Regional Catastrophic Earthquake Debris Removal Plan

Annex to the San Francisco Bay Area Regional Emergency Coordination Plan

August 2011

Prepared by:

California Emergency Management Agency

Cities of Oakland, San Francisco, and San Jose

Counties of Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma

This page intentionally left blank

Regional Catastrophic Earthquake Debris Removal Plan

Annex to the San Francisco Bay Area Regional Emergency Coordination Plan

August 2011

Prepared for:

Bay Area Urban Area Security Initiative

With support from:

This project was supported by the California Emergency Management Agency under FY 07/08 RCPGP #2008-CP-T8-0018, OES ID 075-95017, awarded by the U.S. Department of Homeland Security.

This document was prepared under a grant from the FEMA National Preparedness Directorate, U.S. Department of Homeland Security. Points of view or opinions expressed in this document are those of the authors and do not necessarily represent the official position or policies of the FEMA National Preparedness Directorate or the U.S. Department of Homeland Security.

This plan has been prepared for the Bay Area Urban Area Security Initiative Approval Authority (Approval Authority) on behalf of the counties and cities within the 12-county Bay Area region. The plan describes the general strategy for emergency response to an incident with regional impact. The plan has been prepared in accordance with the standards of the National Incident Management System, the California Standardized Emergency Management System, and other Federal and State requirements and standards for emergency response plans applicable as of the date of the plan's preparation.

The plan provides guidance only; it is intended for use in further development of response capabilities, implementation of training and exercises, and defining the general approach to incident response. The actual response to an incident, whether at the regional, county, or city level, is dependent on:

- The specific conditions of the incident, including the incident type, geographic extent, severity, timing, and duration
- The availability of resources for response at the time of the incident
- Decisions of Incident Commanders and political leadership
- Actions taken by neighboring jurisdictions, the State, and the Federal Government

These and other factors may result in unforeseen circumstances, prevent the implementation of plan components, or require actions that are significantly different from those described in the plan. The Approval Authority and its contractors; the counties, cities, and other organizations that have participated in plan development; the State; and the Federal Government are not responsible for circumstances related to the implementation of the plan during an incident.

The plan is not applicable outside the 12-county region that comprises the planning area.

Record of Changes

Change No.	Copy No.	Date Entered	Posted By

This page intentionally left blank

Foreword

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 an **M** 6.7, 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 Preparedness Grant Program (RCPGP) to selected metropolitan areas throughout the United States to plan for catastrophic events. The San Francisco Bay Area is one of the metropolitan areas. The 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. The UASI Program used RCPGP funding to prepare plans in seven functional areas: Debris Removal, Donations Management, Interim Housing, Mass Care and Sheltering, Mass Fatality, Mass Transportation/Evacuation and Volunteer Management.

This document, the Regional Catastrophic Earthquake Debris Removal 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, sorting, staging and processing, disposal, and demolition.

This Plan is an annex to the Regional Emergency Coordination Plan (RECP). The Plan is consistent with:

- Applicable local and State plans and requirements
- The San Francisco Bay Area RECP
- The San Francisco Bay Area Earthquake Readiness Response: Concept of Operations Plan

[1] Edward H. Field, et al., *The Uniform California Earthquake Rupture Forecast,* Version 2.0 (UCERF 2), (U.S. Geological Survey Open File Report 2007-1437, 2008). Available at http://pubs.usgs.gov/of/2007/1437/of2007-1437_text.pdf.

[2] Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties and the cities of Oakland and San Jose

The Regional Catastrophic Earthquake Debris Removal Plan was developed with the participation of the Debris Removal Steering Committee, which included the following local, State, and Federal government entities:

- Alameda County
- California Emergency Management Agency
- California Department of Resources Recycling and Recovery
- City of Oakland
- City/County of San Francisco
- City of San Jose
- City of San Ramon
- Contra Costa County
- FEMA
- Marin County
- Monterey County
- Santa Clara County

Table of Contents

Executive Summary ES-1
ES-1 Scope ES-1
ES-2 Catastrophic Nature of the Earthquake ES-1
ES-3 Operational Area Responsibilities ES-1
ES-4 Metropolitan Transportation Commission (MTC) ES-2
ES-5 State Agency Responsibilities ES-3
ES-6 Federal Agency Responsibilities ES-4
ES-7 Debris Removal Operational Priorities ES-5
ES-8 Debris Removal Operations ES-5

1 Introduction 1
1.1 Purpose 1
1.2 Plan Objectives 1
1.3 Scope 1
1.3.1 Nature and Duration of the Earthquake 2
1.3.2 Geographic Scope 2
1.3.3 Time Frame 3
1.4 Applicability 3
1.4.1 RECP 3
1.4.2 CONPLAN 3
1.5 Authorities, Regulations, and Requirements 4
1.6 Plan Organization 4

2 Situation and Assumptions 5
2.1 Scenario Event 5
2.2 General Planning Assumptions 6
2.3 Debris Removal Plan Assumptions 7
2.3.1 Operational Assumptions 8
2.3.2 Debris Amount Assumptions 9

3 Roles and Responsibilities 11
3.1 Operational Areas 11
3.2 Metropolitan Transportation Commission (MTC) 11
3.3 State Agencies 11
3.3.1 California Emergency Management Agency (Cal EMA) 12
3.3.2 California Department of Transportation (Caltrans) 12
3.3.3 California Highway Patrol (CHP) 13
3.3.4 California National Guard 13
3.3.5 California Department of Resources Recycling and Recovery (CalRecycle) 13
3.3.6 California Department of Toxic Substances Control (DTSC) 14
3.3.7 State Agencies with Supporting Roles 14
3.4 Federal Agencies 14
3.4.1 U.S. Department of Homeland Security, FEMA 15

3.4.2 U.S. Army Corps of Engineers (USACE) 15
3.4.3 U.S. Environmental Protection Agency (EPA) 15
3.4.4 U.S. Coast Guard (USCG) 16
3.4.5 Federal Agencies with Supporting Roles 16
3.5 Debris Removal Contractors 17

4 Coordination and Communication 19
4.1 Activation and Incident Coordination 19
4.1.1 Operational Area EOCs 19
4.1.2 Regional EOCs 19
4.1.2.1 MTC Emergency Operations Center 20
4.1.2.2 REOC 20
4.1.3 State Level EOCs 21
4.1.3.1 SOC 21
4.1.3.2 State Agency DOCs 21
4.1.4 Federal Level 22
4.1.4.1 Joint Field Operations 22
4.1.4.2 Federal Agencies Acting under Their Own Authorities 22
4.2 Information and Communication 23
4.2.1 Emergency Communications Systems 23
4.2.2 Public Information 24
4.2.2.1 Joint Information System 24
4.2.3 Intelligence and Information Sharing 24
4.2.3.1 Critical Information 25
4.2.3.2 Sources of Information 25
4.2.3.3 Situation Reporting 26
4.2.4 Public Notification and Communication 26
4.2.4.1 Initial Notification 27

5 Operations 29
5.1 Priorities and Objectives 29
5.1.1 E to E+72 Hours 29
5.1.2 E+72 Hours to E+14 Days 29
5.1.3 E+14 Days to E+60 Days 30
5.2 Resources 31
5.2.1 Management of Debris Removal Resources 31
5.2.1.1 Integration of State and Federal Resources 31
5.2.2 Types of Debris Removal Resources 32
5.2.2.1 Local Resources 32
5.2.2.2 Private-Sector Resources 32
5.2.2.3 State Resources 32
5.2.2.4 Federal Resources 33
5.3 Operations 34
5.3.1 Develop Situational Awareness and Establish Debris Clearance Priorities 34
5.3.1.1 Operational Area EOC 34

5.3.1.2 REOC 35
5.3.1.3 SOC/JFO 36
5.3.2 Clear Debris 36
5.3.2.1 Operational Area EOC 36
5.3.2.2 REOC 37
5.3.2.3 SOC/JFO 38
5.3.3 Stage, Process, and Dispose of Debris 38
5.3.3.1 Operational Area EOC 39
5.3.3.2 REOC 41
5.3.3.3 SOC/JFO 41
5.3.4 Remove Debris 43
5.3.4.1 Operational Area EOC 43
5.3.4.2 REOC 44
5.3.4.3 SOC/JFO 44
5.3.5 Safety Assessments 44
5.3.5.1 Operational Area EOC 45
5.3.5.2 REOC 46
5.3.5.3 SOC/JFO 46
5.3.6 Demolish Unsafe Buildings and Infrastructure 46
5.3.6.1 Operational Area EOC 47
5.3.6.2 REOC 47
5.3.6.3 SOC/JFO 47
5.4 Long-Term Recovery 48
5.5 Response Timeline 49

6 Plan Maintenance 59
6.1 Plan Distribution 59
6.2 Plan Updates 59
6.3 Plan Testing, Training, and Exercises 59
6.4 After-Action Review 60

Appendix A Glossary

Appendix B Maps

Appendix C Overview of Authorities, Regulations, and Requirements that Affect Debris Removal Operations

Appendix D Tables

Appendix E Information Collection Plan for Debris Removal

List of Tables

Table 5-1. Response timeline for debris removal operations 51

This page intentionally left blank

Executive Summary

This Regional Catastrophic Earthquake Debris Removal Plan (Plan) is a scenario-driven, function-specific operations plan that describes debris removal in the aftermath of a catastrophic earthquake in the Bay Area. The Plan is:

- An annex to the Regional Emergency Coordination Plan (RECP), prepared by the California Emergency Management Agency (Cal EMA).
- Consistent with the San Francisco Bay Area Earthquake Readiness Response: Concept of Operations Plan, prepared by the Federal Emergency Management Agency (FEMA) and Cal EMA.

ES-1 Scope

This Plan:

- Addresses the response to an **M** 7.9 earthquake on the San Andreas Fault
- Applies to the response during the first 60 days after the earthquake
- Applies to the 12 counties in the Bay Area
- Describes debris removal operations applicable at the regional level

ES-2 Catastrophic Nature of the Earthquake

The scenario event used in the development of this Plan is an **M** 7.9 earthquake on the northern segment of the San Andreas Fault. Threats and hazards from the earthquake include structural and nonstructural damage to buildings and infrastructure, fires, subsidence, loss of soil-bearing capacity, landslides, hazardous spills and releases, dam/levee failure resulting in flooding, and civil disorder.

The earthquake would affect all regional transportation networks—large portions of the transportation infrastructure are likely to be damaged or destroyed. The earthquake would also result in:

- 7,000 fatalities
- 300,000 people seeking shelter
- 1.8 million households without potable water
- 500,000 households without electricity
- 50 million tons of debris

Removal of the estimated 50 million tons of debris is the responsibility of local, regional, State, Federal, and private-sector entities.

ES-3 Operational Area Responsibilities

The Operational Area supports the cities and other governmental units within the Operational Areas with the following:

- Collecting initial situation reports and updated situation reports from local governments, regional transportation agencies, utilities, the media, and the general public, and compiling and forwarding this information into reports for regional- and State-level response entities
- Coordinating debris clearance priorities with local governments as well as the Regional Coordination Group (RCG) to ensure that priority transportation routes and critical facilities are cleared without delay
- Participating on the RCG to discuss specific debris clearance priorities established by the local governments and the Operational Area, and identifying and resolving key unmet debris clearance priorities as defined by the Operational Area
- Notifying local governments about Debris Task Force conference calls and/or information gained from these calls
- Filling resource requests from local governments within the Operational Area by providing county resources, brokering the provision of mutual aid from other local governments within the Operational Area, and/or requesting resources through the REOC
- Confirming with Caltrans that State routes in the county will be cleared and, if this cannot be done as quickly as needed, identifying which local governments can complete this task
- Coordinating and disseminating hazardous spills and releases information to the public and media and assisting local governments with writing safety assessment announcements
- Notifying both local and regional entities about closed solid waste landfills, port lands, and non-passenger rail facilities that may be used as debris management sites, and notifying local governments about sites that will accept debris for staging and processing from other counties
- Verifying the types of debris and collection methods that are eligible under the Public Assistance Program, verifying information regarding building demolition eligibility, and relaying this information to local governments
- Maintaining situational awareness within the Operational Area by verifying and aggregating local government specific situation reports, status updates, and data from sources outside the Operational Area

ES-4 Metropolitan Transportation Commission (MTC)

MTC is the transportation planning, coordinating, and financing agency for nine counties in the San Francisco Bay Area. The roles and responsibilities of MTC in debris removal are to:

- Collect the initial situation summaries from Caltrans and other transportation agencies

- Prepare a status report and initial damage assessments for the regional transportation system
- Monitor the status of the regional transportation system

ES-5 State Agency Responsibilities

The State agencies with primary roles in debris removal are Cal EMA, California Highway Patrol (CHP), California National Guard, California Department of Resources Recycling and Recovery (CalRecycle), and California Department of Toxic Substances Control (DTSC). Their responsibilities in debris removal are summarized below:

- Cal EMA
  - Coordinating State agency debris removal operations in support of affected local governments
  - Approving mission taskings and tracking and managing resource requests until needs have been met
  - Coordinating the Safety Assessment Program (SAP)
  - Coordinating requests for assistance and participating with the Federal Government when Federal assistance is required
  - Coordinating and leading all Debris Task Force conference calls
  - Developing and distributing specific situation reports to Operational Areas within the region
- CHP
  - Determining State highway system conditions and designating route classifications in coordination with Caltrans
  - Clearing obstructing vehicles and implementing traffic control
- California National Guard
  - Providing public-safety resources, including personnel and air transportation resources
- CalRecycle
  - Providing information on the operational status of landfills; disaster debris diversion programs; construction and demolition (C&D) materials recycling; market reports for C&D materials; list of waste exchanges and C&D recyclers; and technical assistance to local governments for debris removal field operations
- DTSC
  - Providing disposal guidance, dispatching hazardous spills and releases control and containment contractors and regulating the discharge of pollutants to the ground

- Other State Agencies with Supporting roles include:
  - State Water Resources Control Board
  - California Air Resources Board
  - California Coastal Commission and Bay Conservation and Development Commission
  - California Conservation Corps
  - California Department of Forestry and Fire Protection
  - Department of General Services
  - Department of Water Resources
  - California Department of Parks and Recreation, Office of Historic Preservation

ES-6 Federal Agency Responsibilities

The Federal agencies with primary roles in debris removal are FEMA, the U.S. Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), and the U.S. Coast Guard (USCG). Their responsibilities in debris removal are listed below:

- FEMA
  - Coordinating requests for direct Federal assistance from Cal EMA and mission assigning other Federal agencies to conduct debris removal operations
  - Implementing the FEMA Public Assistance Program with Cal EMA to reimburse local and State government agencies for debris removal costs
- USACE
  - Conducting safety assessments and debris analysis
  - Deploying Planning and Response Teams to coordinate and execute debris management requirements
- EPA
  - Detecting, identifying, containing, decontaminating, performing cleanup, disposing and/or minimizing discharges of oil or releases of hazardous materials from debris
- USCG
  - Detecting, identifying, containing, decontaminating, performing cleanup, disposing and/or minimizing discharges of oil or releases of hazardous materials from debris
  - Responding to marine oil spills through Unified Command with the State and the party responsible for the spill

ES-7 Debris Removal Operational Priorities

Debris removal response will proceed according to the following priorities:

- Provide access for first responders to address life-safety issues
- Provide access to critical facilities that are safe for occupancy
- Control and contain hazardous spills and releases
- Reduce the immediate threat to public safety posed by severely or completely damaged buildings and infrastructure.
- Transition from debris clearance operations to debris removal operations
- Provide access to buildings that support secondary shelters and essential government services that are safe for occupancy
- Provide access to residential and nonresidential buildings that are safe for occupancy
- Continue and complete the transition from debris removal operations to staging, processing, and disposal operations
- Continue to reduce the threat to public safety posed by severely and completely damaged buildings and infrastructure

ES-8 Debris Removal Operations

Debris removal operations include the following six tasks:

- Develop situational awareness and establish debris clearance priorities
- Clear debris
- Stage, process, and dispose of debris
- Remove debris
- Assess buildings and infrastructure
- Demolish unsafe buildings and infrastructure

In support of the six tasks above, the Operational Area will:

- Gather initial situation reports from local governments, regional transportation agencies, utilities, the media, and the general public and compile this information into reports for regional- and State-level response entities
- Coordinate debris clearance priorities with local governments to ensure that priority transportation routes and critical facilities are cleared without delay
- Fill resource requests among local governments within the Operational Area by providing county resources, brokering the provision of mutual aid from other local governments within the Operational Area, and/or requesting resources through the REOC
- Coordinate and disseminate hazardous spills and releases information to the public and media and assist local governments with writing safety assessment announcements

- Verify the types of debris and collection methods that are eligible under the Public Assistance Program, verify information regarding building demolition eligibility, and relay this information to local governments
- Maintain situational awareness within the Operational Area by verifying and aggregating local government specific situation reports, status updates, and data from sources outside the Operational Area

In support of the six tasks above, the Cal EMA Regional Emergency Operations Center (REOC) in Oakland will:

- Obtain assessment information from each affected Operational Area, Caltrans, CHP, and other regional, State, and Federal agencies
- Coordinate debris clearance priorities with Operational Areas to ensure that routes that cross county boundaries are cleared simultaneously
- Receive Operational Area resource requests and approve State mission taskings to assist with the necessary response

In support of the six tasks above, the SOC will:

- Obtain situation reports from regional, State, and Federal agencies and from the media
- Develop situational awareness
- Coordinate with Caltrans, CHP, and MTC on State highway system closure information to be distributed to the media and general public
- Coordinate with DTSC and disseminate hazardous materials information to the media and the public
- Receive resource requests from the REOC and, when necessary, request resources from other states through the Emergency Management Assistance Compact (EMAC)
- Approve State mission taskings that have not already been approved by the REOC
- Request the deployment of the California National Guard or other State agencies to clear debris
- Identify the need for Federal assistance and request the assistance through FEMA
- Lead Debris Task Force conference calls
- Maintain communication with the REOC regarding status and progress of debris removal operations

The commencement of debris removal is generally considered the beginning of the transition from the response to the recovery phase. The transition to long-term recovery will extend over months and possibly years, and will likely involve only the Operational Areas and the SOC.

1 Introduction

The Regional Catastrophic Earthquake Debris Removal Plan (Plan) is a scenario-driven, function-specific operations plan for the 12 counties of the San Francisco Bay Area region that describes debris removal operations in the aftermath of a catastrophic earthquake on the San Andreas Fault. The Plan is an earthquake-specific annex to the Regional Emergency Coordination Plan (RECP).

1.1 Purpose

The purpose of the Plan is to provide a guide for debris removal operations occurring within the region.

The Plan provides operational details to:

- Develop situational awareness and establish debris clearance priorities
- Clear debris
- Stage, process, and dispose of debris
- Remove debris
- Assess buildings and infrastructure
- Demolish unsafe buildings and infrastructure

1.2 Plan Objectives

The objectives of the Plan are to:

- Project the catastrophic impacts of the earthquake
- Define the planning assumptions
- Identify agencies with roles in debris removal and define their roles
- Describe the resources required for debris removal operations and the systems and processes for integrating State and Federal resources into regional and local debris removal operations
- Identify operational priorities
- Identify recommended operational objectives to guide response operations
- Establish a response timeline of tasks for debris removal operations and long-term recovery

1.3 Scope

The Plan describes regional debris removal operations in response to the earthquake.

The term “debris removal,” as used in this Plan, refers to all phases of debris management operations, including debris clearance, removal, sorting, staging, and processing, disposal, and demolition.

For definitions of the acronyms and key terms that are used in the Plan, see the glossary in **Appendix A**.

1.3.1 Nature and Duration of the Earthquake

The scenario used in the development of this Plan is a moment magnitude (**M**) 7.9 earthquake on the northern segment of the San Andreas Fault. The impacts from the earthquake are catastrophic. Although the shaking from an earthquake and the aftershocks last only seconds or minutes, recovery can take several years. See **Section 2.1** for more information about the earthquake.

As described in the National Response Framework, a catastrophic event is any natural or human-caused incident that results in an extraordinary level of casualties, damage, or disruption that severely affects the population, infrastructure, environment, economy, morale, and government functions of the area in question, and potentially the Nation as a whole. The earthquake will have a catastrophic impact on the Bay Area region. Maps of the earthquake's impacts are presented in **Appendix B**.

1.3.2 Geographic Scope

The Plan includes the following 12 counties (see **Appendix B**, **Map B-1**):

- Alameda County
- Contra Costa County
- Marin County
- Monterey County
- Napa County
- San Benito County
- San Francisco County
- San Mateo County
- Santa Clara County
- Santa Cruz County
- Solano County
- Sonoma County

These counties will be directly affected by damage from the earthquake, regional disruption of critical infrastructure systems, and short- and long-term impacts to the economy. Adjacent counties, such as Mendocino, Sacramento, San Joaquin, and Stanislaus, may be affected directly by damage or indirectly by evacuations and other response actions. An **M** 7.9 earthquake will also have significant effects on the rest of California and the Nation as a whole.

1.3.3 Time Frame

The time frame for the Plan begins with the occurrence of the earthquake and ends 60 days after the earthquake. The planning periods (phases) are given in hours and days after the event occurrence (E).

The Plan does not address preparedness activities that may occur before the earthquake or the long-term debris activities that will occur after 60 days, but **Section 4.6** provides guidance on long-term debris removal objectives.

1.4 Applicability

The Plan is consistent with the regional plans described below.

1.4.1 RECP

As stated above, the Plan is an incident-specific annex to the RECP, prepared by the Bay Area Urban Area Security Initiative (UASI) Program and the California Emergency Management Agency (Cal EMA).

The RECP provides an all-hazards framework for collaboration among responsible entities and coordination during events that affect the San Francisco Bay Area counties as a region. The RECP defines procedures for regional coordination, collaboration, decision-making, and resource sharing among emergency response agencies in the Bay Area within the framework of the Standardized Emergency Management System (SEMS).

The RECP describes the formation of a Regional Coordination Group (RCG) among the Cal EMA Coastal Regional Emergency Operations Center (REOC) and the Operational Area lead agencies for the Bay Area counties. As described in **Section 2** of this Plan, the catastrophic nature of the earthquake may disrupt REOC operations. However, Cal EMA will implement alternative measures to maintain the regional function of SEMS to support Operational Area response activities.

1.4.2 CONPLAN

The Plan is consistent with the San Francisco Bay Area Earthquake Readiness Response: Concept of Operations Plan (CONPLAN), prepared by the Federal Emergency Management Agency (FEMA) and Cal EMA. The CONPLAN describes the joint State-Federal response to an **M** 7.9 earthquake on the San Andreas Fault in the Bay Area and includes annexes describing care and shelter and temporary housing operations. The CONPLAN describes the establishment of a Joint Field Office (JFO) with a Unified Coordination Group[3] that will coordinate joint State-Federal operations in support of the response in the Bay Area.

[3] As described in the CONPLAN, the JFO will be located in or adjacent to one of the affected Bay Area counties. The Unified Coordination Group will include the Federal Coordinating Officer, State Coordinating Officer, and other State and Federal senior leaders representing agencies with significant response and recovery roles.

1.5 Authorities, Regulations, and Requirements

Regional, State, and Federal authorities, regulations, and requirements that apply specifically to debris removal operations are described in **Appendix C.**

1.6 Plan Organization

Section 1 provides the scope and applicability of the Plan and the authorities, regulations, and requirements that provide the foundation for the operations that are discussed in the Plan.

Section 2 contains a description of the scenario event and its projected impacts, and the assumptions underlying both the scenario event and the response to it.

Section 3 describes the roles and responsibilities of the local, regional, State, and Federal response agencies and debris removal contractors.

Section 4 contains the response coordination system, activation, and communications for agencies responding to the earthquake.

Section 5 describes the concept of operations, which includes the response coordination system and the operational components, and includes a response timeline for the debris removal component of the response. The timeline presents the individual tasks necessary to achieve the objectives and priorities laid out in **Section 3**.

Section 6 describes how the Plan will be maintained, updated, and exercised.

Appendix A is a glossary of acronyms, abbreviations, and key terms.

Appendix B contains the maps that are referenced in the Plan.

Appendix C has an overview of authorities, regulations, and requirements that affect debris removal operations.

Appendix D contains tables about debris removal, including debris processing facilities within a 100-mile radius of the region.

Appendix E provides public information tools and samples, including templates for press releases and public service announcements for various media.

2 Situation and Assumptions

This section contains a description of the scenario event and its projected impacts and the general and debris removal assumptions that were used in the development of this Plan.

2.1 Scenario Event

The scenario event is an **M** 7.9 earthquake on the northern segment of the San Andreas Fault. The basis for the scenario is a Hazards U.S. (HAZUS) analysis[4] performed by the Earthquake Engineering Research Institute, with support from the U.S. Geological Survey and Cal EMA, beginning in 2005 and modified in 2009 by URS Corporation for the RCPGP.

The characteristics of the scenario event and its impacts on the region are as follows.

1. The earthquake occurs in January on a weekday at 1400 hours Pacific Standard Time.
2. A foreshock precedes the main shock by 20 to 25 seconds. There is no other warning.
3. The main shock lasts 45 to 60 seconds.
4. The epicenter is just outside the entrance to the San Francisco Bay, west of the Golden Gate Bridge.
5. The earthquake ruptures approximately 300 miles of the northern segment of the San Andreas Fault, from the San Juan Bautista area in the south to Cape Mendocino in the north.
6. Shaking is felt in Oregon to the north, Los Angeles to the south, and Nevada to the east.
7. The estimated magnitude is **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 in 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. The shaking intensity and areas where liquefaction is likely to occur are shown in **Appendix B**, **Maps B-2** and **B-3**, respectively.
8. Ground shaking and damage occur in 19 California counties, from Monterey County in the south to Humboldt County in the north and into the San Joaquin Valley to the east.
9. Damage is catastrophic in the areas that experience shaking intensities of MM IX and X and in the areas with high or very high levels of susceptibility for

[4] HAZUS is a loss estimation software program that was developed by the National Institute of Building Sciences (NIBS) for FEMA. The version used for this analysis (HAZUS MR3) was developed by NIBS in 2003.

liquefaction, which are the areas adjacent to the Fault in Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties.

10. Counties along the Fault outside the Bay Area, such as Mendocino, may sustain damage and require response.
11. Central Valley counties such as Sacramento and San Joaquin may be affected immediately by evacuations and other response actions.
12. The rest of California and the Nation are affected significantly by the need to respond; the deaths, injuries, and relocations of Bay Area residents; economic disruption; and media attention.
13. Threats and hazards resulting from shaking, surface fault rupture, and liquefaction include:
    - Structural and nonstructural damage to buildings, including widespread collapse of buildings
    - Structural and nonstructural damage to infrastructure (see **Appendix B, Map B-4**)
    - Widespread fires
    - Subsidence and loss of soil-bearing capacity, particularly in areas of liquefaction
    - Displacement along the San Andreas Fault
    - Widespread landslides (see **Appendix B, Map B-5**)
    - Hazardous materials spills and incidents
    - Dam/levee failure resulting in flooding
    - Civil disorder
14. Threats and hazards resulting from the main shock are aggravated or recur during aftershocks, which continue for months after the main shock.
15. The earthquake does not generate a tsunami or seiche, despite its magnitude.

2.2 General Planning Assumptions

The general planning assumptions that will drive the debris removal response are:

1. Within 24 hours:
    - Local governments proclaim a Local Emergency. The Governor of California 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.
    - DHS and FEMA implement the Catastrophic Incident Supplement to the NRF and begin mobilizing Federal resources.

2. Because of extensive damage to building and transportation infrastructure in Oakland, the Cal EMA Regional Emergency Operations Center (REOC) in Oakland may not be functional. The regional function within SEMS may be assumed by:
   - An alternate REOC outside the region
   - The State Operations Center (SOC)
   - The Unified Coordination Group (UCG) established by Cal EMA and FEMA at the JFO, once it is established.
3. Cal EMA will notify the Operational Areas of the appropriate channels for communication with the regional function, once it has been established.
4. On a statewide basis, all elements of SEMS are functional, including communications and mutual aid systems.
5. The response capabilities and resources of the local governments and the State in the region are quickly overwhelmed or exhausted.
6. 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 of detailed and complete situational or critical needs assessments.
7. 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 because of the damaged transportation infrastructure. First responders who are on duty may be held over for additional shift coverage.
8. Once the President declares a disaster and commits Federal resources, the State and Federal governments establish joint operations to provide assistance to local governments.
9. Massive assistance in the form of response teams, equipment, materials, and volunteers begins to flow toward the region, providing urgently needed resources but creating coordination and logistical support challenges.
10. Because of damage to the transportation infrastructure, out-of-region mutual aid, State and Federal resources, and resources from other States cannot begin to arrive for up to 72 hours.
11. Operational Area Emergency Operations Centers (EOCs) experience some damage but are partially operational.

2.3 Debris Removal Plan Assumptions

The earthquake is expected to generate massive quantities of debris that 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 the assumptions related to debris removal.

2.3.1 Operational Assumptions

1. Earthquake debris generally consists of construction and demolition (C&D) debris but can also include hazardous debris, sediment and rock, vegetative debris, and vehicles. See **Appendix D, Table D-1,** for a list of debris types.
2. Debris clearance priorities vary depending on life-safety issues but generally include California Department of Transportation (Caltrans) Lifeline routes (see **Appendix B, Map B-6; Appendix D, Table D-2**), additional State priority transportation routes (see **Appendix B, Map B-7; Appendix D, Table D-3**), local priority transportation routes, and access to critical facilities (see **Appendix B, Map B-8; Appendix D, Table D-4**).
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 exceeds the ability of local governments to clear debris, and out-of-region resources are required.
5. City and county governments request assistance through Cal EMA using SEMS 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 the Public Assistance Program for costs associated with debris clearance, removal, reduction, and disposal operations, and demolition of damaged buildings and facilities. Reimbursement under the program depends on the local government's compliance with program eligibility requirements.
7. A high priority is placed on processing debris, and city and county governments process debris to the fullest extent possible.
8. Existing transfer/processing 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 processing operations next to existing landfills, using transfer/processing facilities throughout the region, and/or moving 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 that they do not have agreements with or moving debris out of the region.
10. Available open space areas used to temporarily store and sort debris are limited in certain cities/counties. Hauling pre-sorted and unsorted debris directly from a source site to a landfill or processing 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, if necessary, 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 in the city or county.

2.3.2 Debris Amount Assumptions

1. A significant amount of C&D and hazardous debris will be concentrated in urban areas and associated with total and partial building collapse. Early debris removal activities will be focused on assisting with search and rescue operations at these sites.
2. 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 require immediate clearance. Many potential slide sites are in remote areas.
3. **Appendix B, Maps B-9** and **B-10,** and **Appendix D**, **Table D-5,** provide estimates for the tonnage and volume of debris generated in each county or city. The figures reflect damage to buildings.
4. **Appendix B, Map B-11,** and **Appendix D**, **Table D-6,** provide an estimate of the number of buildings that may require demolition, by county. The figures include buildings that are extensively or completely damaged. It is assumed that all such buildings will be demolished, but some buildings may be repaired instead.

This page intentionally left blank

3 Roles and Responsibilities

This section discusses the roles and responsibilities of the government and private sector entities involved in debris removal.

3.1 Operational Areas

The roles and responsibilities of Operational Areas in debris removal are to:

- Maintain situational awareness in the Operational Area by verifying and aggregating initial reports from local governments, the REOC, and the Metropolitan Transportation Commission (MTC), and providing this information to the local governments
- Fill resource requests from the local governments in the Operational Area by providing county resources, brokering the provision resources and/or assistance from outside the Operational Area, through the REOC
- Identify locations within the Operational Area to store, process, recycle, and dispose of debris
- Disseminate public information related to debris removal to the media and general public
- Participate on Debris Task Force conference calls and share information with local governments

3.2 Metropolitan Transportation Commission (MTC)

MTC is the transportation planning, coordinating, and financing agency for nine counties in the San Francisco Bay Area. The roles and responsibilities of MTC in debris removal are to:

- Collect the initial situation summaries from Caltrans and other transportation agencies
- Prepare a status report and initial damage assessments for the regional transportation system based on information that MTC obtains from the REOC, Caltrans, California Highway Patrol (CHP), Operational Areas, and other available sources and summarize it for public information purposes
- Monitor the status of the regional transportation system

3.3 State Agencies

The roles and responsibilities of State agencies that support debris removal are defined in the California Emergency Plan and agency and departmental Administrative Orders, and are discussed below. Additional State agency debris removal assignments may be indicated in Standby or Executive Orders issued by the Governor.

3.3.1 California Emergency Management Agency (Cal EMA)

Cal EMA implements the California Emergency Services Act and performs executive functions assigned by the Governor to support and enhance all phases of emergency management, including debris removal, during the response and recovery phases. Operations are conducted in the REOC and the SOC, and jointly with FEMA at the Joint Field Office (JFO). In support of debris removal operations, Cal EMA:

- Coordinates debris clearance and removal operations by other State agencies, including Caltrans (clearing debris), CHP (removing vehicles obstructing emergency response access), the Department of Water Resources (clearing debris from State-controlled floodways), and General Services (clearing debris from State-owned facilities, excluding State highways and bridges)
- Manages resource requests from affected local governments until needs have been met
- Requests the deployment of the California National Guard to support response activities, including damage assessment and debris clearance operations
- Compiles and distributes debris removal information to government agencies, elected officials, the media, and the general public through the Joint Information System
- Mission tasks State agencies for debris removal resources and brokers the provision of State debris removal resources, including Caltrans (for clearing debris), CHP (for removing vehicles obstructing emergency response access), and the National Guard (for clearing debris)
- Implements the Safety Assessment Program (SAP)
- Requests debris removal resources from other States through EMAC
- Coordinates requests for assistance and participates with the Federal Government to establish and operate the JFO when Federal assistance is required
- Determines the need for, coordinates, and leads the Debris Task Force conference calls with local governments, Operational Areas, and the REOC. Conference calls are held as needed, often daily, to discuss specific issues, requirements, regulations, and decisions made as they relate to debris removal. The Debris Task Force is made up of State agencies with primary roles in debris removal operations, including Cal EMA, Caltrans, and Cal EPA.
- Administers the delivery of FEMA and State Public Assistance Programs that provide financial assistance to State and local government agencies involved in debris removal activities

3.3.2 California Department of Transportation (Caltrans)

- Assesses the utility of the State highway system, which includes State routes, U.S. routes, and interstates; estimates the time required for repair, if needed; and assesses the potential for road restrictions and closures

- Transmits information about the condition of the State highway system to the REOC and MTC
- Establishes debris clearance priorities on the State highway system
- Responds to requests from the affected Operational Areas for assistance clearing debris from roads under the jurisdiction of the requesting jurisdiction.
- Conducts debris removal operations related to the State highway system and Federal-aid routes to help first responders access affected sites
- Issues permits for the transport of debris on the State highway system

3.3.3 California Highway Patrol (CHP)

- Determines State highway system conditions, designates route classifications in coordination with Caltrans, and transmits the information to the REOC and MTC
- Clears obstructing vehicles based on assessments from Caltrans and traffic conditions, and closes or restricts travel on unsafe routes
- Implements traffic control
- Assists in establishing route recovery priorities
- Enforces Caltrans permits for transport of debris on State highways

3.3.4 California National Guard

The California National Guard provides public-safety support resources, including personnel, to secure disaster areas and clear and remove debris, and provides air transportation resources to move damage assessment teams and/or conduct aerial damage assessments.

3.3.5 California Department of Resources Recycling and Recovery (CalRecycle)

CalRecycle is the State agency designated to oversee, manage, and track California's waste. In support of debris removal operations, CalRecycle:

- Manages the partnership of local and State government agencies involved in debris clearance as well as private operators of waste management systems
- Coordinates the equitable distribution of debris throughout counties in the region such that no single facility is overwhelmed and the regional system of landfills is able to absorb disaster debris and continue management of daily waste
- Provides grants and loans to cities, counties, businesses, and organizations to meet the State's waste reduction, reuses, and recycling goals
- Provides technical assistance to local governments for debris removal field operations

3.3.6 California Department of Toxic Substances Control (DTSC)

DTSC assigns work and dispatches hazardous materials contractors to perform assessment, stabilization, removal, and disposal of hazardous debris, as needed.

3.3.7 State Agencies with Supporting Roles

The State agencies with supporting roles and responsibilities in debris removal are as follows:

- State Water Resources Control Board and Regional Water Quality Control Boards implement several programs that regulate the discharge of pollutants into waterways, including storm drain systems
- The California Air Resources Board regulates air emissions at all solid waste facilities and some transfer/processing facilities
- The California Coastal Commission and Bay Conservation and Development Commission monitor debris removal operations in the coastal zone
- The California Conservation Corps (CCC) provides personnel and equipment to support emergency debris clearance
- The California Department of Forestry and Fire (CAL FIRE) provides personnel and equipment to support emergency debris clearance
- The Department of General Services clears debris from State-owned facilities, excluding State highways and bridges
- The Department of Water Resources (DWR) clears debris from State-controlled flood systems and provides flood protection, flood control, and flood support
- California Department of Parks and Recreation, Office of Historic Preservation ensures compliance with the National Historic Preservation Act prior to demolition

3.4 Federal Agencies

The Stafford Act designates FEMA as the agency that will manage the Federal response to major disasters in support of the States. FEMA uses its 10 regional offices for this purpose; each one is headed by a Regional Administrator. The regional field structure provides a permanent presence in communities and States. The FEMA Region IX office is in Oakland, California, and has a Regional Response Coordination Center (RRCC) that is staffed 24/7 to provide situational awareness and incident reporting. The office also supports three Incident Management Assistance Teams (IMATs) that provide initial support of response operations.

The FEMA national IMAT is in Mather, California, and deploys to provide Federal support for SOC operations, establishes the Unified Coordination Group (UCG), and forms the core of the Federal presence of the JFO. The Federal agencies with primary roles and responsibilities in debris removal are FEMA, The U.S. Army Corps of Engineers (USACE), the U.S. Environmental Protection Agency (EPA), and the U.S. Coast Guard (USCG).

3.4.1 U.S. Department of Homeland Security, FEMA

- Acts as coordinating agency for ESF #5, Emergency Management
- Supports overall activities of the Federal Government for domestic incident management
- Provides the core management and administrative functions in support of National Response Coordination Center (NRCC), RRCC, and JFO operations
- Coordinates requests for direct Federal assistance from Cal EMA and mission assigns other Federal agencies to conduct debris removal operations
- Coordinates requests for technical assistance for estimating the volume of debris from Cal EMA
- Deploys debris management teams and advisors to assist local governments with debris removal operations and damage assessment teams to identify debris removal quantities and costs, and to assist local governments with assessments of safety hazards
- Implements the Public Assistance Program with Cal EMA to reimburse local and State government agencies for debris removal costs

3.4.2 U.S. Army Corps of Engineers (USACE)

- Acts as coordinating agency for ESF #3, Public Works and Engineering
- Develops work priorities in cooperation with local, tribal, and State governments
- Conducts safety assessments of infrastructure and buildings
- Conducts debris analysis to determine the type and amount of debris
- Implements and manages the Public Assistance Program by deploying contractor resources to conduct debris clearance and removal operations, including the preparation, operation, and closeout of debris management sites, and by providing technical guidance to local and State government agencies for debris removal operations
- Deploys Planning and Response Teams to coordinate and execute debris management requirements, including debris clearance, removal, staging, characterization, classification, treatment, profiling, transportation, and disposal
- Collects and removes drift and debris from publicly maintained commercial harbors and surrounding land and water areas
- Removes sunken vessels and other obstructions from navigable waterways under emergency conditions
- Assists with debris removal from flood-control works for projects enrolled in the Rehabilitation Inspection Program

3.4.3 U.S. Environmental Protection Agency (EPA)

- Acts as coordinating agency for ESF #10, Oil and Hazardous Materials Response, for incidents affecting inland zones

- Detects, identifies, contains, decontaminates, cleans up, disposes, and/or minimizes discharges of oil or releases of hazardous materials from debris that is mixed with or contains oil or hazardous materials
- Prevents, mitigates, or minimizes the threat of potential releases from debris that is mixed with or contains oil or hazardous materials
- Provides for a coordinated response by using the mechanisms set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (National Contingency Plan) and under the National Response System

3.4.4 U.S. Coast Guard (USCG)

- Acts as the primary agency for ESF #10 for hazardous materials incidents in coastal zones
- Detects, identifies, contains, decontaminates, cleans up, disposes, and/or minimizes discharges of oil or releases of hazardous materials from debris that is mixed with or contains oil or hazardous materials
- Prevents, mitigates, or minimizes the threat of potential releases from debris that is mixed with or contains oil or hazardous materials
- Provides for a coordinated response by using the mechanisms set forth in the National Oil and Hazardous Substances Pollution Contingency Plan and under the National Response System
- Under the Area Contingency Plan, responds to marine oil spills through Unified Command with the State and the party responsible for the spill

3.4.5 Federal Agencies with Supporting Roles

The Federal agencies with supporting roles and responsibilities in debris removal are as follows:

- Executive Office of the President, Council on Environmental Quality requires Federal agencies to assess the environmental effects of debris management activities and to consider reasonable alternatives to those actions
- National Marine Fisheries
  - Ensures consistency between Federal activities and State coastal zone management programs, including debris clearance and removal operations in coastal areas
  - Enforces the Endangered Species Act, which requires a review of all debris management activities that have the potential to jeopardize the continued existence or adversely affect the habitat of threatened or endangered species
- U.S. Department of Defense (DoD) provides heavy equipment resources to remove debris and carry out demolition operations, as needed

- U.S. Fish and Wildlife Service
  - Evaluates any project that could destroy wildlife habitat or modify a natural stream or body of water
  - Enforces the Endangered Species Act, which requires a review of all debris management activities that have the potential to jeopardize the continued existence or adversely affect the habitat of threatened or endangered species

3.5 Debris Removal Contractors

The roles and responsibilities of debris removal contractors that support debris removal operations are to provide labor, equipment, and fuel to clear, remove, and dispose of debris and/or demolish buildings in accordance with scope of work contracted and under the direction of the applicable local, State, or Federal agency.

This page intentionally left blank

4 Coordination and Communication

The communication and coordination section of this Plan describes the overall approach to debris removal incident activation, incident coordination and information collection.

4.1 Activation and Incident Coordination

This section describes the process used to activate and coordinate debris removal operations at the various levels of government during a disaster, pertinent to this Plan.

4.1.1 Operational Area EOCs

The Operational Area activates its EOC to facilitate the coordination of resources between its member jurisdictions and to serve as the communication and coordination link between the Region and the State level EOCs and local government EOCs within the Operational Area. The Operational Area coordinates the following debris removal activities:

- Initial situation reports and updated situation reports from local governments, regional transportation agencies, utilities, the media, and the general public, and compiling and forwarding this information into reports for regional- and State-level response entities
- Debris clearance priorities with local governments as well as the RCG to ensure that priority transportation routes and critical facilities are cleared without delay
- Resource requests from local governments within the Operational Area by providing county resources, brokering the provision of mutual aid from other local governments within the Operational Area, and/or requesting resources through the REOC
- Hazardous spills and releases information to the public and media and assisting local governments with writing safety assessment announcements
- Situational awareness within the Operational Area by verifying and aggregating local government-specific situation reports, status updates, and other relevant data from sources within and outside the Operational Area.

4.1.2 Regional EOCs

Regional EOCs involved in activating and coordinating debris removal operations include the MTC EOC and the REOC.

4.1.2.1 MTC Emergency Operations Center

MTC automatically activates its EOC during a major emergency or at the request of Cal EMA or two or more Bay Area transportation agencies.

The MTC EOC coordinates the following debris removal activities:

- Collection of initial situation reports and updates from Bay Area transportation agencies and preparation of a status report and damage assessments for the regional transportation system based on information obtained from the REOC, Caltrans, CHP, Operational Areas, and other available sources
- Preparation of a summary of the information for public information purposes
- Public information about regional transportation systems to the REOC and Joint Information Center (JIC), and, if necessary, to the media and general public

4.1.2.2 REOC

The REOC is activated and managed by Cal EMA to coordinate the exchange of emergency information, and the request and acquisition of resources, when any Operational Area in the region is activated; when ordered by the Regional Administrator (or designee) or higher authority; or when a local or State emergency is proclaimed. As described in **Section 2**, the functions of the REOC within SEMS may be assumed by an alternate REOC, the SOC, or the Unified Coordination Group at the JFO.

The REOC coordinates the following debris removal activities:

- Agencies providing representatives/liaisons to the REOC, including Caltrans, CHP, National Guard, USCG, and MTC
- The collection, verification, and evaluation of situational assessments from risk analysis, including the status of the regional transportation system, damaged infrastructure, and large amounts of debris
- Any requests for additional debris clearance and removal resources, including labor, equipment, and fuel, with the SOC
- Debris clearance priorities with Operational Areas to ensure that local priority transportation routes that cross county boundaries are cleared simultaneously, based on input from CHP and Caltrans representatives at the REOC and the RCG
- Any requests for technical assistance with debris estimation or debris management site and disposal
- The prioritization and distribution of State debris removal resources in the region
- The compilation and distribution of debris removal information with the JICs operated at the MTC and the SOC or JFO, if necessary

4.1.3 State Level EOCs

The State operation centers involved in activating and coordinating debris removal operations are the SOC and State agency Department Operations Centers (DOCs).

4.1.3.1 SOC

The SOC is activated whenever a REOC is activated. The SOC may be activated independently of the REOC to continuously monitor emergency conditions. As noted above, within SEMS, the SOC may assume the functions of the REOC. Also, when a Unified Coordination Group (UCG) is established, some SOC functions, such as mission tasking, may be executed under the direction of the UCG.

The SOC coordinates the following debris removal activities:

- Emergency debris removal activities of all State agencies
- Provisions of State debris clearance and removal resources, including labor, equipment, and fuel
- National Guard, to support debris clearance operations
- Out-of-state resources, either through state-to-state mutual aid or through EMAC
- Delivery of State financial assistance under the authority of the California Disaster Assistance Act for cost-sharing with other activities, as allowed, in accordance with State eligibility criteria
- Delivery of Federal grant programs, such as the Public Assistance Program, under Presidential declarations
- All requests for assistance from and participation with the Federal Government to establish and operate the JFO when Federal assistance is required
- State government headquarters linkage and inter-agency coordination within the National Response System, including requesting appropriate assignments of ESFs at both the SOC and REOC
- Collection and dissemination of debris removal information through the Joint Information Center

4.1.3.2 State Agency DOCs

Each State agency may activate a DOC to manage information and resources assigned to the incident. If a DOC is activated, an agency representative or liaison may be deployed to the SOC to facilitate information flow between the two facilities.

State DOCs coordinate the following as they relate to debris removal:

- Debris removal operations with counterpart local, State, Federal, and other agencies
- The release of department-specific public information about debris removal in coordination with the Cal EMA Public Information Office

4.1.4 Federal Level

When the resources of a State are exceeded by an event, the President may declare an emergency or disaster in accordance with the Stafford Act. Under a Presidential declaration of emergency or disaster, the Federal Government provides financial resources and direct Federal assistance in response to requests from the State. FEMA coordinates the response to State requests for assistance.

4.1.4.1 Joint Field Operations

Debris removal is initially coordinated by ESF #3 representatives in the NRCC, the RRCC, and the IMAT in Sacramento. Once established, the UCG assumes responsibility for coordinating and directing State and Federal efforts to support local debris removal operations.

The UCG does not assume responsibility for field-level Incident Command activities, but provides a structure for the command, control, and coordination of State and Federal resources not yet delivered to the Operational Areas, field-level Incident Command, and end users. The UCG directs coordinated, combined State and Federal operations in accordance with Unified Command principles.

The UCG is initially established at the SOC to direct the provision of resources but the direction transitions to the JFO after that facility becomes operational. JFO operations are conducted in accordance with the California Catastrophic Incident Base Plan: Concept of Operations, prepared by FEMA and Cal EMA.

The UCG coordinates with the following for debris removal operations:

- REOC for information and requests for resources from the affected Operational Areas
- Operational Areas for resource requests in the region or among regions
- State government agencies to provide resources in response to local government requests
- Other States through EMAC for resources that are not available in-state
- ESFs, including ESF #1, Transportation; and ESF #3, ESF #5, and ESF #10 to support debris removal
- Stafford Act recovery programs, such as the Public Assistance Program, to facilitate the involvement of local and State government agencies and nongovernmental organizations in these programs

4.1.4.2 Federal Agencies Acting under Their Own Authorities

The USACE coordinates the following debris removal operations under its own authorities:

- The collection and removal of drift and debris from publicly maintained commercial harbors and surrounding land and water areas
- The removal of sunken vessels and other obstructions from navigable waterways under emergency conditions

- Assistance with debris removal from flood-control works for projects enrolled in the Rehabilitation Inspection Program

The EPA and USCG coordinate the following debris removal operations using the mechanisms set forth in the National Contingency Plan and National Response System:

- The detection, identification, decontamination, cleanup, disposal, and/or minimization of discharges of oil or releases of hazardous materials from debris that is mixed with or contains oil or hazardous materials on land and water, respectively
- The prevention, mitigation, or minimization of the threat of potential releases from debris that is mixed with or contains oil or hazardous materials on land and water, respectively

4.2 Information and Communication

Protocols have been established for existing State and Federal systems for communications between the Operational Areas; regional, State, and Federal agencies; and other organizations engaged in the response. Disruptions caused by the disaster may make modifications to the protocols as necessary. California has established essential communications support procedures between the Operational Areas, REOC, SOC, and other State agencies to provide the information links for elements of the California emergency organization. The communications infrastructure includes the use of the Response Information Management System (RIMS), the Operational Area Satellite Information System (OASIS), and the California portion of the National Warning System.

The existing systems are supplemented through the establishment of systems necessary to support incident-specific facilities such as the JFO and Federal staging areas. Through agreement with Cal EMA, FEMA defines requirements for the systems required at these sites and provides resources to establish them. After the UCG transfers operations to the JFO, communications links are established to allow implementation of State functions at that facility, such as communications with the Operational Areas.

Details of the State and Federal emergency management communications systems are described more fully in the San Francisco Bay Area Earthquake Readiness Response: Concept of Operations Plan, Annex C, Operations, and the RECP Communications Subsidiary Plan.

4.2.1 Emergency Communications Systems

Within Operational Areas, any agency may use any communications method with any system and any frequency to notify any party of a condition of distress. Distress messages from Operational Areas are first directed to the REOC using any REOC communications systems, and then to other Operational Areas and local government EOCs. Operational Areas that receive distress messages maintain

communications with the distressed Operational Area on the same system until other communications methods have been established. An Operational Area that receives a distress message from a local jurisdiction relays that information to the REOC via any communications system other than that used to communicate with the distressed jurisdiction.

4.2.2 Public Information

During a disaster, affected local governments disseminate information about the disaster to keep the public informed about what has happened and the actions of emergency response agencies, and to summarize the expected outcomes of the emergency actions. The initial information about debris removal includes local road closures and hazardous materials spill/response procedures. Information about the State's highway system is included in the announcements as information is received by MTC.

4.2.2.1 Joint Information System

Under SEMS and NIMS, public information is directly managed and controlled by the jurisdictions within each SEMS level using a JIC. Collectively, the activated JICs form the Joint Information System that coordinates and communicates public information to numerous audiences in an accurate, timely, accessible, and consistent manner.

The JIC is a central location that facilitates operation of the Joint Information System. It is where personnel with public information responsibilities perform critical emergency information functions, crisis communications, and public affairs functions. A JIC may be established at various levels of government or incident sites. Typically, an incident-specific JIC is established at a single, on-scene location in coordination with local, State, and Federal agencies. Informational releases are cleared through Incident Commander/Unified Command, and/or the EOC/MAC Group. When a JIC is established, it is staffed with Public Information representatives from the responding agencies, who coordinate as a team to:

- Gather, verify, and produce information for dissemination to the media and general public, such as news releases, background information, fact sheets, public service announcements, briefings, and news conference materials
- Respond to media questions and requests
- Schedule media releases, briefings, news conferences, interviews, and public service announcements
- Assign agency representatives to coordinate information from their agencies with other team members before it is released to the public

4.2.3 Intelligence and Information Sharing

After a catastrophic earthquake, the degree to which key decision makers at all levels of government and within interagency structures are able to gain and maintain situational awareness on the scene determines, to a great degree, their ability to

anticipate requirements and provide appropriate resources. Real-time situational awareness also facilitates timely and knowledgeable information sharing with elected and appointed officials, the media, and the general public. Leaders at all levels of government and within the interagency structures not only must also have the same information but must focus on obtaining and maintaining situational awareness based on established priorities. All appropriate sources of information must be included in a comprehensive collection plan. The REOC, if functional, initially promulgates the information collection plan; this plan may later move to the joint Planning Section of the JFO.

4.2.3.1 Critical Information

The CONPLAN identifies critical items of information needed by the commander by a particular time to relate with other available information and intelligence to assist in reaching a logical decision. This disciplined methodology for focusing information efforts during preparations for potential disaster operations or during actual events is no less critical within the context of emergency management operations.

Generally, critical information is defined as data that are focused on the operational objectives established by the Unified Coordination Group. For example, critical information necessary during immediate response efforts may relate to the status of transportation system damage; the amount, location, and type of projected debris; and hazardous materials spills and releases. To assist the REOC and UCG in formulating appropriate joint objectives based on a common operating picture, a formal reporting methodology must be provided to all levels, including Operational Areas, Branches, Divisions, and any State or Federal organizations, to focus collection efforts on critical information. It is also necessary to prioritize the kinds of information that are required. **Appendix E** provides a table that lists the critical information requirements for debris removal operations after the earthquake.

4.2.3.2 Sources of Information

Generally, the most accurate information is obtained from those on the ground, closest to the potential or actual incident site. Incident Commanders and the Planning Sections within their incident management teams are often the most reliable sources of information. Planning Sections at various levels analyze information and turn the information into useful intelligence for managers and senior leaders. This step is vital in terms of providing data that decision makers need to be able to prioritize activities and to deploy and use critical, but often limited, resources.

Immediately following a disaster, fire, law enforcement, public works employees and other first responders, locally-based regional transportation agencies and utilities, and the media and general public around the 12-county region will begin reporting on the effects of the disaster, often spontaneously. These reports flow to dispatch centers, local government EOCs, and other points of collection.

Fire, law enforcement, public works employees, and transportation agency personnel deployed in the field at the time of a disaster are expected to do the following regarding debris removal information:

- **Critical information.** Make note of critical information such as damage to infrastructure and geographic areas of concentrated debris.
- **Predictive modeling.** Technological advances in predicting the damage assessments must be fully utilized by the emergency management community, specifically the Planning Section Chiefs. HAZUS products that predict the effects of the specific incident, including estimated damage to the transportation system, type, amount and location of debris, and number of buildings severely or completely damaged, must be developed as rapidly as possible.
- **Imagery**. The CHP and the National Guard have the ability to provide overhead imagery of the impacts to the transportation systems in the affected areas. Collection of imagery includes both pre- and post-disaster products. The analysis of the impact of disasters against pre-disaster products can be very useful in understanding the limitations placed on debris clearance operations from the loss of transportation networks.

4.2.3.3 Situation Reporting

The REOC will serve as the point of collection for damage assessment information from the Operational Areas, MTC, and State agencies, and distribute situation reports based on the operational period it selects. Within the first four hours after an incident, Caltrans will collect initial damage assessments from transportation agencies, develop a regional summary as input to the situation report, and transmit this information to the Operational Areas and the REOC. Other agencies such as USCG, MTC, and CHP have similar plans for providing input to the situation report. Reports are anticipated at 12 hours and 24 hours into an incident.

4.2.4 Public Notification and Communication

The concept of operations includes implementing local, State, and Federal policies, procedures, strategies, and actions to rapidly mobilize external affairs assets to prepare and deliver critical public safety messages, reach out to affected populations, and respond to inquiries from elected officials. “External affairs” refers to functions for public information, intergovernmental communication, communication with political leadership and legislative bodies, and community relations.

Local governments are responsible for determining priorities for public information and messaging within their own jurisdictions and for disseminating the information appropriately, either through their own mechanisms or the media. Cal EMA and other State agencies are responsible for coordinating public information on a regional and statewide basis. Through the JIC, FEMA and other Federal agencies coordinate public information and messaging with the State to ensure that

information originating with the Federal Government is consistent with local and State operations.

Public notification systems vary in the mechanism of transmission, scope of the message, intended audience, and time of release. Targeted ("reverse 911") and broadcast (AM radio, cable TV) messages generally seek to advise, warn, and inform the public. Messages that advise and warn are generally intended to mitigate injuries and damage that can be an indirect result of the disaster, and to accelerate recovery and reconstruction. Informational messages may address assistance programs and available resources.

Priorities and content for public information and messaging evolve as the response to, and recovery from, the earthquake proceed. For the purpose of this Plan, general themes for public information and messaging have been defined for three phases: immediate impact (E to E+72 hours), sustained response (E+72 hours to E+14 days), and relief (E+14 days to E+60 days).

4.2.4.1 Initial Notification

Operational Areas

In general, the Operational Area lead agencies have identified a Public Information Officer (PIO), or designated point of contact, as part of their respective EOC organizations. The PIO is the point of contact for the JIC within the jurisdiction or Operational Area that coordinates and disseminates event information to the public, the media, and other relevant stakeholders.

Several counties within the 12-county region operate public information and warning systems. On a regional level, the Bay Area Emergency Public Information Network, developed as part of the RECP, provides additional structure to PIOs by supporting the gathering, vetting, processing, and coordination of public information. Through the use of Internet-based tools, the network expedites the distribution of information. Mechanisms include radio operated by local government, commercial media outlets, and printed messages posted by PIO staff.

State Government

Cal EMA protocol for coordinating public information centralizes State efforts in the Office of Public Information at Cal EMA headquarters in Mather, California. The Office of Public Information provides support directly to Cal EMA and works with other State agencies to ensure the proper coordination, exchange, and dissemination of information. During events such as a Bay Area earthquake, Cal EMA initially carries out public information functions through the SOC.

The Office of Public Information is responsible for developing and releasing information about event operations to the news media, to personnel involved in the operation, and to other appropriate agencies and organizations. Additional support may be drawn from other State agencies, volunteers, or participants in the Public Information Officer Mutual Aid Program.

This page intentionally left blank

5 Operations

This section describes the debris removal operational priorities, response objectives, potential debris removal resources, and operations for the Operational Areas, REOC, and SOC/JFO. In addition, a comprehensive response timeline that shows the time-based objectives, the tasks to be completed, and the entities involved, including the Operational Areas, REOC, and SOC/JFO, is shown in **Table 5-1**. Tasks to be completed by local governments as well as the Operational Areas are discussed in the local plans developed under the RCPGP.

5.1 Priorities and Objectives

5.1.1 E to E+72 Hours

Operational priorities are to:

- Provide access for first responders to address life-safety issues
- Provide access to critical facilities that are safe for occupancy
- Control and contain hazardous spills and releases
- Reduce the immediate threat to public safety posed by severely or completely damaged buildings and infrastructure

Response objectives are to:

- Develop situational awareness
- Inform the media and public of the initial situation
- Coordinate debris clearance priorities
- Provide resources to support debris clearance operations, including the control and containment of hazardous spills and releases
- Provide resources for safety assessments
- Support emergency demolition activities necessary to remove imminent threats to health and safety
- Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris clearance operations

5.1.2 E+72 Hours to E+14 Days

Operational priorities are to:

- Transition from debris clearance operations to debris removal operations
- Provide access to buildings that support secondary shelters and essential government services that are safe for occupancy
- Provide access to residential and nonresidential buildings that are safe for occupancy

Response objectives are to:

- Provide resources to support the expansion of debris clearance operations, including the control and containment of hazardous spills and releases
- Identify type, amount, and location of debris
- Identify and designate debris management sites, transfer/processing facilities, and solid waste landfills
- Provide resources to support debris management sites, including the preparation, operations, and closeout of debris management sites, debris management site monitoring, debris estimation, technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance
- Provide resources to support debris removal operations, including debris removal monitoring
- Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris management sites
- Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris removal operations
- Continue to inform the media and public about debris removal and related operations
- Provide resources to support the expansion of safety assessments
- Continue to support emergency demolition operations
- Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with demolition, safety assessments, and other related operations

5.1.3 E+14 Days to E+60 Days

Operational priorities are to:

- Continue and complete the transition from debris removal operations to staging, processing, and disposal operations
- Continue to reduce the threat to public safety posed by severely and completely damaged buildings and infrastructure

Response objectives are to:

- Identify additional debris management sites, transfer/processing facilities, and solid waste landfills, as needed
- Continue supporting the expansion of safety assessments
- Provide resources to support the expansion and transition of demolition operations into long-term recovery phase

- Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris operations

5.2 Resources

5.2.1 Management of Debris Removal Resources

California's system for managing emergencies and for providing resources in support of response operations is governed by the State Emergency Plan and SEMS. In general, requests for resources must be made to the next level. Requests for assistance from the local governments and Operational Areas to State agencies, other States, or the Federal Government are to be made through Cal EMA at the REOC, SOC, or JFO, as appropriate.

State and Federal integration is accomplished through the creation of joint Planning, Operations, and Logistics sections at the SOC and later at the JFO. Debris removal operations will be integrated in the Transportation Branch, Construction and Engineering Branch, and Hazardous Materials Branch of the Operations Section of the JFO. The branches will prioritize resources to support debris removal operations, and will resolve conflicts between competing requests as follows:

- The Transportation Branch is responsible for the management and allocation of debris clearance resources to open up Lifeline routes and additional State priority transportation routes and to gain access to critical facilities and evacuation pickup points.
- The Construction and Engineering Branch is responsible for the management and allocation of safety assessment, debris removal, demolition, and debris management site resources.
- The Hazardous Materials Branch is responsible for the management and allocation of resources to control and contain hazardous spills and releases.

As necessary, the UCG will issue mission assignments to Federal departments and agencies, such as USC and EPA, to provide additional assets and support various debris removal operations.

5.2.1.1 Integration of State and Federal Resources

When Federal assistance is required, Cal EMA will coordinate requests for assistance, and will participate with the Federal Government to establish a UCG and operate the JFO. If the FEMA Region IX RRCC in Oakland is inoperable, the NRCC will initiate establishing the Federal logistics support network and will direct the FEMA Region IX backup region, Region X, to activate its RRCC to support the joint State/Federal response. The NRCC and the IMAT at the SOC will coordinate logistics support until the JFO has been established. The JFO will then coordinate debris removal resources at the Federal operation in conjunction with the NRCC.

The UCG will direct planning and implementation of debris removal support through the joint Operations Sections.

If additional debris removal resources are needed and are not available from the State, FEMA, through the JFO, will provide resources by implementing existing debris removal contracts and Federally procured assets or through mission assignments to other Federal departments and agencies. The Operations Section will coordinate through ESF #3 and other ESFs to determine the availability of other Federal debris removal resources to support debris removal operations, and will issue mission assignments as needed.

5.2.2 Types of Debris Removal Resources

5.2.2.1 Local Resources

Local government debris removal resources generally include personnel and equipment from the following: police, fire, public works and engineering, and building inspection. Under SEMS, additional local debris removal resources can be requested through the Operational Area.

5.2.2.2 Private-Sector Resources

Debris contractors, including labor and equipment, may be available locally, regionally, and nationally to assist with various aspects of debris removal operations, including clearance, removal, disposal, and monitoring. Locally-based contractors may not be available or may become overwhelmed with commitments to multiple jurisdictions. In addition, it will likely take 72 hours or more for out-of-region contractors to become available for debris removal assistance in the region.

5.2.2.3 State Resources

Under SEMS, State debris removal resources are requested through Cal EMA. These resources include:

- Cal EMA: SAP evaluators and coordinators to conduct safety assessments
- Caltrans: District 4 and District 5 engineers and contractors to conduct damage assessment and provide supportive services related to the State highway system to help first responders access affected sites, supported by additional Caltrans engineers and contractors in other districts throughout the State
- CHP: Golden Gate Division and Coastal Division personnel to conduct damage assessments and to secure disaster areas and remove obstructed vehicles, supported by additional CHP personnel in other divisions throughout the State
- California National Guard: Personnel to secure disaster areas and clear and remove debris, and air transportation personnel to conduct aerial damage assessments
- CCC: Personnel and equipment to support emergency debris clearance
- CAL FIRE: Personnel and equipment to support emergency debris clearance

5.2.2.4 Federal Resources

Federal debris removal resources that may be requested by Cal EMA on behalf of the Operational Areas include the following:

- USACE
  - Planning and Response Teams to coordinate and carry out debris removal operations including clearance, safety assessment, removal, staging, characterization, classification, reduction, profiling, transportation, and disposal
  - Contracted resources to conduct clearance, staging, removal, characterization, classification, reduction, profiling, transportation, and disposal operations
  - Technical assistance and permitting services to local, tribal, and State governments
- USCG
  - Federal On-Scene Coordinators (FOSCs) to coordinate all Federal resources to control and contain hazardous spills and releases during a major emergency or disaster. FOSCs also coordinate Federal efforts with the local community's response. FOSCs are pre-designated by the USCG for coastal or major navigable waterway areas and by the EPA for inland areas.
  - The interagency National Response Team, which is co-chaired by the USCG, to provide technical assistance, resources, and coordination for preparedness, planning, response, and recovery activities for emergencies such as oil and hazardous-material spills.
  - Regional Response Teams (RRTs), including the Region IX RRT for California, Arizona, and Nevada, co-chaired by the EPA and USCG, to provide assistance including identifying debris management resources, as requested by an FOSC.
  - National Strike Forces, including the Pacific Strike Force based in Novato, California, to deploy specialized equipment and incident management teams to contain and clean up polluting substances in coastal zones.
- DoD
  - Construction forces, including the U.S. Naval Construction Force at Port Hueneme in Ventura County, California
- EPA
  - Co-chairs the National Response Team with the USCG
  - Co-chairs the RRT with the USCG
  - Environmental Response Team, which is a group of EPA technical experts who provide around-the-clock assistance at the scene of hazardous substance releases

5.3 Operations

This section discusses the following aspects of debris removal operations: develop situational awareness and establish debris clearance priorities; clear debris; assess buildings and infrastructure; stage, process, and dispose of debris; remove debris; and demolish unsafe buildings and infrastructure.

5.3.1 Develop Situational Awareness and Establish Debris Clearance Priorities

Immediately following the earthquake, it will be necessary to gain situational awareness. Situational awareness during a disaster is typically developed by gathering and validating information from a variety of sources, including situation reports, flash reports, incident reports, and action plans; Regional Coordination Group conference calls; event information generated by State and Federal agencies; GIS maps and models; reports from on-scene observers and EOC liaisons; and, media accounts. Situational awareness for debris clearance operations includes determining the utility of and accessibility to the State highway system and local transportation routes, accessibility to critical facilities, areas of large amounts of debris and/or earthen debris caused by landslides, and the names and/or locations of infrastructure, critical facilities, and large buildings that have partially or totally collapsed. As situational awareness is gained, priorities for clearing debris will be established, based on operational priorities established in the RECP and by the RCG.

5.3.1.1 Operational Area EOC

Operational Area tasks associated with developing situational awareness and establishing debris clearance priorities are as follows:

- Gather initial situation reports from local governments/regional transportation agencies, utilities, the media, and the general public on locally-based regional transportation agencies and utilities, roadway and bridge conditions, extensively or completely damaged buildings, and areas of landslides or large debris fields.
- Complete and compile initial situation reports from local governments and send to the REOC.
- Coordinate debris clearance priorities with local governments to ensure that multi-jurisdictional local priority transportation routes and critical facilities needed for the region are cleared simultaneously.
- Participate on the RCG, as needed, to discuss specific debris clearance priorities established by the local governments and the Operational Area.
- Identify and resolve key unmet debris clearance priorities as defined by the Operational Area.
- Disseminate initial State highway system and local road closure information to the media and general public. Initial information on State highways comes from local on-the-ground personnel, first responders, and/or Caltrans.

- Maintain situational awareness within the Operational Area by verifying and aggregating local government status updates and data from sources outside the Operational Area.

5.3.1.2 REOC

The REOC role in developing situational awareness and establishing debris clearance priorities are as follows:

- Obtain initial situation reports from the following sources and forward them to the SOC:
  - Each Operational Area in the region
  - Caltrans District 4 and Caltrans District 5 on the conditions of the State highway system, including the utility of the State highway system; estimated time required for repair, if necessary; predicted potential road restrictions or closures; and established alternate routes in coordination with CHP (see **Appendix D, Table D-2**)
  - CHP on the capability and constraints of the State highway system, arterials, and bridges
  - MTC on the regional transportation system based on information that MTC obtains from Caltrans, CHP, Operational Areas, transit agencies, and other available sources
  - Golden Gate Bridge Highway and Transportation District on the condition of the Golden Gate Bridge
  - Utilities on the condition of the utility infrastructure
  - State and Federal agencies (e.g., California Geological Survey, U.S. Geological Survey, FEMA) and earthquake research institutes (e.g., Northern California Earthquake Center) on the projections of damage assessments to transportation systems (see **Appendix B**, **Map B-4**) and buildings (see **Appendix B**, **Map B-11**)
  - Media on severely or completely damaged infrastructure and large buildings that have partially or totally collapsed
- Receive notification from Caltrans about debris clearance priorities along Caltrans Lifeline routes.
- Use the RCG, as needed, to address local and regional debris clearance priorities based on overarching priorities identified in the RECP, input from CHP and Caltrans representatives in the REOC, the Debris Task Force, and the Operational Areas participating on the RCG.

5.3.1.3 SOC/JFO

The SOC/JFO role in developing situational awareness and establishing debris clearance priorities are as follows:

- Obtain initial situation reports from:
  - REOC
  - State and Federal agencies and earthquake research institutes on the projections of damage assessments to transportation systems (see **Appendix B**, **Map B-4**) and buildings (see **Appendix B**, **Map B-11**)
  - Media on severely or completely damaged infrastructure and large buildings that have partially or totally collapsed
- Coordinate with Caltrans, CHP, and MTC on State highway system closure information to be distributed to the media and general public
- Coordinate with the DTSC and disseminate hazardous spills and releases information to the media and the general public
- Provide information to the Debris Task Force, as appropriate

5.3.2 Clear Debris

Debris clearance operations will be conducted to eliminate life-safety threats. As such, debris will need to be cleared for first-responder activities. Debris is generally cleared along Caltrans Lifeline routes, which include the major infrastructure of the State highway system, local priority transportation routes, and critical facilities. The local priority transportation routes include major category secondary and connecting roads and county highways, and routes to evacuation points and critical facilities, including fire stations, police stations, hospitals, EOCs, airports, morgues, and primary shelters. Debris clearance operations will be expanded to include additional State priority transportation routes, secondary shelters, and government buildings that provide non-essential services.

To save time, debris is generally moved from at least one travel lane and areas of ingress/egress. Whether debris clearance work is performed by a local government using its own resources or by contractors, documentation is necessary for State and Federal Public Assistance Program grant consideration.

5.3.2.1 Operational Area EOC

The Operational Area tasks with respect to clearing debris are as follows:

- Based on initial situation reports from local governments and other relevant information sources, develop an awareness of potential resources needed to support debris clearance operations, hazardous spills and releases control and containment, and the Public Assistance Program
- Fill resource requests from local governments within the Operational Area by providing county resources, brokering the provision of mutual aid from other local governments within the Operational Area, and/or requesting resources

through the REOC for debris clearance operations and hazardous spills and releases control and containment

- Coordinate and confirm debris clearance priorities for State routes within the county with the Caltrans liaison and, if this will not be done as quickly as needed, identify which local government will do so, and notify the affected local governments
- Coordinate Public Works Plan and Procedures Agreements with local governments in the Operational Area or other counties, if available
- Coordinate with the Certified Unified Program Agencies and disseminate hazardous spills and releases control and containment information to the general public and media
- Notify local governments of State and Federal authorities, requirements, and regulations (see **Appendix D**, **Tables D-7** and **D-8**) that may be associated with debris clearance
- Notify local governments of, and participate on, Debris Task Force conference calls about debris clearance requirements for the Federal Highway Administration (FHWA) Emergency Relief Program and the Public Assistance Program requirements, including force account labor and contractors' scheduling, equipment, measurement and payment, and health and safety information, as well as environmental requirements, and regulatory permits and licenses
- Maintain situational awareness within the Operational Area by verifying and aggregating local government debris clearance operations and hazardous spills and releases control and containment-specific situation reports, status updates, and data from sources outside the Operational Area

5.3.2.2 REOC

The REOC tasks with respect to clearing debris are as follows:

- Based on initial situation reports from the Operational Areas and other relevant information sources, develop an awareness of potential resources needed to support debris clearance operations, hazardous spills and releases control and containment, and the Public Assistance Program.
- Fill requests for debris clearance operation and hazardous spills and releases control and containment resources from the Operational Areas by brokering the provision of mutual aid from other Operational Areas within the region and/or approving State mission taskings. Either manage the requests until the needs are met, or elevate the requests to the SOC/JFO.
- Maintain communication with the Operational Areas regarding progress made with debris clearance operations and hazardous materials response, and the status of additional resources to support debris clearance operations and hazardous materials responses.
- Track the progress of debris clearance operations and hazardous spills and releases control and containment resource requests and mission tasks.

- Develop and distribute regional debris clearance operations and hazardous spills and releases control and containment-specific situation reports to Operational Areas within the region and to the SOC.

5.3.2.3 SOC/JFO

The SOC/JFO tasks with respect to clearing debris are as follows:

- Based on initial situation reports from the REOC and other relevant information sources, develop an awareness of the potential resources needed to support debris clearance operations, hazardous spills and releases control and containment, and Public Assistance Program implementation.
- Receive resource requests from the REOC for additional resources, quantify State resources, and identify resource availability and shortfalls for debris clearance operations and hazardous spills and releases control and containment.
- Approve State mission taskings for resources under direct SOC control, or those that could not be filled by the REOC.
- By Governor's Order, request the deployment of the California National Guard or other State agencies to assist with debris clearance activities.
- Request debris clearance resources from other states through EMAC.
- Identify the need for Federal assistance and request through FEMA debris clearance operations, hazardous spills and release control and containment, and Public Assistance Program support.
- Coordinate with the State/Federal JIC, if necessary, and disseminate hazardous spills and releases information to the media and general public.
- Provide Public Assistance Program technical support for debris clearance operations.
- Lead Debris Task Force conferences calls about debris clearance requirements for the FHWA Emergency Relief Program and Public Assistance Program requirements, including force account labor and contractors' scheduling, equipment, measurement and payment, and health and safety information, as well as environmental requirements, and regulatory permits and licenses. Discuss documentation requirements for State financial assistance under the authority of the California Disaster Assistance Act for cost-sharing with other activities, as allowed and in accordance with State eligibility criteria.

5.3.3 Stage, Process, and Dispose of Debris

Debris management sites, which are locations used to temporarily store, size-reduce, segregate, and/or process debris, are established when communities are unable to take debris directly from the collection point to the processing facility or final disposition location. Debris management sites are frequently used to increase the operational flexibility when processing and final disposal facility space is limited or when these facilities are not close to the debris removal area. Debris management sites allow flexibility in operations, facilitate processing, and expedite

the debris removal process. However, additional costs are often associated with the use of these sites because debris must be handled twice. In addition, usable public land may not be available and/or private land may be expensive to lease.

Considerable time and effort are required to complete environmental and historic preservation compliance reviews before establishing and closing out each site. Debris management sites require dedicated site management and staff for efficient operations, safety, and documentation considerations. FEMA makes the determination about whether debris management sites are reimbursable under the Public Assistance Program. Specific debris management sites have not been identified in this Plan as they are subject to the provisions of the California Environmental Quality Act (CEQA) and require at least some environmental review pursuant to CEQA, unless an exemption applies.

Debris can be hauled directly from the source site (e.g., from the right-of-way [ROW] or curbside directly to a transfer/processing facility) or from a debris management site, where the recyclable debris may be pre-processed. Debris processing operations can decrease the overall cost of debris removal by reducing the amount of material that is taken to a landfill and decreasing the cost of tipping fees for final disposition. In processing, potential end-use products for specific markets may offset the cost of operations even more. In the 12-county region, processing operations are an important component of public policy and are a priority.

Disposing of debris at a solid waste landfill is generally done from the source site (when it is hauled from the ROW or curbside directly to a processing facility) or from a debris management site, where mixed debris is separated and non-recyclable debris is hauled to the solid waste landfill for final disposal. The most cost-efficient measure is usually to make use of jurisdictions' own solid waste landfills or the ones normally used. The available space and functionality of the solid waste landfill often determine the most appropriate type of reduction method to use. If local landfills are not adequate or functional, the jurisdiction may need to consider solid waste landfills that are nearby or even outside of the region.

5.3.3.1 Operational Area EOC

The Operational Area tasks with respect to staging, processing, and disposing of debris are as follows:

- Based on updated situation reports from local governments and other relevant information sources, develop an awareness of potential resources needed to support debris management site operations, debris management site monitoring, debris estimation technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance.
- Review updated projections from Cal EMA, FEMA, California Geological Survey, and the USGS on the quantity (tons or cubic yards) of debris by type and the number of severely damaged and completely damaged buildings to determine the need for debris management sites, transfer/processing facilities,

and solid waste landfills that are needed to process and dispose of debris generated within the county.

- Contact the following agencies regarding debris management site availability:
  - Local enforcement agency and/or CalRecycle about solid waste landfills in the county that may be closed
  - Port and non-passenger rail facilities that may be used for debris management sites
- Notify local governments of the following:
  - Closed solid waste landfills that may be used as debris management sites
  - Port and non-passenger rail facilities that may be used as debris management sites
  - Local governments within the county that will accept debris for staging and processing from other local governments
- Notify the REOC of any debris management sites that have been identified and that will accept debris from other counties.
- Identify potential processing and disposal options, which may include local and regional permitted, active, large-volume transfer/processing facilities and permitted, active, solid waste landfills with a maximum throughput of 1,500 tons per day (see **Appendix B**, **Maps B-12** and **B-13; Appendix D**, **Tables D-9** and **D-10**) and notify local governments of such options.
- Fill resource requests for debris management site operations, debris management site monitoring, debris estimation technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance from local governments within the Operational Area by providing county resources, brokering the provision of mutual aid from other local governments within the Operational Area, and/or requesting resources through the REOC.
- Notify local governments of State and Federal authorities, requirements, and regulations (see **Appendix D**, **Tables D-7** and **D-8**) that may be associated with debris management sites, transfer/processing facilities, and solid waste landfills.
- Notify local governments of Debris Task Force conference calls and participate on Debris Task Force calls about:
  - Regional debris management sites operated by the USACE or by a neighboring jurisdiction and/or a strategy for counties within the Coastal Region to use specific transfer/processing facilities and solid waste landfills
  - Public Assistance Program debris management site requirements, including baseline sampling and testing, ingress/egress, traffic control, and safety and security procedures
  - CalRecycle's recommended equitable distribution of debris throughout the counties in the region so that no one facility is overwhelmed and the

regional system of solid waste landfills is able to absorb debris generated by the disaster and continue management of daily waste

- Transporting the debris out of the region to transfer/processing facilities and solid waste landfills (see **Appendix B, Map B-14,** and **Appendix D, Tables D-10** through **D-12**) using port and non-passenger rail facilities (see **Appendix B, Map B-15** and **Appendix D, Tables D-13** and **D-14**)

- Maintain situational awareness within the Operational Area by verifying and aggregating debris management site, transfer/processing facilities, and solid waste landfills-specific situation reports, status updates, and data from sources outside the Operational Area.

5.3.3.2 REOC

The REOC tasks with respect to staging, processing, and disposing of debris are as follows:

- Based on updated situation reports from the Operational Areas and other relevant information, develop an awareness of potential resources needed to support debris management site operations, debris management site monitoring, debris estimation technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance.
- Fill resource requests for debris management site operations, debris management site monitoring, debris estimation technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance requests from the Operational Areas by brokering the provision of mutual aid from other Operational Areas within the region and/or approving State mission taskings. If a request cannot be filled at the REOC, elevate it to the SOC or JFO.
- Notify the Operational Areas and Debris Task Force leaders of any debris management sites that have been identified and that accept debris from other counties.
- Track the progress of debris management site operations, debris management site monitoring, debris estimation technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance resource requests and mission taskings.
- Develop and distribute regional staging, processing, and disposal-specific situation reports to Operational Areas within the region and to the SOC.

5.3.3.3 SOC/JFO

The SOC/JFO tasks with respect to staging, processing, and disposing of debris are as follows:

- Develop an awareness of potential resources needed to support debris management site operations, debris management site monitoring, debris estimation and debris management site technical assistance, environmental

monitoring program/guidelines, and debris management site and disposal technical assistance, based on initial situation reports from the REOC.

- Fill resource requests from the REOC for additional resources for debris management site operations, debris management site monitoring, debris estimation technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance; quantify State resources to support these resource requests; and identify resource availability and shortfalls.
- Approve State mission taskings for resources under direct SOC control, or those that could not be filled by the REOC, to assist with debris management site operations, debris management site monitoring, debris estimation and debris management site technical assistance, environmental monitoring program/guidelines, and debris management site and disposal technical assistance.
- Identify the need for Federal assistance for debris management site operations, debris management site monitoring, debris estimation and debris management site technical assistance, environmental monitoring program/ guidelines, debris management site and disposal technical assistance, and the Public Assistance Program, and request the necessary assistance through FEMA.
- Develop recommended equitable distribution of debris throughout counties in the region so that no one facility is overwhelmed to ensure that the regional system of solid waste landfills is able to absorb disaster debris and continue management of daily waste.
- Provide Public Assistance Program technical support for debris staging, processing, and disposal operations.
- Lead Debris Task Force conference calls about:
  - Regional debris management sites operated by the USACE or by a neighboring jurisdiction and/or a strategy for counties within the region to use specific transfer/processing facilities and solid waste landfills
  - Public Assistance Program debris management site requirements, including baseline sampling and testing, ingress/egress, traffic control, and safety and security procedures
  - CalRecycle's recommended equitable distribution of debris throughout counties in the region so that no one facility is overwhelmed to ensure that the regional system of solid waste landfills is able to absorb disaster debris and continue management of daily waste
  - Port and non-passenger rail facilities (see **Appendix B, Map B-15** and **Appendix D, Tables D-13** and **D-14**) that can be used to take the debris out of the region to transfer/processing facilities and solid waste landfills (see **Appendix B, Map B-14,** and **Appendix D, Tables D-10** through **D-12**).

5.3.4 Remove Debris

The debris removal phase typically begins after responders have the necessary access to eliminate life and safety threats. The commencement of debris removal is generally considered the start of the recovery phase. Debris removal often begins with removing debris that was pushed to the ROW during debris clearance operations. However, debris removal operations can be extended to include collecting debris brought to the ROW by residents. If property owners move disaster-related debris to a public right-of-way, a local government may be reimbursed for debris pickup, haul, and disposal from the right-of-way for a limited period of time. Debris removal operations may also be expanded to include removing debris from public areas, water bodies, collection areas and, in certain circumstances, private property. FEMA has developed specific guidelines for debris removal eligibility; therefore, debris is not removed until a State debris specialist or a Public Assistance Program staff member can provide input on the development of the debris removal strategy.

5.3.4.1 Operational Area EOC

The Operational Area tasks with respect to removing debris are as follows:

- Based on updated situation reports from local governments and other relevant information, develop an awareness of potential resources needed to support debris removal operations and debris removal monitoring.
- Verify with a State debris specialist and/or Public Assistance Program staff member the type of debris and the collection methods that will be eligible for reimbursement under the Public Assistance Program and relay this information to local governments.
- Fill resource requests for debris removal operations and debris removal monitoring from local governments within the Operational Area by providing county resources, brokering the provision of mutual aid from other local governments within the Operational Area, and/or requesting resources through the REOC for debris removal operations and debris removal monitoring.
- Notify local governments of potential State and Federal authorities, requirements, and regulations (see **Appendix D**, **Tables D-7** and **D-8**) that may be associated with debris removal operations.
- Notify local governments of and participate on Debris Task Force conference calls about Public Assistance Program debris removal requirements, including permissible types of debris to be collected under the Public Assistance Program, force account labor and contractor scheduling, equipment, measurement, and payment, health and safety information, as well as environmental requirements, and regulatory permits and licenses.
- Coordinate and disseminate general debris removal information, including information about handling and transporting hazardous household waste.

- Maintain situational awareness within the Operational Area by verifying and aggregating local government debris removal operations-specific situation reports, status updates, and data from sources outside the Operational Area.

5.3.4.2 REOC

The REOC tasks with respect to removing debris are as follows:

- Fill in Operational Area debris removal and debris removal monitoring resource requests by brokering the provision of mutual aid from other Operational Areas within the region, and/or approving State mission taskings. Either manage the requests until the needs are met or elevate the requests through the SOC.
- Track the progress of debris removal operations and debris monitoring resource requests and mission tasks.
- Develop and distribute regional debris removal operations-specific situation reports to Operational Areas within the region and to the SOC.

5.3.4.3 SOC/JFO

The SOC/JFO tasks with respect to removing debris are as follows:

- Receive REOC debris removal requests, including debris removal monitoring, for additional resources; quantify State resources, including the CCC, to support debris removal operations and debris removal monitoring; and identify resource availability and shortfalls.
- Approve State mission taskings for resources under direct SOC control, or those that could not be filled by the REOC, to assist with debris removal and debris removal monitoring.
- Request debris removal resources from other states through state-to-state arrangements and EMAC.
- Provide Public Assistance Program technical support for debris removal and monitoring operations.
- Lead Debris Task Force conference calls about Public Assistance Program debris removal requirements, including permissible types of debris to be collected under the Public Assistance Program, force account labor and contractors' scheduling, equipment, measurement and payment, and health and safety information, as well as environmental requirements, and regulatory permits and licenses.

5.3.5 Safety Assessments

Safety assessments are conducted when damaged structures create a hazard to the health and safety of the public or pose a threat to public rights-of-way. Generally, critical facilities and infrastructure are assessed first, followed by essential government services buildings and secondary shelters, and then by residential and nonresidential buildings. Resources for the assessment of buildings and infrastructure can be provided under the auspices of the State's Safety Assessment

Program (SAP), which is coordinated at the State-level, through the SOC or JFO. SAP Evaluators are certified to perform rapid and/or detailed evaluations following a disaster to determine the condition of buildings and infrastructure for use and occupancy. These assessments are not intended to identify or quantify specific damages, but, rather, to categorize damaged facilities as to their safety. Assessments are conducted using local safety assessment procedures or Procedures for Post-Earthquake Safety Evaluation of Buildings (Applied Technology Council – 20) to determine if a building is safe for entry or occupancy.

When full-time occupancy is not permitted, an engineering evaluation must be performed. Engineering evaluations are also required when a local government is considering a facility for demolition and these evaluations must be done by a professionally registered engineer or licensed architect who is retained by the facility's owner.

SAP Evaluators cannot make recommendations relating to demolition or repair of any facility or infrastructure. If deputized by a local jurisdiction as a Deputy Building Inspector, however, a SAP Evaluator may be allowed to make recommendations for temporarily shoring structures and building, in addition to being authorized to post "official placards" as opposed to "generic placards" that simply recommend a building's status.

Although safety assessments are essential in addressing immediate threats to lives, public health and safety, and improved property, these assessments need to be distinguished from building inspections or structural assessments conducted by local building officials that may result in condemnation, demolition, and removal.

5.3.5.1 Operational Area EOC

The Operational Areas' tasks with respect to assessing buildings and infrastructure are as follows:

- Based on initial situation reports from local governments and other relevant information, develop an awareness of potential resources needed to support safety assessments.
- Work with local SAP Coordinators to determine approximate number of SAP Evaluators that are needed and the available resources.
- Elevate requests for additional SAP resources to the REOC.
- Maintain situational awareness within the Operational Area by verifying and aggregating local government safety assessment-specific situation reports, status updates, and data from sources outside the Operational Area.
- Assist local governments with crafting public information announcements on safety assessment/tagging.

5.3.5.2 REOC

The REOC tasks with respect to assessing buildings and infrastructure are as follows:

- Develop an awareness of potential resources needed to support safety assessments, based on initial situation reports from the Operational Areas.
- Elevate requests for additional SAP resources to the SOC.
- Track the progress of SAP resource requests.
- Develop and distribute regional safety assessment-specific situation reports to Operational Areas within the region and to the SOC.

5.3.5.3 SOC/JFO

The SOC/JFO tasks with respect to assessing buildings and infrastructure are as follows:

- Develop an awareness of potential resources needed to support safety assessments, based on initial situation reports from the REOC, media reports, and HAZUS-MH and ShakeMap.
- The Statewide SAP Coordinator will facilitate the deployment of the necessary SAP Evaluators to fill requests through the appropriate professional organization disaster contacts.
- Professional organization disaster contacts are responsible for initiating organization deployment procedures and providing a post-deployment report to the Statewide SAP Coordinator.
- Request SAP resources from other states through state-to-state arrangements and EMAC.
- Identify the need for Federal assistance and request safety assessment assistance through FEMA.

5.3.6 Demolish Unsafe Buildings and Infrastructure

Local governments may have to undertake demolition activities on public or private property to eliminate threats to public health and safety or improved property, or to facilitate the economic recovery of an area. Demolition and debris removal activities on private property are usually executed under a local government's nuisance abatement authority, which establishes specific procedures for condemnation, permitting, demolition and removal, and cost recovery. Many local governments have local ordinances that establish emergency procedures providing them with a summary abatement authority to respond to an imminent threat or emergency need. In most cases, decisions to demolish damaged buildings and infrastructure will be affected by funding, insurance, planning, and design considerations. In some cases, it may take several years for demolition to occur.

Resources for emergency demolition activities may be provided by other local governments, and State and Federal agencies. Since so much demolition work is done under local contracting authority, it is important for local governments

conducting demolition activities to be aware of and act in cognizance of State and Federal Public Assistance Program regulations and guidelines, in order to obtain funding sufficient to support large demolition projects. This is especially important for demolition and debris removal projects involving facilities on private property, which may or may not be eligible for State and Federal Public Assistance Program funding.

5.3.6.1 Operational Area EOC

The Operational Area tasks with respect to demolishing unsafe buildings and infrastructure are as follows:

- Develop an awareness of potential resources needed to support public demolition projects and/or demolition projects based on initial situation reports from local governments and other relevant information sources.
- Fill emergency demolition operations support resource requests from local governments within the Operational Area and by requesting additional resources through the REOC.
- Maintain situational awareness within the Operational Area by verifying and aggregating local government demolition operations situation reports, status updates, and data from sources outside the Operational Area.
- Notify local governments of and participate on Debris Task Force conferences calls about the State and Federal Public Assistance Program demolition requirements, including emergency contracting requirements, eligible and ineligible demolition activities, private property demolition and debris removal issues, regulatory permits and necessary documentation, and cost recovery issues.

5.3.6.2 REOC

The REOC tasks with respect to demolishing unsafe buildings and infrastructure are as follows:

- Receive Operational Area demolition operations resource requests and elevate the requests to the SOC.
- Fill Operational Area demolition operations resource requests by approving State mission taskings or arranging for assistance from other Operational Areas. The REOC will either manage the requests until the needs are met, or elevate unfilled requests to the SOC.
- Track the progress of demolition operations resource requests and mission taskings.
- Develop and distribute regional demolition operation-specific situation reports to Operational Areas within the region and to the SOC.

5.3.6.3 SOC/JFO

The SOC/JFO tasks with respect to demolishing unsafe buildings and infrastructure are as follows:

- Fill demolition operations requests from the REOC for additional resources by mission tasking State agencies, or requesting additional assistance from other states through EMAC, or from Federal Agencies through FEMA
- Provide Public Assistance Program technical support, as necessary for the compilation and distribution of potential demolition information, including insurance requirements, building permits and other regulatory requirements, and demolition contractor information to be released to the media and general public.
- Lead Debris Task Force conference calls about the Public Assistance Program demolition requirements, including emergency contracting requirements, eligible and ineligible demolition activities, private property demolition and debris removal issues, regulatory permits and necessary documentation, and cost recovery issues.

5.4 Long-Term Recovery

For the purposes of this Plan, “long-term” extends beyond the 60-day scope of this Plan and could last several years for the scenario earthquake. The priorities of local, State, and Federal activities will shift from response to recovery as the requirements to save lives, protect property, and protect health and safety diminish. Debris operations continuing into the recovery phase typically will not be handled within the organizational framework of an EOC, but will most likely be carried out by specific departments such as public works, environmental services, and building and safety that have day-to-day functional responsibility for these operations. Consequently, emergency management agencies serving local governments and the Operational Areas will tend to have a diminishing role in recovery activities.

As the emphasis moves from response to recovery, State and Federal support will shift from providing direct support to meet response operational needs, to implementing State and Federal recovery programs to provide financial assistance to individuals and families, businesses, and government agencies. As debris operations move into long-term recovery, State and Federal financial support assumes even greater importance. Program issues are handled directly between applicants and administering agencies, rather than through the standard SEMS pathway, and the JFO becomes the focal point for the coordination of State and Federal support. Depending on the duration of the event, the JFO may further transition to a Long-Term Recovery Office to provide continued support for state and local recovery efforts.

Cal EMA’s primary tasks having to do with debris removal and related operations during the long-term recovery phase are as follows:

- Continue coordinating with FEMA to provide continued Public Assistance Program technical support services for debris removal and related operations.
- Directly administer State financial assistance provided under the authority of the California Disaster Assistance Act, and act as the grantee for funds provided by FEMA.

- Participate in activities of the Regional Recovery Task Force, if one is established, to coordinate regional priorities having to do with debris removal operations.
- Continue leading the Debris Task Force with assistance from FEMA and other State and Federal supporting agencies. Debris Task Force calls will cover topics such as: project and cost eligibility factors, contracting and procurement requirements, documentation, demolition and debris removal from private property, insurance recovery and duplicate benefit prohibitions, funding process, project timelines, and time extension requests, and other topics having to do with State and Federal Public Assistance Programs.
- Coordinate as necessary with FEMA to implement ESF #14, Long-Term Community Recovery, and with the Consumer Services and Business Transportation and Housing Agencies as part of proposed State Emergency Function 14, Long-Term Recovery.
- Conduct final inspection and closeout of State and Federal Public Assistance Program grants within allowable, regulatory timeframes.

5.5 Response Timeline

Table 5-1 provides a response timeline that shows the time-based objectives, the tasks to be completed, and the entities involved, including the Operational Areas, REOC, and SOC/JFO.

This page intentionally left blank

Table 5-1. Response timeline for debris removal operations.

Objective	Line	Time Frame	Action Being Taken or Event Being Observed	Coordinating Entity	Supporting Entities	Details/Comments
A.1 Develop situational awareness	1	E to E+72h	**Event Observed: Gather** and **compile** initial situation reports	Operational Area	Local governments, transportation agencies, and utilities	Reports to include localized information about the condition and utility of highways, bridges and collectors, large buildings and infrastructure that have partially or completely collapsed, areas of large debris fields, and landslides
	2	E to E+72h	**Gather** and **compile** initial situation reports	REOC	Operational Areas, Caltrans, CHP, MTC, Golden Gate Bridge, Highway and Transportation District, State and Federal agencies, private earthquake institutes that provide modeling, and the media	Reports to include countywide and regional information about the condition and utility of highways, bridges, and collectors, large buildings and infrastructure that have partially or completely collapsed, areas of large debris fields, and landslides Forward additional situational awareness to the SOC, as received
	3	E to E+72h	**Obtain** initial situation reports	SOC/JFO	REOC, State and Federal agencies, private earthquake institutes that can provide modeling, and the media	State and Federal coordination will first occur at the REOC or SOC and transition to the JFO as joint operations are established, in accordance with the FEMA ConOps. This applies throughout this timeline.
A.2 Inform the media and public of the initial situation	4	E to E+72h	**Event Observed: Disseminate** localized State highway system and roads closure information as well as hazardous materials information to the media and general public	Operational Area	—	—
	5	E to E+72h	**Disseminate** State highway system closure information and hazardous materials information the media and general public	SOC/JFO (JIC)	Caltrans, CHP, MTC, and Cal EPA/DTSC	Dissemination will occur initially at the SOC and then transition to the JFO JIC
A.3 Coordinate debris clearance priorities	6	E to E+72h	**Prioritize** debris clearance requirements for the restoration of Caltrans Lifeline routes and work with Caltrans to establish regional debris clearance priorities for the State highway system	REOC	SOC	—
	7	E to E+72h	**Event Obeserved: Coordinate** debris clearance priorities with local governments throughout the Operational Area to ensure that local priority transportation routes that cross jurisdictional boundaries are cleared simultaneously and critical facilities needed within the county are cleared immediately	Operational Area	Local governments	Local priority routes include collectors and evacuation pickup points. Critical facilities include fire stations, police/sheriff stations, hospitals, EOCs, airports, morgues, and primary shelters
	8	E to E+72h	**Coordinate** debris clearance priorities with Operational Areas to support the simultaneous clearance of local priority transportation routes that cross county boundaries	REOC	Operational Area/SOC/JFO	—
A.4 Provide resources to support debris clearance operations, including the control and containment of hazardous spills and releases	9	E to E+72h	**Event Observed: Coordinate** Public Works Plan and Procedures Agreement from other local governments in the Operational Area or other counties	Operational Area	—	—
	10	E to E+72h	**Event Observed: Fill** debris clearance resource requests, including the control and containment of hazardous spills and releases, from local governments and forward to REOC	Operational Area	—	—
	11	E to E+72h	**Approve** State mission taskings to assist with debris clearance, including the control and containment of hazardous spills and releases. Manage the requests until the needs are met, or elevate the requests to the SOC	REOC	—	—
	12	E to E+72h	**Report** the prioritization of emergency debris clearance resource requirements by the Operational Areas with Caltrans to provide essential debris clearance services related to the State's highway system	REOC	Caltrans/REOC Transportation Branch	—
	13	E to E+72h	**Quantify** State debris clearance and hazardous materials resource requirements and identify resource availability and shortfalls	SOC/JFO	—	—
	14	E to E+72h	**Approve** State debris clearance and hazardous materials missions taskings that have not already been approved by the REOC	SOC/JFO	—	—
	15	E to E+72h	California National Guard and other State agencies deployed to **assist** local governments clear debris and respond to hazardous materials incidents	SOC/JFO	—	—

Table 5-1. Response timeline for debris removal operations.

Objective	Line	Time Frame	Action Being Taken or Event Being Observed	Coordinating Entity	Supporting Entities	Details/Comments
A.4 (cont.)	16	E to E+72h	**Request** debris clearance and hazardous materials resources from other States through state-to-state arrangements and EMAC	SOC/JFO	—	—
	17	E to E+72h	**Identify** the need for Federal assistance for debris clearance operations, the control and containment of hazardous spills and releases, and Public Assistance Program support and request through FEMA	SOC/JFO	—	ESF #3 (USACE), ESF #5 (FEMA), and ESF #10 (USACE and USCG) can provide Federal assistance for debris clearance operation, the control and containment of hazardous spills and releases, and Public Assistance Program support
A.5 Provide resources for safety assessments	18	E to E+72h	**Event Observed: Receive** safety assessment resource requests from local government SAP Coordinators and **forward** to the REOC	Operational Area	—	—
	19	E to E+72h	**Elevate** requests to SOC for additional resources.	REOC	—	—
	20	E to E+72h	SOC will **contact** Statewide SAP Coordinator to implement the SAP. The Statewide SAP Coordinator will **facilitate** the deployment of needed SAP Evaluators to fill requests initially through the SAP professional organization disaster contacts.	SOC	—	SAP evaluators and coordinators are deployed under the Cal EMA Post-Disaster Safety Assessment Program. This is a State-level resource coordinated by the Statewide SAP Coordinator. SAP Evaluators are trained using the Procedures for Post-earthquake Safety Evaluations of Building (ATC-20).
A.6 Support emergency demolition activities necessary to remove imminent threats to health and safety	21	E to E+72h	**Event Observed: Fill** emergency demolition resource requests from local governments and elevate unfilled requests to REOC.	Operational Area	—	—
	22	E to E+72h	**Fill** emergency demolition resource requests based on available resources and elevate unfilled requests to the SOC/JFO	REOC	—	—
	23	E to E+72h	**Fill** emergency demolition resource requests based on available State resources and request Federal assistance for unfilled requests	SOC/JFO	—	—
	24	E to E+72h	**Provide assistance** to local governments regarding identification and assessment of historic facilities that could be subject to demolition and removal under local government's authority to removal "imminent hazards"	CDPR – Office of Historical Preservation	Cal EMA and FEMA	Although the National Preservation Act, Section 106 process does not become effective until 30 days after the date of declaration, every effort should be made to minimize the demolition and removal of historic buildings through consultation and technical assistance.
A.7 Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris clearance operations	25	E to E+72h	**Event Observed: Notify** local governments of State and Federal authorities, regulations, and requirements that are associated with debris clearance operations	State and Federal Public Assistance Staff		Important to emphasize the need for local governments to adhere to local, State, and Federal authorities, regulations, and requirements that are associated with debris clearance operations, in order to obtain State and Federal financial assistance.
	26	E to E+72h	**Event Observed: Participate** on Debris Task Force conference calls about debris clearance requirements for the Federal Highway Administration (FHWA) Emergency Relief Program and the State and Federal Public Assistance Programs	Operational Area and local governments	REOC/SOC/JFO	Topics covered for debris clearance operations will include: force account labor and contractors' scheduling, equipment, measurement and payment, and health and safety information, as well as environmental requirements, and regulatory permits and licenses
	27	E to E+72h	**Lead** Debris Task Force conference calls about debris clearance requirements for the Federal Highway Administration (FHWA) Emergency Relief Program and the Public Assistance Program requirements	State Debris Manager at the SOC/JFO	Caltrans	See comments in box above.
B.1 Provide resources to support the expansion of debris clearance operations, including the control and containment of hazardous spills and releases	28	E+72h to E+14d	**Event Observed: Gather** status updates from local governments regarding progress with debris clearance operations and the control and containment of hazardous spills and releases and notify the REOC of this information as well as current capabilities and expected needs. Fill and request additional debris clearance resources to the REOC, as needed	Operational Area	—	—
	29	E+72h to E+14d	**Maintain** communication with the Operational Areas regarding region-wide progress made with debris clearance operations and the control and containment of hazardous spills and releases and the status of additional debris clearance and hazardous materials resources to support local debris clearance operations	REOC	—	—
	30	E+72h to E+14d	**Request** additional debris clearance and hazardous spills and releases control and containment resources from EMAC, or FEMA	SOC/JFO	FEMA/NEMA EMAC A-Team	—

Table 5-1. Response timeline for debris removal operations.

Objective	Line	Time Frame	Action Being Taken or Event Being Observed	Coordinating Entity	Supporting Entities	Details/Comments
B.2 Identify the type, amount, and location of debris	31	E+72h to E+14d	**Event Observed: Review** updated HAZUS debris and damaged buildings projections and provide results to local governments of results	Operational Area	Cal EMA, FEMA, California Geological Survey, USGS, etc.	—
	32	E+72h to E+14d	**Event Observed: Receive** debris estimation resource requests from the local governments and forward to the REOC	Operational Area	—	—
	33	E+72h to E+14d	**Approve** State debris estimation mission taskings. Either manage the requests until the needs are met, or elevate the requests to the SOC/JFO	REOC	—	—
	34	E+72h to E+14d	**Quantify** State debris estimation resource requirements to support debris estimations and identify debris estimation resource availability and shortfalls	SOC/JFO	—	—
	35	E+72h to E+14d	**Approve** State debris estimation missions taskings that have not already been approved by the REOC to assist with debris estimations	SOC/JFO	—	—
	36	E+72h to E+14d	**Request** debris estimation resources from other States through EMAC	SOC/JFO	NEMA EMAC A-Team	—
	37	E+72h to E+14d	**Identify** the need for Federal assistance and **request** Federal assistance through FEMA	SOC/JFO	FEMA	—
B.3 Identify and designate debris management sites, transfer/processing facilities, and solid waste landfills	38	E+72h to E+14d	**Verify** that debris management sites are eligible for reimbursement under the State and Federal Public Assistance Programs and notify local governments of eligibility	SOC/JFO	Public Assistance Program Staff and/or State or Federal Debris Specialists	—
	39	E+72h to E+14d	**Event Observed: Contact** the local enforcement agency and/or CalRecycle about solid waste landfills in the County that may be closed and that have the potential to be used for staging and processing; **notify** local governments of availability	Operational Area	CalRecycle	—
	40	E+72h to E+14d	**Event Observed: Contact** ports to see if they have land that can be used for staging and processing and **notify** local governments of availability	Operational Area	REOC—USCG	—
	41	E+72h to E+14d	**Event Observed: Notify** local governments of debris management sites in the County that will accept countywide debris for staging and processing	Operational Area	—	Local governments will notify the Operational Area if the local government will allow other local governments to use debris management sites to store, sort, and process debris
	42	E+72h to E+14d	**Event Observed: Notify** the REOC of any debris management sites have been identified and will accept debris from other counties	Operational Area	—	—
	43	E+72h to E+14d	**Develop** recommended equitable distribution of debris throughout counties in the region so that no single facility is overwhelmed and ensure that the regional system of solid waste landfills is able to absorb disaster debris; continue management of daily waste and share information with REOC, Operational Areas, and local governments	CalRecycle	—	—
B.4 Provide resources to support debris management sites, including the preparation, operation, and closeout of debris management sites, debris management site monitoring, debris estimation technical assistance, environmental monitoring program/ guidelines, debris management site and disposal technical assistance	44	E+72h to E+14d	**Event Observed: Elevate** requests from affected local governments to REOC for support with the following: - Debris management site operations - Debris management site monitoring - Debris estimation technical assistance - Environmental monitoring program/guidelines - Debris management site and disposal technical assistance	Operational Areas	—	These types of resource requests will typically flow directly to State and Federal Public Assistance Program authorities and specialists in the JFO.

Table 5-1. Response timeline for debris removal operations.

Objective	Line	Time Frame	Action Being Taken or Event Being Observed	Coordinating Entity	Supporting Entities	Details/Comments
B.4 (cont.)	45	E+72h to E+14d	**Receive** resource requests from the Operational Area and approve mission taskings when resources are available or elevate the requests to the SOC/JFO for the following: - Debris management site operations - Debris management site monitoring - Debris estimation technical assistance - Environmental monitoring program/guidelines - Debris management site and disposal technical assistance	REOC	—	—
	46	E+72h to E+14d	**Receive** resource requests from the REOC for additional resources associated with debris management sites, **quantify** state resources, including CalRecycle and DTSC to support these resource requests, **identify** resource availability and shortfalls, and **approve** State mission taskings that have not already been approved by the REOC.	SOC/JFO	—	—
	47	E+72h to E+14d	**Request** resources for debris management site operations, debris estimation, disposal operations, and environmental monitoring from other states through EMAC.	SOC/JFO	NEMA EMAC A-Team	—
	48	E+72h to E+14d	**Identify** the need for Federal assistance and **request** the following assistance through FEMA: - Debris management site operations - Debris management site monitoring - Debris estimation technical assistance - Environmental monitoring program/guidelines - Debris management site/disposal assistance - Public Assistance Program technical support for debris operations	SOC/JFO	—	—
B.5 Provide resources to support debris removal operations, including debris removal monitoring	49	E+72h to E+14d	**Event Observed: Coordinate** Public Works Plan and Procedures Agreement from other local governments in the Operational Area or other counties	Operational Area	—	—
	50	E+72h to E+14d	**Event Observed: Fill** debris removal and debris removal monitoring resource requests from local governments and forward to REOC	Operational Area	—	—
	51	E+72h to E+14d	**Approve** State mission taskings to assist with debris removal and debris removal monitoring. Manage the requests until the needs are met, or elevate the requests to the SOC/JFO	REOC	—	—
	52	E+72h to E+14d	**Quantify** State debris removal and debris removal monitoring resource requirements and identify resource availability and shortfalls and approve State debris removal and debris removal monitoring missions taskings that have not already been approved by REOC	SOC/JFO	—	—
	53	E+72h to E+14d	**Request** debris removal resources from other States through EMAC	SOC/JFO	NEMA EMAC A-Team	—
	54	E+72h to E+14d	**Identify** the need for Federal assistance for debris removal and debris removal monitoring requests through FEMA	SOC/JFO	—	ESF #3 (USACE) can provide Federal assistance for debris removal and debris removal monitoring.
B.6 Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris management sites	55	E+72h to E+14d	**Event Observed: Notify** local governments of State and Federal authorities, regulations, and requirements that are associated with debris management sites	State and Federal Public Assistance Program Staff	—	Remind local governments to adhere to local, State, and Federal authorities, regulations, and requirements that are associated with debris management sites, in order to qualify for and obtain State and Federal financial assistance.

Table 5-1. Response timeline for debris removal operations.

Objective	Line	Time Frame	Action Being Taken or Event Being Observed	Coordinating Entity	Supporting Entities	Details/Comments
B.6 (cont.)	56	E+72h to E+14d	**Event Observed: Participate** in Debris Task Force conference calls about the possibility of regional debris management sites, Public Assistance Program debris management site requirements, and CalRecycle's recommended regional strategy for transfer/processing facilities and solid waste landfills	Operational Area and local governments	REOC/SOC/JFO	Topics covered for debris management sites will include: regional debris management sites operated by the USACE or by a neighboring jurisdiction and/or a strategy for counties within the Coastal Region to use specific C&D transfer/processing facilities and landfills; Public Assistance Program debris management site requirements, including baseline sampling and testing, ingress/egress, traffic control, and safety and security procedures; and CalRecycle's recommended equitable distribution of debris throughout counties in the region so that no one facility is overwhelmed to ensure that the regional system of landfills is able to absorb disaster debris and continue management of daily waste.
	57	E+72h to E+14d	**Lead** Debris Task Force conference calls about the possibility of regional debris management sites, Public Assistance Program debris management site requirements, and CalRecycle's recommended regional strategy for transfer/processing facilities and solid waste landfills	State Debris Manager at the SOC/JFO	Cal EPA/FEMA	See comment box above.
B.7 Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris removal operations	58	E+72h to E+14d	**Event Observed: Notify** local governments of State and Federal authorities, regulations, and requirements that are associated with debris removal operations	State and Federal Public Assistance Program Staff	—	Remind local governments to adhere to local, State, and Federal authorities, regulations, and requirements that are associated with debris removal operations in order to qualify for and obtain State and Federal financial assistance.
	59	E+72h to E+14d	**Event Observed: Participate** in Debris Task Force conference calls about State and Federal Public Assistance Program debris removal requirements	Operational Area and local governments	REOC/SOC/JFO	Topics covered for debris removal operations will include: permissible types of debris to be collected under the Public Assistance Program, force account labor and contractors' scheduling, equipment, measurement and payment, and health and safety information, as well as environmental requirements and regulatory permits and licenses
	60	E+72h to E+14d	**Lead** Debris Task Force conference calls about State and Federal Public Assistance Program debris removal requirements	State Debris Manager at the SOC/JFO	CalRecycle/FEMA	See comment box above.
B.8 Continue to inform the public about debris removal and related operations	61	E+72h to E+14d	**Event Observed: Disseminate** countywide information including how to handle and transport hazardous household waste	Operational Areas	SOC/JFO(JIC)/DTSC	Debris removal information specific to a local government, including the debris removal collection process, hours of operations, and collection dates, will be disseminated by the local government.
	62	E+72h to E+14d	**Event Observed:** Work with local governments to **develop** safety assessment/tagging public information announcements	Operational Areas	SOC/JFO (JIC)	Local governments will disseminate safety assessment information specific to its jurisdictional authority, including the tagging process and requirements.
B.9 Provide resources to support the expansion of safety assessments	63	E+72h to E+14d	**Event Observed: Gather** status updates from the local governments regarding progress with safety assessment and coordinate directly with the Statewide SAP Coordinator regarding this information as well as current capabilities and expected needs. Fill and request additional safety assessment resources, as needed	Operational Areas	REOC/SOC/JFO – Statewide SAP Coordinator	—
	64	E+72h to E+14d	Statewide SAP coordinator will **deploy** State agency resources or request and obtain qualified out-of-state resources through EMAC, as necessary to meet local government needs	SOC/JFO—Statewide SAP Coordinator	NEMA EMAC A-Team	—
	65	E+72h to E+14d	Statewide SAP Coordinator will **identify** the need for Federal assistance for safety assessments and request Federal resources through FEMA	SOC/JFO	—	—
	66	E+72h to E+14d	**Assist** receiving jurisdictions with providing support to out-of-area SAP resources	SOC/JFO(Logistics)		—
B.10 Continue to support emergency demolition operations	67	E+72h to E+14d	**Event Observed: Fill** emergency demolition resource requests from local governments and forward to REOC	Operational Area	—	—
	68	E+72h to E+14d	**Elevate** requests for emergency demolition resources to the SOC/JFO	REOC	—	It is unlikely that the State will be able to provide resources to support demolition operations. Therefore, requests will be immediately elevated from the SOC/JFO to FEMA.

Table 5-1. Response timeline for debris removal operations.

Objective	Line	Time Frame	Action Being Taken or Event Being Observed	Coordinating Entity	Supporting Entities	Details/Comments
B.10 (cont.)	69	E+72h to E+14d	**Request** Federal assistance for emergency demolition operations	SOC/JFO	—	ESF #3 (USACE) can provide Federal assistance for demolition operations.
B.11 Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with demolition, safety assessments, and other related operations	70	E+72h to E+14d	**Event Observed: Notify** local governments of State and Federal authorities, regulations, and requirements that are associated with demolition, safety assessments, and other related operations	State and Federal Public Assistance Program Staff	—	—
	71	E+72h to E+14d	**Event Observed: Participate** in Debris Task Force conference calls about State and Federal Public Assistance Program demolition, demolition, safety assessments and other related operations	Operational Area and local governments	REOC/SOC/JFO	Topics covered for demolition, safety assessments, and other related activities could include: eligibility determinations, permits and necessary documentation, demolition scope of work, and eligible and ineligible demolition activities.
	72	E+72h to E+14d	**Lead** Debris Task Force conference calls about Public Assistance Program debris removal, demolition, and other related requirements	State Debris Manager at the SOC/JFO	FEMA	See comment box above.
C.1 Identify additional debris management sites, transfer/processing facilities, and solid waste landfills, as needed	73	E+14d to E+60d	**Event Observed: Identify** out-of-region transfer/processing facilities and disposal options	Operational Area	REOC/SOC/JFO	—
C.2 Continue supporting the expansion of safety assessments	74	E+14d to E+60d	**Event Observed: Continue** monitoring progress with safety assessment and coordinate directly with the Statewide SAP Coordinator regarding this information as well as current capabilities and expected needs. Fill and request additional safety assessment resources, as needed	Operational Area/local governments	REOC/SOC/JFO – Statewide SAP Coordinator	—
	75	E+14d to E+60d	Statewide SAP coordinator will **continue deploying** State agency resources or request and obtain qualified out-of-state resources through EMAC, as necessary to meet local government needs	SOC/JFO—Statewide SAP Coordinator	NEMA EMAC A-Team	—
	76	E+14d to E+60d	Statewide SAP Coordinator will **obtain** Federal assistance for safety assessments through FEMA, as necessary	SOC/JFO	—	—
	77	E+14d to E+60d	Continue to **assist** receiving jurisdictions with providing support to out-of-area SAP resources	SOC/JFO(Logistics)—Statewide SAP Coordinator	—	—
	78	E+14d to E+60d	**Deactivate** SAP Program and demobilize resources	SOC/JFO(Logistics)—Statewide SAP Coordinator	—	—
C.3 Provide resources to support the expansion and transition of demolition operations into the long-term recovery phase	79	E+14d to E+60d	**Event Observed: Gather** status updates from the local governments regarding progress with demolition operations and notify the SOC/JFO of this information as well as current capabilities and expected needs. Fill or forward requests for additional demolition resources to SOC/JFO, as needed.	Operational Area	—	—
	80	E+14d to E+60d	**Maintain communication** with the Operational Areas regarding region wide progress made with safety assessments and the status of additional demolition resources to support local debris demolition resources	REOC/SOC/JFO	—	—
	81	E+14d to E+60d	**Request** additional safety assessment resources from other States, EMAC, or FEMA	SOC/JFO	—	—

Table 5-1. Response timeline for debris removal operations.

Objective	Line	Time Frame	Action Being Taken or Event Being Observed	Coordinating Entity	Supporting Entities	Details/Comments
C.4 Provide information and technical assistance to agencies regarding State and Federal financial assistance program authorities, regulations, and guidelines having to do with debris operations	82	E+14d to E+60d	**Event Observed: Notify** local governments of State and Federal authorities, regulations, and requirements that are associated with debris operations	State and Federal Public Assistance Program Staff	—	Remind local governments to adhere to local authorities, regulations, and requirements that are associated with debris operations.
	83	E+14d to E+60d	**Event Observed: Participate** in Debris Task Force conference calls about State and Federal Public Assistance Program requirements	Operational Area and local governments	REOC/SOC/JFO	Topics covered for debris removal and related activities could include: project and cost eligibility factors, contracting requirements, documentation, demolition and debris removal from private property, insurance recovery and duplicate benefits, funding process, project timelines and time extension requests, and other topics having to do with the Public Assistance program.
	84	E+14d to E+60d	**Lead** Debris Task Force conference calls about Public Assistance Program requirements	State Debris Manager at the SOC/JFO	FEMA	See comment box above.

Source: URS analysis (2009)
— = Not Applicable
C&D = construction and demolition
Cal EMA = California Emergency Management Agency
Cal EPA = California Environmental Protection Agency
Caltrans = California Department of Transportation
CCC = California Conservation Corps
CDPR = California Department of Parks and Recreation
CHP = California Highway Patrol
CalRecycle = California Department of Resources Recycling and Recovery
d = days
DTSC = Department of Toxic Substances Control
E = event occurrence
EMAC = Emergency Management Assistance Compact
EOC = Emergency Operations Center
ESF = Emergency Support Function
FEMA = Federal Emergency Management Agency
FHWA = Federal Highway Administration
h = hours
JFO = Joint Field Office
JIC = Joint Information Center
MTC = Metropolitan Transportation Commission
NEMA = National Emergency Management Association
PIO = Public Information Officer
REOC = Regional Emergency Operations Center
SAP = Safety Assessment Program
SHPO = State Historic Preservation Officer at CDPR
SOC = State Operations Center
USACE = U.S. Army Corps of Engineers
USCG = U.S. Coast Guard
USGS = U.S. Geological Survey

This page intentionally left blank

6 Plan Maintenance

This section describes the process for maintaining this Plan. The discussion identifies who will receive and review the Plan, how updates are to be integrated into the Plan, how the Plan will be tested, what type of training will be developed to learn the Plan, and how after-action review will be conducted after the Plan has been implemented, whether as part of an exercise or in response to a real emergency.

6.1 Plan Distribution

Once completed, the Regional Catastrophic Earthquake Debris Removal Plan will be distributed to the Debris Removal Steering Committee and UASI Management Team. Printed and electronic copies will also be delivered to Cal EMA's Coastal Region office and State headquarters. Electronic versions of the final Plan will also be distributed to each of the 12 counties and three core cities in the RCPG planning area, and to other organizations with major roles to play in debris removal operations.

6.2 Plan Updates

The Cal EMA Coastal Region is responsible for the maintenance, revision, and distribution of future versions of the Regional Catastrophic Earthquake Debris Removal Plan. In coordination with the Mutual Aid Regional Advisory Committee, the Coastal Region will annually assess the need for revisions to the RECP and subsidiary plans based on the following considerations:

- Changes to State or Federal regulations, requirements, or organization
- The need for additional subsidiary plans to develop regional response capabilities or eliminate gaps in capabilities, as suggested by Mutual Aid Regional Advisory Committee members or developed by the Bay Area UASI Management Team
- Implementation of tools or procedures that alter or improve on Plan components

The Coastal Region will maintain a record of amendments and revisions, as well as executable versions of all documents, and will be responsible for distributing the Plan to all applicable agencies.

6.3 Plan Testing, Training, and Exercises

Exercising the Plan and evaluating its effectiveness involves using training, exercises, and evaluation of actual events to determine whether goals, objectives, decision, actions, and timing outlined in the Plan led to a successful response.

Exercises are the best method of evaluating the effectiveness of a plan and are also a valuable tool in training emergency responders and government officials. Exercises allow emergency responders and government officials to become familiar

with the procedures, facilities, and systems that they will actually use or manage in emergency situations. Cal EMA is responsible for planning and conducting emergency exercises for the region.

Exercises will be conducted on a regular basis to maintain readiness. Exercises should include as many Operational Areas, other regions, and State and Federal agencies as practical.

6.4 After-Action Review

After every exercise or event, an After-Action Report/Improvement Plan (AAR/IP) is completed. The AAR/IP has two components: an AAR, which captures observations and recommendations based on incident objectives as associated with the capabilities and tasks, and an Improvement Plan, which identifies specific corrective actions, assigns them to responsible parties, and establishes targets for their completion. Cal EMA is the lead agency for the development of the AAR/IP and will convene event participants to discuss action items and solicit recommendations for improvement.

Appendix A:
Glossary

This page intentionally left blank

Table of Contents

Appendix A: Glossary A-1

A.1 Acronyms and Abbreviations A-1

A.2 Key Terms A-2

This page intentionally left blank

Appendix A: Glossary

A.1 Acronyms and Abbreviations

AAR/IP ..... After-Action Report/Improvement Plan
C&D ..... construction and demolition
Cal EMA..... California Emergency Management Agency
Cal EPA ..... California Environmental Protection Agency
CalRecycle..... California Resources Recycling and Recovery
Caltrans..... California Department of Transportation
CCC ..... California Conservation Corps
CCR ..... California Code of Regulations
C.F.R. ..... Code of Federal Regulations
CHP ..... California Highway Patrol
CONPLAN ..... San Francisco Bay Area Earthquake Readiness Response: Concept of Operations Plan
CVC ..... California Vehicle Code
DHS ..... U.S. Department of Homeland Security
DOC ..... Department Operations Center
DTSC ..... Department of Toxic Substances Control
E ..... event occurrence
EEI ..... Essential Elements of Information
EMAC..... Emergency Management Assistance Compact
EOC ..... Emergency Operations Center
EPA..... Environmental Protection Agency
ESA..... Endangered Species Act
ESF ..... Emergency Support Function
e-waste ..... electronic waste
FEMA..... Federal Emergency Management Agency
FHWA ..... Federal Highway Administration
FOSC ..... Federal On-Scene Coordinator
G.C. ..... California Government Code
HAZUS..... Hazards U.S.
ICS ..... Incident Command System
IMAT ..... Incident Management Assistance Team
JFO ..... Joint Field Office
JIC..... Joint Information Center
M ..... moment magnitude
MARAC ..... Mutual Aid Regional Advisory Committee

MM ..... Modified Mercalli
MTC ..... Metropolitan Transportation Commission
National Guard.... California National Guard
NIMS..... National Incident Management System
NRCC ..... National Response Coordination Center
NRF ..... National Response Framework
PIO ..... Public Information Officer
Plan ..... Regional Catastrophic Earthquake Debris Removal Concept of Operations
P.L. ..... Public Law
RCPGP ..... Regional Catastrophic Preparedness Grant Program
RCRA ..... Resource Conservation and Recovery Act
RECP..... Regional Emergency Coordination Plan
REOC ..... Regional Emergency Operations Center
ROW ..... right-of-way
RRCC ..... Regional Response Coordination Center
RRT ..... Regional Response Team
SEMS..... Standardized Emergency Management System
SOC ..... State Operations Center
Stafford Act..... Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988
UASI ..... Urban Area Security Initiative
UCG..... Unified Coordination Group
USACE ..... U.S. Army Corps of Engineers
U.S.C. ..... U.S. Code
USCG ..... U.S. Coast Guard
USFWS..... U.S. Fish and Wildlife Service

A.2 Key Terms

Construction and demolition (C&D) debris. C&D debris includes, but is not limited to bricks; concrete and other masonry materials; soil; rock; wood (including painted, treated and coated wood and wood products); wall coverings; plaster; drywall; plumbing fixtures; non-asbestos insulation; roofing shingles, and other roof coverings; asphaltic pavement; glass; plastics that are not sealed in a manner that conceals other wastes; empty buckets 10 gallons or less with no more than 1 inch of residue on the bottom; electrical wiring and components containing no hazardous liquids; and pipe and metals that are incidental to any of the above.

Critical facilities. Facilities that are critical to the health and welfare of the population and that are especially important during and after a hazard event.

Debris clearance. Consists of pushing debris from one lane of each Lifeline route and critical facility to the roadway shoulder through cutting, tossing, and/or clearing the debris.

Debris management site. A debris management site is used to temporarily store, sort, and/or reduce non-hazardous waste, such as vegetative and unsorted C&D debris.

Debris removal. Consists of removing debris that has been previously pushed from transportation lanes and ingress/egress of critical facilities. This term also refers to removal of debris from other public areas, curbsides, drop-off locations, and private property.

Emergency Relief Program. The Emergency Relief Program supplements the commitment of resources by states and their political subdivisions to help pay for unusually heavy expenses related to the repair or reconstruction of Federal aid highways that have suffered serious damage as a result of natural disasters. The program is administered by the Federal Highway Administration. The California Department of Transportation is responsible for implementing the program in California. The Emergency Relief Program is described in the Emergency Relief Manual.

FEMA Public Assistance Program. Under the FEMA Public Assistance Program, which is authorized by the Stafford Act, the Federal Emergency Management Agency awards grants to assist local and State governments and certain private nonprofit entities with the response to and recovery from disasters. Specifically, the program provides assistance for extraordinary costs associated with debris removal, emergency protective measures, and permanent restoration of buildings and infrastructure. In California, the California Emergency Management Agency serves as the Grantee and manages implementation of the program. The Public Assistance Program is described in FEMA 322, Public Assistance Guide.

Household hazardous waste. Household hazardous waste consists of products and materials that are used and disposed of by residential consumers rather than by commercial or industrial consumers. This waste includes motor oil and antifreeze, brake and transmission fluids, solvents, enamel, lead-based and latex paints, drain and oven cleaners, photochemicals, spot removers, wood preservatives, automobile tires and batteries, small aerosol cans, consumer batteries, outdoor gas grill propane tanks, and fluorescent bulbs.

Situational awareness. Situational Awareness is the ability to generate actionable knowledge through the use of timely and accurate information.

Universal Waste. A category of waste materials not designated as hazardous waste, but containing materials that need to be prevented from free release into the environment, such as batteries, pesticides, and mercury-containing equipment.

Unsafe structure. A structure found to be dangerous to the health or safety of the public because it is damaged or structurally unsafe as a direct result of the declared disaster that partial or complete collapse is imminent.

Vegetative debris. Whole trees, tree stumps, tree branches, tree trunks, and other leafy material.

Appendix B:
Maps

This page intentionally left blank

Table of Contents

Map B-1 Twelve-county San Francisco Bay Area region

Map B-2 Shaking intensity

Map B-3 Liquefaction susceptibility

Map B-4 Surface transportation system damage

Map B-5 Landslide distribution

Map B-6 Caltrans Lifeline routes

Map B-7 Additional State priority transportation routes

Map B-8 Critical facilities

Map B-9 Tons of brick/wood and other debris

Map B-10 Tons of concrete/steel

Map B-11 Completely and extensively damaged buildings

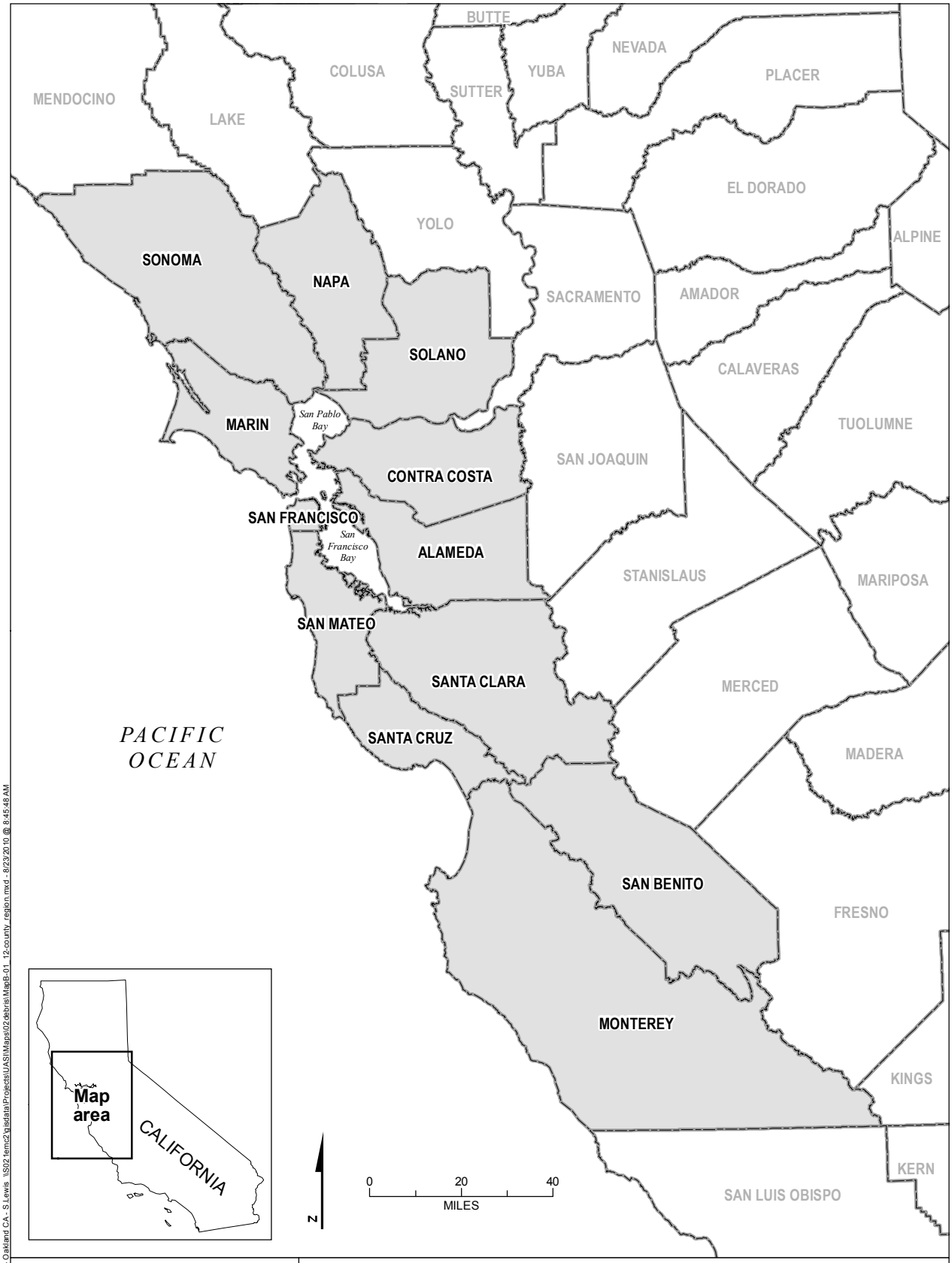
Map B-12 Permitted active large-volume transfer/processing facilities within a 100-mile radius of the 12-county region

Map B-13 Permitted active solid waste landfills within a 100-mile radius of the 12-county region

Map B-14 Out-of-region transfer/processing and disposal facilities accessible by rail

Map B-15 Port and non-passenger rail facilities

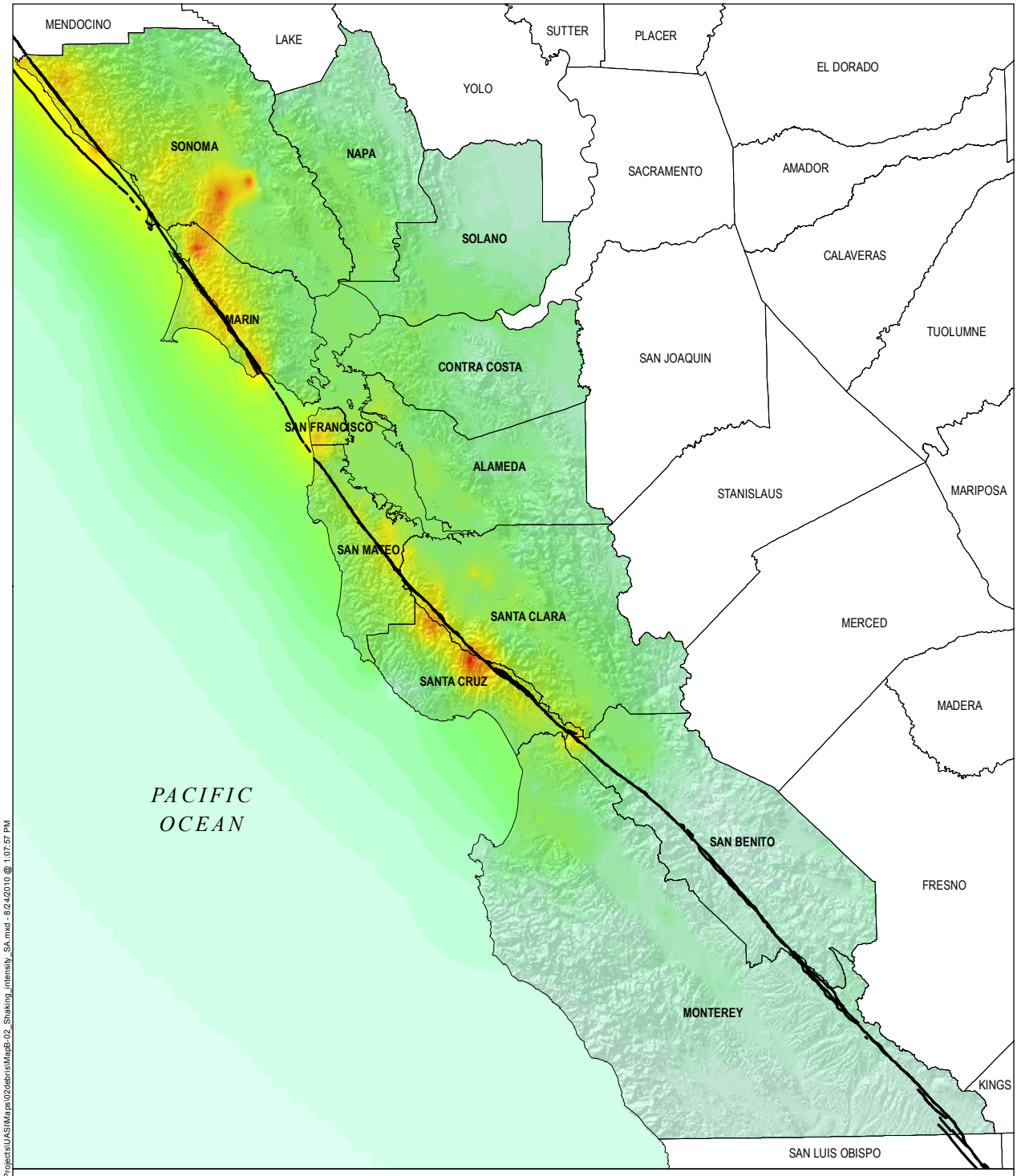
This page intentionally left blank



URS Corp - Oakland CA - S.Lewis \\S0\2-temc2\gisdata\Projects\UASI\Maps\02-debris\MapB-01_12-county_region.mxd - 8/29/2010 @ 8:45:48 AM

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-1
Twelve-county San Francisco Bay Area region

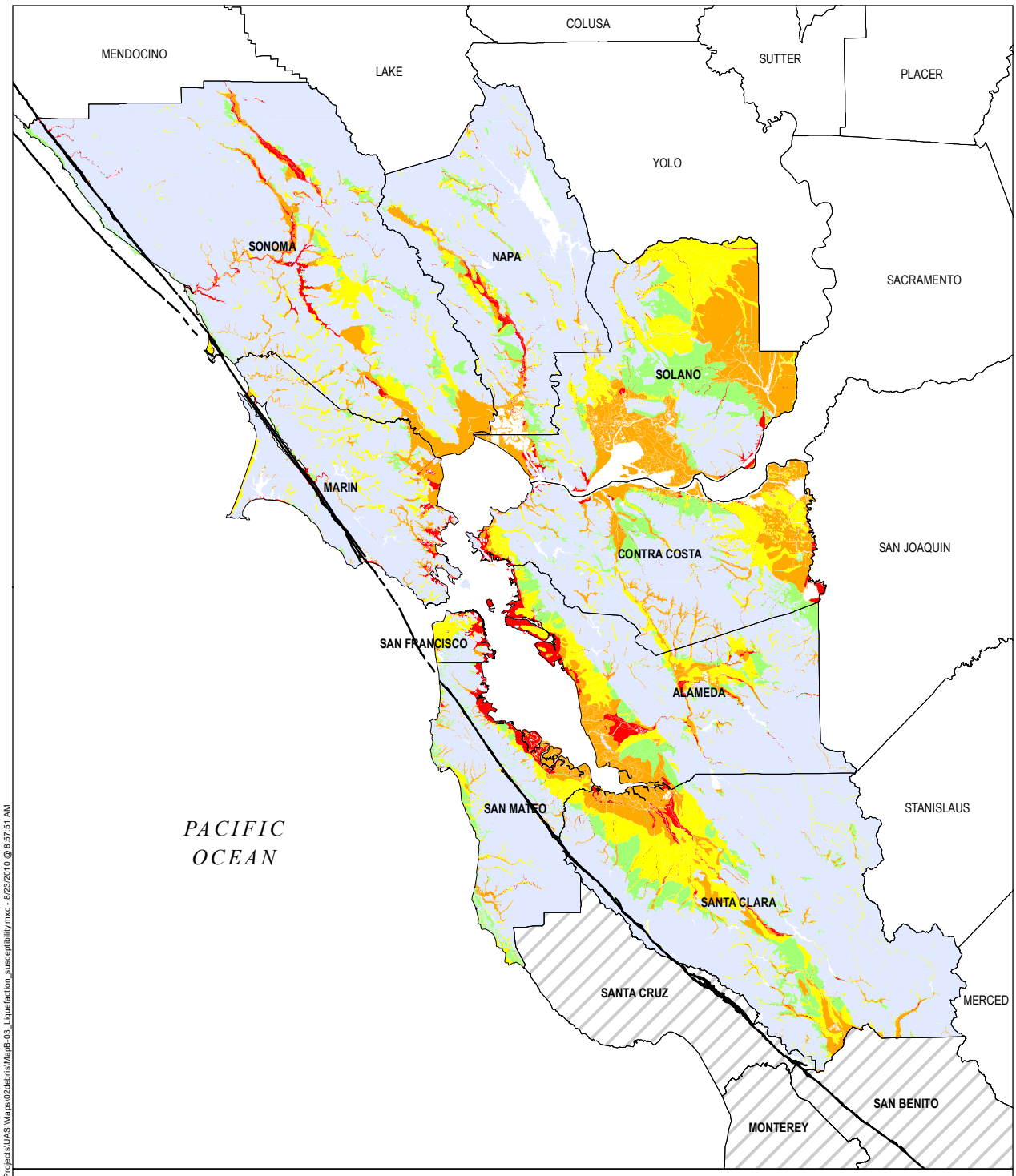


*g = 980 centimeters/second/second (units of gravitational acceleration)
Topographic data source: USGS NED
Fault data source: USGS, 2006

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

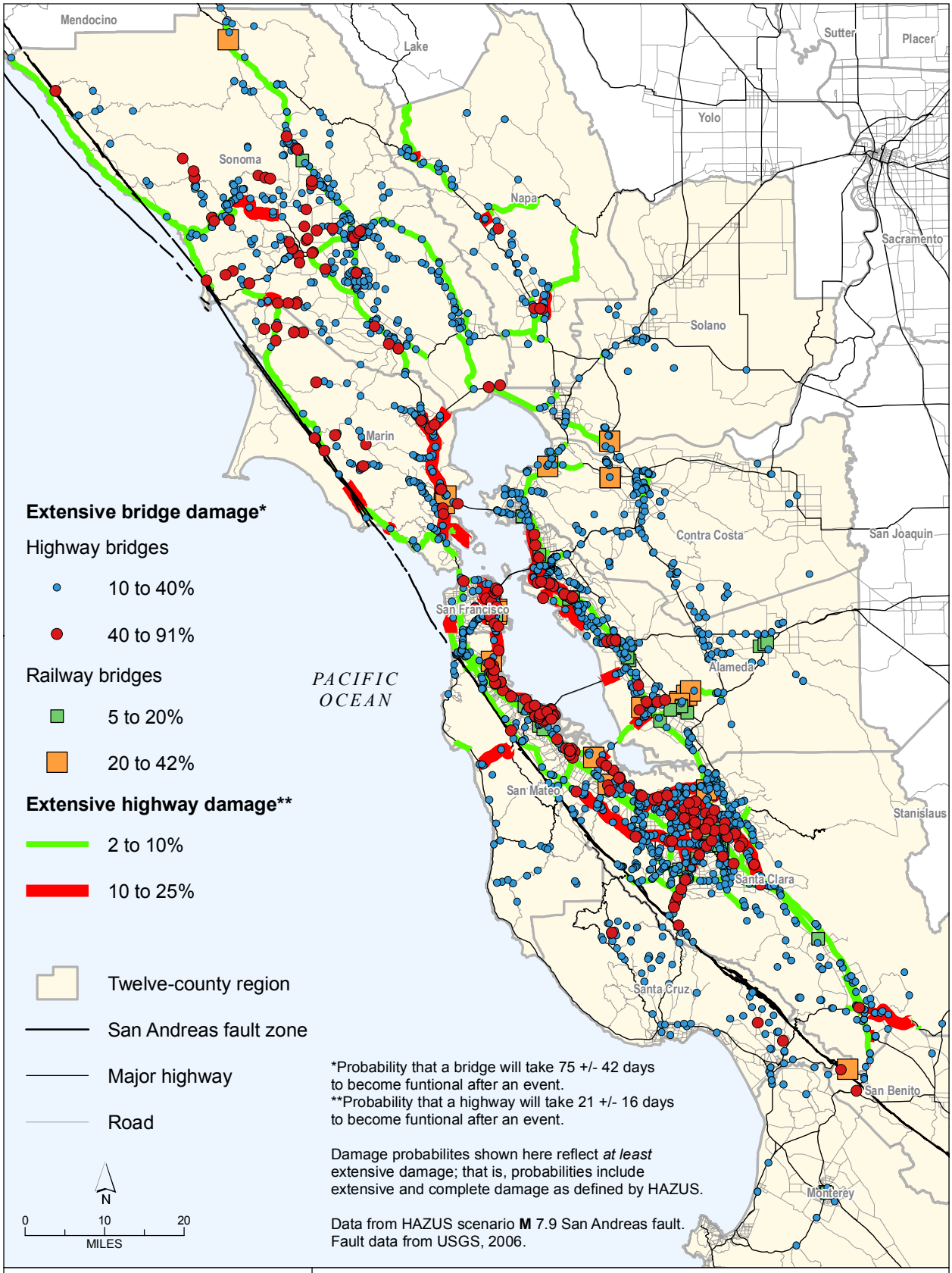
Map B-2. Shaking intensity
Peak ground acceleration; Scenario: **M** 7.9 San Andreas fault earthquake
1906 Modified Mercalli Intensity

URS Corp - Oakland CA - S:\Lewis \\SI02\1emc2\gis\data\Projects\UASIMaps\02debris\MapB-02_Shaking_Intensity_SA.mxd - 8/24/2010 @ 1:07:57 PM



Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-3
Liquefaction susceptibility



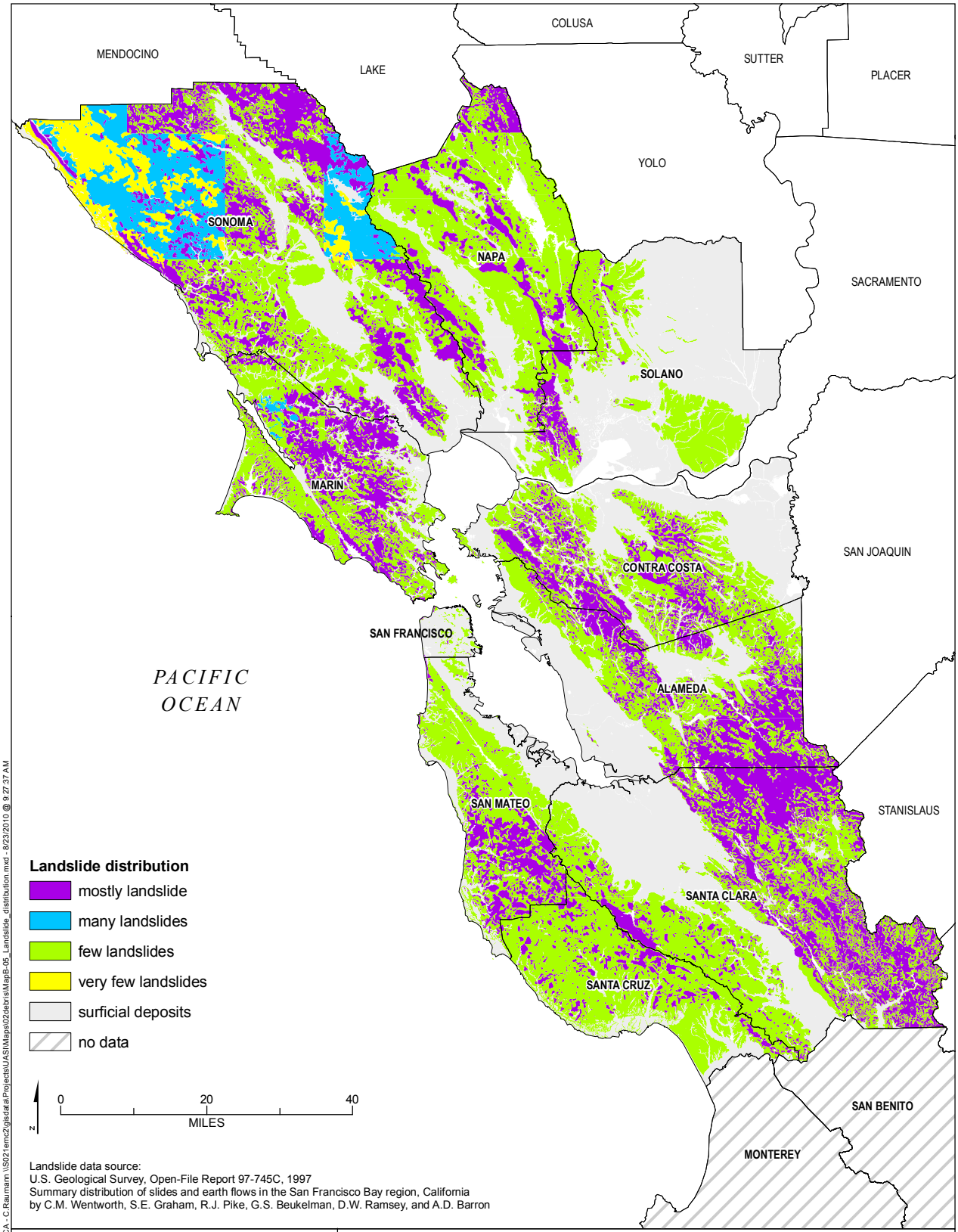
*Probability that a bridge will take 75 +/- 42 days to become funtional after an event.
**Probability that a highway will take 21 +/- 16 days to become funtional after an event.

Damage probabilites shown here reflect *at least* extensive damage; that is, probabilities include extensive and complete damage as defined by HAZUS.

Data from HAZUS scenario **M** 7.9 San Andreas fault. Fault data from USGS, 2006.

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-4
Surface transportation system damage

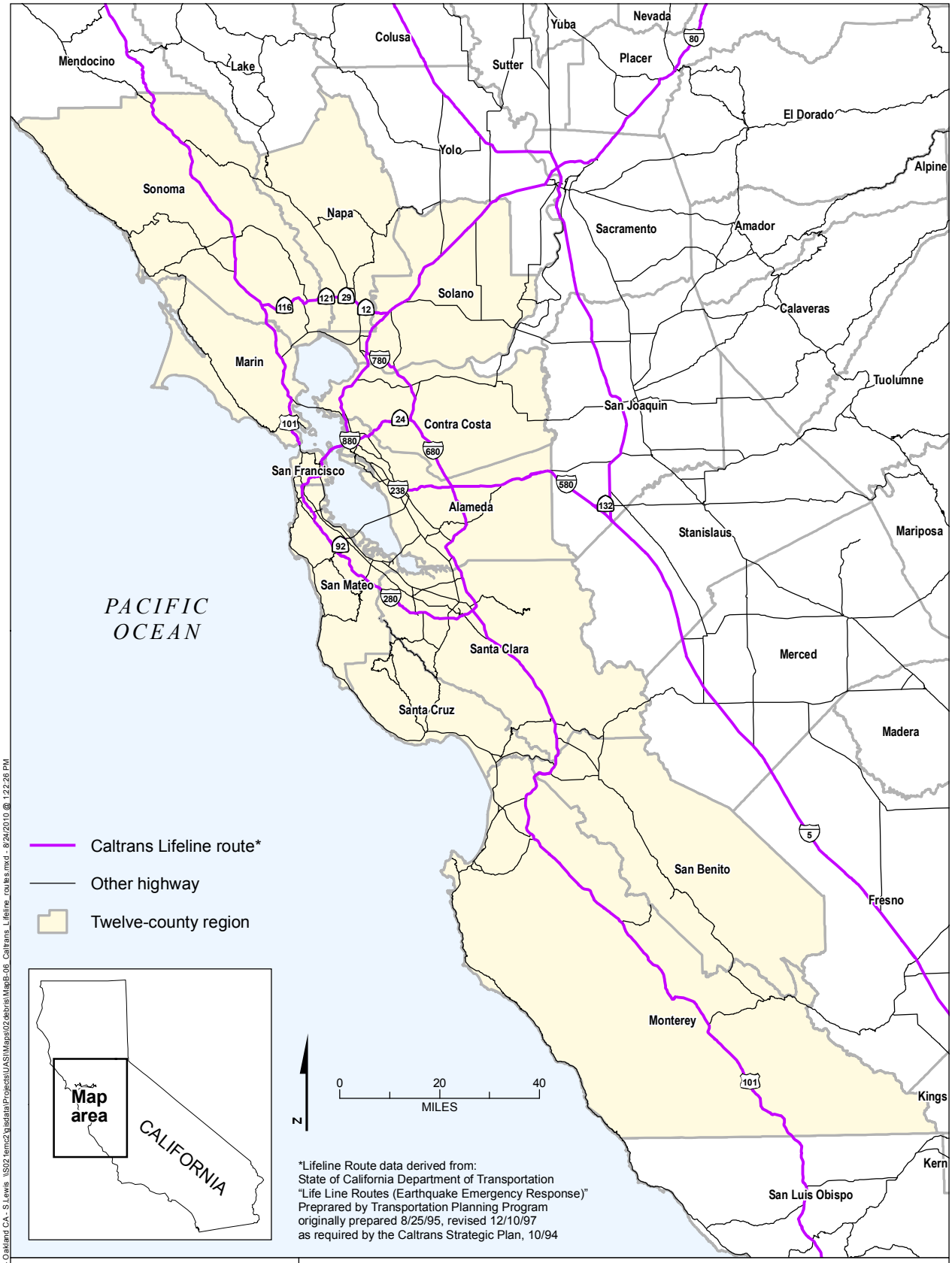


Landslide data source:
U.S. Geological Survey, Open-File Report 97-745C, 1997
Summary distribution of slides and earth flows in the San Francisco Bay region, California
by C.M. Wentworth, S.E. Graham, R.J. Pike, G.S. Beukelman, D.W. Ramsey, and A.D. Barron

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-5
Landslide distribution

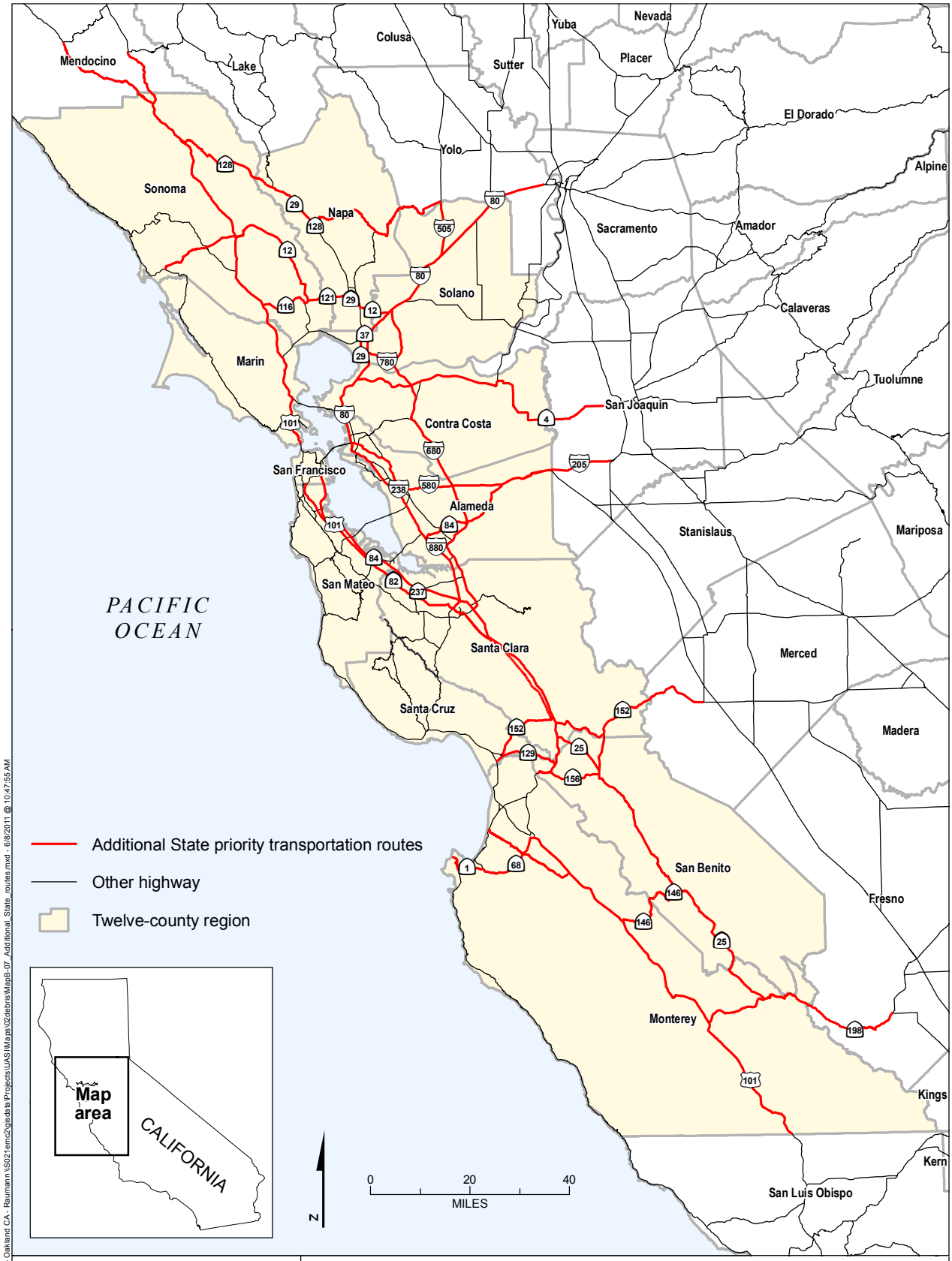
URS Corp - Oakland CA - C:\Raumann.\S021\emc2\gisdata\Projects\UASI\Maps\02debrisMapB-05_Landslide_distribution.mxd - 8/23/2010 @ 9:27:37 AM



URS Corp - Oakland CA - S.Lewis \\S02.temc2.tgisdata\Projects\UASI\Maps\02debris\MapB-06_Caltrans_Lifeline_routes.mxd - 8/24/2010 @ 1:22:26 PM

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

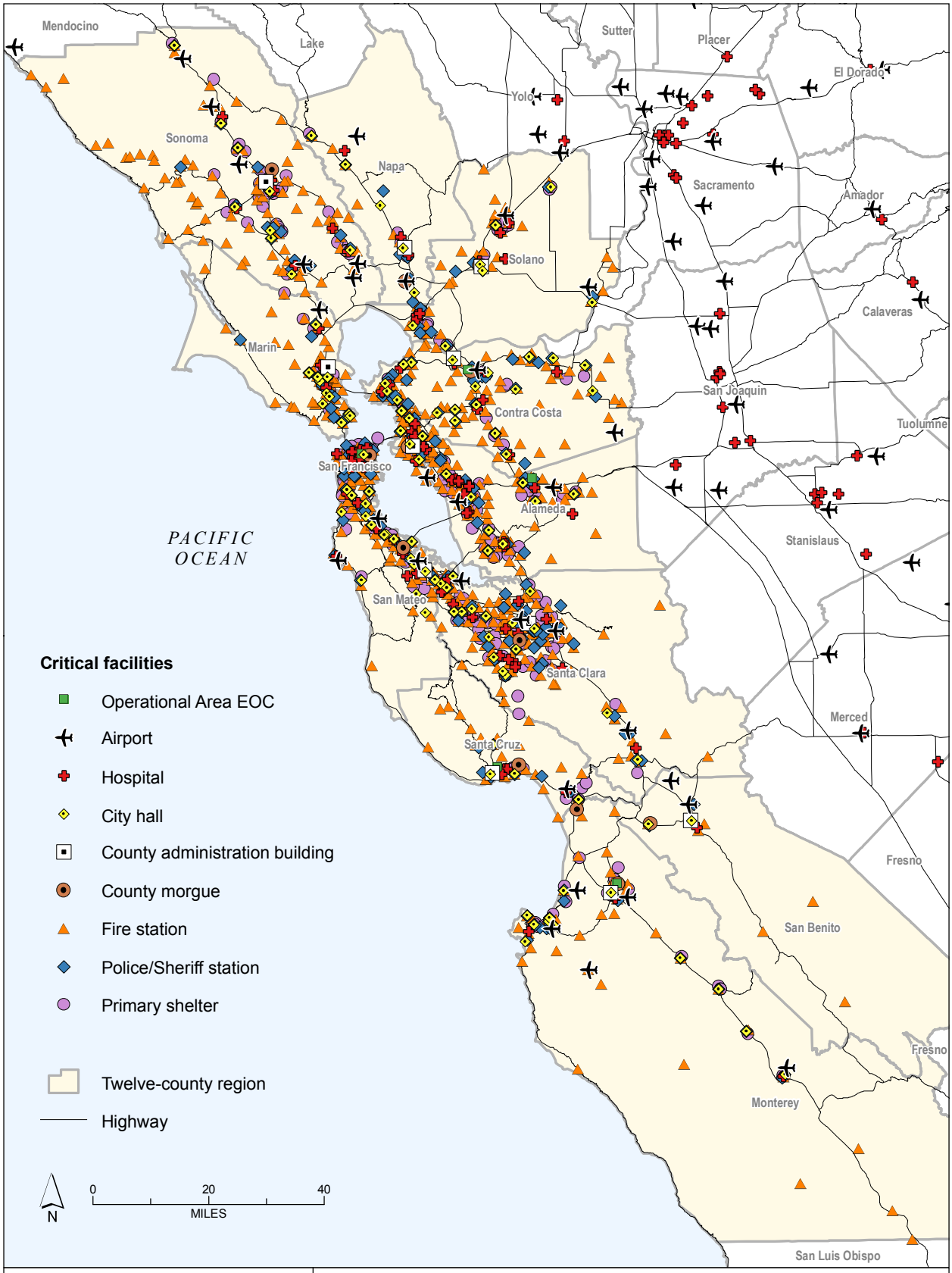
Map B-6
Caltrans Lifeline routes



URS Corp - Oakland CA - Raumann \\S021em2\gisdata\Projects\UASI\Maps\02debris\MapB-07_Additional_State_routes.mxd - 6/8/2011 @ 10:47:55 AM

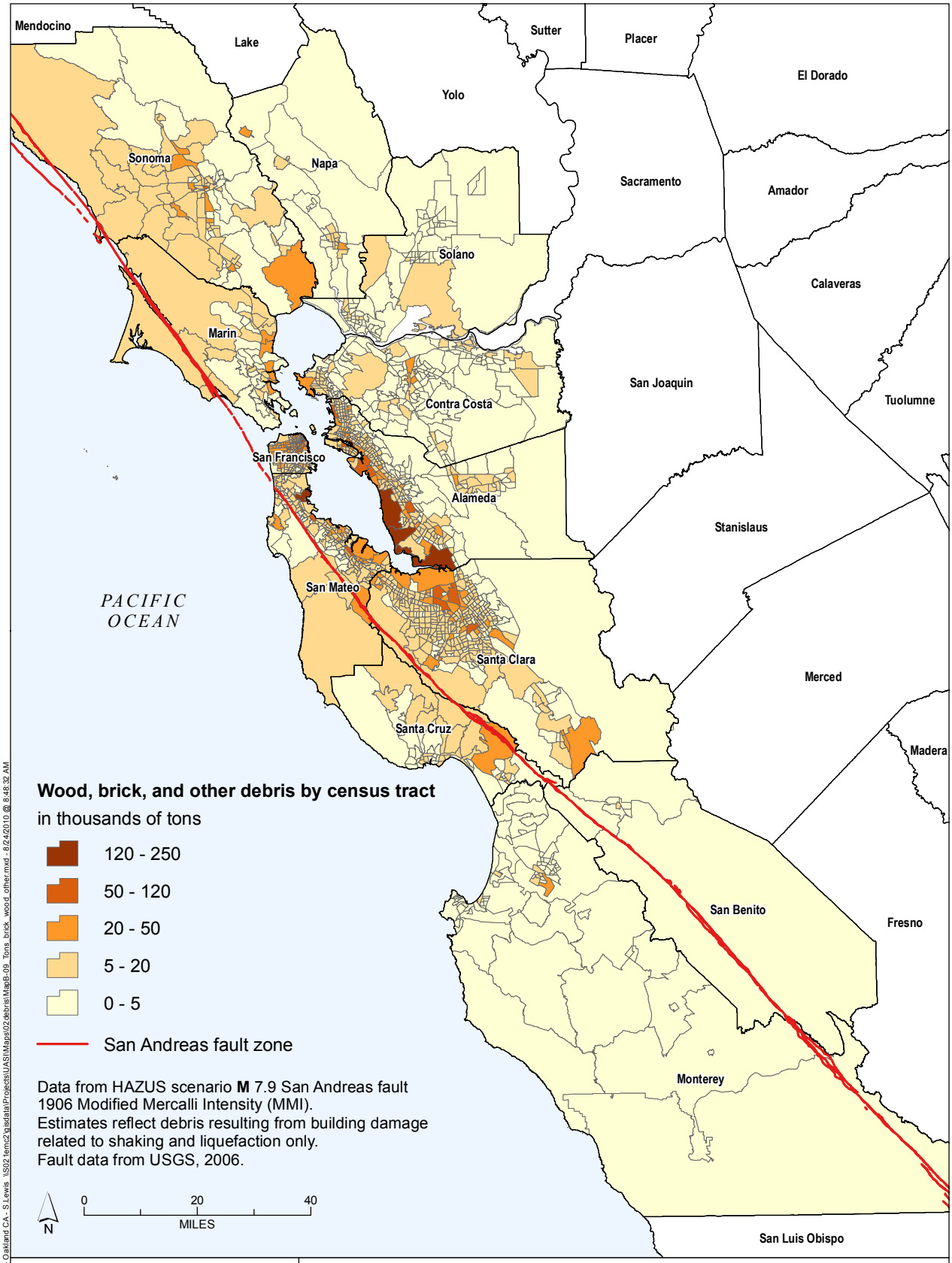
Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-7
Additional State priority transportation routes



Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

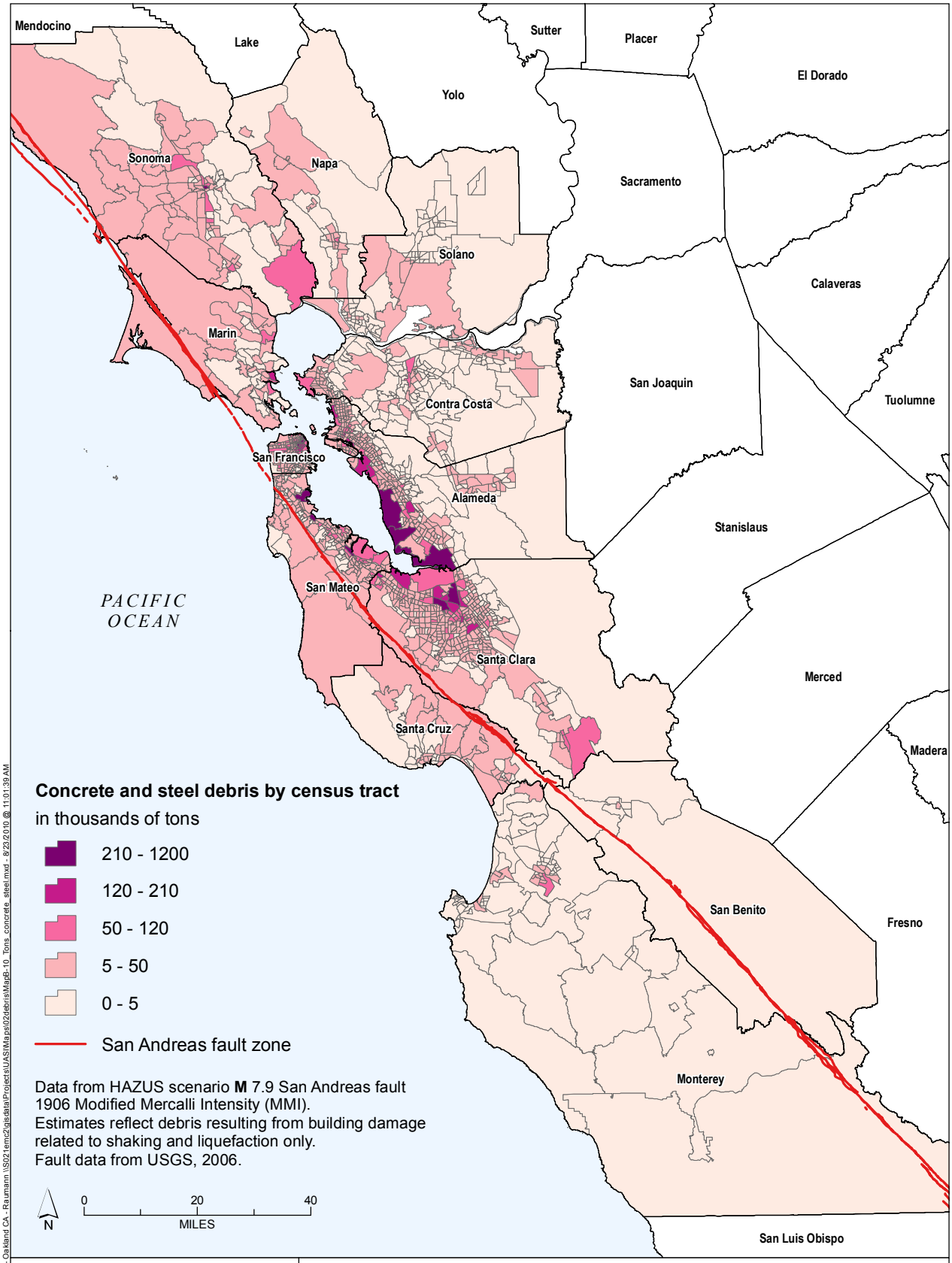
Map B-8
Critical facilities



URS Corp - Oakland CA - S.Lewis \\S0\2-temc2\gisdata\Projects\UASI\Maps\02-debris\MapB-09_Tons_brick_wood_other.mxd - 8/24/2010 @ 8:48:32 AM

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

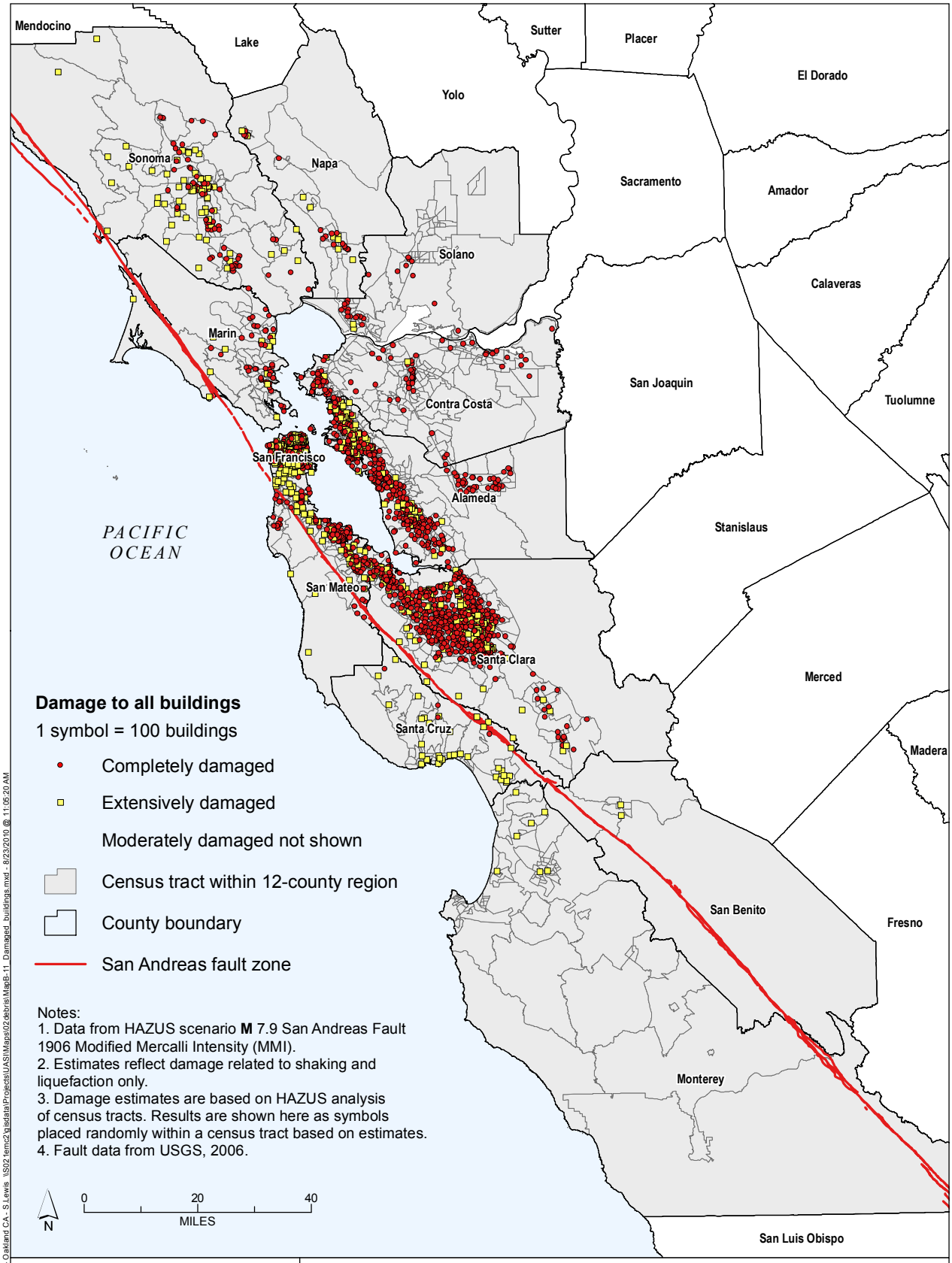
Map B-9
Tons of brick/wood and other debris



URS Corp - Oakland CA - Raumann \\S021emc2\gisdata\Projects\UASI\Maps\02debris\MapB-10_Tons_concrete_steel.mxd - 8/23/2010 @ 11:01:39 AM

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

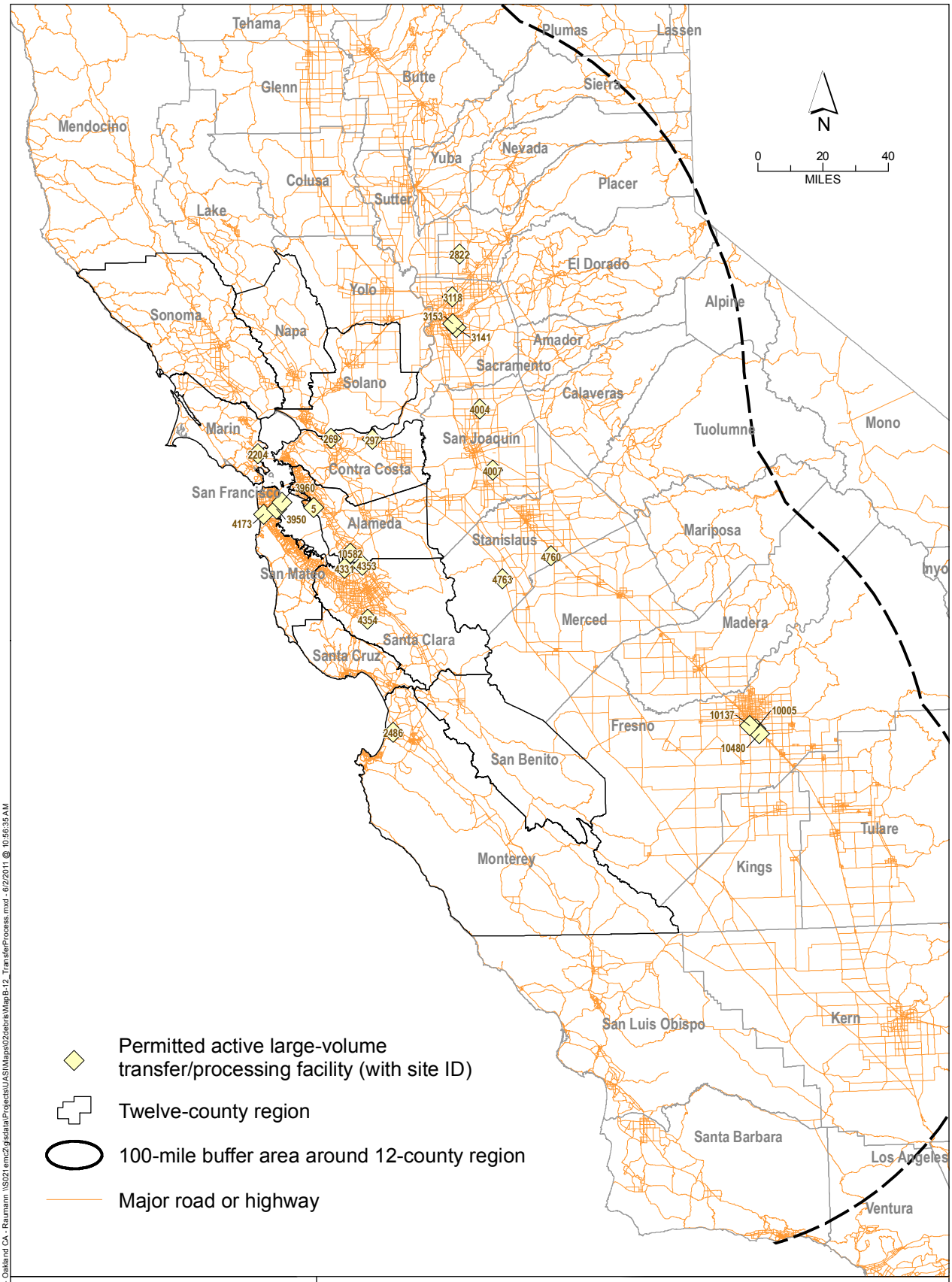
Map B-10
Tons of concrete/steel



URS Corp - Oakland CA - S Lewis \\Sf2\emc2\gisdata\Projects\UASI\Maps\02debris\MapB-11_Damaged_buildings.mxd - 8/23/2010 @ 11:05:20 AM

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

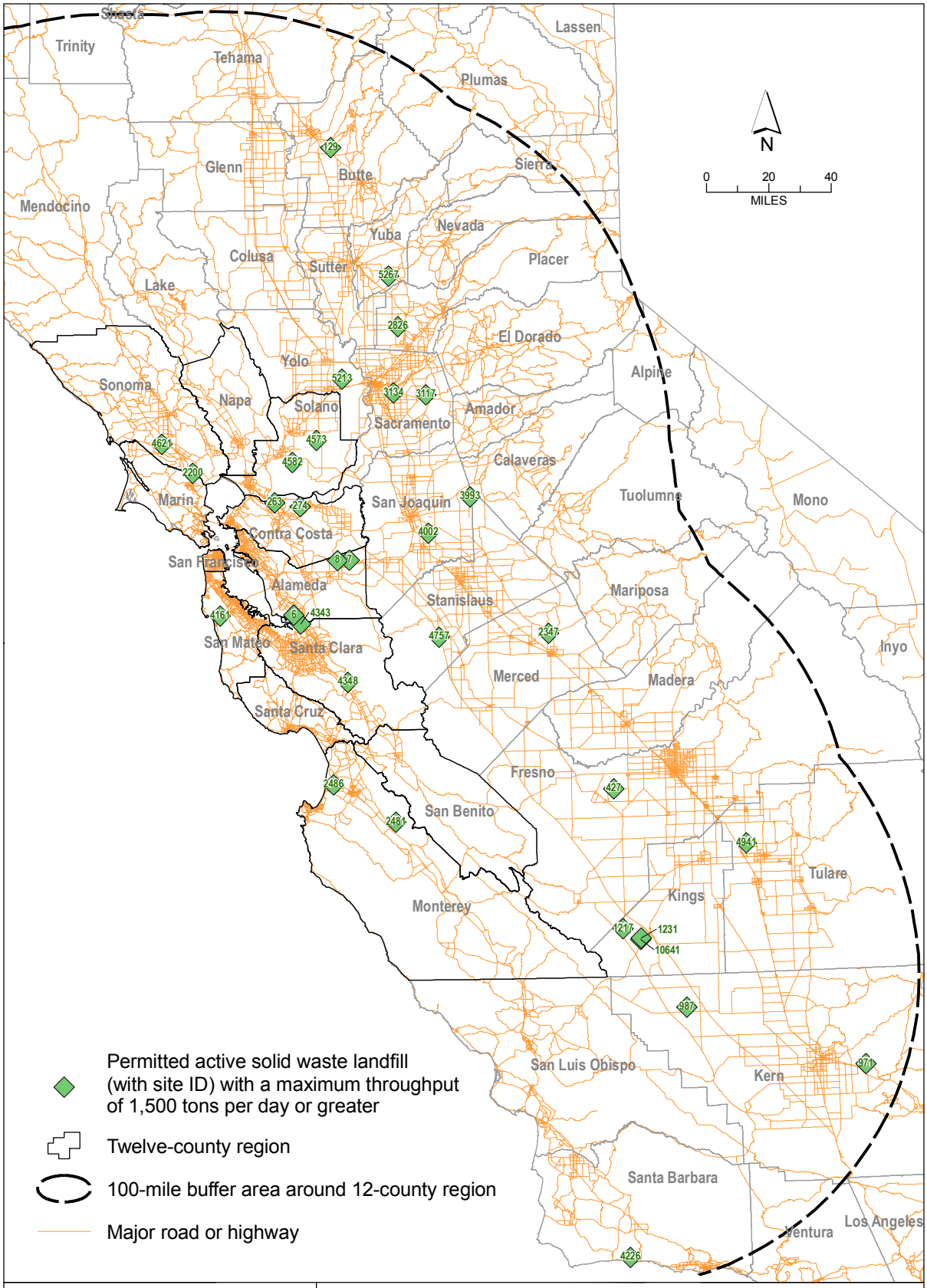
Map B-11
Completely and extensively damaged buildings



URS Corp - Oakland CA - Raumann \\S021emc2\gisdata\Projects\UASI\Maps\02debris\MapB-12_TransferProcess.mxd - 6/2/2011 @ 10:56:35 AM

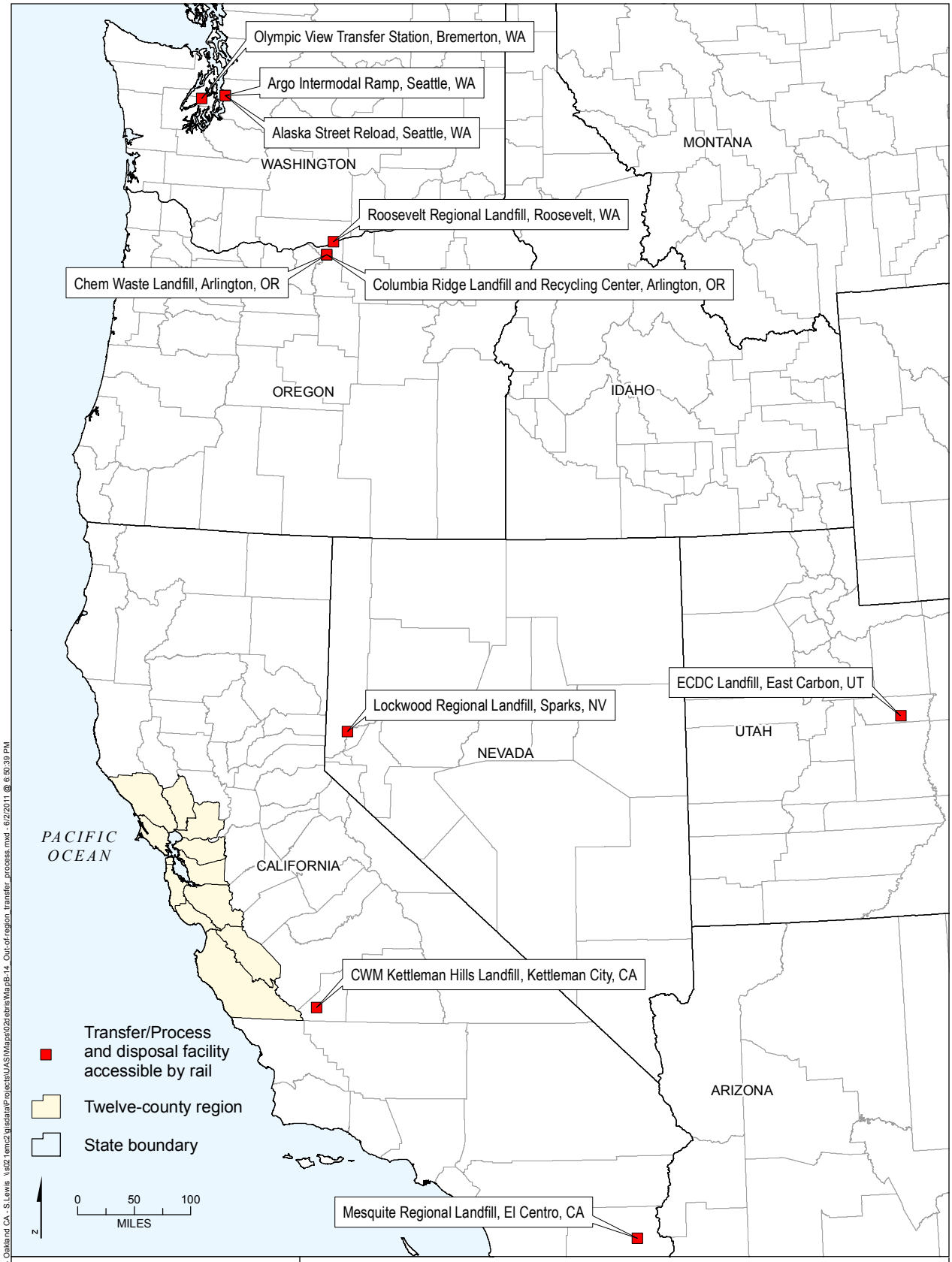
Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-12. Permitted active large-volume transfer/processing facilities within a 100-mile radius of the 12-county region



Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

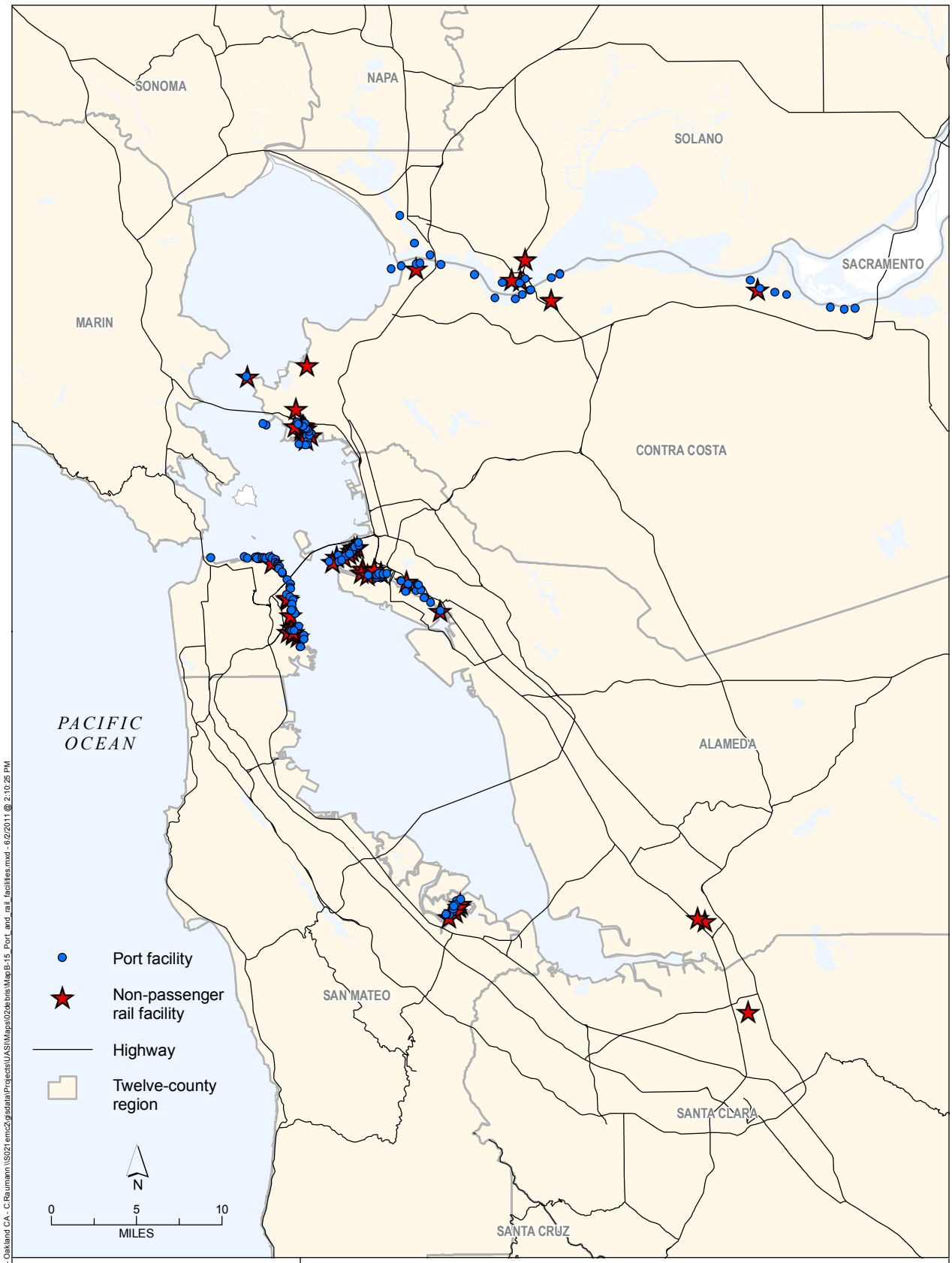
Map B-13. Permitted active solid waste landfills with a maximum throughput of 1,500 tons per day or greater within a 100-mile radius of the 12-county region



URS Corp - Oakland CA - S.Lewis \\sf02.lemc2.gisdata\Projects\UASI\Maps\02debris\MapB-14_Out-of-region_transfer_process.mxd - 6/2/2011 @ 6:50:39 PM

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-14
Out-of-region transfer/processing and disposal facilities accessible by rail or port



URS Corp - Oakland CA - C:\Raumann \\S021 emc2\gisdata\Projects\UASI\Maps\02debris\Map B-15_Port_and_rail_facilities.mxd - 6/2/2011 @ 2:10:25 PM

Bay Area UASI Program
Regional Catastrophic Preparedness Grant Program

Map B-15
Port and non-passenger rail facilities

This page intentionally left blank

Appendix C:
Overview of Authorities, Regulations, and Requirements that Affect Debris Removal Operations

This page intentionally left blank

Table of Contents

C.1 Local C-1

C.2 Regional C-1

C.3 State C-1

C.4 Federal C-3

This page intentionally left blank

Appendix C: Overview of Authorities, Regulations, and Requirements that Affect Debris Removal Operations

C.1 Local

Local debris removal authorities, regulations, and requirements are described in local emergency operations plans and the local plans developed under the Regional Catastrophic Preparedness Grant Program.

C.2 Regional

Regional debris removal authorities, regulations, and requirements are described as follows:

- The State is divided into Air Pollution Control Districts (APCD) and Air Quality Management Districts (AQMD), which are also called air districts. These agencies are county or regional governing authorities that have primary responsibility for controlling air pollution from stationary sources. Air districts with jurisdiction over the area encompassed by this Plan include North Sonoma, San Francisco Bay Area, Yolo-Solano, and Monterrey Bay Unified. Air districts regulate demolition activities resulting in the release of asbestos and other airborne pollutants and contaminants.
- Each Regional Water Quality Control Board (RWQCB), in coordination with the State Water Resources Control Board, makes critical water quality decisions for its region, including setting standards, issuing waste discharge requirements, determining compliance with those requirements, and taking appropriate enforcement actions. RWQCBs with jurisdiction over the counties covered by this Plan include Region 1: North Coast; Region 2: San Francisco Bay; Region 3: Central Coast; and Region 5: Central Valley. RWQCBs implement programs to regulate the discharge of pollutants to the ground and clean up pollution in the ground. These programs are targeted at preventing the release of hazardous substances from a variety of facilities, such as landfills and waste disposal sites, and cleaning up spills and leaks that may occur.

C.3 State

As described in the State Emergency Plan, emergency response operations in California are conducted in accordance with:

- California Emergency Services Act (Government Code [G.C.] §§ 8550–8668)
- State of California Emergency Plan (G.C. § 8560)
- California Disaster Assistance Act (G.C. §§ 8680–8692)
- Standardized Emergency Management System (G.C. §§ 8607–8607.2)

State authorities, regulations, and requirements that apply specifically to debris removal are:

- California Vehicle Code §§ 22650–22711 — authorization of removal of a vehicle by law enforcement to prevent the vehicle from obstructing emergency services or route traffic at the scene of a disaster.
- California Vehicle Code §§ 31301–31309 — requirements for loading and hauling hazardous materials.
- California Vehicle Code §§ 35000–35003 — requirements for movement of vehicle/loads exceeding statutory limitations on size, weight, and loading of vehicles.
- Fish and Game Code §§ 1600–1606 — Lake and Streambed Alteration Program — requirements for debris disposal that may pass into a river, stream, or lake.
- Fish and Game Code §§ 2050 et seq. — California Endangered Species Act — requires review by the Department of Fish and Game when debris removal, staging, or disposal may result in take of State-listed threatened, endangered, or candidate species.
- Public Resources Code §§ 21000–21176 — California Environmental Quality Act (CEQA) — requires lead and responsible agencies to consult with the Department of Fish and Game before conducting debris management activities that may affect fish and wildlife within the State. CEQA Guidelines can be found at 14 CCR §§ 15000–15387.
- Public Resources Code §§ 40000-41956 — California Integrated Waste Management Act of 1989 — mandates solid waste reduction goals for local governments.
- California Water Code § 13263 — applies to dischargers that discharge waste to land or to water. The disposal method may be either by agricultural or non-agricultural irrigation, ponds, landfills, monofills, or leachfields.
- 8 CCR § 1529 — regulations for the transportation, disposal, storage, and containment of asbestos.
- 14 CCR §§ 17380–17386 — regulations for transferring and processing construction and demolition debris and inert debris.
- 14 CCR §§ 17387–17390 — regulations for disposal of construction and demolition debris.
- 19 CCR §§ 2400–2450 — regulations establishing SEMS and requirements for use by state and local government agencies.
- 19 CCR §§ 2900–2999.5 — regulations implementing the state public assistance program, with specific regulations pertaining to eligibility of debris removal and demolition activities in 19 CCR § 2925 and § 2930, respectively.
- 22 CCR §§ 66263.10–66263.50 — regulations for handling and transporting hazardous waste statewide.
- 23 CCR §§ 2510–2601— regulations pertaining to water quality aspect of waste discharge to land.

- 23 CCR §§ 3900–3990 — regulations having to do with water quality control plans, policies, and guidelines.
- 27 CCR §§ 20005–23014 — consolidated regulations for the treatment, storage, processing, or disposal of solid waste.

C.4 Federal

Federal debris removal operations in support of local and State governments are governed by:

- Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act), 42 U.S.C. §§ 5121–5206 (2008)
- National Response Framework, which includes the Emergency Support Function annexes
- National Incident Management System

Federal authorities, regulations, and requirements that apply specifically to debris removal are:

- The Federal Emergency Management Agency (FEMA) Public Assistance Program provides funding to local, tribal, and State governments for extraordinary costs of disaster response and recovery, including debris removal. The program is authorized by the Stafford Act, and the implementing regulations are in 44 C.F.R. Part 206. Eligibility of debris removal operations is described in FEMA 325, Debris Management Guide.
- The Emergency Relief Program, 23 U.S.C. § 125 (2008), provides funding to local governments and State departments of transportation for repair of disaster-damaged highways that are part of the Federal Aid System.
- Section 404 of the Clean Water Act of 1977, 33 U.S.C. § 1344 (2008), establishes the basic structure for regulating discharges of pollutants into the waters of the United States. The act 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. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) to discharge dredged or fill material into waters of the United States.
- The Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451–1456 (2008), requires Federal agencies to be consistent in enforcing the policies of State coastal zone management programs when conducting or supporting activities that affect a coastal zone.
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. §§ 9601–9675 (2008), authorizes Federal response for the removal of hazardous materials incidents on a short-term basis only when actions may be taken to address releases or threatened releases requiring prompt response.
- Section 7(a)(2) of the Endangered Species Act of 1973, 16 U.S.C. § 1536(a)(2) (2008), requires Federal agencies to consult with the U.S. Fish and Wildlife

Service and the National Marine Fisheries Service to prevent or modify the 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.

- The Fish and Wildlife Coordination Act of 1934, 16 U.S.C. §§ 661–667 (2008), authorizes the U.S. Fish and Wildlife Service to administer programs for the planning, development, maintenance, and coordination of State wildlife resource conservation and rehabilitation. If a proposed project would destroy wildlife habitat or modify a natural stream or body of water, the act requires an evaluation of the proposed project's impact on fish and wildlife.
- The 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.
- The National Environmental Policy Act, 42 U.S.C. §§ 4321–4347 (2008), requires Federal agencies to assess the environmental effects of debris management activities and consider reasonable alternatives to those actions.
- Section 106 of the National Historic Preservation Act of 1966, 16 U.S.C. §§ 470f (2008), requires Federal agencies to take into account the effects a project will have on historic resources and allows the Advisory Council on Historic Preservation the opportunity to comment on the effects of the project.
- The Resource Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901 et seq. (2008), requires safe disposal of waste materials, promotes the recycling of waste materials, and encourages cooperation with local agencies. The act applies to the disposal of disaster-generated debris and is of particular concern when hazardous materials may be present.
- Sections 15, 19, and 20 of the Rivers and Harbors Appropriation Act of 1899, 33 U.S.C. §§ 401–406 (2008), 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.
- Section 103 of the Water Resources Development Act of 1976, 90 Stat. 2921, authorizes the USACE to collect and remove drift and debris from publicly maintained commercial harbors and surrounding land and water areas.

Appendix D:
Tables

This page intentionally left blank

Table of Contents

Table D-1. Types of debris. D-1
Table D-2. Categories and types of debris utilized by CalRecycle. D-3
Table D-3. Caltrans Lifeline routes in the Bay Area, by county. D-5
Table D-4. Additional State transportation priority routes. D-6
Table D-5. Critical facilities in the 12-county Bay Area region. D-7
Table D-6. Tonnage and volume of debris generated by the earthquake. D-8
Table D-7. Number of buildings in the 12-county Bay Area region that may require demolition after the earthquake. D-9
Table D-8. State authorities, regulations, and requirements that affect debris removal operations. D-10
Table D-9. Permitted active large-volume transfer/processing facilities with a maximum throughput of 1,500 tons per day or greater within a 100-mile radius of the 12-county region. D-13
Table D-10. Permitted active solid waste landfills with a maximum permitted throughput of 1,500 tons/day within a 100-mile radius of the 12-county region. D-16
Table D-11. Permitted active solid waste landfills within a 100-mile radius of the 12-county region. D-20
Table D-12. Out-of-region transfer/processing and disposal facilities accessible by rail. D-22
Table D-13. Non-passenger rail facilities. D-23
Table D-14. Port facilities. D-25

This page intentionally left blank

Appendix D: Tables

Table D-1. Types of debris.

Debris Type	Description
Construction and demolition	Typically, wood, bricks, rubble, drywall, roofing materials, tiles, insulation, and concrete. The material is generally inert (i.e., unlikely to cause pollution or environmental damage).
Sediment	Soil, mud, sand, and rock deposited on improved public property and rights-of-way by the disaster.
Vegetative	Whole trees, tree stumps, tree branches, tree trunks, and other leafy material.
Hanging limbs and hazardous tree stumps	Limbs and stumps greater than 24 inches in diameter located on improved public property or rights-of-way; must be picked up if the debris poses an immediate threat to public health and safety.
Hazardous waste	Waste that is regulated under RCRA (42 U.S.C. §§ 6901 et seq. [2008]) and contains properties that make it potentially harmful to human health or the environment. In regulatory terms, this type of waste is waste that appears on one of the following four hazardous waste lists or exhibits at least one of the following four characteristics: ignitability, corrosivity, reactivity, and toxicity. Examples of hazardous debris are: • RACM, such as friable ACM, non-friable ACM that has become friable, and non-friable ACM that is likely to become friable from the methods that are used for demolition, renovation, or disposal • Non-RACM, which refers to ACM that is non-friable, provided that the material is handled in such a way that the ACM remains non-friable • High-intensity discharge lamps • Used oil • Non-clean-wood ash • Waste tires • Lumber that has been pressure-treated with chromate copper arsenate
Household hazardous waste	Products and materials that are used and disposed of by residential consumers rather than by commercial or industrial consumers. Household hazardous waste includes motor oil and antifreeze, brake and transmission fluids, solvents, enamel, lead-based and latex paints, drain and oven cleaners, photochemicals, spot removers, wood preservatives, automobile tires and batteries, small aerosol cans, and outdoor gas grill propane tanks.
Universal waste	Waste materials not designated as hazardous waste, but containing materials that need to be prevented from free release into the environment, such as batteries, pesticides, and mercury-containing equipment.
Electronic waste (e-waste)	Electronics that contain hazardous materials such as cathode ray tubes, including computer monitors and televisions.
White goods	Household appliances, including ovens, stoves, washers, and dryers, and refrigerant-containing appliances, including refrigerators, freezers, and window air-conditioner units.
Brown goods	Furniture such as couches, mattresses, tables, and chairs.
Utility	Power transformers, utility poles, cable, and other utility-company material.
Vehicles and vessels	Vehicles and vessels that are damaged, destroyed, relocated, or lost as a result of the disaster.

Table D-1. Types of debris.

Debris Type	Description
Putrescent	Any debris that will decompose or rot, such as animal carcasses and other organic matter.
Regulated medical waste	Cultures and stocks of infectious agents, human pathological wastes, human blood and blood products, sharps (e.g., needles, blades), and animal wastes; does not include medical waste created at home.
Private property	Debris, generally construction and demolition debris, located on private property.

ACM = asbestos-containing material
Non-RACM = nonregulated asbestos-containing material
RACM = regulated asbestos-containing material
RCRA = Resource Conservation and Recovery Act of 1976
U.S.C. = U.S. Code

Table D-2. Categories and types of debris utilized by CalRecycle.

Debris Type	Description
Paper	• Uncoated Corrugated Cardboard • Paper Bags • Newspaper • White Ledger • Colored Ledger • Computer Paper • Other Office Paper • Magazines and Catalogs • Phone Books and Directories • Other Miscellaneous Paper • Remainder/Composite Paper
Glass	• Clear Glass Bottles and Containers • Green Glass Bottles and Containers • Brown Glass Bottles and Containers • Other Colored Glass Bottles and Containers • Flat Glass • Remainder/Composite Glass
Metal	• Tin/Steel Cans • Major Appliances • Used Oil Filters • Other Ferrous • Aluminum Cans • Other Nonferrous • Remainder/Composite Metal
Electronics	• Brown Goods • Computer-related Electronics • Other Small Consumer Electronics • Televisions and Other Items with CRTs
Plastic	• PETE Containers • HDPE Containers • Miscellaneous Plastic Containers • Trash Bags • Grocer and Other Merchandise Bags • Non-Bag Commercial and Industrial Packaging Film • Film Products • Other Film • Durable Plastic Items • Remainder/Composite Plastic

Table D-2. Categories and types of debris utilized by CalRecycle.

Debris Type	Description
Other Organic	• Food • Leaves and Grass • Prunings and Trimmings • Branches and Stumps • Agricultural Crop Residues • Manures • Textiles • Carpet • Remainder/Composite Organic
Inerts and Other	• Concrete • Asphalt Paving • Asphalt Roofing • Lumber • Gypsum Board • Rock, Soil, and Fines • Remainder/Composite Construction and Demolition
Household Hazardous Waste	• Paint • Vehicle and Equipment Fluids • Used Oil • Batteries • Remainder/Composite Household Hazardous
Special Waste	• Ash • Sewage Solids • Industrial Sludge • Treated Medical Waste • Bulky Items • Tires • Remainder/Composite Special Waste
Mixed Residue	• Mixed Residue

Table D-3. Caltrans Lifeline routes in the Bay Area, by county.

County	Interstate	U.S. Highway	State Route
Alameda	I-80 I-238 I-580 I-680 I-880	—	SR 24
Contra Costa	I-680	—	SR 24
Marin	—	U.S. 101	—
Monterey	—	U.S. 101	—
Napa	I-80	—	SR 12 SR 29 SR 121
San Benito	—	U.S. 101	—
San Francisco	I-80 I-280	U.S. 101	—
San Mateo	I-280	—	SR 92
Santa Clara	I-280 I-680	U.S. 101	—
Santa Cruz	—	—	SR 1 SR 17
Solano	I-80 I-680 I-780	—	SR 12
Sonoma	—	U.S. 101	SR 116 SR 121

I = Interstate
SR = State Route

Table D-4. Additional State transportation priority routes.

County	Additional State Transportation Priority Routes
Alameda	• North or south on I-880 to I-580 via I-238 or alternative surface streets and east towards the Livermore Valley or the Altamont • North or south on I-880 to I-580 to SR 84 and east towards the Livermore Valley or the Altamont
Contra Costa	• I-680 (north) to I-780 (north) to Benicia Bridge and north to I-80 toward Sacramento (central to eastern Contra Costa County) • I-80 to the Carquinez Bridge and north towards Sacramento (eastern Contra Costa County)
Marin	• U.S. 101 north • Difficult to identify alternative route due to terrain of the county
Monterey	• SR 68 south to U.S. 101 and south on U.S. 101 to a point where travel can occur to the east • County G17 south to U.S. 101 and south on U.S. 101 to a point where travel can occur to the east
Napa	• SRs 12/121 east to SR 20 south to either I-80 or east on SR 12 to I-80 and north towards Sacramento • SR 128 east to I-505 and north towards Sacramento
San Benito	• SR 25 south and south on U.S. 101 to a point where travel can occur to the east • SR 52 east to Los Banos
San Francisco	• SR 82 south to U.S. 101 and south on U.S. 101 to a point where it could cross east • U.S. 101 south to a point where travel can occur to the east
San Mateo	• SR 82 – El Camino Real south to U.S. 101 and south on U.S. 101 to a point where travel can occur to the east
Santa Clara	• U.S. 101 south to a point where travel can occur to the east • Monterey Road (parallel route to U.S. 101) to SR 152 east to Los Banos • Monterey Road to U.S. 101 and south on U.S. 101 to a point where travel can occur to the east
Santa Cruz	• U.S. 101 south to a point where travel can occur to the east • Difficult to identify alternative route due to terrain of the county
Solano	• SR 29 north to SR 37 and east to I-80
Sonoma	• U.S. 101 north • SR 116 east to SRs 12/121 east to SR 20 south to either I-80 or east on SR 12 to I-80 and north toward Sacramento

I = Interstate
SR = State Route

Table D-5. Critical facilities in the 12-county Bay Area region.

County/City	Number and Types of Critical Facilities							
	Emergency Operations Center	Airport	Hospital	City Hall/County Administration Building	County Morgue	Fire Station	Police/ Sheriff Station	Primary Shelter
Alameda County	1	3	23	15	1	98	25	35
Contra Costa County	1	2	9	20	1	75	30	9
Marin County	1	1	4	13	0	43	12	11
Monterey County	1	5	4	14	1	37	15	11
Napa County	1	2	3	6	1	10	5	3
San Benito County	1	2	1	3	1	7	3	0
San Francisco County	1	1	14	1	1	41	18	9
San Mateo County	1	2	11	21	1	59	22	17
Santa Clara County	1	4	15	16	1	93	17	54
Santa Cruz County	1	1	5	5	1	29	7	13
Solano County	1	2	7	8	1	34	8	13
Sonoma County	1	6	11	10	1	85	14	31
City of Oakland	1	1	5	1	0	26	8	3
City of San Jose	1	1	6	1	0	31	5	23

Table D-6. Tonnage and volume of debris generated by the earthquake.

	Tonnage (in thousands of tons)			Volume (in thousands of cubic yards)		
County/City	**Wood/ Brick/Other**	**Concrete/ Steel**	**Total**	**Wood/ Brick/Other**	**Concrete/ Steel**	**Total**
Alameda	3,600	7,300	**10,900**	7,100	7,300	**14,400**
Contra Costa	700	1,100	**1,800**	1,300	1,100	**2,400**
Marin	400	900	**1,300**	900	900	**1,800**
Monterey	200	300	**500**	400	300	**700**
Napa	200	400	**600**	400	400	**800**
San Benito	30	40	**70**	100	40	**140**
San Francisco	3,800	9,200	**13,000**	7,700	9,200	**16,900**
San Mateo	2,000	4,400	**6,400**	3,900	4,400	**8,300**
Santa Clara	3,600	8,100	**11,700**	7,100	8,100	**15,200**
Santa Cruz	300	500	**800**	600	500	**1,100**
Solano	200	300	**500**	300	300	**600**
Sonoma	800	1,700	**2,500**	1,700	1,700	**3,400**
Regional Totals	**15,830**	**34,240**	**50,070**	**31,500**	**34,240**	**65,740**
City of Oakland	1,100	2,400	3,500	2,200	2,400	4,600
City of San Jose	1,900	4,100	6,000	3,800	4,100	7,900

Source: URS HAZUS analysis (2009); conversion rates from the U.S. 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.

Table D-7. Number of buildings in the 12-county Bay Area region that may require demolition after the earthquake.

	Number of Buildings	
County/City	**Extensive Damage**	**Complete Damage**
Alameda	11,300	36,100
Contra Costa	1,400	8,400
Marin	1,400	4,500
Monterey	1,300	100
Napa	1,200	1,600
San Benito	300	20
San Francisco	18,600	16,300
San Mateo	8,200	16,600
Santa Clara	14,700	45,500
Santa Cruz	4,100	600
Solano	400	2,400
Sonoma	6,600	7,700
Regional Totals	**69,500**	**139,800**
City of Oakland	4,900	7,100
City of San Jose	8,100	26,900

Source: URS HAZUS analysis (2009)

Table D-8. State authorities, regulations, and requirements that affect debris removal operations.

	Regulation		Debris Operation			
Authority	**Name**	**Description**	**Debris Clearance**	**Debris Removal**	**Staging, Processing, and Disposal**	**Demolition**
California Department of Transportation	CCR, 22 CCR §§ 66263.10–66263.50	Regulates the handling and transportation of hazardous waste statewide	✓	✓	✓	✓
	22 CCR §§ 66263.10–66263.50	Regulates the handling and transportation of hazardous waste statewide	✓	✓	✓	✓
California Emergency Management Agency	California Emergency Services Act (GC, Division 1, Chapter 7)	Provides the legal framework for California Emergency Management, including the California State Emergency Plan, the declaration process, mutual aid, and SEMS	✓	✓	✓	✓
	California Disaster Assistance Act (GC, Division 1, Chapter 7.5)	Authorizes financial assistance to local government agencies for debris removal and demolition activities	✓	✓	✓	✓
	19 CCR §§ 2400-2450	Establishes SEMS and requirements for use by State and local government agencies	✓	✓	✓	✓
	19 CCR §§ 2900-2999.5	Implements the State public assistance program, with specific regulations pertaining to debris removal in 19 CCR § 2925 and demolition in 19 CCR § 2930	✓	✓	✓	✓
State Water Resources Control Board and Regional Water Quality Control Boards	CWC, Division 7, Chapter 4	Establishes authority of SWRCB and RWQCBs with respect to water quality planning and water discharge requirements			✓	
	23 CCR §§ 2510-2601	Regulates water quality aspect of waste discharge to land			✓	
	23 CCR §§ 3900-3990	Regulates water quality control plans, policies, and guidelines			✓	

Table D-8. State authorities, regulations, and requirements that affect debris removal operations.

	Regulation		Debris Operation			
Authority	**Name**	**Description**	**Debris Clearance**	**Debris Removal**	**Staging, Processing, and Disposal**	**Demolition**
Department of Motor Vehicles	CVC, Division 13, Chapter 5, Article 1	Regulates the transportation of hazardous materials	✓	✓		
	CVC, Division 11, Chapter 10, Article 1	Authorizes law enforcement authorities to remove vehicles so as not to obstruct emergency services or route traffic at the scene of a disaster	✓	✓		
	CVC, Division 15, Chapter 1	Regulates the movement of vehicles exceeding statutory limitations on size, weight, and load limits	✓	✓		
California Department of Fish and Game	California Endangered Species Act (FGC, Div 3, Chapter 1.5)	Requires review by DFG when debris removal, staging, or disposal may result in take of State-listed threatened, endangered, or candidate species		✓	✓	
	California Environmental Quality Act (Div 4, Chapters 1-6)	Requires lead and responsible agencies to consult with DFG before conducting debris management activities which may impact fish and wildlife of the State		✓	✓	
	Lake and Streambed Alteration Program (FGC, Div 2, Chapter 6)	Regulates debris disposal which may pass into a river, stream, or lake			✓	
Department of Toxic Substances Control	8 CCR §§ 1529	Enforces asbestos standards			✓	✓

Table D-8. State authorities, regulations, and requirements that affect debris removal operations.

	Regulation		Debris Operation			
Authority	**Name**	**Description**	**Debris Clearance**	**Debris Removal**	**Staging, Processing, and Disposal**	**Demolition**
California Department of Resources Recovery and Recycling	California Integrated Waste Management Act of 1989 (PRC, Div 30, Chapters 1-9)	Mandates solid waste reduction goals for local governments		✓	✓	✓
	14 CCR §§ 17380–17386	Regulates the transferring and processing of C&D debris and inert debris		✓	✓	✓
	14 CCR §§ 17387–17390	Regulates the disposal of C&D debris				✓
	27 CCR §§ 20005-23014	Regulates the treatment, storage, processing, or disposal of solid waste		✓	✓	

C&D = construction and demolition
CCR = California Code of Regulation
CVC = California Vehicle Code
DFG = California Department of Fish and Game

Table D-9. Permitted active large-volume transfer/processing facilities with a maximum throughput of 1,500 tons per day or greater within a 100-mile radius of the 12-county region.

County	Facility Name	Address	Max Permitted Throughput (Tons/Day)	Permitted Capacity (Tons/Day)	Total Acreage (Acres)	Waste Type	Nearest Highway Access
Alameda	Davis St. Transfer Station/Resource Recovery Complex	2615 Davis Street, San Leandro	5,600	9,600	53	mixed municipal, C&D, tires, wood waste, green materials	I-880
	Fremont Recycling & Transfer Station	41149 Boyce Road, Fremont	2,400	N/A	13.5	C&D, food wastes, green materials, inert, mixed municipal, other hazardous, tires	I-880
Contra Costa	Contra Costa TS & Recovery	951 Waterbird Way, Martinez	1,900	1,900	19	mixed municipal	I-780
	Recycling Center & Transfer Station	1300 Loveridge Road, Pittsburg	1,500	1,500	11.3	mixed municipal	SR-4
Fresno	Cedar Ave. Recycling & Transfer Station	3457 South Cedar Avenue, Fresno	3,100	N/A	15	C&D, green materials, industrial, inert, mixed municipal, wood waste	SR-99
	Sunset Wastepaper MRF & TS	2721 South Elm Avenue, Fresno	2,000	2,000	10	mixed municipal	SR-41, SR-99
	Kroeker Recycling Facility	4627 South Chestnut Avenue, Malaga	2,500	N/A	20	C&D, metals, wood waste	SR-99
Marin	Marin Sanitary Service Transfer Station	1060 Andersen Drive, San Rafael	2,640	2,640	8	C&D, other designated, wood waste	SR-101
Monterey	Monterey Regional Waste Management District/Marina Landfill	2 miles north of Marina on Del Monte Boulevard, Marina	1,500	N/A	15	N/A	SR-1
Placer	Western Placer Waste Management Authority MRF	3195 Athens Avenue, Lincoln	1,750	1,900	39.9	C&D, green materials, mixed municipal, other hazardous, wood waste	SR-65

Table D-9. Permitted active large-volume transfer/processing facilities with a maximum throughput of 1,500 tons per day or greater within a 100-mile radius of the 12-county region.

County	Facility Name	Address	Max Permitted Throughput (Tons/Day)	Permitted Capacity (Tons/Day)	Total Acreage (Acres)	Waste Type	Nearest Highway Access
Sacramento	North Area Transfer Station	4450 Roseville Road, North Highlands	2,400	2,400	23	C&D, industrial, mixed municipal, tires, wood waste, green materials	I-80, SR-99
	Elder Creek Recovery & Transfer Station	8642 Elder Creek Road, Sacramento	2,500	2,500	19	C&D, agricultural, wood waste, green materials, mixed municipal	SR-99, SR-50
	Sacramento Recycling & Transfer Station	8491 Fruitridge Road, Sacramento	2,500	N/A	18.9	mixed municipal	SR-99, SR-50
San Francisco	San Francisco Solid Waste Transfer & Recovery Center	501 Tunnel Avenue, San Francisco	3,000	5,000	18	C&D, green materials, industrial, mixed municipal, other hazardous, tires	I-280
	Recycle Central @ Pier 96	Pier 96, San Francisco	2,100	N/A	10	mixed municipal	I-280
San Joaquin	Central Valley Waste Services	1333 East Turner Road, Lodi	1,700	N/A	16	N/A	SR-99
	Forward Resource Recovery Facility	9999 North Austin Road, Manteca	8,668	8,668	33	N/A	SR-99
San Mateo	Shoreway Environmental Center	225 Shoreway Road, San Carlos	3,000	3,000	16	C&D, industrial, mixed municipal, tires	SR-101
Santa Clara	Sunnyvale MRF & Transfer Station	301 Carl Road, Sunnyvale	1,500	1,500	9	C&D, industrial, mixed municipal, tires	SR-237
	BRI's Recyclery	1601 Dixon Landing Road, San Jose	1,600	2,500	10	C&D, mixed municipal, tires, industrial, green materials	I-880
	Guadalupe Sanitary Landfill	15999 Guadalupe Mines Road, San Jose	3,650	N/A	N/A	N/A	SR-85

Table D-9. Permitted active large-volume transfer/processing facilities with a maximum throughput of 1,500 tons per day or greater within a 100-mile radius of the 12-county region.

County	Facility Name	Address	Max Permitted Throughput (Tons/Day)	Permitted Capacity (Tons/Day)	Total Acreage (Acres)	Waste Type	Nearest Highway Access
Stanislaus	Turlock Transfer	1100 South Walnut, Turlock	1,872	1,872	17	mixed municipal, C&D, tires, wood waste, industrial, agricultural	I-99
	Covanta Stanislaus, Inc.	4040 Fink Road, Crows Landing	1,700	3,200	16	mixed municipal	I-5

I = Interstate
SR = State Route
N/A = not available

Table D-10. Permitted active solid waste landfills with a maximum permitted throughput of 1,500 tons/day within a 100-mile radius of the 12-county region.

County	Landfill Name	Address	Max Permitted Throughput (Tons)	Max Permitted Capacity (Cubic Yards)	Disposal Acreage (Acres)	WDR Landfill Class	Waste Type	Nearest Highway Access
Alameda	Tri Cities Recycling & Disposal Facility	7010 Auto Mall Parkway, Fremont	2,346	19,271,000	115	II, III	asbestos, C&D, green materials, mixed municipal, sludge	I-880
	Altamont Landfill & Resource Recovery	10840 Altamont Pass Road, Livermore	11,500	62,000,000	472	II, III	ash, C&D, contaminated soil, green materials, industrial, mixed municipal, other designated, tires, shreds	I-580
	Vasco Road Sanitary Landfill	4001 North Vasco Road, Livermore	2,250	32,970,000	222	II, III	contaminated soil, mixed municipal, other designated, green materials, C&D	I-580
Butte	Neal Road Landfill	1023 Neal Rd, 1 mile east of SR 99, Chico	1,500	25,271,900	140	II, III	C&D, green materials, inert, metal, mixed municipal, sludge, tires, wood waste	SR-99
Contra Costa	Acme Landfill	950 Waterbird Way, Martinez	1,500	268,700	109	III	C&D, green materials	I-680
	Keller Canyon Landfill	901 Bailey Road, Pittsburg	3,500	75,018,280	244	II	mixed municipal, C&D, agricultural, sludge, other designated, industrial	SR-4
Fresno	American Avenue Disposal Site	18950 W American Avenue, Kerman	2,200	32,700,000	361	II, III	agricultural, asbestos, C&D, industrial, mixed municipal, tires, shreds	SR 145
Kern	Bakersfield Metropolitan (Bena) SLF	2951 Neumarkel Road, Caliente	4,500	53,000,000	229	III	C&D, industrial, mixed municipal	SR-58
	H.M. Holloway Landfill	13850 Holloway Road, Lost Hills	2,000	12,600,000	172.3	II, III	ash, inert, other designated, sludge	SR-43, SR-46

Table D-10. Permitted active solid waste landfills with a maximum permitted throughput of 1,500 tons/day within a 100-mile radius of the 12-county region.

County	Landfill Name	Address	Max Permitted Throughput (Tons)	Max Permitted Capacity (Cubic Yards)	Disposal Acreage (Acres)	WDR Landfill Class	Waste Type	Nearest Highway Access
Kings	Avenal Regional Landfill	201 North Hydril Road, Avenal	6,000	26,000,000	123.2	III	agricultural, C&D, deceased animals, industrial, inert, mixed municipal	I-5
	CWMI, KHF (MSW Landfill B-19)	35251 Old Skyline Road, Kettleman City	2,000	4,200,000	29	II, III	mixed municipal, deceased animals, industrial, other designated, sludge	I-5
	Chemical Waste Management, Inc. (B-17)	35251 Old Skyline Road, Kettleman City	2,000	18,400,000	62	III	mixed municipal	I-5
Marin	Redwood Sanitary Landfill	8950 Redwood Highway, Novato	2,300	19,100,000	222.5	III	mixed municipal, sludge, agricultural, C&D, asbestos, tires, ash, wood waste, other designated	SR-101
Merced	Highway 59 Disposal Site	SR 59, Merced	1,500	30,012,352	225	III	mixed municipal, green materials, wood waste, tires, other hazardous, other designated	SR-59
Monterey	Johnson Canyon Sanitary Landfill	31400 Johnson Canyon Road, Gonzales	1,547	13,834,328	96	III	agricultural, C&D, tires, sludge	SR-101
	Monterey Regional Waste Management District//Marina LF	2 miles north of Marina on Del Monte Blvd., Marina	3,500	49,700,000	315	III	agricultural, C&D, sludge, mixed municipal	SR-I
Placer	Western Regional Landfill	3195 Athens Road, Lincoln	1,900	36,350,000	231	II, III	ash, C&D, mixed municipal, sludge	SR-65
Sacra-mento	Sacramento County Landfill (Kiefer)	12701 Kiefer Blvd., Sloughhouse	10,815	117,400,000	660	III	mixed municipal, other designated, sludge, C&D	SR-16
	L and D Landfill Co.	8635 Fruitridge Road, Sacramento	2,540	6,031,055	157	II, III	asphalt shingles, C&D, green materials, industrial, inert, mixed municipal, other designated	SR-16

Table D-10. Permitted active solid waste landfills with a maximum permitted throughput of 1,500 tons/day within a 100-mile radius of the 12-county region.

County	Landfill Name	Address	Max Permitted Throughput (Tons)	Max Permitted Capacity (Cubic Yards)	Disposal Acreage (Acres)	WDR Landfill Class	Waste Type	Nearest Highway Access
San Joaquin	Foothill Sanitary Landfill	6484 North Waverly Road, Linden	1,500	138,000,000	674	III	agricultural, C&D, deceased animals, industrial, mixed municipal, tires, wood waste	SR-88
	Forward Landfill, Inc. (Unit 1)	9999 S. Austin Road, Manteca	8,668	51,040,000	354.5	I, II, III	agricultural, asbestos, ash, C&D, contaminated soil, green materials, industrial, mixed municipal, sludge, tires, shreds	SR-99
San Mateo	Ox Mountain Sanitary Landfill	2 miles northeast of Half Moon Bay off SR 92, Half Moon Bay	3,598	37,900,000	173	III	C&D, mixed municipal, sludge, asbestos, other designated, tires	SR-92
Santa Barbara	Tajiguas Sanitary Landfill	US 101; 23 miles west of Santa Barbara, Goleta	1,500	23,300,000	118	III	agricultural, C&D, industrial, asbestos, mixed municipal, sludge, tires	SR-101
Santa Clara	Newby Island Sanitary Landfill	1601 Dixon Landing Road, Milpitas	4,000	50,800,000	313	III	C&D, industrial, mixed municipal, sludge, tires, green materials, contaminated soil	I-880
	Kirby Canyon Recycle & Disp. Facility	910 Coyote Creek Golf Drive, Coyote	2,600	36,400,000	311	III	mixed municipal, industrial, C&D, tires, green materials	SR-82
Solano	Recology Hay Road Landfill	6426 Hay Road, Vacaville	2,400	37,000,000	256	II, III	agricultural, asbestos, ash, C&D, mixed municipal, sludge, tires	SR-113
	Potrero Hills Landfill	3675 Potrero Hills Lane, Suisun City	4,300	21,500,000	190	III	agricultural, ash, C&D, industrial, mixed municipal, sludge, tires	SR-12
Sonoma	Central Disposal Site	500 Meacham Road, Petaluma	2,500	19,779,250	172	III	agricultural, C&D, industrial, mixed municipal, tires, wood waste, other designated, sludge	SR-101
Stanislaus	Fink Road Landfill	4000 Fink Road, Crows Landing	2,400	14,500,000	164	II, III	agricultural, ash, C&D, industrial, mixed municipal, sludge, tires	I-5

Table D-10. Permitted active solid waste landfills with a maximum permitted throughput of 1,500 tons/day within a 100-mile radius of the 12-county region.

County	Landfill Name	Address	Max Permitted Throughput (Tons)	Max Permitted Capacity (Cubic Yards)	Disposal Acreage (Acres)	WDR Landfill Class	Waste Type	Nearest Highway Access
Yolo	Yolo County Central Landfill	County Road 28H & County Road 104, Davis	1,800	49,035,200	473	II, III	C&D, tires, sludge, mixed municipal, agricultural	I-80, SR-113
Yuba	Recology (Norcal) Ostrom Road LF Inc.	5900 Ostrom Road, Wheatland	3,000	43,467,231	225	II, III	agricultural, asbestos, ash, C&D, contaminated soil, industrial, mixed municipal, other designated, sludge, tires	SR-65

Table D-11. Permitted active solid waste landfills within a 100-mile radius of the 12-county region.

County	Landfill Name	Address
Alameda	Tri Cities Recycling & Disposal Facility	7010 Auto Mall Parkway, Fremont
	Altamont Landfill & Resource Recovery	10840 Altamont Pass Road, Livermore
	Vasco Road Sanitary Landfill	4001 North Vasco Road, Livermore
Butte	Neal Road Landfill	1023 Neal Road, 1 mile east of SR 99, Chico
Calaveras	Rock Creek Landfill	12021 Hunt Road, Milton
Colusa	Stonyford Disposal Site	Lodoga/Stonyford Road, Stonyford
Contra Costa	Acme Landfill	950 Waterbird Way, Martinez
	Keller Canyon Landfill	901 Bailey Road, Pittsburg
El Dorado	Union Mine Disposal Site	5700 Union Mine Road, El Dorado
Fresno	City of Clovis Landfill	15679 Auberry Road, Fresno
	Coalinga Disposal Site	30825 Lost Hills Road, Coalinga
	American Avenue Disposal Site	18950 W. American Avenue, Tranquility
Glenn	Glenn County Landfill Site	5700 County Road. 33, Artois
Kern	Shafter-Wasco Sanitary Landfill	17621 Scofield Avenue, Shafter
	Taft Sanitary Landfill	13351 Elk Hills Road, Taft
	McKittrick Waste Treatment Site	56533 Highway 58, McKittrick
	Bakersfield Metropolitan (Bena) SLF	2951 Neumarkel Road, Caliente
	H.M. Holloway Landfill	13850 Holloway Road, Lost Hills
Kings	Avenal Regional Landfill	201 North Hydril Road, Avenal
	CWMI, KHF (MSW Landfill B-19)	35251 Old Skyline Road, Kettleman City
	Chemical Waste Management, Inc., Unit B-17	35251 Old Skyline Road, Kettleman City
Lake	Eastlake Sanitary Landfill	16015 Davis Avenue, Clearlake
Madera	Fairmead Solid Waste Disposal Site	21739 Road 19 / Avenue 22 at Road 19, Chowchilla
Marin	Redwood Sanitary Landfill	8950 Redwood Highway, Novato
Mariposa	Mariposa County Sanitary Landfill	Dump Road, Mariposa
Merced	Highway 59 Disposal Site	SR 59, Merced
	Billy Wright Disposal Site	Billy Wright Road, Los Banos
Monterey	Johnson Canyon Sanitary Landfill	31400 Johnson Canyon Road, Gonzales
	Crazy Horse Sanitary Landfill	350 Crazy Horse Canyon Road, Salinas
	Monterey Regional Waste Management District//Marina LF	2 miles north of Marina on Del Monte Blvd., Marina
Napa	Clover Flat Landfill	4380 Clover Flat Road, Calistoga
Placer	Western Regional Landfill	3195 Athens Road, Lincoln
Sacramento	Sacramento County Landfill (Kiefer)	12701 Kiefer Blvd., Sloughhouse
	L and D Landfill Co	8635 Fruitridge Road, Sacramento

Table D-11. Permitted active solid waste landfills within a 100-mile radius of the 12-county region.

County	Landfill Name	Address
San Benito	John Smith Road Class III Landfill	2650 John Smith Road, Hollister
San Joaquin	Foothill Sanitary Landfill	6484 North Waverly Road, Linden
	Forward Landfill, Inc.	9999 South Austin Road, Manteca
	North County Landfill	17900 East Harney Lane, Victor
San Luis Obispo	City of Paso Robles Landfill	SR 46, Paso Robles
	Cold Canyon Landfill Solid Waste DS	2268 Carpenter Canyon Rd, San Luis Obispo
	Chicago Grade Landfill	2290 Homestead Road, Templeton
San Mateo	Ox Mountain Sanitary Landfill	2 miles northeast of Half Moon Bay off SR 92, Half Moon Bay
Santa Barbara	Vandenberg AFB Landfill	Vandenberg Air Force Base
	Tajiguas Sanitary Landfill	US 101; 23 miles west of Santa Barbara, Goleta
	Santa Maria Regional Landfill	2065 East Main Street, Santa Maria
	City of Lompoc Sanitary Landfill	700 South Avalon Road, Lompoc
Santa Clara	Pacheco Pass Landfill Recology (Norcal)	3675 Pacheco Pass Highway, San Felipe
	City of Palo Alto Refuse Disposal Site	2830 Embarcadero Road, Palo Alto
	Zanker Material Processing Facility	675 Los Esteros Road, San Jose
	Newby Island Sanitary Landfill	1601 Dixon Landing Road, Milpitas
	Zanker Road Class III Landfill	705 Los Esteros Road, San Jose
	Kirby Canyon Recycle & Disp. Facility	910 Coyote Creek Golf Drive, Coyote
	Guadalupe Sanitary Landfill	15999 Guadalupe Mines Road, San Jose
Santa Cruz	City of Santa Cruz Sanitary Landfill	605 Dimeo Lane, Santa Cruz
	City of Watsonville Landfill	730 San Andreas Road, Watsonville
	Buena Vista Drive Sanitary Landfill	150 Roundtree Lane (Office), Watsonville
Solano	Hay Road Landfill, Inc. (B + J Landfill)	6426 Hay Road, Vacaville
	Potrero Hills Landfill	3675 Potrero Hills Lane, Suisun City
Sonoma	Central Disposal Site	500 Meacham Road, Petaluma
Stanislaus	Fink Road Landfill	4000 Fink Road, Crows Landing
	Bonzi Sanitary Landfill	2650 West Hatch Road, Modesto
Tehama	Tehama County/Red Bluff Landfill	19995 Plymire Road; 2 Mi NW of Red Bluff, Red Bluff
Tulare	Teapot Dome Disposal Site	Avenue 128 and Road 208, Porterville
	Woodville Disposal Site	Road 152 at Avenue 198; 10 miles southeast of Tulare, Tulare
	Visalia Disposal Site	Road 80 at Avenue 332, Visalia
Yolo	Yolo County Central Landfill	County Road 28H & County Road 104, Davis
	Univ. of CA Davis Sanitary Landfill	West End of UCD Campus on County Rd 98, Davis
Yuba	Recology (Norcal) Ostrom Road LF Inc.	5900 Ostrom Road, Wheatland

Table D-12. Out-of-region transfer/processing and disposal facilities accessible by rail.

Name of Facility	Address	Phone	Accepted Waste
Mesquite Regional Landfill	Adjacent to Mesquite Gold Mine, east of Glamis, CA	(760) 337-5552	Municipal Solid Waste
Roosevelt Regional Landfill	500 Roosevelt Grade Rd, Roosevelt, WA 99356	(800) 275-5641	Municipal Solid Waste
CWM Kettleman Hills Landfill	35251 Old Skyline Road, Kettleman City, CA 93239	(559) 386-9711	CERCLA–approved, TSCA and RCRA permitted, Class I, II, and III
Lockwood Regional Landfill	2401 Canyon Way, Sparks, NV 89434	(775) 329-8822	Unknown
Chemical Waste Management Landfill	17629 Cedar Springs Lane, Arlington, OR 97812	(541) 454-2030	TSCA, RCRA, Non-RCRA, CERCLA, CAMU-eligible Materials
Columbia Ridge Landfill and Recycling Center	18177 Cedar Springs Lane, Arlington, OR 97812	(541) 454-2030	Municipal Solid Waste, Non-Hazardous Special Waste, Asbestos
Argo Intermodal Ramp	4700 Denver Avenue S, Seattle, WA 98134	(206) 764-1445	Unknown
Olympic View Transfer Station	9300 SW Barney White Rd, Bremerton, WA 98312	(360) 674-2297	Municipal Solid Waste, Non-Hazardous Special Waste, Scrap Metal, Tires
Alaska Street Reload	70 South Alaska St., Seattle, WA 98134-2353	(206) 763-6641	Lead, RCRA Subtitle C Landfills
ECDC Landfill	1111 W Hwy 23, East Carbon, UT 84520	(435) 888-4451	Non- RCRA

Table D-13. Non-passenger rail facilities

Name	Address	Use	Comment
Benicia Port Terminal	1007 Bayshore Rd., Benicia, CA 94510	Cargo	Motor vehicles
Wickland Oil Terminals	90 San Pablo Ave., Crockett, CA 94525	Cargo	Petroleum products
SP Warm Springs Vehicle Ramp	4161 Ingot St., Fremont, CA 94538	Cargo	Motor vehicles
Truck-Rail Handling Inc.	44900 Industrial Dr., Fremont, CA 94538	Cargo	Chemicals
UP Milpitas Vehicle Ramp	4161 Ingot St., Fremont, CA 94538	Cargo	Motor vehicles
SP Benicia Bayshore Vehicle Ramp	Martinez, CA 94553	Cargo	Motor vehicles
SP Benicia Industrial Way Vehicle	Martinez, CA 94553	Cargo	Motor vehicles
Wickland Oil Martinez	2801 Waterfront Rd., Martinez, CA 94553	Cargo	Crude petroleum
7th St. Container Terminal	4035 7th St., Oakland, CA 94607	Cargo	Container cargo
APL Container Terminal	1600 Ferro St., Oakland, CA 94607	Cargo	Container cargo
Charles P. Howard Terminal	95 Market St., Oakland, CA 94607	Cargo	Container cargo
Maersk Line Terminal	1425 Maritime Street, Oakland, CA 94607	Cargo	Container cargo
Matson Container Terminal	4035 7th St., Oakland, CA 94607	Cargo	Container cargo
Ninth Avenue Terminal	375 8th Ave., Oakland, CA 94607	Cargo	Container cargo
Sea-Land Terminal	909 Maritime Street, Oakland, CA 94607	Cargo	Container cargo
Tidewater Sand & Gravel	Tidewater Ave., Oakland, CA 94601	Cargo	Minerals and other dry bulk materials
TransBay Terminal	2500 7th Street, Oakland, CA 94607	Cargo	Container cargo
TransPacific Terminal	1999 Middle Harbor Rd., Oakland, CA 94607	Cargo	Container cargo
UP Oakland Vehicle Ramp	1504 Middle Harbor Rd., Oakland, CA 94607	Cargo	Motor Vehicles
Yusen Container Terminal	2500 7th Street, Oakland, CA 94607	Cargo	Container cargo
SP Oakland TOFC/COFC	Middle Harbor Rd., Oakland, CA 94607	Cargo	Container cargo
UP Oakland TOFC/COFC	N St., Oakland, CA 94607	Cargo	Container cargo
Diablo Services	3rd St., Pittsburg, CA 94565	Cargo	Minerals and other dry bulk materials
Bell Marine Co	876 Harbor Blvd., Redwood City, CA 94063	Cargo	Minerals and other dry bulk materials
Cargill Salt	295 Seaport Blvd., Redwood City, CA 94063	Cargo	Minerals and other dry bulk materials
RMC Lonestar Cement	Redwood City Cement Terminal, Redwood City, CA	Cargo	Cement
Seaport Petroleum	625-775 Seaport Blvd., Redwood City, CA	Cargo	Petroleum products

Table D-13. Non-passenger rail facilities

Name	Address	Use	Comment
Arco Products Co.	1306 Canal Blvd., Richmond, CA 94804	Cargo	Petroleum products
BNSF Richmond Canal Blvd. Vehicle	Canal St., Richmond, CA 94804	Cargo	Motor vehicles
BNSF Richmond TOFC/COFC	303 Garrard S. Blvd., Richmond, CA 94801	Cargo	Container cargo
BNSF Richmond Wharf St. Vehicle Ramp	303 South Garrard Blvd., Richmond, CA 94801	Cargo	Motor vehicles
GATX Richmond Terminal	1040 Canal Blvd., Richmond, CA 94804	Cargo	Petroleum products
Matlack Bulk Intermodal	2780 Goodrick Rd., Richmond, CA 94801	Cargo	Chemicals
Paktank Corp. Richmond Terminal	2101 Western Dr., Richmond, CA 94801	Cargo	Petroleum products
Port of Richmond Terminal #3	1411 Harbour Way South, Richmond, CA 94804	Cargo	Container cargo
Texaco Refining & Marketing	100 Cutting Blvd., Richmond, CA 94804	Cargo	Petroleum products
Time Oil Co.	402 Wright Ave., Richmond, CA 94804	Cargo	Petroleum products
Levin-Richmond Terminal Corp.	100 Cutting Blvd., San Francisco, CA	Cargo	Metal products
Mission Rock Terminal	The Embarcadero, San Francisco, CA	Cargo	Food products
N Container Terminal	875 Marin St., San Francisco, CA 94124	Cargo	Container cargo
Pier 27 Terminal	The Embarcadero, San Francisco, CA	Cargo	Pulp and paper products
Pier 48 Terminal	The Embarcadero, San Francisco, CA	Cargo	Other breakbulk cargo not classified
Pier 70 Terminal	Pier 70, San Francisco, CA	Cargo	Motor vehicles
Pier 90 Grain Terminal	Pier 90, San Francisco, CA	Cargo	Grain
Pier 92 Dry Bulk Terminal	Pier 92, San Francisco, CA	Cargo	Dry edibles
S Container Terminal	Pier 94, San Francisco, CA	Cargo	Container cargo

Table D-14. Port facilities.

Name	Address	City	State	Zipcode	Owner
Alameda Gateway Pier No. 2	2900 Main Street	Alameda	CA		Alameda Gateway, Ltd.
Alameda Gateway Pier No. 4	2900 Main Street	Alameda	CA		Alameda Gateway, Ltd.
Alameda Gateway Reefer Pier	2900 Main Street	Alameda	CA		U.S. Government
Alameda Gateway, East Pier No. 5	2900 Main Street	Alameda	CA		Alameda Gateway, Ltd.
Dutra Construction Co. Wharf	2199 Clement Avenue	Alameda	CA		Dutra Construction Co.
Encinal Terminals, Berth 5	1521 Buena Vista Avenue	Alameda	CA		Encinal Terminals
Encinal Terminals, Berths 3 and 4	1521 Buena Vista Avenue	Alameda	CA		Encinal Terminals
Stone Boat Yard Wharf	2517 Blanding Avenue	Alameda	CA		William & Grace Bodle
United States Coast Guard Alameda Station	Dennison St.	Alameda	CA	94501	U.S. Government
Fulton Shipyard Pier	307 Fulton Shipyard Road	Antioch	CA		Fulton Shipyard, Inc.
Gaylord Container Corp., California Mill	2301 Wilbur Avenue	Antioch	CA		Gaylord Container Corp.
Georgia-Pacific Corp., Antioch Plant Wharf	801 Minaker Drive	Antioch	CA		Georgia-Pacific Corp.
Tosco Refinery Corp., Avon Refinery, Bar	No Address	Avon	CA	94553	Tosco Refining Corp.
Tosco Refining Corp., Avon Refinery, Tan	No Address	Avon	CA	94553	Tosco Refining Corp.
Benicia Port Terminal Co. Wharf No. 95	No Address	Benicia	CA	94553	Benicia Industries, Inc.
Exxon Company, U.S.A., Benicia Refinery	3400 East Second St.	Benicia	CA		Exxon Company, U.S.A.
Sanders Towboat Service, Inc. Dock	201 East Fifth St.	Benicia	CA		City of Benicia
California and Hawaiian Sugar Co., Berth	830 Loring Avenue	Crockett	CA		California and Hawaiian Sugar Co.
U.S. Coast Guard Station East Fort Baker	3550 West Pacific Ave.	Fort Baker	CA		U.S. Government.
Pacific Refining Co. Hercules Wharf	4901 San Pablo Ave	Hercules	CA		Pacific Refining Co.
Martinez Municipal Pier	111 Tarantino Dr	Martinez	CA	94553	City of Martinez
Martinez Terminals, Ltd. Wharf	2801 Waterfront Road	Martinez	CA		Martinez Terminals, Ltd.
Shell Oil Co., Martinez Refinery Wharf	1800 Marina Vista Drive	Martinez	CA		Shell Oil Company

Table D-14. Port facilities.

Name	Address	City	State	Zipcode	Owner
Tosco Refining Corp., Amorco Lower Wharf	No Address	Martinez	CA	94553	Tosco Refining Corp.
Tosco Refining Corp., Amorco Upper Wharf	No Address	Martinez	CA	94553	Tosco Refining Corp.
ConAgra Flour Milling Co. Oakland Plant	2201 E. 7th Street	Oakland	CA		City of Oakland
Middle Harbor Container Terminal, Berths	1395 Middle Harbor Rd.	Oakland	CA	94607	City of Oakland
Ninth Avenue Terminal, Berths 82, 83	Foot of Ninth Avenue	Oakland	CA		City of Oakland
Pacific Dry Dock and Repair	1441 Embarcadero	Oakland	CA		City of Oakland
Pacific Dry Dock and Repair Co., Center	1441 Embarcadero	Oakland	CA		City of Oakland
Pacific Dry Dock and Repair Co., East Pi	321 Embarcadero	Oakland	CA		City of Oakland
Pacific Dry Dock and Repair Co., East Wharf	1551 Embarcadero	Oakland	CA	94606	City of Oakland
Pacific Dry Dock and Repair Co., West Pi	321 Embarcadero	Oakland	CA		City of Oakland
Port of Oakland Bay Bridge Terminal		Oakland	CA		U.S. Government and City
Port of Oakland Outer Harbor Carnation		Oakland	CA		City of Oakland
Port of Oakland Outer Harbor Container T	1425 Maritime Street	Oakland	CA		City of Oakland
Port of Oakland Outer Harbor Container T	707 Ferry Street	Oakland	CA		City of Oakland
Port of Oakland Outer Harbor Container Terminal	1195 Maritime Street	Oakland	CA		City of Oakland
Port of Oakland Outer Harbor Container Terminal	909 Ferry Street	Oakland	CA		City of Oakland
Port of Oakland Seventh Street Public Co	4949 Seventh Street	Oakland	CA		City of Oakland
Port of Oakland Seventh Street Public Co	5190 Seventh Street	Oakland	CA		City of Oakland
Port of Oakland Seventh Street Terminal	3050 Seventh Street	Oakland	CA		City of Oakland
Port of Oakland, Charles P. Howard Container Terminal	530 Water St Oakland	Oakland	CA	94607	City of Oakland
Port of Oakland, Engine 2 Fireboat Dock	100 Jack London Square.	Oakland	CA		City of Oakland
Port of Oakland, Kaiser Wharf and Pier	7th St Oakland	Oakland	CA	94607	City of Oakland
Port of Oakland, Livingston Street Pier	1995 Embarcadero	Oakland	CA		City of Oakland

Table D-14. Port facilities.

Name	Address	City	State	Zipcode	Owner
Schnitzer Steel Industries, 6th Street Pier	Estuary	Oakland	CA	94607	Schnitzer Steel Industries
Schnitzer Steel Industries, 7th Street Pier	Estuary	Oakland	CA	94607	Schnitzer Steel Industries
Schnitzer Steel Industries, Bulkhead Wharf	Estuary	Oakland	CA	94607	Schnitzer Steel Industries
Tidewater Sand & Gravel Co. Wharf	4501 Tidewater Avenue	Oakland	CA		James, Joel, and William
Unocal San Francisco Refinery Wharf	No Address	Oleum	CA	94572	Unocal Refining & Marketing
Defense Fuel Supply Center Support Point	Carquinez Scenic Dr.	Ozol	CA	94525	Defense Logistics Agency
Diablo Service Corp., Pittsburg Wharf	595 East Third Street.	Pittsburg	CA		Tosco Corp.
Dow Chemical Co., Pittsburg Plant Wharf	Loveridge Road	Pittsburg	CA		Dow Chemical Co.
Pacific Gas and Electric Co., Delta Power	696 West Tenth Street	Pittsburg	CA		Pacific Gas and Electric
USS-Posco Industries, Pittsburg Wharf	900 Loveridge Road	Pittsburg	CA		USS-Posco Industries
Tosco Refining Corp., Port Costa Wharf	Carquinez Scenic Dr.	Port Costa	CA	94525	Tosco Refining Corp.
Bell Marine Company Wharf		Redwood City	CA		Bell Marine Company, Inc.
Leslie Salt Co., Salt Loading Wharf	Chesapeake Dr.	Redwood City	CA		Leslie Salt Co., A Cargil
Lockheed Shipbuilding, Inc. Redwood City		Redwood City	CA		U.S. Government
Port of Redwood City LASH Barge		Redwood City	CA		Port of Redwood City
Port of Redwood City, Geological Survey,		Redwood City	CA		Port of Redwood City
Port of Redwood City, Wharf No. 3		Redwood City	CA		Port of Redwood City
Port of Redwood City, Wharf No. 5	625-775 Seaport Blvd.	Redwood City	CA		Port of Redwood City
Port of Redwood City, Wharves Nos. 1 and 2	625-775 Seaport Blvd.	Redwood City	CA		Port of Redwood City
Redwood City Marine Research and Education		Redwood City	CA		Leslie Salt Co., A Cargil
ARCO Products Co., Richmond Barge Dock	1306 Canal Boulevard	Richmond	CA		ARCO Products Co., Division
ARCO Products Co., Richmond Tanker Dock	1306 Canal Boulevard	Richmond	CA		ARCO Products Co., Division
Cal-Coast Marine Wharf	310 West Cutting Boulevard	Richmond	CA		Cal-Coast Marine, Inc.

Table D-14. Port facilities.

Name	Address	City	State	Zipcode	Owner
Castrol, Richmond Wharf	801 Wharf Street	Richmond	CA		Castrol, Inc.
Chevron U.S.A. Inc., Richmond Long Wharf	Richmond Long Wharf	Richmond	CA	94802	Chevron U.S.A. Inc.
Chevron U.S.A. Inc., Richmond Long Wharf	Richmond Long Wharf	Richmond	CA	94802	Chevron U.S.A. Inc.
Gold Bond Building Products Division	1040 Canal Boulevard	Richmond	CA		Gold Bond Building Products
Levin-Richmond Terminal Corporation	402 Wright Avenue	Richmond	CA		Levin-Richmond Terminal Corporation
Richmond Boat Works Wharf	616 West Cutting Boulevard	Richmond	CA		Maritime Transit Corporation
Richmond Point Potrero Marine Terminal B	1312 Canal Boulevard	Richmond	CA		City of Richmond
Richmond Point Potrero Marine Terminal B	1312 Canal Boulevard	Richmond	CA		City of Richmond
Richmond Point Potrero Marine Terminal N	1308 Canal Boulevard	Richmond	CA		City of Richmond
Richmond Point Potrero Marine Terminal N	1312 Canal Boulevard	Richmond	CA		City of Richmond
Richmond Terminal No. 2, Upper Wharf	1145 Harbour Way South	Richmond	CA		City of Richmond
Richmond Terminal No. 3 Wharf	1411 Harbour Way South	Richmond	CA		City of Richmond
Richmond, Terminal No. 4 Wharf	2101 Western Drive	Richmond	CA		City of Richmond
Riedel International Richmond Wharf	230 Cutting Boulevard	Richmond	CA		Riedel International, Inc
Sanford-Wood Marine Wharf	530 West Cutting Boulevard	Richmond	CA		The Duncanson-Harrelson Corp
Texaco Refining and Marketing, Richmond	100 Cutting Boulevard.	Richmond	CA		Texaco Refining and Marketing
Time Oil Co. Richmond Wharf	488 Wright Avenue	Richmond	CA		Time Oil Company.
Tweed Towing Richmond Wharf	1453 Harbour Way South	Richmond	CA		City of Richmond
Unocal Corp., Richmond Barge Dock	1300 Canal Boulevard	Richmond	CA		Unocal Refining and Marketing
Unocal Corp., Richmond Tanker Dock	1300 Canal Boulevard	Richmond	CA		Unocal Refining and Marketing
Allemand Brothers Boat Repair Pier		San Francisco	CA		Ferma Corporation
Anderson and Cristofani Pier		San Francisco	CA		Anderson and Cristofani
Fisherman's Wharf, East Mooring Basin	142 Jefferson St	San Francisco	CA		San Francisco Port Commission Ferry Plaza

Table D-14. Port facilities.

Name	Address	City	State	Zipcode	Owner
Fisherman's Wharf, West Mooring Basin	350 Jefferson St.	San Francisco	CA		San Francisco Port Commission Ferry Plaza
Fisherman's Wharf, Wharf J-7, and Pier N	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
Fort Mason Pier 3		San Francisco	CA		U.S. Government
Hyde Street Pier	Hyde St.	San Francisco	CA		U.S. Government.
Pier No. 41 Excursion Boat Docks	The Embarcadero	San Francisco	CA		Red and White Fleet, subs
Pier No. 43 1/2 Ferry Docks	The Embarcadero	San Francisco	CA		Harbor Tug and Barge, Inc.
San Francisco Drydock Inc.,	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Drydock Inc., Pier No. 3.	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Drydock Inc., Pier No. 4.	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Marine Fuel Dock	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Ferry Plaza	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Foreign Trade Zone	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Golden Gate	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Pier No. 2	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Pier No. 3	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Pier No. 4	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Pier No. 5	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Pier No. 7	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission Pier No. 9	The Embarcadero	San Francisco	CA		San Francisco Port Commission Ferry Plaza
San Francisco Port Commission, Container	875 Marin St.	San Francisco	CA		San Francisco Port Commission Ferry Plaza
Wickland Oil Terminals Wharf	90 Highway 40	Selby	CA		Wickland Oil Terminals
Wickland Oil Terminals, Small Craft Wharf	90 Highway 40	Selby	CA		Wickland Oil Terminals

Table D-14. Port facilities.

Name	Address	City	State	Zipcode	Owner
California Maritime Academy Wharf	200 Maritime Ave.,	Vallejo	CA	94572	State of California
Red and White Fleet Vallejo Ferry Landing	No Address	Vallejo	CA	94572	City of Vallejo
United States Coast Guard Station, Mare Island	Mare Island	Vallejo	CA	94959	U.S. Government

Appendix E:
Information Collection Plan

This page intentionally left blank

Table of Contents

Appendix E: Information Collection Plan E-1

List of Tables

Table E-1. Critical information collection requirements for debris removal. E-1

This page intentionally left blank

Appendix E: Information Collection Plan

Table E-1. Critical information collection requirements for debris removal.

Critical Information	Specific Information	Methodology/Source	Product	Timeline
1 Status of transportation systems	• Status of the State highway system • State of local priority transportation routes (connectors) • Accessibility to most severely affected areas	• State SOC reports • Caltrans • Metropolitan Transit Commission • U.S. Department of Transportation • Assessment team reports • Remote sensing/aerial reconnaissance • Predictive modeling	• Situation briefings • Situation reports	Initial estimate within 4 hours; updated every 12 hours
2 Status of critical facilities	• Status of EOC • Status of airports • Status City halls/County administration buildings • Status of County morgues • Status of fire stations • Status of police/sheriff stations • Status of primary shelters	• Predictive models • Remote sensing/aerial reconnaissance • EOC reports • GIS	• Situation briefings • Situation reports • GIS products	Initial estimate within 4 hours; updated every 12 hours
3 Hazard-specific information Hazardous, toxic, and radiological issues Safety hazards	• Affected locations and what they contain • Actions being taken under the National Contingency Plan, if any	• Assessment team reports • EOC reports • Predictive modeling • NRC • EPA • U.S. Coast Guard	• GIS product depicting actual and potential threats • Situation report • Status briefing • Daily intelligence summary • Safety briefings/ messages	Initial estimate within 4 hours; updated every 12 hours

Table E-1. Critical information collection requirements for debris removal.

Critical Information	Specific Information	Methodology/Source	Product	Timeline
4 Population/ community support impacts	Number of homes affected (destroyed, damaged)	• Predictive modeling • Assessment teams	• FEMA disaster information database, individual assistance module • Reporting • Situation briefing • Situation reports • Displays • GIS products	Initial estimate within 12 hours; updated every operational period
5 Seismic and/or other geophysical information	• Location of landslides • Location of debris flows from dam/levee failures • Potential magnitude of aftershocks • Location of ground liquefaction sites	• Remote sensing • USGS reports • State SOC reports	• GIS maps of affected areas • Situation briefings • Situation reports	Initial estimate within 4 hours; updated every 6 hours
6 Demographics	• Number/type of housing units in impacted areas • Level of insurance coverage	• GIS • Predictive modeling • Commercial products • Census data	• Jurisdiction profiles • GIS analysis • Regional analysis and summary	Initial information no later than 12 hours after event
7 Predictive modeling	What HAZUS models show for damage impacts	HAZUS outputs	GIS products	No later than 2 hours after event
8 Initial needs and damage assessments	• Reports of rapid needs assessment and preliminary damage assessment teams • Damage reported by local, State, and Federal agency EOCs • Requests for Federal support from the State	• Rapid needs assessment and preliminary damage assessment team reports • HAZUS outputs • Open sources • Other Federal agency situation reports • State SOC reports	• Situation briefings • Situation reports • GIS products	Initial estimate within 4 hours; updated every 12 hours

Table E-1. Critical information collection requirements for debris removal.

Critical Information	Specific Information	Methodology/Source	Product	Timeline
9 Status of remote sensing operations	• Remote sensing missions that have been requested • Target areas • Data availability • Whether a rapid assessment is being conducted • Areas that are being assessed • Report availability and format • Whether the Civil Air Patrol has been activated • Where over-flights are being conducted • Other aerial reconnaissance missions in progress • Commercial remote sensing sources availability	• U.S. Coast Guard • USGS • Department of Defense • NASA • Private-sector entities	Remote sensing imagery-derived products	Ongoing
10 Status of key personnel/ personnel issues	• Personnel responsible for debris clearance and debris removal operations • Personnel responsible for conducting safety assessments	—	—	Within 2 hours after disaster declaration; updated every operational period
11 Status of key partner agencies in response	Contractors	Contracts and agreements	• Contract services • Pre-arranged statements of agreement	Initial estimate within 4 hours
12 Status of declarations	• Status of local emergency declarations • Status of State emergency declaration • Status of Presidential declaration • Jurisdictions included • Types of assistance authorized • Special cost-share provisions regarding direct Federal assistance	• State SOC reports • FEMA declarations • The White House	—	As soon as information becomes available; updated every operational period
13 Priorities for response—upcoming activities	• Operational debris clearance priorities • Operational safety assessment priorities	• DOC/EOC reports • Rapid needs assessment ream reports	• Situation briefings • Situation reports • GIS products	Initial estimate within 4 hours after event; updated every operational period

Table E-1. Critical information collection requirements for debris removal.

Critical Information	Specific Information	Methodology/Source	Product	Timeline
14 Major issues/shortfalls	• Actual or potential resource shortfalls of the affected counties • Anticipated requirements • Potential or actual shortfalls • Potential sources for resource shortfalls • Resources available and locations of resources	• EOC reports • Rapid needs assessment team reports • Community relations field reports	• Situation briefings • Situation reports • GIS products	Initial assessment within hours after event; updated every operational period

Source: URS analysis (2009)
Caltrans = California Department of Transportation
DOC = Department Operations Center
EOC = Emergency Operations Center
EPA = U.S. Environmental Protection Agency
FEMA = Federal Emergency Management Agency
GIS = Geographic Information Systems
HAZUS = Hazards U.S.
NRC = National Response Center
SOC = State Operations Center
USGS = U.S. Geological Survey