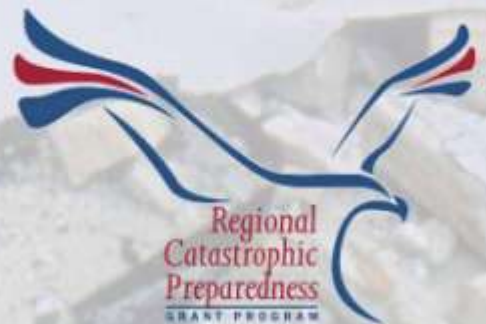




San Francisco Disaster Debris Management Plan

Appendix to ESF #3: Public Works and Engineering Annex of the
San Francisco Emergency Response Plan

July 2011



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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 California Standardized Emergency Management System (SEMS), the National Incident Management System (NIMS), and other State and Federal 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 city, county, or regional level, is dependent upon:

- 1) The specific conditions of the incident (e.g., incident type, geographic extent, severity, timing, duration)
- 2) The availability of resources for response at the time of the incident
- 3) The decisions of the Incident Commanders and the political leadership
- 4) The 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 cities, counties, 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 constitutes the planning area.



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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 a magnitude 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 other local governments in California, other states, the Federal Government, 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 selected for funding. 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 2 cities² in the Bay Area. For fiscal year 2007/2008, the UASI Program has used RCPGP funding to prepare plans in five functional areas: Debris Removal, Mass Care and Sheltering, Mass Fatality, Mass Transportation/Evacuation, and Volunteer Management.

This document, the San Francisco Disaster Debris Management Plan (DDMP), has been prepared under the RCPGP. Removal of debris is a critical component of the response to an earthquake. A catastrophic earthquake will generate massive quantities of debris from damaged buildings and infrastructure. The debris will block transportation routes and access to critical facilities and will disrupt the region's efforts to recover. This plan addresses debris clearance, removal, reduction, recycling, and disposal.

This plan is an appendix to the Emergency Support Function (ESF) #3: Public Works and Engineering Annex of the San Francisco Emergency Response Plan. The plan is consistent with:

- Applicable local and State plans and requirements
- The Regional Catastrophic Earthquake Debris Removal Concept of Operations, which is an incident-specific subsidiary plan of the San Francisco Bay Area Regional Emergency Coordination Plan
- The San Francisco Bay Area Regional Emergency Coordination Plan
- 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), (USGS 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.



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Section I: Introduction

Responding to debris-generating events and the hazardous environments they create is exceedingly complex. Planning for efficient response and recovery operations places a heavy burden on emergency managers and planners because of the need to integrate resources across agencies and from every level of government. An effective debris management plan includes the standard elements of an emergency response plan, but also focuses on addressing the impacts of and challenges associated with long term debris operations, including recovery processes that can stretch into years. Although the City and County of San Francisco (CCSF) Disaster Debris Management Plan (DDMP) addresses the requirements for providing emergency management procedures and processes associated with debris created by all types of disasters, the plan focuses on debris generated from potentially catastrophic earthquake events that are associated with ruptures of the San Andreas and Hayward faults.

1.1 Plan Objectives

The objectives of this DDMP are to:

- Project the potential debris-related impacts of disasters, including catastrophic earthquakes
- Identify CCSF departments and agencies with roles in debris management operations and define their roles
- Describe the resources required for debris management operations and mechanisms for integrating State, Federal, and contracted resources into debris management operations in the CCSF Operational Area
- Describe the response and long-term recovery operations for debris management by the CCSF Emergency Operations Center (EOC) and relevant CCSF departments and agencies

1.2 Plan Organization

- **Section 1** provides the scope and applicability of the DDMP and the authorities, regulations, and requirements that provide the foundation for the operations that are discussed within it.
- **Section 2** defines debris management roles and responsibilities for CCSF Emergency Support Function (ESF) #3 in coordinating and supporting debris operations with other CCSF departments and agencies.
- **Section 3** defines the time-based priorities and objectives as well as operational components involved in debris management response operations.
- **Section 4** defines the time-based priorities and objectives as well as operational components involved in long-term debris management recovery activities.



- **Section 5** describes how the plan will be maintained, updated, and exercised.
- **Section 6** is a glossary of acronyms, abbreviations, and key terms.
- **Tab A: Authorities, Regulations, and Requirements**, describes the potentially applicable local, regional, State, and Federal authorities, regulations, and requirements that may affect specific debris management operations.
- **Tab B: Debris-Generating Events**, describes potential debris-generating events that could affect San Francisco. This tab describes the potential types, amounts, and locations of debris for each hazard event. It also contains debris hazard maps for San Francisco.
- **Tab C: Catastrophic Earthquake Events**, describes the debris-related effects of a catastrophic earthquake caused by a rupture of the San Andreas and Hayward faults. This tab contains the Hazards–U.S. (HAZUS)-derived maps associated with a moment magnitude (**M**) 7.9 San Andreas fault event and an **M** 7.05 Hayward fault event.
- **Tab D: Debris Management Resources**, outlines local, State, Federal, and contracted resources available for debris management. This tab also documents available CCSF department and agency resources as identified through a National Incident Management System (NIMS) resource-typing process.
- **Tab E: Public Information**, contains public information messages related to debris management operations.
- **Tab F: Public Assistance Program Guidance**, identifies Public Assistance Program guidance and how it relates to debris management operations.
- **Tab G: Pre-Qualified Contractors of the CCSF Department of Public Works**, contains information about the pre-qualified contracting list of the CCSF Department of Public Works (DPW).
- **Tab H: Debris Clearance Priorities**, identifies debris clearance priorities for San Francisco.
- **Tab I: Transfer/Processing Facilities and Landfills**, identifies transfer/processing facilities and landfills.

1.3 Scope

The DDMP is applicable to all CCSF departments and agencies that have a role in debris management. The DDMP is scalable for any debris-generating event, but is specifically tailored to support debris management operations for a catastrophic earthquake on the San Andreas or Hayward fault.



1.3.1 Catastrophic Earthquake Event

As defined in the National Response Framework (NRF), a catastrophic event is any natural or human-caused incident, including an act of terrorism, that results in an extraordinary level of casualties, damage, or disruption that severely affects the population, infrastructure, environment, economy, morale, and government functions of an area, and potentially the nation as a whole.

As noted above, although the DDMP identifies various types of debris-generating events, including tsunami, flood, landslide, and human-caused hazards, the plan focuses on catastrophic earthquake events. The scenarios used in the development of the DDMP are an **M 7.9** earthquake on the northern segment of the San Andreas fault and an **M 7.05** earthquake on the entire length of the Hayward fault. The impacts from either earthquake scenario are projected to be catastrophic. Although the shaking from an earthquake and the aftershocks will last only seconds or minutes, response and recovery operations afterward, including debris operations, may take several years. See **Tab B: Debris-Generating Events**, for more information about the scenario events.

1.3.2 Geographic Scope

A catastrophic earthquake along the San Andreas or Hayward fault will have a calamitous effect on the Bay Area region and affect CCSF infrastructure and facilities inside the county and throughout the region.

1.3.3 Time Frame

The time frame for the response operations of the DDMP begins with the occurrence of one of the scenario earthquakes and ends approximately 60 days after the event. The time frame for the recovery operations begins at the commencement of the CCSF Recovery Operations Center, which will occur after the deactivation of the CCSF Emergency Operations Center.

The DDMP does not address preparedness activities that may occur before a disaster-generating event.

1.4 Authorities, Regulations, and Requirements

Several local, regional, State, and Federal authorities, regulations, and requirements that affect debris management operations may need to be modified, suspended or waived. **Tables A-1 through A-4** outline the authorities, regulations, and the requirements for each specific debris management operation (see **Tab A: Authorities, Regulations, and Requirements**).

1.5 Key Supporting Concepts

The DDMP is consistent with, or complies with, the following applicable regional, State, and Federal emergency management systems and plans:



- Standardized Emergency Management System (SEMS)
- National Incident Management System (NIMS)
- San Francisco Bay Area Regional Emergency Coordination Plan (RECP)
- Emergency Management Assistance Compact (EMAC)
- National Response Framework (NRF)
- Federal Emergency Management Agency (FEMA) Catastrophic Incident Concept of Operations
- California Emergency Plan
- San Francisco Bay Area Earthquake Readiness Response: Concept of Operations Plan
- Urban Area Security Initiative (UASI) Catastrophic Regional Debris Removal Plan
- San Francisco Emergency Response Plan



Section 2: Overview of CCSF Department and Agency Debris Management Roles

This section provides a description of the debris management roles for relevant CCSF departments and agencies, including the ESF #3 coordinating department, DPW, and the ESF #3 supporting departments, including the Department of Building Inspection (DBI), Department of the Environment (SFE), Municipal Transportation Authority (MTA), Public Utilities Commission (PUC), Recreation and Parks Department (RPD); and other relevant CCSF departments and agencies, including Department of Public Health (DPH), the San Francisco Fire Department (SFFD), the San Francisco Police Department (SFPD), San Francisco International Airport (SFO), San Francisco Port Authority (SF Port), and the Treasure Island Development Authority (TIDA).

An overview of the debris management roles of the ESF #3 coordinating department is listed in **Table 2-1**.

An overview of the debris management roles of the ESF #3 supporting departments is listed in **Table 2-2**.

An overview of the debris management roles of other relevant CCSF departments and agencies is listed in **Table 2-3**.



2.1 ESF #3 Coordinating Department

Department	Role
DPW	<ul style="list-style-type: none"> • Gather situational awareness of damages to CCSF structures and local streets through formal windshield surveys conducted by field teams. • Review HAZUS, USGS, and CGS debris projections. • Assist in the development of EAP debris clearance priorities. • Identify permitted active landfills and transfer-processing facilities to accept debris and confirm facility use. Contact landfills and transfer-process facilities for additional facility information, including hours of operation, type of load accepted, amount of load accepted, and permits required. • Identify potential debris management sites. • Determine public works codes that may affect debris staging, processing, and disposal operations and modify, suspend, or waive codes, as needed and permitted. • Determine debris removal operations (e.g., curbside/ROW removal, bin collection sites, private property debris removal) • Identify hazardous materials in impacted structures or facilities and in demolition debris and determine their appropriate handling and disposition. • Assist in the development of a demolition strategy. • If demolition has been approved for Public Assistance Program funding, ensure that demolition procedures are carried out according to the protocol outlined in FEMA 325, Debris Management Guide. • Determine if DPW resources, other CCSF resources, or DPW-contracted resources are sufficient to conduct the following operations, and if not request additional resources through the CCSF EOC: <ul style="list-style-type: none"> - Clear debris. - Conduct safety assessments on CCSF structures. - Prepare, operate, and close out debris management sites. - Monitor debris management site operations and debris removal operations. - Remove debris. - Demolish unsafe buildings and structures as requested by DBI. • Monitor, track, and assign force account and/or contracted labor to: <ul style="list-style-type: none"> - Clear debris according to the EAP debris clearance priorities and/or DPW priority routes. - Conduct rapid safety assessments on CCSF structures according to the EAP safety assessment priorities.



Department	Role
	<ul style="list-style-type: none"> - Fence public and private buildings and structures that are red-tagged, as requested. - Prepare, operate, and close out debris management sites according to local, State, and Federal authorities, requirements, and regulations and monitor debris management sites. - Remove debris according to the EAP debris removal priorities. - Demolish impacted CCSF buildings and structures according to the EAP demolition priorities and any building that DBI has declared a public nuisance and has requested DPW to demolish. • Document force account and/or contracted labor costs for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for debris clearance, safety assessments, staging, processing, disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement.
<p>CCSF = City and County of San Francisco CGS = California Geological Survey DBI = Department of Building Inspection DPW = Department of Public Works EAP = EOC Incident Action Plan EOC = Emergency Operations Center ESF = Emergency Support Function FEMA = Federal Emergency Management Agency HAZUS = Hazards–U.S. ROW = right-of-way USGS = U.S. Geological Survey</p>	

Table 2-1: Overview of ESF #3 Coordinating Department’s Debris Management Roles



2.2 ESF #3 Supporting Departments

Supporting Department	Role
<p style="text-align: center;">DBI</p>	<ul style="list-style-type: none"> • Gather situational awareness of damages to private and public buildings through formal windshield surveys conducted by field inspectors within a battalion station area. • Determine if DBI resources, other CCSF department and agency resources, and DBI-contracted resources are sufficient to conduct safety assessments; if not, request additional resources through the CCSF EOC. • Monitor, track, and assign force account, California Safety Assessment Program (SAP) volunteers, and/or contracted labor to conduct rapid safety assessments of public and private buildings and all CCSF buildings according to the EAP safety assessment priorities. • Determine which tagged buildings are to be fenced off. • Contract outside firms to conduct detailed safety assessments for buildings that have been red-tagged. • Assist San Francisco Unified School District and hospitals with safety assessments. • Develop a demolition strategy. • Coordinate demolition procedures with other CCSF departments and agencies, as necessary. • Hold onsite hearings for unsafe buildings that are to be demolished and issue emergency order to demolish building, if no opposition. • As applicable, declare any building a public nuisance and request DPW to demolish. • Modify, suspend, or waive demolition permits and expedite permitting and required building inspections, as needed and permitted. • Document force account and/or contracted labor costs for safety assessments that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for safety assessments that may be eligible for State and Federal reimbursement.



Supporting Department	Role
DPH	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to contain and clean up hazardous materials. • Document force account and/or contracted labor costs for hazardous material cleanup and containment efforts that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor cost to the Controller’s Office and/or Finance & Administration Section for hazardous material cleanup and containment efforts that may be eligible for State and Federal reimbursement. • Determine CCSF public health codes that may affect debris staging, processing, disposal, and removal operations and modify, suspend, or waive codes, as needed and permitted.
MTA	<ul style="list-style-type: none"> • Gather situational awareness of damages to local streets and infrastructure and the locations of large debris fields through formal windshield surveys. • Determine CCSF traffic codes that may affect debris clearance, staging, processing, disposal, and removal operations and modify, suspend, or waive codes, as needed and permitted.
PUC	<ul style="list-style-type: none"> • Gather situational awareness from PUC employees in the field and/or Gatesmen and Field Foremen as they respond to their safety assessment assignments. • Monitor, track, and assign Gatesmen to clear and remove debris from reservoirs and stations. • Monitor, track, and assign Field Foremen to clear and remove debris from feeder mains. • Provide equipment and labor to support DPW debris clearance and removal operations, if available and requested. • Coordinate with DPW and DBI on demolishing unsafe PUC facilities. • Document force account labor costs for safety assessments and debris clearance and removal operations that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for safety assessments and debris clearance and removal operations that may be eligible for State and Federal reimbursement.



Supporting Department	Role
<p style="text-align: center;">RPD</p>	<ul style="list-style-type: none"> • Gather situational awareness of damages to RPD facilities through formal windshield surveys and report findings to Street Clearance Unit Leader. • Provide heavy equipment, tree toppers, and labor to support DPW debris clearance and removal operations, if available and requested. • Monitor, track, and assign force account labor to conduct debris clearance operations and safety assessments of RPD facilities. • Document force account labor costs for debris clearance that may be eligible for State and Federal reimbursement. • Issue permits to DPW for the long-term use of RPD facilities for debris storage, as needed. • Coordinate with DPW and DBI on demolishing unsafe RPD facilities. • Document force account labor costs for debris clearance operations and safety assessments that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for debris clearance operations and safety assessments that may be eligible for State and Federal reimbursement.
<p style="text-align: center;">SFE</p>	<ul style="list-style-type: none"> • Work with DPW to identify permitted active processing facilities and landfills to accept debris. • Work with DPW to determine potential debris management sites for HHW storage. • Determine the preferred collection method for HHW and e-waste and notify DPW of preference. • Determine environment codes that may affect debris staging, processing, and disposal operations and modify, suspend, or waive codes, as needed and permitted. • Modify, suspend, or waive CCSF environment codes, as needed for the staging, processing, and disposal of debris, debris removal, and demolition operations. • Modify, suspend, or waive demolition debris recovery plans, as needed and permitted.



Supporting Department	Role
CCSF = City and County of San Francisco DBI = Department of Building Inspection DPH = Department of Public Health DPW = Department of Public Works e-waste = electronic waste EAP = EOC Incident Action Plan EOC = Emergency Operations Center ESF = Emergency Support Function HHW = household hazardous waste MTA = Municipal Transportation Authority PUC = public utilities commission RPD = Recreation and Parks Department SFE = Department of the Environment	

Table 2-2: Overview of ESF #3 Supporting Departments' Debris Management Roles



2.3 Other Relevant CCSF Departments and Agencies

Department or Agency	Role
SFFD	<ul style="list-style-type: none"> • Report major damages to infrastructure and large buildings and the locations of large debris fields. • Monitor, track, and assign force account and/or contracted labor to contain and clean up hazardous materials. • Determine CCSF fire codes that may affect debris staging, processing, and disposal operations and modify, suspend, or waive these codes, as needed and permitted. • Coordinate with DPW and DBI on demolishing unsafe SFFD facilities. • Document force account and/or contracted labor costs for hazardous material cleanup and containment efforts that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor cost to the Controller’s Office and/or Finance & Administration Section for hazardous material cleanup and containment efforts that may be eligible for State and Federal reimbursement.
SFPD	<ul style="list-style-type: none"> • Report major damages to infrastructure and large buildings and the locations of large debris fields. • Monitor, track, and assign force account labor to secure roads and infrastructure in San Francisco’s city limits to ensure that DPW and other relevant CCSF departments and agencies can carry out debris clearance operations. • Coordinate with DPW and DBI on demolishing unsafe SFPD facilities. • Document force account labor costs to support debris clearance operations that may be eligible for State and Federal reimbursement. • Submit force account labor costs to the Controller’s Office and/or Finance & Administration Section for debris clearance support that may be eligible for State and Federal reimbursement.
SFO	<ul style="list-style-type: none"> • Gather situational awareness from airlines in the air above SFO or on the tarmac and reports from standard roving patrols on the ground. • Monitor, track, and assign force account and/or contracted labor to: <ul style="list-style-type: none"> – Clear debris from SFO facilities according to debris clearance priorities, including items affecting safety of personnel, such as foreign objects on runways, followed by ramp areas and roadways to and from SFO.



Department or Agency	Role
	<ul style="list-style-type: none"> - Conduct rapid safety assessments to evaluate a facility's capacity to resume full normal operations or reduced operations or no operations due to dangerous conditions. - Stage, process, and dispose of debris. - Remove debris from SFO facilities. - Demolish unsafe SFO facilities. - Submit debris clearance, debris removal, and demolition resource requests through the DPW DOC, as needed. • Document force account and/or contracted labor costs for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor costs to the Controller's Office and/or Finance & Administration Section for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement.
<p style="text-align: center;">SF Port</p>	<ul style="list-style-type: none"> • Gather situational awareness of damages to SF Port facilities through formal windshield surveys conducted by Port Damage Assessment Teams and report findings to the Building Assessment Unit Leader. • Monitor, track, and assign force account and/or contracted labor to: <ul style="list-style-type: none"> - Clear debris from SF Port facilities. - Manage and contain hazardous spills. - Conduct safety assessments on SF Port facilities. - Stage, process, and dispose of debris. - Remove debris from SF Port facilities. - Demolish unsafe Port facilities. - Submit debris clearance, debris removal, and demolition resource request through the DPW DOC and safety assessment resource requests through the DBI DOC, as needed. • Coordinate with the DPW DOC regarding the clearance of the Embarcadero and Illinois Street from Pier 50 to Pier 80. • Notify Port master long-term lease tenants that they are responsible for safety assessments. • Notify the DPW and GSA DOCs and the Debris Management Center Unit Leader of potential port land to be used for debris management sites. • Coordinate with the DPW DOC on how site will be prepared, operated, and closed out in accordance with local, regional, State, and Federal authorities, regulations, and requirements that may be associated with these debris management sites.



Department or Agency	Role
	<ul style="list-style-type: none"> • Document force account and/or contracted labor costs for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement. • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement.
<p style="text-align: center;">TIDA</p>	<ul style="list-style-type: none"> • Gather situational awareness of damages to local streets, infrastructure, and major buildings and the locations of large debris fields through formal windshield surveys. • Submit debris clearance and debris removal resource requests through the DPW DOC and safety assessment resource requests through the DBI DOC. • Ensure that the U.S. Navy signs off on building demolition projects. • Coordinate with the Planning Department regarding historic issues and DOE regarding asbestos issues associated with demolition of structures on Treasure Island.
<p>CCSF = City and County of San Francisco DBI = Department of Building Inspection DOC = department operations center DOE = U.S. Department of Energy DPW = Department of Public Works GSA = U.S. General Services Administration SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority</p>	

Table 2-3: Overview of Other Relevant CCSF Departments’ and Agencies’ Debris Management Roles



Section 3: Response Operations

The San Francisco Emergency Response Plan (ERP) identifies the management of debris as an emergency function of the Infrastructure Branch of the City's EOC Operations Support Section and outlines details in the ERP's ESF #3: Public Works and Engineering Annex. The ESF #3 annex assigns DPW the responsibility of coordinating ESF #3.

Depending on the size of the event, debris management response operations may last as little as a few days and as long as a few months. Debris management response operations generally include the development of situational awareness and priorities; debris clearance; assessment of buildings and infrastructure; staging, processing, and disposing of debris; removal of debris; and demolition of unsafe buildings and infrastructure.

The purpose of this section is to provide an operational plan for CCSF debris removal operations for 60 days after the scenario event. Accordingly, this section provides:

- Operational priorities for debris removal operations.
- Objectives that support those priorities.
- Tasks to be completed by the Construction & Engineering Group (CEG) within the Infrastructure Branch of the CCSF EOC, as well as other relevant CCSF Department Operations Centers (DOCs), to achieve these objectives.



3.1 Operational Priorities and Objectives

Debris management objectives for the response operations are described according to the following phases:

- E to E+72 hours
- E+72 hours to E+14 days
- E+14 days to E+60 days

3.1.1 E to E+72 Hours

Operational priorities are:

- Initiate debris clearance operations
- Provide access to fire response and search and rescue missions
- Provide access to essential services that are safe for occupancy

Response objectives are:

- Develop situational awareness
- Inform the public and media of the initial situation
- Establish and coordinate debris clearance priorities
- Identify local, State, and Federal authorities, regulations, and requirements that are associated with debris clearance operations
- Provide resources to support debris clearance operations and clear debris
- Provide resources to support the inspection of facilities that provide essential services

3.1.2 E+72 Hours to E+14 Days

Operational priorities are:

- 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
- Reduce the immediate threat to public safety posed by damaged buildings and infrastructure



Response objectives are:

- Provide resources to support the expansion of debris clearance operations and expand debris clearance operations
- Inform the public and media about the safety assessment/tagging process for residential buildings
- Provide resources to support the expansion of safety assessments and expand safety assessments
- Identify types, amounts, and locations of debris
- Identify and designate debris management sites, transfer/processing facilities, and landfills
- Identify local, State, and Federal authorities, regulations, and requirements that are associated with debris management sites
- Provide resources to support debris monitoring operations and monitor debris management sites and debris removal operations
- Provide resources to support debris management sites and prepare and operate debris management sites
- Identify local, State, and Federal authorities, regulations, and requirements that are associated with debris removal operations
- Inform the public about debris removal operations
- Provide resources to support debris removal operations and remove debris
- Identify local, State, and Federal authorities, regulations, and requirements that are associated with demolition operations
- Inform public of demolition operations
- Provide resources to support demolition operations and demolish unsafe buildings and infrastructure, as needed

3.1.3 E+14 Days to E+60 Days

Operational priorities are:

- Transition from debris removal operations to debris processing and disposal operations
- Continue to reduce the threat to public safety posed by damaged buildings and infrastructure



Response objectives are:

- Identify additional debris management sites, transfer/processing facilities, and landfills, as needed
- Provide resources to support the expansion of demolition operations and expand demolition operations



3.2 Development of Situational Awareness and Debris Clearance Priorities

Immediately after the earthquake, it will be necessary to gain situational awareness. Situational awareness during a catastrophic event is achieved by passing standard ICS forms along the SEMS levels. Situational awareness for debris management includes determining the utility of and accessibility to the State highway system, priority routes that are linked to critical facilities, areas with hazardous material spills, 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 the clearance of debris will be established. Because life-safety efforts take priority in a response effort, CCSF department and agency debris clearance resources will first address efforts for fire response and search and rescue missions, then incorporate their capabilities to assess and repair immediate essential services to the city and county. Secondary priorities, such as area damage and restoration activities, will then be addressed as resources become available or will be covered simultaneously if staffing allows.

The following appendices support the development of situational awareness and debris clearance priorities:

- **Tab C: Catastrophic Earthquake Events**
- **Tab H: Debris Clearance Priorities**

The responsibilities of CEG in developing situational awareness and response priorities are summarized in **Table 3-1**.

The responsibilities of the CCSF DOCs in developing situational awareness and response priorities are summarized in **Table 3-2**.



CEG Position	Action
CEG Coordinator	<ul style="list-style-type: none"> • Coordinate formal windshield surveys of buildings, roadways, street structures, public facilities, and utilities with ESF #3 departments. • Receive situation updates regarding road impairments and route damage from the Street Clearance Unit Leader and the status of buildings from the Building Assessment Unit Leader. • Receive initial debris estimates from the Debris Management Center Unit Leader. • Work with DPW and other ESF #3 departments to develop EAP debris clearance priorities, including clearing debris for fire response and search and rescue missions and along DPW priority routes that link critical facilities. • Provide EAP debris clearance priorities to the Unit Leaders.
Street Clearance Unit Leader	<ul style="list-style-type: none"> • Collect road impairments and route damage information from the DPW DOC, other relevant CCSF DOCs, and the MTC EOC, and provide information to the CEG Coordinator. • Confirm EAP debris clearance priorities with the DPW DOC and other relevant CCSF DOCs.
Debris Management Center Unit Leader	<ul style="list-style-type: none"> • Review HAZUS, USGG, and CGS debris projections with the DPW DOC and provide initial estimates to the CEG Coordinator.
Building Assessment Unit Leader	<ul style="list-style-type: none"> • Collect building status information from the DBI DOC and other relevant CCSF DOCs and provide information to the CEG Coordinator.
<p>CCSF = City and County of San Francisco CEG = Construction & Engineering Group CGS = California Geological Survey DBI = Department of Building Inspection DOC = Department Operations Center DPW = Department of Public Works EAP = EOC Incident Action Plan EOC = Emergency Operations Center ESF = Emergency Support Function HAZUS = Hazards–U.S. MTC = Metropolitan Transportation Commission ROW = right-of-way USGS = U.S. Geological Survey</p>	

Table 3-1: CEG: Development of Situational Awareness and Priorities



DOC	Action
DBI	<ul style="list-style-type: none"> Gather situational awareness of damages to public and private buildings through formal windshield surveys conducted by field inspectors within a battalion station area and report findings to the Building Assessment Unit Leader.
DPH	<ul style="list-style-type: none"> Not applicable.
DPW	<ul style="list-style-type: none"> Gather situational awareness of damages to CCSF structures and local streets through formal windshield surveys conducted by field teams within a battalion station area and report findings to the Street Clearance Unit Leader. Review HAZUS, USGG, and CGS debris projections with the Debris Management Center Unit Leader. Work with the CEG Coordinator and other ESF #3 departments to develop EAP debris clearance priorities.
GSA – Real Estate Division	<ul style="list-style-type: none"> Use Division’s computerized maintenance management system, which is web-based, accessible from anywhere, and reports from engineering and custodial teams on the ground, to report findings to the Building Assessment Unit Leader.
MTA	<ul style="list-style-type: none"> Gather situational awareness of damages to local streets and infrastructure and the locations of large debris fields through formal windshield surveys and report findings to the Street Clearance Unit Leader.
PUC	<ul style="list-style-type: none"> Gather situational awareness from PUC employees in the field and/or Gatesmen and Field Foremen as they respond to their safety assessment assignments.
RPD	<ul style="list-style-type: none"> Gather situational awareness of damages to RPD facilities through formal windshield surveys and report findings to Street Clearance Unit Leader.
SFE	<ul style="list-style-type: none"> Not applicable.
SFFD	<ul style="list-style-type: none"> Report major damages to infrastructure and large buildings and the locations of large debris fields to the Street Clearance Unit Leader.
SFO	<ul style="list-style-type: none"> Gather situational awareness from airlines in the air above SFO or on the tarmac and reports from standard roving patrols on the ground.
SFPD	<ul style="list-style-type: none"> Report major damages to infrastructure and large buildings and the locations of large debris fields to the Street Clearance Unit Leader.



DOC	Action
<p>SF Port</p>	<ul style="list-style-type: none"> • Gather situational awareness of damages to SF Port facilities through formal windshield surveys conducted by SF Port Damage Assessment Teams and report findings to the Building Assessment Unit Leader. • Verify SF Port’s debris clearance priorities identified in the SF Port EOP.
<p>TIDA</p>	<ul style="list-style-type: none"> • Gather situational awareness of damages to local streets, infrastructure, and major buildings and the locations of large debris fields through formal windshield surveys and report findings to the Street Clearance Unit Leader.
<p>CCSF = City and County of San Francisco CEG = Construction & Engineering Group CGS = California Geological Survey DBI = Department of Building Inspection DOC = Department Operations Center DPH = Department of Public Health DPW = Department of Public Works EAP = EOC Incident Action Plan EOC = Emergency Operations Center EOP = Emergency Operations Center ESF = Emergency Support Function GSA = U.S. General Services Administration HAZUS = Hazards–U.S. MTA = Metropolitan Transportation Authority PUC = Public Utilities Commission RPD = Recreation and Parks Department SFE = Department of the Environment SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority USGS = U.S. Geological Survey</p>	

Table 3-2: CCSF DOCs: Development of Situational Awareness and Priorities



3.3 Debris Clearance

Initial debris clearance activities are necessary to eliminate threats to life and safety. During these operations, debris will first need to be cleared for fire response and search and rescue missions. In San Francisco, debris clearance priorities will be based on the City's EOC Incident Action Plan (EAP), which will generally include the routes necessary for first responder activities, major infrastructure of the State highway system for which CCSF has maintenance agreements and/or memorandums of understanding in place with the California Department of Transportation (Caltrans), State highway system on- and off-ramps into and out of San Francisco, and priority routes that are linked to critical facilities. Debris clearance operations may be revised based on changes to the operational objectives and/or when new or better routes are established. Debris clearance operations may also be expanded to include evacuation pick-up points and secondary shelters.

In the interest of time, debris is generally moved from at least one travel lane, and areas of ingress/egress are cleared later. Whether debris clearance work is performed by DPW, other CCSF departments or agencies using their own resources, or contractors - documentation is necessary for Public Assistance Program grant consideration.

The following appendices support debris clearance operations:

- **Tab C: Catastrophic Earthquake Events**
- **Tab D: Debris Management Resources**
- **Tab E: Public Information**
- **Tab F: Public Assistance Program Guidance**
- **Tab G: Pre-Qualified Contractors of the CCSF Department of Public Works**
- **Tab H: Debris Clearance Priorities**

The responsibilities of CEG in debris clearance operations are summarized in **Table 3-3**.

The responsibilities of the CCSF DOCs in debris clearance operations are summarized in **Table 3-4**.



CEG Position	Action
<p>CEG Coordinator</p>	<ul style="list-style-type: none"> • Work with DPW and other ESF #3 departments to update EAP debris clearance priorities based on changes to operational objectives, etc. • Provide updated EAP debris clearance priorities to the Unit Leaders, as needed. • Submit debris clearance resource requests from the Street Clearance Unit Leader to the EOC Logistics Section. • Coordinate with DPW and other capable CCSF departments and agencies to support debris clearance operations.
<p>Street Clearance Unit Leader</p>	<ul style="list-style-type: none"> • Confirm updated EAP debris clearance priorities with the DPW DOC and other relevant CCSF DOCs. • Receive debris clearance requests from the DPW DOC that cannot be fulfilled by DPW, other CCSF departments and agencies, or DPW-contracted resources and submit resource requests to the CEG Coordinator. • Coordinate traffic signal and message board debris clearance information with the DPW DOC. • Continue to collect road impairments and route damage information from the DPW DOC, other relevant CCSF DOCs, and the MTC EOC and provide information to the CEG Coordinator.
<p>Debris Management Center Unit Leader</p>	<ul style="list-style-type: none"> • Verify with the REOC, State debris specialist, and/or Public Assistance Program staff if the FHWA Emergency Relief Program and the Public Assistance Program debris clearance requirements, including force account labor and contractor scheduling, equipment, measurement and payment, and health and safety information; environmental requirements; and regulatory permits and licenses are applicable. • Relay pertinent FHWA and Public Assistance Program information to the DPW DOC and other relevant CCSF DOCs involved in debris clearance operations. • Notify CCSF departments and agencies involved in debris clearance operations of local, regional, State, and Federal authorities, requirements, and regulations that may affect debris clearance operations.



CEG Position	Action
<p>Building Assessment Unit Leader</p>	<ul style="list-style-type: none"> • Not applicable.
<p>CCSF = City and County of San Francisco CEG = Construction & Engineering Group DOC = Department Operations Center DPW = Department of Public Works EAP = EOC Incident Action Plan EOC = Emergency Operations Center ESF = Emergency Support Function FHWA = Federal Highway Administration MTC = Metropolitan Transportation Commission REOC = Regional Emergency Operations Center</p>	

Table 3-3: CEG: Debris Clearance



DOC	Action
DBI	<ul style="list-style-type: none"> • Not applicable.
DPH	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to contain and clean up hazardous materials in coordination with DPH. • Document force account and/or contracted labor costs for hazardous material cleanup and containment efforts that may be eligible for State and Federal reimbursement.
DPW	<ul style="list-style-type: none"> • Determine if DPW resources, other CCSF resources, or DPW-contracted resources are sufficient to clear debris. If needed, submit a request to the Debris Clearance Unit Leader for additional debris clearance resources. • Coordinate traffic signal and message board debris clearance information with the MTA DOC and the Debris Clearance Unit Leader. • Contact Caltrans to confirm whether DPW should clear Caltrans streets and on- and off-ramps for the State Highway System in San Francisco's City limits. • Monitor, track, and assign force account and/or contracted labor to clear debris according to the EAP debris clearance priorities and/or DPW priority routes. Debris will be cleared through cutting, tossing, and/or pushing debris to the side of the ROW. • Document force account and/or contracted labor costs for debris clearance that may be eligible for State and Federal reimbursement.
GSA – Real Estate Division	<ul style="list-style-type: none"> • Not applicable.
MTA	<ul style="list-style-type: none"> • Provide traffic signal and message board support as requested by the DPW DOC and/or EOC Debris Management Center Unit Leader. • Notify the Debris Management Center Unit Leader of CCSF traffic codes that may affect debris clearance operations and whether these codes will be modified, suspended, or waived. • Modify, suspend, or waive CCSF traffic codes, as needed and permitted.
PUC	<ul style="list-style-type: none"> • Monitor, track, and assign Gatesmen to clear debris from reservoirs and stations. • Monitor, track, and assign Field Foremen to clear debris from feeder mains. • Provide equipment and labor to support DPW debris clearance operations, if available and requested by the DPW DOC. • Document force account labor costs for debris clearance that may be eligible for State and Federal reimbursement.



DOC	Action
RPD	<ul style="list-style-type: none"> • Provide heavy equipment, tree toppers, and labor to support DPW debris clearance operations, if available and if requested by the DPW DOC. • Monitor, track, and assign force account labor to push debris away from RPD facilities. • Document force account labor costs for debris clearance that may be eligible for State and Federal reimbursement.
SFE	<ul style="list-style-type: none"> • Not applicable.
SFFD	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to contain and clean up hazardous materials in coordination with DPH. • Document force account and/or contracted labor costs for hazardous material cleanup and containment efforts that may be eligible for State and Federal reimbursement.
SFPD	<ul style="list-style-type: none"> • As directed by the CEG Coordinator, assign force account labor to secure roads and infrastructure in San Francisco's City limits to ensure that DPW and other capable CCSF departments and agencies can carry out debris clearance operations. • Document force account labor costs for debris clearance that may be eligible for State and Federal reimbursement.
SFO	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to clear debris from SFO facilities according to debris clearance priorities established by the SFO DOC, including items affecting safety of personnel, such as foreign objects on runways, followed by ramp areas and roadways to and from SFO. • Submit debris clearance resource requests through the DPW DOC, as needed. • Document force account and/or contracted labor costs for debris clearance that may be eligible for State and Federal reimbursement.
SF Port	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to clear debris from SF Port according to debris clearance priorities established by the EAP. • Submit debris clearance resource request through the EOC, as needed. • Coordinate with the DPW DOC regarding the clearance of the Embarcadero and Illinois Street from Pier 50 to Pier 80. • Activate the Port's Hazmat Response Plan and assign force account and/or contracted labor to manage and contain hazardous spills. • Document force account and/or contracted labor costs for debris clearance that may be eligible for State and Federal reimbursement.



DOC	Action
TIDA	<ul style="list-style-type: none"> Submit debris clearance resource request through the DPW DOC, as needed.
<p>Caltrans = California Department of Transportation CCSF = City and County of San Francisco CEG = Construction & Engineering Group DBI = Department of Building Inspection DOC = Department Operations Center DPH = Department of Public Health DPW = Department of Public Works EAP = EOC Incident Action Plan GSA = U.S. General Services Administration MTA = Metropolitan Transportation Authority PUC = Public Utilities Commission ROW = right-of-way RPD = Recreation and Parks Department SFE = Department of the Environment SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority</p>	

Table 3-4: CCSF DOCs: Debris Clearance



3.4 Safety Assessment of Buildings and Infrastructure

The demolition of buildings and infrastructure will result in additional debris. To determine which buildings are extensively and completely damaged and therefore must be demolished, buildings and infrastructure will need to be assessed for use and occupancy. The safety assessments are not intended to identify or qualify damage but rather to categorize buildings and infrastructure for their safety and to identify immediate threats to life and public health and safety. Generally, critical facilities and infrastructure are assessed first, followed by buildings and secondary shelters for essential government services, and then other public and private buildings. Safety assessments will be conducted using local safety assessment procedures or Procedures for Post-Earthquake Safety Evaluation of Buildings (Applied Technology Council – 20) and follow guidelines that DBI established to determine whether the building is safe for entry or occupancy. The assessment process will be re-initiated after major aftershocks, if necessary.

The following appendices support safety assessments of buildings and infrastructure:

- **Tab A: Authorities, Regulations, and Requirements**
- **Tab E: Public Information**
- **Tab F: Public Assistance Program Guidance**

The responsibilities of CEG in safety assessment of buildings and infrastructure are summarized in **Table 3-5**.

The responsibilities of the CCSF DOCs in safety assessment of buildings and infrastructure are summarized in **Table 3-6**.



CEG Position	Action
<p>CEG Coordinator</p>	<ul style="list-style-type: none"> • Work with DBI and other ESF #3 departments to develop EAP safety assessment priorities, including Immediate Response, Short-Term Recovery, and Long-Term Recovery phases as identified in the CCSF Guidelines for Organizing Post-Disaster Safety Inspections. • Provide EAP safety assessment priorities to the Unit Leaders. • Submit safety assessment resource requests from the Building Assessment Unit Leader to the EOC Logistics Section. • Coordinate the safety assessments of public and private buildings and CCSF buildings and structures.
<p>Street Clearance Unit Leader</p>	<ul style="list-style-type: none"> • Not applicable.
<p>Debris Management Center Unit Leader</p>	<ul style="list-style-type: none"> • Verify with the REOC, State debris specialist, and/or Public Assistance Program staff that the safety assessment of private and public buildings and infrastructure will be eligible for Public Assistance Program funding. • Relay pertinent Public Assistance Program information to the DBI DOC and other relevant CCSF DOCs.
<p>Building Assessment Unit Leader</p>	<ul style="list-style-type: none"> • Confirm the EAP safety assessment priorities with the DBI DOC and other relevant CCSF DOCs. • Receive safety assessment resource requests from the DBI DOC that cannot be fulfilled by DBI, other CCSF departments and agencies, or DBI-contracted resources and submit resource requests to the CEG Coordinator. • Support the DBI DOC in developing a safety assessment strategy for public and private buildings based on the EAP safety assessment priorities, including critical facilities and Building Occupancy Registered Program buildings.
<p>CCSF = City and County of San Francisco CEG = Construction & Engineering Group DBI = Department of Building Inspection DOC = Department Operations Center EAP = EOC Incident Action Plan EOC = Emergency Operations Center ESF = Emergency Support Function REOC = Regional Emergency Operations Center</p>	

Table 3-5: CEG: Safety Assessment of Buildings and Infrastructure



DOC	Action
DBI	<ul style="list-style-type: none"> • Determine if DBI resources, other CCSF departments and agencies, or DBI-contracted resources are sufficient to conduct safety assessments. If needed, submit a request to the Building Assessment Unit Leader for additional safety assessment resources. • Monitor, track, and assign force account, California Safety Assessment Program volunteers, and/or contracted labor to conduct rapid safety assessments of all CCSF buildings and public and private buildings according to the EAP safety assessment priorities. • Request through the DPW DOC for DPW to fence tagged buildings that have been identified by DBI field inspectors and verified by the DBI chief inspector. • Contract with outside firms to conduct detailed safety assessments for buildings that have been red-tagged. • Assist San Francisco Unified School District and hospitals with safety assessments, as requested by EOC. • Document force account and/or contracted labor costs for safety assessments that may be eligible for State and Federal reimbursement.
DPH	<ul style="list-style-type: none"> • Not applicable.
DPW	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to conduct rapid safety assessments on CCSF structures according to the EAP safety assessment priorities. • At the request of the DBI DOC and with support from the SFPD, fence public and private buildings and structures that are red-tagged. • Document force account and/or contracted labor costs for safety assessments that may be eligible for State and Federal reimbursement.
GSA	<ul style="list-style-type: none"> • Not applicable.
MTA	<ul style="list-style-type: none"> • Not applicable.
PUC	<ul style="list-style-type: none"> • Monitor, track, and assign Gatesmen to conduct safety assessments of reservoirs and stations. • Monitor, track, and assign Field Foremen to conduct safety assessments of feeder mains. • Document force account and/or contracted labor costs for safety assessments that may be eligible for State and Federal reimbursement.



DOC	Action
RPD	<ul style="list-style-type: none"> • Conduct rapid safety assessments on RPD facilities with limited trained staff, if available. Request additional safety assessment resources through the DBI DOC, if needed. • Document force account and/or contracted labor costs for safety assessments that may be eligible for State and Federal reimbursement.
SFE	<ul style="list-style-type: none"> • Not applicable.
SFFD	<ul style="list-style-type: none"> • Not applicable.
SFPD	<ul style="list-style-type: none"> • Not applicable.
SFO	<ul style="list-style-type: none"> • Monitor, track, and assign strike teams of SFO facilities personnel to conduct rapid safety assessments to evaluate each facility's capacity to resume full normal operations or reduced operations or no operations due to dangerous conditions. • Monitor, track, and assign Engineering staff in Buildings Inspection and Code Enforcement to conduct detailed safety assessments, as needed.
SF Port	<ul style="list-style-type: none"> • Monitor, track, and assign force account labor and/or contracted labor to assess SF Port facilities according to the priorities established in the SF Port EOP and use yellow barrier tape to cordon off obvious hazard areas during initial inspections. • Submit safety assessment resource request through the DBI DOC, as needed. • Notify Port master long-term lease tenants that they are responsible for safety assessments. • Document force account and/or contracted labor costs for safety assessments that may be eligible for State and Federal reimbursement.
TIDA	<ul style="list-style-type: none"> • Submit safety assessment resource requests through the DBI DOC.



DOC	Action
CCSF = City and County of San Francisco DBI = Department of Building Inspection DOC = Department Operations Center DPH = Department of Public Health DPW = Department of Public Works EAP = EOC Incident Action Plan EOC = Emergency Operations Center EOP = Emergency Operations Plan ESF = Emergency Support Function GSA = U.S. General Services Administration MTA = Metropolitan Transportation Authority PUC = Public Utilities Commission RPD = Recreation and Parks Department SFE = Department of the Environment SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority	

Table 3-6: CCSF DOCs: Safety Assessment of Buildings and Infrastructure



3.5 Staging, Processing, and Disposing of Debris

Debris management sites, which are locations used to temporarily store, reduce, segregate, and/or process debris, are established when it is not possible to take debris directly from the original collection point to the final disposition location. Debris management sites are frequently used to increase the operational flexibility when landfill space is limited or when the landfill is not close to the debris removal area. Debris management sites allow flexibility in operations, facilitate recycling, and expedite the debris removal process. However, often additional costs are associated with the use of these sites because debris must be handled twice. Also, 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 a site. Finally, debris management sites require dedicated site management and staff for efficient operations, safety, and documentation considerations. FEMA makes the determination as to whether debris management sites are reimbursable under the Public Assistance Program.

Processing debris, such as construction and demolition debris, can be done directly 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 the recyclable debris may be sorted and reduced first. Processing debris has financial and environmental advantages. These operations can decrease the overall cost of a debris management operation by reducing the amount of material that is taken to a landfill and decreasing the cost of final disposition in the form of tipping fees. In processing the debris, potential end-use products for specific markets may offset the cost of operations even more. In San Francisco, processing operations are an important component of public policy and are a priority.

Disposing of debris at a landfill is generally done from the source site (when it is hauled from the ROW or curbside directly to a landfill) or from a debris management site, where mixed debris is separated and nonrecyclable debris is hauled to the landfill for final disposal. The most cost-efficient measure is usually to make use of the jurisdiction's own or normally used landfills. The available space and functionality of the 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 other landfills that are nearby or even landfills that are out of the region.

The following appendices support the staging, processing, and disposal of debris:

- **Tab A: Authorities, Regulations, and Requirements**
- **Tab E: Public Information**
- **Tab F: Public Assistance Program Guidance**
- **Tab I: Transfer/Processing Facilities and Landfills**

The responsibilities of CEG in staging, processing, and disposing of debris are summarized in **Table 3-7**.

The responsibilities of the CCSF DOCs in staging, processing, and disposing of debris are summarized in **Table 3-8**.



CEG Position	Action
CEG Coordinator	<ul style="list-style-type: none"> • Work with DPW and other ESF #3 departments to develop staging, processing, and disposal priorities, including minimizing use of landfills and increasing reuse and recycling options. • Provide staging, processing, and disposal priorities to the Unit Leaders. • Submit 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 Debris Management Center Unit Leader to the EOC Logistics Section.
Street Clearance Unit Leader	<ul style="list-style-type: none"> • Not applicable.
Debris Management Center Unit Leader	<ul style="list-style-type: none"> • In coordination with the DPW DOC, review updated projections from Cal EMA, FEMA, California Geological Survey, and the USGS on the tons/cubic yard 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 landfills that are needed to process and dispose of debris. • Confirm with the DPW DOC and SFE if specific processing facilities and landfills have been identified to accept debris and contact processing facilities and landfills to verify the types of debris accepted, operating hours, receiving procedures, and other regulations that may affect debris processing and disposal. • Confirm with the DPW and GSA DOCs that potential debris management sites within San Francisco's City limits have been identified and if so, verify that site preparation plans have been initiated. • Receive 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 DPW DOC that cannot be fulfilled by DPW, other CCSF departments or agencies, or DPW-contracted resources and submit resource request to the CEG Coordinator. • Verify with the REOC, State debris specialist, and/or Public Assistance Program staff the following: <ul style="list-style-type: none"> - Debris management sites are eligible for Public Assistance Program funding.



CEG Position	Action
	<ul style="list-style-type: none"> - Debris management sites to be operated by the U.S. Army Corps of Engineers or a neighboring jurisdiction and/or a strategy for counties in the Coastal Region to use specific 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. - Specific transfer/processing facilities and landfills identified by DPW to be used and ensure that they are consistent with CalRecycle’s recommended equitable distribution of debris throughout counties in the region. • Relay pertinent Public Assistance Program information regarding regional debris management sites and regional use of transfer/processing facilities and landfills to the DPW DOC. • Relay information regarding permitted active transfer/processing facilities and landfills to accept debris to the CEG Coordinator. • Notify CCSF departments and agencies involved in the staging, processing, and disposing of debris of local, regional, State, and Federal authorities, regulations, and requirements that may be associated with these debris management activities.
<p>Building Assessment Unit Leader</p>	<ul style="list-style-type: none"> • Not applicable.
<p>Cal EMA = California Emergency Management Agency CalRecycle = California Department of Resources Recycling and Recovery Board CCSF = City and County of San Francisco CEG = Construction & Engineering Group DOC = Department Operations Center DPW = Department of Public Works EOC = Emergency Operations Center ESF = Emergency Support Function FEMA = Federal Emergency Management Agency GSA = U.S. General Services Administration REOC = Regional Emergency Operations Center SFE = Department of the Environment USGS = U.S. Geological Survey</p>	

Table 3-7: CEG: Staging, Processing, and Disposing of Debris



DOC	Action
DBI	<ul style="list-style-type: none"> • Not applicable.
DPH	<ul style="list-style-type: none"> • Notify the Debris Management Center Unit Leader of CCSF public health codes that may affect debris staging, processing, and disposal operations and whether these codes will be modified, suspended, or waived. • Modify, suspend, or waive CCSF public health codes, as needed and permitted.
DPW	<ul style="list-style-type: none"> • Work with the SFE to identify permitted active landfills and transfer-processing facilities and CCSF-registered mixed C&D facilities to accept debris and confirm facility use with the Debris Management Center Unit Leader. Contact landfills and transfer-process facilities for additional facility information, including hours of operation, type of load accepted, amount of load accepted, permits required, etc. • Work with the EOC Infrastructure Branch to identify potential debris management sites and verify site use with relevant department/agency and site location with the Debris Management Center Unit Leader. • Work with the SFE to identify potential debris management sites for HHW storage. • Notify the Debris Management Center Unit Leader of CCSF public works codes that may affect debris staging, processing, and disposal operations and whether these codes will be modified, suspended, or waived. • Modify, suspend, or waive CCSF public works codes, as needed and permitted. • Determine whether DPW resources, other CCSF departments or agencies, or DPW-contracted resources are sufficient to stage, process, and dispose of debris. If needed, submit a request to the Debris Management Center Unit Leader for additional debris staging, processing, and disposal resources. • Issue pre-disaster and/or post-disaster contracts to contractors to prepare, operate, and close out debris management sites and monitor debris management sites. • Monitor, track, and assign force account and/or contracted labor to prepare, operate, and close out debris management sites according to local, State, and Federal authorities, regulations, and requirements and monitor debris management sites. • Document force account and/or contracted labor costs for the staging, processing, and disposing of debris that may be eligible for State and Federal reimbursement.



DOC	Action
GSA	<ul style="list-style-type: none"> Work with the DPW DOC to identify potential debris management sites, verify site uses and site locations with other relevant CCSF departments/agencies and the Debris Management Center Unit Leader.
MTA	<ul style="list-style-type: none"> Notify the Debris Management Center Unit Leader of CCSF transportation codes that may affect debris staging, processing, and disposal operations and whether these codes will be modified, suspended, or waived. Modify, suspend, or waive CCSF transportation codes, as needed and permitted.
PUC	<ul style="list-style-type: none"> Not applicable.
RPD	<ul style="list-style-type: none"> Issue permits to DPW for the long-term use of RPD facilities for debris storage, as needed.
SFE	<ul style="list-style-type: none"> Work with DPW to identify permitted active processing facilities and landfills and CCSF-registered mixed C&D facilities to accept debris. Notify the Debris Management Center Unit Leader of CCSF environment codes that may affect debris staging, processing, and disposal operations and whether these codes will be modified, suspended, or waived. Modify, suspend, or waive CCSF environment codes, as needed and permitted.
SFFD	<ul style="list-style-type: none"> Notify the Debris Management Center Unit Leader of CCSF fire codes that may affect debris staging, processing, and disposal operations and whether these codes will be modified, suspended, or waived. Modify, suspend, or waive CCSF fire codes, as needed.
SFPD	<ul style="list-style-type: none"> Not applicable.
SFO	<ul style="list-style-type: none"> Coordinate debris staging, processing, and disposal operations with San Mateo County. Coordinate the processing of expensive or valuable materials, such as structural steel, with the DPW DOC. Monitor, track, and assign force account and/or contracted labor to stage, process, and dispose of debris according to the San Mateo County EOC. Document force account and/or contracted labor costs for the staging, processing, and disposing of debris that may be eligible for State and Federal reimbursement.



DOC	Action
<p style="text-align: center;">SF Port</p>	<ul style="list-style-type: none"> • Notify the DPW and GSA DOCs and the Debris Management Center Unit Leader of potential port land to be used for debris management sites. • Coordinate with the DPW DOC on how site will be prepared, operated, and closed out in accordance with local, regional, State, and Federal authorities, regulations, and requirements that may be associated with these debris management sites. • Monitor, track, and assign force account and/or contracted labor to stage, process, and dispose of debris in coordination with DPW. • Document force account and/or contracted labor costs for the staging, processing, and disposing of debris that may be eligible for State and Federal reimbursement.
<p style="text-align: center;">TIDA</p>	<ul style="list-style-type: none"> • Not applicable.
<p>C&D = construction and demolition CCSF = City and County of San Francisco DBI = Department of Building Inspection DOC = Department Operations Center DPH = Department of Public Health DPW = Department of Public Works EOC = Emergency Operations Center GSA = U.S. General Services Administration HHW = household hazardous waste MTA = Metropolitan Transportation Authority PUC = Public Utilities Commission RPD = Recreation and Parks Department SFE = Department of the Environment SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority</p>	

Table 3-8: CCSF DOCs: Staging, Processing, and Disposing of Debris



3.6 Debris Removal

Typically, the debris removal phase begins after responders have the necessary access to eliminate life and safety threats. 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 the collection of debris brought to the ROW by residents. If the property owners move the disaster-related debris to the ROW, an applicant may be reimbursed for debris pickup, haul, and disposal from the ROW for a limited period of time. Debris removal operations may also be expanded to include debris removal from public areas, water bodies, collection areas, and in certain circumstances, private property. FEMA has developed specific guidelines for debris removal eligibility; therefore, debris should not be removed until a State debris specialist or a Public Assistance Program staff member can provide input on the debris removal strategy developed.

The following appendices support debris removal operations:

- **Tab A: Authorities, Regulations, and Requirements**
- **Tab D: Debris Management Resources**
- **Tab E: Public Information**
- **Tab F: Public Assistance Program Guidance**
- **Tab G: Pre-Qualified Contractors of the CCSF Department of Public Works**

The responsibilities of CEG in debris removal operations are summarized in **Table 3-9**.

The responsibilities of the CCSF DOCs in debris removal operations are summarized in **Table 3-10**.



EOC CEG Position	Action
CEG Coordinator	<ul style="list-style-type: none"> • Work with DPW and other ESF #3 departments to develop EAP debris removal priorities that support the city’s overall objectives • Provide EAP debris removal priorities to the Unit Leaders. • Submit debris removal and debris monitoring resource requests from the Debris Management Center Unit Leader to the EOC Logistics Section.
Street Clearance Unit Leader	<ul style="list-style-type: none"> • Not applicable.
Debris Management Center Unit Leader	<ul style="list-style-type: none"> • Confirm the EAP debris removal priorities with the DPW DOC and other relevant CCSF DOCs. • Receive debris removal and debris monitoring requests from the DPW DOC that cannot be fulfilled by DPW, other CCSF departments or agencies, or DPW-contracted resources and submit resource requests to the CEG Coordinator. • Verify with the REOC, State debris specialist, and/or Public Assistance Program staff the following: <ul style="list-style-type: none"> – The type of debris (e.g., C&D debris, hazardous debris, sediment and rock, vegetative debris, or vehicles) and type of collection methods (e.g., collection from ROW, public areas, curbsides, collection sites, and private property) that are eligible for reimbursement under the Public Assistance Program. – Eligibility for household and commercial waste (i.e., garbage) to be collected as part of the debris stream. – Private property debris removal and eligibility for reimbursement under the Public Assistance Program. • Relay pertinent Public Assistance Program information regarding debris removal operations to the DPW DOC and other relevant CCSF DOCs involved in debris removal operations. • In coordination with the DPW DOC, determine debris removal operations (e.g., curbside/ROW removal, bin collection sites, private property debris removal). • Notify CCSF departments and agencies involved in debris removal of local, regional, State, and Federal authorities, regulations, and requirements that may be associated with this activity.



EOC CEG Position	Action
<p>Building Assessment Unit Leader</p>	<ul style="list-style-type: none"> If approved by FEMA, coordinate with the DBI and DPW DOCs and the Debris Management Center Unit Leader to ensure that proper documentation is obtained for debris removal on private property.
<p>C&D = construction and demolition CCSF = City and County of San Francisco CEG = Construction & Engineering Group DBI = Department of Building Inspection DOC = Department Operations Center DPW = Department of Public Works EAP = EOC Incident Action Plan EOC = Emergency Operations Center ESF = Emergency Support Function FEMA = Federal Emergency Management Agency REOC = Regional Emergency Operations Center ROW = right-of-way</p>	

Table 3-9: CEG: Debris Removal



DOC	Action
DBI	<ul style="list-style-type: none"> • Not applicable.
DPH	<ul style="list-style-type: none"> • Notify the Debris Management Center Unit Leader of CCSF public health codes that may affect debris removal operations and whether these codes will be modified, suspended, or waived. • Modify, suspend, or waive CCSF public health codes, as needed and permitted.
DPW	<ul style="list-style-type: none"> • Verify with Debris Management Center Unit Leader the types of debris and debris removal operations that are eligible for Public Assistance Program funding. • Verify with Recology that household and commercial waste (i.e., garbage) pick-up procedures are not commingled with debris removal operations due to potential Public Assistance Program eligibility issues unless confirmed by Cal EMA or FEMA. • Determine whether DPW resources, other CCSF department or agency resources, or DPW-contracted resources are sufficient to handle the debris removal and debris monitoring. If needed, submit resource requests to the Debris Management Center Unit Leader. • In coordination with the Debris Management Center Unit Leader, determine debris removal operations (e.g., curbside/ROW removal, bin collection sites, and private property debris removal) to maximize recycling. • Issue pre-disaster and/or post-disaster contracts to contractors to remove debris and monitor debris removal operations. • Monitor, track, and assign force account and/or contracted labor to remove debris according to the EAP debris removal priorities. • Document force account and/or contracted labor costs for debris removal that may be eligible for State and Federal reimbursement.
GSA	<ul style="list-style-type: none"> • Not applicable.
MTA	<ul style="list-style-type: none"> • Notify the Debris Management Center Unit Leader of CCSF transportation codes that may affect debris removal operations and whether these codes will be modified, waived, or suspended. • Modify, waive, or suspend CCSF transportation codes, as needed and permitted.
PUC	<ul style="list-style-type: none"> • Provide equipment and labor to support DPW debris removal operations, if available and requested by the DPW DOC.
RPD	<ul style="list-style-type: none"> • Provide heavy equipment, tree toppers, and labor to support DPW debris removal operations, if available and requested by the DPW DOC.



DOC	Action
SFE	<ul style="list-style-type: none"> • Determine and notify the DPW DOC and the Debris Management Center Unit Leader of the preferred collection method for HHW and e-waste. • Notify the Debris Management Center Unit Leader of CCSF environment codes that may affect debris removal operations and whether these codes will be modified, suspended, or waived. • Modify, suspend, or waive CCSF environment codes, as needed and permitted.
SFFD	<ul style="list-style-type: none"> • Not applicable.
SFPD	<ul style="list-style-type: none"> • Not applicable.
SFO	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to remove debris from SFO facilities. • Submit debris removal resource request through the DPW DOC, as needed. • Document force account and/or contracted labor costs for debris removal that may be eligible for State and Federal reimbursement.
SF Port	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to remove debris from SF Port facilities according to debris removal priorities established by the EAP. • Submit debris removal resource request through the DPW DOC, as needed. • Document force account and/or contracted labor costs for debris removal that may be eligible for State and Federal reimbursement.
TIDA	<ul style="list-style-type: none"> • Submit debris removal resource requests through the DPW DOC.



DOC	Action
<p>Cal EMA = California Emergency Management Agency CCSF = City and County of San Francisco DBI = Department of Building Inspection DOC = Department Operations Center DPH = Department of Public Health DPW = Department of Public Works e-waste = electronic waste EAP = EOC Incident Action Plan FEMA = Federal Emergency Management Agency HAZUS = Hazards–U.S. GSA = U.S. General Services Administration HHW = household hazardous waste MTA = Metropolitan Transportation Authority PUC = Public Utilities Commission ROW = right-of-way RPD = Recreation and Parks Department SFE = Department of the Environment SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority</p>	

Table 3-10: CCSF DOCs: Debris Removal



3.7 Demolition of Unsafe Buildings and Infrastructure

Buildings and infrastructure that pose an immediate threat to life and public health and safety may need to be demolished. The demolition process follows applicable procedures for condemnation, permitting, and demolition. 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. Demolition of buildings on private property may or may not be eligible for Public Assistance Program funding.

The following appendices support demolition of unsafe buildings and infrastructure:

- **Tab A: Authorities, Regulations, and Requirements**
- **Tab D: Debris Management Resources**
- **Tab E: Public Information**
- **Tab F: Public Assistance Program Guidance**
- **Tab G: Pre-Qualified Contractors of the CCSF Department of Public Works**

The responsibilities of CEG in demolition of unsafe buildings and infrastructure are summarized in **Table 3-11**.

The responsibilities of the CCSF DOCs in demolition of unsafe buildings and infrastructure are summarized in **Table 3-12**.



CEG Position	Action
CEG Coordinator	<ul style="list-style-type: none"> • Work with DBI and other ESF #3 departments to develop EAP demolition priorities, including demolishing structures that present an immediate threat to life safety, such as standing structures that in the wake of aftershocks may fall and structures that contain HAZMATs or present a HAZMAT threat. • Provide EAP demolition priorities to the Unit Leaders. • Submit demolition resource requests from the Debris Management Center Unit Leader to the EOC Logistics Section.
Street Clearance Unit Leader	<ul style="list-style-type: none"> • Not applicable.
Debris Management Center Unit Leader	<ul style="list-style-type: none"> • Receive demolition requests from the DPW DOC that cannot be fulfilled by DPW, other CCSF resources, or DPW-contracted resources and submit resource request to the CEG Coordinator. • Verify with the REOC, State debris specialist, and/or Public Assistance Program staff if the demolition of unsafe, uninsured buildings and the subsequent removal of the demolition debris may be eligible for Public Assistance Program funding. • Relay pertinent Public Assistance Program funding for demolition to the DBI DOC and Building Assessment Unit Leader. • Notify DPW and other relevant CCSF departments and agencies involved in demolition of unsafe buildings and infrastructure of local, regional, State, and Federal authorities, regulations, and requirements that may be associated with this activity.
Building Assessment Unit Leader	<ul style="list-style-type: none"> • Work with the State debris specialist and Public Assistance Program staff to determine if demolition of unsafe, uninsured buildings and the subsequent removal of the demolition debris are eligible for Public Assistance Program funding. If so, work with the State debris specialist and Public Assistance Program staff to identify eligible projects, acquire regulatory permits and other necessary documentation, and follow the demolition procedures outlined in FEMA 325, Debris Management Guide. • Work with the DBI DOC and SFE to ensure that waivers are in place to expedite the demolition process.



CEG Position	Action
CCSF = City and County of San Francisco CEG = Construction & Engineering Group DBI = Department of Building Inspection DOC = Department Operations Center DPW = Department of Public Works EAP = EOC Incident Action Plan EOC = Emergency Operations Center ESF = Emergency Support Function HAZMAT = hazardous material REOC = Regional Emergency Operations Center SFE = Department of the Environment	

Table 3-11: CEG: Demolition of Unsafe Buildings and Infrastructure



DOC	Action
DBI	<ul style="list-style-type: none"> • Work with DPW to develop a demolition strategy. Coordinate demolition procedures with other CCSF departments and agencies, as necessary. • Hold onsite hearings for unsafe buildings to be demolished and issue emergency order to demolish building, if no opposition. • As applicable, declare any building a public nuisance and without a hearing, request through the DPW DOC for DPW to demolish it as long as an emergency order is in place. • Modify, suspend, or waive demolition permits and expedite permitting and required buildings inspections, as needed and permitted.
DPH	<ul style="list-style-type: none"> • Not applicable.
DPW	<ul style="list-style-type: none"> • Identify hazardous materials in impacted structures or facilities and in demolition debris and determine its appropriate handling and disposition. • Work with DBI to develop a demolition strategy. Coordinate demolition procedures with other CCSF departments and agencies, such as the PUC, as necessary. • If demolition has been approved for Public Assistance Program funding, ensure that demolition procedures are carried out according to protocol outlined in FEMA 325, Debris Management Guide. • Determine if DPW resources or DPW-contracted resources are sufficient to handle demolition operations. If needed, submit resource requests to the Debris Management Center Unit Leader. • Issue pre-disaster and/or post-disaster contracts to contractors to demolish unsafe structures and buildings. • Monitor, track, and assign force account and/or contracted labor to demolish impacted CCSF buildings and structures according to the EAP demolition priorities as well as any building that DBI has declared to be a public nuisance and has requested DPW to demolish. • Document force account and/or contracted labor costs for demolition that may be eligible for State and Federal reimbursement.
GSA – Real Estate Division	<ul style="list-style-type: none"> • Coordinate with DPW and DBI on demolishing CCSF buildings managed by the Division.
MTA	<ul style="list-style-type: none"> • Not applicable.
PUC	<ul style="list-style-type: none"> • Coordinate with DPW and DBI on demolishing unsafe PUC facilities.
RPD	<ul style="list-style-type: none"> • Coordinate with DPW and DBI on demolishing unsafe RPD facilities.



DOC	Action
SFE	<ul style="list-style-type: none"> • Modify, suspend, or waive Demolition Debris Recovery Plans, as needed and permitted.
SFFD	<ul style="list-style-type: none"> • Coordinate with DPW and DBI on demolishing unsafe SFFD facilities.
SFPD	<ul style="list-style-type: none"> • Coordinate with DPW and DBI on demolishing unsafe SFPD facilities.
SFO	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to demolish unsafe SFO facilities according to demolition priorities identified by the Risk Management Office. • Submit demolition resource request through the DPW DOC, as needed. • Document force account and/or contracted labor costs for demolition that may be eligible for State and Federal reimbursement.
SF Port	<ul style="list-style-type: none"> • Monitor, track, and assign force account and/or contracted labor to demolish unsafe SF Port facilities according to demolition priorities as recommended by SF Port Engineering staff and based on life-safety considerations and the potential impact on transportation facilities and routes. • Submit demolition resource request through the DPW DOC, as needed. • Document force account and/or contracted labor costs for demolition that may be eligible for State and Federal reimbursement.
TIDA	<ul style="list-style-type: none"> • Ensure that the U.S. Navy signs off on building demolition projects. • For approved demolition projects, coordinate with the Planning Department regarding historic issues and DPH regarding asbestos issues.
<p>CCSF = City and County of San Francisco DBI = Department of Building Inspection DOC = Department Operations Center DPH = Department of Public Health DPW = Department of Public Works EAP = EOC Incident Action Plan GSA = U.S. General Services Administration MTA = Metropolitan Transportation Authority PUC = Public Utilities Commission RPD = Recreation and Parks Department SFE = Department of the Environment SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority</p>	

Table 3-12: CCSF DOCs: Demolition of Unsafe Buildings and Infrastructure



Section 4: Long-Term Recovery Operations

This section provides an overview of debris management long-term recovery operations that are managed, coordinated, and performed by the Recovery Operations Center. Long-term recovery operations will generally commence after the EOC has been deactivated.

4.1 Transition to Long-Term Recovery Operations

The transition to long-term recovery takes months and possibly years. This section provides an outline of projected activities by the CEG and CCSF departments and agencies that will likely be involved in debris management beyond the initial 60-day period of debris management response operations for a catastrophic earthquake event.

The responsibilities of CEG in the transition to long-term recovery operations are summarized in **Table 4-1**.

The responsibilities of the CCSF DOCs in the transition to long-term recovery operations are summarized in **Table 4-2**.

Debris management objectives for long-term recovery operations are described according to the phase of E+60 days.

4.1.1 E+60 Days

Operational priorities are:

- Transition to long-term recovery operations

Long-term recovery objectives are:

- Establish a team of CCSF department and agency staff to prepare a debris management operations closeout report and set up a records retention system for State and Federal reimbursement.
- Continue to work with the State debris specialist and Public Assistance Program staff to identify eligible demolition projects.
- Provide resources to support the expansion of demolition operations and expand demolition operations.



CEG Position	Action
CEG Coordinator	<ul style="list-style-type: none"> Support long-term debris management operations as deemed necessary by the Debris Management Center Unit Leader.
Street Clearance Unit Leader	<ul style="list-style-type: none"> Not applicable.
Debris Management Center Unit Leader	<ul style="list-style-type: none"> Request Category A – Debris Removal extension. Establish a team of DBI, SFE, and DPW staff to prepare a debris management operations closeout report. The report should include program goals, the operational approach, program monitoring, achieved recycling rates, landfill space savings, weight and percentage of debris recycled and disposed of, lessons learned, and areas for improvement. Set up a records retention system to support reimbursement under the Public Assistance Program, final inspection and closeout of Public Assistance Program grants by Cal EMA, and potential audits by FEMA. The records retention system should include a computerized filing system to ensure that records are organized from program inception to completion. Compile all paper documents and file hard copies for back-up purposes. Develop guidelines for DPW to have long-term custody of the records, manage the filing system and records retention database, and arrange access to the records for future auditors and program staff after program completion.
Building Assessment Unit Leader	<ul style="list-style-type: none"> Continue to work with the State debris specialist, Public Assistance Program staff, and DBI to identify eligible demolition projects, acquire regulatory permits and other necessary documentation and follow demolition procedures outlined in FEMA 325, Debris Management Guide.
<p>Cal EMA = California Emergency Management Agency CEG = Construction & Engineering Group DBI = Department of Building Inspection DPW = Department of Public Works FEMA = Federal Emergency Management Agency SFE = Department of the Environment</p>	

Table 4-1: CEG: Transition to Long-Term Recovery Operations



Department or Agency	Action
DBI	<ul style="list-style-type: none"> • Participate on team of DBI, SFE, and DPW staff to prepare a debris management operations closeout report. • Continue to work with the State debris specialist and Public Assistance Program staff to identify eligible demolition projects. • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for safety assessments that may be eligible for State and Federal reimbursement.
DPH	<ul style="list-style-type: none"> • Not applicable.
DPW	<ul style="list-style-type: none"> • Continue to oversee force account and/or contracted labor in demolishing affected CCSF buildings and structures and any public and private building that DBI has declared to be a public nuisance and has requested DPW to demolish. • Participate on team of DBI, SFE, and DPW staff to prepare a debris management operations closeout report. • Work with the Debris Management Center Unit Leader to manage the filing system and records retention database and arrange access to the records for future auditors and program staff after program completion. • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement.
GSA	<ul style="list-style-type: none"> • Not applicable.
MTA	<ul style="list-style-type: none"> • Not applicable.
PUC	<ul style="list-style-type: none"> • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for safety assessments and debris clearance and removal operations that may be eligible for State and Federal reimbursement.
RPD	<ul style="list-style-type: none"> • Submit documentation of force account and/or contracted labor costs to the Controller’s Office and/or Finance & Administration Section for debris clearance operations and safety assessments that may be eligible for State and Federal reimbursement.
SFE	<ul style="list-style-type: none"> • Participate on team of DBI, SFE, and DPW staff to prepare a debris management operations closeout report.



Department or Agency	Action
SFFD	<ul style="list-style-type: none"> Submit documentation of force account and/or contracted labor cost to the Controller's Office and/or Finance & Administration Section for hazardous material cleanup and containment efforts that may be eligible for State and Federal reimbursement.
SFPD	<ul style="list-style-type: none"> Submit force account labor costs to the Controller's Office and/or Finance & Administration Section for debris clearance support that may be eligible for State and Federal reimbursement.
SFO	<ul style="list-style-type: none"> Continue to oversee force account and/or contracted labor in demolishing unsafe SFO facilities. Submit documentation of force account and/or contracted labor costs to the Controller's Office and/or Finance & Administration Section for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement.
SF Port	<ul style="list-style-type: none"> Continue to oversee force account and/or contracted labor in demolishing unsafe SF Port facilities. Submit documentation of force account and/or contracted labor costs to the Controller's Office and/or Finance & Administration Section for debris clearance, safety assessments, staging, processing, and disposing of debris, debris removal, and demolition operations that may be eligible for State and Federal reimbursement.
TIDA	<ul style="list-style-type: none"> Not applicable.
<p>CCSF = City and County of San Francisco DBI = Department of Building Inspection DPH = Department of Public Health DPW = Department of Public Works GSA = U.S. General Services Administration MTA = Metropolitan Transportation Authority PUC = Public Utilities Commission RPD = Recreation and Parks Department SFE = Department of the Environment SFFD = San Francisco Fire Department SFO = San Francisco International Airport SFPD = San Francisco Police Department SF Port = San Francisco Port Authority TIDA = Treasure Island Development Authority</p>	

Table 4-2: CCSF Departments and Agencies: Transition to Long-Term Recovery Operations



Section 5: Plan Maintenance

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

5.1 Plan Distribution

The San Francisco Department of Emergency Management (DEM) 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.

5.2 Plan Updates

DEM is responsible for periodic review, updates, re-publishing, and re-distribution of the plan. DEM will maintain records of revisions to this plan. The plan may be modified as a result of post-incident analyses and/or post-exercise critiques, including corrective action plans. It may also be modified if responsibilities, procedures, laws, rules, legislation, or regulations pertaining to emergency management and operations change.

DEM will annually assess the need for revisions to the ERP and annexes based on the following considerations:

- Changes to local regulations, requirements, or organization.
- Implementation of tools or procedures that alter or improve on plan components.

5.3 Plan Testing, Training, and Exercises

Exercising the plan and evaluating its effectiveness involve the use of training, exercises, and evaluation of actual events to determine whether the goals, objectives, decisions, actions, and timing outlined in the plan lead to a successful response.

Exercises are the best method of evaluating the effectiveness of a plan but 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. DEM is responsible for planning and conducting emergency exercises for the Operational Area.

DEM will inform CCSF departments and agencies of training opportunities associated with emergency management, disaster preparedness, and NIMS compliance. Those with responsibilities under this plan must ensure that their personnel are properly trained to carry out these responsibilities.



Exercises will be conducted on a regular basis to maintain readiness. Exercises should include as many Operational Area agencies and departments as possible. DEM will document Operational Area exercises by conducting a critique and using the information obtained from the critique to complete an After Action Report (AAR) to develop a corrective action plan for revising standard operating procedures and policies as necessary.

5.4 After-Action Report

After every exercise or event, an AAR should be completed. The AAR has two components: an AAR, which captures observations and recommendations based on the incident objectives 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. DEM is the lead agency for the development of the AAR and will convene event participants to discuss action items and solicit recommendations for improvement.



Section 6: Glossary and Terms

AAR	After Action Report
C&D	construction and demolition
Cal EMA	California Emergency Management Agency
CalRecycle	California Department of Resources Recycling and Recovery Board
Caltrans	California Department of Transportation
CBRNE	chemical, biological, radiological, nuclear, and high-yield explosive
CCSF	City and County of San Francisco
CEG	Construction & Engineering Group
CGS	California Geological Survey
CHP	California Highway Patrol
DBI	Department of Building Inspection
DDMP	Disaster Debris Management Plan
DEM	Department of Emergency Management
DOC	Department Operations Center
DPH	Department of Public Health
DPW	Department of Public Works
DSOD	California Department of Water Resources, Division of Safety of Dams
EAP	EOC Incident Action Plan
EMAC	Emergency Management Assistance Compact
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ERP	Emergency Response Plan
ESF	Emergency Support Function
e-waste	electronic waste
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FOSC	Federal On-Scene Coordinator



HAZMAT	hazardous material
HAZUS-MH	Hazards–U.S. Multi-Hazard
HMP	Hazard Mitigation Plan
JFO	Joint Field Office
M	moment magnitude
mph	mile(s) per hour
MTA	Municipal Transportation Authority
MTC	Metropolitan Transportation Commission
NIMS	National Incident Management System
PUC	Public Utilities Commission
REOC	Regional Emergency Operations Center
RFQ	request for qualifications
ROW	right-of-way
RPD	Recreation and Parks Department
RRT	Regional Response Teams
SEMS	Standardized Emergency Management System
SFE	Department of the Environment
SF Port	San Francisco Port Authority
SFFD	San Francisco Fire Department
SFHA	Special Flood Hazard Area
SFO	San Francisco International Airport
SFPD	San Francisco Police Department
TIDA	Treasure Island Development Authority
U.S.C.	U.S. Code
USCG	U.S. Coast Guard
WMD	weapon of mass destruction



Key Terms

Construction and demolition (C&D) debris. Such waste 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.

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

Debris management site. A site that is used to temporarily store, sort, 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. 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. In California, the California Department of Transportation is responsible for implementing the program. The Emergency Relief Program is described in the Emergency Relief Manual.

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 pesticides and insecticides, 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.

Public Assistance Program. Under the Public Assistance Program, which is authorized by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, 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 management, 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.

Unsafe structure. A structure found to be dangerous to the health or safety of the public because the structure 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.



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Tab A: Authorities, Regulations, and Requirements



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
DOE	SFEC, Chapter 7, Section 706	Requires that generation of C&D at City-owned facilities be minimized and that reuse and recycling be maximized.			✓	✓
	SFEC, Chapter 10, Section 1002	Mandates that all City contractors transporting aggregate materials cover the load.		✓		
	SFEC, Chapter 14, Sections 1402-1409	Requires that all C&D materials be transported and processed by a registered transporter/facility and mandates that a list of all registered facilities and transporters be maintained by the Department of the Environment.		✓	✓	✓
	SFEC, Chapter 19, Section 1903-1912	Mandates that all refuse be sorted according to recyclables, compostables, and trash, with limited exceptions.			✓	



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
DPW	SFPWC, Article 17	Controls disposal of C&D materials.			✓	
	SFPC, Article 19	Regulates the disposal of unclaimed property in the possession of the Police Department.			✓	
	SFPLC, Article 10, Section 1007	Permits the demolition of buildings that are designated as Historical, Architectural, or Aesthetic Landmarks to remedy an unsafe condition				✓
	SFPLC, Article 11, Section 1112	Details the process for a permit to demolish a significant or contributory building				✓
	SFBC Chapter 13B, Sections 1301B-1305B	Requires that C&D debris in excess of one cubic yard be transported by a registered transporter and handled, processed, and otherwise managed by a registered facility for the recovery of materials				✓



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
DPW (cont)	SFBC Chapter 33, Section 3303	Describes the safeguards that must be employed when conducting demolition of structures of Type I, II, III, IV construction greater than two stories or 25 feet.				✓
MTA	SFTC, Division I, Article 6	Regulates the temporary use or occupancy of public streets.	✓		✓	
	SFTC, Division II, Article 500	Provides size, weight and load restrictions for vehicles on public streets.	✓	✓	✓	
DPH	SFHC, Article 6, Section 280	Prohibits the dumping of refuse (including house refuse, butchers' offal, garbage, refuse, dirt, ashes, cinder, sludge, broken glass, crockery, tins, bones, rubbish or other like matter or any dead animals) in undesignated places.			✓	
	SFHC, Article 21, Division VI, Section 1150-1152	Prohibits unauthorized release of hazardous materials and provides reporting and monitoring guidance for such releases.			✓	



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
DPH (cont)	SFHC, Article 21, Division VI, Section 1155	Provides guidance for parties conducting hazardous material cleanup or underground storage tank closure activities.			✓	
	SFHC, Article 24	Regulates all releases of chlorofluorocarbons (CFCs) into the environment.		✓	✓	✓
C&D = construction and demolition		SFPC = San Francisco Police Code				
SFBC = San Francisco Building Code		SFPLC = San Francisco Planning Code				
SFEC = San Francisco Environment Code		SFPWC = San Francisco Public Works Code				
SFHC = San Francisco Health Code		SFTC = San Francisco Transportation Code				

Table A-1: Local Authorities, Regulations, and Requirements That Affect Debris Management Operations



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
Bay Area Regional Air Quality Management District	Regulation 5, Rule 401	Describes the types of fires that are allowable on permissive burn days, including hazardous material, flood debris, and forest, marsh or wildland vegetation management fires.			✓	
	Regulation 5, Rule 404-406	Describes prior notification requirements and provides emergency waiver authorization and guidance for certain types of allowable fires.			✓	
	Regulation 8, Rule 5-328.3	Describes emergency protocol for the degassing of organic liquid storage tanks.		✓		✓
	Regulation 8, Rule 34-111	Describes requirements for small solid waste disposal site exemptions.			✓	
	Regulation 8, Rule 40-310	Describes protocol for removing underground storage tanks containing organic compounds.		✓		



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
San Francisco Bay Regional Water Quality Control Board	See Table A-3	See Table A-3	See Table A-3			

Table A-2: Regional Authorities, Regulations, and Requirements That Affect Debris Management Operations



Authority	Regulation		Debris Operation			
	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	✓	✓	✓	✓



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
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			✓	
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 to not 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	✓	✓		



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
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			✓	✓



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
California Department of Resources Recycling and Recovery	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		✓	✓	



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
State Water Resources Control Board	CWC, Division 7 § 13172—13173.2	Describes water quality regulations related to the siting, operation, and closure of waste disposal sites.			✓	
	CWC, Division 7 § 13273	Requires water quality assessments at solid waste disposal sites.			✓	
	CWC, Division 7 § 13260—13274	Describes all waste discharge requirements for any discharge that could affect the quality of the waters of the state.			✓	
C&D = construction and demolition CCR = California Code of Regulation		CVC = California Vehicle Code DFG = California Department of Fish and Game				

Table A-3: State Authorities, Regulations, and Requirements That Affect Debris Management Operations



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
FEMA	44 C.F.R. Part 206 and FEMA 325, Debris Management Guide	Describes eligibility requirements for funding under the Public Assistance Program	✓	✓	✓	✓
USACE	Section 404 of the Clean Water Act (33 U.S.C. § 1344 [2008])	Regulates discharge of pollutants into the waters of the United States	✓			
	Flood Control and Coastal Emergency Act (P.L. 84-99)	Authorizes the USACE to provide assistance for debris management associated with repair of flood control works		✓		
	Sections 15, 19, and 20 of the Rivers and Harbors Appropriation Act (33 U.S.C. §§ 401–406 [2008])	Authorizes the USACE to remove and/or oversee the removal of sunken vessels and other obstructions under emergency conditions	✓	✓		
	Section 103 of the Water Resources Development Act of 1976 (P.L. 94-587), (90 Stat. 2921)	Authorizes the USACE to collect and remove drift and debris from publicly maintained commercial harbors and surrounding land and water areas		✓		
U.S. Department of Transportation	United States Code (U.S.C.), 23 U.S.C. §§ 125 [2008]	Describes eligibility requirements for funding under the Emergency Relief Program	✓			



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
U.S.EPA	Comprehensive Environmental Response, Compensation, and Liability Act; 42 U.S.C. §§ 9601–9675 [2008])	Authorizes Federal response for the removal of hazardous materials incidents on a short-term basis	✓			
	Resource Conservation and Recovery Act (42 U.S.C. §§ 6901 et seq. [2008])	Requires safe disposal of waste materials and promotes the recycling of waste materials			✓	
National Marine Fisheries Service	Coastal Zone Management Act (16 U.S.C. §§ 1451–1456 [2008])	Requires consistency between Federal activities and State coastal zone management programs		✓		
U.S. Fish and Wildlife Service, National Marine Fisheries Service	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 USFWS and NMFS when debris management activities could jeopardize the continued existence or adversely affect the habitat of threatened or endangered species	✓	✓	✓	✓
U.S. Fish and Wildlife Service	Fish and Wildlife Coordination Act of 1934 (16 U.S.C. §§ 661–667 [2008])	Requires USFWS to evaluate any project that would destroy wildlife habitat or modify a natural stream or body of water		✓	✓	



Authority	Regulation		Debris Operation			
	Name	Description	Debris Clearance	Debris Removal	Staging, Processing, and Disposal	Demolition
Office of Historic Preservation, Advisory Council on Historic Preservation	Section 106 of the National Historic Preservation Act (16 U.S.C. §§ 470f [2008])	Requires Federal agencies to take into account the effects a project will have on historic resources by consulting with the State Historic Preservation Officer and/or the ACHP				✓
ACHP = Advisory Council on Historic Preservation C.F.R. = Code of Federal Regulations FEMA = Federal Emergency Management Agency NMFS = National Marine Fisheries Service P.L. = Public Law Stat. = U.S. Statutes at Large U.S.C. = U.S. Code USACE = U.S. Army Corps of Engineers USFWS = U.S. Fish and Wildlife Service						

Table A-4: Federal Authorities, Regulations, and Requirements That Affect Debris Management Operations



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Tab B: Debris-Generating Events



This section contains a description of the types of debris, potential debris-generating events, and other scenario events and their projected impacts.

B.1 Types of Debris

The quantity and type of debris generated from a disaster is a function of the location and type of event and its duration and intensity. **Table B-1** lists the primary types of debris generated from natural and human-caused events that were identified in the 2008 City and County of San Francisco Hazard Mitigation Plan (HMP).

Not all of the types of debris listed in **Table B-1** are eligible for removal assistance under the FEMA Public Assistance Program. To be eligible for FEMA funding, the debris management work must be a direct result of a Presidentially declared disaster, occur within the designated disaster area, and be the responsibility of the applicant (i.e., the entity applying for FEMA funding) at the time of the disaster. Also, the debris management work must be necessary to eliminate an immediate threat to life, public health, and safety; eliminate threats of significant damage to improved public or private property; or ensure the economic recovery of the affected community to the benefit of the community at large.

Debris Type	Description
Construction and demolition (C&D)	Typically, wood, bricks, rubble, dry wall, 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 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	<p>Waste that is regulated under the Resource Conservation and Recovery Act of 1976 (RCRA) (42 U.S.C. §§ 6901 et seq. [2008]) and contains properties that make it potentially harmful to human health or the environment.</p> <p>In regulatory terms, this type of waste is waste that exhibits at least one of the following four characteristics: ignitability, corrosivity, reactivity, and toxicity.</p> <p>Examples of hazardous debris are:</p> <ul style="list-style-type: none"> Regulated asbestos-containing material (RACM), such as friable asbestos-containing material (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.



Debris Type	Description
Hazardous waste (cont'd.)	<ul style="list-style-type: none"> • Nonregulated asbestos-containing material (non-RACM), which refers to ACM that is nonfriable, 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 pesticides and insecticides, 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.
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.
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 C&D = construction and demolition RACM = regulated asbestos-containing material RCRA = Resource Conservation and Recovery Act of 1976 U.S.C. = U.S. Code	

Table B-1: Types of Debris



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



Debris Type	Description
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
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



Debris Type	Description
Special Waste	Ash Sewage Solids Industrial Sludge Treated Medical Waste Bulky Items Tires Remainder/Composite Special Waste
Mixed Residue	Mixed Residue

Table B-2: Categories and types of debris utilized by CalRecycle

B.2 Potential Hazards

As identified in the HMP, San Francisco is at risk for a number of natural and human-caused hazards that have the potential to generate significant amounts of debris. A brief description of each hazard is provided in **Sections B.2.1 through B.2.11**. The location, extent, and the probable types of debris that a particular hazard would generate is outlined in **Table B-3**. Supporting hazard maps are provided at the end of this tab.

B.2.1 Ground Shaking

San Francisco is susceptible to seismic hazards from numerous known faults and potentially unmapped or undiscovered faults. Most of the major faults in the Bay Area are strike-slip faults, where the rupture plane is oriented generally vertically and the ground on one side of the fault slips horizontally relative to the other. The Bay Area also has several thrust or reverse faults, where ground moves upward and over adjacent ground. As noted earlier, the most active strike-slip faults in the region are the San Andreas fault, which has ten different fault segments, and the Hayward fault, which has three fault segments, including the Rodgers Creek fault. No known active faults are present within the San Francisco County limits.

The severity or extent of an earthquake can be expressed in terms of the intensity, **M. Maps B-1 and B-2** depict the shaking intensity areas for a **M 7.9** earthquake on the northern segment of the San Andreas fault (such an event would be similar to the 1906 earthquake) and a **M 7.05** earthquake on the entire length of the Hayward fault. **Map B-1** shows that all of San Francisco is susceptible to very strong to severe shaking.

B.2.2 Ground Failure

As shown on **Map B-3**, the California Geological Survey (CGS) has mapped areas of liquefaction potential, as required by the Seismic Hazard Mapping Act of 1990. Liquefaction occurs when earthquake waves pass through a saturated granular soil layer, distort its granular structure, and cause some of its pore spaces to collapse. The collapse of the granular structure increases pore space water pressure, and decreases the soil's shear strength, causing ground



rupture, sand boils, ground subsidence, and lateral displacement of the ground. Liquefiable soils in San Francisco are generally found in filled areas along the bay front, former bay inlets, and sandy low-lying areas along the ocean front.

In addition to liquefaction, ground failure from seismic hazards can result in landslides (see **Map B-4**). The most common earthquake-induced landslides include shallow rock falls, disrupted rock slides, and disrupted slides of earth and debris. According to CGS, steep slopes on hills and cliffs and intermediate slopes with previous landslide deposits are highly susceptible to landsliding. Also, weak saturated soils that are bordered by steep or unsupported embankments or slopes are prone to lateral spreading, which is a type of landslide.

B.2.3 Tsunami

A tsunami run-up map is shown on **Map B-5**. The map was developed using the June 2007 modeling study of tsunami effects at marine oil terminals in a San Francisco Bay, by Jose Borrero, Lori Dengler, Burak Uslu, and Costas Synolakis, for a worst-case scenario tsunami run-up along the bay side of the San Francisco Bay. The worst-case scenario for this model is the Alaska Peninsula rupture of the Alaska-Aleutians subduction zone. Interpolates on the bay side are between the 14.45-foot run-up at Fort Point and the 5.91-foot run-up in the Potrero District.

Map B-6 shows the tsunami inundation map that the California Emergency Management Agency (Cal EMA) prepared. This map illustrates coastal land areas that could become submerged in a tsunami. The area of land subject to inundation is a factor of the distance of the shoreline from the tsunami-generating event; the magnitude of the earthquake; the duration and period of the waves; the run-up elevations; the tidal level at the time of occurrence; the location of the waves along the shore and the direction of the shore with respect to the propagated waves; and the topography of the seabed.

B.2.4 Flood

San Francisco has no natural surface flooding sources, such as streams and rivers, that pose a flood hazard within the city. Therefore, flood hazards in San Francisco are limited to coastal flooding resulting from high onshore winds and high tides and flooding that occurs when stormwater exceeds the capacity of the city's drainage systems.

FEMA has conducted an approximate analysis of flooding in San Francisco Bay and prepared a preliminary Flood Insurance Rate Map (FIRM), dated September 2007, that shows the extent of potential flooding in San Francisco, including Treasure Island. The preliminary FIRM shows the Special Flood Hazard Areas (SFHAs), which are those areas subject to inundation during a flood having a 1 percent chance of occurrence in any given year (also referred to as the 100-year flood). The SFHAs for San Francisco are based on the effects of Pacific Ocean storms that occur



Hazard	Sub-Hazard	Extent	Primary Debris Type	Likely Location
Seismic Hazards	Ground shaking	<p>M 0–4.3 = weak M 4.3–4.8 = moderate M 4.8–6.2 = strong M 6.2–7.3 = severe/violent M 7.3–8.9 = very violent</p>	<p>M 0–4.3: C&D M 4.3–4.8: C&D M 4.8–8.9: C&D, sediment, vegetative, white and brown goods, household waste, e-waste, vehicles and vessels, putrescent</p>	<p>M 4.8–7.3 Hayward Event: Lake Merced area, Treasure Island, and the Marina District, North Waterfront, Financial District North, Financial District South, SOMA, Mission Bay, South Beach, Potrero Hill, Bayview District, and Hunters Point neighborhoods M 7.3–8.9 San Andreas Event: All neighborhoods</p>
	Ground failure: Liquefaction	Unknown, but may include ground rupture, sand boils, ground subsidence, and lateral and vertical displacement of the ground	C&D, sediment, vegetative, white and brown goods	Lake Merced area, Treasure Island, and the Marina District, North Waterfront, Financial District North, Financial District South, SOMA, Mission Bay, South Beach, Potrero Hill, Bayview District, and Hunters Point neighborhoods.
	Ground failure: Earthquake-induced-landslide	Unknown, but studies show that earthquakes as small as M 4.0 may dislodge landslides from susceptible slopes. Landslides in San Francisco are typically narrower than 1,500 feet.	C&D, sediment, vegetative	Hills and cliffs of the Outer Richmond, Sea Cliff, Presidio, Lake Shore, Bayview Heights, Midtown Terrace, Twin Peaks, Clarendon Heights, Golden Gate Heights, Forest Hills, Diamond Heights, Eureka Valley/Dolores Heights, and Noe Valley neighborhoods



Hazard	Sub-Hazard	Extent	Primary Debris Type	Likely Location
Seismic Hazards (cont'd.)	Tsunami	A 100-year return-period tsunami wave run-up elevation would be 8.2 feet along the coast.	C&D, sediment, vegetative, white and brown goods, household waste, e-waste, vehicles and vessels, putrescent	Lake Shore, Outer Parkside, Outer Sunset, Golden Gate Park, Outer Richmond
Weather-Related Hazards	Flood: Coastal	The 100-year flood is likely to cause shallow flooding, with wave heights of less than 3 feet.	Sediment, vegetative	Crissy Field in the Marina District, the inlets of Mission Bay, Potrero Hill, Hunters Point, Bayview District neighborhoods, and the inlets in the northwestern and western waterfront parts of Treasure Island.
	Landslide	Triggered by winter storm events, which occur every 7–10 years. Landslides in San Francisco are typically narrower than 1,500 feet.	C&D, sediment, vegetative	Hills and cliffs of the Outer Richmond, Sea Cliff, Presidio, Lake Shore, Bayview Heights, Midtown Terrace, Twin Peaks, Clarendon Heights, Golden Gate Heights, Forest Hills, Diamond Heights, Eureka Valley/Dolores Heights, and Noe Valley neighborhoods



Hazard	Sub-Hazard	Extent	Primary Debris Type	Likely Location
Weather-Related Hazards (cont'd.)	Wildfire	The Cal FIRE fire severity zones in San Francisco are mainly urban unzoned, limited moderate, and non-wildland/non-urban zones, and extremely limited high zones	Vegetative, limited amounts of C&D and vehicles	All parks and open spaces and Yerba Buena Island
	Wind	High winds are those that last longer than 1 hour at greater than 39 mph or for any length of time at greater than 57 mph	Vegetative, hanging limbs and hazardous tree stumps	All neighborhoods
Other Hazards	Reservoir failure	Unknown	C&D, vegetative, sediment, white and brown goods, vehicles	Inundation areas are unknown, but given the locations of all reservoirs in San Francisco, inundation could occur in the Merced Manor, Outer Parkside, Outer Sunset, Miraloma Park, Saint Francis Wood, Midtown Terrace, Forest Knolls, Twin Peaks, Clarendon Heights, Russian Hill, Potrero Hill, Bernal Heights South, Bayview District, Hunters Point, Portola, Visitacion Valley, and Ingleside neighborhoods



Hazard	Sub-Hazard	Extent	Primary Debris Type	Likely Location
Other Hazards (cont'd.)	Urban conflagration	High-extreme = wood-frame structures, commercial/industrial land use, older structures	C&D, vegetative, white and brown goods, household hazardous waste, e-waste, putrescent	North Waterfront, South Beach, Mission Bay, Potrero Hill, Hunters Point, Van Ness/Civic Center, Downtown/Tenderloin, and Hayes Valley neighborhoods.
	Human-caused hazard: Hazardous material	Unknown	Contaminated C&D, vegetative, sediment	Within the city's industrial area and along land and water transportation corridors
	Human-caused hazard: Weapon of mass destruction	Unknown	Hazardous waste and contaminated C&D, sediment, vegetative, household waste, e-waste, white and brown goods, putrescent, vehicles and vessels	San Francisco Bay, state and federal highways, public transportation, areas surrounding access to the Golden Gate bridge, and the Financial District South, South of Market, Downtown/Tenderloin, and Van Ness/Civic Center neighborhoods
C&D = construction and demolition FEMA = Federal Emergency Management Agency HHW = household hazardous waste M = moment magnitude mph = mile(s) per hour SOMA = south of Market Street				

Table B-3: Debris-Generating Events



in conjunction with high tides and strong winds that can cause significant wave run-up. **Map B-7** shows the SFHAs within San Francisco.

B.2.5 Landslide

Non-earthquake-induced landslides in San Francisco generally occur during or after prolonged periods of winter rainstorms. As noted in **Section B.2.2**, steep slopes on hills and cliffs are the areas most susceptible to landsliding in San Francisco. CGS has not prepared maps for San Francisco that identify hazards associated with non-earthquake-induced landslides. However, the areas that are subject to landslides during earthquakes are also subject to landslides under other conditions. Consequently, the seismic hazard map is also used to show steep-sloped areas in which landslides may occur under other conditions.

B.2.6 Wildfire

A wildland fire is a type of wildfire that spreads through consumption of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildland fires can be caused by human activities (such as arson or campfires) or by natural events such as lightning. Wildland fires often occur in forests or other areas with ample vegetation. In addition to wildland fires, wildfires can be classified as urban fires, interface or intermix fires, and prescribed fires.

The following three factors contribute significantly to wildland fire behavior and can be used to identify wildland fire hazard areas.

- **Topography:** As slope increases, the rate of wildland fire spread increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior. However, ridgetops may mark the end of wildland fire spread, since fire spreads more slowly or may even be unable to spread downhill.
- **Fuel:** The type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the “fuel load”). The ratio of living to dead plant matter is also important. The risk of fire is increased significantly during periods of prolonged drought as the moisture content of both living and dead plant matter decreases. The continuity of the fuel, both horizontally and vertically, is also an important factor.
- **Weather:** The most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. By contrast, cooling and higher humidity often signals reduced wildland fire occurrence and easier containment.

Map B-8 shows the local and Federal fire severity zones within San Francisco.



B.2.7 Wind

High winds are defined as those that last longer than 1 hour at more than 39 miles per hour (mph) or for any length of time at greater than 57 mph. Historically, peak gust wind velocities have occurred in San Francisco during the winter months when strong coastal storms make landfall.

B.2.8 Reservoir Failure

Fifteen reservoirs are within the San Francisco County limits. Four of the reservoirs have aboveground sides and are considered to be dam faces, which are regulated by the California Department of Water Resources, Division of Safety of Dams (DSOD). State-sized dams are more than 25 feet in height and hold back more than 15 acre-feet of water or are more than 6 feet in height and hold more than 50 acre-feet of water. As shown on **Map B-9**, the DSOD has prepared dam inundation maps for the Sutro, Sunset, and University Mound reservoirs only. However, the maps are most likely outdated, because they were prepared in the 1970s and do not take into account subsequent construction activities that might change water flow patterns.

B.2.9 Urban Conflagration

An urban conflagration is a fire that occurs in the built environment and spreads to numerous structures. A conflagration can have many causes, including criminal acts, residential and industrial accidents, and acts of nature. **Map B-10** shows urban conflagration hazard areas for all areas of the city for which parcel data were available. This model takes into account building construction material, land use, and structural age.

B.2.10 Hazardous Material Events

Hazardous materials include hundreds of substances that pose a significant risk to humans. These substances may be highly toxic, reactive, corrosive, flammable, radioactive, or infectious.

Hazardous material releases can occur from any of the following:

- Fixed facilities (such as refineries, chemical plants, storage facilities, manufacturing facilities, warehouses, wastewater treatment plants, swimming pools, dry cleaners, automotive sales/repair, and gas stations).
- Highway and rail transportation (such as tanker trucks and railcars transporting hazardous materials).
- Maritime transportation (including transportation of petroleum products by barges and ocean-going tankers and spills associated with petroleum terminals).
- Air transportation (such as cargo packages).
- Pipeline transportation (petroleum products, natural gas, and other chemicals).



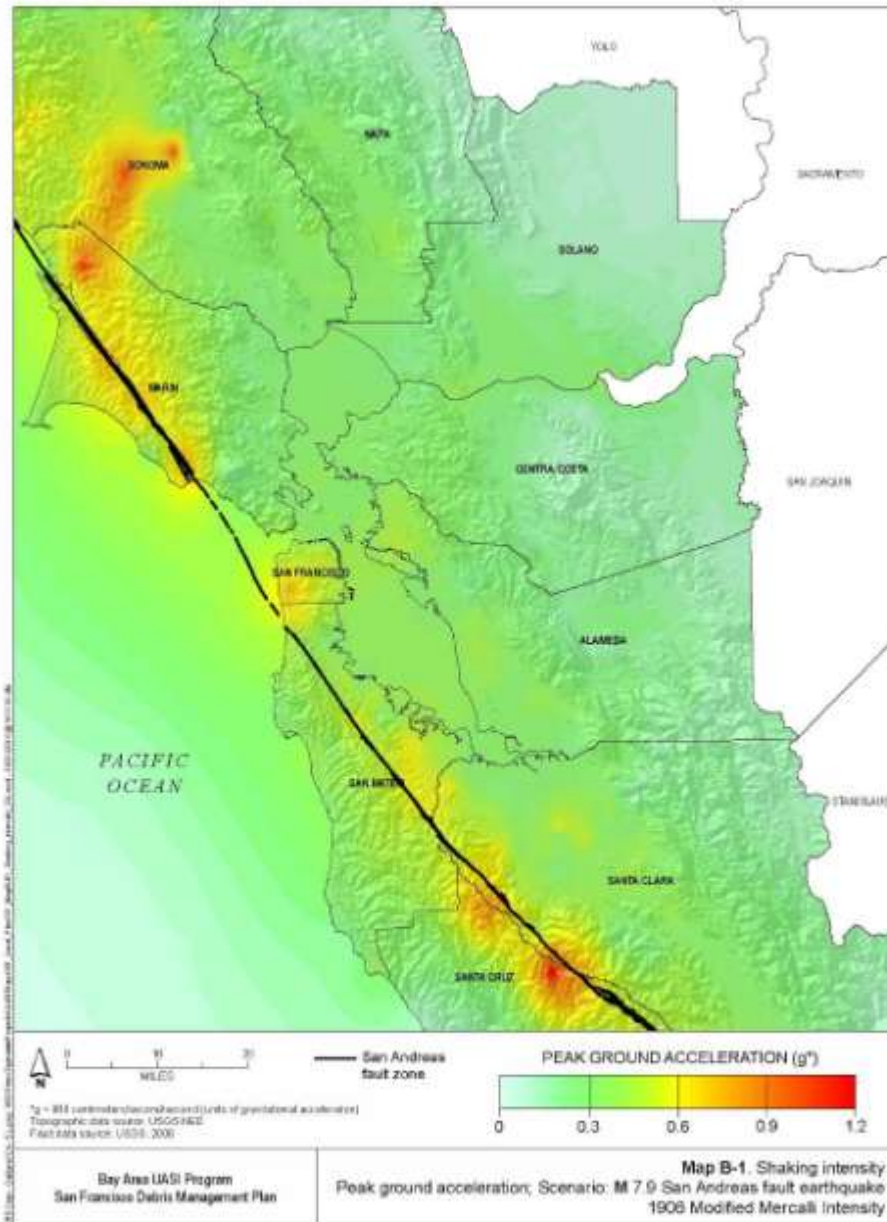
B.2.11 Weapons of Mass Destruction and Terrorism

A weapon of mass destruction (WMD) is a weapon that can kill a large number of humans and/or cause significant damage to the built or natural environment. WMDs include chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) weapons.

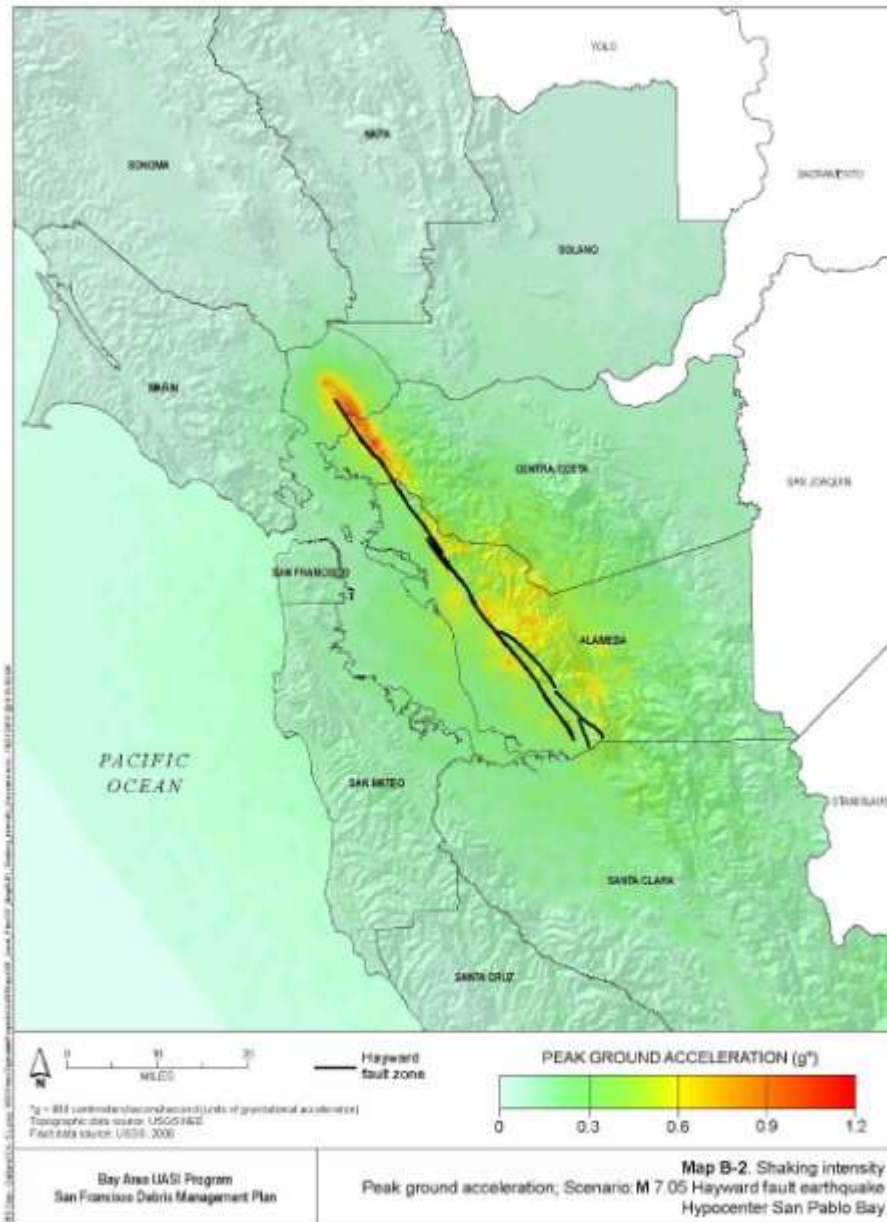
The Northern California Regional Intelligence Center (NCRIC), a counter-terrorism, law-enforcement-oriented intelligence fusion center, suggests that the top target sectors for a CBRNE attack include banking and financing, commercial, defense-industrial base, emergency services, energy, government facilities, postal and shipping, transportation, and water.

Terrorism can be defined as violence against noncombatants (civilians) to achieve political or ideological objectives through fear. Most definitions of terrorism include only those acts that are intended to create fear or terror, are perpetrated for an ideological goal, deliberately target or discount the safety and livelihood of noncombatants (civilians), or are unlawful acts of violence and of unconventional and psychological warfare. The variations on possible terrorist attacks are many. Incidents with the greatest impact are those involving WMDs, including CBRNE weapons.

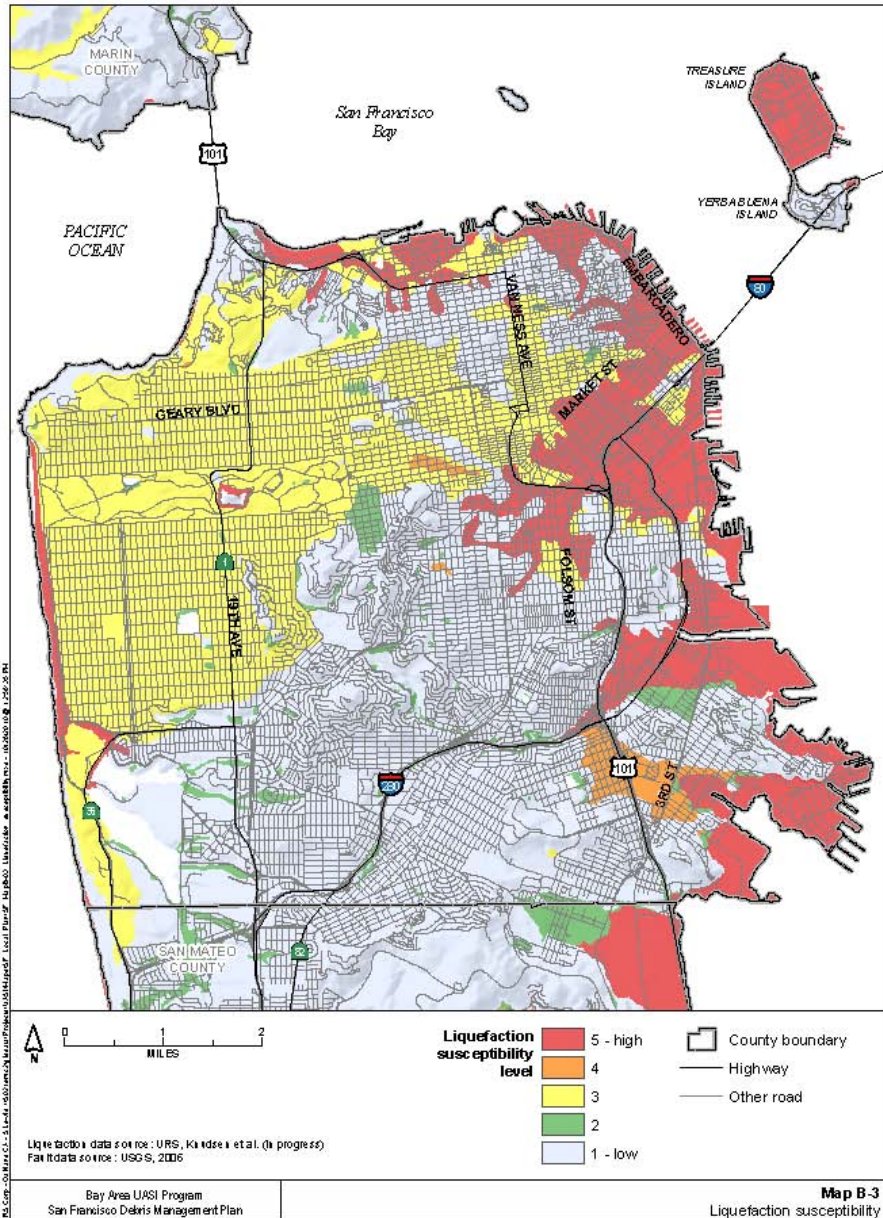
Places at risk to terrorism, as defined by the Department of Homeland Security, include cities that have economic and symbolic value, places with hazardous facilities, and areas where large groups of people congregate, such as an office building or sports arena.



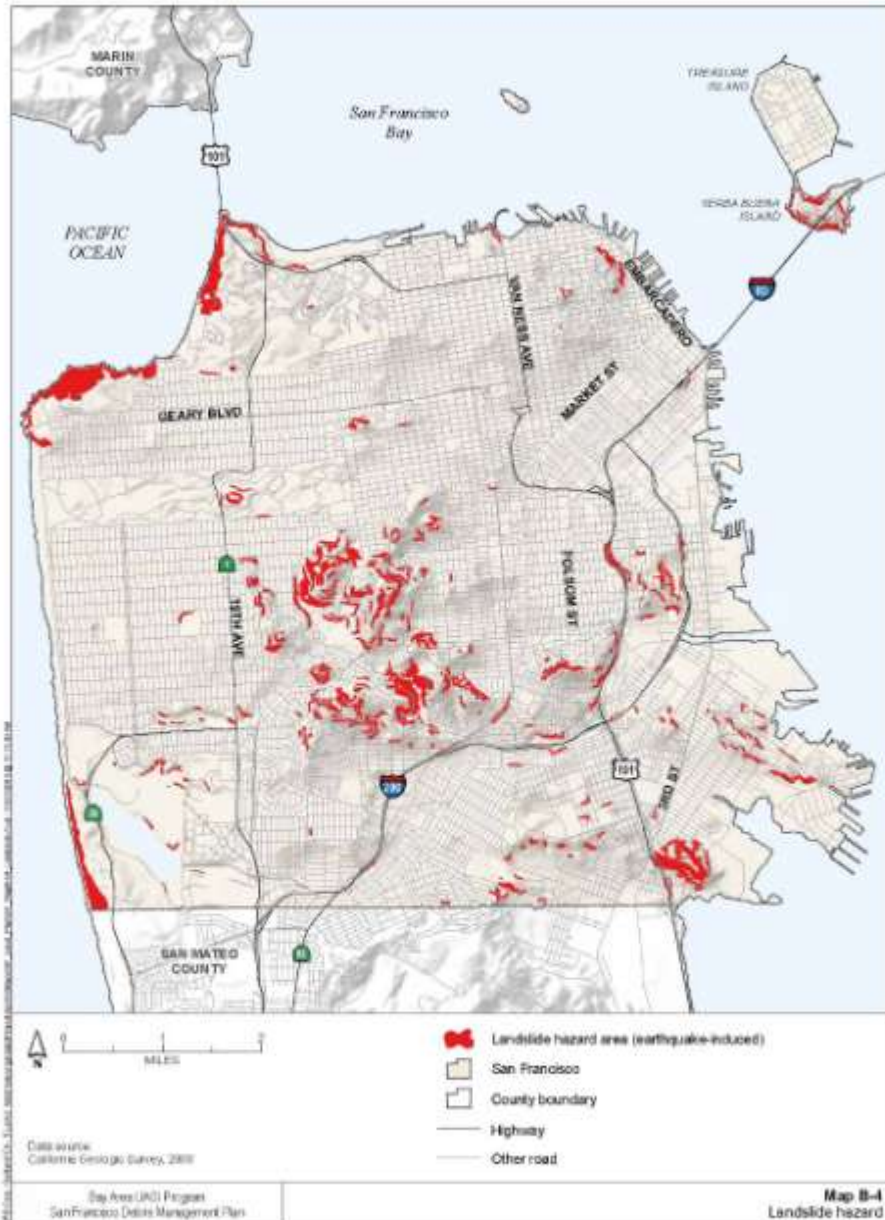
Map B-1: Shaking Intensity: Peak Ground Acceleration; Scenario: M 7.9 San Andreas Fault Earthquake; 1906 Modified Mercalli Intensity



Map B-2: Shaking Intensity: Peak Ground Acceleration; Scenario: M 7.05 Hayward Fault Earthquake; Hypocenter San Pablo Bay



Map B-3: Liquefaction Susceptibility



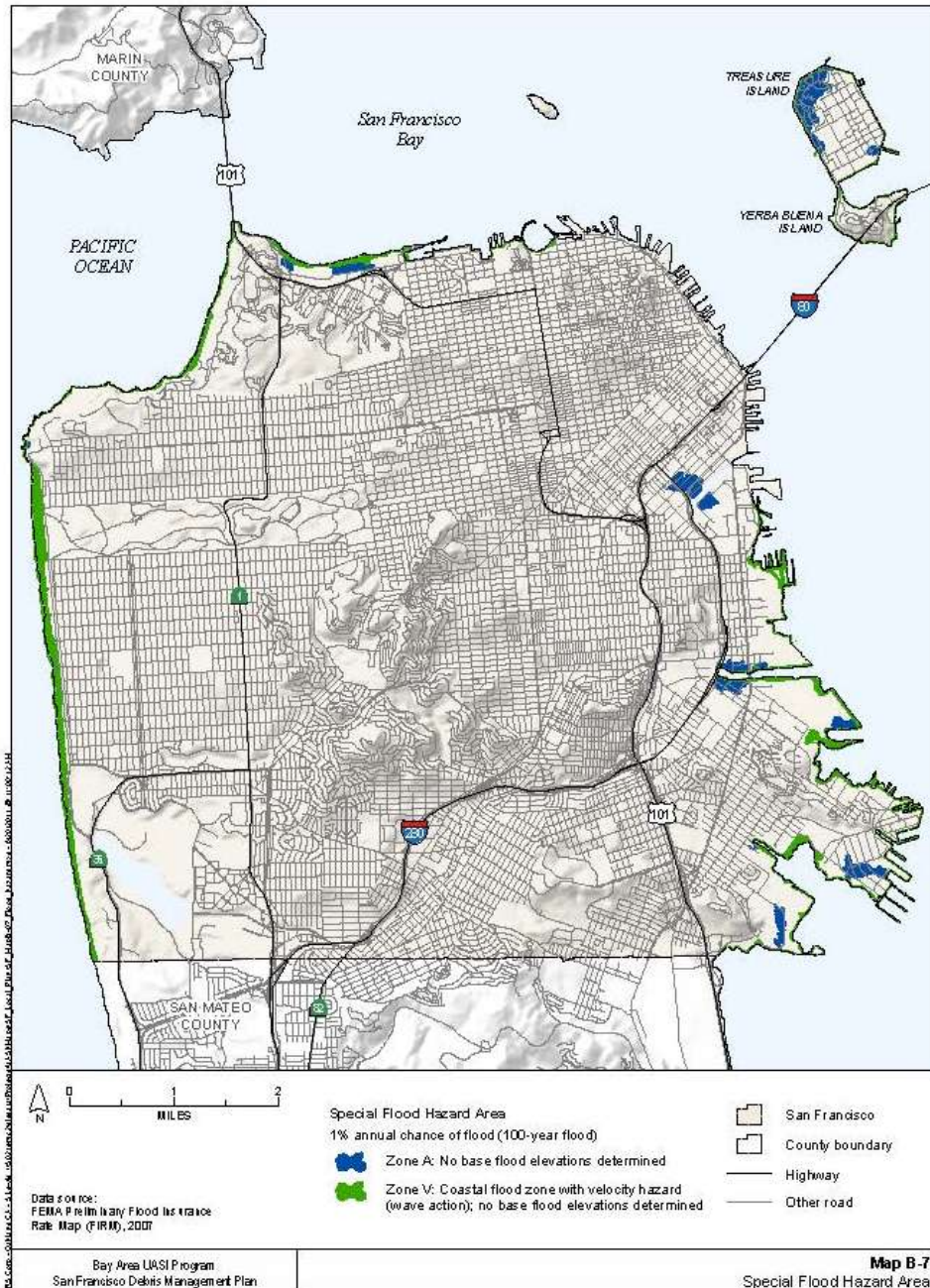
Map B-4: Landslide Hazard



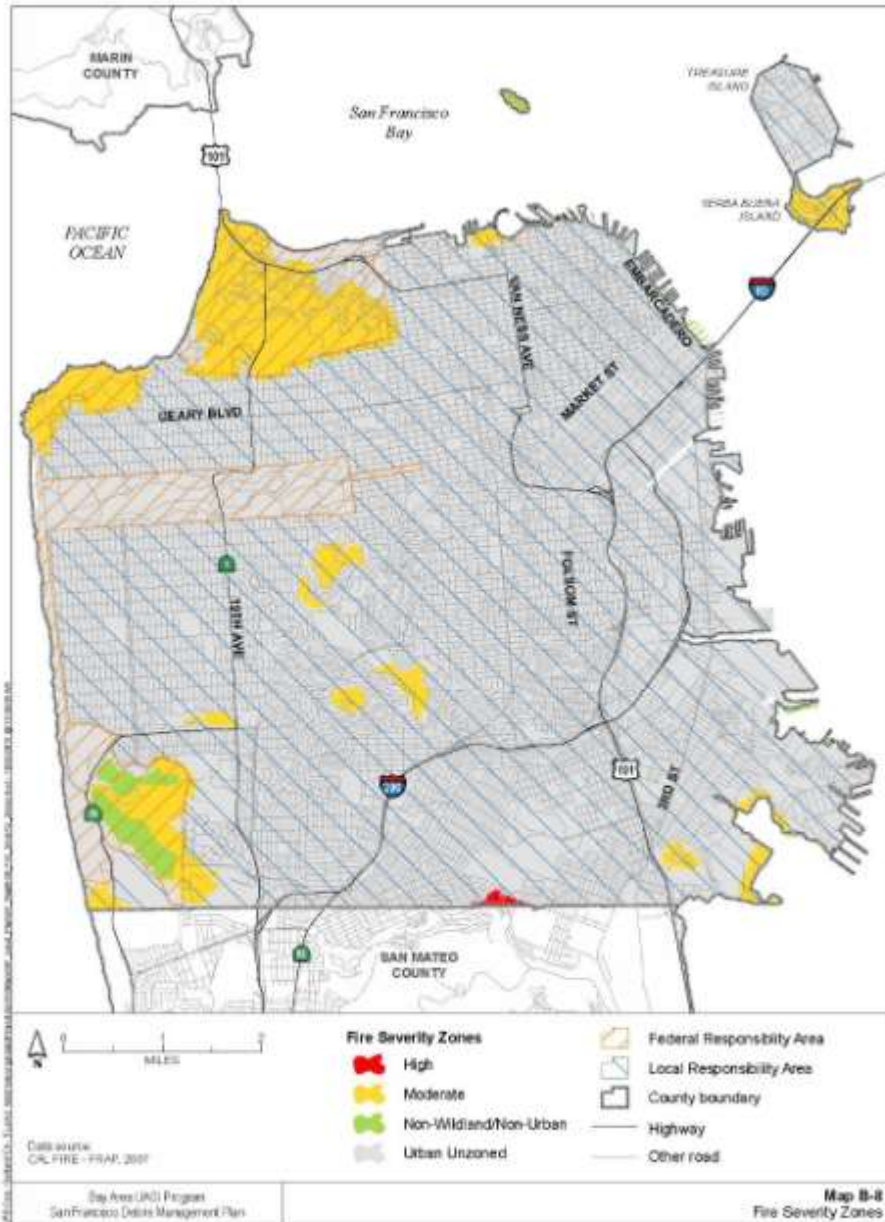
Map B-5: Tsunami Run-Up



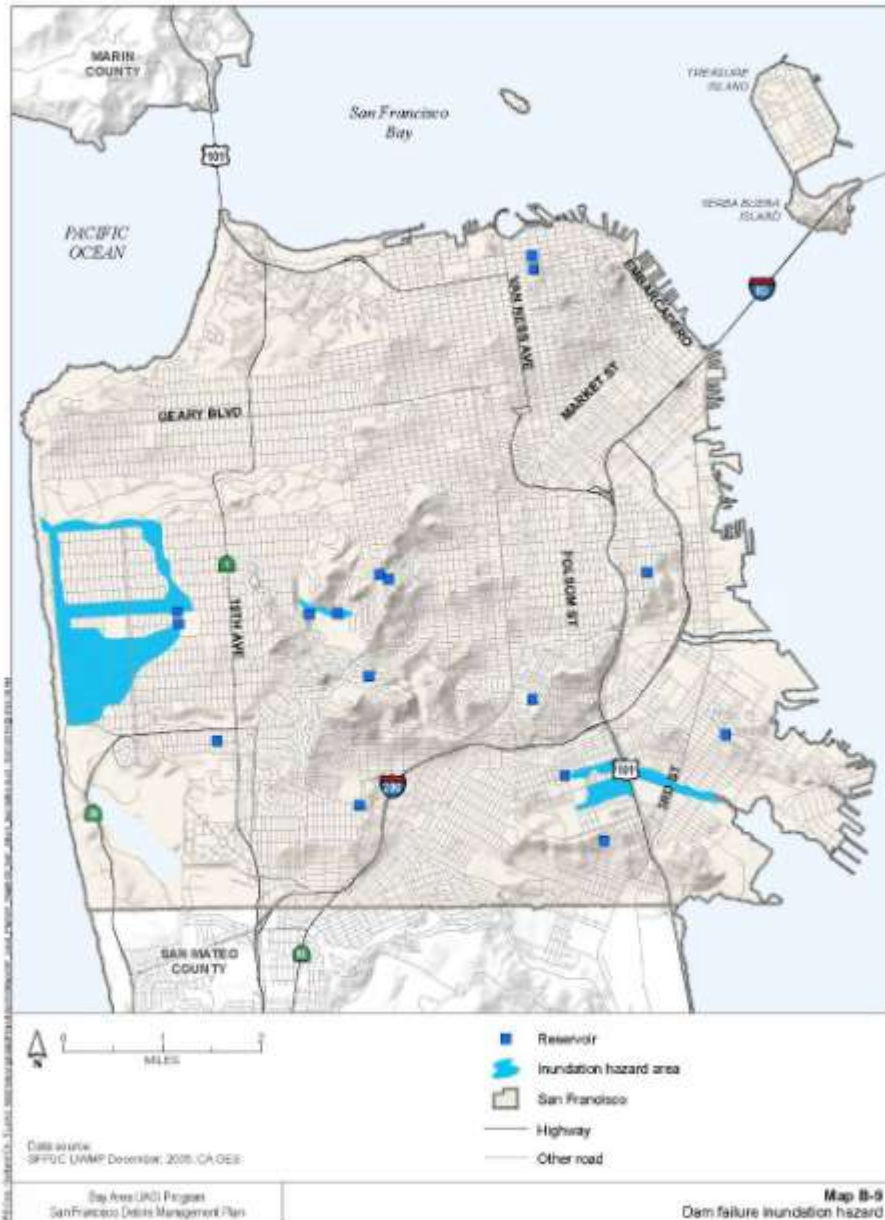
Map B-6: Tsunami Inundation



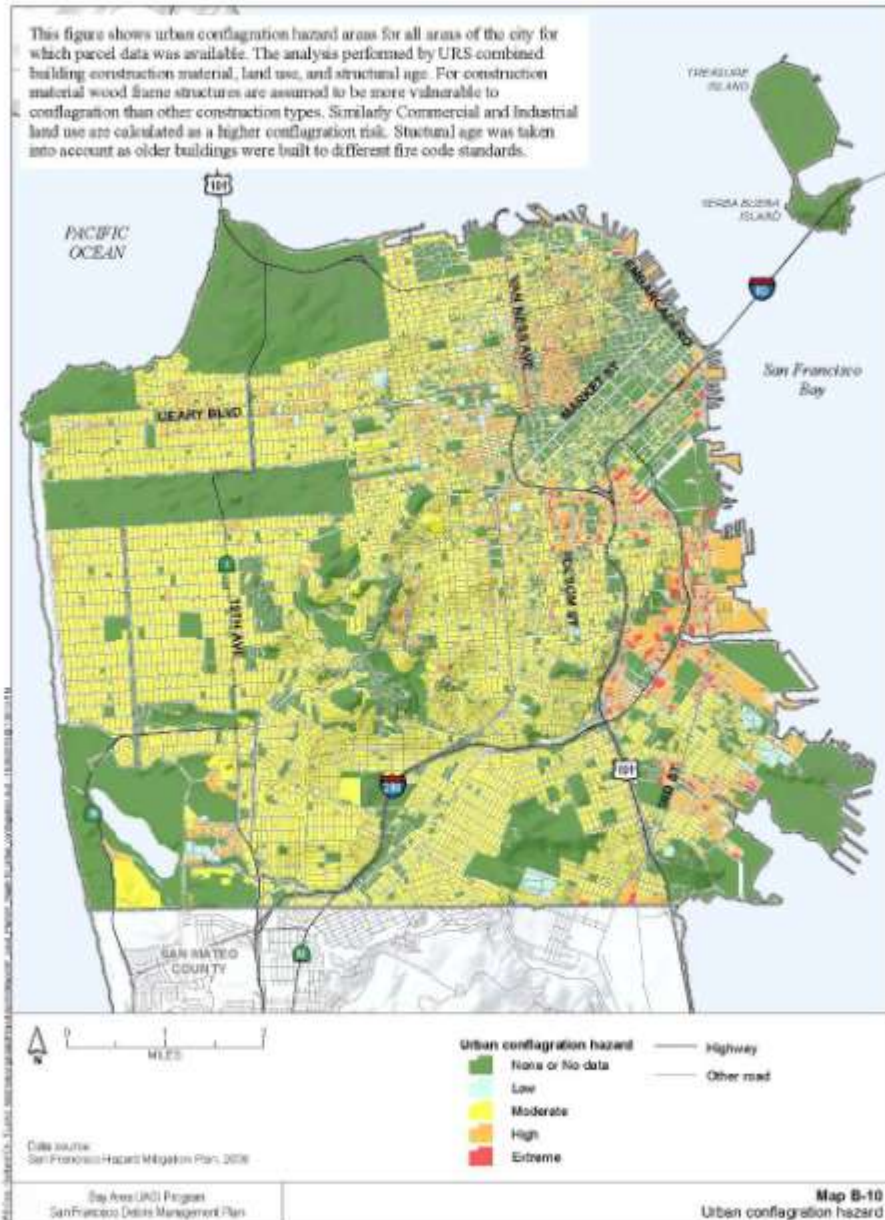
Map B-7: Special Flood Hazard Area



Map B-8: Fire Severity Zones



Map B-9: Dam Failure Inundation Hazard



Map B-10: Urban Conflagration Hazard



Tab C: Catastrophic Earthquake Events



San Francisco is at risk for earthquake events that may be catastrophic. Geologists have modeled a **M** 7.9 earthquake on the northern segment of the San Andreas fault and a **M** 7.05 earthquake on the Hayward fault event to understand the impacts from these events. For this plan, Hazards–U.S. Multi-Hazard (HAZUS-MH) analysis³ performed by the Earthquake Engineering Research Institute, with support from the U.S. Geological Survey and Cal EMA, beginning in 2005 and modified by URS Corporation in 2009, provides estimates for debris-related threats and hazards from shaking, surface rupture, and liquefaction, including:

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

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

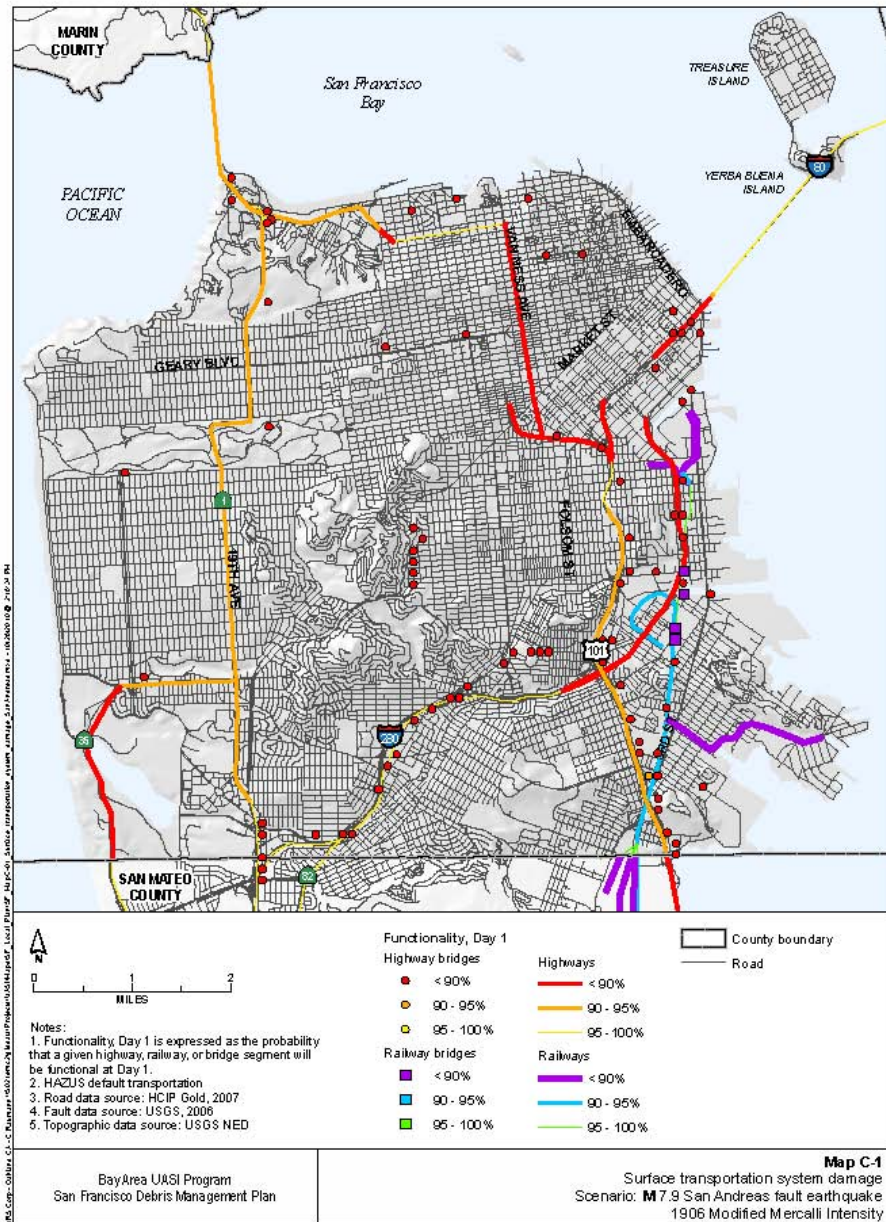
Both catastrophic events will also result in debris-related impacts, including

- Damage to transportation systems.
- Extensive and completely damaged structures.
- Widespread generation of debris.

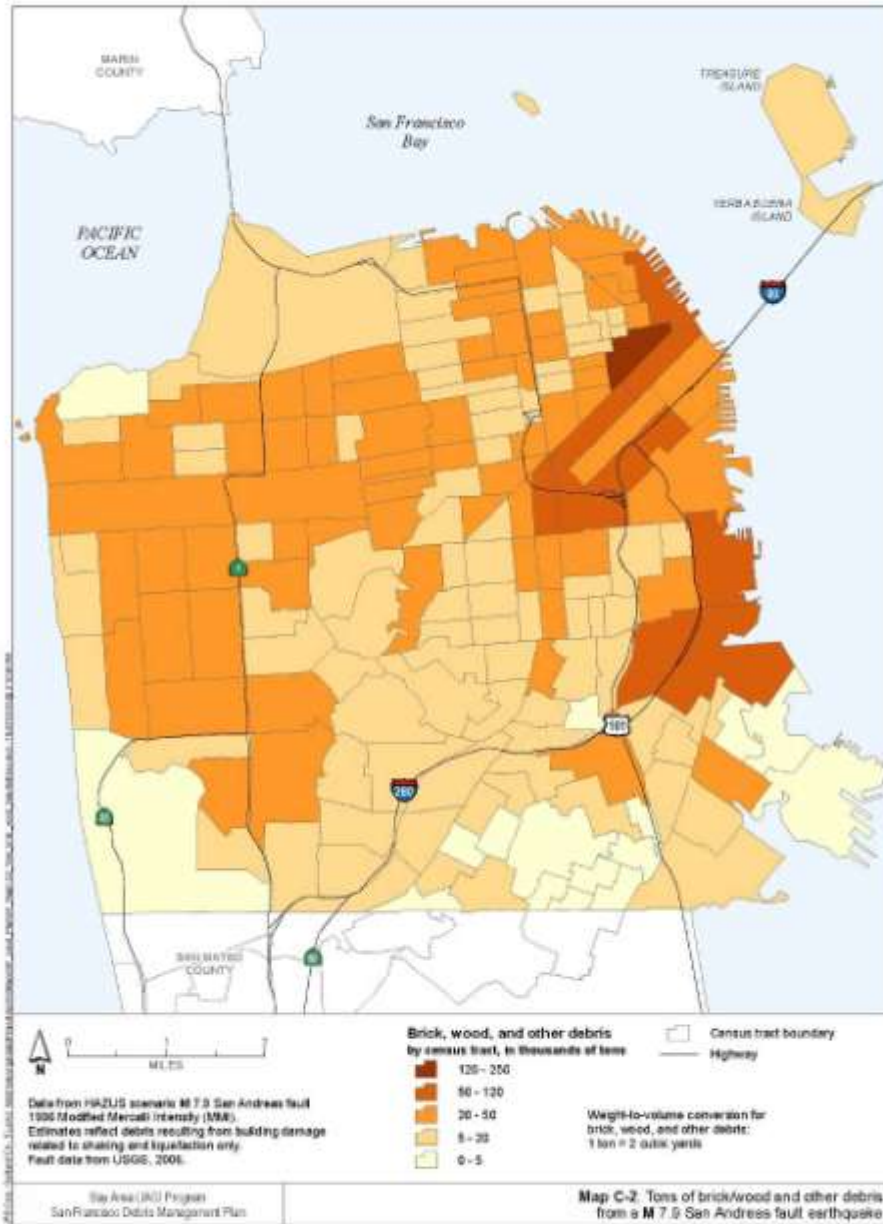
Impacts to transportation systems in San Francisco and the counties in the vicinity of San Francisco and private and public buildings within San Francisco and the type, amount, and location of debris from a **M** 7.9 earthquake on the northern segment of the San Andreas fault are shown on **Maps C-1 through C-4**.

Similarly, impacts to transportation systems in San Francisco and the counties in the vicinity of San Francisco and private and public buildings within San Francisco and the type, amount, and location of debris from a **M** 7.05 earthquake on the northern segment of the Hayward fault are shown on **Maps C-5 through C-8**.

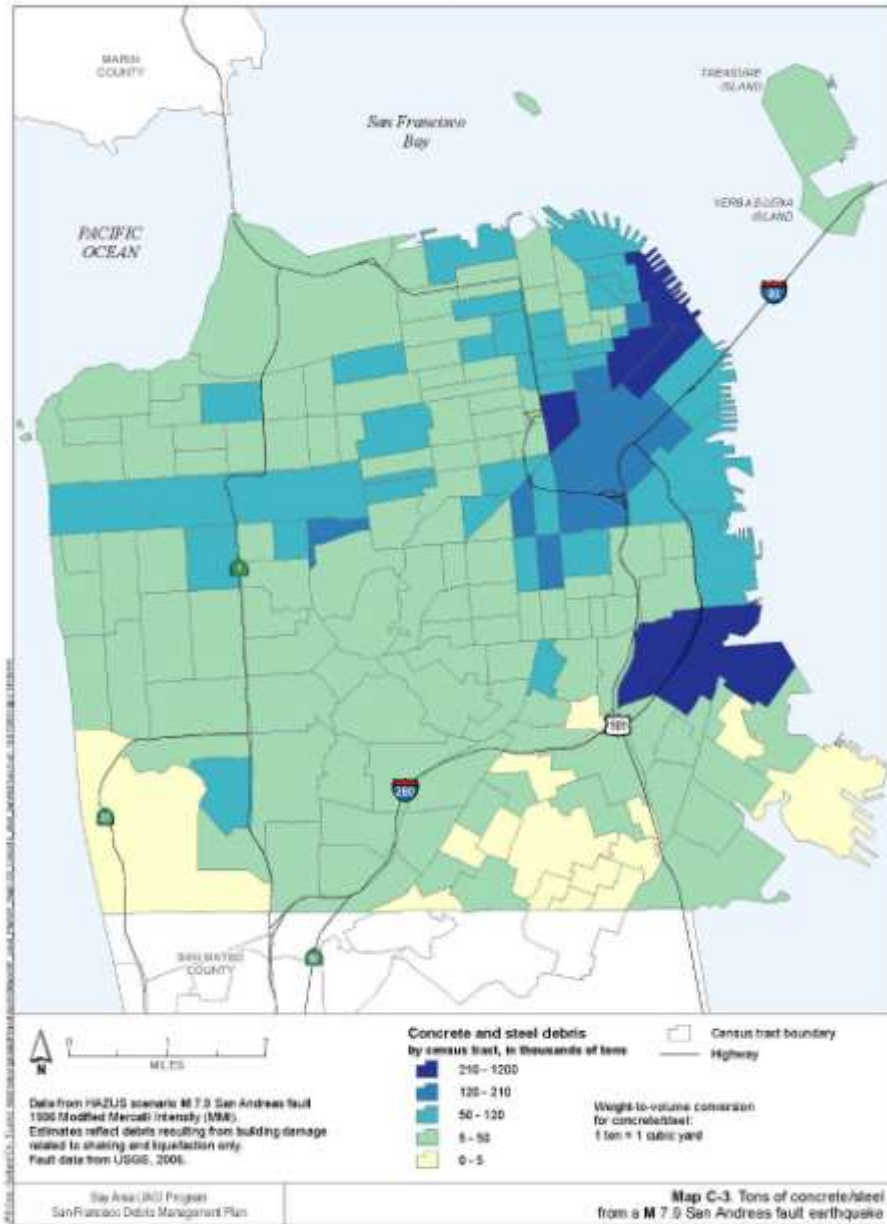
³ HAZUS-MH is a loss estimation software program that the National Institute of Building Sciences developed for FEMA. The version used for this analysis (HAZUS-MH MR3) was developed by the institute in 2003.



Map C-1: Surface Transportation System Damage: Scenario: M 7.9 San Andreas Fault Earthquake; 1906 Modified Mercalli Intensity



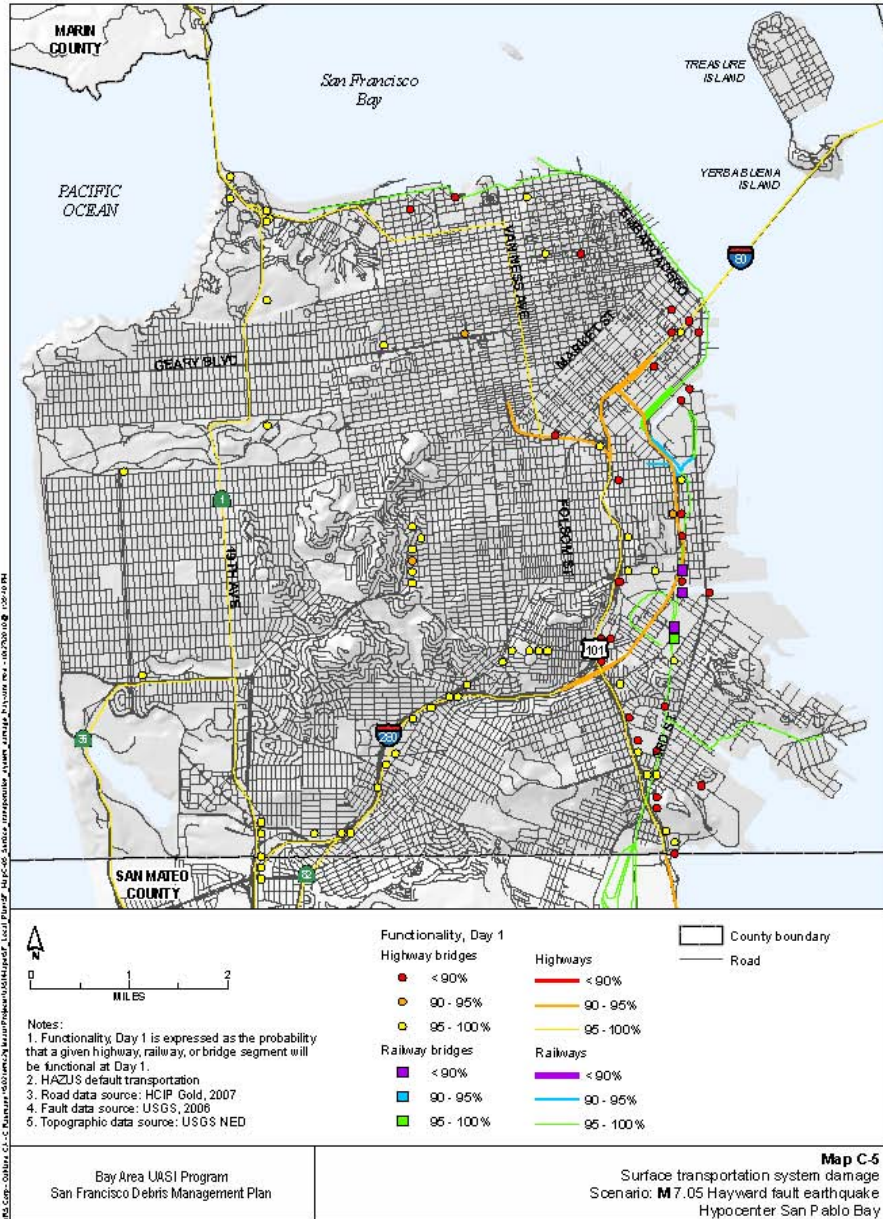
Map C-2: Tons of Brick/Wood and Other Debris from a M 7.9 San Andreas Fault Earthquake



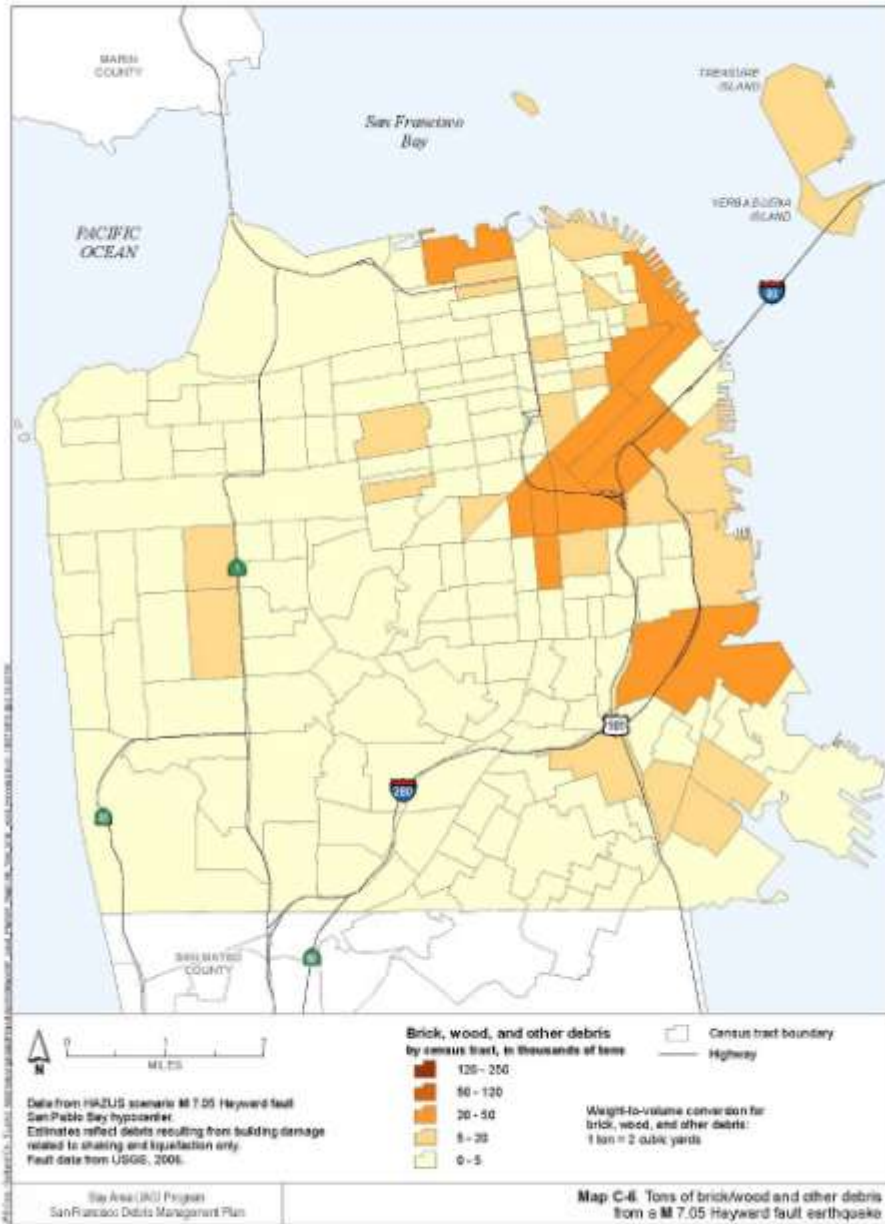
Map C-3: Tons of Concrete/Steel from a M 7.9 San Andreas Fault Earthquake



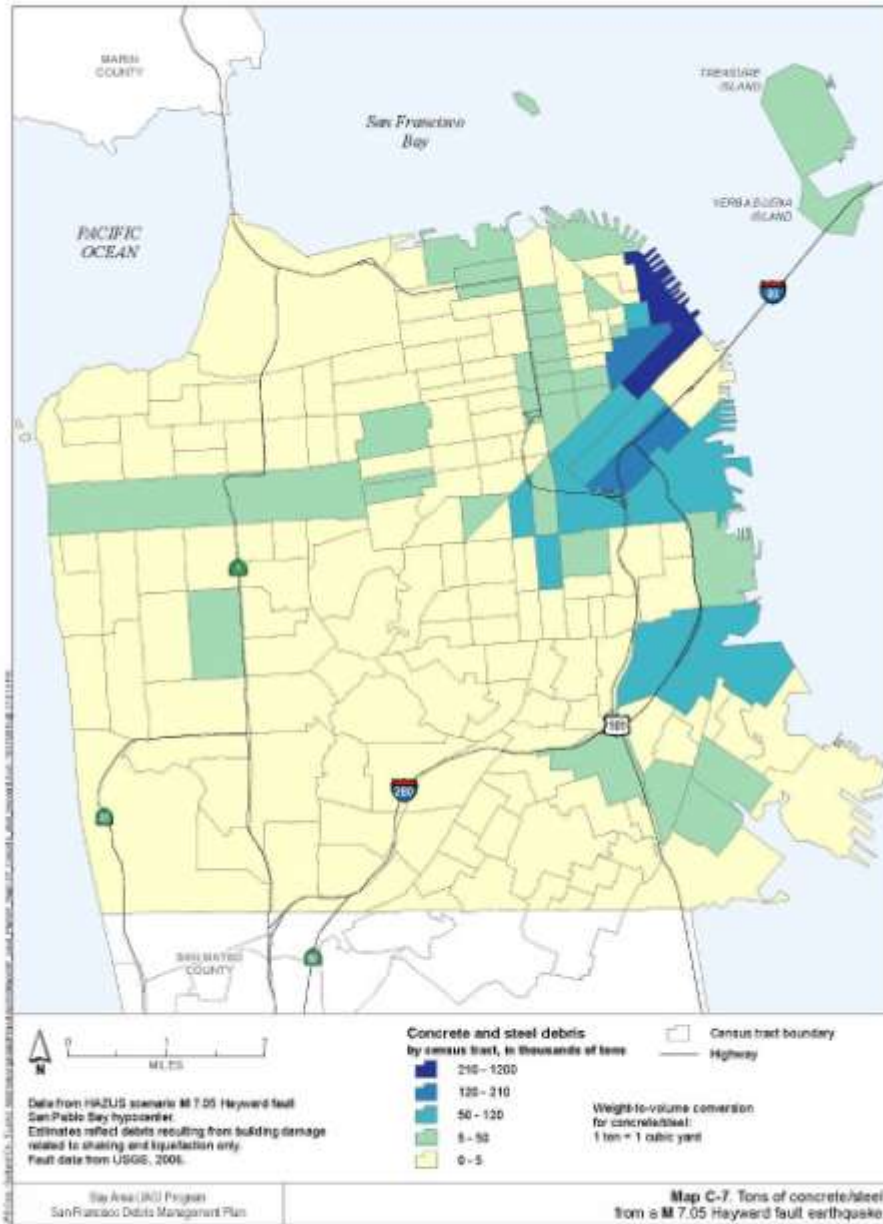
Map C-4: Severely and Completely Damaged Buildings from a M 7.9 San Andreas Fault Earthquake



Map C-5: Surface Transportation System Damage: Scenario: M 7.05 Hayward Fault Earthquake; Hypocenter San Pablo Bay



Map C-6: Tons of Brick/Wood and Other Debris from a M 7.05 Hayward Fault Earthquake



Map C-7: Tons of Concrete/Steel from a M 7.05 Hayward Fault Earthquake



Map C-8: Severely and Completely Damaged Buildings from a M 7.05 Hayward Fault Earthquake



Tab D: Debris Management Resources



This section contains information about CCSF debris management resources, as well as locally contracted resources, State resources, and Federal resources that may be available to San Francisco to support debris management operations. In addition, this section identifies how these resources are requested and integrated into CCSF debris management operations.

D.1 Local Resources

Locally available equipment and staff to conduct initial debris management operations can be obtained from several sources. These include CCSF departments and agencies and CCSF-procured contractors. The availability of these resources after a catastrophic event is likely to be limited due to damage to equipment, inability of operators and maintenance staff to report to work due to being victims of the incident and lack of fuel supplies. The following provides a general overview of local resources that may be available for debris management.

Detailed information about compiled CCSF resources is provided in in this tab. Resource typing is categorizing, by capability, the resources requested, deployed, and used in incidents requiring debris management.

D.1.1 CCSF Departments and Agencies

An overview of CCSF departments and agencies that own and operate equipment that can support debris management operations are listed in **Table D-1**. This tab also provides detail on the NIMS typing of the debris management resources that are available within CCSF departments and agencies. It includes information on 19 different NIMS resources mainly pertaining to debris equipment.



Agency	Types of Resources ¹	Location(s)	Contact Information
DPW	Track dozer (1) Hydraulic excavator - medium mass (1) Wheel loader backhoe (5) Wheel loader - small 7 cy to 2 cy (4) Dump trailer (1) Dump truck - on-road (26)	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	Radio Room: (415) 695-2134
DBI	Not applicable	Not applicable	Not applicable
DPH	Not applicable	Not applicable	Not applicable
PUC	Hydraulic excavator - medium mass (2) Hydraulic excavator – compact short radius (2) Road sweeper (3) Track dozer (4) Dump trailer (4) Dump truck – on-road (12) Wheel loader backhoe (13) Wheel loader – medium 7 cy to 3 cy (2) Wheel loader – small 7 cy to 2 cy (6) Wheel loader – skid steer (4)	Various Locations: Hetch Hetchy, Moccasin, CA 95347 1000 El Camino Real, Millbrae, CA 94030 1990 Newcomb Ave., San Francisco, CA 94124	Pope Powell: (415) 554-1547
RPD	Unknown	Unknown	Unknown
SFFD	Not applicable	Not applicable	Not applicable
SFO	Hydraulic excavator - medium mass (1) Road sweeper (6) Scraper - earth moving (1), Dump trailer (3) Dump truck - on-road (7) Wheel loader backhoe (2) Wheel loader - large 41 cy to 8 cy (1) Wheel loader - skid steer (1)	San Francisco International Airport	D. Fliess: (650) 821-5421



Agency	Types of Resources ¹	Location(s)	Contact Information
SF Port	Wheel loader - telescopic handler (1) Road sweeper (2) Hydraulic excavator - compact short radius (1) Dump truck - on-road (1)	Pier 50 and Pier 90, San Francisco	Switchboard: (415) 274-0400 Tom Carter: (415) 597-7904
TIDA	Not applicable	Not applicable	Not applicable

¹ Quantity of equipment indicated in parenthesis
 CCSF = City and County of San Francisco
 CGS = California Geological Survey
 DBI = Department of Building Inspection
 DPW = Department of Public Works
 EAP = EOC Incident Action Plan
 EOC = Emergency Operations Center
 ESF = Emergency Support Function
 FEMA = Federal Emergency Management Agency
 HAZUS = Hazards–U.S.
 ROW = right-of-way

Table D-1: Overview of CCSF Departments’ and Agencies’ Debris Management Resources

D.1.2 Locally Contracted Resources

CCSF departments and agencies that have contracts in place with outside firms perform various debris management operations are listed in **Table D-2**. As of March 2010, CCSF DPW has prequalified 102 contractors for emergency debris clearance work. A list of DPW-approved firms, including firm name, location, and phone number, is provided in **Tab G, Pre-Qualified Contractors of the CCSF Department of Public Works**. The request for qualifications (RFQ) for pre-qualified contractors issued by DPW is on file with DPW.



Department/Agency	Contractor Name	Type of Contract	Services to be Provided
DBI	Not applicable	Not applicable	Not applicable
DPW	A Ruiz Construction	Existing Contract	Perform paving/underground services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Bay Area Light Works, Inc.	Existing Contract	Perform electrical services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Esquivel Grading & Paving	Existing Contract	Perform paving for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Ghilotti Bros, Inc.	Existing Contract	Perform paving for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Harty Pipelines	Existing Contract	Perform underground services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Interstate Grading & Paving	Existing Contract	Perform paving for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.



Department/Agency	Contractor Name	Type of Contract	Services to be Provided
DPW (cont'd.)	M Squared Construction	Existing Contract	Perform underground services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	McGuire and Hester	Existing Contract	Perform paving/underground services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Phoenix Electric Company	Existing Contract	Perform electrical services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Shaw Pipeline Inc	Existing Contract	Perform underground services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.
	Synergy Project Management	Existing Contract	Perform paving/underground services for general engineering paving and sewer DPW projects. Supply heavy equipment for debris management operations following disaster.



Department/Agency	Contractor Name	Type of Contract	Services to be Provided
Recology	Sustainable Crushing Ventures, LLC	Standby Contract	Following declaration of a disaster area that includes any part of San Francisco due to a seismic event or other natural or man-made disaster, SF Port may direct Sustainable Crushing Ventures, LLC to relocate its equipment to other locations in San Francisco for crushing and processing debris and related materials.
SFE	Not applicable	Not applicable	Not applicable
SFO	Not applicable	Not applicable	Not applicable
SF Port	Sustainable Crushing Ventures, LLC	Existing Contract	Following declaration of a disaster area that includes any part of San Francisco due to a seismic event or other natural or man-made disaster, SF Port may direct Sustainable Crushing Ventures, LLC to relocate its equipment to other locations in San Francisco for crushing and processing debris and related materials.

CCSF = City and County of San Francisco
 CGS = California Geological Survey
 DBI = Department of Building Inspection
 DPW = Department of Public Works
 EAP = EOC Incident Action Plan
 EOC = Emergency Operations Center
 ESF = Emergency Support Function
 FEMA = Federal Emergency Management Agency
 HAZUS = Hazards–U.S.
 ROW = right-of-way

Table D-2: CCSF Departments' and Agencies' Contracted Debris Management Resources



D.2 State Resources

As described in the State Emergency Plan, California responds to emergencies and disasters through an existing statewide emergency management infrastructure that operates according to the Standardized Emergency Management System (SEMS). To support the implementation of SEMS, Cal EMA has established Regional Emergency Operations Centers (REOCs) in each of three administrative regions. The REOC in the region affected by the incident coordinates with the Operational Area Emergency Operations Centers (EOCs) to obtain situation status, coordinate requests for resources, and communicate resource requests to the State Operations Center when the requests cannot be met at the regional level.

The Governor may direct State agencies, including the California National Guard, to provide resources in support of field-level Incident Command. Lead and support State agencies for specific functions are identified in the State Emergency Plan. Cal EMA issues mission tasks to direct State agencies to undertake debris management response operations.

California may obtain out-of-state resources through state-to-state arrangements or through the Emergency Management Assistance Compact (EMAC), to which California is a signatory.

State agencies that support local debris management operations and that may provide resources to CCSF are:

- Cal EMA: Safety Assessment Program evaluators and coordinators to conduct building safety inspections for potential demolition operations.
- California Conservation Corps: Personnel and equipment to support emergency debris clearance and monitor debris removal operations.
- California Department of Forestry and Fire Protection: Personnel and equipment to support emergency debris clearance.
- California Highway Patrol (CHP): Golden Gate Division staff to conduct damage assessments, to secure disaster areas and to 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 provide aviation resources to conduct aerial damage assessments.
- California Department of Transportation (Caltrans): District 4 engineers and contractors to conduct damage assessment and provide supportive services related to the State highway system within San Francisco to help first responders access affected sites, supported by additional Caltrans engineers and contractors in other districts throughout the State.

D.3 Federal Resources

When federal assistance is required, Cal EMA coordinates requests for assistance and participates with the federal government to establish a Unified Coordination Group and operate a Joint Field Office (JFO). JFO operations will be conducted in accordance with the *California Catastrophic Incident Base Plan: Concept of Operations* dated September 23, 2008. Federal



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

- U.S. Army Corps of Engineers
 - Planning and Response Teams to coordinate and execute debris management requirements, including clearance, removal, staging, characterization, classification, reduction, profiling, transportation, and disposal operations.
 - Contracted resources to conduct clearance, removal, staging, characterization, classification, reduction, profiling, transportation, and disposal operations.
 - Technical assistance and permitting services to local, tribal, and State governments for debris management.
- U.S. Coast Guard
 - Federal On-Scene Coordinators (FOSCs) to coordinate all Federal resources and contain, remove, and dispose of debris involving hazardous materials during a major emergency or disaster. FOSCs also coordinate Federal efforts with the local community's response. FOSCs are pre-designated by the U.S. Coast Guard (USCG) for coastal or major navigable waterway areas and by the U.S. Environmental Protection Agency (EPA) for inland areas.
 - Co-chairs the interagency National Response Team, which provides technical assistance, resources, and coordination for preparedness, planning, response, and recovery activities for emergencies such as oil and hazardous-material spills.
 - Regional Response Teams (RRT), 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.
- U.S. Department of Defense
 - Construction forces, including the U.S. Naval Construction Force at Port Hueneme in Ventura County, California.
- U.S. Environmental Protection Agency
 - 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.



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Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-3: CCSF Resource: Concrete Cutter/Multi-Processor for Hydraulic Excavator



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-4: CCSF Resource: Hydraulic Excavator, Large Mass Excavation (3- to 13-cy Buckets)



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	1	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		2	(1) at Moccasin, CA 95347 (1) at 1000 El Camino Real, Millbrae, CA 94030	Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		1	San Francisco International Airport	Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-5: CCSF Resource: Hydraulic Excavator, Medium Mass Excavation (1.75- to 4-cy Buckets)



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	2	1000 El Camino Real, Millbrae ,CA 94030	Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		1	Pier 90, San Francisco	Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-6: CCSF Resource: Hydraulic Excavator, Compact Short Radius (0.62- to 1.75-cy Buckets)



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-7: CCSF Resource: Hydraulic Excavator, Truck Mounted



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	2	(1) at Moccasin, CA 95347 (1) at Hetch Hetchy	Not Applicable		1	Hetch Hetchy	Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	6	San Francisco International Airport	Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		2	Pier 50, San Francisco	Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-8: CCSF Resource: Road Sweeper



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		1	San Francisco International Airport	Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-9: CCSF Resource: Scraper, Earth Moving



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		1	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		4	(1) at Moccasin, CA 95347 (3) at 1000 El Camino Real, Millbrae, CA 94030	1	Moccasin, CA 95347	Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-10: CCSF Resource: Track Dozer



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-11: CCSF Resource: Track Loader



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	1	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	4	(3) at 1000 El Camino Real, Millbrae, CA 94030 (1) at 1990 Newcomb Ave., San Francisco, CA 94124	Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	3	San Francisco International Airport	Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-12: CCSF Resource: Trailer, Dump



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-13: CCSF Resource: Truck, Off-Road Dump



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		20	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	6	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	Not Applicable		Not Applicable	
PUC	Not Applicable		3	Moccasin, CA 95347	6	Moccasin, CA 95347	Not Applicable		3 (NIMS Type to be determined)	1990 Newcomb Ave., San Francisco, CA 94124
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		2	San Francisco International Airport	3	San Francisco International Airport	2	San Francisco International Airport	Not Applicable	
SF Port	Not Applicable		Not Applicable		1	Pier 50, San Francisco	Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-14: CCSF Resource: Truck, On-Road Dump



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-15: CCSF Resource: Wheel Dozer



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		5	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	Not Applicable	
PUC	1	1000 El Camino Real, Millbrae, CA 94030	5	(1) at Moccasin, CA 95347 (2) at 1990 Newcomb Ave, San Francisco, Ca 94124 (2) at 1000 El Camino Real, Millbrae, CA 94030	Not Applicable		5	(1) at 1000 El Camino Real, Millbrae, CA 94030 (4) at 1990 Newcomb Ave., San Francisco, CA 94124	2 (NIMS Type to be determined)	1990 Newcomb Ave., San Francisco, CA 94124
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		1	San Francisco International Airport	1	San Francisco International Airport	Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		2	Pier 50 and Pier 90, San Francisco
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-16: CCSF Resource: Wheel Loader Backhoe



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		1	San Francisco International Airport	Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-17: CCSF Resource: Wheel Loader, Large (8 to 41 cy)



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		1	1000 El Camino Real, Millbrae, CA 94030	1	Moccasin, CA 95347	Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-18: CCSF Resource: Wheel Loader, Medium (3 to 7 cy)



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	4	DPW Yard: 2323 Cesar Chavez, San Francisco, CA 94124	Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	2	(1) at 1990 Newcomb Ave., San Francisco, CA 94124 (1) at 1000 El Camino Real, Millbrae, CA 94030	2	(1) at Moccasin, CA 95347 (1) at 1000 El Camino Real, Millbrae, CA 94030	2	(1) at 1990 Newcomb Ave., San Francisco, CA 94124 (1) at 1000 El Camino Real, Millbrae, CA 94030	Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-19: CCSF Resource: Wheel Loader, Small (2 to 7 cy)



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	3	1000 El Camino Real, Millbrae, CA 94030	Not Applicable		1	1990 Newcomb Ave., San Francisco, CA 94124	Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		1	San Francisco International Airport	Not Applicable		Not Applicable	
SF Port	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-20: CCSF Resource: Wheel Loader, Skid Steer (Small)



Category: Public Works and Engineering										
Kind: Equipment										
Agency Name	Minimum Capabilities									
	Type 1		Type 2		Type 3		Type 4		Other	
	Quantity of Type 1 Equipment	Location(s) of Equipment	Quantity of Type 2 Equipment	Location(s) of Equipment	Quantity of Type 3 Equipment	Location(s) of Equipment	Quantity of Type 4 Equipment	Location(s) of Equipment	Quantity of Type Other Equipment	Location(s) of Equipment
DBI	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPH	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
DPW	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
PUC	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
RPD										
SFFD	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SFO	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	
SF Port	Not Applicable		1	Pier 50, San Francisco	Not Applicable		Not Applicable		Not Applicable	
TIDA	Not Applicable		Not Applicable		Not Applicable		Not Applicable		Not Applicable	

Table D-21: CCSF Resource: Wheel Loader Telescopic Handler



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Tab E: Public Information



This tab provides guidance on the effective conduct of San Francisco's debris management media relations and public information immediately following a significant, large-scale event. As described in ESF #15 Joint Information System (JIS) Annex, the JIS will be utilized by CCSF department and agency Public Information Officers (PIOs) and relevant staff according to event requirements. Procedures pertaining to this function do not pre-empt or nullify existing CCSF department and agency PIO functions within ICS.

JIS participants will support overall information gathering and dissemination activities for San Francisco. During an event that necessitates Joint Information Center (JIC) activation, JIC functions will be filled according to the needs of the incident. For debris management operations, CCSF department and agency PIOs involved in the JIC will likely include the DPW, DBI, DOE, and DPH. In addition, SF Port and SFO may send a PIO to the JIC or may have the PIO work with the JIC from their respective DOCs. The TIDA PIO will most likely work with the JIC from its' DOC.

CCSF department and agency PIO functions within the JIC are discussed for the following debris management response and recovery operations: development of situational awareness and priorities (**Table E-1**); debris clearance (**Table E-2**); safety assessment of buildings and infrastructure (**Table E-3**); staging, processing, and disposing of debris (**Table E-4**); removal of debris (**Table E-5**); and demolition of unsafe buildings and infrastructure (**Table E-6**). Public information regarding long-term debris management recovery operations will be either handled by relevant CCSF department and agency PIOs within the REOC or respective DOC, as needed.



CCSF department and agency PIOs	Action
DBI	Provide input to the JIC about private and public buildings or areas of private and public buildings that are extensively damaged.
DOE	Not applicable.
DPH	Not applicable.
DPW	Provide input to the JIC about CCSF structures that are extensively damaged and/or affected by debris. Provide input to the JIC about debris clearance priorities.
MTA	Not applicable.
RPD	Provide input to the JIC about RPD facilities that are extensively damaged.
SFO	Provide input to the JIC about SFO facilities that are extensively damaged.
SF Port	Provide input to the JIC about SF Port facilities that are extensively damaged.
TIDA	Provide input to the JIC about buildings and infrastructure on Treasure Island that are extensively damaged.
CCSF = City and County of San Francisco DBI = Department of Building Inspection DOE = Department of the Environment DPH = Department of Public Health DPW = Department of Public Works JIC = Joint Information Center MTA = Municipal Transportation Authority PIO = Public Information Officer RPD = Recreation and Parks Department SFO = San Francisco International Airport TIDA = Treasure Island Development Authority	

Table E-1: CCSF Department and Agency PIOs: Development of Situational Awareness and Priorities



CCSF department and agency PIOs	Action
DBI	Not applicable.
DOE	Not applicable.
DPH	Not applicable.
DPW	Provide input to the JIC about changes to debris clearance priorities for CCSF roads and debris clearance milestones for CCSF roads. Provide input to the JIC about where and how people can retrieve their cars that were towed during debris clearance operations.
MTA	In coordination with the JIC, disseminate information about CCSF traffic codes that may be modified, suspended, or waived during debris clearance operations.
RPD	Not applicable.
SFO	Provide input to the JIC about debris clearance milestones for SFO facilities.
SF Port	Provide input to the JIC about debris clearance milestones for SF Port facilities.
TIDA	Not applicable.
CCSF = City and County of San Francisco DBI = Department of Building Inspection DOE = Department of the Environment DPH = Department of Public Health DPW = Department of Public Works JIC = Joint Information Center MTA = Municipal Transportation Authority PIO = Public Information Officer RPD = Recreation and Parks Department SFO = San Francisco International Airport TIDA = Treasure Island Development Authority	

Table E-2: CCSF Department and Agency PIOs: Debris Clearance



CCSF department and agency PIOs	Action
DBI	In coordination with the JIC, report on the safety assessment process for private and public buildings, including the order in which buildings will be assessed and the manner in which they will be tagged. Provide input to the JIC about safety assessment milestones for public and private buildings.
DOE	Not applicable.
DPH	Not applicable.
DPW	Provide input to the JIC about safety assessment milestones for CCSF structures.
MTA	Not applicable.
RPD	Not applicable.
SFO	Provide input to the JIC about safety assessment milestones for SFO facilities.
SF Port	Provide input to the JIC about safety assessment milestones for SF Port facilities.
TIDA	Coordinate with DBI to ensure that the JIC is provided with safety assessment milestone information for buildings and infrastructure on Treasure Island.
CCSF = City and County of San Francisco DBI = Department of Building Inspection DOE = Department of the Environment DPH = Department of Public Health DPW = Department of Public Works JIC = Joint Information Center MTA = Municipal Transportation Authority PIO = Public Information Officer RPD = Recreation and Parks Department SFO = San Francisco International Airport TIDA = Treasure Island Development Authority	

Table E-3: CCSF Department and Agency PIOs: Safety Assessment of Buildings and Infrastructure



CCSF department and agency PIOs	Action
DBI	Not applicable.
DPH	Provide input to the JIC about any health issues that may be associated with debris disposal, such as asbestos and household and commercial waste (i.e., garbage).
DPW	In coordination with the DOE PIO, provide input to the JIC about local processing facilities and transfer stations that will accept debris from CCSF residents. Provide input to the JIC about where and how long debris may be staged at debris management sites within the City. For RPD and SF Port facilities used for debris management sites, coordinate public information with the respective department/agency PIOs.
MTA	Not applicable.
RPD	In coordination with the DPW PIO, provide input to the JIC about RPD facilities to be used for debris management sites.
SFE	In coordination with the DPW PIO, provide input to the JIC about local processing facilities and transfer stations that will accept debris from CCSF residents. Provide input to the JIC about any environmental issues that may be associated with debris disposal, such as HHW, e-waste, and asbestos.
SFO	Not applicable.
SF Port	In coordination with the DPW PIO, provide input to the JIC about SF Port facilities to be used for debris management sites.
TIDA	Not applicable.
CCSF = City and County of San Francisco DBI = Department of Building Inspection DOE = Department of the Environment DPH = Department of Public Health DPW = Department of Public Works JIC = Joint Information Center MTA = Municipal Transportation Authority PIO = Public Information Officer RPD = Recreation and Parks Department SFO = San Francisco International Airport TIDA = Treasure Island Development Authority	

Table E-4: CCSF Department and Agency PIOs: Staging, Processing, and Disposing of Debris



CCSF department and agency PIOs	Action
DBI	Not applicable.
DPH	Not applicable.
DPW	Provide input to the JIC about the debris removal strategy, including ROW removal, bin collection sites, and private property debris removal, as needed. Provide input to the JIC about household and commercial waste (i.e., garbage) pick-up procedures and how these items should not be comingled with the debris stream, unless told otherwise. If approved by FEMA, provide input to the JIC about necessary documentation for debris removal on private property.
MTA	In coordination with the JIC, disseminate information about CCSF traffic codes that may be modified, suspended, or waived during debris removal operations.
RPD	Not applicable.
SFE	Not applicable.
SFO	Not applicable.
SF Port	Not applicable.
TIDA	Not applicable.
CCSF = City and County of San Francisco DBI = Department of Building Inspection DOE = Department of the Environment DPH = Department of Public Health DPW = Department of Public Works JIC = Joint Information Center MTA = Municipal Transportation Authority PIO = Public Information Officer RPD = Recreation and Parks Department SFO = San Francisco International Airport TIDA = Treasure Island Development Authority	

Table E-5: CCSF Department PIOs: Debris Removal



CCSF department and agency PIOs	Action
DBI	Provide input to the JIC about the inventory of proposed demolition sites for buildings throughout the city. Provide input to the JIC about the overall demolition process. In coordination with the JIC, disseminate information about demolition permits that will be required and/or waived. If approved by FEMA, provide input to the JIC about Public Assistance Program funding available for demolition of unsafe, uninsured buildings and the subsequent removal of demolition debris and the process to obtain Public Assistance Program funding.
DPH	In coordination with the JIC, disseminate information about demolition procedures for buildings containing friable asbestos.
DPW	Not applicable.
MTA	Not applicable.
RPD	Not applicable.
SFE	In coordination with the JIC, disseminate information about HHW and e-waste debris removal procedures and Demolition Debris Recovery Plan requirements.
SFO	Provide input to the JIC about proposed demolition sites for SFO facilities.
SF Port	Provide input to the JIC about proposed demolition sites for SF Port facilities.
TIDA	Provide input to the JIC about proposed demolition sites for buildings and infrastructure on Treasure Island
CCSF = City and County of San Francisco DBI = Department of Building Inspection DOE = Department of the Environment DPH = Department of Public Health DPW = Department of Public Works JIC = Joint Information Center MTA = Municipal Transportation Authority PIO = Public Information Officer RPD = Recreation and Parks Department SFO = San Francisco International Airport TIDA = Treasure Island Development Authority	

Table E-6: CCSF Department and Agency PIOs: Demolition of Unsafe Buildings and Infrastructure



Tab F: Public Assistance Program Guidance



This tab provides information about the Federal Emergency Management Agency (FEMA) Public Assistance Program and how it relates to each aspect of debris management operations after a catastrophic earthquake. In addition to federal financial assistance, State finance assistance may be provided by California Emergency Management Agency (Cal EMA) under the authority of the California Disaster Assistance Act for cost-sharing with other activities as allowed in accordance with State eligibility criteria.

The Debris Management Guide (FEMA 325) includes a summary of eligibility criteria specific to debris management operations. The eligibility criteria that apply to local agencies involved in debris management operations after a catastrophic earthquake are provided in this appendix. Familiarity with the criteria will ensure a smooth grant application process. In general, this can also be accomplished by working closely with the Cal EMA and FEMA, seeking guidance through the Debris Task Force.

In this document, the term “the applicant” refers to any CCSF department or agency involved in debris management operations.

F1 General Debris Management Eligibility

To be eligible for funding under the Public Assistance Program, debris management work must meet the following criteria:

- The debris was generated by the major disaster event.
- The debris is located within a designated area on an eligible applicant’s improved property or right-of-way (ROW).
- The debris removal is the legal responsibility of the applicant.

FEMA 325, Part I, describes FEMA’s eligibility requirements in detail as they relate to debris management operations. Some areas of importance are described in this section.

F1.1 Cost

Chapter 2 in FEMA 325 addresses eligibility issues associated with cost. Additional information on contracts and debris management monitoring is covered in Chapters 10 and 11, respectively.

- **Force account labor and equipment.** For debris management work, the overtime costs of an applicant’s own employees are eligible for Public Assistance funding; however, straight-time costs may be eligible. The use of applicant-owned equipment may be reimbursed based on an hourly rate; however, reimbursement is limited to the time the equipment is actually in use. Stand-by and idle time are not eligible for reimbursement under the program. See FEMA 325, pages 13-14.
- **Contract services.** An applicant may hire a contractor to perform debris clearance and removal activities; however, Public Assistance funding is limited to the scope of work necessary to clear and remove debris that is an immediate threat to life, public health and safety, or poses an immediate threat of significant damage to improved public or private property. To be reimbursed under the Public Assistance Program, costs must be reasonable for the respective scope of work. Compliance with state



and local procurement practices and the procurement requirements specified in 44 C.F.R. Part 13.36 is essential to successfully receiving funding through the Public Assistance Program.

The discussion on procurement methods and types of contracts included in FEMA-325 is provided as guidance to an applicant to ensure that an applicant has the opportunity to meet the requirements of the Public Assistance Program. The applicant may choose to follow procedures outside of what is recommended in FEMA 325; in that case, the applicant would be jeopardizing the approval of funding by FEMA. It is important to note that the definition of “emergency” in contracting procedures is not the same as FEMA’s definition of “emergency work.”

It is recommended that the applicant engage Cal EMA and FEMA through the Debris Task Force early in the procurement process. The Debris Task Force will provide technical assistance to the applicant as requested, including a review of the procurement process and debris removal contracts.

- **Debris removal monitoring.** Debris monitoring is necessary to verify that work completed by a contractor is within the contract scope of work and to provide required documentation for reimbursement under the Public Assistance Program. Because of FEMA’s interest in cost effectiveness, FEMA periodically validates an applicant’s monitoring efforts to ensure that eligible debris is being removed and processed efficiently. While debris monitoring is primarily the responsibility of the applicant, applicants may request assistance with debris monitoring or monitoring training through Cal EMA.

F1.2 Documentation

In general, FEMA requires documentation sufficient to support the eligibility of the scope of work completed and the costs claimed for the work before approving a grant under the Public Assistance Program.

- **Force account labor and equipment.** FEMA requires summaries of labor and equipment hours spent and associated costs claimed for reimbursement under the Public Assistance Program. An applicant may use FEMA forms (see FEMA 325) to document force account labor and equipment hours and costs, or may provide its own forms. The FEMA forms provide the minimum information required for Public Assistance grant reimbursement consideration. Applicants are required to maintain source documentation such as timesheets, work logs, and equipment use sheets that support the hours claimed for disaster-related work. FEMA will often sample this source documentation before approving funding.
- **Procurement procedures and contracts.** FEMA requires documentation to support that the applicant followed local procurement procedures and met the procurement competition requirements specified in 44 C.F.R. Part 13.36. FEMA also reviews the actual contracts if an applicant requests funding through the Public Assistance Program. To ensure contracted debris removal costs are reasonable, FEMA may request additional documentation, such as historical data regarding costs for similar



work. Last, if an applicant opts to use a time and materials contract for any portion of debris removal activities, FEMA closely examines documentation supporting all costs claimed. An applicant should pay close attention to requirements associated with time and materials contracts as described in FEMA 325.

- **Debris removal monitoring.** Monitoring debris management operations is necessary in order to document eligible quantities and reasonable expenses to ensure the work is eligible for Public Assistance funding. Failure to monitor debris removal may jeopardize Public Assistance funding.

If an applicant requests Public Assistance funding for debris removal activities, the applicant should develop a reporting document such as the debris monitor report shown in FEMA 325. Although FEMA does not require the use of this particular report, FEMA requires that the applicant's debris monitors collect this type of information. FEMA reviews additional documentation such as truck certification lists and load tickets (see FEMA 325) along with the debris monitor reports. If an applicant uses a contractor for debris removal monitoring, FEMA reviews the contract to ensure that the reporting requirements have been met.

F1.3 Ineligible Debris

The following debris removal activities are not eligible for funding under the Public Assistance Program:

- Any debris removal from an eligible applicant's unimproved property or undeveloped land.
- Any debris removal from a facility that is not eligible for funding under the Public Assistance Program, such as a private, nonprofit cemetery or golf course.
- Any debris removal from Federal lands or facilities that are under the authority of another Federal agency or department, such as Federal Aid roads, U.S. Army Corps of Engineers navigable waterways, and within, or in close proximity to, channels that fall under the jurisdiction of the Natural Resources Conservation Service. See FEMA 325, Chapter 16, for a description of these authorities.

F2 Debris Clearance

Debris clearance activities are those considered necessary to eliminate life and safety threats. Debris clearance allows for ingress/egress for emergency access. Generally, as long as all general eligibility criteria are met, debris clearance activities are eligible for funding through the Public Assistance Program.

F2.1 Federal Highway Administration's Emergency Relief Program

Debris clearance activities under the authority of other Federal agencies are not eligible for funding under the Public Assistance Program. This becomes an issue with debris clearance from Federal Aid highways, which are under the authority of the Emergency Relief Program.



F2.2 Abandoned Vehicles

Clearing abandoned vehicles that block ingress/egress and thus create an immediate threat to life or safety will be considered a high priority immediately following the event. Close attention should be paid to the eligibility requirements related to the clearance of abandoned vehicles. See FEMA 325, page 29.

F3 Assessment of Buildings and Infrastructure

Safety inspections necessary to establish if a damaged structure poses an immediate threat to life, public health, or safety are eligible under the Public Assistance Program. Eligible building safety inspection activities include inspecting buildings to determine whether they are safe for entry, occupancy, and lawful use, as well as posting appropriate placards. Allowable costs typically include, but are not limited to:

- Overtime (but not straight time) for permanently employed staff.
- Hiring and/or contracting of additional staff.
- Additional office space for staff and telecommunications set-up.
- Housing, meals, and travel for out-of-area volunteer or local government staff.

Costs associated with building assessments that go beyond those completed during safety inspections may be funded under the Public Assistance Program if the damaged facility is eligible for permanent repair or restoration funding. The time and cost associated with detailed building assessments should be tracked by facility to satisfy FEMA's documentation requirements. Building assessments should be completed within 6 months of the Disaster Declaration, unless that deadline is extended due to extenuating circumstances beyond the control of the applicant.

F4 Staging, Processing, and Disposing of Debris

Costs associated with establishing and operating debris management sites (DMS) may be eligible for funding under the Public Assistance Program. Discussing options with the Debris Task Force and allowing/encouraging its involvement in the decision-making process regarding the use of DMS are crucial to ensure FEMA's eligibility requirements are met. Eligibility determinations are, at a minimum, based on cost-effectiveness and compliance with environmental/historic regulations, executive orders, and permitting requirements. Chapters 8 and 9 in FEMA 325 discuss DMS and debris processing.

An important issue regarding FEMA Public Assistance eligibility is related to landfill tipping fees. These fees may include special taxes or fees to fund government services or infrastructure. These costs are not eligible for FEMA Public Assistance reimbursement. Only costs included in tipping fees that are directly related to landfill operations are eligible.

F5 Debris Removal

For debris removal to be eligible for funding under the Public Assistance Program, the work must be necessary to:



- Eliminate an immediate threat to life, public health, and safety.
- Eliminate immediate threats of significant damage to improved property or private property when the measures are cost effective.
- Ensure the economic recovery of the affected community to the benefit of the community at large.
- Mitigate the risk to life and property by removing substantially damaged structures and associated appurtenances as needed to convert property acquired through a FEMA Hazard Mitigation Program to uses that are compatible with open space, recreation, or wetlands management practices.

In accordance with Section 312 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (42 U.S.C. §§ 5155), no applicant will receive assistance for any loss for which financial assistance has been received under any other program or from insurance or any other source. This includes work performed that is under the authority of another Federal agency, such as the clearance of debris from Federal aid highways, as discussed above. See FEMA 325, page 10.

F5.1 Debris Removal from Public Property

- **Public right-of way (ROW).** If private property owners move disaster-related debris to a public ROW, an applicant who has legal responsibility for maintaining the ROW may be reimbursed for debris pickup, haul, and disposal from the ROW under the Public Assistance Program for a limited period of time. An applicant should seek guidance from the Debris Task Force and communicate regarding the timeline associated with eligible debris removal of private property debris placed on public ROWs.
- **Construction and demolition (C&D) debris.** C&D debris removal from partially or totally collapsed facilities is eligible for Public Assistance funding; however, insurance may cover some or all of the cost. FEMA reviews an applicant's insurance policies before approving funding. FEMA also requires documentation about the origin of the debris, any processing (reduction or recycling), and the final disposition of the debris. Some C&D debris may be hazardous, such as asbestos roofing, floor tile, and lead pipes. Applicants must follow all Federal laws and regulations related to hazardous waste disposal to receive funding under the Public Assistance Program. The removal of C&D debris generated by repairs or rebuilding is considered part of the permanent repair of a facility and not eligible as emergency work under debris removal guidelines.
- **Hazardous waste.** Public Assistance funding may be available for measures that address widespread hazardous materials contamination. Hazardous waste debris removal is subject to all general debris removal eligibility criteria discussed above. Applicants should discuss specific hazardous waste removal needs with the Debris Task Force and should be sure to comply with all Federal, State, and local environmental requirements for handling hazardous waste.



- **Soil, mud, and sand.** The removal of this type of debris from improved public property and public ROW may be eligible for Public Assistance funding. Only the amount deposited by the event would be eligible for removal; therefore, an applicant is required to provide documentation, such as maintenance reports, that indicates pre-disaster soil, mud, and sand levels. This type of debris removal is subject to all general debris removal eligibility criteria discussed above.

F5.2 Debris Removal from Private Property

Generally, private property debris removal is not eligible for funding under the Public Assistance Program because it does not typically present an immediate health and safety threat to the general public, and it is normally considered to be the responsibility of the individual property owner.

However, when large-scale or catastrophic disaster events cause mass destruction and generate large quantities of debris over vast areas, debris on private property may pose health and safety threats to the public at large. In such situations, FEMA may provide funding for debris removal from private property on a case-by-case basis. An applicant should submit a written request to FEMA through the State before beginning removal of debris from private property, if it intends to request reimbursement through the Public Assistance Program. See FEMA 325, Chapter 4, for additional information on private property debris removal.

Applicants should work with Public Assistance staff before beginning any debris removal from private property to ensure that all legal, environmental, historic, and scope-of-work considerations are addressed.

Debris removal from commercial property is generally not eligible for Public Assistance funding, because it is assumed and expected that these commercial enterprises retain insurance that covers debris removal. However, in some cases as determined by FEMA, the removal of debris from private commercial property by a State or local government may be eligible for reimbursement only when such removal is in the public interest.

To receive Public Assistance reimbursement, an applicant at a minimum has to provide FEMA with a right-of-entry agreement including a hold-harmless agreement and indemnification applicable to the project scope of work, photos documenting the condition of the property, a private property debris removal assessment establishing the scope of work, and documentation of an environmental and historic review, if appropriate.

State and local governments must take reasonable steps to prevent a duplication of benefits and to verify that insurance coverage or any other source of funding does not exist for private property debris removal. When the debris removal is covered by insurance, insurance proceeds must be used as the first source of funding. Cal EMA requires that local governments check home owner insurance policies to determine coverage and to collect insurance proceeds to return to FEMA and the state. Cal EMA also strongly suggests that right-of-entry documents include an explicit requirement that the homeowner forward insurance proceeds to the applicant agency.



F6 Demolition of Unsafe Structures

Demolition of disaster-damaged structures, both public and private, meeting the general eligibility criteria for debris removal may be eligible as emergency work; however, insurance may cover some or all of the cost. FEMA reviews an applicant's insurance policies before approving funding.

- To ensure Public Assistance funding approval for demolition, an applicant should include Cal EMA and FEMA in the decision-making process.
- Eligible activities include, but are not limited to, demolition of the superstructure, filling in of open below-grade structures (basements, swimming pools), capping wells, and pumping and capping septic tanks.
- Ineligible work associated with demolition includes the removal of slabs, foundations, and driveways.
- Structures condemned as safety hazards before the event are not eligible for demolition.
- When demolition is covered by insurance, insurance proceeds must be used as the first source of funding.
- Emergency protective measures to stabilize the facility or to restrict access (fencing) may be sufficient to relieve an immediate threat and may be more cost effective than demolition and reconstruction. FEMA generally funds the most cost-effective option to eliminate the threat.
- An applicant may be reimbursed under the Public Assistance Program for demolition of privately owned structures only if the same conditions as discussed above are met with respect to demonstrating legal responsibility. Further, a legally authorized official must order demolition of the unsafe structure. Documentation similar to that described above will be required by FEMA before approval of funding.

Demolition of commercial structures is generally not eligible under the Public Assistance Program, unless necessary to expedite the restoration of the economic viability of the affected community.



**Tab G:
Pre-Qualified Contractors of the CCSF Department of Public
Works**



Company Name	City Location	Phone Number
A-1 Construction	Hayward	(510) 886-4455
A. Ruiz Construction Co. and Assoc., Inc	San Francisco	(415) 647-4010
ABCO Mechanical Contractors, Inc.	San Francisco	(415) 642-7135
Absolut Construction Corp	San Francisco	(415) 288-9477
All American Rentals	Newark	(877) 736-8995
Amdecon	Irving	(888) 872-0911
American Engineering	Daly City	(916) 799-4652
Amherst Associates Construction, Inc.	San Francisco	(415) 271-8828
Anco Iron and Construction, Inc	San Francisco	(415) 822-3931
Angels of Ireland	San Francisco	(415) 333-1974
Asbestos Management Group of California, Inc.	Oakland	(510) 654-8441
Ashbury Homes, Inc. dba A H I	San Francisco	(415) 422-0881
Atlantis Interiors, Inc	Sausalito	(415) 332-6500
Barri Electric Company, Inc.	San Francisco	(415) 468-6477
Bass Electric	San Francisco	(415) 295-1600
Baystate Subsurface Investigation Inc.	San Jose	(408) 441-0175
Bevilacqua & Sons	South San Francisco	(650) 616-4900
Bigge Crane and Rigging Company	San Leandro	(510) 638-8100
Blocka Construction Inc.	Fremont	(510) 657-3686
Bluewater Environmental Services, Inc	San Leandro	(510) 346-8800
Boldt Building and Construction	San Rafael	(415) 720-4871
Cahalan Construction	San Francisco	(415) 386-2628
Cal State Constructors, Inc.	San Francisco	(415) 762-0689
CES Controlled Environmental Services, Inc	Oakley	(415) 206-1151
City Mechanical, Inc	Hercules	(510) 724-9088
Cleveland Wrecking Company	Oakland	(510) 568-2626
Costello's Tree Service	San Francisco	(414) 664-8733
Cresci Electric, Inc.	San Francisco	(415) 885-1689
Delao Electric	San Francisco	(415) 681-7011
Design Space Modular Buildings Inc.	Dixon	(707) 678-6100
Dillard Environmental Service	Byron	(925) 634-6850
Doherty Painting & Construction, Inc.	San Francisco	(415) 695-1494
Dynaelectric, An EMCOR Company	San Francisco	(415) 597-4700



Company Name	City Location	Phone Number
E. J. Weber Electric Company, Inc.	San Francisco	(415) 641-9300
Eagle Environmental Construction	San Francisco	(415) 822-2533
Eighteen Trucking Co.	San Francisco	(415) 552-1818
Engineering Remediation Resources Group, Inc. (ERRG)	Martinez	(925) 969-0750
Feely Trucking Corporation	San Francisco	(415) 566-2135
Fibrwrap Construction, Inc	San Francisco	(415) 896-2133
Galindo Installation and Moving Services	San Francisco	(415) 861-4230
Ghilotti Bros., Inc.	San Rafael	(415) 454-7011
Granite Excavation and Demolition, Inc	San Francisco	(415) 503-3100
Graniterock Co. DBA Pavex Const.	San Jose	(408) 574-1400
Greener Excavations and Construction, Inc.	Fairfax	(415) 451-4841
Hammerhouse Construction, Inc.	San Francisco	(415) 753-0744
Happy Tree	Mill Valley	(415) 380-8733
Harty Pipelines, Inc	San Francisco	(415) 585-6023
Hoi's Construction Inc	San Francisco	(415) 333-7289
HSR Inc	Santa Clara	(408) 562-9956
International Fire Equip Co	San Francisco	(415) 643-1767
J D B Construction	San Francisco	(415) 742-0853
JF Pacific Liners, Inc.	Vacaville	(707) 446-8222
L C General Engineering and Construction, Inc.	San Francisco	(415) 643-2888
Leon and Sons Constructions, Inc	San Francisco	(415) 933-0065
M.H. Construction Management	San Francisco	(415) 558-9778
Magic Plumbing	San Francisco	(415) 441-2255
Marcor Remediation, Inc.	Dublin	(925) 307-1500
McCluskey Construction	San Francisco	(415) 750-1121
McMillan Electric	San Francisco	(415) 826-5100
Michael Heavey Construction	San Francisco	(415) 822-4300
North Tipp Construction	San Francisco	(415) 573-4802
NTK Construction, Inc	San Francisco	(415) 333-1046
On Shore Construction and Mechanical	San Francisco	(415) 282-5978
Owens Concrete Saw and Co., Inc.	Emeryville	(800) 339-4729
P and J Utility Co.	San Francisco	(415) 284-0307



Company Name	City Location	Phone Number
Pacific Auxiliary Fire Alarm Company	San Francisco	(415) 467-9393
Paganini Electric Corp.	San Francisco	(415) 575-3900
Phase 3 Communications	San Jose	(408) 946-9011
Pioneer Contractors, Inc	San Francisco	(415) 671-1070
Power Engineering Contractors, Inc.	Alameda	(510) 337-3800
Rain For Rent	Oakley	(925) 679-2803
Remediation Services, Inc.	San Francisco	(415) 206-9405
Richelen Partition Company	Pacheco	(925) 674-8850
River View Construction , Inc.	Sacramento	(916) 488-9494
Rosas Carpets	San Mateo	(650) 780-9468
Rosendin Electric, Inc.	San Francisco	(415) 495-9300
RPE Construction	San Francisco	(415) 822-6687
S & H Concrete Construction	San Francisco	(415) 759-6658
SF Silver Glass and Mirror, Inc.	San Francisco	(415) 931-3188
Shaw Pipeline, Inc	San Francisco	(415) 337-0190
Shimmick Construction Company, Inc	Hayward	(510) 293-1100
Sierra Electric	San Francisco	(415) 752-2850
Southwest Construction & Property Management	San Francisco	(415) 977-0861
Space Saver Designs Inc	San Francisco	(415) 357-1236
Starlite Electric Inc	San Francisco	(415) 648-8888
Sun Electric Systems	San Francisco	(415) 715-0275
Synergy Project Management, Inc.	San Francisco	(415) 467-3000
Tidal Marine Construction, Inc.	Pacheco	(925) 609-6464
Tope's Tree Service	Pacific Grove	(831) 373-7765
Trinet Construction Inc.	San Francisco	(415) 695-7814
TSR Construction Company	San Bruno	(650) 826-4954
Underwater Resources, Inc.	San Francisco	(415) 974-5464
Unico Services, Inc	Benicia	(707) 745-4540
United California Glass & Door	San Francisco	(415) 824-8500
Universal Building Systems	Palo Alto	(650) 326-6750
Universal Coatings Inc	Fresno	(559) 233-6300
Valletta Construction Co, Inc	San Francisco	(415) 626-6000



Company Name	City Location	Phone Number
Vargas and Esquivel Construction, Inc.	San Francisco	(415) 550-1176
Watertight Restoration, Inc	San Francisco	(415) 984-1940
Western Roofing Service	San Leandro	(415) 648-6472
William P. Young Construction, Inc.	San Leandro	(510) 351-7004
Yerba Buena Engineering and Construction, Inc.	San Francisco	(415) 822-4400

Table G-1: Pre-Qualified Contractors of the Department of Public Works



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Tab H: Debris Clearance Priorities



Map H-1 DPW Windshield Survey Emergency Priority Routes

Map H-2 Caltrans Roadways and Lifeline Routes

Map H-3 Highway System Ramps



Map H-1 DPW Windshield Survey Emergency Priority Routes



Map H-2 Caltrans Roadways and Lifeline Routes



Map H-3 Highway System Ramps



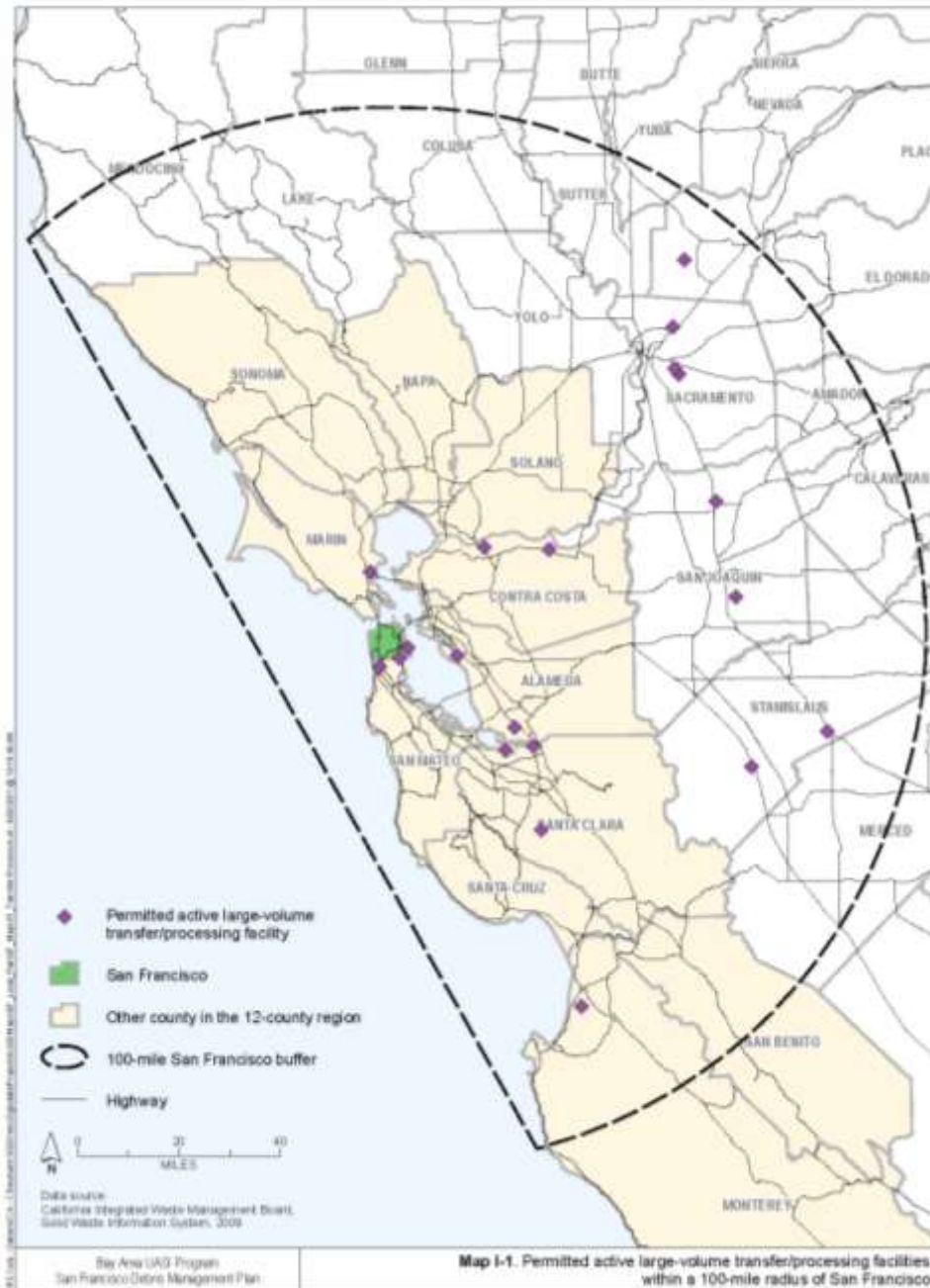
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Tab I: Transfer/Processing Facilities and Landfills



- Map I-1** Permitted Active Large-Volume Transfer/Processing Facilities within a 100-mile Radius of San Francisco
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Map I-1: Permitted Active Large-Volume Transfer/Processing Facilities within a 100-Mile Radius of San Francisco



No.	Name	County	Operator	Address
39-AA-0045	A-Plus Materials Recycling, Inc.	San Joaquin	A-Plus Materials Recycling, Inc.	Port 23 Port of Stockton, Stockton
44-AA-0005	Ben Lomond Transfer Station	Santa Cruz	County Of Santa Cruz	9835 Newell Creek Road, Ben Lomond
01-AC-0029	Berkeley Solid Waste Transfer Station	Alameda	City Of Berkeley Solid Waste Mgmt. Div.	1201 Second Street, Berkeley
50-AA-0013	Bertolotti Transfer & Recycling Center	Stanislaus	Bertolotti Transfer & Recycling	231 Flamingo Drive, Modesto
43-AN-0014	BFI's Recyclery	Santa Clara	International Disposal Corporation	1601 Dixon Landing Road, San Jose
41-AA-0185	Blue Line MRF And TS	San Mateo	Blue Line Transfer, Inc.	500 East Jamie Court, South San Francisco
07-AA-0053	Brentwood Solid Waste Transfer Station	Contra Costa	City Of Brentwood, Public Sevice Dept.	2300 Elkins Way, Brentwood
43-AN-0024	California Waste Solutions, Inc. (CWS)	Santa Clara	California Waste Solutions, Inc. (CWS)	1005 Timothy Drive, San Jose
49-AA-0001	Central Disposal Site	Sonoma	County Of Sonoma Public Works Dept	500 Meacham Road, Petaluma
07-AA-0034	Central Processing Facility	Contra Costa	West County Resource Recovery Inc	101 Pittsburg, Richmond
39-AA-0017	Central Valley Waste Services	San Joaquin	Central Valley Waste Services	1333 East Turner Road, Lodi
07-AA-0027	Contra Costa TS And Recovery	Contra Costa	Allied Waste Industries, Inc.	951 Waterbird Way, Martinez
05-AA-0012	Copperopolis Transfer Station	Calaveras	County Of Calaveras	O'byrnes Ferry Road, Copperopolis
50-AA-0009	Covanta Stanislaus, Inc.	Stanislaus	Ogden Martin Systems Of Stanislaus, Inc.	4040 Fink Road, Crows Landing
01-AA-0007	Davis St Trans Sta/Resource Recov Complx	Alameda	Waste Mgt. Of Alameda Co.	2615 Davis Street, San Leandro
28-AA-0027	Devlin Road Transfer Station	Napa	Napa-Vallejo Waste Management Authority	889 Devlin Road, American Canyon
39-AA-0018	East Stockton Recycling & Transfer St.	San Joaquin	East Stockton Recycling & Transfer St.	2435 East Weber Avenue, Stockton



No.	Name	County	Operator	Address
34-AA-0033	Elder Creek Recovery And Transfer Statio	Sacramento	Allied Waste Industries, Inc.	8642 Elder Creek Road, Sacramento
34-AA-0221	Florin Perkins Public Disposal Site -T/P	Sacramento	Zanker Road Resources Management, Ltd.	4201 Florin Perkins Road, Sacramento
39-AA-0020	Forward Resource Recovery Facility	San Joaquin	Forward, Inc./Allied Waste North America	9999 N. Austin Road, Manteca
01-AA-0297	Fremont Recycling and Transfer Station	Alameda	BLT Enterprises of Fremont, Inc.	41149 Boyce Road, Fremont
50-AA-0012	Gilton Resource Recovery/Transfer Facility	Stanislaus	Gilton Resource Recovery Facility, Inc.	800 McClure Road, Modesto
49-AA-0390	Global Materials Recovery Systems	Sonoma	Global Materials Recovery Systems	3899 Santa Rosa Avenue, Santa Rosa
07-AA-0056	Golden Bear Waste Recycling Center	Contra Costa	Golden Bear Transfer Services, Inc.	Foot of Parr Blvd., Richmond
43-AN-0019	Greenwaste Recovery Facility	Santa Clara	Green Waste Recovery	625 Charles Street, San Jose
43-AN-0015	Guadalupe Sanitary Landfill	Santa Clara	Guadalupe Rubbish Disposal Co, Inc	15999 Guadalupe Mines Road, San Jose
49-AA-0139	Guerneville Transfer Station	Sonoma	County Of Sonoma Public Works Dept.	13450 Pocket Drive, Guerneville
49-AA-0245	Healdsburg Transfer Station	Sonoma	County Of Sonoma Public Works Dept.	166 Alexander Valley Road, Healdsburg
17-AA-0002	Lakeport Transfer Station	Lake	County Of Lake	910 Bevins Street, Lakeport
39-AA-0008	Lovelace Transfer Station	San Joaquin	County Of San Joaquin Public Works Dept.	2323 Lovelace Road, Manteca
21-AA-0005	Marin Sanitary Service Transfer Station	Marin	Marin Sanitary Service	1060 Andersen Drive, San Rafael
06-AA-0003	Maxwell Transfer Station	Colusa	Norcal Waste Systems of Butte County	Hwy 99 South of Maxwell, Maxwell
43-AO-0002	Mission Trail Transfer Station	Santa Clara	Mission Trails Waste Systems	1060 Richard Avenue, Santa Clare
27-AA-0010	Monterey Regional Waste Management /Marina LF	Monterey	Monterey Regional Waste Management District	2 miles north of Marina On Del Monte Blvd, Marina

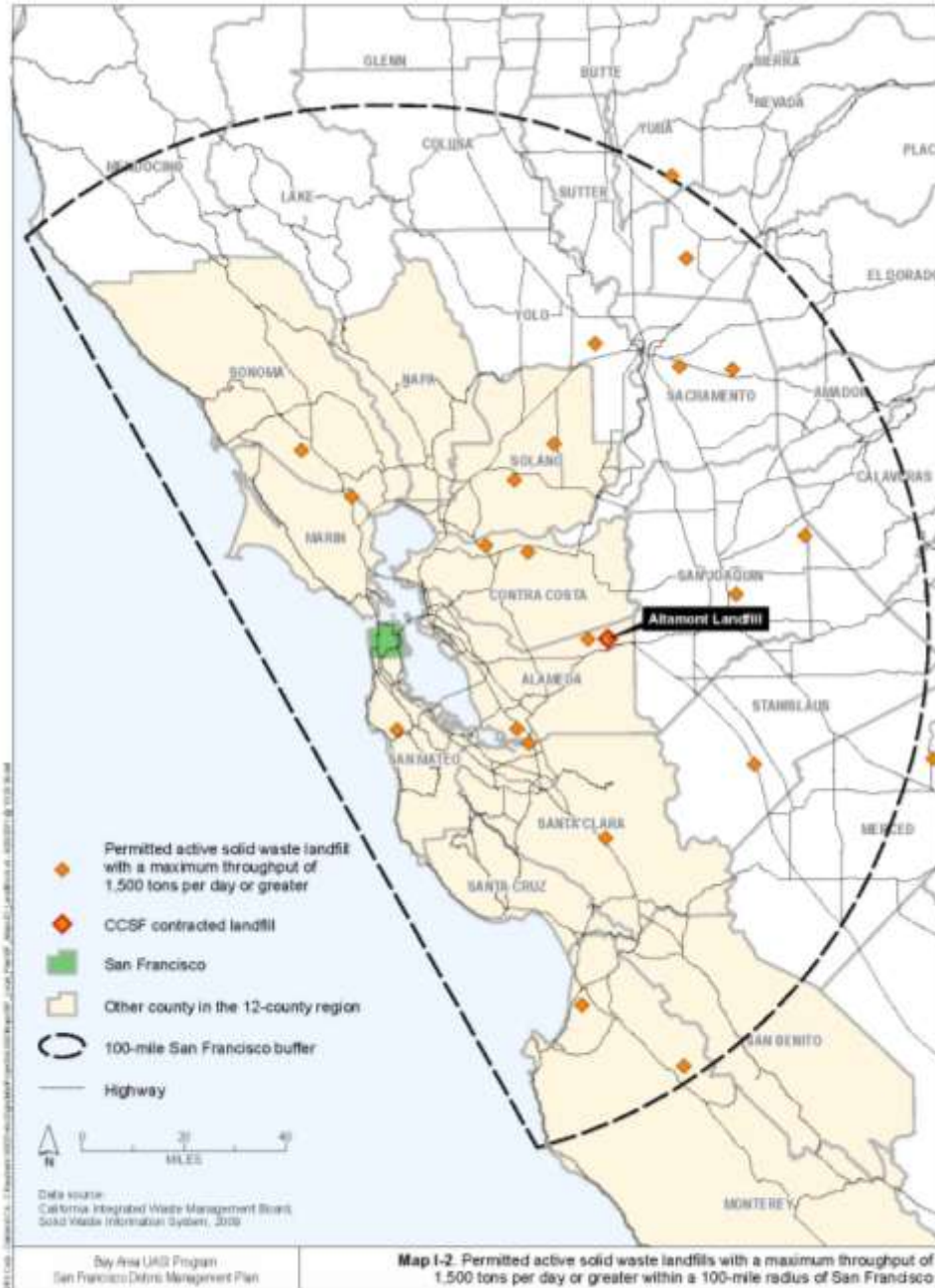


No.	Name	County	Operator	Address
41-AA-0015	Mussel Rock Transfer Station	San Mateo	Allied Waste Industries, Inc.	1680 Edgeworth Avenue, Daly City
28-AA-0030	Napa Garbage Service Mat. Diversion Facility	Napa	Napa Garbage Service	820 Levitin Way, Napa
34-AA-0002	North Area Transfer Station	Sacramento	County Of Sacramento, Public Works Dept.	4450 Roseville Road, North Highlands
49-AA-0399	North Bay Corporation MRF	Sonoma	North Bay Corporation	3417 Standish Avenue, Santa Rosa
05-AA-0011	Paloma Transfer Station	Calaveras	County Of Calaveras	4347 Paloma Road, Paloma
01-AA-0003	Pleasanton Garbage Service SW TS	Alameda	Pleasanton Garbage Service, Inc.	3110 Busch Road, Pleasanton
43-AN-0023	Premier Recycling Facility	Santa Clara	Premier Recycling	260 Leo Avenue, San Jose
07-AC-0043	Recycling Center & Transfer Station	Contra Costa	Contra Costa Waste Services, Inc.	1300 Loveridge Road, Pittsburg
05-AA-0023	Rock Creek Landfill	Calaveras	County Of Calaveras	12021 Hunt Road, Milto
34-AA-0195	Sacramento Recycling & Transfer Station	Sacramento	BLT Enterprises Of Oxnard, Inc.	8491 Fruitridge Road, Sacramento
27-AA-0053	Salinas Disposal, Transfer & Recycling	Monterey	USA Waste of California, Inc.	1120 Madison Lane, Salinas
05-AA-0010	San Andreas Transfer Station	Calaveras	County Of Calaveras	4258 San Andreas Rd, San Andreas
41-AA-0014	San Bruno Transfer Station	San Mateo	San Bruno Garbage Company, Inc	1271 Montgomery Avenue, San Bruno
38-AA-0001	San Francisco Solid Waste Tran & Rec Center	San Francisco	Sanitary Fill Company	501 Tunnel Avenue, San Francisco
43-AA-0003	San Martin Transfer and Recycling	Santa Clara	South Valley Refuse Disposal Company	14070 Llagas Avenue, San Martin
49-AA-0144	Sonoma Transfer Station	Sonoma	County Of Sonoma Public Works Department	4376 Stage Gulch Road, Sonoma
34-AA-0021	South Area Transfer Station	Sacramento	County Of Sacramento, Public Works Dept.	8550 Fruitridge Road, Sacramento
41-AA-0016	South Bayside Integrated Facility (TS)	San Mateo	Allied Waste Industries, Inc.	225 Shoreway Road, San Carlos



No.	Name	County	Operator	Address
39-AA-0016	Stockton Recycling & Transfer Station	San Joaquin	Stockton Recycling Inc.	401 South Lincoln Street, Stockton
27-AA-0110	Sun Street Transfer Station	Monterey	Salinas Valley Solid Waste Authority	139 Sun Street, Salinas
43-AA-0009	Sunnyvale MRF & Transfer Station	Santa Clara	Bay Counties Waste Services	301 Carl Road, Sunnyvale
39-AA-0024	Tracy Material Recovery & T.S.	San Joaquin	Repetto	30703 S. Macarthur Drive, Tracy
50-AA-0004	Turlock Transfer	Stanislaus	Turlock Transfer Inc.	1100 South Walnut, Turlock
23-AA-0040	Ukiah Transfer Station	Mendocino	Solid Waste Systems	3151 Taylor Drive/ Plant Road, Ukiah
39-AA-0019	USA Waste of California, Inc.	San Joaquin	Stockton Scavenger Association, Inc.	1240 Navy Drive, Stockton
38-AA-0012	West Coast Recycling Company At Pier 96	San Francisco	Norcal Waste Systems, Inc.	Pier 96, San Francisco
03-AA-0008	Western Amador Recycling Facility (Warf)	Amador	Amador Disposal Services	6500 Buena Vista Road, Lone
31-AA-0001	Western Placer Waste Management Authority	Placer	Western Placer Waste Mgt Authority	3195 Athens Ave., Lincoln
43-AN-0001	Zanker Material Processing Facility	Santa Clara	Zanker Road Resource Management, Limited	675 Los Esteros Road, San Jose
43-AN-0007	Zanker Road Class III Landfill	Santa Clara	Zanker Road Resource Management, Limited	705 Los Esteros Road, Near Zanker Road, San Jose

Table I-1: Permitted Active Large-Volume Transfer/Processing Facilities within a 100-Mile Radius of San Francisco



Map I-2 Permitted Active Solid Waste Landfills with a maximum throughput of 1,500 tons per day or greater within a 100-Mile Radius of San Francisco



No.	Name	County	Operator	Address	Place/Name
07-AA-0002	Acme Landfill	Contra Costa	Acme Fill Corporation	950 Waterbird Way	Martinez
01-AA-0009	Altamont Landfill & Resource Recovery	Alameda	Waste Management Of Alameda County	10840 Altamont Pass Road	Livermore
24-AA-0002	Billy Wright Disposal Site	Merced	County Of Merced	Billy Wright Rd; 1 Mi West of I-5	Los Banos
50-AA-0003	Bonzi Sanitary Landfill	Stanislaus	Bonzi Sanitary Landfill, Inc.	2650 West Hatch Road	Modesto
44-AA-0004	Buena Vista Drive Sanitary Landfill	Santa Cruz	County Of Santa Cruz	150 Roundtree Lane (Office Address)	Watsonville
49-AA-0001	Central Disposal Site	Sonoma	County Of Sonoma Public Works Department	500 Meacham Road	Petaluma
43-AM-0001	City of Palo Alto Refuse Disposal Site	Santa Clara	City Of Palo Alto	2830 Embarcadero Road	Palo Alto
44-AA-0001	City Of Santa Cruz Sanitary Landfill	Santa Cruz	City Of Santa Cruz	605 Dimeo Lane	Santa Cruz
44-AA-0002	City Of Watsonville Landfill	Santa Cruz	City Of Watsonville	730 San Andreas Road	Watsonville
28-AA-0002	Clover Flat Landfill	Napa	Clover Flat Landfill, Inc.	4380 Clover Flat Road	Calistoga
27-AA-0007	Crazy Horse Sanitary Landfill	Monterey	Salinas Valley Solid Waste Authority	350 Crazy Horse Canyon Road	Salinas
17-AA-0001	Eastlake Sanitary Landfill	Lake	County Of Lake	16015 Davis Ave	Clearlake
50-AA-0001	Fink Road Landfill	Stanislaus	County Of Stanislaus Dept. Of Pub Works	4000 Fink Road	Crows Landing
39-AA-0004	Foothill Sanitary Landfill	San Joaquin	Foothill Sanitary Landfill Inc.	6484 North Waverly Road	Linden
39-AA-0015	Forward Landfill, Inc.	San Joaquin	Forward, Inc./Allied Waste North America	9999 S. Austin Road	Manteca
43-AN-0015	Guadalupe Sanitary Landfill	Santa Clara	Guadalupe Rubbish Disposal Co, Inc.	15999 Guadalupe Mines Road	San Jose
48-AA-0002	Hay Road Landfill, Inc. (B + J Landfill)	Solano	Norcal Waste Systems Inc. (Hay Rd. - LF)	6426 Hay Road; 1/4 Mile West of Hwy 113	Vacaville

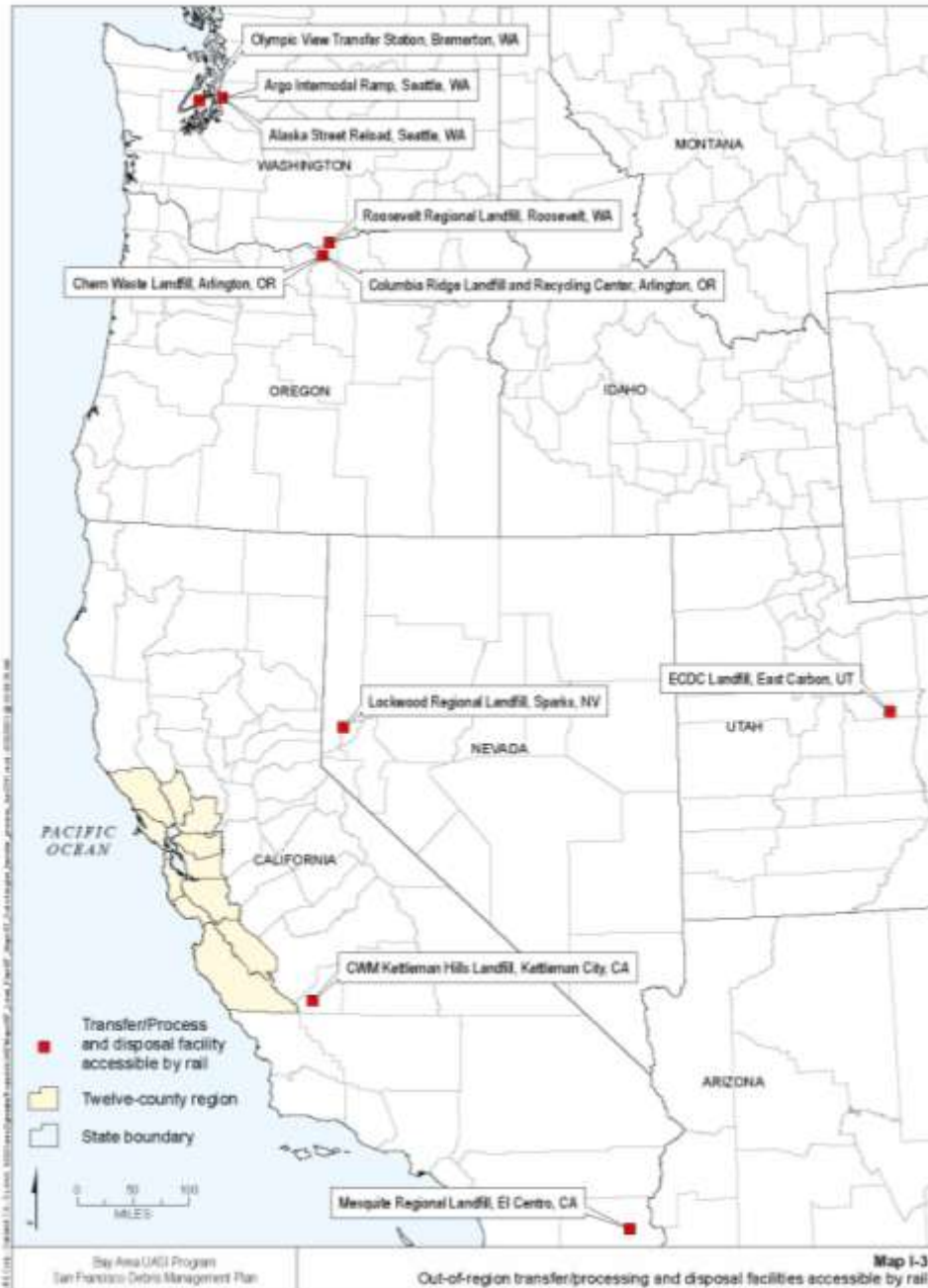


No.	Name	County	Operator	Address	Place/Name
35-AA-0001	John Smith Road Class III Landfill	San Benito	County of San Benito Integrated Waste Management Department	2650 John Smith Road	Hollister
27-AA-0005	Johnson Canyon Sanitary Landfill	Monterey	Salinas Valley Solid Waste Authority	31400 Johnson Canyon Road	Gonzales
07-AA-0032	Keller Canyon Landfill	Contra Costa	Keller Canyon Landfill	901 Bailey Road	Pittsburg
43-AN-0008	Kirby Canyon Recycle.& Disp. Facility	Santa Clara	Waste Management Of California Inc.	910 Coyote Creek Golf Drive	Coyote (In San Jose)
34-AA-0020	L and D Landfill Co	Sacramento	L and D Landfill Company	8635 Fruitridge Road	Sacramento
27-AA-0010	Monterey Regional Waste Management/Marina LF	Monterey	Monterey Regional Waste Management District	2 Mile North Of Marina On Del Monte Blvd	Marina
43-AN-0003	Newby Island Sanitary Landfill	Santa Clara	International Disposal Corporation	1601 Dixon Landing Road	Milpitas(SJ)
39-AA-0022	North County Landfill	San Joaquin	County Of San Joaquin Public Works Department	17900 East Harney Lane	Victor
41-AA-0002	Ox Mountain Sanitary Landfill	San Mateo	Allied Waste Industries, Inc.	2 Mile NE Half Moon Bay Off Hwy 92	Half Moon Bay
43-AA-0004	Pacheco Pass Landfill Recology (Norcal)	Santa Clara	NORCAL Waste Systems Pacheco Pass LF Inc.	3675 Pacheco Pass Hwy	San Felipe (Lake)
48-AA-0075	Potrero Hills Landfill	Solano	Potrero Hills Landfill, Inc.	3675 Potrero Hills Lane	Suisun City
21-AA-0001	Redwood Sanitary Landfill	Marin	Redwood Sanitary Landfill Inc.	4 Mile NE of Novato	Novato
05-AA-0023	Rock Creek Landfill	Calaveras	County Of Calaveras	12021 Hunt Road, Milton, CA	Milton
34-AA-0001	Sacramento County Landfill (Kiefer)	Sacramento	County Of Sacramento, Public Works Dept.	12701 Kiefer Blvd	Sloughouse
01-AA-0008	Tri Cities Recycling & Disposal Facility	Alameda	Waste Mgt. Of Alameda Co.	7010 Auto Mall Parkway	Fremont



No.	Name	County	Operator	Address	Place/Name
57-AA-0004	University Of California Davis Sanitary Landfill	Yolo	University Of California Davis Physical Plant	West End Of UCD Campus On County Road 98	Davis
01-AA-0010	Vasco Road Sanitary Landfill	Alameda	Republic Services Of California I, L.L.C	4001 North Vasco Road	Livermore
31-AA-0210	Western Regional Landfill	Placer	Western Placer Waste Management Authority	3195 Athens Road	Lincoln
57-AA-0001	Yolo County Central Landfill	Yolo	County Of Yolo Public Works Department	County Road 28h & County Road 104	Davis
43-AN-0001	Zanker Material Processing Facility	Santa Clara	Zanker Road Resource Management, Limited	675 Los Esteros Road	San Jose
43-AN-0007	Zanker Road Class III Landfill	Santa Clara	Zanker Road Resource Management, Limited	705 Los Esteros Road, Near Zanker Road	San Jose

Table I-2: Permitted Active Solid Waste Landfills within a 100-Mile Radius of San Francisco



Map I-3: Out-of-Region Transfer/Processing and Disposal Facilities Accessible by Rail



Facility	Address	Phone	Waste
Mesquite Regional Landfill	West of the Mesquite Gold Mine, on the north side of Highway 78, a few miles east of Glamis	(760) 337-5552	Nonhazardous (Class III) municipal solid waste from SoCal Counties
Roosevelt Regional Landfill	500 Roosevelt Grade Rd, Roosevelt, WA, 99356	(800) 275-5641	Dump / Landfill, 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 Facility. The Kettleman Hills Facility is permitted to manage virtually every type of hazardous waste and constituent.
Lockwood Regional Landfill	2401 Canyon Way, Sparks, NV, 89434	(775) 329-8822	
Chem Waste Landfill	17629 Cedar Springs Lane, Arlington, OR, 97812	(541) 454-2030	TSCA, RCRA, Non-RCRA, CERCLE, 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 Ave S, Seattle, WA 98134	(206) 764-1445	
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. Highway 23, East Carbon, UT, 84520	(435) 888-4451	Non- RCRA

Table I-3: Out-of-Region Transfer/Processing and Disposal Facilities Accessible by Rail



Map I-4: Port and 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



Name	Address	Use	Comment
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
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 S Way, 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



Name	Address	Use	Comment
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 I-4. Non-Passenger Rail Facilities



Name	Address	City	State ^a	Zip-code	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



Name	Address	City	State ^a	Zip-code	Owner
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
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



Name	Address	City	State ^a	Zip-code	Owner
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
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



Name	Address	City	State ^a	Zip-code	Owner
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



Name	Address	City	State ^a	Zip-code	Owner
Redwood City Marine Research and Education		Redwood City	CA		Leslie Salt Co., A Cargill
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.
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



Name	Address	City	State ^a	Zip-code	Owner
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
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.



Name	Address	City	State ^a	Zip-code	Owner
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



Name	Address	City	State ^a	Zip-code	Owner
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
California Maritime Academy Wharf	90 San Pablo Ave	Vallejo	CA	94525	State of California
Red and White Fleet Vallejo Ferry Landing	No Address	Vallejo	CA	94572	City of Vallejo
United States Coast Guard Station, Mare	90 San Pablo Av	Vallejo	CA	94525	U.S. Government

Table I-5. Port Facilities



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