



Managing Disaster Generated Debris

Disaster Debris Removal in Recovery Operations

The recovery phase focuses on collecting the remaining debris, reducing or recycling, and final disposal. Development and management of a debris management site is considered a recovery activity as well. Depending on the quantity and the complexity of the debris removal actions, debris removal activities could continue for several months. Applicants can use a combination of their labor and equipment resources and / or contractor services for debris removal activities during this phase.

FEMA characterizes work eligible for Public Assistance grants as either emergency or permanent work. These are classified into seven different categories identified by letters A through G. This document discusses only emergency work, Category A – Debris Removal and Category B – Emergency Protective Measures. To be eligible, an item of work must meet all of the following:

- Be required as a result of the disaster event;
- Be located within a designated disaster area, except that sheltering and evacuation activities may be located outside of the designated disaster area; and
- Be the legal responsibility of an eligible applicant.

Public Interest

Eligible debris work must be in the public interest, which is defined as work necessary to meet the following:

- Eliminate immediate threats to life, public health and safety;
- Eliminate immediate threats of significant damage to improved public or private property;
- Ensure economic recovery of the affected community to the benefit of the community-at-large; or
- Mitigate the risk to life and property by removing substantially damaged structures and associated appurtenances as needed to convert property acquired through a FEMA hazard mitigation program to uses compatible with open space, recreation, or wetlands management practices.

Reasonable Cost

A reasonable cost is defined by the Office of Management and Budget (OMB) Circular A-87, *Cost Principles for State, Local, and Indian Tribal Governments* and Circular A-122, *Cost Principles for Non-Profit Organizations*, as a cost which in its nature and amount does not exceed that which would be incurred by a prudent person under the circumstance prevailing at the time the decision was made to incur the cost. Considerations include evaluating historical

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costs for similar work, analyzing costs for similar work in the region, reviewing published unit cost data for the work, or comparing costs with the FEMA Schedule of Equipment Rates and Cost Codes. The source of costs may include: the applicant's force account labor, equipment, and materials; contracted services; and mutual aid agreements.

Types of Collection Methods

The fundamental components of a disaster debris management strategy are the collection and disposal of debris. The public expects to have debris removed from neighborhoods immediately after a disaster event. The implementation of disaster debris collection immediately after the disaster event assures the public that recovery efforts are in progress and that the community will return to normal quickly. The debris type, amount, and urgency determines which collection method is used. The two main methods of debris collection are curbside collection and collection centers. The planning staff may tailor the collection operation using curbside collection, collection centers, or a combination of both depending on the specific jurisdiction, quantities, and types of debris.

Curbside Collection

Curbside collection parallels an applicant's normal garbage and trash collection operations. Debris is placed at the curb or public rights-of-way by the residents for the applicant's collection. Depending on the volume of disaster debris and the speed at which it is placed on the rights of way will determine the number of "passes" made by the debris collection crews. In some situations one single pass will adequately meet the citizen's needs. If the schedule of collection in various neighborhoods is well publicized it helps minimize the number of collection passes required.

Mixed Debris Collection

Collecting mixed debris by the applicant allows for residents to place all debris types in one specified area, usually along the public right-of-way in front of their residence. While this is the most convenient for the public, it does not facilitate effective recycling and reduction efforts, as the debris will need to be handled multiple times. Therefore, this method prolongs recycling and reduction efforts and increases operational costs.

Source-Segregated Debris Collection

Residents are requested to sort the debris by material type and place it at the curb in separate piles. Normally debris is separated into piles for clean vegetative debris, construction & demolition (C&D) debris, recyclable metals, and household hazardous waste (HHW). Trucks designated for a particular debris type collect the assigned debris and deliver it to a temporary staging area, or debris management site, reduction, recycling, or disposal facility. The disadvantage of this method is that it requires more trucks to collect the different types of debris; however, this increased equipment cost may be offset by avoiding the labor cost and time to separate the debris by hand. Source-segregated debris collection offers the potential of



high salvage value and efficient recycling/reduction processing. This method is important when collecting hazardous and environmentally sensitive debris, such as household hazardous waste and appliances (white goods).

Collection Centers

The second type of collection method is to have the residents transport their debris to a common location. Large roll-off bins may be placed on public rights-of-way or public property for the residents to bring their debris for collection. This is well suited for rural, sparsely populated areas or logistically difficult conditions (i.e., hilly neighborhoods) where curbside collection is not practical. Separate bins can be designated for particular types of debris. The associated costs are generally low since the public essentially accomplishes the material collection and separation themselves.

Additional Resource

Detail guidance and information pertaining to managing disaster generated debris is available in FEMA Public Assistance Debris Management Guide, FEMA 325 / July 2007. (This document is available online at:

<http://www.fema.gov/government/grant/pa/demagde.shtm>)

Technical Assistance Help is Available

FEMA has tasked the US Army Corps of Engineers (USACE) to provide Technical Assistance to local government entities in matters pertaining to disaster debris management. Technical Assistance provided to the State and/or local government may include but is not limited to:

- Review contracting methodology options
- Contract Statement of Work preparation
- Provide advice and assistance in Contract Administration
- Identify and evaluate debris reduction/disposal options and sites
- Incorporate and address environmental considerations
- Advise applicant regarding debris removal techniques
- Train Quality Assurance Personnel
- Facilitate record keeping, documentation, and project coordination
- Estimate Debris Volume
- Evaluate Debris management options

US Army Core of Engineer Points of Contact

- Rutland County - Pete Summerton - 571-643-8708
- Orange County - Ted Woodson - 571-408-1823
- Windsor County - Terry Chase - 603-667-7369
- Addison County - Rich Kaiser - 573-724-1685