"> • Call Inspection by quadrant or management unit • Hazard Survey by management unit required <p><i>Tree Damage Inventory</i></p> <ul style="list-style-type: none"> • May be required by management unit 	<p><i>Comprehensive Initial Tree Damage Assessment</i></p> <ul style="list-style-type: none"> • May be required <p><i>Hazard Remediation</i></p> <ul style="list-style-type: none"> • Call Inspection • Hazard Survey required <p><i>Tree Damage Inventory</i></p> <ul style="list-style-type: none"> • Required
Tree Work	Crew(s) dispatched by quadrant and priority if warranted	Crews assigned to quadrant/management unit and work dispatched by priority. Primary work is hazard remediation, not debris clean up.	Crews assigned to management unit and work dispatched by priority. Hazard remediation work only
Debris Cleanup	Completed by tree crews while on-site or based on Dispatch Log reporting.	Managed and completed by other community resources	Managed and completed by multiagency resources
Demobilization	<ul style="list-style-type: none"> • Workload reaches point that the response ends and recovery begins • Compile, review, organize Hazard Remediation work records and Storm Damage Inventory data for recovery work. • Review and evaluate your response. Celebrate your accomplishments and take steps to resolve any deficiencies. 	Workload reaches point that the event classification can be reduced to Class 1.	Workload reaches point that the event classification can be reduced to Class 2.

Planning and Operations Guidance & Tips

The following details operational information and issues for consideration during the response phase.

Tree Damage Assessments

Initial Damage Assessment and Planning

Be sure conditions are safe for your workers before you dispatch staff and crews to begin work.

In serious events, downed debris may be blocking roadways, restricting safe access of emergency services and completion of tree damage assessment and tree work. Clearing roadways will obviously be the first priority.

Hazard Remediation

Downed tree debris is easy to identify and prioritize. Assessing the safety risk of the various types of tree storm damage requires qualified professionals. That said, a layperson can be trained to inspect damaged trees for outward signs of damage and take action to remedy the

hazardous condition and/or call for the qualified professional on your team for consultation. The following are some simple steps an inspector should perform while inspecting a storm-damaged tree as well as typical types of damage to look for.

A common oversight is to just focus on the reported damage.

- View the whole tree at a distance from various vantage points to identify safety issues (electric lines, tree/damage stability) and tree damage.
- Walk around the base of the tree. Inspect the anchor roots up the trunk and main structural branches out to the smaller branches of the tree.
- Look at adjacent trees for damage.

The following photographs below illustrate typical storm damage that may present a safety risk and should be addressed during the emergency or response phase. Also see NCFS Storm Damage Tree Assessment BMP.



Downed debris can be cleared like a leaf collection or snow removal operation. Debris can be cut, piled in the road and pushed to intersections for loading and hauling.



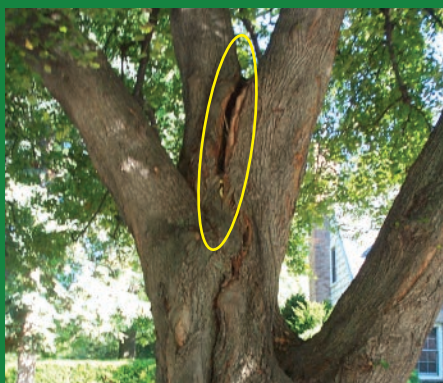
Downed debris entangled with utility lines will require coordination with local utilities to safely remove the debris. Inspectors will notify Planning to coordinate.



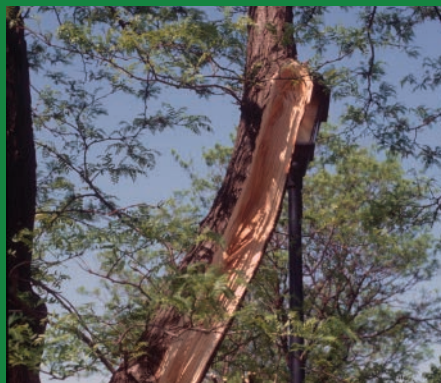
Root Zone — Leaning tree. Not all leans are dangerous. If the ground around the base is not cracked and moving, have your qualified arborist inspect the tree. If the ground is cracked and moving, remove the tree.



Trunk — Cracks that are moving or associated with a cavity or decay are dangerous. Have your qualified arborist inspect the tree.



Main Scaffold Branch Attachments — Cracks. Remove tree.



Branches — Split or rips as pictured here. Remove the branch.



Branches — Broken and hanging in the tree (hanger). Remove hangers.

Tree Damage Inventory

It is important that the information collected in the tree damage inventory provides the data necessary to make informed management decisions and implement a recovery plan. Being thorough now will minimize the need for reinspections in the near future and facilitate managing challenges that arise with the passage of time and implementing a plan. There are two categories of data that should be collected: location information and tree management data. This inventory work should be completed by an ISA Certified Arborist with tree inventory work experience, and better still, one who is Tree Risk Assessment Qualified. The following tables detail the data that should be collected and why.

Category	Reasons	Category	Reasons
Location Data	Facilitate an inspector or crew to return to the exact tree for inspection or to complete work	Tree Management Data	Management need of the tree at the time of inspection and data to assist in making future management decisions
Property Location	Property name, street, address, and location of the property. Backup for "poor" GPS coordinates	Management priority	Planning and implementation
Management Unit	Work planning and implementation	Tree health and structure	Data for making management decisions. Pruning versus Removal
Tree ID number for tree at site	Unique ID number at the site differentiating one tree from another. Numbered tags nailed on the tree can be used.	Site type, dimensions and quality of site	Poor site – variable in removal decision. Site information for replacement tree planting decisions.
GPS Coordinates	Locates tree on large properties. Facilitates mapping for planning purposes.		

Resources: Tree Inventories

- N.C. Forest Service Urban & Community Forestry
– www.ncforestservice.gov
- International Society of Arboriculture
– Shop store at www.isa-arbor.com



Crown Loss – The collective total loss of live branches of the tree due to storm damage and storm damage pruning. Trees with crown loss will comprise the largest percentage of standing damaged trees. Collecting good management data will facilitate developing a complete recovery plan (pruning, removal and planting) and challenges that may present themselves with the passage of time and implementation.

Resources: Storm Damage Tree Assessment

- N.C. Forest Service Urban & Community Forestry
- NCFS U&CF Storm Damage Tree Assessment BMP
– www.ncforestservice.gov

The N.C. Forest Service is a division of the N.C. Department of Agriculture and Consumer Services. Steve Troxler, Commissioner.

The N.C. Forest Service is an equal opportunity/affirmative action employer. Its programs, activities, and employment practices are available to all people regardless of race, color, religion, sex, age, national origin, handicap or political affiliation.

This publication was made possible through a grant from the U.S. Forest Service. This is a 'print-as-needed' document available at N.C. Forest Service offices and at www.ncforestservice.gov.

