



DR-4663-KY
Hazardous Limbs, Trees, and Stumps

Eligible Vegetative Debris

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Eligible vegetative debris may include tree limbs, branches, stumps, or trees that are still in place, but damaged to the extent they pose an immediate threat.

These items are ineligible if the hazard existed prior to the incident, or if the item is in a natural area and does not extend over improved property or public-use areas, such as trails, sidewalks, or playgrounds.

Eligible Vegetative Debris, Cont.

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Contractors typically charge debris removal based on a unit price for volume (cubic yards) or weight (tons). A hazardous tree or stump may be collected individually.

When these items are collected individually, contractors often charge a price per tree or stump based on its size. FEMA encourages Applicants to procure branch or limb removal from trees on a one-time charge per tree basis as opposed to a unit price per limb or branch to facilitate more cost-effective operations.

FEMA has specific eligibility criteria and documentation requirements for funding these items based on a price per each item instead of by volume or weight. If the Applicant does not provide sufficient documentation, it jeopardizes its PA funding

Examples Of Eligible Debris



Bracing a Tree

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Bracing a tree is eligible (as Category B) only when doing so is less costly than removal and disposal.

If the Applicant chooses to brace a tree rather than remove it, the tree is ineligible for removal later if it dies.

Pruning, maintenance, trimming, and landscaping are ineligible.

Examples Of Tree Bracing



Broken Limb or Branch Removal

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Removal of broken limbs or branches that are 2 inches or larger in diameter (measured at the point of break) that pose an immediate threat are eligible. An example is a broken limb or branch that is hanging over improved property or public-use areas, such as trails, sidewalks, or playgrounds if it could fall and cause injury or damage to improved property.

FEMA does not fund removal of broken limbs or branches located on private property unless:

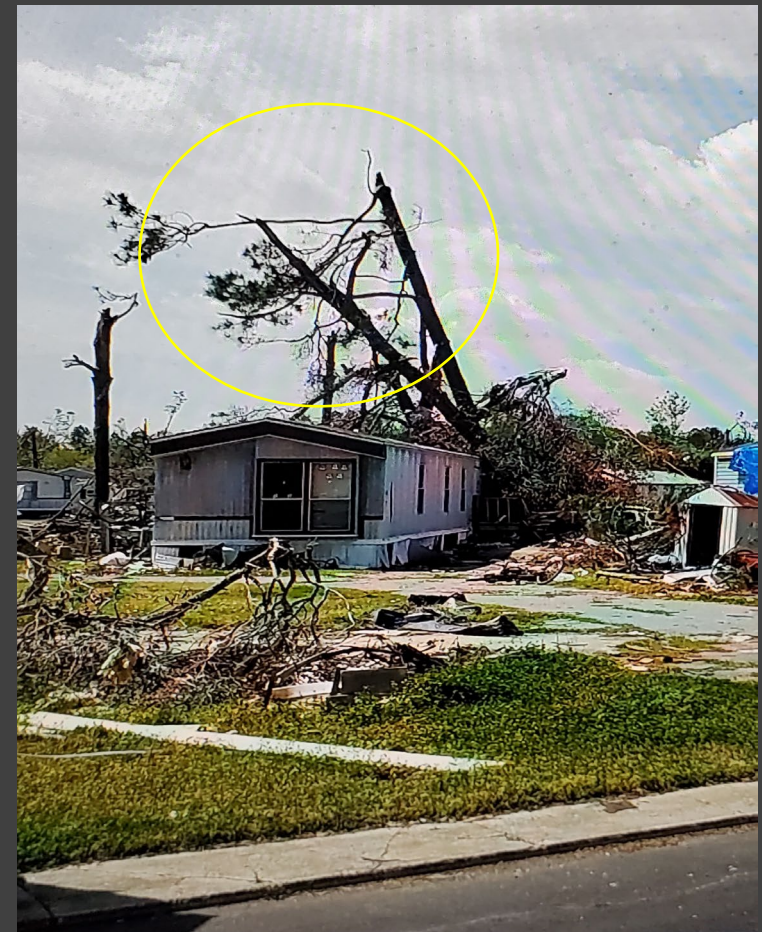
- The limbs or branches extend over the public ROW;
- The limbs or branches pose an immediate threat; and
- The Applicant removes the hazard from the public ROW (without entering private property).

Example of Eligible Hanging Limb and Dangerous Tree

Hanging Limbs greater than 2 inches and threatening improved property (Road & Driveway)



Two hazardous trees diameter of 6 inches or greater leaning at an angle greater than 30 degrees



Broken Limb or Branch Removal, Cont.

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Only the minimum cut necessary to remove the hazard is eligible.

For example, cutting a branch at the trunk is ineligible if the threat can be eliminated by cutting it at the closest main branch junction.

Tree Removal

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FEMA considers incident-damaged trees to be hazardous and eligible if the tree has a diameter of 6 inches or greater measured 4.5 feet above ground level, and the tree:

- Has a split trunk;
- Has a broken canopy; or
- Is leaning at an angle greater than 30 degrees.

For trees that have 50 percent or more of the root-ball exposed, removal of the tree and root-ball and filling the root-ball hole are eligible.

For contracted removal of a tree with a root-ball, FEMA will not reimburse two separate unit costs to remove the tree and its root-ball.

Tree Removal, Cont.

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For trees that have less than 50 percent of the root-ball exposed, FEMA only provides PA funding to flush cut the item at ground level and dispose of the cut portion based on volume or weight.

Grinding any residual stump after cutting the tree is ineligible.

Stump Removal

For stumps that have 50 percent or more of the root-ball exposed, removal of the stump and filling the root-ball hole are eligible. If grinding a stump in-place is less costly than extraction, grinding the stump in-place is eligible.

Stump removal in areas with known or high potential for archaeological resources usually requires that FEMA further evaluate and consult with SHPO or THPO. If the Applicant discovers any potential archeological resources during stump removal, the Applicant must immediately cease work and prior to commencing work, notify FEMA.

Example of Eligible Stumps. Uprooted 50% with a diameter over 25in threatening Property



Stump Removal, Cont.

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Contracted Stump Removal

FEMA only reimburses contracted costs charged on a per-stump basis if:

- The stump is 2 feet or larger in diameter measured 2 feet above the ground; and
- Extraction is required as part of the removal.

The Applicant needs to ensure the price for stump removal includes extraction, transport, disposal, and filling the root-ball hole.

Stump Removal, Cont.

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Contracted Stump Removal

For stumps that have less than 50 percent of the root-ball exposed, FEMA only provides PA funding to flush cut the item at ground level and dispose of the cut portion based on volume or weight. Grinding any residual stump is ineligible.

For stumps smaller than 2 feet in diameter, or for stumps of any size that do not require extraction, FEMA only provides PA funding based on volume or weight as removal of these stumps does not require special equipment. If the Applicant claims reimbursement of these stumps on a per stump basis, FEMA limits PA funding based on a unit price for volume or tons, calculated using *Stump Conversion Table*.

Stump Conversion Table

Diameter to Volume Capacity

FEMA quantifies the number of cubic yards of debris for each size of stump based on the following formula:

$$\frac{[(\text{Stump Diameter}^2 \times 0.7854) \times \text{Stump Length}] + [(\text{Root-Ball Diameter}^2 \times 0.7854) \times \text{Root-Ball Height}]}{46,656}$$

0.7854 is one-fourth Pi and is a constant.

46,656 is used to convert cubic inches to cubic yards and is a constant.

The formula used to calculate the cubic yardage used the following factors, based upon findings in the field:

- Stump diameter measured 2 feet up from the ground
- Stump diameter to root-ball diameter ratio of 1:3.6
- Root-ball height of 31 inches

Stump Diameter (Inches)	Debris Volume (Cubic Yards)	Stump Diameter (Inches)	Debris Volume (Cubic Yards)
6	0.3	46	15.2
7	0.4	47	15.8
8	0.5	48	16.5
9	0.6	49	17.2
10	0.7	50	17.9
11	0.9	51	18.6
12	1	52	19.4
13	1.2	53	20.1
14	1.4	54	20.9
15	1.6	55	21.7
16	1.8	56	22.5
17	2.1	57	23.3
18	2.3	58	24.1
19	2.6	59	24.9
20	2.9	60	25.8
21	3.2	61	26.7
22	3.5	62	27.6
23	3.8	63	28.4
24	4.1	64	29.4
25	4.5	65	30.3
26	4.8	66	31.2

Stump Diameter (Inches)	Debris Volume (Cubic Yards)	Stump Diameter (Inches)	Debris Volume (Cubic Yards)
27	5.2	67	32.2
28	5.6	68	33.1
29	6	69	34.1
30	6.5	70	35.1
31	6.9	71	36.1
32	7.3	72	37.2
33	7.8	73	38.2
34	8.3	74	39.2
35	8.8	75	40.3
36	9.3	76	41.4
37	9.8	77	42.5
38	10.3	78	43.6
39	10.9	79	44.7
40	11.5	80	45.9
41	12	81	47
42	12.6	82	48.2
43	13.3	83	49.4
44	13.9	84	50.6
45	14.5		

Example of Ineligible Stumps. Stumps are under 25 inches in Diameter. Stumps are not uprooted 50% or threatening property



Stump Removal, Cont.

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Contracted Stump Removal

If the Applicant incurs additional costs in picking up stumps 2 feet or larger in diameter that the contractor did not extract, it should complete *Hazardous Stump Worksheet* and present documentation to substantiate the costs as reasonable based on the equipment required to perform the work.

Documentation Requirements

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The Applicant must retain, and provide when requested, all of the following documentation to support the eligibility of contracted work to remove tree limbs, branches, stumps, or trees that are still in place:

- Specifics of the immediate threat with the location (geographical coordinates in latitude, longitude) and photograph or video documentation that establishes the item is on public property (required, FEMA reviews a representative sample):
- Quantity removed (Note: If a contractor charged an individual price for each limb, tree, or stump removed, FEMA requires the diameter of each item removed. For stumps, the measurement must be 2 feet up the trunk from the ground. For trees, it must be 4.5 feet up from the ground.) (required);
- Quantity, location, and source of material to fill root-ball holes (required); and
- Equipment used to perform the work (required).

Environmental and Historical Preservation Compliance

- All debris must be disposed of, in compliance with DEP regulations.
- Root balls can sometimes be in areas of archeological sensitivity:
 - Coordinates for root balls should be provided to EHP for review, preferably before work commences.

Environmental and Historical Preservation Compliance

- Kentucky has 4 listed species of bats, of particular concern is the Indiana Bat:
 - Bats typically hibernate between the end of October to Mid March.
 - Trees of concern are those that would be suitable habitat even if removed during hibernation.
 - Trees and limbs less than 5" Diameter Breast Height are okay to remove.

Environmental and Historical Preservation Compliance

- Questions on whether a tree could be a suitable habitat can be fielded by FEMA EHP or USFWS.
- Trees removed outside the emergency period, not considered hazardous, or removed during summer months will require site specific coordination with USFWS.