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Emergency Management and Homeland Security Division
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LOCAL DISASTER DEBRIS MANAGEMENT PLANNING HANDBOOK

A GUIDANCE HANDBOOK TO ASSIST LOCAL EMERGENCY MANAGEMENT PROGRAMS IN THE DEVELOPMENT OF A LOCAL DISASTER DEBRIS MANAGEMENT PLAN, COUNTERPART TO AND IN SUPPORT OF THE MICHIGAN DISASTER DEBRIS MANAGEMENT PLAN.

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Instructions for Rapid Document Customization Using Microsoft Word "Find and Replace" Tool

This document has been set up to make it easy to rapidly edit / customize portions of the text using the standard Microsoft Word "Find and Replace" tool under the "Edit" function. To the extent possible, standard narrative has been used in the "fill-in-the-blank" locations throughout the document. By following the chart below, it should be relatively easy to complete a number of edits simultaneously by simply typing in the words to "Find" and then using the "Replace" tool to insert the correct wording to fit the jurisdiction's needs and circumstances. Keep in mind that this does NOT relieve the plan developer of the responsibility to carefully review and edit the document. The Microsoft Word "Find and Replace" tool is an excellent editing aid but it is not foolproof. For example, one misplaced letter in a word will render the tool useless. However, with careful use it does make it easier to make those routine word changes that may appear in multiple locations throughout the document.

The following table provides a listing of those "fill-in-the-blank" locations in the document that can most easily be addressed using the "Find and Replace" tool:

Type in the "Find" Box (with parentheses, as appropriate):	Type in the "Replace" Box (without parentheses):
(name of jurisdiction)	The jurisdiction name – e.g., **City of Lansing** (*see note below)
(insert MDEQ district Waste and Hazardous Materials Division information)	The name of the district MDEQ Waste and Hazardous Materials Division office – e.g., **Southeast Michigan District Office – MDEQ Waste and Hazardous Materials Division**
(title of Chief Elected Official)	The CEO's title – e.g., **Mayor, County Board Chairperson, Chief Executive**
(county / community)	Indicate whether the jurisdiction is a county or community – e.g., type in **county** or **community**
(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)	The correct document name – e.g., **City of Lansing Emergency Operations Plan, Bay County Emergency Action Guidelines**
(name of implementing agency)	The name of the agency that coordinates local debris management operations – e.g., **City of Grand Rapids Public Works Department, Lenawee County Road Commission**
(City / County / Village / Township)	The type of jurisdiction – e.g., type in **City**, **County**, **Village**, or **Township**
TDSR Site	**Debris Management Site** or **DMS** (**see note below)

*For the purposes of this guidance document and the planning effort it facilitates, the term "jurisdiction" means the county or municipal emergency management program established pursuant to 1976 PA 390, as amended, and its implementing administrative rules.

**Only if the jurisdiction prefers the term "Debris Management Site" or "DMS" currently used by FEMA. The term "TDSR Site" or "Temporary Debris Storage and Reduction Site" more accurately describes the site's actual function. Either term will work fine as long as it is used consistently throughout the final plan.

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(NAME OF JURISDICTION)
DISASTER DEBRIS MANAGEMENT PLAN

PLAN PURPOSE AND SCOPE:
Natural and man-made disasters generate a variety of debris that includes, but is not limited to, such things as trees and brush, sand, gravel, building/construction materials, vehicles, personal property, industrial materials, etc. The quantity and type of debris generated from any particular disaster is a function of the location and kind of event experienced, as well as its magnitude, duration, and intensity. The quantity and type of debris generated, its location, and the size of the area over which it is dispersed directly impacts the type of collection and disposal methods used to address the debris problem, associated costs incurred, and the speed with which the problem can be addressed.

(Name of jurisdiction) occasionally experiences disasters of sufficient scope, magnitude and severity (e.g., tornadoes, floods, snowstorms, etc.) to generate large quantities of debris. The debris can severely impact the **(county / community)** to such a degree that the health and safety of the population is put in jeopardy, the environment is damaged, and the ability to provide essential services and to maintain essential systems for the incident response and recovery is compromised. In addition to these natural disasters, **(name of jurisdiction)** is also at risk from a wide array of terrorist threats – several of which could potentially result in a large-scale / catastrophic debris generating incident under the right circumstances.

This Disaster Debris Management Plan is based on the basic waste management approach of reduction, reuse, and reclamation. It provides an organizational and operational framework to manage the clearance, separation, removal, storage, reduction, and disposal of disaster debris subsequent to a large-scale debris generating disaster within **(name of jurisdiction)**. The efficient and rapid management of disaster debris will help to protect the health and safety of citizens, minimize threats to the environment, and ensure that critical response and recovery activities can proceed in a timely and unencumbered manner.

Implementation of this plan will be coordinated by the **(name of implementing agency)**, utilizing local resources organized by **(functions / Emergency Support Functions / agency)** as prescribed in the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)**. This Debris Management Plan is counterpart to and supports the Michigan Disaster Debris Management Plan, developed and implemented by the Michigan State Police / Emergency Management and Homeland Security Division (MSP/EMHSD) to provide supplemental state assistance to local / regional debris management operations.

This plan defines and assigns the policies, procedures, responsibilities and methods for the implementation of the disaster debris management function in the **(name of jurisdiction)** subsequent to a large-scale and/or severe disaster that generates vast quantities of debris. The plan:

- Sets forth the administrative organization and responsibilities of local officials and agencies for disaster debris management operations;
- Establishes coordination and liaison procedures with the MSP/EMHSD and other applicable state agencies, the Federal Emergency Management Agency (FEMA), nongovernmental organizations, business and industry, and the media;
- Establishes methods and procedures for articulating locally-determined needs, desires, and requirements for disaster debris removal;
- Establishes administrative procedures for clearing, separating, removing, transporting, storing, and disposing of disaster debris;
- Establishes methods and procedures for educating the public on how they can best participate in the debris clearance, separation, and removal operation;
- Provides for the establishment of a Disaster Debris Management Team and Disaster Debris Management Center within the **(name of jurisdiction)** Emergency Operations Center (EOC) or other appropriate emergency coordination center; and

- Provides for the development and annual update of a disaster debris management support plan as dictated by the needs of comprehensive emergency management, and to serve as a counterpart local support plan to the Michigan Disaster Debris Management Plan.

AUTHORITIES, REFERENCES AND DEFINITIONS:

Local Authorities.

- **(Local emergency management and/or debris management enabling authorities)**
- **(Name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)**
- **(Local National Incident Management System [NIMS] adoption document)**

State Authorities.

- Act 390, Public Acts of 1976, as amended, the Emergency Management Act
- Michigan Disaster Debris Management Plan
- Michigan Emergency Management Plan
- Act 451, Public Acts of 1994, as amended, the Natural Resources and Environmental Protection Act
- Act 239, Public Acts of 1982, as amended, the Bodies of Dead Animals Act

Federal Authorities / Other References.

- Public Law 93-288, as amended, the Robert T. Stafford Disaster Relief and Emergency Assistance Act
- Public Law 109-295, the Department of Homeland Security Appropriations Act, 2007 (established Public Assistance Pilot Program)
- National Response Framework (NRF), ESF #3 (Public Works and Engineering Annex) and Catastrophic Incident Annex
- FEMA Handbook: Public Assistance Applicant Handbook (323)
- FEMA Handbook: Public Assistance Debris Management Guide (325)
- FEMA Handbook: Public Assistance Pilot Program – Program Guidance (June 2007)
- FEMA Disaster Assistance Strategy 2007-2 (Debris Removal Operations)
- 44 CFR: Emergency Management and Assistance (Parts 13 and 206 in particular)
- FEMA Fact Sheets and Policies related to debris removal / disposal and/or the Public Assistance Grant Program (PAGP) from the "9500 Series Policy Publications." Those that are most relevant to debris removal / disposal operations include:
  - 9523.4 – Demolition of Private and Public Facilities
  - 9523.11 – Hazardous Stump Extraction and Removal Eligibility
  - 9523.12 – Debris Operations: Hand-Loaded Trucks and Trailers
  - 9523.13 – Debris Removal from Private Property
  - 9523.14 – Debris Removal from Private Property to Address Immediate Threats
  - 9580.1 – Debris Operations Job Aid
  - 9580.4 – Fact Sheet: Debris Operations – Clarification: Emergency Contracting vs. Emergency Work
  - 9580.201 – Fact Sheet: Debris Removal – Applicant's Contracting Checklist
  - 9580.202 – Fact Sheet: Debris Removal – Authorities of Federal Agencies
  - 9580.203 – Fact Sheet: Debris Monitoring

  (Note: Current versions of these documents are included in this plan [as appropriate] and are also available for viewing and downloading from the FEMA web site at the following address: **http://www.fema.gov/government/grant/pa/9500toc.shtm**)

Definitions.

BURNING: The reduction of woody debris by controlled burning. Woody debris can be reduced in volume by approximately 95 percent through burning. (Air curtain burners are recommended for burning because they can be operated in a manner to comply with clear air standards.)

CATASTROPHIC INCIDENT (EVENT): Any natural or manmade incident, including terrorism, that results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions. A catastrophic incident could result in sustained national impacts over a prolonged period of time; almost immediately exceeds resources normally available to state, local, tribal and private sector authorities in the impacted area; and significantly interrupts governmental operations and emergency services to such an extent that national security could be threatened. All catastrophic incidents are Incidents of National Significance.

CHIPPING OR MULCHING: Reducing wood related material 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.

COLLECTION CENTER: Designated locations at which affected residents can dispose of their disaster-related debris. Collection Centers may be used when curbside debris collection is not practical (e.g., rural / sparsely populated areas or logistically difficult areas such as neighborhoods with steep hills). Residents transport their debris to the Collection Center and then place it in separate bins or piles for each particular type of debris.

COMPREHENSIVE EMERGENCY MANAGEMENT (CEM): An integrated approach to the management of programs and activities that encompasses all phases (prevention, mitigation, protection, preparedness, response, and recovery) of incident management, all types of emergencies and disasters (natural, technological, human-related, and WMD attack), all levels of government (local, state, and federal), nongovernmental organizations, and the private sector. (Note: CEM was a commonly used term prior to development of the National Response Framework. Now, the term "domestic incident management" is preferred. However, CEM is still widely used in the emergency management field and the two terms mean essentially the same thing.)

COUNTY OR LOCAL EMERGENCY MANAGEMENT COORDINATOR (EMC): A person appointed pursuant to Act 390, PA 1976, as amended, to coordinate emergency management activities for a county or municipal emergency management program. Also commonly called County or Local "Emergency Manager."

DAMAGE ASSESSMENT: The systematic process of determining and appraising the nature and extent of the loss, suffering, or harm to a community resulting from an emergency/disaster.

DEBRIS: Scattered items and material broken, destroyed, or displaced by a natural or human-caused disaster. Examples include trees, construction and demolition material, and personal property.

DEBRIS CLEARANCE: Clearing of major road arteries by pushing debris to the roadside to accommodate emergency traffic.

DEBRIS DISPOSAL: Placing mixed debris and/or residue from volume reduction operations into an approved landfill or other approved location.

DEBRIS MANAGEMENT CENTER (DMC): The facility established at or near the Emergency Operations Center from which the debris management function is coordinated. (Note: Debris Management Centers can be established at both the local and state levels.)

DEBRIS MANAGEMENT CYCLE: The steps taken in the removal of disaster debris from an affected area. Steps include normal operations, increased readiness, response and recovery.

DEBRIS MANAGEMENT SITE: A location where debris is temporarily stored until it is sorted, processed, reduced in volume and/or taken to a permanent landfill or other approved location. (Note: This is new federal terminology. More commonly known as "Temporary Debris Reduction and Disposal [TDSR] Site.")

DEBRIS MANAGEMENT SYSTEM: The collection of personnel, facilities, technical expertise, and material resources which are designated for use in the clearance, removal, transport, sorting, storage, recycling, and ultimate disposal of disaster debris. The **(name of jurisdiction's)** debris management system consists of: 1) the Disaster Debris Management Team; 2) the Disaster Debris Management Center; 3) required support facilities such as Staging Areas, Collection Centers, and Temporary Debris Storage and Reduction Sites; and 4) the available material resources and expertise of the **(names of local, tribal, state and federal agencies; nongovernmental organizations; and private sector entities)** that can be devoted to debris clearance, removal, reduction, and disposal operations.

DEBRIS MANAGEMENT TEAM (DMT): The team made up of representatives of governmental agencies and nongovernmental relief organizations who are responsible for managing the clearance, separation, removal, transportation, storage, reduction, and disposal of disaster debris. In **(name of jurisdiction)**, the team is managed by the **(name of implementing agency)**. Its mission is to implement this Disaster Debris Management Plan, with the ultimate aim of protecting public health and safety and facilitating response and recovery operations by rapidly and efficiently managing disaster debris.

DEBRIS MANAGEMENT CENTER: The facility established at or near the Emergency Operations Center (EOC) from which the debris management function is coordinated.

DEBRIS MANAGER: The **(name of local agency)** employee that is responsible for managing a debris operation on behalf of **(name of jurisdiction)**.

DEBRIS REMOVAL: Picking up debris and taking it to a Debris Management Site (TDSR Site) or permanent landfill or other approved location.

DEPARTMENT OF HOMELAND SECURITY (DHS): A Cabinet-level agency established within the federal government in 2002 to coordinate and report directly to the President on all issues related to domestic terrorism preparedness. The mission of the Department of Homeland Security is to oversee and coordinate a comprehensive national strategy to safeguard the country against terrorism and other homeland security threats, and to respond to any attacks that may occur.

DISASTER: An occurrence or threat of widespread or severe damage, injury, or loss of life or property resulting from a natural or human-made cause, including, but not limited to, fire, flood, snowstorm, ice storm, tornado, windstorm, wave action, oil spill, water contamination, utility failure, hazardous peacetime radiological incident, major transportation accident, hazardous materials incident, epidemic, air contamination, blight, drought, infestation, explosion, or hostile military or paramilitary action, or similar occurrences resulting from terrorist activities, riots, or civil disorders, as defined in Act 390, PA 1976, as amended.

DISTRICT COORDINATOR: The Michigan State Police, Emergency Management and Homeland Security Division employee serving at any of eight State Police District Headquarters, whose primary job is to work with local communities on emergency management and homeland security activities.

EMERGENCY: Any occasion or instance in which assistance is needed to supplement efforts to save lives, protect property and public health and safety, or to lessen or avert the threat of a catastrophe.

EMERGENCY MANAGEMENT ASSISTANCE COMPACT (EMAC): The interstate agreement that streamlines the assistance one governor can lend to another after a natural, technological or human-caused disaster (including a terrorist attack) by providing a framework for flexible response. The EMAC was first introduced in 1993 and the National Emergency Management Association (NEMA) administers the program on behalf of the member states. The EMAC is an arrangement of the states, by the states, and for the states. It addresses all the issues associated with requesting assistance, reimbursement of services, workman's compensation insurance, and liability in advance of a disaster. (In January 2001, Michigan became the 43rd state to join the EMAC.) The Michigan State Police / Emergency Management and Homeland Security Division (MSP/EMHSD) is the coordinating agency for EMAC assistance in the State of Michigan.

EMERGENCY MANAGEMENT COORDINATOR (EMC): The person appointed pursuant to Act 390, PA 1976, as amended, to coordinate emergency management activities for an emergency management program. Also commonly called State Departmental, County or Local "Emergency Manager."

EMERGENCY MANAGEMENT AND HOMELAND SECURITY DIVISION (MSP/EMHSD): The division within the Department of State Police that coordinates the comprehensive emergency management and homeland security activities (prevention, mitigation, protection, preparedness, response and recovery) of state and local government and maintains the Michigan Emergency Management Plan and Michigan Disaster Debris Management Plan.

EMERGENCY MANAGEMENT PROGRAM: The basic emergency planning and operational entity at the local government level. Each county has an appointed emergency manager and enabling legislation creating an emergency management program. In accordance with the provisions of Act 390, PA 1976, as amended, municipalities with a population of 10,000 or more may elect to also appoint an emergency manager and maintain a separate emergency management program from the county in which they are located.

EMERGENCY OPERATIONS CENTER (EOC): The site at which the coordination of information and resources to support incident management activities normally takes place. An EOC may be a temporary or permanent facility and may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., federal, state, regional, county, city or tribal), or by some combination thereof. The debris management function would typically be managed from this location. (Also see State Emergency Operations Center.)

EMERGENCY OPERATIONS PLAN (EOP): The plan developed and maintained by an emergency management program as a counterpart to the Michigan Emergency Management Plan for the purpose of organizing and coordinating the emergency management activities of the jurisdiction(s) under the plan. An EOP usually consists of a basic plan or other introductory section with various supporting annexes (sections) for each service or function. The debris management function is typically found under the Public Works and Engineering (or similar) section of the plan. (Note: in MSP/EMHSD Publication 201 – "Local Emergency Planning Workbook," EOPs are referred to as "Emergency Action Guidelines" or "EAGs." Although differing slightly in format and level of content, EOPs and EAGs are, for all intents and purposes, identical documents.)

EMERGENCY SUPPORT FUNCTION (ESF): A grouping of department / agency capabilities into an organizational structure to provide the support, resources, program implementation, and services that are most likely to be needed to prevent injuries, save lives, protect property and the environment, restore essential services and critical infrastructure, and help victims and communities return to normal, when feasible, following

a disaster or emergency. ESFs serve as the primary operational-level mechanism through which state departments and agencies provide assistance to local communities under the Michigan Emergency Management Plan (MEMP). The MEMP has eight ESFs, one of which (Public Works and Engineering) has direct bearing on disaster debris management efforts. (Refer to the separate definition for Public Works and Engineering ESF.)

EXECUTIVE DIRECTIVE 2005-9: A Michigan Executive Directive issued by Governor Jennifer Granholm on September 29, 2005 that adopted the National Incident Management System (NIMS) as the state standard for incident management in Michigan.

FEDERAL AGENCY: Any department, independent establishment, government corporation or other agency of the executive branch of the federal government, including the U.S. Postal Service. This definition does not include the American Red Cross.

FEDERAL COORDINATING OFFICER (FCO): The federal officer appointed by the President to manage federal resource support activities related to Stafford Act major disasters and emergencies – including the provision of individual assistance, public assistance, and hazard mitigation assistance. The FCO is responsible for coordinating the timely delivery of federal disaster assistance resources and programs to the affected state and local governments, individuals and families, and the private sector.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA): The primary federal agency that coordinates emergency planning, preparedness, mitigation, response and recovery within the federal government, and administers the President's Disaster Relief Program. FEMA is housed within the federal Department of Homeland Security.

FEDERAL-STATE AGREEMENT: The document that states the understandings, commitments, and conditions for assistance under which FEMA disaster assistance shall be provided. This agreement imposes binding obligations on FEMA, the State, and local governments in the form of conditions for assistance which are legally enforceable.

FORCE ACCOUNT LABOR: State, tribal, or local government employees engaged in debris removal activities.

GARBAGE: Waste that is regularly picked up by the local Department of Solid Waste Management (or similar agency). Examples include food, plastics, wrapping, and papers.

HAZARDOUS WASTE: Material and products from institutional, commercial, recreational, industrial, and agricultural sources that contain certain chemicals with one or more of the following characteristics, as defined by the U.S. Environmental Protection Agency (EPA): 1) toxic; 2) flammable; 3) corrosive; and/or 4) reactive.

HEAVY EQUIPMENT LOG: A record of heavy equipment (trucks, trailers, excavators, etc.) that has been rented from a private source that is used for disaster debris removal activities. When local and state resources are not available, it may be necessary to lease equipment such as this.

HOMELAND SECURITY PRESIDENTIAL DIRECTIVE (HSPD)-5: A Presidential directive issued on February 28, 2003 that is intended to enhance the ability of the United States to manage domestic incidents (which include terrorist attacks, major disasters, and other emergencies) by establishing a single, comprehensive National Incident Management System (NIMS). Refer to the National Incident Management System and National Response Framework (NRF) definitions for additional information.

HOUSEHOLD HAZARDOUS WASTE (HHW): Used or leftover contents of consumer products that contain chemicals with one or more of the following characteristics, as defined by the U.S. Environmental Protection Agency (EPA): 1) toxic; 2) flammable; 3) corrosive; and/or 4) reactive.

Examples of HHW include small quantities of normal cleaning and maintenance products, latex and oil based paint, cleaning solvents, gasoline, oils, swimming pool chemicals, pesticides, and propane gas cylinders.

IMMEDIATE THREAT: The threat of damage to improved private or public property or to lives, public health, and safety as a result of an event that could reasonably be expected to occur within five years.

INCIDENT: An occurrence or event, natural or human-caused, which requires an emergency response to protect life or property. Incidents can include major disasters, emergencies, terrorist attacks and terrorist threats.

INCIDENT COMMAND POST (ICP): The field location at which the primary tactical-level, on-scene incident command functions are performed. The ICP may be co-located with other incident facilities and is normally identified by a green rotating or flashing light.

INCIDENT COMMAND SYSTEM (ICS) – a.k.a. INCIDENT MANAGEMENT SYSTEM (IMS): A standardized on-scene emergency management construct specifically designed to provide for the adoption of an integrated organizational structure that reflects the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. The ICS is the combination of facilities, equipment, personnel, procedures, and communications operating with a common organizational structure, designed to aid in the management of resources during incidents. The ICS is used for all types of emergencies and is applicable to small as well as large and complex incidents.

INCIDENT COMMANDER (IC): The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

JOINT FIELD OFFICE (JFO): A temporary federal facility established locally to provide a central point for federal, state, local and tribal officials with responsibility for incident oversight, direction and/or assistance to effectively coordinate protection, prevention, mitigation, preparedness, response and recovery actions.

JOINT INFORMATION CENTER (JIC) – a.k.a. JOINT PUBLIC INFORMATION CENTER (JPIC): A facility established to coordinate all incident-related public information activities. It is the central point of contact for all news media at the scene of the incident. Public information officials from all participating agencies and organizations are co-located at the JIC. (Note: JIC is the preferred name; JPIC is now obsolete.)

LOCAL GOVERNMENT:
1) Any county, city, village, town, district, regional authority, public college or university, or other political subdivision of any state, any Indian Tribe or authorized tribal organization, or Alaskan native village or organization; and 2) Any rural community or unincorporated town or village or any other public entity for which an application for assistance is made by a state or political subdivision.

LOCAL STATE OF EMERGENCY: A declaration by a county or municipality with an appointed emergency management coordinator (pursuant to Act 390, PA 1976, as amended) when circumstances indicate that the occurrence or threat of widespread or severe damage, injury, or loss of life or property from natural or human-made cause exists.

MAJOR DISASTER: Any natural catastrophe (including any hurricane, tornado, storm, high-water, wind driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any flood, fire, or explosion, in any part of the United States which in the determination of the President cause damage of sufficient severity and magnitude to warrant major disaster assistance under the Stafford Act to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

MICHIGAN EMERGENCY MANAGEMENT ACT: Act 390, PA 1976, as amended, the basic state emergency management enabling legislation. This Act prescribes the power and duties of the Governor and certain state and local agencies and officials related to preparing for, responding to, recovering from, and mitigating disasters and emergencies; prescribes immunities and liabilities related to disaster relief work; and establishes the organizational framework for the emergency management system used in the state.

MICHIGAN EMERGENCY MANAGEMENT PLAN (MEMP): The plan developed and continuously maintained by the Emergency Management and Homeland Security Division, Department of State Police, pursuant to Act 390, PA 1976, as amended, for the purpose of coordinating the homeland security and emergency management activities of prevention, mitigation, preparedness, response and recovery within the state.

MICHIGAN VOLUNTARY ORGANIZATIONS ACTIVE IN DISASTER (MIVOAD): The Michigan chapter of the National Voluntary Organizations Active in Disaster (NVOAD), an umbrella organization of established and experienced voluntary organizations that provide disaster services in all phases of emergency management, but with emphasis on response and recovery. The MIVOAD fosters cooperation, communication, coordination, and collaboration among its Michigan-based voluntary organizations. In the response and recovery phases, each individual organization functions independently, yet cooperatively. The MIVOAD serves as a clearinghouse and coordinating body for debris management services, working in coordination and cooperation with other state agencies in the State Emergency Operations Center involved in the debris management function. For smaller, more localized disasters, MIVOAD may work directly with the affected local government's Emergency Operations Center in debris management activities.

MONITORING: Actions taken to ensure that a contractor complies with the contract scope-of-work.

MUTUAL AID AGREEMENT: A written understanding between communities and states obligating assistance during a disaster.

NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS): A system mandated by Homeland Security Presidential Directive (HSPD)-5 that provides a consistent nationwide approach for federal, state, tribal, and local governments to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents (which includes terrorist attacks, major disasters, and other emergencies), regardless of their cause, size or complexity. To provide for interoperability and compatibility among federal, state and local capabilities, the NIMS includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the incident command system; multi-agency coordination systems; unified command; training; identification and management of resources (including systems for classifying types of resources); qualifications and certifications; and the collection, tracking, and reporting of incident information and incident resources. (Note: the Incident Management System [IMS] for the **[name of jurisdiction]** Emergency Operations Center, as described in the Direction and Control **[section / ESF]** of the **[name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines]**, is compatible with the NIMS as currently developed.)

NATIONAL RESPONSE FRAMEWORK (NRF): The plan developed by the federal Department of Homeland Security (DHS) to replace the National Response Plan (NRP) which had been effect since January 6, 2005. **The National Response Framework officially replaced the NRP on March 22, 2008. See separate definition below for the NRP.**

NATIONAL RESPONSE PLAN (NRP): The plan developed by the federal Department of Homeland Security (DHS), pursuant to Homeland Security Presidential Directive (HSPD)-5, which integrates the family of federal domestic prevention, preparedness, response and recovery plans into a single, all-discipline, all-hazards plan for domestic incident management. The NRP was built on the template of the National Incident Management System (NIMS), which provides a standardized framework for incident management at all jurisdictional levels – regardless of the cause, size or complexity of the incident. The NRP was officially completed and released by the DHS on January 6, 2005. It was amended on May 25, 2006 with the issuance of the "Notice of Change to the National Response Plan." The NRP incorporated relevant portions of and

superseded the Federal Response Plan (FRP), which had been in place since the early 1990s. **On March 22, 2008 the National Response Framework (NRF) officially replaced the NRP. See separate definition above for the NRF.**

NONGOVERNMENTAL ORGANIZATION (NGO): A private nonprofit entity that is based on interests of its members, individuals, or institutions and that is not created by a government but may work cooperatively with government. Such organizations serve a public purpose, not a private benefit. Examples include faith-based charity organizations and the American Red Cross.

PASSES (a.k.a. "SWEEPS"): The number of times a contractor passes through a community to collect all disaster-related debris from the rights-of-way. Usually limited to three passes through the community, although incident-specific conditions may increase or decrease that number.

PRELIMINARY DAMAGE ASSESSMENT (PDA): An assessment conducted by teams of federal, state and local officials to determine the severity and magnitude of a disaster and also to identify capabilities and resources of state, local and other federal agencies.

PRINCIPAL FEDERAL OFFICIAL (PFO): The federal official designated by the Secretary of Homeland Security to act as his/her representative locally to oversee, coordinate and execute the Secretary's incident management responsibilities under HSPD-5.

PRIVATE NONPROFIT ORGANIZATION: Any nongovernmental agency or entity that currently has:

- An effective ruling letter from the U.S. Internal Revenue Service, granting exemption under section 501(c), (d), or (e) of the Internal revenue Service Code of 1954; or

- Satisfactory evidence from the State that the non-revenue producing organization or entity is a nonprofit one organized or doing business under state law.

PUBLIC WORKS AND ENGINEERING ESF: The Emergency Support Function (ESF) in the Michigan Emergency Management Plan (MEMP) that is concerned with issues pertaining to disaster-related damage and impact to critical public facilities and infrastructure, including the transportation, communications and energy distribution networks. Disaster debris management falls under the purview of the Public Works and Engineering ESF. **(Note: this definition can be customized to reflect the public works or similar function within the local Emergency Operations Plan / Emergency Action Guidelines.)**

RECOVERY: Recovery, in this document, includes all types of emergency actions dedicated to the continued protection of the public or to promoting the resumption of normal activities in the affected area.

RECYCLING: The recovery and reuse of metals, soils, and construction materials that may have a residual monetary value.

RIGHTS-OF-WAY: The portions of land over which a facility, such as highways, railroads, or power lines are built. Includes land on both sides of the highway up to the private property line.

REGION V REGIONAL RESPONSE PLAN (for the NRF): The plan developed and maintained by the federal departments, agencies and states of FEMA Region V, for the purpose of facilitating the delivery of all types of federal disaster relief assistance to the six states in the region. This plan is an operational support plan to the National Response Framework.

REGIONAL RESPONSE COORDINATION CENTER (RRCC): A standing facility at each FEMA regional office that is activated to coordinate regional response efforts and implement local federal program support until a Joint Field Office (JFO) is established. (The RRCC replaces the Regional Operations Center – ROC.)

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. Also may be used to determine the quantity of debris picked up and hauled.

STAFFORD ACT: The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-707, signed into law November 23, 1988. The Stafford Act renamed and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act was subsequently amended by the Disaster Mitigation Act of 2000, P.L. 106-390 (October 30, 2000), as well as several Acts signed into law in October of 2006 (i.e., Department of Homeland Security Appropriations Act of 2007, P.L. 109-295, October 4, 2006; Pets Evacuation and Transportation Standards Act of 2006, P.L. 109-308, October 6, 2006; and Security and Accountability for Every Port Act of 2006, P.L. 109-347, October 13, 2006).

STAGING AREA: A large parking lot or other suitable open area to provide a base for registration, unloading and transfer of resources, assembly of persons, and a rally point for mutual aid forces. For debris management purposes, a staging area could be officially designated points such as vacant commercial lots, nongovernmental organization warehouse facilities, governmental warehouse facilities, armories, county fairgrounds, highway / public works maintenance garages, airports, parks and recreation areas, or possibly shopping center parking lots (providing there is written permission from the owner).

STATE COMMAND POST (SCP): A post established near the scene of a disaster and manned by representatives of applicable state departments to coordinate state response activities.

STATE COORDINATING OFFICER (SCO): The person appointed by the Governor to manage all aspects of a federally-declared disaster, in cooperation with the Federal Coordinating Officer (FCO). The Division Commander or Assistant Division Commander of the Emergency Management and Homeland Security Division, Department of State Police is normally appointed to this position.

STATE DIRECTOR OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY: The Director of the Department of State Police or his/her authorized representative. The Division Commander of the Emergency Management and Homeland Security Division, Department of State Police is the designated Deputy State Director of Emergency Management and Homeland Security.

STATE EMERGENCY OPERATIONS CENTER (SEOC): The primary center for coordination of state government response and recovery operations in time of disaster or emergency. The SEOC is maintained and operated by the Emergency Management and Homeland Security Division, Department of State Police.

STATE PUBLIC ASSISTANCE OFFICER (SPAO): The person appointed by the State Coordinating Officer (SCO) to manage the Public Assistance Grant Program on behalf of the State.

STATE OF DISASTER OR STATE OF EMERGENCY: A declaration by executive order or proclamation by the Governor under the provisions of Act 390, PA 1976, as amended, which activates the response and recovery aspects of state and local emergency operations plans.

TEMPORARY DEBRIS STORAGE AND REDUCTION (TDSR) SITE: A location where debris is temporarily stored until it is sorted, processed, reduced in volume and/or taken to a permanent landfill or other approved location. (Note: New federal terminology refers to TDSR Sites as “Debris Management Sites,” although TDSR Site is still more commonly used.)

TERRORISM: An intentional, unlawful use of force, violence or subversion against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political, social, or religious objectives.

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 may also include amounts to cover the cost of closing the current facility and/or opening a new facility.

TRASH: Non-disaster related yard waste, white metals, or household furnishings placed on the curbside for pickup by local solid waste management personnel. (A resident normally must call for pickup of trash.) Not synonymous with garbage.

UNIFIED COMMAND: An application of the Incident Command System (ICS) used when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command to establish their designated Incident Commanders at a single Incident Command Post (ICP) and to establish a common set of objectives and strategies and a single Incident Action Plan (IAP).

WEAPON OF MASS DESTRUCTION (WMD): Under Title 18, U.S.C. § 2332a, "(1) Any explosive, incendiary, or poison gas, bomb, grenade, rocket having a propellant charge of more than four ounces, or missile having an explosive or incendiary charge of more than one-quarter ounce, or mine or similar device; (2) any weapon that is designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemicals or their precursors; (3) any weapon involving a disease organism; or (4) any weapon that is designed to release radiation or radioactivity at a level dangerous to human life." Weapons of Mass Destruction are also commonly referred to as "CBRNE" Weapons – an acronym for chemical, biological, radiological, nuclear and explosives / incendiary devices.

WHITE GOODS (a.k.a. "WHITE METALS"): Household appliances such as refrigerators, freezers, stoves, washers and dryers.

SITUATION AND ASSUMPTIONS:

Initiating Disaster Conditions. Most disasters in **(name of jurisdiction)** do not generate tremendous quantities of disaster debris. As a result, extensive disaster debris management efforts are generally required only for those rare disaster situations where excessive debris accumulates that threatens public health and safety, the environment, and the ability of the **(name of jurisdiction)** to provide for rapid and effective response and recovery operations.

Based on past experiences in **(name of jurisdiction)** and elsewhere in Michigan and across the country, the types of disasters most likely to generate large amounts of debris are those that result in significant property and environmental damage. In **(name of jurisdiction)**, those disasters include:

- Tornadoes / Severe Storms
- Floods
- Wildfire
- Ice Storms
- Terrorist Attacks (that result in significant physical damage)
- Widespread Plant or Animal Disease (that results in significant quantities of dead vegetation or animals)
- Widespread Insect Infestation (that results in significant quantities of dead vegetation)
- **(Note: customize this list to fit the circumstances of the jurisdiction – i.e., rural vs. urban in character; amount of development in the floodplain; presence of urban-wildland interface; land development patterns / land characteristics; etc.)**

Other disasters may also create the need for debris removal, but these situations are most likely to generate significant quantities of debris. Refer to the Attachment titled "Debris Categories" for a more detailed analysis of the types of debris that could be expected from these disasters.

Major Planning Assumptions. In addition to the basic planning assumptions outlined above pertaining to initiating disaster conditions, the following additional planning assumptions have guided the development of this plan:

- The successful management of disaster debris typically requires a united, cooperative effort by local, state and federal agencies, private contractors, nongovernmental organizations, business and industry, public and private institutions, tribal governments (as applicable), and the general public.
- Large-scale / catastrophic debris generating disasters will likely overwhelm the **(name of jurisdiction)** clean up efforts, necessitating state involvement in the management of the disaster debris operation.
- Full use of existing local, state, and nongovernmental organization debris management resources should occur before federal assistance is sought.
- Initial debris removal will concentrate on the clearance of roads for emergency responders and life saving activities.
- Hazardous material / environmental issues will have to be addressed throughout the debris management operation.

OPERATIONS AND ORGANIZATION:

Clearance and Removal Operations. Immediately following a major disaster, the **(name of jurisdiction)** damage assessment teams will (as part of the damage / needs assessment process) estimate the quantity and type of debris, and assist in prioritizing debris removal activities. In general, the debris management operation will be divided into two major phases, as follows:

Phase I: Debris Clearance. During the first 24 to 72 hours after the disaster, debris activities will emphasize clearing key roads for emergency access by pushing debris to the edge of the right-of-way, rather than restoring roads to pre-event conditions. Phase I activities will also include identifying and removing any obvious debris situations that may pose an immediate threat to public health and safety. (Examples may include dangerously positioned, damaged trees; debris piles that obstruct traffic visibility; fire prone debris piles; etc.) Debris clearance and utility restoration activities will be closely coordinated to expedite clearance of utility impacted debris and restoration of services.

Phase II: Debris Removal. This phase entails the actual management of accumulated debris. Phase II may last up to a year or longer and may involve reassessment of debris quantities, operations of debris staging areas, public education, addressing of hazardous material / environmental issues, and debris separation, collection, storage, reduction, recycling, and disposal activities. Debris removal activities will begin during the latter part of the incident response phase and will constitute a major part of the incident recovery phase.

Damage Assessment / Needs Assessment. The **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines, - name of specific section)** and MSP/EMHSD Publication 901 – "Damage Assessment Handbook," describe the damage assessment system used by **(name of jurisdiction)**. That system helps determine the extent of loss or harm from natural and human-made disasters. Part of the analysis that occurs during the process of collecting and compiling the damage assessment data involves identifying the quantity of debris generated by the disaster and the anticipated needs of the jurisdiction with regard to debris management. This "needs assessment" portion of the process is crucial because of its direct relationship to organized action by response and long-term recovery / relief personnel.

If the damage assessment / needs assessment process reveals that disaster debris management is likely to be a significant issue in **(name of jurisdiction)**, the EOC Incident Commander must make the decision whether or not to activate the **(name of jurisdiction)** Disaster Debris Management Team and Disaster Debris Management Center as part of the EOC structure. The **(name of jurisdiction)** must also determine if

state involvement is required in the debris management operation. That information must be submitted to the MSP/EMHSD in accordance with the process outlined in MSP/EMHSD Publication 901.

Direct Resource Requests. Apart from the initial damage assessment / needs assessment process described above, the **(name of jurisdiction)** can also articulate debris management resource requirements to the MSP/EMHSD throughout the incident response and recovery phases via the "E Team" incident management system. Within the E Team menu of reports and forms is a **"Resource Request"** form that can be used to request a specific resource. The request can be made by simply clicking on the "Search / Add" button for the field "Resource Type / Kind" and then typing in "debris management assistance" in the "Other" field at the bottom. The completed form will be submitted through E Team to the MSP/EMHSD for review, analysis and follow up action. Normally, such resource requests will be made only when the resource in question is not readily available locally or regionally through existing mutual aid / assistance agreements.

In some cases, the E Team Resource Request will be filled by a state agency using the agency's existing resources, or perhaps by a federal agency (if involved) under a federal Stafford Act declaration or under its own enabling authorities. In other cases, the resource request may be filled through disaster donations (materials and/or labor) or through the nationwide EMAC. The MSP/EMHSD will work with other State Emergency Operations Center (SEOC) staff to determine how best to fill the resource request for disaster debris management assistance.

Debris Management Operations: Roles and Responsibilities:

Public Works / Road Maintenance Personnel. Public works / road maintenance personnel will be among the first to respond to disasters and emergencies to check on the status of roads, bridges, utilities, and other public infrastructure. Initial debris removal efforts are part of that first response and should be directed toward 1) clearing roads of debris to provide access for emergency vehicles and life saving personnel, and 2) removing any obvious debris situations that are immediate threats to public health and safety.

Mutual Aid. The **(name of jurisdiction)** has written mutual aid agreements established with **(list mutual aid partners)** for the purpose of providing equipment, material, and personnel assistance for debris management during disasters and emergencies. In addition, the **(name of jurisdiction)** is signatory to the Michigan Emergency Management Assistance Compact (MEMAC), which provides an organized mechanism for securing needed assistance from other non-neighboring Michigan jurisdictions during large-scale / catastrophic disasters. This is particularly important for debris management purposes, as the capabilities of single jurisdictions to manage large debris operations can be quickly overwhelmed. These agreements stipulate reciprocal services and/or set labor and equipment rates. In order for emergency assistance provided under a mutual aid agreement to be eligible for reimbursement by FEMA, the agreement must be in writing and in place before the incident occurs. Additional requirements for FEMA eligibility include:

- The assistance should be directly related to the disaster and meet other FEMA eligibility requirements;
- The mutual aid agreement should not be contingent upon federal funding or a declaration of major disaster by the federal government;
- The eligible applicant receiving aid must request the grant from FEMA. The entity providing aid may not apply for a grant directly; and
- The applicant must be able to provide documentation that aid was requested, that aid was received and costs were incurred by the entity providing aid.

The EOC Incident Commander **(or title of other local official)** will determine if and when to activate mutual aid for the purpose of providing supplemental disaster debris management assistance to **(name of jurisdiction)**.

State Government. The State of Michigan can provide supplemental assistance to the **(name of jurisdiction)** when the required disaster debris management operation overwhelms local capabilities (including activation of mutual aid). Such assistance is requested through the MSP/EMHSD

by following the processes specified in MSP/EMHSD Publication 901 – "Damage Assessment Handbook," and the Michigan Emergency Management Plan (MEMP) with regard to declaring a local "state of emergency" and requesting state assistance.

If state assistance for debris management purposes is required, it can be authorized by the Governor upon the declaration of a "state of disaster" or "state of emergency" under 1976 PA 390, the Michigan Emergency Management Act. In some cases, state assistance may also be provided under a state agency's separate legal authorities. Assistance may include, but is not limited to: 1) overall management of the debris operation; 2) technical assistance with various aspects of the operation; 3) the provision of equipment and personnel to provide direct assistance in debris operations; 4) possible financial assistance (under Section 19 of 1976 PA 390, or by direct legislative appropriation); or 5) any combination of these forms of assistance. All such assistance will be provided through the SEOC and be coordinated by the MSP/EMHSD, in accordance with the MEMP.

If state debris management capabilities (including activation of the MEMAC) are overwhelmed, the State of Michigan has two options available to it: 1) seek assistance from other states via the national Emergency Management Assistance Compact (EMAC) – the state-to-state mutual aid agreement; and/or 2) seek assistance from the federal government through the Federal Emergency Management Agency (FEMA).

EMAC Assistance. All assistance requested under the EMAC must go through the MSP/EMHSD – the steward agency for the EMAC within the State of Michigan. Based on identified debris management needs, the MSP/EMHSD will request the assistance using the standard process required by the EMAC. Assistance for debris management purposes under the EMAC may include, but is not limited to: 1) professional expertise for overall management of the operation; 2) equipment and operators for transportation, collection, sorting, or disposal of debris; 3) technical assistance with specific aspects of the operation; or 4) any combination of these forms of assistance. The State of Michigan can either accept or decline the assistance proposals provided by other states, depending on such factors such as cost, timing of assistance, logistical requirements of the providing entity, etc. All assistance provided under the EMAC will be coordinated through the SEOC by the MSP/EMHSD and other involved state agencies.

Federal Government. If the response and recovery effort is beyond the combined capabilities of the **(name of jurisdiction)** and the State of Michigan – even when supplemented by mutual aid – it will likely be necessary to request federal disaster relief assistance under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended. Such requests are made by the Governor, through the FEMA Region V office (in Chicago, Illinois), to the President. Under the Stafford Act, the President may declare that a "major disaster" or "emergency" exists within the affected areas of Michigan and provide disaster relief assistance to meet the specific needs of the situation.

Federal assistance with debris management activities can be provided: 1) through direct assistance provided by a federal agency such as the U.S. Army Corps of Engineers (via mission assignment under the National Response Framework or via the agency's own enabling legislation); 2) through debris management technical assistance by FEMA; or 3) through the federal Public Assistance Grant Program (PAGP) under Categories A (Debris Removal and Disposal) or B (Emergency Protective Measures). These forms of assistance must be specifically requested in the Governor's declaration request letter. All such assistance provided by the federal government is coordinated through the SEOC and/or the established Joint Field Office (JFO) by the MSP/EMHSD and other involved state agencies.

Debris Management System. The **(name of jurisdiction)** disaster debris management system is the collection of personnel, facilities, technical expertise, and material resources which are designated for use in the clearance, removal, transport, sorting, storage, recycling, and ultimate disposal of disaster debris. The **(name of jurisdiction)** debris management system consists of: 1) the Disaster Debris Management Team; 2) the Disaster Debris Management Center; 3) required support facilities such as Staging Areas, Collection Centers, and Temporary Debris Storage and Reduction Sites; and 4) the available material resources and expertise of the **(names of local, tribal, state and federal agencies; nongovernmental organizations; and private sector entities)** that can be devoted to debris clearance, removal, reduction, and disposal operations.

Lead Agency for Debris Management. The **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)** designates the **(name of implementing agency)** as the lead agency for coordinating debris management activities subsequent to disasters or emergencies. As indicated in the **(list specific plan section)**, the **(name of implementing agency)** will designate a Debris Manager to work with selected debris removal contractors, designated local (public and nongovernmental) support agencies and organizations, involved state support agencies, and involved tribal governments (as applicable) in fulfilling this assigned responsibility. If a state-managed debris operation is required, a State Debris Manager will be appointed from within the MSP/EMHSD to manage and coordinate the debris management function at the state level. The State Debris Manager will work with and through the **(name of jurisdiction)** Debris Manager to address all aspects of the debris management operation within or affecting the **(name of jurisdiction)**.

Disaster Debris Management Team. The **(name of jurisdiction)** Disaster Debris Management Team consists of appropriate representatives of the following local agencies, state support agencies, nongovernmental organizations, and tribal governments (as appropriate):

- **(List all local, tribal, state and federal agencies; nongovernmental organizations; and private sector entities that are members of the Team. The MDEQ, MDA, and MDNR are listed separately below to ensure that applicable environmental concerns are addressed in all phases of the operation. Customize the list to fit the jurisdiction's unique circumstances.)**
- Michigan Department of Agriculture – MDA district / regional representative (for technical assistance with agricultural crop and livestock debris disposal)
- Michigan Department of Environmental Quality – MDEQ District Waste and Hazardous Materials Division representative (for environmental requirements for debris disposal)
- Michigan Department of Natural Resources – MDNR district / regional representative (for technical assistance with forest / wildlife debris disposal)

The exact composition of the Disaster Debris Management Team for each disaster will be determined by the EOC Incident Commander and/or Operations Section Chief, based on the disaster conditions and the anticipated scope and magnitude of the debris management effort. For most disaster situations involving a debris management operation, the entire membership of the Team will not be needed. However, particularly widespread or catastrophic incidents may require the full activation. In all instances, the environmental regulatory agencies (MDEQ, and for dead animals the MDA and/or MDNR) will be activated to ensure compliance with environmental laws and regulations during debris management operations. (Refer to the Attachment titled "Disaster Debris Management Team – Membership Roster / Contact List" for a listing of and contact information for Disaster Debris Management Team members.)

The Disaster Debris Management Team serves ten basic functions as follows:

1. Assisting in the identification of disaster debris management needs;
2. Providing for the overall management and coordination of the debris management operation;
3. Providing / coordinating resource support to the debris management operation (personnel, equipment, materials, vehicles, facilities, communications);
4. Providing technical expertise in all facets of debris management operations;
5. Coordinating with involved contractors, federal and state agencies, nongovernmental organizations, and tribal governments (as applicable);
6. Assisting in the identification, establishment, operation, and closeout of required debris management support facilities;
7. Monitoring / tracking the activities and progression of the debris management operation;
8. Identifying and resolving issues as they arise (troubleshooting / problem solving);
9. Establishing / managing a system for receiving and addressing inquiries from the public, unsolicited contractors, etc.; and

10. Providing operation-specific information for required reports, briefings, media releases, etc.

Disaster Debris Management Center Overview. The **(name of jurisdiction)** Disaster Debris Management Center serves as the central coordination point for all disaster debris management activities and operations within **(name of jurisdiction)**. It is the location in which the Disaster Debris Management Team works. The Disaster Debris Management Center will be activated by the EOC Incident Commander **(or list title of other local official)** when centralized management of the debris operation is required. If possible, the Center will be physically located in the EOC. In cases of crowding in the EOC, the Center may be located immediately adjacent to the EOC in an existing office or conference room, or it may be located at another facility with direct phone links to the EOC. The configuration of the Center will change from disaster to disaster, based on the situational needs and anticipated level of activity. At a minimum, the Center will require one computer terminal and one telephone, with workspace and seating for each Debris Management Team member.

Generally, debris management operations take several weeks to several months to complete and closeout. The Disaster Debris Management Center will remain open, and the Disaster Debris Management Team will remain activated, for as long as is required to complete and closeout the debris management operation. The decision on when to terminate the Center and to de-activate the Team will be made by the EOC Incident Commander **(or list title of other local official)**, based on input received from the Team.

Debris Management Function within the EOC Structure. Administratively, the disaster debris management function will be placed under the Operations Section **(or list an alternate EOC Section)** within the EOC and will be under the purview of the EOC Operations Section Chief **(or list an alternate EOC Section Chief)**. The EOC Operations Section Chief **(or list an alternate EOC Section Chief)** will oversee both the Disaster Debris Management Team and Disaster Debris Management Center.

The Disaster Debris Management Center will be established under the Operations Section **(or list an alternate EOC Section)** as a Debris Management Branch **(or list an alternate IMS structure)**. It will be staffed by the Disaster Debris Management Team and other required support staff. The Center will be supported by the EOC Planning Section **(or list an alternate EOC Section)**, which has responsibilities related to the initial assessment and estimation of need for disaster debris management, and for the collection and compilation of operational data related to debris management. In addition, the EOC Finance / Administrative Section **(or list an alternate EOC Section)** is responsible for tracking costs related to the debris management operation, with the support and assistance of the other involved sections. The EOC Incident Management Section **(or list an alternate EOC Section)** will provide general strategic direction and oversight of the debris management operation, and make policy decisions as required. The Incident Management Section **(or list an alternate EOC Section)** is also responsible for all public information related to the debris management operation.

If the decision is made not to activate the Disaster Debris Management Team / Center, the issue of debris management will be addressed by the **(list agency / official)**. The decision on whether to activate the Disaster Debris Management Team / Center within the EOC will be based on many factors, including the disaster conditions, the availability of staff and resources, and the anticipated volume of debris.

Debris Management Support Facilities. In addition to the **(name of jurisdiction)** Disaster Debris Management Center and depending on the situational circumstances, the following facilities may be established to directly support the debris management operation:

- Collection Center(s) – established by the **(name of jurisdiction)**;
- Staging Area(s) – established by the **(name of jurisdiction)** and/or the MSP/EMHSD;
- Base / Camp(s) – established by the **(name of jurisdiction)** and/or the MSP/EMHSD;
- Temporary Debris Storage and Reduction Sites – established by the **(name of jurisdiction)** with MSP/EMHSD technical assistance, as required;
- State Disaster Debris Management Center – established by the MSP/EMHSD;

- Satellite Disaster Debris Management Offices – established by the MSP/EMHSD; and
- Federal Disaster Debris Management Center (Joint Field Office) – established by FEMA only if a federal declaration is made and debris removal is being addressed directly by federal forces, or under the Public Assistance Grant Program.

Figure 2 on page 26 depicts the relationship between these crucial facilities. Following is a summary of the specific requirements and functions of each support facility:

Collection Centers. An alternative to curbside debris collection is to have residents transport their debris to a common location known as a Collection Center. Typically, large roll-off bins are placed within the public rights-of-way or on public property for residents to bring their debris for collection. Collection Centers are a viable option in those situations where curbside collection is not practical, such as in rural / sparsely populated areas or in logistically difficult conditions (e.g., neighborhoods with steep terrain or limited ingress / egress options). Separate bins / piles are designated for each type of debris. Although collection costs are lower under this option (residents transport and separate the debris themselves), site planning and monitoring costs may offset some or all of the savings. The Collection Center sites must be designed for proper traffic and pedestrian circulation, vehicle ingress / egress and unloading, and collection bin exchanges and/or debris pile removal. In addition, staff will have to be stationed at the Collection Centers during the collection period (and in some cases during off-hours) to provide security, to have empty bins brought in when current ones are full, to ensure that debris is placed in the correct bins, and to ensure that non-disaster related debris is not dumped at the site.

Depending on incident conditions and jurisdictional preference, Collection Centers may be part of a Temporary Debris Storage and Reduction (TDSR) Site (see description below) or they may be separate locations altogether. If public drop-off areas are included with a TDSR Site, they must be carefully designed for passenger vehicle traffic and public safety. Debris collected at Collection Centers will be transported by local work crews or designated contractors to a TDSR Site for recycling and/or reduction, or directly to landfills for final disposal.

Refer to the Attachment titled "**(name of jurisdiction)** Disaster Debris Collection Centers" for a listing and map of possible Collection Center locations throughout the **(name of jurisdiction)**.

Staging Areas. Staging areas can be any available, large outdoor area (ideally 1-25 acres in size, with fencing or other security provisions) with sufficient area to temporarily park vehicles, equipment, and personnel that are ready for deployment to the affected area to aid in the debris management operation. (Vehicles and equipment might include dump trucks, front-end loaders, bulldozers, cargo trucks, bucket trucks, chain saws, etc.) Staging Areas should have adequate parking spaces for a large number of workers at any time, and (ideally) covered space (e.g., permanent building, tent) to shelter workers and equipment from the weather and provide a measure of security. Staging Areas should also have provisions in place for temporarily lodging, feeding, and caring for workers and for addressing their basic sanitation concerns (i.e., port-a-johns, portable showers, and hand washing facilities). Either a permanent building, tent space on the grounds, or a combination of both may meet the lodging requirements. (An alternative is to provide shuttle service for workers to and from local motels and hotels, or a nearby Base / Camp set up to provide for the lodging, food, water, and sanitation needs of personnel. See description below.) Possible locations for use as Staging Areas include vacant commercial lots, nongovernmental organization warehouse facilities, governmental warehouse facilities, armories, county fairgrounds, highway / public works maintenance garages, airports, parks and recreation areas, or possibly shopping center parking lots (providing there is expressed written permission from the owner).

Refer to the Attachment titled "**(name of jurisdiction)** Disaster Debris Staging Areas" for a listing and map of possible Staging Area locations throughout the **(name of jurisdiction)**.

Base / Camps. The incident Base is the location where primary logistics functions are coordinated and administered and equipment / personnel support operations are conducted. This includes equipment maintenance repair, reorder and procurement activities, as well as other support

services such as supply, medical, food / water, overnight lodging, sanitation, and communications. The **(name of jurisdiction)** will establish and operate the incident Base. The Base will be designed to support operations at multiple incident sites (if possible). Support may be requested from the State (via the MSP/EMHSD) if local resources are not sufficient to operate the Base. This may include a request for the State to assist in establishing and operating Camps as a way of supplementing the capabilities and/or capacity of the Base.

Camps may be established if additional support locations are required due to incident size (geographically) or complexity. Camps are temporary locations within the general incident area which are equipped and staffed to provide food, water, sleeping areas, and sanitation services for workers that are currently not on call for deployment. Camps may be used in those situations where overnight / multi-day accommodations are required for volunteers, work crews, equipment operators, and other deployed resources under the disaster debris management operation that cannot be adequately (or efficiently) handled at the incident Base. Camps may be utilized, at the discretion of the **(name of jurisdiction)** and MSP/EMHSD, in lieu of local hotel / motel or other accommodations. Camps are particularly suited for certain situations, such as when:

- There is a shortage of nearby hotel / motel rooms or other suitable accommodations for deployed resources.
- Large numbers of resources have been deployed from outside the incident area (e.g., EMAC resources).
- The incident area is particularly large or widely dispersed.

Possible facilities for use as the Base / Camps include county fairgrounds, state / local parks and recreation areas, local campgrounds, military bases, college campuses, school grounds (if tents are used), community centers or community recreation centers, etc. Ideally, using the facility as a Base / Camp will not greatly interfere with its normal, day-to-day use. Staffing of the Base / Camps will be handled through local and state agencies and nongovernmental organizations. In most cases, nongovernmental relief organizations will be relied upon to assist in meeting the material and supply needs of the Base / Camp operations. This includes the provision of food and water, bedding, and basic sanitation services. FEMA may be able to provide advice and technical assistance in the establishment and operation of the Base / Camps.

Refer to the Attachment titled "**(name of jurisdiction)** Disaster Debris Base / Camps" for a listing and map of possible Base / Camp locations in or near the **(name of jurisdiction)**.

Temporary Debris Storage and Reduction Sites. These are strategically located local sites at which debris is temporarily stored and reduced in volume for eventual permanent disposal via land filling or recycling. Reduction methods may include burning, grinding / chipping / shredding, compacting, and recycling. The number of sites designated at Temporary Debris Storage and Reduction (TDSR) Sites will be dependent on the disaster conditions and the nature and volume of debris to be stored, reduced, and disposed of. Although these sites are the responsibility of the affected local jurisdiction(s), the State (MSP/EMHSD) may be requested to provide technical advice and assistance in the establishment and operation of the sites.

The **(name of jurisdiction)** has pre-identified a number of potential TDSR Sites. Refer to the Attachment titled "**(name of jurisdiction)** Temporary Debris Storage and Reduction (TDSR) Sites" for a listing and map of these pre-identified locations. In most cases, the site(s) most strategically located to the damaged areas will be selected as TDSR Sites for a particular incident (to minimize unnecessary transport of debris).

Landfills. The **(name of jurisdiction)** is served by **(number)** sanitary landfills located in **(list general locations)**. These landfills will be used to dispose of disaster-related debris once it has been reduced in volume at TDSR Sites and/or reasonable recycling opportunities have been explored. The landfill disposal of properly processed disaster debris disposal will be in accordance with the **(name of jurisdiction)** Solid Waste Management Plan developed by **(name of local agency)**. The Michigan Department of Environmental Quality / Waste and Hazardous Materials Division (MDEQ/WHMD) district representative will monitor the **(name of jurisdiction)** disaster debris disposal operation from the outset and will provide technical assistance as required.

Refer to the Attachment titled "**(name of jurisdiction)** Landfill Sites" for a listing and map of the sanitary landfills that serve **(name of jurisdiction)**.

Resource Recovery Facilities. Resource recovery facilities can be used to recycle some of the disaster-generated debris. The **(name of jurisdiction)** is served by **(number)** resource recovery facilities located in **(list general locations)**. These facilities will be used to recycle as much of the disaster debris as is reasonably possible, in order to reduce the amount of debris that has to eventually be disposed of in sanitary landfills. This will help reduce the amount of landfill space that is used as well as the cost of debris disposal.

Refer to the Attachment titled "**(name of jurisdiction)** Resource Recovery Facilities" for a listing and map of the resource recovery facilities located in or near the **(name of jurisdiction)** that could possibly by used during disaster debris management operations.

State Disaster Debris Management Center. This facility is virtually identical to the local Disaster Debris Management Center, but serves the needs of the State Disaster Debris Management Team in providing support and assistance to local debris management operations. The State Disaster Debris Management Center is established and managed by the MSP/EMHSD, in accordance with the provisions set forth in the Michigan Disaster Debris Management Plan.

Satellite Disaster Debris Management Office(s). Depending on the disaster circumstances, it may be necessary for the MSP/EMHSD to establish one or more Satellite Debris Management Offices to maintain effective and efficient delivery of services to, and coordination of, debris management forces operating in the affected areas. This approach would be particularly suited to widespread disasters where multiple jurisdictions may have been severely affected. These Satellite Debris Management Offices would mirror the State Disaster Debris Management Center in terms of purpose, layout, staffing, etc., but would be concerned only with the debris management operations that are occurring within their designated operational area. In most cases, the Satellite Debris Management Offices would be located within or in close proximity to the local Disaster Debris Management Centers. In some cases, however, it may be necessary for the Satellite Debris Management Offices to be located at separate facilities with appropriate communications links established with the State Disaster Debris Management Center and applicable local Disaster Debris Management Centers. The MSP/EMHSD is responsible for the establishment and operation of all Satellite Debris Management Offices. The **(name of jurisdiction)** will provide liaison to the Satellite Disaster Debris Management Office(s), at the request of the MSP/EMHSD, if operational circumstances dictate that such liaison is desirable for effectiveness and efficiency purposes. The designated liaison for the **(name of jurisdiction)** is **(title of local official)**.

Joint Field Office / Federal Disaster Debris Management Center. If an incident results in a major disaster or emergency declaration under the federal Stafford Act, the federal government (FEMA) will establish a debris management presence in the JFO if there are debris management issues that require federal assistance – either through direct assistance by a federal agency (e.g., Army Corps of Engineers and/or through activation of the Public Assistance Grant Program for assistance under Category A [Debris Removal and Disposal] or B [Emergency Protective Measures]). If this occurs, the MSP/EMHSD and/or another designated state agency (e.g., MDOT) will provide appropriate liaison to that facility to coordinate activities and to maximize the efficiency and effectiveness of the delivery of debris management assistance to the affected local jurisdictions and state agencies. The **(name of jurisdiction)** will provide liaison to the JFO, at the request of the MSP/EMHSD, if operational circumstances dictate that such liaison is desirable for effectiveness and efficiency purposes. The designated liaison for the **(name of jurisdiction)** is **(title of local official)**.

Debris Management Contracts. The Attachment titled "Debris Management Contract Considerations" provides background information on the four basic types of contracts that may be entered into with private contractors for debris management tasks. In addition, the Attachment titled "Sample Debris Management Contracts" provides contract templates (prepared by the U.S. Army Corps of Engineers) that can be modified and used in debris management operations. Refer to those two Attachments for more specific information.

Debris Management Environmental Considerations. The Michigan Department of Environmental Quality **(insert MDEQ district Waste and Hazardous Materials Division information)** will provide technical assistance in the proper handling and disposal of disaster debris throughout the debris management operation. The Attachment titled "Disposal of Disaster Debris" provides background information on Michigan laws and regulations related to the disposal of solid and hazardous waste (including the mass disposal of dead animals). These laws and regulations MUST be followed during the debris management operation. The MDEQ must be included in decision making processes throughout the operation – from start to finish. If the incident involves the mass disposal of dead animals, the Michigan Department of Agriculture **(insert MDA regional Animal Industry Division information)** and/or Michigan Department of Natural Resources **(insert MDNR regional Wildlife Division information)** must also be involved. The MDEQ, MDA, and MDNR are all members of the State Disaster Debris Management Team and should be activated / consulted as appropriate for ALL debris management operations in the **(name of jurisdiction)**. Refer to the Attachment for more specific information.

Background Note: Federal agencies that provide assistance under the Stafford Act (as described in the following section) are required to comply with Michigan laws and regulations related to disaster debris disposal. These agencies will consult with the MDEQ (and MDA and/or MDNR in the case of mass disposal of dead animals) throughout the debris management operation to ensure such compliance.

Debris Management in Presidentially-Declared Incidents. Disasters in the **(name of jurisdiction)** that result in a major disaster or emergency declaration under the federal Stafford Act may result in the provision of disaster debris management assistance. Federal assistance with debris management activities can be provided: 1) through direct assistance provided by a federal agency such as the U.S. Army Corps of Engineers (via mission assignment under the National Response Framework or the agency's own enabling legislation); 2) through debris management technical assistance by FEMA; or 3) through the federal Public Assistance Grant Program (PAGP) under Categories A (Debris Removal and Disposal) or B (Emergency Protective Measures). Most, but not all, federally-declared disasters in the **(name of jurisdiction)** will result in the activation of the PAGP to provide immediate relief and assistance for disaster-related damage to public (and eligible private non-profit organization) facilities, infrastructure, and essential services.

These forms of assistance must be specifically requested in the Governor's declaration request letter, which will be based in part on the debris management assessment information provided by the **(name of jurisdiction)** and other affected local jurisdictions. All such assistance provided by the federal government is coordinated through the SEOC by the MSP/EMHSD and other involved state agencies. However, during federally-declared incidents that involve extensive and potentially long-term debris clearance and removal operations, the debris management function may be merged (at the discretion of the MSP/EMHSD and FEMA) with the FEMA PAGP element. In those cases, the debris management function may shift primarily to the established Joint Field Office (JFO).

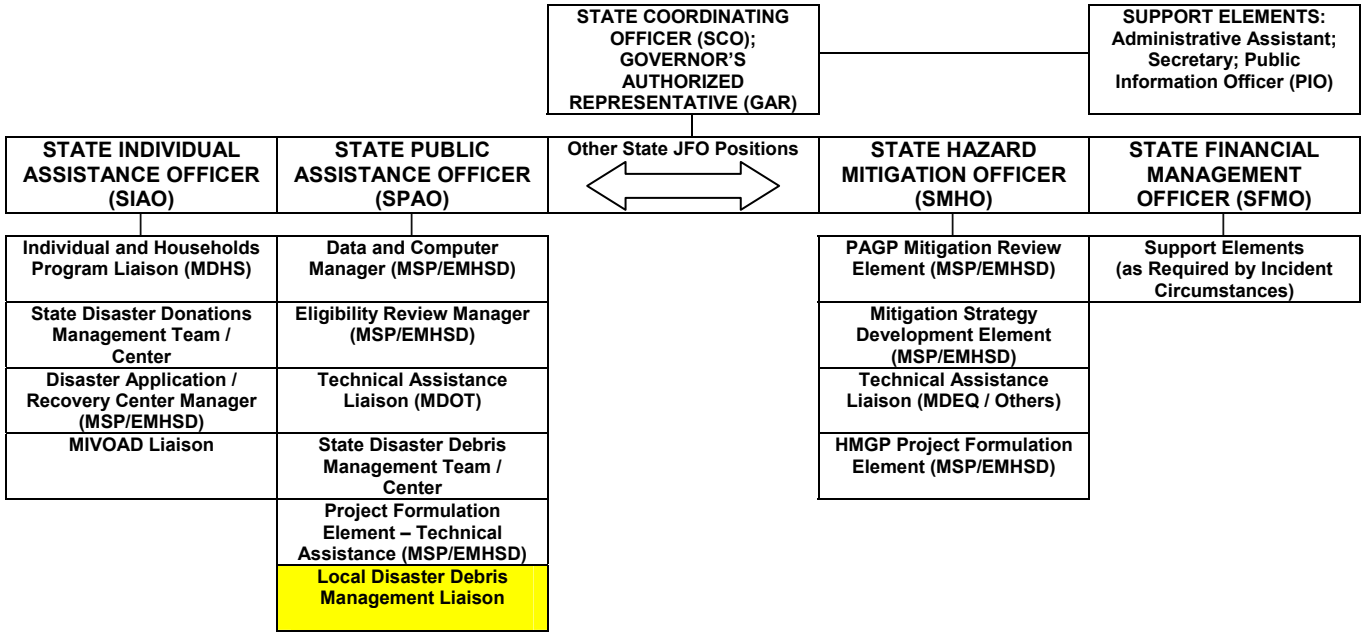
Activation of the FEMA PAGP element for debris clearance and removal can make available a wide variety of federal, nongovernmental organization, and private sector assets to assist in debris management, including facilities, communications infrastructure, equipment, personnel, technical expertise, and enhanced emergency contracting capabilities. In accordance with ESF #3 – the Public Works and Engineering Annex to the National Response Framework, the federal role in debris operations is to assist in "managing, monitoring, and/or providing technical advice in the clearance, removal, and disposal of contaminated and uncontaminated debris from public property and the reestablishment of ground and water routes into impacted areas…" Federal support is coordinated by FEMA (as the primary agency for assistance under the PAGP) and the U.S. Army Corps of Engineers (as the primary agency for technical assistance, engineering, and construction management resources during response activities). In addition to these two agencies, federal debris management assistance may also be provided by a number of other federal support agencies under ESF #3, including:

- Department of Agriculture (USDA) – assists in emergency removal of debris;
- Department of Energy (DOE) – assists in radiologically contaminated debris management activities;
- Department of Health and Human Services (HHS) – assists in contaminated debris management activities;

- Department of Homeland Security / U.S. Coast Guard (DHS/USCG) – assists in the removal of debris / contaminated debris and other obstructions that impact navigable waters;
- Department of the Interior (DOI) – assists in debris clearance monitoring;
- Department of Labor (DOL) – provides worker safety advice, assistance, and policy support for debris removal;
- Department of Transportation (DOT) – provides engineering personnel and support to assist in debris clearing;
- Environmental Protection Agency (EPA) – assists in locating disposal sites for debris clearance activities, and assists in contaminated debris management activities;
- General Services Administration (GSA) – assists in debris clearance monitoring;
- Nuclear Regulatory Commission (NRC) – assists in radiologically contaminated debris management activities;
- Tennessee Valley Authority (TVA) – assists in debris clearance monitoring.

Joint Field Office Organization. The MEMP prescribes the formation of a disaster organizational structure in the JFO aimed at fully utilizing the federal disaster assistance provided by the Stafford Act. This organizational structure is depicted in Figure 1 below:

FIGURE 1: TYPICAL JOINT FIELD OFFICE (JFO) ORGANIZATIONAL STRUCTURE FOR STATE STAFF



Most of these positions are not directly related to debris management, but rather to other assistance programs. The only position in this basic organizational structure that is debris management-specific is that of State Public Assistance Officer (SPAO). The PIO, Administrative Assistants, and clerical staff will be involved in debris management, but in a support capacity. (They have other disaster-related duties to perform for other program areas.) The State Coordinating Officer (SCO) works to ensure that the disaster response and recovery effort is proceeding forward and that all necessary resources and mobilized and operational. The State Financial Management Officer (SFMO) is responsible for tracking and compiling costs associated with the debris management operation (and other disaster operations as well).

As indicated previously, during federally-declared incidents that involve extensive and potentially long-term debris clearance and removal operations, the debris management function may be merged (at the discretion of the MSP/EMHSD and FEMA) with the FEMA PAGP element at the established JFO. Relocation of the State Disaster Debris Management Team and Center to the JFO, coupled with the federal support dedicated to debris management, will provide sufficient staffing to adequately address the debris management function in incidents that involve extensive and potentially long-term debris clearance and removal operations.

As required by situational circumstances, the **(title of local official)** will provide liaison for the **(name of jurisdiction)** at the JFO. This individual will work closely with the SPAO in representing and advocating for the **(name of jurisdiction)** on all issues related to disaster debris management under the federal PAGP. This liaison position will be staffed for as long as necessary to adequately address the disaster debris management issues and concerns of the **(name of jurisdiction)**. When the JFO closes, the **(name of jurisdiction)** will continue to coordinate activities (from normal work locations) with federal and state officials until the debris management operation is closed out.

Weapons of Mass Destruction Attacks – Special Considerations. In the event of a debris-generating incident involving potential biological or WMD contamination, the Disaster Debris Management Team will work closely with the MSP/EMHSD, FEMA, and other involved parties (i.e., through the EMAC or the private sector) and staff at the various support facilities to ensure that the disaster debris is not contaminated by checking its place of origin and route of transport. These checks will be made at Collection Centers and/or TDSR Sites. Debris that is potentially contaminated will not be processed until verification can be made that it is free of contamination. Any technical expertise required to make that determination (i.e., through sampling / testing) will be arranged through the MSP/EMHSD.

Emergency Communications Plan. The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will work with the State Debris Manager (if staffed) from the MSP/EMHSD, involved state and local agencies, nongovernmental organizations, contractors, FEMA and other mission-assigned federal agencies to develop an incident-specific emergency communications plan for work crews involved in the debris management operation. At a minimum, this plan will address the following issues and considerations:

- The type(s) of communications methods that will be used in the operation, and for what purposes;
- Communications equipment assigned to work crews;
- Frequencies, channels, and use protocols for 800 MHz radio communications;
- Repair or replacement of damaged, inoperable, missing or stolen communications equipment; and
- Reporting formats, times, and intervals for status updates and coordination calls, as appropriate;

If possible, standard Incident Command System reports found in the E Team information management system will be used to record part of this information – specifically reports ICS 205-OS (Incident Radio Communications Plan) and ICS 205a-OS (Communications List). The remainder of the plan will be in narrative and/or tabular format. The completed plan will be posted on the E Team system as a Reference Document and be available to all involved parties at any time.

Health and Safety Plan. The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will work with the State Debris Manager (if staffed) from the MSP/EMHSD, involved state and local agencies, nongovernmental organizations, contractors, FEMA and other mission-assigned federal agencies to develop an incident-specific health and safety plan for work crews involved in the debris management operation. The ultimate purpose of the plan is to help work crews avoid accidents during debris operations and to protect workers from exposure to hazardous materials. At a minimum, this plan will address the following issues and considerations:

- Methods for disseminating safety information to all workers involved in debris management operations;
- Minimum safety standards that are to be followed at all times;

- Monitoring procedures to ensure compliance with the minimum safety standards;
- Corrective actions for incidents of non-compliance with the minimum safety standards;
- Known hazards / potential hazards at all debris management sites;
- Safe use of / safe presence around heavy equipment used at debris management sites;
- Safe handling of potentially hazardous debris / materials;
- Proper use of personal protective equipment; and
- How to identify and report hazardous / potentially hazardous conditions (process to be followed and person to report to at each site).

If possible, standard Incident Command System reports found in the E Team information management system will be used to record part of this information – specifically report ICS 206-OS (Medical Plan). The remainder of the plan will be in narrative and/or tabular format. The completed plan will be posted on the E Team information system as a Reference Document and be available to all involved parties at any time. Refer to the Attachment titled "Debris Collection and Management Site Hazard Analysis" for a guidance tool that will be used to identify and resolve potential hazards at debris collection and management sites in the **(name of jurisdiction)**.

Public Information Plan. The **(name of jurisdiction)** Public Information Officer (PIO) will work with the **(name of jurisdiction)** Debris Manager and involved state staff (e.g., State Public Information Officer, State Debris Manager, MDEQ/WHMD district representative, etc., as appropriate) to develop an incident-specific public information plan for the debris management operation. The plan will include the parameters, rules, and guidelines for the debris management operation so that affected residents can begin their personal recovery activities. The plan will also help to quell rumors and misinformation and ensure that the debris management operation runs as smoothly as possible. At a minimum, this plan will address the following issues and considerations:

- The method(s) that will be used to collect debris (curbside and/or Collection Centers);
- Specifics regarding dates, hours, locations, routes, etc. for pickup and/or drop off, allowable types and quantities of debris, segregation requirements for debris, household hazardous waste considerations, etc.;
- Specifics regarding the debris management facilities that will be in use in the jurisdiction (e.g., types, their dates and hours of operation, debris transport routes, what the public should expect regarding dust, noise, after-dark operations and other potential issues of concern, etc.);
- Multi-lingual (non-English) requirements for the affected population(s);
- The methods that will be used to disseminate the information (e.g., electronic and print media, internet sites, public forums, direct mail / direct distribution, billboards, flyers within billings, door-to-door campaigns, special needs advocacy organizations, etc.); and
- Where public concerns, complaints, fraud reporting, and questions can be directed (e.g., Debris Information Center, web site, specific governmental office, etc.).

The completed plan (in narrative and/or tabular format) will be posted on the E Team system as a Reference Document and be available to debris management officials at any time. Refer to the task assignment lists for the PIO, as well as the Attachments titled "Sample Public Information Materials – Debris Clearance, Collection, and Sorting" for additional information and resources.

Record Keeping. Accurate and timely record keeping helps ensure that: 1) eligible costs are documented for possible reimbursement by the State of Michigan or the federal government; 2) information is readily available for incident reporting purposes; and 3) information is available to validate activities and operations as part of a state and/or federal audit or other program or financial review. To the extent possible, the **(name of jurisdiction)** Disaster Debris Management Team will use standard reporting forms developed by FEMA (for record keeping purposes under the PAGP) to document debris management costs and operational information. Refer to the Attachment titled "Debris Management Record Keeping" for a list of forms that will be used.

Debris Monitoring. Debris monitoring will be required if private contractors are used in the debris management operation. There are two basic purposes of debris monitoring: 1) to verify that work completed by the contractor is within the contract scope of work; and 2) to provide the required documentation for federal PAGP grant reimbursement. The primary role for Debris Monitors is to document the location and amount of debris collected. Debris Monitors are concerned with documenting debris at three stages: 1) debris collected from Collection Centers and/or curbside; 2) debris accepted at TDSR Sites and/or final disposition (Landfills or Resource Recovery Centers); and 3) debris reduced / recycled at TDSR Sites and taken to final disposition. Debris Monitors are also concerned with documenting any operational or safety issues that might arise.

Debris monitoring at established facilities (i.e., Collection Centers, TDSR Sites, Landfills, Resource Recovery Centers) will be accomplished by monitoring staff assigned to those facilities. Staffing for these positions will be provided by the **(insert name of local agency[ies] / organization[s])**. As appropriate, "roving" monitors will be assigned to monitor debris clearance and removal activities of private contractors working in the field. Staffing for these positions will be provided by the **(insert name of local agency[ies] / organization[s])**.

A checklist of responsibilities for Debris Monitoring Staff can be found on page 45. Debris monitors will use the debris monitoring forms found in the Attachment titled "Debris Management Record Keeping" to record their observations. The Attachment titled "Debris Monitoring Issues" provides additional information related to: 1) the load ticket system used in the **(name of jurisdiction)**; 2) truck certification procedures; 3) fraud prevention; and 4) federal debris monitoring requirements.

Debris Removal from Private Property. Debris removal from private property will be a rare occurrence and limited **ONLY** to those situations where there is a clear danger (present / imminent / potential) to public health and/or safety. Examples include but are not limited to: 1) dangerously leaning / damaged trees or limbs over public rights-of-way or other public spaces; 2) partially or totally collapsed structures that could endanger the public; 3) debris that poses a clear and present fire danger; 4) debris that negatively impacts critical infrastructure and/or services; and 5) hazardous household waste (HHW) which if left unaddressed poses an imminent threat to public health and/or safety. Debris that does not meet these (or similar) circumstances is the responsibility of individual property owners. Private debris brought to the roadway right-of-way and/or taken to established Collection Centers in accordance with published guidelines will be removed by the **(name of jurisdiction)** debris management forces.

FEMA Recovery Policies 9523.4 and 9523.13 provide guidance regarding federal PAGP reimbursement for the removal of debris from private property. These Policies and other helpful guidance can be found in the Attachment titled "Debris Removal from Private Property Special Considerations." They will be adhered to, whenever possible, in the removal of debris from private property by **(name of jurisdiction)** debris management forces. Decisions regarding specific private property debris removal issues will be made by the **(name of jurisdiction)** Debris Manager if the situation cannot be handled by Debris Monitors in the field.

Post-Joint Field Office Operations. It is likely that most, if not all, of the debris clearance and removal activities will be completed prior to the JFO being closed. However, because of the long-term nature of the debris reduction and final disposal phases, it is likely that some of these activities will be ongoing after the JFO closure. In most cases, the **(name of jurisdiction)** Disaster Debris Management Team and Center will be de-activated at the time of the JFO closure, if not before. (The decision on when to de-activate the Team / Center rests with the EOC Incident Command based on input from members of the Team, the MSP/EMHSD, and other involved state and federal agencies.) Any remaining debris management activities will be coordinated by the **(name of jurisdiction)** Debris Manager, and as appropriate, the State Debris Manager, SPAO and/or other MSP/EMHSD personnel, from their normal work locations.

Post-Incident Review / After Action Report. As appropriate, the **(name of jurisdiction)** Emergency Management Coordinator **(or list another local official in lieu of the EMC)** will conduct a post-incident review of debris management operations with the **(name of jurisdiction)** Disaster Debris Management Team and other involved agencies and organizations (including private contractors), and then develop a summary of the findings for inclusion in the incident after-action report.

Plan Review and Maintenance. The **(name of local agency or title of local official)** will review this plan with the **(name of jurisdiction)** Disaster Debris Management Team annually and develop / disseminate updated material as required.

Training. The **(name of jurisdiction)** Debris Manager and Emergency Management Coordinator will provide debris management training to members of the **(name of jurisdiction)** Disaster Debris Management Team on an annual basis. If circumstances allow, this training will be conducted before the start of the traditional spring and summer severe weather seasons in Michigan. The training may (at the discretion of the Debris Manager / Emergency Management Coordinator) consist of classroom training, online training, video training, field training, or a combination of these methods. The training will incorporate the National Incident Management System (NIMS) and review the essential elements of disaster debris management operations as addressed in this plan and (as appropriate) in neighboring mutual aid jurisdiction debris management plans. It will also address current federal and state concepts, processes, procedures, and regulations related to Category A (Debris Removal and Disposal) and Category B (Emergency Protective Measures) work under the federal PAGP. The **(name of jurisdiction)** Debris Manager and Emergency Management Coordinator will determine the content of the training module and its delivery method(s) based on current and/or anticipated needs and federal / state requirements.

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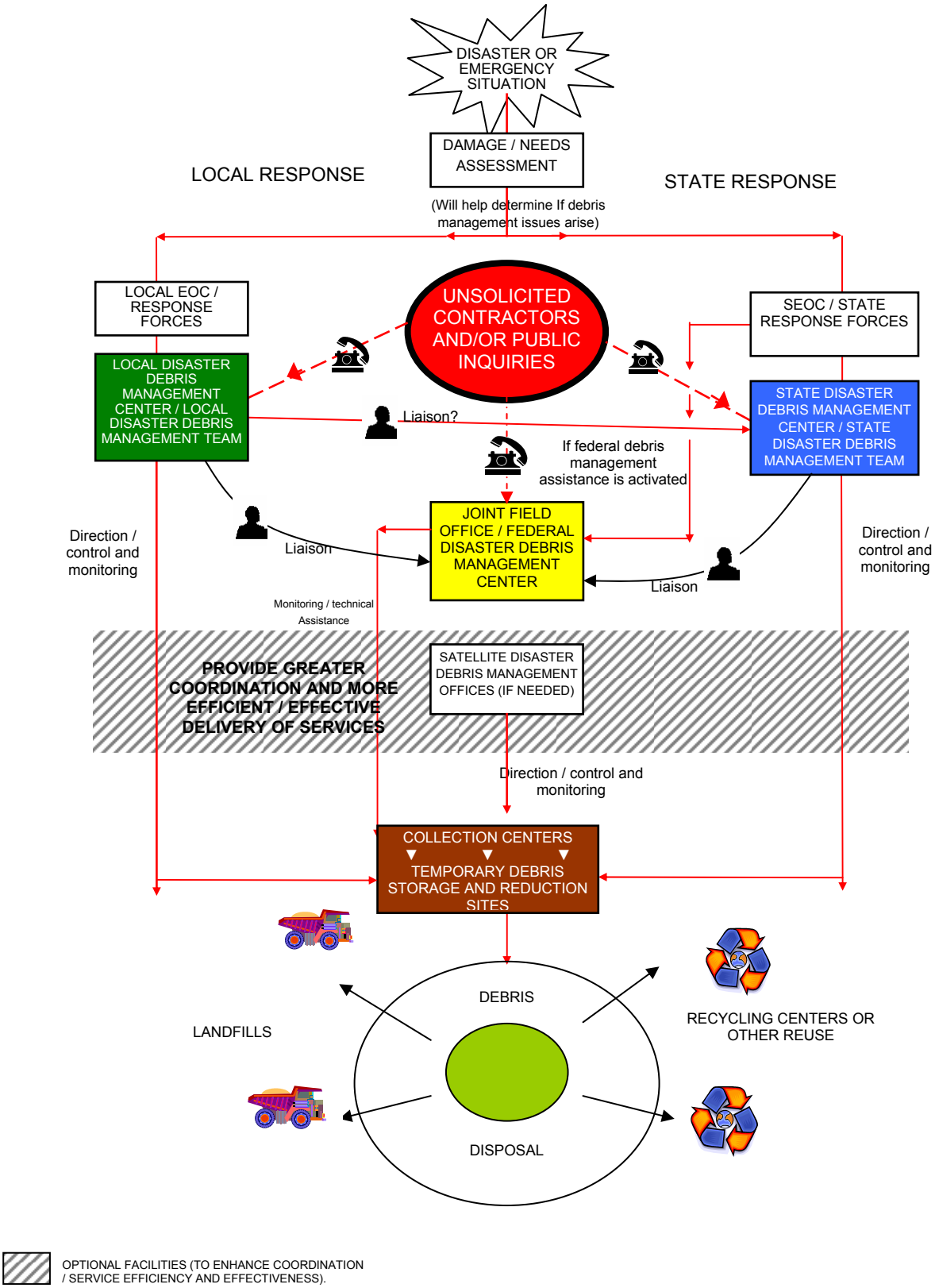
FIGURE 2: DISASTER DEBRIS MANAGEMENT PROCESS IN THE STATE OF MICHIGAN



TASKS AND EXECUTION:

Roles and Responsibilities. The roles and responsibilities of key **(name of jurisdiction)** disaster debris management staff are:

Emergency Management Coordinator (EMC). Specific responsibilities of the EMC as they relate to debris management are as follows:

1. In accordance with the assessment guidance found in MSP/EMHSD Publication 201 – "Local Emergency Planning Workbook" and MSP/EMHSD Publication 901 – "Damage Assessment Handbook," coordinate the collection, compilation, review, analysis, and submittal of local damage assessment data to the MSP/EMHSD. (Part of that effort involves an assessment of the anticipated debris management needs of the local communities affected by the disaster.)

2. As appropriate, coordinate the establishment of the EOC and other emergency coordination facilities necessary to effectively manage the disaster or emergency situation.

3. Establish communications links with the MSP/EMHSD and (if activated) the SEOC in Lansing, and with other local affected local communities.

4. Mobilize personnel to staff EOC positions and provide direct assistance to affected local areas.

5. As appropriate, declare a local "State of Emergency" and request (through the MSP/EMHSD) a Governor's disaster or emergency declaration to mobilize needed state assistance. If warranted, request federal disaster assistance through the MSP/EMHSD.

6. If circumstances warrant, activate the **(name of jurisdiction)** Disaster Debris Management Team and Disaster Debris Management Center as part of the EOC structure. Activate members of the Team as appropriate for the situation. (Once activated, the Disaster Debris Management Team / Center should immediately establish communications links with the State Disaster Debris Management Team / Center, if activated, within the SEOC.)

7. Identify and secure approval for use of local facilities that may be needed in the debris management operation (i.e., Collection Centers, Staging Areas and TDSR Sites). Immediately communicate this information to the State Disaster Debris Management Team / SEOC and the MSP/EMHSD District Coordinator.

Debris Manager (DM). The **(name of jurisdiction)** Debris Manager is the **(title of local official)** from the **(name of local agency)**. The Debris Manager is the head of the **(name of jurisdiction)** Disaster Debris Management Team and Disaster Debris Management Center. The Debris Manager and Disaster Debris Management Team / Center are all under the purview of the Operations Section Chief **(or list an alternate EOC Section Chief)** in the EOC. Specific responsibilities of the **(name of jurisdiction)** Debris Manager are as follows:

1. As required, assist the EMC and other appropriate local officials in developing and revising the **(name of jurisdiction)** Disaster Debris Management Plan and/or the debris management portions of the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)**. All such work should be done in accordance with the guidance provided by the MSP/EMHSD.

2. Assist the EMC in identifying and training appropriate local agency and nongovernmental organization staff in debris management operations as part of the Disaster Debris Management Team within the EOC and/or JFO structure.

3. Coordinate with the LEMC in the establishment and operation of the **(name of jurisdiction)** Disaster Debris Management Team and Disaster Debris Management Center to manage disaster debris operations (in conjunction with the MSP/EMHSD, and possibly FEMA, for widespread / severe events that are likely to generate large quantities of debris).

4. Coordinate with local nongovernmental (volunteer, community-based, and faith-based) organizations to participate in debris management operations as required.

5. Work with the State and Federal Public Assistance Officers (SPAO and FPAO), State Debris Manager, **(name of jurisdiction)** Disaster Debris Management Team, and other debris management support staff in the jurisdiction to:

   - Assist in determining debris clearance and removal priorities;
   - Ensure compliance with environmental laws and regulations by working continuously with the MDEQ (and MDA and/or MDNR if mass disposal of dead animals is involved) throughout the operation;
   - Assist in establishing work schedules, a communications plan, and a health and safety plan for involved work crews;
   - Assist in developing and implementing contracts with involved agencies and contractors in a manner consistent with federal, state, and local guidelines and requirements;
   - Assist in managing the flow of paperwork involved in the debris management operation;
   - Assist in reviewing and approving cost documentation for debris management related work;
   - Provide for monitoring of debris management contractors (as required);
   - Assist in supervising and coordinating work activities; and
   - Ensure that all involved parties complete the required work on time and in accordance with local, state and federal regulations. (Determine final inspection responsibilities before the actual work begins.)

6. Provide continuous, updated information on debris management efforts for inclusion in damage assessment reports, disaster situation / status reports, press releases, and the disaster after-action report.

7. As required, provide regular reports to the **(title of Chief Elected Official)**, LEMC, other EOC staff, the MSP/EMHSD, FEMA, and other involved agencies and organizations, on the status of local debris management operations.

Public Information Officer (PIO). The PIO position is not debris management specific, but rather handles all aspects of media relations and press announcements related to a disaster or emergency for the **(name of jurisdiction)**. All public information related to debris management is released through the PIO, on behalf of the **(title of Chief Elected Official)** of the **(name of jurisdiction)**, and in conjunction with other involved local, state, and federal agencies and organizations.

1. Develop and maintain pre-scripted (in English and appropriate non-English languages) press releases, informational bulletins, handbills and door hangers, and public service announcements pertaining to debris management, for inclusion in this plan. (Refer to the Attachments.) These materials should address the following subjects:

   - Segregating hazardous waste;
   - Placing debris at the curbside;
   - Keeping debris piles away from fire hydrants and valves;
   - Reporting illegal dumping;
   - Segregating recyclable materials;
   - Debris pick-up schedules;

- Location of Temporary Debris Storage and Reduction (TDSR) Sites;
- Disposal methods and compliance with Environmental Protection Agency (EPA) / Michigan Department of Environmental Quality (MDEQ) / local regulations;
- Restrictions and penalties for illegal dumping / dumps;
- (As applicable) Locations where local residents can drop off debris (i.e., Collection Centers); and
- (As applicable) Locations where local residents can pick up wood, wood chips, etc. for use at their home.

2. Work with the SPIO and the PIOs from all other involved agencies and organizations to develop an incident-specific public information plan for the debris management operation.

3. Coordinate the development and release of all information related to debris management, in conjunction with the **(name of jurisdiction)** and (if activated) State Disaster Debris Management Teams, FEMA and/or the USACE, and the **(name of jurisdiction)** Disaster Debris Management Team.

4. Serve as the primary local point of contact for the media on all matters pertaining to debris management.

5. Work with appropriate local agency staff to post pertinent debris management information on the **(name of jurisdiction)** web site(s), and provide linkages to other sites as appropriate.

EOC Operations Section. The EOC Operations Section **(or list an alternate EOC Section)** oversees the **(name of jurisdiciton)** Disaster Debris Management Team and works with the **(list local member agencies – e.g., Department of Public Works, Department of Solid Waste Management, etc.)**, and contracted services to manage debris clearance, removal, and disposal activities. **(Note: customize the agency names below. These agencies will have different names in different jurisdictions, but the core functions will remain essentially the same or be very similar.)**

Department of Public Works **(or list alternate agency name)**:

1. Implement the **(name of jurisdiction)** Disaster Debris Management Plan per the direction of the **(name of jurisdiction)** Debris Manager.

2. Deploy / track supplies, equipment, and personnel for debris management operations.

3. Estimate debris quantities (by type of debris) as part of the jurisdiction's damage / needs assessment effort (if possible).

4. Develop debris clearance and removal priorities – with emphasis on critical facilities and services. Coordinate activities with utility line clearing crews to maximize efficiency and reduce potential conflicts and safety concerns.

5. Develop strategies for debris storage, reduction, and disposal – making sure that all applicable environmental regulations are being complied with.

Department of Solid Waste Management **(or list alternate agency name):**

1. Remove debris from public property.

2. Tranport debris to designated TDSR Sites.

3. Operate Collection Centers – if used (in conjunction with contracted debris services).

4. Operate TDSR Sites (in conjunction with contracted debris services) in accordance with generally accepted standards / practices and in full compliance with applicable environmental regulations.

5. Ensure that all debris is transported to the appropriate TDSR Sites or to a regulated waste facility.

Private Contractors:

1. Clear / remove debris from public / private property in accordance with locally-developed priorities and approved scopes of work in contracts.

2. Operate Collection Centers – if used (in conjunction with the Department of Solid Waste Management **[list alternate agency name as appropriate]** or other designated local agency).

3. Transport debris to designated TDSR Sites.

4. Operate TDSR Sites (in conjunction with the Department of Solid Waste Management **[list alternate agency name as appropriate]** or other designated local agency) in accordance with generally accepted standards / practices and in full compliance with applicable environmental regulations.

5. Ensure that all debris is transported to the appropriate TDSR Sites or to a regulated waste facility.

EOC Planning Section. The EOC Planning Section **(or list an alternate EOC Section)** is responsible for collecting, compiling, and analyzing information about the incident, maintaining equipment logs, tracking the use of personnel, and providing information to the debris manager. The Planning Section manages the Engineering Department, Legal Department, and Environmental Compliance staff. **(Note: customize these agency names. These agencies will have different names in different jurisdictions, but the core functions will remain essentially the same or be very similar.)**

Engineering Department **(or list alternate agency name):**

1. Assist in conducting a debris assessment.

2. Develop cost estimates and scopes of work for public employees and contractors that are part of the debris management operation.

3. Evaluate options for recycling / reducing / disposing of debris.

4. Evaluate / select locations for Collection Centers (if used) and TDSR Sites (in conjunction with other members of the Disaster Debris Management Team).

Legal Department: **(or list alternate agency name):**

1. Develop and review all debris management contracts.

2. Secure all authorizations necessary for debris removal activities.

3. Ensure compliance with all federal, state, and local environmental, historical preservation and other applicable laws, regulations, and policies.

4. Review rights-of-entry and hold harmless agreements.

5. Review private property insurance information and other assets to ensure benefits and resources are fully utilized.

Environmental Compliance Staff **(or list alternate agency name):**

1. Coordinate with applicable federal, state, and local agencies to ensure compliance with environmental, historic preservation and other applicable laws, regulations, and policies.

2. Determine environmental monitoring and reporting requirements for the designated TDSR Sites.

3. Maintain adequate documentation / records of environmental transactions for historical and compliance purposes.

EOC Logistics Section. The EOC Logistics Section **(or list alternate EOC Section)** is responsible for establishing and maintaining any facilities designated for debris management activities. This includes providing food, office supplies, communication devices, equipment, personnel, and any other necessary supplies. The Logistics Section **(or list alternate EOC Section)** provides administrative staff to coordinate these and other required functions.

EOC Finance / Grant Administration Section. The EOC Finance / Grant Administration Section **(or list alternate EOC Section)** is responsible for ensuring that funds are available for equipment, supplies, and all other expenses associated with the debris management operation. The Finance / Grant Administration Section **(or list alternate EOC Section)** manages the Contract and Procurement Department and Fiscal Administration staff. **(Note: customize these agency names. These agencies will have different names in different jurisdictions, but the core functions will remain essentially the same or be very similar.)**

Contract and Procurement Department **(or list alternate agency name):**

1. Set bidding requirements for debris management activities.

2. Develop forms.

3. Advertise for bids.

4. Instruct bidders.

5. Develop contracts.

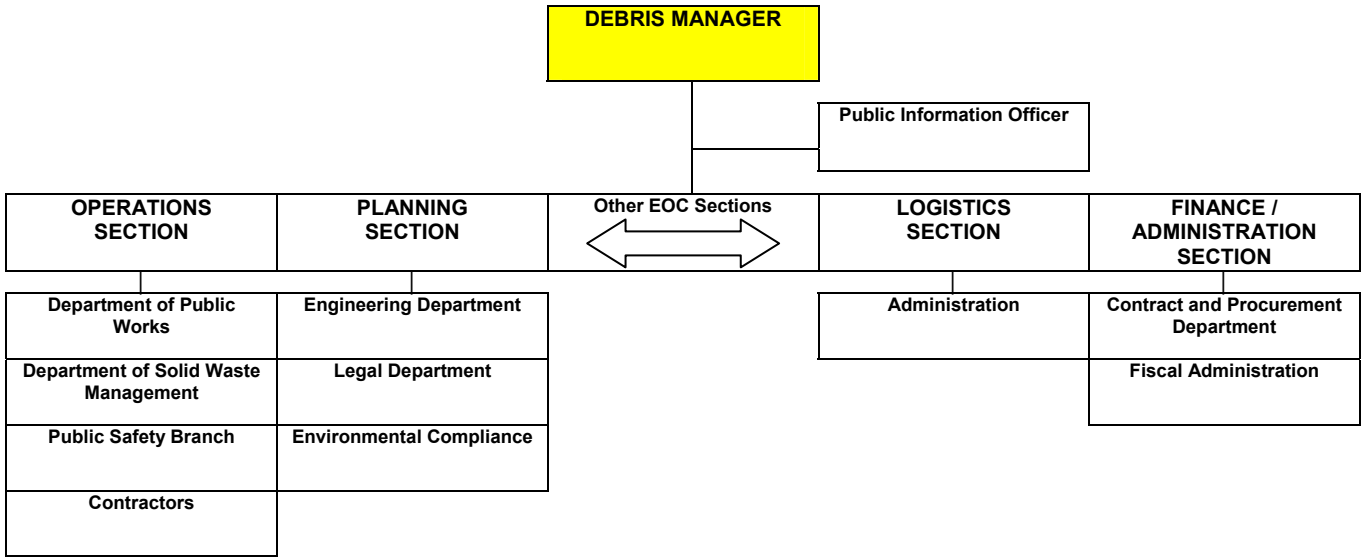
6. Document all costs for debris management activities.

7. Ensure compliance with applicable laws, regulations, and policies.

Fiscal Administration Staff **(or list alternate agency name):**

1. Keep records of financial transactions for reimbursement of debris management activities.
2. Fund debris management activities.
3. Ensure compliance with applicable laws, regulations, and policies.

FIGURE 3: (NAME OF JURISDICTION) CHAIN OF COMMAND FOR DEBRIS MANAGEMENT



(Note: customize these agency names. These agencies will have different names in different jurisdictions, but the core functions will remain essentially the same or be very similar.)

Nongovernmental Organization Roles and Responsibilities. Nongovernmental organizations play a critical part in the **(name of jurisdiction)** disaster debris management operations. The **(name of jurisdiction)** does not have sufficient personnel for widespread / large-scale debris management operations without at least some involvement by volunteers from nongovernmental organizations. The **(name of jurisdiction)** has entered into agreement **(insert more specific language as appropriate)** with the following nongovernmental organizations to provide a cadre of volunteers to assist with debris management operations in **(name of jurisdiction)**:

(Note: customize this list as appropriate.)

Michigan Voluntary Organizations Active in Disaster (MIVOAD). The Michigan Voluntary Organizations Active in Disaster is a nationally sanctioned coalition of private and church-based relief organizations dedicated to providing disaster relief assistance to individuals and communities in need. The MIVOAD serves as a clearinghouse for the myriad disaster relief and human service organizations that operate in Michigan and elsewhere across the country. The MIVOAD is governed by an Executive Board, elected by the membership. That Board provides the single point of contact for mobilizing all MIVOAD resources. The MIVOAD member organizations are experienced and skilled in all facets of disaster operations, and can perform a wide variety of functions. Specific responsibilities of the MIVOAD related to debris management in **(name of jurisdiction)** are as follows:

1. As required, assist the **(name of jurisdiction)** in developing and revising this Disaster Debris Management Plan as a support plan to the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)** and as a counterpart to the Michigan Disaster Debris Management Plan. Upon request, assist local officials in developing and revising the debris management portions of the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)**.

2. Assist the **(name of jurisdiction)** Debris Manager and LEMC in identifying and training appropriate MIVOAD representatives in debris management operations as part of the **(name of jurisdiction)** Disaster Debris Management Team within the EOC and/or JFO structure.

3. Provide a representative to report to the EOC (Disaster Debris Management Center, if activated) to coordinate the participation of MIVOAD members in disaster debris management activities, and to ensure coordination with other MIVOAD relief efforts.

4. Upon request, mobilize appropriate member organizations and representatives within the MIVOAD structure to provide disaster debris management assistance to the **(name of jurisdiction)**. Such assistance may be required at: 1) the EOC (Disaster Debris Management Center) and/or JFO; 2) State Satellite Disaster Debris Management Office(s) located within or serving the **(name of jurisdiction)**; 3) the Base / Camp located within or serving the **(name of jurisdiction)**; or 4) local debris management support facilities such as Staging Areas, Collection Centers, or Temporary Debris Storage and Reduction (TDSR) Sites.

5. Provide continuous, updated information on debris management efforts of MIVOAD members for inclusion in **(name of jurisdiction)** damage assessment reports, disaster situation / status reports, press releases, and the disaster after-action report.

6. As required, provide regular reports to the MIVOAD membership and other interested parties on the status of MIVOAD participation in **(name of jurisdiction)** debris management operations.

(Note: the MIVOAD has the following member organizations: Lutheran Social Services of Michigan; Seventh Day Adventist / Adventist Community Services (ACS); United Methodist Committee on Relief (UMCOR); Salvation Army; Mennonite Disaster Services; American Red Cross (ARC); Michigan Crisis Response Association; ACCESS; International Aid; Southern Baptist Disaster Response; Church World Service; 2-1-1; Church of the Brethren; and Michigan React.)

Michigan Citizen Corps. If required, the **(name of jurisdiction)** Emergency Management Coordinator **(or list an alternate local official)** can mobilize volunteers from the Michigan Citizen Corps to provide supplemental labor for debris management operations. Such assistance will be provided through the **(name of jurisdiction Citizen Corps Council / Community Emergency Response Team [CERT])**. Specific responsibilities of the Citizen Corps volunteers related to debris management in **(name of jurisdiction)** are as follows:

1. As required, assist the **(name of jurisdiction)** in developing and revising this Disaster Debris Management Plan as a support plan to the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)** and as a counterpart plan to the Michigan Disaster Debris Management Plan. Upon request, assist local officials in developing and revising the disaster debris management portions of the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)**.

2. Assist the **(name of jurisdiction)** Debris Manager and LEMC in identifying and training Citizen Corps / CERT members in debris management operations to be part of the **(name of jurisdiction)** Disaster Debris Management Team within the EOC and/or JFO structure.

3. Provide a representative to report to the EOC (Disaster Debris Management Center, if activated) to coordinate the participation of Citizen Corps / CERT members in disaster debris management operations.

4. Upon request, mobilize appropriate Citizen Corps / CERT members to provide disaster debris management assistance to the **(name of jurisdiction)**. Such assistance may be required at: 1) the EOC (Disaster Debris Management Center) and/or JFO; 2) State Satellite Disaster Debris Management Office(s) located within or serving the **(name of jurisdiction)**; 3) the Base / Camp located within or serving the **(name of jurisdiction)**; or 4) local debris management facilities such as Staging Areas, Collection Centers, or Temporary Debris Storage and Reduction (TDSR) Sites.

5. Provide continuous, updated information on debris management efforts of Citizen Corps / CERT members for inclusion in **(name of jurisdiction)** damage assessment reports, disaster situation / status reports, press releases, and the disaster after-action report.

6. As required, provide regular reports to the Citizen Corps / CERT membership and other interested parties on the status of Citizen Corps / CERT participation in **(name of jurisdiction)** debris management operations.

Other Organizations. **(Provide a list of specific roles and responsibilities for other involved nongovernmental organizations [e.g., community-based, faith-based, etc.] as appropriate.)**

State Support Agency Roles and Responsibilities. The Michigan Disaster Debris Management Plan (a support plan to the MEMP developed and maintained by the MSP/EMHSD) details the roles and responsibilities of various state departments and agencies in providing support to affected local jurisdictions in managing disaster debris operations. Refer to that document for a complete listing of state department / agency roles and responsibilities. The following state-level positions provide key support assistance to the **(name of jurisdiction)** disaster debris management operations. The list of responsibilities for each position is not all-inclusive but instead focuses on those key actions and activities that directly or indirectly impact the provision of debris management support assistance to the **(name of jurisdiction)**:

Emergency Management and Homeland Security Division, Department of State Police (MSP/EMHSD). The MSP/EMHSD coordinates state-level emergency management activities and provides overall direction and guidance to state disaster relief forces. In that role, the MSP/EMHSD is responsible for the following key debris management-related tasks during the incident response and recovery phases:

1. In accordance with the Information and Planning ESF in the MEMP, coordinate the collection, compilation, review, analysis, and verification of state and local damage assessment data, to include an assessment of the anticipated debris management needs of the communities affected by the disaster.

2. In accordance with the Direction and Control ESF in the MEMP, coordinate the establishment of the SEOC and other emergency coordination facilities necessary to effectively manage the disaster or emergency situation. (This includes the State Disaster Debris Management Center and other debris management support facilities such as Staging Areas, the Base / Camps, Satellite Debris Management Offices, and required local debris management facilities.)

3. Request a Governor's disaster or emergency declaration (under Act 390, PA 1976, as amended), as required.

4. If circumstances warrant, activate the State Disaster Debris Management Team and State Disaster Debris Management Center as part of the SEOC structure. Activate members of the Team as appropriate for the situation.

5. Map the status of the debris management operation in a Geographic Information System (GIS) for use in reports and for display in the SEOC, the State Disaster Debris Management Center, the JFO, and other emergency coordination facilities as appropriate.

6. Request federal technical and disaster relief assistance as required.

7. As required, request additional volunteers through the Michigan Citizen Corps program and/or the Michigan Department of Human Services (MDHS) / Community Service Commission to supplement state, local, and nongovernmental labor forces involved in disaster debris management operations.

8. As appropriate, conduct a post-incident review of debris management operations and then develop a summary of the findings for inclusion in the incident After-action report.

In addition to these general responsibilities, the following disaster positions with the MSP/EMHSD have specific debris management roles and responsibilities the directly or indirectly impact debris management operations in **(name of jurisdiction)**:

State Coordinating Officer (SCO). The Commanding Officer of the MSP/EMHSD or another designated MSP/EMHSD staff person normally serves as the State Coordinating Officer subsequent to a major disaster or emergency declaration under the federal Stafford Act. The SCO is in charge of all disaster planning, response, recovery and mitigation operations within this state. The SCO will work directly with the Federal Coordinating Officer (FCO), normally from FEMA, in the provision of all Individual, Public, and Hazard Mitigation Assistance provided under the federal declaration. (Debris management falls under the purview of the Public Assistance element of the President's Disaster Assistance Program.)

The SCO is responsible for appointing appropriate staff to serve in disaster positions, including appointment of a State Public Assistance Officer (SPAO) and necessary support staff for the provision of disaster assistance to affected communities. The SCO also keeps the Governor advised of all events and progress as the disaster unfolds and as recovery takes place. The status of debris management efforts is part of that progress report.

State Public Assistance Officer (SPAO). The SCO will appoint a person from within the MSP/EMHSD to serve as the State Public Assistance Officer. Specific response / recovery responsibilities of the SPAO as they relate to debris management are as follows:

1. Coordinate with the designated State Debris Manager (SDM) from the MSP/EMHSD, and the Federal Public Assistance Officer (FPAO) from FEMA, in the establishment and operation of the State Disaster Debris Management Team and State Disaster Debris Management Center.

2. Work with the State Disaster Debris Management Team, FEMA, and the **(name of jurisdiction)** Debris Manager to ensure that the debris management function is being adequately addressed to meet the health and safety needs of the affected population in **(name of jurisdiction)** as well as the operational needs of the recovery effort.

3. Advise the SCO and other appropriate officials on debris management issues throughout the disaster period.

4. Determine applicant, work, and cost eligibility for debris clearance and removal work under the PAGP (in coordination with the State Debris Manager, FPAO, and the **[name of jurisdiction]** Debris Managers).

5. In the event of an incident that involves potential biological or WMD contamination, work with the State Disaster Debris Management Team and staff at the various support facilities (i.e., State Disaster Debris Management Center, Staging Areas, and local debris management facilities) to ensure that potentially hazardous / contaminated debris is dealt with in a safe and appropriate manner.

State Debris Manager (SDM). Specific response / recovery responsibilities of the State Debris Manager from the MSP/EMHSD are as follows:

1. Coordinate with the SPAO and FPAO in the establishment and operation of the State Disaster Debris Management Team and State Disaster Debris Management Center.

2. Work with the SPAO, FPAO, the **(name of jurisdiction)** Debris Manager, and other debris management support staff to:

   - Assist in determining debris clearance and removal priorities;
   - Ensure compliance with environmental laws and regulations by working continuously with the MDEQ (and MDA and/or MDNR if mass disposal of dead animals is involved) throughout the operation;
   - Assist in establishing work schedules, a communications plan, and a health and safety plan for involved work crews;
   - Assist in determining applicant, work, and cost eligibility for debris clearance and removal work under the PAGP;
   - Assist in developing and implementing contracts with involved agencies and contractors in a manner consistent with federal, state, and local guidelines and requirements;
   - Assist in managing the flow of paperwork involved in the debris management operation;
   - Assist in reviewing and approving cost documentation for debris management related work;
   - Assist in supervising and coordinating work activities;
   - Address issues that may arise related to possible hazardous / contaminated debris in the event of an incident that involves potential biological or WMD contamination; and
   - Ensure that all involved parties complete the required work on time and in accordance with local, state and federal regulations. (Determine final inspection responsibilities before the actual work begins.)

3. Establish any Satellite Debris Management Offices that may be required based on the needs of the debris management operation.

4. As necessary, coordinate with the SPAO, SEOC Incident Commander, State Disaster Debris Management Team, and other appropriate officials to identify and mobilize state agency staff to provide supplemental support to the **(name of jurisdiction)** in managing / operating debris management facilities (i.e., Collection Centers, Staging Areas, Temporary Debris Storage and Reduction Sites, the **[name of jurisdiction]** Disaster Debris Management Center).

5. Provide continuous, updated information on debris management efforts for inclusion in disaster situation / status reports, press releases, and the disaster after-action report.

State Public Information Officer (SPIO). In accordance with the Information and Planning ESF in the MEMP, the SPIO is the Governor's Press Secretary. This position is not debris management specific, but rather handles all aspects of media relations and press announcements related to a disaster or emergency. All public information related to state debris management efforts in the **(name of jurisdiction)** will be released through the SPIO, on behalf of the Governor, and in conjunction with the State Disaster Debris Management Team, FEMA press officers, and the **(name of jurisdiction)** PIO.

Note: Normally, the SPIO will delegate public information responsibilities related to disasters and emergencies to the MSP/EMHSD Public Information Officer, who will act on the SPIO's behalf.

1. Work with the **(name of jurisdiction)** PIO and the PIOs from all other involved agencies and organizations to develop an incident-specific public information plan for the debris management operation.

2. Coordinate the development and release of all information related to debris management, in conjunction with the **(name of jurisdiction)** PIO, the State Disaster Debris Management Team, FEMA, the U.S. Army Corps of Engineers (USACE) – if direct federal debris management assistance is being provided, and the State Joint Public Information Team (JPIT).

3. Work with appropriate MSP/EMHSD and state agency staff to post pertinent debris management information on the MSP/EMHSD and/or State of Michigan web sites, and provide linkages to other sites as appropriate. As required, assist the **(name of jurisdiction)** PIO in posting information on the **(name of jurisdiction)** web site.

*MSP/EMHSD District Coordinator for **(name of jurisdiction)**.* The primary response / recovery responsibilities for the MSP/EMHSD District Coordinator as they relate to disaster debris management are as follows:

1. Assist in identifying local disaster debris management needs and issues. Ensure this information is adequately communicated to the MSP/EMHSD and SEOC in a timely manner via the damage / needs assessment process and other appropriate means.

2. Assist the **(name of jurisdiction)** in establishing and staffing necessary disaster debris management support facilities (i.e., Disaster Debris Management Centers, Collection Centers, Staging Areas, the Base / Camps, and TDSR Sites).

3. Assist the **(name of jurisdiction)** with disaster debris related public information activities, as required.

4. Assist in resolving any problems that may occur with regard to the management of disaster debris within the **(name of jurisdiction)**.

5. Ensure that all relevant disaster debris management information is reported to the SEOC and the **(name of jurisdiction)** EOC in a timely manner for inclusion in disaster situation / status reports, press releases, and the disaster after-action report.

SEOC Geographic Information System (GIS) Specialist. Specific responsibilities of the SEOC GIS Specialist (from within the SEOC Logistics Section) as it relates to disaster debris management are as follows:

1. Geo-locate (or obtain the geospatial coordinates for) all facilities used in the disaster debris management operation in the **(name of jurisdiction)** – including the Disaster Debris Management Center, Collection Centers, Staging Areas, the Base / Camps, TDSR Sites, Satellite Disaster Debris Management Offices, and the JFO. Use this and other information to develop and continuously update maps and other displays with disaster debris management operational information for use in reports and for display in the EOC, the Disaster Debris Management Center, the JFO, and other emergency coordination facilities as appropriate.

State Disaster Debris Management Team. Depending on the disaster circumstances, these member agencies of the State Disaster Debris Management Team may be called upon to provide the following types of assistance in support of the **(name of jurisdiction)** disaster debris management operation:

Michigan Department of Agriculture (MDA). **(Note: customize as required. Urban / suburban and some rural jurisdictions will not have the potential for livestock debris management operations so those particular references can be removed or modified.)**

1. Assist in the analysis of the **(name of jurisdiction)** damage assessment data to determine the anticipated need for state participation in the debris management operation (i.e., due to a widespread plant or animal disease).

2. Coordinate agricultural crop and livestock debris disposal / management operations in the **(name of jurisdiction)**.

   Crops. The MDA will normally coordinate debris disposal / management operations that involve agricultural crops (field crops, nursery stock, fruit trees, etc.), working in conjunction with the affected farmers / agricultural enterprises, the USDA and MDEQ, MSU Extension and other agricultural agencies. Debris disposal / management operations that involve very large quantities of vegetation or more than one type of vegetation, or that require interaction and coordination with multiple agencies and levels of government, will normally be handled in conjunction with the MSP/EMHSD.

   Livestock. The MDA will be the lead coordinating agency for livestock debris disposal / management operations, working in conjunction with the affected farmers / agricultural enterprises, the USDA, MSU Extension, the MDEQ and MDCH, and other appropriate agencies. Livestock disposal / management operations that involve a very large number of livestock will normally be handled in conjunction with the MSP/EMHSD.

Michigan Department of Corrections (MDC).

1. Provide personnel (inmate work crews), supervisors (guards), and vehicles (if available) to support debris management operations in the **(name of jurisdiction)**.

Michigan Department of Environmental Quality (MDEQ).

1. Minimize environmental contamination from disaster debris by providing technical assistance to the **(name of jurisdiction)** and all involved entities regarding proper debris reduction, storage, and disposal methods in accordance with established laws and regulations.

2. Expedite required environmental permitting processes (to the extent possible) to accommodate post-incident debris management / clean up activities in the **(name of jurisdiction)** that pose a threat to public health and/or safety.

Michigan Department of Management and Budget (MDMB).

1. Provide personnel (work crews), vehicles, and state facilities (as available and required) to support debris management operations in the **(name of jurisdiction)**.

2. As required, provide technical assistance in emergency procurement procedures to facilitate / aid debris management operations in the **(name of jurisdiction)**.

Michigan Department of Military and Veterans Affairs (MDMVA).

1. Provide personnel (work crews), vehicles, MNG facilities (as available and required), technical engineering expertise, and communications support to debris management operations in the **(name of jurisdiction)**.

(All requests for MDMVA assistance will be processed in the normal manner via Governor's Executive Order / Proclamation, through the MSP/EMHSD and SEOC in Lansing.)

Michigan Department of Natural Resources (MDNR). **(Note: customize as required. Urban / suburban and some rural jurisdictions will not have the potential for wildlife debris management operations so those particular references can be removed or modified.)**

1. Assist in the analysis of the **(name of jurisdiction)** damage assessment data to determine the anticipated need for state participation in the debris management operation (i.e., due to a widespread plant or animal disease).

2. Provide personnel (work crews), vehicles, and MDNR facilities (as available and required) to support debris management operations in the **(name of jurisdiction)**.

3. Coordinate forest and wildlife debris disposal / management operations in the **(name of jurisdiction)**.

   Trees. The MDNR will normally coordinate debris disposal / management operations that involve infested trees in state forest lands and adjacent lands, working in conjunction with the affected landowners, the USDA / Forest Service and MDEQ, MSU Extension and other appropriate agencies. Debris disposal / management operations that involve very large quantities of trees or more than one type of vegetation, or that require interaction and coordination with multiple agencies and levels of government, will normally be handled in conjunction with the MSP/EMHSD.

   Wildlife. The MDA will be the lead coordinating agency for wildlife debris disposal / management operations, working in conjunction with the affected landowners, the U.S. Fish and Wildlife Service, MSU Extension, hunting and fishing organizations (as appropriate), the MDEQ and MDCH, and other appropriate agencies. Wildlife disposal / management operations that involve a very large number of animals will normally be handled in conjunction with the MSP/EMHSD.

Michigan Department of Transportation (MDOT).

1. Provide personnel (work crews), vehicles, MDOT facilities (as available and required), and technical engineering expertise to support debris management operations in the **(name of jurisdiction)**.

2. As required, issue permits for oversize and/or overweight vehicles that may be involved in the debris management operation in the **(name of jurisdiction)**.

Other State Support Agencies.

Although not a formal part of the State Disaster Debris Management Team, the following state agencies may be requested to provide support to other state agencies involved in the debris management operation (in accordance with task assignments outlined in the MEMP):

- **Michigan Department of Community Health** – As required, provide technical advice and assistance to agencies involved in animal debris disposal activities in the **(name of jurisdiction)**. (This may include issuing health advisories, in conjunction with local health departments and other affected state agencies, to inform the affected population about the nature of the disposal operations, the possible health risks associated with contacting dead / diseased animal carcasses, and the steps being taken to protect public health.)

- **Michigan Department of Human Services / Michigan Community Service Commission** – As requested, provide volunteers through the AmeriCorps and other programs to supplement labor forces involved in debris management operations in the **(name of jurisdiction)**.

State support agencies will be mobilized through the MSP/EMHSD. Support activities may take place in the SEOC / State Disaster Debris Management Center, the **(name of jurisdiction)** EOC / Debris Management Center, the JFO, or at other debris management facilities such as Staging Areas, the Base / Camps, Collection Centers, Temporary Debris Storage and Reduction (TDSR) Sites, or Satellite Debris Management Offices located in or serving the **(name of jurisdiction)**.

Federal Roles and Responsibilities*. Federal disaster debris management activities are coordinated by FEMA. All federal assistance will be provided through the MSP/EMHSD and SEOC in accordance with the provisions set forth in the National Response Framework (NRF). Refer to that document and the Michigan Disaster Debris Management Plan for a complete listing of roles and responsibilities as well as specific operational information involving federal agencies. The primary responsibilities for FEMA related to the provision of debris management support assistance in the **(name of jurisdiction)** include:

1. If requested by the State, activate the U.S. Army Corps of Engineers (the primary agency for providing ESF #3 technical, engineering, and construction management assistance and support under the NRF) if **direct** debris removal assistance is required in the **(name of jurisdiction)** under the federal Stafford Act declaration.

2. If requested by the State, activate the Public Assistance Grant Program (PAGP) to provide for required assistance under Category A (Debris Removal and Disposal) and/or Category B (Emergency Protective Measures), as well as other categories of assistance as dictated by the needs and circumstances of the disaster. Provide a Federal Public Assistance Officer (FPAO) and support staff to coordinate the PAGP in conjunction with the designated State Public Assistance Officer (SPAO) and State Debris Manager (SDM).

3. Provide support and technical assistance to the State and the **(name of jurisdiction)**, especially regarding potentially hazardous / contaminated debris removal, large-scale / widespread debris management operations, debris in navigable waterways, and debris that is preventing / hampering critical facilities and/or the provision of critical services.

4. Coordinate with other federal Emergency Support Functions (ESFs) under the NRF to provide vital debris management support services to the **(name of jurisdiction)**, including but not limited to:

    - Supplemental transportation and telecommunications assets and guidance;

- Logistical support (to include, as necessary, technical assistance, supplies, services, equipment and facilities);
- Coordination with private sector organizations for incident management support; and
- Technical / operational assistance for hazardous / contaminated debris removal, processing, and disposal.

***Note: The Federal Government will only become involved subsequent to a Presidential major disaster or emergency declaration under the Stafford Act that includes 1) direct debris removal assistance by a federal agency, and/or 2) debris clearance and removal and/or emergency protective measures work under the Public Assistance Grant Program (PAGP), Categories A and B, respectively.**

Facility-Specific Roles and Responsibilities. Disaster debris management positions at the **(name of jurisdiction)** Disaster Debris Management Center and the various local support facilities will be filled by a combination of governmental employees and nongovernmental organization employees and volunteers. Because the disaster debris management organization and operation is customized to meet the needs of each incident, it is difficult to assign specific personnel to specific positions at each facility. The following task assignments are designed to provide basic guidance to the individuals that staff Collection Centers, Staging Areas, the Base / Camps, and TDSR Sites. These task assignments will be supplemented by expedient training provided by the **(name of jurisdiction)** Debris Manager **(or list title of other local official)** with assistance (as required) by the MSP/EMHSD and/or other members of the State Disaster Debris Management Team, by FEMA, or both.

Collection Center Staff. The primary responsibilities of the individuals assigned to oversee / monitor Collection Centers are:

1. Install temporary signage (as needed) at the site indicating the locations of ingress and egress; loading / unloading areas; inspection stations; collection areas (for the various types of debris) – may be bins an/or separated piles; parking areas; handicapped person access (as applicable); restrooms (as applicable); etc.

2. Regulate the ingress and egress of vehicles transporting debris to the site.

3. To the extent possible, inspect vehicles to ensure that the debris being brought to the site is actually disaster-related debris and not general refuse. Work with the **(Department of Solid Waste Management? – customize with name of local agency)** to re-direct any non-disaster debris to a regulated waste facility.

4. In the event of an incident involving potential biological or WMD contamination, check the place of origin and route of transport of debris being brought to the Collection Center by conducting a brief interview with the hauler. Any suspected contamination should be reported immediately to the **(name of jurisdiction)** Disaster Debris Management Center / EOC for follow up as required. (The follow up measures will be dictated by the type and level of potential contamination. State assistance will likely be required through the MSP/EMHSD and MDEQ.)

5. Properly document monitoring to ensure FEMA reimbursement. Documentation should include a monitoring schedule / plan, load tickets, photographs, etc.

6. Ensure that the various types of debris are properly separated and stored in accordance with generally accepted standards / practices and applicable environmental regulations.

7. Ensure that debris unloading, loading, storage, and transportation activities are carried out in a safe and environmentally appropriate manner. Report any problems encountered to the **(name of jurisdiction)** Disaster Debris Management Center for appropriate follow up.

8. If the site is dirt, determine the need to bring in water trucks on a regular basis to spray for dust control. Work with the **(name of jurisdiction)** Disaster Debris Management Center to arrange for this service if required.

9. Monitor site usage to prevent theft, vandalism, or other inappropriate activities.

10. Provide regular status updates to the **(name of jurisdiction)** Disaster Debris Management Center / EOC regarding debris types and quantities, number of loads, status of collection efforts, problems encountered, etc.

11. For multi-day operations, open and close the site in accordance with the designated business hours. Properly secure the site at night.

12. When the site closes down for good, oversee the clean up / restoration of the site to ensure it is returned to its pre-incident condition in accordance with applicable environmental regulations. Report any damage or lingering impacts to the **(name of jurisdiction)** Disaster Debris Management Center for appropriate follow up with applicable agencies.

Staging Area Staff. The primary responsibilities of the individuals assigned to oversee / monitor Staging Areas are:

1. Install temporary signage (as needed) at the site indicating the locations of loading / unloading areas, parking areas, handicapped person access, restrooms, etc.

2. Receive, temporarily park, and deploy vehicles, equipment, and crews that will be used in debris management operations.

3. In the event of an incident involving potential biological or WMD contamination, work with the **(name of jurisdiction)** Debris Manager and Disaster Debris Management Center / EOC, the MSP/EMHSD and FEMA, and other involved parties (i.e., through the EMAC or the private sector) to ensure that resources for use in **(name of jurisdiction)** are not contaminated by checking their place of origin and route of transport. Any suspected contamination should be reported immediately to the **(name of jurisdiction)** Disaster Debris Management Center / EOC for follow up as required. (The follow up measures will be dictated by the type and level of contamination. State assistance will likely be required through the MSP/EMHSD and MDEQ.)

4. Record the type, kind, and quantity of resources deployed in the E Team "Critical Asset" Report (if using E Team), or the hardcopy form approved by the MSP/EMHSD and found in the Attachment titled "Commodities Inventorying / Tracking Form." (Note: If using hardcopy forms, provide the information to the **[name of jurisdiction]** Disaster Debris Management Center for centralized inventorying / tracking via E Team.)

5. Deploy staged assets to sites within the **(name of jurisdiction)** at the direction of the **(name of jurisdiction)** EOC Operations Section and/or EOC Incident Management Section in order to meet the operational needs of the debris management effort.

6. Monitor site usage to prevent theft, vandalism, or other inappropriate activities.

7. For multi-day operations, open and close the site in accordance with the designated business hours. Properly secure the site at night.

8. Provide continuous, updated information to the **(name of jurisdiction)** Disaster Debris Management Center / EOC on Staging Area activities for inclusion in damage assessment reports, disaster situation / status reports, press releases, and the disaster after-action report.

9. Work with contractors and the EOC / Disaster Debris Management Center to resolve any problems or concerns that may arise related to Staging Area operations and/or the transportation / delivery of debris management resources from the Staging Area.

10. When the disaster debris management operation closes, oversee the clean up / restoration (as needed) of the site to ensure it is returned to its pre-incident condition. Report any damage or lingering impacts to the **(name of jurisdiction)** Disaster Debris Management Center for appropriate follow up with applicable agencies.

Base / Camp Staff.* The primary responsibilities of the individuals assigned to staff the Base / Camps are:

1. Install temporary signage (as needed) at the site(s) indicating the locations of parking areas, registration areas, handicapped person access, dining areas, restrooms, sleeping areas, showers / sanitation services, etc.

2. As appropriate, provide and equip areas at the Base / Camp for vehicle parking, equipment storage, registration, meal preparation, dining, sleeping, sanitation, recreation / relaxation, food / water storage, animal care, and other functions required for the incident circumstances. (Note: required materials, supplies, and equipment may come from a variety of sources, including federal, state and local agencies, nongovernmental organizations, and private donations. The MSP/EMHSD – SEOC Logistics Section, if requested, can provide assistance in working with involved agencies and organizations to stock, staff and manage the Base / Camps.)

3. Ensure the Base / Camp operations meet all applicable codes, regulations, and standards related to public health, safety, and sanitation. Report any problems to the **(name of jurisdiction)** EOC / Disaster Debris Management Center for immediate investigation and resolution.

4. Register personnel staying at the Base / Camp, using the E Team "Volunteer Record" Report (if using E Team), or the hardcopy form approved by the MSP/EMHSD and found in the Attachment titled "Deployed Personnel Registration Form." (Note: If using hardcopy forms, provide the information to the **[name of jurisdiction]** Disaster Debris Management Center for centralized personnel tracking via E Team.) For personnel already registered through E Team ("Volunteer Record"), simply verify the information and check the appropriate status indicator.

5. Track the number of persons served at the Base / Camps and the type, kind, and quantities of supplies and materials used to support Base / Camp operations. Report this information via the E Team "Agency Situation Report" (if using E Team), or the hardcopy "Agency Situation Report" found in MSP/EMHSD Publication 901 – "Damage Assessment Handbook." (Note: If using hardcopy forms, provide the information to the **[name of jurisdiction]** Disaster Debris Management Center for centralized inventorying / tracking via E Team.)

6. Deploy personnel / resources from the Base / Camp to the facilities / locations at which they are needed, at the direction of the **(name of jurisdiction)** Disaster Debris Management Center and/or EOC Incident Management Section, in order to meet the operational needs of the debris management operation.

7. Work with the EOC, local agencies, and nongovernmental organizations to request, transport, receive, and store needed materials, equipment, and supplies to support the Base / Camp operations.

8. Monitor site usage to prevent theft, vandalism, or other inappropriate activities. Properly secure the site at night.

9. Provide continuous, updated information to the **(name of jurisdiction)** Disaster Debris Management Center / EOC on Base / Camp operations for inclusion in damage assessment reports, disaster situation / status reports, press releases, and the disaster after-action report.

10. Work with the EOC / Disaster Debris Management Center to resolve any problems or concerns that may arise related to Base / Camp operations and/or the transportation of personnel / resources to their intended work locations.

11. When Base / Camp operations close, oversee the clean up / restoration (as needed) of the site(s) to ensure it is (they are) returned to pre-incident condition. Report any damage or lingering impacts to the **(name of jurisdiction)** Disaster Debris Management Center for appropriate follow up with applicable agencies.

*Note: The **(name of jurisdiction)** will normally select, establish and manage the Base and any required Camps, although there may be situations in which supplemental state assistance will be required. Camps will be used in those situations where the **(name of jurisdiction)** Disaster Debris Management Center / EOC determines that the Base does not have sufficient room and/or capabilities to accommodate the resources required for the debris management operation. Camps may also be established when: 1) sufficient hotel / motel rooms or other suitable accommodations for deployed resources are not available in the general incident area, 2) large numbers of resources have been activated to participate in incident response / recovery efforts (e.g., EMAC resources), and 3) the incident area is particularly large or widely dispersed. Camps are temporary locations at which food, water, sleeping areas, and sanitation services are provided to deployed resources. Possible facilities for use as the Base / Camps include county fairgrounds, state / local parks and recreation areas, local campgrounds, military bases, college campuses, school grounds (if tents are used), community centers or community recreation centers, etc.. Ideally, using the facility as a Base / Camp will not greatly interfere with its normal, day-to-day use.

Staffing of the Base / Camps will be handled through local and state agencies and nongovernmental organizations. In most cases, nongovernmental relief organizations will be relied upon to assist the **(name of jurisdiction)** in meeting the material and supply needs of the Base / Camp operations. This includes the provision of food and water, bedding, and basic sanitation services. Under a Stafford Act declaration, the federal government may be able to provide technical and logistical assistance regarding the establishment and operation of the Base / Camps. However, federal officials are NOT responsible for management of or security at the Base / Camps; those are local and State of Michigan functions. All federal assistance is obtained and coordinated through the MSP/EMHSD in the SEOC.

Temporary Debris Storage and Reduction Site Staff (Site Manager). The primary responsibilities of the individuals assigned to oversee / monitor local TDSR Sites are:

1. Install temporary signage (as needed) at the site indicating the locations of ingress and egress; roadways and buffer zones; loading / unloading areas; inspection stations; storage areas (for the various types of debris); parking areas; material reduction areas (as appropriate, burning areas, chipping / grinding / shredding areas, compacting areas, and recycling areas); handicapped person access (as applicable); restrooms; etc.

2. Regulate the ingress and egress of trucks transporting debris to the site.

3. To the extent possible, work with Debris Monitors to inspect trucks to ensure that the debris being brought to the site is actually disaster-related debris and not general refuse. Work with the Department of Solid Waste Management **(customize with name of local agency)** to re-direct any non-disaster debris to a regulated waste facility.

4. In the event of an incident involving potential biological or WMD contamination, check the place of origin and route of transport of debris being brought to the TDSR Site by conducting a brief interview with the hauler. Any suspected contamination should be reported immediately to the **(name of jurisdiction)** Disaster Debris Management Center / EOC for follow up as required. (The follow up measures will be dictated by the type and level of potential contamination. State assistance will likely be required through the MSP/EMHSD and MDEQ.)

5. Properly document monitoring to ensure FEMA reimbursement. Documentation should include a monitoring schedule / plan, load tickets, photographs, etc.

6. Ensure that the various types of debris are properly separated and stored in accordance with generally accepted standards / practices and applicable environmental regulations.

7. Ensure that debris reduction activities are carried out in a safe and environmentally appropriate manner. Report any problems encountered to the **(name of jurisdiction)** Disaster Debris Management Center for appropriate follow up.

8. If the site is dirt, determine the need to bring in water trucks on a regular basis to spray for dust control. Work with the **(name of jurisdiction)** Disaster Debris Management Center to arrange for this service if required.

9. Monitor site usage to prevent theft, vandalism, or other inappropriate activities.

10. Provide regular status updates to the **(name of jurisdiction)** Disaster Debris Management Center / EOC regarding debris types and quantities, number of loads, status of reduction efforts, problems encountered, etc.

11. For multi-day operations, open and close the site in accordance with the designated business hours. Properly secure the site at night.

12. When the site closes down for good, oversee the clean up / restoration of the site to ensure it is returned to its pre-incident condition in accordance with applicable environmental regulations. Report any damage or lingering impacts to the **(name of jurisdiction)** Disaster Debris Management Center for appropriate follow up with applicable agencies.

Debris Monitoring Staff. The primary responsibilities of the individuals assigned to monitor the debris management operation (at established facilities or in the field) are:

1. Measure and certify truck capacities (and recertify on a regular basis as appropriate). (Note: Use the FEMA "Truck Certification Form" found in the Attachment titled "Debris Monitoring Issues" for this purpose.)

2. Complete and physically control load tickets (at TDSR Site inspection tower or in field). (Note: Use the FEMA "Load Ticket" found in the Attachments titled "Debris Management Record Keeping" and "Debris Monitoring Issues" for this purpose. Guidance for completing load tickets can also be found in the "Debris Monitoring Issues" attachment.)

3. Approve the removal of hazardous trees, including hangers, leaners, stumps, and those on private property that pose a danger to public safety. (Note: Use the FEMA "Roving Monitor Log" or "Daily Issues Log" to record the locations and provide comments as appropriate. Use the FEMA "Hazardous Stump Worksheet" found as an attachment to FEMA Recovery Policy 9523.11 to document hazardous stumps.)

4. Ensure that trucks are accurately credited for their load and are not artificially loaded to maximize reimbursement (e.g., debris is wetted, fluffed or not compacted). (Refer to the Attachment titled "Debris Monitoring Issues" for guidance.)

5. Ensure that hazardous waste is not mixed in debris loads.

6. Report improper equipment usage or breaches in safety standards (for personnel and/or the general public) to the **(name of jurisdiction)** Debris Manager / Disaster Debris Management Center.

7. Report to the **(name of jurisdiction)** Debris Manager / Disaster Debris Management Center if work completion schedules are not on target.

8. Report to the **(name of jurisdiction)** Debris Manager / Disaster Debris Management Center if debris removal work does not comply with local ordinances as well as state and federal regulations.

9. Ensure that only debris specified in the contract scope of work is collected and identify work as potentially eligible or ineligible.

10. Monitor development and restoration of Collection Center sites and TDSR Sites.

11. Provide regular updates to the **(name of jurisdiction)** Disaster Debris Management Center on the status of debris removal and related activities.

ATTACHMENTS:
Sample Public Information Materials – Debris Clearance, Collection, and Sorting
Disaster Debris Management Team – Membership Roster / Contact List
Disaster Debris Management Team – State Support Elements Contact List
Debris Categories and Forecasting
Debris Collection Strategy
Temporary Debris Storage and Reduction Sites
Debris Management Phases: Planning and Operational Considerations
Debris Management Contract Considerations
Sample Debris Management Contracts
Debris Management Record Keeping
Debris Monitoring Issues
Debris Removal from Private Property Special Considerations
Disposal of Disaster Debris
Debris Collection and Management Site Hazard Analysis Guidance Tool
Federal Debris Management Resources
Commodities Inventorying / Tracking Form (Hardcopy of E Team “Critical Asset” Report)
Deployed Personnel Registration Form (Hardcopy of E Team “Volunteer Record” Report)
Pre-Identified Debris Management Facilities

SAMPLE PUBLIC INFORMATION MATERIALS – DEBRIS CLEARANCE, COLLECTION, AND SORTING

SAMPLE PRESS RELEASE #1: CURBSIDE COLLECTION

Date

FOR IMMEDIATE RELEASE

FOR MORE INFORMATION CONTACT:
Name / Title of Local (or State) Debris Manager
Telephone Number / Facsimile Number / E-Mail Address
(Note: list the hours / days of the week this telephone number is staffed.)
Name of Agency / Web Site Address

Disaster Debris Removal to Begin
(Note: This would be used for a curbside collection / removal operation that does NOT emphasize recycling.)

Recovery efforts are underway in response to (describe disaster conditions) in (name of jurisdiction). Clearing and removing disaster debris is a major part of the recovery effort. (Name of agency) will begin debris collection and removal in (name of jurisdiction) on (beginning date) and will continue until (end date). Residents are asked to **separate** disaster debris as follows, and **place it in piles at the curb in the public right-of-way**, not on private property:

- **Construction and demolition materials** (building construction materials – wood, metal, drywall, shingles, etc., as well as building contents and personal property – furnishings, clothing, appliances, etc.)
- **Vegetative materials** (trees, limbs, brush, leaves, etc.)
- **Household hazardous waste** (paints, cleaners, oils, batteries, pesticides, etc.); please be sure these materials are in a secured container and are not leaking in any way.
- **Dirt / sediment** (soil, sand, gravel, etc.)

Please be advised that debris removal crews **WILL NOT**, at this time, enter onto private property to collect or remove debris. All debris must be placed in separate piles at the curb in the public right-of-way, as described above. It is the home / business owner's responsibility to bring the debris to the curb and to properly separate it. Your cooperation will make this debris removal operation proceed smoothly and ensure that the community recovers as quickly as possible.

If placing your materials at the curb will cause a traffic or other safety hazard, or if you are unable to move debris to the curb due to physical limitations, debris size / weight, etc., please call (telephone number) before (date / time) to arrange for special pick-up at a later time. Please note that debris **WILL NOT** be removed from private property without a signed Right-of-Entry Agreement from the property owner. (This requirement will be explained when you call.)

To report unsafe debris situations (e.g., leaning trees, trees on houses, partially collapsed structures, etc.) please call (telephone number) immediately.

Please note that this operation is **ONLY** for disaster debris. Please do not attempt to place garbage or other household refuse with the disaster debris, as it will not be accepted. Regular trash removal services in the community will continue as scheduled.

SAMPLE PRESS RELEASE #2: CURBSIDE COLLECTION

Date

FOR IMMEDIATE RELEASE

FOR MORE INFORMATION CONTACT:
Name / Title of Local (or State) Debris Manager
Telephone Number / Facsimile Number / E-Mail Address
(Note: list the hours / days of the week this telephone number is staffed.)
Name of Agency / Web Site Address

Disaster Debris Removal to Begin
(Note: This would be used for a curbside collection / removal operation that EMPHASIZES RECYCLING.)

Recovery efforts are underway in response to (describe disaster conditions) in (name of jurisdiction). Clearing and removing disaster debris is a major part of the recovery effort. (Name of agency) will begin debris collection and removal in (name of jurisdiction) on (beginning date) and will continue until (end date). In an effort to reduce the amount of debris that has to be disposed of, as well as the associated debris disposal costs, the (name of jurisdiction) will be recycling as many materials as possible. Residents are asked to **separate** disaster debris as follows, and **place it in piles at the curb in the public right-of-way**, not on private property:

- **Metals** (window frames; sheet metal siding and roofing; cast iron tubs / sinks; railings; appliances such as washers, dryers, refrigerators, and stoves; mobile home frames; metal parts from cars; personal belongings that are metal such as damaged tools; metal furnishings such as chairs, tables, file cabinets, and bed frames; metal pipes; etc.)
- **Wood materials** (framing materials; plywood; wood flooring; decks and decking material; wood furniture such as tables and chairs; personal belongings that are wood such as picture frames; etc.)
- **Dirt / sediment** (soil, sand, gravel, etc.)
- **Concrete** (concrete chunks; concrete block; bricks; concrete pavers; etc.)
- **Tires** (from automobiles, bicycles, trailers, etc.)
- **Glass** (empty / clean bottles and jars, household items, window panes, glass block, etc.)
- **Residual construction and demolition materials** (non-recyclable building construction materials – drywall, asphalt shingles, plastic sinks / tubs, floor tiles, etc.; non-recyclable building contents and personal property – carpeting / rugs, furnishings, clothing, etc.)
- **Vegetative materials** (trees, limbs, brush, leaves, etc.)
- **Household hazardous waste** (paints, cleaners, oils, batteries, pesticides, etc.); please be sure these materials are in a secured container and are not leaking in any way.

Please be advised that debris removal crews **WILL NOT**, at this time, enter onto private property to collect or remove debris. All debris must be placed in separate piles at the curb in the public right-of-way, as described above. It is the home / business owner's responsibility to bring the debris to the curb and to properly separate it. Your cooperation will make this debris removal operation proceed smoothly and ensure that the community recovers as quickly as possible.

If placing your materials at the curb will cause a traffic or other safety hazard, or if you are unable to move debris to the curb due to physical limitations, debris size / weight, etc., please call (telephone number) before (date / time) to arrange for special pick-up at a later time. Please note that debris **WILL NOT** be removed from private property without a signed Right-of-Entry Agreement from the property owner. (This requirement will be explained when you call.)

To report unsafe debris situations (e.g., leaning trees, trees on houses, partially collapsed structures, etc.) please call (telephone number) immediately.

Please note that this operation is **ONLY** for disaster debris. Please do not attempt to place garbage or other household refuse with the disaster debris, as it will not be accepted. Regular trash removal services in the community will continue as scheduled.

SAMPLE PRESS RELEASE #3: USE OF COLLECTION CENTERS

Date

FOR IMMEDIATE RELEASE

FOR MORE INFORMATION CONTACT:
Name / Title of Local (or State) Debris Manager
Telephone Number / Facsimile Number / E-Mail Address
(Note: list the hours / days of the week this telephone number is staffed.)
Name of Agency / Web Site Address

Disaster Debris Removal to Begin

(Note: This would be used for a collection / removal operation that EMPHASIZES RECYCLING and the use of Collection Centers.)

Recovery efforts are underway in response to (describe disaster conditions) in (name of jurisdiction). Clearing and removing disaster debris is a major part of the recovery effort. (Name of agency) will begin debris collection operations in (name of jurisdiction) on (beginning date) and will continue until (end date). Several debris **Collection Centers** will be used. In an effort to reduce the amount of debris that has to be disposed of, as well as the associated debris disposal costs, the (name of jurisdiction) will be recycling as many materials as possible. Residents are asked to transport their disaster-related debris to any of the Collection Centers that have been opened throughout the community (see locations below) for drop off. At the Collection Center, residents must **separate** their disaster debris as follows, and **place it in large bins for**:

- **Metals** (window frames; sheet metal siding and roofing; cast iron tubs / sinks; railings; appliances such as washers, dryers, refrigerators, and stoves; mobile home frames; metal parts from cars; personal belongings that are metal such as damaged tools; metal furnishings such as chairs, tables, file cabinets, and bed frames; metal pipes; etc.)
- **Wood materials** (framing materials; plywood; wood flooring; decks and decking material; wood furniture such as tables and chairs; personal belongings that are wood such as picture frames; etc.)
- **Dirt / sediment** (soil, sand, gravel, etc.)
- **Concrete** (concrete chunks; concrete block; bricks; concrete pavers; etc.)
- **Tires** (from automobiles, bicycles, trailers, etc.)
- **Glass** (empty / clean bottles and jars, household items, window panes, glass block, etc.)
- **Residual construction and demolition materials** (non-recyclable building construction materials – drywall, asphalt shingles, plastic sinks / tubs, floor tiles, etc.; non-recyclable building contents and personal property – carpeting / rugs, furnishings, clothing, etc.)
- **Vegetative materials** (trees, limbs, brush, leaves, etc.)
- **Household hazardous waste** (paints, cleaners, oils, batteries, pesticides, etc.); please be sure these materials are in a secured container and are not leaking in any way.

Separate bins will be available for each type of debris described above. Staff from the (name of agency) will be present at each Collection Center to aid residents in the proper separation and disposal of their disaster debris. Please note that general curbside debris collection / removal will **not occur**. It is each resident's responsibility to transport (or arrange for the transport of) their disaster-related debris to one of the Collection Centers and properly unload and separate the debris. Residents are **NOT** to leave their disaster-related debris by the curbside or in the public right-of-way. This may result in a citation by the (name of agency) and a possible fine. Your cooperation will make this debris removal operation proceed smoothly and ensure that the community recovers as quickly as possible.

Residents that are physically and/or financially unable to transport (or arrange for the transport of) their disaster-related debris to a Collection Center are asked to call (telephone number) on (what days / between what hours?) before (deadline date) to arrange for assistance. Family members or caretakers are asked to call on behalf of those that are not able to make the call themselves. Please note that debris **WILL NOT** be removed from private property without a signed Right-of-Entry Agreement from the property owner. (This requirement will be explained when you call.)

The Collection Centers will only accept disaster-related debris. Please do not attempt to place garbage or other household refuse with the disaster debris, as it will not be accepted. Regular trash removal services in the community will continue as scheduled.

Debris Collection Center Locations:

- (Location / Address / Hours of Operation of Collection Center #1)
- (Location / Address / Hours of Operation of Collection Center #2)
- (Location / Address / Hours of Operation of Collection Center #3) Etc.

(Note: If both curbside collection and Collection Centers will be used, then blend the Sample Press Releases together to create a single Press Release with the correct amount of emphasis on each collection method.)

SAMPLE PUBLIC SERVICE ANNOUNCEMENT #1

(Name of jurisdiction) Office of Emergency Management
(OR Michigan Department of State Police, Emergency Management and Homeland Security Division)
(Address)

FOR USE UNTIL (DATE)

DISASTER DEBRIS REMOVAL

(Note: This would be used for a curbside collection / removal operation that does NOT emphasize recycling.)

30 SECONDS

Due to the recent (describe disaster conditions), the (name of local jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection and removal on (beginning date) and will continue until (end date). Residents are asked to separate disaster debris into four piles:

- Building materials and contents;
- Trees, limbs, and brush;
- Household hazardous waste; and
- Dirt, sand, and gravel.

Please place the debris piles at the curb in the public right-of-way in front of your home or business by (date / time). If properly separated, it will be picked up by crews and disposed of. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). Thank you.

SAMPLE PUBLIC SERVICE ANNOUNCEMENT #2

(Name of jurisdiction) Office of Emergency Management
(OR Michigan Department of State Police, Emergency Management and Homeland Security Division)
(Address)

FOR USE UNTIL (DATE)

DISASTER DEBRIS REMOVAL

(Note: This would be used for a curbside collection / removal operation that EMPHASIZES RECYCLING.)

45 SECONDS

Due to the recent (describe disaster conditions), the (name of local jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection and removal on (beginning date) and will continue until (end date). In order to recycle as many materials as possible, residents are asked to separate disaster debris into the following piles:

- Metals;
- Wood materials;
- Dirt / sand / gravel;
- Concrete / bricks;
- Tires;
- Glass;
- Residual construction materials;
- Building contents;
- Trees, limbs, and brush; and
- Household hazardous waste.

Please place the debris piles at the curb in the public right-of-way in front of your home or business by (date / time). If properly separated, it will be picked up by crews. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). Thank you.

SAMPLE PUBLIC SERVICE ANNOUNCEMENT #3

(Name of jurisdiction) Office of Emergency Management
(OR Michigan Department of State Police, Emergency Management and Homeland Security Division)
(Address)

FOR USE UNTIL (DATE)

DISASTER DEBRIS REMOVAL

(Note: This would be used for a collection / removal operation that does NOT emphasize recycling and that uses Collection Centers.)

30-45 SECONDS

Due to the recent (describe disaster conditions), the (name of local jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection operations on (beginning date) and will continue until (end date). Debris Collection Centers have been established at (list locations). Residents are asked to transport their disaster-related debris to any of the Collection Centers (between what hours?) for drop off. At the Collection Center, residents must separate their disaster debris and place it in large bins for:

- Building materials and contents;
- Trees, limbs, and brush;
- Household hazardous waste; and
- Dirt, sand, and gravel.

Staff from the (name of agency) will be present at each Collection Center to help. The Collection Centers will only accept disaster-related debris. Garbage or other household refuse will not be accepted. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). Thank you.

SAMPLE PUBLIC SERVICE ANNOUNCEMENT #4

(Name of jurisdiction) Office of Emergency Management
(OR Michigan Department of State Police, Emergency Management and Homeland Security Division)
(Address)

FOR USE UNTIL (DATE)

DISASTER DEBRIS REMOVAL

(Note: This would be used for a collection / removal operation that EMPHASIZES RECYCLING and the use of Collection Centers.)

45 SECONDS

Due to the recent (describe disaster conditions), the (name of local jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection operations on (beginning date) and will continue until (end date). Debris Collection Centers have been established at (list locations). Residents are asked to transport their disaster-related debris to any of the Collection Centers (between what hours?) for drop off. In an effort to reduce the amount of debris that has to be disposed of, as well as the associated debris disposal costs, the (name of jurisdiction) will be recycling as many materials as possible. At the Collection Center, residents must separate their disaster debris and place it in large bins for:

- Metals;
- Wood materials;
- Dirt / sand / gravel;
- Concrete / bricks;
- Tires;
- Glass;
- Residual construction materials;
- Building contents;
- Trees, limbs, and brush; and
- Household hazardous waste.

Staff from the (name of agency) will be present at each Collection Center to help. The Collection Centers will only accept disaster-related debris. Garbage or other household refuse will not be accepted. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). Thank you.

(Note: If both curbside collection and Collection Centers will be used, then blend the Sample Public Service Announcements together to create a single Public Service Announcement with the correct amount of emphasis on each collection method.)

SAMPLE HANDBILL / DOOR HANGER #1: NOTICE OF DEBRIS REMOVAL
(Curbside collection with no emphasis on recycling)

(NAME OF JURISDICTION) DISASTER DEBRIS REMOVAL

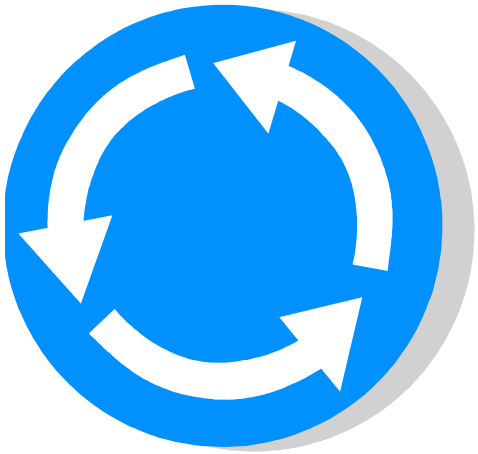
Due to the recent (describe disaster conditions), the (name of jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection and removal on (beginning date) and will continue until (end date). Residents are asked to separate disaster debris into four piles:

- Building materials and contents;
- Trees, limbs, and brush;
- Household hazardous waste; and
- Dirt, sand, and gravel.

Please **place the debris piles at the curb in the public right-of-way** in front of your home or business by (date / time). If properly separated, it will be picked up by crews and disposed of. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). THANK YOU.

SAMPLE HANDBILL / DOOR HANGER #2: NOTICE OF RECYCLING / DEBRIS REMOVAL
(Curbside collection with emphasis on recycling)

(NAME OF JURISDICTION) DISASTER DEBRIS RECYCLING / REMOVAL



Due to the recent (describe disaster conditions), the (name of jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection and removal on (beginning date) and will continue until (end date). In order to recycle as many materials as possible, residents are asked to separate disaster debris into the following piles:

- Metals;
- Wood materials;
- Dirt / sand / gravel;
- Concrete / bricks;
- Tires;
- Glass;
- Residual construction materials;
- Building contents;
- Trees, limbs, and brush; and
- Household hazardous waste.

Please place the debris piles at the curb in the public right-of-way in front of your home or business by (date / time). If properly separated, it will be picked up by crews. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). THANK YOU.

SAMPLE HANDBILL / DOOR HANGER #3: NOTICE OF DEBRIS REMOVAL
(Use of Collection Centers with no emphasis on recycling)

(NAME OF JURISDICTION) DISASTER DEBRIS REMOVAL

Due to the recent (describe disaster conditions), the (name of jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection operations on (beginning date) and will continue until (end date). Debris Collection Centers have been established at (list locations). Residents are asked to transport their disaster-related debris to any of the Collection Centers (between what hours?) for drop off. At the Collection Center, residents must separate their disaster debris and place it in large bins for:

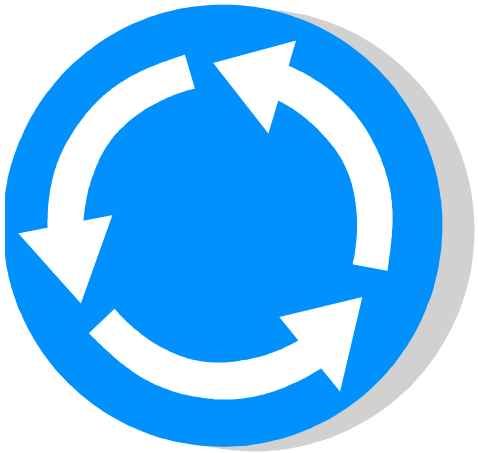
- Building materials and contents;
- Trees, limbs, and brush;
- Household hazardous waste; and
- Dirt, sand, and gravel.

Staff from the (name of agency) will be present at each Collection Center to help. The Collection Centers will only accept disaster-related debris. Garbage or other household refuse will not be accepted. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). THANK YOU.

SAMPLE HANDBILL / DOOR HANGER #4: NOTICE OF RECYCLING / DEBRIS REMOVAL

(Use of Collection Centers with emphasis on recycling)

(NAME OF JURISDICTION) DISASTER DEBRIS RECYCLING / REMOVAL



Due to the recent (describe disaster conditions), the (name of jurisdiction / State of Michigan) is coordinating the collection and removal of disaster debris within (name of jurisdiction). (Name of agency) will begin debris collection operations on (beginning date) and will continue until (end date). Debris Collection Centers have been established at (list locations). Residents are asked to transport their disaster-related debris to any of the Collection Centers (between what hours?) for drop off. In order to recycle as many materials as possible, at the Collection Center residents must separate their disaster debris and place it in large bins for:

- Metals;
- Wood materials;
- Dirt / sand / gravel;
- Concrete / bricks;
- Tires;
- Glass;
- Residual construction materials;
- Building contents;
- Trees, limbs, and brush; and
- Household hazardous waste.

Staff from the (name of agency) will be present at each Collection Center to help. The Collection Centers will only accept disaster-related debris. Garbage or other household refuse will not be accepted. For further information, call (telephone number) or visit the (name of agency) web site at (web site address). THANK YOU.

(Note: If both curbside collection and Collection Centers will be used, then blend the Sample Handbill / Door Hangers together to create a single Handbill / Door Hanger with the correct amount of emphasis on each collection method.)

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DISASTER DEBRIS MANAGEMENT TEAM – MEMBERSHIP ROSTER / CONTACT LIST

Name	Agency*	Role*	Phone #	Facsimile #	E-Mail Address
		Debris Manager	(office); (cell); (pager)		
		Debris Manager (Alternate)	(office); (cell); (pager)		
		Public Assistance Officer	(office); (cell); (pager)		
		Public Assistance Officer (Alternate)	(office); (cell); (pager)		
		Public Information Officer	(office); (cell); (pager)		
		Public Information Officer (Alternate)	(office); (cell); (pager)		
		Emergency Management Coordinator	(office); (cell); (pager)		
	Department of Public Works	(specify)	(office); (cell); (pager)		
	Department of Solid Waste Management	(specify)	(office); (cell); (pager)		
	Engineering Department	(specify)	(office); (cell); (pager)		
	Legal Department	(specify)	(office); (cell); (pager)		
	Environmental Compliance Department	(specify)	(office); (cell); (pager)		
	Contract and Procurement Department	(specify)	(office); (cell); (pager)		
	Fiscal Administration Department	(specify)	(office); (cell); (pager)		
	Other Local Department (specify)	(specify)	(office); (cell); (pager)		
	Private Debris Management Contractor (specify)	Clear / remove / dispose of debris; operate Collection Centers / TDSR Sites	(office); (cell); (pager)		
	Private Debris Management Contractor (specify)	Clear / remove / dispose of debris; operate Collection Centers / TDSR Sites	(office); (cell); (pager)		
	Citizen Corps / CERT	Provide volunteers for debris management operations	(office); (cell); (pager)		
	Michigan Voluntary Organizations Active in Disaster (MIVOAD)	Provide volunteers for debris management operations	(office); (cell); (pager)		
	Other Nongovernmental Organization (specify)	Provide volunteers for debris management operations	(office); (cell); (pager)		
	Other Nongovernmental Organization (specify)	Provide volunteers for debris management operations	(office); (cell); (pager)		

(*Note: Customize the agency / organization names and debris management roles to reflect the local team structure.)

DISASTER DEBRIS MANAGEMENT TEAM – STATE SUPPORT ELEMENTS CONTACT LIST

Name	Agency*	Role*	Phone #	Facsimile #	E-Mail Address
	Emergency Management & Homeland Security Division, Michigan Department of State Police	District Coordinator	(office); (cell); (pager)		
	Emergency Management & Homeland Security Division, Michigan Department of State Police	State Debris Manager	(office); (cell); (pager)		
	Emergency Management & Homeland Security Division, Michigan Department of State Police	State Public Assistance Officer	(office); (cell); (pager)		
	Emergency Management & Homeland Security Division, Michigan Department of State Police	State Public Information Officer	(office); (cell); (pager)		
	Michigan Department of Agriculture – District Representative	Technical assistance regarding crop and livestock debris disposal	(office); (cell); (pager)		
	Michigan Department of Environmental Quality – District WHMD Representative	Technical assistance regarding debris reduction / storage / disposal	(office); (cell); (pager)		
	Michigan Department of Natural Resources – District Representative	Technical assistance regarding forest and wildlife debris disposal	(office); (cell); (pager)		
	Michigan Department of Transportation – Region Representative	Technical engineering expertise; issue permits for oversize and overweight loads	(office); (cell); (pager)		
	Other State Agency (specify)	(specify)	(office); (cell); (pager)		

(*Note: Customize the agency / organization names and debris management roles to reflect the local team structure.)

DEBRIS CATEGORIES AND FORECASTING

The quantity and type of debris generated in the **(name of jurisdiction)** is a function of the type of disaster, its location, and its magnitude, duration, and intensity. The quantity and type of debris generated, its location, and the size of the area over which it is dispersed directly impacts the collection and disposal methods used to address the debris problem, associated costs incurred, and the speed with which the problem can be addressed. Knowing the types of debris that various disasters are likely to generate is essential for debris operations planning. The following is a list of the disasters in the **(name of jurisdiction)** that are most likely to generate a significant quantity of debris, and the type of debris that is likely to be generated:

Major Categories of Disaster Debris in the (name of jurisdiction)*

Disaster	Construction and Demolition (C&D)	Sediment	Green Waste	Ash and Charred Wood	Household Hazardous Waste (HHW)	Industrial Hazardous Waste (IHW)	Animal Carcasses
Tornado / Severe Storm	■		■		■	■	■
Flood	■	■	■		■	■	■
Wildfire	■			■	■	■	
Ice Storm	■		■				
Terrorist Attack**	■				■	■	
Widespread Plant or Animal Disease			■				■
Widespread Insect Infestation			■				
Other (specify)							

Sources: U.S. Environmental Protection Agency, Federal Emergency Management Agency, MSP/EMHSD Disaster Files.
*Refer to tables on the following pages for descriptions of disaster debris categories.
**An attack that results in physical damage. Some types of attacks (e.g., bioterrorism attack) may not cause physical damage that would result in debris; rather, the primary impact would be to human life.

Tornado / Severe Storm Debris. Damage from tornadoes is caused by high-velocity rotating winds. The severity of the damage depends on the size of the tornado funnel and the length of time the funnel touches the ground. Damage is generally confined to a narrow path extending up to half a mile wide and from a hundred yards to several miles long. Tornado debris typically includes damaged and destroyed structures, green waste (vegetative material), personal property, household hazardous waste, and possibly animal carcasses. The debris is typically mixed and widely scattered within the tornado path. Tornadoes that occur near lakes or other waterways may result in sunken boats, which can cause navigation hazards unless properly removed and disposed of.

Debris from severe storms is similar to that of tornadoes, but is generally more widely spread.

Flood Debris. Debris from floods is caused by structural inundation and high-velocity water flow. As soon as flood waters recede, people begin to dispose of flood-damaged household items. Mud, sediment, sandbags, and other reinforcing materials also add to the volume of debris

needing management, as do materials from demolished and dismantled houses. Household and industrial hazardous waste and animal carcasses are often prevalent in flood disasters. Floods are often the most difficult disaster events relative to debris, as most possessions are usually destroyed. Floods can also cause landslides in elevated terrain.

Ice Storm Debris. Ice storms typically generate large quantities of green waste. Utility poles and wires may be severely damaged and also become debris. If cold weather continues after an ice storm, utility restoration may be slowed. Restricted access and power outages can become major problems when removing debris caused by an ice storm. Flooding may occur if major snow accumulation is followed by rapid warming.

Wildfire Debris. Wildfires generally leave less debris than other types of disasters; however, they still can generate considerable waste. For example, demolished houses contribute noncombustible debris. Burned out cars and other metal objects, as well as ash and charred wood waste, also must be managed. In addition, large-scale loss of plants serving as ground cover can lead to mud slides, adding debris to the waste stream. With the increase of homes in woodlands, wildfires now generate more debris than ever.

Terrorist Attack Debris. Terrorist attacks fall into two categories with regard to debris: those that cause physical destruction and therefore generate debris (i.e., bombings, nuclear detonation), and those that primarily cause injury or loss of human life but little physical destruction (i.e., bioterrorism, chemical attack). In the event of a terrorist attack (such as a bombing or nuclear detonation) which results in widespread and/or severe physical damage, the types of debris that can be expected would be similar to that found in a tornado or severe storm. The debris likely would include damaged and destroyed structures, personal property, and (depending on attack location) possibly green waste and household and/or industrial hazardous waste. It is entirely possible that human remains would be scattered throughout the attack debris, turning the attack site into a crime, medical response, and possibly environmental response scene. This would necessarily restrict efforts to collect, separate, and remove debris. Therefore, debris management operations during terrorist attacks would likely proceed at a slower pace and require more labor-intensive sorting and handling of debris.

Widespread Plant Disease or Insect Infestation Debris. A widespread plant disease or insect infestation could potentially create a debris management problem that is statewide or regional in nature. Depending on the nature of the disease, the green waste generated could include trees and brush, agricultural crops, or aquatic vegetation.

Widespread Animal Disease Debris. In the event of an outbreak of “mad cow,” foot-and-mouth disease, or other wide-spread animal infectious disease, disposal of animal carcasses may be required. In particularly severe and/or widespread incidents, the number of carcasses may number in the thousands or possibly even hundreds of thousands. Disposal of animal carcasses may also be an issue in other disasters, especially floods.

Other (specify). (List other debris-generating disasters that may impact the jurisdiction and describe the types of debris that have to be managed.)

Disaster Intensity Scales. Disaster Intensity Scales have been developed for various types of disasters that relate the intensity of an event to the anticipated type and magnitude of damage. In the **(name of jurisdiction)**, the Fujita Scale (for tornadoes) and the flood probability of return period serve as the best tools to predict large-scale debris generating disasters. Wildfires and ice storms also have some measure of intensity which can aid in debris management planning.

Disaster Intensity Scales

Disaster	Scale	Debris Indicator (General)
Tornado	Fujita Scale: F6 – Inconceivable tornado (319-379 mph) F5 – Incredible tornado (261-318 mph) F4 – Devastating tornado (207-260 mph) F3 – Severe tornado (158-206 mph) F2 – Significant tornado (113-157 mph) F1 – Moderate tornado (73-112 mph) F0 – Gale tornado (40-72 mph)	The higher the Fujita Scale rating, the more debris that is likely to be generated. (For example, an F5 tornado will generate more debris than an F0 tornado. The size and nature of the tornado path will also determine the amount and type of debris generated.)
Flood	Probability of return (in a given year): 500-year flood – .2% chance of occurrence 200-year flood – .5% chance of occurrence 100-year flood – 1% chance of occurrence 50-year flood – 2% chance of occurrence 10-year flood – 10% chance of occurrence	The lower the flood probability, the more debris that is likely to be generated. (For example, a 500-year flood is likely to generate more debris than a 100-year flood because it is larger in scope / magnitude and generally much more severe in its damaging capability.)
Wildfire	Palmer Drought Severity Index (PDSI): 4.0 or more – Extremely wet 3.0 to 3.99 – Very wet 2.0 to 2.99 – Moderately wet 1.0 to 1.99 – Slightly wet 0.5 to 0.99 – Incipient wet spell 0.49 to -0.49 – Near normal -0.5 to -0.99 – Incipient dry spell -1.0 to -1.99 – Mild drought -2.0 to -2.99 – Moderate drought -3.0 to -3.99 – Severe drought -4.0 or less – Extreme drought	Wildfire intensity relates (in general) to drought severity and duration. The Palmer Drought Severity Index is a soil moisture algorithm that uses temperature and rainfall information to determine dryness. The PDSI is most effective in determining long term drought. It indicates prolonged and abnormal moisture deficiency or excess. Generally speaking, the lower the PDSI index value the greater the likelihood that larger, more intense wildfires will occur. Those wildfires also tend to result in more debris. (For example, a wildfire that occurs during a period in which the PDSI is -4.0 is more likely to be intense and generate large quantities of debris than is a wildfire that occurs when the PDSI is 3.0.) (Note: the MDNR uses the Canadian Forest Fire Danger Rating System [CFFRS] to determine fire danger ratings and staffing levels.)
Ice Storm	Probability of return (in a given year): 500-year storm – .2% chance of occurrence 200-year storm – .5% chance of occurrence 100-year storm – 1% chance of occurrence 50-year storm – 2% chance of occurrence 10-year storm – 10% chance of occurrence	The lower the storm probability, the more debris that is likely to be generated. (For example, a 500-year storm is likely to generate more debris than a 100-year storm because it is larger in scope / magnitude and generally much more severe in its damaging capability.)

Sources: Federal Emergency Management Agency; National Climate Prediction Center (NOAA); National Drought Mitigation Center; Michigan Hazard Analysis.

Debris Characteristics. The following chart identifies the characteristics of the debris associated with the primary debris generating disasters in the (name of jurisdiction). As indicated in the "Major Categories of Debris in the (name of jurisdiction)" chart at the beginning of this attachment, many of these debris types will be generated by more than one type of disaster. The magnitude and mix of debris will vary considerably between disasters.

Debris Characteristics for Disasters in the (name of jurisdiction)

Construction and Demolition (C&D)	
Debris Includes:	Building construction materials (wood, drywall, shingles, flooring, etc.); building contents and personal property (furnishings, clothing, appliances, personal items, vehicles, tires, etc.); utility poles, wires, and equipment (telephone, electric, cable TV, etc.).
Generated From:	Can be present in many disasters. In Michigan, C&D debris occurs primarily with tornadoes, severe storms, floods, wildfires, and ice storms. It may also occur with terrorist attacks that result in physical damage (e.g. bombings).
Considerations:	C&D debris must be evaluated to consider the potential presence of asbestos and other potentially hazardous materials. If recycling is being done, certain materials (e.g., metals, wood, concrete, tires, etc.) can be separated up front from the general C&D debris.
Green Waste (Vegetative Materials)	
Debris Includes:	Trees, limbs, brush, leaves, etc.
Generated From:	Occurs primarily with tornadoes, severe storms, floods, ice storms, widespread plant disease outbreaks, and widespread insect infestations.
Considerations:	Debris within streets must be cleared quickly to allow movement of emergency vehicles. Much of the clean waste can be re-used through grinding, chipping, shredding, composting, etc.
Sediment	
Debris Includes:	Soil, sand, gravel, etc.
Generated From:	Occurs primarily with floods. (Wildfires may cause landslides / mudslides, which can result in considerable sediment debris.)
Considerations:	Sediment can generally be separated and recycled.
Metals	
Debris Includes:	Window frames, sheet metal siding and roofing, cast iron tubs / sinks, railings, mobile home frames, metal parts from cars, metal furnishings (e.g., chairs, tables, file cabinets, etc.), appliances (e.g., washers, dryers, refrigerators, stoves, etc. – also known as "white metals" or "white goods"), bed frames, metal pipes, personal belongings that are metal (e.g., tools, picture frames, etc.).
Generated From:	Occurs primarily with tornadoes, severe storms, floods, wildfires, and terrorist attacks that result in physical damage.
Considerations:	Some metals might be suitable for recycling and should be separated up front. Care must be exercised to ensure that Freon is removed from cooling units of refrigerators and freezers.
Animal Carcasses	
Debris Includes:	Farm animals, wild animals (wildlife), domestic animals.
Generated From:	Occurs primarily with tornadoes, severe storms, floods, and widespread animal disease outbreaks.
Considerations:	Disposal of animal carcasses must be done in accordance with the Bodies of Dead Animals Act (1982 PA 239, as amended). Depending on the circumstances, it may be necessary to work with state / local health officials to develop advisories to protect the health and safety of the public.

Debris Characteristics for Disasters in the (name of jurisdiction) (cont.)

Household Hazardous Waste (HHW)	
Debris Includes:	Paints, cleaners, oils, batteries, pesticides, propane tanks, etc.
Generated From:	Occurs primarily with tornadoes, severe storms, floods, wildfires, and terrorist attacks that result in physical damage.
Considerations:	HHW items contain potentially hazardous ingredients that require special care when they are collected, stored, and disposed of. Improper disposal of these wastes can pollute the environment and pose a threat to human health. HHW should be separated at the source and managed separately to avoid contaminating the non-hazardous debris. HHW should be collected using a separate collection process, if possible. Certain types of HHW may have to be hauled to a licensed hazardous waste treatment, storage, or disposal facility in accordance with applicable MDEQ regulations.
Industrial Hazardous Waste (IHW)	
Debris Includes:	Industrial chemicals, paints, solvents, cleaners, oils, fluids, batteries, pesticides, etc.
Generated From:	Occurs primarily with tornadoes, severe storms, floods, wildfires, and terrorist attacks that result in physical damage.
Considerations:	See HHW note above. Most IHW must be hauled to a licensed hazardous waste treatment, storage, or disposal facility in accordance with applicable MDEQ regulations. Certain types of IHW can be extremely hazardous to public health and may pose a danger to public safety as well.

Debris Forecasting Methods and Considerations. Determining the amount and type of debris that will have to be managed is a basic element of the **(name of jurisdiction)** disaster debris management planning process. An important distinction must be made between "estimating" disaster debris and "forecasting" disaster debris. Quantifying the amount of debris after a disaster is known as "estimating." This is an essential element of the damage / impact assessment process and is discussed in detail in MSP/EMHSD Publication 901 – "Damage Assessment Handbook." In particular, Attachment G on page 38 of that document, "Disaster Debris Estimating Techniques," will be used by the **(name of jurisdiction)** damage assessment teams to estimate the amounts of disaster debris on the ground. In addition, debris tables developed by the U.S. Army Corps of Engineers (USACE) and found in the section of this plan titled "Debris Forecast Based on USACE 'Quick' Techniques" will also be used as appropriate. The estimates of debris quantities will be provided to the MSP/EMHSD as part of the jurisdiction's overall damage / incident assessment submitted within E Team on an Incident Report and Jurisdiction Situation Report. Refer to the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)**, **(list specific section)** for more detailed information on post-disaster debris estimating as part of the damage / incident assessment process.

Debris "forecasting" involves predicting the amount and type of debris that may occur in **(name of jurisdiction)** based on historic disasters and/or mathematical debris forecasting modeling. Debris forecasting helps to define: 1) the anticipated scope, magnitude, and duration of disaster debris management operations; 2) the required response and recovery resources that must be mobilized (including the need for state debris management assistance); 3) the number and size of debris management support facilities that must be established; and 4) the final disposition of disaster debris.

*Design Disaster for **(name of jurisdiction)**.* The **(name of jurisdiction)** Hazard Analysis **(list alternate document name as appropriate)** provides a listing of the historic disasters that have occurred, as well as those that have the potential to occur, in **(name of jurisdiction)**. Based on that document (which includes implications presented in the National Planning Scenarios) and the disaster intensity and debris characteristics information provided above, it is determined that a **(list type and size of disaster [or disasters])** is **(are)** the type(s) of disaster(s) that most likely to generate the largest quantities of debris in the **(name of jurisdiction)**. This will be the "design disaster" for the debris management planning process.

Land Use and Geography Considerations. The **(name of jurisdiction)** is primarily **(rural, urban, suburban, mixed)** in character with a predominance of **(list land uses that apply – e.g., agricultural, commercial, industrial, residential, institutional, etc.; provide percentage**

breakdowns where possible – e.g., 70% agricultural, 10% residential, 10% commercial, 10% industrial) land uses. Therefore, it is likely that **(list types of debris – e.g., vegetative, construction and demolition, hazardous waste, etc.)** will be the predominant type(s) of debris generated by the design disaster.

OR

(Alternative: Sectoring the jurisdiction based on differing land use / geographical patterns. Use the following narrative if sectoring is used.) The **(name of jurisdiction)** is a geographically diverse jurisdiction with differing land uses and geographic patterns. The **(describe sector – e.g., northern half, northeast quadrant, etc.)** is primarily **(rural, urban, suburban, mixed)** in character with a predominance of **(list land uses that apply – e.g., agricultural, commercial, industrial, residential, institutional, etc.)** land uses. The **(describe sector)**, on the other hand, is primarily **(rural, urban, suburban, mixed)** in character with a predominance of **(list land uses that apply – e.g., agricultural, commercial, industrial, residential, institutional, etc.)** land uses. **(As applicable, use separate descriptions for each diverse geographical area; provide percentage breakdowns where possible – e.g., 70% agricultural, 10% residential, 10% commercial, 10% industrial.)** Each area has different debris quantities and characteristics based on this land use and geographical diversity. In the **(list sector)**, the predominant type(s) of debris will likely be **(list types of debris – e.g., vegetative, construction and demolition, hazardous waste, etc.)** In the **(list sector)**, the predominant debris type will be **(list types of debris – e.g., vegetative, construction and demolition, hazardous waste, etc.)** **(List this information for each sector.)**

Background Notes: Different land uses will generate different types of debris. Each type of debris may require special handling in the debris management operation. For example, rural areas will likely have more vegetative debris. Heavily forested urban areas will also have a higher percentage of vegetative debris and will likely have a significant mixture of downed power poles and lines in the debris. Urban areas will generally have more construction and demolition (C & D) debris than will rural areas. The type and construction of structures will also determine the type of debris. If the predominant residential construction type in the jurisdiction is two-story wood framed houses, then there will be more wood C & D debris. If the jurisdiction has more brick homes, then there will be more brick debris. Industrial parks may have special environmental concerns related to industrial hazardous waste. Heavily forested areas will have significant amounts of charred wood debris when wildfires occur. A careful analysis of the jurisdiction's land use and geographic patterns is an essential step in the disaster debris planning process.

In residential areas, the type, size, age, and nature of the homes will have a significant impact on the amount of debris generated, as will the overall nature and character of the neighborhood. For example, newer home developments will likely have larger homes but less vegetation. Conversely, "mature" neighborhoods will typically have smaller homes but far more mature trees and shrubs (although many mature neighborhoods may have large, older homes). A "typical" established neighborhood will have a uniform pattern of open space and tree canopy cover. Home type also has an impact on the generation of disaster debris. For example, a typical mobile home will generate more debris volume than a "stick built" single family home. (Mobile homes have less wasted space due to their construction and use. The walls are narrower and the units contain more storage space.)

The nature of the damage created by the debris generating disaster must also be considered in the planning process. For example, "wet events" such as floods and severe storms will generate more personal property (household furnishings, clothing, rugs / carpeting, etc.) debris than will other disasters. This will result in more debris being moved to the curbside or taken to Collection Centers for removal and disposal. Wet debris is also typically sediment-laden and is therefore considerably heavier than dry debris. As a result, weight considerations must be factored into debris collection and disposal. Floods will often deposit large amounts of sediment and other types of debris in areas well outside the traditional floodplain. Debris generated by wind disasters such as tornadoes or severe storms may be spread over a wide geographic area, which can have significant implications on the debris management operation. Debris generated by acts of terrorism will be part of a crime scene and therefore will have to be addressed as the criminal investigation activities are completed and the scene is cleared for entry.

The size and nature of the jurisdiction's population are also factors in debris management planning. Jurisdictions with larger populations will have more buildings and more residents with personal property, resulting in more debris when disasters occur. Also, more affluent populations are likely to have more personal property and larger homes than less affluent populations. Therefore, it can be reasonably assumed that jurisdictions with more affluent populations will likely have a larger debris management problem.

Note: Select one of the following three paragraphs for the plan. The first describes debris forecasting using historical information from the jurisdiction, from neighboring jurisdictions, or detailed "case studies" from other jurisdictions with similar characteristics and conditions. This paragraph is appropriate for use when accurate, detailed historical records are available for past disaster debris management operations for the design disaster. The second describes debris forecasting using the U.S. Army Corps of Engineers (USACE) basic forecasting / estimating techniques found on pages 66-68. This paragraph is appropriate for use when records of past debris quantities and disaster debris management operations for design disasters may be unavailable, unreliable, or incomplete; however, good damage assessment information for these past design disasters is available. The third describes debris forecasting using USACE modeling methodology derived from years of experience in dealing with hurricane-generated debris. The former methods are more desirable (and generally more accurate) than this method, which has a plus / minus 30 percent predicted accuracy and is a storm-based model only that is typically applied immediately preceding an incident or trans-incident. However, in the absence of good historical records for debris management and damage assessment activities, the USACE model is an acceptable pre-incident means for forecasting disaster debris for the jurisdiction's design disaster (assuming that the jurisdiction's design disaster is storm-based – i.e., severe storms or tornadoes). Using the USACE model will result in a range of debris forecasts (plus / minus 30 percent) that will provide, at the least, a starting point for determining likely disaster debris quantities and the resource requirements of the jurisdiction's disaster debris management operation.

Debris Forecast Based on Historical Records. As indicated earlier, the design disaster for debris management planning purposes in the **(name of jurisdiction)** is **(list type and size of disaster [or disasters]).** This is **(are)** the type(s) of disaster(s) that most likely to generate the largest quantities of debris in the **(name of jurisdiction)**. Historic records from previous such events, including **(list all pertinent records that were used – e.g., previous debris removal contracts, recycling / resource recovery records, volume reduction and landfill disposal records, case studies from other jurisdictions, etc.)**, indicate that **(list quantity of debris in cubic yards, tons, truckloads, or some other acceptable unit of measure)** of debris was generated from that **(those)** particular event(s). The debris consisted of **(provide percentage breakdowns of the various debris types, if possible – e.g., 60% vegetative, 25% C & D, 10% metals, 5% sediment, etc.)** and was generated from the following levels of damage: **(List the number of damaged structures and types of damage incurred in the design disaster – e.g., 100 destroyed homes; 500 homes with major damage; 700 homes with minor damage; 25 destroyed businesses; 40 businesses with major damage; 60 businesses with minor damage; 5,000 downed trees in public spaces; 1,000 downed power poles; etc.)** It is assumed that future events that are similar in nature, scope, magnitude, and duration to the design disaster will produce similar levels of damage and disaster debris.

OR – OPTION 2

Debris Forecast Based on USACE "Quick" Techniques. As indicated earlier, the design disaster for debris management planning purposes in the **(name of jurisdiction)** is **(list type and size of disaster [or disasters]).** This is **(are)** the type(s) of disaster(s) that most likely to generate the largest quantities of debris in the **(name of jurisdiction)**. It is assumed that similar disasters in the future will produce similar levels of damage and disaster debris. Damage assessment records from previous design disasters indicate that the following levels of damage can be expected from future events that are similar in nature, scope, magnitude, and duration: **(List the number of damaged structures and types of damage incurred in the design disaster – e.g., 100 destroyed homes; 500 homes with major damage; 700 homes with minor damage; 25 destroyed businesses; 40 businesses with major damage; 60 businesses with minor damage; 5,000 downed trees in public spaces; 1,000 downed power poles; etc.)** This damage assessment information was examined using the following USACE techniques. This analysis provided the following debris forecast for the **(name of jurisdiction)** for future design disasters: **(list forecasted quantity of debris in cubic yards, tons, truckloads, or some other acceptable unit of measure)**. This debris is forecasted to consist of **(provide forecasted percentage breakdowns of the various debris types, if possible – e.g., 60% vegetative, 25% C & D, 10% metals, 5% sediment, etc.)**.

Debris Forecasting Worksheet for the (name of jurisdiction) using USACE "Quick" Techniques

USACE "Quick" Debris Forecasting Formulas and Tables:
(Sources: FEMA Debris Management Guide, FEMA 325; MSP/EMHSD Publication 901 – "Damage Assessment Handbook")

Standard Acronyms / Terms: L – Length; W = Width; H = Height; CY = Cubic Yards; T = Tons; SF = Square Feet; C & D = construction and demolition debris (materials from damaged buildings / related); vegetative debris = downed trees / shrubbery (also called "woody debris")

Vegetative Cover Multiplier. The USACE vegetative cover multiplier is a measure of the amount of debris within a subdivision or neighborhood. The following table describes the three vegetative cover categories used by the USACE in debris forecasting:

Vegetation Cover	Description	Multiplier
Light	Includes new home developments where more ground is visible than trees. These areas will have sparse canopy cover.	1.1
Medium	Generally has a uniform pattern of open space and tree canopy cover. This is the most common description for vegetative cover.	1.3
Heavy	Found in mature neighborhoods and woodlots where the ground or houses cannot be seen due to the tree canopy cover.	1.5

Destroyed Single-Family Residence Debris: The following table developed by the USACE provides forecasted debris quantities for totally destroyed single-family, one-story, residential structures in the applicable vegetative cover category:

Typical House (SF)	Vegetative Cover: None	Vegetative Cover: Light (1.1)	Vegetative Cover: Medium (1.3)	Vegetative Cover: Heavy (1.5)
1,000 SF	200 CY	220 CY	260 CY	300 CY
1,200 SF	240 CY	264 CY	312 CY	360 CY
1,400 SF	280 CY	308 CY	364 CY	420 CY
1,600 SF	320 CY	352 CY	416 CY	480 CY
1,800 SF	360 CY	396 CY	468 CY	540 CY
2,000 SF	400 CY	440 CY	520 CY	600 CY
2,200 SF	440 CY	484 CY	572 CY	660 CY
2,400 SF	480 CY	528 CY	624 CY	720 CY
2,600 SF	520 CY	572 CY	676 CY	780 CY

Mobile Home Debris: The typical mobile home generates more debris by volume than a single-family "stick built" home. Historically, the USACE has found the volume of debris from mobile homes to be:

- 290 CY of debris for a single-wide unit; and
- 415 CY of debris for a double-wide unit.

Personal Property Debris – Floods: 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; and
- 45-50 CY for home with a basement.

Damaged Single-Family Residence Debris: The USACE debris forecast table on the previous page only provides figures for totally destroyed, single-family, one-story, residential structures in the applicable vegetative cover category. Adjustments must be made for structures that incur major damage or minor damage based on Michigan's damage assessment "Degree of Damage Categories" found in Attachment E of MSP/EMHSD Publication 901 – "Damage Assessment Handbook." The MSP/EMHSD has modified the USACE table to provide figures for structures with major and minor damage, based on generalized percentage of damage estimates for each level of damage. For **major damage** (which indicates 50 percent or more and up to 99 percent of the structure is damaged), the debris forecast figure is set at **65 percent** of the USACE figure for each residential structure size. For **minor damage** (which indicates less than 50 percent of the structure is damaged), the debris forecast figure is set at **25 percent** of the USACE figure for each residential structure size. These modified figures are presented in the following table:

Typical House (SF)	Vegetative Cover: None	Vegetative Cover: Light (1.1)	Vegetative Cover: Medium (1.3)	Vegetative Cover: Heavy (1.5)
1,000 SF	**Major Damage: 130 CY** Minor Damage: 50 CY	**Major Damage: 143 CY** Minor Damage: 55 CY	**Major Damage: 169 CY** Minor Damage: 65 CY	**Major Damage: 195 CY** Minor Damage: 75 CY
1,200 SF	**Major Damage: 156 CY** Minor Damage: 60 CY	**Major Damage: 172 CY** Minor Damage: 66 CY	**Major Damage: 203 CY** Minor Damage: 78 CY	**Major Damage: 234 CY** Minor Damage: 90 CY
1,400 SF	**Major Damage: 182 CY** Minor Damage: 70 CY	**Major Damage: 200 CY** Minor Damage: 77 CY	**Major Damage: 237 CY** Minor Damage: 91 CY	**Major Damage: 273 CY** Minor Damage: 105 CY
1,600 SF	**Major Damage: 208 CY** Minor Damage: 80 CY	**Major Damage: 229 CY** Minor Damage: 88 CY	**Major Damage: 270 CY** Minor Damage: 104 CY	**Major Damage: 312 CY** Minor Damage: 120 CY
1,800 SF	**Major Damage: 234 CY** Minor Damage: 90 CY	**Major Damage: 257 CY** Minor Damage: 99 CY	**Major Damage: 304 CY** Minor Damage: 117 CY	**Major Damage: 351 CY** Minor Damage: 135 CY
2,000 SF	**Major Damage: 260 CY** Minor Damage: 100 CY	**Major Damage: 286 CY** Minor Damage: 110 CY	**Major Damage: 338 CY** Minor Damage: 130 CY	**Major Damage: 390 CY** Minor Damage: 150 CY
2,200 SF	**Major Damage: 286 CY** Minor Damage: 110 CY	**Major Damage: 315 CY** Minor Damage: 121 CY	**Major Damage: 372 CY** Minor Damage: 143 CY	**Major Damage: 429 CY** Minor Damage: 165 CY
2,400 SF	**Major Damage: 312 CY** Minor Damage: 120 CY	**Major Damage: 343 CY** Minor Damage: 132 CY	**Major Damage: 406 CY** Minor Damage: 156 CY	**Major Damage: 468 CY** Minor Damage: 180 CY
2,600 SF	**Major Damage: 338 CY** Minor Damage: 130 CY	**Major Damage: 372 CY** Minor Damage: 143 CY	**Major Damage: 439 CY** Minor Damage: 169 CY	**Major Damage: 507 CY** Minor Damage: 195 CY

Other Useful Quick Reference Techniques: The following formulas and tables were developed by the USACE and are based on extensive field observations and calculations in catastrophic hurricanes and other storm events.

One story building: L' x W' x H' / 27 = (#) Cubic Yards x .33 (compaction factor) = **(#) Cubic Yards**
*(For example: the formula for a building that is 100' long x 50' wide x 10' high is….100 x 50 x 10 / 27 = 1,852 CY x .33 = **611 CY**)*

Debris pile: L' x W' x H' / 27 = **(#) Cubic Yards**
*(For example: the formula for a debris pile that is 50' long x 75' wide x 4' high is….50 x 75 x 4 / 27 = **556 CY**)*

QUICK REFERENCE TABLE - DEBRIS PILES:

Length (Ft.)	Width (Ft.)	Height (Ft.)	Volume (CY)	Tons (T) – C & D Debris	Tons (T) – Woody Debris	Approximate Size Reference
10	10	4	15	7.5	3.75	Small above ground pool
20	10	4	30	15	7.5	Medium above ground pool
30	10	4	45	22.5	11.25	Medium above ground pool
40	10	4	60	30	15	Large above ground pool
50	10	4	75	37.5	18.75	Large above ground pool

QUICK REFERENCE TABLE – OTHER:

Type of Debris	Volume (CY)	Tons (T)	Approximate Size Reference
Trees (15 @ 8" diameter)	40	10	8" diameter is roughly the size of a football at its widest point in the middle
One acre of mixed debris, 3.33 yards high	16,117	4029.25	Football field without the end zones, piled as high as a basketball rim

VOLUME TO WEIGHT CONVERSION TABLE:

Type of Debris	Tons (T)	Cubic Yards (CY)
Vegetative Debris (mixed)	CY / 4	T x 4
Softwood Vegetation	CY / 6	T x 6
Construction and Demolition (C & D)	CY / 2	T x 2

Debris Composition: Although there is no standard composition data that can be applied to all hazard events, the USACE has developed general guidelines based on its years of experience in being involved in disaster debris management for hurricanes and other severe storms. As a general rule of thumb, most storm generated debris will be **30 percent clean woody (vegetative) debris and 70 percent mixed construction and demolition (C & D) debris**, in total. However, land use, land cover, and existing infrastructure (types of buildings) must be considered when making forecasts for planning purposes. This formula must be adjusted as required for local conditions and/or for non-storm design disasters.

Background Note: For example, if the design disaster was a terrorist bombing attack on a particular building, the debris composition would likely be much closer to 95-100 percent mixed C & D debris. If the design disaster was wildland fire, the debris composition might be closer to 85-90 percent charred woody (vegetative) debris – depending on the level of development in the urban-wildland interface area. For floods, the debris composition will be primarily mixed C & D (perhaps 85-90 percent), with the remainder being woody (vegetative) debris.

Forecast for (name of jurisdiction) using USACE "Quick" Techniques

The design disaster for debris management planning purposes in the **(name of jurisdiction)** is **(list type and size of disaster [or disasters]).** Damage assessment records from previous design disasters provide a basis for predicting levels of damage from future events that are similar in nature, scope, magnitude, and duration. These predicted levels of damage were examined using the USACE "Quick" Techniques. This analysis provided the following debris forecast for future design disasters:

For Example:

Type of Damage	Number	Vegetative Cover (Estimated)**, As Applicable	Average / Actual Size of Structure (SF)	Applicable Figure (USACE, MSP/EMHSD, or Formula-Based)	Debris Forecast (CY)	Primary Type of Debris++ Composition)
Residential – Destroyed	100	1.3	1,600	416 CY	41,600	C & D / Vegetative
Residential – Major Damage	400	1.3	1,600	270 CY	108,000	C & D / Vegetative
Residential – Minor Damage	500	1.3	1,600	104 CY	52,000	C & D / Vegetative
Mobile Home – Single Wide Units*	200	1.3	1,000	290 CY	58,000	C & D / Vegetative
Mobile Home – Double Wide Units*	100	1.3	1,800	415 CY	41,500	C & D / Vegetative
Business – Destroyed***	25	N/A	5,000	611 CY	15,275	C & D
Business – Major Damage***	40	N/A	5,000	397 CY	15,880	C & D
Business – Minor Damage***	60	N/A	5,000	153 CY	9,180	C & D
Public / PNP Facility – Destroyed*** (Specify Facility/ies + Actual / Estimated Size)	1	N/A	15,000	1,833 CY	1,833	C & D
Public / PNP Facility – Major Damage*** (Specify Facility/ies + Actual / Estimated Size)	2	N/A	15,000	1,192 CY	2,384	C & D
Public / PNP Facility – Minor Damage*** (Specify Facility/ies + Actual / Estimated Size)	4	N/A	15,000	458 CY	1,832	C & D
Downed Trees+ (in public spaces – e.g., rights-of-way, parks, schoolyards, etc.)	5,000	N/A	8" diameter	(15 trees = 40 CY) 5,000 / 15 = 333 x 40 CY = 13320 CY	13,320	Vegetative
Downed Power Poles+	1,000	N/A	12" diameter x 30' L	(15 poles = 40 CY) 1,000 / 15 = 67 x 40 CY = 2680 CY	2,680	C & D
TOTALS:					**363,484 CY**	**70% C & D = 254,439 CY; 30% vegetative = 109,045 CY**

NOTES:

***If these totals can be separated from the residential categories.**

****Use the vegetative cover description that best fits the overall character of the community or sector (if sectoring). The "medium" category (1.3) is a good all-around category for most communities.**

*****Use the formula for a one story building: L' x W' x H' / 27 = (#) Cubic Yards x .33 (compaction factor) = (#) Cubic Yards. Use the same formula for each story of a multi-story structure. If the square footage is known / estimated, use a standard height of 10' to complete the formula. For structures with major damage, multiply the result by .65 (65 percent of destroyed). For structures with minor damage, multiply the result by .25 (25 percent of destroyed).**

+Use the USACE estimate (15 trees @ 8" diameter = 40 CY debris) for both types of damage. The increased size of the power poles (12") will roughly equate with the 8" diameter tree size when the branches are accounted for.

++No standard composition data can be applied to all design disaster storms. Land use, land cover, and existing infrastructure (types of buildings) must be considered when making forecasts for planning purposes. However, as a general rule of thumb, most storm generated debris will be 30 percent clean woody (vegetative) debris and 70 percent mixed construction and demolition (C & D) debris, in total. Adjust this formula as required for local conditions.

OR – OPTION 3

Debris Forecast Based on USACE Debris Modeling Methodology. As indicated earlier, the design disaster for debris management planning purposes in the **(name of jurisdiction)** is **(list type and size of disaster [or disasters]).** This is **(are)** the type(s) of disaster(s) that most likely to generate the largest quantities of debris in the **(name of jurisdiction)**. However, a lack of good historic damage assessment information and documentation of disaster debris management activities in **(name of jurisdiction)** and in neighboring jurisdictions necessitates that a mathematical debris forecasting model be used instead to determine likely debris quantities. The U.S. Army Corps of Engineers (USACE) modeling methodology to forecast hurricane-generated debris will be used in lieu of historical records to forecast debris quantities for the design disaster. Although this model is hurricane-based, it can be modified to be useful in forecasting debris quantities for the severe storms that pose the most likely debris management problem for **(name of jurisdiction)**. (The model was developed based on actual debris management data from Hurricanes Frederic, Hugo and Andrew, and updated with more recent data from Hurricane Katrina. Although it is normally applied immediately preceding an incident or trans-incident – when storm conditions are more clearly defined – it can also be applied pre-incident based on historical storm data for the jurisdiction.)

The model consists of a mathematical formula that is based primarily on the number of households in a developed area affected by a storm. Other factors utilized are: 1) cubic yards of debris generated per household per storm category; 2) vegetative cover; 3) commercial density; and 4) precipitation. The USACE has also established several other formula-based techniques to forecast debris quantities prior to an event or estimate quantities after a disaster. As shown below, the combination of these methods was used to forecast debris quantities for the design disaster **(list type and size of disaster [or disasters])** in the **(name of jurisdiction)**.

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Debris Forecasting Worksheet for the (name of jurisdiction) using USACE Modeling Methodology

Model Formula: Q = H x C x V x B x S

Q is the forecasted quantity of debris in cubic yards.
H is the number of households in the jurisdiction. This is based on an assumption of 3 persons per household. To arrive at the value for H, divide the known / estimated population (P) for the jurisdiction by 3 (H=P/3).
C is the storm category factor in cubic yards (see table below).
V is the vegetation characteristics multiplier (see table below).
B is the commercial / business / industrial use multiplier (see table below).
S is the storm precipitation characteristic multiplier (see table below).

Formula Applied for the (name of jurisdiction):

H = (insert 2000 Census population for jurisdiction or more recent estimate, if appropriate) / 3 = (insert result; this is the number of households in the jurisdiction).

Note: If sectoring of the jurisdiction is done due to variations in land use and/or geographical patterns, then apply this formula to each separate sector. The actual / estimated population of each sector will have to be determined first in order to use the formula. Divide the actual / estimated sector population by 3 (P/3) to obtain the number of households in that sector. For example:

Sector 1: H = 50,000 / 3 = 16,667; Sector 2: H = 33,000 / 3 = 11,000; Sector 3: H = 10,000 / 3 = 3,334; Sector 4: H = 5,000 / 3 = 1,667; Etc.

C = 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. However, since Michigan is not vulnerable to hurricanes a modification has been made to make the formula useable for other wind-generated disasters:

Hurricane Category	Hurricane Wind Speed	Value of "C" Factor	Approx. Fujita Tornado Scale
1	74-95 mph	2 CY	F1
2	96-110 mph	8 CY	F1
3	**111-130 mph**	**26 CY**	**F2**
4	131-155 mph	50 CY	F2
5	155 mph+	80 CY	F3

The highlighted row = a moderate F2 tornado and incredibly strong straight-line storm winds. This is a reasonable "worst case" scenario for most Michigan severe wind events since approximately 95 percent of all Michigan tornadoes are F3 or less in intensity, and 70 percent are rated F0 or F1 in intensity. In addition, straight-line storm winds in Michigan only rarely exceed 100 miles per hour. However, a higher storm category factor can be substituted based on the jurisdiction's hazard history / risk assessment.

Based on the above table, the selected "C" value for the **(name of jurisdiction)** is **(insert appropriate "C" factor from above table)**.

Note: If sectoring, it is likely that the same "C" value will be used for all sectors in the jurisdiction (unless historical / risk assessment data indicates otherwise).

V = 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.

Vegetation Cover	Description	Multiplier
Light	Includes new home developments where more ground is visible than trees. These areas will have sparse canopy cover.	1.1
Medium	Generally has a uniform pattern of open space and tree canopy cover. This is the most common description for vegetative cover.	1.3
Heavy	Found in mature neighborhoods and woodlots where the ground or houses cannot be seen due to the tree canopy cover.	1.5

Based on the above table, the selected "V" multiplier for the **(name of jurisdiction)** is **(insert appropriate "V" multiplier from above table)**.

Note: If sectoring, determine the "V" multiplier for each individual sector based on the sector's vegetative cover characteristics.

B = Multiplier (as shown below) 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	Description	Multiplier
Light	Developed area includes less than 25 percent of the land in commercial uses. Area is primarily single-family residential but has some light commercial development.	1.1
Medium	Developed area includes between 25 percent and 50 percent of the land in commercial uses. Area is approximately half single-family residential and half commercial uses.	1.2
Heavy	Developed area includes more than 50 percent of the land in commercial uses. Area has more commercial uses than single-family residential uses.	1.3

Based on the above table, the selected "B" multiplier for the **(name of jurisdiction)** is **(insert appropriate "B" multiplier from above table)**.

Note: If sectoring, determine the "B" multiplier for each individual sector based on the sector's commercial density characteristics.

S = Precipitation multiplier (as shown below) 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. (Storms less than Category 3 in intensity, even with medium to heavy precipitation, are considered "dry" events for the purposes of applying this formula. The 1.3 multiplier is only for very severe storms that generate medium to heavy precipitation. Most of Michigan's storms are not of sufficient duration or intensity to warrant use of the 1.3 multiplier.)

Precipitation Characteristic	Multiplier
None to Light	1.0
Medium to Heavy	1.3

Based on the above table, the selected "S" multiplier for the **(name of jurisdiction)** is 1.0.

Note: If sectoring, use the 1.0 multiplier for each individual sector unless historical data indicates that the 1.3 multiplier would be more appropriate.

The USACE model, when applied to the **(name of jurisdiction)** yields the following results:

Formula: Q = H x **C** x **V** x **B** x **S**

H = P/3 = **(insert 2000 Census population for jurisdiction or more recent estimate, if appropriate) / 3 = (insert result; this is the number of households in the jurisdiction)**.

C = **(26)** (Factor for an approximate Category 3 storm).

V = **(insert appropriate "V" multiplier for jurisdiction based on the vegetative cover characteristics)**.

B = **(insert appropriate "B" multiplier for jurisdiction based on the commercial density characteristics)**.

S = **(1.0)** (Multiplier for a "dry" storm event; use the 1.3 multiplier if historical data indicates that it would be more appropriate).

Then **Q = H** x **26** x **V** x **B** x **1.0** = **(total forecasted cubic yards of disaster debris for the jurisdiction)**. With the model's plus / minus 30 percent accuracy rate, the forecasted cubic yards of disaster debris for **(name of jurisdiction)** could range from a low of **(number of cubic yards)** to a high of **(number of cubic yards)**.

Note: If sectoring, follow this same process for each individual sector. The collective results of the sector calculations equal the total debris forecast for the jurisdiction for the design disaster.

Hypothetical Examples of Formula Application

Example 1 (no sectoring due to geographical / development uniformity): Sample County (population 1,000,000) is densely developed, mature area that has heavy residential, commercial, industrial, and institutional land uses. The land uses (approximate 60/40 split between residential and commercial uses), development patterns, and geographic characteristics are relatively uniform and balanced throughout the county's boundaries. The vegetation characteristic is heavy due to the well-established development patterns and the proliferation of mature trees in many of the residential neighborhoods and commercial centers. The county has experienced a number of damaging storms and tornadoes throughout its history, the most severe of which was a 1985 thunderstorm with 115 mile per hour winds (approximate Category 3 storm) that caused over $15 million in damage to residential and commercial structures in several parts of the county. Although that storm had considerable precipitation, it was of short duration and did not cause an unusually high level of ground saturation (as is typical of the vast majority of storms that strike the jurisdiction). Unfortunately, records are not available for the jurisdiction's past debris management operations so none of the current employees can determine specifics in terms of debris quantities handled, costs incurred, resources used / expended, facilities established, etc.

Formula: Q = H x C x V x B x S

H = P/3 = 1,000,000 / 3 = 333,334
C = 26 (Factor for an approximate Category 3 storm)
V = 1.5 (Multiplier for heavy vegetation)
B = 1.2 (Multiplier for medium commercial density)
S = 1.0 (Multiplier for a "dry" storm event)

Q = 1,000,000 / 3 = 333,334 x 26 x 1.5 x 1.2 x 1.0 = 15,600,031 cubic yards of debris. With the model's plus / minus 30 percent accuracy rate, the forecasted cubic yards of disaster debris could range from a low of 10,920,021 cubic yards to a high of 20,280,040 cubic yards. This is an absolute "worst case" forecast that assumes that every household would generate debris in the event that another severe storm of approximate Category 3 hurricane strength (the design disaster) strikes the jurisdiction. This is reasonable in that severe storms in Michigan often impact an entire county, though typically in varying degrees. If the selected design disaster was a tornado, this figure would probably have to be modified since tornadoes typically have smaller destruction paths.

Hypothetical Examples of Formula Application (cont.)

Example 2 (sectoring used due to geographical / development diversity): Example County (population 100,000) is geographically and developmentally diverse county that features four distinct "sectors," each with unique geographic characteristics and development patterns. The northwest quadrant (Sector 1) of the county is almost entirely agricultural in nature with a small population (7,500 residents). It consists of little more that scattered family farms (most of which have a home and several outbuildings) and is bisected by mostly two-lane dirt and paved roadways. Since most of the land is used for agricultural crops, there is minimal tree cover except for an occasional farm woodlot and single-row vegetative windbreaks for the production fields. The northeast quadrant (Sector 2) is almost entirely forested and is also lightly populated (10,000 residents). Numerous single-family residential dwellings (on one- to three-acre lots) have been built in recent years within the wooded areas. These structures, which average 2,500 square feet in size, are uniformly dispersed throughout the Sector. Several paved two-lane roadways bisect the Sector. Commercial development in the Sector is minimal. In the extreme southwest corner of the county is located the City of Treeville (Sector 3), an established community of 40,000 residents that features mature neighborhoods, a thriving downtown business district, and several large parks. The city is aptly named because of its dense tree coverage and its numerous large, historic trees. The city also has a sprawling new middle school – high school complex located on the edge of the downtown and a new (though small) industrial park adjacent to the school complex. The City is approximately 65-percent single-family residential land uses and 35-percent commercial / other land uses. The remainder of the southern half of the county (Sector 4 – population 42,500) consists of mixed land uses – single-family residences on one- to three-acre lots, several large multi-family residential complexes (apartments), several small commercial / industrial areas, and numerous small family farms. Sector 4 also has two small municipalities (villages with populations of 500 and 750, respectively), each of which has a small downtown area that includes churches, gas stations, and a limited number of retail shops. Sector 4 is approximately 70-percent single-family residential land uses and 30-percent commercial / other land uses, and has medium vegetative cover.

Formula: Q = H x C x V x B x S

Sector 1:
H = P/3 = 7,500 / 3 = 2,500
C = 26 (Factor for an approximate Category 3 storm)
V = 1.1 (Multiplier for light vegetation)
B = 1.1 (Multiplier for light commercial density)
S = 1.0 (Multiplier for a "dry" storm event)
Q = 7,500 / 3 = 2,500 x 26 x 1.1 x 1.1 x 1.0 = 78,650 cubic yards of debris. With the plus / minus 30 percent accuracy rate, the forecasted debris could range from a low of 55,055 cubic yards to a high of 102,245 cubic yards.

Sector 2:
H = P/3 = 10,000 / 3 = 3,334
C = 26 (Factor for an approximate Category 3 storm)
V = 1.5 (Multiplier for heavy vegetation)
B = 1.1 (Multiplier for light commercial density)
S = 1.0 (Multiplier for a "dry" storm event)
Q = 10,000 / 3 = 3,334 x 26 x 1.5 x 1.1 x 1.0 = 143,029 cubic yards of debris. With the plus / minus 30 percent accuracy rate, the forecasted debris could range from a low of 100,120 cubic yards to a high of 185,938 cubic yards.

Sector 3:
H = P/3 = 40,000 / 3 = 13,334
C = 26 (Factor for an approximate Category 3 storm)
V = 1.5 (Multiplier for heavy vegetation)
B = 1.2 (Multiplier for medium commercial density)
S = 1.0 (Multiplier for a "dry" storm event)
Q = 40,000 / 3 = 13,334 x 26 x 1.5 x 1.2 x 1.0 = 624,031 cubic yards of debris. With the plus / minus 30 percent accuracy rate, the forecasted debris could range from a low of 436,822 cubic yards to a high of 811,240 cubic yards.

Sector 4:
H = P/3 = 42,500 / 3 = 14,167
C = 26 (Factor for an approximate Category 3 storm)
V = 1.3 (Multiplier for medium vegetation)
B = 1.2 (Multiplier for medium commercial density)
S = 1.0 (Multiplier for a "dry" storm event)
Q = 42,500 / 3 = 14,167 x 26 x 1.3 x 1.2 x 1.0 = 574,614 cubic yards of debris. With the plus / minus 30 percent accuracy rate, the forecasted debris could range from a low of 402,230 cubic yards to a high of 746,998 cubic yards.

Total cubic yards of debris for all four Sectors in Example County: Q = 78,650 + 143,029 + 624,031 + 574,614 = 1,420,324 cubic yards. With the plus / minus 30 percent accuracy rate, the forecasted debris could range from a low of 994,227 cubic yards to a high of 1,846,421 cubic yards. This is an absolute "worst case" forecast that assumes that every household within each Sector would generate debris in the event that another severe storm of approximate Category 3 hurricane strength (the design disaster) strikes the jurisdiction. The advantage of sectoring is that it allows for the debris forecasts to be customized for differing impact scenarios. For example, if only the northern half of Sample County was struck by another "design disaster" the debris forecast could be modified accordingly. A number of impact scenario combinations are possible when sectoring is used. Sectoring also allows for the typically smaller / narrower destruction paths of tornadoes, if that was the selected design disaster. Sectors could be based on logical geographical / development patterns, but also on known tornado paths through the jurisdiction if historical records indicate a repetitive nature to the paths.

Debris Management Operational Implications.

Background Notes: The tangible results of debris forecasting include clarification regarding:

1) **The collection strategy that will be employed to address the design disaster debris types, volumes, and anticipated locations;**
2) **The number and types of debris management support facilities that will be required for the design disaster;**
3) **The debris volume reduction method(s) that would be most appropriate based on debris types, volumes, and anticipated locations;**
4) **The number and types of personnel required for and the structure of the debris management organization;**
5) **Potential mutual aid requirements and implications (public sector, private sector, and NGOs);**
6) **The likelihood that state and federal assistance (financial and/or direct) will be required, and to what extent;**
7) **The anticipated scope, magnitude, and duration of the debris management operation;**
8) **Potential costs associated with the debris management operation (including personnel costs, use of contractors, clearance / collection costs, volume reduction costs, disposal costs, etc.); and**
9) **The extent of planning, training, exercising, equipment procurement, and other capability-building activities required to address the likely debris management scenario(s) presented by the design disaster.**

These specific issues must be addressed in detail throughout the various sections of this plan. The following section provides a summary of these issues and their implications on the jurisdiction's debris management operation.

Based on the debris forecast (anticipated debris types, volumes, and locations) for the **(name of jurisdiction)** design disaster, the operational implications for the debris management organization and operation (pre-, trans-, and post-incident) can be summarized as follows:

- The collection strategy will necessarily involve **(indicate nature, scope and magnitude of collection strategy – e.g., use of collection centers / curbside pickup / combination of both, anticipated duration of collection operation, use of public information materials and methods to solicit cooperation and reach special needs populations, etc.)**;
- The following debris management support facilities will be required: **(List types / numbers / locations of facilities as appropriate)**;
- The debris volume reduction methods that would be most appropriate include **(list the method[s] that will be employed)**;
- Significant recycling opportunities **(would / would not)** be likely for **(list debris types)**;
- The debris management organization would consist of **(indicate the numbers and types of personnel required to manage / carry out the operation)**;
- It is likely that the debris management operation will require the assistance of **(list mutual aid partners, other public agencies, private sector entities, and nongovernmental organizations that will likely have to be involved)**;
- It is likely that the design disaster and debris management operation **(will / will not)** require state and federal assistance. If required: The most likely forms of that assistance would include **(list pertinent assistance – e.g., financial assistance under Section 19 / Act 390 of PA 1976, as amended; direct debris clearance / removal / disposal assistance by Michigan state agencies; the federal Public Assistance Grant Program; USACE direct debris removal / disposal assistance; other federal agency assistance under the NRF [specify]; etc.)**;
- The duration of the debris management operation, from initial clearance activities to final closeout of disposal activities, is likely to be **(list anticipated time period based on the debris forecast, size of the debris management operation, likely supplemental assistance that will be received, local conditions / circumstances, etc.)**. The following agencies and organizations will likely be involved for the following time periods: **(list specific agencies and their anticipated involvement time frames)**;
- Based on the debris forecast, the involved resources, the anticipated debris volume reduction, the duration of the operation and other relevant factors, it is estimated that the total costs associated with the debris management operation will likely be **(list "ballpark" $**

estimate). Of this amount, the anticipated costs for the **(name of jurisdiction)** are likely to be **(list "ballpark" $ amount based on the likelihood of state / federal assistance and the application of appropriate cost-sharing formulas)**; and

- Capability gaps for the design disaster and debris forecast exist in the following functional areas within the **(name of jurisdiction)**: **(List gaps in planning, training, exercising, equipment procurement, etc., based on the anticipated debris forecast and other design disaster implications.)** To address these gaps, the following capability-building activities are planned: **(List specific planning, training, exercising, equipment procurement, etc. activities that will be carried out, along with their general completion time frames, to address these identified gaps. Use tables or other forms of information display as appropriate.)**

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DEBRIS COLLECTION STRATEGY

A critical action that must occur within the first few hours after the occurrence of the design disaster in **(name of jurisdiction)** is the development of a debris collection strategy that addresses the unique situational circumstances of the incident. The debris collection strategy is developed by the **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team. Basic to that strategy is the nature and timing of key debris collection operations. Debris collection operations in the **(name of jurisdiction)** will normally occur in two phases. Phase I (Debris Clearance) operations will occur during the first 24 to 72 hours after the disaster. Phase II (Debris Removal) operations will occur after the Phase I operations are completed or substantially completed and entail the actual management of accumulated debris. For planning purposes, the following pre-event debris collection strategy has been developed for the **(name of jurisdiction)** design disaster. When the design disaster (or another disaster) actually occurs, the strategy can be modified as required to address unique incident circumstances such as timing, location, intensity, expected duration, precipitation amounts (as applicable), availability of personnel and equipment resources, damage to priority infrastructure, etc.

Debris Clearance Activities (Phase I Operations – Response). During the first 24 to 72 hours after the disaster, debris activities in the **(name of jurisdiction)** will emphasize clearing key roads for emergency access by pushing debris to the edge of the right-of-way, rather than restoring roads to pre-event conditions. Phase I activities will also include identifying and removing any obvious debris situations that may pose an immediate threat to public health and safety. (Examples may include dangerously positioned, damaged trees; debris piles that obstruct traffic visibility; fire prone debris piles; debris that prevents access to and/or operation of critical facilities; debris that hampers search and rescue efforts; debris that exacerbates flooding; etc.) Debris clearance and utility restoration activities will be closely coordinated to expedite clearance of utility impacted debris and restoration of services.

Phase I Response Operations will be accomplished by the **(name of local agency)** personnel and equipment, supplemented as required by mutual aid from **(name of mutual aid partners)**, volunteer forces from **(name of agency / organization)**, or private contractors from **(name of company)**. In some cases, state debris clearance assistance may be provided by appropriate state agencies (e.g., MDOT, MDMVA, MDOC) upon the declaration of a "state of disaster" or "state of emergency" by the Governor under 1976 PA 390, as amended.

Debris Clearance / Collection Priorities. Phase I Response Operations will focus first on emergency access routes, with particular emphasis on routes used by emergency services. The second priority involves providing access to emergency operations infrastructure, health care facilities, and jails / prisons and other congregate care institutions. The third priority involves the clearance and re-opening of major arterial routes. The fourth priority is other critical infrastructure such as water distribution, wastewater treatment, electric power, gas service, telecommunications, and similar facilities. Other priorities will include routes to shelters, governmental facilities, and major employers, as summarized below:

(Name of jurisdiction) Debris Clearance / Collection Priorities for Phase I (Response) Operations

1. Fire, police, and ambulance service routes: **(list specific routes that will receive priority clearance)**.
2. Access routes to trauma centers, hospitals, and critical care units: **(list the specific facilities that will receive priority clearance)**.
3. Routes to the EOC, emergency supply distribution centers, and other emergency coordinating facilities – including the Disaster Debris Management Center: **(list the specific routes that will receive priority clearance)**.
4. Routes to jails, prisons, juvenile justice centers, in-patient mental health facilities, and other round-the-clock congregate care institutions: **(list the specific routes that will receive priority clearance)**.
5. Major arterial routes: **(list the specific routes that will receive priority clearance)**.
6. Routes to critical infrastructure for utility systems: **(list the specific routes that will receive priority clearance)**.
7. Routes to shelters used for mass care / sheltering operations: **(list the specific routes that will receive priority clearance)**.
8. Routes to governmental facilities: **(list the specific routes that will receive priority clearance)**.

9. Routes to major community employers: **(list the specific routes that will receive priority clearance)**.
10. **(List other jurisdiction priorities as appropriate.)**

Background Note: This suggested priority clearance / collection list should be customized to reflect the actual priorities of each jurisdiction. This sample list does not imply in any way that the priorities, as listed, should be adopted by all Michigan jurisdictions. It is provided for illustrative purposes only.

Map of the (name of jurisdiction) Debris Clearance / Collection Priorities for Phase I (Response) Operations

(Insert map here or include as an Attachment to the plan and reference appropriately.)

Debris Collection Activities (Phase II Operations – Recovery). This phase entails the actual management of accumulated debris. Phase II may last up to a year or longer and may involve reassessment of debris quantities, operations of debris staging areas, public education, and debris separation, collection, storage, reduction, recycling, and disposal activities. Debris removal activities will begin during the latter part of the incident response phase and will constitute a major part of the incident recovery phase.

Phase II Recovery Operations will be accomplished by the **(name of local agency)** personnel and equipment, supplemented as required by direct and/or technical assistance from the State of Michigan (MSP/EMHSD and/or the State Disaster Debris Management Team), mutual aid from **(name of mutual aid partners)**, volunteer forces from **(name of agency / organization)**, or private contractors from **(name of company)**.

The Michigan Department of Environmental Quality **(insert MDEQ district Waste and Hazardous Materials Division information)** will provide technical assistance in the proper handling and disposal of disaster debris throughout the debris management operation. The Attachment titled "Disposal of Disaster Debris" provides background information on Michigan laws and regulations related to the disposal of solid and hazardous waste (including the mass disposal of dead animals). These laws and regulations MUST be followed during the debris management operation. The MDEQ must be included in decision making processes throughout the operation – from start to finish. If the incident involves the mass disposal of dead animals, the Michigan Department of Agriculture **(insert MDA regional Animal Industry Division information)** and/or Michigan Department of Natural Resources **(insert MDNR regional Wildlife Division information)** must also be involved. The MDEQ, MDA, and MDNR are all members of the State Disaster Debris Management Team and should be activated / consulted as appropriate for ALL debris management operations in the **(name of jurisdiction)**. Refer to the Attachment for more specific information.

Public Information for Debris Collection. As indicated earlier in the section titled "Public Information Plan," the **(name of jurisdiction)** will work with all involved entities to develop an incident-specific public information plan for the debris management operation. This will normally be done early in the response effort (during Phase I Operations) once the initial debris assessment has determined specifics regarding the nature, scope, magnitude, anticipated duration, etc. of the debris management problem in the **(name of jurisdiction)**. Refer to that section for more information.

To the extent possible, the pre-scripted public service announcements, press releases, and handbills / door hangers found in the Attachments titled "Sample Public Information Materials – Debris Clearance, Collection, and Sorting" will be modified and used to convey key information to the public about debris collection efforts. This will eliminate (or greatly reduce) the need to develop materials from scratch when time pressures are at their greatest. Early and frequent release of information regarding collection methods, hours of operation, locations of facilities, allowable debris, debris separation requirements, etc. will help ensure greater public cooperation in debris management activities. The public information materials will be disseminated in accordance with the methods identified in the incident-specific public information plan for the debris management operation. The **(name of jurisdiction)** Public Information Officer will work with the Disaster Debris Management Team in the development and dissemination of all public information materials

Collection Methods. The clearance and collection of debris is one of the first tangible signs that the public will see to indicate that the incident recovery is underway and the **(county / community)** is returning to some semblance of normalcy. The citizens expect to have debris removed from their homes, neighborhoods, schools, and other locations as quickly as possible after the incident occurs. Because of its high profile nature, a well planned, publicized, and managed collection effort is extremely important. In most cases, the collection effort will be the benchmark by which the success or failure of the entire debris management operation is judged.

The debris type, quantities, and urgency will determine which of the two debris collection methods (curbside collection or Collection Centers) will be used. In some cases both methods may be used. The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will consult early in the incident response (during Phase I Operations) with the MSP/EMHSD and other involved entities (including the MDEQ district

Waste and Hazardous Materials Division representative), as appropriate, to determine the most prudent collection methods for the incident circumstances.

Curbside Collection. To the extent possible, curbside debris collection will parallel the normal curbside garbage and trash collection operations in the **(name of jurisdiction)** as provided by **(insert name[s] of providing agencies / companies)**. Debris will be placed at the curb or public right-of-way by the affected residents – in accordance with the instructions provided in public information releases – for collection by the designated agencies / companies. Public compliance with the parameters established for the curbside collection effort (as described in the public information releases) will determine the overall effectiveness, efficiency, and timeliness of this method. Separation of debris into established categories will be particularly important if it is determined that potentially significant recycling / reuse opportunities exist.

If the determination is made that curbside debris separation is not critically important or feasible given the incident circumstances, debris will be picked up curbside in mixed debris piles. This will be convenient for the public but will require the debris to be handled multiple times and will prolong recycling and reduction efforts. It may also increase operational costs.

If debris separation is determined to be appropriate, residents will be directed to sort their debris by material type and place it at the curb / right-of-way in separate piles. Trucks designated for a particular debris type will collect the debris at designated times and deliver it to a designated TDSR Site for reduction or to a recycling / resource recovery facility for recycling / reuse. This method will require more trucks to collect the different types of debris; however, the increased equipment costs will likely be offset by reduced labor costs associated with separating debris by hand. Refer to the "Collecting White Goods" and "Collecting Household Hazardous Waste" sections below for additional considerations regarding curbside collection of those materials.

Collection Centers. If the incident circumstances dictate that Collection Centers be used in lieu of or to supplement curbside collection, residents will be instructed via public information releases where to transport their debris and the types of debris that will be accepted. Collection Centers will normally be used when curbside collection of disaster debris is not feasible due to logistically difficult conditions, cost considerations, a widely dispersed debris pattern, or other reasons as determined by the **(name of jurisdiction)**. Depending on incident circumstances, Collection Centers may or may not be part of a designated TDSR Site.

Special Circumstances (Special Needs Populations). Special needs populations such as handicapped individuals, the elderly, persons of ill health, etc., may require assistance in moving their disaster debris to the curbside and/or to Collection Centers. The public information releases will all include a telephone number for the individuals requiring assistance (or their caretakers) to call to arrange for special pick-up at a designated date and time. This service will be provided by the **(insert name of providing agency)** and will be coordinated by the **(name of jurisdiction)** Disaster Debris Management Center. Individuals can also make arrangements through local human service agencies such as the **(insert name[s] of participating agencies – e.g., Area Agency on Aging; Department of Human Services; American Red Cross; Salvation Army; etc.)**, who will then relay the request through the **(name of jurisdiction)** Disaster Debris Management Center for follow up service.

Background Note: If non-English speaking populations reside within the jurisdiction, it will be necessary to release the debris management public information materials in appropriate non-English languages to ensure that all residents are adequately notified of debris management operations and services. Provisions will have to be made to ensure that individuals that take calls for special assistance are functionally literate in (that / those) language(s). If non-English speaking provisions are required, insert additional narrative describing how this will be accomplished.

For example:
The **(name of jurisdiction)** has a large **(insert language – e.g., Spanish, French, Arabic, etc.)**-speaking population that must be adequately notified of debris management operations and services. The **(name of jurisdiction)** will release **(insert language – e.g., Spanish, French, Arabic, etc.)** language debris management public information materials via the following means: **(list all appropriate means – e.g., culture-specific newspapers, radio and television, and civic organizations; at businesses in specific community areas; through schools;**

through local human service agencies; etc.). **(Insert language – e.g., Spanish, French, Arabic, etc.)**-speaking individuals that are handicapped, elderly, in poor health, etc., that require special assistance will be instructed to call **(insert name of providing agency)** for appropriate follow up. Operators that are **(insert language – e.g., Spanish, French, Arabic, etc.)**-literate will be available to take these calls.

Collecting White Goods. The collection of "white goods" (e.g., washers, dryers, refrigerators, stoves, etc.) will be done separately from other debris types because 1) there are significant recycling opportunities for these metals, and 2) they may contain refrigerants and other machine fluids that must be reclaimed by certified technicians and disposed of at a permitted facility. In most cases, white goods will be collected curbside and manually placed on trucks so as not to cause undue damage to the elements that contain refrigerants or oils. White goods will also be collected at Collection Centers (if used), but only as a secondary means of collection. Curbside collection will be the primary means of collecting white goods in most incidents.

The **(name of jurisdiction)** has a **(contract / agreement)** with the **(name of recycling facility)** to recycle white goods damaged or destroyed in a disaster. The white goods will be collected by staff of the **(name of recycling facility and/or name of local agency / organization)** in accordance with an established collection schedule. The collection schedule will be widely publicized in the public information releases for the debris management operation. In most cases, at least two and possibly three passes will be made through the affected areas to collect white goods.

Collecting Household Hazardous Waste. Household hazardous waste (HHW) will also be collected separately to avoid contaminating other debris types and to protect the health and safety of all parties involved in the collection operation. If HHW is mixed with other debris types, the entire load will be contaminated and will have to be disposed of at a licensed hazardous waste treatment, storage or disposal facility in accordance with MEDQ requirements under the Natural Resources and Environmental Protection Act (1994 PA 451, as amended). This will result in significantly higher disposal costs.

Household hazardous waste will primarily be collected curbside. The **(name of jurisdiction)** has a **(contract / agreement)** with the **(name of licensed HHW hauler / facility)** to collect, store, treat, and dispose of disaster-generated HHW. The collection schedule will be widely publicized in the public information releases for the debris management operation. A description will be included in those releases, detailing what constitutes HHW. In most cases, at least two and possibly three passes will be made through the affected areas to collect disaster-generated HHW. If a regularly scheduled HHW **("drive / round-up")** will occur shortly after the disaster, that event will also be used to collect disaster-generated HHW. Public information releases will reflect this additional collection opportunity.

Household hazardous waste will also be collected at Collection Centers (if used), but only as a secondary means of collection. Separate areas will be established for the temporary storage of the HHW based on recommendations from MDEQ Waste and Hazardous Materials Division staff, FEMA staff (if involved), the MSP/EMHSD and **(list other involved agencies as appropriate)**. These areas will be carefully monitored by the Collection Center staff and district MDEQ Waste and Hazardous Materials Division staff to ensure proper waste segregation and safe storage and handling practices. The HHW will be collected by the **(name of licensed HHW hauler / facility)** and properly disposed of in accordance with MDEQ requirements.

Staffing for Curbside Collection Operations. Curbside collection will be accomplished primarily by the **(Department of Solid Waste Management? – customize with name of local agency)**. If necessary, supplemental assistance will be provided by the **(name of local agency / organization / private contractor)**. Staffing levels will be determined by the **(name of jurisdiction)** Disaster Debris Management Center based on the nature, scope, magnitude, and anticipated duration of the debris management operation. As indicated above, white goods and HHW will be handled in separate collection efforts. White goods will be collected curbside by staff of the **(name of recycling facility and/or name of local agency / organization)**. Household hazardous waste will be collected curbside by the **(name of licensed HHW hauler / facility)**. The **(name of**

jurisdiction) Disaster Debris Management Center / EOC will oversee and monitor the implementation of the curbside collection operation, in conjunction with district MDEQ Waste and Hazardous Materials Division staff.

Staffing for Collection Centers. Collection Centers will be operated primarily by the **(Department of Solid Waste Management? – customize with name of local agency)**. If necessary, supplemental assistance will be provided by the **(name of local agency / organization / private contractor)**. Each Collection Center will have a minimum of four staff persons – one to inspect incoming loads, one to direct and monitor unloading activities and traffic, one to resolve site-specific issues ("troubleshoot") and monitor HHW, and one to document site-specific information (e.g., number of loads, status of collection efforts, problems encountered, etc.) for E Team entry. As indicated above, white goods and HHW will also be collected at Collection Centers, but only as a secondary means of collection. (Curbside will remain the primary means of collection.) White goods will be collected from Collection Centers by staff of the **(name of recycling facility and/or name of local agency / organization)**. Household hazardous waste will be collected from Collection Centers by the **(name of licensed HHW hauler / facility)**. The **(name of jurisdiction)** Disaster Debris Management Center / EOC will oversee and monitor the implementation of the Collection Centers, in conjunction with district MDEQ Waste and Hazardous Materials Division staff.

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TEMPORARY DEBRIS STORAGE AND REDUCTION (TDSR) SITES

Background Notes:

Site Selection Considerations. The following general site evaluation considerations should be considered in pre-identifying potential TDSR Sites:

1. **An interdisciplinary approach should be used to avoid potential problems and to consider all relevant factors.**
2. **If possible, public land should be used to avoid potentially costly leases.**
3. **If viable public sites are not available, private land can be used – but only if a lease is developed that clearly prescribes all use conditions and close-out procedures and timetables.**
4. **If applicable, the lease should have provisions for temporary waivers regarding normal site use.**
5. **The jurisdiction should provide for legal review of leases to avoid extensive close-out claims by the landowner.**
6. **The jurisdiction should determine if any permits are required by local, state, and/or federal agencies for use of the site, and the steps that must be taken (and by whom) to obtain those permits in a timely manner.**
7. **When locating sites, consider the potential impacts of noise, traffic, and environmental degradation, as well as pre-existing site conditions.**
8. **Avoid environmentally sensitive areas such as wetlands, rare / critical animal and/or plant species, well fields and surface water supplies, and historical or archaeological significant sites.**
9. **The site(s) must have good ingress and egress. (Consider traffic control measures at the site if necessary.)**
10. **It is desirable to have sites in all parts of the jurisdiction, especially near potentially-high debris generators.**
11. **Sites should generally be between 50-200 acres in size. (Larger sites mean fewer sites and easier site close-out.)**
12. **When evaluating sites, consider the impact of the local recycling environment (e.g., timber agreements, mulch and chip disposal in the agricultural community, fuel sources for incinerators or heating, etc.).**
13. **Consider special concerns in site selection (e.g., smoke from burning operations; round-the-clock noise, dust and traffic; locations of residential areas, schools, churches, hospitals, and other sensitive areas; etc.).**
14. **Consider the locations of sites in relation to landfills and recycling centers that will be used for permanent disposal. (Also, consider the capacities and logistical capabilities of existing landfills.)**

Site Layout / Operational Guidelines. Although there is not a standard "model" for a TDSR Site, the following operational guidelines should be considered when designing the layout and operational plans for each site:

1. **Site topography and soil / substrate conditions will dictate the most appropriate site layout.**
2. **THINK SITE RESTORATION AND ENVIRONMENTAL COMPLIANCE RIGHT FROM THE START to avoid problems at site close-out.**
3. **Holding areas for ash, household hazardous waste, fuels, generators and mobile lighting plants should be lined with plastic to avoid potential environmental contamination.**
4. **The site operational plan should have provisions for immediate fuel and hydraulic spill cleanup (equipment usage must be monitored).**
5. **The site should have sufficient buffer zones between storage, transportation / unloading, and volume reduction areas, as well as with surrounding land uses.**
6. **Debris should be segregated based on volume reduction methods (i.e., burning, chipping / grinding / shredding, compacting, and recycling).**
7. **The site should be viewed as a multi-stage operation with continuous volume reduction.**
8. **<u>BEFORE</u> activities begin at the site, a baseline report should be developed to include: a) a video tape and/or photograph of the site; b) documentation of important physical features; c) random soil and water samples; d) a sketch of the site operation layout; e) documentation of potentially problematic operations; and f) a plan for environmental remediation actions.**

Monitoring / Documentation of Site Operations. Once the TDSR Site(s) have begun operations, progressive updates should be developed by the officials in charge of the site. Ideally, this operational monitoring should include:

1. **A groundwater monitoring / sampling process (as appropriate).**
2. **Spot soil samples at potentially problematic storage areas (ash, household hazardous waste, fuel).**
3. **Periodic video tape and/or photographs of site operations.**
4. **Documentation of public information dissemination regarding site operations.**
5. **Reports of fuel spills / cleanup, hazardous waste storage and disposal, etc.**

Background Notes: (cont.)

Permits. Although TDSR Sites are temporary emergency facilities, to the extent practicable the establishment and operation of such sites should be in compliance with applicable local land use and building / development codes, ordinances, and regulations. To that end, any required local permits must be obtained prior to the establishment of the TDSR Sites and the commencement of debris storage and reduction activities at those sites, OR the local permit requirements must be waived by the appropriate governmental body that is empowered to make such waivers. In addition, all debris reduction activities MUST be carried out in a manner that is in compliance with local codes / ordinances / regulations as well as state and federal environmental laws and regulations. The MDEQ Waste and Hazardous Materials Division is the State's steward agency for the regulation of waste management sites and activities and should be involved THROUGHOUT the debris management operation – from start to final close-out – to ensure compliance with the Michigan Natural Resources and Environmental Protection Act (1994 PA 451, as amended) and other pertinent laws and regulations.

Locations. The **(name of jurisdiction)** has pre-identified several potential TDSR Sites. Refer to the Attachment titled "Pre-Identified Debris Management Facilities" for a listing, map, and aerial photographs of these sites. Based on the incident circumstances, a TDSR Site (or set of sites) will be designated for each incident that requires a debris management operation. The TDSR Site(s) selected for a particular operation will be based on a number of factors, including but limited to:

- The types, quantities, and locations of the debris;
- The ability of the site to handle the expected volume of debris;
- The expected duration of debris storage and reduction activities;
- The time of year in which debris storage and reduction activities will occur;
- Whether or not the TDSR Site will also function as a Collection Center;
- The opportunities for greater operational efficiency due to location, site size, ingress / egress routes, etc.;
- The impacts (if any) on other site uses;
- The potential environmental impacts based on debris type and/or volume;
- The surrounding land uses; and
- The proximity of the site to final disposal facilities (i.e., landfills, recycling / resource recovery facilities).

The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will determine which TDSR Site(s) will be used for each incident. This decision will be made early in the incident response (during Phase I Operations). The decision will be based in part on consultations with MDEQ Waste and Hazardous Materials Division district staff, the MSP/EMHSD, FEMA (if involved), the MDA and/or MDNR (if involved due to dead animal debris), and the **(list other agencies / organizations that will be involved in the decision making process)**. Once the TDSR Site(s) **(has / have)** been selected, the location(s) and site-specific information will be disseminated to all involved parties by the **(insert name of agency and/or title of individual)** as quickly as possible. The public will be notified of **(this / these)** location(s) via **(insert all means that will be used – including use of the pre-scripted public information materials found in this plan)**, in accordance with the incident-specific Public Information Plan.

Permits. The TDSR Site(s) selected will have to comply with all applicable local codes, ordinances, and regulations related to environmental protection, land use / land development, and construction activities, including but not limited to:

- **(List local codes, ordinances, and regulations that will have to be complied with during debris storage and reduction activities.)**

In addition, the TDSR Site(s) must also be in compliance with applicable state and federal environmental laws and regulations under the stewardship of the MDEQ Waste and Hazardous Materials Division. Despite their emergency nature, disaster debris management activities and operations must be approved by the district MDEQ Waste and Hazardous Materials Division staff PRIOR to their commencement to ensure full compliance and to avoid environmental problems down the line. The **(name of jurisdiction)** Debris Manager and Disaster Debris Management

Team will involve the appropriate MDEQ staff (and MDA and/or MDNR staff if dead animal debris occurs) in debris management operational planning right from the start of the response (Phase I Operations) effort. Refer to the Attachment titled "Disposal of Disaster Debris" for a comprehensive synopsis of the various environmental regulatory compliance requirements that must be met during disaster debris management operations.

Determination of Debris Quantities / Storage Requirements. Determination of debris quantities and storage requirements will be accomplished by the pre-incident debris forecast developed in the Attachment titled "Debris Categories and Forecasting" as well as the trans- and post-incident debris estimates that are developed by the **(name of jurisdiction)** damage assessment teams. Since this plan is developed for the **(name of jurisdiction)** design disaster, the debris forecast should provide a workable "upper limit" for determining the potential debris quantities and storage requirements. The debris estimates that are developed during the damage assessment process will validate (or not validate) that debris forecast. If the debris estimates indicate that more debris has occurred than was expected, the quantities and storage requirements will be increased accordingly. Conversely, if the estimates indicate that less debris has occurred than was planned for in the design disaster then the requirements will be decreased accordingly. These decisions will have significant impacts on the type and amount of resources (i.e., personnel, equipment, materials, and support facilities) that will be required in the debris management operation – and especially in the debris collection, storage, and reduction aspects of the operation.

Determination of debris storage requirements at TDSR Sites will be based on the following formulas provided by FEMA and the USACE in FEMA Publication 325 – "Debris Management Guide":

Estimate the debris pile stack height at 10 feet.

Only 60% of the land area at the TDSR Site will be available for storage; the remaining 40% must be used for roads, safety buffers, burn pits, and Household Hazardous Waste (HHW) 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 cubic yards per acre (CY/AC)

To determine needed acreage: CY debris / 16,117 CY/AC = debris acres required.

To provide for roads, buffers, burn pits, etc.: debris acres x 1.66 = total acres required, OR debris acres / 60% (.60) = total acres required; the answers will be roughly equal. (It is acceptable to use either one, or to split the difference.)

Comparison: one square mile = 640 acres.

To determine the number of square miles required: total acres (AC) / 640 acres per square mile (AC/SM) = square miles (SM) of land required for TDSR Sites.

The USACE has found that a 100-acre TDSR Site can be cycled every 45 to 60 days or one time during the recovery period; therefore, the total acres (AC) / 2 (if cycled once, then the site can be filled twice during the recovery period) = number of acres required for TDSR Sites when the reduction rate is taken into account.

This provides the number of acres required. The number of TDSR Sites will vary depending on site size, the distance from debris sources, the speed of reduction (mixed debris is slower than clean woody debris), and the removal urgency.

Hypothetical Example of Formula Application

Using the hypothetical debris forecast for "Sample County" of 15,600,031 CY as found on page 73:

15,600,031 CY / 16,117 CY/AC = 968 AC (required for debris storage only; no roads, safety buffers, burn pits, etc.)

To provide for roads, buffers, burn pits, etc., the acreage must be increased by a factor of 1.66 OR divided by .60

968 AC x 1.66 = 1,607 AC; OR 968 / .60 = 1,613 AC (The two answers are roughly equal. Splitting the difference = 1,610 AC. This is the total acreage required for debris storage, roads, buffers, burn pits, etc.)

Comparison: one square mile (SM) = 640 acres

1,610 AC / 640 AC/SM = 2.52 square miles (SM)

To account for debris cycling: 1,610 AC / 2 = 805 AC. This is the total acreage required for TDSR Sites in Sample County based on its design disaster forecasted debris of 15,600,031 cubic yards.

Sample County could elect to have four 200 AC TDSR Sites, six 150 AC TDSR Sites, eight 100 AC TDSR Sites, or a larger number of TDSR sites between 50-100 acres. Several factors would have to be considered when making that decision.

The **(name of jurisdiction)** has forecasted that its design disaster **(indicate the type / intensity of incident)** would likely produce debris that could range from a low of **(number of cubic yards)** to a high of **(number of cubic yards)**. For debris storage planning purposes, the figure of **(number of cubic yards)** will be used. This represents the most likely debris volume for the **(name of jurisdiction)** design disaster. Plugging this figure into the above formulas developed by the USACE and FEMA to determine the number of acres required for TDSR Sites yields the following results:

(Number of cubic yards) / 16,117 CY/AC = **(number of acres required for debris storage only; no roads, safety buffers, burn pits, etc.)**

To provide for roads, buffers, burn pits, etc., the acreage must be increased by a factor of 1.66 **OR** divided by .60:

(Number of acres required for debris storage only) x 1.66 = **(total acreage required for debris storage, roads, buffers, burn pits, etc.)** **OR** **(Number of acres required for debris storage only)** / .60 = **(total acreage required for debris storage, roads, buffers, burn pits, etc.)**

Background Note: Use one figure or the other from the above calculation, or simply split the difference.

For comparative purposes only, one square mile = 640 acres. To determine the number of square miles of land in the **(name of jurisdiction)** that would need to be dedicated to debris storage and reduction activities, the total acreage required for debris storage, roads, buffers, burn pits, etc. must be divided by 640 acres. This results in the following: **(acreage number)** / 640 acres per square mile (AC/SM) = **(number of square miles of land required for TDSR Sites)**.

It is anticipated that the debris will be cycled within 45 to 60 days at the TDSR Sites, meaning that each site can be filled twice during a typical recovery period. Therefore, the figure for the total acreage required must be divided by 2. This results in the following: **(total acreage required for debris storage, roads, buffers, burn pits, etc.)** / 2 = **(number of acres required for TDSR Sites when the reduction rate is taken into account)**.

Based on these calculations, it is estimated that the **(name of jurisdiction)** will require **(number)** TDSR Sites, each **(number of acres)** in size, for the design disaster. This number will be adjusted accordingly by the **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team based on incident circumstances. Incidents that fall short of the design disaster will result in less need for TDSR Sites. Conversely, in

those extremely rare situations where an incident exceeds the damages and debris volumes forecasted for the design disaster, the number of TDSR Sites will be increased based on the estimates of the quantities of debris actually on the ground.

Refer to the Attachment titled "Pre-Identified Debris Management Facilities" for a listing of potential TDSR Sites in the **(name of jurisdiction)** based on this analysis. The listing is also accompanied by a map showing the geographic location of each site, as well as aerial photographs of each site which can be used for operational planning purposes and for public information releases.

Establishment and Operation of TDSR Sites. Debris removed from damaged areas will immediately be taken to the **(name of jurisdiction)** TDSR Site(s) for temporary storage and reduction. Due to the limited debris removal, reduction, and disposal resources in the **(name of jurisdiction)**, the establishment and operation of TDSR Sites will be handled primarily by contracting with the **(name of private debris management companies and/or other support agencies / organizations)**. If technical assistance is required from the State in the establishment and management of TDSR Sites, that assistance will be arranged through the MSP/EMHSD and the SEOC in Lansing. It is assumed that the MDEQ Waste and Hazardous Materials Division district representative will provide ongoing technical assistance to the **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team in all aspects of the debris management operation – and especially related to the proper storage, reduction, and disposal of disaster debris. To the extent possible, the TDSR Site(s) will be located near the source of the debris and the ultimate disposal site to cut down on transportation costs and travel time, and to minimize disruptions to local residents.

Each TDSR Site will eventually be emptied of all debris and restored to its previous condition and use. The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will work closely with all involved agencies, organizations, and contractors to ensure that the TDSR Site(s) is/are properly restored. Site restoration will go much smoother if baseline data are properly collected and site operation procedures are followed. To that end, the guidelines outlined in the next section will be followed with regard to the collection of baseline data for and operation of TDSR Sites.

Baseline Data Collection. One of the most important responsibilities of the Debris Manager and Disaster Debris Management Team is the rapid and thorough collection of baseline data for each TDSR Site prior to the commencement of storage and reduction activities at the site. The following guidelines will be adhered to when carrying out this responsibility:

- Each TDSR Site will be **video taped and photographed** (ground and/or aerial) before activities begin, and then periodically updated via video and photographic documentation to track site evolution.

- The **physical features will be documented,** noting the location and condition of existing structures, fences, culverts, irrigation systems, pavement, etc. Any hazards at the site that were removed prior to the start of operations will be documented.

- As appropriate, **samples will be taken of soil and groundwater.** Random soil and groundwater samples will be taken prior to volume reduction activities, and then continuous groundwater sampling will be conducted after operations commence. Designated household hazardous waste, ash, and fuel storage areas will be sampled prior to site setup. The **(name of local environmental agency)** and the MDEQ will determine regulatory requirements, chain of custody requirements, acceptable collection methods, certified laboratories, and test parameters.

- The **site will be geo-located** (latitude / longitude) and this data will be entered in a Geographic Information System to produce a map of the site location.

- Site **activity locations will be sketched / mapped** so that areas of concern can be pinpointed later for additional sampling.

- **Contractor operations** that will have a bearing on site close-out will be documented. This may include but is not limited to: 1) petroleum spills at fueling sites; 2) hydraulic fluid spills at equipment breakdowns; 3) contractor installation of water wells for pile cooling or dust control; and 4) household hazardous waste storage and disposal.

- **Environmental remediation actions** will be planned as early as possible with the landowner. Plans will be developed for cleanup, landscape restoration, and making necessary repairs. An agreement must be reached with the landowner prior to occupancy to establish reasonable expectations of site conditions upon site close-out. (Final restoration of the landscape must be acceptable to the landowner.)

Site Operations. The **(name of jurisdiction)** Department of Solid Waste Management **(or list alternate agency name)**, in conjunction with **(name of contracted debris service as appropriate)**, is responsible for the monitoring and management of TDSR Site operations. If requested (and depending upon state priorities and availability), the MSP/EMHSD and/or State Disaster Debris Management Team may provide technical and site management assistance as required. The MDEQ will provide environmental compliance monitoring assistance through the **(insert MDEQ district Waste and Hazardous Materials Division information)** office. However, the basic responsibility of monitoring and managing the TDSR Sites rests with the **(name of jurisdiction)**. In most cases, debris volume reduction will be carried out by a combination of **(name of jurisdiction)** forces and its contracted debris service. In rare cases, debris volume reduction will be accomplished exclusively by **(name of jurisdiction)** forces. State agency personnel normally will not particpate in long-term debris volume reduction activities at TDSR Sites. (This includes the use of prison inmate labor.)

The following basic operational considerations will be adhered to (as practicable) at the **(name of jurisdiction)** TDSR Sites:

- The site will be cleared of potential work hazards BEFORE operations begin. This will be noted in the baseline data report as indicated above.

- Site security / monitoring personnel will be provided to oversee operations, solve problems as they arise, and prevent the dumping of unwanted debris by outsiders.

- Adequate buffers will be provided around debris piles to abate co-mingling of materials, smoke, dust, noise, traffic, fire danger, etc.

- Interior roads and ingress / egress routes, to the extent practicable, will be capable of being used in all weather conditions.

- As necessary, dirt sites will be periodically sprayed with water to cut down on dust.

- Local residents / businesses around the sites will be adequately informed of site operations (e.g., working hours, potential noise / dust concerns, ingress / egress routes by trucks, anticipated duration of operations, etc.) through public information releases and/or door-to-door information distribution. (This may cut down on the number of complaints by local residents.)

- As much debris volume reduction as possible will be performed at the TDSR Sites. It is impractical (and expensive) to do large-scale debris volume reduction at remote sites. Instead, the debris will be hauled to the TDSR Sites for reduction on a mass-scale.

- Temporary storage areas for the following will have impervious liners installed to prevent contamination of soil and groundwater: 1) ash piles; 2) household hazardous waste; 3) fuels / hydraulic fluids; 4) generators; and 5) mobile lighting plants.

- The **(name of jurisdiction)** will obtain any permits that may be required to bring in large / oversized equipment. (If difficulties arise, the MSP/EMHSD may be requested to provide technical assistance with this through the MDOT.)

- Contracts will include clauses that require contractors to immediately cleanup spills at the site, and to immediately cleanup and restore the site at the conclusion of storage / volume reduction activities.

- Local residents / businesses will be notified of the location(s) where they can retreive wood, wood chips, etc. for reuse.

- Debris removal / disposal will be viewed as a multi-staged operation with continuous volume reduction. To the extent practicable, debris will be constantly flowing to burners and grinders / shredders, or recycled with the residue and mixed construction and demolition materials going to designated landfills. (Significant accumulation of debris at the site will be minimized.)

Volume Reduction Methods. Following are basic operational considerations for debris volume reduction activities at the **(name of jurisdiction)** TDSR Sites. Because each site and operation will be slightly different, these are considered as general guidelines. A specific operational plan will be developed for each TDSR Site based on the actual materials that are being stockpiled and reduced, and the reduction methods to be employed.

Burning

Burning can reduce disaster debris volume by 95%, with 5% ash residue. Primary burning methods include: 1) open burning; 2) air curtain pit burning; and 3) portable air curtain incineration.

Environmental Regulations. In general, open air burning on a large scale is not allowed in Michigan under the Natural Resources and Environmental Protection Act (1994 PA 451), Parts 55 (Air Pollution Control), 115 (Solid Waste Management), and 515 (Forest Fire Prevention). However, when Gubernatorially-declared disasters or emergencies occur, the MDEQ may (in some cases) allow burning of certain types of disaster debris in order to provide for the rapid reduction of material volume to protect public health and safety. As soon as the need to reduce debris volume through burning is identified, the **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will work with the MDEQ **(insert MDEQ district Waste and Hazardous Materials Division information)** and (as appropriate) the MSP/EMHSD to determine the specific requirements (i.e., locations, scope and magnitude, safety provisions, etc.) of allowable burning operations. In most cases, a Governor's Executive Order (Emergency Waiver) will be developed by the MSP/EMHSD and the MDEQ, specifying the need to temporarily allow for open air (controlled) burning of disaster debris and the duration of burning operations in the **(name of jurisdiction)** and other affected areas.

As an alternative to open air burning, volume reduction may also be achieved through air curtain pit burning and the use of portable air curtain incinerators. These are specialized types of burn operations that require equipment that is available through private debris disposal contractors. If the need for such equipment is identified, the **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will work with the MSP/EMHSD and MDEQ to obtain, place, and set up burn operations using these resources.

Clockwise, from upper left: Debris pile prior to volume reduction; open air, controlled burn pile; air curtain burner; portable incinerator; air monitoring equipment at burn site; open air, controlled burn pit.

Air Curtain Pit Burning. Air curtain pit burning offers an effective means to expedite the volume reduction process while substantially reducing the environmental concerns caused by open burning. The air curtain burning method incorporates a pit constructed by digging below grade or building above grade (if a high water table exists) and a blower unit. The blower unit and pit make up an engineered system that must be precisely configured to properly function. The blower unit must have adequate air velocity to provide a "curtain effect" to hold smoke in and to feed air to the fire below.

There are no "industrial standards" for air curtain burner operations. Specifications have to be customized using the information provided by the manufacturer and should include such items as minimum blower air velocity, pit construction configuration, pit materials, ash handling, acceptable smoke levels, and air monitoring requirements. Pits must be constructed out of a highly compatible material that will hold its shape. In many cases, compacted limestone fill is placed over an impervious clay layer to prevent contamination of the groundwater. The water table elevation governs whether the pit is constructed above or below ground.

Portable Air Curtain Incinerators. Portable incinerators use the same methods as air curtain pit systems. The only difference is that portable incinerators utilize a pre-manufactured pit in lieu of an onsite constructed earth / limestone pit. Portable air curtain incinerators are the most efficient burning systems available. Pre-manufactured pits are engineered to precise dimensions to complement the blower system, and they

require little or no maintenance as compared to earth or limestone constructed pits. Portable incinerators are particularly suited for areas with high water tables and sandy soils, and areas where smoke opacity (visual measure of smoke) must be kept to a minimum.

Portable incinerators use air curtain blowers that deliver air at predetermined velocities and capacities. The air traps smoke and small particles and recirculates them to enhance combustion, which reaches over 2,500 degrees Fahrenheit. Portable incinerators can have combustion rates of about 25 tons per hour, while still meeting emission standards.

Burnable Debris. Burnable debris is generally limited to: 1) vegetative materials (green waste) such as trees, limbs, and brush; and 2) burnable C&D materials such as non-creosote structural timber and other wood products. Non-burnable C&D debris includes, but is not limited to, creosote timber, plastic, glass, rubber and metal products, sheet rock, roofing shingles, carpet, tiers, and other materials as may be designated by the MDEQ. Garbage is considered non-burnable debris.

Environmental Controls for Burning Operations. The following recommended general controls for burning methods and will be employed at all burn sites in the **(name of jurisdiction)** unless the MDEQ requires more strict provisions:

- A setback of at least 100 feet will be maintained between the debris piles and the burn area.
- If possible, a 1,000-foot distance will be maintained between the burn area and the nearest building.
- Fencing and warning signs will be used to keep the public away from the burn area.
- The fire will be extinguished approximately two hours before the anticipated removal of the ash mound.
- The ash mound will be removed when it reaches two feet below the lip of the burn pit.
- The burn pit will be constructed either above ground or below ground so that it is less than eight feet wide and between nine and 14 feet deep.
- The burn pits will be constructed with limestone and reinforced with earth anchors or wire mesh in order to support the weight of the loaders.
- A one-foot impervious layer of clay or limestone will be used on the bottom of the pit to seal the ash from the aquifer.
- The ends of the pits will be sealed with dirt or ash to a height of four feet.
- A 12-inch dirt seal will be placed on the lip of the burn pit area to seal the blower nozzle. The nozzle will be three to six inches from the end of the pit.
- There will be one-foot high nonflammable warning stops along the edge of the pit's length to prevent the loader from damaging the lip of the burn pit.
- To prevent contained explosions, hazardous or contaminated flammable material will not be placed in the pit.

- The air flow will be adjusted to hit the wall of the pit about two feet below the top edge of the pit, opposite the blower, and the debris will not break the path of the air flow except during dumping.

- The pit will be no longer than the length of the blower system and will be loaded uniformly along the length.

- The opacity (visual measure of smoke) requirements will be set at 15% for 50 minutes out of an hour, and not exceed 40% for the remaining 10 minutes.

- A 30 minute start-up time with a maximum of 40% opacity will be allowed.

Ash, Soil and Groundwater Testing. Ash, soil and groundwater will be tested, in accordance with MDEQ requirements, to determine that no long-term environmental contamination is left on the site. High levels of site activity may require additional testing and contaminated material may need to be disposed of in an approved landfill. The **(insert MDEQ district Waste and Hazardous Materials Division information)** office will determine the level of testing required. Unless directed otherwise by the MDEQ, the following testing methods will be employed:

Ash Testing. Ash piles will be tested using the Toxicity Characteristic Leaching Procedure. One composite sample from each separate ash pile will be analyzed. A minimum of ten samples taken from different strata within the pile is appropriate to develop a composite sample. If unacceptable contamination is not found, ash may be placed in a Class I landfill. In some cases, the ash residue can be recycled as a soil additive. If unacceptable levels of contamination are detected, the material will be further evaluated, and if appropriate placed in a hazardous waste landfill.

Soil Testing. After the debris piles are removed from the site, soils will be tested for the presence of volatile hyrdrocarbon contamination. Samples will be taken immediately below the surface, if it is determined that the contractor and/or **(name of jurisdiction)** staff spilled hazardous materials, such as oil or diesel fuel, on the site. The entire incineration site will be inspected for any areas of discoloration, odor, or obvious problems. Such areas will be identified and restored as necessary.

Groundwater Testing. Runoff from the incineration sites and other debris stockpiled within storage areas have the potential to contaminate the aquifer. Although the probability of contamination is low, consideration will be given to placing ground water monitoring wells around the perimeter of the site if it is adjacent to an important aquifer. Groundwater will be tested to determine the probable effects of rainfall leaching through either the ash areas or the stockpile areas and be compared to generally accepted water quality standards.

Grinding / Chipping / Shredding

Volume reduction by grinding, chipping, and shredding can be used for clean vegetative debris (green waste) that is free of contaminants such as nails, spikes, wire, etc. This method will reduce volume by 75% (4 cubic yards reduced to 1 cubic yard). To be feasible, the 25% residue must have some benefit or use, such as:

- Wood chips / mulch for parks and recreation areas, trails, play areas, home landscaping, etc.;
- Commercial resale by landscape firms / contractors;
- Industrial heating (co-generation);
- Agricultural uses (soil enhancement); or
- Simply a reduction in the amount of material to be landfilled.

The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team (and State Disaster Debris Management Team, if activated) will attempt to work with local environmental and agricultural groups, landscape contractors, co-generation plants, and other affected communities

to determine if there are viable markets for the resulting wood chips and mulch. If such markets cannot be found, the materials will simply be shipped to a landfill for ultimate disposal.

Mulch Specifications. The ultimate end use of the material will dictate the size specifications for mulch. If the grinding operation is strictly for volume reduction, then the size is not important. Mulch used for agricultural purposes must be free of paper, plastic, and dirt (10% or less contamination) and the wood chips produced cannot exceed 4 inches in length and ½ inch in diameter. Plastics must be eliminated completely (to the extent possible).

Mulch Production. Because of their high volume reduction capacity, tub grinders are ideal for use at TDSR Sites. These will be considered for all TDSR Sites in the **(name of jurisdiction)**. Locating the grinders on the site is critical from a noise and safety point of view. Tub grinders require large buffer zones (100-300 feet or more, depending on grinder size and surrounding land uses) as well as a large area to hold the resulting mulch and an all-weather road to provide for adequate ingress and egress. Where possible, root rake loaders will be used to feed or crowd materials to the grapples. (Bucket loaders tend to scoop up earth, causing excessive wear to the grinder and unwanted dirt contamination.) Hand laborers will be used to remove all contaminants prior to feeding the grinders. Shaker screens will be used when processing stumps with root balls or when large amounts of soil are present in the woody debris. (The separated soil can be recycled back for agricultural uses.)

As a general rule, production output will average 100 to 150 cubic yards per hour when debris is moderately contaminated (such as may be found in an urban setting) and feeding operations are slow. For relatively clean debris, production output will average 200 to 250 cubic yards per hour. For safety and efficiency, mulch piles will be no higher than 15 deet and located so as not to hinder hauling operations.

Brush chippers are ideal for small scale use in residential areas, orchards, small parks, or similar areas and will be used where appropriate in the **(name of jurisdiction)**. Chipping at these smaller sites will reduce overall costs since the vegetative debris will not have to be transported twice. Brush chippers will require several personnel to feed material into the machinery and to monitor the site for safety and security purposes.

L-R: Tub grinders and brush chipper being loaded with material to be mulched. Tub grinders are suitable for use at TDSR Sites, while brush chippers are more appropriate for smaller sites.

Recycling

The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will determine relatively early in the debris removal and disposal operation whether or not to consider widescale recycling, since it may present an opportunity to reuse resources and to reduce the overall cost of the operation. Metals, wood, and soils usually offer excellent recycling opportunities. In some cases, widescale recycling operations may

be contracted out to achieve an economic return from some of the contractors that take the initiative to segregate and recycle debris as it arrives at the TDSR Sites. Where appropriate, specialized contractors will be sought to bid on disposal of debris by recycling (if it is well sorted).

To ensure better recycling success, a vigorous public information campaign will be implemented early in the debris clearance and removal operation. (Refer to the "Sample Press Release / Public Service Announcements" Attachment for examples of pre-scripted public information materials that can be used in the public information campaign.) Homeowners and business owners will be encouraged to separate their debris by type and to place it at curbside for scheduled pickups. (This is the most important step that can be taken to ensure that recycling is a viable debris reduction option.) Although it is possible to separate debris as it arrives at the TDSR Sites, it is far more efficient to have it pre-sorted and ready for pickup by debris crews or recycling contractors.

The MSP/EMHSD, MDEQ, and State Disaster Debris Management Team (if activated) can provide technical assistance in identifying available user markets for the various recyclable materials. The MDEQ's "Michigan Recycled Materials Market Directory (MRMMD)" will be used to aid in finding markets for recyclable materials. This directory includes listings for processors, collectors, and brokers of reclaimable materials in the following categories:

- DRUMS / BARRELS, (fiber, metal and plastic pails, buckets and totes);
- GLASS, (jars, bottles, windows, light bulbs, fluorescent bulbs, etc.);
- METALS, (iron, steel, copper, aluminum, zinc, etc.);
- OILS / SOLVENTS, (antifreeze, used oil and filters, solvents, wipes, industrial oils, etc.);
- PAPER, (newsprint, office paper, magazines, corrugated containers, etc.);
- PLASTICS, (polyethylene, PET, polypropylene, thermoplastics, #1-7, etc.);
- PALLETS / WOOD / YARD CLIPPINGS, (pallets, construction and demolition debris, etc.); and
- MISCELLANEOUS, (scrap tires; dry cell batteries; lead acid batteries; office equipment including computers, electronics, and toner cartridges; textiles, etc.).

Vegetative Material. Vegetative material (green waste) can be recycled in the form of chips / mulch (products of grinding / chipping / shredding, as described above), through log salvage contractors that recycle useable timber resources, or through firewood retailers that will cut up and sell downed trees and limbs. Log salvagers and firewood retailers are fairly selective in what they will use (typically only clean logs), so the remaining vegetative material will have to be reduced into chips / mulch for reuse or eventual disposal in a landfill.

Metals. Most ferrous (metals that contain iron) and non-ferrous metals are suitable for recycling. Metal maulers can be used to shred such metal debris as mobile home frames, automobile parts, appliances, metal siding / roofing, metal signs, etc. Ferrous and non-ferrous metals can be separated using an electromagnet and then sold to metal recycling firms. Metal recycling operations are generally more efficient if the metals are separated from the general C&D debris prior to being stockpiled; however, widespread metal recycling can still be accomplished even if initial source separation does not occur.

Soil. Cleanup operations using large pieces of equipment typically pick up large amounts of soil. The soil is transported to the TDSR Sites where it is combined with other organic materials that will decompose over time. Large amounts of soil can be recovered if the material is put through a screen or shaker system. This procedure can produce significant amounts of soil that can be stored onsite until it is sold or recycled back to the agricultural community, used to fill in low land, or used in the site restoration. This procedure will be used to the extent possible in the **(name of jurisdiction)**, as it is considerably more expensive to transport and pay tipping fees at local landfills that to sort out the heavy dirt before moving the material. Soil recycling generally makes sense both environmentally and economically.

L-R: metal debris being separated for recycling; log salvagers reducing the volume of vegetative debris that must be ultimately disposed of; metal applicances being recycled.

Other General Layout Considerations for Debris Volume Reduction Activities. The following general guidelines will be followed (to the extent practicable) in developing the layout of the various debris reduction areas within TDSR Sites:

- Sites will be located outside of identifiable or known floodplain and flood prone areas as specified on the Flood Insurance Rate Map (FIRM) for the location. (The MDEQ will be consulted for verification and general approval of the locations prior to their use.)

- Identified wetlands areas will be avoided if at all possible. If wetlands exist or wetland features are present at a site, the MDEQ will be consulted to delineate areas of concern. Once these areas are delineated, they will be flagged and a 100-foot buffer zone will be maintained for all activities ongoing at the site.

- Storage areas for C&D debris will be established at least 100 feet from: 1) all surface waters of the state (which include, but are not limited to, small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc.); 2) site property boundaries; 3) onsite buildings / structures; and 4) septic tanks with leach fields.

- Storage areas for C&D debris will be established at least 250 feet from: 1) off site residential, commercial, and public structures; and 2) potable water supply wells.

- Material separated from incoming C&D debris (e.g., white goods, scrap metal, etc.) will be at least 100 feet from site property lines. Other non-transferable C&D debris (e.g., household garbage, larger containers of liquid, household hazardous waste, etc.) will be transported to appropriate landfill facilities as soon as possible.

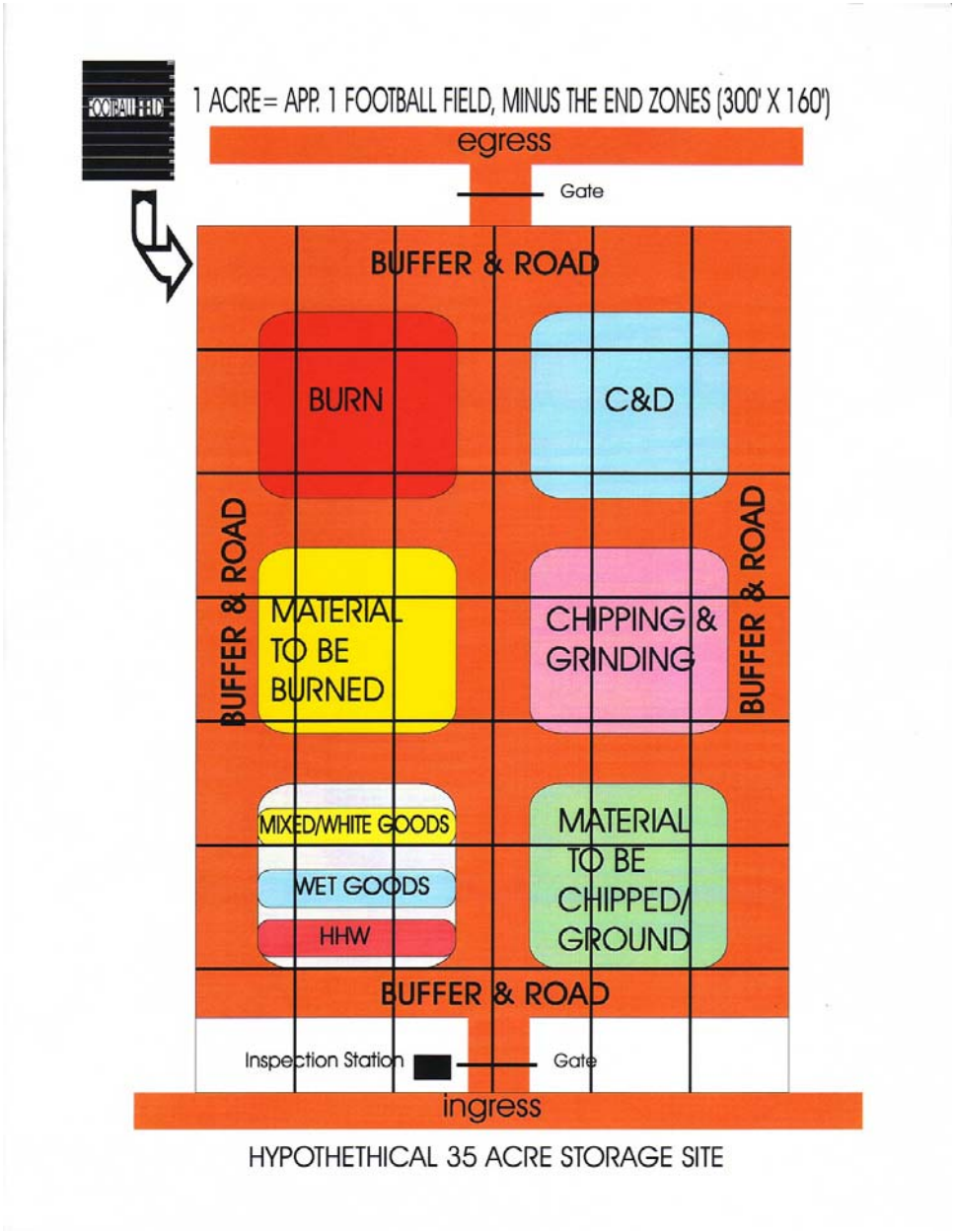
- An elevated platform will be used at the TDSR Site ingress gate / inspection station to allow for easy visual inspection of the debris loads of incoming trucks. (If a platform cannot be constructed, then temporary scaffolding, a mechanical platform, or a ladder will be used to view the load contents.)

The "Possible Layout for Temporary Debris Storage and Reduction Site" diagram found on page 97 provides general guidance for designing the various debris storage and volume reduction activities at a hypothetical 35-acre TDSR Site. The actual layout of each TDSR Site will be

customized to address the unique size, environmental, and debris content considerations that are present at each site. This diagram simply provides a generalized model to aid in the site design process.

L-R, Top Row: TDSR Site inspection station temporary viewing platforms (mechanical and constructed); inspection station without viewing platform (using pickup truck as a base); **Middle Row:** aerial view of TDSR Site for burning operations with adequate buffer zones around the perimeter; piles of C&D debris waiting to be processed and then disposed of; **Bottom Row:** unsorted debris piles along roadways make recycling efforts more difficult – but not impossible; fires are always a threat at TDSR Sites, making adequate ingress / egress and roadways critically important for fire suppression purposes.

POSSIBLE LAYOUT FOR TEMPORARY DEBRIS STORAGE AND REDUCTION SITE



HYPOTHETHICAL 35 ACRE STORAGE SITE

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DEBRIS MANAGEMENT PHASES: PLANNING AND OPERATIONAL CONSIDERATIONS

Debris Management Phase	Primary Considerations for the (name of jurisdiction)
NORMAL OPERATIONS (prior to a debris generating disaster)	• Designate a Debris Manager; • Establish and train a Debris Management Team; • Designate and equip a Debris Management Center; • Develop / review / update (as appropriate) a debris management plan as a support plan or appendix / annex to the applicable emergency operations plan (local, regional). The local / regional plan should be based on guidance provided by the MSP/EMHSD and should address the following critical areas: a) List of members (with contact information) and task assignments for the Debris Management Team; b) List of qualified debris removal / disposal contractors; c) Sample contracts (include time and material, unit price, and lump sum sample contracts with generic scopes of work); d) Sample right-of-entry / hold harmless agreements (indemnifying all levels of government against potential claims from conducting work on private property); e) Sample public information releases; f) Establishment of a debris assessment process to define the scope of the problem; g) Identification of critical routes and facilities for priority debris removal; h) Establishment of a process for debris removal from other public and private properties (priorities for removal will be determined during the response phase); i) Identification of Temporary Debris Storage and Reduction (TDSR) Sites, Collection Centers, Staging Areas, Landfills, Resource Recovery Centers, and other pertinent facilities; j) Compliance with environmental and other regulatory requirements (local, state, and federal); k) Documentation requirements for debris management activities (for cost reimbursement, legal protection, regulatory requirements, historical records, plan updates, etc.). At a minimum, the following must be documented: - Labor, equipment, rental fees, and material costs - Mutual aid agreement costs - Use of volunteer resources, including labor - Administrative costs - Disposal costs - Types of debris collected and quantities of each type Note: The **(name of implementing agency)** is the coordinating agency for debris management functions in the **(name of jurisdiction)**, in accordance with the **(name of jurisdiction Emergency Operations Plan / Emergency Action Guidelines)**. In that role, it will facilitate the development of debris management capability in the **(name of jurisdiction)** through plan and procedure development, interpretation of planning and program guidance, training, plan exercising, information sharing, provision of technical assistance to identified support agencies, and other appropriate activities.
↓	↓
INCREASED READINESS (a potential debris generating disaster is approaching / imminent)	• Alert the Debris Management Team and others involved in the debris management operation; • Place the Debris Management Center and identified TDSR Sites, Staging Areas, and Collection Centers on standby for possible activation; • Review (and update as required) applicable aspects of the debris management plan, including contracts and right-of-entry / hold harmless agreements; • Provide expedient training (as required) for the Debris Management Team and other involved personnel; • Contact contractors to determine their genreral availability; • Review waste management options for the anticipated types of debris likely to be generated. Ensure authorized waste transfer or disposal facilities are currently operational. Identify alternative facilities if those used during normal operations have been impacted by the disaster. • Determine if supplemental state assistance might be required due to the anticipated nature, scope and magnitude of the impending disaster. If so, work with the EMC to alert the MSP/EMHSD of possible assistance requirements. Also alert the MDEQ **(insert MDEQ district Waste and Hazardous Materials Division information)** of potential environmental compliance issues related to the impending disaster debris.
↓	↓

(See next page for Response and Recovery Phases.)

DEBRIS MANAGEMENT PHASES: PLANNING AND OPERATIONAL CONSIDERATIONS (cont.)

Debris Management Phase	Primary Considerations for the (name of jurisdiction)
RESPONSE (PHASE I) **(debris clearance / removal)**	• Activate the Debris Management Team and Debris Management Center; • Activate identified TDSR Sites, Staging Areas, Collection Centers, and other facilities as required; • Activate the appropriate elements of the debris management plan; • Establish debris removal priorities; • Activate standby contracts; • Initiate removal activities in accordance with established priorities; • Issue public information releases regarding debris clearance, separation, collection, and removal; • Request supplemental debris management assistance as required (mutual aid, state assistance through the MSP/EMHSD, federal Stafford Act or other direct assistance, MDEQ assistance for environmental compliance issues); • Track / document all major decisions and actions regarding the debris management operation; • Track / document all costs incurred in the debris management operation (e.g., labor hours, equipment hours, materials used, equipment rented, contracts activated or awarded, etc.).
↓	↓
RECOVERY (PHASE II) **(debris reduction / disposal)**	• Collect and transport debris from public rights of way and/or Collection Centers to designated TDSR Sites; • Assist private property owners in removing debris that poses a public health and/or safety threat, but only if signed right-of-entry and hold harmless agreements are obtained. (Disposal of debris on private property that was not moved to the public right of way as requested is the responsibility of the property owner.); • Reduce stored debris at TDSR Sites using the most appropriate reduction method for the material; • Recycle materials if possible; • Dispose of reduced material in a landfill or through appropriate reuse. • Remove and properly dispose of hazardous waste; • Continuously monitor contractors to ensure that: 1) debris being picked up is disaster-related, 2) trucks hauling debris are fully loaded and are following designated routes, 3) appropriate safety measures are being followed, and 4) TDSR Sites are secure and being controlled properly; • Close / restore TDSR Sites, Staging Areas, and Collection Centers at the conclusion of the debris management operation.

DEBRIS MANAGEMENT CONTRACT CONSIDERATIONS

Types of Contracts. In debris management, there are four types of contracts that may be entered into with private contractors for which FEMA will provide reimbursement under the PAGP:

Time and Material Contract. Under a time and material contract, the contractor is paid on the basis of time spent and resources utilized in accomplishing debris management tasks. FEMA requires, for reimbursement purposes, that the use of time and material contracts be limited to the **first 70 work hours** following a disaster.

Unit Price Contract. A unit price contract is based on weight (tons – T) or volume (cubic yards – CY) of debris hauled, and should be used when the scope of work to be performed is reasonably large and exact measurement of the total work is difficult to define. It requires close monitoring of collection, transportation, and disposal to ensure that quantities are accurate. A unit price contract may be complicated by the need to segregate debris for disposal.

The unit price contract uses construction units and prices for these units to develop line item costs and total contract cost. The unit price contract is used when the scope of work can be generally quantified by actual field measure (e.g., 200 CY of sand, 10 tons of debris, 17 trees, etc.). It should be noted that the total "bottom line" of the contract may increase or decrease depending upon the accuracy of the unit quantity. For this reason, it is as important to properly estimate units as it is to estimate unit cost. Change orders to adjust the estimated bid quantity to the quantity actually accomplished in the field may be issued during or at the end of the contract.

The development of a unit price includes many variables. Factors that influence the unit cost are:

- Types of debris;
- Method of removal;
- Distances and routes to the TDSR Sites;
- Permitting requirements;
- Worksite limitations; and
- Restoration requirements of TDSR Sites.

The advantage of the unit price contract is that the scope of work can be easily increased or decreased due to the fact that unit pricing for the work accomplished is established at the time of the bidding process. The contract also provides line items for the contractor to express all charges associated with the work, and therefore takes the "guesswork" out of the contractor's bidding procedure. The unit used in the unit price contracts must be as accurately estimated as possible. Otherwise, the final bottom line amount of the contract will be significantly different than the contract bid received at the bid opening.

Proper and efficient management of TDSR Sites are essential when unit price contracts are being utilized. The TDSR Sites become the primary point for quantity verification utilized for payment.

Well-organized and managed inspection stations should be established at entrance of each TDSR Site. When the contract unit of measurement is based on weight, provisions should be made for weighing trucks as they enter and exit the site. If the contract unit of measurement is the cubic yard (CY), inspection platforms should be built or brought in for the inspection of loaded trucks. Payment under a unit price contract is normally made on the basis of load tickets. It is recommended that the following procedures be followed when utilizing load tickets:

- It is important that Gate Inspectors read and become familiar with the technical provisions of the contract. Inspectors should conscientiously estimate each load hauled by the contractor.
- Improper estimates can lead to large and unnecessary government expenditures. If loads are not properly loaded or compacted, the Gate Inspector should reduce the rated volume of the truck accordingly. The Inspector should always be fair and consistent in dealing with contract personnel.
- The TDSR Site Manager should serve as the overall supervisor of the site inspection operation and should serve as the initial arbitrator for differences in opinion between the Gate Inspector and a contractor's representative.
- Monitoring must be documented for FEMA reimbursement. Documentation should include a monitoring schedule / plan, load tickets, photographs, etc.

Lump Sum Contract. A lump sum contract establishes a total price using a one item bid from a contractor. It should be used only when a scope of work is clearly defined, with areas of work and quantities of material clearly identified. Lump sum contacts can be defined in one of two ways:

- Area Method, where the scope of work is based on a one time clearance of a specified area; or
- Pass Method, where the scope of work is based on a certain number of passes through a specified area, such as a given distance along a right way.

The lump sum contract establishes a total contract price by a one item bid from a contractor. It is understood in a lump sum contract that the price of the work is fixed unless there is a change in the scope of work to be performed; therefore, the bottom line of the contract is not in question as it might be with the unit price contract. The specific advantages of a lump sum contract are:

- It establishes the cost of work at the time of bid opening;
- It is easy to monitor since the scope of work is well defined; and
- It is easy to tell when a contractor has completed all the work.

One disadvantage of the lump sum contract is that if the scope of work does not include a quantity estimate, then the quantity estimate becomes the responsibility of the contractor bidding the project. Experience has shown that the contractor will pass this burden back to the government in the form of contingencies which will be incorporated in the bid price. Therefore, the lump sum contract should be used only when the scope of work is clearly defined and the areas of work can be specifically quantified.

Cost Plus Fixed Fee Contract. A cost plus fixed fee contract is either a lump sum contract or a unit price contract with a fixed contractor fee added to the price.

Ineligible Contracts. In accordance with federal regulations (44 CFR 13.36) *cost plus percentage of cost contracts* are ineligible for FEMA reimbursement under the PAGP. In addition, contracts with debarred contractors are not eligible for grant reimbursement.

Contract Selection. The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will work closely with **(which other local agencies / officials?)** to determine the most appropriate contract(s) to use based on the nature, scope, magnitude, and expected duration of the debris operation. The unit price and lump sum types of contracts should be considered for most debris removal operations. As indicated above, a time and material contract may also be used during the **first 70 work hours** following a disaster, but a cost ceiling must be put in place to prevent the contractor from running up the costs. (Note: If the incident is of sufficient scale and/or severity that the State of Michigan becomes involved in the management of the debris operation, the MSP/EMHSD [as State Debris Manager and State Public Assistance Officer], FEMA, and possibly the Michigan Department of Management and Budget will necessarily become part of the contract selection process.)

Contract Specifications. The following items will be covered in any blanket purchase order that the **(name of jurisdiction)** might put in place to expedite hiring contractors to assist in the removal of debris:

- The contractor will provide overall project coordination of all debris removal contractors and sub-contractors, including:
  - Take direction from, and report directly to, the **(name of jurisdiction)** Debris Manager;
  - Acquisition and rental of non-standard or specialized equipment;
  - Selection of sub-contractors;
  - Coordination of **(name of jurisdiction)** resources with the debris removal activities.

- The contractor will initiate any debris removal in those areas specified by the **(name of jurisdiction)** Debris Manager. Removal may be required in stages, such as initial clearance of right-of-ways, removal of trees from houses, and opening up other areas required for public access. A secondary response or final cleanup may be required in those same areas.

- Debris removal may include any of the following items, dependent upon the nature and scope of the disaster, the required response of the **(name of jurisdiction)**, and the priorities established by the **(name of jurisdiction)** Debris Manager:
  - Complete removal of any storm damaged tree; *(Note: possible alternate language: …"any disaster generated debris," which is more inclusive);*
  - Hauling, grinding, or otherwise removal of all tree debris;
  - Trimming of storm damaged trees when removal is not required;
  - Flush cutting of stumps, grinding in place, or removal and disposing of stumps;
  - Disposal of all tree debris, including disposal by:
    - Tub grinding
    - Burning
    - Recycling (Note: may require regrinding to a smaller chip size)
    - Power generating
    - Other methods approved by the **(name of jurisdiction)** Debris Manager
  - Site restoration.

- The contractor shall bill all straight time, overtime, and double time at the applicable labor rates. These rates are to include all equipment cost, set up and travel costs, and all meals, lodging and incidental charges were required. Rates for specialized equipment shall be billed at hourly equipment rates approved by the **(name of jurisdiction)** Debris Manager.

- The contractor will be directed to perform overall project management of the contractors and sub contractors at an Incident Command Center designated by the **(name of jurisdiction)** Debris Manager. The contractor will be responsible to staff the center at a level commensurate with the scope of the debris removal project.

Note: Any language included in a blanket purchase order that the **(name of jurisdiction)** might put in place at the time of an incident to expedite hiring contractors to assist in the removal of debris must be reviewed and approved by appropriate procurement authorities **(i.e., insert name of local approval agency / agencies)** prior to being implemented.

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FACT SHEET: DEBRIS OPERATIONS – CLARIFICATION: EMERGENCY CONTRACTING VS. EMERGENCY WORK (FEMA RESPONSE / RECOVERY POLICY 9580.4 – JANUARY 19, 2001)

Source: FEMA web site (edited to fit document format)

Response and Recovery Directorate Policy Number: 9580.4

Date Published: January 19, 2001

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.

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HAZARDOUS STUMP EXTRACTION AND REMOVAL ELIGIBILITY
(FEMA RECOVERY POLICY 9523.11 – MAY 1, 2006)

Source: FEMA web site (edited to fit document format)

TITLE: Hazardous Stump Extraction and Removal Eligibility

DATE: May 1, 2006

PURPOSE: Establish criteria used to reimburse applicants for removing eligible hazardous stumps from public or, where authorized, private property.

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.

AUTHORITY: Sections 403 and 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206, as amended.

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.

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 – the same equipment 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. Straightening or bracing of trees is not eligible for reimbursement.

ORIGINATING OFFICE: Recovery Division (Public Assistance Branch)

SUPERSESSION: Policy Directive supersedes all previous guidance on this subject.

REVIEW DATE: Three years from the date of publication.

//signed//
David Garratt
Acting Director of Recovery
Federal Emergency Management Agency

RELATED ATTACHMENTS (2):

Stump Conversion Table
Hazardous Stump Worksheet

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:

$$\frac{[(\text{Stump Diameter}^2 \times 0.7854) \times \text{Stump Length}] + [(\text{Root Ball Diameter}^2 \times 0.7854) \times \text{Root Ball Height}]}{46656}$$

(Notes: 0.7854 is one-fourth P*i* 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 CONVERSION TABLE (cont.)
(FEMA RECOVERY POLICY 9523.11 – MAY 1, 2006)

Stump Diameter (Inches)	Debris Volume (Cubic Yards)	Stump Diameter (Inches)	Debris Volume (Cubic Yards)	Stump Diameter (Inches)	Debris Volume (Cubic Yards)
6	0.3	33	7.8	60	25.8
7	0.4	34	8.3	61	26.7
8	0.5	35	8.8	62	27.6
9	0.6	36	9.3	63	28.4
10	0.7	37	9.8	64	29.4
11	0.9	38	10.3	65	30.3
12	1	39	10.9	66	31.2
13	1.2	40	11.5	67	32.2
14	1.4	41	12	68	33.1
15	1.6	42	12.6	69	34.1
16	1.8	43	13.3	70	35.1
17	2.1	44	13.9	71	36.1
18	2.3	45	14.5	72	37.2
19	2.6	46	15.2	73	38.2
20	2.9	47	15.8	74	39.2
21	3.2	48	16.5	75	40.3
22	3.5	49	17.2	76	41.4
23	3.8	50	17.9	77	42.5
24	4.1	51	18.6	78	43.6
25	4.5	52	19.4	79	44.7
26	4.8	53	20.1	80	45.9
27	5.2	54	20.9	81	47
28	5.6	55	21.7	82	48.2
29	6	56	22.5	83	49.4
30	6.5	57	23.3	84	50.6
31	6.9	58	24.1		
32	7.3	59	24.9		

HAZARDOUS STUMP WORKSHEET
(FEMA RECOVERY POLICY 9523.11 – MAY 1, 2006)

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?		Geo-Location (decimal degrees, 00.000000)		Tree Size (Diameter)	Eligible?		Fill For Debris Stumps (CY)	Comments (See attached sketch, photo, etc.)
			Yes	No	Latitude (N)	Longitude (W)		Yes	No		
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

DEBRIS OPERATIONS – HAND-LOADED TRUCKS AND TRAILERS
(FEMA RECOVERY POLICY 9523.12 – MAY 1, 2006)

Source: FEMA web site (edited to fit document format)

TITLE: Debris Operations – Hand-Loaded Trucks and Trailers

DATE: May 1, 2006

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.

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.

AUTHORITY: Sections 403 and 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206, as amended.

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.

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 A (Policy) above.

ORIGINATING OFFICE: Recovery Division (Public Assistance Branch)

SUPERSESSION: Not applicable.

REVIEW DATE: Three years from the date of publication.

//signed//
David Garratt
Acting Director of Recovery
Federal Emergency Management Agency

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SAMPLE DEBRIS MANAGEMENT CONTRACTS

The following sample contracts can be modified as needed for debris management purposes in **(name of jurisdiction)**. Names and titles must be revised where required to ensure that the contract language is consistent with the terms used in this debris management plan.

SAMPLE U.S. ARMY CORPS OF ENGINEER CONTRACT SCOPES OF WORK:

- **Scope of Work for Unit Price Contract for Debris Removal;**
- **Scope of Work for Sunken Vessel Removal Operations;**
- **Scope of Work for Site Management for Debris Reduction; and**
- **Scope of Work for Equipment Leasing for Clearing of Debris.**

SAMPLE FEMA CONTRACTS AND GUIDANCE:

- **Sample Emergency Demolition Services Agreement.**
- **Sample Right-of-Entry Permit / Hold Harmless Agreement.**
- **Debris Removal Applicant's Contracting Checklist.**

SAMPLE STATE OF MICHIGAN CONTRACT SCOPE OF WORK:

- **Short Term Generator Disposal Contract (via cogeneration plant).**

SCOPE OF WORK FOR
UNIT PRICE CONTRACT FOR DEBRIS REMOVAL
RELATED TO
(NAME / NATURE OF DISASTER)
AT, IN, OR NEAR
(LOCATION OF RECOVERY EFFORTS)

1.0 **GENERAL**

1.1. The purpose of this contract is to provide debris clearing and removal response assistance to **(name of jurisdiction)** which has been declared a disaster area by the President because of the effects of **(name / nature of disaster)**.

2.0 **SERVICES**

2.1. The Contractor shall provide for debris removal from the area(s) outlined on the attached maps, and described as: **(insert description of work area)**.

2.2. The debris shall be taken to the dumpsite(s) indicated on the attached maps, located at **(insert location[s] of dumpsite[s])**.

2.3. The total amount of debris to be removed under this contract is estimated to be **(insert debris quantity)**.

2.4. The work shall consist of clearing and removing any and all "eligible" debris (see section 4.0 for a definition of eligible debris) primarily from the public right-of-way (ROW) of streets and roads, as directed by the Contracting Officer's Representative (COR). Work will include 1) examining debris to determine whether or not debris is eligible, burnable or non burnable, 2) loading the debris, 3) hauling the debris to an approved dumpsite or landfill, and 4) dumping the debris at the dumpsite or landfill. Ineligible debris will not be loaded, hauled, or dumped under this contract. Burnable debris will loaded separately from non burnable debris. Mixed loading of burnable and non burnable will be kept to a minimum. The COR will determine the appropriate dump site for mixed loads.

2.5. Debris removal shall include all eligible debris found on the ROW within the area designated by the COR. The COR may specify any eligible debris within the ROW which should not be removed, or which should be removed at a later time. The Contractor shall make as many passes through the designated area as required by the COR. The Contractor shall not move from one designated work area to another designated work area without prior approval from the COR. Any eligible debris, such as fallen trees, which extends onto the ROW from private property shall be cut at the point where it enters the ROW, and that part of the debris which lies within the ROW shall be removed. The Contractor shall not enter onto private property during the performance of this contract.

2.6. The Contractor shall conduct the work so as not to interfere with the disaster response and recovery activities of federal, state, and local governments or agencies, or of any public utilities.

2.7. The government reserves the right to inspect the site, verify quantities, and review operations at any time.

2.8. All work shall be accomplished in a safe manner in accordance with EM 385-1-1.

3.0 **LOAD TICKETS**

3.1. "Load tickets" will be used for recording volumes of debris removal. (See Enclosure)

3.2. Each ticket will contain the following information:

1. Ticket Number
2. Contract Number
3. Date
4. Contractor Name
5. Site Departure Time
6. Dump Arrival Time
7. Debris Classification
8. Debris Quantity

3.3. [SELECT ONLY ONE OF THE FOLLOWING PARAGRAPHS, AND DELETE THE OTHERS]

Load tickets will be issued by a COR prior to departure from the loading site. The COR will keep one copy of the ticket, and give three copies to the vehicle operator. Upon arrival at the dumpsite, the vehicle operator will give the three copies to the COR at the dumpsite, the COR will validate, retain one copy and give two copies to driver for the Contractor's records, (one copy for the sub-contractor and one copy for the prime contractor).

Load tickets will be issued by a COR prior to departure from the loading site. The COR will keep one copy of the ticket, and give two copies to the vehicle operator for the Contractor's records.

Load tickets will be issued by a COR to a vehicle operator upon arrival at the dumpsite. The COR will keep one copy of the ticket, and give two copies to the vehicle operator for the Contractor's records.

4.0 DEBRIS CLASSIFICATION

4.1. Eligible Debris. Debris that is within the scope of this contract falls under three possible classifications: Burnable, Non-Burnable, and Recyclable. Debris that is classified Household Hazardous Waste (HHW) is not to be transported by this contract.

4.2. Burnable Debris. Burnable debris includes all biodegradable matter except that included in the following definitions of other categories of debris. It includes, but is not limited to, damaged and disturbed trees; bushes and shrubs; broken, partially broken and severed tree limbs; untreated structural timber; untreated wood products; and brush.

4.3. Non-Burnable Debris. Non-burnable debris includes, but is not limited to, treated timber; plastic; glass; rubber products; metal products; sheet rock; cloth items; non-wood building materials; metal products (i.e., mobile trailer parts, household appliances [white metal], and similar items); uncontaminated soil; roofing materials; and carpeting.

4.4. Household Hazardous Waste (HHW). Household hazardous wastes, such as petroleum products, paint products, etc., and known or suspected hazardous materials, such as asbestos, lead-based paint, or electrical transformers shall be removed by others. Coordination for hazardous debris removal is the responsibility of the Government.

4.5. Stumps. Tree stumps located within the ROW with one-half or more of the root ball exposed will be removed. Tree stumps with base cut diameter measurements less than or equal to 24 inches (measured 24 inches up from where the tree originally exited the ground) will be considered to be burnable debris and removed with the same methods used for other burnable debris. Tree stumps larger than 24 inches in diameter will be removed as burnable and paid for in accordance to the MEASURMENT and PAYMENT paragraphs in this contract.

5.0 DUMPSITES

5.1. The Contractor shall use only debris dumpsites designated in Section 2.2, unless otherwise approved by the COR. The Contractor shall haul non-burnable debris to the site designated for non-burnable debris and burnable debris to the burn site designated.

5.2. The dumpsite operator shall direct all dumping operations. The Contractor shall cooperate with the dumpsite operator to facilitate effective dumping operations.

5.3. The Government makes no representations regarding the turn-around time at the dumpsites.

6.0 PERFORMANCE SCHEDULE

6.1. The Contractor shall commence performance on **(insert date)**.

6.2. The Contractor shall, with the COR's direction, provide a work plan showing where operations will begin and which streets / roads will be cleared on a 2, 7, and 14 day projection. The plan will be updated every two days.

6.3. Maximum allowable time for completion will be **(number)** calendar days, unless the Government initiates additions or deletions to the contract by written change orders. Subsequent changes in completion time will be equitably negotiated by both parties pursuant to applicable state and federal law. Liquidated damages shall be assessed at **$(amount)** per calendar day for any time over the maximum allowable time established by the contract.

7.0 EQUIPMENT

7.1. All trucks and other equipment must be in compliance with all applicable federal, state, and local rules and regulations. Any truck used to haul debris must be capable of rapidly dumping its load without the assistance of other equipment; be equipped with a tailgate that will effectively contain the debris during transport and permit the truck to be filled to capacity; and measured and marked for its load capacity. Sideboards or other extensions to the bed are allowable provided they meet all applicable rules and regulations, cover the front and both sides, and are constructed in a manner to withstand severe operating conditions. The sideboards are to be constructed of 2" by 6" boards or greater and not to extend more than two feet above the metal bed sides. The COR must approve all requests for extensions. Equipment will be inspected by the Contractor prior to its use by the Contractor using applicable U.S. Army Corps of Engineers forms. The Forms will be provided to the Government after completion.

7.2. Trucks and other heavy equipment designated for use under this contract shall be equipped with two signs, one attached to each side. The U.S. Army Corps of Engineers will furnish these signs to the Contractor. The signs remain the property of the United States Government, and will be returned to the U.S. Army Corps of Engineers at the conclusion of the contract.

7.3. Prior to commencing debris removal operations, the Contractor shall present to the Government's representative all trucks or trailers that will be used for hauling debris, for the purpose of determining hauling capacity. The hauling capacity will be based on the interior dimensions of the truck's metal dump bed. Hauling capacity, in cubic yards, will be recorded and marked on each truck or trailer with permanent markings. Each truck or trailer will also be numbered for identification with a permanent marking.

7.4. Trucks or equipment which are designated for use under this contract shall not be used for any other work during the working hours of this contract. The Contractor shall not solicit work from private citizens or others to be performed in the designated work area during the period of this contract. Under no circumstances will the Contractor mix debris hauled for others with debris hauled under this contract.

7.5. Equipment used under this contract shall be rubber tired and sized properly to fit loading conditions. Excessive size equipment (6 CY and up) and non rubber tired equipment must be approved by the COR.

8.0 REPORTING

8.1. The Contractor shall submit a report to the COR during each day of the term of the contract. Each report shall contain, at a minimum, the following information:

1. Contractor's Name
2. Contract Number
3. Crew
4. Location of work
5. Day of Report
6. Daily and cumulative totals of debris removed, by category

8.2. Discrepancies between the daily report and the corresponding load tickets will be reconciled no later than the following day.

9.0 OTHER CONSIDERATIONS

9.1. The Contractor shall supervise and direct the work, using skillful labor and proper equipment for all tasks. Safety of the Contractor's personnel and equipment is the responsibility of the Contractor. Additionally, the Contractor shall pay for all materials, personnel, taxes, and fees necessary to perform under the terms of this contract.

9.2. The Contractor must be duly licensed in accordance with the State's statutory requirements to perform the work. The Contractor shall obtain all permits necessary to complete the work. The Contractor shall be responsible for determining what permits are necessary to perform under the contract. Copies of all permits shall be submitted to the COR.

9.3. The Contractor shall be responsible for taking corrective action in response to any notices of violations issued as a result of the Contractor's or any subcontractor's actions or operations during the performance of this contract. Corrections for any such violations shall be at no additional cost to the Government.

9.4. The Contractor shall be responsible for control of pedestrian and vehicular traffic in the work area. The Contractor shall provide all flag persons, signs, equipment, and other devices necessary to meet federal, state, tribal and local requirements. The traffic control personnel and equipment shall be in addition to the personnel and equipment required in other parts of this contract. At a minimum, one flag person should be posted at each approach to the work area. Work shall be accomplished in a safe manner in accordance with EM 385-1-1.

10.0 MEASUREMENT

10.1. Measurement for burnable debris removed will be by the cubic yard as predetermined through truck bed measurement. Trucks with less than full capacities will be adjusted down by visual inspection by the COR. Measurement will be documented by load tickets.

10.2. Measurement for non-burnable debris removed will be by the cubic yard as predetermined through truck bed measurement. Trucks with less than full capacities will be adjusted down by visual inspection by the COR. Measurement will be documented by load tickets

10.3. Measurement for payment of stumps removed with 25 to 36 inch diameter base cuts (measured 24 inches up from where the tree originally exited the ground) shall be per stump.

10.4. Measurement for payment of stumps removed with 37 to 48 inch diameter base cuts (measured 24 inches up from where the tree originally exited the ground) shall be per stump.

10.5. Measurement for payment of stumps removed with 49 inch and larger diameter base cuts (measured 24 inches up from where the tree originally exited the ground) shall be per stump.

10.6. Measurement for mobilization and demobilization will be by the job.

11.0 PAYMENT

11.1. Payment for the removal of burnable debris (including stumps 24 inches and smaller) to include all cost associated with loading, hauling and dumping will be paid for under the contract bid item for **Burnable Debris.**

11.2. Payment for the removal of non-burnable debris to include all cost associated with loading, hauling and dumping will be paid for under the contract bid item for **Non-burnable Debris.**

11.3. Payment for the removal of stumps, 25 inches and larger, to include all cost associated with loading, hauling and dumping will be paid for under the contract bid item for the appropriate size category for **Stumps.**

11.4. Payment for mobilization and demobilization will be paid for under the contract bid item for **Mobilization and Demobilization.**

11.5. Payment for work completed may be invoiced on a bi-weekly basis. Invoices will be based on verified quantities from the daily operational reports and valid load tickets.

11.6. The Contractor will be entitled to invoice for 60% of the mobilization and demobilization line item after all equipment is delivered to the designated work site. The remaining 40% will be due after all equipment is removed from the work site, all vehicle signs have been returned to the government, and receipt of a proper invoice.

11.7. All payments made under this contract will be in accordance with PAYMENTS clauses located in other sections of this contract

12.0 OTHER CONTRACTS

12.1. Other contracts may have been issued.

12.2. The Government reserves right to issue other contracts or direct other contractors to work within the area included in this contract.

13.0 ENCLOSURES / ATTACHMENTS

13.1. Bid Schedule

13.2. Daily Report

13.3. Load Ticket

BIDDING SCHEDULE

ITEM	Min. QTY	DESCRIPTION	UNITS	UNIT PRICE	AMOUNT
001.	1	Mobilization and Demobilization	Lump Sum		
002.	xxx	Removal of Burnable Debris	Cubic Yard		
003.	xxx	Removal of Non-Burnable Debris	Cubic Yard		
004.	xxx	Removal of Stumps - 26 to 36 inch	Each		
005.	xxx	Removal of Stumps - 37 to 48 inch	Each		
006.	xxx	Removal of Stumps - 49 inch and larger	Each		

DAILY REPORT

CONTRACTOR:
CONTRACT NO. :

DATE OF REPORT:

Truck No.		Capacity	Burn Site Trips	CY Totals	Landfill Trips	CY Totals
1						
2						
3						
4						
5						
6						
7						
8						
	DAILY TOTALS			**CY**		**CY**

DAILY REPORT

CONTRACTOR:	DATE OF REPORT:

	Processing Site	Stumps 26-36 in.	Stumps 36-48 in.	Stumps > 49”
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
	DAILY TOTALS			

SAMPLE DEBRIS LOAD TICKET

LOAD TICKET	Ticket No.: **00001**		
Municipality (Applicant):			
Prime Contractor:			
Sub-Contractor:			
TRUCK INFORMATION			
Truck No.:	Capacity (CY):		
Truck Driver (print legibly):			
LOADING INFORMATION			
Loading	Time	Date	Inspector / Monitor
Location (address or cross streets):			
GEO-SPATIAL INFORMATION (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 (TDSR Site) Name / Location:			
*Other Debris Explanation:	Original: Applicant		
	Copy 1:		
	Copy 2:		
	Copy 3:		

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SCOPE OF WORK FOR
(NAME / NATURE OF DISASTER)
SUNKEN VESSEL REMOVAL OPERATIONS
(NAME[S] OF VESSELS)
(LOCATION OF RECOVERY EFFORTS)

1.0 GENERAL

1.1. The purpose of this contract is to provide removal and disposal of the sunken vessel(s) **(specify name of vessel[s])** from **(specify location of recovery efforts)**. The exaction location of the vessel(s) is shown on the contract drawing. The complete physical and structural condition of the vessel(s) is currently unknown. Some information as to vessel(s) type, size, and construction is described in the paragraph "Condition of Vessel(s)." The Contractor shall provide all plant, labor, equipment, materials, supplies, divers and services as necessary to remove and dispose of the sunken vessel(s). The Contractor may use any standard salvage method which complies with local and/or federal laws and regulations. The intent of the contract is to have the vessel(s) raised and legally disposed of in accordance with applicable laws and regulations

2.0 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK

2.1. The Contractor acknowledges that he/she has taken steps reasonably necessary to ascertain the nature and location of the work, and that he/she has investigated and satisfied him/her self as to the general and local conditions which can affect the work or its cost. This includes but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

2.2. The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

2.3. All work shall be accomplished in accordance with EM 385-1-1 and appropriate U. S. Coast Guard and other federal, state and local regulations. The Contractor shall comply with all appropriate safety practices, regulations and policies, to include personal flotation devices and water safety for all Contractor and Government personnel in or around the work area.

3.0 LOCATION OF VESSEL(S)

The vessel(s) is (are) located **(specify location of vessel[s])**. It lies in **(specify quantity)** feet of water. The approximate location of the vessel(s) is Lat **(specify degrees, minutes, and seconds North / South)** and Long **(degrees, minutes, and seconds East / West)**.

4.0 CONDITION OF VESSEL(S)

(Specify all known information about the structure of the vessel[s] and any known engine[s] information.)

5.0 **PRE-WORK CONFERENCE**

The Contracting Officer will conduct a pre-work meeting. It will be arranged by the Contracting Officer's Representative (COR) after award of the contract and shall be held before the Notice to Proceed is issued. The successful offerer will be notified and will be required to attend. The CORs will notify the Contractor of the time, date, and location set for the meeting. At this conference, the Contractor shall be oriented with respect to Government procedures and line of authority, contractual, administrative, and work related matters. This Scope of Work will be discussed and any Contractor questions or concerns will be addressed. Minutes of the meeting shall be prepared by the Contacting Officer or the CORs and signed by both the Contractor and the Contracting Officer or the CORs. The minutes shall become part of the contract file. There may also be occasions when subsequent conferences will be called to reconfirm mutual understanding. The Contractor shall be prepared to discuss all plans and schedules for removing and disposing of the vessel(s) and the conditions which may affect the work.

6.0 **CONTRACT DRAWINGS**

6.1. The contract drawings will consist of one scaled half-size drawing that will include all pertinent information necessary for bidding purposes. By request only, the winning bidder will be provided one full-size drawing.

6.2. The Contractor shall maintain a separate full-size drawing, marked up in red, to indicate the final site conditions. Upon completion of the work, the Contractor shall sign the marked up drawing in the following manner: "I CERTIFY THAT THIS CORRECTED DRAWING INDICATES SALVAGE AS ACTUALLY PERFORMED IS AN ACCURATE REPRESENTATION OF THE SPECIFIED WORK. THIS DRAWING IS APPROVED FOR PREPARATION OF AS-BUILT DRAWINGS." The marked up drawing shall then be furnished to the Contracting Officer prior to acceptance of the work. The Government reserves the right to withhold final payment until acceptable as-built drawing has been submitted.

6.3. The below listed drawings are incorporated as part of this contract.

Title	Sheet No.

7.0 **PERMITS AND RESPONSIBILITIES**

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits not already obtained by the Government, and for complying with any federal, state, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's negligence or fault, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work.

8.0 **BRIDGE TO BRIDGE COMMUNICATIONS**

Because this work will occur within a channel with heavy traffic, and in order that radio communication may be made with passing vessels, all tugs or salvage vessels that work under this contract shall be equipped with bridge-to-bridge radio telephone equipment. The radio equipment shall operate on a single channel of very high frequency (VHF) FM, on a frequency of **(specify MC)** MC per second with low power output having a communication range of approximately ten miles. The frequency has been approved by the Federal Communications Commission. Channels **(specify channels)** must be monitored at all times.

9.0 **CONTRACT PRICES – BIDDING SCHEDULES**

Payment for the work specified in the Bidding Schedule shall constitute full compensation for furnishing all plant, labor, equipment, supplies, and materials, and for performing all operations required to complete the work in accordance with the drawings and specifications. All costs for work not specifically mentioned in the Bidding Schedule shall be included in the contract price.

10.0 **MISPLACED MATERIAL.**

Should the Contractor, during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant, machinery, or debris, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Contracting Officer or inspector, and when required shall mark or buoy such obstructions until the same are removed. Should the Contractor refuse, neglect or delay compliance with the above requirements, such obstructions may be removed by the Government, and the cost of such removal will be deducted from any money due or to become due the Contractor, or will be recovered under his bond. The liability of the Contractor for the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Sections 15, 19, and 20 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 419 et seq.).

11.0 **SUPERINTENDENCE BY THE CONTRACTOR**

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly supervise the work and have on the work site a competent superintendent who has the authority to act and sign for the Contractor. All guidelines established in the paragraph “Contractor Quality Control” shall be followed.

12.0 **UNIDENTIFIED OBJECTS**

Should the Contractor, during salvage operations, encounter any objects or vessels on the channel bottoms, he shall notify the Contracting Officer immediately as to the location of object, and any other pertinent information necessary for the Contracting Officer's information and action as he determines to be necessary.

13.0 **INSPECTION BY THE GOVERNMENT**

13.1. Government personnel will inspect the salvage operations when in progress. The Contractor is required and shall furnish Government personnel transportation from shore to the site of salvage operations as necessary.

13.2. The Government intends to document the removal and disposal operations. The Contractor will be required to perform the work in an orderly fashion.

14.0 **PAYMENT**

The Government will pay 60% of the mobilization and demobilization lump sum price when the Contractor has mobilized and arrived at the work site with the necessary plant and equipment to perform the job. The remaining portion of the mobilization and demobilization costs shall be paid in full when the Contractor has completed the job and submitted a proper invoice. The Contractor shall include, in the prices for the items listed in the Bidding Schedule, all costs for work in the scope of work, whether or not specially listed in the Bidding Schedule.

15.0 **WORK SCHEDULE**

The Contractor will be required to work as a minimum a ten (10) hour day, six (6) days a week. Work day shall be normal daylight hours. The Contractor may work more than ten (10) hours per day if desired. Work hours and schedules to be discussed and approved by Contracting Officers Representative.

16.0 **COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK**

The Contractor shall be required to (a) commence removal operations under this contract within **(specify number of days)** calendar days after the date the Contractor receives the Notice to Proceed, (b) prosecute the work diligently, and (c) to complete the work (raising, towing, re-sinking) in its entirety not later than [specify number of days] calendar days after the date the Contract or receives the Notice to Proceed. The time stated for completion shall include final.

17.0 **REMOVAL AND DISPOSAL**

Because of the lack of information available on the vessel(s) construction, the Contractor will have to perform a complete physical assessment of the vessel(s) structural stability prior to removal. The Contractor may utilize any standard removal method to complete the work defined in this contract. The Government does require that certain actions occur during the removal and disposal operation. If any of the said conditions are not met, then the Contractor will not have met the contract expectations and will be in violation of the Contract agreement. The Contractor shall be required to correct all deficiencies at no additional cost to the Government and without any further time extension.

17.2. Any deviations from these general guidelines must be discussed with and approved by the Contracting Officer prior to taking action.

18.0 **PROTECTION OF EXISTING STRUCTURE, EQUIPMENT, AND UTILITIES**

18.1. The Contractor shall preserve and protect all structures, equipment, vegetation, and utilities at or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required at the work site. The Contractor shall repair any damage to those facilities, including those that are property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

18.2. The Contractor will be responsible for verifying the locations and depths of all utility crossings and take precautions against damages which might result from his operations. If any damage occurs as a result of his operations, the Contractor will be required to suspend work until the damage is repaired and approved by the Contracting Officer. Costs of such repairs and downtime of the operation and attendant plant shall be at the Contractor's expense.

19.0 **ENVIRONMENTAL CONCERNS**

The Contractor shall comply with all applicable local, county, territorial, state and federal regulations and laws concerning environmental issues. The contractor shall take proper steps to protect the uplands, beach, and open waters from environmental damages of any kind. The Contractor shall comply with all requirements under the terms and conditions set forth in the permits list in the paragraph entitled, "PERMITS AND RESPONSIBILITIES."

20.0 **OBSTRUCTION OF NAVIGABLE WATERWAYS**

20.1. The Contractor shall:

20.1.1. Promptly recover and remove any material, plant, machinery, or appliance which the Contractor loses, dumps, throws overboard, sinks, or misplaces, and which, in the opinion of the Contracting Officer, may be dangerous to or obstruct navigation.

20.1.2. Give immediate notice, with the description and locations of any such obstructions, to the Contracting Officer.

20.1.3. When required by the Contracting Officer, mark or buoy such obstructions until the same are removed.

20.2. The Contracting Officer may:

20.2.1. Remove the obstruction by contract or otherwise should the Contractor refuse, neglect, or delay compliance with this paragraph; and

20.2.2. Deduct the cost of removal from any monies due or to become due to the Contractor; or

20.2.3. Recover the cost of removal from the Contractor's bond.

20.2.4. The Contractor's liability for the removal of a vessel wrecked or sunk without fault or negligence is limited to that provided in sections 15, 19, and 20 of the River and Harbor Act of 1899 (33 U.S.C. 410 et. seq)

21.0 **NOTIFICATION OF COAST GUARD**

The Contractor must notify the area Coast Guard prior to commencement of the work. Information pertaining to contract work schedule, location of rig and equipment during work, and potential hazards of the operation should be provided. The individual to be contacted locally is [name of local contact]. All vessels that are regulated by the U. S. Coast Guard shall have current inspections and certificates issued by the U. S. Coast Guard before being placed in service for use for this contract. A copy shall be posted in a public area aboard the vessel.

22.0 **FINAL EXAMINATION**

The Contractor and Government will inspect the areas where the vessel(s) and debris have been removed. Any items found at the work sites will be removed by the Contractor at no additional cost to the Government. Inspection may include side-scan sweeping, diving, and/or visual if necessary to insure all wreckage and debris have been removed. The Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

CONTRACT NO._____

BIDDING SCHEDULE

ITEM	DESCRIPTION	QUANTITY	UNIT OF ISSUE	UNIT PRICE	AMOUNT
1.	Provide services to remove and dispose of sunken vessel **(specify name)**		vessel		
2.	Provide services to remove and dispose of sunken vessel **(specify name)**		vessel		
3.	Provide services to remove and dispose of sunken vessel **(specify name)**		vessel		
4.	Mobilization	Lump Sum			
5.	Demobilization	Lump Sum			

Removal of Navigational Hazards Checklist of Considerations

(From FEMA Debris Management Training Module, G202)

- Coordinate with the U.S. Coast Guard, state / local marine patrol, local government agencies, and legal counsel.
- Inspect marinas in order to locate debris. Inspections can be done visually by helicopter or boat, via side-scan sonar, or via diving.
- Use Global Positioning System (GPS) survey methods to pinpoint location of sunken debris.
- Keep a log that reflects an accurate count of debris items with corresponding locations.
- Record the vessel registration number.
- Photograph the wreckage.
- Provide notification by certified letter to private owners of impending vessel removal. This should be performed in accordance with legal constraints.
- Provide the owner an opportunity to remove the vessel prior to state (or federal) government initiation of debris removal.
- Provide public notice in local newspapers.
- Generate scopes of work based on items to be removed or time and material.
- Maintain flexibility due to problems inherent to work areas influenced by marine conditions. Other problems can occur as a result of wreckage removal by others prior to the issuance of a "Notice to Proceed" contract. Flexibility in contract execution can be achieved by issuing an equipment rental type contact. Fixed price contracts with each piece of debris indicated as a line item are not recommended. Incorporate appropriate regulatory concerns, and/or applicable state laws.
- Maintain continuous communication with the U.S. Coast Guard and applicable local and state agencies.
- Continually verify the number and locations of sunken vessels.
- Remove or replace defective buoys.
- Require a bill of sale or a vessel registration be presented to the authorized debris removal representative on site if an individual claimed a vessel during removal operations.
- Ensure that accurate records are maintained.
- Ensure that contracts and the cleanup schedule incorporate marine constraints. Debris located in shallow areas may be inaccessible to contractor equipment during low tides / low water levels.
- Ensure that contracts include salvage rights to the contractor.

SCOPE OF WORK FOR
SITE MANAGEMENT FOR DEBRIS REDUCTION
RELATED TO
(NAME / NATURE OF DISASTER)
AT, IN, OR NEAR
(LOCATION OF RECOVERY EFFORTS)

1.0 GENERAL

1.1. The purpose of this contract is to provide site management and reduction of debris generated as a result of **(name / nature of disaster)** in **(name of jurisdiction)** which has been declared a disaster area by the President because of the effects of **(name / nature of disaster)**.

1.2. The Contractor shall manage and operate the debris reduction site located at **(site location)**. The site is approximately **(size)** acres in total area. An outline of the site location is shown in the attached map.

1.3. Contractor shall provide all management, supervision, labor, machines, tools, and equipment necessary to accept, process, reduce, incinerate, and dispose of disaster related debris. The debris to be processed consists primarily of burnable debris, with variable amounts of non-burnable included. Segregation of debris into various categories will be required.

1.4. Reduction of burnable debris shall be through air curtain incineration. [INCLUDE OR DELETE NEXT TWO SENTENCES] Reduction of burnable debris may also be accomplished through chipping / grinding. Reduction by this means, however, 1) must be at the same rate as indicated for incineration, and 2) disposal of the chips / mulch would be the responsibility of the Contractor, and 3) shall be done at no increased cost to the Government.

2.0 SERVICES

2.1. Contractor will establish lined temporary storage areas for ash, household hazardous waste, fuels, and other materials that can contaminate soils, runoff, or groundwater. Contractor shall set up plastic liners under stationary equipment such as generators and mobile lighting plants unless otherwise directed by the Contracting Officer's Representative (COR).

2.2. Contractor shall be responsible for establishing site layout.

2.3. Contractor will be responsible for traffic control, dust control, erosion control, fire protection, onsite roadway maintenance, and safety measures. The Contractor shall comply with local, tribal, state and federal safety and health requirements.

2.4. Contractor shall manage the site to accept debris collected under other contracts. Contractor shall direct traffic entering and leaving the site, and shall direct dumping operations at the site.

2.5. Contractor shall be responsible for sorting and stockpiling of debris at the site. Debris shall be segregated into 1) burnable debris, 2) non-burnable debris, 3) household hazardous waste, and 4) ash residue. Further segregation of non-burnable debris, such as recyclable material or durable goods may be necessary. Debris classifications are defined in Section 3.0.

2.6. Contractor shall be responsible for disposal of non-burnable debris and ash residue. Non burnable debris and ash shall be hauled to **(name of site or landfill, Note: site must have scales)** for disposal. [SELECT ONE OF THE FOLLOWING SENTENCES] Tipping fees will be **(price per ton**) and will be the responsibility of the contractor for payment. [OR] Tipping fees will be the responsibility of the Government. Removal of household hazardous waste from the reduction site, including loading of household hazardous waste at the site, will be performed under a separate contract.

2.7. Upon completion of the debris reduction process, the Contractor will clear the site of all debris (excluding household hazardous waste) and restore the site to the satisfaction of the COR.

2.8. The Contractor shall conduct the work so as not to interfere with the disaster response and recovery activities of federal, state, tribal and local governments or agencies, or of any public utilities.

3.0 DEBRIS CLASSIFICATION

3.1. Eligible Debris. Debris that is within the scope of this contract falls under three possible classifications: Burnable, Non-Burnable, and Household Hazardous Waste.

3.2. Burnable Debris. Burnable debris includes all biodegradable matter except that included in the following definitions of other categories of debris. It includes, but is not limited to, damaged and disturbed trees; bushes and shrubs; broken, partially broken and severed tree limbs; untreated structural timber; untreated wood products; and brush.

3.3. Non-Burnable Debris. Non-burnable debris includes, but is not limited to, treated timber; plastic; glass; rubber products; metal products; dry wall; cloth items; non-wood building materials; and carpeting. Some non-burnable debris is recyclable. Recyclable debris includes metal products (i.e., mobile trailer parts, household appliances [white metal], and similar items), and uncontaminated soil.

3.4. Household Hazardous Waste (HHW). Household hazardous wastes, such as petroleum products, paint products, etc., and known or suspected hazardous materials, such as asbestos, lead-based paint, or electrical transformers shall be removed by others. Coordination for hazardous debris removal is the responsibility of the Government. Known or suspected HHW that mistakenly enters the waste stream shall be placed in an appropriate storage area for removal by others.

3.5. Stumps. Tree stumps with base cut measurements less than two (2) feet in diameter will be disposed of with the same methods used for other burnable debris. Tree stumps larger than two (2) feet in diameter will be disposed of by either splitting and burning, or chipping / grinding. The method will be at the discretion of the Contractor.

3.6. Ash. Ash is the residue produced by incineration of the burnable debris. When handling ash, it will be required to “wet down” the ash to prevent dust problems.

3.7. Chips / Mulch. Chips and mulch are the end products of chipping or grinding wood products. Proper disposal of chips and mulch is to find environmentally-friendly (non-landfill disposal) use for the material.

4.0 PERFORMANCE SCHEDULE

4.1. Immediately following Bid Opening, the apparent low bidder will meet with the COR to discuss matters of judgment, safety, quality control, coordination, payment, record keeping, and reporting.

4.2. Schedule. The Contractor shall begin preparation for mobilization immediately after Notice to Proceed and be fully operational within **(hours)** hours after Notice to Proceed.

4.3. Production. The Contractor is required to process a minimum of **(rate)** [*NOTE: MOST INCENERATORS BURN 150 TO 180 CY PER HOUR; ALLOW 4 HOURS DOWN TIME FOR SERVICE / ASH REMOVAL PER 24 HOURS*] cubic yards of debris per calendar day. The minimum required reduction / disposal rate shall be achieved no later than the second calendar day after receipt of Notice to Proceed. This minimum production rate is increased to **(increased rate)** in the event that the Government exercises the option for additional reduction capacity. Liquidated damages shall be assessed at $**(amount)** per calendar day for any day in which the minimum processing rate is not met, unless non-compliance is due to insufficient debris amounts being delivered to the site.

4.4. Completion. All work, including site restoration prior to close-out, shall be completed within **(days)** calendar days after receiving notice from the COR that the last load of debris has been delivered, unless the Government initiates additions or deletions to the contract by written change orders. Subsequent changes in completion time will be equitably negotiated by both parties pursuant to applicable state and federal law. Liquidated damages shall be assessed at $**(amount)** per calendar day for any time over the maximum allowable time established above.

5.0 EQUIPMENT

5.1. The Contractor shall provide all equipment necessary to prepare the site, stockpile the debris, feed the air curtain incinerator(s), remove ash from the incinerator(s), load and haul for disposal all non-burnable debris and ash residue, and any other equipment which may be necessary for the performance of this contract. The Contractor shall comply with local, tribal, state and federal safety and health requirements.

5.2. All equipment must be in compliance with all applicable federal, state, tribal and local rules and regulations. All equipment and operator qualifications will meet the requirements of local, tribal, state and federal safety and health requirements. The Contractor, using the applicable inspection forms, will inspect equipment prior to its use. The completed forms will be provided to the Government.

5.3. Prior to commencing debris reduction and disposal operations, the Contractor shall present to the Contracting Officer or his/her representative, the COR, for approval, a detailed description of all equipment to be used for debris handling, sorting, processing, incinerating, loading, and hauling. The description shall state the equipment brand name, model, and horsepower (including all air curtain incinerators).

5.4. Equipment which is designated for use under this contract shall not be used for any other work during the working hours of this contract. The Contractor shall not solicit work from private citizens or others to be performed in the designated work area during the period of this contract. Under no circumstances will the Contractor mix debris hauled or processed for others with debris hauled or processed under this contract.

5.5. Reduction of burnable debris may be by either air curtain pit burning or portable-air curtain incinerators. Section 6.0 specifies requirements for air curtain pit burning. Section 7.0 specifies requirements for portable air curtain incinerators.

[DELETE NEXT SECTION IF CHIPPING / GRINDING / MULCHING NOT ALLOWED IN CONTRACT]

5.6. Reduction of burnable wood debris may also be accomplished by chipping and grinding, provided the processing rate given in Section 4.3 can be maintained. Section 8.0 specifies requirements for chipping and grinding procedures.

6.0 **AIR CURTAIN PIT BURNING**

[SELECT ONE OF THE NEXT TWO PARAGRAPHS AND DELETE THE OTHER, DEPENDENT UPON WHETHER THE PIT IS TO BE CONSTRUCTED ABOVE GROUND OR DUG DOWN, BASED ON WATER TABLE]

[BELOW-GRADE PIT; LOW WATER TABLE]

6.1. The air curtain pit burning method incorporates an earthen pit, constructed by digging below grade, and a blower. The blower and pit make up an engineered system which must be precisely configured to properly function. The blower must have adequate air velocity to provide a "curtain effect" to hold smoke in and to feed air to the fire below. The pit configuration must have a precise width, depth and length to compliment the blower. The composition and operation of the air curtain pit incinerator(s) shall conform generally to the drawings in Figures 1, 2, and 3 of this scope of work.

[ABOVE-GRADE PIT; HIGH WATER TABLE]

6.1. The air curtain pit burning method incorporates an earthen pit, constructed by building above grade, and a blower. The blower and pit make up an engineered system which must be precisely configured to properly function. The blower must have adequate air velocity to provide a "curtain effect" to hold smoke in and to feed air to the fire below. The pit configuration must have a precise width, depth and length to compliment the blower. The composition and operation of the air curtain pit incinerator(s) shall conform generally to the drawings in Figures 1, 2, and 3 of this scope of work.

6.2. Minimum required air velocity measured at the nozzle is 8,800 ft/min (100 mph). Minimum air flow rate measured at the nozzle is 900 cubic feet per min per linear foot of pit length. (As an example, a 20 ft long pit would require a blower with a nozzle velocity of 8,800 ft/min and nozzle output rate of 18,000 cfm. This example is intended for explanation purposes only, and does not imply a recommended pit length for actual operations.)

6.3. The pit should be a maximum of 8 feet wide, and should be from 12 to 20 feet deep. The actual pit dimensions should be such that the system functions properly.

6.4. Pits must be constructed out of a highly compactable material that will hold its shape and support the weight of the loading equipment. There shall be an impervious layer of clay or limestone on the bottom of the pit to provide a barrier for ground water protection. This layer shall be a minimum of one-foot thick and be repaired as necessary after each ash removal operation.

6.5. There is to be a minimum distance of 100 feet between the burn area and the nearest debris piles. There is to be a minimum distance of 1,000 feet between the burn area and the nearest building. Contractors are responsible for assuring that the public and workers are kept a safe distance from the burn site.

6.6. The burn will be extinguished at least two hours before removal of the ash mound. Wetting of the ash will be necessary to reduce dust while removing ash.

6.7. The burn pits must be made of limestone or other highly compactable material and be capable of supporting the wheel weight of the loading equipment. There should be an impervious layer of clay or limestone on the bottom of the pit to attempt to seal the ash from the aquifer. This impervious layer should be at least one-foot thick, and should be repaired or replaced if scraped by bulldozers, excavators, or other equipment.

6.8. The ends of the pits must be sealed with dirt ash or other material to a height of four feet.

6.9. A 12-inch dirt seal must be placed on the lip of the burn pit area to seal the blower nozzle. The nozzle should be three to six inches from the edge of the pit.

6.10. There should be one-foot high warning stops running the length of the pits to alert equipment operators when they are close to the pit. The warning stops should be constructed of fireproof material.

6.11. No hazardous or contained-ignitable material is to be dumped into the pit.

6.12. The air flow should hit the wall of the pit at about two feet below the edge of the pit and the debris should not break the path of the air flow, except during dumping.

6.13. The length of the pit should be no longer than the length of the blower system, and the pit should be loaded uniformly along the length.

6.14. The contractor is responsible for ensuring that the public is protected from the burn operation. Signs, fences, and other measures can be used depending on site conditions.

6.15. Emissions must meet state and federal standards for burning operations.

6.16. The Contractor shall be responsible for dust control while handling ash materials.

7.0 PORTABLE AIR CURTAIN INCINERATORS

7.1. Portable incinerators use the same principles as air curtain pit systems. The primary difference being portable incinerators utilize a pre-manufactured pit in lieu of an onsite constructed earth or limestone pit. The pits are engineered to precise dimensions to compliment the blower systems. The composition and operation of the air curtain pit incinerator(s) shall conform generally to the drawings in Figures 1, 2 and 3 of this scope of work.

7.2. Minimum required air velocity measured at the nozzle is 8,800 ft/min (100 mph). Minimum air flow rate measured at the nozzle is 900 cubic feet per min (cfm) per linear foot of pit length. (As an example, a 20-foot long pit would require a blower with a nozzle velocity of 8,800 ft/min and nozzle output rate of 18,000 cfm. This example is intended for explanation purposes only, and does not imply a recommended pit length for actual operations.)

7.3. There is to be a minimum distance of 100 feet between the portable incinerator and the nearest debris piles. There is to be a minimum distance of 1,000 feet between the portable incinerator and the nearest building. Contractors must assure that the public and workers are kept a safe distance from the incinerator.

7.4. The burn will be extinguished at least two hours before removal of the ash.

7.5. There should be one-foot high warning stops running the length of the pits to alert equipment operators when they are close to the pit. The warning stops should be constructed of fireproof material.

7.6. No hazardous or contained-ignitable material is to be dumped into the pit.

7.7. The contractor is responsible for ensuring that the public is protected from the burn operation. Signs, fences, and other measures can be used depending on site conditions.

7.8. Emissions must meet state and federal standards for burning operations.

7.9. The Contractor shall be responsible for dust control while handling ash materials.

[DELETE ENTIRE NEXT SECTION IF CHIPPING / GRINDING NOT ALLOWED; IF THIS SECTION IS DELETED, REMAINING SECTION WILL NEED TO BE RE-NUMBERED]

8.0 CHIPPING AND GRINDING

8.1. If the Contractor chooses to use chipping / grinding as a method of debris reduction, it is the Contractor's responsibility to acceptably dispose of the chips or mulch, at no additional cost to the Government. Because the volume reduction achieved by chipping / grinding is not as great as the volume reduction achieved by incineration, disposal of the chips or mulch in a landfill is not an acceptable means of disposal. For disposal, the chips or mulch must be put to some benefit or use. The Contractor may provide or sell the chips or mulch to be recycled for use in agricultural mulch, fuel, or wood products.

8.2. The average chip size produced will be dependent on the needs of the end user, but typically should not exceed four inches in length and ½ inch in diameter.

8.3. Contamination: Contaminants are all materials other than wood products. Contaminants must be held to 10% or less for the chips or mulch to be acceptable. Plastics should be eliminated completely. To help eliminate contaminants, root rake loaders should be used to feed or crowd material to the chipper / grinder. Bucket loaders tend to scoop up earth, which is a contaminant. Hand laborers must be utilized to pull out contaminants prior to feeding the chipper / grinders. The more contaminants, the more numerous the laborers required. Shaker screens are required when processing stumps with root balls or when large amounts of soil are present in the vegetative debris.

8.4. Chips / mulch should be stored in piles no higher than 15 feet, and meet all state and local laws.

9.0 REPORTING

9.1. The Contractor shall submit a report to the COR no later than **(time)** each day. Each report shall contain, at a minimum, the following information:

a) Contractor's name;
b) Contract number;
c) Daily and cumulative totals of debris processed, to include method(s) of processing and disposal location(s);
d) Daily estimate of household hazardous waste (HHW) debris segregated, and cumulative amount of HHW placed in the designated holding area; and
e) Any problems encountered or anticipated.

10.0 **SITE CONSIDERATIONS**

10.1. Site Plan: The Contractor will provide a site operations plan for review and approval by the COR prior to beginning work. At a minimum, the plan will address the following:

a) Access to site;
b) Site management, to include point-of-contact, organizational chart, etc.;
c) Traffic control procedures;
d) Site security;
e) Site safety;
f) Site layout / segregation plan;
g) Hazardous waste materials plan; and
h) Environmental mitigation plan, including considerations for smoke, dust, noise, traffic, buffer zones, storm water runoff archeology, historic preservation, wetlands, and endangered species as appropriate.

10.2. Site Preparation: The Contractor shall be responsible for preparing the site(s) to accept the debris. This preparation shall include clearing, erosion control, grading, construction and maintenance of haul roads and entrances. The Contractor shall provide utility clearances and sanitation facilities, if needed. The Contractor shall protect existing structures at the sites and repair any damage caused by his/her operations at no additional cost to the Government.

10.3. Site Security: The Contractor shall be responsible for installing site security measures and maintaining security for his/her operations at the site.

10.4. Fire Protection: The Contractor shall manage the site to minimize the risk of fire.

10.5. Ash Containment Area: The Contractor shall be responsible for the storage, removal, and containment of ash from all burning operations. The containment area will be "wetted down" periodically under this contract to prevent particles from becoming airborne.

10.6. Inspection Tower: The contractor shall construct an inspection tower. The tower shall be constructed using pressure treated wood. The floor elevation of the tower shall be 10 feet above the existing ground elevation. The floor area shall be 8' by 8', constructed of 2"x 8" joists, 16" O.C. with ¾" plywood supported by four 6" x 6" posts. The perimeter of the floor area shall be protected by a four-foot high wall constructed of 2" x 4" studs and ½" inch plywood. The floor area shall be covered with a corrugated tin roof. The roof shall provide a minimum of 6'-6" of head room below the support beams. Access shall be provided by wooden steps with a hand rail.

10.7. Traffic Control: The Contractor shall be responsible for control of pedestrian and vehicular traffic in the work area. The Contractor shall provide all flag persons, signs, equipment, and other devices necessary to meet federal, state, tribal and local requirements. The traffic control personnel and equipment shall be in addition to the personnel and equipment required in other parts of this contract. At a minimum, one flag person shall be posted at each entrance to direct traffic to the site.

10.8. Site Closure: The Contractor shall be responsible for the closure of the debris site within **(number)** calendar days of receiving the last load of disaster-related debris. This closure shall include removal of site equipment, debris, and all remnants from the processing operation (such as temporary toilets, observation towers, security fence, etc.), grading the site, and restoring the site to pre-work conditions. The site will be restored in accordance with all state, tribal and local requirements. The Contractor is responsible for the proper disposal of non-burnable debris, ash, and

wood chips. Disposal of the HHW debris is not the responsibility of the Contractor under this contract. The Contractor shall receive approval from the COR as to the final acceptance of a site closure. Final payment shall be released to the Contractor upon acceptance by the Contracting Officer.

11.0 **HOUSEHOLD HAZARDOUS WASTE (HHW) ISSUES**

11.1. The Contractor will be required to construct a containment area at the reduction site. This containment area will consist of an earthen berm with a non-permeable soil liner. The HHW containment area must be covered at all times with a non-permeable cover.

11.2. Any material which is found to be classified as HHW shall be reported immediately to the designated COR. This material shall be segregated from the remaining debris using a method which will allow the remaining non-HHW debris to be processed. All HHW debris will be moved and placed in the designated HHW containment area.

11.3. Disposal of the HHW debris will be by separate contract.

12.0 **CONTRACTOR HHW SPILLS**

12.1. The Contractor shall be responsible for reporting to the COR and cleaning up all HHW spills caused by the Contractor's operations at no additional cost to the Government.

12.2. Immediate containment actions shall be taken as necessary to minimize effect of any spill or leak. Cleanup shall be in accordance with applicable federal, state, tribal and local laws and regulations.

12.3. Spills other than on-the-site shall be reported to the National Response Center and the Contracting Officer immediately following discovery. A written follow-up shall be submitted to the COR not later than seven days after the initial report. The written report shall be in narrative form, and as a minimum shall include the following:

a) Description of the material spilled (including identity, quantity, manifest number, etc.);
b) Determination as to whether or not the amount spilled is EPA / State reportable, and when and to whom it was reported;
c) Exact time and location of spill, including description of the area involved;
d) Receiving stream or waters;
e) Cause of incident and equipment and personnel involved;
f) Injuries or property damage;
g) Duration of discharge;
h) Containment procedures initiated;
i) Summary of all communications the Contractor has had with press, agencies, or Government officials other than COR; and
j) Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.

13.0 **OTHER CONSIDERATIONS**

13.1. The Contractor shall supervise and direct the work, using qualified labor and proper equipment for all tasks. Safety of the Contractor's personnel and equipment is the responsibility of the Contractor. Additionally, the Contractor shall pay for all materials, personnel, taxes, and fees necessary to perform under the terms of this contract.

13.2. The Contractor must be duly licensed in accordance with the State's statutory and regulatory requirements to perform the work. The Contractor shall obtain all permits necessary to complete the work. The Contractor shall be responsible for determining what permits are necessary to perform under the contract. Copies of all permits shall be submitted to the COR.

13.3. The Contractor shall be responsible for correcting any notices of violations issued as a result of the Contractor's or any subcontractor's actions or operations during the performance of this contract. Corrections for any such violations shall be at no additional cost to the Government.

14.0 **MEASURMENTS**

14.1. Measurement of debris processed is based upon cubic yard measurements of debris delivered to the site.

14.2. Measurement of non-burnable debris and ash is based upon ton measurements measured at the landfill or final disposal site.

14.3. All efforts required in mobilization, site set-up, site close-out, and demobilization shall be considered as a total job.

15.0 **PAYMENT**

15.1. Payment for all debris sorted, segregated, processed, reduced, and disposed by burning will be made at the unit price per cubic yard.

15.2. The following costs are incorporated in the bidder's unit price for burning: payment for managing and operating the debris sites; furnishing plant, material, labor, tools and equipment necessary to process / reduce / dispose of debris; and providing for traffic control, dust control, erosion control, inspection tower(s), lighting, ash containment, fire protection, permits, environmental monitoring, and safety measures.

15.3. Payment for loading and hauling non-burnable debris to the final disposal site will be by the ton.

15.4. The Contractor will be entitled to invoice for mobilization after all equipment is delivered to and operational at the work site. Demobilization costs will be due after all equipment is removed from the work site. Payment for mobilization and demobilization will be per job.

15.5. Payment for site preparation and site closure will be per job.

Flow Diagram For A Burning Operation

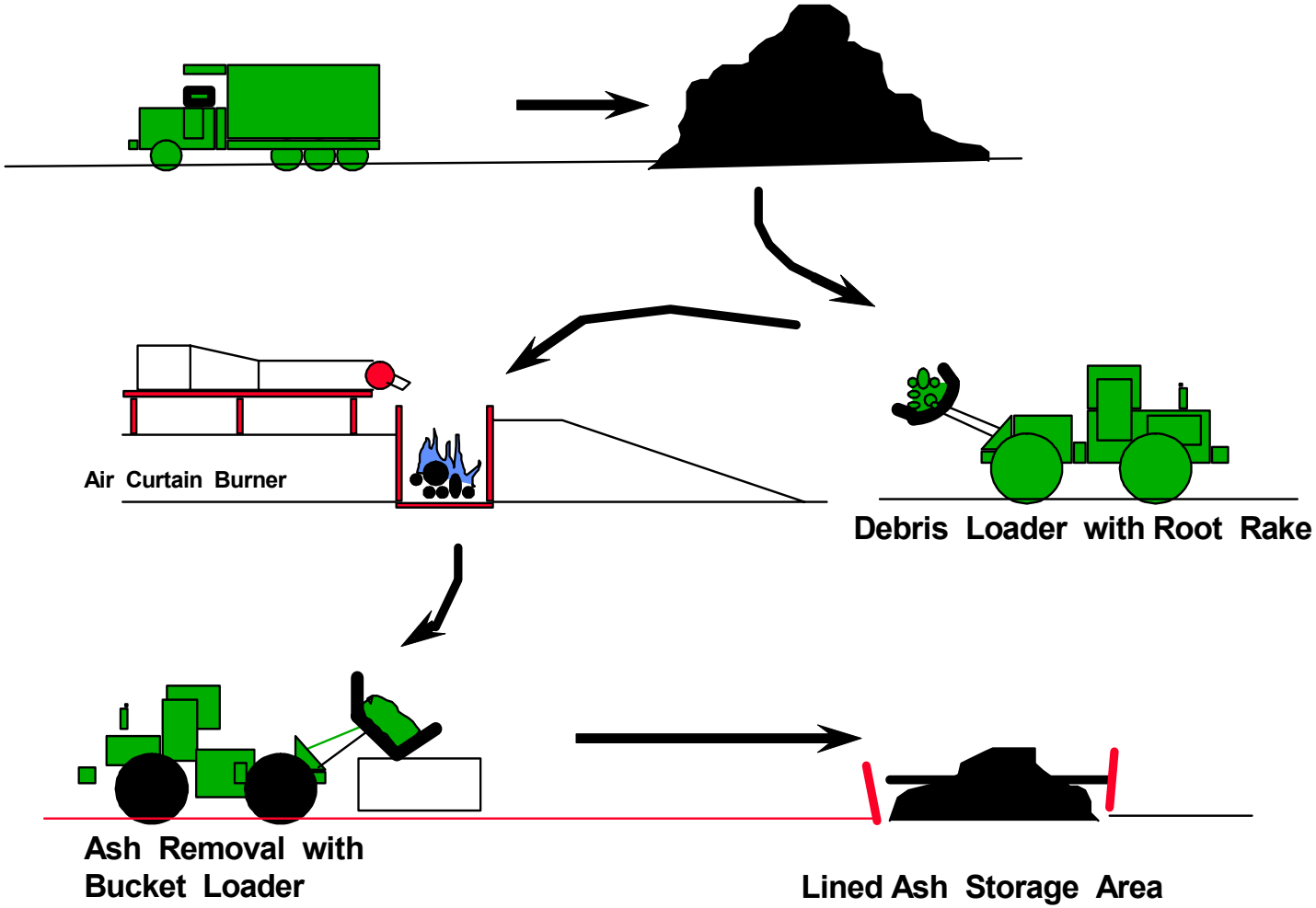

FIGURE 1

Overview of an Air Curtain Operation

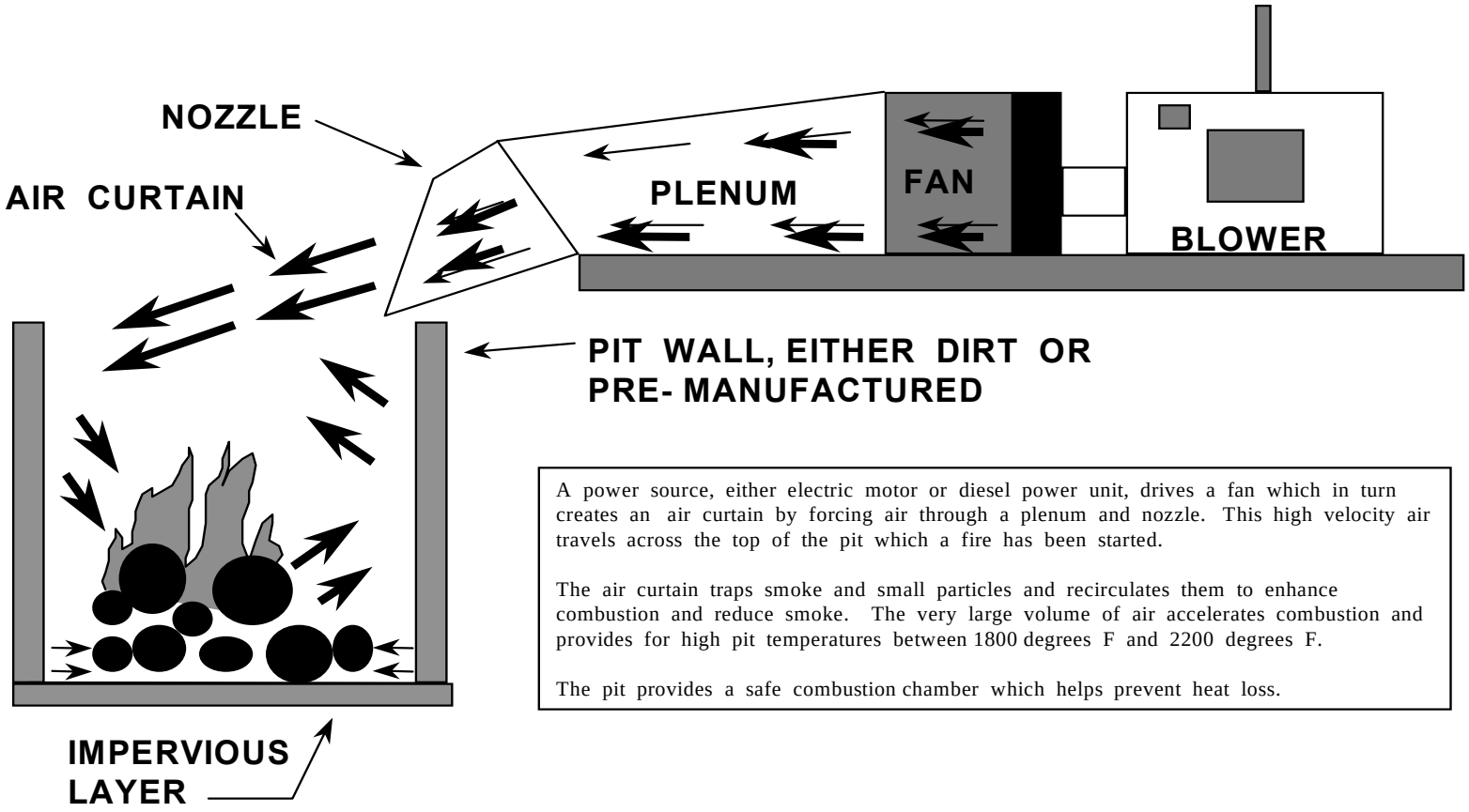

FIGURE 2

A power source, either electric motor or diesel power unit, drives a fan which in turn creates an air curtain by forcing air through a plenum and nozzle. This high velocity air travels across the top of the pit which a fire has been started.

The air curtain traps smoke and small particles and recirculates them to enhance combustion and reduce smoke. The very large volume of air accelerates combustion and provides for high pit temperatures between 1800 degrees F and 2200 degrees F.

The pit provides a safe combustion chamber which helps prevent heat loss.

Air Curtain Pit Burner

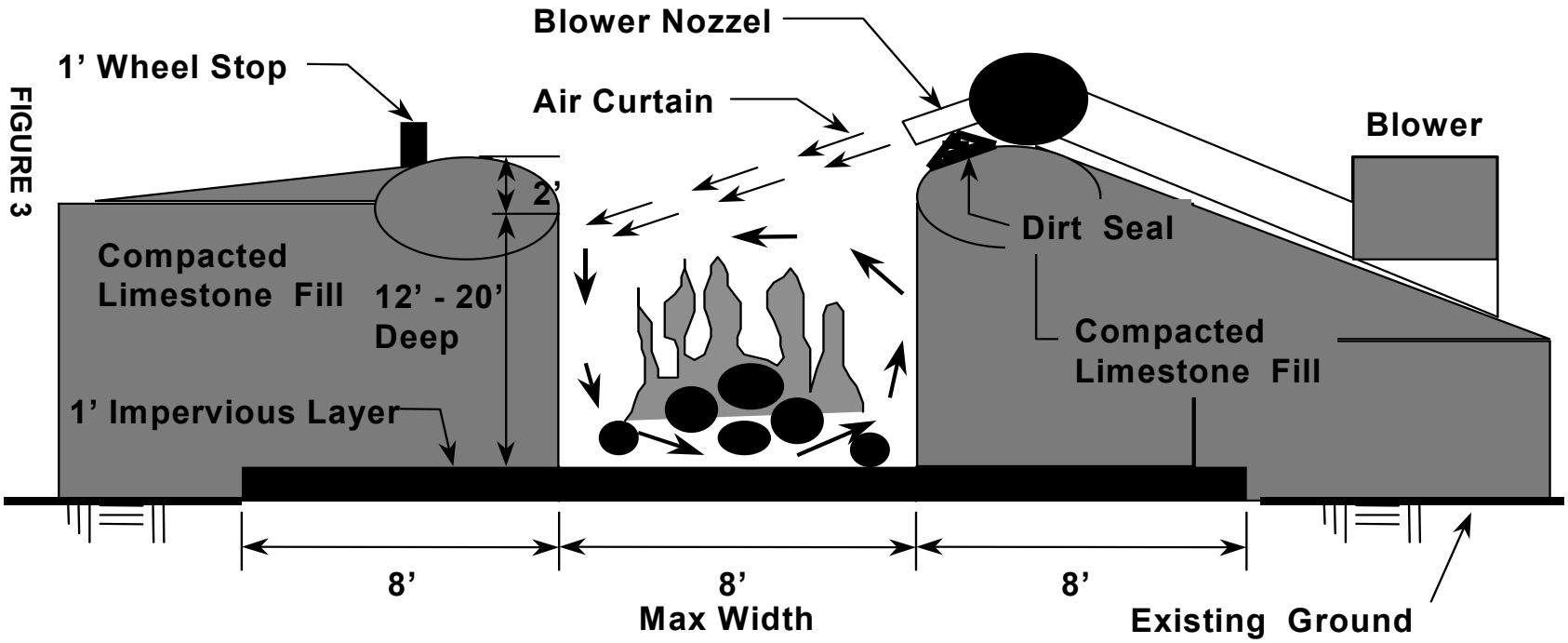

FIGURE 3

BIDDING SCHEDULE

CONTRACT NO._____

ITEM	DESCRIPTION	QUANTITY	UNIT OF ISSUE	UNIT PRICE	AMOUNT
1.	Mobilization	1	Job	XXX	**$**
2.	Reduction of Burnable Debris through the Air Curtain Incineration		CY	$	$
3.	Disposal of Non- Burnable Debris and Ash		Ton	$	$
4.	Site Preparation and Site Closure	1	Job	XXX	$

[DELETE THE NEXT BID ITEM IF CHIPPING & GRINDING IS NOT ALLOWED IN THE CONTRACT.]

5.	Reduction of Burnable Debris by Chipping and Grinding		CY	$	$
6.	Reduction of Stumps greater than 24” in diameter, but less than 36” in diameter		Stump	$	$
7.	Reduction of Stumps 36” in diameter, but less than 48” in diameter as		Stump	$	$
8.	Reduction of Stumps 48” in diameter or greater		Stump	$	$
9.	Demobilization	1	Job	XXX	$

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SCOPE OF WORK FOR
EQUIPMENT LEASING FOR CLEARING OF DEBRIS
RELATED TO
(NAME / NATURE OF DISASTER)
AT, IN, OR NEAR
(LOCATION OF RECOVERY EFFORTS)

1.0 GENERAL

The purpose of this contract is to provide debris clearing and removal response assistance to **(name of jurisdiction)** which has been declared a disaster area by the President because of the effects of **(name / nature of disaster)**.

2.0 SERVICES

2.1. The Contractor shall provide specified equipment with operators and laborers for debris removal. The contractor shall provide all labor and materials necessary to fully operate and maintain (including fuel, oil, grease and repairs) the following:

[INSERT QUANTITY AND DESCRIPTION FROM EQUIPMENT LIST]

2.2. The Contractor shall provide the crews for **(initial time, i.e., "two weeks" or "not to exceed either time or dollar amount")** with a Government option to extend for up to an additional **(extension time, i.e., "one week")**.

2.3. All hourly equipment rates include the cost of the operator, supervision, maintenance, fuel, repairs, overhead, profit, insurance, and any other costs associated with the equipment and personnel.

2.4. All hourly manpower rates include the cost of protective clothing (to include hard-hats and steel-toed boots), fringe benefits, hand tools, supervision, transportation and any other costs.

2.5. The work shall consist of clearing and removing any and all "eligible" debris (see section 3.0 for a definition of eligible debris) as directed by the Contracting Officer's Representative (COR). Work will include: 1) loading the debris, 2) hauling the debris to an approved dumpsite, and 3) dumping the debris at the dumpsite. Ineligible debris will not be loaded, hauled, or dumped under this contract. This work will involve primarily clearing the right-of-way (ROW) of streets and roads.

2.6. The Contractor shall not move from one designated work area to another designated work area without prior approval from the COR.

2.7. The Contractor shall conduct the work so as not to interfere with the disaster response and recovery activities of federal, state, tribal and local governments or agencies, or of any public utilities.

2.8. The Contractor shall comply with local, tribal, state and federal safety and health requirements.

3.0 **DEBRIS CLASSIFICATION**

3.1. Eligible Debris. Debris that is within the scope of this contract falls under three possible classifications: Burnable, Non-Burnable, and Recyclable. Debris that is classified Household Hazardous Waste (HHW) is not to be transported by this contract.

3.2. Burnable Debris. Burnable debris includes all biodegradable matter except that included in the following definitions of other categories of debris. It includes, but is not limited to, damaged and disturbed trees; bushes and shrubs; broken, partially broken and severed tree limbs; tree stumps with base cut measurements less than two feet; untreated structural timber; untreated wood products; and brush.

3.3. Non-Burnable Debris. Non-burnable debris includes, but is not limited to, treated timber; plastic; glass; rubber products; metal products; dry wall; cloth items; non-wood building materials; carpeting; recyclable debris including metal products (i.e., mobile trailer parts, household appliances [white metal], and similar items), and uncontaminated soil.

3.4. Household Hazardous Waste (HHW). Household hazardous wastes, such as petroleum products, paint products, etc., and known or suspected hazardous materials such as asbestos, lead-based paint, or electrical transformers shall be removed by others. Coordination for hazardous debris removal is the responsibility of the Government.

4.0 **DUMPSITES**

4.1. The Contractor shall use only debris dumpsites designated and approved by the COR.

4.2. The dumpsite operator shall direct all dumping operations. The Contractor shall cooperate with the dumpsite operator to facilitate effective dumping operations.

5.0 **PERFORMANCE SCHEDULE**

5.1. The Contractor shall commence mobilization immediately upon award of the contract and designation of work areas by the COR and will commence debris removal operations within 24 hours of Notice to Proceed.

5.2. The Contractor shall work during daylight hours for **(number)** hours per day, **(number)** days per week.

6.0 **EQUIPMENT**

6.1. All trucks and other equipment must be in compliance with all applicable federal, state, tribal and local rules and regulations. Any truck used to haul debris must be capable of rapidly dumping its load without the assistance of other equipment; be equipped with a tailgate that will effectively contain the debris during transport and permit the truck to be filled to capacity; and measured and marked for its load capacity. Sideboards or other extensions to the bed are allowable provided they meet all applicable rules and regulations, cover the front and both sides, and are constructed in a manner to withstand severe operating conditions. The sideboards are to be constructed of 2” by 6” boards or greater and not to extend more than two feet above the metal bed sides. The Contracting Officer’s representative must approve all requests for extensions. Equipment will be inspected prior to its use by the Contractor using applicable U.S. Army Corps of Engineers forms. The forms will be provided to the Government after completion.

6.2. Trucks and other heavy equipment designated for use under this contract shall be equipped with two signs, one attached to each side. A total of **(quantity)** signs will be provided by the Government and are to be returned to the Government prior to issuance of final payment. A fee of $**(amount)** will be assessed against the final payment for each lost sign.

6.3. Prior to commencing debris removal operations, the Contractor shall present to the Government's representative all trucks or trailers that will be used for hauling debris, for the purpose of determining hauling capacity. Hauling capacity, in cubic yards, will be recorded and marked on each truck or trailer. Each truck or trailer will also be numbered for identification. The Government reserves the right to re-measure trucks and trailers at any time during the contract and to use re-measurements as the basis for calculating loads for payment purposes.

6.4. Trucks or equipment that are designated for use under this contract shall not be used for any other work during the working hours of this contract. The Contractor shall not solicit work from private citizens or others to be performed in the designated work area during the period of this contract. Under no circumstances will the Contractor mix debris hauled for others with debris hauled under this contract.

7.0 REPORTING

7.1. The Contractor shall submit a report to the COR by close of business each day of the term of the contract. Each report shall contain, at a minimum, the following information:

a) Contractor's Name;
b) Contract Number;
c) Daily and cumulative hours for each piece of equipment; and
d) Daily and cumulative hours for personnel, by position.

8.0 OTHER CONSIDERATIONS

8.1. The Contractor shall supervise and direct the work, using qualified labor and proper equipment for all tasks. Safety of the Contractor's personnel and equipment is the responsibility of the Contractor. Additionally, the Contractor shall pay for all materials, personnel, taxes, and fees necessary to perform under the terms of this contract.

8.2. The Contractor must be duly licensed in accordance with the State's statutory requirements to perform the work. The Contractor shall obtain all permits necessary to complete the work. The Contractor shall be responsible for determining what permits are necessary to perform under the contract. Copies of all permits shall be submitted to the COR prior to issuance of a notice to proceed.

8.3. The Contractor shall be responsible for taking corrective action for any notices of violations issued as a result of the Contractor's or any subcontractor's actions or operations during the performance of this contract. Corrections for any such violations shall be at no additional cost to the Government.

8.4. The Contractor shall be responsible for control of pedestrian and vehicular traffic in the work area. The Contractor shall provide all flag persons, signs, equipment, and other devices necessary to meet federal, state, tribal and local requirements. The traffic control personnel and equipment shall be in addition to the personnel and equipment required in other parts of this contract. At a minimum, one flag person should be posted at each approach to the work area.

9.0 **PAYMENT**

9.1. The Contractor will be entitled to invoice for 60% of the mobilization and demobilization line item after all equipment is delivered to the designated work site. The remaining 40% will be due after all equipment is removed from the work site, all vehicle signs have been returned to the Government, and the Contractor has submitted a proper invoice.

9.2. Payment for work completed will be based on verified hours worked from the daily operational report. Equipment down time resulting from equipment failure, routine maintenance and fueling that exceeds 15 minutes of a work hour will be considered unacceptable work and non-payment for one half of that hour and the number of work hours will be reduced to exclude the down time (the minimum reduction shall be one-half hour).

9.3. All payments made under this contract will be in accordance with PAYMENTS clauses located in other sections of this contract.

10.0 **OPTIONS**

10.1. The option items listed in Schedule B (the Bid Schedule) are for the purpose of extending this contract for seven days at a time. These options will be exercised at the discretion of the Government in accordance with the OPTION TO EXTEND SERVICES clause located elsewhere in this contract.

11.0 **ATTACHMENTS**

11.1. Daily Report Format

11.2. Sample Bidding Schedule

11.3. Operations Report

11.4. Equipment Pick List

DAILY REPORT

CONTRACTOR:
CONTRACT NO. :

DATE OF REPORT:

Truck No.		Capacity	Burn Site Trips	CY Totals	Landfill Trips	CY Totals
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
	DAILY GRAND TOTALS			**CY**		**CY**

CONTRACT NO._____

BIDDING SCHEDULE					
ITEM	**DESCRIPTION**	**HOURS**	**U/I**	**U/P**	**AMOUNT**
001	Mobilize Equipment/Demobilize Equipment	JOB			
002	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
003	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
004	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
005	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
006	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
007	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
008	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
009	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
010	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
011	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
012	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
013	One (1) Truck, Dump, 16-20 cy capacity, with Operator	140.00			
014	One (1) Loader, Front-end, 3-5 cy capacity, with Operator	140.00			
015	One (1) Loader, Front-end, 3-5 cy capacity, with Operator	140.00			
016	One (1) Knuckleboom, 10 ton lifting capacity, with Operator	140.00			
017	Four (4) Laborers with Chainsaws, 16”min bar, traffic flags, and misc. small tools (axes, shovels, safety equip.)	140.00			
018	One (1) Truck, Pickup, ½-1 Ton, with crew foreman, and cellular phone.	140.00			
019	One (1) Track Hoe, 2-3 cy bucket with operator	100.00			
020	One (1) Low Bed Equipment Trailer , 20 Ton capacity, and Tractor Truck with operator	70.00			
		TOTAL			

CONTRACT NO._____

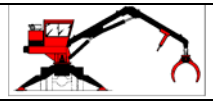
BIDDING SCHEDULE					
ITEM	**DESCRIPTION**	**HOURS**	**U/I**	**U/P**	**AMOUNT**
	FIRST OPTION PERIOD				
021	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
022	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
023	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
024	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
025	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
026	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
027	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
028	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
029	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
030	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
031	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
032	One (1) Truck, Dump, 16-20 cy capacity, with Operator	70.00			
033	One (1) Loader, Front-end, 3-5 cy capacity, with Operator	70.00			
034	One (1) Loader, Front-end, 3-5 cy capacity, with Operator	70.00			
035	One (1) Knuckleboom, 10 ton lifting capacity, with Operator	70.00			
036	Four (4) Laborers with Chainsaws, 16” min bar, traffic flags, and misc. small tools (axes, shovels, safety equip.)	70.00			
037	One (1) Truck, Pickup,1/2 -1 Ton, with crew foreman, and cellular phone.	70.00			
038	One (1) Track Hoe, 2-3 cy bucket, with operator	50.00			
039	One (1) Low Bed Equipment Trailer, 20 Ton capacity, and Tractor Truck, with operator	35.00			
		TOTAL			

CONTRACT NO._____

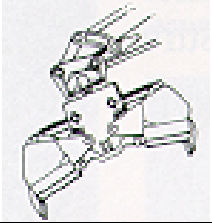
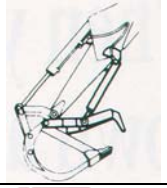
OPERATIONAL REPORT

EQUIPMENT	TOTAL HOURS WORKED THIS DAY	TOTAL HOURS IDLE THIS DAY
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
DUMP TRUCK #		
F.E. LOADER#		
F.E. LOADER#		
DOZER #		
TRACK HOE #		
KNUCKLEBOOM #		
KNUCKLEBOOM #		
KNUCKLEBOOM #		
PICKUP TRUCK #		
LABOR CREW #		

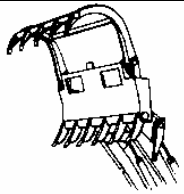
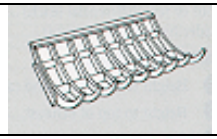
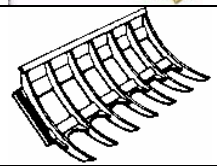
EQUIPMENT PICK LIST

ITEM	PICTURE	DESCRIPTION	LIKE
1.		Truck, Pickup, .5/.75 Ton, with Operator	Ford F-150
2.		Truck, Dump, 6-8 cy capacity, with Operator	
3.		Truck, Dump, 16-20 cy capacity, with Operator	GMC C-Series Trucks
4.		Truck, Dump, 25-30 cy capacity, with Operator	
5.		Excavator, Hydraulic, 1-2 cy bucket, 128 Net Hp, with Operator	CAT 320 CASE 9030B
6.		Excavator, Hydraulic, 2-3 cy bucket, 168 Net Hp, with Operator	CAT 325
7.		Excavator, Hydraulic, 3-5 cy bucket , 286 Net Hp, with Operator	CAT 350
8.		Knuckleboom, 10 ton lifting capacity, with Operator	Barko 160A

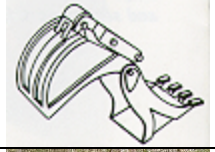
EQUIPMENT PICK LIST

ITEM	PICTURE	DESCRIPTION	LIKE
9.		Attachment, Grapple, hydraulically operated clam-type bucket with 360-degree rotation, for use in demolition, and clearing	
10.		Attachment, Grapple, thumb, a demolition or trash grapple. Can be used with the standard excavator bucket. Thumb section can be stiff arm mounted or controlled with a hydraulic cylinder.	
11.		Attachment, Clamp, Bucket	
12.		Loader, tracked, 1-2 cy blade capacity, with Operator	CAT 933
13.		Loader, tracked, 2-3 cy blade capacity, with Operator	CAT 953
14.		Loader, tracked, 3-5 cy blade capacity, with Operator	CAT 973
15.		Loader, Front-end, wheeled, 3-5 cy capacity, with Operator	CASE 821B CAT 938F
16.		Loader, Front-end, 3-5 cy capacity, with Operator	CAT 960F
17.		Loader, Front-end, 3-5 cy capacity, with Operator	CAT 970F CASE 921B

EQUIPMENT PICK LIST

ITEM	PICTURE	DESCRIPTION	LIKE
18.		Rake, Loader with top clamp	
19.		Attachment, Loader Rake, mounts in place of the bucket on 4-wheel drive or crawler loaders. Loads debris at truck height. Long curved teeth for maximum load capacity. Bucket cylinder controls positions for digging depth or transporting.	
20.		Grader, Motor, 12-foot blade, 130-140 net Hp	CAT 12H Champion 710 Series IV
21.		Dozer, tracked, 1-2 cy Blade Capacity, with Operator	CAT D5
22.		Dozer, tracked, 2-3 cy Blade Capacity, with Operator	CAT D7G
23.		Dozer, tracked, 22'6" Blade length, 405 Net Hp, with Operator	Caterpillar D9R
24.		Rake, Clearing and Stacking, Dozer mounted; lighter-weight construction. Curved teeth lift and stack trees and debris while sifting out dirt.	
25.		Chainsaw, not less than 20” bar, with Operator	

EQUIPMENT PICK LIST

ITEM	PICTURE	DESCRIPTION	LIKE
26.		Chainsaw, Gas engine, not less than 14” bar, with Operator	
27.		Backhoe, with loader, 1 cy bucket, with Operator	CASE 4-390
28.		Backhoe, with loader, 1.5 cy bucket, with Operator.	JCB 217 4WD
29.		Attachment, Thumb	
30.		Attachment, Clamshell bucket	
31.		Skidder,	
32.		Loader, Mini, Width of vehicle not to exceed 6 feet, for use in restricted maneuver area.	Bobcat 553 JCB 165
33.		Burner, Air Curtain, fully self-contained system that includes a power plant, hydraulic drive system blower fan and fuel tank. A diesel injection system and/or a propane ignition system are offered as light-up options.	Air Burners, Inc. Model “S”

EQUIPMENT PICK LIST

ITEM	PICTURE	DESCRIPTION	LIKE
34.		Burner, Air Curtain, mobile unit, 6 cylinder Diesel engine, minimum 89 HP (66 kW), full enclosure; burn container 4" (102 mm) thick walls; refractory panels filled with thermal ceramic material. Instrument panel, tachometer, hour meter, ampere meter, key switch, oil pressure and water temperature gauges, with safety shutdown feature and adjustable locking throttle, minimum 15,500 cfm (439 m3/min). Centrifugal fan, air output approx. 165 mph (266 km/h) at fan, 110 mph (177 km/h) at air spouts. Manifold minimum 1/8" (3.2 mm) steel, solid-weld assembly; air vents inject air at 20-degree angle to maintain proper air curtain. Length: 35' (10.70 m); 2 sections: 15' (4.60 m) each; T-section at 5' (1.50 m). Weight approx. 7,200 lbs (3,266 kg). 50 gallon (189 liter) minimum fuel tank capacity. Air quality meets or exceeds applicable US-EPA regulations.	Air Burners, Inc. Mobile System Model "T- 359"
35.		Grinder, Tub, with 300-400 Hp engine, 8-foot diameter tub	Portec Model 20900
36.		Laborer, with hand tools (i.e., shovels, axes, rakes, traffic-control flags, etc.)	

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SAMPLE EMERGENCY DEMOLITION SERVICES AGREEMENT

(From FEMA Debris Management Training Module, G202; modified slightly for Michigan conditions)

ARTICLE I

AGREEMENT BETWEEN PARTIES

This Agreement is entered into this _____ day of **(month / year)**, by and between the **(name of jurisdiction)**, a political subdivision of the State of Michigan, hereinafter called the "**(City / County / Village / Township)**" and **(name of contractor)**, a corporation formed and licensed under the laws of the **(insert Michigan or other state name)**, hereinafter called the "CONTRACTOR".

ARTICLE II

SCOPE OF WORK

This contract is entered into pursuant to a request for proposal by the **(City / County / Village / Township)** for the removal of debris, structural materials and related matter, resulting from damages caused by the **(type of disaster / date)**. It is the intent of this contract to provide equipment and manpower, whether directly by CONTRACTOR or by subcontractors hired by CONTRACTOR, to remove all hazards to life and property in the affected portions of **(City / County / Village / Township)**.

Clean-up, demolition and removal will be limited to (1) that which is determined to be in the interest of public safety as may be established by resolution of **(City / County / Village / Township)**; and (2) that which is considered essential to the economic recovery of the affected area. The work shall consist of the providing of equipment and labor, together with all fuels, lubricants, and other necessary components, to clean up and remove debris as directed by **(City / County / Village / Township)**.

It is understood and agreed that (number) homes require demolition *(assume addresses are attached to document)* within the corporate limits of **(City / County / Village / Township)**, together with the possibility of additional homes located immediately adjacent to the affected area, but outside the corporate limits of **(City / County / Village / Township)**. These non-corporate limit homes are the subject of mutual aid resolutions or agreements between the **(City / County / Village / Township)** and adjacent Township, and were damaged by the **(type of disaster / date)**.

Work shall be limited to the removal of residential structures or debris from structures, and shall not include commercial properties, specifically including but not necessarily limited to properties owned by **(names of commercial enterprises)**, or any other commercial structure.

ARTICLE III

SCHEDULE OF WORK

The work under this contract will commence as soon as reasonably possible after execution of this Agreement, but in any event, not later than **(date)**. Work shall be demolition and removal of debris. Work shall be provided at specific properties with direct loading and immediate removal or hauling of debris from each property rather than stockpiling from multiple sites prior to removal of debris from a general area.

Work shall also include securing each site with safety fencing or otherwise as provided by applicable code, whether state or local. Backfilling of sites of excavation and other restoration of properties is not to be provided unless specifically directed otherwise, in writing, at the direction expense of the affected property owner.

ARTICLE IV

PRICE

The lump sum price for performing the work stipulated in this contract document is not to exceed **(amount, in both narrative and figure formats, e.g., Nine Hundred and Fifty Thousand and 00/000 [$950,000] Dollars)**.

ARTICLE V

CONTRACTOR'S OBLIGATIONS

CONTRACTOR shall supervise accomplishment of the work effort directed using skillful labor and proper equipment for all tasks. Safety of the CONTRACTOR'S personnel and equipment, or that of subcontractors, is the responsibility of the CONTRACTOR and subcontractor. Additionally, the CONTRACTOR shall pay for all materials, personnel, taxes, and fees, if any, necessary to perform under the terms of the contract. Any unusual, concealed, or conditions are to be immediately reported to the **(City / County / Village / Township)**.

Caution and care shall be required and exercised by CONTRACTOR or its subcontractors not to cause any additional damage to sidewalks, roads, buildings, or other permanent fixtures, structures, existing utilities, and/or trees. The CONTRACTOR shall be responsible for damages to existing facilities. Any unnecessary damage will be repaired at the CONTRACTOR'S expense.

CONTRACTOR shall provide prompt billing to **(City / County / Village / Township)** by property or site affected, unless otherwise agreed with **(City / County / Village / Township)**. It is understood that subcontractors shall be retained using local, average and Blue Book prices for construction labor and equipment, with equipment billing rates to be considered wet (with fuels and lubricants included) and also including necessary operators. These rates shall not exceed FEMA approved equipment rates. Billing shall be submitted weekly with amount due as hereinafter provided in Article V.

CONTRACTOR shall be paid an amount equal to ten percent (10%) of all subcontractors' billings to cover the administrative costs of this contract and arranging for such contractors. CONTRACTOR'S foreman, if any, will be billed at an hourly rate.

Only actual costs per site, or property affected, will be billed, with the exception of the administrative fee and CONTRACTOR'S foreman or supervisor fee as above-noted.

ARTICLE VI

PAYMENT

The CONTRACTOR shall submit certified pay requests for completed work. The **(City / County / Village / Township)** shall have 10 calendar days to approve or disapprove, with reasons in writing, the pay request. The **(City / County / Village / Township)** shall pay the CONTRACTOR for its performance under the contract within 20 days of approval of the pay estimate. On contracts over 30 days in duration, the **(City / County / Village / Township)** shall pay the CONTRACTOR a pro-rata percentage of the contract amount on a monthly basis, based on the amount of work completed and approved in that month. The **(City / County / Village / Township)** will remunerate the CONTRACTOR within 30 days of the approved application for payment after which interest will be added at a rate of five percent (5%) per annum. Payments shall be subject to a retainer of ten percent (10%) on each payment. Retainer shall be released upon substantial completion of the work. Funding for this contract is authorized pursuant to Public Law of the State, **(legal citation, e.g., 390 PA 1976, as amended)** and **(City / County / Village / Township)** **(legal citation, e.g., Charter, Chapter 3)**.

ARTICLE VII

CHANGE ORDERS

If the scope of work is changed by the **(City / County / Village / Township)**, the change in price and contract time will be promptly negotiated by the parties, prior to commencement of work.

ARTICLE VIII

(CITY / COUNTY / VILLAGE / TOWNSHIP) OBLIGATIONS

(City / County / Village / Township) representatives shall furnish all necessary information for commencement of the work and costs of any construction permits, and costs for disposal site, to include tipping fees, and authority approvals for all services provided. A representative will be designated by **(City / County / Village / Township)** for inspecting the work and answering any onsite questions. The **(City / County / Village / Township)** shall designate areas where work is to be performed. Copies of "Right-of-Entry" Agreements, where they are required by state or local law for private property, shall be furnished to the CONTRACTOR by **(City / County / Village / Township)**.

ARTICLE IX

TERMINATION

The **(City / County / Village / Township)** may terminate the contract for failure to perform or default by the CONTRACTOR or its subcontractors

ARTICLE X

INSURANCE, BONDS AND INDEMNIFICATION

CONTRACTOR shall furnish proof of Workers' Compensation Coverage, Automobile Liability Coverage, and Comprehensive General Liability Coverage, Performance and Payment Bonds, for itself and any subcontractors, unless otherwise agreed by separate written document executed by **(City / County / Village / Township)**. The CONTRACTOR and its subcontractors shall be solely responsible for any intentional wrongdoing or acts of negligence by themselves or their employees.

(City / County / Village / Township)

By_____
(Responsible Official, e.g., Mayor, Board Chairperson, etc.)

And_____
(Other Responsible Official, e.g., City Manager, Township Supervisor, etc.)

(NAME OF CONTRACTOR)

By_____
President

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SAMPLE RIGHT-OF-ENTRY PERMIT (INCLUDES HOLD HARMLESS AND INSURANCE CLAUSES) – VERSION 1

(From FEMA Debris Management Training Module, G202; modified slightly for Michigan conditions)

Right-of-Entry Permit No._____
Property Address / Description
City Name (Owner or Tenant)
County / Date

RIGHT-OF-ENTRY

I certify that I am the owner, or an owner's authorized agent, of the property described above. I grant, freely and without coercion, the right of access and entry to said property to the (eligible applicant), its agents, contractors, and subcontractors, for the purpose of demolishing, removing and/or clearing any or all storm-generated debris of whatever nature from the above-described property.

HOLD HARMLESS

I understand that this permit is not an obligation upon the government to perform debris removal. I agree to hold harmless the United States Government, the Federal Emergency Management Agency (FEMA), the State of Michigan, and any of their agencies, agents, contractors, and subcontractors, for damages of any type whatsoever, either to the above-described property or to persons situated thereon. I release, discharge, and waive any action, either legal or equitable, that might arise by reason of any action of the above entities, while removing storm-generated debris from the property. I will mark any sewer lines, septic tanks, water lines, and utilities located on the described property.

DUPLICATION OF BENEFITS

Most homeowner's insurance policies have coverage to pay for removal of storm-generated debris. I understand that federal law (42 United States Code 5155 et seq.) requires me to reimburse (eligible applicant) the cost of removing the storm-generated debris to the extent covered in my insurance policy. I also understand that I must provide a copy of the proof / statement of loss from my insurance company to (eligible applicant). If I have received payment, or when I receive payment, for debris removal from my insurance company, or any other source, I agree to notify and send payment and proof / statement of loss to (eligible applicant). I understand that all disaster related funding, including that for debris removal from private property, is subject to audit.

Sworn and attested: Witnessed:

All owners must sign below.

Print Name_____ Print Name_____

Signature_____ Signature_____

Name of Insurance Company:_____

Policy Number:_____

Please do not remove the following items:_____

SAMPLE RIGHT-OF-ENTRY / HOLD HARMLESS AGREEMENT – VERSION 2

(From FEMA Handbook 325 – Debris Management Guide; modified slightly based on similar version used in 1997-1998 Michigan "Tree Central" Operations)

I / We (name / names), the owner(s) of the property commonly identified as (street), (city / town / county), State of Michigan, do hereby grant and give freely and without coercion, the right of access and entry to said property to the County / City of (name), its agencies, contractors, and subcontractors thereof, for the purpose of removing and clearing any or all storm-generated debris of whatever nature from the above described property.

It is fully understood that this permit is not an obligation to perform debris clearance. The undersigned agrees and warrants to hold harmless the City / County of (name), State of Michigan, its agencies, contractors and subcontractors, for damage of any type, whatsoever, either to the above described property or persons situated thereon and hereby release, discharge and waive any action, either legal or equitable which might arise out of any activities on the above described property. The property owner (s) will mark any storm damaged sewer lines, water lines and other utility lines located on the described property.

I / We (have ___, have not ___) (will ___, will not ___) receive (received) any compensation for debris removal from any other source including the Small Business Administration (SBA), Natural Resource Conservation Service (NRCS), private insurance, federal Individual Assistance programs, or any other public assistance program. I will report for this property any insurance settlements to me or my family for debris removal that has been performed at government expense. I am fully aware that an individual who fraudulently or willfully misstates any fact in connection with this agreement shall be subject to a fine of not more than $10,000 or imprisoned for not more than one year or both. For the considerations and purposes set forth herein, I hereby set my hand this (date) day of (month), 20___.

Witness

Owner

Owner

Telephone

Address

SAMPLE SHORT TERM GENERATOR DISPOSAL CONTRACT – SHREDDED TREE DEBRIS

Note: Following are samples of the contracts the MSP/EMHSD entered into with the Greater Detroit Resource Recovery Authority in July 1997, as part of the "Tree Central" debris management operation, for the use of shredded wood debris from the disaster for cogeneration purposes. In most places, the 1997 information has been replaced with generic fill-in-the-blank information. The contracts are provided for illustrative purposes only and would have to be modified to fit the unique situational circumstances presented in future disasters. In addition, this does NOT imply that the Greater Detroit Resource Recovery Authority would be willing or able to accept debris generated in future disasters.

Greater Detroit Resource Recovery Authority

5700 Russell Street • Administration Building • Detroit, Michigan 48211-2545
(XXX) XXX-XXXX • Fax (XXX) XXX-XXXX

SHORT TERM GENERATOR DISPOSAL CONTRACT

No. G-0129

This agreement, dated this **(date)** is between the **(name of jurisdiction)**, Attn: **(Debris Manager or other authorized representative)**, (XXX) XXX-XXXX, (GENERATOR), and the Greater Detroit Resource Recovery Authority ("AUTHORITY").

Subject to the terms and conditions stated below, the AUTHORITY agrees to accept certain materials from the GENERATOR and dispose of it in accordance with all applicable local, state and federal laws and regulations.

1. GENERATOR HEREBY ACKNOWLEDGES THAT THE MATERIAL PRESENTED FOR DISPOSAL IS NOT HAZARDOUS WASTE under Michigan's Hazardous Waste Management Act (1979 PA 64, Michigan Compiled Laws Sec. 299.501, et seq.), and does not contain:

   a. Known hazardous waste material which, because of its quantity or quality or concentration, or physical or chemical or infectious characteristics, can be determined to cause or significantly contribute to an increase in serious irreversible or incapacitating irreversible illness, and/or pose a substantial hazard to human health or the environment when properly treated, stored, transported, disposed or otherwise managed;

   b. Industrial waste, meaning waste material resulting from industrial operations;

   c. Human body or animal waste;

   d. Liquid waste;

   e. Infectious or hospital waste;

   f. Sewage; or

   g. Any item which contains an EPA registration number or EPA label relating to handling or disposal.

2. TIPPING FEE: $35.00 per ton, with a minimum one ton charge per delivery.

3. DESCRIPTION OF MATERIAL: "Shredded Tree Debris" resulting from the severe storms, tornadoes and flooding that struck the State of Michigan, **(name of jurisdiction)**, on **(date)** and was subsequently declared a major disaster by the President of the United States. THE SHREDDED TREE DEBRIS DESCRIBED IN BOTH THIS AGREEMENT AND THE PRESIDENTIAL DECLARATION SHALL BE FROM STORM DAMAGE SUSTAINED IN THE **(name of jurisdiction)**, MICHIGAN AND OTHER AREAS COVERED BY THE PRESIDENTIAL DECLARATION.

4. DELIVERY PROCEDURE: Waste shall be delivered and unloaded by GENERATOR or its authorized agent, at the AUTHORITY'S facility, as directed by the AUTHORITY (see facility map) at 7:00 AM, 11:00 AM, or 3:30 PM; GENERATOR shall give the AUTHORITY 24 hours notice of delivery date (by calling XXX-XXXX or XXX-XXXX). Delivery hours are as set in the **(date)** memo attached.

5. If the AUTHORITY is unable to process waste for any reason, including mechanical failures, routine maintenance, labor disputes, legal actions or governmental actions, the AUTHORITY MAY REFUSE TO ACCEPT GENERATOR'S waste upon giving GENERATOR 24 hour notice either in writing or by phone.

6. AUTHORITY'S RIGHT TO INSPECT AND REJECT MATERIAL: The AUTHORITY is prohibited by law from processing certain materials, including those described in paragraph 1 above. Therefore, the AUTHORITY reserves the right, and GENERATOR acknowledges AUTHORITY'S right to inspect all material delivered to the facility by or on behalf of GENERATOR. If such material is found to be unacceptable, the AUTHORITY shall have the right to reject it, and GENERATOR shall be liable for any costs incurred by the AUTHORITY for removing such material from the facility (and if required, any costs related to proper disposal). For purposes of this paragraph "unacceptable material" shall mean any material matching those materials described in paragraph 1 (a) through (g) above, or any significant quantity of material which substantially deviates from the GENERATOR'S description of material listed in paragraph 3 above.

7. AUTHORIZED HAULER (if other than GENERATOR): Generator.

8. TERM: This agreement shall be effective as of the date first appearing above and shall expire on **(date)**. It may be extended by written approval from both the GENERATOR and the AUTHORITY.

9. PAYMENT, which shall be due upon issuance of invoice should be made payable to XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX and sent to:

(Name and address of bank)

GENERATOR'S failure to pay any invoice within 10 days of receipt may result in requiring advance payment, or termination of this agreement.

10. The duly authorized representatives of GENERATOR and the AUTHORITY having read all provisions of this contract and understanding them fully, hereby acknowledge this agreement by signing their names below.

(name of jurisdiction) **(insert authorized department / agency)**	GREATER DETROIT RESOURCE RECOVERY AUTHORITY
BY: _____ **(Debris Manager or other authorized representative)**	BY: _____ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
ITS: Project Manager	ITS: XXXXXXXXXX

SAMPLE SHORT TERM GENERATOR DISPOSAL CONTRACT – TREE TRUNKS AND TREE STUMPS

Greater Detroit Resource Recovery Authority

5700 Russell Street ● Administration Building ● Detroit, Michigan 48211-2545
(XXX) XXX-XXXX ● Fax (XXX) XXX-XXXX

SHORT TERM GENERATOR DISPOSAL CONTRACT

No. G-0129A

This agreement, date this **(date)** is between the **(name of jurisdiction)**, Attn: **(Debris Manager or other authorized representative)**, (XXX) XXX-XXXX] (GENERATOR), and the Greater Detroit Resource Recovery Authority ("AUTHORITY").

Subject to the terms and conditions stated below, the AUTHORITY agrees to accept certain materials from the GENERATOR and dispose of it in accordance with all applicable local, state and federal laws and regulations.

1. GENERATOR HEREBY ACKNOWLEDGES THAT THE MATERIAL PRESENTED FOR DISPOSAL IS NOT HAZARDOUS WASTE under Michigan's Hazardous Waste Management Act (1979 PA 64, Michigan Compiled Laws Sec. 299.501, et seq.), and does not contain:

   a. Known hazardous waste material which, because of its quantity or quality or concentration, or physical or chemical or infectious characteristics, can be determined to cause or significantly contribute to an increase in serious irreversible or incapacitating irreversible illness, and/or pose a substantial hazard to human health or the environment when properly treated, stored, transported, disposed or otherwise managed;

   b. Industrial waste, meaning waste material resulting from industrial operations;

   c. Human body or animal waste;

   d. Liquid waste;

   e. Infectious or hospital waste;

   f. Sewage; or

   g. Any item which contains an EPA registration number or EPA label relating to handling or disposal.

2. TIPPING FEE: $35.00 per ton, with a minimum one ton charge per delivery.

3. DESCRIPTION OF MATERIAL: "Tree Trunks and Tree Stumps (unshredded)" resulting from the severe storms, tornadoes and flooding that struck the State of Michigan, **(name of jurisdiction)**, on **(date)** and was subsequently declared a major disaster by the President of the United States. THE TREE TRUNKS AND TREE STUMPS DELIVERED TO THE AUTHORITY'S DISPOSAL LOCATION SHALL BE NO GREATER THAN APPROXIMATELY SIX-FEET (6') IN LENGTH BY FOUR-FEET (4') IN DIAMETER AND WHICH WEIGHS NO MORE THAN THREE-HUNDRED (300) POUNDS. THE TREE TRUNKS AND TREE STUMPS (UNSHREDDED) DESCRIBED IN THIS AGREEMENT AND THE PRESIDENTIAL DECLARATION SHALL BE FROM STORM DAMAGE SUSTAINED IN THE **(name of jurisdiction)**, MICHIGAN AND OTHER AREAS COVERED BY THE PRESIDENTIAL DECLARATION.

4. DELIVERY PROCEDURE: Waste shall be delivered and unloaded by GENERATOR or its authorized agent, at the AUTHORITY'S facility, as directed by the AUTHORITY (see facility map) at 7:00 AM, 11:00 AM, or 3:30 PM; GENERATOR shall give the AUTHORITY 24 hours notice of delivery date (by calling XXX-XXXX or XXX-XXXX). Delivery hours are as set in the **(date)** memo attached.

5. If the AUTHORITY is unable to process waste for any reason, including mechanical failures, routine maintenance, labor disputes, legal actions or governmental actions, the AUTHORITY MAY REFUSE TO ACCEPT GENERATOR'S waste upon giving GENERATOR 24 hour notice either in writing or by phone.

6. AUTHORITY'S RIGHT TO INSPECT AND REJECT MATERIAL: The AUTHORITY is prohibited by law from processing certain materials, including those described in paragraph 1 above. Therefore, the AUTHORITY reserves the right, and GENERATOR acknowledges AUTHORITY'S right to inspect all material delivered to the facility by or on behalf of GENERATOR. If such material is found to be unacceptable, the AUTHORITY shall have the right to reject it, and GENERATOR shall be liable for any costs incurred by the AUTHORITY for removing such material from the facility (and if required, any costs related to proper disposal). For purposes of this paragraph "unacceptable material" shall mean any material matching those materials described in paragraph 1 (a) through (g) above, or any significant quantity of material which substantially deviates from the GENERATOR'S description of material listed in paragraph 3 above.

7. AUTHORIZED HAULER (if other than GENERATOR): Generator.

8. TERM: This agreement shall be effective as of the date first appearing above and shall expire on **(date)**. It may be extended by written approval from both the GENERATOR and the AUTHORITY.

9. PAYMENT, which shall be due upon issuance of invoice should be made payable to XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX and sent to:

(Name and address of bank)

GENERATOR'S failure to pay any invoice within 10 days of receipt may result in requiring advance payment, or termination of this agreement.

10. The duly authorized representatives of GENERATOR and the AUTHORITY having read all provisions of this contract and understanding them fully, hereby acknowledge this agreement by signing their names below.

(name of jurisdiction) **(insert authorized department / agency)**	GREATER DETROIT RESOURCE RECOVERY AUTHORITY
BY: _____ **(Debris Manager or other authorized representative)**	BY: _____ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
ITS: Project Manager	ITS: XXXXXXXXXX

DEBRIS REMOVAL APPLICANT'S CONTRACTING CHECKLIST
(FEMA FACT SHEET 9580.201 – APRIL 10, 2006)

Source: FEMA web site (edited to fit document format)

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. 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.

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.
- 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

- The solicitation for a pre-disaster contract must adequately define in the proposed scope of work all the potential types of debris, typical haul distances, and size of events for which the contract may be activated.
- You may request bids for multiple scenarios for varying sizes of events.
- To ensure reasonable debris removal costs, award pre-disaster debris removal contracts based on either unit prices (volume or weight) or time and material.
- 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).

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.

DEBRIS MANAGEMENT CONTRACTS COMPARATIVE MATRIX

Type of Contract	Structure and Use	Required Provisions	Advantages	Disadvantages	Monitoring	Documentation
UNIT PRICE	Uses units of measure (CY, T, each) and prices to develop line item costs and total contract costs. Used when scope of work is difficult to quantify. Bid proposals are based on applicant-estimated quantities and units of work.	Specific documentation requirements, based on quantifiable units such as load tickets, and payment.	Scope of work may be adjusted easily at a known cost. Accurate account of actual quantities when work is complete. Simplicity of contract encourages competition. Low risk for contractors.	Possibility of contractor fraud if operations are not closely monitored. Trucks require measurement and loads accurately documented. Segregated curbside collection may complicate the scope of work.	Labor intensive	Load ticket system Monitors at collection points and where the debris is unloaded (DMS / TDSR Site or final disposition)
TIME AND MATERIAL	Paid on an hourly rate for labor, materials, and equipment. A know quantity of work is not established prior to the contractor beginning work.	Capped by the period of performance and/or monetary ceiling. Price for equipment applies only when the equipment is in use. Hourly rate for equipment includes fuel, maintenance, and repair. Bids should include all overhead costs. Specific hours the contractor is to perform work (to ensure monitoring staff is present to document activity). No guarantee of a minimum number of hours. If multiple contracts are awarded, the period of performance should run concurrently rather than consecutively.	Good for response activities. Extremely flexible; not limited by a specific scope of work. Range of uses: appropriate clearance of major access routes or roads to critical facilities.	Requires close contractor oversight and direction as to work to be performed. Requires documentation of actual hours worked by equipment and operators. Reasonable hourly rates may be difficult to establish if not competitively bid. Equipment specifications may have to be generalized in order to encourage competition. Requires full-time trained monitors to document work completed and verify hours worked.	Labor intensive	Intense Actual labor and equipment must be accounted for during entire performance period.

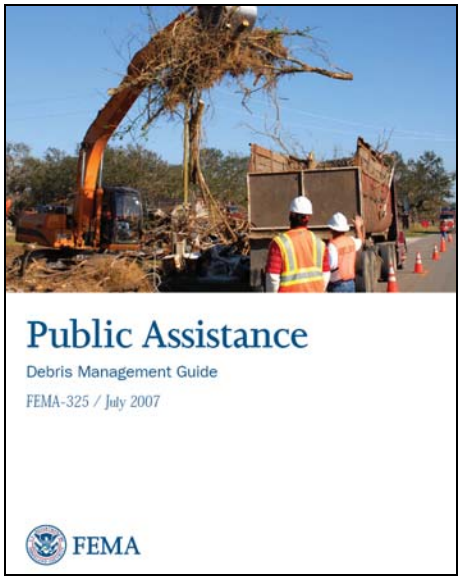
DEBRIS MANAGEMENT CONTRACTS COMPARATIVE MATRIX (cont.)

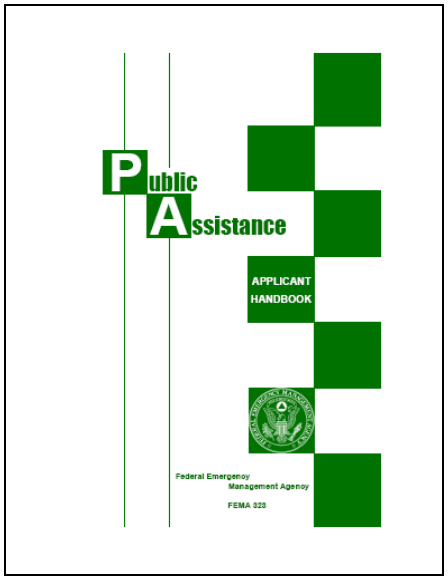
Type of Contract	Structure and Use	Required Provisions	Advantages	Disadvantages	Monitoring	Documentation
ALL LUMP SUM	Establishes a fixed contract based on the applicant scope of work specified in the bid solicitation. Used when the scope of work is clearly defined by the applicant, including quantity, 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 of will be required to establish reasonable price.
LUMP SUM – 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 of will be required to establish reasonable price.
LUMP SUM – Collection Path Method	Defines who 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 required.	Minimum	Amount of debris collected, reduced / recycled, and disposed of will be required to establish reasonable price.

DEBRIS MANAGEMENT RECORD KEEPING

The **(name of jurisdiction)** Disaster Debris Management Team will use the following forms / formats to document debris management costs and other aspects of the debris management operation. These forms / formats are recommended in FEMA Publications 325, "Public Assistance Debris Management Guide" and 323, "Public Assistance Applicant Handbook," for use in incidents that involve activation of the PAGP. For brevity purposes, not all of the forms / formats will be shown in this Attachment, and those that are have been reduced in size. All are available in electronic format from the FEMA website (www.fema.gov/government/grant/pa/forms.shtm or http://docnet.fema.gov) as well as from the MSP/EMHSD. (The most current version of the form / format will be used at the time of the incident.)

Form Number	Form Title	Debris Management Record Keeping Purpose
FF90-123	Force Account Labor Summary Record	Used to record force account personnel costs.
FF90-124	Materials Summary Record	Used to record supplies / materials taken out of stock or purchased.
FF90-125	Rented Equipment Summary Record	Used to record the costs of rented or leased equipment.
FF90-126	Contract Work Summary Record	Used to record the costs of work done by contract.
FF90-127	Force Account Equipment Summary Record	Used to record force account equipment use costs.
FF90-128	Applicant's Benefits Calculation Worksheet	Used to record employee fringe benefits.
FF90-91D	Project Worksheet – Photo Sheet	Used for photographs and descriptions related to a PAGP project.
	Tower Monitor Log	Used to record information on debris deliveries to TDSR Sites.
	Roving Monitor Report	Used to record observations made by roving debris monitors at debris loading sites.
	Daily Issue Log	Used to record issues identified by contractors and/or debris monitors.
	Truck Certification Form	Used to record specifications of trucks used in the debris management operation.
	Load Ticket	Used to certify load contents for debris deliveries to TDSR Sites.
(insert form number)	**(insert name of additional local / state form used)**	**(insert description of form)**
(insert form number)	**(insert name of additional local / state form used)**	**(insert description of form)**





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	DATES AND HOURS WORKED EACH WEEK								COSTS				
JOB TITLE	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

FEMA Form 90-123, FEB 06 **PREVIOUS EDTION OBSOLETE**

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

FEMA Form 90-124, FEB 06 **PREVIOUS EDTION OBSOLETE**

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

FEMA Form 90-125, FEB 06 **PREVIOUS EDITION OBSOLETE**

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

FEMA Form 90-126, FEB 06 **PREVIOUS EDITION OBSOLETE**

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

FEMA Form 90-127, FEB 06 PREVIOUS EDITION OBSOLETE

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 | PROJECT NO. | PA ID NO. | DISASTER

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

FEMA Form 90-128, FEB 06 PREVIOUS EDTION OBSOLETE

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

FEMA Form 90-91D, FEB 06

TOWER MONITOR LOG

Date: _____

Applicant Monitor: _____

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 = ____

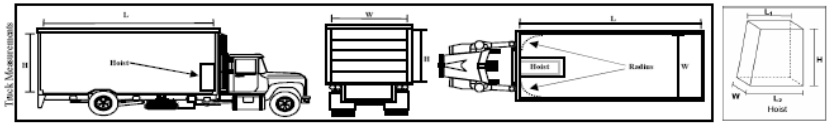
Hoist Measurement — $Length_1$ (L_1) ft = ____ $Length_2$ (L_2) ft = ____ $Width_H$ (W_H) ft = ____ $Height_H$ (H_H) ft = ____

Radius — Radius ft = ____ Height (H) = ____

Calculations

Bed Volume (Basic)	(LxWxH)/27 =	+	cyd
Hoist Volume	$((L1+L2/2) \times W_H \times H_H)/27$ =	-	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 = ____

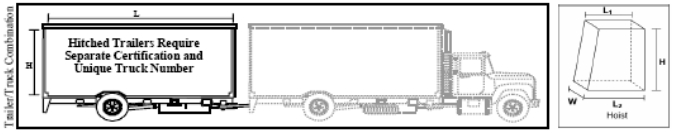
Hoist Measurement — $Length_1$ (L_1) ft = ____ $Length_2$ (L_2) ft = ____ $Width_H$ (W_H) ft = ____ $Height_H$ (H_H) ft = ____

Radius — Radius ft = ____ Height (H) = ____

Calculations

Bed Volume (Basic)	(LxWxH)/27 =	+	cyd
Hoist Volume	$((L_1+L_2/2) \times W_H \times H_H)$ =	-	cyd
Radius Volume	$(3.14xR^2xH)/27$ =	-	cyd
	Total =		cyd

Cubic Yards



ROUND BOTTOM TRUCK

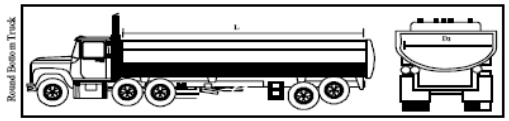
Measurements

Truck Measurements — Length (L) ft = ____ Diameter (D) ft = ____

Calculations

Approx. Volume $(3.14 \times (D/2)^2 \times L) /27$ = ____ cyd (round bottom portion only)

Cubic Yards



LOAD TICKET	Ticket No.: **00001**
Municipality (Applicant):	
Prime Contractor:	
Sub-Contractor:	

TRUCK INFORMATION

Truck No.:	Capacity (CY):
Truck Driver (print legibly):	

LOADING INFORMATION

Loading	Time	Date	Inspector / Monitor
Location (address or cross streets):			

GEO-SPATIAL INFORMATION
(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 (TDSR Site) Name / Location:			

*Other Debris Explanation:	Original: Applicant
	Copy 1:
	Copy 2:
	Copy 3:

SAMPLE FORMS USED IN 1997-1998 "TREE CENTRAL" OPERATIONS

(These two forms, developed for the 1997-1998 "Tree Central" debris management operation, may be of use in certain local disaster debris management operations.)

Heavy Equipment Tracking Log

Number	Date	Time	Type of Equipment	Sent From	Sent To
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Daily Project Status Report (Grid System)

Grid #	(Date) % Completed	(Date) % Completed	(Date) % Completed	(Date) % Completed	(Date) % Completed	(Date) % Completed	(Date) % Completed	(Date) % Completed	(Date) % Completed	(Date) % Completed
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										

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DEBRIS MONITORING ISSUES

Debris monitoring will be accomplished using a combination of **(name of jurisdiction)** force account resources, staff from **(insert name of local organization[s])**, and dedicated monitoring contractors. Incident circumstances (primarily the nature, scope, magnitude, and anticipated duration of the debris management operation) will determine which resources will be used for debris monitoring functions. The **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will make this determination. (Note: If force account resources are used exclusively for the debris management operation, debris monitoring requirements will be greatly reduced and will focus primarily on operational and safety issues.)

Debris Monitors will use the following tools and guidance in carrying out their monitoring duties – whether at established facilities or in the field at initial collection locations:

Load Ticket System. A load ticket system tracks debris from the original collection point to a TDSR Site or location of final disposition (Landfill or Resource Recovery Center). By positioning Debris Monitors at each major point of the operation (collection, storage / reduction, and final disposition), the eligible contract scope of work can be properly documented. When using a contract hauler, the Load Ticket verifies hauling activities and is used as the basis for billing.

Load Tickets can be hardcopy (e.g., carbon paper with at least four copies) or computerized. The **(name of jurisdiction)** will use a **(select hardcopy or computerized – handheld or laptop)** load ticket system using the ticket format shown on page 178. The following table lists the Load Ticket information requirements and those portions of the ticket that are to be completed by the Debris Monitor:

LOAD TICKET COMPLETION RESPONSIBILITIES

Load Ticket Information	Collection Point Monitor Responsibility	TDSR Site / Final Disposition Monitor Responsibility
Pre-printed ticket number	Not Applicable	Not Applicable
Contract number or municipality (applicant) name	Not Applicable	Not Applicable
Prime contractor's name	X	
Sub-contractor's name	X	
Truck number	X	
Truck driver's name	X	
Truck capacity (in Cubic Yards or Tons)		X
Loading location (GPS and address preferred; also see "Geo-spatial information" below)	X	
Loading date	X	
Loading time(departure from collection location)	X	
Loading site monitor (name / signature)	X	
Geo-spatial information (latitude / longitude in decimal degrees – XX.XXXXX; GPS and address preferred)	X	
Debris classification (e.g., vegetative, C & D, etc.) ; includes "Other Debris Description" box at bottom of ticket	X	
Load size (in Cubic Yards - % or actual – or Tons)		X
TDSR Site or final disposition name / location		X
Unloading date		X
Unloading time (arrival at TDSR Site / final disposition)		X
Unloading site monitor (name / signature)		X

Truck Certification. A truck certification process allows Debris Monitors to readily identify contractor trucks and their hauling capacities in an organized, standardized manner. Truck hauling capacity is vitally important since debris (and specifically vegetative debris) may be hauled and billed by volume. The **(name of jurisdiction)** Debris Monitors will certify contractor trucks using the FEMA form "Truck Certification Form" found in the Attachment titled "Debris Management Record Keeping" on page 177. Once trucks are certified, they will be re-certified on a random and periodic basis to ensure contract compliance. The **(name of jurisdiction)** Debris Manager / Disaster Debris Management Team will determine how that re-certification process will be implemented based on operational circumstances. Debris Monitors will be responsible for implementing the re-certification process as directed.

Fraud Prevention. The following table highlights some of the ways in which debris contractors can inflate actual quantities of debris removed and processed. Debris Monitors must be aware of and on the lookout for these techniques when conducting their monitoring activities.

POTENTIAL ISSUES OF CONCERN WITH CONTRACTORS

Source: FEMA 325: Debris Management Guide (edited to fit document format)

Problem	Solution
Inappropriate equipment to load debris efficiently.	Contractors must be required to use appropriate equipment to load debris efficiently so that the maximum level of compaction can be achieved to facilitate expeditious removal of debris. Following is a list of truck conditions and eligible capacities: • **HAND-LOADED TRUCKS** do not have factory-built beds or tailgates that allow mechanical equipment to be used to compact vegetative debris. Hand-loaded trailers and trucks will be reduced to **50 percent** of the Debris Monitor's observed capacity percentage because they haul less debris by weight per cubic yard than a mechanically loaded truck. (See explanatory photo on the following page.) • A **TRUCK WITH NO TAILGATE OR NO SOLID TAILGATE** cannot be compacted to its full capacity. These trucks will be recorded at **a maximum of 85 percent** of the truck's certified capacity. (See explanatory photos on the following page.)
Inaccurate truck capacities.	Trucks will be measured before operations and load capacities will be documented by truck number. Periodically, trucks will be re-measured / re-certified to ensure contract compliance.
Trucks not fully loaded.	Debris contractors will sometimes contend that loads are higher in the middle and if leveled would fill the truck. Debris Monitors will not accept this explanation without checking to see if it is valid. (See explanatory photo on the following page.)
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.
Changing truck numbers.	Trucks are listed by assigned vehicle number and capacity. A potential deceptive technique is to change truck or trailer numbers from a smaller carrying capacity vehicle to one with a larger capacity. (For example, a 20-cubic yard truck may use the number for a truck that can carry 30 cubic yards.) Debris Monitors will attempt to minimize this by periodically re-measuring trucks and recording the license plate numbers in addition to a description of the truck.
Reduced truck capacity.	Trucks may have heavy steel grating welded two- to three-feet above the bed after being measured, thus reducing capacity. Debris Monitors will attempt to minimize this by periodically re-measuring the truck bed.
Wet debris when paid by weight.	Contractors may add 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. Debris Monitors will periodically re-certify the truck's tare weight.
Multiple counting of the same load.	Trucks may drive through the TDSR Site without unloading, then re-enter with the same load. Debris Monitors will attempt to minimize this by observing the time of departure and time of arrival on the Load Ticket, and by ensuring trucks are empty before leaving the TDSR Site.
Picking up ineligible debris.	This deceptive technique is difficult to detect unless Debris Monitors are actually watching the pick-up process. Debris Monitors must fully understand the nature of the eligible debris (especially from private property) and pay attention to time limits imposed on pick-up of specific types of debris.

PHOTOGRAPHIC EXAMPLES OF TRUCK LOAD CONDITIONS

L-R: Hand-loaded truck appears to be 100 percent full, but should be recorded at 50 percent; truck without a solid tailgate should be recorded at a maximum of 85 percent of the truck's certified capacity; truck without a tailgate should be recorded at a maximum of 85 percent of the truck's certified capacity; a 100% loaded truck; a less than 100% loaded truck.

DEBRIS MONITORING (FEMA FACT SHEET 9580.203)

Source: FEMA web site (edited to fit document format)

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.

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.

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 and material contract)
- Record the hours equipment was used, include downtime of each piece of equipment by day (time and material 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.

In some cases, time and material contracts may be more cost effective and appropriate for the amount and type of eligible work to be performed. For both time and material 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.		X		X		Quantities are still required to determine reasonable costs.
Unit Price - CYs	Based on eligible debris listed on load tickets.	X	X	X	X	X	
Unit Price - Ton	Based on actual weight measurements of eligible debris listed on load tickets.		X		X	X	
Time and Material	Based on labor, equipment and materials records. Reasonable costs evaluated by determining costs per unit.	X	X		X	X	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.

Monitoring contracts are typically time and material 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 material 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

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_06/44cfr13_06.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.

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DEBRIS REMOVAL FROM PRIVATE PROPERTY SPECIAL CONSIDERATIONS

Demolition of Structures. Private property debris removal and/or demolition will only be done in **(name of jurisdiction)** in those extreme cases where there are clear and present threats to public health and safety, or the economic recovery of the community is at risk. Procedures have been developed for this type of work in the event this becomes necessary. These procedures include: 1) criteria for implementing removal and demolition operations on private property; 2) documentation requirements; and 3) a demolition inspection process.

(Note: FEMA Recovery Policies 9523.4, "Demolition of Private Structures," and 9523.13, "Debris Removal from Private Property," provide guidance on FEMA eligibility criteria and requirements for private property debris removal and/or demolition under the PAGP. These policies will be followed to the extent possible when conducting these types of operations.)

Private Property Condemnation Criteria and Procedures. If the **(name of jurisdiction)** decides it may be necessary to demolish damaged private structures, normal private property condemnation procedures will be implemented. The **(name of jurisdiction)** building safety official **(insert exact title of building safety official)** will contact the affected property owner and assess and determine the building's structural integrity. If this assessment determines that the building represents a hazard to the health and safety of the public or poses a threat to public rights-of-way, the building will be condemned and formal condemnation proceedings will be initiated. **(Insert jurisdiction-specific condemnation process information here, as appropriate.)**

Documentation Requirements for Private Property Condemnation and Demolition. The following documentation will be maintained (as appropriate) for private property condemnation and demolition operations within the **(name of jurisdiction)**:

DOCUMENTATION REQUIREMENTS FOR PRIVATE PROPERTY CONDEMNATION AND DEMOLITION

Documentation	Purpose	Responsible Official
Verification of Ownership	Ensures the proper site and owner are identified and the owner is aware of the nature of the scheduled building assessment.	**(insert title of official)**
Right-of-Entry Permit / Hold Harmless Agreement	Once signed by the property owner, this allows local officials to enter the property to complete the building assessment. The hold harmless agreement documents the property owner's promise that he/she will not bring legal action against the jurisdiction if there is damage or harm done to the property.	**(insert title of official)**
Building Assessment	Documents damage to the structure and describes the threat(s) to public health and safety. Generally 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.	**(insert title of official)**
Verification of Insurance	Allows the jurisdiction to pursue financial compensation if the property owner's insurance policy covers demolition and debris removal.	**(insert title of official)**
Archaeological Review	Outlines the archaeological low-impact stipulations for demolition and debris removal activities and highlights implications if guidelines are not properly complied with.	**(insert title of official)**
Environmental Review	Ensures that adverse impacts to protected environmental resources are minimized or avoided when removing debris from the proposed site. Reviews must be acceptable to the appropriate resource agency. Wetlands and other water resources, hazardous materials, and endangered species habitats are of particular concern.	**(insert title of official)**
State Historic Preservation Office (SHPO) Review	Confirms that the SHPO has been notified and correspondence has been received absolving the area of any historic significance.	**(insert title of official)**

DOCUMENTATION REQUIREMENTS FOR PRIVATE PROPERTY CONDEMNATION AND DEMOLITION (cont.)

Documentation	Purpose	Responsible Official
Photographs	Show the disaster-damaged condition of the property prior to the beginning of demolition work. Generally consists of one or more labeled photographs that confirm the address and identified scope of work on the property.	**(insert title of official)**
Letter / Notice of Condemnation	A document signed by the building official that outlines the specific threat to public health and safety.	**(insert title of official)**
Notice of Demolition	Issued to inform the property owner when demolition will begin. Notices must be posted so as to provide a reasonable period of time for personal property to be removed. The property owner should be notified, if not already contacted, through direct mail and local media.	**(insert title of official)**
Notice of Intent to Demolish	Issued to provide for the public health and safety of the neighboring residents. The notice must be conspicuously posted on the structure to be demolished.	**(insert title of official)**
(Insert additional jurisdiction-specific documentation requirements as appropriate.)		**(insert title of official)**

(Note: the above table should be customized as appropriate to reflect jurisdiction-specific documentation requirements for private property condemnation and demolition processes. Revise, eliminate or add items as required.)

Private Property Demolition Inspection Process. The **(name of jurisdiction)** building safety official **(insert exact title of building safety official)** will conduct inspections of demolition sites prior to, the day of and/or during, and upon completion of the demolition operations. Photographs will be taken at each site inspection for documentation purposes. Inspections will generally include the following:

- Utilities Inspection: water and sewer service (or septic tank), gas service, electrical service, telecommunications service, and other systems as appropriate will be inspected to verify the utilities have been terminated and isolated from the proposed work area during demolition operations.

- Occupancy Inspection: the structure will be inspected immediately prior to demolition to ensure that no one is physically in the building.

- Open Void Inspection: if the structure has a basement that is to be filled, an inspection will be conducted once the above-grade structure is gone and the inspector can visually see the entire below-grade excavation.

- Post-Demolition Inspection: the site will be inspected once the structure is demolished, the debris is removed, and the site graded.

(Note: the above process should be customized as appropriate to reflect jurisdiction-specific requirements. Revise, eliminate or add activities as required.)

The following Private Property Demolition Checklist will be used to document the inspection process:

PRIVATE PROPERTY DEMOLITION CHECKLIST

Property Address:_____

	PRE-DEMOLITION			
Action Number	**Action**	**Initial**	**Date**	**Notes / Comments**
1	Establish property management file for each parcel of private property.			
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.			
	(insert additional jurisdiction-specific actions as appropriate)			
	DEMOLITION			
13	Verify structure is unoccupied.			
14	Cap well, water, sewer, and septic lines. Disconnect electrical, gas, telecommunications and other utility services. Remove propane tanks.			
15	Mark easements and underground utilities.			
16	Identify / remove / dispose of asbestos, lead-based paint and other hazardous materials per MDEQ / EPA requirements.			
17	Identify / remove / dispose of all HHW per MDEQ / EPA requirements.			
18	Record GPS coordinates. Photograph site before and after demolition.			
19	Document actual demolition and removal of debris.			
	(insert additional jurisdiction-specific actions as appropriate)			

Complete documentation is compiled within the project file for each individual structure / property.

I, the **(insert exact title of building safety official)** for the **(name of jurisdiction)**, 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

Mobile Home Park Procedures. High density development situations, such as mobile home parks, can create a considerable amount of mixed debris in a relatively small area. Although the same debris removal and/or demolition procedures will be used in mobile home parks as are used in lower density development situations (i.e., single family homes or businesses on individual sites), it is expected that mobile home parks will present more intense requirements in all phases of the operation. Therefore, additional staff from **(insert name of agency[ies] or organization[s])** will be deployed to work on debris removal and/or demolition activities in damaged mobile home parks and other high density development areas.

Particular attention will be directed to documenting legal responsibility within the parks. A mobile home park site may be 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. Debris removal and/or demolition activities within the park will be coordinated with the owner(s) so that recovery can be expedited to the extent possible.

OR – OPTION 2
(insert this alternate paragraph as appropriate)

Particular attention will be directed to documenting legal responsibility within the parks. A mobile home park site may be 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 a proactive preparedness activity, the **(name of jurisdiction)** **(insert name)** Department has investigated the legal responsibilities of all mobile home parks within its borders with regard to debris issues. This information has been documented and is available **(in what location and format?)** for use in the post-incident response and recovery phases. Where possible, agreements have been made with the owners of the parks with regard to the amount of debris expected to be handled, collection and onsite storage, separation of materials, removal, and potential structure demolition requirements. Debris removal and/or demolition activities within the park will be coordinated with the owner(s), in accordance with those agreements, so that recovery can be expedited to the extent possible. In those instances where pre-incident information and agreements do not exist with a park, the **(insert name)** Department will be responsible for investigating ownership issues and determining potential debris removal and/or demolition requirements based on initial post-incident assessments.

Navigation Hazard Removal. (Note: delete this section if the jurisdiction does not have any publicly-owned marinas or certified navigable waterways within its boundaries.) Damage to the **(name)** Marina and/or **(insert name of navigable waterway)** caused by a major disaster can result in abandoned sunken boats and other debris that may impede navigation. If that occurs, the **(name of jurisdiction)** Debris Manager and Disaster Debris Management Team will coordinate as appropriate with the United States Coast Guard **(insert USCG district / regional office information)**, the USACE **(insert USACE district / regional office information)**, the MDNR **(insert MDNR division / office information)**, the MSP/EMHSD, and the **(list other state agencies and local / tribal governments as required)** 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 of sunken boats. If necessary, the **(insert name of federal, state, or local agency or nongovernmental organization)** will be requested (through the MSP/EMHSD, as appropriate) to provide helicopters, boats, and sonar and/or dive teams to aid in locating submerged vessels and other debris. As appropriate, a flotation marker will be placed at the site of the submerged vessel / debris once it is located in order to keep positions documented. A GPS coordinate may also be taken. The legal owners of vessels may be identified by using the vessel's registration number and/or marina records.

Removal of the navigation hazards may be done by the **(name of jurisdiction)** using a marine salvage contractor, by the USCG and/or USACE under mission assignment by FEMA, or a combination of these methods. Refer to the Attachment titled "Sample Debris Management Contracts" for a sample scope of work for sunken vessel removal operations developed by the USACE. This sample contract will be followed to the extent possible by the **(name of jurisdiction)** if it becomes involved in the navigation hazard removal operation as the contracting party.

DEMOLITION OF PRIVATE STRUCTURES
(FEMA DISASTER ASSISTANCE POLICY 9523.4 – JULY 18, 2007)

Source: FEMA web site (edited to fit document format)

TITLE: Demolition of Private Structures

DATE: July 18, 2007

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.

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.

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.

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).

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.

ORIGINATING OFFICE: Disaster Assistance Directorate (Public Assistance Division).

SUPERSESSION: This policy supersedes Recovery Policy 9523.4 dated November 9, 1999, and all previous guidance on this subject.

REVIEW DATE: Three years from date of publication.

//signed//
Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

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DEBRIS REMOVAL FROM PRIVATE PROPERTY
(FEMA DISASTER ASSISTANCE POLICY 9523.13 – JULY 18, 2007)

Source: FEMA web site (edited to fit document format)

TITLE: Debris Removal from Private Property

DATE: July 18, 2007

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.

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.

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.

BACKGROUND:

A. Actions 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).

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.

ORIGINATING OFFICE: Disaster Assistance Directorate (Public Assistance Division)

SUPERSESSION: This policy supersedes Recovery Policies 9523.13 and 9523.14, dated October 23, 2005, and all previous guidance on this subject.

REVIEW DATE: Three years from date of publication.

//signed//
*C*arlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

DISPOSAL OF DISASTER DEBRIS

In accordance with Michigan law and regulation, as well as the provisions set forth in the Michigan Emergency Management Plan, disposal of disaster debris must be addressed in partnership with the MDEQ Waste and Hazardous Materials Division (MDEQ/WHMD). The MDEQ, as the environmental stewardship agency for the State of Michigan, has ultimate jurisdiction over the handling, treatment and disposal of all waste – including solid waste and hazardous waste. Disaster debris typically contains both types of waste so the **(name of jurisdiction)** Debris Manager will begin a dialogue with the MDEQ **(insert MDEQ district Waste and Hazardous Materials Division information)** at the start of the debris management effort to avoid problems down the line. The following information will be considered when planning for the disposal of disaster debris:

REGULATORY STATUTES FOR SOLID AND HAZARDOUS WASTE

Natural Resources and Environmental Protection Act, 1994 PA 451, as amended:

Part 55 – Air Pollution Control (for burning operations);
Part 111 – Hazardous Wastes;
Part 115 – Solid Wastes;
Part 169 – Scrap Tires;
Part 515 – Forest Fire Prevention (for burning operations);
Other Parts may also apply – depending on the nature of the debris.

WHAT TO DO WITH HAZARDOUS WASTE

- Determine if it is hazardous based on known information or testing. If yes, use a licensed hazardous waste hauler and dispose of it at a licensed hazardous waste treatment, storage or disposal facility.

- Questions should be directed to the MDEQ hazardous waste characterization staff at the **(insert MDEQ district Waste and Hazardous Materials Division information)**, or in the event of staff non-availability to the MDEQ/WHMD in Lansing (517/335-2690). (Refer to the MDEQ/WHMD web page for a list and map of the District Offices with current staff contact information. From the MDEQ home page, click on "Waste and Hazardous Materials Division" and then look under the "Useful WHMD Links" for a list and map of District Offices, as well as a current staff directory.)

- Household hazardous waste is solid waste and generally can be disposed with solid waste in landfills.

WHAT TO DO WITH SOLID WASTE

- Must be disposed of at a licensed solid waste disposal area.

- Must comply with the **(name of county)** solid waste management plan.

- The MDEQ/WHMD has a list of licensed disposal areas on its web page (click on the "Solid Waste" icon). This information is also contained in the **(name of county)** solid waste management plan, and in the local telephone directory (yellow pages). The **(name of county)** solid waste coordinator **(or recycling coordinator, Department of Public Works, other related office, etc. – insert appropriate person and/or office)** can provide technical assistance as required.

- Part 115 does not allow the development of temporary, unlicensed storage or processing areas (TDSR Sites) without a permit UNLESS emergency disposal approval has been granted by the MDEQ/WHMD:

R 299.4112 Emergency disposal; conditions for approval.

Rule 112. (1) If a material poses a threat or substantial nuisance to the public or the environment, a person may petition the director to approve the emergency disposal of the material as follows: (Refer to the section that follows titled "Disaster Debris Management of Wastes: Part 115, Solid Waste Management" for a complete description of the Rule 112 provisions.)

For waste disposal issues, this authority has been delegated by the MDEQ Director to the MDEQ/WHMD Chief.

To obtain MDEQ emergency disposal approval:

For **larger scale emergencies / disasters** (probably resulting in a Governor's declaration under 1976 PA 390, as amended) which the MSP/EMHSD is coordinating, the MSP/EMHSD will contact the MDEQ Emergency Management Coordinator, who in turn will coordinate the request to the MDEQ/WHMD Chief. (Such incidents typically involve more than one jurisdiction so the MSP/EMHSD will coordinate with the MDEQ for all jurisdictions requiring approval.) The **(name of jurisdiction)** is responsible for notifying the MSP/EMHSD in a timely manner of the need for emergency disposal approval. Because the **(name of jurisdiction)** will begin to work with the MDEQ **(insert MDEQ district Waste and Hazardous Materials Division information)** early in the debris management operation, the emergency disposal approval request may also be forwarded to the MDEQ/WHMD Chief by the involved district hazardous waste characterization staff through established MDEQ communication channels.

For **smaller, undeclared emergencies,** requests should be made through the MDEQ **(insert MDEQ district Waste and Hazardous Materials Division information)**, which will coordinate the request to the MDEQ/WHMD Chief.

If emergency waste disposal authority is granted, the MDEQ/WHMD will specify: 1) a limited time frame; 2) approved locations for activities; 3) approved materials; 4) approved handling / reduction methods; 5) the ultimate disposal method; and 6) onsite control requirements.

- Solid waste should be reduced in volume through: 1) grinding, chipping, shredding, pummeling, or otherwise breaking up the material; 2) controlled incineration (burning) using generally accepted, engineered systems; or 3) recycling, recovering, reusing materials such as metals, wood, and soil / sediment.

- Acceptable methods for disposing of solid waste (after reduction, as appropriate) include: 1) landfills; 2) incineration (wood, tires, plastics, paper); 3) recycling / processing (of certain C&D materials such as metals and wood, as well as soil / sediment, chips / mulch, and scrap tires); and 4) energy recovery / cogeneration (wood / tires).

- Refer to the section that follows titled "Disaster Debris Management of Wastes: Part 115, Solid Waste Management" for additional details on emergency exemptions, approval and permitting.

EMERGENCY STORAGE OF HAZARDOUS WASTE

- Industrial and commercial facilities may already be generators and can continue to accumulate their waste onsite as necessary prior to disposal. Because of the risks of mixing incompatible materials, these materials should not be consolidated at central storage locations. Limited treatment by generators may be conducted onsite in tanks or containers if necessary.

- Household hazardous waste and certain exempt small quantity generator waste are exempt from management under Part 111. These materials can be collected and stored at central locations for shipment off site to final disposal. Care in management is still necessary to prevent incompatibility problems.

- In major declared emergencies / disasters, the MDEQ Director can grant authority for emergency treatment, storage, and disposal activities without a license. An identification number will have to be obtained from the MDEQ.

MASS DISPOSAL OF DEAD ANIMALS

- Disposal of the bodies of dead animals (animal carcasses) is governed by a separate statute – the Bodies of Dead Animals Act, 1982 PA 239, as amended – and is coordinated by the Michigan Department of Agriculture (MDA) for livestock and/or the Michigan Department of Natural Resources (MDNR) for wildlife. In addition, the Michigan Department of Community Health (MDCH) and the **(name of jurisdiction and/or county)** health department will (as needed) be involved in issuing health advisories to protect the public health from the threats posed by dead animal carcasses and the handling of such carcasses. Contact information for these agencies (for disposal of dead animals) is as follows:

MASS DISPOSAL OF DEAD ANIMALS CONTACT LIST

Agency	Contact Person	Telephone (Office / Cell)	Pager	E-Mail Address
MDA **(insert MDA Animal Industry Division information)**	**(insert name)**	**(insert numbers)**	**(insert number)**	**(insert address)**
MDNR **(insert MDNR Wildlife Division information)**	**(insert name)**	**(insert numbers)**	**(insert number)**	**(insert address)**
(Name) Health Department	**(insert name)**	**(insert numbers)**	**(insert number)**	**(insert address)**
(insert name of other agency as appropriate)	**(insert name)**	**(insert numbers)**	**(insert number)**	**(insert address)**

- In the event of a widespread animal disease outbreak or other disaster that requires the mass disposal of dead animals, the MSP/EMHSD will work (as appropriate) with the MDA, MDNR, MDCH, MDEQ, Michigan State University Extension Service, and involved federal regulatory agencies (e.g., U.S. Department of Agriculture, U.S. Fish and Wildlife Service, etc.) to ensure that the required disposal operations are carried out in a timely and appropriate manner. Coordination will be maintained with the MSP/EMHSD central office staff and SEOC through the MSP/EMHSD District Coordinator and the **(name of jurisdiction)** EOC.

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DISASTER DEBRIS MANAGEMENT OF WASTES
PART 115, SOLID WASTE MANAGEMENT

PART 115 REGULATIONS

According to Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, all solid waste must be properly characterized and disposed in a licensed disposal facility consistent with each county's Solid Waste Management Plan. Information related to these plans, including contact information, may be found at the http://www.michigan.gov/deq/0,1607,7-135-3312_4123-9884--,00.html. Part 115 contains a number of exemptions related to management of solid during an emergency, which are listed below. While the MDEQ would prefer that solid waste be recycled for a beneficial use it may not be possible due to the volume of material generated or the contaminants it may contain.

R 299.4112 Emergency disposal; conditions for approval.
Rule 112:

(1) If a material poses a threat or substantial nuisance to the public or the environment, a person may petition the director to approve the emergency disposal of the material as follows:
(a) At a location that is not licensed pursuant to the provisions of the act.
(b) At a disposal area that is licensed pursuant to the provisions of the act, but is not authorized by a county plan.
(c) In a manner that is not in accordance with the provisions of the act or these rules.
(2) Approval of emergency disposal by the director, or his or her designee, if granted, shall be in compliance with all of the following provisions:
(a) Be oral or written. If oral, it shall be followed by written approval within 5 days.
(b) Not be more than 90 days in duration.
(c) Clearly specify the type and quantity of material and the manner and location of its disposal.

R 299.4434 Type II landfill operation; air criteria.
Rule 434:

(1) The owner and operator of a type II landfill shall ensure that the unit is not in violation of any applicable requirements developed under part 55 of the act or the state implementation plan approved or promulgated by the administrator under section 110 of the clean air act, as amended.
(2) The burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, land-clearing debris, diseased trees, or debris from emergency cleanup operations, is prohibited at all type II landfills.
(3) The burning of waste specified in subrule (2) of this rule shall be conducted only in designated areas with the permission of the solid waste control agency and other appropriate authorities. Suitable measures shall be available to extinguish accidental fires.

324.11506 Definitions; S to Y.
Sec. 11506:

(1) "Solid waste" means garbage, rubbish, ashes, incinerator ash, incinerator residue, street cleanings, municipal and industrial sludges, solid commercial and solid industrial waste, and animal waste other than organic waste generated in the production of livestock and poultry. Solid waste does not include the following:
(h) Materials approved for emergency disposal by the department.

324.11526c Order restricting or prohibiting solid waste transportation or disposal in this state.
Sec. 11526c:

(1) The director may issue an order restricting or prohibiting the transportation or disposal in this state of solid waste originating within or outside of this state if both of the following apply:

(a) The director, after consultation with appropriate officials, has determined that the transportation or disposal of the solid waste poses a substantial threat to the public health or safety or to the environment.

(b) The director determines that the restriction or prohibition on the transportation or disposal of the solid waste is necessary to minimize or eliminate the substantial threat to public health or safety or to the environment.

(2) At least 30 days before the director issues an order under subsection (1), the department shall post the proposed order and its effective date on its website with information on how a member of the public can comment on the proposed order and shall provide a copy of the proposed order to the members of the standing committees of the senate and house of representatives that consider legislation pertaining to public health or the environment. Before issuing the order, the director shall consider comments received on the proposed order. The department shall post the final order on its website beginning not later than the final order's effective date. This subsection does not apply in an emergency situation described in subsection (3).

(3) In an emergency situation posing an imminent and substantial threat to public health or safety or to the environment, the director, before issuing an order under subsection (1), shall provide a copy of the proposed order to the members of the standing committees of the senate and house of representatives that consider legislation pertaining to public health or the environment and publicize the proposed order in any manner appropriate to help ensure that interested parties are provided notice of the proposed order and its effective date. The department shall post the final order on its website as soon as practicable.

(4) An order issued pursuant to this section shall expire 60 days after it takes effect, unless the order provides for an earlier expiration date.

(5) Subsections (2) and (3) do not apply to the reissuance of an order if the reissued order takes effect upon the expiration of the identical order it replaces. However, the department shall post the reissued order on its website beginning not later than the reissued order's effective date.

(6) A person may seek judicial review of an order issued under this section as provided in section 631 of the revised judicature act of 1961, 1961 PA 236, MCL 600.631.

(7) The director shall rescind an order issued under this section when the director determines that the threat upon which the order was based no longer exists.

As can be seen from the Part 115 statute and rules above the solid waste regulations allow for the temporary suspension of numerous requirements, during an emergency, related to 1) disposal of solid waste at a licensed facility; 2) disposal consistent with county plans; 3) burning of debris from emergency cleanup operations at a licensed landfill; and 4) in a manner not consistent with the statute or rules.

PART 115 EXEMPTIONS

The Part 115 statute and rules contain numerous exemptions for materials that may be beneficially reused without a permit or license from the MDEQ. The statute lists numerous materials as site / source separated materials, which are not solid wastes, which include glass, metal, wood, paper products, plastics, rubber, textiles, garbage, yard clippings, or any other materials approved by the department. Rule 114 contains a number of exemptions that relate to materials that could be generated from an emergency. The list includes, trees, stumps, and other land clearing debris that is buried at the site of generation or at another site approved by the land owner; construction brick, masonry, pavement, and broken concrete that is used as rip rap, fill, slope stabilization, or other construction purposes; and other materials approved by the director.

In addition to the exemptions contained in the statute and rules the department has issued authorizations for other materials that might be generated during an emergency. An authorization for gypsum drywall (http://www.deq.state.mi.us/documents/deq-whm-stsw-gypsumdrywallexemption.pdf) and scrap wood (http://www.deq.state.mi.us/documents/deq-whmd-stsw-ScrapWoodExemption.pdf) have been issued by the department.

RECYCLING

There are many opportunities to recycle materials that could be generated during an emergency. The "Green Construction and Demolition" web-site located at http://www.michigan.gov/deq/0,1607,7-135-3585_4127_24843---,00.html contains useful links to managing waste. Included at this is a Q&A on managing construction and demolition wastes as well as a link to the "Recycled Materials Market Directory" which lists many outlets for recyclable materials.

STORAGE

According to Rule 129, construction and demolition waste that is stored at the site of generation for less than one year, prior to being disposed, does not require a construction permit or operating license. Owners / operators of these waste piles must ensure that the storage does not violate Part 31, Water Resources Protection, or Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act.

MDEQ CONTACTS

Any questions related to obligations under Part 115 or the process to enact the emergency procedures listed above should be directed to the MDEQ **(insert MDEQ district Waste and Hazardous Materials Division information)**. Contact information may be found at the following location http://www.michigan.gov/deq/0,1607,7-135--12306--,00.html.

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DEBRIS COLLECTION AND MANAGEMENT SITE ANALYSIS GUIDANCE TOOL

(Adapted from FEMA Publication 325, "Public Assistance Debris Management Guide")

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. The following guidance tool will be used by the **(name of jurisdiction)** to conduct site hazard assessments as part of the overall Health and Safety Plan developed for the debris operation.

Hazard	Risks	General Safety Recommendations
General Site Safety Checklist:	All types of accidents and illnesses.	• 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 the work environment less hazardous.
HAZARD 1: Massive piles of woody debris and other types of debris; unstable work surfaces.	Traumatic, serious, or fatal injuries or illnesses can occur due to slips, trips, falls, or collapsing materials.	• 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.	Communication and possible noise induced hearing loss.	• 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, reducing the equipment vibration, or installing sound barriers. • Consider hearing protection devices be 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.	Irritation of eye, nose, throat, and lungs.	• 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.

DEBRIS COLLECTION AND MANAGEMENT SITE ANALYSIS GUIDANCE TOOL (cont.)

Hazard	Risks	General Safety Recommendations
HAZARD 4: Heat stress from working in a hot, humid climate	Significant fluid loss can progress to clinical dehydration, raised core body temperature, impaired judgment, disorientation, fatigue, muscle cramping, resulting in heat stroke.	• 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 SPF of 15 or greater.
HAZARD 5: Cold stress from working in a cold, wet climate.	This allows exposed skin and the extremities to cool rapidly and increases the risk of frostbite and hypothermia.	• 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.	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.	• 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. • Do not use gasoline generators or portable heaters in confined spaces or poorly ventilated areas.
HAZARD 7: Work zone traffic hazards.	Traumatic or fatal injuries due to failure of or improper use of equipment or workers being struck by moving equipment.	• 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 to 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.

DEBRIS COLLECTION AND MANAGEMENT SITE ANALYSIS GUIDANCE TOOL (cont.)

Hazard	Risks	General Safety Recommendations
HAZARD 8: Eye, face, hand, and head injuries from flying debris; wood particles.	Traumatic injuries, ranging from minor injuries requiring first aid to serious eye injuries, even disabling or fatal traumatic injuries.	• 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 of safety glasses with side shields by all site workers. Face shields 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.	Traumatic injury, including serious and fatal injuries, due to failure of or improper use of equipment or workers being struck by moving equipment.	• 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 or other heavy equipment are being used to life objects. • Ensure that workers do not climb onto or ride loads being lifted or moved. • Ensure that 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 least 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.	Traumatic, serious, or fatal injuries or illnesses can occur due to inhalational, dermal, and fire hazards.	• Ensure that hazardous waste (e.g., batteries, PVC piping, solvents, pesticides, 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 (TDSR Sites) where there is a limited public water supply, lack of 911 service, or delays in fire department response time.

DEBRIS COLLECTION AND MANAGEMENT SITE ANALYSIS GUIDANCE TOOL (cont.)

Hazard	Risks	General Safety Recommendations
HAZARD 11: Isolated work areas and sanitation.	Remote locations delay response times from emergency providers. Precaution can reduce the severity of the event.	Water-borne disease: • Always wash 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 and 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 the location and phone numbers of the 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.	Traumatic, serious, or fatal injuries or illnesses can occur due to insect or animal bites.	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.

DEBRIS COLLECTION AND MANAGEMENT SITE ANALYSIS GUIDANCE TOOL (cont.)

Hazard	Risks	General Safety Recommendations
HAZARD 13: Power lines and gas lines.	Traumatic, serious, or fatal injuries or illnesses can occur due to electrocution.	• Treat all power lines and cables as energized until proven otherwise. De-energized lines can be energized by a secondary power source such as a backup generator. • Use appropriately grounded low voltage equipment. • Do not approach detected gas leaks. • Contact utilities (e.g., utility locator service) for buried power line locations. • 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	Traumatic, serious, or fatal injuries or illnesses can occur due to falls from elevated surfaces.	• 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.	Traumatic, serious, or fatal injuries or illnesses can occur due to falls, tip-overs, and pinch points.	• 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.	Traumatic, serious, or fatal injuries or illnesses can occur due to hypothermia, hyperthermia, and lightning strikes.	• Monitor local weather conditions regularly. • Recognize the signs of an oncoming thunder and lightning storm and seek shelter. • Avoid small sheds, wooded areas, metal fences, and open areas.

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FEDERAL DEBRIS MANAGEMENT RESOURCES

FEMA Online Debris Contractor Registry:

United States
Private & Public Partnership

National Threat Advisory:
ELEVATED
Significant Risk of Terrorist Attacks

NERR LINKS
- Update Your Record
- Add a New Resource

OTHER LINKS
- Department of Homeland Security
- FEMA

DISCLAIMER
This registry tool was developed to assist State and local governments in identifying and contacting debris removal contractor resources. The information herein is provided and maintained by contractors and their representatives. FEMA does not verify and takes no responsibility for the accuracy of any information in this database.

Returning Contractor?
Please take a moment to log into the NERR.

Are you a new Contractor?
Create a new Account.

If you need help, please contact the help desk at:
(703) 674-3003
USP3-support@mantech-ist.com

Sponsored by
U.S. Department of Homeland Security

Welcome to the National Emergency Resource Registry (NERR). NERR is a feature of DHS' United States Public & Private Partnership (US P3). US P3 is an unclassified network, which immediately provides the Department's Homeland Security Operations Center with one-stop 24/7 access to a broad spectrum of industries, agencies and critical infrastructure across both the public and private sectors.

This first phase of the NERR is being rolled out to support the Federal Emergency Management Agency's initiative to develop a debris removal contractor registry. This initial version of the registry is intended to capture basic information about debris removal contractors and their resource capabilities. The NERR provides a central location where this information will be used by Tribal, State, and local governmental entities to identify and contact contractor resources to solicit bids and proposals for debris removal operations. Please note that this site does not register your company to do business with the federal government and will not be used by the federal government for contracting purposes. In addition, the federal government does not maintain or verify any of the information in this registry. Therefore, contractors should revisit the site periodically to verify and update their company

FEMA does not endorse, approve or recommend any contractors. State and local governments should perform all appropriate due diligence prior to entering into a contract. Contracting with any of the entities in this database DOES NOT assure a State or local government of reimbursement under a federal grant. State and local governments should follow their own competitive procurement procedures when selecting a contractor.

information. The information that you enter can only be viewed and changed through a username and password that you designate. Tribal, State, and local governmental entities will be able to view your company information in a version to be released on June 30, 2006.

- US P3 significantly increases the Department's exchange of unclassified information to critical infrastructure owners and operators and the private sector.
- US P3 is locally-governed and administered by knowledgeable, respected domain experts and decision makers from both the private and public sector with the support of Federal Regional Coordinators.
- US P3 provides a tangible tool to engage the community in Homeland Security by supporting locally-relevant information sharing with a direct pipeline to and from the Department.
- US P3 delivers information sharing, alert notification services to the right people - those that need to know, and those that need to act.
- Debris removal contractors can register their company information here.

This contractor registry can be accessed at the following address: https://asd.fema.gov/inter/nerr/home.htm. It can also be found by navigating through the FEMA web site. Go to www.fema.gov, click on the "Business" customer gateway, go to "Contractors and Vendors" and then to "Information for Contractors and Vendors." The debris contractor registry is under "Debris Management Contractors." It is a secure site that has search capabilities by organization name, city, state, resource type, and availability status.

DEBRIS REMOVAL OPERATIONS
(FEMA DISASTER ASSISTANCE STRATEGY 2007-2 – JUNE 1, 2007)

Source: FEMA web site (edited to fit document format)

TITLE: Debris Removal Operations

DATE: June 1, 2007

PURPOSE: To establish a strategic framework for providing debris removal assistance in support of a Presidentially-declared emergency or major disaster.

SCOPE AND AUDIENCE: This Strategy applies to emergencies and major disasters declared on or after the date of publication, above, and until superseded. It is applicable to all states eligible to receive assistance under sections 403 and 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (hereafter, the Stafford Act), 42 U.S.C. 5121-5206; all Federal agencies that may be directed by FEMA to provide such assistance; and all signatories to the National Response Plan.

AUTHORITY: Sections 403 (Essential Assistance) and 407 (Debris Removal) of the Stafford Act, 42 U.S.C. 5121-5206, and implementing regulations at 44 CFR Part 206.

DEFINITIONS / DESCRIPTIONS:

A. **Eligible Public Debris:** Disaster-related vegetative materials, construction and demolition materials, household goods, and other materials deposited (either by the event or a property owner) on *public* property (including public rights-of-way), and which present an immediate health and safety threat to the general public.

B. **Eligible Private Debris:** Disaster-related vegetative materials, construction and demolition materials, household goods, and other materials deposited (by the event) on *private* (personal or commercial) property, and which present an immediate health and safety threat to the general public. ***Debris on private property does not typically present an immediate health and safety threat to the general public, so removal is normally not eligible for reimbursement.*** However, the Federal Coordinating Officer (FCO) is authorized to approve the removal of debris from private property when he/she determines that such debris does present an immediate health and safety threat to the general public, and such removal would be in the public interest. Debris removal from the roads and streets of a gated community will generally be in the public interest when the work is completed by an eligible PA applicant.

C. **Direct Federal Assistance (DFA):** Within the framework of this Strategy, DFA is debris removal assistance provided by the U.S. Army Corps of Engineers (USACE) or other Federal agencies.

D. **Other Federal Agencies (OFA):** Within the framework of this Strategy, OFA refers to other (than FEMA) Federal organizations invested with varying authorities for debris management activities. They include the USACE, Environmental Protection Agency, U.S. Coast Guard, and Departments of Agriculture, Commerce, and Transportation.

E. **Debris Removal Contractor Registry:** A web-based database that reflects information about and the material and operational capabilities of debris removal contractors, including their organic assets. This registry was developed and fielded as a tool to assist local governments advance plan for, and establish the institutional capability to immediately and effectively manage, debris removal operations.

STRATEGY:

A. OVERVIEW

1. State and local governments have principal responsibility for coordinating and managing debris removal operations, with eligible costs reimbursable under the Public Assistance program.

2. If a State and/or local government lacks the capability to initiate, coordinate and manage debris removal operations following a major disaster, FEMA can provide DFA through a mission assignment to another Federal agency (normally the USACE) upon request, when it has been demonstrated that the State and/or local government lack the capability to perform or contract for the requested work.

   a. ***The duration of DFA mission assignments for debris removal will be limited to 60 days from the disaster declaration date.*** The FCO may approve extensions for up to an additional 60 days, if a State or local government has demonstrated it lacks the capability to assume oversight of the debris removal mission. Additional extensions will require approval of the Assistant Administrator of the Disaster Assistance Directorate at FEMA Headquarters.

   b. Cost-Share. The non-federal cost-share for debris removal costs (applied equally to both State/local-managed and DFA missions) will be as directed by the President.

      (1) If the President has authorized 100% Federal funding for emergency work under sections 403 or 407 of the Stafford Act, the 100% Federal funding is based on actual debris clearance and/or removal work accomplished, either by DFA or by grant assistance, during the designated period. Federal funding for DFA is not based on when a task order was initiated. This work includes whatever clearance, pick up, hauling, processing and disposal activities FEMA authorizes.

      (2) For work accomplished after the designated period either by DFA or by grant assistance, the Federal cost-share is at the prevailing rate for the particular disaster. In events where DFA is authorized, the State shall agree in advance to reimburse FEMA for the appropriate non-Federal cost-share of the work including the overhead of the Federal agency assigned the task of debris removal.

3. PA Pilot Program. As directed by the Department of Homeland Security (DHS) Appropriations Act, 2007, Public Law 109-295, FEMA will be conducting a Public Assistance Pilot Program, beginning June 1, 2007, until December 31, 2008. The legislation sets forth three goals: reducing the costs to the Federal Government of providing assistance to state and local governments; increasing flexibility in grant administration; and expediting the provision of assistance to States and local governments. Participation in the PA Pilot Program is open to all state and local governments, and federally-recognized Indian Tribes, that elect to participate in a particular project. This Program currently offers four distinct pilot opportunities, as follows:

   a. The provision of grants on the basis of estimates for large projects up to $500,000.

   b. The provision of an additional five-percent Federal costs share, not to exceed 100%, to applicants with a FEMA-approved debris management plan, and at least two pre-qualified debris and wreckage removal contractors identified prior to a disaster.

   c. The retention of any revenue from the salvage value of recyclable disaster debris, as an incentive to recycle debris.

   d. Reimbursement of the straight- or regular-time salaries and benefits of an applicant's permanently employed staff performing eligible debris-related activities.

B. PRE-EVENT PREPARATION AND PLANNING

1. **State and Local**

   a. State and local governments are encouraged to plan for - and expected to manage - their own debris removal operations following an emergency or major disaster. DFA, in the form of USACE support, is designed *only* to address situations where the level of debris is catastrophic in scale, or where the capabilities of the State and/or local government to effectively manage such operations are overwhelmed.

   b. State and local governments are encouraged and expected to pre-qualify local or regional debris removal contractors, to assure the immediate availability of coordinated debris removal support following a debris-producing incident. To assist state and local governments identify available debris removal contractors, FEMA maintains a State/Local-accessible web-based Debris Removal Contractor Registry.

2. **Federal.** As the Emergency Support Function (ESF) 3 Coordinator and primary Federal provider of DFA in support of debris removal, the USACE:

   a. Maintains seven Debris Removal Planning and Response Teams (PRTs). Each PRT is pre-rostered and fully trained, and ready to deploy within 6 hours to begin operationally planning a DFA mission.

   b. Maintains advance debris removal contracts, to ensure immediate availability of support.

   c. Will, 96 hours prior to projected hurricane landfall, commence development of a tailored, operational debris removal plan.

C. PRE-LANDFALL. Upon a Presidential declaration of a pre-landfall *Emergency* (including designation of Category A – Debris Removal and Direct Federal Assistance), FEMA and/or the USACE will, *if warranted:*

1. Activate, if not previously accomplished, Emergency Support Function (ESF) 3 (Public Works and Engineering).

2. Deploy, if not previously accomplished, a team of debris experts to the FEMA Regional Response Coordination Center (RRCC) to initiate coordination and planning with the State.

3. Deploy (with State consent), debris experts to the State Emergency Operations Center to provide technical assistance and planning support on debris-related issues.

4. Begin, if not previously initiated, assessing the capabilities of threatened state and local governments to effectively coordinate and manage debris removal operations, as well as identify those prospectively requiring DFA.

5. Deploy Debris Planning and Response Teams to affected States.

6. Initiate USACE's debris modeling to estimate the volume of debris that may be expected given the pre-landfall predictions.

7. Commence development of a tailored, operational debris management plan.

8. As appropriate, activate ESF-3 Support Agencies and Advance Contract Initiative contractor(s) to coordinate and assist in debris management planning.

D. POST-LANDFALL. Upon a Presidential declaration of a post-landfall *Emergency* or *Major Disaster* (including designation of Category A – Debris Removal and Direct Federal Assistance), FEMA and/or the USACE will, if *warranted:*

1. Activate, if not previously accomplished, ESF-3.

2. Deploy, if not previously accomplished, a team of debris experts to the RRCC to initiate coordination and planning with the State.

3. Deploy, if not previously accomplished (and with State consent) debris experts to the State Emergency Operations Center to provide technical assistance and planning support on debris-related issues.

4. Assess the capabilities of affected State and local governments to effectively coordinate and manage debris removal operations, and identify those requiring DFA.

5. Deploy, if not previously accomplished, Debris Planning and Response Teams to affected States.

6. Refine debris model results and participate in Rapid Needs Assessment process to define possible requirements for assistance.

7. Work with State agencies to establish an intergovernmental Debris Management Team, as appropriate, to integrate and coordinate debris operations under all authorities and to further develop the operational debris management plan. ESF-3 Support Agencies and Advance Contract Initiative contractor(s) will be activated as appropriate to assist with planning and management efforts.

8. As required, provide Technical Assistance to State/local agencies developing their own debris management capabilities and contracts.

9. Commence debris removal operations under DFA, when State and local governments lack the coordination and management capability, and following request, approval, and mission-assignment.

RESPONSIBLE OFFICE: Disaster Assistance Directorate (Public Assistance Division)

SUPERSESSION: This Strategy replaces and superseded FEMA Recovery Strategy RS-2006-2, *Debris Removal Operations,* dated July 24, 2006.

REVIEW DATE: One year from the date of publication.

____//SIGNED//___
David Garratt
Acting Assistant Administrator
Disaster Assistance Directorate

FACT SHEET: DEBRIS REMOVAL – AUTHORITIES OF FEDERAL AGENCIES
(FEMA FACT SHEET 9580.202 – JANUARY 27, 2007)

Source: FEMA web site (edited to fit document format)

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*

Environmental Protection Agency
Department of Transportation: *Federal Highway Administration*
Department of Commerce: *National Oceanic and Atmospheric Administration*

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.

Department of Homeland Security: *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 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.

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.

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.

United States Department of Agriculture: *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.
- 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).

United States Department of Agriculture: *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, PL 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.
- 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.
- 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.

/Signed/ 1/27/2007
David Garratt Date
Acting Director of Recovery

U.S. Army Corps of Engineers Emergency Response Portal – Debris Management:

The U.S. Army Corps of Engineer's Emergency Response Portal provides a wealth of debris management technical information, sample contracts, sample plans and planning guidance, and other tools to aid state, local, and tribal officials in their debris management planning and operational activities. The Portal can be accessed at: https://eportal.usace.army.mil/sites/ENGLink. From the subject menu, click on "Debris Management" and then "Technical Assistance Planning Guide for Local Government." There will be a menu that lists the various guidance documents and tools available for viewing and downloading. These additional resources can be used to supplement the basic guidance provided in this Handbook. (Note: when the "Enter Network Password" box appears at various times on the screen, simply click on the "Cancel" button to bypass the registration system. It is not required to access or use the site.) At the time of this writing, the "Technical Assistance Planning Guide for Local Governments" contained the following guidance documents and tools (shown in the order they appear on the USACE menu):

Guidance Document / Tool Link	Title
link 1 – fema policy RP9523.9	FEMA Policy RP9523.9
link 10 – typical household hazardous waste and hazardous toxic waste temporary storage area plan	Typical Household Hazardous Waste and Hazardous Toxic Waste Temporary Storage Area Plan
link 12 – sample scope of work for monitoring	Sample Scope of Work for Monitoring
link 13 – load ticket example	Load Ticket Example
link 14 – automated debris management systems specifications	Automated Debris Management Systems Specifications
link 2 – sample state debris plan	Sample State Debris Plan
link 3 – sample pre event contract for disaster debris removal reduction and disposal	Sample Pre Event Contract for Disaster Debris Removal Reduction and Disposal
link 4 – debris modeling estimating debris quantities	Debris Modeling Estimating Debris Quantities
link 5 – va beach va debris management plan strategy – notepad	VA Beach VA Debris Management Plan Strategy
link 6 – post strike estimating tools	Post Strike Estimating Tools
link 7 – air curtain incinerator detail	Air Curtain Incinerator Detail
link 8 – estimating debris volume	Estimating Debris Volume
link 9 – debris modeling reduction site requirements	Debris Modeling Reduction Site Requirements
resource a – sample contract hurricane	Sample Contract Hurricane
resource b – sample contract for tornadoes	Sample Contract for Tornadoes
resource c – web debris scope of work	Wet Debris Scope of Work
resource d – debris reduction sample contract	Debris Reduction Sample Contract
resource e – sample scope of work for monitoring	Sample Scope of Work for Monitoring
resource f – debris mission guide jun 06	Debris Mission Guide Jun 06
resource g – debris sop	Debris SOP
resource h – automated debris management systems specifications	Automated Debris Management Systems Specifications
ta debris outline revised 14 nov	Disaster Debris Removal / Reduction / Disposal Technical Assistance Planning Guide
link 11 – typical TDSR reduction site layout	Typical TDSR Reduction Site Layout

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COMMODITIES INVENTORYING / TRACKING FORM (HARDCOPY)

Instructions: This form – a modified version of the E Team "Critical Asset" Report – can be used as appropriate by Staging Areas and the Base / Camps to inventory and track the receipt and distribution of commodities (debris management resources) if access to E Team is not available. (Note: At the time of this writing, the E Team "Critical Asset" Report was not completely compatible with the resource typing under the NIMS; therefore, it reflects some but not all of the NIMS-compliant lexicon related to commodity category, kind and type. Also, in an effort to save space some of the commodities on this hardcopy form have been consolidated and others have been left off altogether. Commodities not listed can simply be written in by hand and then entered into E Team at a later time.)

Date / Time:	
Authorizing Staff Person:	
COMMODITY FROM:	
Name of Contract Person:	
Organization (if applicable):	
Mailing Address:	
City / State / Zip Code:	
Telephone (work / home):	
Facsimile:	
E-Mail Address (work / home):	

COMMODITY:

(Category / Description / Kind / Type)	Quantity	Unit of Measure*	Value of Commodity ($)	# Distributed	# Remaining
(Critical Life Sustaining Commodities)					
Food					
Drinking Water (Bottled / Water Buffalo)					
Ice – Cold					
Medicines / Pharmaceuticals					
Medical Supplies					
Baby Formula / Food					
Diapers					
Tarps / Plastic Sheeting					
Ice – Dry					
Cleaning Supplies					
Cots					
Bedding / Blankets					
Personal Care Kits					
Towels					
Clothing					
Flashlights / Batteries					
Other (Specify):					
Other (Specify):					
(Critical Response / Recovery Commodities)					
Air Transportation – Airplane					
All Terrain Vehicles (ATVs)					
(AP = Animal Protection Resources)					
AP: Incident Management Team (Types I-III)					
AP: Large Animal Rescue Strike Team					
AP: Large Animal Sheltering Team (Types I-III)					
AP: Large Animal Transport Team					
AP: Small Animal Rescue Strike Team					
AP: Small Animal Sheltering Team (Types I-III)					
AP: Small Animal Transport Team					
Armored Vehicle					
Boat					

***Unit of Measure:** bottles; boxes; cases; each; gallons; pallets; units. Use only one unit of measure for each commodity.

COMMODITIES INVENTORYING / TRACKING FORM (HARDCOPY) – PAGE 2

(Category / Description / Kind / Type)	Quantity	Unit of Measure*	Value of Commodity ($)**	# Distributed	# Remaining
Bomb Team / Dog / Technician					
Bulldozer (Heavy / Medium / Light)					
Bus					
Cadaver Bag					
Cargo Truck					
Communications (Specify:)					
Decontamination (Specify:)					
Dosimeter Kit					
Dumpster					
(EMS = Emergency Medical Services Resources)					
EMS: Air Ambulance, Rotary / Fixed (Types I-IV)					
EMS: Ambulance, Ground (Types I-IV)					
(F&H = Firefighting and Hazardous Materials)					
F&H: Brush Patrol – Firefighting (Type IV)					
F&H: Crew Transport (Types I-III)					
F&H: Engine, Fire – Pumper (Types I-VII)					
F&H: Fire Boat (Types I-III)					
F&H: Fire Truck, Aerial (Types I and II)					
F&H: Foam Tender (Types I and II)					
F&H: Fuel Tender (Types I and II)					
F&H: HazMat Entry Team (Types I-IV)					
F&H: Helicopters – Firefighting (Types I-IV)					
F&H: Helitanker – Firefighting Helicopter					
(F&H = Firefighting / Hazardous Materials)–cont.					
F&H: Inc Mgmt Team – Firefighting (Types I-IV)					
F&H: Portable Pump (Types I-III)					
F&H: Water Tender – Firefighting (Types I-IV)					
F&H: HazMat Protective Suit (Specify Level:)					
Fax Machine					
Forklift (Specify:)					
(H&M = Health and Medical Resources)					
H&M: DMAT (Specify Specialty:)					
H&M: DMORT					
H&M: IMSuRT (Types I and II)					
H&M: VMAT (Types I and II)					
Heavy Equip Transport (Heavy / Med / Light)					
HEPA Unit – Portable					
Illumination Unit (Types I and II)					
(IM = Incident Management Resources)					
IM: Airborne Transport Team (Types I-IV)					
IM: Comm. Support Team – CAP (Types I-IV)					
IM: CIS Mgmt Team (Types I-III)					
IM: Donations Coordinator / Team (Types I-IV)					
IM: EMAC Advance Team (Types I-III)					
IM: EOC Staff (Specify:)					
IM: Evacuation Coord. Team (Types I-III)					
IM: Incident Mgmt Team (Types I-IV)					
IM: IA Disaster Assmt. Team / Leader					
IM: Mobile Comm. Center (Types I-IV)					
IM: Mobile Feeding Kitchen (Types I-IV)					
IM: Public Assistance Coordinator (Types I-IV)					
IM: Rapid Needs Assessment Team (Type I)					

***Unit of Measure:** bottles; boxes; cases; each; gallons; pallets; units. Use only one unit of measure for each commodity.

COMMODITIES INVENTORYING / TRACKING FORM (HARDCOPY) – PAGE 3

(Category / Description / Kind / Type)	Quantity	Unit of Measure*	Value of Commodity ($)**	# Distributed	# Remaining
IM: Shelter Management Team (Types I-IV)					
IM: Voluntary Agency Liaison (Types I-IV)					
IT Support					
Language Interpreter					
(LE&S = Law Enforcement / Security Resources)					
LE&S: Bomb Squad / Explosives Team (Types I-III)					
LE&S: LE Aviation Helicopters (Types I-IV)					
LE&S: LE Obser. Aircraft – Fixed (Types I and II)					
LE&S: Mobile Field Force (Types I-III)					
LE&S: Public Safety Dive Team (Types I-IV)					
LE&S: SWAT / Tactical Teams (Types I-III)					
Mobile Command Post					
Patrol Vehicle					
Blood / Plasma					
Port-O-Johns (Portable Toilets)					
(PW = Public Works Resources)					
PW : Air Conditioner / Heater (Types I-IV)					
PW: Air Curtain Burners (Types I-VI)					
PW: All Terrain Crane (Types I-IV)					
PW: Backhoe Loader (Types I-IV)					
PW: Chillers and Air Handlers (Types I-V)					
PW: Concrete Cutter (Types I-IV)					
PW: Crawler Crane (Types I-III)					
PW: Debris Mgmt Team / Monitoring Team					
PW: Disaster Assessment Team / Recovery Team					
PW: Dump Truck – Off Road / On-Road					
PW: Flat Bed Trailer Truck (Type I)					
PW: Generator (Types I-V)					
PW: Hydraulic Excavator – Large / Medium Mass					
PW: Hydraulic Truck Cranes (Types I-III)					
PW: Track Dozer / Wheel Dozer					
PW: Tractor Trailer (Types I and II)					
PW: Tub Grinder (Types I-IV)					
PW: Wheel Loader – Large / Medium / Small					
PW: Sandbags					
(S&R = Search and Rescue Resources)					
S&R: Air Search / Reconnaissance Team					
S&R: Canine Search Team (Specify:)					
S&R: Collapse S&R Team (Types I-IV)					
S&R: S&R Team – Flood / Mine / Wilderness					
S&R: US&R Incident Support Team / Task Force					
Snow Plow					
Utility Transport (Types I and II)					
Veterinarian					
Other (Specify):					

***Unit of Measure:** bottles; boxes; cases; each; gallons; pallets; units. Use only <u>one</u> unit of measure for each commodity.

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DEPLOYED PERSONNEL REGISTRATION FORM (HARDCOPY OF E TEAM "VOLUNTEER RECORD")

Instructions: This form – a modified version of the E Team "Volunteer Record" Report – can be used by Base / Camp personnel to register persons staying at the Base / Camp for possible later deployment under the disaster debris management operation. This form should be used if access to E Team is not available.

STAFF USE ONLY:

Date / Time:	
Authorizing Staff Person:	

PERSONNEL INFORMATION:

Name (Last, First, MI):	
Gender (Male / Female):	
Job Status (see Note 1):	
Job Title / Rank (see Note 2):	
Mailing Address:	
City / State / Zip Code:	
Phone (work/home/cell/other):	
E-Mail Address:	
Organization / Location:	
Position:	
Agency:	

Note 1 Selections: Advisory Board Member; Employee; Employee (Hourly); Employee (Salary); Officer; Officer (Retired); Volunteer.
Note 2 Selections: Mr.; Mrs.; Ms.; Captain; Envoy; Major; Lt. Colonel; Colonel; Commissioner; Administrative Assistant.

FUNCTION INFORMATION:

Primary Function:	
Supervisor? Y/N:	
Secondary Function:	
Supervisor? Y/N:	

DEPLOYMENT INFORMATION:

Notification Required(see Note 3):	
Availability (see Note 4):	
Team Partner (see Note 5):	

Note 3 Selections: None needed; 8 hours; 16 hours; 24 hours; 48 hours; 72 hours.
Note 4 Selections: Local Disasters (local sites only); In-State Disasters (available for statewide service); National Disasters (available for work outside Michigan if required to support the disaster logistics management operation).
Note 5 Information: Name / Organization & Location / Position / Agency.

TRAINING / SKILLS: (Note: complete as relevant for functions to be performed.)

Salvation Army Training:	
FEMA Training:	
State / Local Govt. Training:	
CISM Training:	
Other Vol. Agency Training:	
Courses Qualified to Instruct:	
Professional Certifications:	
Skills:	
Amateur Radio Call Sign:	
Additional Languages:	
Other Experience:	

DEPLOYED PERSONNEL REGISTRATION FORM (HARDCOPY OF E TEAM "VOLUNTEER RECORD") – PAGE 2

EMERGENCY AND MEDICAL INFORMATION:

Health / Medical Issues? (If Yes, Describe)	
Emergency Contact:	
Relationship/Contact Phones:	

VEHICLE QUALIFICATION:

Drivers License # / State:	
Classification:	
Expiration Date:	
Vehicles Qualified to Operate (see Note 6):	

Note 6 Selections: ATV; Boat; Bus; Camper/RV; Canteen (Mobile Kitchen); Car; Fork Lift; Mini Van (less than 15 passengers); Maxi Van (15+ passengers); Trailer, Towed; Truck, Box; Truck, Tractor Trailer.

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PRE-IDENTIFIED DEBRIS MANAGEMENT FACILITIES

The following facilities have been pre-identified in **(name of jurisdiction)** for POSSIBLE use during a debris management operation subsequent to a large-scale / catastrophic incident. The incident circumstances will determine, to a large degree, the specifics of the disaster debris management operation. Because of the time constraints that would be involved within the **(name of jurisdiction)** EOC for making critical decisions related to the debris management operation, it is important that as many details as possible be pre-addressed in this plan. To that end, the public facility listings that follow are intended to provide a STARTING POINT for making rapid, informed decisions regarding the establishment of facilities required to support and sustain a large-scale disaster debris management operation. Many incident and situation-specific factors will ultimately be considered before final facility selections are made.

COLLECTION CENTERS:

Selection Considerations: An alternative to curbside debris collection is to have residents transport their debris to a common location known as a Collection Center. Typically, large roll-off bins are placed within the public rights-of-way or on public property for residents to bring their debris for collection. Collection Centers are a viable option in those situations where curbside collection is not practical, such as in rural / sparsely populated areas or in logistically difficult conditions (e.g., neighborhoods with steep terrain or limited ingress / egress options). Separate bins / piles are designated for each type of debris. Collection Center sites must be designed for proper traffic and pedestrian circulation, vehicle ingress / egress and unloading, and collection bin exchanges and/or debris pile removal. Depending on incident conditions and jurisdictional preference, Collection Centers may be part of a Temporary Debris Storage and Reduction (TDSR) Site (see description below) or they may be separate locations altogether. If public drop-off areas are included with a TDSR Site, they must be carefully designed for passenger vehicle traffic and public safety.

(name of jurisdiction) Disaster Debris Collection Centers

Facility Name	Facility Address	Facility Type	Geo-Location (Lat/Long)		Comments / Considerations

Facility Photographs (optional):

STAGING AREAS:

Selection Considerations: Staging Areas can be any available, large outdoor area (ideally 1-25 acres in size, with fencing or other security provisions) with sufficient area to temporarily park vehicles, equipment, personnel and goods that are ready for deployment to the affected area to aid in disaster response and recovery operations. (Vehicles and equipment might include dump trucks, front-end loaders, bulldozers, buses, cargo trucks, etc.) Staging Areas should have adequate parking spaces for a large number of workers at any time, and (ideally) covered space (e.g., permanent building, tent) to shelter workers and goods from the weather and provide a measure of security. Staging Areas should also have provisions in place for temporarily lodging, feeding, and caring for workers (that are ready for deployment) and for addressing their basic sanitation concerns (i.e., port-a-johns, portable showers, and hand washing facilities). Either a permanent building, tent space on the grounds, or a combination of both may meet the temporary lodging requirements. (An alternative is to provide shuttle service for workers to and from local motels and hotels, or a nearby Base / Camp set up to provide for the lodging, food, water, and sanitation needs of personnel.) Possible locations for use as Staging Areas include vacant commercial lots, nongovernmental organization warehouse facilities, governmental warehouse facilities, armories, county fairgrounds, highway / public works maintenance garages, airports, parks and recreation areas, or possibly shopping center parking lots (providing there is expressed written permission from the owner).

(name of jurisdiction) Disaster Debris Staging Areas

Facility Name	Facility Address	Facility Type	Geo-Location (Lat/Long)		Comments / Considerations

Facility Photographs (optional):

BASE / CAMPS:

Selection Considerations: The Base / Camps are temporary locations within the general incident area which are equipped and staffed to provide food, water, sleeping areas, and sanitation services for workers that are not currently on call for deployment. The Base / Camps are used in those situations where overnight / multi-day accommodations are required for volunteers, equipment operators, and other deployed resources under the disaster debris management operation. The Base / Camps may be utilized in lieu of local hotel / motel or other accommodations. Camps may be particularly suited for certain situations, such as when: 1) there is a shortage of nearby hotel / motel rooms or other suitable accommodations for deployed resources, 2) large numbers of resources have been deployed from outside the incident area (e.g., EMAC resources), and 3) the incident area is particularly large or widely dispersed. Possible facilities for use as the Base / Camps include county fairgrounds, state / local parks and recreation areas, local campgrounds, military bases, college campuses, school grounds (if tents are used), community centers or community recreation centers, etc. Ideally, using the facility as a Base / Camp will not greatly interfere with its normal, day-to-day use.

(name of jurisdiction) Disaster Debris Base / Camps

Facility Name	Facility Address	Facility Type	Geo-Location (Lat/Long)		Comments / Considerations

Facility Photographs (optional):

TEMPORARY DEBRIS STORAGE AND REDUCTION SITES:

Selection Considerations: These are strategically located local sites at which debris is temporarily stored and reduced in volume for eventual permanent disposal via land filling or recycling. Reduction methods may include burning, grinding / chipping / shredding, compacting, and recycling. The number of sites designated at Temporary Debris Storage and Reduction (TDSR) Sites will be dependent on the disaster conditions and the nature and volume of debris to be stored, reduced, and disposed of. In most cases, the site(s) most strategically located to the damaged areas will be selected as TDSR Sites for a particular incident (to minimize unnecessary transport of debris). The following general site evaluation considerations should be considered in pre-identifying potential TDSR Sites:

1. **An interdisciplinary approach should be used to avoid potential problems and to consider all relevant factors.**
2. **If possible, public land should be used to avoid potentially costly leases.**
3. **If viable public sites are not available, private land can be used – but only if a lease is developed that clearly prescribes all use conditions and close-out procedures and timetables.**
4. **If applicable, the lease should have provisions for temporary waivers regarding normal site use.**
5. **The jurisdiction should provide for legal review of leases to avoid extensive close-out claims by the landowner.**
6. **The jurisdiction should determine if any permits are required by local, state, and/or federal agencies for use of the site, and the steps that must be taken (and by whom) to obtain those permits in a timely manner.**
7. **When locating sites, consider the potential impacts of noise, traffic, and environmental degradation, as well as pre-existing site conditions.**
8. **Avoid environmentally sensitive areas such as wetlands, rare / critical animal and/or plant species, well fields and surface water supplies, and historical or archaeological significant sites.**
9. **The site(s) must have good ingress and egress. (Consider traffic control measures at the site if necessary.)**
10. **It is desirable to have sites in all parts of the jurisdiction, especially near potentially-high debris generators.**
11. **Sites should generally be between 50-200 acres in size. (Larger sites mean fewer sites and easier site close-out.)**
12. **When evaluating sites, consider the impact of the local recycling environment (e.g., timber agreements, mulch and chip disposal in the agricultural community, fuel sources for incinerators or heating, etc.).**
13. **Consider special concerns in site selection (e.g., smoke from burning operations; round-the-clock noise, dust and traffic; locations of residential areas, schools, churches, hospitals, and other sensitive areas; etc.).**
14. **Consider the locations of sites in relation to landfills and recycling centers that will be used for permanent disposal. (Also, consider the capacities and logistical capabilities of existing landfills.)**

Refer to the Attachment titled "Temporary Debris Storage and Reduction (TDSR) Sites" for additional information on selection of TDSR Sites.

(name of jurisdiction) Temporary Debris Storage and Reduction (TDSR) Sites

Facility Name	Facility Address	Facility Type	Geo-Location (Lat/Long)		Comments / Considerations

Facility Photographs (optional):

LANDFILLS AND RESOURCE RECOVERY FACILITIES:

(name of jurisdiction) Landfill Sites

Facility Name	Facility Address	Facility Type	Geo-Location (Lat/Long)		Comments / Considerations

Facility Photographs (optional):

(name of jurisdiction) Resource Recovery Facilities

Facility Name	Facility Address	Facility Type	Geo-Location (Lat/Long)		Comments / Considerations

Facility Photographs (optional):

LOCAL / REGIONAL DEBRIS MANAGEMENT FACILITY LOCATIONS – MAP

(Insert map / maps here of all pre-identified debris management facilities.)

LOCAL / REGIONAL DEBRIS MANAGEMENT FACILITY LOCATIONS – AERIAL PHOTOGRAPHS

(Insert aerial photographs here of all pre-identified debris management facilities.)

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