

# **STATE OF OREGON DEBRIS MANAGEMENT PLAN**

**Annex to the State Emergency Operations Plan**

**Developed by Oregon Emergency Management  
Oregon Department of Transportation &  
Oregon Department of Environmental Quality**

April 2011

## TABLE OF CONTENTS

---

- 1. Purpose**
- 2. Situation and Assumptions**
  - 2.1. Situation
  - 2.2 Assumptions
  - 2.3 Alignment with other plans and documents
- 3. Concept of Operations**
  - 3.1 Initial Actions
    - a) ECC Activation and Annex Implementation
    - b) Estimating Types and Amounts of Debris
    - c) Conduct Initial Damage Assessments
    - d) Emergency Debris Clearing and Removal Prioritization
    - e) Temporary Debris Storage Site Selection and Site Priorities
    - f) Assessing Status of Existing Facilities
  - 3.2 Debris Removal
  - 3.3 Phase I - Emergency Debris Clearance and Removal
    - Emergency Access Clearance
    - Identification/Stabilization of Hazardous Substance-Containing Debris
    - Emergency Debris/Hazardous Substance Removal
  - 3.4 Phase II - Non-Emergency
  - 3.5 Health and Safety
  - 3.6 Public Information
- 4. Debris Collection, Segregation and Reduction Sites**
  - 4.1 Site Selection
  - 4.2 Site Selection and Temporary Permitting
  - 4.3 Site Approval
  - 4.4 Site Operations
  - 4.5 Debris Reduction Methods
  - 4.6 Site Closeout Procedures
- 5. Contract Services**
  - 5.1 Contracting for Debris Removal Operations
  - 5.2 Emergency Contracts
  - 5.3 Procurement
  - 5.4 Mutual Aid Agreements
  - 5.5 Documentation
  - 5.6 Activation of Standby Contracts
  - 5.7 Tracking Resources
  - 5.8 Review of Documentation Process
  - 5.9 Contract Monitoring
- 6. Organization and Responsibilities**
- 7. Administration and Logistics**

**8. Authorities**

**9. Definition of Important Terms/Acronyms**

**Appendixes**

- A USACE modeling methodology (Debris estimating)
- B Initial Damage Assessment Forms (IDA)
- C Debris Types table
- D Sample Hold Harmless
- E Sample Contracts

## 1. PURPOSE

The purpose of this Debris Management Plan is to provide a framework for State agencies and municipalities to facilitate and coordinate the evaluation, removal, collection, and disposal of debris following a disaster. Implementation of the Debris Management Plan will be coordinated through the State's Emergency Coordination Center (ECC), utilizing State agencies working under emergency operations, through State Agency Mission Assignments.

This document defines roles, responsibilities, and procedures, and provides guidance for development and implementation of all elements involved in managing debris removal operations required following a disaster event and in support of ESF#3 of the State of Oregon's Emergency Operations Plan.

## 2. SITUATION AND ASSUMPTIONS

### 2.1 Situations

- a) Natural and man-made disasters generate a variety of debris including trees and brush, sand, gravel, building/construction material and other demolition debris, vehicles, appliances, personal property, etc. Some of these materials may contain or be comprised of hazardous substances requiring special handling and/or disposal.
- b) The quantity and type of waste generated from any particular disaster will be a function of the location and kind of event experienced, as well as its magnitude, duration, and intensity.
- c) The quantity and type of waste generated, its location, and size of the area over which it is dispersed, will have a direct impact on the type of collection, recycling and disposal methods utilized to safely manage this waste, associated costs incurred, and how quickly the affected area can be safely cleaned up.
- d) In a major or catastrophic disaster, many state agencies and local governments will have difficulty in locating staff, equipment and funds to devote to debris removal, in short as well as long term. Communication plans and efforts must be part of the early planning.
- e) Characterization of the waste (organic content, toxicity, asbestos containing, hazardous, radioactive, etc.) should be done first as part of any response to the disaster. Segregation and management strategies of the waste removal, storage and disposal will depend on its characteristics and hazards.

## 2.2 Assumptions

- a) The amount of waste generated from an event or disaster could exceed the local area's or county's ability to dispose of it within the county or through normal disposal procedures. Many counties, like Clatsop, Curry, Tillamook or Columbia have only transfer stations and transport all waste out of county to permitted landfills for disposal.
- b) Local governments will declare an emergency if the quantity of disaster debris has exceeded their ability to manage and dispose of it.
- c) If required, the Governor would declare a state of emergency that authorizes the use of State resources to assist in the removal and disposal of disaster debris.
- d) In the event Federal resources are required, the Governor would request federal assistance in accordance with standard procedures established in the National Response Framework (NRF).
- e) Private contractors will play a significant role in disaster debris removal, collection, reduction, and disposals.

## 2.3 Alignment with Other Plans and Documents

### **Federal Response Framework**

In February of 2003, Homeland Security Presidential Directive (HSPD) 5 directed the Secretary of Homeland Security to develop the National Incident Management System (NIMS), and the National Response Framework (NRF) to provide a consistent national approach for federal, state, and local governments to work effectively and efficiently during a domestic incident response. This plan supports the Department of Homeland Security's (DHS) Emergency Support Functions (ESF); Public Works and Engineering Annex, using NIMS organization structure.

### **State of Oregon Emergency Operations Plan**

This supports the Oregon Emergency Operations Plan, by providing a framework to organize disaster debris operations through all levels of government. Each agency should have a debris management operational plan, in which this plan can be referenced to.

### **Federal Emergency Management**

This plan references FEMA Disaster Assistance Policies for eligibility and reimbursement purposes in the event of a Presidentially Declared disaster. All referenced FEMA Public Assistance policies are available on FEMA's website at:

<http://www.fema.gov/government/grant/pa/9500toc.shtm>

### 3. CONCEPT OF OPERATIONS

The Oregon Department of Transportation (ODOT), as the Primary Agency responsible for State Support Function #3 (ESF#3) – Public Works and Engineering, will utilize this plan to conduct and coordinate disaster debris response and management. ODOT will draw upon resources from the other ESF#3 supporting and/or adjunct agencies to conduct an efficient, coordinated response following a regional or state-wide disaster.

Primary Agency: Oregon Department of Transportation

Support Agencies: Oregon Military Department  
Department of Administrative Services  
Oregon Emergency Management  
Division of State Lands  
Department of Environmental Quality  
  
Department of Geology and Mineral Industries  
Department of Public Health  
Occupational Safety and Health Division  
Oregon Department of Forestry  
Department of Agriculture

Adjunct Agencies: U.S. Army Corps of Engineers  
U.S. Air Force Auxiliary - Civil Air Patrol  
U.S. Environmental Protection Agency  
U.S. Federal Emergency Management Agency

In general, disaster debris management will include the following components:

- 1) Organizing the response and establishing the Debris Management Task Force with ODOT as the Primary Agency with the support of the Supporting and Adjunct Agencies;
- 2) Collecting information critical to response through characterization of the waste, modeling and estimates of quantities and direct damage assessments and check in with critical physical resources [equipment, disposal facilities, etc.];
- 3) Planning and prioritizing the response using available information and establishing temporary disposal sites, if needed; and
- 4) Conducting a prioritized and coordinated response while protecting worker and public health and providing needed communication within the response and to the public.

### 3.1 INITIAL ACTIONS

#### a) Emergency Coordination Center Activation and Annex Implementation

When a disaster occurs which generates debris exceeding local governmental waste management resources, the State through Oregon Emergency Management (OEM) will activate the Emergency Coordination Center (ECC) according to standard operating procedures. This Annex to the State of Oregon Emergency Operational Plan will be activated and the Debris Management Task Force (DMTF) will be assembled (from Supporting and/or Adjunct Agencies) to assist ODOT in the coordination and management of disaster debris clearing, removal and disposal. The ECC Operations Manager or his/her designated representative in conjunction with the DMTF will determine if additional federal Emergency Support Functions (ESFs) are required to support these removal and disposal efforts. Also see Organization and Responsibilities of this plan.

#### b) Estimating the Type and Amounts of Disaster Debris

The amount of debris that will be generated by an event can be estimated by several methods. Forecasts of the amount and types of debris generated during different types and sizes of natural disasters help the planner understand the scope needed to safely manage, recycle and dispose of disaster debris. These estimates can be based on previous experience or can be made using forecast tools. These tools are meant to generate estimates that will help a community understand the possible types and amounts of debris that may be generated.

One tool available from federal agencies, the Hazard U.S. Multi-Hazard (HAZUS-MH) uses Geographic Information System software to map disposal hazard data and estimate the result of damage and economic losses for buildings and infrastructure. It also allows users to estimate the impact of earthquake, hurricane winds, and floods on populations.

Another disaster debris modeling tool is available from the US Army Corps of Engineers (USACE). The model considers five factors: the number of households, vegetation density factor, commercial density factor (non-residential debris), storm wind intensity, and rainfall intensity. The model provides a +/- 30% estimate of possible disaster debris volumes that may be generated by various storms. This USACE modeling methodology is available in **Appendix A** of this plan. There are also equations that will help produce the number and size of temporary disposal sites.

### c) Estimating and Characterizing Debris for the Initial Damage Assessment (IDA)

- Estimate quantities by sampling
- Characterize waste material by sampling, analysis (asbestos, lead paint, hazard testing) or other evaluation. For example, if the disaster is a radioactive bomb, then debris will most likely be radioactive or if the disaster is a flood, then waste may include hazardous waste from homes and businesses or construction debris may contain asbestos or lead paint.
- Estimate cost based on force account or contract (consider using US EPA's Illegal Dumping Economic Assessment model for this exercise if not too complex, [www.epa.gov](http://www.epa.gov))
- Use historical or local area unit costs
- Focus on disaster debris on public property, but include potential debris brought to curb
- Private roads/gated communities and FAS roads may not be eligible for Public Assistance in removing disaster debris
- For flood estimates, assume 15-25 CY of disaster debris will be generated per residence

#### Example Debris Estimating:

In earthquakes, buildings may totally collapse and require demolition due to the threat they pose to public safety. In such cases, the quantity of material to be hauled away as debris may be estimated using the following formula:

Area of building footprint x building height/3 = volume

In cases where a building changes its footprint or size at higher floors, the volume can be calculated by estimating the different footprint floors separately and adding the volumes together. Some flexibility is built into this calculation in the result to allow for the uneven shapes of the resulting rubble.

**Example:** A 1930s-era high-rise was severely damaged and must be demolished. It has three footprints stacked on one another, one at 45,000 sf, 30,000 sf, and 18,000 sf, respectively. The lower two sections are five stories at 12 ft high per floor, and the upper section is three stories at 10 ft high per floor. Calculate the debris volume in cubic yards.

Height of the sections: 5 stories x 12 ft/story = 60 ft.

3 stories x 10 ft/story = 30 ft.

$[(45,000 \text{ sf} \times 60 \text{ ft}) + (30,000 \text{ sf} \times 60 \text{ ft}) + (18,000 \text{ sf} \times 30 \text{ ft})] / 3 = 1,680,000 \text{ cf.}$   
 $1,680,000 \text{ cf} / 27 \text{ cf/cy} = 62,222 \text{ CY (rounded).}$

#### **d) Conduct Initial Damage Assessments (IDA)**

Prompt and accurate damage assessments are essential for effective disaster responses. The ultimate responsibility for damage assessment lies with the local governing authority. In the case of damage to State property, the heads of each affected department will have this responsibility. Prompt and accurate notification to the ECC is vital. Damage assessments should identify necessary life saving actions, assess the magnitude of damage and hazards of the waste, and determine additional resources that may be needed from other local governments and state agencies. The following are a few of the Initial Damage Assessments that can be used:

- Initial Damage Assessment by local jurisdictions - An Initial Damage Assessment (IDA) is required to identify the type of disaster, jurisdiction and estimated costs. Local government authorities complete the IDA forms and route them to the County Emergency Operation Center (EOC). The EOC compiles the data for the entire county. These IDA Data Collection forms and County Summary Form (located in Appendix B) is then routed to the State ECC. State Agencies also should complete IDAs.

Forms are also available at:

[http://www.oregon.gov/OMD/OEM/fin\\_rec/financial\\_recovery.shtml](http://www.oregon.gov/OMD/OEM/fin_rec/financial_recovery.shtml)

Local damage assessments that have identified a large amount of disaster debris should identify sector boundaries:

- ✓ Types including associated hazards, location and volume of debris
  - ✓ Land uses
  - ✓ Transportation Availability
  - ✓ Location of existing and potential temporary storage sites, and
  - ✓ Location of existing and potential permanent disposal sites
- 
- IDAs also can be accomplished by estimating debris through visual assessments using drive-by windshield surveys.
  - Aerial assessments can also be made using Oregon National Guard (ONG) helicopters, ODF and Civil Air Patrol (CAP) reconnaissance flights. The damaged area can be assessed either visually or by analyzing aerial photographs. Once the area has been assessed, the amount of disaster debris may be estimated using a modeling methodology shown in Appendix A (USACE modeling).

- Any noted occurrences of hazardous materials or wastes that pose immediate threat to human health and/or the environment should be documented by location, quantity and type, along with identifying marks (trade names, CAS numbers, etc.), condition of containers (if contained) and actual or potential media (land, air or water) affected. This information should be promptly directed to the State ECC and the DMTF through OERS.
- Hazardous situations that could impact responder health during the conduct of Phase I activities (gas leaks, downed power lines, asbestos, etc.) should be documented to the extent possible and the information conveyed to the State ECC and the DMTF through OERS.

**e) Emergency Debris Clearing and Urgent Removal Prioritization**

As information is received about areas with significant debris occurrence or accumulation, presence of hazardous substance releases or potential releases, and needs for emergency access route clearing (using pre-identified high priority transportation routes, if available), prioritization of debris removal to be accomplished during Phase I should be conducted.

Property owners are responsible for cleanup of waterways. For waters of the state, Division of State Lands and possibly the Army Corps of Engineers on federally navigable waters would share responsibilities. DEQ and EPA may be able to work together and use contractors for emergency response to spills or other disasters where debris is hazardous and poses an imminent threat to health or the environment.

**f) Temporary Debris Storage Site Selection and Site Priorities**

Concurrent with completion of the IDAs, the DMTF should determine the number and location of temporary sites needed for collection and processing of debris. The priority of site location should be determined as follows:

- First Priority: If possible, establish the site within the damaged area
- Second Priority: Pre-determined local, county or state property
- Third priority: Private property

See section 4.1 of this plan for site selection and criteria.

### **g) Assessing Status of Existing Facilities**

Develop an up-to-date list of operating facilities within each county that can accept varying types and amounts of debris. This might include landfills, transfer stations, infectious waste treatment facilities, scrap tire storage and recovery facilities, household hazardous waste facilities, composting facilities, and recycling facilities. Ideally the counties should be aware of companies authorized to transport scrap tires and infectious waste. Identify alternative facilities if those used during normal operations have been impacted by the disaster. Information on existing landfills and household hazardous waste facilities throughout the state is available through the

Department of Environmental Quality webpage

<http://www.deq.state.or.us/lq/sw/disposal/permittedfacilities.htm>

It is important to contact these facilities following a disaster to determine site impacts (if any) and current capacity with respect to total capacity and the date of projected site closure. DEQ staff can help with contacting solid waste facilities and determining their status and capabilities.

### **3.2 Debris Removal**

Floods and other natural disasters as well as human caused disasters can generate unprecedented amounts of debris in a few hours or a few minutes. The debris may be equally heavy in both urban and rural areas depending on the magnitude of the tree blow-down and associated structural damage such as homes, businesses, utilities, signs, etc. This section provides guidelines on disaster debris removal issues including emergency clearance of roads, public rights-of-way, private property, navigation hazard, hazardous waste, and household hazardous waste (HHW).

For listing of debris types and the best solutions for management see Appendix C.

The disaster debris management program should be based on an all-hazard approach. A critical component of debris management includes protecting the health and safety of responders. Each employer is responsible for protecting their own workers. Temporary workers are often used to assist with debris cleanup - their safety should also be addressed within these plans. Since disaster debris includes various waste streams, assessing the hazards of each waste type aids the selection of appropriate personal protective equipment (PPE) and training for workers.

In developing a management strategy for a large-scale disaster debris removal operation, the operation should be divided into three phases. Phase I consists of

the clearance of debris that hinders immediate life saving actions within the disaster area and clearance of debris which poses an immediate threat to public health and safety. Phase II operations consist of the removal and disposal of debris necessary to ensure the orderly recovery of the community and to eliminate less than immediate threats to health and safety. Phase III occurs once the orderly recovery of the community has occurred and after immediate and less than immediate threats have been addressed. Phase III consists of removing remaining debris and cleanup/closure of any temporary transfer stations established during Phases I and II.

### 3.3 Phase I - Emergency Debris Clearance and Removal

Disaster debris will be pushed to the shoulders of roadways during the emergency opening (Phase I) of key transportation routes. There is little time or concern for sorting debris at that time. The objective during Phase I is to provide for the safe movement of emergency and support vehicles into and out of the disaster area. Responders need to conduct some initial assessment of the disaster debris to determine hazards or toxicity to determine if the disaster debris may be safely moved without causing severe harm to workers or an additional disaster such as an explosion, radioactive exposure, or spill of toxic material from the movement of the disaster debris.

#### Emergency Access Route Clearance

- a) Phase I response focuses on providing emergency access routes into devastated areas following any type of major disaster. Oregon Department of Transportation (ODOT) and local governments must pre-identify and prioritize routes within their jurisdiction that are vital to emergency operations. If these can be pre-identified, they can be the focus of early phases of damage assessment and planning. This information is essential for directing the efforts of local assets and for identifying areas that State and Federal assistance can target.
- b) Disaster debris could include tree blow-down and broken limbs; household trash such as outdoor furniture, trash cans, etc.; utility poles, power, telephone and cable TV lines, transformers and other electrical devices; building debris such as bricks, roofing, siding and signs; debris from disaster destruction of commercial or industrial operations and facilities; and personal property such as clothing, appliances, boats, cars, trucks and trailers. Identification of hazardous conditions posed by damaged utilities (electrical, natural gas, sewer, etc.) commonly co-located along transportation corridors is essential as road clearing activities are conducted. Preliminary identification of environmental or human health hazards such as asbestos-containing building materials, radioactive waste,

**Comment [dp1]:** Have local govs and/or ODOT compiled this information...should we try to do it ahead of emergencies?

and toxic materials, explosive or other hazardous waste from industrial facilities or households is critical during this initial assessment to determine if toxic, hazardous or radioactive debris may be safely moved without immediate impacts to workers or the environment.

- c) Roadway debris clearing involves opening up arterial roads and collector streets by moving debris to road shoulders. There is no attempt to physically remove or dispose of the debris, only to clear key access routes to expedite:
- Movement of emergency vehicles and law enforcement.
  - Resumption of critical services, and
  - Assessment of damage to key public facilities and utilities such as schools, hospitals, government buildings, and municipal owned utilities.
- d) Oregon Emergency Management and/or the DMTF should be aware of local, state and federal capabilities to provide service for emergency roadway debris removal. Available resources should include:

**Local and State Governments:**

Municipal workers and equipment.  
Local and State DOT workers and equipment.  
National Guard.  
Local contractors hired by local and/or state governments (ODOT and DEQ spills response)

**Federal Assistance:**

US Dept. of Agriculture (USDA) Forest Service chain saw crews.  
Local US Army Corps of Engineers (USACE) workers and equipment.  
Department of Defense (DOD).  
Regional contractors hired by the Federal Emergency Management Agency (FEMA) or the USACE.  
Environmental Protection Agency (EPA)  
US Coast Guard (USCG)

*Also see FEMA Recovery Division Fact Sheet 9580.202 for Debris Removal Authorities of Federal Agencies*

- e) Immediate debris removal actions should be supervised by local government personnel using all available resources. Requests for additional assistance and resources should be made to the State ECC through ECC County Liaisons. Requests for federal assistance will be requested through the State Coordinating Officer (SCO) to the FEMA Federal Coordinating Officer (FCO). The request will be directed to the

Federal assistance debris coordinator (if on site and operational), or the USACE district authorized to contract services for FEMA.

- f) Special crews equipped with chain saws may be required to cut up downed trees. This activity becomes more hazardous during a disaster response and specified safety considerations (checking for live wires, appropriate safety equipment and other considerations) need to be followed to reduce the chance of injury and possible loss of life. When live electric lines are involved, work crews should coordinate with local utility companies to have power lines de-energized. Also see section 3.5, Health and Safety.
- g) Front end loaders and bulldozers should be equipped with protective cabs. Driveway cutouts, fire hydrants, valves, and storm water inlets should be left unobstructed. All personnel should wear protective gear such as hard hats, gloves, goggles, and safety shoes appropriate for the work to be conducted.

#### **Identification/Stabilization of Hazardous Substance-Containing Debris**

Identification of other environmental or human health hazards such as asbestos-containing building materials, radioactive waste, toxic materials, hazardous waste from industrial facilities or household hazardous waste is also critical during this initial assessment to determine if toxic, hazardous or radioactive debris may be safely moved without impacts to workers or the environment. As occurrences of hazardous substances associated with disaster debris are identified during initial damage assessments or emergency response operations, the DMTF shall collect and track information to facilitate prioritization for response. If hazardous substance releases (or potential releases) are not stable or otherwise require immediate action, removal and/or stabilization operations may be initiated by DEQ under ESF 10 authority. DEQ may utilize State-Authorized contractors to accomplish this work or coordinate with the U.S. EPA if state resources are insufficient due to scale or volume.

#### **Emergency Debris/Hazardous Substance Removal**

DEQ is the designated Primary Agency (along with OSFM) for Oil and Hazardous Materials response under ESF 10. Depending on the type of debris, DEQ may be able to help with removal of debris in two ways. One way is through use of a DEQ or EPA contractor authorized to clean up hazardous materials associated with spills and emergency response. The other way may be through use of DEQ's household hazardous waste contractor during Phase II of a disaster response (described in Section 3.3.3 below).

For clean ups authorized under DEQ or EPA spills response contracts:

- DEQ and/or EPA forms a Unified Command
- Reconnaissance surveys are conducted to identify the scope of the project and allocate resources needed
- Recovery operations begin

The DEQ and/or EPA will give instructions to the Cleanup Contractor to prioritize the types of hazardous wastes (i.e. flammables, explosives, chemicals, etc.) identified for removal; wastes which are imminent threats to the general public will have priority. Due to a potentially large volume of hazardous or toxic wastes generated by a disaster, discretionary decisions for removal of smaller, less-invasive items will need to be made to the extent practical.

### **3.4 Phase II - Non-Emergency Debris Removal**

Phase II removal focuses on removing disaster debris and starting to restore access to government services and key operations needed to address less imminent but still urgent responses to the disaster. At this phase, responders will have more time to assess disaster debris for hazards and toxicity as well as begin determining best ways to handle, store and safely dispose of or recycle disaster debris. Timing for Phase II may start as soon as roadways are cleared as early as a few hours after the disaster.

#### **Access to Government Services and Public Right-of-Way Debris Removal**

- a) The requirement for government services most likely will increase dramatically following a major disaster. Therefore, after emergency access has been provided to hospitals, police, and fire stations, the next priority is to open access to other critical community facilities such as municipal buildings, water treatment plants, wastewater treatment plants, power generation units and airports.
- b) Damaged utility systems, structurally unstable buildings and other damaged public facilities must be expeditiously repaired, deactivated, barricaded, or removed. Activities involving these facilities should be closely coordinated with their owners and/or operators. Demolition of unsafe structures, which constitute a public health and safety threat in most situations, may be deferred if access to the area can be controlled.
- c) As removal operations progress, the initial roadside piles of debris become the dumping location for additional yard waste and other storm generated debris such as construction and demolition (C&D) debris, personal property, trash, white goods (refrigerators, washers, dryers, hot water heaters, etc.), roofing, and even household commercial and agricultural chemicals.
- e) Public Property/Rights-of-Way Debris Removal: Disaster debris deposited on public lands including the right-of-way will be the responsibility of local government. In some cases, where a health and/or safety threat exists, private property owners may move such debris to the public right-of-way for removal by government forces. Government forces or volunteers may assist private property owners if necessary to remove disaster debris that

poses a health and/or safety threat. For FEMA eligibility see FEMA Disaster Assistance Policy, Debris Removal from Private Property DAP9523.1

- f) Rapid disaster debris removal from public rights-of-way should be a priority. Removal operations will also entail replacement of key utilities located along the public right-of-way.
- g) The local government and/or DMTF will be responsible for coordinating removal of disaster debris that poses a significant health and/or safety risk to the community. Requests for removal of disaster debris will likely come from all sectors of the community to assist residents in putting their lives and property in order.
- h) Local and State government force account employees will transition from opening roadways to clearing rights-of-way. State DOT forces from other districts and other community work forces (mutual aid agreements) may become available as will locally hired contractors who normally have limited resources. For large scale/catastrophic disaster, direct federal assistance, if required, will be provided by FEMA, USACE, DOD and large regional contractors with resources, experience and short mobilization times. See contracts section of this plan for FEMA eligibility requirements.
- i) Oregon Emergency Management and / or the DMTF will be required to provide accurate information on the magnitude of the debris removal mission. Providing information to the ECC and coordination with other agencies may require an independent means to assess debris removal progress. This need can be filled using local or State personnel to create independent field inspection teams.
- i) DSL –owned property disaster debris frequently ends up in waterways after a disaster. Most of the waterways are owned by the Oregon Division of State Lands. DEQ and EPA may be able to help DSL through use of contractors for removal of hazardous wastes that pose imminent threats to health or the environment. See above Identification/Stabilization of Hazardous Substance-Containing Debris and Emergency Debris/Hazardous Substance Removal under 3.2 Phase I of this plan.

**Oregon Emergency Management and/or the DMTF should be prepared to take the following actions:**

- a) Coordinate through local agencies the establishment of a contracted work force capable of rapid removal of disaster debris (*this may become an issue with locals bidding on the same contractors, shortage, outside contractors*)

- b) Develop an independent team of local and state personnel to monitor the removal activities
- c) Conduct daily briefings with key debris managers. Ensure that all major disaster debris removal and disposal actions are reviewed and approved by the local debris manager
- d) Coordinate with local and state DOT and law enforcement authorities to ensure that traffic control measures facilitate debris removal activities

### **Private Property Debris Removal**

Debris deposited on private property is the responsibility of the property owner. The plan must include procedures for notifying the public of debris removal schedules. The key is to provide all information regarding pickup times and locations for residential private property owners so that debris removal activities proceed efficiently. Commercial and industrial property owners should proceed with implementation of company emergency response plans.

- a) The local government should also provide instructions to residential property owners on separation of debris and steps to follow if they are unable to put debris from their property on the curbside for pickup. The local government may utilize volunteers or voluntary groups to assist property owners. A procedure for coordinating, deploying and tracking volunteers is essential for the success of volunteer efforts. The local government or county may assign a Volunteer Coordinator as necessary. DEQ can provide information to the local government on how residential property owners should segregate and package household hazardous wastes and keep them separate from normal wastes.
- b) Major natural disasters may create health and safety concerns with respect to severely damaged private property. Affected structures should be the responsibility of the owner to stabilize or demolish to protect the health and safety of adjacent residents. However, experience has shown that unsafe structures will remain due to lack of insurance, absentee landlords, or under-staffed and under-equipped local governments. Consequently, stabilization or demolition of these structures may become the responsibility of the local government and/or the DMTF.
- c) Disaster debris removal operations will usually include curbside pickup service provided by the local government or a contractor. Contractors operate under contracts described earlier such as time and materials, unit price or lump sum. Public employees and contractors will pick up debris and haul it to either a temporary debris management site that is authorized by DEQ or has received a temporary permit from DEQ, or to a regular DEQ permitted waste management or disposal site.

- d) Helping residential property owners to assess, package, store and properly dispose of disaster debris will require the cooperation of numerous local and State government officials and may require resources from any or all the following: real estate offices, local law and/or code enforcement agencies, State Historic Preservation Office, qualified contractors to remove HHW, asbestos, and lead-based paint, and field teams to photograph the sites before and after demolition.
- e) For consideration of FEMA Public Assistance reimbursement of such locally incurred costs or to undertake debris removal and/or demolition of structures on private property, see FEMA Disaster Assistance Policy (DAP), Demolition of Private Structures, DAP#9523.4 and Debris removal Private Property, DAP#9523.13.

<http://www.fema.gov/government/grant/pa/9500toc.shtml>

#### **Household Hazardous Waste (HHW) Removal**

- a) HHW may be generated as a result of a major natural disaster. HHW may consist of common household chemicals, propane tanks, oxygen bottles, batteries, and industrial and agricultural chemicals. These hazardous items may be mixed into the debris stream and will require close attention to protect the safety of workers and prevent environmental releases throughout the debris removal and disposal process.
- b) Pre-disaster – the Local government and / or DMTF should be aware of the problems that HHW will have on the overall debris removal and disposal mission. Local governments need to have a plan for how they will respond to HHW from disasters. These plans need to include managing the HHW at a locally operated HHW facility or having a HHW contractor available to manage it. If the local government and local contractors are unable to respond in a timely manner, DEQ may be able to coordinate the initial HHW removal using the services of the DEQ HHW contractor (if DEQ has funds or if it is likely that DEQ may be reimbursed by FEMA). However, after the initial few days of HHW removal, the local government will take over response efforts. DEQ can help coordinate with the Governor's office, DMTF, and local agencies concerning possible regulatory waivers and other emergency response requirements.
  - Some counties already have fixed household hazardous waste collection facilities or already have an HHW contractor on retainer. Every effort will be made to first utilize HHW collection resources available at the county level before using the DEQ HHW contractor. If needed and if resources are available, DEQ will pay for DEQ's HHW

contractor to initially collect HHW, characterize the waste, package and store the waste and properly dispose of HHW. DEQ will seek reimbursement from FEMA if such costs are reimbursable.

- Removal Operations HHW trained personnel should be present at all or most temporary disaster debris storage sites. DEQ may have a staff person available to monitor HHW disaster debris management. DEQ may ask a local government representative to also be on site to regulate HHW collection, storage and disposal. DEQ will assist with creation and distribution of fact sheets that help the public recognize HHW and other types of hazardous or toxic disaster debris and learn about proper disposal options/locations.
- c) Building Demolition - Complete asbestos, hazardous waste, lead paint or other toxic characteristics should be identified and such wastes should be segregated before building demolition begins. These wastes should be removed by qualified contractors. Uncontaminated debris can be removed by regular demolition contractors. DEQ recommends against moving contaminated building demolition debris to temporary storage sites if possible. Instead, contaminated demolition debris should be removed by qualified contractors directly to permitted disposal sites approved to handle the identified contamination if possible.
- d) Temporary Disposal sites - DEQ must approve and if needed, issue temporary permits to temporary disposal sites. DEQ can work with local governments to pre-approve temporary disposal sites before a disaster happens.

A separate staging area for hazardous waste, household hazardous waste, asbestos containing materials, contaminated soils, and other contaminated debris should be established at each temporary site. The staging area should be lined with an impermeable material and bermed to prevent contamination of the groundwater and the surrounding area. Wastes should be removed and disposed using qualified trained HHW personnel/contractors in accordance with local, State and Federal regulations. The site should be secured overnight.

The Environmental Protection Agency (EPA) recommends the following safeguards for sites used to segregate and store hazardous waste:

- The area to be used should be covered with two layers of plastic sheeting, tarps, or a concrete pad.
- Fence off the area with T-posts and orange barricade fencing.
- Surround fenced off area with absorbent booms (to absorb any potential leaks) or sandbags (to prevent spills from seeping into the ground).

- Use (wooden) pallets to raise collection bins off the ground (to ascertain potential leaks).
- Provide adequate space for walking/carrying items between pallets.
- Segregate containerized gases, liquids, or solids by material type (e.g. corrosive wastes, reactive wastes), place each material type in a separate bin or barrel, and label the bin or barrel appropriately.
- Cover collection bins or barrels with plastic liners/lids or cover the entire hazardous waste collection site with a tent to prevent water collecting in bins.
- Cylinders containing compressed gas should be placed upright with cap on and secured in place.
- Provide sufficient fire extinguishers for the site in case fire breaks out; four fire extinguishers per 10,000 square feet are recommended, placed at the corners or in easily accessible locations.

If residents are asked to bring debris to temporary collection sites, a community should identify those locations in its pre-incident communication plan. This information needs to be immediately available to the public, especially when electrical outages impede direct communication. Also, plan for sufficient staffing for these sites and consider establishing hours of operation that accommodate the residents. Many communities have found that much residential debris cleanup takes place on weekends or after normal business hours.

### **Post-Emergency Assessment of Hazardous Substance Containers Associated with Disaster Debris**

Following Phase I and II emergency response, there may be a need to evaluate disaster debris found as part of Phase III final clean up and restoration of the area. If containers or wastes are found during Phase III that require characterization to determine hazards, radioactivity, asbestos content or other toxic evaluation, these will be the responsibility of the local government. Procedures for characterization, segregation and disposal should be similar to those described above. If these wastes pose an imminent threat to human health or the environment, DEQ may be able to work with EPA to assign contractors to assist a local government with identification, characterization and removal. See phase I discussion of DEQ/EPA coordination and removal efforts.

### **3.5 Health and Safety Issues**

Disasters have unique health and safety issues. However, emergency response preparation should include an understanding of disaster debris types, and the health and safety issues associated with them, along with whatever PPE may be necessary.

**Comment [dp2]:** We should build this into this document...could not possibly do it during an event.

The debris management program should be based on an all-hazard approach. A critical component of debris management includes protecting the safety and well-being of workers. Temporary workers, who are often used to assist with debris cleanup, should also be addressed in any plan. Since debris includes various waste streams, assessing the hazards associated with each waste type aids the selection of appropriate PPE and training for workers. This planning process will improve disaster debris management practices and keep people safe.

Oregon OSHA regulates worker safety and health. Assistance may be requested by contacting the nearest local Oregon OSHA field office. See [www.orosha.org](http://www.orosha.org) on the internet to obtain contact and resource information.

### **Personal Hygiene Practices & Decontamination**

Make sure personal hygiene procedures are established with appropriate decontamination supplies available. Safe potable water for drinking, hand washing, and decontamination, including situations where emergency showers and eyewashes may be needed, is essential. For example, in flood conditions raw sewage and chemicals are often released, leading to contamination of affected areas.

### **Personal Protective Equipment (PPE), 1910.132**

Oregon OSHA requires that a hazard assessment be completed to select, use, and care for PPE that protect the head, eyes, face, hands and feet, with workers trained accordingly. Commonly required PPE includes hard hats, safety glasses with side shields, durable work gloves, and sturdy work boots (steel toes and shanks where foot injury may result). Specialized PPE may be needed to handle asbestos containing wastes. Specialized PPE will be needed where chemicals are handled, such as chemical protective clothing or chemically-resistant gloves. Consult manufacturer's recommendations on specific chemicals and protective ensembles.

### **Respiratory Protection, 1910.134**

There are numerous hazards from debris that can cause respiratory irritation and illness. These hazards are generally classified as dust and particulates, or as gases and vapors. A respirator equipped with N95 filter is suitable for most dust and particulates. The single use disposable-type (paper) masks use the fabric that meets N95 specifications. Many chemicals have unique properties (e.g. gases and vapors) that present different kinds of hazards. Selection of the right cartridges and/or canisters is based on knowledge of these hazards. Consult manufacturer's recommendations for specific chemicals and protective ensembles. Metals present additional hazards, especially when they are heated (fires, welding, etc.).

### **Hazardous Chemicals**

Workers must be trained on the hazards of chemicals and the steps to take for self-protection. This includes recognizing signs and symptoms of exposure.

Consult 1910.1200 (1910.1200 or .120?) for more information.

When chemicals are present in disaster debris, these areas need to be cordoned off until qualified workers can identify, separate, and prepare them for disposal. Chemical waste disposal must be done by a qualified hazardous waste management company. See Oregon OSHA's hazardous waste operations and emergency response rules (HAZWOPER, 1910.120) for additional information.

### **Asbestos, Lead, and Silica**

Asbestos containing wastes (1926.62) are regulated by both Oregon OSHA and by DEQ (OAR 340-248). Lead paint is regulated by Oregon Health Division. Careful review and advanced planning of operations where these materials may be encountered is strongly advised. Asbestos and lead were in common use in older structures. Additional protective actions must be implemented where these hazards occur. Once an exposure assessment is made by a competent person, protective actions may be modified once proper controls are in place. These actions must be completed by workers with specialized training and PPE to reduce or eliminate the spread of contamination, and prevent extensive remediation should these materials be mishandled.

Silica is present in many building materials (concrete, sheet rock, etc.) and is released by cutting, grinding and sanding. PPE are needed to reduce silica exposure.

For further information see:

<http://www.osha.gov/SLTC/etools/hurricane/index.html>

**Comment [m3]:** Should mercury exposure from broken fluorescent lights also be included here as an exposure hazard?

### **3.6 Public Information**

The public should be kept informed of the hazards possible in the type of debris generated by the disaster, what they need to do to protect themselves when handling the debris, local government debris pick-up schedules, disposal method and ongoing actions. Information on disposal procedures, including assistance for independent contractors as well as penalties for illegal dumping should be provided to insure compliance with state and federal regulations. Information should be shared through press releases, e-mail, posters, or whatever communication tools exist that can reach affected people.

- a) Establish a proactive information management plan involving the Governor's Press Secretary, and other agency PIOs. Emphasis should be on actions that the public can take to assist with the cleanup process, such as separating burnable and non-burnable debris; segregating hazardous waste, household hazardous waste, asbestos-containing waste, or other safety concerns; placing debris at the curbside; keeping debris piles away from fire hydrants, valves, etc; reporting illegal dumping and dump sites; and segregating recyclable materials.

b) Agency PIOs should be prepared to respond to questions from the press and local residents regarding disaster debris removal. If required a Joint Information Center (JIC) may be established to ensure a coordinated response is made to the public and a news desk phone number provided to the media. Local and state government responders may want to consider holding public meetings to share information and answer questions. DEQ can help with creating and distributing fact sheets and providing news releases. The following questions are likely to be asked:

- *Why isn't the State or FEMA picking this up for me?*
- *What is the pick-up system?*
- *Should I separate the different debris material and how?*
- *How do I handle asbestos containing or household hazardous waste (HHW)?*
- *Does it cost money?*
- *What if I can't pay?*
- *What if I am unable to bring the debris to the curb for pickup?*
- *What if I am elderly?*
- *Can I add construction materials and/or demolition debris used to rebuild my home to the pile?*

The public must be well informed on debris removal activities, such as:

- How to characterize waste
- Debris pick-up schedules
- Location and hours of operation of temporary storage & disposal sites
- Disposal methods and compliance with environmental regulations
- Restrictions and penalties for illegal dumping

#### **4.0 DISASTER DEBRIS COLLECTION AND REDUCTION SITES**

a) Once disaster debris is removed from an affected area, it will be taken to temporary management sites. DEQ staff can temporarily permit these sites using Solid Waste Letter of Authorizations that assure that environmental concerns are addressed and solid waste management and disposal requirements are met. Debris management actions will be handled at the lowest level possible based on the magnitude of the disaster. It follows the normal chain of responsibility, i.e. local level, county level, and state level. When all resources are exceeded at these levels, federal assistance may be requested according to established procedures. Due to limited disaster debris management resources, the establishment and operation of these temporary sites are generally accomplished by contracts.

- b) Emphasis is placed on local government responsibilities for developing debris disposal contracts under Federal and State/local procurement procedures (also see contract section of this plan). Removal and reduction activities may be handled locally or assigned to the USACE by FEMA pursuant to CFR 44 §206.5 and 206.8. Mission assignment may be used instead of Project Worksheets when responding to a catastrophic natural disaster. This allows FEMA and the USACE more flexibility in responding to specific debris removal and disposal tasks.
- c) Local/county and/or state governments may be responsible for developing and implementing these contracts for debris removal and disposal under most disaster conditions that are not catastrophic. The costs associated with preparing, implementing, and monitoring contracts are covered under 44 Code of Federal Regulation, Section 206.22 or FEMA Public Assistance Policies (also see FEMA Disaster Assistance Policy, 9580.201, Applicants Contracting Checklist). The emergency manager and /or the DMFT (based on magnitude of event) should review all debris disposal contracts. There should be a formal means to monitor contractor performance in order to ensure that funds are being used wisely.
- d) Debris monitoring procedures should be established and included, especially if the work has been contracted for any component of the debris removal operation. Monitoring debris removal operations achieves two objectives:
- Verifying that the work completed by the contractor is within the approved scope of work
  - Providing the required documentation for Public Assistance funding

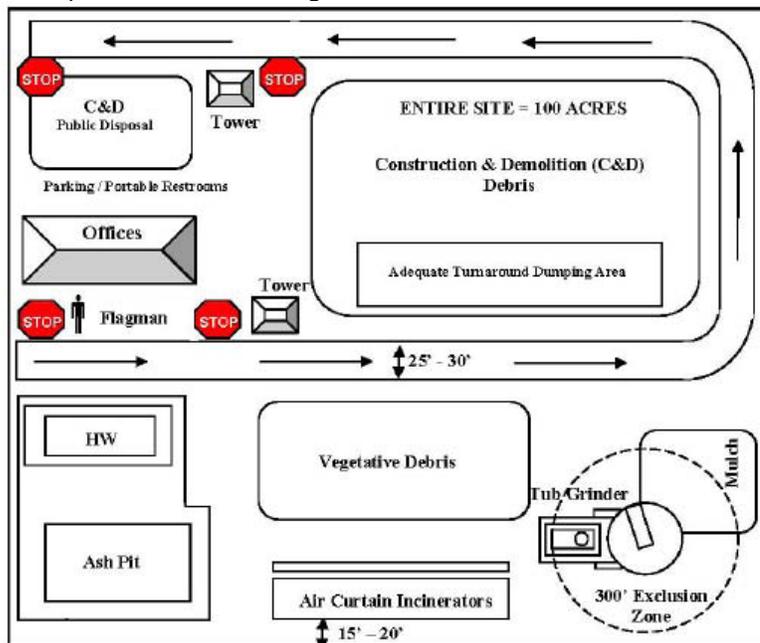
#### **4.1 Site Selection.**

Temporary disaster debris management sites should protect human health and the environment when selected. They should:

- a) Be sufficient in size with appropriate topography and soil type (preferably paved) (work with state/local environmental agencies to determine appropriate topography and soil type).
- b) Be located an appropriate distance from potable water wells and rivers, lakes, and streams (work with state/local environmental agencies to determine appropriate setback distances).
- c) Not be located in a floodplain or wetland.

- d) Have controls in place to mitigate storm water runoff, erosion, fires, vectors, and dust.
- e) Be free from obstructions, such as power lines and pipelines.
- f) Have limited access with only certain areas open to the public, such as areas to drop off debris. Post clear entrance and exit signage. Consider traffic flow.
- g) Be located close to the impacted area, but far enough away from residences, infrastructure, and businesses that could be affected by site operations.
- h) Preferably be on public lands because approval for this use is generally easier to obtain, but could also be located on private lands. Private lands may be convenient and logistically necessary for temporary debris storage sites. Consider potential agreements with private land owners in advance to ensure the use of these needed areas.
- i) Be able to be restored to original conditions after temporary use ceases.

Example of a Debris Management Site



## 4.2 Site Selection and Temporary Permitting

In general, DMTF will need to determine appropriate sites for storage, sorting and processing disaster debris. Consider access by heavy equipment, protection of environmentally sensitive areas, and logistical efficiency. Investigate possible impact on adjacent housing, because sites can attract vectors such as rodents and other pests, produce noise and odors at levels deemed unacceptable by residents, or put a large burden on normal traffic patterns.

It is important for disaster debris to be managed in a way that protects human health and the environment. Reimbursement by the federal government for costs incurred by public agencies responding to an emergency may be hampered if state and local agencies have not coordinated and communicated with regulatory agencies (DEQ, USACE, and SHPO) on the location and handling of disaster debris.

### Finding the Right Location

When selecting a proposed disaster debris management site, the DMTF or local government should also consider the following:

- a) What is the proposed use for this site?
- b) Is it easily accessible?
- c) Is it removed from obstructions such as power lines and pipelines?
- d) Is the site considered to be a wetland area, as defined by the U.S. Army Corps of Engineers?
- e) Is the general site topography conducive to the activity that will be conducted there?
- f) Are there nearby residences and/or businesses that will be inconvenienced or adversely affected by use of this site?
- g) Is the size sufficient for its intended use?
- h) Is the soil type suitable for its intended use?
- i) Is the site a previously authorized location that is being reactivated for use?
- j) Is the site located near water bodies such as rivers, lakes or streams and their proximity to occupied dwellings?
- k) What is its proximity to the impacted area?

- l) Does the site have historical significance? Contact Oregon State Historical Preservation Office.
- m) Can the site be easily cleaned up after temporary use?

The topography and soil conditions should be evaluated to determine best site layout. Consider ways to make remediation and restoration easier when planning site preparation. Also see, Appendix B USACE Debris model for size requirements.

#### **4.3 Site Approval**

DEQ can expedite issuance of Solid Waste Letters of Authorization for temporary facilities. If possible, local governments should identify and obtain pre-approval from DEQ for temporary disposal sites when writing local emergency management plans. The following information will be needed as soon as possible before DEQ can approve the use of the site:

- a. Written statement of permission from the land owner. This statement must address who will be responsible for the closure of the site and if a spill occurs, who will be responsible for the testing and removal of contaminated soil, the land owner, the site operator or the local government.
- b. Land use compatibility statement (LUCS) from the local government unless the Governor waives this permit requirement through executive order.
- c. Permit application fee unless the Governor waives this permit requirement through executive order.
- d. Indication that the site was used in previous emergencies or is identified in the local government emergency operation plan, as applicable.
- e. Location and size of the site on a map.
- f. Roads and road condition leading to and from the site.
- g. Distance to surface water including wetlands.
- h. Actions that will be taken to prevent contaminant release to surface and ground water, to prevent offsite dust and litter, and to assure waste is segregated appropriately to contain hazards or toxicity.
- i. An operations plan identifying site operator, hours of operations, how various types of disaster related waste will be managed, fees, security, emergency/spill response, signage, etc.

- j. Identify materials that will not be accepted for temporary storage at the site; further information may be needed.
- k. If the site location is sensitive and the site can not be operated in a way that protects the environment, DEQ will not approve the site.
- l. In addition to the above DEQ required information, consultation with the State Historical Preservation Office is also required.

**To identify the appropriate DEQ person to approve and permit the temporary site, please contact the appropriate DEQ solid waste manager:**

**Northwest Region** - DEQ's Northwest Region is responsible for carrying out environmental protection in the six northwest counties of Oregon (Clackamas, Clatsop, Columbia, Multnomah, Tillamook, and Washington). Staff also performs some work in Yamhill County. Contact Audrey O'Brien, 503-229-5072

**Western Region** - DEQ's Western Region encompasses 12 counties (Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Polk and Yamhill) and has regional offices in Coos Bay, Eugene, Grants Pass, Medford and Salem. Contact Brian Fuller, 541-687-7327

**Eastern Region** - DEQ's Eastern Region encompasses 18 counties of Central and Eastern Oregon (Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, and Wheeler). Contact Lissa Druback, 541-298-7255, ext. 22

#### **4.4 Site Operations**

Site preparation and operation are usually left up to the contractor but guidance can help avoid problems with the ultimate closeout. DEQ will provide technical assistance, however DEQ will not physically operate the site.

- a) Staffing – determine what roles are needed and who will fill those roles (safety staff, spotters, traffic controllers, administrative personnel, etc.) DEQ recommends and the permit will require that Hazwoper certified and asbestos trained personnel on site. Proper Personal Protective Equipment appropriate to the level of exposure must be worn (i.e. vest, hard hat, boots, glasses, gloves...) Secure the site to prevent scrap metal and other theft and to prevent illegal dumping.

- b) Set up record keeping (by type and amount of waste accepted, rejected, processed, etc). Set up removal and disposal contracts to establish a removal schedule, communicate with landfills and prioritize waste.
- c) Set up the site to allow for the separation and sorting of wastes. Include clear entrance and exit signage to control traffic and to check loads for unacceptable waste. Designate areas for public drop off, commercial drop off, and areas for debris to be sorted.
- d) Designate waste specific handling and storage procedures for different waste types (putrescible, hazardous waste, household hazardous waste, non-hazardous liquids, bulky wastes, appliances, woody debris, electronics, construction and demolition debris, industrial waste, asbestos containing waste materials, etc.)
- e) Establish lined temporary storage areas for hazardous waste, ash, HHW, fuels, and other materials that can contaminate soils and groundwater. Set up plastic liners when possible under stationary equipment such as generators and mobile lighting plants. Include this as a requirement of the contract scope of work.
- f) If the site is also an equipment staging area, monitor fueling and equipment repair to prevent and mitigate spills of petroleum products, hydraulic fluids, etc. Include clauses in contract scope of work to require immediate cleanup by the contractor.
- g) Use best management practices to the extent practical. When stockpiling or staging equipment, debris, including hazardous materials with potential runoff from chemicals, oils, and other contaminants, use absorbent pads, straw waddles, or kitty litter to intercept and prevent runoff to surrounding areas. Control storm water run off.
- h) Not In My Back Yard (NIMBY) Concerns. Be aware of and mitigate things that will irritate the neighbors such as:

*Smoke* - proper construction and operation of burn pits. Don't overload air curtains.

*Dust* - employ water trucks.

*Noise* - construct perimeter berms.

*Traffic* - proper layout of ingress and egress procedures to help traffic flow.

*Vectors*-proper storage of waste, closed bins.

Spills notification: Oregon Revised Statute 466.635 and Oil and Hazardous Materials Emergency Response Requirements, Chapter 340, Division 142, require immediate notification to Oregon Emergency Response System (OERS) after taking any required emergency actions to protect human health and the environment when oil or hazardous materials are spilled.

**The spill must be immediately reported to OERS at 1-800-452-0311 if the spill is of a reportable quantity. Reportable quantities include:**

- Any amount of oil spilled to waters of the state;

- Oil spills on land in excess of forty-two (42) gallons;
- Two hundred (200) pounds (twenty-five (25) gallons) or more of spilled pesticide residue; and
- Spills of hazardous materials that are equal to, or greater than, the quantity listed in the Code of Federal Regulations, 40 CFR Part 302 (List of Hazardous Substances and Reportable Quantities), and amendments adopted before July 1, 2002.

For a complete list of hazardous materials required to be reported, please refer to OAR 340-142-0050.

#### 4.5 Debris Reduction Methods

This section provides guidelines on debris volume reduction methods including recovery and recycling of usable, clean debris; grinding and chipping, and as a last resort burning. The DMTF should have an understanding of each method. All methods must comply with local ordinances and environmental regulations.

##### Volume Reduction by Recycling

**Table 4** List of materials that have strong recycle or reuse potential

<i>Segregated material</i>	<i>Potential for reuse/recycling/energy recovery</i>
White goods (refrigerators, freezers, stoves, etc.)	1 Metal recovery and recycling
	2 Freon recovery
Electronics (television sets, computers, cell phones, etc.)	1 Reuse of usable computer equipment
	2 Recovery of precious metals
	3 Parts recycling
Concrete	1 Recycling for roadbed use
Structural steel	1 Recycle
Wood/timber (whole trees)*	1 Recover for lumber
	2 Chipping for mulch
	3 Energy recovery
Woody vegetative debris*	1 Chipping for mulch
	2 Energy recovery
Clean (unpainted) structural wood*	1 Reuse for construction
	2 Energy recovery
Automobiles	1 Metal recycling
Tires	1 Crumb rubber for roadways
	2 Energy recovery
	3 Engineering uses
Biomass (also see woody vegetative debris)*	1 Energy recovery

Source: “Waste management policy revisions: lessons learned from the Katrina disaster,” W.E. Roper, *Int. J. Environmental Technology and Management*, Vol. 8, No.'s 2/3, 2008, p. 282. See this paper for more detail on disaster debris reuse and recycling options.

The above table identifies many disaster debris types that can be recovered, recycled, or as a last resort, burned for energy recovery. DEQ recommends recovering and recycling disaster debris whenever possible. There is economic value in reusing many types of debris such as metal, wood, clean soil and clean concrete. Recovery and recycling also reduces the volume of disaster debris that would otherwise go to a landfill.

Local governments may consider including large-scale recovery and recycling efforts to recover materials from major disasters such as windstorms, floods and earthquakes in their prime contractor agreements. Contractors may be able to segregate and recycle debris as it arrives at the staging and reduction sites. Careful attention to contract language can assure that recovery and recycling disaster debris is bucketful. If disaster debris is well sorted, specialized contractors should be able to bid on recoverable and recyclable materials. Contracts and monitoring procedures should be developed to ensure that those carrying out the recovery and recycling efforts comply with local, State, and Federal environmental regulations.

Recovery and recycling should be considered early in the debris removal and disposal operation to reduce the overall cost of the operation. In addition to the two tables included, here is more explanation about the recovery and recycling of certain debris types.

- **Metals.** Floods and windstorms may cause extensive damage to mobile homes, sun porches, and greenhouses. Most of the metals are non-ferrous and suitable for recycling. Trailer frames and other ferrous metals are also suitable for recycling. Metals can be separated using an electromagnet. Metals that have been processed for recycling can be sold to metal recycling firms. Disposal sites must be properly secured to prevent scrap metal theft. Metal from electronics or appliances would best be recovered by recycling facilities with expertise in handling these types of materials.
- **Soil.** If large amounts of soil are generated by the disaster, there may be some opportunity to reuse the soil if it is clean. Monitoring and testing of the soil will be necessary to ensure that it is not contaminated with oil, metals or other chemicals. Nearby landfills may be able to use this soil as daily cover.
- **Wood. Clean wood** from demolition, downed trees or other woody debris can be recovered for lumber, ground or chipped into mulch. (See

Section 4.1.2 Volume Reduction by Grinding and Chipping) Ground or chipped wood may also be of good enough quality to be used for composting or hog fuel. Chemically treated or painted wood may not be used for composting, but may be usable as hog fuel if testing demonstrates that air emission limits can be maintained.

- **Construction and Demolition (C&D) Debris.** Clean concrete block and other clean building materials can be reused or ground and used for other purposes if untreated or not painted and there is a ready market. Clean concrete may be ground and used as aggregate. Asphalt pavement may be ground and reused to make new asphalt, under DEQ approved conditions.

**Table 5** Disposal options for C&D waste components

<i>Waste component</i>	<i>Reuse</i>	<i>Recycle</i>	<i>Composting</i>	<i>Burning</i>	<i>Landfill</i>
Asphalt/roofing waste	–	X	–	–	X
Carpet/padding	X	X	–	–	X
Concrete	X	X	–	–	X
Dimensional lumber	X	X	X	X	X
Drywall	–	X	X	–	X
Insulation	–	X	–	–	X
Metal	X	X	–	–	–
Corrugated Cardboard	–	X	–	X	X
Plastic	–	X	–	–	X
Masonry/tile	X	X	–	–	X
Wood	X	X	X	X	X

Source: "Waste management policy revisions: lessons learned from the Katrina disaster," W.E. Roper, Int. J. Environmental Technology and Management, Vol. 8, Nos. 2/3, 2008, p. 282. See this paper for more detail on C&D reuse options.

- **Residue Material.** Residue material that cannot be recovered or recycled, such as cloth, rugs, and trash can be sent to a landfill for final disposal.

### Volume Reduction by Grinding and Chipping

If recovery and recycling are not options, local governments may consider grinding or chipping clean woody debris from the disaster. Grinding and chipping clean woody debris for use as a mulch may help to stabilize areas where topsoil has been disturbed, blown or washed away. Note: Construction and demolition wastes are not appropriate mulch materials as they may contain possible contaminants such as lead paint, asbestos, or other hazardous wastes. Local governments should check with DEQ to determine if a DEQ permit is needed for

grinding or chipping operations. Grinding or chipping must be done in ways that prevent significant dust generation and migration and protect environmentally sensitive areas (waters, wetlands, etc.) Emergency Management and/or the DMTF should work closely with local environmental and agricultural groups to determine if there is a market for clean mulch.

There are numerous makes and models of grinders and chippers on the market. When contracting, the most important item to specify is the size of the mulch. If the grinding operation is strictly for volume reduction, size is not important.

- The average size of wood chips produced should not exceed four inches in length and one half inch in diameter. Production output should average 100 to 150 cubic yards per hour when debris is moderately contaminated and slow feeding operations, and 200 to 250 cubic yards per hour for relatively clean debris. Note, this is not machine capability; this is contractor output or performance capabilities.
- Contaminants are all materials other than clean wood products and must be evaluated by DEQ or Department of Agriculture before a mulch containing any contaminants may be land applied. Testing must be done if there are any suspected contaminants such as treated wood, lead paint, oil or petroleum products, or other potentially toxic or hazardous substances. Plastics are a big problem and should be eliminated completely. To help eliminate contaminants, root rake loaders should be used to feed or crowd materials to the grappers. Bucket-loaders tend to scoop up earth (From DEQ's perspective clean soil in mulch is not problematic), and cause excessive wear on the grinder or chipper. Hand laborers should remove contaminants prior to feeding the grinders. Shaker screens should be used when processing stumps with root balls or when large amounts of soil are present in the woody debris.

Comment [j4]: Remove contaminant?

**Wood chippers** are ideal for use in residential areas, orchards, or groves. The numbers of damaged and uprooted trees present significant problems if they are pushed to the right-of-ways for eventual pick-up and transport to staging and reduction sites. The costs associated with chipping are reasonable since the material does not need to be transported twice.

**Wood grinders** are ideal for use at debris staging and reduction sites due to their high volume reduction capacity. Locating the grinders is critical from a dust, noise and safety point-of-view. Moreover, there is a need for a large area to hold the woody debris and an area to hold the resulting mulch. Ingress and egress to the site is also an important consideration.

### Volume Reduction by Burning

DEQ strongly discourages burning to reduce the volume of disaster debris. As a disposal method, burning should be a last resort. Burning creates fine particulate, carbon monoxide and toxic air pollutants that when inhaled can contribute to respiratory illnesses, heart disease and other potential health concerns. Burning also creates carbon dioxide, a greenhouse gas. If burning of any waste is determined to be necessary as an emergency measure to protect human health, the DEQ representative to the DMTF will assist in obtaining needed permits or emergency authorizations from the DEQ Air Quality Program. DEQ may determine that the site, the wastes and need to burn are not warranted and will work with the local governments and state agencies to find alternatives to burning. Local fire departments must also be notified prior to burning.

There are several burning methods available including *uncontrolled open burning, controlled open burning, air curtain pit burning, and refractor lined pit burning*. The DMTF should consider each burning method and obtain authorization from DEQ before selection and implementation as part of the overall volume reduction strategy. If burning is determined to be the only acceptable alternative for disposal, DEQ recommends using air curtain pit burning or refractor lined pit burning alternatives as a first choice with uncontrolled open burning as a last resort. Uncontrolled burning creates the most air pollution.

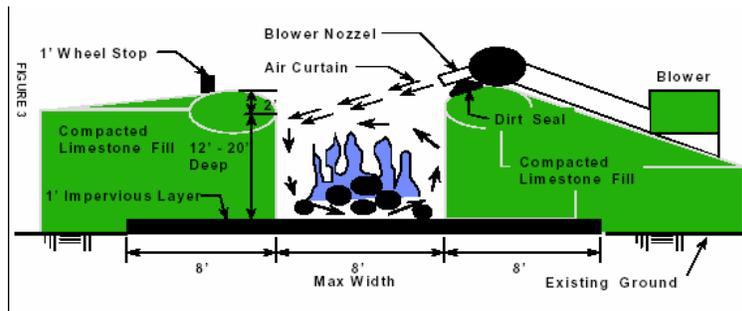
In addition to the criteria listed above, the Oregon Department of Environmental Quality (DEQ) will evaluate proposed burn sites. Burning certain waste including hazardous waste, household hazardous wastes, treated lumber, garbage, asbestos containing wastes, rubber and plastics is prohibited. DEQ recommends that local governments and state agencies look for opportunities to chip or grind wood waste and yard debris before considering burning. DEQ can provide assistance to find locations to use or store this chipped wood waste and yard debris.

**Controlled Open Burning:** Controlled open burning of clean woody debris may be an acceptable alternative for disposal of a small volume of material (i.e. 3 cubic yards) in a rural community where adjacent neighbors are at least 0.5 mile from the burn location. If considering open burning of any kind, the DMTF or local government should consult with DEQ staff to determine if a DEQ air quality letter permit is needed.

This option is not allowed if there is mixed debris (treated lumber, poles, nails, bolts, tin, aluminum sheeting, creosote treated wood, etc.). Only clean woody debris would be allowed to be burned. Resulting ash would be evaluated to determine if it could be land applied at agronomic rates as a soil additive by the local agricultural community. Land application must be approved by DEQ.

**Air Curtain Pit Burning:** Should burning be necessary in rural areas, air curtain pit burning reduces volume effectively and reduces air pollution. (See illustration below.) Air curtain pit burning of clean woody debris may be an acceptable alternative for disposal of a limited volume of material in a rural community where adjacent neighbors are at least 0.5 mile from the burn location. The DMTF or local government should consult with DEQ staff to determine if a DEQ air quality letter permit is needed. This option is not allowed if there is mixed debris (treated lumber, poles, nails, bolts, tin, aluminum sheeting, creosote treated wood, etc.). Only clean woody debris would be allowed to be burned. Resulting ash would be evaluated to determine if it could be land applied at agronomic rates as a soil additive by the local agricultural community. Land application must be approved by DEQ.

Specifications and statements of work should be developed to expedite the proper use of the systems since experience has shown that many contractors and subcontractors are not knowledgeable of the system operating parameters. Often specialized equipment is necessary to effectively conduct the burning process.



Source: "Waste Management after Katrina: Technical, Economical, and Managerial Issues in New Orleans and the Gulf Coast," Paper A#861, B. Kura, K.L. McManis, K. Wilson, A. Sengupta and M.S. Falk, p.6.

**Refractor Lined Pit Burning:** In rural areas, pre-manufactured refractory lined pit burners are an alternative to air curtain open pit burning. Pre-manufactured refractory lined pit burning of clean wood debris may be an acceptable alternative for disposal of a limited volume of material in a rural community where adjacent neighbors are at least 0.5 mile from the burn location. The DMTF or local government should consult with DEQ staff to determine if a DEQ air quality letter permit is needed. This option is not allowed if there is mixed debris (treated lumber, poles, nails, bolts, tin, aluminum sheeting, creosote treated wood, etc.). Only clean woody debris would be allowed to be burned. Resulting ash would be evaluated to

determine if it could be land applied at agronomic rates as a soil additive by the local agricultural community. Land application must be approved by DEQ.

- a) The units can be erected on site in a minimal amount of time. Some are portable and others must be built in-place. The units are especially suited for locations with high water tables, sandy soil, or where materials are not available to build above ground pits. The engineered features designed into the units allows for a reduction rate of approximately 95 percent with a minimum of air pollution. The units use air curtain blowers that deliver air at predetermined velocities and capacities. A nozzle 20 feet long would have a velocity of over 120 miles per hour and would be delivering over 20,000 cubic feet of air per minute to the fire. The air traps smoke and small particles and recirculates them to enhance combustion that reaches over 2500 degrees Fahrenheit. Manufacturers claim that wastes can be combusted at rates of about 25 tons per hour while still meeting emission standards
- b) Coastal areas may present contractors with unique problems when they start using the air curtain burner systems. Existing soil conditions and a high water table may prevent pit digging to meet manufacturers' specifications. Pits may not be constructed by pushing up the existing topsoil, because the pit sides will erode. Controls should be implemented to prevent contamination of the ground water. An acceptable solution is to use compacted limestone fill placed over an impervious clay layer.
- c) Local officials, environmental groups, and local citizens should be thoroughly briefed on the type of burning method being considered, how the systems work, environmental standards, health issues, and the risk associated with each type of burning. Public Information Officers should take the initiative to keep the public informed. A proactive public information strategy to include press releases, media broadcasts, etc. should be included in any operation that envisions burning as a primary means of volume reduction.
- d) Environmental controls are essential for all burning methods and should include: 1) check with DEQ to see if an air quality letter permit is needed. Always consult with DEQ and follow the open burning rules (OAR 340-264) that vary depending what part of the state the burning is done. 2) Be cognizant of nuisance conditions and follow nuisance rules (340-208-0300 thru 0450) 3) Be cognizant and sensitive to neighbors, especially ones that have respiratory or heart ailments, children and the elderly. 4) Only burn on good ventilation days when there is good air movement for effective smoke dispersal. 5) Never burn on days when there is already smoke pollution in the air (Check DEQ's AQI at [www.deq.state.or.us/aqi.aspx](http://www.deq.state.or.us/aqi.aspx) and only burn on green days) 6) Always check with the local fire district before burning. 7) If the community has an

air quality advisory, follow the advisory. 8) Never burn during an air stagnation event.

#### **4.6 Site Close-Out Procedures**

- a) Each temporary debris staging and reduction site will eventually be emptied of all material and be restored to its previous condition and use. If the size of event required mission tasking from the USACE, then the mission tasking may include requirements to clean up contractor-operated staging and reduction sites. Contractors would be required to remove and dispose of all mixed debris, construction and demolition (C&D) debris, and debris residue to approved landfills. In some cases, soil may need to be tested for contamination if the temporary site was not located on an impermeable surface. Quality Assurance (QA) inspectors should monitor all closeout and disposal activities to ensure that contractors complied with contract specifications. Additional measures may be necessary to meet local, state, and federal environmental requirements based on the nature of the staging and reduction operation.
- b) Emergency Management and/or DMTF must be assured by the contractor that all sites are properly remediated. There may be significant costs associated with poorly maintained or improperly operated debris management sites. The need for site remediation may be reduced or eliminated with proper site operation in accordance with established procedures. The local governments, contractors and property owners will need to cover various remediation costs.
- c) Each temporary debris management site must be cleared and restored to pre-disaster conditions and uses, with the exception of DEQ authorized vegetative debris, and sites where DEQ agrees to exempt land-application of ash from DEQ's solid waste permitting requirements. DEQ will not allow land application of ash without characterization of the ash demonstrating that there will be no environmental impacts from land application of the ash and also demonstrating that there will be an agronomic benefit from land application of the ash. Closure must be in accordance with approved DEQ practices. Closure should be accomplished within the time limits established by the DEQ and agreed to by the property owner, DEQ, the local government and the site operator. Samples from potential spill/contaminated areas will need to be collected and tested for contamination and any corrective action carried out to return the site to safe conditions.

#### **5.0 CONTRACT SERVICES**

In the event of a large disaster that generates debris on public roads and public property where the removal is beyond the capability of local governments, contractors can be used or Direct Federal Assistance can be requested. Direct Federal Assistance is often carried out by agencies such as the U.S. Corps of Engineers (USACE) under the control and direction of FEMA through a mission assignment. Additional information can be found in a later section, Requesting Direct Federal Assistance for Debris Management Operations.

In addition to the above, FEMA can provide technical assistance to the state or local jurisdictions with disaster debris management and removal issues. Such technical assistance may be provided by FEMA staff, mission-assigned experts, or technical assistance contractors (TAC). FEMA debris specialists may be assigned to each county or jurisdiction having significant debris operations to assist with eligibility issues.

#### **Federal Procurement Regulations**

- In general local governments must follow the more restrictive regulations between federal, state and local
- Must have full and open competition
- Must perform cost or price analysis for every procurement action
- Clearly show rationale for method of procurement, selection of contract type, adequate completion and price basis

### **5.1 Contracting for Debris Removal Operations**

In the event of a Presidential disaster declaration, local governments may receive reimbursement, subject to cost-share provisions, for the cost they incur for emergency clearance of debris from roadways and other public access facilities, and for the costs of removal and disposal of debris that poses an immediate threat to life, public health and safety.

To be eligible for reimbursement under the Public Assistance Program, contracts for debris removal must meet rules for Federal grants, which mean they are subject to the Common Rule specifying uniform administrative requirements for grants to states and local governments. FEMA's common rule provisions can be found in 44 CFR Part 13, and specific subsections, such as 13.36, describe procurement and other requirements. Public Assistance applicants should comply with their own procurement procedures in accordance with applicable State and local laws and regulations, provided that they conform to applicable Federal laws and standards identified in Part 13. It is important to remember that if local government contracts for debris removal do not comply with Federal grant requirements, the local government runs the risk of an ineligibility determination for federal reimbursement by FEMA.

Critical points are:

- ✓ Be careful to avoid entering into contracts, whether pre-event or post-event, that bypass or expedite the normal competitive procurement process
- ✓ FEMA may only reimburse for what is reasonable, and sole-source contracts may result in unreasonable pricing or terms
- ✓ Be cautious of contractors that may jeopardize reimbursements due to contract provisions, pricing or practices that are not reasonable and do not conform to Federal, State and local laws whichever is the most restrictive.

If there is a need to contract for debris services, and a pre-event contract is not in place, consider the following:

- Follow the local government's emergency or regular bid procedures for contracting services
- Develop a specific scope of work
- Identify any special considerations, such as historic sites, environmental issues (i.e. removing debris around areas with endangered species, hazardous waste, etc.) and if any such conditions are present, consult with OEM or DMTF prior to issuing bids or executing contracts
- Identify if the need exists for debris removal on private property and establish guidelines. If debris removal from private property is anticipated, contact OEM or DMTF for assistance. A sample Hold Harmless and Right-of Entry Agreements can be found in Appendix D
- Identify whether disaster debris removal is the responsibility of another federal agency, i.e. Federal Highway Administration (FHWA), Natural Resource Conservation Service (NRCS), or the USACE. Costs may not be reimbursed for work that is under the authority of another Federal agency. For example, FHWA has responsibility for debris clearance and some of the debris removal, through the State Department of Transportation, from roads on the Federal-Aid System
- Establish debris monitors that are separate from the contractor's monitors and provide training for these monitors. Monitoring of debris removal operations is the responsibility of the local government contracting for the service or using the applicant's resources. Failure to adequately monitor debris removal operations against contractor fraud, removal and disposal of ineligible debris, contract work in unauthorized areas, overstatement of debris volumes, and other ineligible activities, may result in a loss of Federal funding

- Establish a staff person who will oversee contract activities
- Establish Temporary Debris Reduction and Storage Sites
- Ensure the contract is for reasonable costs
- Submit contracts prior to execution to OEM/FEMA for *review* of eligibility. OEM and FEMA can not approve contracts, but can provide advice on potential contract terms that could possibly jeopardize reimbursement. *No contractor has the authority to determine eligibility*
- Identify Transfer Stations if landfills are a considerable distance from your jurisdiction
- Establish guidelines with local landfills and alternate landfills for types of debris accepted and current vs. maximum capacities

#### **List of Qualified Contractors**

A process should be developed that determines contractors eligible to conduct business with government entities to include type of work each contractor can perform with availability of equipment, type of collection, removal, and reduction of debris (capabilities, bonding, insurance, availability).

Upon Request, FEMA will advise State/DMTF and local governments on contracts and provide assistance with respect to issues such as demolition of unsafe structures or in connection with replacement of eligible facilities; debris on private property; removal of tree limbs and leaning trees; removal and disposal of hazardous tree stumps and rootballs; removal of sediment from engineered channels; removal and disposal of hazardous materials, etc.

#### **5.2 Emergency Contracting**

In some situations, such as clearing road for emergency access (moving debris off the driving surface to the shoulders or rights-of-way), or removal of debris at a specific site, awarding a non-competitive contract for site-specific work may be warranted; however, normally, non-competitive bid awards should not be made several days (or weeks) after the disaster or for long-term debris removal. Obviously, the latter situations do not address a public emergency which "will not permit a delay resulting from competitive solicitation".

*Note: Staff of the Office of General Counsel and the Office of the Inspector General has expressed concern that contracts are being awarded under this section without an understanding of the requirement. Simply stated, non-competitive contracts can be awarded only if the emergency is such that the*

*contract award cannot be delayed by the amount of time required to obtain competitive bidding.*

Regarding competitive solicitations, local governments (Public Assistance applicants) can use an expedited process for obtaining competitive bids. In the past, applicants have developed a scope-of-work, identified contractor that can do the work, made telephone invitations for bids, and received excellent competitive bids. Again, applicants must comply with State and local bidding requirements.

If warranted, FEMA technical assistance may be used to pre-authorize local governments with proper debris removal contracts.

The contract issuer may be a jurisdiction or regional operational authority. "Piggybacking" by using an existing contract established by another jurisdiction is not recognized by FEMA as an acceptable form of contracting. Cost plus a percentage, contingency contracts, and contracts awarded to debarred contractors are not allowed. Debarred contractors see web link:

<http://www.epls.gov>

**5.3 Procurement** to be eligible for reimbursement under the Public Assistance program, contracts for debris removal must meet rules for Federal grants, as provided for in 44 CFR Part 13.36 *Procurement*. Local governments should comply with their own procurement procedures in accordance with applicable State and local law and regulations, provided they conform to applicable Federal laws and Standards identified in Part 13. At times emergency contracting procedures will be used, also see FEMA Fact Sheet RP 9580.201 Debris Removal Applicant's Contracting Checklist.

**Types of Contracts:** The following types of contracts may be used when conducting debris management operations (in accordance to 44 CFR § 13.36).

- **Time and Material:** Under a time and material contract, the contractor is paid on the basis of time spent and resources utilized in accomplishing debris management tasks. This method is not recommended unless limited to work performed during the first 70 hours of actual work following a disaster event. The time and materials contracts must have a scope of work (as good as can be developed at the time, be closely monitored and include a cost ceiling, a 'not to exceed' clause must be included.
- **Unit Price:** A unit price contract is based on weight (tons) or volume (cubic yards) of debris hauled, and should be used when the scope of work is not well defined. It requires close monitoring of collection, transportation, and disposal to ensure that quantities are accurate. A unit price contract may be complicated by the need to segregate debris for disposal
  - Advantages: provides an accurate accounting of quantity of debris

removed and is simple to administer

- Disadvantages: requires trained quality assurance staff to estimate loads, segregation of materials; and trucks used to transport must meet these requirements.
- Lump Sum: A lump sum contract establishes a total price using a one item bid from a contractor. It should be used only when a scope of work is clearly defined, with areas of work and quantities of material clearly identified
  - Advantages of lump sum contracts include: minimal labor is required to manage the contracts, contractors shoulder the majority of risk and documenting the quantities is relatively easy
  - Disadvantages include: the statement of work must be very specific and clear; scoping of public rights of way may be a challenge and with lump sums, there is a potential for claims, (for example, dispute over volume estimates, etc)
  - Lump sum contracts can be defined in one of two ways:
    - Area Method, where the scope of work is based on a one time clearance of a specified area, or
    - Pass Method, where the scope of work is based on a certain number of passes through a specified area, such as a given distance along a right of way
  - Cost plus fixed fee – lump sum or unit price with a fixed contractor fee.

In addition, it may be prudent to develop a list of standby contracts.

Unacceptable contracts (in accordance to 44 CFR § 13.36) are Cost Plus a Percentage of Cost and Contingency Contracts (assumption of federal reimbursement).

#### **5.4 Mutual Aid Agreements**

Many State, Tribal, and local governments and private nonprofit organizations enter into mutual aid agreements to provide emergency assistance to each other in the event of disasters or emergencies. These agreements often are written, but occasionally are arranged verbally after a disaster or emergency occurs.

Cooperative Assistance agreement (ORS 401.480) allows state, counties and cities to collaborate with public and private agencies to enter into cooperative assistance agreements for reciprocal emergency aid and resources. Intergovernmental agreements (ORS 190.010) authorize local governments to enter into agreements with neighboring governmental entities for performance of any and all functions which the parties to the agreement are authorized to perform.

It is the responsibility of each jurisdiction to inventory their current agreements and evaluate their possible use during a debris-producing event.

Policies, procedures, and rates need to be established to track the lending and borrowing of resources for proper reimbursement to the requesting agency or reimbursement by FEMA.

Existing Agreements

Agreement Type	Participants	Participation Requirement	Service Requirement	How Activated	Types of Resources Available
Oregon Public Works Emergency Response Cooperative Assistance Agreement	Public Works agencies ODOT	Voluntary	Voluntary	Responding agency determines if it can provide support to Requesting agency	Public works equip and staff
Emergency Management Assistance Compact (EMAC)	All 50 states	Voluntary	Assistance is obligatory “provides that it is understood the state rendering aid may withhold resources to the extent necessary to provide Reasonable protection for such State”	Requesting State broadcast request, responding State determines if it can provide support	All types
Oregon State Fire Mobilization Plan	Statewide	Voluntary	Voluntary	In accordance with statute, fire service districts enter into mutual aid agreements for services, including emergencies which have the potential to overwhelm the resource capabilities within a single district. These agreements are integral parts of the Mobilization Plan	Firefighters and equipment needed to manage fires, disasters or other events.

*For FEMA reimbursement purposes also see FEMA Disaster Assistance Policy 9523.6. All FEMA Disaster Assistance Policies are available at the following link:*

<http://www.fema.gov/government/grant/pa/9500toc.shtm>

## **5.5 Documentation**

Documentation of debris management activities is important for potential reimbursement of costs. In addition, documentation is important to record activities performed and authorizations granted, and to develop a historical record for updating plans. Documentation of activities is the responsibility of those performing work as well as those who provide oversight and direction. At a minimum, documentation needs to address the following:

- ✓ Labor, equipment, rental fees and material costs
- ✓ Mutual-aid agreement expenses
- ✓ Use of volunteered resources, including labor (also see FEMA policy Donated Resources 9525.2)
- ✓ Administrative expenses
- ✓ Disposal costs
- ✓ Types of debris collected and amounts of each type

## **5.6 Activation of Standby Contracts**

Standby contracts are contracts with companies that make the company available for assistance in the event of a debris-generating event. The standby contracts are in place before a disaster occurs. The standby contracts are a pool of qualified contractors (bonding, insurance, availability) that can be used to obtain bids. Also see Qualified Contractors section 5.1.

## **5.7 Tracking of Resources**

Procedures for tracking resources should be available by each agency. The level of detail in the tracking system will be dependent upon the size and magnitude of the disaster.

## **5.8 Review of Documentation Process**

Evaluate when and why decisions were made to perform certain actions. Examples may include site selection for TDSR sites, debris removal priorities and demolition of public/private structures.

## **5.9 Contract Monitoring**

In the event contracts are in place for debris removal, monitoring of contractors is a very important issue. Designate a person or persons for contract monitoring. Contract monitoring verifies that the following actions are taking place:

- Debris being picked up is a direct result of the disaster
  - Trucks hauling debris are fully loaded
  - Debris pick-up areas are being managed properly
  - Trucks are sticking to debris routes
  - Inspection of temporary storage sites to ensure operations are being carried out according to contract
  - Verification of security and control for temporary debris storage and reduction sites

Also see FEMA Disaster Assistance Policy (DAP), Fact Sheet, Debris Monitoring, DAP#9580.203.

## 6.0 ORGANIZATION AND RESPONSIBILITIES

### **FEDERAL**

There are a number of federal agencies invested with varying authorities for debris management activities. These agencies include the U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers (USACE), the Federal Highway Administration, Environmental Protection Agency (EPA), U.S. Coast Guard (USCG), and the Department of Agriculture, Commerce and Transportation.

<http://www.fema.gov/emergency/nrf/>

### **Federal Emergency Management Agency**

The Robert T. Stafford Emergency Relief and Disaster Assistance Act (PL 93-288, as amended, and referred to as *The Stafford Act*) is the federal legislation that created a national program for disaster preparedness, response, recovery, and mitigation. The Act constitutes the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and FEMA programs.

- Provides FEMA Liaison to staff ECC
- At request of Governor conducts Joint Preliminary Damage Assessment (PDA)
- At request of State conducts Rapid Needs Assessment (RNA)
- At request of State facilitates federal mission assignment (see Federal Mission Assignment Process in this section)

Comment [j5]: May add FEMA RNA during large events?

Upon request FEMA may advise State/DMTF and local governments on eligible debris, contracts and issues related to compliance with Federal environmental and historical preservation laws, regulations and executive orders, especially when work is in waterways or when dealing with hazardous materials. Reimbursement requested by a local government for any project that is not in compliance with environmental/historical preservation laws is not eligible. Furthermore, it is the responsibility of the local government applicant to satisfy all necessary permitting and compliance issues before commencing with any federally-funded project.

## 6.1 State Department and Agencies

State department and agency heads and staff are responsible for developing operational plans, and training to internal policies and procedures to meet response and recovery needs safely.

**Comment [j6]:** Each department/agencies need to add their role and responsibility

### The Office of the Governor

#### **Emergency Powers and Management**

Oregon State's governor can circumvent some normal operating procedures in the event the Governor has declared a state of emergency under Oregon Revised Statute [ORS] 401, Emergency Services and Communication. Under a "declaration," the Governor has the complete authority over all state agencies and has the right to exercise, within the area designated in proclamation, all police powers vested in the state by the Oregon Constitution.

ORS 401.145 (Authority over removal of disaster debris or wreckage; unconditional authorization of community; liability for injury or damage) authorizes the Governor through the use of state department or agencies to clear or remove debris from publicly or privately owned land or water, which may threaten public health or safety. This authority shall not be exercised unless an unconditional authorization and or a hold harmless indemnify the state government against any claim from debris removal is present.

The Governor's Office is responsible for:

- Coordinating state resources and providing the strategic guidance needed to prevent, mitigate, prepare for , respond to and recover from incidents of all types
- Making, amending or suspending certain orders or regulations associated with response in accordance with state law
- Communicating with public to inform, educate, and help people, businesses and organizations cope with the consequences of any type of incident

- Commanding the State's military forces, this includes National Guard personnel not in federal service or state militias.
- Coordinating assistance from other states through interstate mutual aid and assistance compacts such as EMAC
- Requesting federal assistance including , if appropriate, a Stafford Act Presidential declaration of an emergency or major disaster when it becomes clear that state capabilities will be insufficient or have been exceeded

### **Oregon Emergency Management Agency**

The purpose of the Office of Emergency Management is to execute the Governor's responsibilities to maintain an emergency services system as prescribed in ORS 401 by planning, preparing and providing for the prevention, mitigation and management of emergencies or disasters that present a threat to the lives and property of citizens of and visitors to the State of Oregon.

The agency is responsible for coordinating and facilitating emergency planning, preparedness, response and recovery activities with the state and local emergency services agencies and organizations, and shall:

- Make rules that are necessary and proper for the administration of ORS 401
- Coordinate the activities of all public and private organizations specifically related to providing emergency services within this state
- Maintain a cooperative liaison with emergency management agencies and organization of local governments, other states, and the Federal Government
- Have such additional authority, duties and responsibilities authorized by ORS 401.015 to 401.105, 401.260 to 401.325 and 401.355 to 401.580 or as may be directed by the Governor
- Serve as the Governor's authorized representative for coordination of certain response activities and managing the recovery process
- Enforce compliance requirements of federal and state agencies for receiving funds and conducting designated emergency functions
- Performs as Primary Agency for ESF 5, Information and Planning
- Implements the Damage Assessment Annex, if necessary, to assess and evaluate the damage and debris removal requirements
- Administer the Individual Assistance Program

- Delivers the Public Assistance Program
- Works with volunteer agencies in the delivery of disaster relief
- Performs as a core agency in the Debris Management Task Force
- Activates the State Emergency Coordination Center (ECC) when necessary using established Standard Operating Procedures (SOP). Partial activation may be necessary during early phases of an event. Full Emergency Support Function (ESF) activation will be required when a catastrophic event is imminent or has occurred in Oregon. ESF representatives responding to the ECC must have the knowledge of their department and their resources and have full authority to commit those resources for response and recovery operations.
- Coordinates State resources through ECC by mission assignments.
  - Counties must demonstrate work beyond capability of resources through situation/damage assessment.
  - County Emergency Management Agency makes request to the State ECC County Liaison
  - State ECC County Liaison submits request to ECC Operations Manager who then assigns to appropriate agencies.
  - State agency accomplishes mission

**Department of Environmental Quality**

Provides technical assistance in temporary disaster debris site management and/or debris disposal site permitting; hazardous waste, household hazardous waste (HHW) collection/disposal through established contractor when there is no local HHW plan, facility or contractor; spill response, Solid Waste Letter Authorizations or Air Quality Emergency Burn Letter Permits, review of land application proposals; provide services and support as requested through the Office of Emergency Management, Emergency Coordination Center

- Perform as Primary Agency (along with the Oregon State Fire Marshal's Office) for ESF 10, Oil and Hazardous Materials
- Perform as a supporting agency to ODOT in support of ESF 3 and to the Debris Management Task Force
- Emergency response coordination staff and extended network of environmental expertise (engineers, physical scientists, regulatory specialists, toxicologists, etc.) to support response to environmental aspects of emergencies (Primary Agency along with Oregon State Fire Marshal for ESF #10)
- Expedited environmental permitting and/or authorizations (air quality, water quality, solid waste)

- Technical assistance on waste characterization and minimization, hazardous and solid waste handling/disposal, and related issues
- Develop and follow a plan of action for an event for the removal and disposal of Household hazardous waste debris
- Provide contractors for response to hazardous materials and oil releases (for imminent threat or potential releases) through use of DEQ or EPA spills response contractor if appropriate or through DEQ's HHW contract for removal of HHW or CEG waste
- Provide coordination with U.S. EPA for responses which exceed the State of Oregon's capacity to respond
- Laboratory services and chemists

### **Oregon Department of Transportation**

Implements debris removal along state and federal rights of way; provide support as requested through the Emergency Coordination Center.

- Bridge and highway damage assessment
- Debris clearance
- Communications, mapping, GIS
- Traffic control
- Photo/Video services
- Staging areas
- Expedited over-dimension permits
- Technical advice
- Contractors
- Public information team
- Generators
- Materials for roads (gravel etc.)
- Heavy fleet
- Oregon Public Works Emergency Response Cooperative Assistance Agreement

At the State Level, debris management is an activity under ESF 3.

### **State Fire Marshal**

- Perform as the Primary Agency for ESF 4, Firefighting and ESF 9, Urban Search and Rescue and Co-Primary Agency with DEQ for ESF10, Oil and Hazardous Materials.
- (to be developed)

### **Oregon National Guard**

Provides support as requested through the Emergency Coordination Center

- Traffic control
- Law enforcement
- Resource distribution
- Potable water distribution
- Establishing communications networks with fixed and mobile radios
- Aerial surveillance of disaster area
- Provisions of limited electric power from portable generators
- Search and rescue, lifesaving, and air ambulance missions
- Perform as the Primary Agency for Military Support.
- Perform as a core agency in the Debris Management Task Force.
- Coordinate with ODOT to assist in the emergency roadway clearance and public right-of-way clearance operations.
- (to be developed)

Comment [dp7]: This title does not match what is in the EOP.

### **Public Utilities**

- Coordinate with ODOT to de-energize downed power lines during emergency roadway clearance and public right-of-way clearance operations.
- (to be developed)?

### **Oregon Department of Forestry**

Provide technical support on timber and management of forest lands, debris flow warning systems; provide support as requested through the Emergency Coordination Center

### **Oregon Public Health**

Provide technical assistance on public health concerns associated with debris management including radioactive waste or asbestos containing waste; provide support as requested through the Emergency Coordination Center

### **Oregon Occupational Health and Safety**

Provide technical assistance on health and safety issues associated with debris management; provide support as requested through the Emergency Coordination Center

### **Oregon State Police**

Provide support as requested through the Emergency Coordination Center

### **Oregon Department of Corrections**

Provide labor as requested through the Emergency Coordination Center

### **Oregon Department of Fish and Wildlife**

Provide technical support on maintaining beneficial debris in stream channels; providing technical support on fish and wildlife issues; provide support as requested through the Emergency Coordination Center

### **Oregon State Parks and Recreation Department**

State Historic Preservation Office responsible for cultural/archaeological impacts associated with site and operation of temporary storage reduction facilities; potentially available staging areas for support crews; potential sources of potable water; provide support as requested through the Emergency Coordination Center.

### **Oregon Department of State Lands**

Department of State Lands (DSL) manages over 4.0 million acres of agricultural, grazing, forest, estuaries and tidelands, offshore lands and submerged and submersible lands of the state's navigable waterways.

- Administers state's removal-fill law, which protects Oregon's waterways
- Lead state agency for protection and maintenance of state wetlands
- Environment waivers and clearances

### **Oregon Department of Administrative Services**

Provide representative(s) to the ECC as required to serve as liaison to other state agencies. Provides logistical assistance as requested.

- Management and inspection (limited)
- Executive Division authority
- Light fleet (state motor pool vehicles)
- Purchasing/contracting
- Risk management
- Geographic Information System (GIS)
- Redeployment of state personnel
- Sites for collections and distribution of materials
- Perform as the Primary Agency for ESF 7, Resource Support, and ESF 12, Energy
- Perform as a core agency in the Debris Management Task Force.
- Setting bidding requirements
- Advertising for bids.
- Instructing bidders
- Developing contracts
- (to be developed)

### **Oregon Building Codes Division**

BCD will participate as a team member at the state's emergency center to provide consultation services. BCD may assist the Emergency Management Division in identifying priority inspection areas.

- Lead for post-earthquake building assessment
- 
- 
- Participate in ATC-20 training
- Responsible for elevator and boiler inspections
- Data-base of ATC-20 certified inspectors

**Comment [RSR8]:** BCD is the lead agency for post-earthquake assessment only.

**Comment [RSR9]:** BCD has no engineers on staff and limited plan review staff.

**Comment [RSR10]:** Only per ATC-20 protocols.

**Comment [RSR11]:** BCD does not maintain a list of structural engineers.

**Comment [RSR12]:** BCD has limited plan review staff. Such activity would be organized through local jurisdictions.

### **Oregon Department of Geology and Mineral Industries**

Will provide a staff member to serve as spokesperson to the media to explain the event. Provides Staff to the State ECC to serve as technical support.

- Geologists and two engineers on staff
- Public education team
- Preliminary HAZUS modeling
- Field assessment-geologic expertise-where and why geologic event is happening and if it will get worse
- Work regularly with local geologist-could help mobilize professionals in local area

### **Oregon Department of Forestry**

**(To be developed)**

### **Oregon Department of Agriculture**

Provide representative(s) to the ECC as required to serve as liaison to other state agencies. This department addresses emergency responses that affect Oregon domestic livestock and poultry species herein addressed as animals, birds or poultry. Response to a disease outbreak that involves wildlife will be coordinated with the Oregon Department of Fish and Wildlife (ODF&W).

## **6.2 County and Municipal Government**

In the event of a disaster that generates a tremendous amount of debris on public roadways and private property that presents a danger to health and safety, it is first the local government's responsibility to remove debris from public roads to provide access for emergency vehicles. Most local governments have the ability to open roads and remove debris. In the event additional assistance is needed for labor and to use government owned equipment, temporary hires may be used. In

addition to temporary hires, if a Mutual Aid agreement is in place with other local governments, aid from these jurisdictions may be used as well. Local governments may also contract for debris removal according to their emergency or regular bid procedures. In the event of a Presidential disaster declaration, federal reimbursement costs will be limited to the reasonable, necessary costs to remove eligible debris.

It is the local governments' responsibility to coordinate with other Federal agencies for debris removal activities that fall under other Federal agencies' respective authorities, such as the Natural Resources Conservation Service (NRCS) for streams and waterways; the U.S. Corps of Engineers (USACE) for flood control works; or the Federal Highway Administration (FHWA) for roads on the Federal-Aid system. In some cases, FEMA may provide assistance for disaster-related emergency work, such as debris removal, when the other Federal agencies will not.

#### **County Emergency Management Agencies:**

- Declares Emergency
- Performs as core agencies in the Debris Management Task Force if their county is involved
- \*Request resources through State ECC County Liaison
- Conducts Initial Damage Assessments and submits to ECC
- Provides for collection of HHW

*\*The declaration of a local emergency can be the first step in requesting state resources from the Governor.*

#### **Local/Municipal Emergency Management Agencies:**

- Declares Emergency
- Perform as core agencies in the Debris Management Task Force if their municipality is involved
- Requests resources to County
- Conducts Initial Damage Assessments and submits to County EOC.
- (to be developed)

### **6.3 SUPPORTING AGENCIES**

**Federal Mission Assignments** (in accordance with 44CFR, 206.208) Direct Federal Assistance applies only to Emergency Work (debris removal and emergency protective measures) and must meet general Federal Emergency Management Agency eligibility criteria. Debris activities that are eligible for Direct Federal Assistance include:

- Debris removal from critical roadways and facilities
- Debris removal from curbsides or from eligible facilities and hauling to either temporary or permanent sites
- Identification, design, operation, and closeout of the debris management sites
- Monitoring debris contractor's activities
- Demolition or removal of disaster damaged structures and facilities in accordance with Federal Emergency Management Agency regulations and policies. FEMA will work directly with state and local governments

Technical Assistance applies when a state or county lacks technical knowledge or expertise to accomplish an eligible task. The Federal Emergency Management Agency will then request technical assistance from the appropriate Federal agency in the Federal Response Plan. Eligible technical assistance includes:

- Assistance in developing an overall debris management plan
- Assistance in developing Debris Management Site plans
- Assistance in developing of monitoring plans
- Assistance in developing contract guidelines
- Assistance in developing and implementing trip tickets processes

#### **Federal Mission Assignment Process**

In catastrophic events, direct federal assistance can be provided by FEMA to support the local government. It is important to remember, the response capabilities of both the local and state government must be exceeded before this request is made by the local government to OEM and FEMA. The request is made by OEM to FEMA if circumstances justify the need for Direct Federal Assistance.

- State demonstrates work beyond county and state capabilities
- If the resource is not available, the Operations Manager at ECC will prepare an Action Request Form (ARF), which is a federal form used to request federal resources
- The ARF is sent to the Regional Response Coordination Center (RRCC) FEMA Region Ten, which will "mission assign" one of the federal Emergency Support Functions to fulfill the request
- If the JFO is operational, the ARF will be sent to the JFO directly
- State makes request to Federal Emergency Management Agency for assistance
- Federal Emergency Management Agency provides a Project Monitor
- Federal Agency conducts assignment
- Federal Agency bills the Federal Emergency Management Agency
- State is informed of the cost-share
- State reimburses the Federal Emergency Management Agency for non-federal share

### **Agencies That May Be Assigned Missions from the Federal Government**

(according to 44 CFR 206.208)

- Federal Highway Administration (FHWA)
- United States Department of Agriculture (USDA)
- Environmental Protection Agency (EPA)
- United States Army Corps of Engineers (USACE)
- United States Coast Guard (USCG)
- Bureau of Indian Affairs (BIA)

Also see FEMA Recovery Policy 100% funding for Direct and Grant Assistance 9523.9.

### **Mutual Aid Agreements**

In emergency services, mutual aid is an agreement among emergency responders to lend assistance across jurisdictional boundaries when resources (material, services, human resources, and equipment) are needed. In the broader sense, mutual aid is neighbor helping neighbor. Many State, Tribal, and local governments and private nonprofit organizations enter into mutual aid agreements to provide emergency assistance to each other in the event of disasters or emergencies. These agreements often are written, but occasionally are arranged verbally after a disaster or emergency occurs.

Also see section 5.4 in this plan.

Caution should be applied to Mutual Aid agreements in regards to FEMA reimbursement. See Mutual Aid Agreements for Public Assistance, FEMA Policy#9523.6.

### **Emergency Management Assistance Compact (EMAC)**

EMAC is unique among mutual aid agreements in that it must be coordinated with federal, state, local jurisdictions (county, city) and the multiple disciplines that may be deployed under EMAC. The mission of EMAC is to facilitate the efficient and effective sharing of resources between member states during times of disaster or emergency. This type of interstate mutual aid agreement allows states to assist one another in responding to all kinds of natural and man-made disasters. It is administered by the National Emergency Management Association (NEMA).

The EMAC Authorized Representative (AR) is the person empowered to obligate state resources and expend state funds for EMAC purposes. In a Requesting State, the EMAC AR is the person who is legally empowered under the Compact to initiate a Request for Assistance (REQ-A) under EMAC. The following persons are AR:

Dave Stuckey, Deputy, Director - OEM  
John Lewis, Division Director - OEM  
Paulina Layton, Division Director - OEM  
Mark Tennyson, Division Director - OEM

#### EMAC Process

- 1) Governor issues state of emergency
- 2) EMAC activated
- 3) State assesses need for resources
- 4) A-Team (in house or from another state) helps to find resources and determine costs and availability.
- 5) State broadcasts request for assistance to member states
- 6) States complete negotiation of costs
- 7) States complete EMAC REQ-A
- 8) Resources are sent to Requesting State from Assisting States(mobilized)
- 9) Resources demobilized
- 10)Assisting State send Requesting State Reimbursement Package
- 11)Requesting State Reimburses Assisting State

This process is repeated as many times as needed to fill open requests.

Authorities under Oregon Revised Statute, 402- Emergency Mutual Assistance Agreements.

#### **Volunteer Organizations Active in Disaster**

Included in the supplemental assistance are volunteer organizations. Volunteer organizations may provide assistance for debris removal from private property. There is a wide range of Volunteer organizations at the local, state, and Federal levels. When utilizing volunteer assistance, it is important to have necessary guidelines in place, such as designated reporting locations and processes. The following is an incomplete list of organizations:

- Civic Clubs
- Student Organizations
- Church Organizations
- Salvation Army
- Mennonite Services
- Catholic Relief Services
- American Red Cross
- Others

Refer to the State of Oregon Emergency Operations Plan for additional information on Volunteer use during disaster response.

*For reimbursement credit during a Presidential Disaster Declaration see FEMA*

*Disaster Assistance Policy 9525.2.*

Note: Below is the link to the 2009 Oregon Revised Statutes, which cite the current law concerning recent changes to emergency service volunteers. Oregon Emergency Management will be developing over the next few months (as of 02/12/10) specific Oregon Administrative Rules concerning volunteers. The specific citations are found in ORS 401-358 thru 401.378

<http://www.leg.state.or.us/ors/home.htm>

## **7.0 ADMINISTRATION AND LOGISTICS**

- a) All agencies will document personnel and material resources used to comply with this plan. Documentation will be used to support any Federal assistance that may be requested or required.
- b) Requests for support and/or assistance will be up channeled from the local level to the county level EOC and then up to the State ECC. Requests for Federal assistance will be made by the State ECC through established procedures as outlined in the National Response Framework.
- c) All agencies will ensure 24-hour staffing capability during implementation of this annex if the emergency or disaster requires.
- d) OEM, in coordination with ODOT and DEQ will be responsible to initiate an annual update of this plan. It will be the responsibility of each tasked agency to update their respective portion of the annex and ensure any limitations and shortfalls are identified, documented, and work-around procedures developed if necessary.

---

## **8.0 AUTHORITIES**

Oregon Revised Statute 401  
Oregon Revised Statute 468, 468A, 459, 466  
Stafford Act Sections 403, 406 and 407  
44 CFR § 206.224

## **9.0 GLOSSARY AND DEFINITION OF IMPORTANT TERMS/ACRONYMS**

CDL            Construction, Demolition, and Land-clearing

CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
DHS	Department of Homeland Security
DMTF	Debris Management Task Force
ECC	Emergency Coordination Center
EMAC	Emergency Management Assistance Compact
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ESF	Emergency Support Function
FCO	Federal Coordinating Officer
FEMA	Federal Emergency Management Agency
HHW	Hazardous Household Waste
ICS	Incident Command System
IDA	Initial Damage Assessment
JFO	Joint Field Office
JIC	Joint Information Center
NEPA	National Environmental Protection Agency
NIMS	National Incident Management System
NRF	National Response Framework
ODOT	Oregon Department of Transportation
OEM	Oregon Emergency Management
ORS	Oregon Revised Statutes
OERS	Oregon Emergency Response System

PDA Preliminary Damage Assessment  
PIO Public Information Officer  
Stafford Act Robert T. Stafford Disaster Relief and Emergency Assistance Act  
TDSRS Temporary Debris Staging and Reduction Site  
USACE United States Army Corps of Engineers