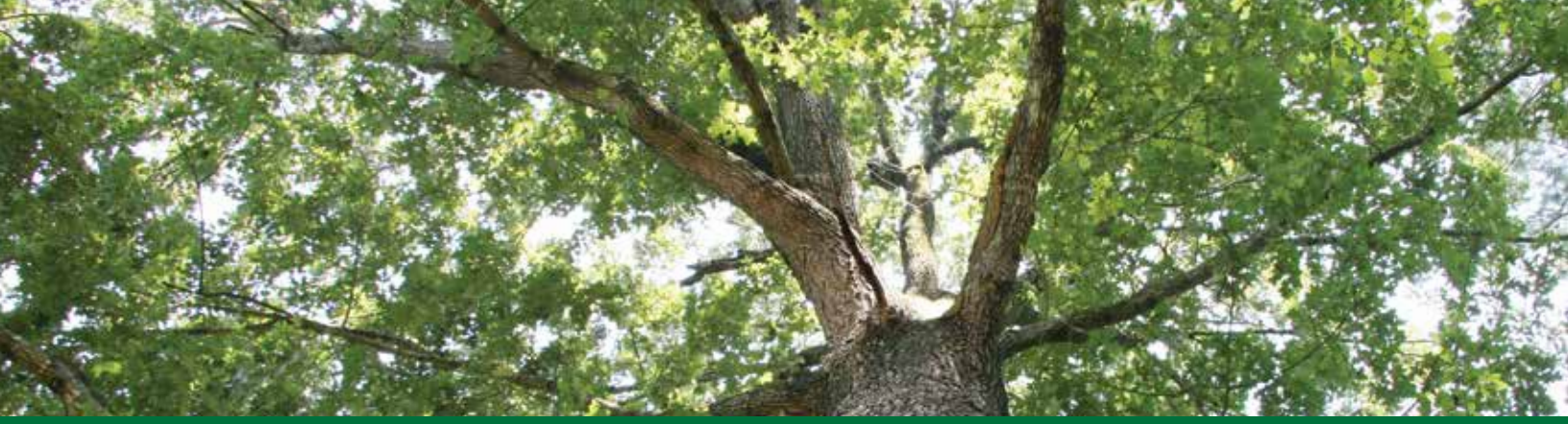


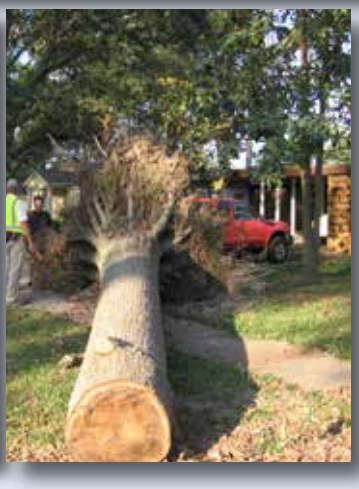
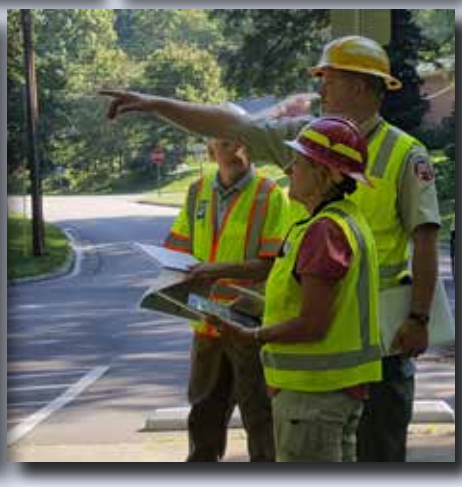
Community Forest Storm Mitigation Planning

A Guide for Communities

Book 3 — Storm Response





FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

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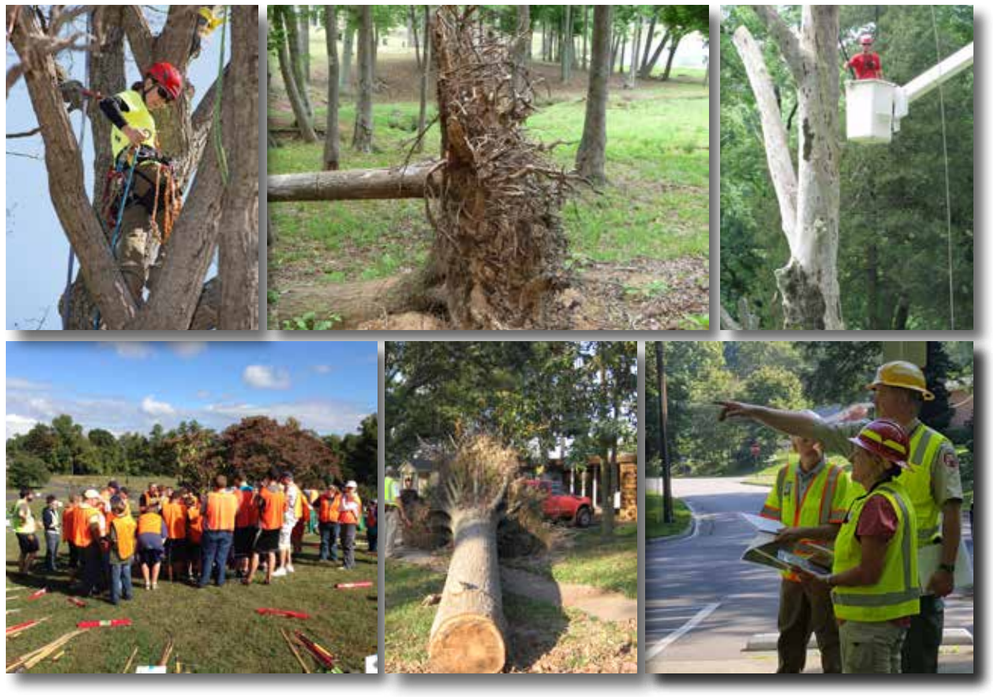

Book 3 — Storm Response

Workbook

2022

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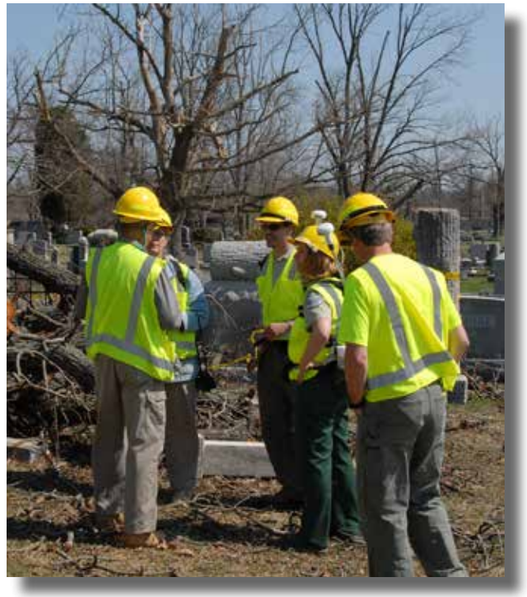
STORM RESPONSE

STORM RESPONSE

Community forest storm response begins with the mobilization of resources immediately prior to an anticipated event and continues through the short-term recovery efforts required to restore community-wide clearance of fallen trees and woody debris. Initial storm response focuses on:

- Mobilization of resources;
- Clearing fallen trees and woody debris from high priority areas, then entire community;
- Debris management;
- Tree risk and damage assessments;
- Public information;
- Record keeping, and
- Cost reimbursement through FEMA public assistance grants.



A. Mobilization

The responsibility for mobilization of equipment and resources should be assigned to a member of the storm mitigation team. The removal of fallen trees and woody debris will begin immediately as storm damage is identified by debris removal crews and calls are received providing information on the location of downed trees and damage. All tree, limb and stump removal should be done in accordance with Occupational Safety and Health Administration (OSHA) rules and regulations.

Priorities for mobilization should be established by the community, using the Storm Mitigation Map. Crews should be directed to clear fallen trees and woody debris from the highest priority areas first, including:

- Priority roads
- Priority facilities
- Emergency evacuation routes
- Buildings, vehicles or other situations with a personal injury
- Buildings and vehicles without injured persons
- Utility repair
- Remaining rights-of-way, public buildings and public facilities

✓ **Record on the template the priority areas for the removal of fallen trees and woody debris.**

✓ **Record on the template the person responsible for mobilizing resources to respond to storm damage.**

B. Debris Management

1. Landfill Diversion

Landfill diversion is one of the easiest ways to save money on debris removal, can help you meet your community sustainability goals, and can support economic development opportunities. Various approaches that keep vegetative debris out of the landfill present the best opportunity to reduce the overall costs of cleanup. In addition to saving money, a thoughtful approach to vegetative debris management can create revenue and provide excellent opportunities for economic development by attracting new businesses and increasing employment.

Reducing woody debris volumes primarily involves grinding and chipping, with costs basically equal to that of incineration. Recycled wood chips are most commonly used as mulch for landscaping, agricultural, or erosion control purposes, but may be used as fuel for industrial heating or in a co-generation plant if clean materials can be separated and chipped to proper specifications. For massive amounts of green waste, it may be necessary to coordinate community efforts through regional agreements.

Optimally, the post-disaster increased demand for landfill diversion would build on existing landfill diversion practices. In order for these existing practices and contracts to meet federal standards, they will need to include post-disaster ramp-up language in the contracts and protocols. In putting in place contracts that meet the federal procurement requirements and include provisions that allow for use in post-disaster events, you will have contracts that function in good weather and bad.

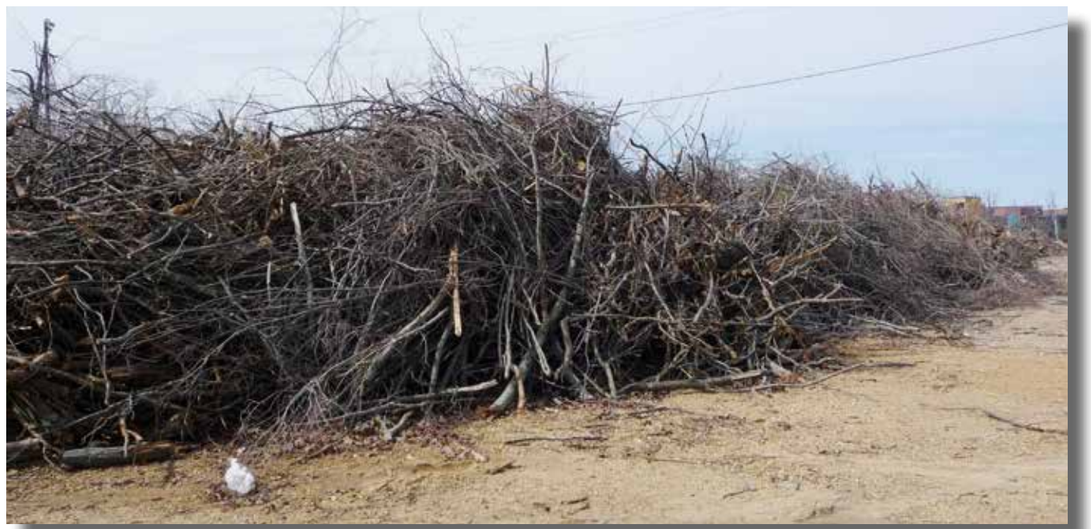
2. Debris Staging and Storage

During storm preparation, one or more debris storage sites that will accommodate large volumes of woody debris and logs should have been established. The routes to these debris storage areas should be cleared immediately after the routes to critical facilities have been cleared.

- ✓ **Record on the template the location of all debris storage sites.**
- ✓ **Record on the template the person responsible for coordinating debris staging and storage.**

Woody debris should be kept separate and free from metals, plastics or other contaminants so that it can be utilized later. An initial sorting of debris should be done at each debris storage site to the extent practical to sort brush and limbs from trunks that may be marketable as saw logs.

Property owners should keep woody debris separate from garbage, yard waste and demolition debris. Public service announcements should inform property owners about pick-up times and schedules and emphasize that the removal of standing trees and woody debris on streets leading to critical facilities will be a priority.



Brush and limbs should be chipped for mulch and be made available free to the public after storm response and short-term recovery are complete. An effort should be made during long-term storm recovery to utilize mulch for mulching all public trees where practical. Chips not suitable for mulch should be marketed as bio-fuel.

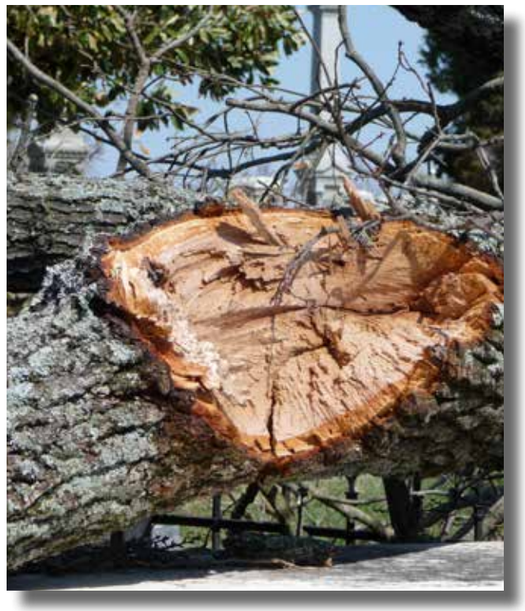
Saw logs should be marketed to area saw mills or other local wood turners for use as dimensional lumber, furniture or other products.

To facilitate this, a list of those able to pick up or receive wood for professional use should be developed in advance of any disaster event, along with protocols for how materials will be advertised/distributed.

3. Debris Estimation

FEMA provides information on debris management and estimation on its website (www.fema.gov).

- ✓ **Record on the template the person responsible for debris estimation.**



C. Tree Risk And Damage Assessments

After the initial response, the community can utilize government staff, consultants, Urban Forest Strike Teams[2] or trained volunteers to assess tree risk immediately following a storm as roads are cleared and trees can be accessed.

Tree risk assessment crews will perform a Level-1 risk assessment as soon as it is safe to travel in the affected area. The location of trees and stumps needing pruning or removal for risk mitigation and hazard reduction as determined by ISA Certified Arborists or other trained personnel shall be recorded using either a GPS-based data collection system or paper tally sheets. Other information needed for FEMA Public Assistance shall be recorded. Some trees may be identified for a Level-2 Risk Assessment by the city/county arborist/forester.

Particular attention should be paid to trees with:

- Hangers (detached limbs hanging in the crown)
- Splitting limbs
- Splitting trunk
- Leaning trunk with soil broken and heaved opposite the lean
- Exposed heartwood

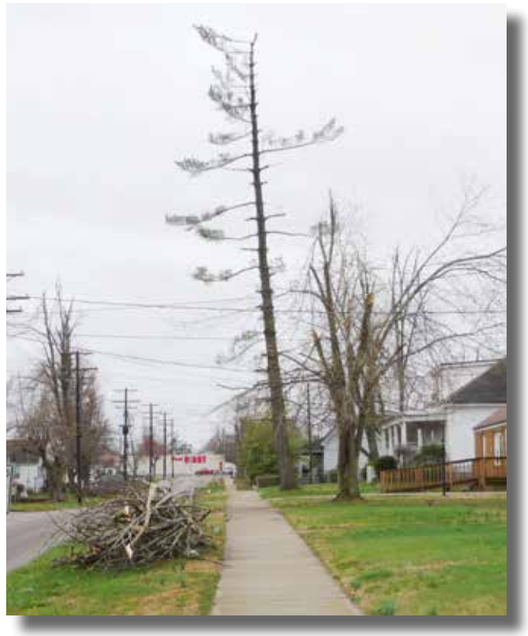
[2]Contact the state U&CF Coordinator to request tree damage assessment assistance from the Urban Forest Strike Teams (UFST). UFST can also be ordered through state Emergency Management Agency coordinators.

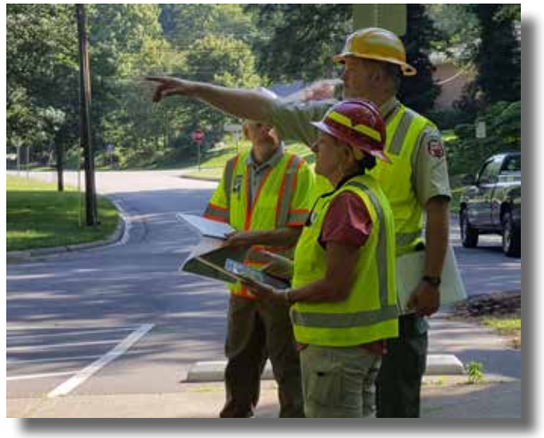
Record on the template:

- ✓ **The groups or individuals who will be performing tree risk and damage assessments.**
- ✓ **The person responsible for coordinating tree risk and damage assessment crews.**
- ✓ **The types of conditions that will require pruning or the removal of additional standing trees due to their imminent risk of failure and damage potential.**
- ✓ **The person responsible for determining which standing trees should be removed.**

The location of public trees that are not hazardous but meet the following criteria should also be noted during tree risk assessment and should be removed after initial response and recovery:

- Primary trunk failure (broken tops, less than 50 percent of the crown remaining);
- Co-dominant trunk failure with less than 50 percent of crown remaining, and
- Multiple limb failures with less than 50 percent of the crown remaining.





D. Information

During storm response, information provided to the community should focus on safety, tree risk and debris cleanup efforts. The scripts, press releases and public service announcements developed in preparation for an event should be customized to fit the details of the current storm event. After initial response is completed, information and education can be refocused on long-term recovery and restoration of the community forest.

The person responsible for providing information and education during storm response, if not the tree care manager, should work closely with the tree care manager to make sure that information being provided to the public regarding trees is accurate.

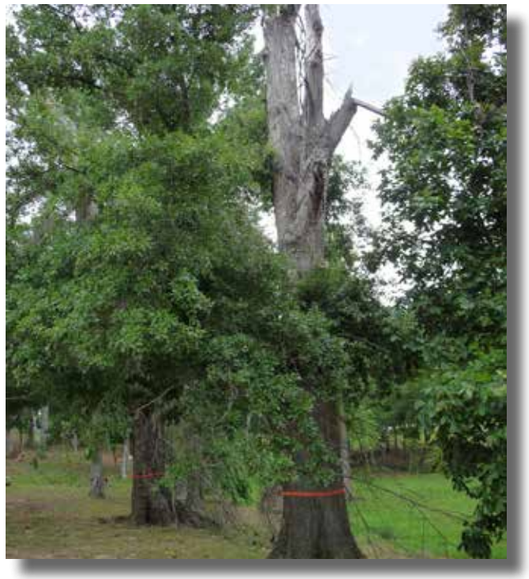
- ✓ **Record on the template the person responsible for providing public information during a storm event.**

E. Response Record Keeping

During initial storm response and short-term recovery, the following records should be retained:

- Tree and debris removal call log;
- Debris removal costs;
- Debris volume estimates;
- Number and location of trees removed;
- Number and location of trees pruned;
- Number and location of stumps removed;
- Hazardous tree, limb and stump removal costs;
- Contractor invoices;
- Staff hours by person;
- Equipment hours by piece of equipment;
- Volunteer hours by person and activity;
- Volunteer contact information, and
- Tree damage assessment data and costs.

Documents and record keeping required by FEMA for obtaining Public Assistance grant funding for reimbursement of response and recovery costs are described in the following section.



F. FEMA FUNDING

FEMA provides Public Assistance grant funding for the removal of hazardous trees, limbs and stumps that present immediate threats to lives, public health and safety or improved property and meet other eligibility criteria. The documentation of costs and work performed that is required for receiving funding is outlined on FEMA's website https://www.fema.gov/public-assistance-policy-and-guidance.

Public Assistance Funding

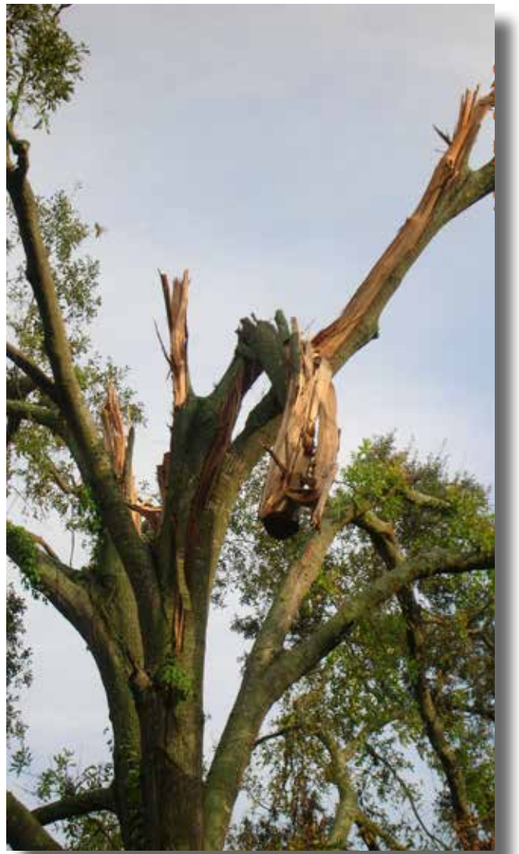
A major disaster declaration can provide a range of assistance for municipalities under FEMA's Public Assistance Program, including reimbursements for both emergency and permanent work. In addition to the previously discussed vegetative debris removal and monitoring, many communities will want to replace at least some of the damaged or destroyed trees after a disaster, which is allowable under certain circumstances.

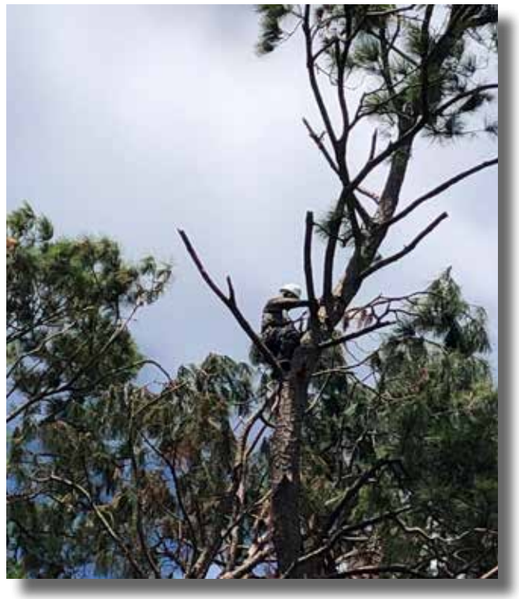
"Plantings (such as trees, shrubs, and other vegetation) are eligible when they are part of the restoration of an eligible facility for the purpose of erosion control, to minimize sediment runoff, or to stabilize slopes, including dunes on eligible improved beaches. Grass and sod replacement is eligible if it is an integral part of the restoration of an eligible recreational facility. Vegetation replacement is also eligible if necessary to restore the function of the facility (e.g., if vegetation is a component of a sewage filtration system)." -FEMA PAPPG

Landscaping around public facilities or in median strips along roadways, planted for "cosmetic or aesthetic" purposes are not eligible for restoration or improvement funding through FEMA Public Assistance. This ineligibility statement for the most common purpose of public plantings highlights the necessity of documenting, prior to the disaster, the role of specific trees as infrastructure components of a city or county's stormwater management or erosion control system.

Hazard Mitigation Funding

FEMA provides several types of hazard mitigation assistance that can fund a community's expansion of the use of trees as infrastructure that reduce the risk to future damage under the Public Assistance 406 program, or through grants administered by the State which include the 404 HMGP, Flood Mitigation Assistance or the new Building Resilient Infrastructure and Communities (BRIC)program that replaces the existing Pre-Disaster Mitigation (PDM) program. Check https://www.fema.gov/hazard-mitigation-assistance for additional details and for the most up-to-date information.





1. Hazardous Trees Documentation

Hazardous tree removal is eligible for Public Assistance grant funding for all trees leaning and in an imminent state of falling or those whose canopies pose an immediate threat to life, public health, safety and improved property. Trees must be six inches or larger in diameter measured at 4.5 feet above the ground to be eligible.

Documentation required for hazardous tree removal includes:

- Spreadsheet showing the number of trees removed and size and location of each tree;
- Location should include the street/road name and GPS coordinates of each tree removed along public rights-of-way and the property address and GPS coordinates of each tree removed from private property, and
- Photographs of trees cut flush with the ground along with a certification that the trees were 6 inches or larger in diameter.

✓ **Record on the template the documentation retained for hazardous tree removal.**

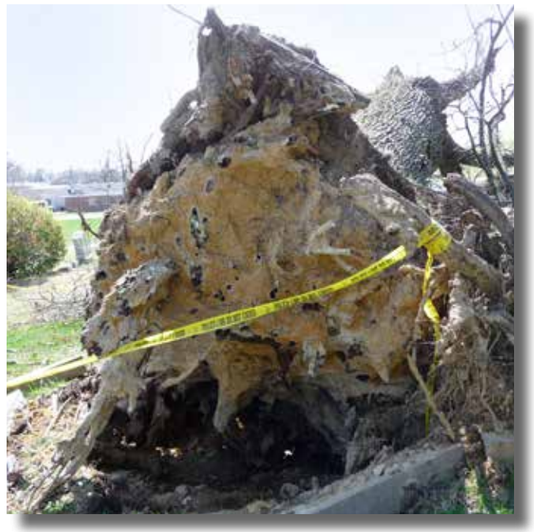
2. Hazardous Limbs Documentation

The costs of removal of broken limbs two inches or larger in diameter measured at the point of break that pose an immediate threat to life, public health or safety, or pose an immediate threat of significant damage to improved property, are eligible for reimbursement of Public Assistance grant funding.

Documentation required for hazardous limb removal includes:

- Spreadsheet showing the location of the trees and number of limbs cut on each tree (information on number of hazardous limbs removed per tree is not necessary if removal was contracted for on a per-tree basis);
- Certification that the limbs were two inches or larger in diameter;
- Location should include the street/road name and GPS coordinates of each tree with hazardous limbs removed along public rights-of-way and the property address and GPS coordinates for trees with hazardous limbs removed on private property, and
- Photographs showing the number of limbs cut.

✓ **Record on the template the documentation retained for hazardous limb removal.**



3. Hazardous Stumps Documentation

Public Assistance grant funding is available for the removal of stumps 24 inches or larger in diameter measured at 24 inches above the ground that have 50 percent or more of their root ball exposed. Reimbursement for the removal of stumps less than 24 inches in diameter will be based on the reasonable cubic yard prices for vegetative debris removal.[3]

Documentation required for hazardous stump removal includes:

- *Hazardous Stump Worksheet* (http://www.fema.gov/pdf/government/grant/pa/9523_11.pdf);
- Include number of hazardous stumps removed, locations and sizes;
- Quantity of fill material required to fill the remaining hole, and
- Photographs of the stumps removed may also be submitted.

✓ **Record on the template the documentation retained for hazardous stump removal.**

Applicants that request reimbursement for force account labor and equipment should provide all of the above information except the sizes of the stumps removed.

The FEMA documentation requirements stated above apply only when applicants are collecting, hauling and disposing of the debris. They do not apply during the emergency debris clearance phase when crews clear roads to provide emergency access to critical facilities. FEMA will validate hazardous tree, limb and stump removals in the field within 45 days of the completed operation.

✓ **Record on the template the person responsible for documenting the hazardous trees, limbs and stumps removed.**

[3]Please see *Disaster Assistance Policy* DAP9523.11, Hazardous Stump Extraction and Removal Eligibility, for additional information on the estimated volume of various size stumps.

Summary

Advance preparation leads to a fast and efficient disaster response. The critical components of an effective response are a Debris Management Plan, tree risk mitigation and proper documentation and record keeping.

Storm Response Action Items:

1. Develop a Debris Management Plan.
2. Contract with qualified debris haulers and monitors.
3. Require certified arborists be on staff for hazard mitigation.
4. Establish recordkeeping protocols to be federally compliant.

Next Book: Book 4. STORM RECOVERY

Notes

This institution is an equal opportunity provider.