Alameda County Public Works
Catastrophic Earthquake
Debris Management Plan

March, 2010

Acknowledgment

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Disclaimer

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Forward

The vulnerability of the San Francisco Bay Area to earthquakes is well known. According to the 2008 *Uniform California Earthquake Rupture Forecast*,\(^1\) the probability of a magnitude 7.6 or greater earthquake in the Bay Area within the next 30 years is 63 percent. An earthquake of this magnitude will result in widespread and catastrophic damage.

A catastrophic earthquake in the Bay Area will immediately overwhelm local, regional, and State emergency response capabilities. The region will need massive, rapid support from the Federal Government, other local governments in California, other states, and nonprofit and private-sector organizations. The effectiveness of the region’s response will affect the long-term recovery of the region’s communities and economy. An effective response will only be possible if comprehensive planning has taken place.

The Federal Government is providing funding under the Regional Catastrophic Planning Grant Program (RCPGP) to selected metropolitan areas throughout the United States to plan for catastrophic events. The San Francisco Bay Area is one of those metropolitan areas. The Department of Homeland Security’s Federal Emergency Management Agency (FEMA) is administering the program. The Bay Area Urban Area Security Initiative (UASI) Program is implementing the RCPGP for 12 counties and two cities\(^2\) in the Bay Area. For fiscal year 2007/2008, the UASI Program has used RCPGP funding to prepare plans in five functional areas: Debris Removal, Mass Care and Sheltering, Mass Fatality, Mass Transportation/Evacuation, and Volunteer Management.

- This document, the Alameda County Public Works Catastrophic Earthquake Debris Management Plan (Plan), has been prepared under the RCPGP. Removal of debris is a critical component of the response to an earthquake. A catastrophic earthquake will generate massive quantities of debris from damaged buildings and infrastructure. The debris will block transportation routes and access to critical facilities and will disrupt the region’s efforts to recover. This plan addresses debris clearance, removal, reduction, recycling, and disposal.
- This plan is a supporting component to the Alameda County Emergency Operations Plan and is an annex to the existing Alameda County Public Works Debris Management Plan, the platform upon which it was created. The plan is consistent with:
  - Applicable local and State plans and requirements
  - The 2008 Regional Emergency Coordination Plan (RECP), including the Regional Catastrophic Earthquake Debris Removal Plan developed under the RCPGP as an incident-specific subsidiary plan to the RECP
  - The 2008 San Francisco Bay Area Catastrophic Earthquake Readiness Response Concept of Operations Plan, prepared by FEMA

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2. Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, the City of Oakland, and the City of San Jose.
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Participation and Support

This Plan was developed with the participation and support of the following:

   Alameda County Public Works staff (Lead – Chuck Swan)
   Alameda County Sheriff’s Office – Support Services Unit
   Alameda County Sheriff’s Office – Office of Homeland Security and Emergency Services staff
# TABLE OF CONTENTS

1.0 INTRODUCTION AND PURPOSE ................................................................. 1

2.0 POTENTIAL DISASTER SCENARIOS .......................................................... 1
  2.1 SITUATIONS ......................................................................................... 1
  2.2 ASSUMPTIONS ..................................................................................... 2
  2.3 IMPACTS, NEEDS, AND CONSTRAINTS ............................................. 2
    2.3.1 IMPACTS .................................................................................. 2
    2.3.2 NEEDS ..................................................................................... 3
    2.3.3 CONSTRAINTS ......................................................................... 3
  2.4 OBJECTIVES ...................................................................................... 4
  2.5 PRIORITIES ....................................................................................... 4

3.0 CONCEPT OF OPERATION ......................................................................... 7
  3.1 INITIAL ACTIONS ................................................................................ 7
    3.1.1 EOC ACTIVATION AND ANNEX IMPLEMENTATION .................. 7
    3.1.2 ESTIMATING THE TYPE AND AMOUNT OF DEBRIS ............... 9
    3.1.3 SITE SELECTION PRIORITIES .................................................. 9
    3.1.4 PRE-DESIGNATED SITE ............................................................ 10
    3.1.5 EXISTING LANDFILLS ............................................................... 10
    3.1.6 SITE PREPARATION ................................................................ 10
  3.2 DEBRIS REMOVAL ................................................................................ 10
    3.2.1 GENERAL ................................................................................ 10
    3.2.2 EMERGENCY ROADWAY DEBRIS REMOVAL (PHASE I) ........... 11
    3.2.3 PUBLIC RIGHT-OF-WAY DEBRIS REMOVAL (PHASE II) ........ 13
    3.2.4 MOBILE HOME PARK DEBRIS REMOVAL ............................... 14
    3.2.5 DOCUMENTATION NEEDED PRIOR TO CONTRACT ISSUANCE .......................................................................... 15
    3.2.6 UTILITIES ................................................................................ 15
    3.2.7 CONTRACTS ............................................................................. 16
    3.2.8 INSPECTION PRIOR TO CONTRACT ISSUANCE ....................... 16
  3.3 PRIVATE PROPERTY DEBRIS REMOVAL ............................................ 17
  3.4 HOUSEHOLD HAZARDOUS WASTER (HHW) REMOVAL ................. 18
    3.4.1 PRE-DISASTER ........................................................................ 18
    3.4.2 REMOVAL OF OPERATIONS .................................................... 18
    3.4.3 BUILDING DEMOLITION 18
    3.4.4 DISPOSAL SITES .................................................................... 18
  3.5 DEBRIS COLLECTIONS AND REDUCTION SITES ............................. 18
  3.6 DEBRIS REDUCTION METHODS ........................................................ 20
    3.6.1 VOLUME REDUCTION BY GRINDING AND CHIPPING .......... 20
    3.6.2 VOLUME REDUCTION BY RECYCLING ................................... 21
  3.7 SITE CLOSE-OUT PROCEDURES ....................................................... 22

4.0 ADMINISTRATION AND LOGISTICS .................................................... 24
EXHIBIT R

TABLE OF CONTENTS

CONTINUED PAGE TWO

APPENDICES ............................................................................................................... 25
1 ACRONYMS AND ABBREVIATIONS ........................................................................ 26
2 DEBRIS MANAGEMENT TASK FORCE AGENCIES ............................................ 27
3 POTENTIAL DISASTER DEBRIS STORAGE AND PROCESSING SITES .......... 28
4 DEBRIS REMOVAL GUIDELINES AND ELIGIBILITY ........................................ 36
5 SAMPLE DOCUMENTATION ..................................................................................... 41
6 DEMOLITION OF PRIVATE PARTY CHECKLIST ................................................. 44
7 CLOSURE CHECKLIST ............................................................................................ 45
8 LOCAL AGENCIES DISASTER DEBRIS RESPONSIBILITY .................................... 46
9 CATASTROPHIC EARTHQUAKE SCENARIO ......................................................... 52
10 HAYWARD FAULT EARTHQUAKE SCENARIO .................................................. 58
11 AUTHORITIES, REGULATIONS & REQUIREMENTS ......................................... 64
1.0 Introduction and Purpose

1.1 Responding to catastrophic events and the hazardous environments they create is exceedingly complex. Preparing for an adequate response places a heavy burden on planners, in part because of the need to integrate resources from every level of government and from all parts of the community. An earthquake-specific plan includes the standard elements of the traditional and existing (all hazards) Alameda County Public Works Debris Management Plan (DMP), but focuses on addressing the impacts of and challenges associated with catastrophic earthquakes, specifically the scenarios attached in the appendices of this Plan. The Alameda County Public Works Catastrophic Earthquake Debris Management Plan (Plan) is a scenario-driven, function-specific operations plan for Alameda County. The Plan has been built upon the existing DMP platform originally created by the Alameda County Public Works Department. The Plan addresses debris clearance, removal, reduction, recycling, and disposal operations in the aftermath of a catastrophic earthquake on the San Andreas Fault and, by association and similarity of events, provides guidance for a scaled response to a potential earthquake on the Hayward Fault.

1.2 To provide policies and guidance to the staff of the Alameda County Public Works Agency (ACPWA) for the removal and disposition of debris caused by a catastrophic earthquake.

1.3 To facilitate and coordinate the management of debris following a catastrophic earthquake in order to mitigate against any potential threat to the health, safety, and welfare of the impacted citizens in the unincorporated County and Flood District, expedite recovery efforts in the impacted area, and address any threat of significant damage to improved public or private property.

1.4 To facilitate command, control and deployment of all necessary resources, from all local, regional, state and federal and private-sector agencies in and external to Alameda County.

1.5 Application of SEMS and the Incident Command Systems.

2.0 Potential Disaster Scenarios

2.1 Situations

2.1.1 Natural and man-made disasters precipitate the generation of many types of debris that include, but would not be limited to such things as trees, sand, gravel, building/construction material, vehicles, personal property, etc.

2.1.2 The quantity and type of debris generated from any particular disaster, in this case a catastrophic earthquake, would be a function of the location and kind of event experienced, as well as its magnitude, duration, and intensity.
2.1.3 The quantity and type of debris generated, its location, and the size of the area of which it is dispersed, will have a direct impact on the type of collection and disposal methods utilized to address the debris problem, associated costs incurred, and how quickly the problem can be addressed.

2.1.4 In a major or catastrophic earthquake, supervisors may have difficulty in both the short and long term, locating support staff, equipment, and funds to devote to debris removal.

2.1.5 This plan provides the structure necessary to coordinate response to a catastrophic earthquake.

Attached in the Appendix 9 is the focal San Andreas Catastrophic Earthquake Scenario. Appendix 10 contains the alternative Catastrophic Earthquake (Hayward Fault) Scenario. They have been created to support development of this and similar plans across the region under the Regional Catastrophic Grant Preparedness Program (RCPGP). Descriptions, data and assumptions created to develop the scenarios provide the basis and context for development of this earthquake-specific plan (on the existing all-hazards platform). Scenario information contains descriptive situational overviews, general operational planning information, general assumptions and debris removal planning assumptions. All are key to the focus of this Plan.

2.2 Assumptions

2.2.1 A natural or man-made disaster that requires the removal of debris from public or private lands and waters could occur at any time.

2.2.2 The amount of debris resulting from an event or disaster could exceed the local or County’s ability to dispose of it.

2.2.3 If the event or disaster requires, the Governor would declare a state of emergency that authorizes the use of State resources to assist in the removal and disposal of debris. In the event Federal resources are required, the Governor would request Federal assistance in accordance with the standard procedures established in the Federal Response Plan (FRP).

2.2.4 Private contractors will play a significant role in the debris removal, collection, reduction, and disposal process of state agencies and local governments.

2.2.5 The debris management program implemented by the ACPWA will be based on the waste management approach of reduction, reuse, reclamation, resource recovery, incineration, and land filling, respectively.

2.3 Impacts, Needs, and Constraints

2.3.1 Impacts
It is estimated that the catastrophic earthquake scenario might have the following impacts related to debris removal, which in turn could influence planning and response activities.

- Infrastructure will be severely damaged, and movement along several trans bay bridges and numerous sections of freeways and local roads will be limited.
- Damaged structures and infrastructure will require inspection prior to use.
- Construction and demolition (C&D) debris will block lifeline routes, priority transportation routes, and access to critical facilities.
- Because of the size and weight of C&D debris, clearing debris from lifeline routes, priority transportation routes, and access to critical facilities may be cumbersome.
- Aftershocks will continue to generate additional debris, and roads will need to recleared.
- In addition to C&D debris, the debris stream may include vegetative debris, hazardous debris, contaminated debris, sediment, vehicles, and human remains.
- Landslides will create large amounts of earthen debris.

2.3.2 Needs
- The needs created as a result of the impacts of the scenario event are as follows:
  - Open lifeline routes and priority transportation routes and gain access to critical facilities.
  - Gain situational awareness to assess the location and amount of debris, location and number of severely and completely damaged structures, and location of severely and completely damaged infrastructure.
  - Conduct safety assessments to determine which structures and infrastructure components are an immediate threat to public safety and must be cordoned off, secured, or demolished.
  - Request contracted, State, and/or Federal assistance to carry out debris clearance and debris removal operations, safety assessments, debris management site operations, and demolition.
  - Locate suitable debris management sites to be used for storing, sorting and reducing debris.
  - Locate local and regional recycling facilities, transfer stations and landfills to process and dispose of debris.
  - Request Federal technical assistance for Stafford Act and Emergency Relief programs.
  - Demolish unsafe structures and infrastructure.

2.3.3 Constraints
- The following factors will act as constraints on local, State, Federal and private-sector response effort.
  - Damage to and debris along lifeline routes, priority transportation routes and critical facilities will delay emergency response efforts
EXHIBIT R

- Time needed to mobilize contracted State and Federal resources will delay debris clearance.
- Aftershocks will create new debris and hamper debris clearance operations.
- Presence of hazardous debris, contaminated debris and human remains will slow debris clearance, removal and demolition operations.
- Debris removal and demolition operations will be complicated by the presence of historic structures and historic landmark areas.
- Lack of space for debris management sites will slow down debris removal and recycling and disposal operations.
- Lack of full service local recycling facilities will require sorting debris at the source or at a debris management site, thereby slowing down debris removal and recycling and disposal operations.
- Demolition efforts will be slowed by insurance issues, ownership issues, permitting issues, and environmental, historic, and public opposition.
- Public and government opposition will arise because of the location of debris management sites and the use of landfills for debris disposal.

2.4 Objectives

- The objectives of the Plan are to:
  2.4.1 Project the catastrophic impacts of the earthquake.
  2.4.2 Define the planning assumptions.
  2.4.3 Identify agencies with roles in debris removal operations and define their roles.
  2.4.4 Describe the resources required for debris removal operations and mechanisms for integrating State and Federal resources into debris management operations in Alameda County.
  2.4.5 Identify recommended priorities.
  2.4.6 Identify recommended, time-based objectives to guide response operations.
  2.4.7 Establish a response timeline for debris removal operations.

2.5 Priorities

This section provides a description of estimated, potential operational priorities and response objectives. They apply to the Debris Management functional area and depict potential phases of response and activities which might occur for each phase of a catastrophic earthquake in the Bay Area and Alameda County. As indicated, the focus of this Plan is a magnitude 7.9 earthquake on the San Andreas Fault, or scaled response to a catastrophic earthquake on the Hayward Fault.
They are categorized, time-based, and provide a pliable framework for the development of specific actions which could be developed, expanded upon and evaluated during the plan development process. The phases are:

- Event occurrence (E) to E+72 hours
- E+72 hours to E+14 days
- E+14 days to E+60 days

Note: These phases are consistent with the phases that the Federal Emergency Management Agency (FEMA) and the California Emergency Management Agency have established for the San Francisco Bay Area Catastrophic Earthquake Readiness Response Concept of Operations Plan (CONPLAN), issued in September 2008. The phases provide a mechanism for organizing the objectives and associated actions. They will relate the actions described in the CONPLAN with those that will be developed for the RCPGP plans and which have been adopted for use in this Plan. The actual phases following the actual occurrence of an earthquake will likely vary from those listed here, and some of the actions described in the plans may be undertaken outside the specified phases. The variations of the phases are indicated in this document.

- **E+72 Hours**
  - **Operational priorities are:**
    - Initiate debris clearance operations.
    - Allow people to return to critical facilities and to use infrastructure that are safe for occupancy.
  - **Response objectives are:**
    - Develop situational awareness.
    - Establish debris clearance priorities.
    - Clear debris from lifeline routes, priority transportation routes and access to critical facilities.
    - Evaluate critical facilities and infrastructure to determine the condition for use and occupancy.
    - Identify and request additional resources to support debris clearance operations and safety assessments.

- **E+72 Hours to E+14 Days**
  - **Operational priorities are:**
    - Transition from debris clearance operations to debris removal operations.
    - Allow people to begin to return to noncritical structures, residential and nonresidential structures, and to use infrastructure that are safe for occupancy.
    - Begin to eliminate threats to life, public health and safety posed by disaster-damaged unsafe structures.
Response objectives are:
- Expand debris clearance operations to include evacuation routes and access to structures that support essential government services.
- Initiate the evaluation of structures that support essential government services, infrastructure and residential and nonresidential structures to determine the condition for use and occupancy.
- Facilitate Public Assistance Program assistance.
- Begin to demolish structures and infrastructure that are determined to be unsafe and pose an immediate threat to the public.
- Determine type and amount of debris.
- Identify and designate regional debris management sites, recycling facilities, solid waste transfer stations, and landfills.
- Identify and request additional resources to support debris removal, debris management site and debris monitoring operations.
- Identify and secure permits and emergency waivers that support debris operations.
- Prepare debris management sites to accept debris.
- Remove debris from the right-of-way, curbside, collection sites and private property.
- Begin to operate debris management sites to sort and reduce debris.

E+72 Hours to E+60 Days
Operational priorities are:
- Transition from debris removal operations to debris recycling and disposal operations.
- Allow all people to return to residential structures and nonresidential structures that are safe for occupancy.
- Continue to eliminate threats to life, public health and safety posed by disaster-damaged unsafe structures.

Response objectives are:
- Fully operate debris management sites.
- Complete the evaluation of residential structures and nonresidential to determine the condition for use and occupancy.
- Continue to demolish structures and infrastructure that are determined to be unsafe and pose an immediate threat to the public.

3.0 Concept of Operations
3.1 Initial Actions

3.1.1 EOC Activation and Annex Implementation

When an event occurs that has generated debris that has exceeded local and county removal and disposal resources, then the Sheriff will activate the Emergency Operations Center (EOC) according to standard operating procedures. SEMS (Standardized Emergency Management System) and the incorporated ICS (Incident Command System) are used to guide all operations and response and recovery activities by and through the EOC activation.

**Standardized Emergency Management System (SEMS)**

SEMS is a management system that provides an organizational framework and guidance for operations at each level of California’s emergency management system. It provides the umbrella under which all response agencies may function in an integrated function. The objective of SEMS is to improve the coordination of state and local emergency response. All local governments must use SEMS in multi-jurisdictional or multi-agency emergency responses to be eligible for state reimbursement of response-related personnel costs.

SEMS is comprised of four elements:

*Incident Command System*
A field-level emergency response system based on management by objectives.

*Multi/inter-agency coordination*
Affected agencies working together to coordinate allocations of resources and emergency response activities.

*Mutual aid*
A system for obtaining additional emergency resources from non-affected jurisdictions.

*Operational Area concept*
The county and its subdivisions to coordinate damage information, resource requests, and emergency response.

SEMS recognizes five organizational levels:

*Field* - On-scene responders
*Local* - City, county, or special district
*Operational Area* - Manages and coordinates all local governments within the county
*Regional* - Manages and coordinates information and resources among operational areas
*State* - Statewide resource coordination integrated with federal agencies

SEMS also establishes five functions:
**EXHIBIT R**

*Management* - Provides the overall direction and sets priorities for an emergency

*Operations* - Implements priorities established by management

*Planning/Intelligence* - Gathers and assesses information

*Logistics* - Obtains the resources to support the operations

*Finance/Administration* - Tracks all costs related to the operations

In Alameda County, the Operational Area was established by the January, 1995 Agreement for Participation in Alameda County Operational Area Emergency Management Organization (Agreement). A copy of this Agreement is provided at the end of this section. According to the Alameda County Office of Emergency Services (the Sheriff’s Department), all the cities in the county and the county are participants in this Agreement.

The Agreement establishes an organizational structure for disaster response for the County of Alameda, cities, special districts, and other public benefit non-profit corporations (e.g. the American Red Cross) that participate in the Agreement. The Agreement forms a partnership for a systematic approach for exchanging disaster intelligence, mutual aid requests, and resource requests in emergencies. It also provides emergency preparedness on a day-to-day basis through cooperative training and exercise activities. It establishes a primary contact point during an emergency in Alameda County - intelligence among local agencies and between the Operational Area Emergency Management Organization and state and federal agencies requesting information.

The Operational Area Emergency Management Organization assists the participating parties in sharing resources before, during, and after an emergency to prepare for, respond to, and recover from disasters that strike Alameda County. The Agreement specifies that the Alameda County Emergency Operations Plan is the primary method and criteria used to conduct Operational Area Emergency Center activities.

The Emergency Operations Plan includes a description of the various functional responsibilities for County departments. The County Public Works Agency is responsible for coordinating multi-jurisdictional disaster debris removal within the Alameda County Operational Area. Referring to the ICS Framework description (chart) which follows, notation is made that Public Works personnel assigned to the EOC and all debris management/removal activities would fall under the Operations Section.
Resource Inventory

Local Governmental Agencies

Each city and the county are responsible under the Integrated Waste Management Act of 1989 (AB 939) for planning and implementing waste management programs at the local level. In addition, each of these local entities is responsible for providing emergency response services (such as fire and police) within their jurisdictions and for coordinating disaster debris cleanup. Table 3-1 provides a list of the local agencies and their departments who are responsible for a) solid waste management and b) disaster debris recovery and cleanup. It is important to note that sharing of resources among local jurisdictions following a disaster should be coordinated through SEMS in order to be eligible for state reimbursement.

State and Federal Agencies

State and federal agencies may provide technical assistance, reimbursement of funds expended on disaster debris material, or in the case of Caltrans, may manage large amounts of publicly owned lands that could be used as temporary storage or processing sites for disaster debris. The California Integrated Waste Management Board (CIWMB) has developed The Integrated Waste Management Disaster Plan, which provides guidance and assistance to the disaster preparedness planning efforts of local governments.

3.1.2 Estimating the Type and Amount of Debris

The amount of debris that is generated by an event can be estimated by several methods. One method is to accomplish a drive-through “windshield” damage assessment and estimate the amount of debris visually with the drive through. Another method that can be used is an aerial assessment by flying over the area using Sheriff, East Bay Regional Park District, or California Highway Patrol helicopter.

3.1.3 Site Selection Priorities

After the amount of debris has been estimated, the next critical issue that the ACPWA will need
to determine is the number of temporary sites and location of these sites for the collection and processing of debris. The priority of site location, as determined by the ACPWA is:

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

### 3.1.4 Pre-Designated Sites

The Public Works Agency should have pre-identified areas that may be used as temporary collection and processing sites. The pre-designated employee shall on an annual basis identify new sites. These general areas are identified in Appendix 3.

ID Sites – Refer to Alameda County Waste Management List and Appendix 4

### 3.1.5 Existing Landfills

There are additional solid waste and resource recovery facilities within the County, but they are private facilities and generally allow only specific products. These facilities will be listed as available resources and will be considered as an option by the County when an event occurs. A list of existing landfills, resource recovery facilities and transfer stations is included as Alameda County Waste Management Plan.

### 3.1.6 Site Preparation

After a pre-designated site has been selected to be activated, there are many preparatory actions that need to be accomplished. A Memorandum of Understanding (MOU) or a Memorandum of Agreement (MOA) would be required if private land. An example MOU and MOA are included in the appendix.

### 3.2 Debris Removal

#### 3.2.1 General

- **3.2.1.1** Earthquake and rainstorms are other natural disasters that 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 associated structural damage such as homes, businesses, utilities, signs, etc. This section provides guidelines on debris removal issues including emergency roadway clearance, public right-of-ways removal, mobile home park removal, private property removal, navigation hazard removal and household hazardous waste (HHW) removal.

- **3.2.1.2** Debris removal, regardless of source, becomes a high priority following a disaster as it is a visible sign of action and helps to restore a sense of normalcy to a shocked and stunned population. Removal often represents the first visible step towards recovery.
In developing a management strategy for a large-scale debris removal operation, the operation should be divided into two phases. Phase I consists of the clearance of the debris that hinders immediate life saving actions being taken within the disaster area and the clearance of that debris which poses an immediate threat to public health and safety. Phase II operations consist of the removal and disposal of that debris which is determined necessary to ensure the orderly recovery of the community and to eliminate less immediate threats to health and safety.

3.2.2 Emergency Roadway Debris Removal (Phase I)

3.2.2.1 There is an immediate need to open emergency access routes into devastated areas following any type of major natural disaster. ACPWA engineers must identify routes that are essential to emergency operations. These routes should be reviewed by the pre-designated person on an annual basis to determine access routes. This information is essential for directing the efforts of local assets and for identifying areas that State and Federal assistance can target.

3.2.2.2 Debris will include concrete structures, steel, wood structures, trees, mud, rocks; yard trash, trash cans, etc.; utility poles, power, telephone, and cable TV lines, transformers and other electrical devices; building debris such as reefs, sheds and signs; and personal property such as clothing, appliances, boats, cars, trucks and trailers.

3.2.2.3 Roadway debris removal involves the opening up of arterial roads and collector streets by moving debris to the shoulders of the road. There is no attempt to physically remove or dispose of the debris, only to clear key access routes to expedite:

- Movement of emergency vehicles.
- Law enforcement.
- Resumption of critical services.
- Assessment of damage to key public facilities and utilities such as schools, hospitals, government buildings, municipal owned utilities.

3.2.2.4 The requirement for ACPWA will be increased drastically following a major natural 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.

3.2.2.5 Damaged utility systems, structurally unstable buildings and other heavily 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.
3.2.2.6 Emergency management and/or the ACPWA, DOC, EOC and contractors hired by ACPWA 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

**Federal Assistance**
- US Department 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

3.2.2.7 Immediate debris removal actions should be supervised by local ACPWA personnel using all available resources. Requests for additional assistance and resources should be made to the County EOC. 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.

3.2.2.8 Special crews equipped with chain saws may be required to cut up downed trees. Other special crews may be required to use cutting torches. These activities are hazardous and common sense safety considerations are necessary to reduce the chance of injury and possible loss of life. When live electric lines and gas leaks are involved, work crews should coordinate with local utility companies to have power lines and gas lines de-energized for safety reasons.

3.2.2.9 Front end loaders and dozers should be equipped with protective cabs. Driveway cutouts, fire hydrants, valves, and stormwater inlets should be let unobstructed. All personnel should wear protective gear such as hard hats, gloves, goggles, and safety shoes.

3.2.2.10 Assessment of the amounts and types of debris to be removed from key routes is very difficult. This drawback slows the development of the right mix of equipment and manpower, especially when contracting for additional resources. Therefore, the equipment rental contract is recommended for this type of debris removal. It will allow the flexibility to respond to local hot spots.

3.2.3 **Public Right-of-Way Debris Removal (Phase II)**
3.2.3.1 Debris is simply pushed to the shoulders of the roadway during the emergency opening (Phase I) of key routes. There is little time or concern for sorting debris at that time. The objective is to provide for the safe movement of emergency and support vehicles into and out of the disaster area.

3.2.3.2 As removal operations progress, the initial roadside piles of debris become the dumping location for additional earthquake and other storm generated debris such as construction material, personal property, trash, white goods (refrigerators, washers, dryers, hot water heaters, etc.), roofing, and even household, commercial, and agricultural chemicals.

3.2.3.3 Expedient removal of debris from in front of residents’ homes should become a priority since it is a positive sign that restoration actions are underway and may help counteract depression and helplessness of the affected residents. The removal operations will also assist in expediting the replacement of key utilities located along public rights-of-way.

3.2.3.4 The emergency manager will be faced with the monumental task of coordinating debris removal that represents a significant health and safety hazard to the community. There will be requests from all sectors of the community to remove the debris so that residents can start putting their lives and property in order.

3.2.3.5 County 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 disasters, direct Federal assistance, if required, will be provided by FEMA, USACE, DOD, and large regional contractors with resources, experience, short mobilization times, and an understanding of Federal contracting procedures.

3.2.3.6 The County personnel will be required to provide accurate information surrounding the magnitude of the debris removal mission. Providing information to the EAC and DOC and coordinating with other agencies may require an independent means to assess debris removal progress.

3.2.3.7 The ACPWA should be prepared to take the following actions:

- Coordinate through other agencies to establish a contracted work force capable of expeditious removal of the debris.
- Develop a County team to monitor the removal activities. Team members shall consist of M&O supervisors, field supervisors, ACPWA engineers and OPPD.
- Conduct daily update briefings with DOC/EOC managers.
- Establish a pro-active information management plan involving the EOC. Emphasis should be placed on actions that the public can perform to expedite the cleanup process, such as separating burnable and non-burnable debris; segregating HHW; placing debris at the curbside; keeping debris piles away from fire hydrants, valves,
The public should be kept informed of debris pick-up schedules, disposal methods and ongoing actions to comply with State and Federal Environmental Protection Agency (EPA) environmental regulations, disposal procedures for self-help and independent contractors, and restrictions and penalties for creating illegal dumps.

Agency PIOs should be prepared to respond to questions pertaining to debris removal from the press and local residents. The following questions are likely to be asked:

- **What is the pick-up system?**
- **When will the contractor be in my area?**
- **Who are the contractors and how can I contact them?**
- **Should I separate the different debris materials and how?**
- **How do I handle Household Hazardous Waste (HHW)?**
- **What if I cannot pay?**
- **What if I am elderly?**

### 3.2.4 Mobile Home Park Debris Removal

#### 3.2.4.1 Earthquakes can cause almost complete destruction to mobile homes. This results in extensive amounts of mixed debris confined to relatively small areas. The mixed debris will include:

- Tree blow-down, out buildings, screened porches, trailer frames, personal property such as clothing, food, furniture, etc.;
- Appliances such as stoves, refrigerators, washers, dryers, etc.;
- Household chemicals, commercial chemicals, propane and oxygen tanks, gasoline, oil, lubricants, automobiles, trucks, bicycles, lawn mowers, and utility hookups.

#### 3.2.4.2 A catastrophic disaster may require temporary housing that cannot be provided by local or State agencies. If Direct Federal Assistance is requested and approved, FEMA may provide mobile homes on a temporary basis under the Individual Assistance (IA) Program. FEMA’s IA managers must obtain suitable locations to place FEMA mobile homes to provide temporary shelter expeditiously. Local mobile home parks will be surveyed and arrangements made with park owners for FEMA to clear the parks of debris in return for the park to lease pads for FEMA mobile homes. The local emergency manager will need to closely coordinate with his/her counterpart in the FEMA IA office to assist in possible clean-up activities and to enforce condemnation procedures. The debris removal mission must strive to retain the existing undamaged utility hookups. Legal aspects as well as health and safety concerns will have an important impact on the debris removal activities.

### 3.2.5 Documentation Needed Prior to Contract Issuance:
ACPWA should:

- Obtain copies of the local ordinance authorizing condemnation of mobile home parks. Condemnation due to health issues is associated with prolonged exposure of trailer contents to the natural elements.

- Provide a copy of the local government resolution with appropriate recitals required to support adoption/enactment of ordinances to condemn, demolish and remove mobile home park contents.

- Provide all applicable permits necessary for demolition of the mobile home park.

- Provide access to all lands, easements and rights-of-way necessary for the accomplishment of the approved work.

- Acquire documentation signed by the mobile home park owner that will hold and save the local, State or Federal Government free from damages due to the requested work, and shall indemnify the local, State or Federal Government against any claims arising from such work.

- Provide documents allowing right-of-entry to the mobile home parks.

- Provide notice to individual mobile home owners to remove items of personal property in accordance with local ordinances.

- Provide the names of mobile home parks to include the names of mobile home park owners, complete addresses and legal descriptions of the property, and limits, if any, of debris clearance to occur within the parks. Additional materials should include plats of the mobile home parks and any information about existing utilities. If the system is available, the EIS should be utilized to identify these mobile home parks.

- Ensure that the mobile homes are unoccupied.

- Ensure that the property is posted in accordance with local regulations and that mobile home owners have removed their personal property.

- Ensure that any agreement made with the mobile home park owner is in writing to avoid subsequent disputes.

- Obtain photographic documentation of trailer sites prior to commencement of work.

3.2.6 Utilities

ACPWA should:

- Ensure that utilities are installed according to local code.

- Ensure that trailer tie down straps do not conflict with utility placement.

- Be responsible for turning off utility services such as water, sewer, electrical, natural gas.

- Have septic tank locations flagged prior to debris removal and special care given to protect them during debris removal operations.
EXHIBIT R

- Evaluate existing utilities as to the feasibility of using them. Consideration should also be given to whether using heavy equipment would cause further damage to existing utilities.
- Provide standards for capping of all utilities.

3.2.7 Contracts

The contract should:

- Provide that all private automobiles be stored in a specific location within the park to be retrieved later by the private owner.
- Provide salvage rights to the contractor for materials remaining on site at the time of debris removal.
- Require flagging of existing utilities prior to debris removal. Rubber tire vehicles and backhoe with grapple attachments should be used to protect existing utilities.
- Require the contractor to phase debris removal operations to allow utility repair/replacement to begin immediately after an area has been cleared.
- Provide a signed letter to the contractor/FEMA identifying the park and stating that all notices have been issued and the park is released for debris removal.

3.2.8 Inspection Prior to Contract Issuance

ACPWA should:

- Determine the extent of repairs required to use existing utilities or if full replacement of utilities will be required. These actions require close coordination with IA officials responsible for the temporary housing operations.
- Ensure that the mobile home park will be vacated prior to removing any debris from the site.
- Describe clearly and completely the extent of debris removal required within the mobile home park. Specify any structures, other than mobile homes, that are to be removed. This information will be utilized in developing the contract scope of work.
- Locate and estimate any HHW within the park and ensure that appropriate procedures are established for separation and removal of such materials prior to debris removal. HHW contractors under contract with the local government should be utilized for this task via FEMA’s project work sheet (PWS) process or the USACE could award a separate contract for this purpose. HHW items typically found on site include propane tanks, paint cans, paint thinners, pesticides, refrigerators, freezers, etc.
- Conduct initial inspections of the mobile home park. This should be done in conjunction with representatives from public health office, building and zoning office, real estate office, USACE, and FEMA.
- Notify the mobile home park owner of the pending inspections.
- Ensure that the “Notice to Proceed” contract scope of work reflects findings of the field inspection.
3.3 Private Property Debris Removal

3.3.1 Major natural disasters may create health and safety concerns with respect to severely damaged private property. Remaining dangerous structures should be the responsibility of the owner or local government to 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, demolition of these structures may become the responsibility of the ACPWA.

3.3.2 This issue will require the complete cooperation of numerous local and State government officials and may require resources from any or all of 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.

3.3.3 Demolition of private property will present significant coordination problems. Therefore, a checklist has been developed to identify key tasks that local officials must address before the structure is approved for demolition. To expedite the overall effort, many of the tasks can be conducted concurrently. The “Demolition of Private Property” checklist is shown in the appendix.

3.3.4 Communities in disaster-prone areas should have copies of the checklist and samples of required ordinances as part of the community’s emergency management plan. The ordinances should be activated when a “state of emergency” is implemented, eliminating any unnecessary waiting period. All of these pre-planning actions should be accomplished prior to a disaster.

3.3.5 The most significant building demolition problem will be that local governments do not have proper ordinances in effect to handle emergency condemnation procedures. Moreover, structures will be misidentified or have people or belongings in them when the demolition crews arrive. Buildings may be occupied by drug users or homeless people who will necessitate removal by local law enforcement. Close coordination is essential and it is recommended that at least one FEMA staff person be on site to work directly with the local government staff to ensure that all required legal actions are taken.

3.4 Household Hazardous Wastes (HHW) Removal

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 items will be mixed into the debris stream and will require close attention throughout the debris removal and disposal process.

3.4.1 Pre-Disaster
The ACPWA should be aware of the problems that HHW will have on the overall debris removal and disposal mission. Consider HHW response teams to be assigned and respond ahead of any removal efforts. Consider preparing draft emergency contracts with generic scopes of work. Coordinate with regulatory agencies concerning possible regulatory waivers and other emergency response requirements.

3.4.2 Removal of Operations

Where possible, separate hazardous materials from other debris before removal. Arrange for salvageable hazardous materials to be collected and segregated based on their intended use. Removal of hazardous waste should be accomplished by properly trained personnel or emergency response HHW contractors. Coordinate with County regulatory agencies to ensure cleanup actions meet local, State, and Federal regulations.

3.4.3 Building Demolition

Complete HHW identification and segregation before building demolition begins. HHW debris should be removed by qualified contractors. Uncontaminated debris can be removed by regular demolition contractors.

3.4.4 Disposal Sites

A separate staging area for HHW materials, contaminated soils, and contaminated debris should be established at each site. The staging area should be lined with an impermeable material and bermed to prevent contamination of the groundwater and surrounding area. Materials should be removed and disposed of using qualified HHW personnel/contractors in accordance with local, State, and Federal regulations.

3.5 Debris Collection and Reduction Sites

3.5.1 Once the debris is removed from the damaged area, it will be taken to temporary collection and reduction sites. These reduction sites have been pre-identified as discussed in Sec 3.1.3 and shown on county maps located in the appendix, Alameda County Waste Management. Removal and disposal actions will be handled at the lowest level possible based on the magnitude of the event. It follows the normal chain of responsibility. Due to the limited debris removal and reduction resources, the establishment and operation of these temporary sites are generally accomplished by pre-established contracts.

3.5.2 Emphasis is placed on ACPWA for developing debris disposal contracts under FEMA Project Work Sheet procedures. Removal and reduction activities may be handled locally or assigned to the USACE by FEMA pursuant to CFR 44, Section 206.5 and 206.8. Mission assignment may be used instead of PWS when responding to a catastrophic natural disaster. This allows FEMA and USACE more flexibility in responding to specific debris removal and disposal tasks.
3.5.3 ACPWA is responsible for developing and implementing 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 FEMA procedures. The local emergency manager 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.

3.5.4 Site Preparation

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.

3.5.5 Site Operations

Site preparation and operation are usually left up to the contractor but guidance can help avoid problems with the ultimate closeout.

3.5.6 Establish lined temporary storage areas for 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.

3.5.7 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.

3.5.8 Not In My Back Yard (NIMBY) Concerns. Be aware of and mitigate things that will irritate the neighbors such as:
- Dust – employ water trucks
- Noise – construct perimeter berms
- Traffic – proper layout of ingress and egress procedures to help traffic flow

3.6 DEBRIS REDUCTION METHODS

This section provides guidelines on debris volume reduction methods including grinding and chipping, and recycling. The ACPWA managers should have an understanding of each method. Ideally, all methods should comply with local ordinances and environmental regulations.

3.6.1 Volume Reduction by Grinding and Chipping

3.6.1.1 Grinding and chipping woody debris is a viable reduction method. Although more expensive than burning, grinding and chipping are more environmentally friendly and
the resulting product, mulch, can be recycled. In some locations the mulch will be a desirable product due to shallow topsoil conditions. In other locations it may become a landfill product.

3.6.1.2 Grinding and chipping woody debris reduce the large amounts of fallen trees. Chipping operations are suitable in urban areas where streets are narrow or in groves of trees where it is cheaper to reduce the woody vegetation to mulch than to move it to a central grinding site and then returning it to the affected area. This reduces the costs associated with double handling.

3.6.1.3 ACPWA emergency management should work closely with local environmental and agricultural groups to determine if there is a market for mulch. Another source for disposal of ground woody debris may be as an alternative fuel for industrial heating or for use in a cogeneration plant.

3.6.1.4 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. However, mulch to be used for agricultural purposes must be of a certain size and be virtually free of paper, plastic, dirt, etc.

3.6.1.5 The following specifications should provide a mulch product that is suitable for agricultural purposes:

- 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 wood products and should be held to ten percent or less for the mulch to be acceptable. 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, which is a contaminant, 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.

3.6.1.6 Chippers are ideal for use in residential areas, orchards, or groves. The number 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.
3.6.1.7 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 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.

3.6.2 Volume Reduction by Recycling

3.6.2.1 Recycling reduces mixed debris volume before it is hauled to a landfill. Recycling is attractive and strongly supported by the State of California since there may be an economic value to the recovered material if it can be sorted and sold. A portable Materials Recovery Facility (MRF) could be set up at the site. Metals, weed, and soils are prime candidates for recycling. The major drawback is the potential environmental impact of the recycling operation. In areas where there is a large usage of chemical agricultural fertilizer, the recovered soil may be too contaminated for use on residential or existing agricultural land.

3.6.2.2 Earthquakes may present opportunities to contract out large-scale recycling operations and to achieve an economic return from some of the prime contractors who exercise their initiative to segregate and recycle debris as it arrives at the staging and reduction sites. Recycling has significant drawbacks if contracts are not properly written and closely monitored.

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

3.6.2.4 Recycling should be considered early in the debris removal and disposal operation since it may present an opportunity to reduce the overall cost of the operation. The following materials are suitable for recycling:

- **Metals**
  Hurricanes, tornados, and earthquakes may cause extensive damage to mobile homes, sun porches, and green houses. 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.

- **Soil**
  Cleanup operations using large pieces of equipment pick up large amounts of soil. The soil is transported to the staging and reduction sites where it is combined with other organic materials that will decompose over time. Large amounts of soil can be recovered if the material is put through some type of screen or shaker system. This procedure can produce significant amounts of soil that can either be sold or recycled back into the agricultural community. This soil could also be used at landfills for cover. It is more expensive to transport and pay tipping fees at local landfills than to sort out the heavy dirt before moving the material. Monitoring and
testing of the soil may be necessary to ensure that it is not contaminated with chemicals.

- **Wood**
  Woody debris can be either ground or chipped into mulch. (See Section 3.3.2. Volume Reduction by Grinding and Chipping.)

- **Construction Material**
  Concrete block and other building materials can be ground and used for other purposes if there is a ready market. Construction materials and wood can also be shred to reduce volume. This construction material could also be used at DSWA landfills for cover.

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

### 3.7 Site Close-Out Procedures

#### 3.7.1 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 cleanup 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 approve landfills. Quality Assurance (QA) inspectors should monitor all closeout and disposal activities to ensure that contractors complied with contract specifications. Additional measures will be necessary to meet local, State, and Federal environmental requirement due to the nature of the staging and reduction operation.

#### 3.7.2 The ACPWA must be assured by the contractor that all sites are properly remediated. There will be significant costs associated with this operation as well as close scrutiny by the local press and environmental groups. Site remediation will go smoothly if baseline data collection and site operation procedures are followed.

#### 3.7.3 The basic close-out steps are: remove all debris from the site; conduct an environmental audit/assessment, develop a remediation/restoration plan, approved by the appropriate environmental agency; execute the plan; get acceptance from the landowner; and terminate lease payments, if applicable. The key to timely closeout of the mission is the efficient scheduling of the above activities for multiple sites. Therefore, critical path scheduling of all the activities as far in advance as possible will minimize down time between steps.

#### 3.7.4 Environmental Restoration
Stockpiled debris will be a mix of woody vegetation, construction material, household items, and yard waste. HHW and medical wastes should be segregated and removed prior to stockpiling. Activities at the debris disposal sites will include some, or a combination of the following activities: stockpiling, sorting, recycling, grinding, and chipping.

3.7.5 Site Remediation

During the debris removal process and after the material has been removed from each of the debris sites, environmental monitoring will be needed to close each of the sites. This is to ensure that no long-term environmental contamination is left on the site. The monitoring should be done on two different media: soil and groundwater.

- Monitoring of the soils should be by portable methods to determine if any of the soils are contaminated by volatile hydrocarbons. This may be done by the contractors if it is determined that they dumped hazardous material, such as oil or diesel fuel spills on the site. This phase of the monitoring should be done after the stockpiles are removed from the site.

- The monitoring of the groundwater should be done on selected sites in order to determine the probable effects of rainfall leaching through the stockpile areas.

3.7.6 A recommended format for a closure checklist has been developed. The closure checklist is shown in the appendix. Consider the following requirements to closeout a temporary staging and reduction site(s):

- Coordinate with local and State officials responsible for construction, real estate, contracting, project management, and counsel regarding requirements and support for implementation of a site remediation plan.
- Establish a testing and monitoring program. The contractor should be responsible for environmental restoration of both public and leased sites. Contractors will also be required to remove all debris from sites for final disposal at landfills prior to closure.
- Reference appropriate and applicable environmental regulations.
- Prioritize site closures.
- Schedule closeout activities.
- Determine separate protocols for air, water, and soil testing.
- Develop cost estimates.
- Develop decision criteria for certifying satisfactory closure based on limited baseline information.
- Develop administrative procedures and contractual arrangements for closure phase.
- Inform local and State environmental agencies regarding acceptability of program and established requirements.
- Designate approving authority to review and evaluate contractor closure activities and progress.
- Retain staff during closure phase to develop site-specific remediation for sites, as needed, based on information obtained from the closure checklist.
EXHIBIT R

4.0 **Administration and Logistics**

4.1 All agencies will document personnel and material resources used to comply with this annex. Documentation will be used to support any Federal assistance that may be requested or required.

4.2 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 EOC. Requests for Federal assistance will be made by the State EOC through established procedures as outlined in the Federal Response Plan.

4.3 All agencies will ensure 24-hour staffing capability during implementation of this annex if the emergency or disaster requires.

APPENDICES

1. Acronyms and Abbreviations
2. Debris Management Task Force Agencies
3. Potential Disaster Debris Storage And Processing Sites
   List of Solid Waste Facilities and Map of Pre-Selected Sites
   (County & Municipal)
4. Debris Removal Guidelines
5. Sample Documentation
EXHIBIT R

(Agreements, Contracts, MOU/MOAs, private land)

6. Demolition of Private Property Checklist
7. Closure Checklist
8. Local Agencies Disaster Debris Responsibilities
9. Catastrophic Earthquake Scenario
10. Hayward Fault Earthquake Alternative Scenario
11. Authorities, Regulations & Requirements

Appendix 1

Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>USACE</td>
<td>U.S. Army Corps of Engineers</td>
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<tr>
<td>ACPWA</td>
<td>Alameda County Public Works Agency</td>
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<tr>
<td>ARC</td>
<td>American Red Cross</td>
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<tr>
<td>CAP</td>
<td>Civil Air Patrol</td>
</tr>
<tr>
<td>C&amp;D</td>
<td>Construction and Demolition (debris)</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulation</td>
</tr>
<tr>
<td>CONPLAN</td>
<td>San Francisco Bay Area Catastrophic Earthquake Readiness Response ConOps</td>
</tr>
<tr>
<td>C/WMB</td>
<td>California Integrated Waste Management Board</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>DMP</td>
<td>Alameda County Public Works Debris Management Plan</td>
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<tr>
<td>DOC</td>
<td>Departmental Operational Center</td>
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<tr>
<td>DOT</td>
<td>Department of Transportation</td>
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<tr>
<td>EMA</td>
<td>Emergency Management Agency</td>
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<tr>
<td>VOA</td>
<td>Voluntary Organizations Active in Disasters</td>
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<tr>
<td>DMTFG</td>
<td>Debris Management Task Force Group</td>
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<tr>
<td>NG</td>
<td>National Guard</td>
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<tr>
<td>DNREC</td>
<td>Department of Natural Resources &amp; Environmental Control</td>
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<td>SP</td>
<td>State Police</td>
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<tr>
<td>SWA</td>
<td>Solid Waste Authority</td>
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<tr>
<td>EOC</td>
<td>Emergency Operations Center</td>
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<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
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<tr>
<td>ESF</td>
<td>Emergency Support Function</td>
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<tr>
<td>FCO</td>
<td>Federal Coordinating Officer</td>
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<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<td>HHW</td>
<td>Household Hazardous Waste</td>
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<tr>
<td>IA</td>
<td>Individual Assistance</td>
</tr>
<tr>
<td>MOA</td>
<td>Memorandum of Agreement</td>
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<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>NIMBY</td>
<td>Not In My Back Yard</td>
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<td>OPPD</td>
<td>Office of Policy and Program Development</td>
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<td>PA</td>
<td>Public Assistance</td>
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<td>QA</td>
<td>Quality Assurance</td>
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<tr>
<td>SCO</td>
<td>State Coordinating Officer</td>
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<td>SOW</td>
<td>Scope of Work (contract)</td>
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<td>USDA</td>
<td>U.S. Department of Agriculture</td>
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<tr>
<td>PWS</td>
<td>Project Work Sheets</td>
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<tr>
<td>RCPGP</td>
<td>Regional Catastrophic Preparedness Grant Program</td>
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## Appendix 2

### Debris Management Task Force Agencies

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<thead>
<tr>
<th>Agency</th>
<th>Telephone Number</th>
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<tbody>
<tr>
<td>ACPWA</td>
<td>510.670.5455</td>
</tr>
<tr>
<td>County OES</td>
<td>925.803.7800</td>
</tr>
<tr>
<td>Alameda County Waste Management Authority</td>
<td>510.614.1699</td>
</tr>
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</table>
Appendix 3

Potential Disaster Debris Storage and Processing Sites

Five landfills (2 located immediately outside Alameda County), three transfer stations, three County owned properties, and two waste processing operations were assessed for the facilities’ ability to accept, temporarily store, and process disaster debris. Site locations are shown with details on the 13 sites presented in Table 1.

Based on discussions with several site operators, having a market for processed disaster debris and shipping the processed material off site can be the controlling factor in amount of material that can be recycled. In general, the transfer stations, unless they were located at a closed landfill site, lacked adequate area to serve as a viable site for the temporary storage and processing of significant quantities of disaster debris.

A brief description of the facilities is presented on the following pages.

**Potential Storage/Transfer/Processing Sites In Alameda County**

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Site Address</th>
<th>Owner &amp; Telephone</th>
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<tbody>
<tr>
<td><strong>Landfills</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tri-Cities Recycling and Disposal Facility</td>
<td>7010 Auto Mall Parkway Fremont</td>
<td>Waste Management Inc. of Alameda County (WMAC) (510) 657-2425</td>
</tr>
<tr>
<td>Vasco Road Sanitary Landfill</td>
<td>4001 North Vasco Road NE of Livermore</td>
<td>Browning Ferris Industries (510) 447-0491</td>
</tr>
<tr>
<td>Altamont Landfill</td>
<td>10840 Altamont Pass Road</td>
<td>Waste Management Inc. of Alameda County (WMAC) (510) 449-6349</td>
</tr>
</tbody>
</table>

| **Transfer Stations**            |                                    |                                                 |
| Davis Street TS/MRF              | 2675 Davis Street San Leandro      | WMAC (510)638-4327                              |
| Berkeley Transfer Station        | Second & Gilman Berkeley           | City of Berkeley (510) 644-8894                |
| Pleasanton                       | 3110 Bush Road Pleasanton          | Pleasanton Garbage Service (510)846-2042      |

| **County-Owned Lands**           |                                    |                                                 |

Alameda County Public Works Catastrophic Earthquake Debris Management Plan   Page 28 of 65
| Altamont Area Station | 400 ft. either side of the old Southern Pacific right-of-way, on Altamont Pass Road, just NE of Dyer Road | Alameda County (Real Estate Division)  
(510) 670-5585 |
|-----------------------|----------------------------------------------------------------------------------------------------|---------------------------------|
| Flood Control Silt Sites | Northwest of West Winton Road in Hayward, and North of the west end of Grant Street, San Leandro | Alameda County Flood Control District  
(contact Alameda County Real Estate Division)  
(510) 670-5585 |


Table 1

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Total Site Area (Acres)</th>
<th>Existing CD/DD Processing (y/n)</th>
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<th>Planned CD/DD Processing (y/n)</th>
<th>Area Planned or Available (Acres)</th>
<th>Materials Planned for Processing</th>
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</thead>
<tbody>
<tr>
<td>Tri-Cities Recycling and Disposal Facility</td>
<td>378</td>
<td>Y</td>
<td>5</td>
<td>Concrete, asphalt, rock</td>
<td>200</td>
<td>Y</td>
<td>140</td>
<td>MRF Possible</td>
</tr>
<tr>
<td>7010 Auto Mall Parkway</td>
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<tr>
<td>Rick King, Environmental Health &amp; Safety Manager</td>
<td>(510) 524-5914</td>
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<tr>
<td>Vasco Road Landfill</td>
<td>230</td>
<td>Y</td>
<td>4</td>
<td>Concrete, asphalt</td>
<td>C</td>
<td>Y</td>
<td>20</td>
<td>Concrete, asphalt</td>
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<tr>
<td>4011 N. Vasco Road</td>
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<tr>
<td>Norm Christensen, Site Manager</td>
<td>(510) 447-0491</td>
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<tr>
<td>Zanker Road Landfill</td>
<td>52</td>
<td>Y</td>
<td>15+</td>
<td>Concrete, asphalt, wood, CD</td>
<td>1200</td>
<td>Y</td>
<td>15</td>
<td>Concrete, asphalt, wood, CD</td>
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<tr>
<td>705 Los Esteros Road</td>
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<tr>
<td>Michael Gross, Paul Lineberry</td>
<td>(408) 263-2383</td>
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<tr>
<td>West Contra Costa Sanitary Landfill</td>
<td>160</td>
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<td>4</td>
<td>Concrete, asphalt, DD</td>
<td>500</td>
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<tr>
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<tr>
<td>Larry Burch, Director of Environmental Management</td>
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<tr>
<td>(510) 233-4330 (Landfill)</td>
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<tr>
<td>Altamont Landfill</td>
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<td>N</td>
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<tr>
<td>Kyle Strand, Account Manager</td>
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</tbody>
</table>
## Table 1 Continued

### Potential Disaster Debris Storage or Processing Sites

<table>
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<tr>
<th>Site Name</th>
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<th>Area Planned or Available (Acres)</th>
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</thead>
<tbody>
<tr>
<td>Grant Avenue Slit Site (County owned) North of the west end of Grant Avenue San Leandro, California John Fenstermacker (510) 670-5585</td>
<td>23</td>
<td>N</td>
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<td>Available</td>
<td>23</td>
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</tr>
<tr>
<td>Landfill Management, Inc. (Winton Landfill) 4001 West Winton Avenue Hayward, California Wayne Thornton, Site Supervisor (510) 784-0825</td>
<td>45</td>
<td>Y</td>
<td>30+</td>
<td>Concrete, asphalt</td>
<td>1,000</td>
<td>Y</td>
<td>45</td>
<td>Concrete, asphalt</td>
</tr>
<tr>
<td>Waste Management Collection &amp; Recycling 1900 West Winton Avenue Hayward, California Jim Fuller, Facility Manager (510) 264-1900</td>
<td>10</td>
<td>Y</td>
<td>10</td>
<td>Clean wood</td>
<td>400</td>
<td>None Addition</td>
<td>10</td>
<td>Clean wood</td>
</tr>
</tbody>
</table>

**NOTES:**
1. CD = Construction Debris, DD = Demolition Debris
2. Y = Yes, N = No
Tri-Cities Recycling and Disposal Facility

This landfill occupies approximately 112 acres of a 378-acre site. The landfill is located at 7010 Auto Mall Parkway in Fremont, direct site access is via Highway 880 and then west on Auto Mall Parkway. Tri-Cities presently leases approximately 5 acres to Raisch Construction who processes segregated concrete, asphalt, and rock. The facility has no facilities to separate mixed materials. The facility can process 200 tons of concrete per day. Tri-Cities uses processed material on site and markets it to construction companies.

Tri-Cities is evaluating construction of a material recovery facility (MRF) and transfer station (TS) on the site, dependent upon contract negotiations with local municipalities. The MRF would have a capacity on the order of 900 tons per day. On an emergency basis the site could have about 140 acres available for the temporary storage and processing of disaster debris.

Vasco Road Landfill

The Vasco Road Landfill is a 230-acre facility north of Livermore. The landfill is located at 4001 N. Vasco Road. Direct site access is available from Highway 580 and then north on Vasco Road. The site processes segregated concrete and asphalt for use on site roads. The facility stockpiles the concrete and asphalt and then contracts with an outside contractor to process the material. The facility presently has about 4 acres available for stockpiling and processing and will have an additional 20 acres available as landfill modules are brought to final grade.

Davis Street Transfer Station and Material Recovery Facility

The Davis Street facility is located at 2615 Davis Street in San Leandro and occupies a portion of the 53-acre closed Davis Street Landfill. Access to the site is from Highway 880 at Davis Street exit westbound. The site presently grinds clean wood and ships concrete debris to the Tri-Cities Recycling and Disposal Facility for processing. The processed clean wood chips are sold to biomass power plants for fuel. The site is in the process of obtaining permits for a construction debris/demolition debris processing line with a 40 ton per hour capacity. The site has about 8 acres available for the temporary storage and processing of disaster debris.

Berkeley Transfer Station

The Berkeley Transfer Station is located on 4.6 acres at Second and Gilman in Berkeley. Access is from Interstate Highway 80 at the Gilman Street exit. The facility accepts a small amount of clean wood, for composting but has inadequate available area for storage or processing of demolition or disaster debris.
Pleasanton Transfer Station

The Pleasanton Transfer Station is located in northeastern Pleasanton at 3110 Busch Road. Facility access is via Highway 680 to the Sunol Boulevard exit, north on Sunol Boulevard to First Street in Pleasanton which merges into Stanley Boulevard, continue northeast on Stanley Boulevard making a left turn on Valley Avenue and a right turn onto Busch Road. The facility may also be reached from Livermore via Stanley Boulevard.

The transfer station has an approximately 2-acre area that is used for wood construction debris (CD) processing. The facility processes untreated wood without lead based paint. Chipped wood is sold to biomass power plants. The site typically processes 25 to 50 tons per day, with a maximum of about 100 tons per day. The site is limited on space to stockpile both processed and unprocessed wood.

Altamont Area Station

This 20-acre parcel of county owned land is adjacent to Altamont Pass Road, north of Dyer Road. Site access is from Altamont Pass Road from Highway 580. The site is presently open space and could be used for temporary storage and processing of disaster debris. Site preparation would be needed to increase truck trafficability for winter (rainy season) use.

West Winton Avenue - Flood Control Silt Site

This approximately 100-acre parcel of county owned land is northwest of the west end of West Winton Avenue in Hayward. Access is from the West Winton Avenue exit of Highway 880. This area could be used for temporary storage and processing of disaster debris. Site preparation would be needed to increase truck trafficability for winter use.

Grant Avenue - Flood Control Silt Site

The Grant Avenue Flood Control Silt Site is a 23-acre parcel of county owned land north of the western end of Grant Avenue in San Leandro. Access is via Highway 880 to West A Street, West A Street to Hesperian Boulevard, Hesperian Boulevard north to Grant Avenue, and west on Grant Avenue. The site could be used for the temporary storage and processing of disaster debris. Site preparation would be needed to increase truck trafficability for winter use.

Landfill Management, Inc.

Land Management, Inc. operates a concrete and asphalt processing facility on the closed Winton landfill at the western end of West Winton Avenue in Hayward. Access to the site is from Highway 880 and West Winton Avenue. About 1,000 tons per day are processed at the 45-acre
site. The processed materials are marketed to construction companies, while soil and fines are used to maintain drainage on the closed landfill. The site could be used for the temporary storage and processing of disaster debris.

Waste Management Collection & Recycling

This 10-acre wood recycling plant is located at 1900 West Winton Avenue in Hayward. Access to the facility is from Highway 880 and West Winton Avenue. The plant accepts clean unpainted wood only and processes about 400 tons per day. The plant sells the processed wood to wood fiberboard manufacturers and to landscape contractors. The site could be used for temporary storage and processing of select disaster debris.
Appendix 4

Debris Removal Guidelines¹

What’s eligible:

Upon the Presidential declaration a major disaster or emergency, Federal assistance is available. FEMA designates the area eligible for assistance and the types of assistance available.

FEMA may grant assistance for:

- debris removal,
- emergency protective measures, and
- the permanent restoration of facilities.

Contents:

The following information is presented below:

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Debris Eligibility Criteria</td>
</tr>
<tr>
<td>2</td>
<td><strong>Debris Removal Guidelines</strong></td>
</tr>
</tbody>
</table>

DEBRIS ELIGIBILITY CRITERIA

Must be for:

Debris removal and emergency protective measures must be necessary to:

- Eliminate immediate threats of life, public health, and safety; or
- Eliminate immediate threats of significant damage to improved public or private property.

The following criteria apply to all types of work and to all applicants. There may be additional criteria for specific types of work or facilities.
## Debris Removal Guidelines

### Debris Eligibility Criteria

<table>
<thead>
<tr>
<th>Basic criteria for all assistance to be eligible are that work or expenses must be:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be the legal responsibility of the Applicant.</td>
</tr>
<tr>
<td>The work or expense must be the responsibility of the applicant. Generally, ownership of a facility is sufficient to establish responsibility for facility.</td>
</tr>
<tr>
<td>Mutual aid agreements between a local governments or between a local government and the State may establish the responsibility for reimbursement by the government receiving the assistance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Not eligible for project are assistance under and another Federal work itself program.</th>
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</thead>
<tbody>
<tr>
<td>Cost . Reasonable costs directly attributed to a project are generally eligible. They include labor, materials, equipment costs when the applicant performs the work itself program. (force account) or contracts awarded for the work.</td>
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</table>

### Debris Removal Eligibility

<table>
<thead>
<tr>
<th>Includes:</th>
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<tbody>
<tr>
<td>Debris that may be eligible for clearance and removal includes:</td>
</tr>
<tr>
<td>trees,</td>
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<tr>
<td>sand and gravel,</td>
</tr>
<tr>
<td>building wreckage,</td>
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<tr>
<td>vehicles,</td>
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<tr>
<td>personal property, etc.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Must be for:</th>
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</thead>
<tbody>
<tr>
<td>To be eligible for FEMA assistance, such removal must be necessary to do one of the following:</td>
</tr>
<tr>
<td>Eliminate immediate threats of life, public health, and safety; or</td>
</tr>
<tr>
<td>Eliminate immediate threats of significant damage to improved public or private property.</td>
</tr>
<tr>
<td>Ensure economic recovery of the affected community to the benefit of the community-at-large.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A result of the declared event and not of a pre-disaster condition or some other event</th>
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</thead>
<tbody>
<tr>
<td>Direct result. The work must be required as a direct result of the declared event-severe storm, flooding, earthquake, etc.</td>
</tr>
<tr>
<td>An incident period established by FEMA after consultation with the Governor's Authorized Representative generally begins at the start of the event and lasts as long as necessary to include all normal damages from the event.</td>
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</tbody>
</table>
A result of the declared event and not of a pre-disaster condition or some other event. Continued

<table>
<thead>
<tr>
<th><strong>EXHIBIT R</strong></th>
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<tbody>
<tr>
<td><strong>A result of the declared event and not of a pre-disaster condition or some other event. Continued</strong></td>
</tr>
<tr>
<td>Primarily, damages that occur during the incident period, or are the direct result of events that occurred during the incident period, will be considered for eligibility.</td>
</tr>
<tr>
<td>In addition, protective measures and other preparation activities performed within a reasonable time in advance of the event will also be considered.</td>
</tr>
<tr>
<td>Damages that occur after the close of an incident period but can be tied directly to the declared event may also be eligible.</td>
</tr>
<tr>
<td>Be within the area designated by FEMA as eligible for assistance.</td>
</tr>
<tr>
<td>Designated area. The damages must have occurred, or the work or activity may be performed or support the performance of such work, within the designated disaster area.</td>
</tr>
<tr>
<td>When a declaration of a major disaster is made for a State, the Associate Director designates those countries of the State that are eligible for assistance.</td>
</tr>
<tr>
<td>The type of assistance is also specified: public assistance (for State and local governments and for Public Non-Profit organizations) and individual assistance (for individuals and families).</td>
</tr>
<tr>
<td>Different counties may be eligible for one or both types of assistance, depending on the needs of the area.</td>
</tr>
<tr>
<td>Drainage structures</td>
</tr>
<tr>
<td>Debris removal from certain drainage structures may have to meet the following criteria:</td>
</tr>
<tr>
<td><strong>Reservoirs</strong></td>
</tr>
<tr>
<td>May be eligible in accordance with the criteria for debris basins below. Removal of debris that poses an immediate threat of clogging or damaging intake or adjacent structures may be eligible.</td>
</tr>
<tr>
<td><strong>Natural streams</strong></td>
</tr>
<tr>
<td>Not normally eligible for assistance. Only debris that causes a threat to lives or public health and safety or damage to improved property, from a 5-year flood event is eligible.</td>
</tr>
<tr>
<td><strong>Engineered channels and debris basins</strong></td>
</tr>
<tr>
<td>May be eligible. The pre-disaster level of debris in the channel or basin is of particular importance to determine the amount of disaster-related debris.</td>
</tr>
</tbody>
</table>
## Roads and Highways
Debris may be cleared from roads and highways, including the travel lanes and shoulders, roadside ditches and drainage structures, and the maintained right-of-way. Clearance from Federal-aid roads and highways follows these criteria except when the Emergency Relief (ER) program of the Federal Highway Administration (FHWA) is activated. Debris on undamaged sections of highway may be eligible for FEMA assistance.

## Debris removal from public property
Debris that is on public property must be removed to allow continued safe operation of governmental functions and therefore, if eligible under one of the first two criteria.

However, not all public property clearance is necessarily eligible.

## Private property
This is the responsibility of the individual property owner aided by insurance settlements and assistance from volunteer agencies.

Most homeowner fire and extended coverage insurance policies have specific coverage for debris removal and demolition of heavily damaged structures.

FEMA assistance is not available to reimburse private property owners for the cost of moving debris from their property.

However, an eligible local or State government may pick up and dispose of disaster-related debris placed at the curb by those private individuals.

If the debris on private business and residential property is so widespread that public health, safety, or the economic recovery of the community is threatened, the actual removal of debris from the private property may be eligible. In such situations, the work normally must be done or contracted by an eligible applicant.

## Recreational and Wilderness Areas
Debris removal is eligible when it affects public health or safety or proper utilization of such facilities.

Trees frequently constitute a large part of debris in these areas, and special guidance is noted below:

Debris in wilderness or forested areas of these facilities that does not pose a health or safety threat is not eligible.
### Recreational and Wilderness Areas Continued

<table>
<thead>
<tr>
<th>Hazardous trees within a naturalized area of parks or golf courses that are unstable and leaning into the areas used by the public are eligible for removal only, not replacement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally, stump removal should not be considered eligible for reimbursement except when a tree eligible for replacement must be replanted in the same spot if it is determined that the stump itself would be a hazard.</td>
</tr>
</tbody>
</table>

**REFERENCES** Debris Management Course (pilot), Reference Manual, Emergency Management Institute, FEMA.

Appendix 5

Sample Documentation
(Agreements, Contracts, MOU/MOAs, private land)

EXAMPLE PRIVATE LAND

Date:

I attest that I am the owner of the structure/property located at __________________________ and have not received insurance reimbursement or funding from the federal emergency management administration (FEMA) to cover the removal of disaster related debris, as a result of the January 17, 1994, earthquake.

Should any such funding be received in the future I will submit the covered cost to the city of Santa Clarita, c/o Emergency Preparedness Division, for reimbursement to FEMA.

Signature __________________________________

Date:

I attest that as the licensed contractor for the structure/property located at __________________________ I am aware that to participate in the earthquake debris removal program offered by county of Alameda I will receive no funds from the homeowners for this service.

I will advise the property owner that any funds received from insurance reimbursement or the federal emergency management administration (FEMA) specifically for debris removal should be returned to the County of Alameda, c/c Emergency Preparedness Division.

Signature __________________________________

EXAMPLE INDEMNIFY AND HOLD HARMLESS

The County of Alameda (herein referred to as "County") , a Municipal Corporation, agrees to Indemnify and Hold Harmless the Newhall land and Farming Company (hernia referred to as “NL&F” from any claims or actions arising from the use of their property located on Avenue Stanford, Parcel Map. No. 13218, for the specific use of stockpiling disaster-related debris such as construction and demolition products.
EXHIBIT R

The County agrees to indemnify and hold harmless the employees, officials and/or agents of NL&F for any claims or actions arising from the negligence of its employees, officials and/or agents in the day-to-day use of said Property for the specific use of stockpiling disaster-related debris such as construction and demolition products.

NL&F agrees to indemnify and hold harmless the employees, officials and/or agents of the County for any claims or actions arising from the negligence of its employees, officials and/or agents in the day-to-day use of said Property for the specific use of stockpiling disaster-related debris such as construction and demolition products.

The January 27, 1994, Northridge earthquake necessitates the need for this agreement on an urgency basis and is thereby executed by the County. This agreement will be ratified and approved by the City Council at their first opportunity.

Executed on this day, January _____, 1994, in Alameda County, California

_________________________________
John Smith, Deputy Director

EXAMPLE OF RIGHT OF WAY AGREEMENT

I/We __________________________________________, the owner(s) of the property commonly identified as __________________________________________________, State of _________ do hereby grant and give freely and without coercion, the right of access and entry to said property to the County/City of ________________, its agencies, contractors, and subcontractors thereof for the purpose of removing and clearing any or all storm-generated debris of whatever nature from the above described property.

It is fully understood that this permit is not an obligation to perform debris clearance. The undersigned agrees and warrants to hold harmless the City/County of ________________, State of _________, its agencies, contractors, and subcontractors, for damage of any type, whatsoever, either to the above described property or persons situated thereon and hereby release, discharge and waive any action either legal or equitable that might arise out of any activities on the above described property. The property owner(s) will mark any storm damaged sewer lines, water lines, and other utility lines located on the described property.

I/We (have __, have not _) (will __, will not __) received any compensation for debris removal from any other source including SBA, ASCS, private insurance, individual and family grant program or any other public assistance program. I will report for this property any insurance settlements to me or my family for debris removal that has been performed at government expense. I am fully aware that an individual who fraudulently or willfully misstates any fact in connection with this agreement shall be subject to a fine of not more than $10,000 or imprisoned for not more
than one year or both. For the considerations and purposes set forth herein, I hereby set my hand this _ day of __________ 1 9__.  

______________________________________________    ________________________
Witness    Owner  

______________________________________________
Owner  

______________________________________________
Owner  

Telephone No. and Address
Appendix 6

Demolition of Private Party Checklist

- Demolishing or securing damaged structures that threaten the health and safety or adjacent residents should be the responsibility of the owner.

- Experience has shown that unsafe structures will remain because of:
  - Lack of insurance
  - Absentee landlords
  - Understaffed and under-equipped local governments

- Demolition of these structures will become a major issue and may require resources from any or all of the following:
  - Tax office
  - Local law and/or code enforcement agencies
  - State historic preservation office
  - Contractors qualified to remove hazardous waste, asbestos, and lead-based paint
  - Field teams to photograph the sites before and after demolition

- Communities should have copies of required ordinances as part of their emergency management plan.

- Ordinances should be activated when a State of Emergency is implemented, eliminating any unnecessary waiting period.
Appendix 7

Closure Checklist

- Resolve variations between local, State, Federal government environmental regulations and their interpretations prior to site closure.

- Failure to collect baseline data can result in claims for damage to nonexistent structures or the land itself.

- Video recordings and/or photographs should be taken prior to opening a site.

- Background soil/water samples should also be taken before site activities begin to compare with close-out soil and water samples.

- Groundwater testing is not necessary at non-burn sites unless household hazardous waste is also present at the site and remained for an extended period of time prior to final disposal.

- Ensure that the contractors are required to remove all residual debris from temporary sites to approve landfills prior to closure.

- Reference appropriate and applicable environmental regulations.

- Prioritize site closures.

- Schedule close-out activities.

- Develop cost estimates.

- Develop decision criteria for certifying satisfactory closure based on limited baseline information.

- Develop administrative procedures and contractual arrangements for closure phase.

- Inform local and State environmental agencies regarding acceptability of program and established requirements.

- Designate approving authority to review and evaluate contractor closure activities and progress.

- Retain staff during the closure phase to develop site specific remediation actions.
## Appendix 8

### Local Agencies Disaster Debris Responsibilities

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>City Manager</th>
<th>SEMS Operational Area Contact(s)</th>
<th>Public Works/Disaster Debris Removal/Disaster Cost Recovery &amp; Financing</th>
<th>Solid Waste Manager</th>
<th>Technical Advisory Committee Member</th>
</tr>
</thead>
</table>
| City of Alameda | James岚 | 2963 Santa Clara Avenue, Room 320  
Alameda, CA 94501  
T: 510/748-4505  
P: 510/748-4504 | Rick Ennehmen, Captain  
Alameda Fire Dept  
550 Mill Square, Suite 150  
Alameda, CA 94501  
T: 510/749-3598  
P: 510/749-9170  
Jim Christianson, Chief  
Alameda Fire Dept  
550 Mill Square, Suite 150  
Alameda, CA 94501  
T: 510/749-4601  
P: 510/748-4666 | Matthew Nadelson, Director of Public Works  
950 West Mall Square  
Alameda, CA 94501  
T: 510/749-3840  
P: 510/749-5867 | Mark Elmeglio, Program Specialist  
City of Alameda  
950 West Mall Square, Room 110  
Alameda, CA 94501-7552  
T: 510/749-5093  
P: 510/749-5867 | Mark Elmeglio, Program Specialist  
City of Alameda  
950 West Mall Square, Room 110  
Alameda, CA 94501-7552  
T: 510/749-5093  
P: 510/749-5867 |
| City of Albany | Beth Pollock | 1000 San Pablo Street  
Albany, CA 94706  
T: 510/528-5710  
P: 510/528-5797 | Marc McGinn, Fire Chief  
1000 San Pablo Ave.  
Albany, CA 94706  
T: 510/528-5773  
P: 510/528-5774 | Roger Anderson, Public Works Director  
1000 San Pablo Ave.  
Albany, CA 94706  
1000 San Pablo Ave.  
Albany, CA 94706  
T: 510/528-5766  
1000 San Pablo Ave.  
Albany, CA 94706  
T: 510/528-5766  
P: 510/524-9350 |
| City of Berkeley | Weldon Reacher | 2120 Monterey Street  
Berkeley, CA 94704  
T: 510/944-6380  
P: 510/944-0035 | Jim Folk, Emergency Svcs Coord.  
957 Cedar Street  
Berkeley, CA 94710  
T: 510/981-5503  
P: 510/981-5552 | Russ Carucci, Public Works Director  
2120 Monterey Street  
Berkeley, CA 94710  
T: 510/944-6505 ext. 4  
P: 510/944-8330 | Tom Purcell, Solid Waste Manager  
City of Berkeley Public Works Department  
1201 Second Street  
Berkeley, CA 94710  
T: 510/981-6259 | Becky Dowdakia, Recycling Program  
City of Berkeley Public Works Dept.  
1201 Second Street  
Berkeley, CA 94710  
T: 510/981-6337  
P: 510/981-6260 |
## Local Agencies Disaster Debris Responsibilities

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<th>Solid Waste Manager</th>
<th>Technical Advisory Committee Member</th>
</tr>
</thead>
</table>
| City Of Dublin | Richard Ambrose  
100 Civic Plaza  
Dublin, CA 94568  
T: 925/833-6650  F: 925/833-6651 | Richard Ambrose  
100 Civic Plaza  
Dublin, CA 94568  
T: 925/833-6650  F: 925/833-6651 | Lee Thompson, Public Works Director  
100 Civic Plaza  
Dublin, CA 94568  
T: 925/833-6639  F: 925/833-6628 | Jason Behrman, Management  
Asst. Disaster Prep. Coord  
100 Civic Plaza  
Dublin, CA 94568  
925/833-6657  F: 925/833-6651 | Jason Behrman, Management  
Asst. Disaster Prep. Coord  
100 Civic Plaza  
Dublin, CA 94568  
925/833-6657  F: 925/833-6651 |
| City of Emeryville | John Piers | Dan Dyer, Asst. Fire Chief  
2333 Powell Street  
Emeryville, CA 94608  
T: 510/656-4219  F: 510/656-4219 | Henry Van Dyke, Jr., Public Works Director  
1333 Park Avenue  
Emeryville, CA 94608  
T: 510/596-4331  F: 510/596-4331 | Peter Schollke-Allen | Peter Schollke-Allen  
1333 Park Avenue  
Emeryville, CA 94608  
T: 510/596-4330  F: 510/596-4330 |
| City of Fremont | Jan Packard  
30100 Liberty Street  
Fremont, CA 94538  
T: 510/494-4800  F: 510/494-4827 | Victor Valden, Asstig Division Chief  
P.O. Box 5906  
Fremont, CA 94537  
T: 510/494-4255  F: 510/494-4255 | Lynn Dautcher, Asst. City Manager  
P.O. Box 5906  
Fremont, CA 94537  
T: 510/494-4732  F: 510/494-4720 | Kathy Cole  
City of Fremont  
P.O. Box 5906  
Fremont, CA 94537  
510/494-4743 | Marka Bradford  
Recycling Program Manager  
Environmental Services Division  
P.O. Box 5906  
Fremont, CA 94537  
510/494-4743  F: 510/494-4743 |

Alameda County Public Works Catastrophic Earthquake Debris Management Plan Page 47 of 65
## Appendix 8 continued

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</tr>
</thead>
<tbody>
<tr>
<td>City of Hayward</td>
<td>Jacie Aaron</td>
<td>777 “H” Street&lt;br&gt;Hayward, CA 94541&lt;br&gt;T: 510/583-4625  F: 510/583-3981</td>
<td>Dennis Jaffee, Public Works Director&lt;br&gt;777 B Street&lt;br&gt;Hayward, CA 94541&lt;br&gt;T: 510/583-4710  F: 510/583-3649</td>
<td>Verna Doble-Lahoe, Solid Waste Manager&lt;br&gt;City of Hayward Public Works&lt;br&gt;777 B Street&lt;br&gt;Hayward, CA 94541-5007&lt;br&gt;T: 510/583-4723  F: 510/583-3619</td>
<td>Verna Doble-Lahoe, Solid Waste Mgr&lt;br&gt;City of Hayward and Public Works Dept.&lt;br&gt;777 B Street&lt;br&gt;Hayward, CA 94541-5007&lt;br&gt;T: 510/583-4723  F: 510/583-3619</td>
</tr>
<tr>
<td>City of Livermore</td>
<td>Linda Barton</td>
<td>1055 S. Livernois Avenue&lt;br&gt;Livermore, CA 94550&lt;br&gt;T: 925/973-5136  F: 925/973-5135</td>
<td>Shana Larbeit, EMS Manager&lt;br&gt;4530 East Avenue&lt;br&gt;Livermore, CA 94550&lt;br&gt;T: 925/545-2315  F: 925/545-2367</td>
<td>Jackie Terrazas, Reg. Compliance Officer&lt;br&gt;Public Services Dept.&lt;br&gt;3500 Robertson Park Blvd&lt;br&gt;Livermore, CA 94550-4899&lt;br&gt;T: 925/723-5990  F: 925/723-5317</td>
<td>Jackie Terrazas, Reg. Compliance Officer&lt;br&gt;Public Services Dept.&lt;br&gt;3500 Robertson Park Blvd&lt;br&gt;Livermore, CA 94550-4899&lt;br&gt;T: 925/723-5317  F: 925/723-5317</td>
</tr>
<tr>
<td>City of Newark</td>
<td>Al Harris</td>
<td>37101 Newark Blvd&lt;br&gt;Newark, CA 94560&lt;br&gt;T: 510/790-7000  F: 510/745-9972</td>
<td>Leslie Pina, Chief&lt;br&gt;37101 Newark Blvd.&lt;br&gt;Newark, CA 94560&lt;br&gt;T: 510/790-7251  F: 510/790-7281</td>
<td>Denise Jones, Community Development Director&lt;br&gt;City of Newark&lt;br&gt;37101 Newark Blvd.&lt;br&gt;Newark, CA 94560&lt;br&gt;T: 510/790-7214</td>
<td>Clay Baldwin, Econ. Dev. Mgr.&lt;br&gt;37101 Newark Blvd.&lt;br&gt;Newark, CA 94560&lt;br&gt;T: 510/790-7262  F: 510/790-7265</td>
</tr>
<tr>
<td></td>
<td>Mike Bohm</td>
<td>37101 Newark Blvd.&lt;br&gt;Newark, CA 94560&lt;br&gt;T: 510/790-7251  F: 510/790-7281</td>
<td>Mike Bohm, Emergency Preparedness 37101 Newark Blvd.&lt;br&gt;Newark, CA 94560&lt;br&gt;T: 510/790-7251  F: 510/790-7281</td>
<td></td>
<td>Tracey Swamberg&lt;br&gt;Hiller, Parnick &amp; Sessions&lt;br&gt;2175 North California Blvd., 3900&lt;br&gt;Walnut Creek, CA 94596&lt;br&gt;T: 925/777-4923</td>
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## Appendix 8 continued

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</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>6005 Martin Luther King Jr. Way</td>
<td>250 Frank Ogawa Plaza</td>
<td>250 Frank Ogawa Plaza, Ste. 5301</td>
<td>250 Frank Ogawa Plaza, Suite 5301</td>
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<td>Oakland, CA 94612</td>
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<td>Berry Weiland, Assistant Director Maintenance Services</td>
<td>Brooke Levin, Environmental Services Manager</td>
<td>Peter Schreiber, Recycling Spec.</td>
</tr>
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<td></td>
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<td>7101 Edgewater Dr., Building 4</td>
<td>250 Frank Ogawa Plaza, Ste. 5301</td>
<td>Environmental Services Division</td>
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<td>City of Pinole</td>
<td>Geoffrey Critt</td>
<td>John C. Speaks, Fire Chief</td>
<td>Larry Rosenburg, Director of Public Works</td>
<td>Kate Black, City Planner</td>
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<tr>
<td>City of Pleasanton</td>
<td>Deborah Acosta-McKeehan</td>
<td>Scott Barringer, Captain</td>
<td>Steve Bosco, Deputy City Manager</td>
<td>Nelson Flahbo, Deputy City Manager</td>
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<td>123 Main Street</td>
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<td>Steve Bosco, Deputy City Manager</td>
<td>Nelson Flahbo, Deputy City Manager</td>
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<td>Jody Esterlone, Recycling Specialist 835 East 14th Street San Leandro, CA 94577 T: 510/577-6022 F: 510/577-6019</td>
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<td></td>
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<td></td>
<td>Tony Acosta, Deputy City Mgr. 34009 Alvarado-Niles Road Union City, CA 94587 T: 510/675-5394 F: 510/441-2443</td>
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<td>Ron Gax, Senior Planner Alameda County Planning Dept. 399 Embarcadero St. Room 135 Hayward, CA 94544 T: 510/970-5440 F: 510/783-8793</td>
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<tr>
<td>Ore Loma Sanitary District</td>
<td>Michael Carreon, General Manager &lt;br&gt;2600 Grant Avenue &lt;br&gt;San Lorenzo, CA 94580 &lt;br&gt;T: 510/276-4760 F: 510/276-1528</td>
<td>Michael Carreon, General Manager &lt;br&gt;2600 Grant Avenue &lt;br&gt;San Lorenzo, CA 94580 &lt;br&gt;T: 510/276-4760 F: 510/276-1528</td>
<td>DNA</td>
<td>DNA</td>
<td>Mark Stegger &lt;br&gt;2600 Grant Ave &lt;br&gt;San Lorenzo, CA 94580 &lt;br&gt;T: 510/276-4760 F: 510/276-1528</td>
</tr>
</tbody>
</table>
Appendix 9

Catastrophic Earthquake Scenario

Introduction

This object of the Scenario and Data Assumptions Report (SDR) created by URS Corporation is to present scenarios and assumptions to support creation of four regional plans for the 12-county Bay Area under the Regional Catastrophic Preparedness Grant Program (RCPGP). The four plans are:

- Debris Removal
- Mass Care and Shelter
- Mass Fatality
- Mass Transportation and Evacuation

In addition, the earthquake scenarios and assumptions apply to the county and city plans that will be developed for each of these functional areas. Scenarios and assumptions relating to the Catastrophic Earthquake and attendant assumptions directly relating to Debris Removal (Waste Management) Planning have been taken from the SDR to bolster the Plan by providing context and a specific frame of reference for its utilization and for training.

General Description of the Earthquake

The earthquake scenario is a reoccurrence of the 1906 earthquake on the northern segment of the San Andreas fault. The basis for the scenario is a HAZUS analysis originally performed by the Earthquake Engineering Research Institute with support from the U.S. Geological Survey and the California Emergency Management Agency (CalEMA) beginning in 2005 and modified by URS Corporation for purposes of the RCPGP.

The characteristics of the earthquake used in the development of the scenario are:

1. The earthquake occurs in January at 2:00 pm Pacific Standard Time on a weekday. The month and the time of the scenario earthquake were changed from those in the 1906 earthquake to maximize the potential impact on infrastructure and the population.

2. Similar to the 1906 event, a foreshock precedes the earthquake, followed approximately 20 to 25 seconds later by the main shock, which lasts 45 to 60 seconds. Otherwise, there is no advance warning of the earthquake.

3. The earthquake’s epicenter is just outside the entrance into the San Francisco Bay, west of the Golden Gate Bridge.

4. The earthquake ruptures the northern San Andreas fault for approximately 300 miles from the San Juan Bautista area in the south to Cape Mendocino in the north. Shaking is felt in Oregon to the north, Los Angeles to the south, and Nevada to the east.

5. The earthquake has an estimated magnitude of M 7.9 with a Modified Mercalli (MM) intensity of VIII (severe shaking/moderate to heavy damage) to IX (violent shaking/heavy damage) in widespread areas of the most severely affected counties. Pockets within the affected counties
experience instrument intensity of MM X (extreme shaking/very heavy damage), particularly areas immediately adjacent to the fault and areas where liquefaction is likely to occur.

6. Ground shaking and damage are expected in 19 California counties, extending from the Monterey County in the south to Humboldt County in the north, and into the San Joaquin Valley.

7. Damage will be catastrophic in the areas that experience shaking intensities of MM IX and X and high or very high level of susceptibility for liquefaction (i.e., areas adjacent to the fault in Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties).

8. Counties along the fault outside the Bay Area, such as Mendocino, may sustain damage and require response.

9. Central Valley counties such as Sacramento and San Joaquin may be affected immediately by evacuations and other response actions. An earthquake of this magnitude will also have significant effects in the rest of California and the nation. The rest of California and the Nation will be experience the need to respond, effects on the population, economic disruption and media attention.

10. Threats and hazards resulting from shaking, surface fault rupture, and liquefaction include:

11. Structural and non-structural damage to buildings and infrastructure, including:
   - Widespread collapse of buildings
   - Widespread ignition of fires
   - Subsidence and loss of soil-bearing capacity, particularly in areas of liquefaction
   - Displacement along the San Andreas fault
   - Widespread occurrence of landslides
   - Hazardous materials spills and incidents
   - Dam/levee failure resulting in flooding
   - Civil disorder

12. Threats and hazards resulting from the main shock will be aggravated or recur during aftershocks, which will continue for months after the main shock.

13. Despite the earthquake’s magnitude, it is not expected to generate a tsunami or a seiche.

14. Potable water supply systems suffer major damage due to the following:
   - Extensive damage to pipelines from ground deformation
   - Interruption of pumps and treatment due to power outages
   - Damage to treatment facilities, storage facilities, and distribution infrastructure
   - Contamination of potable water systems due to damaged lines.

15. Expected performance of potable water systems in Alameda County is summarized below. Results are based on potable water pipeline and facility damage, as estimated using HAZUS.

   Expected Number of Households in Alameda County Without Potable Water
   - Number of Households: 564,200
16. The earthquake results in massive power outages, and auxiliary power systems and generators are not sufficient to meet critical needs. The expected performance of the regional power system is described in Table 2-2. Results are based upon damage to electrical facilities, substations, and distribution circuits.

Expected Number of Households in Alameda County Without Electricity
- Number of Households: 564,200
- Day 1: 23,600
- Day 3: 13,700
- Day 7: 5,400
- Day 30: 1,200

General Planning and Operational Assumptions

1. Within 24 hours:
   - County Chief Administrative Officers declare local emergencies.
   - The Governor proclaims a State of Emergency and requests that the President declare a disaster.
   - The President declares a Major Disaster, making Federal assistance available under the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (42 U.S.C., 5121 – 5206 (20-08)) (the Stafford Act).
   - The Department of Homeland Security (DHS) and FEMA implement the Catastrophic Incident Supplement to the National Response Framework and begin mobilizing Federal resources.
   - DHS activates or elevates the level of activation of all DHS command and coordinating facilities.

2. Due to extensive damage to buildings and transportation infrastructure in Oakland, CalEMA’s Regional Emergency Operations Center (REOC) in Oakland is not functional; its functions are immediately assumed by the Regional Duty Officer until activation of the alternate REOC. In the event that an alternate REOC cannot be established in the Coastal Region, the Duty Officer will work with the CalEMA Executive Duty Officer to identify an alternate REOC outside the region. The Regional Duty Officer will provide the Operational Areas with contact information for the alternate REOC as soon as possible.

3. Operational Area EOCs are overwhelmed and challenged to effectively manage the Operational Area response.

4. On a statewide basis, all elements of the Standardized Emergency Management System (SEMS), including communications and mutual aid systems, are functional.

5. Operational Area Emergency Operations Centers (EOCs) experience some damage but are at least partly operational. All other local government functions in the Operational Areas are severely compromised or focused entirely on response to the earthquake.
6. Response capabilities and resources of local governments and the State in the region are quickly overwhelmed, or exhausted.

7. A detailed and credible common operating picture cannot be achieved for 24 to 48 hours (or longer) after the disaster. As a result, response activities begin without the benefit or a detailed or complete situation and critical needs assessment.

8. First responders, providers of recovery services, and other critical response personnel are personally affected by the disaster and may be unable to report to their posts for days due to damaged transportation infrastructure.

9. Once the President declares a disaster and commits Federal resources, the State and Federal governments establish joint operations to provide assistance to local jurisdictions.

10. Massive assistance in the form of response teams, equipment, materials, and volunteers begin to flow towards the region, providing urgently needed resources but creating coordination and logistical support challenges.

11. Due to damage to transportation infrastructure, out-of-region mutual aid, State, and Federal resources, as well as resources from other states cannot begin to arrive for up to 72 hours.

**Debris Removal Planning Assumptions**

The earthquake is expected to generate significant quantities of debris, which must be cleared, removed, and disposed of to reduce potential threats to life, public health and safety, and property; and to expedite recovery efforts in the affected areas. This section provides assumptions related to debris removal operations.

**Operational Assumptions**

1. Earthquake debris generally consists of construction and demolition (C&D) debris but may also include hazardous debris, sediment and rock, vegetative debris, and vehicles.

2. Debris clearance priorities vary depending on life-safety issues but generally include priority transportation routes and access to critical facilities.

3. Aftershocks, which may result in additional landslides, hamper debris clearance operations as infrastructure and ingress/egress to critical facilities may need to be cleared repeatedly.

4. City and county governments initially use their own resources and available private-sector contractors to clear debris. However, the amount of debris resulting from the earthquake exceeds the ability of local governments in personnel and available resources to clear debris, and out-of-region resources are required.

5. City and county governments request assistance through the REOC/SOC for debris clearance and removal operations, which may include State assistance, assistance from elsewhere in the State or from other states, and direct Federal assistance.

6. City and county governments also request financial assistance under the Stafford Act through FEMA’s Public Assistance Program for costs associated with debris clearance, removal,
EXHIBIT R

reduction, and disposal operations and demolition of damaged structures and facilities. Reimbursement under the program will depend on the local government’s compliance with program eligibility requirements.

7. A high priority is placed on recycling debris, and city and county governments recycle debris to the fullest extent possible.

8. Existing C&D recycling facilities in the region are likely to have insufficient capacity to process the volume and types of debris. Consequently, city and county governments consider adding recycling operations next to existing landfills, using recycling facilities throughout the region, and/or moving C&D debris out of the region.

9. Some landfills are likely to have insufficient capacity for the volume of unrecyclable debris. Consequently, city and county governments consider using landfills operated by neighboring jurisdictions or moving debris out of the region.

10. Available open space areas used to temporarily store and sort C&D debris is limited in certain cities/counties. Hauling pre-sorted and unsorted C&D debris directly from source site to a landfill or recycling facility may be necessary.

11. State agencies may temporarily suspend or reduce certain State regulations and requirements that may affect debris management operations.

12. Local Enforcement Agencies may waive standards related to origin of waste, rate of inflow for storage, transfer or disposal, type and moisture content of solid waste, hours of facility operation, and storage time before transfer or disposal of waste, at existing solid waste facilities, if needed, within the city or county.

Debris Amounts

13. Generally, the earthquake triggers landslides throughout the Bay Area, but the volume of landslide debris (consisting of rock, earth and vegetation) is significantly less than the debris generated by damage to buildings and infrastructure. Landslides that affect highways may require immediate clearance.

14. Estimates are provided below for the tonnage and volume of debris generated in Alameda County. These figures, measured in “thousands of tons” and “thousands of cubic yards, reflect damage to buildings (Source: URS HAZUS analysis 2009; conversion rates from US Army Corps of Engineers. Values converted from thousands of tons. For wood/brick/other, the conversion is 1 ton = 2 cubic yards; for concrete/steel, the conversion is 1 ton = 1 cubic yard).

   In Tons: Wood, Brick, Other: 3,600; Concrete and Steel: 7,300; Total: 10,900

15. Estimates are provided below for the number of buildings that may require Demolition in Alameda County. These figures include buildings that are extensively or completely damaged. It is assumed that all such buildings will be demolished, although it is possible that some of these buildings may be repaired instead of demolished (Source: URS HAZUS analysis 2009).

   Extensively Damaged: 11,300; Completely Damaged: 36,100

16. The earthquake will trigger landslides throughout the Bay Area. However, the expected volume of landslide debris (consisting of rock, earth, and vegetation) will not be significant when
compared to debris generated by damage to buildings and infrastructure. Also, many potential slide sites are located in remote areas. It is assumed that landslides will affect highways and require immediate clearance.
Appendix 10

Hayward Fault Earthquake Alternative Scenario

Impacts of the Hayward Fault Earthquake on Transportation

An additional analysis was performed on transportation impacts resulting from a catastrophic earthquake on the Hayward Fault. The scenario used is a magnitude 7.05 Hayward fault rupture of the North and South segments.

The Hayward fault earthquake scenario has a similar impact on the region transportation network, although certain facilities (particularly in the eastern part of the region) will be more severely affected by a Hayward fault earthquake than a San Andreas Fault earthquake. On a regional level, the Hayward Fault earthquake is expected to result in a smaller number of shelterees and people who require evacuation, although individual jurisdictions (particularly those immediately adjacent to the Hayward Fault) will be more severely impacted.

Damage to Transportation Infrastructure

Data which follows lists the lifeline routes in the 12-county region and expected functionality following the earthquake. These routes are to be re-opened as soon as possible after an incident to allow for movement of evacuees and emergency workers and supplies within the region (Source: URS HAZUS analysis 2009).

SR 24 from I-680 in Walnut Creek to SR-13/I-580 in Oakland - Contra Costa County segment

Functionality immediately following earthquake:

- **Route**
  - High
- **Bridges**
  - Low
- **Tunnel**
  - Caldecott Tunnel Low

SR 24 from I-680 in Walnut Creek to SR-13/I-580 in Oakland – Alameda County segment

Functionality immediately following earthquake:

- **Route**
  - Low
- **Bridges**
  - Low

I-80 from US 101 in San Francisco to I-580 in Oakland - San Francisco and Alameda Counties

Functionality immediately following earthquake:

- **Route**
  - Low to High (San Francisco side)
  - Low (Oakland side)
- **Bridge**

Bay Bridge: High
Bay Bridge Approaches: Low

I-80 from I-780 in Vallejo to the Nevada state border – Solano County segment

Functionality immediately following earthquake:

Route
High

Bridges
Low (Vallejo)
High (North of Vallejo to Solano County Line)

SR 92 from US 101 to I-280 in San Mateo County

Functionality immediately following earthquake:

Route
High

Bridges
High

US 101 from SR 170 in Los Angeles to I-280 in San Jose – Monterey County segment

Functionality immediately following earthquake:

Route
High

Bridges
High

US 101 from SR 170 in Los Angeles to I-280 in San Jose – San Benito County segment

Functionality immediately following earthquake:

Route
High

Bridges
Mainly High

US 101 from SR 170 in Los Angeles to I-280 in San Jose – Santa Clara County segment

Functionality immediately following earthquake:

Route
Medium (south of San Jose to County Line)
Low (San Jose)

Bridges
Low to High (south of San Jose)
Low (San Jose)

US 101 from I-280 to I-80 in San Francisco

Functionality immediately following earthquake:

Route
Medium

**Bridges**
Low to High

**US 101 from the Golden Gate Bridge in Marin County to US 199 in Del Norte County – Marin County segment**

Functionality immediately following earthquake:

**Route**
- Medium to High (north of Golden Gate Bridge to Hwy 1)
- Low (Hwy 1 to Novato)
- High (Novato to County Line)

**Bridges**
- Low to High (north of Golden Gate Bridge to Novato)
- High (Novato to County Line)

**SRs 116, 121, 12, 29 from US 101 in Petaluma through Napa to I-80 in Solano County – Sonoma County segment**

Functionality immediately following earthquake:

**Routes**
- High

**Bridges**
- High

**SRs 116, 121, 12, 29 from US 101 in Petaluma through Napa to I-80 in Solano County – Napa County segment**

Functionality immediately following earthquake:

**Routes**
- Low (western County Line to American Canyon)
- High (American Canyon to southern County Line and eastern County Line)

**Bridges**
- High
**SRs 116, 121, 12, 29 from US 101 in Petaluma through Napa to I-80 in Solano County – Solano County segment**

Functionality immediately following earthquake:
- **Routes**
  - High
- **Bridges**
  - High

**I-280 from US 101 in San Jose to US 101 in San Francisco – Santa Clara County segment**

Functionality immediately following earthquake:
- **Route**
  - Low
- **Bridges**
  - Low

**I-280 from US 101 in San Jose to US 101 in San Francisco – San Mateo County segment**

Functionality immediately following earthquake:
- **Route**
  - Medium
- **Bridges**
  - Mainly Low

**I-280 from US 101 in San Jose to US 101 in San Francisco – San Francisco segment**

Functionality immediately following earthquake:
- **Route**
  - Medium
- **Bridges**
  - Low to High

**I-580 From I-80 to SR 24 – Alameda County**

Functionality immediately following earthquake:
- **Route**
  - Low
- **Bridges**
  - Low

**680 from I-280 in San Jose to I-780 in Benicia – Santa Clara County segment**
I-680 from I-280 in San Jose to I-780 in Benicia – Alameda County segment

Functionality immediately following earthquake:

- **Route**: High
- **Bridges**: Low

**I-680 from I-280 in San Jose to I-780 in Benicia – Contra Costa County segment**

Functionality immediately following earthquake:

- **Route**: High
- **Bridges**: Low
  - Low to High (north of Pleasant Hill)

**I-680 from I-280 in San Jose to I-780 in Benicia – Solano County segment**

Functionality immediately following earthquake:

- **Route**: High
- **Bridge**: Benicia Bridge and Approaches: High

**I-780 from I-680 in Benicia to I-80 in Vallejo – Solano County**

Functionality immediately following earthquake:

- **Route**: Medium
- **Bridges**: High
Appendix 11

Authorities, Regulations & Requirements

Authorities, Regulations, and Requirements

The following local, State, and Federal authorities, regulations, and requirements apply to the preparation of this Plan and to the debris removal operations that are conducted in the response to a catastrophic earthquake.

**LOCAL**

Local authorities for emergency response are described in the Alameda County EOP. Additional local authorities, regulations, and requirements that apply specifically to debris removal operations are listed below.

- Authorities related to inspection/”red tagging” and regulations pertaining to condemnation and demolition
- Authorities for regulating the height/width of debris piles, fire protection necessary for road access, and water storage for debris management sites
- Authorities to set standards related to origin of waste, rate of inflow for storage, transfer or disposal, type and moisture content of solid waste, hours of facility operation, and storage time before transfer or disposal of waste at existing solid waste facilities within the county
- Authorities for regulation of land use through temporary land use permits and land use variances
- Authorities for regulation of historic structure demolition
- Authorities to remove vehicles and manage the routing of traffic at the scene of a disaster

**STATE**

- As described in the EOP, emergency response operations within Alameda County are conducted in accordance with:
  - California Emergency Services Act (G.C. §§ 8550–8660)
  - State of California Emergency Plan (G.C. § 8560)
  - Standardized Emergency Management System (SEMS)

Additional State authorities, regulations, and requirements that apply specifically to debris removal operations are provided below:

- California Code of Regulation (CCR), Title 22, Division 4.5, Chapter 13 which regulates the handling and transportation of hazardous waste statewide
- CCR, Title 14, Chapter 3, Article 5.9, which regulates the transferring and processing of C&D debris and inert debris
- CCR, Title 14, Division 7, Chapter 3, Article 5.9, which regulates the disposal of C&D debris
- CCR, Title 8, Subchapter 4, Article 4, Section 1529, which enforces asbestos standards
- California Vehicle Code (CVC), which regulates the loading and hauling of hazardous materials
- CVC, Division 11, Chapter 10, Article 1, which authorizes law enforcement authorities to remove vehicle so as to not obstruct emergency services or route traffic at the scene of a disaster
EXHIBIT R

- CVC, Division 15, Chapter 1, which regulates the movement of vehicle/loads exceeding statutory limitations on size, weight, and loading of vehicles

FEDERAL

- Federal operations in support of local and State governments are governed by:
  - National Response Framework and Emergency Support Function (ESF) annexes (applicable annexes are described in Section 3.3.5).
  - National Incident Management System

Function-specific authorities, regulations, and requirements are listed in below.

- Public Assistance Program (Stafford Act): Provides funding to State and local governments and federally recognized tribes to assist them with extraordinary costs for disaster response and recovery, including debris removal. The implementing regulations for the Public Assistance Program are found in 44 C.F.R. Part 206. Eligibility of debris removal operations is outlined in FEMA 325, Debris Management Guide

- Emergency Relief Program (23 U.S.C §§ 125): Provides funding to State departments of transportation and local governments for repair of disaster-damaged highways that are part of the Federal Aid System

- Clean Water Act (33 U.S.C. §§ 1251 et seq. [2008]), Section 404: Establishes the basic structure for regulating discharges of pollutants into the waters of the United States. It makes it unlawful for any person to discharge any pollutant from a specific source into navigable waters, unless a permit was obtained under its provisions. Through Section 404, a permit is required from the U.S. Army Corps of Engineers (USACE) to discharge dredged and fill materials into waters of the United States

- Coastal Zone Management Act (Public Law [P.L.] 96-464): Requires that Federal agencies be consistent in enforcing the policies of State coastal zone management programs when conducting or supporting activities that affect a coastal zone

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 U.S.C §§ 9601 et. seq.): Authorizes Federal response for short-term removals of hazardous materials incidents, where actions may be taken to address releases or threatened releases requiring prompt response.

- Endangered Species Act (16 U.S.C. §§ 1531-1544), Section 7(a)(2): Requires Federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service to prevent or modify those projects that will jeopardize the continued existence of threatened or endangered species or that will result in the destruction or adverse modification of the habitat for the species

- Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-667) Authorizes the USFWS to administer programs for the planning, development, maintenance, and coordination of State wildlife resource conservation and rehabilitation. If a proposed project would destroy wildlife habitat or modify a natural stream or body of water, it requires an evaluation of that action’s impact on fish and wildlife

- Flood Control and Coastal Emergency Act (P.L. 84-99): Authorizes the USACE to provide assistance through the Rehabilitation and Inspection Program to local project sponsors for debris removal associated with the repair of flood control works.
• National Historic Preservation Act (16 U.S.C. §§ 470), Section 106: Requires Federal agencies to take into account the effects a project will have on historic resources and allow the Advisory Council on Historic Preservation the opportunity to comment on the effects of the project.

• Resource Conservation and Recovery Act (42 U.S.C. §§ 6901): Requires safe disposal of waste materials, promotes the recycling of waste materials, and encourages cooperation with local agencies. It applies to disposal of disaster-generated debris and is of particular concern when hazardous materials may be present.

• Rivers and Harbors Appropriation Act (33 U.S.C. §§ 401–406), Section 15, 19, and 20: Authorizes the USACE to remove sunken vessels and other obstructions and to oversee the removal of sunken vessels from navigable waterways under emergency conditions. A navigable waterway is one that has been designated by Congress and that the USACE operates and maintains both for commercial and recreational navigation.

• Water Resources Development Act (P.L. 94-587), (90 Stat. 2921), Section 202, Authorizes the USACE to collect and remove drift and debris from publicly maintained commercial harbors and surrounding land and water areas.