Public Assistance

Debris Management Guide

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FEMA

Foreword

The Federal Emergency Management Agency (FEMA) encourages State and local governments, tribal authorities, and private non-profit organizations to take a proactive approach to coordinating and managing debris removal operations as part of their overall emergency management plan. Communities with a debris management plan are better prepared to restore public services and ensure the public health and safety in the aftermath of a disaster, and they are better positioned to receive the full level of assistance available to them from FEMA and other participating entities.

The core components of a comprehensive debris management plan incorporate best practices in debris removal, reflect FEMA eligibility criteria, and are tailored to the specific needs and unique circumstances of each applicant. FEMA developed this guide to provide applicants with a programmatic and operational framework for structuring their own debris management plan or ensuring that their existing plan is consistent with FEMA's eligibility criteria. This framework:

1. Identifies and explains the debris removal eligibility criteria that applicants must meet in order to receive assistance under the FEMA Public Assistance (PA) Program
2. Provides a blueprint for assembling an effective and responsive plan for the entire debris management cycle
3. Outlines the FEMA Public Assistance debris removal organizational structure and strategy

We encourage local officials to review their community's vulnerability to a disaster and to consider how to manage large-scale debris clearance, removal, and disposal operations should the need arise. Your State emergency management agency and the FEMA regional office may provide additional technical assistance in your area.

An electronic version of this guide is available on FEMA's website at fema.gov. **Because this document is not exhaustive and the provisions are subject to modification, consultation with the State and FEMA may be necessary.**

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Part I – Public Assistance Eligibility

Introduction

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended, 42 U.S.C. § 5121, et seq. (hereinafter referred to as the Stafford Act), authorizes the FEMA Public Assistance Program to award Federal funding to State and local governments, Federally recognized tribes, and eligible private non-profit organizations in order to assist them in their disaster response and recovery activities. Specifically, the Program provides assistance for debris removal, implementation of emergency protective measures, and permanent restoration of eligible facilities and infrastructure.

A fundamental goal of the Public Assistance Program is to ensure that everyone shares a common understanding of the Public Assistance Program policies and procedures. To support this goal, FEMA has undertaken an effort to provide its State, tribal, and local partners with more and better information about the Public Assistance Program. Part I describes the Public Assistance Program's basic debris eligibility criteria and is intended to be a reference for planning and recovery purposes.

This document provides a summary of the eligibility criteria specifically for debris removal operations. For a more comprehensive understanding of the Public Assistance Program, additional information regarding FEMA Public Assistance policies, Fact Sheets, and guidance materials, including *FEMA 321 – Public Assistance Policy Digest, FEMA 322 – Public Assistance Guide, and FEMA 323 – Public Assistance Applicant Handbook, c*an be obtained online at fema.gov.

Chapter 1 – Public Assistance Debris Removal Eligibility

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Public Assistance Grant Program

The Federal government may provide grants through the Public Assistance Program to reimburse the response and recovery efforts of an applicant (State and local governments, and certain private non-profit organizations) for Presidentially declared disasters. To receive supplemental disaster assistance under the Public Assistance Program, applicants must meet FEMA eligibility criteria.

An applicant may conduct debris operations in any manner it deems appropriate. However, only costs associated with applicants, facilities, and work deemed eligible according to FEMA eligibility criteria and complying with special consideration requirements are reimbursed under the Public Assistance Program. Therefore, these eligibility criteria and special consideration requirements should be taken into consideration by the applicant when developing its debris management plan.

General Eligibility Criteria

Definition of Eligibility

Eligible means qualifying for and meeting the stipulated requirements of the Public Assistance grant. The term eligible can be applied to applicants, facilities, work, and costs.

Eligibility is based on a hierarchy of statute, regulations, policies, fact sheets, guidance documents, and disaster-specific documents:

- **Statute** is the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. § 5121 et seq. (Stafford Act), the authority governing the Public Assistance Program.
- **Regulations,** which are published in 44 Code of Federal Regulations (CFR), Parts 13 and 206, implement and interpret the statute.
- **Policies** are written to apply the statute and regulations to specific subjects and situations.
- **Fact Sheets, guidance documents, and disaster-specific documents** provide clarification and detailed explanations of issues and concerns.

The terms **ineligible** or **not eligible** are used to indicate the applicant, facility, work, or cost does not qualify for a Public Assistance grant.

Grantee/Subgrantee

Grantee means the government, usually the State, to which a grant is awarded by the Federal government and is accountable for the use of the funds provided.

Subgrantee (applicant) is the entity to which a subgrant is awarded and is accountable to the grantee for the use of the funds provided. Four types of subgrantees are eligible for Public Assistance grants:

1. State government agencies, such as:

    - State department of transportation
    - State environmental resources agency
    - State parks agency

2. Local governments, such as:

    - Towns, cities, counties, boroughs
    - Municipalities, townships
    - Local public authorities

3. Private Non-Profit (PNP) organizations or institutions that own or operate facilities that provide certain services otherwise performed by a government agency. Eligible facilities are limited to:

    - Educational
    - Emergency
    - Medical

- Utility
- Custodial care
- Irrigation
- Other essential governmental services, which are open to the general public and do not fall into one of the categories described above include community centers, rehabilitation facilities, homeless shelters, libraries, museums, senior citizen centers, shelter workshops, zoos, performing arts facilities, community arts centers, and health and safety services of a governmental nature.

4. Federally recognized Indian Tribes or authorized tribal organizations and Alaskan Native village organizations. This does not include Alaska Native Corporations, which are owned by private individuals. Indian Tribal Governments may serve as a grantee instead of a subgrantee.

Since this document speaks specifically to debris issues, it is assumed the city, county, township, or other governing body will take responsibility for planning and implementing the debris operations. The terms "jurisdiction" and "governing body" are used to indicate the eligible applicant planning or implementing the debris management operation.

Facility

A facility is any publicly or privately owned building, works, system, or equipment, built or manufactured, or an improved and maintained natural feature. Land used for agricultural purposes is not an eligible facility. The eligible facility must be located in the designated disaster area and must be the legal responsibility of an eligible applicant.

Work

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 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. Costs are discussed further in Chapter 2, *Costs*.

Environmental and Historic Preservation Special Considerations

State and local regulations, laws, and ordinances need to be addressed and followed for all environmental and historic preservation issues.

FEMA uses the term "special considerations" to describe issues other than basic program eligibility that affect the scope of work and funding for a project. Applicants have a critical role in identifying and resolving special considerations issues. The applicant should assist FEMA by identifying the issues as early as possible and providing the information necessary for review. A brief description of environmental and historic preservation special considerations that relate to debris operations are set forth below.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires every Federal agency to follow a specific planning process to ensure that agency decision-makers and applicants have considered and the general public is fully informed about, with the opportunity to comment on, the environmental consequences of a Federally funded action. This review and consultation process is used to evaluate the impact a project and its alternatives may have on the environment. The review process required by NEPA is usually the vehicle through which FEMA addresses other environmental laws and regulations; however, FEMA is provided with statutory exclusions under Section 316 of the Stafford Act. These exclusions exempt certain actions from the NEPA review process and generally include debris removal, clearance of roads, and demolition of unsafe structures. If an action is not statutorily excluded, the appropriate level of NEPA review must be determined. FEMA makes the statutory exclusion determinations.

It should be noted that compliance with other individual laws such as the Endangered Species Act, the National Historic Preservation Act, the Clean Air Act, and the Clean Water Act is still required, even when a project is statutorily excluded from NEPA review. Environmental laws and regulations that may impact debris operations are briefly described in the following sections.

Clean Water Act

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States. It makes it unlawful for any person to discharge any pollutant from a specific source into navigable waters, unless a permit was obtained under its provisions. Through Section 404 of CWA, permits are required to discharge dredged and fill materials into waters of the United States, including wetlands.

Section 402 of CWA implements the National Pollutant Discharge Elimination System, which establishes a permit program controlling water pollution by regulating point sources that discharge pollutants into the waters of the United States.

Debris removal projects such as dredging, demolition, and construction and operation of sites used for debris management must comply with the requirements of CWA as administered by the Federal, State, or local regulatory agency.

Clean Air Act

The Clean Air Act was established to protect the nation's air through the reduction of smog and atmospheric pollution. Several State and local governments have enacted similar legislation, either implementing Federal programs or implementing more stringent air quality requirements within their jurisdictions.

Projects that are funded under the Public Assistance Program such as debris clearance, removal, disposal, recycling, reduction, and demolition, must comply with the air quality standards required by the Federal, State, or local regulatory agencies.

Coastal Barrier Resources Act

The Coastal Barrier Resources Act (CBRA) restricts Federal expenditures and financial assistance that encourage development of coastal barriers so that damage to property, fish, wildlife, and other natural resources associated with the coastal barrier is minimized. Coastal barriers are located along the Atlantic and Gulf Coasts and along the Great Lakes. They are identified on FEMA's Flood Insurance Rate Maps as Coastal Barrier Resources System (CBRS) units.

Costs for debris removal and emergency protective measures in designated CBRS units may be eligible for reimbursement under the Public Assistance Program provided the actions eliminate an immediate threat to lives, public health and safety, or protect improved property.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) requires safe disposal of waste materials, promotes the recycling of waste materials, and encourages cooperation with local agencies. It applies to disposal of disaster-generated debris and is of particular concern when hazardous materials may be present.

Endangered Species Act

The Endangered Species Act (ESA) prohibits Federal actions that cause unnecessary harm to species listed as threatened or endangered, or the destruction or adverse modification of the habitat for these species. Endangered species include mammals, fish, birds, reptiles, and amphibians, as well as plants and insects. If a project involves the known habitat of a threatened or endangered species, FEMA must consult with the United States Fish and Wildlife Service and the National Marine Fisheries Service before approving funding for that project.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties. Federal agencies must consult with parties who have an interest in the effects of the undertaking in order to identify the affected historic properties, assess the effect of the undertaking on historic properties, and seek ways to avoid, minimize, or treat any adverse effects on historic properties. FEMA complies with NHPA and its implementing regulations in 36 CFR Part 800, either by executing Statewide programmatic agreements or by following standard regulatory procedures, commonly referred to as the Section 106 Process.

Historic properties include districts, buildings, structures, objects, landscapes, archaeological sites, and traditional cultural properties that are included in, or eligible for inclusion in, the National Register of Historic Places. These properties are not just old buildings or well-known historic sites, but places important in local, State, or national history. Facilities as diverse as bridges and water treatment plants may be considered historic. The National Register of Historic Places is a list of recognized historic properties. However, this list is not complete, and States may have additional properties with historic significance. Through the use of programmatic agreements, FEMA has delegated the identification and evaluation tasks to State Historic Preservation Officers (SHPO) in many States.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) encourages the management of coastal zone areas and provides grants to be used in maintaining coastal zone areas. It requires that Federal agencies be consistent in enforcing the policies of State coastal zone management programs when conducting or supporting activities that affect a coastal zone. It is intended to ensure that Federal activities are consistent with State programs for the protection and, where possible, enhancement of the nation's coastal zones.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act authorizes the United States Fish and Wildlife Service to administer programs for the planning, development, maintenance, and coordination of State wildlife resource conservation and rehabilitation. If a proposed project would destroy wildlife habitat or modify a natural stream or body of water, it requires an evaluation of that action's impact on fish and wildlife.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (WSRA) was established by Congress to preserve selected rivers in its free-flowing condition in order to protect the water quality and fulfill other national conservation purposes. These rivers are considered protected, much like a national wildlife refuge. Federal agencies may not fund projects that would have a direct and adverse effect on the values for which a river was designated. If a proposed project is located on a river designated as wild and scenic, FEMA must review it for compliance with WSRA.

Executive Orders

In addition to the laws described above, several Executive Orders (EOs) issued by the President also affect Public Assistance Program projects. The EOs that most frequently affect the Public Assistance Program are the following:

EO 11988 requires Federal agencies to undertake certain responsibilities for floodplain management. FEMA's procedures for complying with this EO are outlined in 44 CFR Part 9.

EO 11990 outlines the protection of wetlands and requires a planning process that considers alternatives and evaluates impacts to wetlands. The process for complying with this EO is similar to that for complying with EO 11988 and is outlined in 44 CFR Part 9.

EO 12898 requires Federal agencies to evaluate actions for disproportionately high and adverse effects on minority or low-income populations and to find ways to avoid or minimize these impacts where possible. Field personnel should identify any neighborhoods or communities with minority or low-income populations.

Duplication of Benefits

In accordance with Section 312 of the Stafford Act, no applicant will receive assistance for any loss for which financial assistance has been received under any other program or from insurance or from any other source. Therefore, the use of Federal or State funds, insurance settlements, and other grants or cash donations granted for the same purpose constitutes a duplication of benefits.

Other Federal Agencies

If another Federal agency has the authority to provide an applicant with assistance for debris removal operations, FEMA cannot provide funds for that project. Applicants should pursue funding assistance offered through those agencies.

The Federal Highway Administration (FHWA), United States Army Corps of Engineers (USACE), National Resources Conservation Service (NRCS), Environmental Protection Agency (EPA), Department of Housing and Urban Development (HUD), and United States Coast Guard (USCG) may provide assistance to applicants for certain debris removal activities. Applicants must become aware of the agencies' roles, responsibilities, and jurisdictions to ensure a duplication of benefits does not occur between other Federal agencies and FEMA. Descriptions of other Federal agencies and their programs are found in Appendix G, *FEMA RP9580.202, Fact Sheet: Debris Removal - Authorities of Federal Agencies*.

Insurance Settlements

Insurance policies that include coverage for debris removal activities are potentially a duplication of benefits. The applicant should contact its insurance provider for a statement of loss to determine the amount of insurance settlement related to debris removal. The insurance settlement is reflected in the Public Assistance grant as a line-item credit against the eligible cost for the project.

Similarly, applicants should be aware that some residents within a declared disaster area may obtain funds for removing debris from their property through their homeowner insurance or

under the FEMA Individual Assistance (IA) Program. Should residents receive funds under the IA Program or insurance proceeds for the removal and disposal of debris from their properties, but also place debris at the curbside rights-of-way, the applicant should make a concerted effort to collect the proportionate cost of the curbside removal from those residents in an effort to comply with Section 312 of the Stafford Act.

While FEMA understands that this could become an arduous task, applicants can put in place protocols to inform residents that receiving a benefit for the same purpose from the Federal government or any other source is in violation of Federal law.

When applicants receive reimbursements from residents for the cost of curbside collection, applicants are required to report the total amount of proceeds collected from those residents to FEMA. The Federal share of the Public Assistance grant is calculated after the reimbursement proceeds are reduced from the total cost of the curbside collection.

Salvage Value

Applicants may choose to recover materials from disaster debris for beneficial uses. Applicants may sell materials such as metals, woody debris, concrete, masonry, or other types of debris to recyclers, to the construction or agricultural industry, or to energy generators. The salvage value for various recyclable or reusable debris materials depends on the regional recycling markets.

Applicants that sell disaster debris for a salvage value must offset the cost of the eligible debris removal work by the revenues received from the sale of the debris. Applicants must document and report to FEMA the revenues obtained through the sale of debris materials. Public Assistance grant funding is limited to the Federal share of the difference between the amount of revenue received and the cost of the debris removal.

Applicants that contract for debris removal may allow the contractor to take possession of the recoverable debris materials. This type of agreement must take into account the salvage value, and the applicant should negotiate a credit to reflect this value within the terms of the contract. The sale of the recoverable disaster debris materials should offset the cost of the contracted services.

Chapter 2 – Costs

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Applicant Resources

Eligible work accomplished with an applicant's own labor, equipment, and materials may be funded under the Public Assistance Program. An applicant's employees' labor and an applicant's equipment are called force account labor and force account equipment, respectively. It is important for the applicant's staff to document hours worked and equipment used to complete the eligible work.

Labor

For debris removal work, overtime labor costs (including benefits) are eligible for permanent employees, reassigned employees, and seasonal employees used during the season of anticipated employment. The cost of straight-time labor costs (including benefits) of an applicant's permanently employed personnel are not eligible in calculating the cost of eligible emergency work, which includes debris removal. Straight-time and overtime is determined in accordance with an applicant's pre-disaster policies, which should be applied consistently in both disaster and non-disaster situations.

Both straight-time and overtime labor costs are eligible for non-budgeted employees assigned specifically to perform emergency work.

Please refer to Appendix G, *FEMA RP9525.7, Labor Costs - Emergency Work* for specific eligibility guidance regarding labor costs for permanent, temporary, essential, reassigned, and seasonal employees.

Equipment

Reimbursement for the use of force account equipment is limited to the time the equipment is actually in use. Standby and idle time are not eligible for Public Assistance grant funding.

Force account equipment may be reimbursed at an hourly rate. This hourly rate typically includes the operation, depreciation, maintenance, and fuel for that particular piece of equipment, but does not include operator labor cost. FEMA publishes a FEMA Schedule of Equipment Rates, which is available online at fema.gov.

FEMA may recognize State equipment rates. Applicants that use rates established under State guidelines in their normal day-to-day operations may use State rates up to $75 per hour upon Public Assistance Program approval of the cost development methodology. Rates over $75 per hour may be approved by FEMA on a case-by-case basis.

FEMA may also recognize an applicant's use of rates developed by a local government in their normal day-to-day operations. Reimbursement is based either on the local rates or the FEMA Schedule of Equipment Rates, whichever is less. If the local rate is lower and the applicant certifies that the local rate does not reflect the actual cost, the FEMA Schedule of Equipment Rates may be used.

Documentation

Appendix C, *FEMA Forms* are frequently used to document work completed with force account labor and equipment. The FEMA summary record forms provide the minimum information required for Public Assistance grant reimbursement consideration. These summary record forms are not required forms; the applicant may use its own forms or accounting summary, or alter the FEMA forms to fit its needs, as long as the minimum information required is provided.

Applicants are required to maintain source documentation such as timesheets, work logs, and equipment use sheets, that show the work was disaster-related and support the hours claimed on the force account summary forms submitted for the project.

Mutual Aid Agreements

Applicants may have agreements with other jurisdictions and agencies for the provision of debris management services in the event of an emergency. The employees of the entity providing supplemental assistance are considered as extra hires or contract labor; therefore, both straight-time and overtime are eligible. FEMA will reimburse mutual aid costs provided that:

- The assistance is requested by the receiving applicant;

- The work performed is directly related to the disaster and is otherwise eligible for FEMA assistance;
- The entity that received the aid incurred a cost for that aid, i.e. the providing jurisdiction or agency bills the receiving applicant for the service;
- Provision of services under the agreement are not contingent upon declaration of a major disaster or emergency by FEMA; and
- The requesting and providing entities can provide documentation of rates and payment for services.

FEMA RP9523.6, Mutual Aid Agreements for Public Assistance and Fire Management Assistance contains additional information on mutual aid agreements and is available online at fema.gov.

Contract Services

An applicant may hire a contractor to perform such work as debris clearance, removal, disposal, reduction, recycling, and/or monitoring. Public Assistance grant funding is limited to the scope of work necessary to remove debris that is an immediate threat to life, public health and safety, or poses an immediate threat of significant damage to improved public or private property. Moreover, the costs must be reasonable for the respective scope of work in order to be eligible for Public Assistance grant reimbursement. The procurement of the contract is subject to all provisions of 44 CFR Part 13. The full text of 44 CFR Part 13 is available online through the United States Government Printing Office at gpoaccess.gov.

Appendix G, *FEMA RP9580.4, Fact Sheet: Debris Operations - Clarification: Emergency Contracting vs. Emergency Work* should be reviewed by the applicant and taken into consideration when soliciting contractors.

Contracts must be of reasonable cost, generally must be competitively bid, and comply with Federal, State, and local procurement standards. FEMA will reimburse only fair and reasonable costs of any contract an applicant enters into. An applicant must consider costs, conflicts of interest, and all Federal, State, and local laws and regulations when hiring a contractor.

Compliance with local procurement practices and the procurement competition requirements specified in 44 CFR Part 13.36 are essential to successfully receiving Public Assistance grant funding. The Federal procurement regulations ensure that applicants procure contracts in a manner that provides full and open competition, and provide financial and record-keeping requirements. In addition, applicants should maintain a written code of standards for conduct governing the performance of employees, officers, or agents who select and award contracts.

It is important that applicants secure contracts with reputable and qualified licensed contractors. Applicants should conduct reference checks on a contractor's history of performance with the State's contractor licensing board and with the contractor's previous

clients before awarding contracts. Appendix G, *FEMA RP9580.201, Fact Sheet: Debris Removal - Applicant's Contracting Checklist* is provided as guidance to assist Public Assistance applicants in the procurement process.

Competition

Pursuant to 44 CFR Part 13.36(c)(1), applicants may not restrict the bidding in order to disqualify a population of bidders. Some of the situations considered to be restrictive of competition include, but are not limited to:

- Placing unreasonable requirements on firms in order for them to qualify to do business
- Requiring unnecessary experience and excessive bonding
- Noncompetitive pricing practices between firms or between affiliated companies
- Noncompetitive awards to consultants that are on retainer contracts
- Organizational conflicts of interest
- Specifying only a ''brand name'' product instead of allowing ''an equal'' product to be offered and describing the performance of other relevant requirements of the procurement
- Any arbitrary action in the procurement process

Applicants who have prequalified lists of persons, firms, or products must keep such lists current in order to ensure open and free competition during the bidding process, in accordance with 44 CFR Part 13.36(c)(4), which states:

> *"Grantees and subgrantees will ensure that all prequalified lists of persons, firms, or products which are used in acquiring goods and services are current and include enough qualified sources to ensure maximum open and free competition. Also, grantees and subgrantees will not preclude potential bidders from qualifying during the solicitation period."*

Methods of Procurement

An applicant may request that FEMA review its procurement process to determine whether the process meets the standards set forth in 44 CFR Part 13.36.

FEMA finds the following four methods of procurement acceptable:

> **Small purchase procedures** procurement, an informal method for securing services or supplies that do not cost more than $100,000 by obtaining several price quotes from different sources.

Sealed bids procurement, a formal method where bids are publicly advertised and solicited, and the contract is awarded to the responsible bidder whose proposal is the lowest in price. This method is the preferred method for procuring construction contracts.

Competitive proposals procurement, a method similar to sealed bid procurement in which contracts are awarded on the basis of contractor qualifications instead of on price. This method is often used for procuring architectural or engineering professional services. In addition, this method normally involves more than one source submitting an offer and is used when conditions are not appropriate for sealed bids.

Noncompetitive proposals procurement, a method whereby a proposal is received from only one source. Noncompetitive proposals should only be used when the award of a contract is not feasible under small purchase procedures, sealed bids, or competitive proposals, and one of the following circumstances applies:

- The item is available only from a single source
- There is an emergency requirement that does not permit a delay
- Solicitation from a number of sources has been attempted, and competition is determined to be inadequate

FEMA strongly discourages applicants from using a noncompetitive contract for debris removal operations. A contract may be regarded as noncompetitive if the applicant has only one responsive bidder. In this case the applicant is required to comply with 44 CFR Part 13.36(f), which states in part:

> *"…A cost analysis will be necessary when adequate price competition is lacking, and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or based on prices set by law or regulation. A price analysis will be used in all other instances to determine the reasonableness of the proposed contract price."*

Applicants are required by 44 CFR Part 13.36(f)(2) to negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. Consideration shall be given to the complexity of the work performed, risk borne to the contractor, contractor's investment, amount of subcontracting, quality of the contractor's record of past performance, and industry profit rates in the surrounding geographical area for similar work.

Types of Contracts

FEMA provides reimbursement for four types of contracts:

Lump sum contracts, for work within a prescribed boundary with a clearly defined scope and a total price

Unit price contracts, for work done on an item-by-item basis with cost determined per unit

Cost-plus-fixed-fee contracts, either lump sum or unit price contracts with a fixed contractor fee added into the price

Time-and-materials contracts, where the contractor bills the applicant for labor, equipment, materials, and overhead. These contracts should be avoided, but may be allowed for work that is necessary immediately after the disaster has occurred when a clear scope of work cannot be developed. Time-and-materials contracts are allowed in circumstances when they are more cost-effective and appropriate for the amount and type of eligible work to be performed. The costs must be reasonable for the type of work required. Applicants must engage in comprehensive active monitoring activities to ensure contractor efficiency. **Typically, FEMA will reimburse for only 70 hours of a time-and-materials contract.** If a time-and-materials contract is awarded, the applicants must:

- Monitor and document contractor expenses;
- Have a cost ceiling or "not to exceed" provision in the contract; and
- Contact the State to ensure proper guidelines are followed.

After 70 hours of work, the applicant should have sufficient information on the scope of work necessary to complete debris collection and disposal, and on a basis for estimating a reasonable cost for the contract work, to effectively solicit a lump sum or a unit price contract. For some types of debris work where time-and-materials contracts may be the most cost-effective and the most well-suited to the type of work, applicants should work closely with the State and FEMA when awarding the time-and-materials contracts to ensure eligibility requirements are met.

Other Considerations

Contract Scope of Work Recommendations

The contract scope of work should reference "eligible work," "work eligible under FEMA Public Assistance regulations, policies, and guidance," "work performed on public property and/or public rights-of-way," or other similar elements.

Piggyback Contracts

FEMA does not favor "piggyback contracts." Applicants have used piggyback contracts on occasion to have disaster-related work performed by another jurisdiction's contractor. The variables associated with the scope of work and costs generally make this an option to be avoided. The competitive procurement requirements of 44 CFR Part 13 are also a prime concern. If FEMA encounters a request for reimbursement of costs derived from such a contract, the reimbursable costs for eligible work will be based on reasonableness.

Prohibited Contracts

In accordance with 44 CFR Part 13.36(f)(4), cost plus percentage of cost contracts shall not be used. Use of such contracts may result in FEMA limiting the Public Assistance grant to an amount determined to be reasonable based on the eligible work performed.

Contracts that are awarded by an applicant to debarred contractors are prohibited pursuant to 44 CFR Part 13.35; thus, no Federal funding can be awarded for eligible work completed.

Additional Contract Requirements

Contract payment provisions should address the obligations between parties to the contract only and not include any language that makes payment to the contractor contingent upon the applicant's receipt of funding from FEMA.

All contracts in excess of $10,000 must contain a provision for termination for cause and for convenience by the applicant, including the manner by which it will be effected and the basis for settlement, according to 44 CFR Part 13.36(i)(2).

For contracts over $100,000 the applicant must have the following minimum bonding requirements, in accordance with 44 CFR Part 13.36(h):

- A bid guarantee from each bidder equivalent to five percent of the bid price;
- A performance bond on the part of the contractor for 100 percent of the contract price; and
- A payment bond on the part of the contractor for 100 percent of the contract price.

In accordance with 44 CFR Part 13.36(b)(8):

> *"Grantees and subgrantees will make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources."*

Documentation requirements are specified in 44 CFR Part 13.36(b)(9) and include, but are not limited to, rationale for the procurement method, contract type, contractor selection or rejection, and the basis for contract price.

For additional contracting information, refer to Appendix G, *FEMA RP9580.201, Fact Sheet: Debris Removal - Applicant's Contracting Checklist*.

Chapter 3 – Debris Removal from Public Property

Chapter Highlights

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- Garbage

Monitoring Debris Removal Operations
Disposal

This chapter discusses debris operations on public property and public rights-of-way. Applicants should document locations, conditions, and special circumstances of the debris prior to removal. This chapter includes preferred documentation information and requirements. Proper documentation enables an applicant to fully account for costs incurred in the event that Federal disaster assistance is made available.

Eligible Debris Removal

Eligible debris removal work under the Public Assistance Program must meet the following criteria:

- The debris was generated by the major disaster event;
- The debris is located within a designated disaster area on an eligible applicant's improved property or rights-of-way; and
- The debris removal is the legal responsibility of the applicant.

Ineligible Debris Removal

The following are not eligible for FEMA assistance under the Public Assistance Program:

- Any debris removal from an eligible applicant's unimproved property or undeveloped land;
- Any debris removal from a facility that is not eligible for funding under the Public Assistance Program, such as a PNP cemetery or PNP golf course; or
- Any debris removal from Federal lands or facilities that are the authority of another Federal agency or department, such as Federal-aid roads, USACE navigable waterways, and NRCS canals. See Chapter 16, *Other Federal Assistance*, for a description of these authorities.

Debris Clearance and Removal Operations

Debris removal operations generally occur in two phases: (1) initial debris clearance activities necessary to eliminate life and safety threats; and (2) debris removal activities as a means to recovery. Whether the work was performed using an applicant's own resources or by contractors, documentation is necessary for Public Assistance grant consideration.

An applicant's initial response phase of the debris operation may begin during the disaster event. Crews may be activated to clear debris on emergency access roads; usually this is vegetative debris that is cut and tossed to the rights-of-way. The purpose is to eliminate an immediate threat to lives, and public health and safety. The transition period from initial clearance activities to debris removal depends on the magnitude of disaster impact. Typically, the debris removal recovery phase begins after the emergency access routes are cleared and police, firefighters, and other first responders have the necessary access.

Often residents begin clearing disaster debris from their properties and placing it on the public rights-of-way. If the property owners move the disaster-related debris to a public right-of-way, an applicant may be reimbursed for debris pickup, haul and disposal from the right-of-way for a limited period of time. If an applicant does not have the legal responsibility to maintain a right-of-way, then debris removal from that right-of-way is not eligible for reimbursement.

Field Eligibility Determinations

To assist in implementation of the Public Assistance Program and the applicants' understanding of it, FEMA has established specific eligibility guidance for debris. This section addresses the most common eligibility issues for various types of debris and recommends documentation for Public Assistance grant consideration. Consultation with the State and FEMA is advised for scenarios not addressed within this section.

Only FEMA has the authority to make eligibility determinations for Public Assistance grant funding; contractors cannot make eligibility determinations. Information on eligibility can be found in FEMA 321 – Public Assistance Policy Digest, FEMA 322 – Public Assistance Guide, FEMA 323 – Public Assistance Applicant Handbook, and this document.

Vegetative Debris Eligibility

Vegetative debris consists of whole trees, tree stumps, tree branches, tree trunks, and other leafy material. Depending on the size of the debris, the collection of vegetative debris may require the use of flat bed trucks, dump trucks, and grapple loaders.

Figure 3.1 - Typical Vegetative Debris on a Public Right-of-Way

Most vegetative debris consists of large piles of tree limbs and branches that are piled on the public rights-of-way by the residents. The collection of this type of debris is eligible for reimbursement if it is within public rights-of-way and collected by an eligible applicant. Applicants normally limit the number of times the debris is collected; for instance, the applicant may choose to make two passes throughout the jurisdiction before resuming its normal collection activities. The applicant should discuss with FEMA the number of passes that may be eligible.

Vegetative debris is bulky and consumes a significant volume of landfill space if buried. To minimize the use of landfill space, it is prudent to reduce the volume of vegetative debris before burying. Vegetative debris may be reduced by as much as 75 percent of its volume by mulching or grinding and as much as 90 percent of its volume through burning technologies. Costs to reduce vegetative debris are eligible for Public Assistance grant funding if found to be reasonable.

A hazardous tree or stump may be collected individually, while downed or fallen debris is collected from rights-of-way or at a designated collection center. Tree and stump collection prices are typically based on the size of the tree or stump and charged by unit. Other fallen or downed material is usually billed by weight (tons) or volume (cubic yards).

Determining eligibility for hazardous trees and stumps is challenging. FEMA has established criteria to assist in making these eligibility determinations, using objective information that can be collected in the field.

Hazardous Trees

Removing a hazardous tree may be eligible for Public Assistance grant funding. A tree is considered hazardous if its condition was caused by the disaster; it is an immediate threat to lives, public health and safety, or improved property; it has a diameter breast height of six inches or greater; **and one or more of the following criteria are met**:

- It has more than 50 percent of the crown damaged or destroyed;
- It has a split trunk or broken branches that expose the heartwood;
- It has fallen or been uprooted within a public-use area; and/or
- It is leaning at an angle greater than 30 degrees.

Trees determined to be hazardous and that have **less than 50 percent of the root-ball exposed** should be cut flush at the ground level. Grinding of the resulting stump after the tree has been cut flush at the ground level is not eligible work. The cut portion of the tree is included with regular vegetative debris. The applicant should make an effort to cut the tree trunk as close to the ground as possible.

The eligible scope of work for a hazardous tree may include removing the leaning portion and cutting the stump at ground level. An example of an ineligible costing method for such work would be removing the tree and stump for two separate unit costs.

The Public Assistance Program may reimburse straightening and bracing if they are less costly than removal and disposal. Straightening and bracing are emergency protective measures if they eliminate an immediate threat to lives, public health and safety, or improved property. If an applicant chooses to straighten and brace a tree in lieu of removal, the tree would not be eligible for removal if it dies.

Hazardous Limb Removal (Hangers)

Removing hanging limbs may be eligible for Public Assistance grant assistance. Limbs must be:

- Located on improved public property;
- Greater than two inches in diameter at the point of breakage; and
- Still hanging in a tree and threatening a public-use area, e.g. trails, sidewalks, golf cart paths.

Only the minimum amount of work necessary to remove the hazard is eligible. Pruning, maintenance trimming, and landscaping are not eligible. Work should be executed in an efficient manner. For example, all hazardous limbs in a tree should be cut at the same time, not in passes for particular sizes. Work to remove hanging limbs from a tree that has been determined to be a hazard and is scheduled for removal is not eligible. If this work is contracted out, it is typically done on a per tree basis.

An eligible scope of work may be to cut the branch at the closest main branch junction. Removing the entire branch back to the trunk may not be eligible.

If the canopy of a tree located on private property extends over a public right-of-way such as a sidewalk, removal of hazardous limbs on the tree that extend over the public right-of-way and meet the above criteria may be eligible. Limbs on the tree that do not extend over the public right-of-way are not eligible.

Documentation required for Public Assistance grant consideration:

- Describe the immediate threat, e.g. photos of hanging limbs or leaning trees;
- Clearly define the scope of work to remove the immediate threat;
- Specify the improved public property location by recording the nearest building address and/or GPS location; and
- Denote date, labor (force account or contract), and equipment used to perform the work.

Hazardous Tree Stumps

A stump may be determined to be hazardous and eligible for Public Assistance grant funding as a per-unit cost for stump removal if it meets all of the following criteria:

- It has 50 percent or more of the root-ball exposed (less than 50 percent of the root-ball exposed should be flush cut);
- It is greater than 24 inches in diameter, as measured 24 inches above the ground;
- It is on improved public property or a public right-of-way; and
- It poses an immediate threat to life, and public health and safety.

If an uprooted stump must be removed **prior to FEMA's approval**, the applicant must submit the following information for Public Assistance grant consideration:

- Photographs and GPS coordinates that establish the location on public property;
- Specifics of the threat;
- Diameter of the stump 24 inches from the ground; and
- Quantity of material needed to fill the resultant hole.

FEMA may reimburse a reasonable cost to remove, transport, dispose of, and fill the hole from a stump of **more than 24 inches in diameter** if:

- The applicant and State agree the tree or stump is hazardous according to the above definition;
- Generally, FEMA approved the removal in advance; and

- A Hazardous Stump Worksheet is completed and submitted for FEMA approval. A copy of the Hazardous Stump Worksheet may be found in Appendix G, *FEMA DAP9523.11, Hazardous Stump Extraction and Removal Eligibility*.

In some instances, grinding of an uprooted stump and filling the resulting cavity may cost less than a complete extraction. In these cases, the applicant should present the cost comparison documentation to FEMA for consideration; however, the stump must have already been determined eligible for removal according to the above criteria.

Stumps measuring **24 inches in diameter or less** do not require special equipment for removal; therefore, reimbursement will be based on the reasonable unit cost per cubic yard, using the Stump Conversion Table found in Appendix G, *FEMA DAP9523.11, Hazardous Stump Extraction and Removal Eligibility*. The unit price for stump removal includes the extraction, transport, and disposal of the stump as well as filling the cavity that remains.

FEMA will reimburse the applicant at the unit cost rate (usually cubic yards) for normal debris removal for all stumps, regardless of size, placed on the public rights-of-way by others, i.e., contractors did not extract them from public property or property of eligible PNP organizations. In such instances, applicants do not incur additional costs to remove these stumps; the same equipment used to pick up vegetative debris can be used to pick up these stumps.

See Appendix G, *FEMA DAP9523.11, Hazardous Stump Extraction and Removal Eligibility* for more information on hazardous stumps.

Construction and Demolition Debris

The definition of construction and demolition debris may vary between States. Construction and demolition debris can be defined as damaged components of buildings and structures such as lumber and wood, gypsum wallboard, glass, metal, roofing material, tile, carpeting and floor coverings, window coverings, pipe, concrete, fully cured asphalt, equipment, furnishings, and fixtures. To be eligible, construction and demolition debris must be a result of a Federally declared disaster.

Certain types of construction and demolition debris are reusable or recyclable. To conserve landfill space, it is prudent to separate materials for reuse or recycling.

Some construction and demolition debris may be hazardous, such as asbestos roofing and floor tile, and lead pipes. Public Assistance grant eligibility is subject to all other Federal laws and regulations, including environmental and hazardous waste ordinances. Documentation of the debris origin, any processing (reduction or recycling), and the final disposition is required for Public Assistance grant consideration.

Figure 3.2 - Construction and Demolition Debris

Typically, removal of construction by-products generated by repairs or rebuilding is covered by insurance policies or included in the overall cost for reconstruction projects; therefore, it is not eligible for Public Assistance grant funding as emergency work under debris removal. It may, however, be reimbursed as part of the permanent work for the reconstruction of an eligible project.

Hazardous Waste

Hazardous waste is waste with properties that make it potentially harmful to human health or the environment. Hazardous waste is regulated under RCRA. In regulatory terms, a RCRA hazardous waste is a waste that appears on one of the four hazardous waste lists or exhibits at least one of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity.

Public Assistance grant funding may be available for measures that address widespread hazardous materials contamination. The measures may include retrieval and proper disposal of orphan drums, pumping water contaminated with hazardous materials, control or stabilization of oil or other hazardous material releases, and cleanup and disposal of hazardous materials. Certified hazardous waste technicians should handle, capture, recycle, reuse, and dispose of hazardous waste. The applicant must comply with Federal, State, and local environmental requirements for handling hazardous waste.

Public Assistance grant funding is not available to test for mold or contaminants in water, air, or soil for the purposes of long-term cleanup actions. FEMA and EPA determine the specific activities that may be funded under the Public Assistance Program and those activities that are under the authority of EPA.

Figure 3.3 - Hazardous Waste

Household Hazardous Waste (HHW) refers to hazardous products and materials that are used and disposed of by residential, rather than commercial or industrial consumers. HHW includes some paints, stains, varnishes, solvents, pesticides, and other products or materials containing volatile chemicals that catch fire, react, or explode under certain circumstances, or that are corrosive or toxic.

Electronic waste, or e-waste, refers to electronics that contain hazardous materials such as cathode ray tubes. Examples include computer monitors and televisions.

White Goods

White goods are defined as discarded household appliances such as refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, and water heaters.

Many white goods contain ozone-depleting refrigerants, mercury, or compressor oils. The Clean Air Act prohibits the release of refrigerants into the atmosphere, and requires that certified technicians extract refrigerants from white goods before they are disposed of or recycled. Some States also require certified technicians to extract compressor oils before disposing of or recycling white goods. Applicants should follow all Federal, State, and local requirements concerning ozone-depleting refrigerants, mercury, or oils. Documentation of proper disposal may be required for Public Assistance grant consideration.


Figure 3.4 - White Goods Stockpiled for Processing

Soil, Mud, and Sand

Floods, landslides, and storm surges often deposit soil, mud, and sand on improved public property and public rights-of-way. Facilities commonly impacted by this type of debris may include streets, sidewalks, storm and sanitary sewers, water treatment facilities, drainage canals and basins, parks, and swimming pools.

The removal of this type of debris from improved public property and public rights-of-way may be eligible for Public Assistance grant funding. For instance, removing soil, mud, and sand from a roadway or sidewalk, or clearing out mud and sand from sewer lines, may be eligible for Public Assistance grant funding if it is the legal responsibility of an eligible applicant. Natural streams and unimproved property are not considered eligible facilities.

The amount of Public Assistance grant funding for removal of soil, mud, and sand is based on the quantity that was deposited due to the disaster. In order to determine the disaster-related debris quantities, the applicant should provide regularly scheduled maintenance reports that indicate the pre-disaster soil, mud, and sand levels. Maintenance reports are commonly requested for soil, mud, and sand removal from sewers, water treatment facilities, and drainage channels.

The applicant is responsible for identifying the damage incurred due to the disaster. Public Assistance grants do not provide funds for random surveys to look for damage, such as TV inspection of sewer lines. However, if disaster-related damage is evident, a Public Assistance grant may cover inspections to determine the extent of the damage and method of repair.

Drainage channels and canals may be an element of a flood control work or water control facility. These types of facilities are often under the jurisdiction of the United States Army Corps of Engineers (USACE) or the Natural Resources Conservation Service (NRCS). If a flood control work or water control facility falls under another Federal jurisdiction, it is generally not eligible for Public Assistance grant funding. For additional information regarding USACE and NRCS facility eligibility, refer to Appendix G, *FEMA RP9524.3, Policy for Rehabilitation Assistance for Levees and Other Flood Control Works - Decision Tree.*

Vehicles and Vessels

For the removal of vehicles and vessels to be eligible, the applicant must demonstrate that:

- The vehicle or vessel presents a hazard or immediate threat that blocks ingress/egress in a public-use area;
- The vehicle or vessel is abandoned, e.g. the vehicle or vessel is not on the owner's property and ownership is undetermined;
- The applicant followed local ordinances and State law by securing ownership; and
- The applicant verified chain of custody, transport, and disposal of the vehicle or vessel.

All supporting documentation relating to removal of abandoned vehicles and vessels must be submitted to FEMA for Public Assistance grant consideration. For navigational vessels, applicants must follow their hazard abatement laws, coordinate with the requirements of the marine and harbor patrol agencies, and comply with local laws governing navigational vessels.

It is important for the applicant to follow its normal written procedures regardless of the circumstances. Any duplication of benefits issues should be addressed.

Putrescent Debris

Putrescent debris is any debris that will decompose or rot, such as animal carcasses and other fleshy organic matter. The cost of putrescent debris collection and disposal may be eligible. Disposal of putrescent debris must be in compliance with applicable Federal, State, and local requirements to be eligible for Public Assistance grant funding. NRCS has developed specific disposal guidelines for animal carcasses.

Infectious Waste

Infectious waste is waste capable of causing infections in humans, including contaminated animal waste, human blood and blood products, isolation waste, pathological waste, and discarded sharps (needles, scalpels, or broken medical instruments).

Clearance, removal, and disposal of infectious waste may be the authority of another Federal agency. Upon review of applicable Federal statutes, regulations, and policies governing infectious waste, FEMA will determine eligibility on a case-by-case basis and may develop disaster-specific guidance when appropriate.

Chemical, Biological, Radiological, and Nuclear-Contaminated Debris

Chemical, Biological, Radiological, and Nuclear (CBRN)-contaminated debris is debris contaminated by chemical, biological, radiological, or nuclear materials as a result of a natural or man-made disaster, such as a Weapon of Mass Destruction (WMD) event. Eligibility determinations on the clearance, removal, and disposal of CBRN-contaminated debris will be made by FEMA based on applicable Federal statutes, regulations, policies, and other guidance documents. Depending on the nature of the disaster and the debris it generates, FEMA may develop additional or disaster-specific eligibility guidance.

Garbage

Garbage is waste that is regularly picked up by an applicant. Common examples of garbage are food, packaging, plastics, and papers. In general, household food wastes can be collected through normal municipal waste collection methods and are not eligible.

Monitoring Debris Removal Operations

Eligible applicants are required to monitor debris removal operations in order to document eligible quantities and reasonable expenses to ensure that the work is eligible for Public Assistance grant funding. Failure to do so properly may jeopardize funding.

In Federally declared disasters, FEMA personnel periodically validate the applicant's monitoring efforts to ensure eligible debris is being removed and processed efficiently. **Debris monitoring is primarily the responsibility of the applicant.** Applicants may use force account resources, temporary hires, and/or contractors to accomplish the monitoring.

Reasonable costs for applicant debris monitors with appropriate qualifications may be eligible. It is not necessary to have professional engineers and other certified professionals perform debris monitoring duties. In addition to the costs for the monitors, the applicant may claim as part of its monitoring activities reasonable costs for the provision of training, oversight, and data compilation to verify debris removal costs as required by the monitoring operation.

Overhead costs for architectural and engineering service are not eligible. Costs associated with attending meetings with FEMA or the State and costs associated with the administration of project worksheets are funded through the administrative allowance as stated in 44 CFR Part 206.228 and cannot be a direct charge to a Public Assistance grant.

Additional guidance on monitoring debris removal operations is located in Appendix G, *FEMA DAP9580.203, Fact Sheet: Debris Monitoring*.

Disposal

Landfill tipping fees usually include fixed and variable costs along with some special taxes or fees assessed by the jurisdiction. Examples of variable costs include costs for labor, supplies, maintenance, utilities, and gas or recovery systems. Fixed costs generally include equipment, construction, permits, landfill closure, post closure, and amortized costs for ancillary landfill building structures.

Eligible landfill costs are limited to the variable and fixed costs that are directly related to landfill operations. Jurisdictions may incorporate special taxes or fees into the landfill tipping fee to fund government services or public infrastructure. When tipping fees include such costs, those costs are not eligible for Public Assistance grant funding.

Chapter 4 – Private Property Debris Removal and Demolition of Private Structures

Chapter Highlights

Private Property Debris Removal
- Approval for FEMA Assistance
- Documentation for PPDR
- Types of Eligible PPDR Work

Demolition of Private Structures
- Eligible Demolition Costs
- Documentation for Demolition

Commercial Property

Duplication of Benefits for PPDR and Demolition

The FEMA policies on debris removal from private property and demolition of private structures can be found in Appendix G.

Private Property Debris Removal

Private property debris removal (PPDR) is generally not eligible for reimbursement under the Public Assistance Program because debris on private property does not typically present an immediate health and safety threat to the general public. Also, debris removal from private property is generally the responsibility of individual private property owners, and other sources of funding, such as insurance, are commonly available to property owners to cover the cost of work. However, if private property owners move disaster-generated debris to the public right-of-way, the costs associated with removing this debris from the right-of-way may be eligible under the Public Assistance Program.

When large-scale disaster events cause mass destruction and generate large quantities of debris over vast areas, debris on private property may sometimes pose health and safety threats to the public-at-large. If private property owners are not available because they have evacuated, the State or local government may need to enter private property to remove debris considered to be an immediate threat to the lives, health, and safety of its residents. In such situations, the Federal Coordinating Officer (FCO) is authorized to approve the provision of Public Assistance for the removal of debris from private property when it is considered to be in the public interest. The section below describes the process through which applicants may obtain approval for Public Assistance funding for the costs of performing PPDR.

Approval for FEMA Assistance

FEMA will work with States affected by large-scale disasters to designate those areas where the debris is so widespread that removal of debris from private property is in the public interest on a case-by-case basis. Any applicant that intends to seek reimbursement to remove debris from private property within those designated areas will, prior to commencement of work, submit a written request to the FCO seeking approval for reimbursement. The applicant must provide documentation confirming that an immediate threat to the public exists as well as evidence of its legal responsibility to enter private property to eliminate the threat posed by the debris. Specifically, this includes:

Immediate Threat Determination

The applicant must provide documentation from the applicant's public health authority or other public entity with legal authority stating that disaster-generated debris on private property in the designated area constitutes an immediate threat to life, public health, and safety.

The applicant may also provide documentation stating that the debris poses an immediate threat to improved property and that its removal is cost effective. The cost to remove the debris should be less than the cost of the potential damage to the improved property in order for the debris removal to be eligible.

Documentation of Legal Responsibility

The applicant must demonstrate its authority and legal responsibility to enter private property to remove debris. The legal basis for this responsibility must be established by law, ordinance, or code at the time of the disaster and must be relevant to the post-disaster condition representing an immediate threat to life, public health, and safety, and not merely define the applicant's uniform level of services. Typically, solid waste disposal ordinances are considered part of an applicant's uniform level of services.

Applicants ordinarily rely on condemnation and/or nuisance abatement authorities to obtain legal responsibility prior to the commencement of debris removal work. There may be circumstances where the applicant determines that ordinary condemnation and/or nuisance abatement procedures are too time consuming to address an immediate public health and safety threat. Applicants do not have to precisely follow their nuisance abatement procedures, or other ordinances, that would prevent the applicant from taking emergency protective measures to protect public health and safety.

In addition to providing documentation detailing an applicant's immediate threat determination and legal responsibility to remove debris from private property, the applicant must confirm that a legally authorized official has ordered the exercise of public authority to enter private property to perform PPDR. The applicant must also submit in its request

indemnification to the Federal government and its employees, agents, and contractors from any claims arising from the removal of debris from private property.

The FCO will approve or disapprove in writing each applicant's request for Public Assistance to perform PPDR. If approval is granted, applicants should immediately begin identifying properties for PPDR work and establishing specific scopes of work on each of these properties.

Additional information on the applicant approval process for PPDR may be found in Appendix G, *FEMA DAP9523.13, Debris Removal from Private Property.*

Documentation for PPDR

If PPDR is authorized and considered for Public Assistance grant funding, applicants are required to properly document all legal processes used to gain access to private property, as well as document applicable scopes of work, and compliance with Federal, State, and local environmental and historic preservation review requirements. Applicants should work with the Public Assistance staff prior to the commencement of any PPDR work to ensure that all legal, environmental, historic, and scope of work considerations are addressed.

The following documents are necessary for Public Assistance funding for PPDR work:

1. **Right-of-Entry.** A right-of-entry signed by the property owner should include a hold harmless agreement and indemnification applicable to the project's scope-of-work. FEMA's Office of Chief Counsel (OCC) should review the right-of-entry form and the language of the hold harmless agreement and indemnification. The right-of-entry form may also include space for the private property owner's insurance information (policy number) for verification purposes, if applicable.

2. **Photos** are strongly encouraged to show the condition of the property prior to the beginning of the work. Generally, pictures are used to confirm the address and identified scope-of-work on the property.

3. A **PPDR Assessment** is a property-specific assessment which establishes the scope of eligible work. This may be a map which serves as a guide indicating the location of the eligible items of work that present an immediate threat relative to improved property or ingress and egress routes. These maps may incorporate symbols and a legend to identify structures, property lines, and eligible items of work. This assessment may also be a work order or may be covered in the right-of-entry form, as long as the scope of work can be clearly identified.

4. **Documentation of Environmental and Historic Review**. Debris removal work from private property must satisfy compliance review requirements as established by 44 CFR Parts 9 and 10 and all other applicable Federal environmental and historic preservation requirements.

Additional documentation may be required by Public Assistance staff on a case-by-case basis to demonstrate eligible work performed and compliance with applicable Federal, State, and local laws and regulations.

Types of Eligible PPDR Work

Eligible debris removal work from private property includes removal of:

- Large piles of disaster-generated debris in the living, recreational, and working areas of properties in urban, suburban, and rural areas, including large lots.
- Disaster-generated debris obstructing primary ingress and egress routes to improved property.
- Disaster-damaged limbs and leaning trees in danger of falling on improved property, primary ingress or egress routes, or public rights-of-way.
    - Hazardous tree removal is eligible only if the tree is greater than six inches in diameter (measured at diameter breast height) and:
        - has more than 50% of the crown damaged or destroyed, or;
        - has split trunk or broken branches that expose heartwood, or; the tree itself is leaning at an angle greater than 30 degrees and shows evidence of ground disturbance.
    - Hazardous limb removal is eligible only if the limb is greater than two inches in diameter measured at the point of break.
- Debris created by the removal of damaged interior and exterior materials from improved property.
- Household hazardous wastes (such as household cleaning supplies, insecticides, herbicides, etc.)
- Disaster-generated debris on private roads and streets of a gated community, provided that the removal of the debris has become the legal responsibility of an eligible applicant.

Ineligible debris removal work on private property includes the removal of:

- Debris from vacant lots, forests, heavily wooded areas, unimproved property, and unused areas.
- Debris on agricultural lands used for crops or livestock.
- Concrete slabs or foundations-on-grade.
- Reconstruction debris consisting of materials used in the reconstruction of disaster-damaged improved property.

Demolition of Private Structures

State and local governments may need to enter private property to demolish private structures made unsafe by disasters to eliminate immediate threats to life, public health, and safety. In some cases, the costs of performing demolition of private structures may be eligible for Public Assistance grant funding. Typically, the demolition of private structures to eliminate immediate threats is authorized under Section 403(a)(3)(E) of the Stafford Act.

FEMA will consider alternative measures to eliminate threats to life, public health, and safety posed by disaster-damaged unsafe structures, including fencing off unsafe structures and restricting access, when evaluating requests for Public Assistance grant funding for demolition work. The Public Assistance staff must also concur that the demolition of unsafe structures and removal of demolition debris are in the public interest.

The demolition of unsafe privately owned structures and subsequent removal of demolition debris may be eligible when the following conditions are met:

- The structures were damaged and made unsafe by the declared disaster, and are located in the area of the disaster declaration;
- The applicant certifies that the structures are determined to be unsafe and pose an immediate threat to the public. An unsafe structure is a non-commercial or non-industrial structure that threatens the life, health or safety of the public because the structure is so damaged or structurally unsafe that partial or complete collapse is imminent. This certification may be made by the State or local government's building inspector and may be based on a structural assessment in accordance with local ordinances and building codes;
- The applicant has demonstrated that it has legal responsibility to perform the demolition. Similar to private property debris removal, the applicant must demonstrate its authority and legal responsibility to enter private property to perform demolition of unsafe structures. The legal basis for this responsibility must be established by law, ordinance, or code at the time of the disaster and must be relevant to the post-disaster

condition representing an immediate threat to life, public health, and safety, and not merely define the applicant's uniform level of services;

- A legally authorized official has ordered the demolition of unsafe structures and removal of demolition debris;
- The applicant has indemnified the Federal government and its employees, agents, and contractors from any claims arising from the demolition work; and
- The demolition work is completed within the completion deadlines outlined in 44 CFR §206.204 for emergency work.

Additional information on the general eligibility of demolition of private structures may be found in Appendix G, *FEMA DAP9523.4, Demolition of Private Structures.*

Eligible Demolition Costs

Eligible costs associated with the demolition of private structures may include, but are not limited to:

- capping wells;
- pumping and capping septic tanks;
- filling in basements and swimming pools;
- testing and removing hazardous materials from unsafe structures including asbestos and household hazardous wastes;
- securing utilities (electric, phone, water, sewer, etc.);
- securing permits, licenses, and title searches. Fees for permits, licenses, and titles issued directly by the applicant are not eligible unless it can be demonstrated that the fees are above and beyond administrative costs; and/or
- demolition of disaster-damaged outbuildings such as garages, sheds, and workshops determined to be unsafe.

Ineligible costs associated with the demolition of private structures include:

- removal of slabs or foundations, except in very unusual circumstances, such as when disaster-related erosion under slabs on a hillside causes an immediate public health and safety threat; and/or
- removal of pads and driveways.

Structures condemned as safety hazards before the disaster are not eligible for demolition and subsequent demolition debris removal under Public Assistance grant authority.

Individuals and private organizations (except for eligible PNPs) will not be reimbursed for demolition activities on their own properties under the Public Assistance Program.

Documentation for Demolition

In order to receive reimbursement of eligible demolition costs, applicants should provide documentation of applicable legal processes and scopes of work performed, similar to the private property debris removal process described above. Specifically, this includes:

- Rights-of-entries;
- Photos of the structures;
- Structural assessments, or other certifications that the structures are determined to be unsafe or pose an immediate threat to the public, based on local ordinances or building codes;
- Notices of demolition; and
- Documentation of environmental and historic review.

All documentation should be consistent with the requirements of applicable Federal, State, and local laws and regulations governing demolition of private structures. Similar to PPDR work, additional documentation may be required by Public Assistance staff on a case-by-case basis to demonstrate eligible work performed and compliance with applicable Federal, State, and local laws and regulations.

Commercial Property

The removal of debris from commercial property and the demolition of commercial structures are generally not eligible for Public Assistance grant funding. It is assumed and expected that these commercial enterprises retain insurance that can and will cover the cost of debris removal and/or demolition. However, in some cases as determined by the FCO, the removal of debris from private commercial property and/or the demolition of private commercial structures by a State or local government may be eligible for FEMA reimbursement only when such removal is in the public interest.

Industrial parks, private golf courses, commercial cemeteries, apartments, condominiums, and mobile homes in commercial trailer parks are generally considered commercial property.

Duplication of Benefits for PPDR and Demolition

FEMA is prohibited from approving funds for work that is covered by any other source of funding. Therefore, State and local governments must take reasonable steps to prevent such an occurrence, and verify that insurance coverage or any other source of funding does not exist for

PPDR work and the demolition of private structures. Typically, the rights-of-entries used for PPDR and demolition of private structure have a clause that states that a private property owner will re-pay an applicant the amount of insurance proceeds received for any PPDR or demolition work performed. The right-of-entry form being used by the applicant may also include space for the private property owner to list insurance information (policy number) for verification purposes.

When PPDR and demolition of private structures is covered by an insurance policy, the insurance proceeds must be used as the first source of funding. Public Assistance grant funding may be eligible for the remainder of the cost of the eligible work after insurance proceeds are recouped from the property owner. If it is discovered that a duplication of benefits has occurred, FEMA will de-obligate funds from the Grantee in the amount that such assistance duplicates funding the property owners received from other sources.

PART II – DEBRIS MANAGEMENT PLANNING CONCEPTS

Part II – Debris Management Planning Concepts

Introduction

Applicants are encouraged to review their community's vulnerability to a disaster and to consider their response and recovery activities, specifically in handling debris issues.

Debris removal operations can be time-consuming and costly. Over the last five years, debris removal operations accounted for approximately 27 percent of the disaster recovery costs. FEMA urges applicants to develop a debris management plan that considers large-scale debris removal and disposal operations. By developing a debris management plan, communities will be better prepared to address disaster-related debris in a time-efficient manner, expediting the recovery process. Additionally, a sound and properly executed debris management plan may better position an applicant for Public Assistance grant assistance.

Part II, Debris Management Planning Concepts, provides applicants with guidance in planning, organizing, mobilizing, and controlling a debris removal and disposal operation. Chapter 5, *Applicant Roles and Responsibilities*, outlines the staff who will develop a debris management plan. The remaining chapters of Part II describe the major elements of a debris management plan, the considerations applicants need to address, and information that may be required for Public Assistance grant assistance consideration.

Helpful tools within these chapters include the "Questions to Consider" and "To Do Checklist" at the end of the chapters. The "Questions to Consider" are intended to assist the planning team in applying the information within each chapter to the specific needs of their jurisdiction. The "To Do Checklist" is provided as a reminder of important issues and considerations to include within the debris management plan.

It is important to note that all or portions of Part II may be used depending on the size of the debris removal operation. The "Questions to Consider" at the end of each chapter may be used to help determine if a specific debris planning element is applicable for the specific jurisdiction.

Chapter 5 – Applicant Roles and Responsibilities

Chapter Highlights

Debris Management Staff Organization and Structure
Debris Management Staff Responsibilities
- Debris Project Manager
- Debris Management Planning Sections

Questions to Consider
To Do Checklist

The success of a debris management plan is dependent upon the commitment of an applicant to researching, planning, implementing, and evaluating the plan effectively and efficiently. Proper planning by management and employee training provides an applicant with a foundation for a quick and successful recovery.

The following text discusses the personnel that are necessary to plan and develop the debris management plan. A sample outline for a debris management plan is supplied for use and reference in Appendix A, *Debris Management Plan Outline*. During a disaster event, the same staff members would be expected to implement the plan. The organization of departments and management staff may vary between applicants, but roles and tasks do not change.

Debris Management Staff Organization and Structure

The size and composition of a staff organized to manage debris clearance, removal, and disposal issues depends on the magnitude of the disaster and the size of the jurisdiction. A pre-disaster debris planning staff may be quite small; however, following a major disaster, additional staff members may be required.

Successful debris operations require collaborative efforts between departments within the applicant and with specific external agencies that have regulatory authority over debris operations. It is essential that prospective staff members have as much training as possible and interface with other agencies responsible for debris clearance, removal, and disposal activities, such as the National Guard, the State department of transportation, the State police, and the State emergency management office, prior to any event.

To implement debris operations quickly, it is important for emergency response and recovery personnel to have a clear understanding of how their normal job responsibilities and functions apply to debris operations. The applicant's debris planning staff should be comprised of full-time personnel supplemented with personnel from other staffs and agencies. The planning process should include a review of individual departmental functions and responsibilities for implementing debris operations.

Immediately following a disaster event, the planning process should establish a disaster debris management team, which convenes as a working group to facilitate successful coordination following a disaster event. Team members should consist of personnel from departments within the applicant and representatives from external agencies, such as regional waste management, joint power authorities, sanitation districts, State and Federal environmental offices, and other agencies which have shared responsibilities for solid waste issues. Each member of the team is responsible for implementing debris operations in accordance with the planned goals and objectives, and in compliance with Federal, State, and local laws.

Debris Management Staff Responsibilities

No two jurisdictions have the same department or section designations; therefore, this document refers to each department or section according to its function rather than a specific department designation. The following discussion gives the function of each department and a brief description of the tasks each performs in developing the debris management plan

Each department is responsible for specific elements of the debris management plan. Those general duties are explained in the remainder of this chapter. Department responsibilities often overlap, making coordination and communication critical to the success of the debris management plan. In many instances, a particular department is involved in numerous elements of the debris management plan.

These overlapping responsibilities illustrate the need for one primary coordinator or Debris Project Manager. The Debris Project Manager's role and responsibilities are paramount in coordinating efforts and ensuring communication between planning and implementation sections.

Debris Project Manager

The primary decision maker is the Debris Project Manager. The Debris Project Manager should be knowledgeable of the applicant's processes, procedures, personnel, resources, and limitations. It is important for the Debris Project Manager to keep communication and coordination efforts between departments a priority.

The Debris Project Manager has overall responsibility for the operations, planning, logistics, and cost of the debris management operations. The Debris Project Manager assigns tasks to team members and tracks the completion of tasks to ensure quick implementation of the debris removal operations.

Debris Management Planning Sections

Administration

The Administration department typically includes the finance, personnel, and public information sections within a governing body. It is important for this department to establish a records management system in order to collect and keep all the documentation that may be required for the Public Assistance grants. Documentation may include, but is not limited to:

- Personnel policies.
- Labor and equipment timesheets and summaries.
- Safety procedures.
- Contract procurement procedures.
- Contracts.
- Billing and invoices, including debris hauler load tickets.
- Environmental permits.
- Right of entry and hold harmless agreements for private property debris removal and demolition, when applicable.
- Public information announcements.
- Debris salvage value information.

The finance section is usually responsible for developing an emergency response and recovery budget, tracking expenses, and ensuring funds are available for personnel, equipment, supplies, and contract service costs.

The Administration department should include a public information officer to distribute information and educate citizens about the debris operations. Planning components of the public information strategy should include the use of various types of information vehicles (print, radio, internet, etc.) and the pre-scripted information that will be distributed concerning topics such as:

- Debris pick-up schedules.
- Disposal methods and ongoing actions to comply with Federal, State, and local environmental regulations.
- Disposal procedures for self-help and independent contractors.
- Restrictions and penalties for creating illegal dumps.

- Curbside debris segregation instructions.
- Public drop-off locations for all debris types.
- Process for answering the public's questions concerning debris removal.

Chapter 14, *Public Information Strategy* further discusses the types of information and how it may be distributed.

Contracting and Procurement

The primary role of the Contracting and Procurement department is to have debris contracts in draft form ready for advertisement or have pre-qualified contractors in place prior to the event. This portion of the plan needs to be updated as the jurisdiction's procurement procedures and contracts may expire and change over time. Contracting and Procurement planning includes the following tasks:

- Develop contract requirements.
- Establish contractor qualifications.
- Distribute instructions to bidders.
- Advertise bids.
- Establish a pre-disaster list of pre-qualified contractors.
- Manage the contract scope of work.
- Establish a post-disaster contracting procedure if necessary.

Legal

The applicant's Legal staff leads the review process for all legal matters in the debris management planning process. In addition to advising the debris management planning staff, the following tasks should also be performed by the legal department:

- Review all contracts.
- Review and/or establish a land acquisition process for temporary debris management sites.
- Review all insurance policies.
- Ensure environmental and historic preservation compliance before, during, and after operations.
- Ensure that site restoration and closure requirements are fulfilled.
- Review and/or establish a building condemnation processes.

- Review and/or establish a legal process for private property demolition and debris removal.
- Review right-of-entry and hold harmless agreements.

Operations

The Operations staff is responsible for the supervision of government and contract resources and overall project implementation. The Operations department is responsible for implementing the entire debris removal operation. Planning tasks include:

- Position equipment and resources for the response and recovery debris removal operations.
- Develop staff schedules and strategies.
- Provide communication, facilities, services, equipment, and materials to support the response and recovery activities.
- Monitor and direct force account and contract labor.
- Distribute response and recovery resources.
- Operate and manage the collection, debris management site, and disposal strategies.
- Create a demolition strategy for structures, if necessary.
- Report progress for distribution to the debris management planning staff.

Engineering/Planning

The Engineering staff supports all other debris management sections in a technical role. The Engineering department provides debris quantity assumptions, economic analysis, and feasible solutions for the debris operations. The following are tasks that may be completed by the Engineering staff:

- Forecast debris volume based on assumed disaster type.
- Develop an estimating strategy for post-disaster debris quantities.
- Strategize and map debris haul routes.
- Select debris management sites and design the site layout.
- Determine reduction and recycling means and methods.
- Identify and coordinate environmental issues.
- Assess available landfill space and determine if additional space is needed.
- Develop the debris collection strategy.
- Write contract scopes of work, conditions, and specifications.

- Coordinate with other local and State jurisdictions for road clearance and operations.
- Establish a process for building damage assessment and condemnation (including public and private properties).
- Issue permits.

Questions to Consider

1. What departments within your agency are responsible for:

   - Debris removal?
   - Solid waste removal?
   - Demolition?
   - Public information?
   - Contract services?

2. What departments within your agency should participate in the development of a debris management plan?

3. Who will be the Debris Project Manager for your jurisdiction?

4. What staff positions within your agency or department should be designated to coordinate State and Federal assistance for debris management activities?

5. What local ordinances that have been adopted in your community apply to debris management activities?

6. What Federal and State environmental regulations apply to debris removal activities?

7. Which staff member will be responsible for coordinating efforts with FEMA and the State during a Presidentially declared disaster?

To Do Checklist

1 Assign management personnel to a debris management team for planning and implementation of the debris management plan. Assignments include management and planners for:

- Administration
- Contracting/Procurement
- Legal
- Operations
- Engineering/Planning

2. Establish an organization chart with names and contact numbers for distribution to the planning staff.

3. Assign a primary coordinator, and additional staff if necessary, to coordinate State and Federal assistance for debris management activities.

4. Assemble any local ordinances that have been adopted in the jurisdiction that apply to debris management activities.

Chapter 6 – Debris Forecasting for a Design Event

Chapter Highlights

Design Disaster Event
Disaster Characteristics
Land Use and Geography
Forecasting Methods
- Buildings
- Vegetation
- Volume – Weight Conversion Factors
- Other Forecasting Methods

Questions to Consider
To Do Checklist

Please see Chapter 1, *Public Assistance Debris Removal Eligibility*, and Chapter 3, *Debris Removal from Public Property*, for eligibility issues to consider in developing the debris management plan.

Quantifying the amount of debris after the disaster is known as "estimating." Predicting the amount and type of debris prior to a disaster event is known as "forecasting."

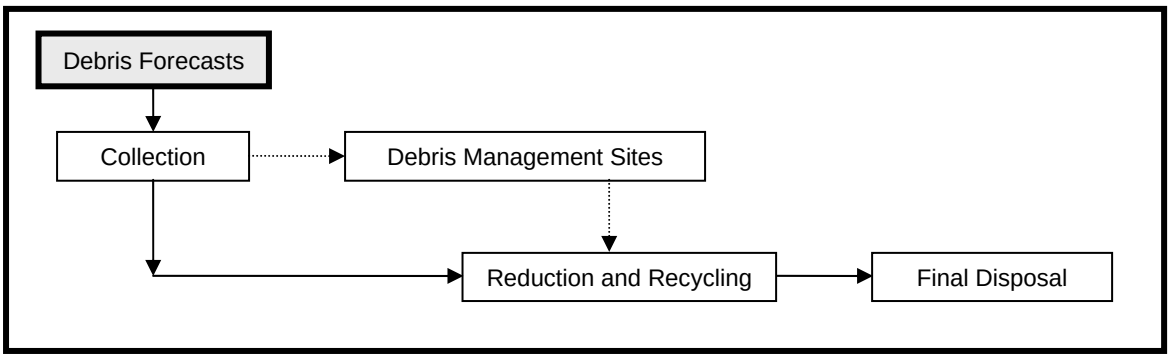


Figure 6.1 – Debris Management Forecasting Component

Forecasting the type and quantity of debris begins the debris planning process. By forecasting the type and quantity of debris, the planning staff can better define the scope of work of the debris management operations. Debris forecasts can be used to determine the required response and recovery resources, the number and size of storage and reduction sites, and the final disposition of the disaster-related debris.

Staff can reasonably forecast debris by becoming familiar with the impacts that result from various types of disasters. Realistic debris forecasts depend on the type and size of disaster an applicant anticipates their community will encounter.

Design Disaster Event

The type of disaster and the debris that is generated may be similar for an entire region of the country, but the size and extent of the affected areas is specific to an applicant's jurisdiction. The more information gathered during the planning process, the more realistic the projected debris quantities will be for future disasters. For planning purposes, an applicant should consider a "design event" to calculate and forecast the amount of debris that will be generated. Planning staff needs to determine the size and extent of a potential disaster.

Historical data is most often used to determine the design event for hurricanes, tornadoes, ice storms, wildfires, and floods. The design disaster event must be within reason and take into account historic events and any additional altered criteria that may affect the disaster scenario. For example, a flood event may not impact as many single-family homes as a previous event, due to a change in a river channel or revised zoning laws that prohibit building in a flood-prone area.

Earthquake design events should be analyzed for reasonableness and practicality. For instance, an applicant may only need to plan with the assumption that a portion of its structures will be damaged or destroyed during a disaster event, rather than all of its structures, if more stringent seismic building codes and better construction practices have been adopted since a previous event of the same nature.

Terrorist events have limited historical data; information from natural disasters and/or analyzing vulnerabilities of a particular applicant's jurisdiction may provide useful insight into the challenges an applicant could anticipate.

Disaster Characteristics

The following are general descriptions of natural and manmade disasters and the associated debris that each generates.

Hurricanes and Typhoons

The terms "hurricane" and "typhoon" are two regional names for the same phenomenon. The damaging forces of hurricanes and tropical storms include high velocity winds (up to 150 miles per hour or higher in gusts), storm surge, and wave action. The most severe damage frequently occurs in the shore lands adjacent to the ocean. The resultant debris consists primarily of vegetative matter, construction materials from damaged or destroyed structures, personal property, marine vessels, and sediment. The greatest concentration of debris is located along the shoreline. Flooding and tornadoes spawned by hurricanes can cause damage and leave extensive amounts of natural and manmade debris far inland.

It is important to consider the mix of debris that may be generated, though there is no standard composition data that can be applied for all hurricanes. For example, the composition of debris from Hurricane Andrew (1992) in Florida was generally 30 percent clean, woody debris and 70 percent construction and demolition debris. After Hurricane Fran (1996) in North Carolina, the mix was exactly the opposite. Considering the land-use types and existing infrastructure (types of structures) will assist in making forecasts for planning purposes.

Tsunamis

A tsunami is a wave train, or series of waves, generated in a body of water by an impulsive disturbance that vertically displaces the water. Earthquakes, landslides, volcanic eruptions, explosions, and even the impact of cosmic bodies, such as meteorites, can generate tsunamis. Tsunamis can savagely attack coastlines, causing devastating property damage and loss of life. They are capable of inundating and flooding areas hundreds of yards inland past the typical high water level. The fast-moving water associated with the inundating tsunami can crush homes and other coastal structures. Debris from tsunamis may consist of construction and demolition debris, vegetative debris, dead mammals, fish, and other marine forms. Tsunamis can be very deadly, and a community could expect to have a high loss of life.

Tornadoes

Damage from tornadoes is caused by high-velocity rotating winds. The severity of the damage depends on the velocity of the tornado funnel and the length of time the funnel is on the ground. Damage is generally confined to a narrow path, which can be up to one-half mile wide and from 100 yards to several miles long. Tornado debris consists primarily of vegetative debris, construction materials from damaged or destroyed structures, and personal property.

Floods

Severe rainstorms, hurricanes, tsunamis, or reservoir failure can cause flooding. Damage to structures from flooding is caused either by inundation or high-velocity water flow. Structural damage is usually limited to the floodway and the floodplain area immediately adjacent to the waterway. Heavy structural damage may result from high-velocity waters in mountainous areas or failure of a flood control project, such as a dam or levee. Flood debris may consist of sediment, wreckage, personal property, and sometimes hazardous materials deposited on public and private property. Additionally, heavy rains and floods may produce landslides; in such cases, debris consists primarily of soil, gravel, rock, and some construction materials.

Earthquakes

Seismic forces along fault lines generate shock waves that cause ground shaking, surface ruptures, liquefaction, landslides, mudflows, and earth cracking. Damage may be localized at the epicenter or widespread across adjoining areas. Secondary effects of earthquakes such as aftershocks, fires, explosions, and landslides cause further damage. Debris from an earthquake generally consists of damaged personal property, structural building materials, charred material, concrete, and asphalt.

Fires

Wildfires or urban fires can destroy or partially damage building structures, vehicles, public infrastructure, and vegetation. The loss of vegetative growth on hillsides may result in mudslides and subsequently cause further structural damage. Debris from fires consists of burnt personal property, burnt metals, charred wood, ash, asbestos, and other hazardous wastes.

Ice Storms or Snowstorms

Debris from ice storms or snowstorms consists of significant amounts of vegetative debris and overhead utility service components.

Acts of Terrorism

Terrorism includes the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives. Since terrorism is regarded as a criminal act, it involves coordination with law enforcement authorities, the coroner's office, and health officials before debris is handled or disposed.

Debris generated as a result of an act of terrorism is highly variable in both quantity and type, depending upon the specific means utilized by the terrorists. An act of terrorism could generate little to no debris at all, or could result in large quantities of multiple types of debris, potentially requiring highly specialized personnel, procedures, and equipment for its removal and disposal.

Disaster Debris Streams

Typically, disasters generate a mix of different types of debris. Figure 6.2 summarizes the typical types of debris for each type of disaster.

		Typical Debris Streams								
		Vegetative	Construction & Demolition (C&D)	Personal Property/ Household Items	Hazardous Waste	Household Hazardous Waste (HHW)	White Goods	Soil, Mud and Sand	Vehicles and Vessels	Putrescent
Types of Disasters	Hurricanes / Typhoons	X	X	X	X	X	X	X	X	X
	Tsunamis	X	X	X	X	X	X	X	X	X
	Tornadoes	X	X	X	X	X	X		X	X
	Floods	X	X	X	X	X	X	X	X	X
	Earthquakes		X	X		X	X	X		
	Wildfires	X		X		X	X	X		
	Ice Storms	X				X				

Figure 6.2 – Typical Debris Streams for Different Types of Disasters

Different handling and disposal methods are required for particular debris types and impact the scope of work of the debris management plan. Managing debris containing hazardous, household hazardous, medical, and infectious materials requires various specialized handling and disposal methods. Planning Staff should consider the proper handling and disposal methods for each type of debris that could be generated during each design disaster event when preparing debris management plans. Refer to Chapter 3, *Debris Removal from Public Property*, for discussion on typical debris streams.

Land Use and Geography

The planning staff should take into consideration land use, terrain, and accessibility of areas located within the applicant's geographic boundaries to determine the types of debris that will be generated and to establish effective debris collection programs.

Understanding the local land use provides information as to the types of debris that will be generated and offers insight as to the type of handling that would be necessary to safely manage the debris. For example, rural areas may have more vegetative debris; whereas, urban residential areas may have more construction and demolition debris. Industrial parks may have

special environmental concerns compared to park areas. Planning staff may find it useful to divide the jurisdiction into sectors in order to keep the forecasting manageable.

Evaluating accessibility and terrain of various locations within a jurisdiction is critical to determining the types of debris collection programs that should be undertaken. Remote areas may require the planners to safely store the debris until accessibility is established. Usually, finding debris contractors, recyclers, or disposal facilities in remote areas is a challenge. To promote expedient recovery efforts, planners should identify and maintain lists of available debris contractors, recyclers, and disposal facilities.

Forecasting Methods

After the disaster parameters and geographic extent is established, specific debris volumes can be quantified by using historical information or forecasting models.

Historical records provide a basis for forecasting disaster-generated debris and can be used for planning purposes. Previous contracts for debris removal, recycling activities, volume-reduction processing, and landfill disposal records should be reviewed thoroughly to determine the quantity of disaster debris that was generated for a particular disaster event.

If previous disaster data is not available, assumptions may be made from neighboring jurisdictions' experience, or from USACE modeling. USACE emergency management staff has developed a modeling methodology designed to forecast potential amounts of hurricane-generated debris. Based on data from Hurricanes Frederic (1979), Hugo (1989) and Andrew (1992), the methodology has a predicted accuracy of plus/minus 30 percent. USACE mathematical modeling forecasts the quantity of debris specifically generated by hurricanes and is available in Appendix B, *USACE Hurricane Debris Estimating Model*.

Buildings

Several basic techniques have been established to forecast destroyed building debris quantities. These techniques can be used to forecast debris quantities prior to an event or estimate quantities after a disaster.

Residential buildings

A formula for estimating the debris quantities from a demolished single-family home and associated debris is:

L' x W' x S x 0.20 x VCM =___ cubic yards of debris (cy)

Where:

L = length of building in feet
W = width of building in feet
S = height of building expressed in stories
VCM = Vegetative Cover Multiplier

The vegetative cover multiplier is a measure of the amount of debris within a subdivision or neighborhood. The descriptions and multipliers are described as:

- **Light** (1.1 multiplier) includes new home developments where more ground is visible than trees. These areas will have sparse canopy cover.
- **Medium** (1.3 multiplier) generally has a uniform pattern of open space and tree canopy cover. This is the most common description for vegetative cover.
- **Heavy** (1.5 multiplier) is found in mature neighborhoods and woodlots where the ground or houses cannot be seen due to the tree canopy cover.

The table below can be used to forecast debris quantities for totally destroyed single-family, single-story homes in the applicable vegetative cover category.

Typical House (square feet)	Vegetative Cover Multiplier			
	None	Light (1.1)	Medium (1.3)	Heavy (1.5)
1000 sf	200 cy	220 cy	260 cy	300 cy
1200 sf	240 cy	264 cy	312 cy	360 cy
1400 sf	280 cy	308 cy	364 cy	420 cy
1600 sf	320 cy	352 cy	416 cy	480 cy
1800 sf	360 cy	396 cy	468 cy	540 cy
2000 sf	400 cy	440 cy	520 cy	600 cy
2200 sf	440 cy	484 cy	572 cy	660 cy
2400 sf	480 cy	528 cy	624 cy	720 cy
2600 sf	520 cy	572 cy	676 cy	780 cy

Figure 6.3 – Debris Forecasting Table for Totally Destroyed Homes

The amount of personal property within an average flooded single-family home has been found to be:

- 25-30 cy for homes without a basement
- 45-50 cy for homes with a basement

Mobile homes have less wasted space due to their construction and use. The walls are narrower, and the units contain more storage space. Therefore, the typical mobile home generates more debris by volume than a single-family home. Historically, the volume of debris from mobile homes has been found to be:

- 290 cy of debris for a single-wide mobile home
- 415 cy of debris for a double-wide mobile home

Outbuildings

All other building volumes may be calculated by using the following formula:

$$\frac{L' \times W' \times H' \times 0.33}{27} = \_\_\_ \text{ cubic yards of debris}$$

Where:

L = length of building in feet
W = width of building in feet
H = height of building expressed in feet
0.33 is a constant to account for the "air space" in the building
27 is the conversion factor from cubic feet to cubic yards

Vegetation

Vegetation is the most difficult to estimate due to the random sizes and shapes of trees and shrubbery. Based on historical events, USACE has established a few rules of thumb in forecasting and estimating vegetative debris.

- Treat debris piles as a cube, not a cone, when estimating
- 15 trees, 8 inches in diameter = 40 cy (average)
- One acre of debris, 3.33 yards high = 16,117 cy

Volume – Weight Conversion Factors

These factors to convert woody debris from cubic yards to tons are considered reasonable and were developed by USACE.

Softwoods	6 cubic yards = 1 ton
Hardwoods	4 cubic yards = 1 ton
Mixed debris	4 cubic yards = 1 ton
C&D	2 cubic yards = 1 ton

To verify these conversion factors in the field, several truckloads may be tested. Trucks should be well loaded, contain woody debris typical of that being removed, and truck capacities should be verified. It is recommended that testing be performed with all affected parties present.

Other Forecasting Methods

Remote Sensing

The use of remote sensing information (aerial photographs, satellite data, etc.), either alone or in combination with field surveys, may be of significant use in forecasting the amount, mix, and extent of debris. Geographic Information System (GIS) maps should be considered early in the planning process. Depending upon the area, it is usually possible to quickly obtain GIS maps of landfills, Superfund sites, transportation routes, etc. As data on debris is obtained, plotting it on GIS maps should be considered.

Forecasting Models in Development

The private sector is currently developing other debris estimating models for tornadoes and hurricanes. These models are based on GIS or phone book data and on the USACE model. The Federal government and private industry are also working on a model to determine earthquake debris. The model takes into consideration various characteristics of an earthquake to anticipate the quantity of debris that could be generated by an earthquake.

Other debris forecasting methodologies and computer models may be available through other private vendors or other public sources.

Note that FEMA does not specifically endorse a particular product; however, such products may assist in forecasting disaster-generated debris and may be utilized for planning purposes.

Questions to Consider

1. Describe the types of disasters and debris streams that place your jurisdiction at risk.

2. Historically, what type of disaster generated:

   - The most amount of debris (quantity)?
   - The most varied types of debris?

3. Who will be responsible for:

   - Forecasting the debris quantities prior to the disaster?
   - Estimating the post-disaster debris quantities?

To Do Checklist

1. Establish a design disaster event. This may be based on historical events.

2. Forecast the type and quantity of debris for the design event. This can be based on historical data, recent neighboring community damage, or modeling methods.

3. Consider jurisdictional geography when forecasting and divide the jurisdiction into sectors if necessary.

Chapter 7 – Debris Collection Strategy

Chapter Highlights

Developing a Collection Strategy
- Response Operations
- Recovery Operations

Types of Collection Methods
- Curbside Collection
- Collection Centers

Collecting Hazardous Waste and White Goods
- Household Hazardous Waste
- White Goods

Questions to Consider

To Do Checklist

Please see Chapter 1, *Public Assistance Debris Removal Eligibility* and Chapter 4, *Private Property Debris Removal and Demolition of Private Structures*, for eligibility issues to consider in developing the debris management plan.

The next step after determining the design event and debris forecasting is to develop a debris collection strategy.

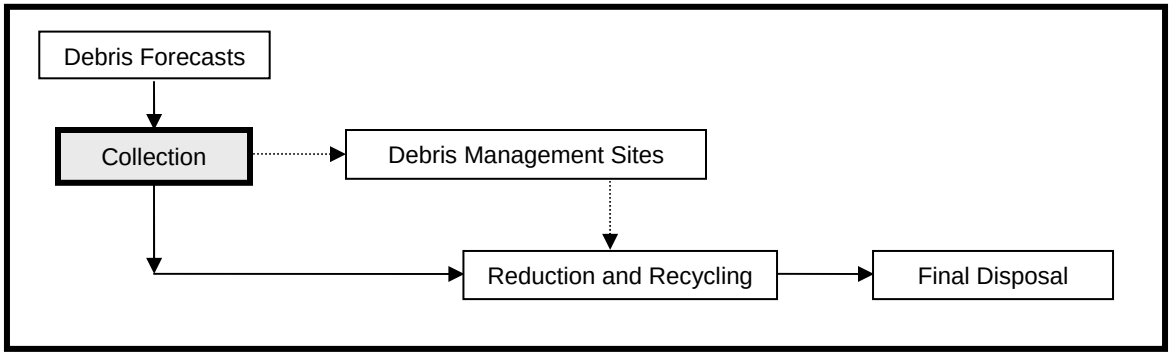


Figure 7.1 – Debris Collection Component

Collection operations are normally broken into two phases: response and recovery. An efficient debris management plan includes collection activities for response and recovery debris strategies. Response occurs sometimes during and always immediately after an event in order to clear emergency access routes. The recovery operation usually begins after the emergency access routes are cleared and the residents return to their homes and begin to bring debris to the public rights-of-way.

Developing a Collection Strategy

To develop a strategy, the planning staff must consider several variables, which include:

- Amount and type of forecasted debris
- Employee labor resources
- Available equipment
- Urgency of the debris operations
- Damage to priority infrastructure
- Limitations of forces and skills for specialized debris issues

Response Operations

Debris removal activities during the response phase include immediate actions for the removal of debris to facilitate search and rescue efforts, to allow access to critical facilities, and to prevent flooding. Actions required during the response phase are usually completed within a matter of days following a disaster event.

Applicants often use their own labor force and equipment to remove debris during this phase. In circumstances when the existing labor force is not sufficient, or when specialized services are required, applicants may supplement their work efforts by activating mutual aid agreements or by awarding short-term debris removal contracts for specific work.

Response operations primarily focus on the emergency access routes and main arterials. The planning staff should identify which roads and streets are essential to emergency operations so they can manage and direct local resources. The planning staff should identify and target areas for possible State and mutual aid assistance to augment their efforts.

Prior to and immediately following the event, extricating people and providing access to health care facilities are the top priorities; therefore, the major arterial routes are given priority for the emergency services staff such as police, fire, and ambulance service. Emergency operations infrastructure, such as the emergency operations center and supply distribution centers, normally are the next priority.

Other infrastructure, such as water, wastewater, and utilities, is typically given the third priority. Priorities for all other routes are established by the applicant based on its particular situation. The following is an example priority list:

1. Fire, police, and ambulance service routes
2. Access routes to trauma centers, hospitals, critical care units, and jails
3. Major arterial routes
4. Roads and streets to the debris management center and emergency operations center
5. Supply routes to emergency supply distribution centers

6. Roads and streets to government facilities
7. Communication towers and systems access
8. Utility access routes
9. Routes to shelters

Maps showing specific streets, roads, buildings, hospitals, and addresses, along with specific labor assignments are necessary for emergency staff to understand their roles. All other roads and streets are normally cleared once the emergency and major access routes are opened and the jurisdiction transitions to the recovery operations.

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 force account and contractor services for debris removal activities during this phase.

Types of Collection Methods

The fundamental component of a disaster debris management strategy is the collection 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. Developing an approach to collect debris during the planning process will assist applicants to begin collecting debris immediately following a disaster event.

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. The only difference between the subcategories discussed below is the separation of the types of debris at the point of collection.

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 directed to sort the debris by material type and place it at the curb in separate piles. 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 white goods. Both types of debris are discussed at the end of the Collection Methods section.

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.

The planning staff should assign employees to manage the development of the site and oversee the operations of the collection center. The planning staff needs to design the circulation for proper ingress, egress, and collection bin exchanges. Employees need to be stationed at the centers during the collection period in order to have empty bins brought in when the current ones are full, to ensure that debris materials are placed in the correct bins, and to ensure a collection center does not become a dumping ground for non-disaster-related debris.

The planning staff's legal counsel should investigate the liability issues that the site may present, especially if debris is being brought in and handled by the jurisdiction's residents.

Collecting Hazardous Waste and White Goods

The two most common types of debris that will need special handling are hazardous waste and white goods. Regardless of which collection method is used, the planning staff needs to understand the effects this collection can have on the overall debris clearance, removal, and disposal mission.

Household Hazardous Waste

HHW mixed with other debris types will contaminate the entire load, which necessitates special disposal methods such as storage in a particular part of a landfill. Typically, the landfill requires special liners and a more intense permit standard due to the hazardous waste. The disposal cost of HHW is generally higher than the disposal of other waste; therefore, the overall cost of debris disposal can escalate quickly if the HHW collection and disposal is not planned and executed with care.

Local governments, in coordination with the State and county, often host HHW collection center events, or "round-ups," several times during the year. The round-ups are planned scheduled events for residents to legally dispose of unused HHW. The applicants should host a HHW round-up following a disaster event, in order to avoid the commingling of the hazardous waste with other disaster-related debris. This limits the amount of contaminated waste, thereby reducing the overall disposal cost of the debris.

Pre-disaster planning should include training for hazardous waste response teams to collect, sort, store, and dispose of excessive quantities of HHW. The planning staff may consider having emergency hazardous waste removal/disposal contracts in place or pre-qualifying contractors to perform the work. The planning staff may prepare generic scopes of work that can be fine tuned with minimal effort, in order to begin recovery operations as soon as possible.

White Goods

The planning staff needs to take special care in finding certified recycling centers that are permitted to take white goods. Refrigerants and other machine fluids are normally regulated by the State environmental agency and can only be reclaimed by certified technicians and disposed of at a permitted facility. To avoid releases of refrigerants or oils, the collection of white goods should be accomplished carefully by manually placing the appliance on trucks or by using lifting equipment that will not damage the elements that contain the refrigerants or oils.

Having contracts or agreements in place prior to a disaster expedites the recovery efforts.

Recycling scrap metals and parts from white goods presents an opportunity for applicants to offset the collection and disposal costs. This also reduces the amount of waste going to a landfill.

The State environmental office and EPA provide first response functions in cases of commercial, agricultural, industrial, and toxic waste spills. The debris management plan should include the contact information for both parties in case of a large contamination issue.

Questions to Consider

1. What facilities will be critical for establishing clearance or removal priorities in the debris management plan?
   - Emergency (police, fire, hospitals)
   - Utilities (electrical, water, sewer, communications)
   - Other

2. Who will conduct response and recovery activities? Force account labor? Contractors?

3. How will debris be collected throughout the jurisdiction?

4. How will the collection activities handle HHW and white goods?

5. Have the necessary environmental controls for hazardous waste been designed for the collection centers, such as liners and berms?

6. Have the appropriate State and local regulatory agencies been involved in the selection of collection center sites, to ensure they are not placed in environmentally sensitive areas?

To Do Checklist

1. Establish priorities for debris clearance and removal during response and recovery operations.

2. Identify which collection method best suits the jurisdiction.

3. If collection centers are used:

   a. Identify appropriate locations for collection centers
   b. Identify if hazardous waste or HHW will be collected
   c. Identify how the collection centers will be monitored
   d. Identify how long the collection centers will be in place

4. If using curbside collection, identify the work force that will collect the debris:

   a. If Force account, assignments for:
      - Labor
      - Equipment
      - Sector or section of the applicant's jurisdiction

   b. If Contractors, assignments for:
      - Labor
      - Equipment
      - Sector or section of the applicant's jurisdiction
      - Monitor assignments for contractor activities

5. Establish a process for handling HHW and white goods.

6. Train staff and emphasize the need for documenting key debris eligibility requirements for Public Assistance grant consideration:
   a. Hours worked
   b. Hours the equipment was operating
   c. Location of work performed
   d. Amount of debris removed
   e. Type of debris

Chapter 8 – Debris Management Sites

Chapter Highlights

Advantages and Disadvantages
Identifying Debris Management Sites
- Ownership
- Size
- Location
- Environmental and Historic Preservation Concerns

Baseline Data Collection
Environmental Monitoring Program
Permits
Establishment and Operations Planning
- Site Design
- Site Management
- Site Closure

Questions to Consider
To Do Checklist

Please see Chapter 1, *Public Assistance Debris Removal Eligibility*, for eligibility issues to consider in developing the debris management plan.

Debris Management Sites (DMS) are established when applicants are unable to take debris directly from the collection point to the final disposition location.

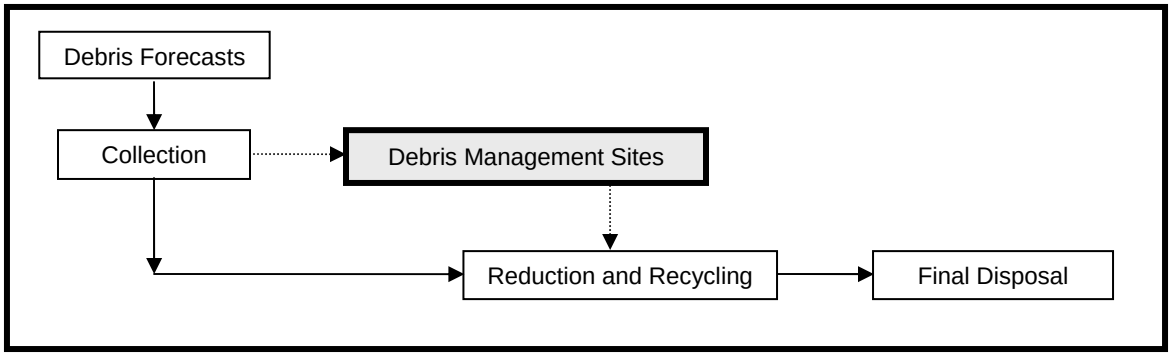


Figure 8.1 – Debris Management Site Component

A DMS is a location for applicants to temporarily store, reduce, segregate, and/or process debris before it is hauled to its final disposition. It is frequently used to increase the operational flexibility when landfill space is limited or when the landfill is not in close proximity to the debris removal area.

By employing a DMS, the debris can be collected from the rights-of-way and public properties in order to expedite permanent recovery operations. Locations for temporary debris storage and processing facilities should be identified during the planning process, and a listing of the locations should be included in the debris management plan.

Advantages and Disadvantages

The advantages and disadvantages of a DMS are:

Advantages:

- Flexibility of operations. The DMS may also include a collection center for the public's use.
- Facilitation of recycling and reduction of debris. Specific reduction, recycling, or segregation needs can be designed into the site.
- Expedition of debris collection. Having a site for temporary storage and reduction allows time for local landfill site preparation before final disposal. The DMS may also be established at a location central to the disaster event, thereby reducing travel time from the disaster area to the disposal site.

Disadvantages:

- Additional cost to handle the debris twice. Once to the DMS and the second time to final disposition.
- If applicant-owned land is not available, leasing land is expensive.
- Additional costs for proper planning, engineering, and permitting.
- Considerable time and effort required to complete environmental and historic preservation compliance reviews prior to establishing the site.
- Environmental review and potentially extensive site cleanup may be necessary to properly close the site.
- DMS requires dedicated site management and staff for efficient operations, safety, and documentation considerations.

Identifying Debris Management Sites

Identifying potential sites before a major natural disaster expedites debris removal and subsequent volume reduction and disposal actions. The designated Debris Project Manager and staff should work closely with other local, tribal, and State officials to develop and maintain

current listings of potential debris storage and reduction sites in areas prone to natural disasters. Site selection should be based on the following criteria:

- Ownership
- Size
- Location
- Environmental and historic concerns (baseline study findings)

Ownership

The planning staff should consider public lands first in order to avoid costly land leases. Existing disposal or recycling facilities that are in close proximity to the disaster area are ideal locations for DMS. Nearby landfill and recycling center capacities need to be evaluated for site feasibility. Applicant-owned sites that will not require extensive repair costs, such as parks, vacant lots, or sports fields, should be considered as well. State-to-State or county-to-county agreements may present possible solutions for public land use.

When this is not possible, the planning staff should develop criteria for identifying potential private property locations for the DMS. Private land leases need to be reviewed by the legal staff in order to avoid extensive damage claims upon site closeout.

Land Lease Agreements

The duration of the land lease agreement should be inclusive of all the time the applicant will be present at the site, beginning with the baseline environmental study and ending once the property owner takes back legal ownership.

The agreement should include a requirement to conduct a baseline environmental evaluation of the site before the site is occupied and an environmental evaluation before returning the property back to the owner. Both documents may become an annex to the land lease agreement.

The land lease agreement should be for a specific time frame with the ability to extend the lease if debris removal and processing activities are not completed.

Size

The size of the site is dependant on the quantity of debris that is stored and processed. The site should be large enough to safely accommodate processing of various debris materials, storing heavy equipment, and maneuvering trucks and large processing equipment. Historic disasters have shown that it takes 100 acres of land to process one million cubic yards of debris. USACE has found that approximately 60 percent of the area will be used for roads, buffers, burn pits, HHW disposal areas, etc.

Location

The DMS should be established in an area that does not impede the flow of traffic along major transportation corridors, disrupt local business operations, or cause dangerous conditions in residential neighborhoods or schools. Whenever possible, avoid locating a DMS near residential areas, schools, churches, hospitals, and other such sensitive areas.

The DMS requires good ingress/egress to accommodate heavy truck traffic. The planning staff should consider adjusting traffic signals to accommodate projected truck traffic on critical haul routes. The DMS selection criteria should consider access to major routes to allow for trucks to transport material to final disposition locations.

The planning staff needs to consider public acceptability when selecting a potential DMS. It is largely dependent upon the activities planned for the site. Smoke from burning, around-the-clock light and noise from equipment operation, dust, and traffic are generally tolerated early in a disaster recovery operation, but may have to be curtailed later. The planning staff is strongly encouraged to notify citizens early about planned site activities and possible ramifications.

Environmental and Historic Preservation Concerns

When selecting public or private sites, pre-existing conditions should be considered because the sites will have to be restored upon site closeout. Proper management of the site allows the site to be closed with manageable efforts. For site closure reasons, planning staff should refrain from aggravating an existing environmental issue during the debris management operations.

Therefore, a DMS should not be established in an environmentally or historically sensitive area such as wetlands, critical animal and plant habitats, sole source aquifers, freshwater well fields, historic districts, or archeological sites. This applies specifically to any Superfund site or area within a 100-year floodplain. DMS selection criteria should also take into consideration any disproportionately high or adverse impacts on minority or low-income populations, in accordance with EO 12898. Adverse impacts should be avoided or minimized where possible. If an environmental or historic preservation concern is found during the baseline data collection process (described below), the potential site should be ranked lower than others. However, if use of such areas is unavoidable, the State and local environmental and historic preservation requirements must be followed. Compliance with environmental and historic preservation requirements is still required.

By conducting a baseline data collection study, the planning staff is able to further establish the feasibility of potential sites, document the existing site, and vet potential environmental issues. Data collection needs to be completed prior to establishing the site and continued throughout the operations. The final evaluation should include the same documentation in order to avoid disagreements on the condition of the site prior to the operations and the condition to which it was returned.

Baseline Data Collection

Baseline data collection is essential to documenting the condition of the land before it is used as a DMS. Private and public land used as a DMS needs to be returned to its original condition following the end of all debris operations. As soon as a potential site is selected, the designated Debris Project Manager and staff should work closely with local, tribal, and State officials to develop baseline data criteria. The following actions are suggested to document the baseline data on all sites:

1. **Videotape and/or Photograph the Site**. Thoroughly videotape and/or photograph (ground or aerial) each site before beginning any activities. Periodically update video and photographic documentation to track site evolution.

2. **Document Physical Features**. Note existing structures, fences, culverts, irrigation systems, and landscaping that can help evaluate possible damage claims made later.

3. **Investigation of Historic Significance**. Research the past use and ownership of the property to document any issues regarding the existence of historic structures or archeological sites. The SHPO may have information about the property.

4. **Sample Soil and Water**. Soil and groundwater samples should be collected prior to use of the site. Advance planning with community and State environmental agencies can establish requirements, chain of custody, acceptable sampling methods, certified laboratories, and testing parameters. If in-house assets are not available, the planning staff may consider establishing a contract with an environmental consulting firm that can respond rapidly. Planned HHW, ash, and fuel storage areas should be sampled prior to site setup.

Environmental Monitoring Program

As operations proceed additional data should be collected throughout the operations for closeout and quality assurance reasons. The data can be compared to the previously established information in order to determine any remediation that may be necessary.

1. **Sketch Site Operation Layout.** DMS operations may grow, shrink, or shift on the site. It is important to track reduction, hazardous waste collection, fuel, and equipment storage in order to sample soil and water for contaminants. Periodically map or sketch activity locations so that areas of concern can be pinpointed later for additional sampling and testing.

2. **Document Quality Assurance Issues**. Document operations that will have a bearing on site closeout, such as petroleum spills at fueling sites, hydraulic fluid spills at equipment breakdowns, installation of water wells for stock pile cooling or dust control, discovery of HHW, and commercial, agricultural, or industrial hazardous and toxic waste storage and disposal.

3. **Restoration of Site**. Final restoration of the landscape must be acceptable to the landowner, but within reasonable expectations. Therefore, plan the landscape restoration as early as possible, preferably incorporating provisions within the lease.

Permits

Environmental permits and land-use variances may be required to establish a temporary DMS. Several agencies may be involved in issuing permits and granting land-use approvals. The planning process should identify the potential permits that will be required to establish a facility. A listing of the permits should be part of the debris management plan and may include:

- Waste processing and recycling operations permit
- Temporary land-use permits
- Land-use variances
- Traffic circulation strategies
- Air quality permits
- Water quality permits
- Coastal commission land-use permits
- HHW permits
- Fire department permits

Establishment and Operations Planning

Site Design

The information gathered during the baseline data collection becomes important to the design of the site. Additional concerns, such as site operations and closure criteria, need to be taken into consideration when the site is designed. Many of these issues will be addressed in planning, but will be implemented after the debris-generating event occurs.

Site Preparation

The topography and soil/substrate conditions should be evaluated to determine the best site layout. When planning site preparation, the designer should consider ways to make site closure and restoration easier. For example, if the local soils are very thin, the topsoil can be scraped to bedrock and stockpiled in perimeter berms. Upon site closeout, the uncontaminated soil can be

re-spread to preserve the integrity of the tillable soils. Operations that modify the landscape, such as substrate compaction and over-excavation of soils when loading debris for final disposal, adversely affect landscape restoration.

Site Layout

The efficiency and the overall success of the DMS operations is determined by how the site is designed. Debris should be constantly flowing to incinerators and grinders, or recycled with the residue and mixed construction and demolition materials going to a landfill. Significant accumulation of debris should not be allowed to occur at temporary storage sites, due to environmental and safety concerns, such as the risk of fire. Moreover, permits for such sites usually impose maximum capacity restrictions. Additional debris management sites may be required if the actual debris quantities flowing into the site are greater than the site storage and processing capacity.

Figure 8.2 - DMS With Undesired Debris Accumulation

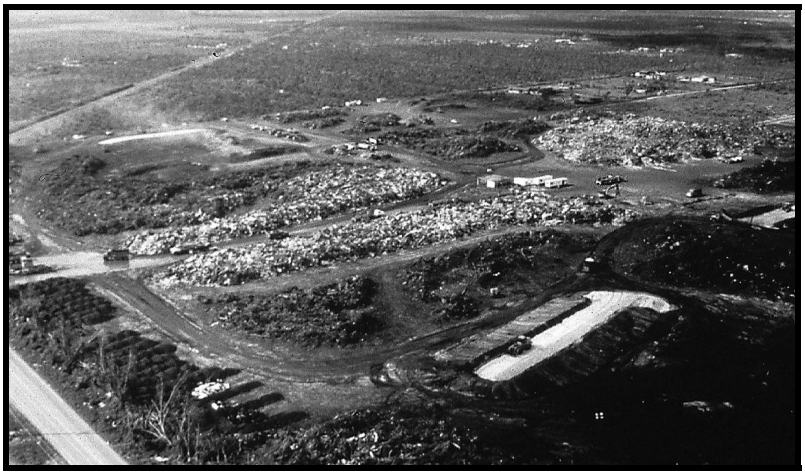


Figure 8.3 - DMS With Little Debris Accumulation

Operational Boundaries

Operational boundaries are the boundaries or areas that clearly define the difference in use areas at the DMS. In establishing the operational boundaries, the DMS design staff may consider using earthen berms, temporary barriers, or any other physical restriction. This aids traffic circulation and helps keep debris amassing at the DMS to a minimum.

Common operational uses are:

- Reduction
- Recycling
- Tipping areas (unloading)
- Loading areas for processed debris to go to its final disposition
- Drop-off centers for the general public (this may include vegetative, recycling, or construction and demolition debris)
- HHW storage
- Monitoring tower locations at both the ingress and egress points
- Equipment, fuel, and water storage

The separation between all of the areas listed above needs to be clearly delineated and defined. As operations proceed, the lines may be moved to accommodate either growing demand for space or a reduction in preparation for closure.

The reduction, recycling, tipping, and loading areas need ample room for large equipment operations. The design should take into consideration the possibility of multiple pieces of equipment being in the same activity area at one time. Depending on the scale of operations, each debris stream may have its own tipping area and should be designed accordingly. Reduction activity considerations are discussed in Chapter 9, *Debris Reduction/Recycling Methods and Disposal.*

General public drop-off areas for recycling, reduction, and construction and demolition debris may be included within a DMS. These public use areas should be carefully designed for passenger vehicle traffic and public safety.

HHW storage should be close to the public drop-off center yet restricted so that qualified personnel may process the waste appropriately. The design staff may consider constructing an impermeable lining and earthen berms in order to contain spills and prevent surface water runoff from leaving the area.

Monitoring towers should be located at ingress and egress points. Monitoring towers should be constructed of durable structural materials. The structures should be designed to withstand active and static loads. A stepladder is not an acceptable monitoring tower. Additional monitoring concerns and issues are discussed in Chapter 11, *Monitoring Debris Removal.*

Equipment and fuel should have a designated storage area and signs posted appropriately. The fuel storage areas need to be designed to contain spills. Water should be readily available at all times. Water storage areas should be strategically positioned throughout the site and identified appropriately.

Traffic Patterns

The traffic circulation needs to be well defined throughout the entire site. Although traffic signs and barricades aid in directing traffic, the planning staff may consider flag personnel to help direct traffic. Drivers unfamiliar with the new environments, routes, and rules will need assistance in order to safely navigate through the DMS.

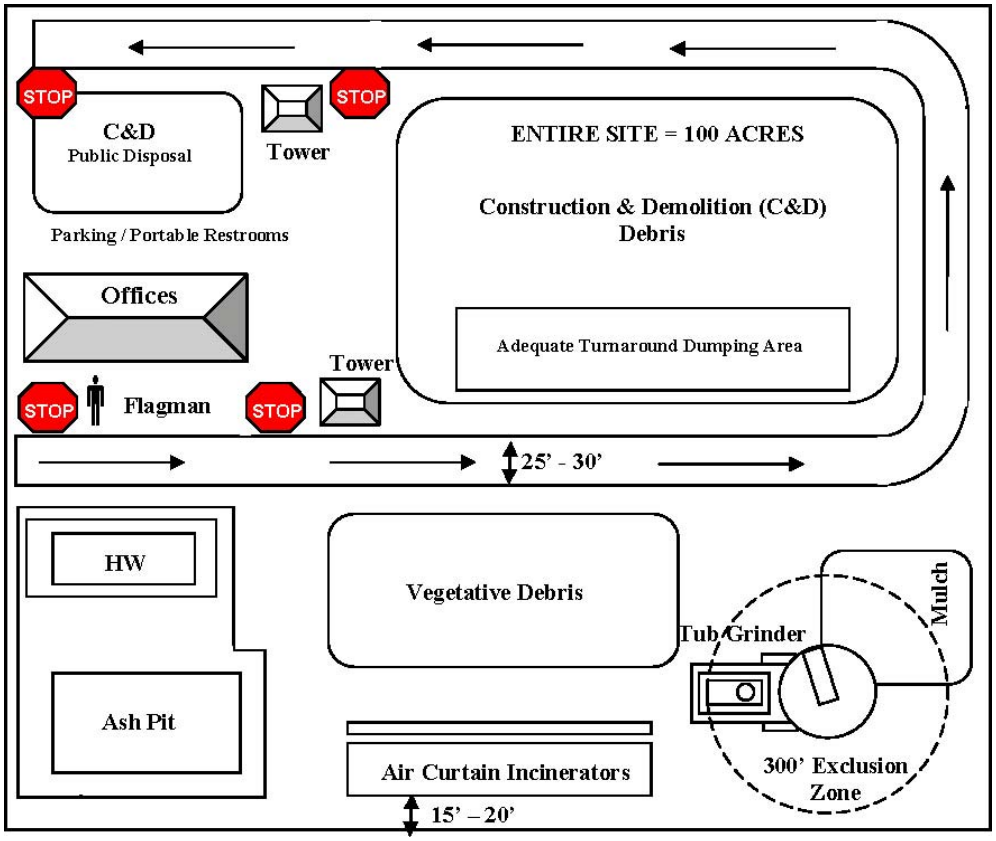


Figure 8.4 - Sample DMS Layout

Optimally, the designed traffic pattern should allow trucks to enter and exit through different access points, as long as each is monitored. Haulers are typically paid by the volume of a load. The load is evaluated when entering the site as a percentage of the full capacity of the truck. Stationing monitors at ingress and egress points ensures every truck releases the entire load prior to leaving the site. This avoids debris left in a truck from a previous load from being counted again in a subsequent load.

The empty trucks that enter the site to remove the processed (reduced) debris should enter and exit through an access point other than that of all other traffic. This reduces the site management and debris monitor confusion regarding debris being deposited or leaving the site.

Site Management

To meet overall debris management strategy goals and to ensure that the site operates efficiently, the management of the site should be under the direction of the applicant.

Applicants could use in-house personnel or contracted services to manage the site. In either situation, a site manager, debris monitors, and safety personnel are needed to ensure safe and efficient operations.

Site Manager

The site manager is responsible for supervising the overall day-to-day operations, maintaining daily logs, preparing site progress reports, and enforcing safety and permitting requirements during site operations. The site manager is also responsible for scheduling the environmental monitoring and updating the site layout. The site manager has oversight for monitoring the activities of the debris removal contractors and the onsite debris processing contractors to ensure they comply with the terms of their contracts.

Debris Monitors

Applicant's monitors (whether force account or contractors) should be placed at ingress and egress points in order to quantify debris loads, issue load tickets, inspect and validate truck capacities, check loads for hazardous waste, and perform quality control checks. The specific duties of the monitors are dependent on how debris is collected. Chapter 11, *Monitoring Debris Removal*, includes additional information concerning monitoring roles and responsibilities.

Safety Personnel

Safety personnel are responsible for traffic control and ensuring that site operations are in compliance with State and Federal occupational safety regulations.

Site Closure

When the site operations are complete, the property must be restored to its original condition before returning the site to the property owner. Restoration of a site involves removing all traces of the operations and possible remediation of any contamination that may have taken place during the operations. The site, either applicant owned or leased, must be brought back to its environmental state, prior to it being returned to the owner.

Debris, processing equipment, storage tanks, protection berms, and other structures built on the site should be removed from the site upon completion of all debris removal and processing operations.

The final environmental site evaluation is an extension of the environmental monitoring program. Similar testing as completed in the baseline study will be conducted to confirm that the site has been returned to its pre-activity state. Test samples should be taken at the same locations as those of the initial assessment and monitoring program. However, if warranted, additional test samples may need to be taken at other locations on or adjacent to the site.

Based on the results of the testing, additional remediation may be required before the owner takes final acceptance of the site. The lease agreement should have provisions to release the applicant from future damages when the site is returned in its original condition or final acceptance is received from the owner.

Questions to Consider

1. What are the remaining capacities of your landfills? How would you acquire this information?

2. Are there any restrictions to the types of materials that can be taken to your landfills?

3. Does the governing jurisdiction have available property that can be used as a DMS? If not, who would have the responsibility to locate a potential DMS and prepare legal lease agreements?

4. Who in your staff could manage the DMS? What staff is available to work at the DMS?

5. Will contracting additional labor and equipment be necessary to operate the DMS?

To Do Checklist

1. Identify landfills within the jurisdiction that can be used for a DMS, final disposal, or both. If landfill space is not available, what are the alternatives?

2. If it is determined that a DMS is necessary:

   a. Perform the baseline data collection

   b. Have the legal staff review and obtain a lease (if private property)

   c. Identify any outstanding environmental concerns with the site

   d. Obtain all permits from the governing authority or agencies

3. Identify the jurisdictional staff member(s) that will be responsible for the DMS operations.

4. Identify the types of operations that will be taking place at the DMS.

5. Design the DMS layout.

6. Identify how the DMS activities will be performed:

   - Force account labor and equipment
   - Contract labor and equipment.

7. Develop an ongoing environmental monitoring strategy for while the DMS is operating. Document appropriately for potential site closure remediation.

8. Perform a final environmental data collection to ensure the property is returned as it was accepted.

9. If the DMS is leased, ensure the property is returned and accepted by the owner without future action due to environmental contamination.

Chapter 9 – Debris Reduction/Recycling Methods and Disposal

Chapter Highlights

Methods of Reduction
- Incineration
- Chipping and Grinding
- Recycling

Final Disposition Operations
Questions to Consider
To Do Checklist

Please see Chapter 1, *Public Assistance Debris Removal Eligibility* and Chapter 2, *Costs*, for eligibility issues to consider in developing the debris management plan.

Based on the debris forecasting, the planning staff will have a concept of the amount and types of debris that will be collected and disposed of. During this period, the staff may consider reduction and recycling methods to lower the overall cost of a debris removal operation.

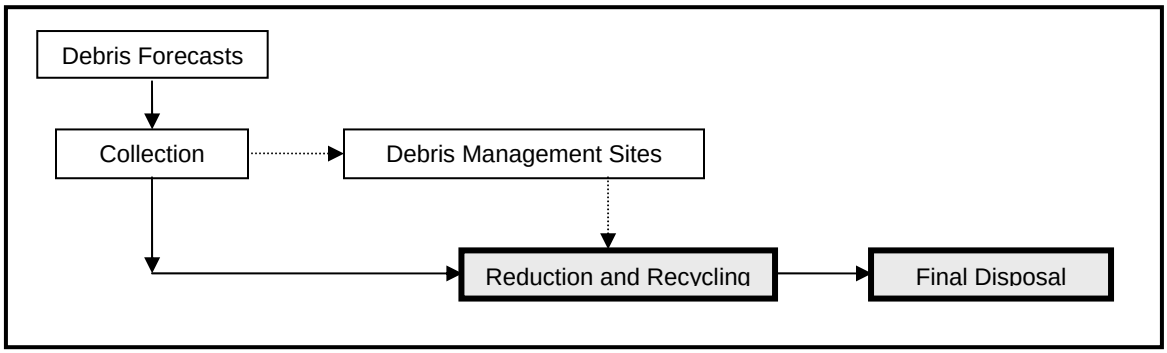


Figure 9.1 – Debris Reduction/Recycling and Final Disposal Component

Reducing and/or recycling disaster-related debris has financial and environmental advantages. These operations can decrease the overall cost of a debris removal operation by reducing the amount of material that is taken to a landfill. This diminishes the cost of final disposition in the form of tipping fees. In the case of recycling, potential end-use products for specific markets may offset the cost of operations even more. In many communities, recycling operations are an important component of the community public policy and are a priority. The staff should evaluate the types of reduction methods appropriate for the anticipated debris based on different disaster scenario events.

Methods of Reduction

The planning staff has three main types of reduction methods to consider and use during the operations: incineration, chipping/grinding, and recycling.

One method or a combination of methods may be utilized as appropriate depending on the type and anticipated volume of debris. The applicant must ensure all Federal, State, county, and local laws are followed before any reduction activities begin.

Incineration

Burning vegetative debris is a popular reduction method since it has up to a 95 percent reduction rate. Local agricultural extension personnel should be consulted to determine if the resulting ash can be recycled as a soil additive. This option should be terminated if mixed debris enters the waste stream.

The incineration process requires a minimum of three steps, to include:

1. Unloading the debris.
2. Moving the debris into an incinerator.
3. Removing the ash from the incinerator to final disposition. Final disposition may be an appropriately constructed area at the DMS or a landfill.

This process is illustrated in the following figure.

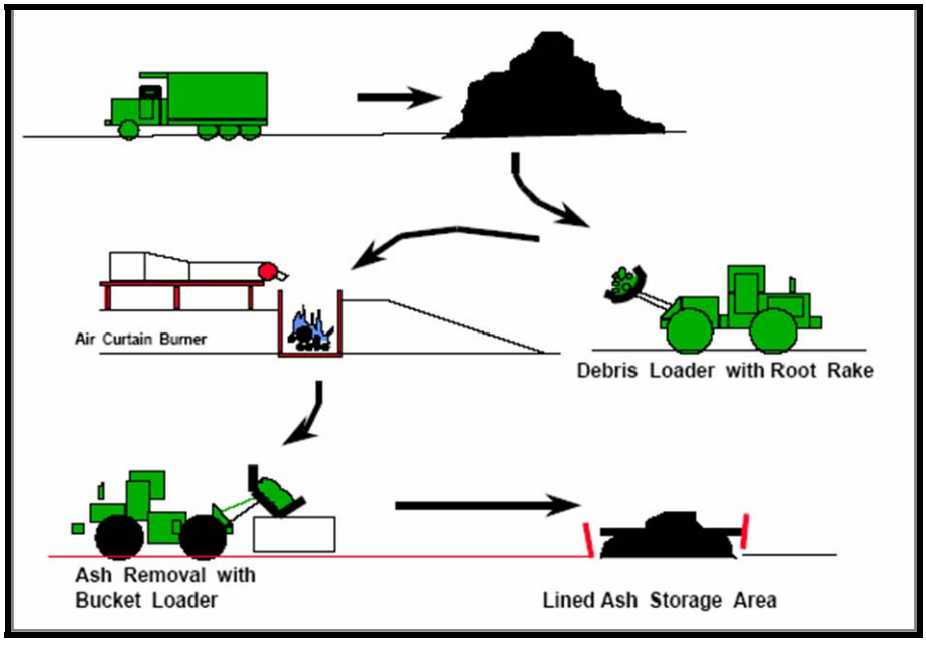


Figure 9.2 – Flow Diagram for a Burning Operation

There are several incineration methods available for volume reduction.

Uncontrolled Open-Air Incineration is reducing debris with no control over how much or how quickly it is allowed to burn. It is the least desirable method of volume reduction because it lacks any type of environmental control. Applicants may employ this method early in a disaster to make progress quickly. However, if circumstances dictate that open-air burning is the only option for managing debris, the applicant should conduct environmental evaluations to include air quality monitoring and implement control measures to limit impacts to humans and the environment. This reduction method should be closely monitored to ensure that only clean woody debris is incinerated.

Controlled Open-Air Incineration carefully reduces vegetative debris by burning debris within a contained fixed area. The reduction of clean woody debris presents little environmental damage and is cost-effective.

Air Curtain Pit Incineration offers an effective means to expedite the volume reduction process while substantially reducing the environmental concerns caused by open-air incineration. The air curtain incineration method uses a pit constructed by digging below grade or building above grade (if a high water table exists) and using a blower unit. The blower unit and pit comprise an engineered system that must be precisely configured to function properly.

The burning chamber is usually no more than 8 feet wide and 9 to 14 feet deep. The length of the pit varies depending on site size, environmental permitting, and labor/equipment limitations. The designs of successful air curtain incinerators used in past disasters are presented in the following figures, for reference and planning use only.

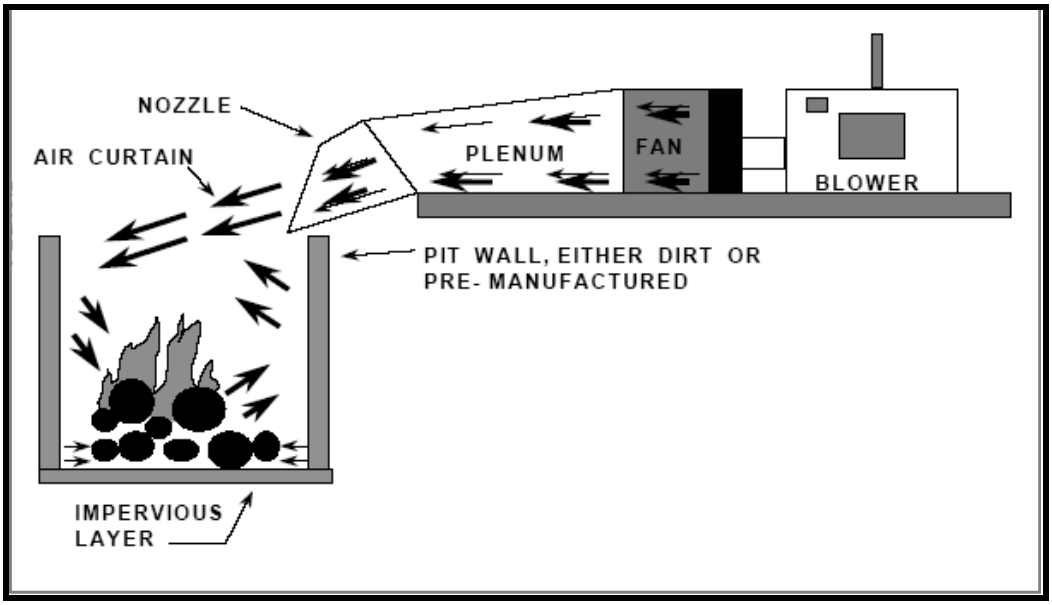


Figure 9.3 - Below-Grade Air Curtain Operation

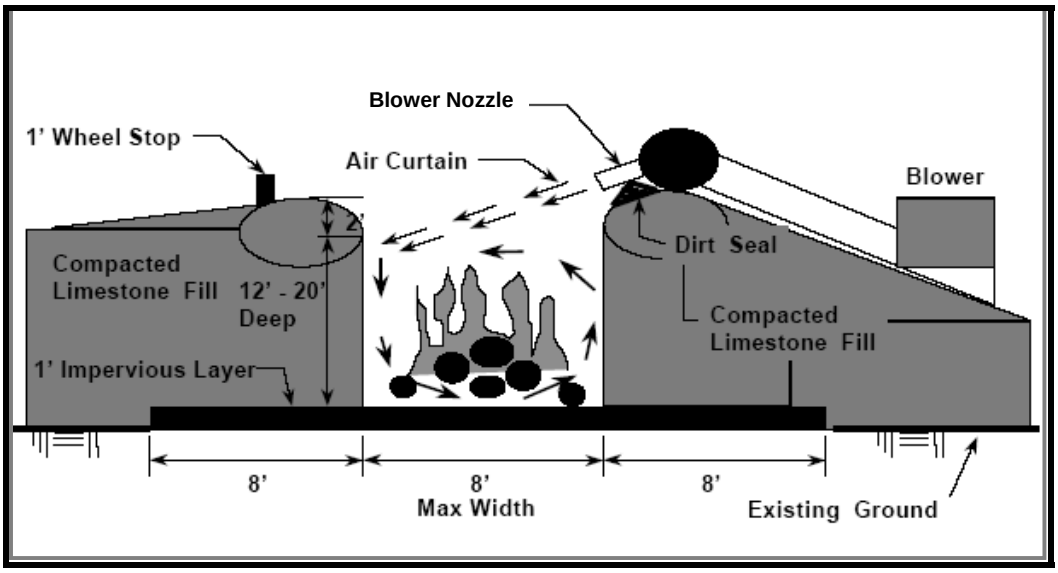


Figure 9.4 - Above-Grade Air Curtain Operation

It is important to note that there are no industry standards for air curtain pit design. The applicant should seek knowledgeable personnel who are experienced with air curtain pit incinerator design and operating procedures when soliciting expertise to perform incineration services. The planning staff should research and solicit qualified personnel to properly train all staff that may be operating or maintaining this process.

Portable Air Curtain Incinerators use the same methods as air curtain pit incinerator systems, except that the portable incinerators use a pre-manufactured pit rather than an onsite constructed earth/limestone pit. Portable air curtain incinerators are the most efficient incineration systems available because the pre-manufactured pit is engineered to precise dimensions to complement the blower system. The pre-manufactured pit requires little or no maintenance as compared to earth or limestone constructed pits, which are susceptible to erosion. Portable air curtain units are ideal for areas with high water tables and sandy soils as well as areas where smoke capacity must be kept to a minimum.

Environmental and Safety Concerns

With all of the incineration methods, environmental compliance and safety concerns need to be addressed within the plan. The planning staff must check with appropriate State agencies for State-specific requirements. Setback, permitting, and public information suggestions should be included in the plan.

Setbacks and buffer zones need to be established within and around the reduction sites not only for the public safety but also for the safety of the debris operations. A setback of at least 100 feet should be maintained between the debris piles and the incineration area. It is often suggested that 1,000 feet be allowed between the incineration area and the nearest building in order to create a generous buffer zone for emergency vehicles, if needed. The fire should be

extinguished two hours before anticipated removal of the ash mound. The ash mound should be removed before it reaches two feet below the lip of the incineration pit. To prevent explosions, hazardous or contaminated flammable material should not be placed in the pit. Finally, fencing and signage are simple and effective means to keep the public away from the incineration area.

Smoke generated by any of the above incineration methods is often interpreted by the general public as having an environmental impact. Therefore, it is important to also address smoke as part of the air monitoring guidelines. The governing State environmental or forestry agency will have guidelines that need to be met in order to acquire and retain a burn permit.

Planners should take the initiative in keeping the public informed. Applicant staff, environmental groups, and residents should be thoroughly briefed on the incineration methods being used, how the systems work, environmental standards, health issues, and the risks associated with each type of incineration. A proactive public information strategy should be included in any operation that uses incineration as a primary means of volume reduction. Please see Chapter 14, *Public Information Strategy* for additional information.

Chipping and Grinding

The second most common type of reduction method is to chip or grind disaster-related debris. Vegetative debris is the most common material reduced by using this method. The planning staff may also employ chipping and grinding methods in reducing rubber and some metals prior to being shipped to the recycling facility. The planning staff will have to investigate the opportunities, economics, and equipment in order to determine if this reduction method is appropriate for its jurisdiction.

There are significant differences in volume reduction between chipping and grinding and incineration. Incineration reduces the volume by approximately 95 percent, leaving only ash residue for disposal. Chipping and grinding reduces the volume by 75 percent. Since 25 percent of the volume remains from chipping and grinding, the benefit of this reduction method can be increased by identifying alternate uses of the residual material. The ability to use recycled wood chips as mulch for agricultural purposes, fuel for industrial heating, or in a cogeneration plant helps to offset the cost of the chipping and grinding operation.

If the grinding operation is strictly for volume reduction, the size of the mulch is not important; however, mulch to be used for agricultural purposes must be of a certain size and virtually free of paper, plastic, and dirt. Because of shallow topsoil conditions in some locations, mulch is a desirable product. In other locations, however, the mulch may become nothing more than a landfill product. The designated debris manager and planning staff should work closely with local environmental and agricultural groups to determine if there is a market for mulch.

Plastics should be eliminated completely. To help eliminate contaminants, root rake loaders should be used to feed or crowd materials to the chipper or grinder. Hand laborers should remove contaminants prior to feeding the chippers and grinders.

Bucket-loaders tend to scoop up earth, causing excessive wear to the grinder or chipper. Shaker screens should be used when processing stumps with root-balls or when large amounts of soil are present in the woody debris. The separated soil may be recycled back to the agricultural community.

Equipment

Grinders are ideal for use at debris storage and reduction sites because of their high-volume reduction capacity. However, a large area is needed to hold the resulting mulch. Chips or mulch should be stored in piles no higher than 15 feet and located so as not to hinder hauling operations. Properly locating the grinders is critical for noise and public safety considerations.

There are numerous makes and models of grinders and chippers on the market. Tub-grinders have production rates ranging from 160 to 340 cubic yards per hour for brush and yard waste. Manufacturer-published grinder production logs can be misleading because they reflect only the engine hours and ideal rate of production. These production logs do not take into account personnel monitoring or consider varying debris conditions. Production rates should be verified by monitoring operations.

The reduced debris production output should average 100 to 150 cubic yards per hour when debris is moderately contaminated with plastic and dirt and feeding operations are slow. When the debris is relatively clean, the production rates can increase up to 250 cubic yards per hour.

Brush chippers can be hauled or towed to the site of the downed vegetation and are ideal for use in residential areas. Damaged and uprooted trees present significant problems if they are pushed to the rights-of-way to wait for eventual pick-up and transport to storage and reduction sites. The brush chippers allow the downed trees and limbs to be reduced in place. The use of onsite chippers also allows the material to be used as mulch in the area where it is chipped, thereby saving the cost of transporting it.

Recycling

Based on the debris management goals and objectives, the decision to recycle disaster debris should be made during the planning process. The planning staff may find that marketing and selling the reduced debris is more financially attractive than hauling the unreduced debris to a local landfill.

Processing disaster debris through grinding, shredding, or any other means without an understanding of the end uses and market specifications may result in the products becoming

unusable for their intended purposes, necessitating disposal of the debris. For that reason, it is incumbent upon applicants to thoroughly research the market opportunities and establish criteria to assist emergency personnel in making decisions to recycle certain types of debris.

Debris management plans should include a list of the types of debris materials that can be recycled. The plans should determine end-use products that can be made from disaster debris, determine the market demand for each product, identify the product buyers, and when feasible, secure the sales of those products prior to an event.

The debris management plan needs to detail the implementation of the appropriate processing technique to achieve the desired end product. If the applicant uses contracted services to process debris, the contract agreements should include the processing specifications so that the contractor uses the correct types of equipment to achieve that specification.

Hurricanes and earthquakes may present opportunities to contract large-scale recycling operations and achieve an economic return from some of the contractors who exercise their initiative to segregate and recycle debris as it arrives at the DMS or landfill.

Specialized contractors should be available to bid on disposal of debris by recycling, if it is well sorted. Contracts and monitoring procedures should be developed to ensure that the recycling contractors comply with local, tribal, State, and Federal environmental regulations.

Common Recyclable Materials

Metals - Hurricanes and tornadoes can cause extensive damage to mobile homes, sun porches, and green houses. Most of the nonferrous and ferrous metal debris is suitable for recycling. Metal maulers and shredders can be used to shred trailer frames, trailer parts, appliances, and other metal items. Ferrous and nonferrous metals are separated using an electromagnet and then sold to metal recycling firms.

Soil - Debris removal operations may include transporting large amounts of soil to the DMS. At the DMS, it may be combined with other organic materials that will decompose over time. This procedure can produce significant amounts of soil that can be sold, recycled back into the agricultural community, or stored onsite to be used as cover.

In agricultural areas where chemical fertilizers are used heavily, recovered soil may be too contaminated for use on residential or existing agricultural land. It may be necessary to monitor and test the soil to ensure that it is not contaminated with chemicals. If the soil is not suitable for any agricultural or residential use, it may ultimately have to be disposed of at a permitted landfill.

Concrete, Asphalt, and Masonry Debris - Concrete, asphalt, and masonry products can be crushed and used as base material for certain road construction products or as a trench backfill. Debris targeted for base materials needs to meet certain size specifications as determined by the end user.

Final Disposition Operations

The planning staff will need to identify the final disposition site of whole, reduced, or recycled debris. The most cost-efficient measure is usually to make use of the applicant's own or normally utilized landfills. The available space often determines the most appropriate type of reduction method to employ. If local landfills are not adequate, the staff should conduct a search of landfills close to the disaster area for disposal.

County-to-county agreements are sometimes used in order to achieve an equitable solution. Some county landfills do not accept waste from other areas and may have stringent rules regarding what can be brought into the landfill.

Landfill tipping fee cost structures become important to the planning staff, especially if debris is being taken to a neighboring county. Tipping fee cost structures include operating and maintenance costs, permitting fees, capital improvement costs, and taxes. The capital improvement costs may be directly related to the landfill itself or may be for projects within the county.

Some fees and taxes may be waived for a neighboring governing body. The planning staff should investigate and compare the fees that are truly applicable for its debris disposal strategy.

Questions to Consider

1. Do you have a strategy for reduction?

2. Do you currently have a recycling strategy? Is the jurisdiction considering a recycling strategy?

3. Which agency within your jurisdiction would be responsible for developing and implementing a recycling strategy?

4. What departments within the State, county, or your organization would be responsible for permitting burning or incineration operations?

5. What is your strategy for final disposition?

To Do Checklist

1. Identify potential end use of the reduced or recycled materials. Identify if the end-use materials may represent potential income to offset processing, or entail no cost for disposal.

2. Identify reduction and recycling methods that will be used at the DMS.

3. Identify how the reduction and recycling activities will be performed:
   a. Force account labor and equipment
   b. Contract labor and equipment

4. Determine final disposition locations.

Chapter 10 – Contracted Services

Chapter Highlights

Common Misconceptions
Procurement Considerations
General Contract Provisions
Types of Contracts
- Unit Price Contract
- Lump Sum Contract
- Time-and-Materials Contract
- Prohibited Contracts
- Contract Matrix

Questions to Consider

Please see Chapter 2, *Costs*, for eligibility issues to consider in developing the debris management plan. This chapter also references information in Chapter 11, *Monitoring Debris Removal*.

The planning staff may find it necessary to contract for debris removal services if the magnitude of the disaster is beyond the capabilities of its force account resources, State resources, mutual aid agreements, and volunteer labor. Possible contracted services include:

- Collection, including clearance during response phase
- Reduction or recycling
- Hazardous waste handling, processing, and disposal
- Hauling to final disposition
- DMS activities
- Demolition
- Monitoring
- Environmental studies
- Project management

The applicant's contracting/procurement and legal staff has a major role in this planning component of the debris management plan. The staff should use the debris management plan development as an opportunity to familiarize themselves with their contracting procedures, particularly with regard to emergency procurements. In procuring and awarding contracts, the applicant should follow its established procurement and contracting procedures.

Common Misconceptions

Contracts written by contractors often use the FEMA name to gain credibility and give the appearance that the work to be performed would be eligible for Public Assistance grant funding. Applicants should be aware of the common phrases used by contractors and why the statements are false. Three of the most common phrases are:

1. **"FEMA-approved contract and rates."** FEMA does not certify, credential, or recommend contractors.

2. **"FEMA eligibility determinations."** Debris contractors do not have the authority to make eligibility determinations. Only FEMA can make an eligibility determination.

3. **"FEMA training in eligibility, documentation, and Project Worksheet development provided."** These services often have a fee attached. Most of the training and information offered by a contractor is available free from FEMA or the State.

Applicants may enter into any contractual arrangements they wish. However, it should be noted that FEMA is not bound to applicant contractual obligations because it is not a party to those contracts. Applicants are strongly encouraged to work with State emergency management staff and FEMA to ensure compliance with the provisions of the Public Assistance Program, as well as other applicable statutes and regulations, if the applicant intends to seek Public Assistance grant assistance. The applicant is responsible for payment of its contracted services regardless of whether such services are eligible for Public Assistance grant funding. If a contract is in place prior to the applicant's meeting with FEMA Public Assistance staff, the terms of the contract need to be reviewed to ensure compliance with the Federal procurement regulations and with the Public Assistance Program eligibility criteria. By doing so, it becomes easier for the applicant to provide FEMA with pertinent documentation to receive Public Assistance grant funding.

Additional information on developing contracts that comply with Public Assistance Program requirements is provided in Appendix G, *FEMA RP9580.201, Fact Sheet: Debris Removal – Applicant's Contracting Checklist*.

There are two main areas of contracting that the applicant's staff should review in the contract development planning process. These include procurement procedures and general contract provisions. Other provisions and terms are determined by the type of contract being employed for a specific service.

Procurement Considerations

The applicant's legal staff needs to review the applicant's procedures for compliance with 44 CFR Part 13 requirements, outlined in Chapter 2, *Costs* and available online through the United States Government Printing Office at gpoaccess.gov.

In the past, some applicants risked losing Public Assistance Program funding when procurement procedures were overlooked in the interest of time. There are methods by which applicants can expedite the procurement process without jeopardizing potential grant funding. An applicant may use one or more of the following methods to best serve its jurisdiction.

- **Pre-drafted contracts** – Applicants may draft a contract prior to a disaster event. Once the extent of the disaster is known, the contract can then be finalized with the appropriate scope of work and advertised in a timely manner.

- **Pre-qualified contractors** – Typically, contractors must meet minimum requirements, such as insurance, bonding, and licensing, prior to being awarded a contract by an applicant. Applicants may advertise a Request for Qualifications (RFQ) for contractors to establish their company as a credible candidate for a contract award. The pre-qualified contractors on the list are invited to bid on a contract. The pre-qualified contractors can then focus on developing costs rather than assembling documentation in order to qualify for bidding.

- **Pre-event contracts** – The applicant may choose to solicit bids and award contracts in non-disaster times. This allows time for a deliberate procurement process and gives applicants flexibility in mobilizing the appropriate resources in anticipation of an event.

The applicant may expedite procurement procedures for purpose of public exigency; this does not mean that competitive proposals are not required. In many cases, an expedited process allows for shorter time frames for receiving competitive bid proposals. Appendix G, *FEMA RP9580.4, Fact Sheet: Debris Operations – Clarification: Emergency Contracting vs. Emergency Work*, explains the emergency contracting procedures provided in 44 CFR Part 13.36(d)(4)(i)(B).

When soliciting competitive bid proposals, the applicant should be the entity that develops the engineering estimate and scope of work for the contract bid solicitation.

General Contract Provisions

To protect the applicant's interests, specific items should be included in the contract to minimize potential conflicts with the contractor. These items include the basis of payment, the duration of the contract, the performance measures, an agreement to restore collateral damage, a termination for convenience, and a conflict resolution process.

The basis of payment and the payment process should be clearly outlined in the contract. Contractor payments should be based on verification of completed work, and the required information for the payment request should be included within the provisions of the contract. Weight to volume conversion factors should be published in order to further clarify possible differences between invoices and payment.

Basis of payment is usually based on the volume and/or weight of the contractor's loads. If the contract payment is based on volume, specific contract provisions are required to substantiate invoices and payment. These contract provisions need to provide a truck certification process, which includes determining the volume of the truck and how it will be identified during the recovery operation. Recertification of a truck is usually required if the physical truck identification becomes damaged or the volume capacity becomes suspect during operations. Additional information regarding truck certification is included in Chapter 11, *Monitoring Debris Removal*.

Applicants should consider using a progress payment method for contract services. This requires specific documentation from the contractor to verify and validate the completed work, support the contractor's invoices, and receive reimbursement under the Public Assistance Program. Typical documentation includes debris monitor reports, truck certification lists, and load tickets. This documentation is discussed in Chapter 11, *Monitoring Debris Removal*.

To ensure that debris removal is conducted expeditiously, the contract should include specific timelines for work to be completed. The duration of contract should be clearly stated. By doing so, the applicant sets clear expectations for the contractor. Moreover, the contractor can effectively manage resources and schedule work to meet the applicant's expectations.

Debris removal activities may impart damage to the local infrastructure, such as broken curbs, crushed sidewalks, and broken water meters. A contract provision should include a requirement that the contractor is to restore and/or repair, at the contractors cost, all damaged infrastructure back to its pre-existing condition if the damage was caused by their activities.

The contract should also include contract language for performance measures and a termination for convenience and default. A termination clause allows the applicant the ability to terminate the contract if the contractor does not deliver services in the manner delineated in the contract. The contract language clauses should be specific as to how performance will be evaluated and what would be considered reasons for termination.

The conflict resolution process should be well defined within the contract. The process should also include alternatives for mediation should an issue prove difficult to resolve.

To ensure that the contracts are in accordance with the Federal, State, and local procurement laws the planning staff should seek guidance from their legal counsel.

Types of Contracts

There are several types of contracts that can be used for debris operations. The most common types of contracts are unit price, lump sum, and time-and-materials. Due to the use and structure of a specific type of contract, there are specific provisions and documentation considerations that should be included to keep costs reasonable and to protect the applicant's interests. Descriptions of the different types of contracts, specific contract provisions, monitoring efforts, and documentation requirements are described in this discussion and are summarized in a matrix at the end of this chapter.

Unit Price Contract

Use and Structure

The schedule of payment of unit price contracts is based on a set cost for a specific task.

For example:

Remove, haul, and dispose of vegetative debris = $X / cubic yard
or
Remove and dispose of refrigerant = $Y / appliance.

Unit price contracts are used when the individual work tasks are known but the total amount of work cannot be quantified. The quantities of work to be completed are estimated by the applicant and included in the applicant's bid solicitation package. The contractor uses the estimated quantities to establish a total contract price. Units of work can be measured in terms of weight, volume, or any other quantifiable measure.

The estimated quantity of work described in the bid solicitation can be adjusted to reflect a more accurate quantity when debris operations are under way and the true extent of the disaster is realized. To keep the price of the contract reasonable, the applicant can eliminate as many variables as possible by incorporating detailed specifications in the contract and monitoring the contract operations.

Contract Provisions

Developing specifications for unit price contracts requires a full understanding of all the particular tasks that are required to complete the work to the applicant's satisfaction. Applicants should clearly define the individual tasks and activities that are required to accomplish the scope of work when soliciting bids. These may include the collection, transportation, and incineration of vegetative debris; extraction of refrigerants; grinding of debris; or special handling of hazardous wastes.

The estimated quantities of each type of debris that will be collected and clear descriptions of how each is to be handled or processed should be included in the specifications. The solicitation should incorporate special sections for hazardous and special wastes, if applicable. If the applicant intends to market processed debris for certain end uses, the bid specifications should describe the end user's product specifications in detail.

The applicant's bid solicitation and the final contract documents should include details on how the applicant will monitor the contractor's work and how the applicant's monitoring information will be used to verify the contractor's costs and payment.

Lump Sum Contract

Use and Structure

Lump sum contracts are used when the scope of work can be easily identified and quantified. These bid requests include a set of specifications that have a well-defined scope of work for a finite amount of time. For example:

> Haul 250 tons of mulched debris from 1000 N Debris Road to applicant landfill at 3450 S Main Street = $XX,YYY.

Two common uses of a lump sum contract define how the debris is to be collected, by geographical area or by "passes."

> The **area method** defines the geographical boundary in which the debris is to be collected. By providing geographical boundaries, the quantity of debris may be forecasted or estimated based on topography and land use.
>
> The **pass method** describes the number of times debris will be collected from the curbside within a specified geographical boundary. Limiting the number of passes for an area keeps the scope of work known.

The advantage of a lump sum contract is that the total price for the specified work is known at the time the bids are opened.

Contract Provisions

Although contractors usually present one total price in their bids, applicants should request a breakdown of costs for each item of work activity in the bid specifications so that if additional work is necessary during the term of the contract, the applicant can easily determine the cost for that work based on the unit cost. By requesting unit costs, the applicant can determine whether the contractor included costs for contingencies in the fixed price and if all costs are reasonable.

The bid specifications for a lump sum contract take more effort to write in comparison with other methods, but may reduce change orders during contract execution. The specifications should include every work activity that will be required, the exact quantity of debris to be removed, or the specific number of passes that will be required, to collect all debris.

If recycling is part of the scope of work, the bid specifications should include a list of debris materials that are expected to be recycled. The contract should also specify who owns the recycled materials and how the revenue from the sale of the recycled materials affects the contract cost.

Time-and-Materials Contract

Use and Structure

Time-and-materials contracts are used when the scope of work necessary to achieve an outcome is unknown.

A typical use of time-and-materials contracts for debris is during the response phase of the debris removal operations when an applicant needs additional labor and equipment resources to clear emergency routes. A time-and-materials contract establishes hourly rates for labor and equipment that will be used to perform specific tasks. For example: backhoe, with loader, 1 cy bucket, with operator = $50 / hour.

The contractor is paid based on the actual time spent to perform the specified tasks and for the usage of equipment. The contractor is also paid for the actual cost of materials that are used during operations.

Contract Provisions

Solicitation for a time-and-materials contract should include descriptions of the types of work items that would be required inclusive of debris removal, debris processing, and recycling.

Normally, a time-and-materials contract identifies the classification of each worker and a skill level. The equipment rate schedule lists the type of equipment and the hourly rate. The hourly rates for equipment should include the operator, fuel, and maintenance costs. A provision should state that the applicant only pays for the time the equipment is in operation. Mobilization and standby costs should not be invoiced at the hourly equipment rate. Public Assistance grants do not fund standby or idle-time costs.

Applicants should establish the maximum number of hours the contractor can work or set a ceiling for the contract to control costs when using a time-and-materials contract. FEMA generally limits the Public Assistance grant reimbursement cost of a time-and-materials contract to 70 hours of actual work. FEMA may provide a Public Assistance grant for a time-and-

materials contract that has been extended for a short period of time, but only under extreme extenuating circumstances.

Intense monitoring of time-and-materials contracts is extremely important. Work inspection reports should be prepared each day. These reports clearly state the amount of work accomplished that day in quantitative terms, such as the number of cubic yards of debris hauled, the type and number of trucks used, and the number of hours worked.

Load tickets may be used if debris is being hauled based on cubic yards under a time-and-materials contract as a way of checking contractor efficiency.

Applicant personnel should verify the certification of work performed and copies of the inspection reports should be furnished to the contractor to expedite the submittal of invoices for payment.

Time-and-materials contracts are usually terminated once the maximum number of hours or price cap is reached. Contract provisions should include the applicant's right to terminate a contract at its discretion. An applicant should terminate the time-and-materials contract when a more cost-effective contract is awarded for the remainder of the debris removal operations.

Time-and-materials contracts are the least preferred among contracts, and they are typically used only for initial emergency work or when there are complex life-saving activities that are dependent on the removal of debris. Again, FEMA generally limits reimbursement of time-and-materials contracts to the first 70 hours of actual work. The use of a time-and-materials contract for longer than 70 hours may impact the amount of reimbursement the applicant receives.

Prohibited Contracts

In accordance with 44 CFR Part 13.36(f)(4), cost plus percentage of cost contracts shall not be used. Use of such contracts may result in FEMA limiting the grant to an amount determined to be reasonable based on the eligible work performed.

Contracts that are awarded by an applicant to debarred contractors are prohibited pursuant to 44 CFR 13.35; thus, no Federal funding can be awarded for eligible work completed.

Contract Matrix

A summary of the aforementioned contracts and their associated characteristics is provided as a reference in the following matrix.

Unit Price Contract Summary Matrix						
Type of Contract	**Structure and Use**	**Required Provisions**	**Advantages**	**Disadvantages**	**Monitoring**	**Documentation**
UNIT PRICE	Uses units of measure (cubic yards, tons, each) and prices to develop line item costs and total contract costs	Specific documentation requirements, based on quantifiable units, such as load tickets, and payment	Scope of work may be adjusted easily at a known cost	Possibility of contractor fraud if operations are not closely monitored	Labor intensive	Load ticket system
	Used when scope of work is difficult to quantify. The bid proposals are based on applicant-estimated quantities and units of work		Accurate account of actual quantities when work is complete	Trucks require measurement and loads accurately documented		Monitors at collection points and where the debris is unloaded (DMS or final disposition)
			Simplicity of contract encourages competition	Segregated curbside collection may complicate the scope of work		
			Low risk for contractors			

Figure 10.1 – Unit Price Contract Summary Matrix

Lump Sum Contract Summary Matrix

Type of Contract		Structure and Use	Required Provisions	Advantages	Disadvantages	Monitoring	Documentation
LUMP SUM	All Lump Sum	Establishes a fixed contract based on the applicant scope of work specified in the bid solicitation Used when the scope of work is clearly defined by the applicant, including quantity, type, and location of debris	Specific process for a change order request, exact quantity of debris, and types of debris. Provision to cover if the collection or unloading location changes after the contract is awarded	Cost is established at the bid opening Easy to determine when the work is complete	Scope of work must be very specific to avoid change orders Often difficult to quantify debris and identify the types of debris requiring collection	Minimum	Amount of debris collected, reduced/ recycled, and disposed will be required to establish reasonable price
	Collection - Area Method	Used when a well defined area can be provided for bidding purposes	Specific process for a change order request, exact quantity of debris, and types of debris. Provision to cover if the collection or unloading location changes after the contract is awarded		Scope of work has to be accurately quantified to minimize change orders Estimating the amount of debris to be brought to the rights-of-way difficult to determine High probability of change orders if estimates are based on speculation	Minimum	Amount of debris collected, reduced/ recycled, and disposed will be required to establish reasonable price
	Collection - Pass Method	Defines how many times a curbside collection will be completed on a particular street or through a well defined area	Specific process for a change order request, exact quantity of debris, and types of debris. Provision to cover if the collection or unloading location changes after the contract is awarded	Possibility of fewer change orders since the scope of work is better defined Average management duties	Up-to-date street information and plans to be included in the scope of work Requires cooperation of the public to place only eligible debris at the curb and participate in segregating materials Intense public information campaign	Minimum	Amount of debris collected, reduced/ recycled, and disposed will be required to establish reasonable price

Figure 10.2 – Lump Sum Contract Summary Matrix

Time-and-Materials Contract Summary Matrix

Type of Contract	Structure and Use	Required Provisions	Advantages	Disadvantages	Monitoring	Documentation
TIME-AND-MATERIALS	Paid on an hourly rate for labor, materials, and equipment	Capped by the period of performance and/or monetary ceiling	Good for response activities	Requires close contractor oversight and direction as to work to be performed	Labor Intensive	Intense
	A known quantity of work is not established prior to the contractor beginning work	Price for equipment applies only when the equipment is in use	Extremely flexible; not limited by a specific scope of work	Requires documentation of actual hours worked by equipment and operators		Actual labor and equipment must be accounted for during entire performance period
		Hourly rate for equipment includes fuel, maintenance, and repair	Range of uses; appropriate clearance of major access routes or roads to critical facilities	Reasonable hourly rates may be difficult to establish if not competitively bid		
		Bids should include all overhead costs		Equipment specifications may have to be generalized in order to encourage competition		
		Specific hours the contractor is to perform work (to ensure monitoring staff is present to document activity)		Requires full-time trained monitors to document work completed and verify hours worked		
		No guarantee of a minimum number of hours				
		If multiple contracts are awarded, the period of performance should run concurrently rather than consecutively				

Figure 10.3 – Time-and-Materials Contract Summary Matrix

To assist applicants in identifying and contacting contractor resources, an online debris contractor registry tool is available on FEMA's website, fema.gov. The information provided in the registry is maintained by contractors and their representatives. FEMA does not verify and takes no responsibility for the accuracy of any of the information submitted. FEMA does not endorse, approve, or recommend any contractors, including those in the registry. Applicants should perform all appropriate due diligence prior to entering into a contract. Contracting with any of the entities listed in the registry does not assure an applicant of reimbursement under a Federal grant. Applicants should follow their competitive procurement procedures when selecting a contractor.

Questions to Consider

1. Do you have in-place debris contracts prepared?

2. Do you have a list of local pre-qualified contractors?

3. Can you use components of existing contracts, such as garbage collection or roadway time-and-materials contracts for disaster debris clearance, removal, or disposal?

4. What departments within your agency would be required to prepare the debris management bid documents and contracts?

Chapter 11 – Monitoring Debris Removal

Chapter Highlights

Debris Monitoring Staff
- Force Account Resources
- Outsourcing Monitoring Duties

Debris Monitor Roles

Monitoring Methods for Debris Removal
- Debris Monitor Reports
- Truck Certification List
- Load Ticket System

Special Monitoring Issues
- Equipment
- Monitoring Tips

Questions to Consider

To Do Checklist

Please see Chapter 1, *Public Assistance Debris Removal Eligibility*, Chapter 2, *Costs,* Chapter 3, *Debris Removal from Public Property,* and Chapter 4, *Private Property Debris Removal and Demolition of Private Structures,* for eligibility issues to consider in developing the debris management plan.

Debris monitoring procedures should be established and included in the debris management plan for the applicant's financial interest, especially if the applicant has contracted for any component of the debris removal operation. Monitoring debris removal operations achieves two objectives:

- Verifying that the work completed by the contractor is within the contract scope of work
- Providing the required documentation for Public Assistance grant reimbursement

Failure to document eligible work and costs may jeopardize Public Assistance grants. In Federally declared disasters, FEMA periodically validates the applicant's monitoring efforts to ensure that eligible debris is being removed and processed efficiently.

Only FEMA has the authority to make eligibility decisions; contractors cannot make eligibility determinations. Information on eligibility can be found in this document, FEMA 321 – Public Assistance Policy Digest, FEMA 322 – Public Assistance Guide, and FEMA 323 – Public Assistance Applicant Handbook.

Debris Monitoring Staff

Applicants can use force account resources, contractors, or a combination of both to monitor debris removal operations.

Force Account Resources

Applicants are encouraged to use their own employees to monitor debris removal operations. The applicant's employees are the most familiar with the jurisdiction and know the priorities of the applicant's debris management plan. Force account employee costs are reimbursed based on the Public Assistance Program's labor cost policies for emergency work.

Outsourcing Monitoring Duties

In some cases the monitoring task is outsourced to a contractor. As with any contractual arrangement, the applicant must ensure that the contractor is meeting the performance requirements of the contract. If a contractor is hired to perform a monitoring task, the applicant is required to ensure that the hired contractor performs satisfactorily.

If the applicant outsources a monitoring task, the contract must be awarded to a contractor who has no vested interest in the debris removal contract or contractor. There must be no conflict of interest between the monitoring contractor and the debris removal contractor.

When soliciting for debris monitoring contracts, the advertisement should outline the required qualifications of the debris monitors. The qualifications should be appropriate for the individual responsibilities and duties. Debris monitors should have experience working on construction sites and be familiar with safety regulations, but it is not necessary to have professional engineers and other certified professionals perform these duties. Primarily, debris monitors should be able to estimate debris quantities, differentiate between debris types, properly fill out load tickets, and follow all site safety procedures.

The specifications should outline possible monitoring locations and reporting requirements to document eligible debris quantities.

Monitoring contracts are typically time-and-materials and should contain a not-to-exceed clause per the requirements of 44 CFR Part 13. The applicant should ensure the level of monitoring and overhead claimed is consistent with the level of effort required to effectively monitor the debris removal operations.

It is important that the debris monitoring contract provide for submission of reports and payment estimates to help promote efficiency and effectiveness in the overall debris removal operations. By continuously monitoring the debris removal operations, an applicant can track

progress toward completion and determine the financial status of the monitoring and debris removal contracts.

Applicants should require debris monitors to submit the following reports:

- Debris collected from curbside and/or collection centers
- Debris accepted at the DMS and/or final disposition
- Debris recycled/reduced at the DMS and taken to final disposition
- Any operational or safety issues

If FEMA provides funding for the debris monitoring contract, a sample of the reporting requirements outlined in the contract in order to substantiate eligible costs is required. The sample must be adequate to demonstrate that sufficient measures were taken to ensure that eligible and accurate quantities were reported as part of the grant. If the monitoring contract is time-and-materials, the applicant must supply labor, equipment, and materials records to the Public Assistance Program staff in order to substantiate the actual costs of the grant.

Debris Monitor Roles

Monitoring operations are meant to ensure that the debris removal contractor is performing the scope of work required by the contract, and to document the debris removal operations. The primary role for debris monitors is to document the location and amount of debris collected.

The key elements of information that are needed to verify the contractor's scope of work and determine eligibility are the:

- Type of debris collected
- Amount of debris collected
- Original collection location

From this information the applicant can document eligible location and work completed.

The debris monitor's roles and responsibilities in the field include:

- Measure and certify truck capacities (recertify on a regular basis).
- Complete and physically control load tickets (in monitoring towers and the field).
- Validate hazardous trees, including hangers, leaners, and stumps (use appropriate documentation forms).
- Ensure that trucks are accurately credited for their load.
- Ensure that trucks are not artificially loaded to maximize reimbursement (e.g., debris is wetted, debris is fluffed - not compacted).

- Ensure that hazardous waste is not mixed in with loads.
- Ensure that all debris is removed from trucks at the DMS.
- Report to project manager if improper equipment is mobilized and used.
- Report to project manager if contractor personnel safety standards are not followed.
- Report to project manager if general public safety standards are not followed.
- Report to project manager if completion schedules are not on target.
- Ensure that only debris specified in the scope of work is collected and identify work as potentially eligible or ineligible.
- Monitor site development and restoration of the DMS.
- Ensure daily loads meet permit requirements.
- Ensure that work stops immediately in an area where human remains or potential archeological deposits are discovered.
- Report to project manager if debris removal work does not comply with all local ordinances as well as State and Federal regulations.

The applicant is responsible for ensuring that applicant-managed debris removal work (either force account or contract) being funded under the Public Assistance Program is eligible in accordance with Public Assistance Program criteria.

Applicants may request State/FEMA assistance with debris monitoring or monitor training.

Monitoring Methods for Debris Removal

Additional documentation requirements depend on how the debris is collected and processed. The following describes methods and systems to monitor and document work completed by force account resources and/or contractors.

The planning staff should develop tools for their documentation duties. It is suggested that all three of the following tools be used to document all types of debris removal contracts – unit cost, lump sum, and time-and-materials contracts.

Debris Monitor Reports

Applicants should develop a debris monitoring report to make all reporting documents consistent regardless of who performs the work. An example of a debris monitor's report is supplied in Appendix D, *Sample Monitoring Forms*. Applicants are not required to use this report; however, they should have a reporting document that captures the types of information if seeking Public Assistance reimbursement.

The debris monitoring report is important for monitoring time-and-materials contracts that may be used during the response phase of the operations. Monitoring documentation for time-and-materials contracts includes:

- Actual labor hours worked
- Actual equipment hours operated
- Type and specification of equipment used

The labor and equipment summary records provided in Appendix C, *FEMA Forms,* are often used by applicants as a starting point for their specific documentation needs and contract requirements.

Truck Certification List

A truck certification list allows the monitor to identify the truck itself and its hauling capacity in a standardized manner. It is important to know the truck hauling capacity since debris, specifically vegetative debris, is often hauled and billed by volume. The standard list of requirements includes:

- Size of hauling bed in cubic yards
- License plate number
- Truck identification number assigned by the owner
- Short physical description of the truck

Monitors may need to be trained to measure truck capacities for certification purposes. Recertification of the hauling trucks on a random and periodic basis should be implemented for contract compliance and reimbursement considerations. See Appendix D, *Sample Monitoring Forms,* for an example truck certification worksheet.

Load Ticket System

The term "load ticket" refers to the primary debris-tracking document. A load ticket system tracks the debris from the original collection point to the DMS or landfill. By positioning debris monitors at each point of the operations (collection, DMS, and/or final disposition), the eligible scope of work can be properly documented. This is how the applicant documents and tracks the debris from the initial collection location to the DMS and final disposal location. If the applicant uses a contract hauler, this ticket often verifies hauling activities and is used for billing purposes.

Traditionally, load tickets have been carbon paper tickets with at least four copies generated for one load of debris. More advanced tracking tools have been developed and used in the field to reduce human error and expedite funding. These computer-based systems often include the same information as a traditional load ticket.

Each monitor is responsible for populating specific areas of the load ticket. The following table lists the load ticket information and the portions of the ticket to be completed by the respective monitor.

	Monitor Ticket Responsibilities	
Load Ticket Information	**Collection Point Monitor**	**DMS or Landfill Monitor**
Preprinted ticket number	NOT APPLICABLE	
Contract number	Contracts may be identified by a number or name	
Prime contractor's name		
Date	X	
Truck number	X	
Truck driver's name	X	
Vegetation	X	
Construction & Demolition	X	
White Goods	X	
Household Hazardous Waste	X	
Other (required to be described applicable)	X	
Load Location	GPS or address preferred	
Loading date/time (departure from collection location)	X	
Loading Site Monitor name/signature	X	
Truck capacity in cubic yards or tons		X
Load Size, either cubic yards (percent of actual) or tons		X
Unloading location		X
Unloading date/time (arrival at disposal site)		X
Unloading site monitor name/signature		X

Figure 11.1 – Debris Monitor Responsibilities for Load Tickets

Each monitor keeps a copy of the load ticket, and the driver/contractor keeps two copies for billing purposes.

In computer-based systems, the collection monitor gathers the same information as in a traditional paper load ticket system and inputs this information into a handheld digital device. The collection monitor gives the hauler the information in a digital format (card or small driver). The monitor, stationed at the DMS or landfill, downloads the information, and completes the transaction in a manner similar to the traditional method. The monitor, stationed at the DMS or landfill, can then print a ticket for the hauler's billing purposes.

Special Monitoring Issues

The issues described below highlight the need for an applicant to closely monitor large contracted debris clearance, removal, and disposal activities. The issues focus on some of the problems associated with major debris disposal contracts and justify the need to monitor activities at local debris management and final disposal sites. It is essential that applicant's staff work to ensure that the debris removal contractors perform the required services at a reasonable cost.

Equipment

The most typical unit measurement for vegetative and construction and demolition debris is the cubic yard. Debris trucks are evaluated for capacity at the DMS or final disposal sites. Applicants should require contractors to use appropriate equipment to load debris efficiently so that the maximum level of compaction can be achieved to facilitate expeditious removal of debris from the public rights-of-way.

The photos below illustrate the capacities to which a truck may be loaded.

Figure 11.2 - 100% Loaded Truck

Figure 11.3 - Less Than 100% Loaded Truck

Equipment limitations impact the maximum loading capacity of some vehicles. The following is a list of truck conditions and the eligible capacities.

Hand-loaded trucks and trailers cannot achieve compaction levels comparable to mechanically-loaded vehicles. This effectively reduces the capacity of the hand-loaded truck or trailer in comparison to a truck or trailer that is loaded mechanically. Therefore, FEMA only reimburses 50 percent of the debris monitor's observed capacity percentage for a hand-loaded truck or trailer.

Example: If a hand-loaded truck or trailer appears to be 100 percent full and would normally be recorded at 100 percent, that load should be recorded at 50 percent.

Figure 11.4 – Hand-Loaded Trailer

A truck with no tailgate or no solid tailgate cannot be compacted to its full capacity; therefore, FEMA only considers a maximum of 85 percent of the certified truck capacity for reimbursement purposes.

Figure 11.5 – Truck With No Tailgate

Figure 11.6 – Truck With No Solid Tailgate

Also, hand loading debris in trucks or trailers does not achieve maximum compaction and as a result debris removal operations take longer to complete. A hand-loaded truck hauls less debris by weight per cubic yard than a mechanically loaded truck.

Applicants should be aware of the differences between hand loading and mechanical loading when negotiating unit costs and should establish standard conversion factors in the contract agreements to address those differences. Refer to Appendix G, *FEMA RP9523.12, Debris Operations - Hand-Loaded Trucks and Trailers*, for additional information about hand-loaded trucks and trailers.

Monitoring Tips

Monitors should be aware of situations that could impact an applicant's reimbursement under the Public Assistance Program. They should be on the lookout for:

Inaccurate Truck Capacities - Trucks should be measured before operations and load capacities should be documented by truck number. Periodically, trucks should be pulled out of operation and re-measured by the applicant.

Trucks Not Fully Loaded - Do not accept the contention that loads are higher in the middle and if leveled would fill the truck. Monitors may check to see if that statement is valid.

Trucks Lightly Loaded - Trucks arrive loaded with treetops (or a treetop) with extensive voids in the load. Trucks need to be loaded to their full capacity with front end loaders or other similar equipment.

Trucks Overloaded - Trucks cannot receive credit for more than the measured capacity of the truck or trailer bed even if material is above the sideboards. If a truck is measured to carry 18 cubic yards, it cannot receive credit for more than 18 cubic yards. However, it can receive credit for less if not fully loaded or lightly loaded as described above.

Changing Truck Numbers - Normally, trucks are listed by an assigned vehicle number and capacity. There have been occasions where truck or trailer numbers with a smaller carrying capacity have been changed to one with a larger capacity. For instance, a 20-cubic-yard truck may have a number for a truck that can carry 30 cubic yards. This can be detected if the applicant periodically re-measures the trucks or records actual State license plate numbers in addition to a description of the truck. Maintaining truck and trailer certifications with attached photos at the DMS tower can assist in mitigating such activities.

Reduced Truck Capacity or Increased Truck Weight - There have been occasions where trucks have had heavy steel grating welded two to three feet above the bed after being measured, thus reducing the capacity or inflating the weight of a load. This can be detected by periodically re-measuring the truck bed or recertifying the truck tare weight.

Wet Debris When Paid by Weight - Excessive water added to debris will increase the weight of the load. When the contractual unit cost is based on weight, this increases the cost to the applicant. Contractors have added excessive water to debris loads to increase the weight when being paid by the ton. This can be detected during monitoring if there is excessive water dripping from the truck bed or by inspecting the truck bed immediately after unloading. The applicant should periodically recertify the truck tare weight.

Multiple Counting of the Same Load - Trucks have been reported driving through the disposal site without unloading, then re-entering with the same load. This can be detected by observing

the time of departure and time of arrival recorded on the driver's load ticket. This may also indicate problems with the applicant's debris monitors at the loading or unloading site. The debris monitors at the unloading area must ensure the truck is empty before it leaves the DMS.

Picking up Ineligible Debris - This is difficult to detect unless debris monitors are watching the pick-up process. Monitors should have a good understanding of eligible debris and any time limits imposed on picking up specific types of debris. Examples (from actual occurrences) include sweeping areas for abandoned cars and white goods, cleaning up illegal dump sites, removing cut trees from subdivisions under development, and removing/cutting trees from off the rights-of-way in rural areas.

Questions to Consider

1. Do you have a process or a strategy for hiring and training debris monitors? If not, who should develop this strategy?

2. Do you have access to a local labor force qualified to perform these functions?

3. What jurisdictional department will coordinate these efforts?

4. Do you have monitoring report procedures and forms established?

To Do Checklist

1. Evaluate and identify staff that will lead the monitoring operations.

2. Identify if additional labor will be required for the monitoring operations and how they will be trained.

3. Establish a record management system to be implemented during a disaster event. The record management system will include:

    a Labor and equipment timesheets

    b. Labor and benefit rates

    c. Personnel pay policy

d. Invoices

e. Load tickets

f. Load ticket summaries

g. All other field documentation that may be required for eligibility considerations.

h. Staff to organize labor and equipment timesheet

Chapter 12 – Planning for Private Property Debris Removal and Demolition

Chapter Highlights

Labor Resources
Condemnation Criteria and Procedures
- Legal Documentation for Demolition
- Demolition Permitting
- Inspections

Special Use Areas
- Mobile Home Park Procedures
- Navigation Hazard Removal

Questions to Consider
To Do Checklist

Private property debris removal (PPDR) and/or demolition is not common. Public jurisdictions may undertake PPDR and demolition in extreme cases where public health, life, safety, and the economic recovery of the community-at-large are at risk. The planning staff should establish procedures for this type of work in the event this becomes necessary. The planning effort for PPDR and demolition includes the following:

- Criteria for implementing PPDR and demolition operations
- Documentation requirements and procedures
- Inspection and demolition procedures

Throughout the planning process, the staff needs to establish how the private property owner will be included in decisions and operations.

Appendix G, *FEMA DAP9523.13, Debris Removal from Private Property*, and *FEMA DAP9523.4, Demolition of Private* Structures, set forth the FEMA eligibility criteria and requirements that the planning staff should consider when developing the PPDR and demolition strategy.

Labor Resources

Demolition and debris removal from private property is an extremely document- and labor-intensive operation. The planning staff is responsible for assigning tasks to the appropriate departments and labor forces.

Typically, the building safety or inspection section takes the lead during these operations, with the administrative staff collecting and logging all of the required documents. The planning staff may consider employing temporary personnel or contractors for any portion of the operation.

Condemnation Criteria and Procedures

When an applicant assumes the responsibility to demolish structures, it must comply with its normal condemnation procedures. This normally requires a building safety official to contact the homeowner and assess and determine building structural integrity.

The applicant's normal building safety assessment should be used for the disaster condemnation criteria as well. Typically, any building or structure may be condemned if the building official determines that it represents a hazard to the health and safety of the public or poses a threat to public rights-of-way. Following that determination, the applicant would then initiate condemnation proceedings.

Usually, owner notification and condemnation hearings are held in order to give the property owner time to correct the threat without government action. In some cases, liens are secured in order for jurisdictions to enforce the condemnation order. In this case, if the applicant performs the work, executing liens against the property allows the applicant to recoup the costs of demolition and debris removal from the property owner.

The applicant's normal procedures that require multiple notices to property owners, condemnation hearings, and liens may be expedited in the event of a catastrophic disaster that causes a high concentration of debris on private property over a widespread area presenting an immediate health and safety hazard.

In the event of a disaster, it is helpful to have the applicant's laws, regulations, legal notices, and forms within the debris management plan, for reference and use. The planning staff should review the condemnation criteria and procedures for the benefit of the debris management plan.

Legal Documentation for Demolition

An applicant usually has standard procedures that apply to its condemnation process. During the planning process, the applicant may have its legal counsel review and update any documents for inclusion within the plan.

The following is a general list of documents that may be included in the plan.

- **Verification of ownership** ensures that the proper site and owner are identified and the owner is aware of nature of the scheduled building assessment.
- **A right-of-entry form** is signed by the homeowner and allows the building official to enter the property to complete the assessment. It often contains a hold harmless agreement that documents the property owner's promise that he or she will not bring legal action against the applicant if there is damage or harm done to the property.

- **Building official assessment** is the documentation of the damage to the structure and the description of the threat to public health and safety. This assessment often contains the building official's determination as to whether the structure should be condemned and whether it should be repaired or demolished. This may be an official structural assessment.
- **Verification of insurance information** allows the applicant to pursue financial compensation if the property owner's homeowner insurance policy covers demolition and debris removal.
- **Archeological review** outlines the archeological low-impact stipulations for demolition and debris removal activities and highlights the implications for the applicant if they fail to comply with the guidelines.
- **Environmental review** ensures that adverse impacts to protected environmental resources are minimized or avoided when removing debris from the proposed site. These reviews should be acceptable to the appropriate resource agency. Wetlands and other water resources, hazardous materials, and endangered species habitats are among the resources of most frequent concern. Some jurisdictions may also have State or local requirements for the evaluation or assessment of impacts to natural resources.
- **SHPO review** confirms that SHPO has been notified and correspondence has been received absolving the area of any historic significance.
- **Photos** that show the disaster-damaged condition of the property prior to the beginning of the demolition work. This is generally one or more labeled pictures that confirm the address and identified scope of work on the property.

If it is determined that a structure needs to be demolished, additional documentation may be required, not only for the applicant's legal protection, but also for the public's health and safety during the demolition and debris removal operations.

- **Letter or notice of condemnation** is a document signed by the building official that outlines the specific threat to public safety and health.
- **Notice of demolition** is issued to inform the property owner when the demolition will begin; notices shall be posted so as to provide a reasonable period of time in order for personal property to be removed. The applicant should attempt to notify the property owner, if not already contacted, through direct mail and local media.
- **Notice of intent to demolish** is normally for the public health and safety of the neighboring residents. This notice is conspicuously posted on the structure to be demolished.

Demolition Permitting

Applicants may have a demolition permitting process in place. The planning staff may want to use those demolition permit requirements during a disaster-related demolition project.

Common requirements for obtaining a demolition permit include a demolition plan, public notification, inspection requirements, and a hazardous waste report.

The demolition strategy may require the following information:

1. **Site map**, to scale, showing the site with all structures and other features of interest.
2. **Site ingress and egress** showing the fronting streets and planned route for the project. This may also include a movement of traffic strategy. Normal traffic will need to be diverted into other lanes.
3. **Site preparation documents** illustrate any pre-demolition work that may be required. Examples include erosion control, vegetation removal, or utility pole adjustments.
4. **Staging strategies** show the sequence of events prior to, during, and after demolition of the structure.
5. **Hazardous waste handling requirements** detail if contents of the structure require dust suppression or wet demolition. These provisions also describe how hazardous waste or environmentally sensitive materials will be handled or disposed. This includes HHW and white goods. Asbestos requires specialized removal, handling, and disposal personnel and permits.

Special documents or strategies may be required if the demolition of the building involves shoring, stabilizing structures, or any other special circumstances that may jeopardize another structure or the public's health and safety.

Once it has been established that the building is to be demolished and the required processes are underway, a notification to demolish notice is posted on the building.

Inspections

The applicant normally conducts regular inspections of demolition sites a few days prior to, the day of, during (occasionally), and upon completion of the operations. Inspectors generally take photographs at each site visit for their records. These inspections and verifications generally include the following:

1. **Water and sewer/septic tank inspection** to verify the utilities have been terminated and isolated from the proposed sphere of influence during the demolition operations. The inspector normally verifies that all other utilities have been terminated during the same visit.

2. **Occupancy inspection** is conducted immediately prior to demolition to ensure that no one is physically in the building.
3. **Open void inspection** is performed if the structure has a basement that is to be filled. This inspection will be conducted once the above-grade structure is gone and the inspector can visually see the entire below-grade excavation.
4. **Post-demolition inspection** is completed once the structure is demolished, the debris is removed, and the site graded.

The applicant usually requires that a hazardous materials report be submitted to the State environmental protection agency. This report normally includes a description of any hazardous material that was found in the building, the means and measures to collect it, and the final disposal location of the hazardous waste.

A checklist that may be used for demolition activities is available in Appendix F, *Demolition Checklist.*

Special Use Areas

The discussion so far has pertained to fairly low density situations, such as single-family homes or businesses on individual sites. Planning staff may need to consider specific areas of their jurisdiction that require additional planning and coordination for debris operations. Mobile home parks and navigation hazards present intense and sometimes complicated obstacles for the debris operations.

Mobile Home Park Procedures

Higher density situations, specifically mobile home parks, create an extensive amount of mixed debris in a relatively small area. The planning staff may consider the same procedures for individual sites as a basis to be used in mobile home parks but should expect a more intense operation in all accounts of the operation.

The most complex aspect of the operation may be documenting legal responsibility within the parks. Sometimes the mobile home park site is owned, operated, and maintained by one or more parties. The individual homes may be owned by one of those same parties or by the individuals that occupy the structures.

As part of the planning exercise, the planning staff may investigate the legal responsibility for debris issues within the mobile home parks within its jurisdiction. The applicant should coordinate the potential PPDR and demolition operations with the park owners in order to expedite recovery after an event. Agreements need to be made with respect to the debris collection, location, separation of materials, and the amount of debris expected to be handled.

Navigation Hazard Removal

Damage to publicly-owned marinas caused by a major disaster can include abandoned sunken boats and other debris that may impede navigation. The procedures used for individual sites may be modified for this situation.

The applicant should coordinate with USCG, the State marine patrol, local government agencies, legal counsel, marine salvage contractors, commercial divers, and certified surveyors to ensure that navigation hazards are removed safely and efficiently.

The two main challenges with navigation hazards are locating the debris and finding legal owners. Marinas can be inspected visually by a helicopter or boat. Sonar or dive teams may need to be employed for submerged vessels. A location or flotation marker may be helpful in order to keep vessel positions documented. The legal owner's information may be obtained by using the vessel's registration number and marina records.

Questions to Consider

1. How do your laws, codes, and ordinances address entering and condemning private property?

2. What are your emergency police powers as they relate to demolishing private property?

3. Who is responsible for enforcing the existing laws, codes, and ordinances with regard to private property?

4. How do you (the applicant) protect yourself from legal action when taking action on private property?

To Do Checklist

1. Review, assess, and revise laws, codes, and ordinances to address emergency demolition activities.

2. Assign a primary point of contact to manage the demolition and private property debris removal operations.

Chapter 13 – Health and Safety Strategy

Applicants should include a health and safety strategy in the overall debris management plan. This enables applicants and their contractors to avoid accidents during debris recovery operations and to protect workers from exposure to hazardous materials. The health and safety strategy should establish minimum safety standards for the applicant and contractor personnel to follow.

To facilitate cooperation between applicant and contractor employees, the health and safety strategy should specify how the applicant will disseminate safety information to all emergency workers and how the applicant will monitor compliance with the minimum safety standards. The strategy should also include specific corrective actions to be taken if workers do not comply with the minimum safety standards.

The health and safety strategy should identify potential hazards at debris loading areas and DMS. Debris operations involve the use of heavy equipment to move and process various types of debris. Many of these actions can pose safety hazards to emergency response and recovery personnel and the public. In addition to those safety hazards, exposure to certain types of debris, such as building materials that contain asbestos and mixed debris that contains hazardous materials, can pose potential health risks to emergency workers.

The health and safety strategy should provide emergency workers with information on how to identify hazardous conditions and specific guidelines on the appropriate and proper use of personal protective equipment.

Chapter 14 – Public Information Strategy

Chapter Highlights

Assignment of Tasks
Information to be Included
- Collection
- Debris Management Sites

Distribution Strategy
- Update and Redistribution
- Debris Information Center

To Do Checklist

After a disaster, residents want answers regarding recovery operations. The goal of the public information strategy is to ensure that the residents are given accurate and timely information for their use and own individual planning purposes. If information is not distributed quickly, rumors and misinformation spread and erode confidence in applicant management of the recovery operations.

Assignment of Tasks

The public information strategy should assign staff the following tasks:

- Prepare information to be distributed.
- Process to distribute the information.
- Process to update, correct, revise, and redistribute information as operations progress.
- Establish a debris information center or a venue to address all concerns, questions, and complaints.

Information to be Included

The information should include the parameters, rules, and guidelines of debris operations so residents can begin their personal recovery activities. The staff responsible for developing and writing the information must present the information in a clear, direct, and organized manner. The language used must be simple and easy for all residents to understand. Jargon and acronyms only lead to confusion and are ineffective. Information may have to be distributed in more than one language for it to be understood by non-English-speaking populations and neighborhoods.

The public information campaign answers the same questions addressed during the debris management planning process. The following is a list of topics that should be included within the campaign.

Collection

How will the debris be collected?

If curbside collection:

- Will applicant employees or a contractor collect the debris?
- What are the schedules and the routes for collection?
- What is the final collection date for streets, sectors, or subdivisions?
- What type of debris will be collected?

If collection centers:

- Where are the collection centers?
- What are the daily collection center hours?
- Is debris to be segregated at the collection centers?
- What types of debris will be accepted at the centers?
- How long will the collection centers accept disaster-related debris?

Debris Management Sites

A collection center and a DMS may be the same site. If so, the same information for the collection centers above applies to the DMS, along with:

- Where can a resident find a site map of the DMS for public debris drop off of HHW, construction and demolition debris, etc? Are these areas segregated and well marked for vehicular traffic?
- Will residents be charged a fee to use the DMS?
- Will residents be restricted as to how much disaster-related debris can be dropped off at the DMS?
- Will the DMS have burning, chipping, or grinding operations? If so, during which hours will these activities take place? Address any environmental concerns the public may have as well.
- How long will residents be able to bring their disaster-related debris to the DMS?
- How long will the DMS be open to process (reduce/recycle) debris?
- Are there traffic changes that will impact the general public due to the location or operation of the DMS?

Distribution Strategy

The public information strategy should include its methods to disseminate the prepared information to the general public. This can be accomplished in a number of ways. The following are suggested vehicles for distributing the information:

- **Media** – Local television, radio, newspapers, or community newsletters.
- **Internet Site** – Applicant website and debris information flyers for printing.
- **Public Forums** – Interactive meetings at town hall or shopping mall kiosks.
- **Direct Mail Products** – Door hangers, direct mail, fact sheets, flyers within billings, and billboards.

The public information staff must take advantage of every information vehicle available if power, utilities, and other infrastructure have been damaged. Many times the best carriers of information are the responders in the field. The general public recognizes their role and frequently asks questions regarding the operations. Stocking the equipment and trucks with flyers, pamphlets, and other print media allows responders to perform their duties while also satisfying the public's need for information.

Update and Redistribution

Residents hold community leaders responsible for misinformation and slow progress if information is not routinely updated to remain current and accurate. The planning staff must consider how the public information strategy addresses changes and revisions as the debris removal operations progress. The changes in operations directly affect how often information to the general public is distributed.

During the early stages of the operations, the applicants may rely on the immediate transmission of the information, such as through radio and television, to update the general public regarding the debris removal operations. Once the operations become more routine and predictable, the information can be distributed through the print media, such as newspapers, mailings, and flyers.

Debris Information Center

Applicants should establish a temporary debris information center to address concerns and complaints, and answer questions that are not included in the public information campaign at-large. The platform for the debris information center may be personal interactions at city hall, a telephone hotline, internet site, or a specific post office box. Regardless of the venue, it is important for applicants to address the residents' concerns, complaints, and questions in a timely and efficient manner.

The feedback from the information center gives the management staff an indication of how effective and efficient the operations are progressing. The management staff may use this information to adjust operations appropriately.

The debris information center may also be utilized to report fraud. Disaster victims want a full and quick recovery and have little tolerance of being taken advantage of during an already trying time. The ability to report fraud and crime is important to the public's feeling of safety and well being when the applicant's law and code enforcement agencies are stretched thin. Applicants should take advantage of residents' eyes and ears after a disaster event and provide an outlet for reporting crime and fraud within the recovery operations.

To Do Checklist

Assign staff to:

1. Prepare debris removal operations information.
2. Establish a process and strategy to distribute the information.
3. Update, correct, revise, and redistribute information as operations progress.
4. Establish and staff a debris information center.

PART III – FEDERAL GOVERNMENT OPERATIONS

Part III – Federal Government Operations

Introduction

Part III describes the Public Assistance staff organization and the other Federal agencies' debris-related roles and responsibilities for disaster events.

FEMA's Public Assistance staff will assemble a debris management team for the size and scope of the disaster. This team is responsible for providing debris-related technical assistance to applicants and managing the Public Assistance grant process. Chapter 15, *FEMA Public Assistance Operations*, describes the staff organizational structure and the roles and responsibilities of each staff member.

Chapter 16, *Other Federal Assistance*, provides an overview of additional Federal agencies' roles and responsibilities for disaster-related debris activities. This chapter also describes FEMA Mission Assignments that may be tasked to other Federal agencies.

Chapter 15 – FEMA Public Assistance Operations

Chapter Highlights

Public Assistance Organizational Structure
Public Assistance Staff Roles and Responsibilities
- Infrastructure Branch Director
- Public Assistance Group Supervisor
- Public Assistance Debris Task Force Leader
- Public Assistance Coordinator Crew Leader
- Public Assistance Debris Technical Specialist
- Public Assistance Debris Monitoring Specialist
- Additional Support for the Public Assistance Organization

Debris Operations Strategy

FEMA's Public Assistance Program goal during recovery operations is to supply staff and technical support to the applicants for the timely, efficient, and accurate production of Public Assistance grants. This is accomplished by the Public Assistance staff fulfilling their established roles and responsibilities and following the disaster-specific Debris Operations Strategy.

This chapter gives an overview of the organizational structure used by the Public Assistance organization, a summary of roles and responsibilities for the Public Assistance debris staff, and a general outline of the Debris Operations Strategy that will be developed by the debris management team.

Public Assistance Organizational Structure

FEMA Public Assistance follows a staffing organization called Incident Command System (ICS) that allows the Public Assistance organization to expand and contract depending on need. ICS defines the nomenclature, roles, and responsibilities of the staff members in order to ensure consistency across disasters. The following organization chart illustrates one example of staff organization under ICS.

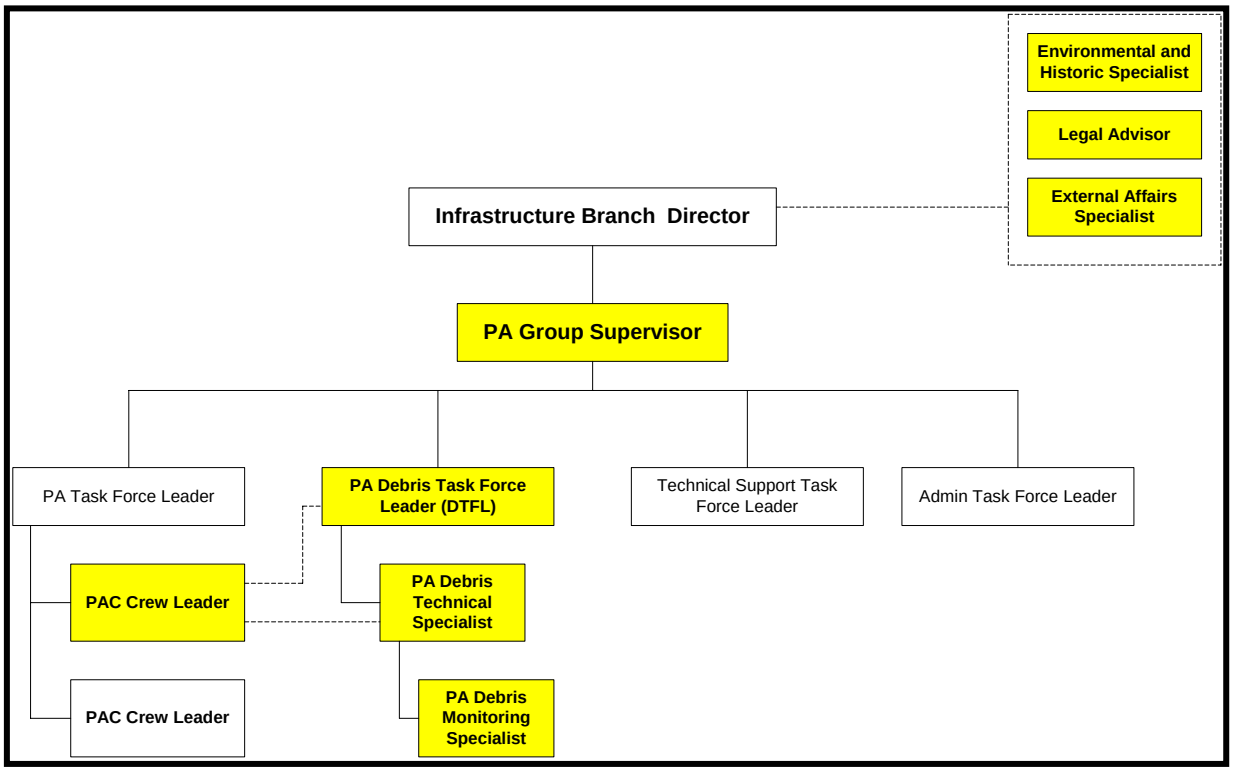


Figure 15.1 – Example Public Assistance Organization Chart

Public Assistance Staff Roles and Responsibilities

The amount of staff depends on the size and severity of the disaster. The Public Assistance staff roles and responsibilities are outlined in the descriptions below.

Infrastructure Branch Director

The Infrastructure Branch Director coordinates the restoration of essential public services and administers the Public Assistance Program. The Infrastructure Branch Director is responsible for:

- Identifying cross-programmatic issues and facilitating coordinated problem solving among the Program areas
- Requesting assistance outside of the Public Assistance Program to include supplemental Federal assistance in the form of Mission Assignments, to be completed by supporting Federal agencies

Public Assistance Group Supervisor

The Public Assistance Group Supervisor manages the overall Public Assistance Program. The Public Assistance Group Supervisor is responsible for:

- Identifying major debris issues and applicants with potential debris problems based on the Preliminary Damage Assessment (PDA) and in coordination with the State Public Assistance Group Supervisor
- Ensuring and approving the development of a Public Assistance Debris Operations Strategy
- Obtaining staffing resources to assist in managing debris operations (e.g. a Public Assistance Debris Task Force Leader and an appropriate number of Public Assistance Debris Technical Specialists and Public Assistance Debris Monitoring Specialists)
- Providing the Debris Task Force Leader with guidance and direction on problems, procedures, and policies pertaining to debris operations
- Coordinating debris-related Mission Assignments
- Advising the Infrastructure Branch Director on potential debris issues
- Allocating and approving the proper funding levels

Public Assistance Debris Task Force Leader

It is the responsibility of the Public Assistance Debris Task Force Leader (DTFL) to manage the debris operations under the direction of the Public Assistance Group Supervisor. The DTFL is responsible for:

- Ensuring that a Debris Operations Strategy is developed and implemented
- Providing applicants with technical assistance by conducting technical reviews of debris management plans and contracts to document compliance with the requirements of the Public Assistance Program eligibility criteria
- Assigning personnel to assist the applicant in developing the eligible debris scope of work for Public Assistance grants
- Coordinating with the Legal Advisor to review proposed debris-related contracts provided by applicants
- Managing all debris field staff
- Ensuring all of the debris field staff are properly trained
- Providing Public Assistance Coordinator Crew Leaders with information concerning procedures and policies pertaining to debris operations
- Coordinating debris-related Mission Assignments

- Reporting all potential debris issues to the Public Assistance Group Supervisor
- Compiling and submitting reports on debris operations to the Public Assistance Group Supervisor and the Infrastructure Branch Director

Public Assistance Coordinator Crew Leader

A Public Assistance Coordinator (PAC) Crew Leader is a customer service manager who works with the applicants to ensure that all applicants' Public Assistance grants are processed as efficiently as possible. The DTFL and Public Assistance Debris Technical Specialist keep the PAC Crew Leader informed of debris eligibility concerns. The PAC Crew Leader is responsible for:

- Serving as an applicant's single point of contact concerning eligibility considerations and Public Assistance grant status
- Coordinating and communicating with the Public Assistance Debris Technical Specialist and DTFL for the assigned applicants' debris issues
- Identifying debris issues during the Kickoff Meeting
- Educating the applicant on the availability of Public Assistance grants for debris operations
- Assisting the applicant in establishing priorities
- Managing resources and coordinating with debris staff on Public Assistance Program issues

Public Assistance Debris Technical Specialist

The Public Assistance Debris Technical Specialist provides applicants technical assistance and support for debris management issues and for the applicants' debris Public Assistance grants. The Public Assistance Debris Technical Specialist is responsible for:

- Estimating quantities of debris
- Collecting monitoring information from the Public Assistance Debris Monitoring Specialists in the field
- Formulating, developing, and writing the Public Assistance grants
- Recommending eligibility of debris projects within the Public Assistance grants
- Managing the Public Assistance Debris Monitoring Specialists
- Informing the PAC Crew Leader and DTFL of potential debris issues
- Supplying debris-related reports and progress updates to the DTFL

Public Assistance Debris Monitoring Specialist

The Public Assistance Debris Monitoring Specialist is responsible for monitoring and documenting debris removal activities in accordance with the debris monitoring strategy, and issues that may impact compliance with the rules and regulations that pertain to FEMA-funded activities. The Public Assistance Debris Monitoring Specialist is specifically responsible for:

- Recording quantities of debris accurately on load tickets and other documentation that may be outlined in the Debris Operations Strategy
- Completing reports such as daily logs, load tickets, incident reports, periodic reports, photographs, and sketches
- Coordinating with the applicant and contractor on daily operations
- Supplying completed paperwork
- Requesting necessary resources from the Public Assistance Debris Technical Specialist

Additional Support for the Public Assistance Organization

Other support may be available to assist the Public Assistance Group Supervisor and DTFL with technical, legal, and information issues.

- **Environmental and Historic Specialists** provide technical assistance to Public Assistance staff, management, and the applicant on environmental and historic preservation considerations for debris operations. These specialists research environmental and historic preservation compliance regulations and requirements for Public Assistance staff and applicant briefings. They coordinate with the PAC Crew Leader and Public Assistance Debris Technical Specialist to conduct site visits in order to identify potential environmental and historic preservation site considerations. Additional tasks include recommending eligibility determinations and supplying cost estimates for environmental and historic preservation compliance. Environmental and Historic Specialists provide documentation, comments, and recommendations for any Public Assistance grant that may have environmental and/or historical preservation issues that could impact the grant funding.

- **Legal Advisors** provide legal review and recommendations on issues that may impact the Public Assistance grant process, along with interpretation of Public Assistance regulations and policies. They review proposed and active debris contracts, right of entry permits, and hold harmless agreements. The legal advisors also provide counsel to the Public Assistance staff on such issues as land acquisition, condemnations, insurance requirements, liability, duplication of benefits, and environmental and historic preservation.

- **External Affairs Specialists** are responsible for all of the Public Assistance communications to outside media outlets including newspapers, radio, television, and the internet. The External Affairs Specialists coordinate with the Infrastructure Branch Director, Public Assistance Group Supervisor, and DTFL to clearly communicate debris policy, decisions, and initiatives.

Debris Operations Strategy

The most common tool used to accomplish FEMA's Public Assistance debris operations goal is the development and implementation of a Debris Operations Strategy. The Debris Operations Strategy is used to identify issues, assign the appropriate amount of staff, and report progress throughout the recovery efforts. It is a dynamic document meant to be updated to reflect the ongoing progress of the recovery operation and document debris-related decisions.

The DTFL is responsible to ensure the Debris Operations Strategy is written and implemented accordingly. The size and severity of the disaster dictates how detailed the strategy should be. Most strategies include the following key elements:

1. Situational analysis
2. Estimated quantities of debris, which may include specific types of debris
3. Specific debris-related eligibility issues, to include identification and resolutions
4. Concept of operations, to include staffing, goals, and reporting
5. Outline of Public Assistance grant development and routing process within the Public Assistance field office
6. Mission Assignment reporting and any other interagency coordination processes (if applicable)
7. Safety strategy for debris operations. Appendix E, *Debris Collection and Management Site Hazard Analysis*, contains information on safety considerations.

Chapter 16 – Other Federal Assistance

Chapter Highlights

Authorities of Federal Agencies
- United States Army Corps of Engineers
- United States Coast Guard
- United States Department of Agriculture's Natural Resources Conservation Service
- Environmental Protection Agency
- Federal Highway Administration

FEMA Mission Assignments
- Federal Agencies that Perform Mission Assignments
- Requirements
- Process
- Types of Mission Assignments
- Scope of Work
- Costs

Federal assistance may be available from other Federal agencies and departments in two different ways:

1. Another Federal agency is invested with the authority to address various aspects of debris-related work;
2. FEMA tasks another Federal agency or department with a debris-related Mission Assignment to accomplish the work.

These two types of assistance are distinct and separate. For example, the USCG has the authority to coordinate the removal of navigational hazards within their jurisdictional boundaries; therefore, the USCG would not be issued a FEMA Mission Assignment to complete the same work.

This chapter provides a general description of some of the Federal agencies and departments that provide debris-related work and provides a summary of Mission Assignments.

Authorities of Federal Agencies

There are Federal agencies and departments, other than FEMA, that have the authority to remove debris and/or coordinate and manage debris-related activities for their specific jurisdiction.

The following describes several Federal agencies' normal responsibilities and their debris-related authority and/or jurisdiction.

United States Army Corps of Engineers

USACE's mission is to provide design and management services for the construction of military facilities for the army and air force; design and construction management support for other defense and Federal agencies; and planning, design, construction, and operation of water resource and other civil works projects. USACE's authorities for debris-related activities include:

- Developing projects for the collection and removal of drift and debris from publicly maintained commercial harbors and from land and water areas immediately adjacent thereto.
- Continuing debris collection programs for five specific harbors of the United States.
- Removing sunken vessels or other obstructions from navigable waterways under emergency conditions.

Please see Appendix G, *FEMA RP9524.3, Policy for Rehabilitation Assistance for Levees and Other Flood Control Works - Decision Tree*, for further information.

United States Coast Guard

USCG is a military, multi-mission, maritime service within the Department of Homeland Security and one of the nation's five armed services. USCG has five fundamental roles: maritime safety, maritime security, maritime mobility, national defense, and protection of natural resources.

USCG is tasked to conduct the following debris-related activities in coordination with EPA:

- Conduct emergency removal of oil and hazardous materials from coastal zones.
- Coordinate removal of navigational hazards.
- Provide technical assistance on contaminated debris in coastal zones.

United States Department of Agriculture's Natural Resources Conservation Service

NRCS, formerly called the Soil Conservation Service, provides technical and financial assistance to private land owners, land users, communities, and units of State and local governments in planning and implementing conservation systems in an effort to conserve soil, water, and other natural resources.

NRCS is limited in its authority in that debris-related activities are limited to either runoff retardation or soil erosion prevention in response to a sudden impairment in the watershed which creates an imminent threat to life or property. Typically, this includes debris within, or close proximity to, a channel.

Environmental Protection Agency

EPA's role is to establish minimum regulatory standards that are, in most cases, implemented by the State, and to provide technical assistance. EPA administers other laws as well that may impact the management of debris.

EPA's primary authorities related to debris removal fall into two categories:

- Cleaning up debris that is mixed with or contains oil or hazardous materials in coordination with the USCG.
- Establishing a standard for proper management of debris.

Federal Highway Administration

FHWA provides Federal financial resources and technical assistance to State and local governments for constructing, preserving, and improving the National Highway System. FHWA has an Emergency Relief (ER) Program to support the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered damage as a result of natural disasters or catastrophic failures from an external cause.

FHWA's authority for debris-related activities is limited to debris removal and disposal within their jurisdiction when the ER Program is activated.

Please see Appendix G, *FEMA RP9580.202, Fact Sheet: Debris Removal – Authorities of Federal Agencies*, for additional information.

FEMA Mission Assignments

When an impacted State or local government does not have the capability required to respond to a Presidentially declared disaster, a request for Technical or Direct Federal Assistance may be made. The approved request is called a Mission Assignment. A Mission Assignment is a work order issued by FEMA to another Federal agency directing completion of a specific assignment in anticipation of, or response to, a Presidential declaration of a major disaster or emergency.

Federal Agencies that Perform Mission Assignments

FEMA-issued Mission Assignments are performed by teams established by the National Response Plan (NRP). The NRP is a structured strategy that aligns Federal agencies and

departments to respond to disasters. These Federal teams are called Emergency Support Functions (ESF).
There are two ESFs that perform debris-related activities under FEMA Mission Assignments:

- **ESF #3 – Public Works and Engineering** is responsible for infrastructure protection, emergency repair, and restoration. This group provides engineering services and construction management, and serves as a critical infrastructure liaison. USACE is the lead agency for ESF #3.
- **ESF #10 – Oil and Hazardous Material Response** is responsible for responding to oil and hazardous material issues, environmental safety, and short- and long-term cleanup. The two most commonly deployed agencies that deal with these debris-related activities are EPA and USCG.

Requirements

All Mission Assignments have the following requirements:

- The Mission Assignment must be requested by the State.
- The community must demonstrate that the required disaster-related efforts exceed State and local resources.
- The scope of work must include specific quantifiable measurable tasks.
- FEMA issues mission assignments.

Process

The process to request and utilize Mission Assignments is as follows:

- The community demonstrates the work is beyond its capabilities.
- The State makes a formal request to FEMA for the Mission Assignment.
- FEMA reviews the request, and if approved, assigns it to a Federal agency.
- FEMA assigns qualified staff to coordinate and monitor the Mission Assignment activities.
- The assigned agency performs the scope of work included within the Mission Assignment.
- The assigned agency submits a bill to FEMA upon completion.
- FEMA informs the State of the required cost share.

Types of Mission Assignments

There are two types of Mission Assignments related to debris operations: Technical Assistance and Direct Federal Assistance.

Technical Assistance

Technical Assistance Mission Assignments are available when the State, tribe, or local community lacks technical knowledge or expertise to accomplish an eligible task. Technical assistance may be authorized in anticipation of a declaration of a major disaster or emergency. Eligible debris-related assistance provided through Technical Assistance includes assisting the State and/or applicants in the development of its overall debris management plan, and may include developing DMS plans, monitoring strategies, load ticket processes, and contracting guidelines. Technical Assistance is provided at 100 percent Federal share.

Direct Federal Assistance

Direct Federal Assistance Mission Assignments allow a Federal agency to perform debris activities on behalf of the State or applicant. Direct Federal Assistance Mission Assignments apply only to Emergency Work (debris removal and emergency protective measures) and must meet the general FEMA eligibility criteria for Emergency Work. Federal agencies must comply with all applicable regulations, laws, policies, requirements, and procedures.

An additional requirement for Direct Federal Assistance is that the State must provide a letter giving the Federal agency debris removal authority.

Scope of Work

In order to prepare the scope of work for a Mission Assignment, the community must provide information to the State about the specific geographic locations or easily definable areas where debris is located as well as estimated types and volumes of debris. The scope of work should be defined for FEMA's consideration.

Eligible debris-related activities provided by Direct Federal Assistance include:

- Removing debris from critical roadways and facilities.
- Removing debris from curbsides or from eligible facilities and hauling it to either temporary or permanent disposal sites.
- Identifying, designing, operating, and closing DMS.
- Monitoring debris removal operations.
- Demolishing and/or removing disaster-damaged structures and facilities in accordance with FEMA regulations and policies.

The duration of Mission Assignments for debris removal is limited to 60 days from the disaster declaration date. The time frame may be extended only under extenuating circumstances pursuant to 44 CFR Part 206.208(d).

Costs

Direct Federal Assistance Mission Assignments are subject to the cost-sharing provisions applicable to the disaster. The State will agree in advance to reimburse FEMA for the appropriate non-Federal share of the work including the overhead of the Federal agency assigned the Mission Assignment.

100 Percent Funding for Direct Federal Assistance

In some cases, the President may authorize 100 percent Federal funding for emergency work or debris removal.

FEMA will provide at 100 percent Federal share the cost of actual debris clearance and/or removal accomplished, not **Mission Assignment task orders** initiated, during the designated period. This includes debris clearance, pickup, hauling, processing, and disposal activities FEMA authorizes during the designated period. If further Federal assistance is necessary for debris clearance or removal after the designated period, the prevailing cost-share rate for that particular disaster applies.

See *FEMA RP9523.9, 100% Funding for Direct Federal Assistance and Grant Assistance*, for additional information.

Acronyms

C&D	Construction and Demolition
CBRA	Coastal Barrier Resources Act
CBRN	Chemical, Biological, Radiological, and Nuclear
CBRS	Coastal Barrier Resources System
CFR	Code of Federal Regulations
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DMS	Debris Management Site
DOT	Department of Transportation
DPW	Department of Public Works
DRM	Disaster Recovery Manager
DTFL	Debris Task Force Leader
EO	Executive Order
EPA	Environmental Protection Agency
ER	Emergency Relief
ESA	Endangered Species Act
ESF	Emergency Support Function
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
HHW	Household Hazardous Waste
HUD	Department of Housing and Urban Development
IA	Individual Assistance
ICS	Incident Command System
JFO	Joint Field Office
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRP	National Response Plan
OCC	Office of Chief Counsel
PA	Public Assistance
PDA	Preliminary Damage Assessment
PNP	Private Non-Profit
PPDR	Private Property Debris Removal
PW	Project Worksheet
RCRA	Resource Conservation and Recovery Act
RFQ	Request for Qualifications
SHPO	State Historic Preservation Officer
SWM	Solid Waste Management
USACE	United States Army Corps of Engineers

USCG	United States Coast Guard
USDA	United States Department of Agriculture
WMD	Weapon of Mass Destruction
WSRA	Wild and Scenic Rivers Act

Terms Used in This Document

Chipping or Mulching - The process of reducing woody material, such as lumber and vegetative debris, by mechanical means into small pieces to be used as mulch or fuel. Woody debris can be reduced in volume by approximately 75 percent, based on data obtained during reduction operations. The terms "chipping" and "mulching" are often used interchangeably.

Construction and Demolition Debris (C&D) - The definition of construction and demolition debris may vary between States. Construction and demolition debris can be defined as damaged components of buildings and structures such as lumber and wood, gypsum wallboard, glass, metal, roofing material, tile, carpeting and floor coverings, window coverings, pipe, concrete, fully cured asphalt, equipment, furnishings, and fixtures.

Debris - Items and materials broken, destroyed, or displaced by a natural or man-made Federally declared disaster. Examples of debris include, but are not limited to, trees, construction and demolition material, and personal property.

Debris Clearance - Clearing roads by pushing debris to the roadside to accommodate emergency traffic.

Debris Management Site (DMS) - A location where debris is sorted, processed, reduced in volume, and/or disposed of (if debris management activities take place at a permanent disposal site).

Debris Removal - Picking up debris and taking it to a debris management site, composting facility, recycling facility, permanent landfill, or other reuse or end-use facility.

Demolition - The act or process of reducing a structure, as defined by State or local code, to a collapsed state. It contrasts with deconstruction, which is the taking down of a building while carefully preserving valuable elements for reuse.

Force Account Labor - Labor performed by the applicant's permanent, full time, or temporary employees.

Garbage - Waste that is regularly picked up by an applicant. Common examples of garbage are food, packaging, plastics, and papers.

Hazardous Waste - Waste with properties that make it potentially harmful to human health or the environment. Hazardous waste is regulated under the Resource Conservation and Recovery Act (RCRA). In regulatory terms, a RCRA hazardous waste is a waste that appears on one of the four hazardous wastes lists or exhibits at least one of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity.

Hold Harmless - Generally, a contractual arrangement whereby one party agrees to hold the other party without responsibility for damage or other liability incurred as a result of a particular action or transaction.

Household Hazardous Waste (HHW) - Used or leftover contents of consumer products that contain chemicals defined in regulatory terms under the Resource Conservation and Recovery Act as appearing on one of the four hazardous waste lists or exhibiting one of the following characteristics: ignitability, corrosivity, reactivity, or toxicity. Examples of household hazardous waste include small quantities of normal household cleaning and maintenance products, latex and oil based paint, cleaning solvents, gasoline, oils, swimming pool chemicals, pesticides, and propane gas cylinders.

Infectious Waste - Waste capable of causing infections in humans, including contaminated animal waste, human blood and blood products, isolation waste, pathological waste, and discarded sharps (needles, scalpels, or broken medical instruments).

Legal Responsibility - In the context of debris management, a statute, formally adopted legal code, or ordinance that gives local government officials responsibility to perform work on public and/or private property.

Debris Monitoring - Actions taken by applicants in order to document eligible quantities and reasonable expenses during debris activities to ensure that the work complies with the contract scope-of-work and/or is eligible for Public Assistance grant reimbursement.

Mutual Aid Agreement - A written understanding between communities and States obligating assistance during a disaster. See *FEMA RP9523.6, Mutual Aid Agreements for Public Assistance and Fire Management Assistance.*

National Response Plan (NRP) - A plan developed to facilitate the delivery of all types of Federal assistance to States following a disaster. It outlines the planning assumptions, policies, concept of operations, organizational structures, and specific assignments and agencies involved in Federal assistance to supplement State, tribal, and local efforts.

Outbuilding - Any structure secondary to a house such as a barn, shed, or outhouse separated from the main structure.

Piggyback Contract - Term used to describe a type of goods or services procurement. A piggyback contract is a contract let by a government entity which is adopted and extended for use by another government entity.

Recycling - Activities by which discarded materials are collected, sorted, processed, and converted into raw materials and are then used in the production of new products.

Right of Entry - As used by FEMA, the document by which a property owner confers to an eligible applicant or its contractor or the United States Army Corps of Engineers the right to enter onto private property for a specific purpose without committing trespass.

Right-of-Way - The portions of land over which facilities such as highways, railroads, or power lines are built. It includes land on both sides of the facility up to the private property line.

Scale/Weigh Station - A scale used to weigh trucks as they enter and leave a landfill. The difference in weight determines the tonnage dumped, and a tipping fee is charged accordingly. It also may be used to determine the quantity of debris picked up and hauled.

Tipping Fee - A fee based on weight or volume of debris dumped that is charged by landfills or other waste management facilities to cover their operating and maintenance costs. The fee also may include amounts to cover the cost of closing the current facility and/or opening a new facility.

United States Army Corps of Engineers (USACE) - A component of the United States Army responsible for constructing and maintaining military installations and other government-owned and controlled facilities. The USACE may be used by FEMA when direct Federal assistance, issued through a mission assignment, is needed.

White Goods - White goods are defined as discarded household appliances such as refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, and water heaters.

APPENDICES

Appendices

Appendix A – Debris Management Plan Outline

Appendix B – USACE Hurricane Debris Estimating Model

Appendix C – FEMA Forms

FF90-123	Force Account Labor Summary Record
FF90-128	Applicant's Benefits Calculation Worksheet
FF90-127	Force Account Equipment Summary Record
FF90-125	Rented Equipment Summary Record
FF90-126	Contract Work Summary Record
FF90-124	Materials Summary Record
FF90-91D	Project Worksheet – Photo Sheet

Appendix D – Sample Monitoring Forms

Load Ticket
Tower Monitor Log
Roving Monitor Report
Daily Issue Log
Truck Certification Form

Appendix E – Debris Collection and Management Site Hazard Analysis

Appendix F – Demolition Checklist

Appendix G – FEMA Policies and Fact Sheets

FEMA DAP9523.4	Demolition of Private Structures
FEMA DAP9523.11	Hazardous Stump Extraction and Removal Eligibility
FEMA RP9523.12	Debris Operations - Hand-Loaded Trucks and Trailers
FEMA DAP9523.13	Debris Removal from Private Property
FEMA RP9524.3	Policy for Rehabilitation Assistance for Levees and Other Flood Control Works - Decision Tree
FEMA RP9525.7	Labor Costs – Emergency Work
FEMA RP9580.4	Fact Sheet: Debris Operations – Clarification: Emergency Contracting vs. Emergency Work
FEMA RP9580.201	Fact Sheet: Debris Removal – Applicant's Contracting Checklist
FEMA RP9580.202	Fact Sheet: Debris Removal – Authorities of Federal Agencies
FEMA DAP9580.203	Fact Sheet: Debris Monitoring

APPENDIX A – DEBRIS MANAGEMENT PLAN OUTLINE

Debris Management Plan Outline

I. Staff Roles and Responsibilities

A. Staffing Organizational Chart

B. Roles and Responsibilities

1. Staffing Assignments and Duties
2. Administration
3. Contracting and Procurement
4. Legal
5. Operations
6. Engineering

C. Emergency Communications Strategy

D. Health and Safety Strategy and Procedures

E. Training Schedule

II. Situation and Assumptions

A. Design Disaster Event

B. Forecasted Debris
1. Forecasted Types
2. Forecasted Locations

III. Debris Collection Plan

A. List Priorities

B. Response Operations

C. Recovery Operations

Debris Management Plan Outline

1. Estimating Staff, Procedures and Assignments
2. Collection Method
   a) Curbside Collection
   b) Collection Centers
3. Collecting Hazardous Waste and White Goods
4. Monitoring Staff and Assignments

IV. Debris Management Sites

A. Site Management
   1. Site Manager
   2. Monitoring Staff and Assignments
   3. Safety Personnel

B. Establishment and Operations Planning
   1. Permits
   2. Locations
      a) Baseline Data for Each Location
      b) Ingress/egress for Sites
   3. Site Layouts
   4. Site Preparation
   5. Site Layout
   6. Volume Reduction Methods
      a) Incineration
      b) Grinding and Chipping
   7. Recycling
   8. Environmental Monitoring Program
   9. Site Closure

V. Contracted Services

A. Emergency Contracting/Procurement Procedures

B. Debris Operations to be Outsourced

C. General Contract Provisions

Debris Management Plan Outline

D. Qualification Requirements

E. Solicitation of Contractors

VI. Private Property Demolition and Debris Removal

A. Condemnation Criteria and Procedures
   1. Legal Documentation
   2. Demolition Permitting
   3. Inspections

B. Mobile Home Park Procedures

C. Navigation Hazard Removal Procedures

VII. Public Information Strategy

A. Public Information Officer

B. Pre-scripted Information

C. Distribution Strategy

Appendices

Maps of jurisdiction and priorities
Staffing assignment maps
Load Ticket
Debris Monitor Reports
Truck Certification List
Load Ticket System

APPENDIX B – USACE HURRICANE DEBRIS ESTIMATING MODEL

USACE HURRICANE DEBRIS ESTIMATING MODEL

U.S. Army Corps of Engineers
Hurricane Debris Estimating Model

Background

- The U.S. Army Corps of Engineers (USACE) Emergency Management staff has developed a modeling methodology designed to forecast potential amounts of hurricane generated debris.
- Based on actual data from Hurricanes Frederic, Hugo and Andrew.
- The estimated quantities produced by the model have a predicted accuracy of ± 30%.
- The primary factor used by the model is the number of households in a developed urban/suburban area.
- Other factors utilized are:
  - Cubic yards of debris generated per household per storm category.
  - Vegetative cover.
  - Commercial density.
  - Precipitation.
- Household debris includes damage to the house, contents and surrounding shrubs/trees.
- Vegetative cover includes all trees and shrubbery located along public rights-of-way, parks and residential areas.
- Commercial density includes debris generated by damage to businesses and industrial facilities.
- Private contractors will remove the majority of commercial related debris; however, disposal/reduction space is still required.
- Very wet storms will cause ground saturation, increasing tree fall.

Initial Planning Data

- For planning purposes, the worst case scenario should be used for the subject area.
- The most accurate process is to determine the defined areas by using Doppler Radar (National Weather Service Broadcasts) and Geographical Information Systems (GIS).
- Doppler radar will define the storm's intensity and the exact track of the eye of the storm in relation to the affected area.
- Track the storm and plot the eye path and 5-mile wide bands out from the eye to define areas and estimate wind speeds.
- The wind speed of the eye wall normally determines the reported storm category with the outward or 5-mile bands being a lesser category.

USACE HURRICANE DEBRIS ESTIMATING MODEL

- Track the storm inland until the wind speeds dissipate below hurricane strength.
- Divide outlined areas by storm category.
- Enter coordinates into a GIS database to determine areas and demographic information, such as:
    - Population.
    - Schools.
    - Businesses.

STEP 1—ESTIMATING DEBRIS QUANTITIES

The formula used in this model will generate debris quantity as an absolute value based on a known/estimated population or a debris quantity per square mile based upon population density per square mile.

- Determine population (P) in the affected area.
- For example, 1990 census data for Harrison County, MS, is 165,500.
- P = 165,500.
- The assumption of 3 persons per household (H) is used for this model.
- Known/estimated population (P) for a jurisdiction may be used to determine a value for H or H=P/3.

Example

A category 4 storm passes through Harrison County, MS. The area is primarily single family dwellings with some apartment complexes, schools, and shopping centers. Vegetation characteristic is heavy because of the proliferation of residential landscape shrubbery and trees throughout the area. The storm is very wet, with rain before and continuing for a few days after the hurricane.

Formula: Q= H(C)(V)(B)(S)

H= P/3= 165,500/3 = 55,167 (3 persons/household)

C= 50 (Factor for a Category 4 storm)

V= 1.5 (Multiplier for heavy vegetation)

B= 1.3 (Multiplier for heavy commercial due to schools/stores/apartments)

S= 1.3 (Multiplier for wet storm event)

Then Q = 55,167 x50x1.5x1.3x1.3 = 6,992,374 cubic yards of debris or 7 million cy

USACE HURRICANE DEBRIS ESTIMATING MODEL

The Model Formula: Q= H (C)(V)(B)(S) where:

Q is the quantity of debris in cubic yards.

H is the number of households.

C is the storm category factor in cubic yards.

V is the vegetation characteristic multiplier.

B is the commercial/business/industrial use multiplier.

S is the storm precipitation characteristic multiplier.

C is the storm category factor as shown below. It expresses debris quantity in cubic yards (cy) per household by hurricane category and includes the house and its contents, and land foliage.

HURRICANE CATEGORY	VALUE OF "C" FACTOR
1	2 cy
2	8 cy
3	26 cy
✓4	✓50 cy
5	80 cy

V is the vegetation multiplier as shown below. It acts to increase the quantity of debris by adding vegetation, including shrubbery and trees, on public rights-of-way.

VEGETATIVE COVER	VALUE OF "V" MULTIPLIER
LIGHT	1.1
MEDIUM	1.3
✓HEAVY	✓1.5

B is the multiplier that takes into account areas that are not solely single-family residential, but includes small retail stores, schools, apartments, shopping centers, and light industrial/manufacturing facilities. Built into this multiplier is the offsetting commercial insurance requirement for owner/operator salvage operations.

COMMERCIAL DENSITY	VALUE OF "B" MULTIPLIER
LIGHT	1.0
MEDIUM	1.2
✓HEAVY	✓1.3

USACE HURRICANE DEBRIS ESTIMATING MODEL

S is the precipitation multiplier that takes into account either a "wet" or "dry" storm event. A "wet" storm for category 3 or greater storms will generate more vegetative debris due to the uprooting of complete trees.

PRECIPITATION CHARACTERISTIC	VALUE OF "S" MULTIPLIER
NONE TO LIGHT	1.0
✓MEDIUM TO HEAVY	✓1.3

NOTE: **Steps 2 and 3 of this model can also be applied to other debris generating events once an estimated quantity of debris is established.**

STEP 2—DEBRIS STORAGE SITE REQUIREMENTS

- Estimate debris pile stack height of 10-feet.
- 60% usage of land area to provide for roads, safety buffers, burn pits and household hazardous waste areas.

1 acre (ac) = 4,840 square yards (sy)
10 foot stack height = 3.33 yards(y)
total volume per acre = 4,840 sy/ac x 3.33 y = 16,117 cy/ac

- From the example above, the acreage required for debris reduction sites is:

7,000,000/ 16,117 cy/ac = 434 acres (required for debris storage only, no buffers, etc.)

- To provide for roads and buffers, the acreage must be increased by a factor of 1.66.

434 ac x 1.66 = 720 acres or, since one square mile (sm) = 640 acres 720ac/640as/sm=1.12 sm.

- If you assume a 100 acre storage site can be cycled every 45 to 60 days or one time during the recovery period, then 720/2 = 360 ac or four 100 acre sites would be required.
- The number of sites varies with:
    - Size.
    - Distance from source.
    - Speed of reduction (mixed debris is slower than clean woody debris).
    - Removal urgency.
- The USACE commonly removes approximately 70% of the total volume generated with local governments, volunteer groups, and private individuals removing the remainder.

If 7 million cy were estimated, the USACE would estimate removing approximately 4.9 million cy of debris.

USACE HURRICANE DEBRIS ESTIMATING MODEL

STEP 3—CATEGORIES OF DEBRIS

Debris removed will consist of two broad categories:

- Clean wood debris.
- Construction and demolition (C&D) debris.

- The clean debris will come early in the removal process as residents and local governments clear yards and rights-of-way.
- The debris removal mission can be facilitated if debris is segregated as much as possible at the origin along the right-of-way, according to type.
- The public should be informed regarding debris segregation as soon as possible after the storm.
- Time periods should be set for removal, the first 7-10 days clean woody debris only, then followed by other debris, with the metals segregated from non-metals.
- Most common hurricane-generated debris will consist of the following:

  30% Clean woody debris
  70% Mixed C&D

  Of the 70% mixed C&D:

42%	Burnable but requires sorting
5%	Soil
15%	Metals
38%	Landfilled

- Based upon the above, 7,000,000 cy of debris would break down as follows:

  2,100,000 cy Clean woody debris
  4,900,000 cy Mixed C&D

- Of the 4,900,000 cy of mixed C&D, 2,058,000 cy is burnable but requires sorting, 245,000 cy is soil, 735,000 cy is metals, and 1,862,000 cy is landfilled.
- Burning will produce about 95% volume reduction.
- Chipping and grinding reduce the debris volume on a 4-to-1 ratio (4 cy is reduced to 1 cy) or by 75%.
- The rate of burning is basically equal to the rate of chipping/grinding, about 200 cy/hr. However, chipping requires on-site storage and disposal of the chips/mulch.

APPENDIX C – FEMA FORMS

- ***FF90-123 Force Account Labor Summary Record***
- ***FF90-128 Applicant's Benefits Calculation Worksheet***
- ***FF90-127 Force Account Equipment Summary Record***
- ***FF90-125 Rented Equipment Summary Record***
- ***FF90-126 Contract Work Summary Record***
- ***FF90-124 Materials Summary Record***
- ***FF90-91D Project Worksheet – Photo Sheet***

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
FORCE ACCOUNT LABOR SUMMARY RECORD

PAGE ____ OF ____

O.M.B. No. 1660-0017
Expires Otober 31, 2008

APPLICANT	PA ID NO.	PROJECT NO.	DISASTER
LOCATION/SITE		CATEGORY	PERIOD COVERING

DESCRIPTION OF WORK PERFORMED

NAME / JOB TITLE	DATES AND HOURS WORKED EACH WEEK								COSTS				
	DATE								**TOTAL HOURS**	**HOURLY RATE**	**BENEFIT RATE/HR**	**TOTAL HOURLY RATE**	**TOTAL COSTS**
NAME	**REG.**												
JOB TITLE	**O. T.**												
NAME	**REG.**												
JOB TITLE	**O. T.**												
NAME	**REG.**												
JOB TITLE	**O. T.**												
NAME	**REG.**												
JOB TITLE	**O. T.**												
NAME	**REG.**												
JOB TITLE	**O. T.**												
NAME	**REG.**												
JOB TITLE	**O. T.**												

TOTAL COST FOR FORCE ACCOUNT LABOR REGULAR TIME →	$
TOTAL COST FOR FORCE ACCOUNT LABOR OVERTIME →	$

I CERTIFY THAT THE ABOVE INFORMATION WAS OBTAINED FROM PAYROLL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR AUDIT.

CERTIFIED	TITLE	DATE

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

APPLICANT'S BENEFITS CALCULATION WORKSHEET

PAGE ____ OF ____

O.M.B. No. 1660-0017
Expires October 31, 2008

APPLICANT	PA ID NO.

DISASTER	PROJECT NO.

FRINGE BENEFITS (by %)	REGULAR TIME	OVERTIME
HOLIDAYS		
VACATION LEAVE		
SICK LEAVE		
SOCIAL SECURITY		
MEDICARE		
UNEMPLOYMENT		
WORKER'S COMP.		
RETIREMENT		
HEALTH BENEFITS		
LIFE INS. BENEFITS		
OTHER		
TOTAL in % of annual salary		

COMMENTS

I CERTIFY THAT THE INFORMATION ABOVE WAS TRANSCRIBED FROM PAYROLL RECORDS OR OTHER DOCUMENTS WHICH ARE AVAILABLE

CERTIFIED BY	TITLE	DATE

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

FORCE ACCOUNT EQUIPMENT SUMMARY RECORD

PAGE _____ OF _____

O.M.B. No. 1660-0017
Expires October 31, 2008

APPLICANT	PA ID NO.	PROJECT NO.	DISASTER

LOCATION/SITE	CATEGORY	PERIOD COVERING

DESCRIPTION OF WORK PERFORMED

TYPE OF EQUIPMENT		OPERATOR'S NAME	DATES AND HOURS USED EACH DAY								COSTS		
INDICATE SIZE, CAPACITY, HOURSEPOWER, MAKE AND MODEL AS APPROPRIATE	EQUIPMENT CODE NUMBER		DATE								TOTAL HOURS	EQUIPMENT RATE	TOTAL COST
			HOURS										
			HOURS										
			HOURS										
			HOURS										
			HOURS										
			HOURS										
			HOURS										
										GRAND TOTALS →			

I CERTIFY THAT THE ABOVE INFORMATION WAS OBTAINED FROM PAYROLL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR AUDIT.

CERTIFIED	TITLE	DATE

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

RENTED EQUIPMENT SUMMARY RECORD

PAGE ____ OF ____

O.M.B. No. 1660-0017
Expires October 31, 2008

APPLICANT	PA ID NO.	PROJECT NO.	DISASTER
LOCATION/SITE		CATEGORY	PERIOD COVERING
DESCRIPTION OF WORK PERFORMED			

TYPE OF EQUIPMENT Indicate size, Capacity, Horsepower, Make and Model as Appropriate	DATES AND HOURS USED	RATE PER HOUR		TOTAL COST	VENDOR	INVOICE NO.	DATE AND AMOUNT PAID	CHECK NO.
		W/OPR	W/OUT OPR					

GRAND TOTAL →

I CERTIFY THAT THE ABOVE INFORMATION WAS OBTAINED FROM PAYROLL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR AUDIT.

CERTIFIED	TITLE	DATE

DEPATRTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

CONTRACT WORK SUMMARY RECORD

PAGE _____ OF _____

O.M.B. No. 1660-0017
Expires October 31, 2008

APPLICANT	PA ID NO.	PROJECT NO.	DISASTER
LOCATION/SITE		CATEGORY	PERIOD COVERING
DESCRIPTION OF WORK PERFORMED			

DATES WORKED	CONTRACTOR	BILLING/INVOICE NUMBER	AMOUNT	COMMENTS - SCOPE
GRAND TOTAL →				

I CERTIFY THAT THE ABOVE INFORMATION WAS OBTAINED FROM PAYROLL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR AUDIT.

CERTIFIED	TITLE	DATE

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

MATERIALS SUMMARY RECORD

PAGE _____ OF _____

O.M.B. No. 1660-0017
Expires October 31, 2008

APPLICANT	PA ID NO.	PROJECT NO.	DISASTER

LOCATION/SITE	CATEGORY	PERIOD COVERING

DESCRIPTION OF WORK PERFORMED

VENDOR	DESCRIPTION	QUAN.	UNIT PRICE	TOTAL PRICE	DATE PURCHASED	DATE USED	INFO FROM (CHECK ONE)	
							INVOICE	STOCK
GRAND TOTAL →								

I CERTIFY THAT THE ABOVE INFORMATION WAS OBTAINED FROM PAYROLL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR AUDIT.

CERTIFIED	TITLE	DATE

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
PROJECT WORKSHEET - Photo Sheet

O.M.B. No. 1660-0017
Expires October 31, 2008

DISASTER FEMA-_____ -DR-____	PROJECT NO.	PA ID NO.	DATE	CATEGORY
APPLICANT		COUNTY		

PHOTO	PHOTO
DESCRIPTION	DESCRIPTION

APPENDIX D – SAMPLE MONITORING FORMS

- ***Load Ticket***
- ***Tower Monitor Log***
- ***Roving Monitor Report***
- ***Daily Issue Log***
- ***Truck Certification Form***

Load Ticket	Ticket No. 0012345
Municipality (Applicant)	Prime Contractor
	Sub-Contractor

Truck Information

Truck No	Capacity
Truck Driver (print legibly)	

Loading Information

Loading	Time	Date	Inspector/Monitor
Location (Address or Cross Streets)			

When Using GPS Coordinates use Decimal Degrees (N xx.xxxxx)

N	**W**

Unloading Information

Debris Classification	Estimated %, CYs, or Actual Weight
☐ Vegetation ☐ C&D ☐ White Goods ☐ HHW ☐ Other* See Below	

Unloading	Time	Date	Inspector/Monitor
DMS Name and Location			

*Other Debris Explanation	Original: Applicant Copy 1: _____ Copy 2: _____ Copy 3: _____

TOWER MONITOR LOG

Date: _____

Monitor: _____ **Applicant Monitor:** _____

Time	Truck No.	Load Ticket	Capacity	Vol. or Weight	Pick-Up Location	Photo/ Disc	Comments

Applicant:_____ **Page** ____ **Tower Site:**_____

Monitor:_____ **ROVING MONITOR REPORT** **Date:**_____

Time	Truck No.	Load Ticket	Capacity	Vol. or Weight	Pick-Up Location	Photo/ Disc	Comments

Applicant: _____ **Page**_____

Monitor:_____ **DAILY ISSUE LOG** **Date:_____**

Issue No.	Truck No.	Load Ticket	Pick-Up Location	Contractor/ Sub-Contractor	Applicant Monitor	Photo/ Disc	Issue/Resolution

Applicant:_____ **Page_____**

TRUCK CERTIFICATION FORM

General Information

Applicant: _____ **Monitor:** _____

Contractor: _____ **Date:** _____

Measurement Location: _____ **County:** _____

Declaration Number: _____

Truck Information

Make	Year	Color	License

Truck Measurements

Performed By: _____ **Date:** _____

Volume Calculated By: _____ **Date:** _____

Both Checked by: _____ **Date:** _____

Driver Information

Name: _____

Address: _____

Phone Number: _____

Owner Information

Name: _____

Address: _____

Phone Number: _____

Truck Identification

Truck Capacity

Photo

(See reverse for calculation worksheet)

TRUCK CERTIFICATION FORM

DUMP TRUCK

Measurements

Truck Measurements — Length (L) = ____ Width (W) ft = ____ Height (H) ft = ____

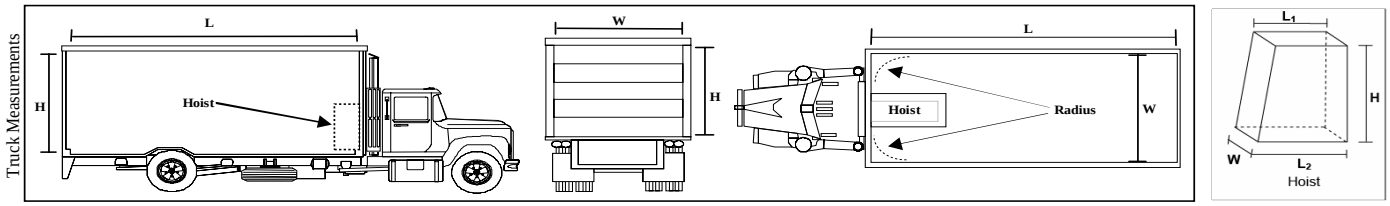
Hoist Measurement — $Length_1$ (L_1) ft = ____ $Length_2$ (L_2) ft = ____ $WidthH$ (W_H) ft = ____ $Height_H$ (H_H) ft = ____

Radius — Radius ft = ____ Height (H) = ____

Calculations

Bed Volume (Basic)	(LxWxH)/27 =	+	cyd
Hoist Volume	((L1+L2/2) x W_H x H_H)/27 =	-	cyd
Radius Volume	(3.14xR^2xH)/27 =	-	cyd
	Total =		cyd

Cubic Yards



EXTRA TRAILER

Measurements

Truck Measurements (Basic) — Length (L) = ____ Width (W) ft = ____ Height (H) ft = ____

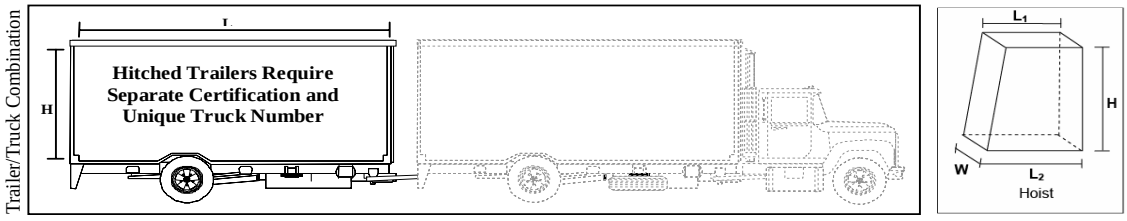
Hoist Measurement — $Length_1$ (L_1) ft = ____ $Length_2$ (L_2) ft = ____ $WidthH$ (W_H) ft = ____ $Height_H$ (H_H) ft = ____

Radius — Radius ft = ____ Height (H) = ____

Calculations

Bed Volume (Basic)	(LxWxH)/27 =	+	cyd
Hoist Volume	((L_1+L_2/2) x W_H x H_H) =	-	cyd
Radius Volume	(3.14xR^2xH)/27 =	-	cyd
	Total =		cyd

Cubic Yards



ROUND BOTTOM TRUCK

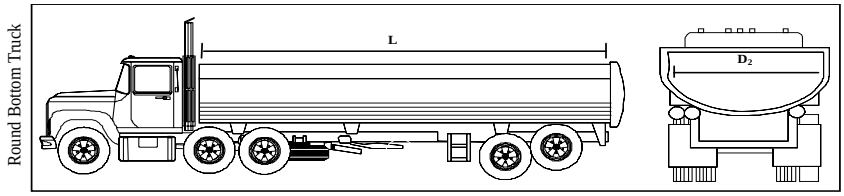
Measurements

Truck Measurements — Length (L) ft = ____ Diameter (D) ft = ____

Calculations

Approx. Volume (3.14 x $(D/2)^2$ x L) /27 = ____ cyd (round bottom portion only)

Cubic Yards



APPENDIX E – DEBRIS COLLECTION AND MANAGEMENT SITE HAZARD ANALYSIS

DEBRIS COLLECTION and MANAGEMENT SITE HAZARD ANALYSIS

Disaster debris collection and management sites pose a multitude of health and safety concerns. Hazards and exposures are a function of the unstable nature of the site, the potential of hazardous substances being present, and the type of work being performed. This hazard analysis serves as general guidance only. Each site will have its own unique hazards, all of which cannot be anticipated.

The listed hazards, risks, and accompanying general recommendations represent suggested site hazard assessment and therefore will not represent actual field hazards present at all debris collection and management sites. It is incumbent upon the responsible entity (e.g. – State, local government, private contractor, etc.) chosen to perform and/or manage this work to assure a comprehensive site specific hazard analysis is performed and that resulting recommendations are implemented.

SITE SAFETY CHECKLIST

- ☐ Conduct a job hazard analysis to identify hazards prior to beginning site work.
- ☐ Assign key personnel and alternates responsible for site safety.
- ☐ Describe risks associated with each operation conducted.
- ☐ Confirm that personnel are adequately trained to perform jobs.
- ☐ Describe the protective clothing and equipment to be worn by personnel during site operations.
- ☐ Describe needed air monitoring, personnel monitoring, and environmental sampling.
- ☐ Describe actions to be taken to mitigate existing hazards to make work environment less hazardous.

POTENTIAL HAZARDS AND GENERAL RECOMMENDATIONS

HAZARD 1: Massive piles of woody debris and other types of debris; unstable work surfaces

Risks: Traumatic, serious, or fatal injuries or illnesses can occur due to slips, trips, falls, or collapsing materials.

- **General Recommendations:**
  - Ensure that surfaces are as stable as possible.
  - Ensure scaffolding is erected on a stable surface; anchor scaffolding to a structure capable of withstanding the lateral forces generated.
  - Ensure workers have ANSI approved safety footwear with slip resistant soles. Consider drop and roll over hazards as well as puncture hazards.
  - Site personnel to be observant of changes in walking surfaces.

HAZARD 2: Hazardous noise

Risks: Communication and possible noise induced hearing loss.

- **General Recommendations:**
  - Monitor noise levels. If 8-hour time-weighted average exposures are 85 decibels (dB) or more, a Hearing Conservation Plan is needed.
  - Try engineering out workplace noise by isolating the equipment, reduce the equipment vibration, or installing sound barriers.
  - Consider hearing protection devices are used whenever noisy equipment (e.g., large trucks, grinding equipment, loaders, generators, large motors, etc.) is used.

HAZARD 3: Breathing dust containing fine airborne particles and gases generated through diesel exhaust fumes, smoke, ash, and road dust

Risks: Irritation of eye, nose, throat, and lung.

- **General Recommendations:**
  - Workers should be protected from breathing airborne contaminants as determined through the site's analysis of respiratory hazards.
  - Respiratory protection: determine respirator type, as needed, through site specific hazard analysis.
  - Respirators must fit properly to protect workers.

- Dust concentrations in the air should be appropriately monitored.
- Stay upwind of dust generating activities.
- Maintain low speeds on construction equipment to keep dust down.
- Airborne dust may be suppressed by application of water based mist.

HAZARD 4: Heat stress from working in a hot, humid climate

Risks: Significant fluid loss can progress to clinical dehydration, raised core body temperature, impaired judgment, disorientation, fatigue, muscle cramping, resulting in heat stroke.

- **General Recommendations:**
  - Adjust work schedules, rotate personnel, and add additional personnel if needed.
  - Replenish fluids (e.g. – water, electrolytes) as needed.
  - Consider personnel and environmental monitoring plans.
  - Know the warning signs of heat related illnesses.
  - Provide shelter for personnel in shaded areas.
  - Where possible, block out sun or other direct sources of heat from fixed work locations.
  - Prevent sun related overexposure to skin by using a sunscreen lotion with a significant sun protection factor (SPF) of 15 or greater.

HAZARD 5: Cold stress from working in a cold, wet climate

Risks: This allows exposed skin and the extremities to cool rapidly and increases the risk of frostbite and hypothermia.

- **General Recommendations:**
  - Get into heated shelter as necessary to maintain body temperature.
  - Replace wet clothing immediately.
  - Drink warm fluids often.
  - Wear adequate clothing to reduce threat of cold stress.
  - Know the signs of cold stress.

HAZARD 6: Carbon monoxide risk from heaters, gasoline or propane-powered generators, or heavy machinery

Risks: Headache, dizziness, drowsiness, or nausea. This may progress to vomiting, loss of consciousness, and collapse. Coma or death may occur under prolonged or high exposures.

- **General Recommendations:**
  - Use CO warning sensors when using or working around combustion sources since CO has no warning properties. CO is a colorless and odorless gas.
  - Shut off equipment or machinery immediately if symptoms of exposure appear and immediately go to a fresh air source or location.

> **Warning!** Do not use gasoline generators or portable heaters in confined spaces or poorly ventilated areas.

HAZARD 7: Work zone traffic hazards

Risks: Traumatic or fatal injuries due to failure of or improper use of equipment or workers being struck by moving equipment.

- **General Recommendations:**
  - Establish a traffic control plan for motorists and pedestrians.
  - Use standard highway signs and control devices to instruct drivers.
  - Use barriers (concrete, water, sand, collapsible barriers, crash cushions, and truck-mounted attenuators) to limit motorist intrusion into the work zone.
  - High visibility safety garments should be provided for those providing temporary traffic control (class 2 or 3) and workers on foot (class 1, 2, or 3).
  - Seat belts and rollover protection should be used on equipment and vehicles as stated by the manufacturer.
  - Workers on foot, equipment operators, and drivers in internal work zones need to know the routes construction vehicles will use.
  - Be mindful of limited visibility (e.g. – blind spots) which heavy machine operators have while driving machines at the work site.
  - Maintain safe driving distances, avoid using cell phones while driving, and obey all traffic laws.

HAZARD 8: Eye, face, hand, and head injuries from flying debris; wood particles

Risks: Traumatic injuries, ranging from minor injuries requiring first aid to serious eye injuries, even disabling or fatal traumatic injuries.

- **General Recommendations:**
  - Only use protective eyewear, face shields, and protective head wear that are ANSI approved.
  - Educate workers regarding safe work procedures before beginning work.
  - Provide workers with a full array of personal protective equipment, including hard hats, safety shoes, eyeglasses, and work gloves.
  - Ensure that workers do not walk under or through areas where cranes and other heavy equipment are being used to lift objects.
  - Proper eye protection (e.g. - goggles or safety glasses).
  - As a minimum requirement use safety glasses with side shields by all site workers. Faceshields are not a substitute for safety glasses.
  - Use safety goggles for protection from fine dust particles rather than using regular prescription eyeglasses.
  - Choose hand protection to fit the hazards determined through the hazard analysis (e.g. – laceration hazards, need for gripping, need for dexterity, etc.).
  - Stay outside the 300 foot safety zone while a chipper is in operation.
  - Check the kick-back device on chainsaws before use.

HAZARD 9: Use of various types of heavy equipment, including cranes, bucket trucks, skid-steer loaders, etc.

Risks: Traumatic injury, including serious and fatal injuries, due to failure of improper use of equipment, or workers being struck by moving equipment.

- **General Recommendations:**
  - Wear safety vests. Safety orange vests with reflective stripes are recommended.
  - Ensure operators are aware of the activities around them to protect workers on foot from being struck by moving equipment.
  - Ensure that workers do not walk under or through areas where cranes and other heavy equipment are being used to lift objects.
  - Ensure that workers do not climb onto or ride loads being lifted or moved.
  - Ensure that all equipment warning devices are working (flashers, strobes, back-up alarms).
  - Machinery is to be inspected by a qualified worker before each use, per OSHA requirements.
  - Stay at lease 20 feet beyond maximum equipment swing radius or movement areas. Assign spotters as needed.
  - Do not exceed the load capacity of cranes and other lifting equipment.

HAZARD 10: Chemicals, flammables and combustibles

Risks: Traumatic, serious, or fatal injuries or illnesses can occur due to inhalational, dermal, and fire hazards.

- **General Recommendations:**
  - Ensure that hazardous waste (batteries, PVC piping, solvents, pesticides, and compressed gas cylinders, etc.) are properly separated from “burnable” trash.
  - Utilize GFCI for any extension cords or power tools.
  - Store gasoline in an approved container not to exceed 5-gallon capacity.
  - Allow gasoline power tools to cool down prior to refueling.
  - Ensure containers are bonded and grounded during dispensing.
  - Ensure adequate fire extinguishers are available at work sites and on work vehicles.
  - Maintain a fire watch during all fire-related activities until material has been extinguished and cooled.
  - If possible, avoid establishing debris management sites where there is a limited public water supply, lack of 911 service, or delays in fire department response time.

HAZARD 11: Isolated work areas and sanitation

Risks: Remote locations delay response times from emergency providers. Precaution can reduce the severity of the event.

- **General Recommendations:**
  - Water-borne disease:
    - Always wash your hands.
    - Use hand sanitizers frequently.
    - Exercise good housekeeping.
    - Only drink from proven potable water sources.
  - Blood-borne disease:
    - Use latex or similar type gloves when handling remains.
    - Replace gloves if punctured or torn.
    - Receive appropriate vaccinations (Hepatitis A, B, Tetanus, Diphtheria, etc).
    - Avoid standing water.
    - Observe universal precautions.
  - Food-borne disease:
    - Identify and dispose of food that may not be safe to eat.
    - Handle food properly.
    - Keep a supply of water and food on hand.
    - Rest when off duty.
  - Emergencies:
    - Know location and phone numbers of nearest hospital, doctor, and police.
    - Carry a first-aid kit.
    - Know the address or nearest cross-road of work site to notify emergency responders.

HAZARD 12: Insects, animals, reptiles, and plants

Risks: Traumatic, serious, or fatal injuries or illnesses can occur due to insect or animal bites.

- **General Recommendations:**
  - Protection from plants:
    - Be alert of poisonous plants.
    - Use barrier creams if available.
    - Wash affected area after contact.
  - Protection from wild or stray animals:
    - Avoid animal habitats (infested areas, rodent burrows, and nests).
    - Do not attempt to take custody of animals unless properly trained.
    - Avoid wild or stray animals. Assume all animals are rabid. Call local authorities to handle animals.
    - Dispose of animal carcasses according to local guidelines.
  - Protection from insects (mosquitoes, bees, spiders, fire ants, etc):
    - Wear appropriate clothing (long pants, socks, long sleeved shirts, etc).
    - Avoid infested areas.
    - Use insect repellents that contain DEET or Picaridin, when necessary.
  - Protection from snakes:
    - Assume all snakes are poisonous. Be on alert for snakes that may be hiding in unusual places after flooding.
    - Seek immediate medical attention if you are bitten.
    - Try to identify the snake so that if it is poisonous you can be given the correct anti-venom.

HAZARD 13: Power lines and gas lines

Risks: Traumatic, serious, or fatal injuries or illnesses can occur due to electrocution.

- **General Recommendations:**
  - Treat all power lines and cables as energized until proven otherwise. De-energized lines can be energized by a secondary power sources such as a backup generator.
  - Use appropriately grounded low voltage equipment.
  - Do not approach detected gas leaks.

- Contact utilities (e.g. – utility locate service) for buried power line location.
- Stay at least 10 feet away from live overhead power lines.
- Get the owner or operator of the lines to de-energize and ground lines when working near them.
- Use non-conductive wood or fiberglass ladders when working near power lines.
- Keep area burn piles, observation areas, and areas where heavy equipment is used away from power lines and other electrical equipment.

HAZARD 14: Debris towers

Risks: Traumatic, serious, or fatal injuries or illnesses can occur due to falls from elevated surfaces.

- **General Recommendations:**
  - Inspect scaffolds and scaffold components for defects before each work shift and after any incident which could affect structural integrity.
  - Provide adequate buffer zones around the tower.
  - Anchor the scaffold to prevent displacement from wind with guide wires
  - Do not exceed load capacity of the scaffold.
  - Footing of the tower must be level, sound, rigid, and capable of supporting the load without settling or displacement.
  - A standard guardrail (top, mid, toe) and handrail system must be installed along all open sides.
  - Provide appropriate ventilation if a heating system is present.
  - No smoking.
  - Use established construction guidance (e.g. – US Army Corps of Engineers).

HAZARD 15: Aerial lifts and scissor lifts

Risks: Traumatic, serious, or fatal injuries or illnesses can occur due to falls, tip-overs, and pinch points.

- **General Recommendations:**
  - Only trained and authorized people may operate the lift.
  - Check for overhead objects before use.
  - Stay far from debris piles, drop-offs, and floor openings.
  - Never use equipment near electric lines unless the lines are de-energized or adequate clearance is maintained.
  - Refuel tanks only when the machine is off.
  - Elevate the lift only when it is on a firm and level surface.
  - Never drive the lift when in the extended position.

HAZARD 16: Severe weather

Risks: Traumatic, serious, or fatal injuries or illnesses can occur due to hypothermia, hyperthermia, and lightning strikes.

- **General Recommendations:**
  - Monitor local weather conditions regularly.
  - Recognize the signs of an oncoming thunder and lighting storm and seek shelter.
  - Avoid small sheds, wooded areas, metal fences and open areas.

You can help prevent workplace injuries and illnesses by looking at your workplace operations, establishing proper job procedures, and ensuring that all employees are trained properly. One of the best ways to determine and establish proper work procedures is to conduct a job hazard analysis. A job hazard analysis is a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment. Ideally, after you identify uncontrolled hazards, you will take steps to eliminate or reduce them to an acceptable risk level.

A job hazard analysis can be conducted on many jobs in your workplace. Priority should go to the following types of jobs:

- Jobs with the highest injury or illness rates;
- Jobs with the potential to cause severe or disabling injuries or illness, even if there is no history of previous accidents;
- Jobs in which one simple human error could lead to a severe accident or injury;
- Jobs that are new to your operation or have undergone changes in processes and procedures;
- Jobs that are complex enough to require written instructions.

APPENDIX F – DEMOLITION CHECKLIST

Demolition Checklist

Property Address: _____

Pre-Demolition

	Action	Initial	Date	Notes
1	Establish property management file for each parcel of private property. One (1) copy each for local and State records management			
2	Provide notice of condemnation			
3	Complete environmental and historic preservation reviews			
4	Obtain right of entry and hold harmless agreements			
5	Verify property description and ownership (i.e., tax assessment, legal description)			
6	Document property owner's insurance coverage for future recovery			
7	Notify lien holder(s) of intent to demolish as needed			
8	Conduct building inspection as needed			
9	Conduct public health inspection as needed			
10	Conduct fire inspection as needed			
11	Provide public notification of condemnation/demolition			
12	Verify personal property removal			

Demolition

13	Verify structure is unoccupied			
14	Cap well, water, sewer, and septic lines. Disconnect electrical service. Remove propane tanks.			
15	Mark easements and underground utilities			
16	Identify/remove/dispose of asbestos, lead-based paint and other hazardous materials per State environmental agency/EPA requirements			
17	Identify/remove/dispose of all HHW per State environmental agency/EPA requirements			
18	Record GPS coordinates. Photograph site before and after demolition.			
19	Document actual demolition and removal of debris			

Complete documentation is compiled within the project file for each individual structure/property.

I, the authorized applicant official, certify that all processes and documentation referred to in this checklist are complete (except Item 19) prior to the demolition of the referenced structure.

Name (Print) Title Signature Date

APPENDIX G – FEMA POLICIES AND FACT SHEETS

- ***FEMA DAP9523.4 – Demolition of Private Structures***
- ***FEMA DAP9523.11 – Hazardous Stump Extraction and Removal Eligibility***
- ***FEMA RP9523.12 – Debris Operations - Hand-Loaded Trucks and Trailers***
- ***FEMA DAP9523.13 – Debris Removal from Private Property***
- ***FEMA RP9524.3 – Policy for Rehabilitation Assistance for Levees and Other Flood Control Works - Decision Tree***
- ***FEMA RP9525.7 – Labor Costs – Emergency Work***
- ***FEMA RP9580.4 – Fact Sheet: Debris Operations – Clarification: Emergency Contracting vs. Emergency Work***
- ***FEMA RP9580.201 – Fact Sheet: Debris Removal – Applicant's Contracting Checklist***
- ***FEMA RP9580.202 – Fact Sheet: Debris Removal – Authorities of Federal Agencies***
- ***FEMA DAP9580.203 – Fact Sheet: Debris Monitoring***

I. TITLE: Demolition of Private Structures

II. DATE: JUL 18 2007

III. PURPOSE:

This policy provides guidance in determining the eligibility of demolition of private structures under the Federal Emergency Management Agency's (FEMA) Public Assistance Program.

IV. SCOPE AND AUDIENCE:

The policy is applicable to all major disasters declared on or after the date of publication of this policy. It is intended for FEMA personnel involved in the administration of the Public Assistance Program.

V. AUTHORITY:

Section 403(a)(3)(E) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5170b, 42 U.S.C. 5172, 44 CFR 206.225, and 44 CFR 206.226.

VI. BACKGROUND:

A. Section 403 of the Stafford Act, 42 U.S.C. 5170b, provides FEMA authority to provide assistance essential to meeting immediate threats to life and property resulting from a major disaster. Specifically, Section 403(a)(3)(E) provides FEMA authority to fund the demolition of unsafe structures which endanger the public on public and private property (44 CFR 206.225). Eligible Public Assistance applicants may be eligible for Public Assistance grant funding under Section 403 of the Stafford Act under the conditions of this policy.

B. The demolition of unsafe structures owned by eligible public and private nonprofit (PNP) applicants may be eligible for Public Assistance grant funding under Section 406 of the Stafford Act, which funds the repair, restoration, reconstruction, or replacement of eligible facilities (44 CFR 206.226).

VII. POLICY:

A. Definitions.

1. Demolition: The act or process of reducing a structure, as defined by State or local code, to a collapsed state.

2. Demolition debris: Materials including building materials and personal effects that are deposited as a result of the demolition process.

3. Legal responsibility: A statute, formally adopted local code, or ordinance that gives local government officials the responsibility to enter private property to demolish unsafe structures or to perform work to remove an immediate threat (44 CFR 206.223(a)(3), 44 CFR 206.221(c), and 44 CFR 206.225(a)(3)).

4. Unsafe structure: A structure found to be dangerous to the life, health or safety of the public because such structure is so damaged or structurally unsafe as a direct result of the declared disaster that partial or complete collapse is imminent.

B. Duplication of Benefits (44 CFR 206.191). FEMA is prohibited by Section 312 of the Stafford Act from approving funds for work that is covered by any other source of funding. Therefore, State and local governments must take reasonable steps to prevent such an occurrence, and verify that insurance coverage or any other source of funding does not exist for the demolition of private structures.

1. When demolition of private structures is covered by an insurance policy, the insurance proceeds must be used as the first source of funding. Public Assistance grant funding may be used to pay for the remainder of the demolition costs.

2. If it is discovered that a duplication of benefits from any other source of funding has occurred, FEMA will de-obligate funds from the Grantee in the amount that such assistance duplicates funding the property owners received from other sources.

C. Eligibility of Demolition of Private Structures.

1. Demolition of privately owned structures and subsequent removal of demolition debris may be eligible for Public Assistance grant funding under Section 403 of the Stafford Act when the following conditions are met:

a. The structures were damaged and made unsafe by the declared disaster, and are located in the area of the declared disaster (44 CFR 206.223(a)(1) and (2)).

b. The State or local government applicant certifies that the structures are determined to be unsafe and pose an immediate threat to the public (44 CFR 206.225(a)). The Public Assistance applicant provides a detailed explanation documenting its legal responsibility to enter private property to demolish an unsafe structure, and confirms that all legal processes and permission requirements (e.g., rights-of-entry) for such action have been satisfied. The Public Assistance Group Supervisor must concur that the demolition of unsafe structures and removal of demolition debris are in the public interest. FEMA will consider alternative measures to eliminate threats to life, public health, and safety posed by disaster-damaged unsafe structures, including fencing off unsafe structures and restricting public access, when evaluating requests for demolition.

i. The eligible applicant must demonstrate the legal basis as established by law, ordinance, or code upon which it exercised or intends to exercise its responsibility following a major disaster to demolish unsafe private structures (44 CFR 206.223(a)(3)). Codes and ordinances must be germane to the structural condition representing an immediate threat to life, public health, and safety, and not merely define the local government's uniform level of services.

States and local governments ordinarily rely on condemnation and/or nuisance abatement authorities to obtain legal responsibility prior to the commencement of demolition of private structures. There may be circumstances, however, where the State or local government determines that ordinary condemnation and/or nuisance abatement procedures are too time-consuming to address an immediate public health and safety threat. In such circumstances, applicants may not have to precisely follow their nuisance abatement procedures or other ordinances that would prevent the State or local government from taking emergency protective measures to protect public health and safety (44 CFR 206.225(a)).

ii. The applicant's legal responsibility to take action where there is an immediate threat to life, public health, and safety should be independent of any expectation, or request, that FEMA will reimburse costs incurred for demolition of private structures and the removal of demolition debris from private property. In addition, an applicant's legal responsibility is not established solely by an applicant obtaining signed rights-of-entry and hold harmless agreements from property owners.

c. The State or local government confirms that a legally authorized official has ordered the exercise of public emergency powers or other appropriate authority to enter onto

private property in order to remove/reduce threats to life, public health, and safety threat via demolition of unsafe structures and removal of demolition debris (44 CFR 206.223).

d. The State or local government indemnifies the Federal government and its employees, agents, and contractors from any claims arising from the demolition of unsafe private structures and removal of demolition debris from private property (44 CFR 206.9).

e. The work is completed within the completion deadlines outlined in 44 CFR 206.204 for emergency work.

2. Eligible costs associated with the demolition of private structures may include, but are not limited to:

a. capping wells;

b. pumping and capping septic tanks;

c. filling in basements and swimming pools;

d. testing and removing hazardous materials from unsafe structures, including asbestos and household hazardous wastes;

e. securing utilities (electric, phone, water, sewer, etc.);

f. securing permits, licenses, and title searches. Fees for permits, licenses, and titles issued directly by the applicant are not eligible unless it can be demonstrated that the fees are above and beyond administrative costs; and

g. demolition of disaster-damaged outbuildings such as garages, sheds, and workshops determined to be unsafe.

3. Ineligible costs associated with the demolition of private structures may include:

a. removal of slabs or foundations, except in very unusual circumstances, such as when disaster-related erosion under slabs on a hillside causes an immediate public health and safety threat;

b. removal of pads and driveways;

4. Structures condemned as safety hazards before the disaster are not eligible for demolition and subsequent demolition debris removal under Public Assistance grant authority.

5. Individuals and private organizations (except for eligible PNPs) will not be reimbursed for demolition activities on their own properties under the Public Assistance Program (44 CFR 206.224(c)).

6. The removal of substantially damaged structures and associated appurtenances acquired through a Section 404 FEMA Hazard Mitigation Grant Program buyout and relocation project may be eligible for Public Assistance grant funding under Section 407 of the Stafford Act. Such removal must be completed within two years of the declaration date, unless extended by the Assistant Administrator of the Disaster Assistance Directorate (44 CFR 206.224(a)(4)).

D. Demolition of Commercial Structures. The demolition of commercial structures is generally ineligible for Public Assistance grant funding. It is assumed and expected that these commercial enterprises retain insurance that can and will cover the cost of demolition. However, in some cases as determined by the FCO, the demolition of commercial structures by a State or local government may be eligible for FEMA reimbursement only when such removal is in the public interest (44 CFR 206.224(a) and (b)).

Apartments, condominiums, and mobile homes in commercial trailer parks are generally considered commercial structures with respect to Public Assistance funding.

E. Environmental and Historic Review Requirements. Eligible demolition activities must satisfy environmental and historic preservation compliance review requirements as established by 44 CFR Parts 9 and 10, the National Historic Preservation Act, the Endangered Species Act, and all other applicable legal requirements.

VIII. ORIGINATING OFFICE: Disaster Assistance Directorate (Public Assistance Division).

IX. SUPERSESSION: This policy supersedes Recovery Policy 9523.4 dated November 9, 1999, and all previous guidance on this subject.

X. REVIEW DATE: Three years from date of publication.

Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

FEMA
DISASTER ASSISTANCE POLICY

I. TITLE: Hazardous Stump Extraction and Removal Eligibility

II. DATE: MAY 15 2007

III. PURPOSE:

Establish criteria used to reimburse applicants for removing eligible hazardous stumps from public or, where authorized, private property.

IV. SCOPE AND AUDIENCE:

The policy is applicable to all major disasters and emergencies declared on or after the date of publication. It is intended for all personnel involved in the administration and execution of the Public Assistance Program, including applicants.

V. AUTHORITY:

Sections 403 and 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206, as amended.

VI. BACKGROUND:

Public Assistance regulations authorize reimbursement for the removal of debris from public and private land when it is in the public interest. Such removal is in the public interest when it is necessary to: eliminate immediate threats to life, public health and safety, or eliminate immediate threats of significant damage to improved public or private property; or to ensure economic recovery of the affected community to the benefit of the community at large. Trees that are uprooted during a disaster event such that all or part of their roots are exposed may pose an immediate threat to public health and safety.

VII. POLICY:

A. When a disaster event uproots a tree or stump (i.e., 50% or more of root ball is exposed) on a public right-of-way, improved public property or improved property owned by certain private nonprofit organizations, and the exposed root ball poses an immediate threat to life, public health and safety, FEMA may provide supplemental assistance to remove, transport, dispose, and provide fill for the root cavity of an eligible uprooted tree or stump. The Federal Emergency Management Agency (FEMA) will reimburse applicants reasonable costs for this type of work only when uprooted stumps are more than 24 inches in diameter (measured two feet from the ground), with the consensus of the Applicant and the State, and is approved in

advance by FEMA, using the attached Hazardous Stump Worksheet.

1. If it is necessary to remove an uprooted stump before it can be inspected by FEMA because it poses a threat that must be dealt with immediately, the applicant must submit documentation, to FEMA including photographs, that establishes its location on public property, specifics on the threat, stump diameter measured two feet up the trunk from the ground, quantity of material to fill the hole, and any special circumstances.

2. FEMA will reimburse applicants for extraction, transport and disposal of stumps with a diameter of 24 inches or smaller at the unit cost rate for regular vegetative debris, using the attached Stump Conversion Table, as such stumps do not require special equipment.

3. FEMA will reimburse applicants at the unit cost rate (usually cubic yards) for normal debris removal for all stumps, regardless of size, placed on the rights-of-way by others (i.e., contractors did not extract them from public property or property of eligible Private Non Profit organization). In such instances, applicants do not incur additional cost to remove these stumps because the same equipment that is used to pick up "regular" debris can be used to pick-up these stumps.

4. If an applicant incurs additional costs in picking up large stumps (over 24 inches in diameter) from rights-of-way, it should complete the Hazardous Stump Worksheet and present documentation to FEMA in advance for consideration.

5. Stumps with less than 50% of their root ball exposed should be cut flush at ground level and the cut portion included with regular vegetative debris.

6. Straightening or bracing of trees is eligible for reimbursement if it is less costly than removal and disposal. Applicant must provide a cost analysis showing cost effectiveness.

VIII. ORIGINATING OFFICE: Disaster Assistance Directorate (Public Assistance Division)

IX. SUPERSESSION: This policy supersedes Recovery Policy Number 9523.11, Hazard Stump Removal and Extraction Eligibility dated May 6, 2006.

X. REVIEW DATE: Three years from the date of publication.

David Garratt
Acting Assistant Administrator
Disaster Assistance Directorate

Hazardous Stump Worksheet

Applicant: _____ Date: _____

Applicant Representative: _____ Signature: _____

FEMA Representative (if available) _____ Signature: _____

State Representative (if available):_____ Signature: _____

	Physical Location (i.e., Street address, road, cross streets, etc.)	Description of Facility (ROW, Park, City Hall, etc.)	Hazard		GPS (decimal degrees, 00.000000)		Tree Size (Diameter)	Eligible		Fill For Debris Stumps	Comments (See attached sketch, photo, etc.)
			Yes	No	Latitude (N)	Longitude (W)		Yes	No	CY	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Stump Conversion Table

Diameter to Volume Capacity

The quantification of the cubic yards of debris for each size of stump in the following table was derived from FEMA field studies conducted throughout the State of Florida during the debris removal operations following Hurricanes Charley, Frances, Ivan and Jeanne. The following formula is used to derive cubic yards:

$$\frac{[(\text{Stump Diameter}^2 \times 0.7854) \times \text{Stump Length}] + [(\text{Root Ball Diameter}^2 \times 0.7854) \times \text{Root Ball Height}]}{46656}$$

0.7854 is one-fourth Pi and is a constant.
46656 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 two feet up from ground
- Stump diameter to root ball diameter ratio of 1:3.6
- Root ball height of 31”

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
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		

FEMA
RECOVERY POLICY - RP9523.12

I. TITLE: **Debris Operations – Hand-Loaded Trucks and Trailers**

II. DATE: May 1, 2006

III. PURPOSE:

To describe the criteria the Federal Emergency Management Agency (FEMA) will use to reimburse applicants for eligible debris removal accomplished with trucks and trailers loaded physically by hand, rather than with mechanical equipment.

IV. SCOPE AND AUDIENCE:

The policy is applicable to all major disasters and emergencies declared on or after the date of publication. It is intended for all personnel involved in the administration and execution of the Public Assistance Program, including applicants.

V. AUTHORITY:

Sections 403 and 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206, as amended.

VI. BACKGROUND:

A. Debris removal companies under contract with local governments have frequently supplemented their vegetative debris removal operations by hiring subcontractors who modify their trucks and trailers by extending sidewalls with plywood or other materials to increase the vehicle's load capacity. Because of the tenuous nature of these improvements, operators typically load these vehicles physically by hand. The inefficiencies associated with loading these trucks or trailers by hand, instead of using mechanical equipment, effectively negates the increased capacity advantages of these vehicles. Hand loading cannot achieve compaction levels comparable to mechanically loaded vehicles. Further, the unit cost for transporting debris is based on mechanical loading of trailers and trucks.

B. FEMA performed studies throughout the State of Florida following the four devastating hurricanes in 2004 and determined that a mechanically-loaded vehicle had a weight-to-volume ratio at least twice that of hand-loaded vehicles. In other words, vehicles of the same measured capacity that were loaded by mechanical equipment and reasonably compacted carried at least

twice the volume of debris as those loaded physically by hand. FEMA has therefore determined it is not reasonable to reimburse applicants - for hand-loaded vehicles and mechanically loaded vehicles – at the same rate.

VII. POLICY:

A. Debris monitors located at temporary or final debris disposal sites will reduce the observed capacity of each hand-loaded truck or trailer load by 50% because of the low compaction achieved by hand-loading. For example, if a 40 cubic-yard (CY) hand-loaded truck or trailer arrives at a debris management or disposal site, and it appears to be 100 percent full, the actual quantity of debris in the truck or trailer will be recorded as 20 CY {(40 CY / 2) * 100%}. In the same manner, if the truck or trailer appears half full, the load will be recorded as 10 CY {(40 CY / 2) * 50%}. The maximum amount recorded for a hand-loaded vehicle will be 50% of its measured capacity.

B. FEMA will reimburse applicants on the basis of capacities calculated in VII-A.

VIII. ORIGINATING OFFICE: Recovery Division (Public Assistance Branch)

IX. SUPERSESSION: Not applicable.

X REVIEW DATE: Three years from the date of publication.

David Garratt
Acting Director of Recovery
Federal Emergency Management Agency

I. TITLE: Debris Removal from Private Property

II. DATE: JUL 18 2007

III. PURPOSE:

This policy describes the criteria that the Federal Emergency Management Agency (FEMA) will use to evaluate the eligibility of debris removal work from private property under the Public Assistance Program.

IV. SCOPE AND AUDIENCE:

The policy is applicable to all major disasters and emergencies declared on or after the date of publication of this policy. It is intended for FEMA personnel involved in the administration of the Public Assistance Program.

V. AUTHORITY:

Sections 403(a)(3)(A), 407, and 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5170b, 42 U.S.C. 5173, 42 U.S.C. 5192, and 44 CFR 206.224.

VI. BACKGROUND:

A. Sections 403(a)(3)(A) and 407 of the Stafford Act, 42 U.S.C. 5170b and 5173, respectively, provide FEMA authority to fund debris removal from private property provided that the State or local government arranges an unconditional authorization for removal of the debris, and agrees to indemnify the Federal government against any claim arising from the removal.

B. The regulations implementing Sections 403 and 407 of the Stafford Act at 44 CFR 206.224 establish the requirement that debris removal be in the "public interest" in order to be eligible for reimbursement. "Public interest" is defined as being necessary to:

1. eliminate immediate threats to life, public health, and safety; or

2. eliminate immediate threats of significant damage to improved public or private property; or

3. ensure economic recovery of the affected community to the benefit of the community-at-large.

C. Generally, debris removal from private property following a disaster is the responsibility of the property owner. However, large-scale disasters may deposit enormous quantities of debris on private property over a large area resulting in widespread immediate threats to the public-at-large. In these cases, the State or local government may need to enter private property to remove debris to: eliminate immediate threats to life, public health, and safety; eliminate immediate threats of significant damage to improved property; or ensure economic recovery of the affected community to the benefit of the community-at-large. In these situations, debris removal from private property may be considered to be in the public interest and thus may be eligible for reimbursement under the Public Assistance Program (44 CFR 206.224).

VII. POLICY:

A. Definitions.

1. Disaster-generated debris: Any material, including trees, branches, personal property and building material on public or private property that is directly deposited by the disaster.

2. Improved property: Any structure, facility, or equipment that was built, constructed, or manufactured. Examples include houses, sheds, car ports, pools, and gazebos. Land used for agricultural purposes is not improved property (44 CFR 206.221(d)).

3. Legal responsibility: A statute, formally adopted State or local code, or ordinance that gives local government officials responsibility to enter private property to remove debris or to perform work to remove an immediate threat (44 CFR 206.223(a)(3), 44 CFR 206.221(c), and 44 CFR 206.225(a)(3)).

4. Private property: Land and structures, to include contents within the structures, built on land that is owned by non-governmental entities (44 CFR 206.224(b)).

5. Private road: Any non-public road for which a subdivision of the State is not legally responsible to maintain. Private roads include roads owned and maintained by homeowners associations, including gated communities, and roads for which no entity has claimed responsibility. Local police, fire, and emergency medical entities may use these roads to provide services to the community (44 CFR 206.224(b)).

B. Approval for FEMA Assistance. FEMA will work with states affected by a disaster to designate those areas where the debris is so widespread that removal of the debris from private property is in the "public interest" pursuant to 44 CFR 206.224, and thus is eligible for FEMA Public Assistance reimbursement on a case-by-case basis.

1. Any State or local government that intends to seek reimbursement to remove debris from private property within a designated area will, prior to commencement of work, submit a written request for reimbursement to, and receive approval from, the Federal Coordinating Officer (FCO). The written request will include the following information:

a. Public Interest Determination (44 CFR 206.224(a)):

i. Immediate Threat to Life, Public Health, and Safety Determination. The basis of a determination by the State, county or municipal government's public health authority or other public entity that has legal authority to make such a determination that disaster-generated debris on private property in the designated area constitutes an immediate threat to life, public health, and safety; or

ii. Immediate Threat to Improved Property Determination. The basis of the determination by the State, county, or municipal government that the removal of disaster-generated debris is cost effective. The cost to remove the debris should be less than the cost of potential damage to the improved property in order for the debris removal to be eligible; or

iii. Ensure Economic Recovery of the Affected Community to the Benefit of the Community at Large Determination. The basis of the determination by the State, county, or municipal government that the removal of debris from commercial properties will expedite economic recovery of the community-at-large. Generally, commercial enterprises are not eligible for debris removal.

b. Documentation of Legal Responsibility (44 CFR 206.223(a)(3)).

A detailed explanation documenting the requesting State or local government's authority and legal responsibility at the time of disaster to enter private property to remove debris, and confirmation that all legal processes and permission requirements (e.g., right-of-entry) for such action have been satisfied.

i. The eligible applicant requesting assistance must demonstrate the legal basis as established by law, ordinance, or code upon which it exercised or intends to exercise its responsibility following a major disaster to remove disaster-related debris from private property. Codes and ordinances must be germane to the condition representing an immediate

threat to life, public health, and safety, and not merely define the applicant's uniform level of services. Typically, solid waste disposal ordinances are considered part of an applicant's uniform level of services.

States and local governments ordinarily rely on condemnation and/or nuisance abatement authorities to obtain legal responsibility prior to the commencement of debris removal work. There may be circumstances, however, where the State or local government determines that ordinary condemnation and/or nuisance abatement procedures are too time-consuming to address an immediate public health and safety threat. In such circumstances, applicants do not have to precisely follow their nuisance abatement procedures or other ordinances that would prevent the State or local government from taking emergency protective measures to protect public health and safety (44 CFR 206.225(a)).

ii. The applicant's legal responsibility to take action where there is an immediate threat to life, public health, and safety must be independent of any expectation, or request, that FEMA will reimburse costs incurred for private property debris removal. In addition, legal responsibility is not established solely by an applicant obtaining signed rights-of-entry and hold harmless agreements from property owners.

c. Authorization for Debris Removal from Private Property (44 CFR 206.223(a)(3)). Confirmation that a legally-authorized official of the requesting applicant has ordered the exercise of public emergency powers or other appropriate authority to enter onto private property in the designated area in order to remove/reduce threats to life, public health, and safety threat via debris removal.

d. Indemnification (44 CFR 206.9). The requesting entity indemnifies the Federal government and its employees, agents, and contractors from any claims arising from the removal of debris from private property.

2. The FCO will approve or disapprove in writing each written request submitted by the State or local government for FEMA to designate areas eligible for private property debris removal. After receiving approval from the FCO, the State or local government may begin identifying properties and the specific scope of work for private property debris removal activities and apply for supplemental assistance through the Public Assistance Program.

C. Duplication of Benefits (44 CFR 206.191). FEMA is prohibited by Section 312 of the Stafford Act from approving funds for work that is covered by any other source of funding. Therefore, State and local governments must take reasonable steps to prevent such an occurrence, and verify that insurance coverage or any other source of funding does not exist for the debris removal work accomplished on each piece of private property.

1. When debris removal from private property is covered by an insurance policy, the insurance proceeds must be used as the first source of funding. Public Assistance grant funding may be used to pay for the remainder of the costs of debris removal from private property.

2. If FEMA discovers that a duplication of benefits from any other source of funding has occurred, FEMA will de-obligate funds from the Grantee in the amount that such assistance duplicates funding that the property owners received from other sources.

D. Eligibility of Debris Removal Work from Private Property (44 CFR 206.224(b)).

1. Eligible debris removal work from private property includes removal of:

a. Large piles of disaster-generated debris in the living, recreational, and working areas of properties in urban, suburban, and rural areas, including large lots.

b. Disaster-generated debris obstructing primary ingress and egress routes to improved property.

c. Disaster-damaged limbs and leaning trees in danger of falling on improved property, primary ingress or egress routes, or public rights-of-way.

i. Hazardous tree removal is eligible only if the tree is greater than six inches in diameter (measured at diameter breast height) and meets any of the following criterion: more than 50% of the crown is damaged or destroyed; the trunk is split or broken branches expose the heartwood; or the tree is leaning at an angle greater than 30 degrees and shows evidence of ground disturbance.

ii. Hazardous limb removal is eligible only if the limb is greater than two inches in diameter measured at the point of break.

d. Debris created by the removal of disaster-damaged interior and exterior materials from improved property.

e. Household hazardous wastes (such as household cleaning supplies, insecticides, herbicides, etc.)

f. Disaster-generated debris on private roads, including debris originating from private property and placed at the curb of public or private rights-of-way, provided that the

removal of the debris is the legal responsibility of an eligible applicant, on the basis of removing an immediate threat to life, public health, and safety.

2. Ineligible debris removal work on private property includes the removal of:

a. Debris from vacant lots, forests, heavily wooded areas, unimproved property, and unused areas.

b. Debris on agricultural lands used for crops or livestock.

c. Concrete slabs or foundations-on-grade.

d. Reconstruction debris consisting of materials used in the reconstruction of disaster-damaged improved property.

E. Debris Removal from Commercial Property. The removal of debris from commercial property is generally ineligible for Public Assistance grant funding. It is assumed and expected that these commercial enterprises retain insurance that can and will cover the cost of debris removal. However, in some cases as determined by the FCO, the removal of debris from private commercial property by a State or local government may be eligible for FEMA reimbursement only when such removal is in the public interest (44 CFR 206.224(a) and (b)).

Industrial parks, golf courses, commercial cemeteries, apartments, condominiums, and mobile homes in commercial trailer parks are generally considered commercial property with respect to Public Assistance funding.

F. Environmental and Historic Review Requirements. Eligible debris removal activities on private property must satisfy environmental and historic preservation compliance review requirements as established by 44 CFR Parts 9 and 10, the National Historic Preservation Act, the Endangered Species Act, and all other applicable legal requirements.

VIII. ORIGINATING OFFICE: Disaster Assistance Directorate (Public Assistance Division)

IX. SUPERSESSION: This policy supersedes Recovery Policies 9523.13 and 9523.14, dated October 23, 2005, and all previous guidance on this subject.

X. REVIEW DATE: Three years from date of publication.

Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

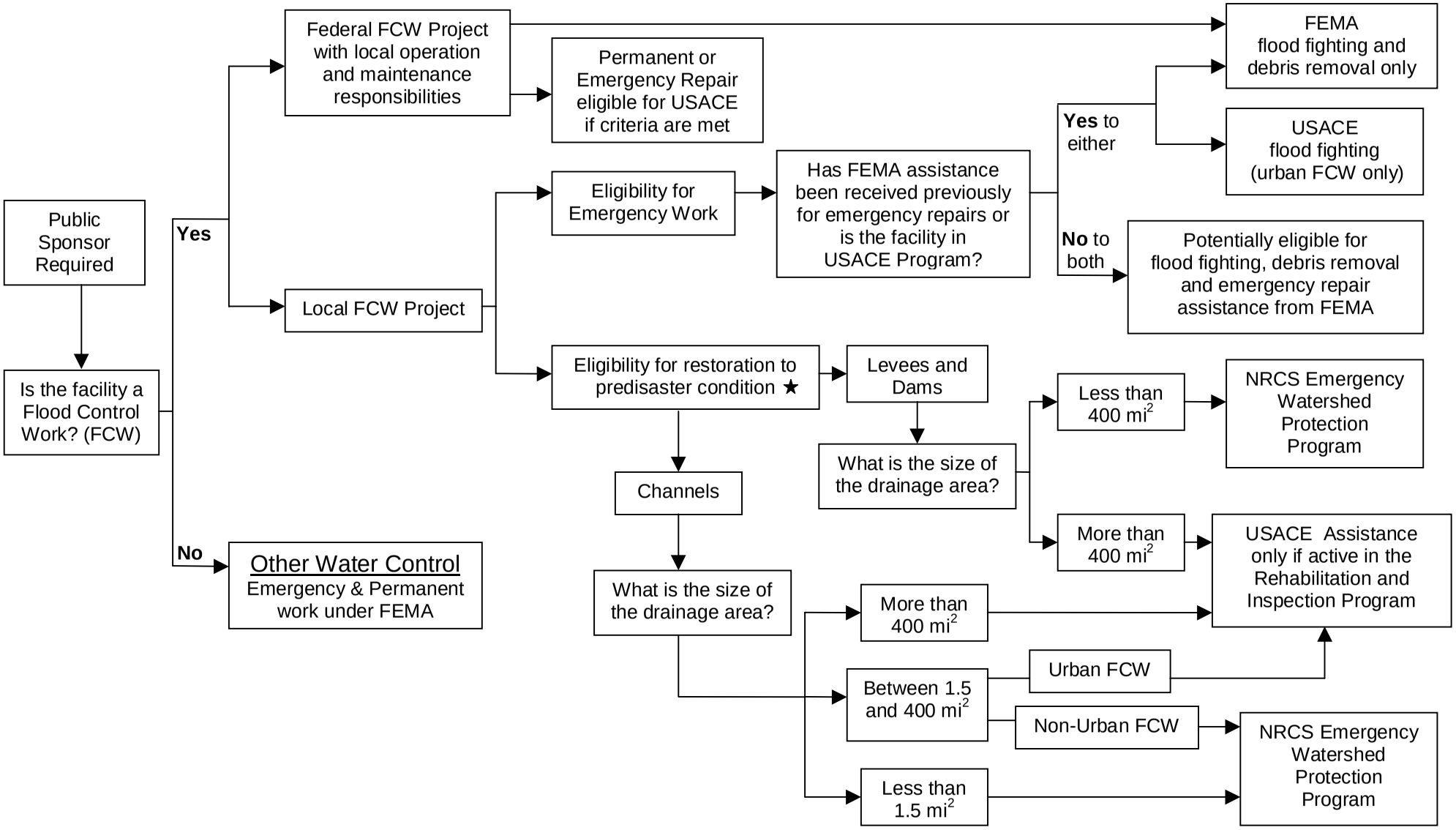
Federal Emergency Management Agency

US Army Corps of Engineers

USDA NRCS Natural Resource Conservation Service

Flood Control Works

Eligibility for Federal Assistance in Presidentially Declared Disasters



Contact the appropriate agency on the reverse side

★ No FEMA assistance in this category

March 1998

FEMA
RECOVERY POLICY – RP9525.7

I. TITLE: Labor Costs - Emergency Work

II. DATE: November 16, 2006

III. PURPOSE:

Provide guidance on the eligibility of labor costs for an applicant's permanent, temporary, and contract employees who perform emergency work under Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5121-5206, as amended.

IV. SCOPE AND AUDIENCE:

This policy applies to all emergencies, major disasters, and fire management assistance declarations, declared on or after the publication date of this document.

V. AUTHORITY:

Sections 403, 407, 420 and 502 of the Stafford Act and 44 Code of Federal Regulations (CFR) §204.42, §206.224 and §206.225.

VI. BACKGROUND:

A. On October 14, 1993, FEMA published a regulation that made the force account labor straight-time salary for work under Section 403 and 407 ineligible under the Public Assistance Program. The 1993 regulation did not include emergency work accomplished under Section 502 (Federal Emergency Assistance) of the Stafford Act. The ineligibility of straight-time salaries for emergency work under Section 502 is included as a provision of the FEMA-State Agreement.

B. Labor (straight-time, overtime, and fringe benefits to the extent the benefits were being paid before the disaster) performed under Section 406 (permanent work) of the Stafford Act remains eligible for reimbursement.

VII. POLICY:

A. Under Sections 403, 407, and 502 of the Stafford Act, eligible emergency work labor costs are those costs incurred by an eligible applicant while performing eligible work. The cost of straight-time salaries and benefits of an applicant's permanently employed personnel is not eligible in calculating the cost of eligible emergency work. The FEMA-State Agreement will

stipulate the ineligibility of straight-time salaries and benefits of an applicant's permanently employed personnel performing emergency work (Categories A and B). For the purpose of this policy, "permanently employed personnel" will refer to those employees whose positions are already included in the applicant's budget.

B. Fixed-term employees, such as seasonally employed personnel, when covered under existing budgets and used for a disaster during the season of employment, are considered permanently employed for the purpose of cost eligibility.

C. Straight-time and overtime will be determined in accordance with the applicant's pre-disaster policies, which should be applied consistently in both disaster and non-disaster situations. For example, one applicant may define labor exceeding 8 hours a day as overtime, while another might define labor exceeding 40 hours a week as overtime. However, all costs, including premium pay, must be reasonable and equitable for the type of work being performed.

D. The actual costs of salaries and benefits for individuals sent home or told not to report due to emergency conditions are not eligible for reimbursement. Extraordinary costs for essential employees who are called back to duty during administrative leave to perform disaster-related emergency work are eligible if the costs were provided for in written policy prior to the disaster.

E. The costs for contract labor, mutual aid in accordance with an existing agreement, or temporary hires needed to accomplish emergency work are eligible for reimbursement. However, straight-time salary and benefits of force account labor overseeing contractors performing emergency work are not eligible in calculating the cost of eligible emergency work.

F. The reimbursement of force account or temporary labor to backfill regular staff who are performing eligible emergency work may be eligible. Backfill cost is defined as the straight-time salary and benefits and overtime of replacement personnel who perform the regular duties of other personnel while they are performing eligible emergency work under the Public Assistance Program. There are several circumstances which affect the eligibility of the backfill employee.

1. If the backfill employee is a contract or extra hire, the cost of this extra person represents an extra cost to the applicant. Regular and overtime are eligible. If the employee is permanently employed, straight time is not eligible. Only overtime costs are eligible.

2. The cost of straight-time salaries and benefits of an applicant's permanently employed personnel, of any department, regardless of any inter-departmental agreements, are not eligible.

3. If the backfill employee is a regular employee who is called in on his/her day off (weekend or other off day), there may be an extra cost to the applicant. Regular and overtime costs may be eligible.

4. If the backfill employee is called in from scheduled leave, there should be no extra cost as the leave can be rescheduled. Only the overtime is eligible.

5. Generally, exempt employees (i.e. those who are exempt from minimum wage and overtime provisions of the Fair Labor Standards Act) are not eligible for overtime, unless specified in an applicant's pre-disaster policy.

G. Permanent employees who are funded from an external source (e.g., by a grant from a Federal agency, statutorily dedicated funds, rate-payers, etc.) to work on specific non-disaster tasks may be paid for emergency work. However, the FEMA Region is to consult with FEMA headquarters before approving payment.

H. Reimbursement of labor costs for employees performing emergency work is limited to actual time worked, even when the applicant is contractually obligated to pay for 24 hour shifts. It is not reasonable for a person to work more than 48 hours continuously without an extended rest period. Therefore, FEMA will reimburse up to 24 hours for each of the first two days, and up to 16 hours for each of the following days for emergency work. All requested hours must be for actual time worked. Standby time is not eligible under the Public Assistance Program or Fire Management Assistance Grant Program. Pre-positioning under the Fire Management Assistance Grant Program is eligible if the resources were actually used to suppress a declared fire.

I. The value of volunteers accomplishing eligible emergency work can be credited toward the non-Federal cost share of the applicant's emergency work in accordance with Donated Resources Policy #9525.2.

VIII. ORIGINATING OFFICE: Recovery Division (Public Assistance Branch).

IX. SUPERSESSION: This policy updates and replaces all relevant provisions of previous Public Assistance policy documents or guidance on this subject.

X. REVIEW DATE: Three years from date of publication.

John R. D'Araujo, Jr.
Director of Recovery

FEMA 9580.4
January 19, 2001

PUBLIC ASSISTANCE PROGRAM

FACT SHEET
DEBRIS OPERATIONS - CLARIFICATION
EMERGENCY CONTRACTING VS. EMERGENCY WORK

SUMMARY: Contracting for debris operations, even though it is "emergency work" in FEMA operations, does not necessarily mean the contracts can be awarded without competitive bidding. Applicants should comply with State laws and regulations, but should be aware that non-competitive contracting is acceptable ONLY in rare circumstances where there can be no delay in meeting a requirement. In general, contracting for debris work requires competitive bidding. The definition of "emergency" in contracting procedures is not the same as FEMA's definition of "emergency work".

DISCUSSION: There appears to be some confusion regarding the awarding of some contracts, especially for debris, without competitive bidding. The reason cited for such actions is that the contract is for emergency work, and competitive bidding is not required.

Part 13 of 44 CFR is entitled "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments". These requirements apply to all grants and subgrants to governments, except where inconsistent with Federal statutes or regulations authorized in accordance with the exception provisions of Section 13.6. In essence, these regulations apply to all Federal grants awarded to State, tribal and local governments.

Non-competitive proposals awarded under emergency requirements are addressed as follows:

"Procurement by non-competitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and one of the following circumstances applies:

(A) …….

(B) The public exigency or emergency of the requirement will not permit a delay resulting from competitive solicitation." (44 CFR Part 13.36(d)(4)(1)(B))."

Staff of the Office of General Counsel and the Office of the Inspector General have expressed concern that contracts are being awarded under this section without an understanding of the requirement. Simply stated, non-competitive contracts can be awarded only if the emergency is such that the contract award **cannot be delayed by the amount of time required to obtain competitive bidding**.

FEMA's division of disaster work into "emergency" and "permanent" is generally based on the period of time during which the work is to be performed, and not on the urgency of that work. Therefore, the award of non-competitive contracts cannot be justified on the basis of "emergency work", as defined by FEMA.

In some situations, such as clearing road for emergency access (moving debris off the driving surface to the shoulders or rights-of-way), or removal of debris at a specific site, awarding a non-competitive contract for site-specific work may be warranted; however, normally, non-competitive bid awards should not be made several days (or weeks) after the disaster or for long-term debris removal. Obviously, the latter situations do not address a public exigency or emergency which "will not permit a delay resulting from competitive solicitation".

Regarding competitive solicitations, applicants can use an expedited process for obtaining competitive bids. In the past, applicants have developed a scope-of-work, identified contractors that can do the work, made telephone invitations for bids, and received excellent competitive bids. Again, applicants must comply with State and local bidding requirements.

Please remind applicants that no contractor has the authority to make determinations as to eligibility, determinations of acceptable emergency contracting procedures, or definitions of emergency work. Such determinations are to be made by FEMA.

FEMA

RECOVERY DIVISION

FACT SHEET

RP9580.201

DEBRIS REMOVAL

APPLICANT'S CONTRACTING CHECKLIST

Overview

To be eligible for reimbursement under the Public Assistance Program, contracts for debris removal must meet rules for Federal grants, as provided for in 44 CFR Part 13.36 *Procurement* (http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html). Public Assistance applicants should comply with their own procurement procedures in accordance with applicable State and local laws and regulations, provided that they conform to applicable Federal laws and standards identified in Part 13. The following guidance is provided to assist Public Assistance applicants in the procurement process.

Contracting Process Checklist

- ☐ Use competitive bidding procedures. Complete and document a cost analysis to demonstrate price reasonableness on any contract or contract modification where adequate price competition is lacking, as detailed in 44 CFR 13.36(f).
- ☐ Provide a clear and definitive scope of work and monitoring requirements in the request for proposals/bids. Use acceptable emergency contracting procedures that include an expedited competitive bid process only if time does not allow for more stringent procedures.
- ☐ Require bidders to provide copies of references, licenses, financial records, and proof of insurance and bonding.
- ☐ Obtain review from your legal representative of your procurement process and any contract to be awarded to ensure they are in compliance with all Federal, State, and local requirements.
- ☐ Document procedures used to obtain/award contracts (procurement information, bid requests and tabulations, etc).
- ☐ Use load ticket requirement to record with specificity (e.g., street address) where debris is picked up and the amount picked up, hauled, reduced and disposed of.

FEMA will, when requested by applicants, assist in the review of debris removal contracts. However, such a review does not constitute approval.

FEMA

RECOVERY DIVISION

FACT SHEET

RP9580.201

DEBRIS REMOVAL

APPLICANT'S CONTRACTING CHECKLIST

Contract Provisions Checklist

All contracts must contain/reflect the following provisions:

- ☐ All payment provisions must be based on unit prices.
- ☐ No payments may be based on time and material costs unless limited to work performed during the first 70 hours of actual work following a disaster event.
- ☐ That payment will be made only for debris that FEMA determines eligible, referencing FEMA regulations and Public Assistance guides and fact sheets. (This is an optional provision to protect the applicant, and is used only following a major disaster declaration.)
- ☐ An invoice provision requiring contractors to submit invoices regularly and for no more than 30-day periods.
- ☐ A "Termination for Convenience" clause allowing contract termination at any time for any reason.
- ☐ A reasonable limit on the period of performance for the work to be done.
- ☐ A subcontract plan including a clear description of the percentage of the work the contractor may subcontract out and limiting use of subcontractors to only those you approve.
- ☐ The preference that the contractor use mechanical equipment to load and reasonably compact debris into the trucks and trailers.
- ☐ The requirement that the contractor provide a safe working environment, including properly constructed monitoring towers.
- ☐ Option of a unit price for extracting from ground and removing FEMA-eligible stumps (only for stumps with diameters larger than 24 inches, measured 24 inches above the ground, and with 50% or more of the root ball exposed), or including all stumps in the unit price.

FEMA

RECOVERY DIVISION

FACT SHEET

RP9580.201

DEBRIS REMOVAL

APPLICANT'S CONTRACTING CHECKLIST

Contract Provisions Checklist - Continued

All contracts must contain/reflect the following provisions:

- ☐ Requirement that all contract amendments and modifications be in writing.
- ☐ Requirement that contractor obtain adequate payment and performance bonds and insurance coverage.

Pre-Disaster and Stand-By Contracts Checklist

- ☐ It is recommended that you pre-qualify contractors prior to an event and solicit bid prices from this list of contractors once an event has occurred.
- ☐ The solicitation for pre-qualifying contractors must adequately define in the proposed scope of work all the potential types of debris, typical haul distances, and size of events for which a contract may be activated.
- ☐ To ensure reasonable debris removal costs, award debris removal contracts based on unit prices (volume or weight).
- ☐ If the contract is awarded on a time and material basis, it should be limited to no more than 70 hours of actual clearance and removal operations.
- ☐ After the initial 70-hour period, payment should be on a unit price basis (volume or weight).

FEMA

RECOVERY DIVISION

FACT SHEET

RP9580.201

DEBRIS REMOVAL

APPLICANT'S CONTRACTING CHECKLIST

Avoidance Checklist

- ☐ **DO NOT**: Award a debris removal contract on a sole-source basis.
- ☐ **DO NOT**: Sign a contract (including one provided by a contractor) until it has been thoroughly reviewed by your legal representative.
- ☐ **DO NOT**: Allow any contractor to make eligibility determinations, since only FEMA has that authority.
- ☐ **DO NOT**: Accept any contractor's claim that it is "FEMA certified." FEMA does not certify, credential, or recommend debris contractors.
- ☐ **DO NOT**: Award a contract to develop and manage debris processing sites unless you know it is necessary, and have contacted the State for technical assistance concerning the need for such operations. Temporary debris storage and reduction sites are not always necessary.
- ☐ **DO NOT**: Allow separate line item payment for stumps 24 inches and smaller in diameter; these should be treated as normal debris.
- ☐ **DO NOT**: "Piggyback" or utilize a contract awarded by another entity. Piggybacking may be legal under applicable state law; however, the use of such a contract may jeopardize FEMA funding.
- ☐ **DO NOT**: Award pre-disaster/stand-by contracts with mobilization costs or unit costs that are significantly higher than what they would be if the contract were awarded post-disaster. Such contracts should have variable mobilization costs depending upon the size of the debris work that may be encountered.

FEMA RECOVERY DIVISION

FACT SHEET 9580.202

DEBRIS REMOVAL
AUTHORITIES OF FEDERAL AGENCIES

Overview

This fact sheet identifies and describes the authorities of federal departments and agencies in support of debris operations following a presidential emergency or major disaster declaration. The following nine Federal agencies and departments are invested with authorities (described in detail below) addressing various aspects of debris management.

- Department of Homeland Security
  - *Federal Emergency Management Agency*
  - *United States Coast Guard*
- Department of Defense: *U.S. Army Corps of Engineers*
- Department of Agriculture
  - *Natural Resources and Conservation Service*
  - *Farm Service Agency*
  - *Animal Plant and Health Inspection Service*
- Department of Transportation: *Federal Highway Administration*
- Department of Commerce: *National Oceanic and Atmospheric Administration*
- Environmental Protection Agency

Department of Homeland Security

Federal Emergency Management Agency (FEMA)

- FEMA is authorized in Sections 403, 407 and 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to provide assistance to eligible applicants to remove debris from public and private property following a Presidential disaster declaration, when in the public interest.

- Removal must be necessary to eliminate immediate threats to lives, public health and safety; eliminate immediate threats of significant damage to improved public or private property; or ensure

the economic recovery of the affected community to the benefit of the community-at-large. The debris must be the direct result of the disaster and located in the disaster area, and the applicant must have the legal responsibility to remove the debris.

- FEMA will (1) reimburse applicants to remove eligible debris, or (2) through a mission assignment to another Federal agency (and upon request of the State) - provide *direct Federal assistance* when it has been demonstrated that the State and local government lack the capability to perform or contract for the requested work.

- Assistance will be cost-shared (at no less than 75% Federal and 25% non-Federal). In extreme circumstances, FEMA will provide up to 100% funding for a limited period of time.

United States Coast Guard (USCG)

- Under the National Contingency Plan (NCP), the USCG and Environmental Protection Agency (EPA) are responsible for providing pre-designated Federal On-Scene Coordinators (FOSCs) to conduct emergency removals of oil and hazardous materials.

- USCG is responsible for the coastal zone, and the EPA is responsible for the inland zone. The delineation between coastal and inland zones is by mutual agreement between the USCG and the EPA, and the geographic limits are indicated in Area Contingency Plans.

- Under the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA (also known as Superfund), and the Clean Water Act, USCG has the authority to respond to actual or potential discharges of oil and actual or potential releases of hazardous substances, pollutants and contaminants that may endanger public health or the environment.

- Response actions may include containment, stabilization, decontamination, collection (e.g., orphan drums tanks and drums), and final disposal. Debris may be mixed with, or contain, oil or hazardous materials that are subject to USCG response authorities. Oil removal is funded from the Oil Spill Liability Trust Fund, while hazardous materials removal is conducted using CERCLA funds.

- USCG, under the Ports and Waterways Safety Act (33 U.S.C. §§1221), is responsible for keeping waterways safe and open. While there is no specific language stating that the USCG is responsible for debris removal from waterways, the USCG has been tasked - in the past - to assist in waterway and marine transportation system recovery.

DEBRIS REMOVAL
AUTHORITIES OF FEDERAL AGENCIES

Department of Defense

United States Army Corps of Engineers (USACE)

- USACE is authorized by Section 202 of Water Resources Development Act (WRDA) of 1976 (PL 94-587) to develop projects for the collection and removal of drift and debris from publicly maintained commercial harbors, and from land and water areas immediately adjacent thereto.

- Specific and limited local programs for continuing debris collection and disposal have been authorized (on an individual basis, with the authorized work carried out at each locality as a separate, distinct project) by Congress for:

  - New York Harbor
  - Baltimore Harbor
  - Norfolk Harbor
  - Potomac and Anacostia Rivers, in the Washington, D.C. Metropolitan area
  - San Francisco Harbor/Bay, California.

- Sections 15, 19, and 20 of the River and Harbor Act of 1899, as amended, authorize USACE to remove sunken vessels or other obstructions from navigable waterways under emergency conditions. A navigable waterway is one that has been authorized by Congress, and which USACE operates and maintains for general (including commercial and recreational) navigation. Funding for operation and maintenance of these "Federal" waterways is through USACE's annual Operations and Maintenance General Appropriation. USACE's policy is to oversee removal of sunken vessels by an identifiable owner, operator or lessee if the sunken vessel is in or likely to be moved into a Federal navigation channel. USACE will remove a vessel using its emergency authorities only if the owner, operator, or lessee cannot be identified or they cannot effect removal in a timely and safe manner.

- USACE is also authorized, under Flood Control and Coastal Emergencies (PL 84-99), to provide assistance for debris removal from flood control works, i.e., structures designed and constructed to have appreciable and dependable effects in preventing damage by irregular and unusual rises in water level. Under this authority, USACE requires that an applicant, to be eligible for assistance, be an active participant in its PL 84-99 Rehabilitation and Inspection Program at the time of the disaster.

DEBRIS REMOVAL
AUTHORITIES OF FEDERAL AGENCIES

United States Department of Agriculture

Natural Resources Conservation Service (NRCS)

- NRCS' Emergency Watershed Protection Program (EWP) is authorized by Section 216 of the Flood Control Act of 1950, PL 81–516, 33 U.S.C. 701b–1; and Section 403 of the Agricultural Credit Act of 1978, PL 95–334, as amended by Section 382, of the Federal Agriculture Improvement and Reform Act of 1996, PL 104–127, 16 U.S.C. 2203.

- Debris clean up must be for either runoff retardation or soil erosion prevention that is causing a sudden impairment in the watershed creating an imminent threat to life or property. Typically, this includes debris within channels but could also include debris in close proximity to a channel or situated where the next event could create an imminent threat to life or property. There is no size limit to the watershed except that EWP assistance is not eligible for coastal erosion restoration.

- The EWP is funded through specific Congressional appropriations.

- Public and private landowners are eligible for assistance but must be represented by a project sponsor (a state or political subdivision thereof, qualified Indian tribe or tribal organization, or unit of local government).

- Work can be done either through Federal or local contracts. Sponsors are responsible for the 75% local cost share.

- NRCS can provide assistance when the President declares an area to be a major disaster area or when an NRCS State Conservationist determines that a watershed impairment exists.

- NRCS will not provide funding for activities undertaken by a sponsor prior to the signing of an agreement between NRCS and the sponsor.

Farm Service Agency (FSA)

- Emergency Conservation Program (ECP) is authorized by Sections 401 - 406 of the Agricultural Credit Act of 1978, PL 95–334, and provides emergency assistance for debris removal from privately-owned land following a natural disaster. It is funded through Congressional supplemental appropriations.

DEBRIS REMOVAL
AUTHORITIES OF FEDERAL AGENCIES

- The damage must be so costly that Federal assistance is or will be required to return the land to productive agricultural use or to provide emergency water for livestock.

- The ECP provides emergency cost share funding (up to 75% federal share) and technical assistance for farmers and ranchers to remove debris (other than animal carcasses).

Animal, Plant and Health Inspection Service (APHIS)

- APHIS has two programs under which it can provide debris removal assistance:

  - Veterinary Services (VS) program authorized by Animal Health Protection Act (7 U.S.C. 8301–8317) which provides for removal and burial of diseased animal carcasses.

  - Plant Protection and Quarantine (PPQ) program authorized by Plant Protection Act (Title IV, Pub. L. 106–224, 114 Stat. 438, 7 U.S.C. 7701–7772). This program manages issues related to the health of plant resources. Primary objective is to regulate and monitor in order to reduce the risk of introduction and spread of invasive species, including planning, surveillance, quick detection, containment, and eradication.

- Both public and private lands are eligible under these programs which provide assistance to Federal, State, tribes, local jurisdictions, and private landowners to manage animal and plant health by collecting and providing information, conducting or supporting treatments, providing technical assistance for planning and program implementation (removal).

Environmental Protection Agency (EPA)

- EPA's primary authorities related to debris removal fall into two categories: (1) authorities related to cleaning up debris that is mixed with or contains oil or hazardous materials; and (2) authorities related to establishing standards for proper management of debris (hazardous and non-hazardous). EPA generally does not remove non-hazardous debris after emergencies/disasters.

- Under the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA (also known as Superfund), and the Clean Water Act, EPA and the United States Coast Guard (USCG) have the authority to respond to actual or potential discharges of oil and actual or potential discharges of hazardous substances, and to actual or potential discharges of pollutants and contaminants that may present an imminent and substantial danger to the public health or welfare.

DEBRIS REMOVAL
AUTHORITIES OF FEDERAL AGENCIES

- EPA has responsibility for responses in the inland zone and USCG has responsibility for responses in the coastal zone. The delineation between the inland and coastal zone is determined by mutual agreement by the EPA and USCG, and the geographic boundaries are indicated in Area Contingency Plans.

- EPA and USCG carry out these responsibilities under implementing regulations known as the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA and USCG pre-designate Federal On-Scene Coordinators (FOSCs) to direct and coordinate response actions.

- Response actions may include containment, stabilization, decontamination, collection (e.g., orphan tanks and drums), and disposal. Debris may be mixed with, or contain, oil or hazardous materials that are subject to these response authorities.

- CERCLA requires that the State in which the site is located fund 10% of remedial action costs, with the other 90% drawn from the Superfund. However, where the potentially responsible party is a political subdivision of a State, the State must agree to fund 50% of the remedial action costs, with the other 50% drawn from the Superfund.

- The Resource Conservation and Recovery Act established a framework for Federal, State, and local cooperation in controlling the management of hazardous and non-hazardous solid waste. The EPA role is to establish minimum regulatory standards that are, in most cases, implemented by the States and to provide technical assistance. EPA administers other laws as well that may impact the management of debris (e.g., Clean Air Act requirements that apply to asbestos-containing debris). Again, some of these programs may be delegated to the States.

- FEMA may mission assign the EPA through the United States Army Corps of Engineers to dispose of household hazardous waste following a major disaster declaration from the President.

Department of Transportation

Federal Highway Administration (FHWA)

- The Emergency Relief (or ER) program is authorized in Title 23, United States Code, Section 125, from the Highway Trust Fund, and supports repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause.

- Debris removal from Federal-aid roads is eligible for 100% reimbursement during the first 180 days following an emergency event that qualifies and is approved for the ER program.

DEBRIS REMOVAL
AUTHORITIES OF FEDERAL AGENCIES

- The ER program is funded $100 million in annual authorizations. If the annual authorization is expended, FHWA will reimburse eligible costs when ER funds become available.

- The State must incur a cost of at least $700,000 statewide to qualify for ER assistance. The cost of individual projects (sites) must be $5,000.

- It is the responsibility of individual States to request ER funds for assistance in the cost of necessary repair of Federal-aid highways damaged by natural disasters or catastrophic failures.

Department of Commerce

National Oceanic and Atmospheric Administration (NOAA)

- The Coastal and Geodetic Survey Act of 1947 and the Hydrographic Services Improvement Acts of 1998, 2002, authorize NOAA to be directly involved in programs to assess and remove hazards and debris. NOAA does not fund debris removal.

- NOAA's Office of Coastal Survey is responsible for surveying and charting the nation's waters and coast, and has been heavily involved in hydro-surveying using side-scan and multi-beam sonar to identify hazards and debris and dangers to navigation along the Gulf Coast for the last three years.

David Garratt
Acting Director of Recovery
Federal Emergency Management Agency

1/27/07
Date

FEMA

DISASTER ASSISTANCE DIRECTORATE

FACT SHEET 9580.203

DEBRIS MONITORING

Overview

When a disaster event occurs that produces large amounts of debris, effective coordination is required between the Public Assistance applicant, State, and FEMA to ensure that debris removal operations are efficient, effective, and eligible for FEMA Public Assistance grant funding. Eligible Public Assistance applicants are encouraged to monitor debris removal operations and document eligible quantities and reasonable expenses to ensure that the work is eligible for Public Assistance grant funding. Failure to do so properly may jeopardize this funding.

Public Assistance applicants can use force account resources or contractors to monitor debris removal operations, or a combination of both. Regardless of the method, the applicant is responsible for ensuring that applicant-managed debris removal work (either force account or contract) being funded through Public Assistance grants is eligible in accordance with Public Assistance guidelines. This Fact Sheet provides Public Assistance applicants with information on how to properly monitor applicant-managed debris removal operations to ensure compliance with these guidelines. It also provides information on debris monitoring responsibilities and duties that apply to both force account and contractor operations; however, some information provided only applies to debris operations performed under contract.

Debris Monitoring Roles and Responsibilities

Monitoring debris removal operations requires comprehensive observation and documentation by the Public Assistance applicant of debris removal work performed from the point of debris collection to final disposal. Monitoring debris removal work involves constant observation of crews to ensure that workers are performing eligible work in accordance with Public Assistance guidelines, and helps to verify compliance with all applicable Federal, State, and local regulations.

A number of different entities play a role in monitoring debris removal operations to ensure that they are efficient, effective and eligible for FEMA Public Assistance funding. It is important that these entities work together to communicate and resolve issues in the field so that reimbursement funding for debris removal operations is not jeopardized. Below is a table which addresses the general monitoring responsibilities and tasks of different partners in the debris removal operation. The table is followed by specific monitoring responsibilities and duties for both force account and contractor debris monitors in the field.

DISASTER ASSISTANCE DIRECTORATE FACT SHEET - DAP9580.203

DEBRIS MONITORING

Entity	Responsibilities	Tasks
Debris Removal Contractor	Conduct debris removal operations per the terms of the contract.	▪ Monitor its own day-to-day operations to ensure its contractual obligations are being met.
Public Assistance Applicant Monitoring Contractor	Works for Applicant to monitor debris contractor's day-to-day operations to ensure the applicants expectations and contractual requirements are being met.	▪ Provide debris monitoring personnel who are trained in eligibility. ▪ Monitor operations in accordance with the contract requirements. ▪ Provide all monitoring documents as required in the monitoring contract.
Public Assistance Applicant (subgrantee)	Provide oversight and quality assurance of both the debris removal contract and the monitoring contract (if applicable). Request PA funds for eligible work. Ensure performance measures are met and eligible work is documented. Understand eligibility requirements and ensure work performed under the contract meets these requirements.	▪ Designate project manager. *If debris removal is performed by force account labor:* ▪ Provide documentation to substantiate eligible debris quantities. ▪ Ensure compliance with subgrant requirements. *If debris removal is performed under contract:* ▪ Ensure that debris removal contractors and monitoring contractors (if applicable) understand eligibility requirements for the debris removal operations. ▪ Ensure that only eligible debris quantities are being claimed for Public Assistance. ▪ Resolve issues or discrepancies associated with the contract.
State (Grantee)	Ensure grant requirements outlined in the 44 CFR are being met and that PA applicants are receiving funds for eligible costs. Responsible for monitoring the grant and subgrant to ensure compliance with Federal, State and local laws and regulations.	▪ Monitor the grant and subgrant requirements. ▪ Ensure that the applicant is sufficiently monitoring the debris removal operation (FEMA\Grantee effort). ▪ Conduct random monitoring at load sites and disposal sites to ensure compliance with grant requirements (FEMA\Grantee effort). ▪ Notify subgrantee of compliance issues and outline corrective actions (FEMA\Grantee effort).
FEMA	Ensure grant requirements outlined in 44 CFR are being met. Fund eligible work. Responsible for the preparation of large project worksheets, development of the scope of work and the obligation of funds. Responsible for monitoring the grant to ensure compliance with Federal, State and local laws and regulations.	▪ Develop large project worksheets in coordination with the Grantee and subgrantee. ▪ Utilize monitors to ensure that the applicant is sufficiently monitoring the debris removal operation. (FEMA\Grantee effort) ▪ Conduct random monitoring at load sites and disposal sites to ensure compliance with grant requirements. (FEMA\Grantee effort). ▪ Notify Grantee/subgrantee of compliance issues and outline corrective actions (FEMA\Grantee effort). ▪ Increase or decrease monitoring efforts as necessary to ensure corrective actions are in place and operations are being effectively monitored.

DISASTER ASSISTANCE DIRECTORATE FACT SHEET - DAP9580.203

DEBRIS MONITORING

The specific responsibilities and duties of individual debris monitors in the field are the same for both force account and contracted debris monitoring operations. They are:

- Report issues to their direct supervisor which require action (such as safety concerns, contractor non-compliance and equipment use)
- Accurately measure and certify truck capacities (recertify on a regular basis)
- Properly and accurately complete and physically control load tickets (in tower and field)
- Ensure that trucks are accurately credited for their load
- Ensure that trucks are not artificially loaded (ex: debris is wetted, debris is fluffed—not compacted)
- Validate hazardous trees, including hangers, leaners, and stumps
- Ensure that hazardous wastes are not mixed in loads
- Ensure that all debris is removed from trucks at Debris Management Sites (DMS)
- Report if improper equipment is mobilized and used
- Report if contractor personnel safety standards are not followed
- Report if general public safety standards are not followed
- Report if completion schedules are not on target
- Ensure that only debris specified in the contract is collected (and is identified as eligible or ineligible)
- Assure that force account labor and/or debris contractor work is within the assigned scope of work
- Monitor site development and restoration of DMSs
- Report to supervisor if debris removal work does not comply with all local ordinances as well as State and Federal regulations (i.e., proper disposal of hazardous wastes)
- Record the types of equipment used (Time & Materials contract)
- Record the hours equipment was used, include downtime of each piece of equipment by day (Time & Materials contract)

Applicants may request FEMA/State assistance with debris monitoring or monitor training.

Only FEMA has the authority to make eligibility decisions; contractors cannot make eligibility determinations. Information on eligibility can be found in the Public Assistance Debris Management Guide FEMA 325, the Public Assistance Policy Digest FEMA 321, the Public Assistance Applicant Handbook FEMA 323, and the Public Assistance Guide FEMA 322.

Monitoring Requirements by Type of Contract

Unlike other categories of work eligible for Public Assistance grants, initial debris removal project worksheets typically do not have a defined scope of work, since precise quantities of debris are difficult to attain. Therefore, unit price contracts which pay by debris volume or weight removed are typically implemented. Unit price contracts require extensive monitoring to determine accurate quantities of eligible debris removed and disposed. As load tickets are compiled and accurate quantities are determined through monitoring, the scope of work for the project worksheet, or version, is established.

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In some cases, time and materials contracts may be more cost effective and appropriate for the amount and type of eligible work to be performed. For both time and materials and lump sum contracts, debris monitors must still document and quantify eligible debris amounts in order to determine reasonableness of costs.

The table below includes a breakdown of monitoring requirements by contract type.

Type of Contract	Project Worksheet Scope of Work	Subgrantee Monitoring Required					Comments
		Crew Efficiency	Load site	DMSs	Disposal sites	Fraud	
Lump Sum	Defined debris quantities and reasonable costs. Estimate is basis for contract costs.		√		√		Quantities are still required to determine reasonable costs.
Unit Price - CY	Based on eligible debris listed on load tickets	√	√	√	√	√	
Unit Price - Ton	Based on actual weight measurements of eligible debris listed on load tickets.		√		√	√	
Time and Materials	Based on labor, equipment and materials records. Reasonable costs evaluated by determining costs per unit.	√	√		√	√	Typically used for road clearance. If used for debris removal, quantities are still required to determine reasonable costs. Eligible costs are restricted to up to 70 hours.

Monitoring Contracts

The request for proposal (RFP) for debris monitoring contracts should outline the qualification of debris monitors. The qualifications should be appropriate for the individual responsibilities and duties listed above, and debris monitors should have experience working on construction sites and be familiar with safety regulations. It is not necessary to have professional engineers and other certified professionals perform these duties. Debris monitors primarily should have the ability to estimate debris quantities, differentiate between debris types, properly fill out load tickets, and follow all site safety procedures.

The RFP should also outline possible locations to be monitored and reporting requirements to document eligible debris quantities.

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Monitoring contracts are typically time and materials and must contain a ***not-to-exceed*** clause per the requirements of Part 13 of 44 CFR. The subgrantee should ensure the level of monitoring and overhead claimed is commensurate with the level of effort required to effectively monitor the debris removal and monitoring operation. In addition to the costs for the monitors, the subgrantee can claim as part of its monitoring project worksheet reasonable costs for the debris monitoring contractor to provide training, oversight, and data compilation as required by the terms of the contract. Architectural and engineering service overhead should not be claimed. Additional information on costs that are eligible can be found in the *Public Assistance Debris Management Guide FEMA 325*.

The monitoring contractor costs associated with compiling data to verify costs invoiced by the debris removal contractor can be an eligible expense. Costs associated with attending meetings with FEMA and/or the Grantee and compiling documentation for the production of project worksheets are funded through the administrative allowance as stated in 44 CFR, Part 206.228 and cannot be a direct charge to a Public Assistance grant.

Reporting Requirements & Performance Measures

If FEMA is providing grant assistance for the applicant's monitoring contract, a sample of the reporting requirements outlined in the contract will be required to substantiate the eligible costs. This sample must be adequate to demonstrate that sufficient measures were taken to ensure eligibility and accurate quantities are being reported as part of the grant. Applicants should require debris monitors to submit daily reports on load quantities, debris management site operations, and operational and safety issues in the field. Regular reporting helps to promote quality assurance and provides the applicant with a consistent accounting of operations in the field.

If a time and materials monitoring contract is used, the contractor will have to supply labor, equipment and material records to the subgrantee in order to substantiate the actual costs in the project worksheet.

Continuous monitoring of all activities of a debris contractor can help promote efficiency and effectiveness in the debris removal operation. In evaluating a contractor's performance, primary interest is in the progress toward completion of the services called for and the financial status of the contract. It is important that the contract provide for submission of reports and payment estimates to aid in evaluating the contractor's progress.

Applicant debris monitoring responsibilities may include tracking performance measures used to assess the progress of debris removal operations in the field. Specific debris contract performance measures may include:

- Percentage completion tracking
- Adherence to contract time schedules
- Adherence to contract cost schedules

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Contract Procurement Requirements

To be eligible for reimbursement under the Public Assistance Program, contracts for debris monitoring must meet rules for Federal grants, as provided for in 44 CFR Part 13.36 *Procurement* (http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html). Public Assistance applicants should comply with their own procurement procedures in accordance with applicable State and local laws and regulations, provided that they conform to applicable Federal laws and standards identified in Part 13.

5/3/07

David Garratt
Acting Assistant Administrator
Disaster Assistance Directorate

Date

Disaster recovery assistance is available without regard to race, color, national origin, sex, age, religion, disability, or economic status. Anyone who believes he/she has been discriminated against should contact the FEMA Helpline at: 1-800-525-0321.

Report fraud, waste, and abuse to FEMA's Office of Inspector General on the Hotline at 1-800-323-8603.