

Support Annex 6 Debris Management

Lead Agency: Agency of Natural Resources

Support Agencies: Agency of Administration, Department of Buildings and General Services, Department of Human Resources, Department of Information and Innovation; Agency of Agriculture, Food and Markets; Agency of Human Services, Department of Health; Agency of Transportation; Department of Public Safety, Division of Emergency Management and Homeland Security, Division of Fire Safety, Regional Planning Commissions

I. Introduction

This plan anticipates and plans for debris management needs that may result from any type of disaster event that could create unusual or extensive debris management challenges that would temporarily overwhelm existing solid waste, recycling, and composting programs. This plan is written to address any and all hazards, caused by nature or man. Different types of disasters can pose very different debris management challenges depending on the amount, scope, and types of debris generated.

In the event of a Federal Declared Disaster, a percentage of Federal Emergency Management Agency (FEMA) disaster relief funds are spent on disaster debris related activities. Beyond the high cost of cleaning up debris after a major disaster, large amounts of debris threaten public health and safety by harboring rodents and disease; pose fire hazards; pose environmental hazards due to contained solid and hazardous waste; and block road access for emergency vehicles, vital supply vehicles, and repair equipment. Commencement of clean-up operations improves general sanitation and signals the beginning of recovery and the restoration of public order.

This *Vermont Comprehensive Debris Management Annex* is an annex to the Vermont State Emergency Operations Plan (SEOP). This annex provides a framework for organizing the rapid, safe, and cost effective separation, removal, collection, recycling and disposal of disaster related debris; and minimizing debris-related threats to public health, safety, and the environment following a minor, major or catastrophic incident.

Implementation of the Debris Management Annex will be coordinated by the Vermont Division of Emergency Management and Homeland Security (DEMHS), utilizing State agencies working in State Support Functions (SSF) as outlined in the SEOP. The Debris Management Annex also seeks to provide guidance to local communities to better manage disaster debris removal, diversion, and disposal, in conjunction with the efforts of State and Federal agencies. This plan shall be reviewed at a minimum annually by authorizing agencies and updated every five years.

A. **Purpose**

The Debris Management Annex has a three-part purpose:

- To provide a framework to manage debris on locally owned facilities managed with state assistance. (Temporary Debris Storage and Reduction Sites; TDSRS)
- To provide coordinated, temporary, focused, limited State assistance and direction after a State Emergency Declaration to local municipalities who have fully committed their local resources, but still require assistance clearing and safely managing disaster related debris.
- To provide a policy framework for municipalities to develop and improve local planning and response for disaster debris management.

B. **Scope**

This plan describes the roles and responsibilities that State, Local and Federal agencies will play, and the actions that these agencies will take, with respect to managing disaster debris in the event that the State declares a state of emergency. Local emergency planning and response officials should be familiar with this plan, as it is intended to complement local planning and response activities.

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The *Vermont Comprehensive Disaster Debris Management Annex* is primarily designed for situations where municipal or state resources are unable to adequately manage disaster-related debris. In such instances, DEMHS will initiate the Debris Management Annex, in part or total, to task State resources and identify debris storage and processing facilities and systems.

The Debris Management Annex is also intended to guide local government debris management, even when state assistance is not required.

Local planning and disaster debris management activities should be consistent with this plan to maximize the efficiency and effectiveness of this plan.

II. Situation, Authority and Planning Assumptions

A. Situation

Initial emergency response emphasizes the importance of life saving operations and the clearing of access ways for emergency personnel and equipment by pushing debris to the edge of rights-of-way. The emphasis of the Debris Management Annex is on the cleanup that follows the initial response.

The Debris Management Annex assumes a disaster/incident which overloads the State's waste management capacity and that the potentially massive volumes of debris and/or infectious or hazardous debris would require special debris management strategies. As an all hazards plan, this plan recognizes that the wide variety of potential disaster events would generate very different combinations of types of debris, in greatly varying quantities, and diverse challenges in managing that debris. This plan provides an overall framework for addressing debris management and provides specific management actions for specific types of debris.

Regular waste management approaches may be inadequate following a disaster that generates large amounts of debris. This plan includes general debris management approaches germane to all types of debris, followed by procedures for managing each specific category of debris. The quantity and type of debris generated varies widely depending on the kind of disaster event, its location, as well as the event's magnitude, duration, and intensity.

1. TYPICAL DEBRIS STREAMS

		Typical Debris Streams									
		Vegetative	Construction and Demolition (C&D)	Personal Property	Hazardous Waste	Household Hazardous Waste	White Goods	Soil, Mud & Sand	Vehicles and Vessels	Putrescent	Other
Types of Disasters	Hurricanes	X	X	X	X	X	X	X	X	X	
	Tornados	X	X	X	X	X	X		X	X	
	Floods	X	X	X	X	X	X	X	X	X	
	Earthquakes		X	X		X	X	X			
	Wildfires	X	X	X		X	X	X			
	Ice Storms	X									
	Large-Scale Animal Mortality										X
	Human Pandemic										X
	CBRN-Contaminated				X						X

Figure 1.1 – Typical Debris Streams for Different Types of Disasters

See the SEOP Base Plan Hazard Inventory/Risk Assessment for Additional Hazard Descriptions

Hurricanes

The damaging forces of hurricanes and tropical storms include high velocity winds (up to 150 miles per hour or higher in gusts), and wave action along Lake Champlain. Hurricane debris consists primarily of vegetation, sediments, trees, personal property, and building materials. The effects of a hurricane often extend far inland, with significant tree and structural damage. Tornadoes may be spawned from hurricanes causing severe localized damage.

Tornadoes

Damage from tornadoes is caused by high velocity rotating winds. The amount of damage depends on the size, velocity of winds, and duration of funnel contact with the earth. Contact paths may range from a mile or less in width and from 100 yards to several miles in length. Tornadoes may skip across a wide area with several touchdowns. Damage consists of trees, structures, and personal property. Tornadoes are rare, but not unheard of, in Vermont.

Floods

Flooding causes damage to property due to inundation and erosion. Flooding is often confined to discernible floodplain areas, but may also occur as a result of a dam failure or flash flood in areas downstream of higher elevation streams, ponds and rivers. Debris consists of sediments deposited on public and private property, and water damaged materials. Soil, gravel, rock and construction materials may also be eroded by floodwaters.

Earthquakes

Earthquakes cause damage by shock waves and earth movement along fault lines and over some distance from the center of the quake. Secondary damage from fires can be substantial. Debris consists of building materials, personal property, and utility and transportation infrastructures.

Wildfires

Wildfires may result in the need to manage partially-burned trees, brush, and other vegetative matter; burned, partially-burned or whole building waste; other municipal solid waste (including putrescible waste and special waste); and household hazardous waste. Wildfires of significant size normally do not occur in Vermont.

Ice/Winter Storms

Ice and winter storms cause damage to trees, utility lines/infrastructure, and wide span roofs. Debris consists of trees, utility lines, wires, poles/towers, and building debris from damaged roofs and structures.

Large-scale Animal Mortality

In the event of a widespread animal disease outbreak or other natural or man-made disaster, Vermont farms and livestock producers could be faced with the task of large-scale mortality disposal, and the disposal of other potentially contaminated materials associated with the animal disease outbreak and response and mitigation.

Please refer to the Highly Contagious Animal Disease Response Annex for additional information.

Human Pandemic Disease

In a case of human pandemic disease, large amounts of infectious and medical waste may be generated. This could also be the case in other disaster events that have high casualty levels. This waste needs to be separated from other segments of the debris stream, to manage it safely, and to reduce the amount of waste that needs to be managed as infectious waste. Managing infectious waste is costly and there are a limited number of companies operating in Vermont that can provide this service.

Please refer to the Pandemic Influenza Annex for additional information.

Chemical, Biological, Radiological, and Nuclear (CBRN)-Contaminated Debris

Chemical, Biological, Radiological, and Nuclear (CBRN)-contaminated debris is debris contaminated by chemical, biological, radiological, or nuclear materials as a result of a natural or man-made disaster, such as a Weapon of Mass Destruction (WMD) event. Whether accidental or intentional, the volume and complexity of managing CBRN-contaminated debris can be enormous.

Please refer to the Radiological Emergency Response Annex for additional information.

2. VERMONT SOLID WASTE POLICY FRAMEWORK

The Debris Management Annex provides a framework for organizing rapid, safe, and cost effective debris management while minimizing debris-related threats to public health and safety, as well as potential adverse environmental impacts. While complying with these criteria, the Debris Management Annex also functions within the framework of the Vermont Materials Management Plan (<http://www.anr.state.vt.us/dec/wastediv/solid/SWPlanning.htm>), the Vermont Solid Waste Management Rules (SWMR) (<http://www.anr.state.vt.us/dec/wastediv/solid/SWRules.htm>), and the Vermont Hazardous Management Regulations (<http://www.anr.state.vt.us/dec/wastediv/rcra/regs.htm>). The Debris Plan therefore focuses on maximizing waste reduction, recycling, composting, the use of select woody debris as fuels, and other diversions to limit the amount of debris sent to disposal facilities.

The State supports waste reduction, reuse, and recycling, and when necessary, the proper disposal of waste, and recognizes that during natural or technological disasters, or any other occurrences that results in significant amounts of debris, it will be necessary to expand existing procedures to separate, reduce, and recycle as much of the debris as possible. This practice will continue the State's commitment to reuse, recycling, composting, use of select woody debris as fuel, and other diversion strategies to conserve resources and preserve valuable limited disposal capacity for future use.

A key factor to cost effective disaster debris management is to separate categories of debris to the maximum extent possible at the site of generation, prior to collection. Efficient and organized debris separation at the source reduces the degree of contamination of specific debris types, enabling each category of debris to be managed with the least amount of handling, resulting in more materials that can be beneficially reused, recycled, or otherwise diverted from disposal. For example, household hazardous waste is much easier to segregate at the residence, than when mixed in with other debris at a transfer station or TDSRS. Or, keeping vegetative woody debris separate enables it to be chipped for mulch, processed for fuel, or converted into compost bulking agent. Once different types of debris become comingled, it is very difficult to them separate them into clean, recyclable or reusable sub-components. The only option for mixed debris is landfill disposal, and disposal capacity in Vermont and throughout the Northeast United States is limited and expensive. The advantages of debris separation are:

- Is the environmentally preferable approach and is consistent with the Vermont waste management related statutes, the Vermont Solid Waste Management Rules, and the Vermont Materials Management Plan.
- Limits the amount of material that needs to be disposed of, reducing demand on limited disposal capacity.
- Enables opportunities for more cost-effective diversion of some debris types. Separating debris that has been mixed is extremely difficult and expensive.
- Helps to limit the improper management of hazardous, infectious, or other wastes that pose an increased risk to human health or the environment and, in turn, results in a less contaminated debris stream.
- Will result in reusable and recyclable materials, which conserves natural resources.
- Will result in less debris needing disposal, conserving landfill capacity and saving money on tipping fees.

3. DEBRIS MANAGEMENT INFRASTRUCTURE

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The vast majority of solid waste and recyclables collection in Vermont is carried out by private sector haulers, all of which are permitted by the ANR. Some residents and small businesses, generally in more rural areas, do self-haul their waste and recyclables to drop-off depots and transfer stations, but most residents and small businesses, and nearly all large commercial accounts are handled by private hauling companies.

Solid waste transfer and recycling facilities in Vermont are both privately and publically operated. There are more publically operated facilities in the State, but these tend to be small, and over 70% of material moves through privately operated facilities, as shown in the 2011 data below:

Facility Type	Number	Tons Waste/Year	Tons C&D/Year	Tons Recycling/Year	Total Tons	% of Total
Municipal	98	24,302	4,118	8,521	36,942	7%
Solid Waste Entity ¹	37	54,595	16,042	15,284	85,921	16%
Private	30	293,990	36,913	90,302	421,205	77%
Total:	165	372,887	57,073	114,107	544,068	100%

Solid Waste Entities are municipalities that have joined together to form districts, groups, or alliances to manage solid waste within their geographic areas.

Several transfer stations are large capacity regional facilities, with comprehensive programs, and the ability to perform some degree of sorting as waste is brought in. However, many of the approximately 165 certified transfer and recycling facilities are limited in size and capability. Some of these facilities serve only a single town, or function merely as a drop-off depot, or simply do not have the land area, personnel or infrastructure to function as an emergency, large scale TDSRS and manage a significant quantity of disaster debris should the need occur. However, nearly all of these facilities, from the smallest single town drop off center to large commercial transfer stations collect a variety of wastes and recyclable materials from residents and businesses. Typically, these facilities collect at least Municipal Solid Waste (MSW), bulky waste, white goods, metals, and household recyclables, and many also accept E-waste, tires, used oil, tires, and woody debris. It is assumed that these transfer station – or many of them - will remain functional during disaster clean up and will manage the bulk of the disaster debris that is generated.

A list of Certified Vermont Solid Waste Facilities is found in Appendix C and here: <http://www.anr.state.vt.us/dec/wastediv/solid/documents/cathylistforwebquery9-24-10.pdf>

There are currently four materials recovery facilities (MRFs) in Vermont. These facilities sort mixed containers (plastic, glass, and metal bottles and cans) and fibers (cardboard and paper) for the recycling market. Two of these facilities, the Chittenden and Rutland MRF manage 70% of the recyclables generated in Vermont. At a MRF, the different recyclable materials are separated both mechanically and manually, and the marketability of the end product is dependent on the quality – the degree of contamination of that product. Paper and other fibers that are wet, or any recyclable material that is grossly contaminated would not be acceptable for the separation process, and MRFs have a defined throughput limit, and could easily be overwhelmed with debris. In aftermath of a disaster, the ANR would work with MRF operations to increase capacity as feasible, and to ensure that only acceptable materials are transported to the MRFs.

There are two electric generating stations in Vermont, in Burlington and Ryegate, that use significant quantities of wood chips as the fuel source, as well as numerous smaller biomass heating systems (schools, office complexes, etc.) within the State. All of these facilities need to adhere to specific size, type, contamination level, and moisture content standards for their wood chips. It is conceivable, though, that woody disaster debris could be stockpiled, then chipped or ground to supplement the fuel sources of these biomass facilities. In fact, it is likely that in the event of a high wind event, or ice storm, that storm damaged trees that normally would be harvested for higher end uses would be

chipped as salvage. The ANR will encourage and facilitate the beneficial use of woody debris by connecting collectors, or collection facilities, with potential users of the debris.

a. Debris Disposal

Currently, Vermont has only one operating regional landfill, NEWSVT, located in Coventry. (There are also two small operating municipal landfills, but these do not have liners and leachate collection, and the quantity of waste disposed of is limited by statute.) Over 80% of Vermont's disposed waste is landfilled at NEWSVT, with the remaining fraction transported to out-of-state landfills and incinerators.

b. Debris Management Sites

It is expected that for most natural disasters, Vermont's current solid waste management system of private waste haulers, augmented by municipal forces or contractors, will be capable of transporting waste to the existing, numerous public and private collection and transfer facilities. These facilities may need to seek approval from ANR for short-term upgrades to operations to manage the increased waste stream. A Temporary Debris Storage and Reduction Sites (TDSRS) is an interim, pre-permitted site which is established to manage disaster debris if the conventional solid waste management system becomes overwhelmed. The use of disaster debris management sites allows for centralized, coordinated debris collection operations, and allows the stockpiling of debris for further segregation, recycling, reuse or volume reduction. The best locations for temporary debris management sites are at existing disposal or transfer facilities that are in close proximity to the disaster, and the resulting waste. If such sites do not exist or are too limited in capacity, other sites must be established.

The Agency of Natural Resources will amend the certifications of a number of participatory, geographically-dispersed transfer stations, and the NEWSVT Landfill, to allow these facilities to function as designated TDSRSs in the aftermath of a disaster, if the need arises. ANR has identified candidate facilities that could serve in the needed capacity during a disaster recovery. The facilities were selected on the basis of existing infrastructure and capacity, ingress and egress, surrounding land use, local road networks, parcel size, and the willingness and capability of the facility operator to quickly and effectively respond in the event of a disaster. The amended certification will reference an ANR-approved contingency facility management plan that describes site operations during ANR-authorized emergency operations.

Ideally, a TDSRS is a large scale, operating facility that normally manages high volumes of waste, including various types of waste, e.g., municipal solid waste, wood waste, scrap metal, E-waste, recyclables, and the like. The facility should be accessible by nearby state or interstate highways, with limited traffic past residential areas, schools, churches hospital and other sensitive areas. The facility should have ample vacant, useable land area for debris storage, separation, volume reduction and processing. A TDSRS should have an ample water supply for potential dust suppression or vehicle washing, electrical service, and adequate sanitary facilities for workers and users. A covered tipping floor or a covered storage area is advantageous for storage of odorous or problematic debris types. Access control at a TDSRS is necessary to restrict unauthorized entry; an entrance gate as a minimum, perimeter fencing as preferable. Given the anticipated volumes of debris entering and exiting the TDSRS and the need for documentation, a truck scale is a requisite. A list of Debris Management Sites can be found in Appendix C of this Annex.

c. TDSRS Functions

The two general functions of a TDSRS consist of material separation and volume reduction. Additionally, the sites act as storage buffers between the collection of the debris and the final disposition at landfills or recycling facilities. In this way, the sites are used to increase operational flexibility when landfill space is limited or when the landfill is not in close proximity to the debris removal area.

To ensure compliance with FEMA reimbursement procedures in the event of a federally-declared disaster, it is imperative that debris monitors, whether force account or contractors, are to be placed

at ingress and egress points of a TDSRS in order to quantify debris loads, issue load tickets, inspect and validate truck capacities, check loads for hazardous waste, and perform quality control checks. The specific duties of the monitors are dependent on how the debris is collected as well as the terms of any collection/transportation contracts. TDSRS personnel must also document any quality assurance or operational issues and expenses related to management of the disaster debris. Examples of such documentation include petroleum spills (and clean up) at fueling sites, installations of a temporary water supply for dust control, office trailer rental, or asbestos containment and disposal.

Debris will be separated into material streams dependent on the particular facility, but with the goal to manage the debris expeditiously, safely, and environmentally appropriate. All practicable steps will be taken to decrease the potential risks from the debris by segregating harmful and toxic components, and properly managing these segregated materials apart from the bulk of the debris. Further, the quantity of waste ultimately disposed of will be reduced by diverting materials for recycling, composting, and other beneficial uses.

It is assumed that any salvageable materials were culled and segregated at the point of debris generation, but items that are brought to a TDSRS that can be reused may be kept separate. It is also expected that most white goods, large metal objects, clean wood, and asphalt, brick, and concrete (ABC) will be separated by the generator, collected separately, and managed separately at the facility. Clearly, with a disaster such as a flood or hurricane some quantity of these wastes will be inherent in the mixed waste stream, and should be segregated at the TDSRS.

A number of materials are banned from disposal in Vermont landfills, and it is expected that a TDSRS will, at a minimum, establish storage areas for source separated landfill banned wastes. These materials include:

- Asbestos Containing Waste (unless the facility and waste is authorized) See: <http://www.anr.state.vt.us/dec/wastediv/solid/pubs/finalasbestospolicy2013.pdf>
- Batteries – lead acid, rechargeable, and “button” types
- Dangerous Waste – explosives, fireworks, flares, pool chemicals, hot ashes, and unprotected “sharps:
- Electronic Wastes – Computers, printers, monitors, televisions, VCRs, DVD players, video game consoles, music players, telephones, chargers, etc. See: <http://www.anr.state.vt.us/dec/e-waste/>
- Hazardous Waste
- Liquid Waste – See: <http://www.anr.state.vt.us/dec/wastediv/solid/pubs/LiquidDisposalRestrictionswithattachment.pdf>
- Regulated Medical Waste – See: <http://www.anr.state.vt.us/dec/wastediv/solid/pubs/PROCEDFinal2.pdf>
- Mercury Added Products – Fluorescent bulbs, thermostats, thermometers, switches, etc. See: <http://www.anr.state.vt.us/dec/ead/mercury/merc.htm>
- Used Oil - used oil and oil filters. See: http://www.anr.state.vt.us/dec/EAD/sbcap/pdf/fs_usedoil_wm.pdf
- Paint – Oil-based paints, stains, varnishes, thinner, stripper, etc. See: <http://www.paintcare.org/vermont/>
- Gas cylinders – Propane, butane, and other flammable gases
- Tires
- White Goods – Appliances such as refrigerators, freezers, washing machines, air conditioners, etc.

d. Household Hazardous Waste

Although Household Hazardous Waste is not banned from landfill disposal, it is important to remove and divert as much as possible of this waste from the debris. There are four permanent, certified, all-HHW collection centers in Vermont, (and one that only accepts paints) all operated by Solid

Waste Management Districts, and four of five of these collection centers are located at identified TDSRSs. They are:

- Addison County Solid Waste Management District Transfer Station, Middlebury.
- Chittenden Solid Waste District Environmental Depot, South Burlington.
 - CSWD also has a mobile collection unit, "The Rover."
- Northeast Kingdom Waste Management District Recycling Facility, Lyndonville.
 - NEKWMD has a mobile collection unit, but does not collect HHW from the public at its base of operations.
- Rutland County Solid Waste Management District Transfer Station, Rutland City.
- Windham County Solid Waste Management District Transfer Station, Brattleboro.
 - Limited to oil based paints and stains.
- Northwest Vermont Solid Waste Management District Recycling Center, Georgia.
 - Currently operating May 1 to October 15.

These collection facilities normally accept HHW only from residents and small businesses within the District, but in the aftermath of Tropical Storm Irene, the facilities accepted HHW from other Towns within the state. Additionally, the ANR and EPA collaborated to establish five additional HHW collection events at other locations in the affected area, to increase convenience and participation. It is expected that a similar strategy would be employed after any future disaster that resulted in large volumes of demolition and municipal solid waste, inherent in which would be significant quantities of HHW.

e. Returning to Normal Operations

When the debris operations are complete, the TDSRS should be restored to its pre-disaster state. Restoration of a site involves the removal any unneeded equipment, remediation of any contamination that may have taken place during the operations, and a return of the infrastructure and grounds to their previous condition, e.g., reconvert temporary graveled staging areas back to grass.

An environmental site characterization may be needed to confirm that a site used for disaster debris management has been returned to its pre-activity state. The site characterization may include analytical sampling if contamination is suspected.

B. Authority

It is the intent of this state Debris Management Annex to comply with the Stafford Act, Title 44 Code of Federal Regulations (44 CFR Part 206 Subpart G, H and I) and present the basic, minimum standard required to ensure maximum reimbursement.

C. Planning Assumptions

1. STATE EMERGENCY DECLARATION

Under a gubernatorial State of Emergency Declaration, the Governor normally issues an Executive Order which directs State agencies to take such actions as may be necessary to assist affected areas in repairing, restoring and protecting public and private facilities and to provide such other emergency assistance as would protect the public health and safety. Frequently, in the aftermath of a disaster, municipalities and public utilities remove large quantities of debris as part of their efforts to restore services. When a State Emergency is declared, State agencies may be directed to assist in those efforts. If that occurs, State agency activities will be conducted in accordance with the policies described in this plan. An example emergency declaration is contained in Appendix A.

A State of Emergency Declaration is not required to implement many portions of this annex.

2. LOCAL GOVERNMENT EXPECTATIONS

Local government is the lead decision maker and responder in times of emergency and therefore, must realize that:

- Emergency work will likely incur overtime costs.

- Emergency work demands a 100 percent local commitment.
- Municipal Debris Management plans should comply with *Appendix G of FEMA-325 Debris Management Guide* and be consistent with this Debris Management Annex. A Municipal Debris Management Plan is not required for FEMA eligibility.
- Local government is required to be the lead agency in providing and/or acquiring waste disposal services within their respective municipality. When possible, qualified contractors should be pre-identified and approved. It is strongly recommended that any debris related contracts be coordinated with the Vermont Division of Emergency Management and Homeland Security's Public Assistance Officer to maximize resources and to ensure eligibility for federal reimbursement.
- Local government(s) will submit request(s) for assistance to the State Emergency Operations Center (SEOC) when local resources are overwhelmed.
- The SEOC will evaluate all local governmental requests in coordination with the lead agency for this annex and will attempt to identify and/or arrange for assistance from other municipalities and/or contractors to ensure the efficient utilization of all available local resources. In these cases, the requesting municipality is still required to be prepared to cover these costs.
- After determining that all local resources are totally committed to the emergency situation, the SEOC will process request(s) for State assistance to ensure efficient utilization of all available State resources, whether state agency staff and equipment or state contractors.
- The Agency of Natural Resources will provide a single point of contact as part of their SEOC SSF 3 responsibility to serve as a liaison to municipalities.

III. Concept of Operations

A. General

Disaster debris management, as with any incident emergency response, is a shared responsibility of local and State government, non-government volunteers, private organizations, and contractor resources. The State Emergency Operations Plan (SEOP) contains areas of responsibility for public and private response agencies in categories known as State Support Functions (SSFs). If the disaster is beyond the capability of the combined efforts of the affected municipalities and the State, 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.

B. Roles and Responsibilities

According to the SEOP, SSF-3 Public Works and Engineering includes preparedness, response, and recovery activities related to debris removal. The Agency of Transportation (VTrans) and the Department of Public Safety, Fire Safety Division are the primary agencies responsible for fulfilling the mission of SSF-3; however, ANR is responsible for the coordination with state and local agencies of all administrative, management, planning, training, preparedness, mitigation, response, and recovery efforts pertaining to debris removal. DEMHS administers all aspects of the FEMA Public Assistance (PA) program in Vermont.

1. LEAD STATE AGENCY

Agency of Natural Resources

The mission of the Agency of Natural Resources (ANR) is to protect, sustain and enhance Vermont's natural resources for the benefit of this and future generations; to protect and improve the health of Vermont's people and ecosystems; and to promote sustainable outdoor recreation. The ANR is comprised of three departments: Department of Environmental Conservation (DEC), the Department of Forests, Parks, and Recreation (FPR), and the Department of Fish and Wildlife (F&W). In all likelihood, the Department of Fish and Wildlife would have little involvement in debris management.

The Vermont Department of Environmental Conservation's (DEC) mission is to preserve, enhance, restore and conserve Vermont's natural resources and protect human health. Through its programs, the DEC manages water and air quality; regulates solid and hazardous wastes; manages activities in and around surface water bodies, and administers a number of voluntary

pollution and waste reduction programs. The DEC issues most of the state's environmental permits, and would be the lead ANR department in regards to debris management. DEC would also maintain lines of communication with FEMA environmental specialists to deal with questions of environmental policy and compliance.

The Department of Forests, Parks, and Recreation (FPR) mission is to practice and encourage high quality stewardship of Vermont's environment by monitoring and maintaining the health, integrity and diversity of important species, natural communities, and ecological processes; managing forests for sustainable use; providing and promoting opportunities for compatible outdoor recreation; and furnishing related information, education, and service. FPR has a major role in wild land fire control and with the disposition of woody disaster debris.

2. SUPPORT STATE AGENCIES

Agency of Administration, Department of Buildings and General Services

The Department of Buildings and General Services is responsible for contract support.

Agency of Administration, Department of Human Resources

The Department of Human Resources provides leadership to and works in partnership with other departments within State Government in order to promote managerial and workforce excellence while fostering an understanding and observance of regulatory requirements.

Agency of Administration, Department of Information and Innovation

The Department of Information and Innovation provides expertise, standards and shared services for the state enterprise and supports agency and/or department-specific information technologies.

Agency of Agriculture, Food and Markets

During a disaster, the mission of the Agency of Agriculture, Food and Markets (VAAF) is to provide the mechanism for coordination of state, local and private resources to control and to eradicate an outbreak of a highly contagious or economically devastating animal/zoonotic disease, highly infectious exotic plant disease, or economically devastating plant pest infestation in response to a significant emergency involving animals (livestock and companion), and plants in Vermont. Additionally, VAAF provides emergency support to farms in Vermont.

VAAF will coordinate with VTrans and ANR on the removal of debris affecting natural and cultural resources and historic properties resources, and will coordinate with VDH and ANR on equine, livestock, and poultry carcass disposal.

Agency of Human Services, Department of Health

As outlined in the SEOP, the Department of Health (VDH) ensures emergency provision of the state's governmental resources for medical and personal care. VDH coordinates the services, equipment, and staffing essential to protect the public from communicable diseases and contamination of food and water supplies; development and monitoring of health information; inspection and control of sanitation measures; inspection of individual water supplies; surveillance; disease vector and epidemic control; immunization; and laboratory testing.

VDH offers technical assistance and guidance to other State Agencies and the public on health issues associated with management of various debris types; thawed or spoiled food, moldy debris, potentially contaminated soils, disinfecting potentially contaminated items, and Asbestos Containing Material (ACM).

Agency of Transportation

A core mission of VTrans is to facilitate the safe and reliable movement of people and commerce. The transportation modes VTrans has authority over are airports, railway, highway (including interstate and state highways), public transit, and bicycle/pedestrian. Vermont's transportation infrastructure is highly susceptible to damage from natural disasters (and other types of hazards

covered by the SEOP) and as such VTrans already is and will continue to play a key or lead role planning for and reacting to natural disasters.

Within VTrans, the Operations Division will be directly involved in managing debris from natural disasters. The Operations Division responsibilities include maintaining the state highway system, railway system, and state airports. Vermont has nine transportation maintenance districts, responsible for all maintenance activities on the state highways (<http://www.aot.state.vt.us/ops/maintenance.htm>). Each district is managed by a District Transportation Administrator.

VTrans disaster debris-related responsibilities identified in the SEOP are

SSF #1: Transportation

1. Monitor status of all road networks and provide continuous updates to SEOC.
2. Assess airport damage, report to the SEOC, and assist in restoration of airports.
3. Monitor status of rail infrastructure during emergencies and provide updates to the SEOC.

SSF #3: Public Works and Engineering

1. Coordinate all SSF-3 administrative, management, planning, training, preparedness/mitigation, response and recovery activities pertaining to water and waste water services, emergency supplies of potable water, water for firefighting services, highways and bridges, transportation infrastructure, emergency repairs to public facilities, emergency ice, snow and debris removal, construction services and emergency demolition of damaged structures and facilities.
2. Identify, train, and assign personnel to staff SSF-3 in the SEOC.
3. Provide all available public works and engineering assets.
4. Coordinate state level public works & engineering damage assessment activities.
5. Support local jurisdiction public works & engineering damage assessment activities when resources are available. Local governments are responsible for their own public works and infrastructure and have the primary responsibility through all phases of emergency management.

Department of Public Safety, Division of Emergency Management and Homeland Security

The Department of Public Safety, Division of Emergency Management and Homeland Security (DEMHS) helps ensure state, local, and other agencies and organizations prepare for and react to natural and man-made disasters in a coordinated and unified approach. DEMHS role in disasters is one part of its larger role of developing a comprehensive all-hazards emergency management strategy that coordinates all disciplines involved in any type of hazard or incident in Vermont. One element of this strategy is the State Emergency Operations Plan (SEOP), including this Debris Management Annex.

Each state designates Public Assistance Officers who are responsible for coordinating and helping administer the FEMA Public Assistance Grant Program. The Public Assistance Officer and Public Assistance Coordinators are staffed by employees from the DEMHS Recovery Section.

The DEMHS is also the lead agency for State Support Function 14- Public Information.

Department of Public Safety, Division of Fire Safety

The Vermont HAZMAT Response Team (VHMRT) is within the Division of Fire Safety. The VHMRT works with local fire departments to protect individuals from chemical, biological and radiological releases.

Regional Planning Commissions

Regional Planning Commissions will assist in the collection and dissemination of information to Municipal officials.

3. TOWNS AND CITIES

Local governments are the first to respond to disasters and emergencies. Response efforts are first directed to activities that protect lives, such as evacuations, sheltering, firefighting, public safety, utility restoration, etc. 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 lifesaving personnel, and (2) removing any obvious debris situations that are immediate threats to public health and safety. Local governments are strongly encouraged to enter into mutual aid agreements to provide assistance to one another during a disaster or emergency. This is particularly important for debris management purposes, as the capabilities of single jurisdictions to manage large debris operations can be quickly overwhelmed. The agreements should either stipulate reciprocal services or set labor and equipment rates.

Many Vermont towns and cities have joined together to form Solid Waste Management Districts (currently 192 of 251 towns and cities). By statute, these municipalities are responsible for the management of solid waste within their jurisdiction. The services that these entities offer vary by District. Few perform waste hauling, none own or operate disposal facilities, but most Districts own or operate other solid waste management facilities, including transfer stations, residential drop-off facilities, compost facilities, and Material Recovery Facilities. Solid Waste Management Districts also hold periodic household hazardous waste (HHW) collection events, and operate the five permanent HHW collection facilities in Vermont. Debris generated during a disaster will be managed at existing municipal, District, or privately owned solid waste management facilities.

During a debris generating disaster response the local municipalities should be prepared to manage the following functions:

Debris Project Manager:

- Primary decision maker
- Assigns tasks to team members and tracks completion of tasks
- Coordinates functions between local departments and external agencies
- Knowledgeable of the local governments processes, procedures, personnel, resources, and limitations.
- This role is usually filled by the local Emergency Management Director, Town Manager, Road Commissioner, or Public Works Director.

Administration:

- Areas of responsibility are Finance, Human Resources, Public Information
- Collects and maintains documentation
- Develops debris budget, tracks expenses, and ensures funds are available
- Disseminates debris operations information
- This role is usually filled by the Town Manager, First Selectman, or Finance Director.

Contract/Procurement:

- Prepares bid solicitations, evaluates bids, and negotiates contract agreements
- Establishes a pre-disaster list of pre-qualified contractors
- Oversees that the work is being performed in compliance with the scope-of-work of the contract
- This role is usually filled by the Town Manager, City Engineer, or local Emergency Management Agency

Legal:

- Leads the legal review process regarding debris management
- Evaluates building condemnation process
- Reviews legal processes for private property demolition and debris removal
- Provides guidance on right-of-entry and hold harmless agreements
- This role is usually filled by the City or Town Attorney.

Operations:

- Responsible for debris removal work and overall project implementation on local roadways
- Positions equipment and resources for the local response and recovery debris removal operations
- Develops staff schedules and plans
- Provides communications, facilities, services, equipment, and materials to support the debris removal operations
- Monitors and directs force account and contract labor
- Coordinates with other local or state governments for road clearance and operations
- This role is usually filled by the Public Works Director, Road Commissioner, Selectman, Town Manager, or local Emergency Management Agency

Engineering/Planning:

- Provides technical support for debris management
- Provides debris quantity estimates/assumptions, economic analyses, and feasible solutions
- Issues and obtains permits
- Selects/designs debris management sites
- Coordinates with other local, county and state governments for road clearance and operations
- This role is usually filled by the City Engineer, Town Manager, or Town Planner

4. FEDERAL AGENCIES

Federal Emergency Management Agency

When response and recovery efforts are beyond the capacity of both the State and municipalities, the Governor may request federal assistance, in the form of a Presidential Disaster Declaration. FEMA evaluates the request and recommends to the President the type of federal assistance that is warranted. Assistance is usually provided in the form of financial reimbursement of a portion of the disaster related costs (usually a 75 percent/25 percent cost share). FEMA can also provide direct debris management technical assistance, fund the federal Public Assistance Grant Program (PAGP) under Categories A (Debris Removal and Disposal) or B (Emergency Protective Measures), or coordinate assistance provided by a federal Emergency Support Function under the National Response Framework (entities such as the U.S. Army Corps of Engineers or other Agencies to provide vital debris management support services). These services include, but are 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
- Technical /operational assistance for hazardous/contaminated debris removal, processing, and disposal

C. Phased Activities

1. PREPAREDNESS ACTIVITIES

a. Normal Operations

Normal Operations encompasses key activities to enhancing the plan; keeping it and its supporting information up-to-date; and building and maintaining staff readiness to implement the plan. ANR, in conjunction with DEMHS, will provide ongoing debris management planning, including maintaining and updating the Plan and providing guidance to support local disaster debris management planning.

b. Increased Readiness

Planning shifts to the Increased Readiness phase when a specific disaster event is predicted. These steps should be taken when possible:

- Review Debris Plan and appendices.
- Check for updates to supporting materials such as lists of contractors and designated solid waste management facilities.
- Determine what pre-approved locations will be made available to use as TDSRSs, depending on the expected location and magnitude of a disaster event.

2. RESPONSE/RECOVERY ACTIVITIES

The public expects to have debris removed from their neighborhoods immediately after a disaster event. The timely and orderly implementation of disaster debris collection will assure the public that recovery efforts are in progress and that the community will return to normalcy more rapidly. Before clearance of debris from local neighborhoods can commence, roads, highways and critical facilities must be cleared in order to provide for passage of emergency vehicles and provision of critical services.

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

a. Initial Disaster Assessment

Initial Disaster Assessment includes the following items:

- Identify debris-affected area(s).
- Estimate debris types and quantities.
- Establish Phase I Debris Clearance priorities.
- Notify pre-determined TDSRS owner/operators that their facility will be needed for debris storage and/or processing.

b. The Two Phases of Cleanup

The debris clearance process must be initiated promptly and effectively to protect public safety and health.

Phase I debris removal activities during and immediately following the event, and include immediate actions for the removal of debris to facilitate search and rescue efforts, to clear roads to allow access to critical facilities, and to prevent or mitigate flooding. Actions required during Phase 1 are usually completed within a matter of days following a disaster event.

Phase II focuses on collecting the remaining debris, reducing or recycling the debris to the extent feasible, and arranging for the disposal of the remainder. Development and management of debris management sites is considered a Phase II activity as well. Depending on the quantity and the complexity of the debris removal actions, Phase II debris removal activities could continue for several months.

The following activities should occur during the Phase I and Phase II Debris Removal:

- Eliminate any remaining immediate threats to public health and safety.
- Begin documenting all actions and costs (continue work documentation and monitoring through all debris management activities).
- Establish and maintain lines of communication among responsible agencies.
- Update and revise damage assessment.
- Divide the disaster area into manageable clean-up zones.
- Assess existing debris management capacity at the local level, including local staff and existing contracts and, if necessary, available state agency resources and contractors.
- Apply appropriate debris separation information to collection and debris management contracts and public service announcements to the maximum extent possible.

- Locate and establish any necessary debris sites.
- Establish/activate contracts as needed for debris collection, recycling/volume reduction, debris site operation (if necessary), debris monitoring, and hauling and disposal from debris management sites (see Appendix B).
- Inform public of clean-up schedules, debris separation guidance, and other major parts of the operation (see section V).
- Develop inspection teams, or utilize monitoring contractors, to monitor clean-up progress and contractor performance.
- Periodically evaluate clean-up performance and any threats to public health and safety.
- Establish and enforce deadlines at the State and local level for the collection and removal of disaster-related debris.
- Monitor deadlines once established. Monitor progress of affected communities' debris removal operations.
- Properly close debris management sites and return to pre-disaster conditions.

Phase I – Initial Response/Debris Clearance

The Phase I operation typically occurs during the first 24 to 72 hours following an event. State and Municipal forces will clear roads in accordance with Section IV - Debris Collection Strategy. In this first phase, no attempt is made to remove, segregate or dispose of the debris, only to provide debris clearance based upon the following hierarchy of importance and field assessments:

- Support to Search and Rescue activities
- Access to critical life sustaining facilities (hospitals, nursing homes)
- Access to other critical facilities (emergency shelters, commodity distribution points, etc.)
- Access to community response facilities (police, fire, EMS, emergency management)
- Access to utility sites (electrical power facilities, sewage and water treatment plants, etc.)
- Access to priority transportation routes
- Clearance of major flood drainage ways

VTrans is responsible for clearing and/or removing wreckage and debris from State owned or maintained transportation facilities and also provides support of local debris management operations when conditions permit. Municipalities are responsible for their local road system. Immediate debris clearing actions on State and local roads and properties should be supervised by VTrans personnel or local public works using all available resources. If it is determined that the debris clearing effort exceeds the municipality's capabilities, municipalities that have in place a Time and Materials Contract for debris clearing should activate this contract in coordination with the Phase I State Operations Plan for an initial 70 hour period of work. Please see Appendix B of this document for additional information about the FEMA 70 hour rule.

Phase I clearance emphasizes 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. Municipal resources should be fully utilized on municipal roads before State resources are assigned. During Phase I, there is no attempt to physically remove or dispose of the debris from the roadway, only to clear key access routes to facilitate:

- Public safety
- Emergency access
- Restoration of essential services/utilities
- Damage assessment

Phase I activities will include:

- Prioritize route and critical facility clearance. Priority for route clearance will be established based on operational needs.
- Clear key emergency access routes
 - Clearance performed 24 hours/day until access opened.
 - Appropriate assets committed depending upon nature of event.

- Curb cuts, fire hydrants, valves, and catch basins should be left unobstructed, to the extent possible.
- State resources will be withdrawn after roads are cleared for emergency access and/or before local resources are withdrawn.
- Coordination with utility companies
 - Utility companies will interface with local Incident Commander on site to coordinate efforts. Utility companies can contact the State Emergency Operations Center for information on the local Incident Commander.
 - Utility companies lead cut and clear operation until downed lines de-energized.
 - Check for generators operating in area that could energize street lines.
 - Confirm status of impacted facilities (i.e., power lines, gas lines, etc.)
 - Local government will interface with Dig Safe (1-888-344-7233) to identify impacted facilities.

Phase I also includes activities for the commencement of long-term clean up during Phase II, including, as necessary:

- Dividing disaster area into manageable clean-up zones
- Approving activation of TDSRS, if necessary,
- Begin contracting procedures for Phase II
- Finalize appropriate debris separations.

Phase II - Debris Removal and Management

As noted in the Concept of Operations, the State may develop pre-event contracts that cover debris removal operations and the monitoring of the debris removal operations. This Phase II implementation is based upon these pre-event contracts being in place.

Phase II will be implemented within two to five days following a major debris-generating event and focuses on collecting the remaining debris, reducing or recycling, and final disposal. Prior to this point, state and local crews have removed debris from the roadways and simply left it at the side of the roads. Private individuals and businesses have started to clear debris from their properties and also placed it at the roadside. State and local public affairs resources must issue guidance for individuals placing debris in the right-of-way. Debris must be brought to the right-of-way or curb to be eligible for removal at public expense. This action is crucial to conducting a speedy and economical recovery operation.

The Debris Management Annex encourages recycling and materials separation at the point of generation to the extent possible, with additional segregation and/or volume reduction occurring at TDSRS or other certified solid waste facilities.

From this point onward, the objective of the state and local governments is to remove the roadside debris and dispose of it in the most cost effective and expeditious way.

If a Presidential disaster declaration is made after the storm event, and the State determines that the quantity of debris generated exceeds the State's capabilities to clear, remove and dispose of, the State may request direct federal assistance for debris removal operations. Local requests for additional assistance and resources are made to the SEOC. The State Coordinating Officer (SCO) at DEMHS requests direct federal assistance through the FEMA Federal Coordinating Officer (FCO). FEMA will then assign a Mission Assignment to the USACE to assist in the debris cleanup operations. The Mission Assignment of the USACE may be very specific, complementing that of the private contractors retained by the State or local governments.

Phase II activities include:

- Activation of pre-positioned contracts
- Notification to citizens of debris removal procedures
- Permitting and the activation of TDSRS

- Removal of debris from rights-of-way and critical public facilities
- Movement of debris from TDSRS to final recycling or disposal facilities

If a major debris-producing event is predicted for Vermont, the SEOC, through SSF-3 (Public Works and Engineering), SSF-11 (Agriculture and Natural Resources), and SSF 7 (Resource Support) will be in contact with the selected contractors for both types of pre-event contracts (Disaster Debris Management Services/Removal; and Debris Monitoring) to advise them of impending conditions. Following the event, these contracts, with a specific Scope of Work, will be implemented as part of Phase II – Recovery/Debris Removal.

As normal communication channels may be disrupted during a disaster, communication regarding disaster debris collection needs to include alternate outreach methods than those typically used for regular program outreach. Possible outlets to communicate with the public include the following:

- Public Service Announcement (PSA)
- Phone notifications (reverse 911, automated phone calls, etc.)
- Web site postings
- Press releases
- Press conferences
- Fliers

Communications should specify where residents should bring their debris or the schedule for curbside pick-up, as appropriate. In either case, communications should explain how to separate debris into the appropriate piles as described in Debris Separation and Debris Types. Residents should also be notified via multiple outreach channels of special collection events for specific materials so that these collections can collect as much material as possible and operate as efficiently as possible. Effective public outreach will reduce the need to hold multiple collections for the same materials in the same areas. In the event that TDSRS are utilized, public education should also provide details about how these sites will operate and where they are located. There should be coordination between the SEOC Joint Information Center and local leaders to ensure that information being provided to the public on debris management is consistent.

The ANR and other State Agencies proactively disseminate to municipalities and the public outlining best management practices (BMPs) and guidelines on proper management of different waste types, with stressing the importance of segregating and diverting as much of these materials from landfill disposal as possible. Emphasis will be placed on actions that the public can perform to expedite the cleanup process, but to do so with health and safety, and environment conservation, in consideration. Typically, it will be encouraged to separate waste as such:

- Municipal Solid Waste (MSW);
- Woody debris (includes trees and branches, and untreated lumber);
- Scrap metals and white goods;
- Electronic Waste; Aggregate materials such as asphalt, brick, block, concrete;
- Household hazardous wastes such as waste oil, antifreeze, batteries, paints and wood preservatives, fertilizers, pesticides, solvents, and other chemicals.

If, due to the magnitude of the emergency, on-site separation becomes impractical, at a minimum woody debris, asbestos containing materials waste, and hazardous waste should be segregated from the waste stream. Waste generated from commercial entities should be screened to ensure that it does not contain regulated hazardous waste. Waste haulers will be informed of these requirements through email, telephone contact, and updates posted on the DEMHS and ANR websites. Waste handlers should understand these requirements and implement plans for identifying and diverting the hazardous waste from the remainder of the debris stream. Debris piles at the curb should be kept separate from fire hydrants, utility valves, storm drain inlets, power poles, and other critical infrastructure located in the right-of-way. ANR will offer technical assistance in overall Phase II debris management to the best of its ability and resources.

The added cost incurred by the town in handling private property debris is a FEMA-eligible expense so FEMA will reimburse 75% of that added cost. The balance of the cost must be borne by the municipality and the State.

Phase II Debris Removal and Management is the most critical phase of debris management and is also the lengthiest phase, continuing into months or possibly years, when immediate threats to public health and safety have been addressed, but where the bulk of the effort and costs of disaster response are incurred. Advance pre-disaster planning and timely actions during the Initial Disaster Assessment and Phase I can lay the groundwork for rapid and more cost-effective implementation of Phase II.

c. Public Assistance

FEMA Public Assistance is generally limited to those situations where removal of the debris is in the “public interest.” FEMA defines public interest as work necessary to meet the following:

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

Inquiries regarding FEMA Public Assistance and eligibility should be directed to the Public Assistance Coordinator at the Division of Emergency Management and Homeland Security. Contact information can be found at: <http://www.dps.vermont.gov/demhs>

The Natural Resources Conservation Service (NRCS) may offer technical or financial assistance for debris removal from waterways. However, NRCS is limited in its authority to debris-related activities of either runoff retardation or soil erosion prevention in response to a sudden impairment in the watershed and which creates an imminent threat to life or property. Typically, this includes debris within, or close proximity to, the stream channel.

Ideally, eligibility cost reimbursement will be established prior to the commencement of debris removal from waterways, but in some cases it is recognized that that the work must proceed in advance of an eligibility determination. The applicant must document why debris removal is in the public interest and support the documentation with photographs or videos whenever possible. As with any debris management, all expenses should be tracked and costs may be eligible for reimbursement.

If the debris does not pose an imminent threat, contact ANR Rivers Management staff or NRCS staff. Contact information can be found at: http://www.anr.state.vt.us/dec/waterq/rivers/docs/rv_contact.pdf or <http://www.vt.nrcs.usda.gov/contact/>

Debris removal from waterways should be performed by a municipality, or contractor to a municipality, if at all possible. Assistance may be provided by NRCS and other Federal and State agencies. If a town is experiencing difficulties with debris in waterway the appropriate regional planning commission should be contacted for help connecting with the appropriate organization(s) that can provide assistance.

IV. Debris Collection Strategy

A. State Response

Roadway debris will be moved to the side of the road to provide access to the impacted areas. No attempt is made to remove, segregate, or dispose of the debris, only to clear the roadways to provide:

See the Vermont Infrastructure Protection Plan (VIPPP) for a listing of critical public facilities. The VIPPP is a Support Annex to the SEOP.

VTrans is responsible for clearing debris from state and interstate roads. Road clearing priorities, in order of decreasing importance are:

1. Principal Arterial – Interstate (I-89, I-91, I-93)
2. Principal Arterial – Other Freeways and Expressways (VT 62, VT 279, VT 289)
3. Principal Arterial – Other (US 7, US 2, VT 103, as examples)
4. Minor Arterial (VT 100, VT 2A, as examples)
5. Major Collector (VT 110, VT 113, as examples)
6. Minor Collector (VT 65, as an example)

Note that the above designations are federal designations common to all states.

B. Municipal Response

Local road crews, whether municipal assets or contractors, are responsible for state roads within Urban Compact areas, most Minor Collectors, and local roads. Their priorities will be to clear the state routes within the Urban Compact areas, the minor collectors and the “last mile” sections of local roads which connect the state routes to the critical facilities within their jurisdictions. Other local roads will be cleared based on local priorities. Input from DEMHS, VTrans and the local Emergency Management Agencies will be factored into priority decisions when necessary.

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

C. FEMA Response

Whenever a disaster overwhelms the capability of state and local government to pay for the recovery, a disaster may be declared by the President and FEMA Public Assistance funding will be made available to assist in the recovery. State and local governments should keep this in mind when responding to a disaster because FEMA will provide funding to pay for certain costs but not others. In the past, FEMA would only pay for town employee overtime labor for debris cleanup, but under the Sandy Recovery Improvement Act there is now an optional pilot program which allows for reimbursement of straight time force account labor as well.

A significant factor to consider in the debris cleanup process is the type of contract that the state or municipality is offering to these contractors. Time-and-material contracts are typically used during the initial response phase of the debris clearance process because the scope of the damage is not yet known. FEMA will only reimburse for time-and-material contracts for the first 70 hours of contractor work. After that first 70 hour period, FEMA will reimburse for unit-price contracts or lump sum contracts, but time-and-material contracts will only be reimbursed under very limited circumstances. For that reason, state and municipal officials are strongly encouraged to start the process of requesting proposals for recovery phase debris cleanup contracts early in the process of disaster cleanup. It is important to note that these limitations apply only to debris cleanup and emergency protective measures, not road and building repair, etc.

See Appendix B. for more guidance on contracting.

V. Public Information Strategy

The Debris Management Public Information Strategy will be coordinated through SSF 14 – Public Information.

The goal of the public information strategy is to ensure that the residents are given timely and accurate information for their own individual planning purposes and to minimize the cost and time expended in

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completing the recovery process. Information must be distributed quickly in order to avoid the spread of rumors and misinformation and the erosion of confidence in the recovery operations.

A. Public Information Officer

One town resident or officer should be designated as the Public Information Officer for the community. This person should be available to residents and the media at all times during the response phase and the early recovery phase of the disaster. The Public Information Officer, with the assistance of other town staff, will prepare information to be distributed, establish a process for distribution of information, update, correct, revise and redistribute information as operations progress, and establish a debris information center or venue to address all concerns, answer all questions, and help resolve complaints.

B. Information to be Provided

The information should include the parameters, rules, and guidelines of debris operations so residents can begin their personal recovery activities. The information should be presented in a clear, direct, and organized manner. The language should be easy to understand and should not include acronyms and jargon which tend to confuse people.

The following is a list of topics that should be covered in the public information campaign:

How will the debris be collected?

If curbside collection:

- o Who will be collecting the debris?
- o What are the schedules and routes for collection?
- o What type of debris will be collected? (segregation)
- o What is the start date and end date for collection on my street?

If collection centers:

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

If the public will be using the Temporary Debris Storage and Reduction Sites (TDSRS):

- o Is there a site map for the TDSRS? Will the site be marked showing where to drop off the various types of debris?
- o Will residents be charged a fee to use the TDSRS?
- o Will residents be restricted as to how much disaster-related debris can be dropped off at the TDSRS?
- o Do residents need a TDSRS "sticker"?
- o Will the TDSRS have burning, chipping, or grinding operations? If so, what are the hours of operation? Address any potential environmental or nuisance concerns.
- o How long will residents be able to bring disaster-related debris to the TDSRS?
- o Are there traffic changes that will impact the general public due to the location or operation of the TDSRS?

C. Distribution Strategy

DEMHS recommends the use of 211 service for distribution of disaster-related information to the public. Each municipality should include in its plan the preferred technique for distribution of public information including the procedures for contacting the appropriate media.

VI. Administration and Logistics

A. Authority:

The authority to regulate the management of solid and hazardous waste, including disaster debris, is conferred to the Secretary of the Agency of Natural Resources in 10 V.S.A. 6603. Through this authority,

the Secretary has adopted the Solid Waste Management Rules, may issue compliance orders, and may provide technical or financial assistance to municipalities. The Solid Waste Management Rules, adopted March 15, 2012, contain the procedures and standards for ensuring the safe, proper, and sustainable management of solid waste in Vermont. The Rules contain the administrative process, and the siting, design, and operations criteria for certifying all solid waste management facilities.

24 V.S.A. Chapter 61, Subchapter 8, extends police powers to municipalities as related to rubbish and garbage. Under §2201, individual persons are responsible for the proper disposal of their own solid waste, which must be at a certified solid waste facility. Under §2201a, municipalities, including regional solid waste management planning entities, are responsible for the management of the collection, storage, processing, and disposal of solid wastes within their jurisdictions.

B. Reporting:

1. EVENT REPORTING

When a disaster occurs that results in quantities of types of debris that require extraordinary debris management strategies, regional solid waste management planning entities, municipalities, and private waste management firms will be requested by the ANR to provide specific data and summaries to the appropriate program: the Department of Environmental Conservation, Solid Waste Management Program (SWMP). Data provided by the respective entities will be compiled into the "Current Conditions Report", a report summarizing current debris collection, storage, processing, and disposal conditions, prepared on a weekly or more frequent basis by the SWMP for the Secretary and DEMHS. This report will include an assessment of transportation and infrastructure, storage, processing and disposal capacity, and current and future needs, in consideration of the risk to human health and the environment. The ANR will also be responsible for making these this report available to other agencies and the public, as deemed necessary.

2. AGREEMENTS/MOUs, ETC.:

There are no agreements or MOUs currently in place for this annex.

VII. Development and Maintenance of Support Annex

The Agency of Natural Resources has overall responsibility for reviewing and maintaining this annex and its appendices annually.

The Division of Emergency Management and Homeland Security will coordinate a review of this annex and appendices on a five year cycle, unless additional updates become necessary.

All support agencies have the responsibility for maintaining this annex and appendices to ensure prompt and effective response to emergencies.

VIII. Appendices

Appendix A..... Acronyms
Appendix B..... Contracts
Appendix C..... Debris Management Sites
Appendix D..... Characterizations of the Major Types of Debris
Appendix E..... Design Disaster Event
Appendix F..... Sample Diagram of Curbside Collection Separation
Appendix G..... FEMA Mutual Aid Agreement Sample
Appendix H..... FEMA Right of Entry Agreement Sample
Appendix I..... USACE Sample Scope of Work for Equipment Leasing for Clearing of Debris
Appendix J..... USACE Sample Scope of Work for Debris Reduction Site Management
Appendix K..... USACE Sample Unit Price Debris Removal Scope of Work
Appendix L..... Debris Management Web Links

Appendix A – Acronyms

ABC	Asphalt, Brick, and Concrete rubble
ANR	Agency of Natural Resources
C&D	Construction and Demolition debris
CEG	Conditionally Exempt Generator
DEC	Department of Environmental Conservation
DEMHS	Division of Emergency Management and Homeland Security
FCO	Federal Coordinating Officer
FEMA	Federal Emergency Management Agency
GIS	Geographic Information Systems:
HHW	Household Hazardous Waste
LOA	Letter of Agreement
MAA	Mutual Aid Agreement
MOU	Memorandum of Understanding
MSW	Municipal Solid Waste
PA	Public Assistance
PIO	Public Information Officer
ROW	Right of Way
SCO	State Coordinating Officer
SEOC	State Emergency Operations Center
TDSRS	Temporary Debris Storage and Reduction Sites
USACE	US Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VAAF	Vermont Agency of Agriculture, Food and Markets
VDH	Vermont Department of Health
VOAD	Volunteers Active in Disaster
VTrans	Vermont Agency of Transportation

Appendix B: Contracts

Managing a large quantity of debris may require contracting with the private sector. The Debris Plan focuses on contracts during Phase II Debris Removal of the clean-up as opposed to Phase I Debris Clearance. These contracts may be for debris collection and hauling, debris management site operations, or engineering oversight of a major part of the clean-up (master contract). It also is important that agencies have procedures in place to monitor and oversee contractor performance.

Vermont plans to establish a comprehensive statewide debris management contract, and expects that municipalities, as well as state agencies, would be able to procure services under this master contract. In establishing this contract, reasonableness of costs should be evaluated so that federal reimbursement in the event of a declared disaster is not jeopardized.

Contracts activated during Phase II Removal should complement and reinforce the separation of debris as outlined in Sections V.E.- Characterization of Major Types of Debris and VII.D. – TDSRS Functions. Separating debris as close to the source of debris generation as possible will greatly facilitate later handling for recycling. Collection and hauling contracts need to include terms that encourage debris separation and would penalize contractors for mixing debris. For instance, contract provisions, including payment terms, should require contractors collect separated debris, maintain debris separation, and deliver separated materials to recycling facilities over disposal facilities.

Solid waste recycling facility contracts may allow for the rejection of mixed loads; landfill contracts would allow for the rejection of separated loads of recyclable, compostable, or otherwise divertible materials. Variable tipping fees may also be used to reflect properly separated loads from more costly to manage mixed loads.

Any master contract for a single firm to oversee multiple aspects of the cleanup and various subcontractors should contain performance language relative to debris separation. Along the same lines, tasks assigned to government agencies during Phase II should emphasize debris separation. For cost recovery purposes, contracts should ensure that debris clearance management activities are done in accordance with state and federal regulations and that costs are properly documented.

A. Overview

Municipal or State government may find it necessary to contract for debris management services if the magnitude of the disaster is beyond the capabilities of its local resources to respond. Possible contracted services include:

- Debris clearance during the response phase
- Tree Removal
- Debris collection during the recovery phase
- Reduction and recycling
- Hazardous waste handling, processing and disposal
- Hauling to final disposition
- Debris Management Site construction
- TDSRS management and operations
- Demolition
- Monitoring
- Environmental compliance
- Project management

The usual local procedures for contracting work vary widely from phone call and handshake agreements to formal qualification and bidding procedures with legal review. In the case of a disaster in which FEMA is involved, the more formal procurement and contracting procedures should be followed. The applicants should be familiar with their local contracting procedures, particularly with regard to emergency procurements. In procuring and awarding contracts, the applicant should follow its formal established procurement and contracting procedures.

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Applicants may enter into any contract agreements they wish. However, it should be noted that *FEMA is not bound to applicant contractual obligations because it is not a party to those contracts*. Municipal Applicants are strongly encouraged by FEMA to work with State emergency management staff and FEMA to ensure compliance with the provisions of the Public Assistance Program as well as 44 CFR Section 13.36, the Stafford Act Section 307 and other applicable statutes and regulations, if the applicant intends to seek Public Assistance grant assistance. Simply put, when an applicant requests Federal funding, they must comply with Federal Procurement Regulations.

The applicant is responsible for payment for its contracted services regardless of whether such services are eligible for Public Assistance grant funding. If a contract is in place prior to the applicant's meeting with FEMA Public Assistance staff, the terms of the contract need to be reviewed to ensure compliance with the Federal procurement regulations and with the Public Assistance Program eligibility criteria.

The key document on developing contracts that comply with Public Assistance program requirements is provided in Appendix VI, *FEMA RP9580.201, Fact Sheet: Debris Removal – Applicant's Contracting Checklist*.

For additional guidance in contracting procedures in response to a disaster refer to Appendix VI *FEMA 9580.4 Fact Sheet: Debris Operations Clarification – Emergency Contracting vs. Emergency Work*.

Although FEMA will provide technical assistance in the development of contracts, FEMA does not legally review contracts. Examples of the type of technical assistance that FEMA may provide are:

- Compliance with Federal Laws and regulations
- Scopes of work
- Debris operation processes and procedures
- Eligibility
- Reasonable costs

B. Procurement Considerations

It is important to note that some contractors use the FEMA name in an attempt to gain credibility and to give the impression that the work to be performed would be eligible for Public Assistance grant funding. Common phrases used by contractors, which are nevertheless false are:

- “*FEMA-approved contract and rates*” FEMA does not certify, credential or recommend contractors.
- “*FEMA Eligibility determinations*” Debris contractors never have the authority to make eligibility determinations. Only FEMA has that authority.
- “*FEMA training in eligibility, documentation, and Project Worksheet development provided*” These services are often offered on a fee basis. This training is available free from FEMA or the State.

C. Expedited Contracting Procedures

During a declared disaster, a municipality/applicant can expedite the procurement process without jeopardizing potential grant funding. If the necessary steps are taken in advance of a disaster, an applicant may use one or more of the following methods:

- Pre-drafted contracts – Municipalities may draft a contract prior to a disaster event. Once the extent of the disaster is known, the contract can then be finalized with the appropriate scope of work and advertised in a timely manner.
- Pre-qualified contractors – Contractors should meet minimum standards such as insurance, bonding, and licensing, prior to being awarded a contract by a municipality/applicant. The municipality may advertise a Request for Qualifications (RFQ) for contractors to establish their company as a credible candidate for a contract award. Then the pre-qualified contractors are invited to bid on the contract. In this way the both the contractor and the municipality can focus on developing costs rather than assembling and collecting documentation of qualifications.
- Pre-event contracts – The municipality may choose to solicit bids and award contracts during non-disaster times. This allows time for a deliberate procurement process and gives applicants flexibility in mobilizing the appropriate resources in anticipation of the event.

D. General Contract Provisions

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To protect the applicant's interests, certain provisions should be included in the contract to minimize conflicts with contractors. The provisions include the basis of payment, the contract duration, the performance measures, an agreement to restore collateral damage, a termination for convenience clause, and a conflict resolution process. A sample contract is included in Appendix XIV.

E. 70 Hour Rule

Time-and-material contracts are to be avoided in debris cleanup operations except during the initial response period. Because the quantity and types of debris are not fully known during this period, and quick response is important, time-and-material contracts are acceptable during this phase. If it becomes obvious right away that the cleanup operations will be extensive, the process of replacing the time-and-materials contract with a unit-price or lump sum contract should be immediately initiated.

FEMA limits the use of time-and-material contracts to the first 70 contractor work hours following a disaster or emergency. These 70 hours begin when the first contractor begins. If a contractor (or multiple contractors) works 10 hour days, from 7 AM to 5 PM then 10 hours are used per day and FEMA limits the contract work to the first seven 10-hour days. FEMA does not allow time-and-material contract use after the first 70 hours without a written waiver (including the justification for the extension) from the FCO.

F. Contract Types

1. Time and Material Contracts: To be eligible for FEMA reimbursement, Time-and-Material contracts should be limited to a maximum of 70 hours of actual emergency debris clearance work and should be used only after all available local, tribal and State government equipment has been committed.

The 70 hours provides time for (1) moving the debris from the roadway to the curbsides or rights-of-way to allow passage of emergency vehicles, and (2) negotiating unit price and/or lump sum contracts. If an applicant awards multiple time and material contracts, those contracts should run concurrently, not consecutively.

Time-and-Material contracts should clearly state that:

- The price for the equipment applies only when the equipment is operating.
- The hourly rate includes the operator, fuel, maintenance and repair.
- The community reserves the right to terminate the contract at its convenience.
- The community does not guarantee a minimum number of hours.
- The contract has either a dollar ceiling or a not-to-exceed-number-of-hours clause.

Time-and-Material contracts for debris clearing, hauling and/or disposal should be terminated once the designated not-to-exceed number of hours is reached. On occasion, Time-and-Material contracts may be extended by FEMA for a short period when absolutely necessary; for example, if there is a short unavoidable delay in executing Unit Price contracts. Such an extension should be in writing.

A Time and Material Contract:

- Is extremely flexible, not scope-dependent.
- Has a wide range of uses.
- Is suitable for emergency "hot spots" and early debris rights-of-way clearance.
- Requires contractor oversight and direction as to what work to perform.
- Requires documentation of actual hours worked by equipment and operators.
- Requires competitive bids or negotiated reasonable hourly rates for equipment and operators.
- Specifies equipment as generically as possible to encourage competition.
- Requires full-time and trained contract monitors to document actual equipment usage.

2. Unit Price Contract: The unit price contract uses construction units (Cubic Yards, Tons, Each) and prices for these units to develop line item costs and total contract cost. The unit price contract should be used when the scope of work is difficult to define and is based on estimated quantities.

A Unit Price Contract:

- Is flexible.

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- Requires accurate account of actual quantities removed in either cubic yards or tons.
- Ensures a wide range of competition because of simplicity of contract.
- Has a low risk for the contractor.
- Requires dedicated contract monitors at the pickup site and at the disposal site.
- Has possibility of contractor fraud if loading and dumping operations are not closely monitored.
- Is complicated if segregation of debris is required.
- Requires all trucks to be accurately measured and numbered.
- Requires all truckloads to be documented. For most accurate accounting a pre-numbered load ticket should be used. Load tickets are the verification of the estimated quantity of debris in cubic yards or tons deposited at the dumping site.

3. Lump Sum Contract: The lump sum contract should be used only when the scope of work is clearly defined by the applicant (not the contractor), and the areas of work can be specifically quantified. This type of contract establishes a total contract price by a one-item bid from the contractor. It is understood in a lump sum contract that the price for the work is fixed unless the scope of work changes; therefore, the bottom line of the contract is not in question, as it is with the unit price contract.

The main disadvantage of the lump sum contract occurs if the scope of work is not well defined. In that case, the quantity estimate and the definition of the scope of work become the responsibility of the contractor bidding the project. Experience has shown that the contractor passes this burden back to the government in the form of contingencies, which are incorporated into the bid price.

The Lump Sum Contract:

- Should be used only when there is a clear, definable scope of work that can be quantitatively measured by the contractor and the applicant. (Be sure the contract includes the quantity of debris that is being moved.)
- Provides an easy means of establishing the cost of the work at the time of bid opening.
- Requires minimum labor for monitoring.
- Is easy to monitor, as the scope of work is well defined.
- May result in difficulty to quantify the amount of debris that will be brought to the right-of-way for removal.
- Has a high probability of claims if debris estimates are difficult to estimate and require speculation.
- Makes it easy to determine when a contractor has completed all work.
- Shifts most of the risk to the contractor.
- Does not require quantities to be documented (as they are in a unit price contract).

G. Prohibited Contract Types

There are three types of explicitly ineligible contracts.

- Cost plus percentage of cost contracts are not allowed by 44 CFR, Part 13.36 (f)(4). This type of contract is defined as “the amount the contractor claims as actual cost, plus a negotiated percentage of that cost.” The more the contractor claims, the more the contractor makes, therefore, there is no incentive for the contractor to hold down costs.
- Federally debarred contractors are ineligible. Award of contracts to debarred contractors is prohibited by 44 CFR Part 13.35. “Grantees and sub grantees must not make any award or permit any award...to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs.”
- Conditional upon Federal reimbursement. A contract cannot contain any provision that payment for the work is contingent only upon Federal reimbursement.

H. Demolition and Debris Removal from Private Property

Public jurisdictions should undertake private property debris removal and demolition only in extreme cases where public health, life, safety, and the economic recovery of the community-at-large are at risk. It is uncommon that private property debris removal or demolition is undertaken by a community. However, in the case of a large-scale disaster, it may become necessary to remove debris from private property in order to eliminate widespread immediate threats to the public-at-large. In these cases, 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.

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FEMA policy regarding the demolition of private structures is set forth in FEMA DAP9523.4 which is found at: http://www.fema.gov/government/grant/pa/9523_4.shtm

FEMA policy regarding debris removal from private property is set forth in FEMA DAP9523.13 which is found at: http://www.fema.gov/government/grant/pa/9523_13.shtm

State of Vermont law regarding the authority of State or municipal government to enter private property for the purposes of debris removal or demolition of private structures must be complied with. Municipalities should consult an attorney prior to considering such action. Additional information about debris and wreckage removal can be found in Vermont Statutes Title 20, Section 36 "Debris and wreckage removal".

I. FEMA Public Assistance 9500 Series policies

- 9580.201 Fact Sheet: Debris Contracting Guidance (09/27/10), ([PDF](#) 3.72MB, [TXT](#) 11KB)
 - Attachment 1: Debris Removal Contract Cost Analysis ([PDF](#) 100KB, [TXT](#) 6KB)
 - Attachment 2: Debris Operations Contract Bid Sheet ([PDF](#) 117KB, [TXT](#) 8KB)
- 9580.202 Fact Sheet: Debris Removal Authorities of Other Federal Agencies (1/27/07), ([PDF](#) 334KB, [TXT](#) 15KB)
- 9580.203 [Fact Sheet: Debris Monitoring](#) (5/3/07), ([PDF](#) 370KB)
- 9580.204 [Documenting and Validating Hazardous Trees, Limbs and Stumps](#) (08/02/09), ([PDF](#) 2MB, [TXT](#) 21KB)
- 9580.205 Fact Sheet: Public Assistance Funding for Public Housing Facilities (06/19/10), ([PDF](#) 473KB, [TXT](#) 3KB)
- 9580.206 Fact Sheet: Animal Carcass Removal and Disposal (09/25/14), ([PDF](#) 1.4MB)
- 9580.210 Fact Sheet: Personal Assistance Service In Shelters (11/16/12) ([PDF](#) 144KB)
- 9580.212 Fact Sheet: Public Assistance Grant Contracting Frequently Asked Questions (FAQ) (10/28/12) ([PDF](#) 2,269 KB)
- 9580.213 Fact Sheet: Residential Electrical Meter Repair (11/10/12), ([PDF](#) 313KB)
- 9580.214 Fact Sheet: Debris Removal on Federal-Aid Highways (10/28/12), ([PDF](#) 827K)
- 9580.215 Fact Sheet: Hurricane Sandy: Debris Removal Force Account Labor Costs (11/5/12) ([PDF](#) 440KB, [TXT](#) 2 KB)

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Appendix C: Debris Management Sites

Based on the selection criteria and cooperation by the facility owner/operator, the following facilities have been identified as potential Temporary Debris Storage and Reduction Sites, in the event of a disaster:

Addison County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
ACSWMD Transfer Station	AD 401	US Route 7, Middlebury	Addison County Solid Waste District	9.8
<p>Characteristics: Commercial and residential transfer station with scales, tipping floor located within a building, and paved exterior areas for staging and loading multiple vehicles. Current throughput of municipal solid waste (MSW) and construction and demolition waste is approximately 37,000 tons. The facility has existing drop off areas for wood waste, scrap metals, tires, leaf and yard waste, and electronic waste, and has a permanent small quantity/household hazardous waste (HHW) collection component. Accessible from US Route 7, and well screened. Drawbacks: Parcel size is relatively small, with limited open space for large scale storage of waste, and increased vehicle traffic.</p>				
Bennington County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Bennington Transfer Station	BN081	Houghton Lane, Bennington, Bennington	Town of Bennington/Casella Waste Management	33
<p>Characteristics: Commercial and residential transfer station with scales, tipping floor located within a building, and paved exterior areas for staging and loading multiple vehicles. Facility has existing scrap metal, tires, and wood waste storage areas, and is used for HHW collection events. Adjacent to a large, well-buffered Town of Bennington borrow area that could be used for additional debris stockpiling and sorting. Also on the same parcel is the TAM, Inc., compost facility. Drawbacks: Very accessible from VT 7A, mostly isolated, but Houghton Lane is residential and increased traffic may be an issue.</p>				
Sunderland Transfer Station	BN771	River Road, Sunderland, Bennington	Casella Waste Management	26
<p>Characteristics: Commercial and residential transfer station with scales, tipping floor located within a building, and gravel exterior for staging and loading multiple vehicles. Facility has an existing scrap metal storage area, and hosts an occasional HHW collection event. The parcel includes the closed Sunderland landfill, and between the two, contains sizable open gravel-surfaced areas suitable for debris storage and segregation. The facility is directly accessed from VT 7A.</p>				
Caledonia County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
St. Johnsbury Transfer Station, Inc.	CA721	548 High Street, St. Johnsbury	St. Johnsbury Transfer Station, Inc.	8
<p>Characteristics: Commercial and residential transfer station with scales. Facility has an existing scrap metal storage area, tire storage area, and recycling drop off. The facility currently may manage up to 78,000 tons per year of MSW and C&D.</p>				
Hardwick Recycling and Salvage Transfer Station	CA144	VT Route 15, Hardwick	All Metals Recycling, Inc.	14
<p>Characteristics: Commercial and residential transfer station with scales. Facility has an existing scrap metal storage area, tire storage area, wood waste storage area, and recycling drop off. The facility currently may manage up to 3500 tons per year of MSW and C&D. Good vehicle access.</p>				
Chittenden County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage

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Chittenden SWD Integrated Facility	CH930	Redmond Road, Williston	Chittenden Solid Waste District	3.5 useable
Characteristics: "Special" waste collection and transfer facility. Facility has an existing scrap metal storage area, tire storage area, drywall, wood waste area, recycling drop off, and is authorized for HHW collection events. While the facility is currently not used as an MSW or C&D transfer station, it is currently certified for a capacity of 180 TPY and 7,500 TPD of waste, and has a certified contingency transfer component that increases the capacity to 310 TPD and 75,000 TPY of MSW and C&D. The facility is adjacent to the Burlington Transfer Station, Inc. See below.				
Burlington Transfer Station, Inc.	CH955	1496 Redmond Road, Williston	Burlington Transfer Station, Inc.	9
Characteristics: Commercial transfer station with scales, tipping floor located within a building, and paved exterior areas for staging and loading multiple vehicles. The facility currently is certified for an operating capacity of 600 TPD and 40,000 TPY, but is allowed to increase capacity to 120,000 TYP. Good vehicle access, relatively remote.				
All Cycle Waste, Inc., Transfer Station	CH045	Avenue B & C, off Industrial Ave., Williston	All Cycle Waste, Inc. (Casella)	9.6
Characteristics: Commercial transfer station with scales, tipping floor located within a building, and paved exterior areas for staging and loading multiple vehicles. Good vehicle access. The facility currently is certified for an operating capacity of 750 TPD and 91,000 TPY, but is allowed to increase capacity to 175,000 TPY. Most current operations occur within a building, and exterior space is somewhat limited, and the facility is located in a developed industrial zone.				
Myers Recycling Facility	CH172	Off Rathe Road, Colchester	Myers Container Service Corporation	15 useable
Characteristics: Commercial transfer station with scales, tipping floor located within a building, and paved exterior areas for staging and loading multiple vehicles. The facility currently is certified for an operating capacity of 300 TPD and 5,000 TPY, but is allowed to increase capacity to 35,000 TPY. The Facility is relatively buffered from nearby businesses, and has a large open area currently used as aggregate storage that could be utilized for debris management.				
Franklin County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Highgate Transfer Station	FR311	Transfer Station Road, off VT 78, Highgate	Casella Waste Management, Inc.	8.5
Highgate Landfill (closed) and Brush Depot	FR310 & FR313	Transfer Station Road, off VT 78, Highgate	Town of Highgate	192, with ~20 usable
Characteristics: The privately-owned commercial and residential transfer station is co-located with the Town-owned closed landfill and categorical wood waste facility, on Town of Highgate property. The transfer station has scales and a tipping floor within a building. The facility accepts MSW and C&D, and scrap metal, tires, used oil, and residential recyclables. There is open land adjacent to the landfill and transfer station that can be utilized for debris storage and segregation, or vehicle loading/unloading.				

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Grand Isle County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Grand Isle Transfer Station	GI251	Town Highway 20, off Pearl Street, Grand Isle	Town of Grand Isle	9
<p>Characteristics: Residential transfer station. The facility has a building that may be used for storage of special wastes, e.g., HHW, E-waste, batteries, or recyclable. MSW is managed through an outdoor, 40 CY compactor unit. The facility also currently collects C&D and bulky waste, tires, and scrap metal. There are open gravel-surfaced areas suitable for debris storage and segregation, or vehicle loading. Good access and some distance from surrounding homes and businesses. Drawbacks: The facility is designed and operated for small scale waste management, and would need to be temporarily upgraded for regional TDSRS operations. Waste transfer is done out-of-doors, without a tipping floor, and with only a 40 CY compactor unit. The facility is also operated by the Town of Grand Isle, with limited contingency staffing and equipment.</p>				
Lamoille County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Johnson Transfer Station	LA331	Wilson Road, Johnson	Town of Johnson/ Lamoille SWMD	21
<p>Characteristics: Residential transfer station. The facility has a building that may be used for storage of special wastes, e.g., HHW, E-waste, batteries, or recyclable. MSW is managed through an outdoor, 40 CY compactor unit. The facility also currently collects C&D and bulky waste, tires, and scrap metal. There are large, open gravel-surfaced areas suitable for debris storage and segregation, or vehicle loading. Co-located with a categorical disposal facility for wood and other inert wastes. Drawbacks: Waste transfer is done out-of-doors, without a tipping floor, and with only a 40 CY compactor unit. Located in a rural residential area, and located on an unpaved, lightly trafficked road.</p>				
Hyde Park Transfer Station	LA050	VT 100 Hyde Park	Casella Waste Management	10.1
<p>Characteristics: Commercial and residential transfer station, with a tipping floor enclosed in a building. The facility also manages recyclables, scrap metals, used oil, and batteries. There is some additional paved area suitable for debris storage and segregation, or vehicle loading and unloading. Facility is permitted for operating at 180 TPD and 10,075 TPY of MSW and C&D, and is permitted to operate at a maximum capacity of 180 TPD and 35,075 TPY. The facility is located directly on VT 100. Drawbacks: The Facility is located in a residential area, with immediate neighbors.</p>				
Orange County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Randolph Transfer Station	OG671	Landfill Lane, off Bean Road, Randolph	Casella Waste Management, Inc./Town of Randolph	1.43
<p>Characteristics: Smaller commercial and residential transfer station, utilizing a packer truck or roll off containers for collection of MSW, C&D, and recyclables. The facility also collects scrap metal, tires, clean wood waste, and used oil. There are large, open gravel-surfaced areas suitable for debris storage and segregation, or vehicle loading. The facility is located adjacent to the closed Randolph Landfill, not far from VT 12, and is isolated from the nearest residences. Drawbacks: The facility does not have a tipping floor or a compactor unit; therefore debris transfer would be from the ground to open roll-off containers, or trailers.</p>				
Randolph Categorical Disposal Facility	OG672	Landfill Lane, off Bean Road, Randolph	Town of Randolph	9
<p>Categorical wood disposal area located on Town of Randolph land, adjacent to the closed Randolph Landfill. Flat, open grassed parcel that could be utilized as a debris management area. Good access, remote, on a dead end road in an industrial area, approximately 0.3 miles from the Randolph Transfer Station, above. Drawbacks: Currently operated on an infrequent basis. Additional personnel and equipment would be necessary.</p>				

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Orleans County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
New England Waste Services of Vermont, Inc.	OL510	Airport Road, Coventry	Casella Waste Management, Inc.	590
<p>Characteristics: Vermont's only lined MSW landfill. The facility also maintains a residential drop-off for solid waste and recyclable materials; collects used motor oil, leaf and yard waste, and waste tires; and has a staging area for approved Household Hazardous Waste and Conditionally Exempt Generator Hazardous Waste collection events. The facility currently is certified for an operating capacity of 5000 TPD and 250,000 TPY, but is allowed to increase capacity to 600,000 TYP. Will be the repository for most of Vermont's debris, in the event of a statewide disaster. There is the infrastructure, area, and personnel available to manage debris storage, segregation of waste types, and disposal. The facility is accessed from US 5, via paved Airport Road, and currently generates many truck trips.</p>				
Rutland County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Rutland City Transfer Station	RU623	Gleason Road, Rutland City, Rutland	Rutland County Solid Waste District and Casella Waste Management/City of Rutland	9.5
<p>Characteristics: Commercial and residential transfer station with scales, and a tipping floor roofed with fencing on three sides. The facility has existing scrap metal, tires, construction and demolition and clean wood waste piles, and a permanent HHW collection component. Unused, flat, graveled areas for additional debris storage and segregation are limited to a few acres. The facility is adjacent to the capped Rutland City Landfill, site of a proposed solar farm. Drawbacks: Good access from US 4, but the facility is adjacent to a residential neighborhood and the Rutland High School.</p>				
Washington County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
CV Transfer Station	WA111	US Route 2, East Montpelier	Casella Waste Management, Inc.	52
<p>Characteristics: Regional commercial and residential transfer station with scales, and a roofed, 3-sided building with a tipping floor. The facility also accepts tires, scrap metal, used oil, batteries, E-waste and antifreeze. The facility has sizable, open graveled areas for additional debris storage and segregation, and vehicle loading/unloading. Facility is permitted for operating at 650 TPD and 30,000 TPY of MSW and C&D, and is permitted to operate at a maximum capacity of 650 TPD and 78,000 TPY. Access is very good, and the site is fairly remote.</p>				
Windham County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Brattleboro Salvage, Inc., Transfer Station	WH082	VT Route 142, Brattleboro	Brattleboro Salvage, Inc.	1.5
<p>Characteristics: Commercial and residential transfer, with scales, and tipping floor within a building. The facility currently collects recyclables, scrap tires, scrap metal, and organic waste for composting. Facility is permitted for operating at 250 TPD and 40,000 TPY of MSW and C&D, and is permitted to operate at a maximum capacity of 250 TPD and 52,000 TPY. Drawbacks: The facility does not have substantial additional open space for debris storage and separation operations. Waste management would be limited to throughput within the existing building.</p>				

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Windham County, cont.				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Windham County Solid Waste District Transfer Station	WH083	Ferry Road, Brattleboro	Windham County Solid Waste District	40
<p>Characteristics: Smaller commercial and residential transfer station, with scales, and a MSW compactor unit under a roof. The facility also collects scrap metal, used oil, HHW and universal wastes, tires, and organic wastes for composting. The facility also includes an on-site material recovery facility (MRF) for processing recyclables. The facility is permitted to manage up to 50 TPD and 3600 TPY of MSW and C&D. The Facility has large open areas that may be utilized for debris storage and segregation, and loading and unloading of vehicles. Located in an industrial area, co-located with a closed landfill, and convenient to US 5 and I-89.</p>				
Windsor County				
Facility	SWMP ID	Address	Owner/Operator	~ Acreage
Bethel/Royalton Transfer Station	WS061	122 Waterman Road, Royalton	Towns of Bethel and Royalton	21
<p>Characteristics: Medium commercial and residential transfer station, with scales, an enclosed tipping floor, and separate buildings for storage of recyclables and special wastes. The facility also accepts scrap metal, tires, used oil and antifreeze, lead-acid batteries, and hosts periodic HHW collection events. The Facility currently is permitted to manage up to 425 TPD and 9500 TPY of solid waste. The Facility is located very close to I-89, and fairly isolated from nearby residences and businesses. Drawbacks: The Facility is operated by two small municipalities, thus additional equipment and increased contingency staffing may be difficult to obtain.</p>				
Hartford Transfer Station	WS280	US 5, Hartford	Town of Hartford	19 acre parcel, 3 acres useable
<p>Characteristics: Medium commercial and residential transfer station, with scales. The facility also accepts scrap metal, tires, leaf and yard waste, household recyclables, e-waste, used oil, and hosts periodic HHW collection events. The facility also accepts C&D and asphalt, brick, and concrete (ABC) waste. C&D and ABC is processed at the facility for landfill cover material and aggregate, respectively. The facility has, in use, a large open area for waste storage, and a relatively large paved/graveled area for vehicle storage and loading and unloading. The facility is currently permitted to manage up to 40 TPD and 5000 TPD of municipal solid waste and C&D. The facility is located on US Route 5, close to I-89. Drawbacks: The Facility is municipally owned and operated, thus additional equipment and resources may be a problem.</p>				

The ANR will collaborate with these facilities to ensure the owner/operator’s continued willingness to function as TDSRS, as well as the facility’s ability in such a role. The ANR will work with the facility owner on developing contingency facility management plans and will amend the facility certification to authorize the acceptance of larger-than-normal volumes of waste, in the event of a disaster.

Baseline data collection is essential to documenting the condition of the Facility or vacant land before it is used as a TDSRS or woody debris-only facility. Private and Public land used as a TDSRS or IWMEA site needs to be returned to its original condition following the end of all debris operations. As soon as the potential site is selected or designated, the following actions should be completed to document the baseline data on all sites, for potential FEMA reimbursement. The site should be videotaped before and after usage, and periodically during debris operations. Further, physical features and conditions should be noted for future reference, and damage claim evidence. Examples include structures fences, culverts, utilities, roadways, and landscaping.

Woody Debris-Only Facilities

Certain natural disasters, such as ice storms, generate woody debris almost exclusively. The Solid Waste Management Rules allow the issuance of “Insignificant Waste Management Event Approvals” (IWMEA) for low-risk, short term, solid waste-related activities. These approvals require the submittal of basic information to ensure the protection of public health and the environment, but an authorization from the ANR can be acquired quickly, and the site established promptly to receive woody debris for processing or disposal. An IWMEA would

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be suitable for sites such as gravel pits or DPW yards for the temporary stockpiling and management of woody debris.

The Solid Waste Management Rules also allow for “categorical certifications” for the disposal of low risk wastes, including “stumps, brush, and untreated wood.” There are currently 21 categorically certified facilities that dispose of clean wood, and three other transfer stations with a wood waste disposal component. Most other transfer facilities have wood waste management areas, where clean wood is stored until the quantity is enough to justify contracting with a grinding service.

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

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

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

State law will ban the landfilling of clean wood by 2016. The ANR encourages the beneficial use of clean wood as firewood, compost feedstock, mulch, or biofuel, or, if possible, that the wood be left, chipped or whole, to decompose at the site of generation. The ANR discourages open burning of wood, and wholesale land disposal, but recognizes that the wood supply from a disaster may temporarily overwhelm the demand, necessitating burning or burial. The ANR will work with clean wood waste generators to determine the most environmentally and economically conscious means of wood waste management.

Appendix D: Characterization of the Major Types of Debris

A. Woody Debris:

“Wood waste” is defined in Vermont statute as “trees, untreated wood, and other natural woody debris, including tree stumps, brush and limbs, roots mats, and logs.”

Woody debris often must be cleared first from roadways to allow emergency access, and is often the major component of disaster debris. Woody debris can have an economic value as marketable timber, pulpwood, firewood, or woodchips for boiler fuel. Woody debris can also be composted, and often has value as a bulking agent for composting operations. Woody debris is fairly benign and stable, and can be stored or disposed of with less risk than many other waste types. Debris generated from a disease or insect infestation may need to be specially managed; not transported outside of a quarantined area and burned, for example. Woody debris should be managed as a resource and beneficially used, if possible, before disposal by landfilling or burning is considered.

1. Damaged Trees

Trees that are standing but damaged from a Federally-declared natural disaster may be managed by the State or municipality as a reimbursable expense, dependent on a number of factors, including whether a tree is a hazard. A hazard tree is defined as:

- Having dangerous hanging limbs having a diameter of 2” or greater above the right-of-way; or
- Having fallen and leaning trees within the ROW, including trees extending onto the right-of-way from private property; or
- Having dangerous and exposed stumps.

2. Woody debris in rivers

Large woody debris (LWD) is beneficial in natural stream systems as it contributes greatly to the roughness of the stream channel, reducing the overall velocities and the stream power acting on the bed and banks of the stream. Importantly, LWD provides critical ecological benefits. If at all possible, municipalities should consult with the Rivers Management Section of the ANR before undertaking removal operations of LWD. Contact information can be found at:

http://www.anr.state.vt.us/dec/waterq/rivers/docs/rv_contact.pdf

In determining the management strategy for LWD, three risk levels are evaluated:

- **High Risk:** During a large event, such as Tropical Storm Irene, massive quantities of trees were eroded from hill slopes and may have clogged the stream channel. Similar to sediment deposits, a risk assessment is needed. When trees have entered and formed a debris jam that spans a channel that is confined between the valley walls and/or roadway embankment, and there is no relief, or flow path around the debris jam, water may build up to significant depth upstream of the jam such that the debris mass may be remobilized. Debris jams in this situation should be removed if its sudden release during the next flood would cause a surge of water and/or sediment that would risk critical infrastructure and public safety. Channel spanning jams where the stream channel is not confined between the valley walls may cause severe channel infilling and stream avulsion, where the flood waters may jump from the existing channel and form a new stream path elsewhere in the valley where other developed properties may be at risk. Debris in this situation should be removed.
- **Moderate Risk:** Large side bar or mid-channel accumulations of woody debris where channels are unconfined between the valley walls and potential channel avulsion does not threaten improved property, may pose a moderate level of risk and should be evaluated for their potential to become mobilized and jam against a nearby bridge or culvert downstream. If this is likely, the debris accumulation should be recommended for removal.
- **Low Risk:** Other side bar accumulations of wood or single embedded pieces of wood are considered low risk and should be left in place as beneficial habitat and channel roughness.

3. Removing LWD from streambanks

If it is determined that it is necessary to LWD, that is, the debris constitutes a high risk, or a moderate

risk that may develop into a high risk, then:

- Work from the top of the bank whenever possible.
- Whenever possible lift the debris rather than drag it up the bank.
- When dragging is the only option, then protect the streambank, if possible, with mulch, matting or smaller woody debris. Lay this over the bank and drag the object over it, then cover any newly exposed soil with mulch hay and seed, or if not available, temporarily cover exposed soil with small stone.

4. Woody Debris Management

Woody debris should be separated from other debris, cut to manageable size, ground and left on-site if feasible, or transported to ANR-approved debris staging or processing sites in proximity to where the waste was generated. If warranted, regional woody debris staging sites will be designated at ANR-approved Temporary Debris Storage and Reduction Sites (TDSRS). Wood waste will be banned from landfill disposal on July 1, 2016; however, until then, disposal (or open burning) of this material remains strongly discouraged, as beneficial uses for wood are generally available and economically viable.

B. Miscellaneous Solid Waste (MSW)

Includes virtually all waste not characterized elsewhere in the plan. Miscellaneous solid waste may include personal belongings, business inventory, building contents, household garbage, and the like. Miscellaneous solid waste can be generated from wind storms that either destroy buildings and their contents, or pick up and transport outdoor materials. Alternatively, floods will generate miscellaneous solid waste from submerged basement contents, or from completely destroyed buildings, or materials that have been transported in the flood waters.

Miscellaneous solid waste can be very diverse, containing a broad spectrum of materials: paper, plastic, metal, organic (food) waste, glass, cloth, and composites. Miscellaneous waste will be inherent in all the other disaster debris waste types, and vice versa. Appliances (“white goods”) and other metals, Household Hazardous Waste, asbestos containing materials, woody debris, and electronic waste should be removed if mixed into the miscellaneous waste, if feasible. Remaining miscellaneous debris will be properly disposed of. Miscellaneous solid waste generated from a natural disaster will likely contain spoiled food and other putrescibles, so prompt collection and disposal is imperative to control vectors and odors.

C. Construction and Demolition Waste (C&D)

The Vermont Solid Waste Management Rules define Construction and Demolition Waste as “waste derived from the construction or demolition of buildings, roadways or structures including but not limited to clean wood, treated or painted wood, plaster, sheetrock, roofing paper and shingles, insulation, glass, stone, soil, flooring materials, brick, masonry, mortar, incidental metal, furniture and mattresses. This waste does not include asbestos waste, regulated hazardous waste, hazardous waste generated by households, hazardous waste from conditionally exempt generators, or any material banned from landfill disposal under 10 V.S.A. §6621a.” C&D is essentially debris resulting from structural damage to buildings as well as buildings that will require demolition as a result of the disaster event.

C&D waste must be screened for the presence of regulated hazardous waste prior to building demolition (if required) or removal of the debris from the site of generation. See F below, for instances when suspected regulated hazardous waste is discovered in C&D debris.

C&D debris also must be screened for the presence of asbestos containing materials (ACM) prior to building demolition (if required) or removal of the debris from the site of generation. If it is necessary to demolish damaged building materials that may contain - or are suspected to contain - asbestos or lead, the use of licensed abatement contractors may be required, and a permit may be necessary.

VDH regulates asbestos abatement, certifies the persons who perform asbestos abatement, and provide technical assistance and outreach on asbestos management. Once properly abated, asbestos containing material (ACM) is a solid waste, and its proper packaging, transportation, and ultimate disposal is

regulated by the ANR's Solid Waste Management Program. Applicable asbestos-related documents include:

Vermont Regulations for Asbestos Control (VDH)
http://healthvermont.gov/regs/asbestos_control_reg.pdf

Policy on the Management of Asbestos-Containing Waste and Vermiculite Insulation in Vermont (ANR)
<http://www.anr.state.vt.us/dec/wastediv/solid/pubs/finalasbestospolicy2013.pdf>

Policy on the Storage of Asbestos Containing Waste in Vermont (ANR)
<http://www.anr.state.vt.us/dec/wastediv/solid/pubs/finalasbestosstoragepolicy2013.pdf>

If asbestos is present in C&D, the USEPA 1992 publication entitled Guidelines for Catastrophic Emergency Situations Involving Asbestos, EPA 340/1-92-010, continues to serve as effective guidance in managing this material. Suspect asbestos-containing materials (ACM) shall be either treated as ACM, or sampled and analyzed for asbestos content.

Identification of ACM shall be made by an asbestos abatement contractor certified by the VTDOH, or by individuals identified by the VTDOH as appropriately qualified. Materials that are sampled for asbestos content shall be analyzed at an environmental laboratory certified by the VTDOH. Whenever feasible, asbestos containing debris shall be segregated from non-asbestos containing debris. In the event that the asbestos-containing debris cannot be segregated from other construction debris, all debris shall be disposed of as asbestos-containing waste. Asbestos-containing debris shall be adequately wetted during the process of collection and processing, and must remain adequately wet while packaged and placed in a waste container for disposal. Asbestos-containing waste shall be appropriately labeled and shall be disposed of at a waste disposal facility authorized for disposal of asbestos, in accordance with the Regulations and policies listed above. Asbestos abatement shall be conducted in accordance with applicable federal, state, and municipal requirements. These requirements shall include, but not necessarily be limited to, the National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61, Subpart M), and the documents listed above.

Construction and Demolition Waste (C&D) that is free of asbestos should be segregated at the site of generation, and brought to a certified solid waste facility for further processing, removal of recyclable materials, and volume reduction, prior to disposal. In the aftermath of a catastrophic natural disaster, such as a Category 3 hurricane or higher, there may be more C&D generated that can be managed by Vermont's existing transfer stations, operating in "normal" modes, hence the need for designated TDSRSs.

D. White Goods

White goods are a category of scrap metal and include, by statute, "discarded refrigerators, washing machines, clothes dryers, ranges, water heaters, dishwashers, and freezers." Air conditioners and microwave ovens are also typically included as white goods. White goods generated from a disaster should be segregated curbside to the extent as is necessary to then stage the white goods at a certified solid waste facility or an authorized TDSRS. White goods shall be stored in an area separate from other solid waste, preferably on an impervious surface. Refrigerators and freezers should be emptied of foodstuffs to prevent vector and odor problems.

Older appliances may contain PCB capacitors, chlorinated hydrocarbons and Freon. Until white goods arrive at their final destination, they should be handled in a manner that will prevent a release of refrigerants. Freon shall be required to be removed from any white goods at the certified solid waste transfer or recycling facility, authorized TDSRS, or salvage yard. If a federally-declared disaster, FEMA reimbursement record keeping requires written verification that Freon has been removed from each unit.

E. Household Hazardous Waste (HHW) and Conditionally Exempt Generator (CEG) Waste

Household Hazardous Waste means any waste material (including garbage, trash, and sanitary wastes in septic tanks) derived from households (including single and multiple residences, hotels and motels,

bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas) that would be subject to regulation as hazardous waste if it were not from households. As a practice, ANR encourages residents to take advantage of periodic municipal or Solid Waste Management District household hazardous waste collection programs to dispose of unneeded hazardous products or wastes, thereby limiting the amount of hazardous materials that will need to be managed if a disaster occurs.

If the disaster is such that HHW can be removed by residents at the point of generation, instructions will be communicated to residents through a variety of media as to the best management practices for segregated HHW, and locations and hours of operation of collections events or facilities. Options may include self-transport or curbside collection by the municipality, SWMD, or private contractor. HHW will be transported to a pre-identified, permanent HHW collection facility, or an authorized transfer station, temporary staging area, or TDSRS where a qualified hazardous waste contractor will manage the incoming HHW and arrange for its proper disposal. Private hauling contractors will be directed to separate any HHW that may be intermingled with other solid wastes at the curb, for subsequent management as noted above. ANR will work with municipalities, SWMDs and the USEPA to contract for the collection disposal of HHW. During an emergency cleanup operation, the Secretary, through an emergency authorization, may modify solid waste facility certification conditions to allow temporary collection or storage of the HHW.

A Conditionally Exempt Generator (CEG) is a business, municipality or other organization that generates small amounts of hazardous waste (see Section 6 for further discussion of hazardous waste) and, based on that small quantity threshold, is exempted from certain provisions of the Vermont Hazardous Waste Management Regulations(VHWMR). A CEG must, among other requirements, determine whether the waste is hazardous, have a valid Vermont Hazardous Waste Handler ID, and conduct proper hazardous waste handling, storage and disposal of hazardous waste. For the purposes of this plan, it is important to note that CEG disposal options include solid waste management facilities or events that are certified to collect CEG waste and permitted hazardous waste treatment, storage, or disposal facilities. In the event of a disaster, these options will also be open to CEGs for hazardous waste management.

F. Hazardous Waste

Hazardous waste (other than Household Hazardous Waste) may include materials that are ignitable, corrosive, reactive or toxic, for example, petroleum-contaminated media, paints, solvents, acids and bases. Hazardous waste, once identified by private owners or state and local officials, shall be segregated from other disaster-generated waste, stored separately, and ultimately disposed of at a permitted hazardous waste disposal facility.

Hazardous waste generators must determine if their waste is hazardous using the procedures outlined in Subchapter 2 of the VHWMR. They may use testing of the waste to make a hazardous waste determination or knowledge of the material to manage as hazardous waste without conducting analyses. These materials must be handled by permitted Hazardous Waste Transporters. If unknown or hazardous materials such as lead, PCBs, solvents, pesticides, herbicides, pool chemicals, industrial grade cleaning solutions, and other similar types of materials are discovered during a demolition or cleanup, the materials should be staged separately and with secondary containment to collect leaks and prevent further mixing with other hazardous waste or incompatible chemicals. If possible, the material should be segregated from the rest of the demolition and cleanup. During a debris management crisis, owners will be responsible for notifying the Vermont Division of Emergency Management and Homeland Security at 1-800-641-5005 (24- hour number) of spill releases that pose a potential threat to safety, health, and the environment. If it is determined that emergency removal of hazardous waste is needed to protect human health and the environment, the ANR Secretary may exercise emergency permitting authority under Section 7-105(a)(4) of the VHWMR to authorize the transport of hazardous waste by unpermitted transporters and/or the temporary storage of hazardous waste at a location that is not permitted to accept and storage hazardous waste.

G. Asphalt, Brick, and Concrete (ABC)

Asphalt, brick and concrete are solid wastes. Uncontaminated asphalt, brick, concrete, masonry, and the like is easily recyclable into aggregate, and should be crushed at the site of generation or segregated for transport to a certified ABC processor, TDSRS, or other approved storage area.

As an alternative, an "Insignificant Waste Management Event Approval" (SWMR 6-301(c)) may be obtained from the ANR for on-site disposal of the ABC, if site specific conditions allow. Landfilling of uncontaminated ABC is a waste of scarce resources, consumes limited and valuable landfill space, and is strongly discouraged.

Concrete, brick, or masonry that has been painted with Lead Based Paint (LBP) or contaminated by a petroleum product or chemical spill as a result of the disastrous event should be prepared for disposal with other construction and demolition wastes.

H. Scrap Metal

Scrap metal refers to ferrous metals such as structural steel and steel framing members and non-ferrous metals such as wiring/conduit, plumbing (pipes and fixtures) and HVAC materials (ductwork, motors). White goods are considered as scrap metal, but are described, and often managed, separately. Scrap metal, to the extent possible, should be segregated in the public right-of-way and brought to a TDSRS, certified transfer station, or salvage yard.

I. Electronic Waste

Electronic waste (e-waste) is defined in statute as "computers; peripherals; computer monitors; cathode ray tubes; televisions; printers; personal electronics such as personal digital assistants and personal music players; electronic game consoles; printers; fax machines; wireless telephones; telephones; answering machines; videocassette recorders; digital versatile disc players; digital converter boxes; stereo equipment; and power supply cords (as used to charge electronic devices)." E-waste is banned from landfill disposal, as most e-waste contains materials such as lead and other toxic substances that should be kept out of the environment. Therefore, e-waste should be segregated from the mixed solid waste stream to the extent possible at the point of generation.

There is a broad network of over 100 registered e-waste collectors and recyclers currently operating in Vermont. Many of these facilities offer free acceptance of computers, monitors, printers, computer peripherals, and televisions from residents and small businesses, and/or charge a nominal fee for other types of e-Waste. These facilities will be relied upon to continue to accumulate e-waste collected as the result of a disaster or, if necessary, e-Waste will be staged at a TDSRS or other pre-approved staging areas, prior to shipment to a registered recycler. E-Waste will be transported by individuals or businesses, or will be collected at the curbside, if need be.

If e-waste is transported to a pre-approved alternative to a registered collector or recycler, the facility must comply with identical storage standards. The facility must store e-Waste on an impervious surface within a roofed structure, and in a manner that prevents breakage.

Additional information may be found on the Vermont e-cycles webpage:
<http://www.anr.state.vt.us/dec/e-waste/e-collectors.htm>

J. Soil, Silt and Sediment (Uncontaminated and Contaminated)

Flooding may result in the deposition of soil, silt or sediment on private and public properties, or in structures.

If the silt is known to be contaminated by a recognized source of petroleum, pesticides, sewerage, animal waste, industrial chemicals, or the like, DEC Spill Team or the Vermont Hazardous Materials Response Team should be contacted for assistance and direction. A chemical characterization of the silt through sampling and analysis silt may be necessary to determine the appropriate disposal option.

If man-made debris is present, or contamination is possible, but not evident, the silt can be brought to a landfill as either cover material or as a waste. The landfill may impose pre-disposal testing requirements

or specific management strategies. Any material disposed of at a landfill must contain no free liquids as determined by the “paint filter test.”

Realistically, most silt and sediment generated from deposition by flood waters will be “contaminated” to some degree; however, the majority of the material, with the above exceptions, can be managed as fill. As such, the silt or sediment to a borrow pit or other appropriate, secure location for storage and reuse. The storage area should be located and managed to limit runoff from the pile and protect nearby surface water quality. This may necessitate the construction of berms, silt fencing, swales and other erosion control devices.

K. Animal Carcasses

Animal mortalities are defined as a significant loss of livestock, pets, and/or natural wildlife. Catastrophic animal mortalities, if they occur, would more likely be seen along the along major river floodways and floodplains zones. These occurrences could include mortalities from fish hatcheries, agricultural livestock, and horses. Incidental deaths of small companion pets, such as dogs, cats, rabbits, et cetera, may also occur as a result of a disaster.

The ANR has a “Procedure Addressing Disposal of Dead Animals” (March 2001) that is applicable to most disaster scenarios involving animal mortalities.

<http://www.anr.state.vt.us/dec/wastediv/solid/pubs/DeadAnimalProcedure.pdf>

The procedure outlines management options for animal carcass disposal, dependent on the type of animal(s) and the number of carcasses to be managed. Landfilling is an acceptable disposal method, but may not be practicable if the number of carcasses is large, or the carcasses are distributed statewide. Small animals, or a small number of animals may be buried on-site, or brought to a veterinarian crematory. Large numbers of animals will need to be disposed of in an approved disposal pit, as outlined in the Procedure. These disposal pits are sited and operated so as not to contaminate ground or surface water, or to attract pests or vectors.

Decisions about the disposal of large amounts of animal carcasses must be made using site specific information, including whether the animals are infectious; the location, number and type of carcasses; and the site characteristics that may limit on-site management. In the event of a catastrophic event, State and federal health and agricultural agencies will be consulted regarding the appropriate disposal method. Decisions on the disposal will be made in conjunction with the ANR and VDH; further consultations may be made with the appropriate federal agencies.

FEMA has an “Animal Carcass Removal and Disposal policy” (September 2014) which can be found here: <https://www.fema.gov/media-library/assets/documents/20706>

L. Waste Tires

Waste tires are banned from disposal in Vermont. Tires that are collected curbside or collected from other properties as a result of cleanup efforts will be separated from other wastes. Small quantities (<250) of waste tires will be picked up by a permitted waste hauler or municipality or brought by the generator to a transfer station or TDSRS for stockpiling and future recycling. Most certified transfer stations collect tires as part of normal operations, with a maximum on-site quantity condition in the facility certification. Larger quantities of stockpiles tires should be managed by one of the permitted tire collectors operating within Vermont.

<http://www.anr.state.vt.us/dec/wastediv/solid/documents/TireRecyclersVT.pdf>

M. Abandoned and Stray Motor Vehicles and Stray Vessels

An *abandoned motor vehicle* is defined as:

- A motor vehicle that has a valid registration plate or public vehicle identification number (which has not been removed, destroyed, or altered) and has remained on either public or private property (or on/along a highway), without the permission of the property owner (or the person in control of the property) for more than 48 hours; or

- A motor vehicle that does not have a valid registration plate (or the public vehicle identification number has been removed, destroyed, or altered) and has remained on either public or private property (or on/along a highway) without the consent of the property owner (or person in control of the property) for any period of time.

A *stray motor vehicle* is a motor vehicle, either registered or unregistered, that has been moved from its appropriate location by some force of the disaster, regardless of the time period involved.

The removal of an abandoned vehicle from public property must be authorized by a law enforcement officer. The removal of an abandoned vehicle from private property may be authorized by a law enforcement officer upon complaint of the property owner, or the property owner may bring about removal of the vehicle, but must immediately notify the appropriate police agency in the jurisdiction from which the vehicle is removed. A stray motor vehicle may be removed from public or private property under authority of a law enforcement officer if the vehicle is presenting an immediate hazard or threat. A towing service will be utilized to move collected vehicles to an authorized, secured aggregation site. Once at the aggregation site, these vehicles will be inventoried as to the identification of the registration plate number, the public vehicle identification number, make, model, and color of the vehicle, and this information will be provided to the Department of Motor Vehicles. Vehicles will be stored in a manner to permit inspection by authorities as required, or for reclamation by owners. Vehicles shall be discharged to appropriate entities for reclamation, salvage, or disposal as required by 23 V.S.A. Chapter 21.

Management of abandoned boats will follow a similar protocol. Ownership of the boat will be determined, if possible, from the registration or hull identification number. Boats or their contents shall be removed from private property only if their presence presents an imminent threat to human health or the environment. Coordination between Vermont Department of Public Safety, Department of Motor Vehicles, ANR, and possibly the USCG if on Lake Champlain, for removal within navigable waters of the State will be necessary.

In order for removal of vehicles and vessels to be facilitated under FEMA reimbursements, the applicant must demonstrate each of the following:

- The vehicle or vessel is currently presenting a hazard or immediate threat (e.g., blocking ingress/egress, or located in a public use area)
- The vehicle or vessel is abandoned (i.e., vehicle or vessel is not on the owner's property and the ownership is undetermined or the identified owners has demonstrated inability or unwillingness to address the problem presented by the vehicle or vessel)
- The applicant must follow the applicable law to secure ownership
- The applicant verifies chain of custody, transport and disposal of the vehicle or vessel.

N. Utility Related Debris

For the purposes of this Plan, utility related debris is defined as power transformers, utility poles, cable, and other utility company material.

The public utilities, such as electric utilities, are responsible for removing and disposing of all utility related debris according to their normal protocol. Non-utility private entities, such as private companies like manufacturers or facilities such as schools, shopping centers, etc., are responsible for removing and disposing of all utility related debris. There is an exception where a situation exists on private property that necessitates that the State or its designated agent needs to correct or alleviate, as expeditiously as possible, serious disaster or emergency-related conditions which present continued threats to the health or welfare of the residents of the State. In all cases, management of this type of waste must be managed in accordance with applicable federal, state and local regulations.

Appendix E: Design Disaster Event

The chosen design event is a Category 3 hurricane impacting Vermont exactly as did the 1938 hurricane. This scenario would result in the generation of the maximum quantity of debris of all possible state wide disasters requiring debris management. (A tornado or flood may generate more debris per acre, but be more localized in scope.) This modeling was done by the Vermont Geological Survey utilizing the latest HAZUS-MH software.

The model predicts that 150,137 tons of brick, wood, and other demolition debris, 364 tons of concrete and steel debris, and 326,247 tons of woody debris that must be managed would be generated by the hurricane. An additional 6.2 million tons of woody debris – essentially downed trees in forested areas – would be generated by Category 3 hurricane-force winds, but this debris would not be eligible for FEMA reimbursement, and most would be only managed for salvage of marketable wood. A majority of the woody debris would fall in woodlands, and would not require management at a solid waste facility.

A summary of the distribution of debris from this design disaster event is as follows:

1938 Hurricane – HAZUS-MH Calculated Debris Distribution (by County), in tons

County And Other	Brick, Wood and Steel	Reinf. Conc. Debris	Eligible Tree	Total
Addison	6,632	23	13,172	19,827
Bennington	6,125	2	14,559	20,686
Caledonia	3,707	3	13,504	17,214
Chittenden	25,545	30	29,985	55,560
Essex	394	0	5,539	5,933
Franklin	10,618	39	18,852	29,509
Grand Isle	2,094	15	4,500	6,609
Lamoille	5,514	5	12,704	18,223
Orange	7,347	17	28,272	35,636
Orleans	3,676	4	13,124	16,804
Rutland	13,789	20	26,966	40,775
Washington	18,294	46	31,618	49,958
Windham	22,277	82	50,605	72,964
Windsor	24,125	78	62,847	87,050
Total	150,137	364	326,247	476,748

County And Other	Brick, Wood and Steel	Reinf. Conc. Debris	Eligible Tree	Total
Addison	13,264	23	65,860	79,147
Bennington	12,250	2	72,795	85,047
Caledonia	7,414	3	67,520	74,937
Chittenden	51,090	30	149,925	201,045
Essex	788	0	27,695	28,483
Franklin	21,236	39	94,260	115,535
Grand Isle	4,188	15	22,500	26,703
Lamoille	11,028	5	63,520	74,553
Orange	14,694	17	141,360	156,071
Orleans	7,352	4	65,620	72,976
Rutland	27,578	20	134,830	162,428
Washington	36,588	46	158,090	194,724
Windham	44,554	82	253,025	297,661
Windsor	48,250	78	314,235	362,563

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Total	300,274	364	1,631,235	1,931,873
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From the USACE calculations (See Appendix K), assume one acre to store and manage 8,067 cubic yards of debris, so the acreage required for debris management sites in each county are as follows:

County	Total debris (CY)	Acreage Required
Addison	79,147	10
Bennington	85,047	11
Caledonia	74,937	10
Chittenden	201,045	25
Essex	28,483	4
Franklin	115,535	15
Grand Isle	26,703	3
Lamoille	74,553	10
Orange	156,071	20
Orleans	72,976	9
Rutland	162,428	20
Washington	194,724	24
Windham	297,661	37
Windsor	362,563	45
Total	1,931,873	240

Forests now cover over 80% of Vermont’s land area. A few of the larger Vermont municipalities are considered urban, but by comparison to high population density areas in the United States, Vermont’s “urban” land would be considered moderate density suburban. As evident in the tables above, because of this rural land use character, the overwhelming majority (estimated 68% by weight) of disaster debris generated from a Category 3 Hurricane would be FEMA-eligible woody vegetative debris. While likely a somewhat lower percentage, woody debris would constitute, by weight or volume, the majority of debris generated from any natural disaster in Vermont.

Appendix F: Sample Diagram of Curbside Collection Separation

PICKING UP THE PIECES

Following these specific guidelines when hauling hurricane-related debris and household garbage to the curb will make for a speedier removal process

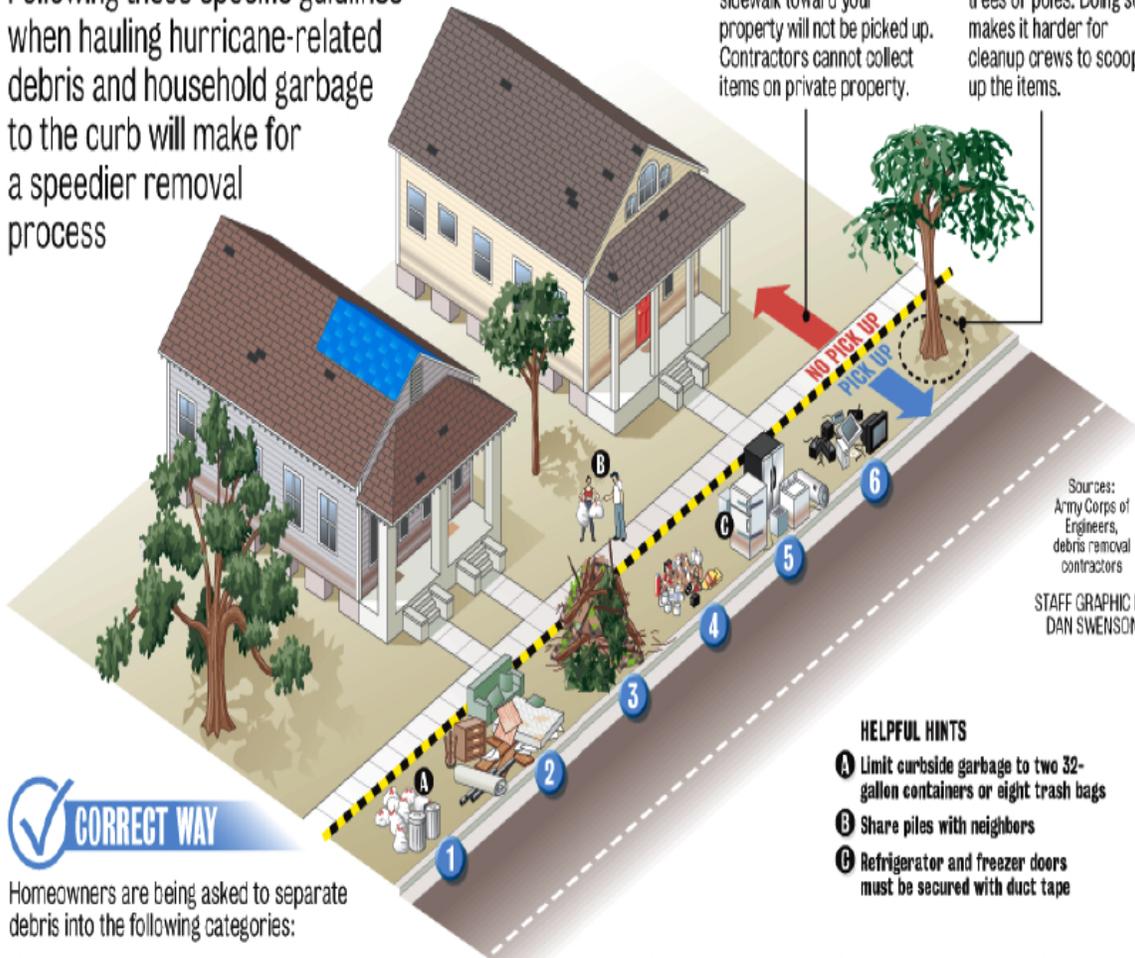
WRONG WAY

CROSSING THE LINE

▶ Any debris placed from the sidewalk toward your property will not be picked up. Contractors cannot collect items on private property.

PROPPING UP

▶ Do not set debris against trees or poles. Doing so makes it harder for cleanup crews to scoop up the items.



Sources:
Army Corps of
Engineers,
debris removal
contractors

STAFF GRAPHIC BY
DAN SWENSON

CORRECT WAY

Homeowners are being asked to separate debris into the following categories:

- | | | | | | |
|--|--|---|--|--|--|
| <p>1 HOUSEHOLD GARBAGE</p> <ul style="list-style-type: none"> ▶ Bagged trash ▶ Discarded food ▶ Packaging, papers ▶ All garbage should be placed curbside the night before the scheduled weekly pickup. | <p>2 CONSTRUCTION DEBRIS</p> <ul style="list-style-type: none"> ▶ Building materials ▶ Drywall ▶ Lumber ▶ Carpet ▶ Furniture ▶ Mattresses ▶ Plumbing | <p>3 VEGETATION DEBRIS</p> <ul style="list-style-type: none"> ▶ Tree branches ▶ Leaves ▶ Logs | <p>4 HOUSEHOLD HAZARDOUS WASTE</p> <ul style="list-style-type: none"> ▶ Oils ▶ Batteries ▶ Pesticides ▶ Paints ▶ Cleaning supplies ▶ Compressed gas | <p>5 'WHITE' GOODS</p> <ul style="list-style-type: none"> ▶ Refrigerators ▶ Washers, dryers ▶ Freezers ▶ Air conditioners ▶ Stoves ▶ Water heaters ▶ Dishwashers | <p>6 ELECTRONICS</p> <ul style="list-style-type: none"> ▶ Televisions ▶ Computers ▶ Radios ▶ Stereos ▶ DVD players ▶ Telephones |
|--|--|---|--|--|--|

- HELPFUL HINTS**
- A** Limit curbside garbage to two 32-gallon containers or eight trash bags
 - B** Share piles with neighbors
 - C** Refrigerator and freezer doors must be secured with duct tape

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Appendix G: FEMA Mutual Aid Agreement Sample

INTERGOVERNMENTAL EMERGENCY MUTUAL AID AGREEMENT

STATE OF _____
CITY / COUNTY _____ and CITY / COUNTY _____

WHEREAS, State Law authorizes local governments to contract with each other to provide services, and

WHEREAS, State Law and state policy also provide for certain reimbursements or financial aid to local government for certain natural disasters or emergency conditions declared by the Governor, and

WHEREAS, the _____ finds it to be in its best interest to have such mutual aid agreements with other local governmental bodies in the state and region,

NOW, THEREFORE, in consideration of the above recitals and the covenants contained herein, the parties hereto agree as follows:

1. The _____ hereby agrees to provide through its Director of Public Works such mutual aid as may be requested by a governmental unit, which has emergency conditions of a natural disaster as defined by Rhode Island law. The aid rendered shall be to the extent of available personnel and equipment not required for minimum needs of the _____. The judgment of the Director of Public Works or his designee shall be final as to the personnel and equipment so available.

2. Personnel dispatched to aid another jurisdiction shall remain employees of the _____ but shall work under the supervision of the Director of Public Works of the requesting jurisdiction. The _____ retains the right to withdraw any and all aid rendered upon direction of the (City or County Name) Director of Public Works.

3. The Director of Public Works will provide a list of hourly rates and equipment costs, and hours worked for all such aid rendered to the requesting jurisdiction for all actual costs, and the requesting jurisdiction agrees to compensate such claim for costs incurred as expeditiously as possible.

4. The _____ will maintain workers compensation coverage for its employees and liability coverage for its vehicles and equipment. Any uninsured or extraordinary expenses may be a part of claimed costs for reimbursement. The requesting jurisdiction agrees to maintain adequate liability insurance under state law and to hold harmless and indemnify the _____ for any and all claims occurring while its personnel and equipment are working under the direction of the Director of Public Works of the requesting jurisdiction. These indemnities shall include attorney's fees and costs that may arise from providing aid pursuant to this agreement.

5. The purpose of these recitals is to insure that the _____ is reimbursed all costs and assumes no additional liabilities as a result of this agreement. Neither party to this agreement shall be liable for its failure or refusal to render aid pursuant to this agreement. The Director of Public Works (or his/her designee in charge of operations) of the requesting jurisdiction shall in his sole discretion determine the manner in which such emergency aid may be used.

IN WITNESS WHEREOF, this Agreement has been duly executed by the parties subscribed below and is binding upon the _____ and the requesting jurisdiction.

Date signed _____
CITY / COUNTY OF _____ by: _____

Date signed _____
REQUESTING JURISDICTION _____ by: _____

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Appendix H: FEMA Right of Entry Agreement Sample

I/We _____, the owner(s) of the property commonly identified as _____, (street) _____, _____, State of _____ (city/town) (county) do hereby grant and give freely and without coercion, the right of access and entry to said property in the County/City of _____, 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 _____, State of _____, 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 that 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_____) received any compensation for debris removal from any other source including Small Business Administration (SBA), National Resource Conservation Service (NRCS), private insurance, individual and family grant program 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.

For the considerations and purposes set forth herein, I set my hand this ____ day of _____, 20_____.

Witness Owner

Owner

Street Address

City State Zip

Telephone No.

Appendix I: USACE Sample Scope of Work for Equipment Leasing for Clearing of Debris

**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. GENERAL.

The purpose of this contract is to provide debris clearing and removal response assistance to [LOCATION; I.E. "North Carolina counties" or "Mobile and Baldwin Counties in Alabama"] which have been declared disaster areas by the President because of the effects of [NAME OF DISASTER].

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 PICK 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. DEBRIS CLASSIFICATION

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 as 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 2 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), or uncontaminated soil.

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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. 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. 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 [INSERT] hours per day, [INSERT] days per week.

6. 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 2 feet above the metal bedsides. 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. 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:

Contractor's Name.

Contract Number.

Daily and cumulative hours for each piece of equipment.

Daily and cumulative hours for personnel, by position.

8. 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 Contractors or any subcontractors 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. 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 fifteen (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.

OPTIONS

10.1 The option items listed in Schedule B (the bid Schedule) are for the purpose of extending this contract for 7 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. ATTACHMENTS.

- 11.1 Daily Report Format
- 11.2 Sample Bidding Schedule
- 11.3 Operations Report
- 11.4 Equipment Pick List

Appendix J: USACE Sample Scope of Work for Debris Reduction Site Management

**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 OF DISASTER] in [DISASTER LOCATION; I.E. "North Carolina counties" or "Mobile and Baldwin Counties in Alabama"] which have been declared disaster areas by the President because of the effects of [NAME 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, on-site 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.

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; sheet rock; 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), or 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 enter 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 2 feet in diameter will be disposed of with the same methods used for other burnable debris. Tree stumps larger than 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 product 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 noncompliance 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.

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

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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. Prior to commencing debris reduction and disposal operations, the Contractor shall present to the Contracting Officer or his representative, the COR, for approval, a detailed description of all equipment to be used for debris handling, sorting, processing, incinerating, loading and hauling, stating 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 that 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 that 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 airflow 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.

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6.4 Pits must be constructed out of a highly compactible 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 1 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 2 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 compactible 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 1 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 4 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 3 to 6 inches from the edge of the pit.

6.10 There should be 1 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 2 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 on-site 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 and 2 of this scope of work.

7.2 Minimum required air velocity measured at the nozzle is 8,800 ft/min (100 mph). Minimum airflow rate measured at the nozzle is 900 cubic feet per min (cfm) 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.)

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 2 hours before removal of the ash.

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7.5 There should be 1 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 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 4 inches in length and ½ inch in diameter.

8.3 Contamination: Contaminates are all materials other than wood products. Contaminates 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 contaminate. The use of hand laborers must be utilized to pull out contaminants prior to feeding the chipper/grinders. The more contaminants, the more numerous the laborers. Shaker screens are required when processing stumps with root balls or when large amounts of soil are present in the vegetative debris.

8.4 Storage: Chips/mulch should be stored in piles no higher than 15 feet, and meet all State and local laws.

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. 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
- h) Environmental mitigation plan, including considerations for smoke, dust, noise, traffic, buffer zones, storm water runoff archeology, historic preservation, wetlands, endangered species as appropriate.

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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 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 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 foot above the existing ground elevation. The floor area shall be 8' by 8', constructed of 2"x 8" joists, 16" O.C. with 3/4" plywood supported by four 6" x 6" posts. The perimeter of the floor area shall be protected by a 4 foot high wall constructed of 2" x 4" studs and 1/2" inch plywood. The floor area shall be covered with a corrugated tin roof. The roof shall provide a minimum of 6'-6" of headroom below the support beams. Wooden steps shall provide access with a handrail.

10.7 Traffic Control. The Contractor shall be responsible for control of pedestrian and vehicular traffic in the work area. 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. As 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 [INSERT] 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.), and 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 HTW 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 found that is classified as HHW shall be reported immediately to the designated COR. This material shall be segregated from the remaining debris using a method that 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.

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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 7 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.
- 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 subcontractors 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 MEASUREMENTS

14.1 Measurements of debris processed are 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 closeout and demobilization shall be considered as a total **Job**.

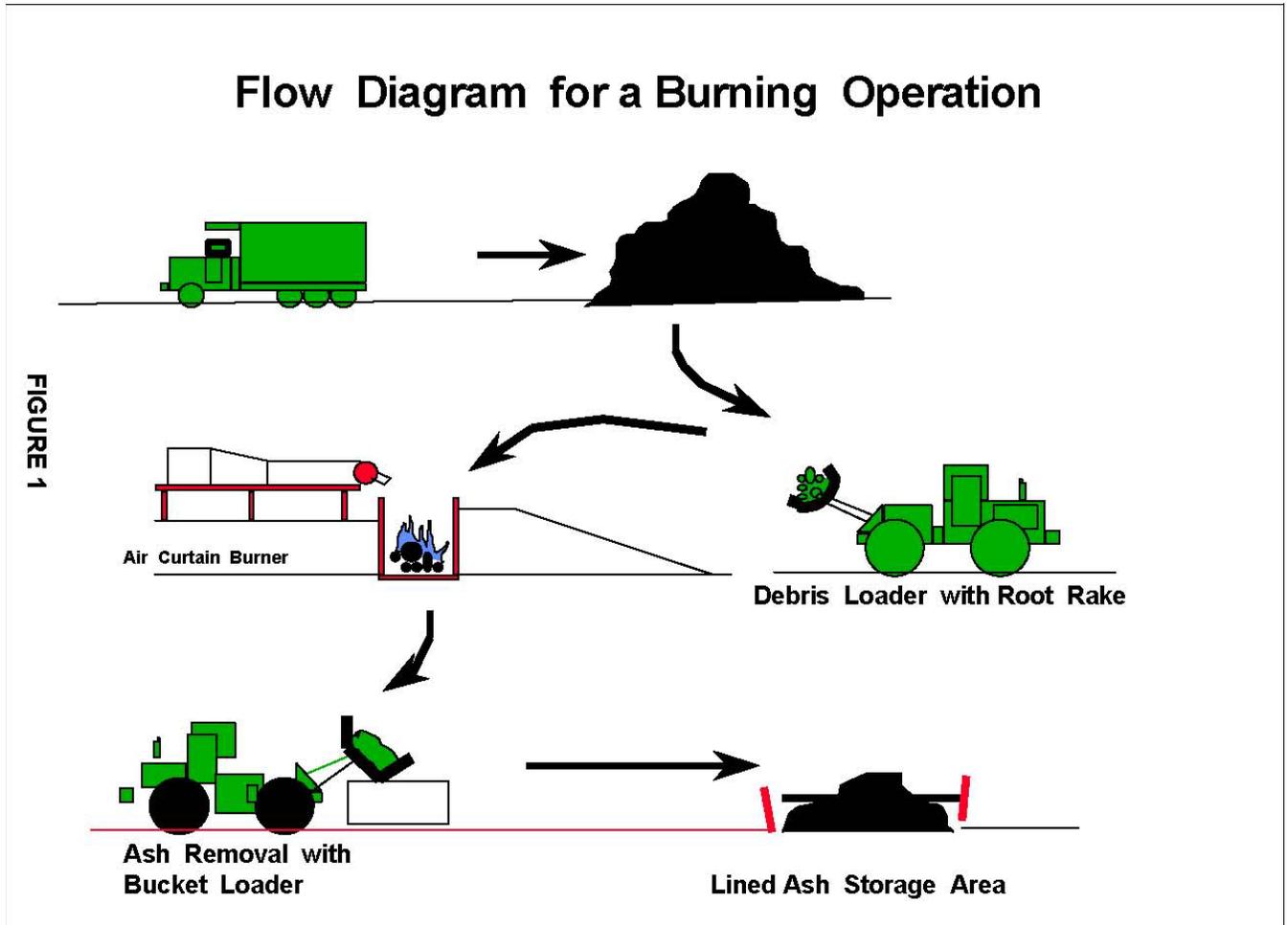
PAYMENT

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 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, lighting, ash containment, fire protection, permits, environmental monitoring, and safety measures; are all incorporated in the bidder's unit price for burning.

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 cost will be due after all equipment is removed from the work site. Payment for mobilization and demobilization will be per job. Payment for site preparation and site closure will be per job.



Overview of an Air Curtain Operation

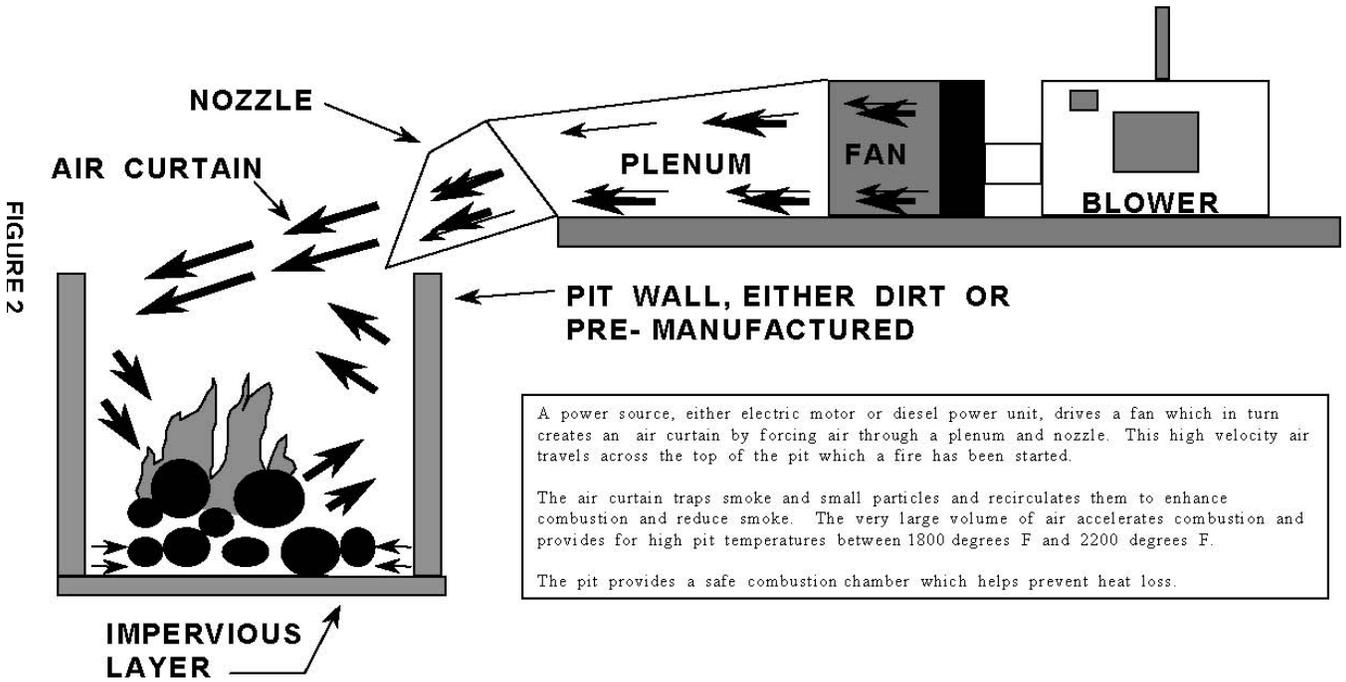
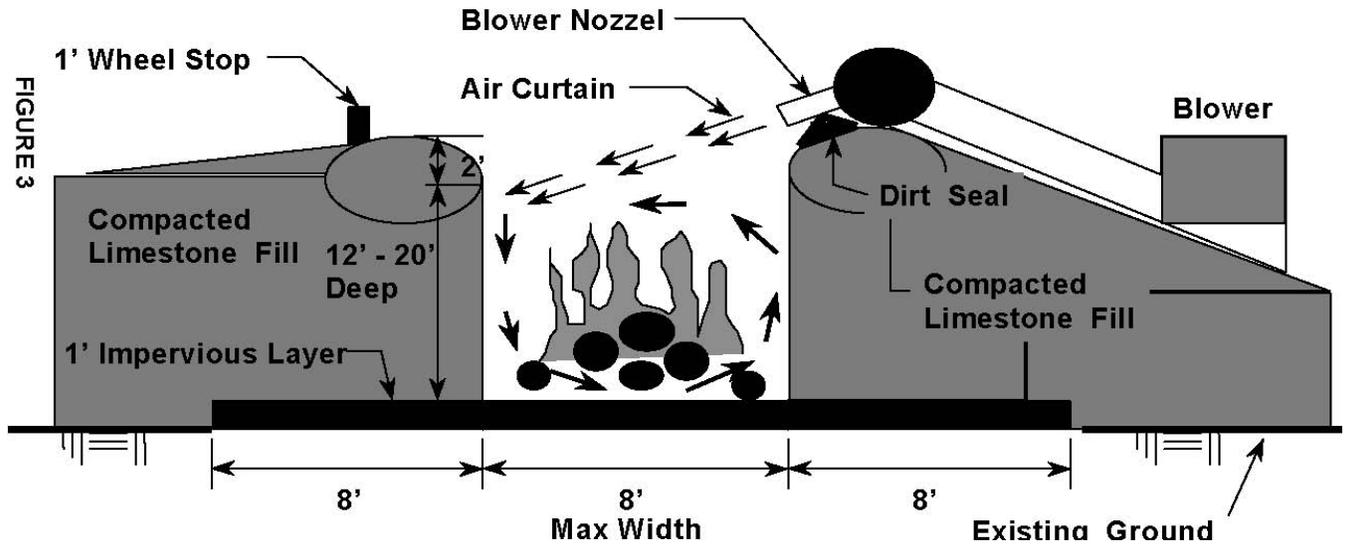


Figure 2 Air Curtain Pit Burner



Appendix K: USACE Sample Unit Price Debris Removal Scope of Work

**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

The purpose of this contract is to provide debris clearing and removal response assistance to [LOCATION; i.e. "North Carolina counties" or "Mobile and Baldwin Counties in Alabama"] which have been declared disaster areas by the President because of the effects of [NAME 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: [DESCRIPTION OF WORK AREA].

2.2 The debris shall be taken to the dumpsite(s) indicated on the attached maps, located at [LOCATION (S) OF DUMPSITE(S)].

2.3 The total amount of debris to be removed under this contract is estimated to be [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 be 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 dumpsite 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, tribal 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. All work shall be accomplished in a safe manner in accordance with EM 385-1-1.

3. 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:

Ticket Number
Contract Number
Date
Contractor Name
Site Departure Time
Dump Arrival Time
Debris Classification
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

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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 as 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), or 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 are 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 of with the same methods used for other burnable debris. Tree stumps larger than 24 inches in diameter will be removed of as burnable and paid for in accordance to the MEASUREMENT 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 designate.

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.

PERFORMANCE SCHEDULE

6.1 The Contractor shall commence performance on [DATE].

6.2 The Contractor shall, with the CORs direction, provide a work with plan showing where operations will begin and which streets/roads will be cleared on a 2, 7, 14 day projection. The plan will be updated every 2 days.

6.3 Maximum allowable time for completion will be [ENTER] calendar days, unless the Government initiates additions or deletions to the contract by written change orders. Subsequent changes in completion time will be

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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.

EQUIPMENT

7.1 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 bedsides. 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.

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. 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: Contractor's Name Contract Number Crew Location of work Day of Report 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.

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9.3 The Contractor shall be responsible for taking corrective action in response to any notices of violations issued as a result of the Contractors or any subcontractors 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. Load tickets will document measurement.

10.3 Measurement for payment of stumps removed with 25 to 36 inch diameters 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 basecuts (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 basecuts (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.

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12.2 The Government reserves right to issue other contracts or direct other contractors to work within the area included in this contract.

ENCLOSURES/ATTACHMENTS

13.1 Bidding Schedule

13.2 Daily Report

Appendix L: Debris Management Web Links

Federal Emergency Management Agency (FEMA)

FEMA Debris Management Main Site: Includes in-depth guidance on developing a debris management plan, FEMA policies and fact sheets, and other guidance on conducting debris operations according to FEMA reimbursement requirements:

http://www.fema.gov/government/grant/pa/debris_main.shtm

FEMA's updated Public Assistance: Debris Management Guide 325 (DMG325):

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

(Note: Appendices to the DMG (pp 153-260) include FEMA forms for tracking labor and equipment, monitoring forms, Debris Collection and Management Site Hazard Analysis, Demolition Checklist, and Policies and Fact-sheets on various aspects of debris management.)

FEMA Public Assistance Pilot Website – provides guidance on the FEMA Public Assistance Pilot Program:

<http://www.fema.gov/government/policy/papilot.shtm>

FEMA Regional contacts:

<http://www.fema.gov/about/contact/regions.shtm>

US Army Corps of Engineers

Corps of Engineers Emergency Response Portal

<http://www.enlink.usace.army.mil>

Click on: Debris Management, then:

Technical Assistance Planning Guide for Local Governments, or
Technical and Other Information

Examples of documents available at these links include:

- US Army Corps of Engineers Hurricane Debris Estimating Model
- Sample State Debris Plan
- Sample Pre-Event Contract for Disaster Debris Removal, Reduction, Disposal
- Post-Strike Estimating Tools – brief guidance for surveying and estimating damage immediately following a disaster
- Debris Modeling Reduction Site Requirements
- Sample Scope of Work for Monitoring
- Typical HHW Storage Area Plan
- Temporary Debris Storage and Reduction Site Development Plan Guide (includes incineration)
- Sample Unit Price Contract - Hurricane
- Sample Contract - Tornadoes, Storms, Floods
- Sample Wet Debris Scope of Work
- Debris Reduction Site Sample Contract
- Sample City (Virginia Beach) Debris Management Plan Strategy
- Debris Load Ticket Example

US Environmental Protection Agency (US EPA)

EPA's *Planning for Disaster Debris* manual highlights planning for debris cleanup, including lessons learned from communities experienced in disaster recovery:

<http://www.epa.gov/garbage/disaster/dstr-pdf.pdf>

EPA's website provides specific advice and assistance about planning for disaster debris cleanup:

<http://www.epa.gov/epaoswer/non-hw/muncpl/disaster/disaster.htm>

EPA special guidance on managing Asbestos Containing Materials in the course of building demolition following a large-scale disaster: <http://www.epa.gov/katrina/debris.html>

EPA information on construction and demolition (C&D) debris recycling:

<http://www.epa.gov/epaoswer/non-hw/debris-new/disaster.htm>

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EPA national listing of approved refrigerant (freon) recyclers:
<http://www.epa.gov/ozone/title6/608/reclamation/reclist.html>

Other Federal Agencies

Occupational Safety and Health Administration (OSHA) eMatrix provides guidance on how to keep workers safe during disaster debris cleanup/management (Note: more people are typically injured during cleanup than during disasters): <http://www.osha.gov/SLTC/etools/hurricane/index.html>

Federal Highway Administration Emergency Relief Program - information on federal reimbursement for repair of disaster-damaged federally funded highways:
<http://www.fhwa.dot.gov/programadmin/erelief.cfm>

Other State/Local Plans

City of Chesapeake, VA Debris Management Plan – one of the first approved by FEMA for the Public Assistance Pilot:
http://cityofchesapeake.net/services/depart/pub-wrks/debris_plan/index.shtml

Franklin County Massachusetts Disaster Debris Management Planning Document 2006:
http://frcog.org/pubs/emergency/Franklin_County_Debris_Document_Jan07.pdf

Connecticut Department of Environmental Protection Local Government Debris Management Memo:
http://www.ct.gov/dep/lib/dep/waste_management_and_disposal/solid_waste/DisasterDebrisManagementPlanning.pdf

Alameda County Disaster Debris Management Plan – an excellent regional plan for the county and its 17 cities with a strong emphasis on policies and methodologies for recycling, reusing, and otherwise diverting disaster debris from disposal: <http://www.stopwaste.org/docs/d-plan.pdf>
Appendices to this plan include useful forms and tools for debris management; electronic copies may be requested by calling (510) 891-6500

Disaster Debris Management – Planning Tools, report to EPA Region IV, 1999 – contains disaster debris management case studies with details on debris quantities, management logistics, and lessons learned in efforts to optimize recycling:
<http://people.cecs.ucf.edu/reinhart/research/DDfinalreport.pdf>

Public Outreach Materials

Brief print and recorded public service announcements produced by US EPA as guidance for Katrina victims on health hazards/precautions for hurricane and flood damage:
<http://www.epa.gov/katrina/outreach/psa.html>

Includes generic PSAs on the following topics:

- asbestos and lead
- carbon monoxide
- children and flood water
- cleaning up sediment
- flood water
- flooding and lead-based paint
- gas leaks
- hazardous materials
- household cleaners
- mold
- protective gear
- private wells and flood water
- septic systems

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These same PSAs are provided in Spanish at:

http://www.epa.gov/katrina/outreach/psa_espanol.html

Pierce County, OR Debris Recycling Issues to Consider – helpful tips on disaster debris recycling options and effective ways to engage the public in diversion:

<http://www.co.pierce.wa.us/pc/Abtus/ourorg/dem/EMDiv/CEMP/esf21Tab1.htm>

Other Resources

National Demolition Association listing of demolition contractors in New England:

<http://www.demolitionassociation.com/contractors.php?region=1>

Electronics Industry Alliance listing of electronics recyclers in MA:

<http://www.eiae.org/index.php?state=MA>

The Construction Materials Recycling Association lists 7 MA recyclers for Construction/Demolition wastes at:

<http://www.cdrecycling.org/find.html#ma>

Select other New England state C&D recyclers at: <http://www.cdrecycling.org/find.html>

Institutional Recycling Network C&D Recycling webpage with numerous resources:

<http://www.wastemiser.com/resources.html>

Whole Building Design Guide website lists 6 MA companies that accept C&D material, land-clearing debris, soils, and other materials in their Construction Waste Management Database at: <http://www.wbdg.org/tools/cwm.php>

General recycling information for other demolition materials

Concrete at <http://www.concreterecycling.org> (but has no company info listed)

Asphalt shingles at <http://www.shinglerecycling.org>

Drywall at <http://www.drywallrecycling.org>

Institute of Scrap Recycling Industries <http://www.isri.org>

Steel Recycling Institute <http://www.recycle-steel.org>

Automotive Recyclers Association <http://www.a-r-a.org>

Resources for Residents

State of Florida's "*Hurricane Retrofit Guide*" helps the public prepare their homes for

hurricane winds and is available at <http://www.floridadisaster.org/brm/rcmp/hrg/index.asp>

FEMA's Homeowner checklist for avoiding hurricane damage is available at

<http://www.fema.gov/pdf/plan/prevent/nhp/hurdam.pdf>

State of California's "*Homeowner Guide to Earthquake Safety*" is available at

<http://www.seismic.ca.gov/hog.htm>

American Red Cross flyers for a wide variety of disaster hazards/precautions are available at

<http://www.redcross.org/disaster/disasterguide/standardmsg.html>

American Red Cross flyer for avoiding flood damage is at

<http://redcross.tallytown.com/library/AvoidingFloodDamage.pdf>

FEMA homeowner's checklist to prepare for wildfires is available at

<http://www.fema.gov/news/newsrelease.fema?id=7533>

Red Cross guidance for preparing for wildfires is at:

http://www.redcross.org/static/file_cont258_lang0_123.pdf