Bay Area Earthquake Plan

California Governor's Office of Emergency Services

U.S. Department of Homeland Security
Federal Emergency Management Agency Region IX

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PUBLIC VERSION

Cal OES
GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

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Information about the Bay Area Earthquake Plan (BAEP)

This BAEP was developed by the U.S. Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) Region IX and the California Governor's Office of Emergency Services (OES) to describe the joint State and Federal response to a catastrophic earthquake in the Bay Area.

The BAEP is a component of the Concept of Operations (CONOP) for the joint State and Federal response to a catastrophic incident in California. The CONOP, dated September 23, 2008, is contained in a separate document.

Note on Redaction of Sensitive Information

Information contained in Annexes A, C, X, and all maps or tables that reference these annexes is considered sensitive. This information has been redacted from the Public Version. A sensitive, For Official Use Only, version has been made available to individuals who require the information as part of their performance of official duties in planning, responding, and recovering from a catastrophic Bay Area earthquake.

Redacted information has been marked as 'Redacted - For Official Use Only (FOUO)' in both the Public Version's Table of Contents and the location in the Public Version where the redacted information may be found in the sensitive, FOUO Version.

Some additional material has been provided in the Public Version in order to help the general reader understand the planned response without disclosing sensitive information. (These sections have not been marked).

For additional information, follow the link http://www.caloes.ca.gov/ or call (916) 845-8731.

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1 Overview

1.1 Introduction

The completion of this plan culminates nearly two years of work with government partners and Whole Community stakeholders to define strategies for response to a severe earthquake affecting 16 counties of the Bay Area and surrounding region. This plan defines recovery goals and strategies and is the first Cal OES and FEMA plan to integrate the Recovery concepts of the National Disaster Recovery Framework.

Developed in accordance with Presidential Policy Directive 8 (PPD-8) – National Preparedness, this plan outlines a process for activation and deployment of resources and capabilities to save and sustain lives and restore the region's infrastructure. The goal of the plan is to establish operational capability in the field to facilitate a Whole Community response to the disaster and to set the conditions for recovery.

1.2 Acknowledgements

The Bay Area Earthquake Plan (BAEP) was prepared under the guidance of a Senior Leader Steering Committee that consisted of representatives from FEMA and OES and the following entities:

- American Red Cross (ARC)
- California National Guard (CNG)
- Bay Area Urban Area Security Initiative (UASI)
- California Utilities Emergency Association (CUEA)
- Governor's Office of Emergency Services (OES)
- Emergency Managers, Sixteen Bay Area Counties
- California Health and Human Services Agency (CHHS)
- U.S. Department of Defense (DoD), Defense Coordinating Element, Region IX
- California Highway Patrol (CHP)

Additionally, the BAEP was prepared through the cooperation and involvement of more than 70 local, regional, State, Federal, and private-sector entities.

The entities that participated in the development of the BAEP, including the annexes, or provided information or comments are listed in **Table 1.**

1.3 Scope and Applicability

The Bay Area Earthquake Plan is an update to the *San Francisco Bay Area Earthquake Readiness Response: Concept of Operations Plan* dated 23 September, 2008.

1.3.1 Scope of Operations

The Bay Area Earthquake Plan presents goals and strategies to achieve desired outcomes. It calls for the formation of state and federal organizations, gaining access and the execution of strategies. But the plan does not execute the response. The successful implementation of this plan requires decisive

action on the part of emergency managers, especially those in leadership positions.
Successful execution requires decisions and actions of leaders in the organization to:

- Deploy personnel through deployment orders and mission assignments, contracts, or memorandums of agreement.
- Form personnel into organizations and task forces directed by the Operations Section of the Unified Coordination Group.
- Develop an access strategy and a temporary supply chain. That supply chain is developed by the deployment of staging area management teams, communications capabilities, contract support and transportation resources. The result is a capability to move resources from unaffected areas to affected, isolated areas.
- Conduct "Movement Coordination" to source, broker, schedule and direct transportation.
- Coordinate and direct the actions of subordinate organizations through plans, directives, operations orders, movement schedules and mission assignments.

1.3.2 Authorities and Guidance

The BAEP contains a list of authorities and guidance that are applicable to the BAEP. The BAEP is consistent with the principles of the National Incident Management System (NIMS) and will be implemented in accordance with the National Response Framework (NRF), the State of California Emergency Plan (SEP), and the Standardized Emergency Management System (SEMS). In particular, Federal actions described in the BAEP will be implemented in support of local, State, regional, tribal, and private-sector entities, which have responsibility for the public safety, health, and welfare within their jurisdictions.

1.4 Organization of the Concept Plan

The BAEP consists of a Base Plan and six annexes. The Base Plan is designed to provide broad guidance and includes:

- Situational background describing the environment that the BAEP was developed, including operational impacts of a Moment Magnitude (Mw) 7.0 to 7.8 earthquakes along the fault lines of the San Andreas and Hayward fault systems.
- Desired outcomes described by senior leader steering committee.
- Mission of the joint State/Federal organization
- Risk-based response and recovery capabilities essential for operational success

Annex A contains detailed information on incident-response organization (Redacted. For Official Use Only (FOUO)).

Annex B describes the types of information that are essential and the plan for collecting the information.

Annex C contains planning and operational execution in the 15 core capabilities listed below. (Redacted. For Official Use Only (FOUO)).

- Appendix C-1: Public Information and Warning
- Appendix C-2: Environmental Response/Health and Safety
- Appendix C-3: Fatality Management Services
- Appendix C-4: Fire Management and Suppression
- Appendix C-5: Infrastructure Systems
- Appendix C-6: Mass Care Services
- Appendix C-7: Mass Search and Rescue Operations
- Appendix C-8: On-scene Security, Protection, and Law Enforcement
- Appendix C-9: Public Health, Healthcare, and Emergency Medical Services
- Appendix C-10: Economic Recovery
- Appendix C-11: Health and Social Services
- Appendix C-12: Housing
- Appendix C-13: Infrastructure Systems – Recovery
- Appendix C-14: Natural and Cultural Resources
- Appendix C-15: Community Planning and Capacity Building

Annex D contains logistical response and recovery processes, which support the operations sections of this plan. The Logistical attributes of this plan are incorporated within sections 4 and 5 of this plan.

Annex E contains response and recovery communication processes, which support the operations sections of this plan. The Communication attributes of this plan are incorporated within sections 4 and 5 of this plan.

Annex X contains an executable checklist for the response and recovery processes, which support the operations sections of this plan. (Redacted. For Official Use Only (FOUO)).

2 Situation

The San Andreas Fault System is a major structural feature in the region and is located at the boundary between the North American and Pacific tectonic plates. The San Andreas and Hayward faults, both elements of the San Andreas Fault System, are two of the faults considered to have the highest probabilities of causing a significant seismic event in the Bay Area. A major seismic event on these faults could cause significant ground shaking, liquefaction, landslides, and surface fault rupture.

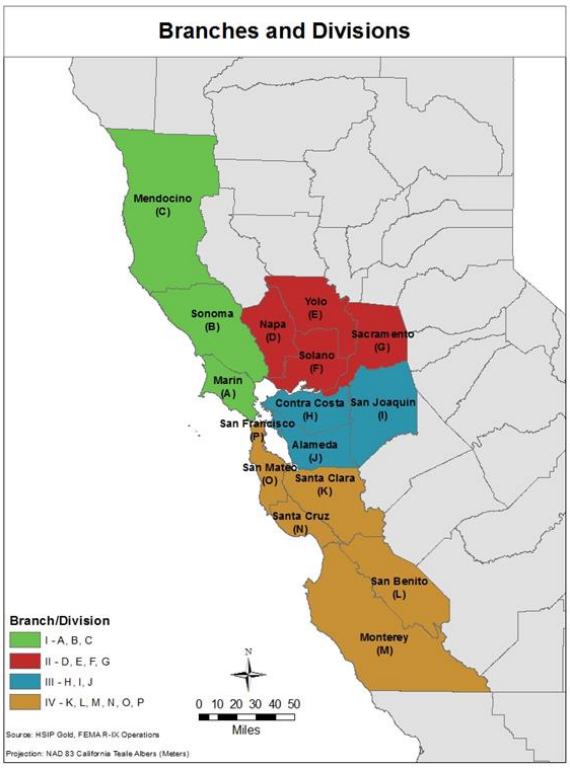
Of the earthquake fault risks in the Bay Area, the Hayward Fault is especially dangerous due to several factors. The first is its location in the heart of the region; the Hayward Fault is the single most urbanized earthquake fault in the United States. In 1868 only 24,000 people lived near the fault, while today there are more than 2.4 million. Hundreds of homes and other structures are built directly on the fault's trace, and mass transit corridors and major freeways and roadways cross it at numerous locations. Critical regional gas and water pipelines and electrical transmission lines also cross the Hayward Fault.

2.1 Geographic Scope

The BAEP focuses on the Bay Area's 16 counties (**Figure 1**), which are listed below.

- Alameda
- Contra Costa
- Marin
- Mendocino
- Monterey
- Napa
- Sacramento
- San Benito
- San Francisco
- San Joaquin
- San Mateo
- Santa Clara
- Santa Cruz
- Solano
- Sonoma
- Yolo

These counties will bear significant impacts directly or from regional disruption of critical infrastructure systems and short- and long-term impacts to the economy. Adjacent counties, such as Mendocino and San Benito, may sustain damage and require response. Counties such as Sacramento, San Joaquin, and Yolo in the Central Valley may be affected immediately by evacuations and other response actions. An earthquake of this magnitude will also have significant effects in the rest of California and the Nation.



(Figure 1: 16 Counties of BAEP)

2.2 Threats and Hazards

The unique geographic setting of the Bay Area, with its network of earthquake faults underlying the entire region, compounds the earthquake risks to life, health, and property. Large population centers are located parallel to and surrounding both the San Andreas and Hayward faults. Additionally, communities in the Bay Area are serviced by infrastructure that is susceptible to damage from earthquakes, as nearly all the infrastructure connections that the area depends on for water, electric power, fuel, and transportation services cross one of these faults. Any severe Bay Area earthquake would have operational impacts in the following key areas:

- **Damage to infrastructure** – Damage to transportation, water, wastewater, petroleum, power, medical, and housing infrastructure will result in requirements for a full range of support in all core capability areas.

- **Loss of transportation** – Damage to transportation networks could cause large population areas to become isolated and the supply chain serving millions of Bay Area residents to become degraded. Access, which is the center of gravity for all response and recovery activities, will be reduced due to damaged transportation routes. This will affect the deployment of resources and mutual aid, the provision of mass care and sheltering services, and the reconstitution of infrastructure.

  - Route 101, between San Jose and San Francisco: miles of roadway are constructed over soil structures subject to liquefaction and are under-laid by unstable bay muds, so they will probably

not be traversable by most types of conventional transportation due to significant damage to roadway. A significant number of roadway structures may not be available within intended response timeframes and/or pose a hazard to travel due to damages.

- Portions of Interstate 580 and I-80, from San Rafael to SF-Oakland Bay Bridge: miles of roadway are constructed over soil structures subject to liquefaction and are under-laid by unstable bay muds, so they probably will not be traversable by most types of conventional transportation due to significant damage to roadway. Some roadway structures may not be available within intended response timeframes.

- **Loss of water and wastewater services** – A severe earthquake will damage water utility pipelines and facilities, resulting in interrupted sources of supply and ultimately loss of service. Major conveyance systems, including the Hetch Hetchy aqueducts, EBMUD aqueducts, South Bay aqueduct, and numerous local pipelines, cross the Hayward fault. While seismic improvements have been made to many of these systems at fault crossings, a severe Hayward or San Andreas Fault rupture will cause water system outages.

- **Damage to petroleum infrastructure** – In a severe earthquake, the oil refining infrastructure in the Bay Area may not be fully operational, although one or more refineries may be partially functional to process and provide fuel. Partial or complete failure of refinery storage tanks is possible in areas of peak ground acceleration (PGA) or liquefaction. Oil pipelines might rupture through displacement at points where pipelines cross faults, such as the four locations where East Bay pipelines cross the Hayward Fault: Richmond, Oakland, Hayward, and Fremont. Pipelines will also be damaged by ground shaking in liquefaction areas. Jet fuel pipelines to airports could be damaged (airports have limited fuel storage capacity). Interruption of public fuel supplies through commercial gas stations is also probable due to power failure and degraded infrastructure. Although retail gas stations may have fuel in underground tanks, they will be unable to pump fuel without electric power.

- **Loss of electrical power** – A severe earthquake could damage much of the Bay Area's electrical power infrastructure. Electrical transmission lines and towers will likely fail as a result of ground shaking; gas pipeline breaks and leaks will occur, creating hazardous conditions and fires; and power could be out to communities for weeks, due to lack of repair parts caused by high demand and manufacturing delays.

- **Loss of communications capabilities** – Extensive damage to existing communications infrastructure would result from a severe earthquake—damage that could take several weeks or months to repair. Neither landline nor cellular telephone systems will work for at least the first day post-event, probably longer, due to system overload and damage to cell phone towers. Loss of communications capabilities will impact the response and needed communication with the public.

- FEMA Hazards United States (HAZUS) modeling was completed for two severe earthquake scenarios in the Bay Area: a magnitude 7.8 earthquake occurring along the San Andreas Fault and the other a magnitude 7.0 occurring along the Hayward Fault. Both models show areas of violent and very violent shaking in densely populated areas. (**Figure 2**) depicts the HAZUS modeling results for damage, injuries, and other impacts.

Scenario	Population	Deaths	Trauma	Hospitalized	Emergency Dept. (ED)	Outpatient	EMS Transports
Hayward 7.0 Magnitude	6,119,027	464	121	606	21,653	38,509	1,455

Buildings	Damage Complete	Damage Extensive	Damage Moderate	Debris	Economic Loss
3,038,798	13,557	39,886	150,800	14.4 M Tons	$54 billion

Households	Day 1 w/o Power	Day 3 w/o Power	Day 7 w/o Power	Displaced Households	Short-term Shelter
3,597,846	38%	17%	5.4%	76,501	55,295

Households	Day 1-3 w/o Water	Day 7 w/o Water	Day 30 w/o Water	Day 90 w/o Water
3,597,846	47%	43%	36%	25%

Scenario	Population	Deaths	Trauma	Hospitalized	Emergency Dept. (ED)	Outpatient	EMS Transports
San Andreas 7.8 Magnitude	7,748,954	2,550	566	2,401	82,971	139,942	7,270

Buildings	Damage Complete	Damage Extensive	Damage Moderate	Debris	Economic Loss
3,085,867	13,357	59,005	112,363	10 M tons	$60.5 billion

Households	Day 1 w/o Power	Day 3 w/o Power	Day 7 w/o Power	Displaced Households	Short-term Shelter
3,679,700	56%	32%	14.5%	49,774	29,151

Households	Day 1-3 w/o Water	Day 7 w/o Water	Day 30 w/o Water	Day 90 w/o Water
3,679,700	60%	58%	48%	30.5%

(Figure 2: FEMA HAZUS Modeling)

2.3 Assumptions

The following general assumptions pertain to the BAEP.

- The Governor immediately proclaims a State of Emergency and requests that the President declare a disaster.
- The President immediately declares a Major Disaster, making Federal assistance available under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Stafford Act).
- The OES Regional Emergency Operations Center (REOC) for the Coastal Region may not be functional; its functions are immediately assumed by the State Operations Center (SOC) according to OES CONOP.
- FEMA Region IX Regional Response Coordination Center (RRCC) in Oakland may not be functional. In accordance with the CONOP, FEMA IMAT collocates with OES at the SOC.
- All Operational Area Emergency Operations Centers (EOCs) in the affected area experience varying levels of damage and are understaffed but are at least partly operational. All other local government functions in the affected area are severely compromised or focused entirely on response to the earthquake.
- On a statewide basis, all elements of SEMS, including communications and mutual aid systems, are functional.
- The earthquake is so severe that:

- The response capabilities and resources of the local jurisdictions and the State are insufficient, overwhelmed, and exhausted.

- The hardest hit areas (such as San Francisco and coastal communities) are initially isolated from re-supply by fixed-wing air, ground, and sea transportation.

- The number of casualties and/or displaced persons is large, possibly in the tens to hundreds of thousands.

- Massive disruption of the area's critical infrastructure (such as energy, transportation, telecommunications, and public health and medical systems) occurs.

- Significant shortage of response and casualty/evacuee reception capabilities, equipment, and medical care occurs.

- Resources under the direct control of the State of California are maximized and augmented by Federal resources.

- Upon receipt of the Presidential declaration or Presidential order to commit Federal resources, the State and Federal governments establish joint operations to provide assistance to local jurisdictions.

2.4 Local and State Capabilities and Unmet Needs

As part of the development of the BAEP, a joint state and federal process identified the local and regional capabilities in the Bay Area that are likely to be needed after a catastrophic earthquake. Projected major unmet needs were also identified.

The capabilities, which are summarized below and organized according to the DHS Core Capabilities, were identified at the Operational Area (County) level.

Response

Planning: Conduct a systematic process engaging and integrating the whole community including individuals with a disability and access/functional needs in the development of executable strategic, operational, and/or community-based approaches to meet defined objectives.

Public Information and Warning: Broadcast towers (microwave) and other telecommunications facilities may be severely damaged, disrupting communications and media operations and threatening traditional platforms for disseminating emergency information. Life-saving and life-sustaining information must be coordinated among local, state, and federal stakeholders and be accessible to individuals with disabilities and others with access and functional needs; those from diverse religious, racial, or ethnic backgrounds; people with limited English proficiency; and individuals in high risk, vulnerable, and marginalized populations. Local PIOs and other public information staff, however, may be personally affected by the disaster and unable to report to their posts for days. Operational impacts create the need for designated backup PIOs and alternate public information strategies.

Operational Coordination: Operational Coordination is essential in responding to and recovering from such a large-scale, complex incident with multiple jurisdictions and agencies. The demand for response resources will far outweigh capabilities, operational coordination is essential in determining what needs to be deployed where in order to accomplish a task. The location of FEMA RIX and the RRCC is vulnerable to a catastrophic earthquake, especially one along the Hayward Fault. It is possible that both the RRCC and the Coastal Region REOC would be unable to active and perform their normal operational coordination functions. State and federal teams form a Unified Coordination Group (UCG) to consolidate incident-related operational elements of the Coastal Regional Emergency Operations Center (REOC) and State Operations Center (SOC) at the JFO.

Critical Transportation Following a severe earthquake in the Bay Area transportation systems will be damaged. The supply chain supporting millions of Bay Area residents will be degraded. A multimodal transportation strategy for the delivery of life saving and life-sustaining resources is the center of gravity for a Bay Area catastrophic earthquake response and is the prime enabler for all other response. The core Bay Area transportation and logistics concept involves activation, assessment of the situation, and development of an initial plan for the coordinated movement of response resources to staging areas near the incident site. In order to provide flexibility and redundancy, the overarching logistics strategy is to bring response and recovery resources to the incident area using multiple modes (air, marine, and surface transportation).

Environmental Response/Health and Safety: The Bay Area is home to numerous oil refineries, chemical plants, tank farms, pipelines, high technology and biotechnology laboratories and production facilities, and other industrial facilities. A catastrophic earthquake in the Bay Area will result in damage to refineries, pipelines, and facilities associated with hazardous materials storage such as medical facilities and university labs located in areas of strong shaking. Areas of vulnerability include:

- The five San Francisco Bay Area petroleum refineries
- High concentrations of manufacturing, high technology, and biotechnology facilities, including South San Francisco, the Silicon Valley, and bayside cities in Alameda County
- Areas with concentrations of petroleum pipelines, such as in northern Contra Costa, Solano, and Alameda counties
- Areas with natural gas pipelines (located in all Bay Area counties).
- Areas with concentrations of rail lines that transport HAZMAT, oil, and natural gas products

HAZMAT and oil products are transported through the region's highway, railroad, and shipping systems. Ground shaking generated by an earthquake will likely cause road damage and HAZMAT/oil tanker accidents (e.g., collisions, rollovers). Transportation networks that provide access for HAZMAT and oil transport, such as Interstate 80/880 in Alameda and Contra Costa counties and the U.S. 101 corridor in San Mateo and Santa Clara counties, as well as the Bay Area's railway system and petroleum and natural gas pipeline infrastructure may experience a number of transportation-related oil and HAZMAT incidents. These incidents would likely impact waterways, damage environmental and economic resources, and create a public health threat

Fatality Management Services: Unlike many states, California does not have a State Coroner or Medical Examiner. Primary responsibility for the investigation, recovery, and management of human remains resides within the authority of the local coroner or medical examiner. Concurrent with their law enforcement duties, the majority of the counties (operational areas [OAs]) in California have assigned coroner responsibilities to a Sheriff Coroner. San Francisco has a Medical Examiner. Since there is no

State Coroner or Medical Examiner, counties must rely on the mutual aid system to meet their resource needs in incidents that overwhelm their response capacity. The Governor's Office of Emergency Services Law Enforcement Branch administers the Coroners' Mutual Aid program.

Fire Management and Suppression: A severe earthquake in the Bay Area will result in thousands of fires throughout the region. The scope of the disaster will immediately overwhelm local firefighting capabilities. Water infrastructure damage and limited access to affected areas will hinder firefighting operations. Communications affecting the reporting of fires, water infrastructure damage and limited access to affected areas will hinder firefighting operations. The implementation of the multi-modal access strategy will enable the deployment of state and federal firefighting resources in support of local jurisdictions. State and federal firefighting resources will activate, deploy, and conduct operations in support of local jurisdictions in order to save lives, contain and extinguish fires, and preserve property.

Infrastructure Systems: Water: No one source of water (SFPUC, EBMUD, and Alameda County) will support the needs of responders and communities after a severe Bay Area earthquake. With the expected 6,000-10,000 water pipeline, regional water needs after a major earthquake will be significant. 1.5 to 9 million gallons per day for up to 30 days depending on severity of system outage, repair to water systems could take weeks to months

Fuel: In the aftermath of a catastrophic earthquake, it is anticipated that there will be a temporary shortage of gasoline, diesel fuel, and jet fuel. This will be a level of disruption not previously experienced by stakeholders that will require additional actions by government entities that are designed to simultaneously decrease local demand and increase resupply from outside the state. The state and federal response organization will establish and manage a fuel supply chain that supports local, state, and federal operations. The supply chain will include temporary bulk storage and distribution to agencies and jurisdictions identified by state and local authorities.

Electrical Power: Electrical transmission lines and towers will likely fail as a result of ground shaking from the earthquake, resulting in a loss of power for communities for weeks. HAZUS modeling indicates over half of households in the affected area would be without power for 24 hours with over 14 percent still without power a week later. Infrastructure repair parts, such as transformers, pipes, and connectors, may be unavailable due to excess demand from multiple communities and due to manufacturing delays. Energized, downed electric lines will present an immediate safety hazard. In addition, damaged underground pipelines, cables, and other infrastructure components will take longer to repair than those above ground. Public communications systems and 911 dispatch centers will be adversely impacted. Hospitals and other critical care facilities will suffer outages, limiting service delivery and the availability of medicine and medical supplies. Food supplies will dwindle rapidly and fresh food and produce will not available in communities due to loss of electricity at grocery stores and at perishable item facilities.

Natural Gas: Gas pipeline breaks and leaks will occur, creating hazardous conditions and fires. Gas service restoration could take longer, as many residents will unnecessarily turn off their gas service coming into their homes. Gas service personnel will have to inspect each property for leaks and relight pilot lights. Natural gas may be cut off in some communities for longer periods of time due to difficulties in making repairs caused by limited access to damaged pipes and the prioritization of restoration set.

Telecommunications: Landline and cellular telephone systems will suffer severe degradation for the first day post-incident and potentially much longer due to system overload and damage to cell phone towers.

Underground landline cables will be damaged or destroyed from ground deformation, and overhead lines will be severed by fallen utility poles.

Logistics and Supply Chain Management: Damage to transportation networks may lead to the isolation of large population areas and the degradation of the region's supply chain that serves millions of residents. Affected areas will be without power, water, and communications systems for weeks or months. The primary concept of operations is based on gaining access to impacted areas. The means for reaching isolated/affected areas is through a multi-modal access strategy. The strategy is executed through the development of staging areas on the periphery of the incident area and the use of multiple transportation modes to reach affected areas. The operation enables sourcing, transporting, staging, and distributing resources to state and federal agencies, OAs, and directly to eligible recipients.

Mass Care Services: A catastrophic earthquake in the Bay Area will result in widespread damage, hundreds of deaths, and thousands of injuries. Due to damage to roads and bridges, thousands of commuters will be unable to return to their homes via automobile or public transit. Additional thousands more will congregate in safe areas awaiting medical and mass care services. Aftershocks and other secondary effects from the earthquake, such as fires and HAZMAT releases, will cause additional damage and the red-tagging of residential buildings through the ongoing building inspection process, leading to increased shelter needs. Shelter supplies from beyond the affected county or region may not be able to reach damaged areas until several days after the earthquake. Until shelter capacity meets shelter requirements, shelters that are initially overcrowded will likely close to new registrants in order to maintain safe and sanitary conditions. This in turn may require additional transportation support for moving survivors to open and available shelters. The Red Cross and Cal OES indicate that half of the expected shelter population may seek shelter outside the affected area. (**Figure 3**) depicts 16 county population densities.

Total Population	
Population*	10,276,231
Households	6,680,342
People with Disabilities and Others with Access and Functional Needs	1,005,294
Petsǂ	
Dogs	2,313,046
Cats	2,526,924
Birds	281,209
Tourists	
San Francisco Areaǂ	131,128
USAI** Plan	216,000
Homeless	
UASI** Homeless	36,300

* 2010 Census Data
ǂ American Vet Medical Association Calculator
ǂ San Francisco Travel Authority (per day)
** UASI Plans do not include Sacramento, San Joaquin, Mendocino, Yolo.

(Figure 3: 16 County Population Densities)

Individuals/Households**:** Estimating the total shelter population after a no-notice catastrophic earthquake is difficult. The nation has not experienced a catastrophic earthquake in the last century; therefore there is little research available on earthquake survivors who seek shelter in such an event.

	Capacity	
Locations	**Evacuation**	**Post-Impact**
16 OAs Only	801,148	278,502
California Only	2,918,194	1,139,303
AZ, CA, NV, OR	3,481,058	1,420,806

Shelter Counts are current as of January 2014

The American Red Cross (Red Cross) uses a planning factor of 10 percent of the displaced population who will seek shelter, based on their historical averages. The Red Cross *Northern California Earthquake Concept of Operations Plan* provides 10 percent as a low estimation factor and 25 as a high factor, to account for the widespread infrastructure collapse and high "social vulnerability" of the most affected populations. (**Figure 4**) depicts sheltering capacities for short-term or multiple days.

Evacuation Sheltering:	Temporary sheltering, typically used for less than 24 hours, for short-term events such as fires or HAZMAT incidents or to provide a place for survivors to wait for movement away from an area.
Post-impact Sheltering:	Sheltering designed for survivors to live in for multiple days.

(Figure 4: Sheltering Evacuation / Post-Impact)

Open Area Shelters: Given the fear of aftershocks following a major earthquake, some displaced survivors will converge on public parks or open spaces as an alternative to using indoor mass care shelters

Sheltering in Place: Many jurisdictions plan to encourage survivors to Shelter in Place (SIP) — remain in or near the vicinity of their residences — after a catastrophic earthquake. Mass care support must include the supply of life-saving and life-sustaining commodities to SIP survivors. Currently, many OAs have Point of Distribution (POD) plans for the distribution of commodities, but several do not.

Feeding Requirements: The Red Cross indicates that feeding needs are usually higher than the shelter population due to the numbers of survivors staying in locations without the means to prepare meals. Even survivors who can purchase and prepare food, however, may be unable to do so since stores and vendors will also be affected. Cal OES and the Red Cross estimate that 1.75 million people could seek meals daily and/or bulk distribution of supplies. Feeding operations would also include support to emergency workers.

Pet Sheltering: In 2006, The President signed an Executive Order (PETS Act) requiring pet sheltering to be included in all local government emergency operations plans. Five of the 16 OAs have pet care and sheltering plans. Most OAs will require commodity support and coordination to alleviate pet shelter overflow. Important to note is that the Red Cross does not supply pet food or pet shelter staffing. These needs can be met through Red Cross mass care partners.

Mass Search and Rescue Operations: Due to severe shaking, liquefaction, and strike slip along the fault, a catastrophic earthquake in the Bay Area will result in partial or complete collapse of thousands of buildings. In the East Bay, there are over 3,300 multi-story, soft-story structures. In San Francisco there are over 10,880 such structures, and in the San Jose area there are almost 2,000 multi-story, soft-story structures. The Association of Bay Area Government (ABAG) report, “Regional Resilience Initiative-Policy Agency for Recovery” (March 2013), postulates that after a catastrophic earthquake there would be over 156,000 uninhabitable housing units of which two-thirds of those units are soft-story construction. In San Francisco alone, there may be “300 to 500 trapped people requiring US&R. There will be thousands of collapsed buildings that will require search. There will be hundreds and possibly thousands of people who are trapped and require rescue.

On-scene Security, Protection, and Law Enforcement: A catastrophic earthquake in the Bay Area will result in damage to roads and bridges from debris, shaking, and liquefaction, partial or complete collapse of thousands of buildings, and hundreds of fires. Thousands of people will want to leave the affected area, especially commuters whose homes are outside the impacted zone. Thousands more will congregate in safe areas, seeking medical services and/or awaiting transportation out of the affected area. There is a risk of a breakdown of societal norms that could result in violence and looting. On-scene Security and Protection capabilities will be necessary for directing civilian traffic away from areas with impassable roads and debris; servicing traffic accidents; enabling fire, medical, public works, and search and rescue responder access; protecting hospitals and other critical facilities; managing crowds; and facilitating survivor movement (especially commuters returning home).

Operational Communications: It is probable a Bay Area Earthquake will cause extensive damage to existing communications infrastructure that could take several weeks or months to repair. Ground shaking, liquefaction, fault strike slips, landslides, and fires will cause structural damage to cellular towers and facilities. Neither landline nor cellular telephone systems will work for at least the first day

post-event, probably longer, due to system overload and damage. Land mobile radios (LMR) and satellite communications capabilities for responders may still be operational; however, satellite communications channels may be overwhelmed by calls and damage at central switching offices may limit the range of radio communications. Loss of communications will impact both emergency response and communications with the public.

Public Health, Healthcare, and Emergency Medical Services: The health and medical system in the Bay Area is a multifaceted, complex collection of components and service providers. The major components include:

- Healthcare Facilities
  - Hospitals
  - Long-term Healthcare Facilities
    - Intermediate Care Facilities
    - Skilled Nursing Facilities
  - Community Clinics
- Emergency Medical System (EMS), which includes EMT/paramedics, ambulances, dispatch services, and emergency departments
- Public Health System
- Mental Health/Behavior Health and Substance Abuse Treatment System
- The California Public Health and Medical Emergency Operations Manual (EOM) establishes a common operational framework for public health and medical systems within the state to rapidly and effectively respond to emergencies. The EOM specifically focuses on standardized operational processes that support the ability of the State to provide assistance during disasters that exceed the resource capacity of an individual Operational Area (OA).
- **Healthcare Facilities:** According to OSHPD, the 16 counties covered by this Bay Area plan together have 142 general acute care hospitals and 348 long-term healthcare facilities, with 28,261 and 31,132 beds respectively. Acute care hospital bed types include beds for general acute care, intensive care, intensive care pediatric and newborn, general pediatric, coronary care, rehabilitation, perinatal, and burn patients.
- **Emergency Medical Services (EMS) System:** Emergency Medical Services, more commonly known as EMS, is a system that provides emergency medical care. EMS is more than ambulance transport. It is a system of coordinated response and emergency medical care, involving 911 dispatch, on-scene medical care, the medical transport network, care in-transit, the trauma system, hospital emergency departments, and EMS communications networks
- **Public and Environmental Health System:** County public health departments are mostly county-level agencies responsible for providing services to all cities within a county and to populations in unincorporated areas of the county.
- **Earthquake Effects on Health and Medical System:** A catastrophic earthquake will stress the health and medical system in a number of ways. Impacts will include:
  - Casualties and fatalities
  - Disruption to EMS systems
  - Damage to public health and medical infrastructure, including but not limited to: o Hospitals
  - Skilled nursing facilities
  - Community clinics
  - Other licensed HCFs and providers
  - Drinking water systems

- Loss of utilities that support healthcare infrastructure
- Disruption to the Fatality Management System
- **Mental Health Impacts:** The mental/behavioral health effects of disasters include a wide range of emotional effects that range from expected stress responses that may not require any mental health intervention to effects that may require intervention. For example, exposure to events that may exacerbate or initiate the onset of a variety of mental health conditions include but are not limited to: post-traumatic stress disorder (PTSD), generalized anxiety disorder, acute stress disorder, major depression, panic disorder, and/or substance use disorder. Mental health issues also cause further stress on an overwhelmed healthcare system trying to respond to the disaster, and can disproportionally affect specific populations, such as children and other "at-risk or vulnerable" populations. Acute mental health effects are expected to impact persons experiencing:
    - Significant loss, such as loss of home, friends, family, or pets
    - Vulnerable populations at higher risk for more severe reactions, such as children, senior citizens, and those with a pre-morbid disposition (already at risk for mental health issues)
    - Those with existing severe mental health issues, such as Severely Emotional Disability (SED) (children), Severely Mentally Ill (SMI) (adults), Substance Abuse (SA) with high prevalence and severity (requiring medication in most cases) and Dual SMI and SA.

Situational Assessment: Ground shaking, displacement, liquefaction, landslides, fires, and the potential release of hazardous materials resulting from a catastrophic earthquake in the Bay Area will cause significant impacts, including damage to communications networks and other SA infrastructure. The event will result in many casualties and fatalities, collapsed and unsafe buildings, fires, as well as the failure of some critical infrastructure systems, such as those for water, wastewater, electric power, natural gas, and wireless communications. Surface access to affected areas will be minimal to nonexistent, as the BART system and rail lines will be inoperable, roads and bridges may be damaged and impassable, and traffic jams will occur on roads leading into and out of the affected area. Commuters will be unable to return home, and travelers in airports, railway stations, and bus stations will be stranded. The number, complexity, and magnitude of crisis incidents will make the establishment of accurate and timely situational awareness in the first 24 hours problematic.

Recovery

Economic Recovery: A major earthquake in the Bay Area will have significant impacts on the regional economy and potential impacts for national and global economies. Regional economic impacts are inextricably tied to the Bay Area's status as a global hub, and could be magnified if a significant, long-term disruption occurs in the Bay Area's connections to national and global supply chains and trade networks. The core recovery capability for economic recovery is the ability to return economic and business activities (including agriculture) to a state of health and develop new economic opportunities that result in a sustainable and economically viable community. Economic recovery is a critical and integral part of recovery. Effective economic recovery following a disaster is positively influenced by pre-disaster community planning including mitigation actions that increase community resilience.

Health and Social Services: Specific Impacts to Bay Area Health and Medical Systems
A catastrophic earthquake will stress the health and medical systems in a number of ways. Physical impacts will include:

- Casualties and fatalities
- Disruption to EMS systems
- Damage to public health and medical infrastructure, including:
  - Hospitals
  - Community clinics
  - Skilled nursing facilities
  - Other licensed HCFs and providers
  - Drinking water systems
  - Components of food production and distribution
- Loss of utilities that support the healthcare infrastructure
- Environmental health impacts to community facilities and housing, including:
  - Indoor air quality hazards: mold, carbon monoxide, asbestos, lead, etc.
  - Potable water and sanitation hazards
  - Vector control hazards
  - Waste hazards: toxics, biohazards, debris, sediment
  - Wastewater hazards: discharges to recreational water
  - Physical hazards
- According to the U.S. Bureau of Labor Statistics, 55,000 to 60,000 healthcare and social worker positions could be lost following a Hayward Fault rupture, primarily due to loss of the physical buildings where services are provided. The potential loss equates to around $800 million. Although services could be provided in alternate facilities, HCF owners may not be able to secure temporary facilities without financial assistance

Housing: Threats and hazards resulting from the earthquake include structural and nonstructural damage to buildings and infrastructure, fires, subsidence and loss of soil-bearing capacity, landslides, hazardous materials spills and incidents, and dam/levee failure resulting in flooding. Many residential, commercial, and industrial buildings would be rendered uninhabitable. Utility and water supply damage, even in areas with less extreme structural impacts, would compound the problem of housing people.

Infrastructure Systems: A severe Bay Area earthquake will affect all major infrastructure systems in the region. Transportation networks—including road, rail, air, and marine transportation systems—will be damaged by ground shaking, landslides, liquefaction and/or surface rupture and fault after-slip, disrupting the region's critical supply chain. Port facilities and their land-based support infrastructure as well as the San Francisco and Oakland international airports will be affected due to their locations in high liquefaction susceptibility zones. The restoration of one infrastructure system is often interdependent with the restoration of others. Roadways, for instance, must often be cleared and at least minimally repaired to enable personnel and resources to access and repair other infrastructure. An organizational structure to enable information sharing and project coordination is essential for capturing opportunities for long-term recovery presented by the disaster. The responsibility for the rebuilding/repair of infrastructure systems lies with individual public and private infrastructure owners.

Natural and Cultural Resources: The San Francisco Bay region contains natural aquatic, woodland, and wetland environments that provide numerous ecological benefits to communities, such as water.

- The U.S. National Park Service maintains the National Register of Historic Places. The National Register is part of a national program to coordinate and support public private efforts to identify, evaluate, and protect America's historic and archeological resources. Many of the historic places are scattered around the San Francisco Bay, which has a high probability of liquefaction following a major earthquake.

- An earthquake along the Hayward Fault or the San Andreas Fault is capable of causing multiple levee failures in the Sacramento-San Joaquin River Delta, which is home to numerous unique plant and animal species and is the hub of California's water supply system. Levee failures could cause significant impacts on regional water quality and supply, damage to life and property, and problematic shifts in the regional ecosystem

3 Mission

The mission of the joint state and federal organization is to save and sustain human lives, minimize suffering, stabilize and restore critical infrastructure, and facilitate recovery following a severe earthquake in the Bay Area.

4 Execution

This section describes the execution of the joint State/Federal response.

4.1 Senior Leaders' Intent

State and federal emergency management teams will ensure unity of effort by establishing a joint state/federal Unified Coordination Group (UCG) to coordinate disaster activities that are consistent with the priorities set by the Governor of California and the President of the United States. Initial response operations will be stabilized within 72 hours through deployment of resources and capabilities to the incident area

At the conclusion of state/federal response operations:

- Operational coordination is sufficient to accurately assess the situation,
- Establish priorities,
- Gain access to affected areas via multiple modes, and
- Conduct lifesaving and life-sustaining operations in support of Operational Areas (OAs).

At the conclusion of state/federal recovery operations:

- National Disaster Recovery Framework (NDRF) organizations, community assistance programs, and funding systems are in place to facilitate information sharing,
- Expedited environmental compliance,
- Restoration of affected communities.

4.2 Concept of Operations (CONOP)

The central response concept for this plan involves gaining access to affected areas through a multi-modal access strategy. The access strategy uses surface, air, and marine transportation for the movement of resources. Access is the key enabler for a logistics supply chain that facilitates mass care, medical support, and infrastructure recovery.

Access is accomplished by activating, deploying, and staging resources at state and federal staging areas on the periphery of the incident and distributing resources to impacted areas. A "hub and spoke" distribution network is established in order to sustain survivors at shelters, feeding kitchens, and assembly areas and in communities sheltering in place.

4.2.1 General Sequence of Response

Beginning with the onset of a severe earthquake and includes activation, assessment of the situation, deployment, and sustained operations. Phase 2 includes the following sub phases:

- Phase 2a: Immediate response (Event to E+24 hours)
- Phase 2b: Deployment (E+24 hours to E+72 hours)
- Phase 2c: Sustained Response (E+72 hours)
- Phase 3: Recovery

However, recovery activities begin shortly after the earthquake and the transition from response to recovery is gradual and not defined by specific timeframes.

4.2.2 Activation

The activation of the joint State/Federal organization is summarized in this section.

Local, State, and Federal Operations Centers

The earthquake will result in the immediate activation of local and State command and coordinating facilities, including:

- Cal OES fully activates the SOC, conducts a situational assessment in coordination with stakeholders, and takes initial actions in the response.
- FEMA's National response organization activates the NRCC, gains situational awareness, and initiates a multi-modal access strategy. The National IMAT (N-IMAT) is deployed to the SOC.
- The FEMA Region IX IMAT deploys to the SOC or other facilities and integrates with the N-IMAT; all Regional ESFs are directed to deploy to the SOC.
- The Region IX Pacific Area Office activates to coordinate continuity of operations actions.

Unified Coordination Group

The joint state/federal organization will be formed consistent with the *2008 California Catastrophic Incident Base Plan: Concept of Operations*. Cal OES and FEMA will form a joint state/federal organization that will incorporate the functions of the SOC, Regional Emergency Operations Center (REOC), and RRCC. To ensure unity of effort while maintaining consistency with SEMS, the JFO ultimately becomes the focal point of operations for the State, including functions that would otherwise be performed at the SOC and/or REOC.

A FEMA National IMAT (N-IMAT) will deploy to the SOC and form the UCG with Cal OES staff. A FEMA Region IX IMAT will deploy to the SOC and integrate with the N-IMAT. The Region IX RRCC will not activate or provide operational support. The FEMA NRCC will coordinate the activation of federal capabilities and push resources to the affected area until a Federal Coordinating Officer (FCO) is operational.

The UCG is composed of the State Coordinating Officer (SCO), FCO, the Adjutant General (TAG), the Defense Coordination Officer (DCO), and other senior state and federal agency officials.

Primary activities of the UCG are as follows:

- Directs coordinated, combined state and federal operations in accordance with Unified Command principles.
- Develops a joint Incident Action Plan (IAP) articulating a common set of incident objectives and ensures that resources are ordered to effectively meet those objectives.
- Ensures that all decisions are based on mutually agreed-upon objectives.

4.2.3 Response Strategy

Following a catastrophic earthquake in the Bay Area, massive disruption of the area's critical infrastructure (such as energy, transportation, telecommunications, and public health and medical systems) occurs. The response capabilities and resources of the local jurisdictions and the State are insufficient, overwhelmed, and exhausted. The mission of the joint state and federal organization is to save and sustain human lives, minimize suffering, stabilize and restore critical infrastructure, and facilitate recovery. The efforts and tactics of a whole community response will lead to the timely and effective recovery; both socially, and economically. Planning factors represent response requirements. Specific requirements include:

- Gain access through a coordinated multi-modal (surface, air, and sea) access strategy that deploys teams and resources to affected areas.
- Support or conduct search and rescue, firefighting, and fatality management operations.
- Conduct medical surge, patient movement, and public, environmental, and mental health operations.
- Execute a commodities distribution system to support shelter-in-place (SIP) populations, delivering food and potable water and durable medical equipment where required.
- Support survivor movement consistent with existing movement plans.
- Deliver commodities, equipment, and services to include emergency power, fuel, and access to community staples.

At the onset of a catastrophic earthquake, within the first twenty-four hours – immediate response – affected municipalities, as well as adjacent jurisdictions, will activate their emergency operations centers (EOCs) in accordance with the State Standardized Emergency Management System (SEMS). As information is collected and situational assessments are recognized, EOCs will collaborate on response, enacting pre-arranged emergency multi-agency compacts (EMACs), which enable jurisdictions to draw immediate life-saving resources from supporting jurisdictions. Regional Geographical Operation (GeOps) is activated to facilitate resources being orchestrated by the State Operations Center (SOC). Following a Presidential Declaration, a FEMA National Incident Management Assistance Team (N-IMAT) arrives at the SOC early on, and begins coordinating federal response capabilities.

As described in 4.2 (CONOP), the central response concept for this plan involves gaining access to affected areas through a multi-modal access strategy. The access strategy uses surface, air, and marine transportation for the movement of resources. Access is the key enabler for a logistics supply chain that facilitates mass care, medical support, and infrastructure recovery. Mobile communication capabilities (state and federal) are positioned at port embarkation/debarkation sites, as well as, at state and federal staging areas. Mobile communications forward enable response coordination between first responders and collaborated support.

As access is gained, deploying resources will be moved into affected communities to support life-saving activities, including local efforts for firefighting, public safety, sheltering, commodity distribution, and medical treatment. A Unified Coordination Group (UCG) will lead a joint State/Federal operation that will provide support for field-level incident response through integration of State and Federal resources. The effective staging, movement, and support of resources are critical attributes of the UCG. Department of Defense, both reserve and active duty resources are embedded within the UCG.

The UCG develops operational capability and assumes control of deployment. Through the Functional Operations Branch of the UCG *Operations Section*, six response task forces are formulated, and are solely purposed to: *mass care*, *sheltering and feeding*, *water delivery, survivor movement*, *temporary emergency power*, and *fuel delivery*. These task forces embody state and federal agencies, augmented by, non-government and private sector; taking on a whole community response.

Expanding upon UCG Task Force Roles

Mass Care Task Force: Mass Care requirements generated by the earthquake include assessing transportation needs of 550,000 commuters; sheltering requirements of 330,000 individuals seeking shelter; and feeding operations for approximately 1.75 million people per day. Mass Care Task Force assist with family and personal care assistance reunification, the distribution of emergency supplies, and the sheltering and feeding, registration, and tracking individuals during survivor movement.

Sheltering and feeding Task force: Approximately 330,000 individuals will immediately seek sheltering support after the earthquake. The Total numbers of shelters within the 16-county region can accommodate about 800,000 evacuating individuals, or 280,000 individuals who require temporary shelter. Support to Operational Area (OA) shelter-in-place (SIP) strategies, including traditional shelters (e.g. Red Cross and managed partner shelters), or, non-traditional shelters (e.g. school gyms, stadium arenas) provide life-sustaining services to affected populations, with a focus on hydration, feeding and sheltering. As life-sustaining commodities arrive via multi-modal access (air, land, water) to state and federal staging areas, hub-and-spoke distribution enable commodities to traverse the “last mile”, effectively arriving at the desired location.

Water Delivery Task Force: 1.8 million people will be without water immediately following the earthquake and 914,000 people will be without water 30 days following the earthquake. The water delivery task force will obtain water from sources identified by SFPUC, EBMUD, local water providers or other water stakeholders. The water task force will leverage contracted agencies (private sector), DoD, and CNG capability to transport water in bulk by tanker truck to shelters, points of distribution (PODs) and other sites identified by EF/ESF 6 and stakeholders.

Survivor Movement Task Force: Implements its strategy by establishing a planning cycle and developing a functional plan to support mass care operations. Coordination with local governments to assess

embarkation, debarkation and shelter movement sites is needed to meet movement operations. Functional Assessment Service Teams (FAST) are mobilized and deployed to movement sites to assess requirements and provide services to people with disabilities and individuals with access and functional needs. (Reunification)

Temporary Power Task Force: HAZUS modeling indicates over half of the households in the impacted area would be without power for 24 hours and over 14 percent would still be without power, one week later. Contracts are activated for Temporary Emergency Power, Emergency Power Planning and Response Teams (PRTs) identify support from CNG, DoD, ESFs and EMAC. Mobilize and deploy a U.S. Army Corps of Engineer Battalion

Fuel Delivery Task Force: Takes initial actions and develops a plan to source, transport, stage, and distribute fuel to state and federal agencies, OAs, and eligible recipients. Hub and spoke delivery to eligible recipients include state agencies and operational area facilities; public works sites; Caltrans centers; fire stations fuel PODs and other retail facilities. An initial push of 3 million gallons of fuel (diesel, gasoline, and aviation fuel) at forward locations consistent with the access strategy will be required. In an effort to manage individual user demand, an odd/even rotation of fuel may be necessary to manage demand.

Recovery Narrative

During the response strategy narrative, activities addressed the health and safety (rescue) needs of affected populations. Encompassed in the recovery narrative, assessments go beyond rescue and include restoration of basic infrastructure, and the mobilization of recovery organizations and resources. State and federal programmatic support provide assistance to individuals and businesses affected by the disaster. Recovery organizations take actions and implement programs to facilitate the return of communities, critical infrastructure, and essential government or commercial services to their functional, pre-disaster state. Such actions are often considered temporary but provide a bridge to permanent measures.

4.2.4 Outcomes for Response

For purposes of the BAEP, objectives are defined as the essential challenges that must be addressed to support the response strategy and achieve mission success. Objectives shift as critical requirements change and operations transform the focus from response to recovery.

For the response to this earthquake, the objectives for the three phases of response (immediate response, deployment, and sustained response) are summarized below.

Immediate Response: E to E +24 Hours

- The SOC is activated and the UCG is formed along with the Functional and Geographic Operations organizations and a movement coordination organization

- **Establish Interoperable Emergency Communications.** Deployment of emergency communications capabilities at state/federal command and control nodes, reception centers, staging areas, and embarkation / debarkation sites and support essential public communications services in order to support lifesaving and life-sustaining response operations and public information efforts.

- **Save Lives and Protect Public Safety.** Impacts on the region's capacity for patient care will be substantial. Twenty five to fifty percent of emergency departments across the Bay Area will be non-functioning, and up to 90 percent of emergency departments in heavy shake zones will be non-functioning. As part of the immediate disaster response, hospitals will execute surge plans and Operational Areas (OAs) may establish alternate care sites (ACSs) for the provision of medical care. Local EMS will deploy mass casualty incident kits and establish field treatment sites. Medical and Health Operational Area Coordination (MHOAC) programs will utilize local Medical Reserve Corps (MRC) units and Disaster.

- **Provide Medical Care.** State/Federal agencies, along with other state and federal Mass Care Services partners, provide life-sustaining resources to OAs for disaster survivors, such as sheltering, hydration, and feeding, as part of the joint state/federal response and recovery organizations. In addition, Mass Care Services agencies and organizations assist with family and personal care assistant reunification, the distribution of emergency supplies, and the sheltering, feeding, registration, and tracking of individuals during survivor movement.

- **Establish Lines of Supply and Transportation.** Resource distribution operations start with an assessment of earthquake impacts, identification of isolated areas, and development of an incident-specific access strategy. Logistics planners then activate staging areas, deploy teams, and establish communications, transportation, distribution, and materiel handling capabilities. These capabilities operationalize a temporary supply chain that delivers and distributes resources.

Deployment: E +24 Hours to E +72 Hours

- **Reestablish the Medical and Public Health Systems.** Damage to healthcare facilities, utilities, and transportation systems will cause a loss of capacity for health and social services support to survivors, including behavioral and mental health services, which are critically needed following a disaster. Counties in affected areas and surrounding regions will gain situational awareness from response and recovery operations in the field. Re-establishment of existing services will continue to suffer delays throughout the recovery as facilities are taken out of service to be repaired and rebuilt. Continual assessments will be required, as the recovery extends into months and years, to ensure that survivor needs are met. An integrated communications mechanism will be needed to maintain open and efficient coordination of healthcare and social services delivery.

- **Provide Care and Shelter for the Displaced Population.** Most residents impacted by the disaster will shelter in place in their homes or neighborhoods and will require life-sustaining supplies such as food and water. Some survivors will choose to evacuate to outside of the affected area, and the majority of the commuting population will require movement support to return to their homes after the earthquake. State/federal agencies will provide support to shelter-in-place populations through a commodities distribution system. Sheltering operations in affected areas using traditional/non-traditional methods, and sheltering in host areas within the 16 counties covered by this plan. Host areas could include Sacramento, Yolo, Solano, San Joaquin, San Benito, Monterey, and Santa Cruz counties, depending on capabilities, the earthquake's epicenter, and damage assessments.

Survivor Movement: State/Federal agencies will coordinate with local and regional agencies and organizations to provide mass care support at pre-identified sites along survivor movement routes. State/Federal agencies assist local agencies with tracking, feeding, and ground transportation for populations in transit. State and federal mass care assistance will be provided at the following locations:

- **Embarkation sites.** Local governments will mobilize available resources to transport moving populations to embarkation sites for further movement. Regional transit systems will transport survivors to contiguous counties or to single embarkation sites, such as a supported ferry terminal, for movement out of the immediate area

- **Debarkation sites.** Regional transit organizations will mobilize available resources to transport moving populations from embarkation sites to shelter locations or to deliver survivors to their residences using existing transportation routes. Twelve debarkation sites have been identified in the Bay Area at which regional transit organizations can drop off moving populations for further transport.

- **Reduce Hazards to the Population.** Following a severe Bay Area earthquake, local, state, and federal agencies will work to minimize environmental threats to people, property, and the environment. Environmental Response/Health and Safety Core Capability efforts focus on controlling HAZMAT and ensuring safety guidance is disseminated and implemented for both affected communities and responders. Local environmental health agencies in coordination with fire departments are responsible for the initial hazardous material containment, cleanup, and disposal operations.

- **Conduct Mass Fatality Operations.** Following a severe Bay Area earthquake, fatalities are expected to range between 460 and 2,550 persons. Sixty percent of the morgues and coroner facilities in the area will be non-functioning and ninety percent of the normal capacity for fatality management will be lost in heavy shake zones. Mutual aid will be insufficient to deal with the number of fatalities. Difficulty in accessing and recovering remains, structural damage to coroner facilities, significant disruptions in transportation systems, and loss of utilities will all impact coroner operations. As part of the fatality management response, local jurisdictions will initiate mutual aid and forward situation reports to their regional mass fatality coordinator. Regional mass fatality coordinators will consolidate county-level situation reports, identify areas of need, and work with state officials to obtain additional resources.

Sustained Response: E +72 Hours

- **Provide Interim Housing for the Displaced Population.** The Bay Area has approximately 3.7 million housing units. Over 30 percent of Bay Area homes were built prior to 1960. These structures are considered more vulnerable to earthquake damage than later-built homes. Soft-story buildings, with large openings on ground floors for parking or retail, are also vulnerable. The demand for interim housing post-earthquake will rapidly deplete available rental units and other housing. Interim housing options within the region, such as hotel rooms, may be supplied to response personnel, exacerbating the housing shortage for displaced households. The restoration of existing housing will depend on many factors, including financing; local, state, and federal assistance; availability of contractors, materials, and equipment; and local planning

and permitting capacities. Restoration of some structures may take 2 to 5 years or longer.

- **Restore Infrastructure and Public Services.** Widespread power outages are expected, especially during the first 30 days post-earthquake. Aftershocks will continue to break or damage infrastructure after services have been restored or repaired. Infrastructure recovery includes more than just rebuilding existing infrastructure, however; it includes incorporating improvements, expanding systems to accommodate future population growth, and building in resiliency measures to mitigate damage from future earthquake events. State and federal coordination will therefore be needed to facilitate a common operating picture to maximize resources for infrastructure recovery projects that align with regional, state, and national priorities and to ensure continued communications throughout the recovery process.

- **Establish Temporary Transportation Capabilities.** Movement coordination is the scheduling, tracking, brokering, and management of transportation resources for the delivery of commodities, equipment, teams, and personnel that support incident management operations and the establishment of staging capabilities in or near the incident site. Movement coordination supports the transport of deployed resources until they are checked-in for employment at the incident site. Movement coordination supports the plan's multi-modal access strategy, which is designed for simultaneous activation of ground, air, and marine transportation modes. The routing of certain types of resources through purpose built transportation avenues is referred to as a corridor system. The corridor system is designed provide a structured way to gain access and:
    - Establish embarkation, movement and debarkation into defined routes
    - Develop specialized staging areas (air, marine, wheeled, bulk)
    - Manage span of control (by organizing movement control into corridors)
    - Prevent conflict and cargo bump (by allocating high priority cargo to fast corridors)

5 Incident Coordination

This section provides a general discussion of coordination, communication, and oversight with regard to the joint State/Federal response. All activities will be consistent with the State Emergency Plan, SEMS, and NIMS.

5.1 Coordination

State and Federal actions in support of field-level response are coordinated through the joint State/Federal organization under the direction of the Unified Coordination Group. The Unified Coordination Group is initially formed at the SOC upon arrival of the Federal IMAT and then deploys to the JFO when that facility can function adequately to support response and recovery operations (the move is targeted for E+72 hours). Joint State/Federal operations are organized according to Incident Command System principles.

While it is understood that the State's SEMS provides for the orderly submittal of requests for supplemental intrastate and interstate mutual aid assistance from local Operational Area organizations to one of three State Regional Emergency Operations Centers, the response to a catastrophic San Francisco Bay Area earthquake will require a greater level of interface between the Operational Areas and the Unified Coordination Group heading up the joint State/Federal organization. The unique coordination and communication requirements will be met by deploying Branch Directors and Division

Supervisors to the impacted Operational Area Emergency Operations Centers; commonly referred to as Geographical Operations (GeOps). GeOps are staffed by state and federal counterparts.

The deployment of branch directors does not replace the existing SEMS State-level coordinating structure, but rather provides a temporary, earthquake-specific direct line of communication between the Operational Area EOCs and the joint State/Federal Operations Section. The Branch directors and division supervisors provide clarification with regard to resource request and are responsible for ensuring effective utilization and integration of state and federal resources down to the field level.

5.1.1 Coordination with Other State and Federal Agencies

Supporting State agencies, Federal Agencies (including agencies organized according to ESFs), NGOs, private-sector organizations, and volunteers may be directly integrated into the joint State/Federal organization or designated as resources through the IAP process for specific assignments. State and Federal mission coordinators, working under the direction of the joint Operations Section chiefs, provide mission assignments (Federal Agencies) or mission taskings (State agencies) as required. A liaison officer serves as the Unified Coordination Group's primary point of contact with agencies not directly integrated into the joint State/Federal organization and coordinates with agency representatives who have responsibility for monitoring the involvement of these agencies in the operation.

State and Federal agencies may respond to the earthquake under their own authorities. Once the Unified Coordination Group is established, these activities must be coordinated with the joint State/Federal organization so that they can be accounted for in the IAP process. To the extent possible, sustained operations should be folded into the joint State/Federal response through the mission tasking/mission assignment processes.

5.1.2 Coordination with Local and Regional Governments

California's system for managing emergencies and for providing support and resources to local governments is governed by the State Emergency Plan and SEMS, with the Regional Emergency Coordination Plan providing specific information for the Bay Area. In general, the Operational Areas, mutual aid coordinators, and other local and regional entities transmit information and resource requests via Web EOC although other mechanisms may be used by mutual aid coordinators or if the State's communications system is compromised In accordance with SEMS, requests for resources must be made to the next level (for example, from a city to an Operational Area); requests for assistance of State agencies, the Emergency Management Assistance Compact (EMAC), or the Federal Government must be made at the State level through OES. Consequently, within the Unified Coordination Group, OES maintains responsibility for:

- Maintaining coordination with the Operational Areas and other local and regional entities, such as MTC and WETA, and receiving information and requests for resources from these entities
- Coordinating mutual aid requests and the flow of resources through the mutual aid system
- Brokering resource requests among Operational Areas within the region or among regions
- Tasking State agencies to provide resources in response to local government requests
- Obtaining resources from other States through State-to-State mutual aid and EMAC

Joint State and Federal division supervisors deploy to the Operational Areas to support integration and utilization of resources at the local level. A Federal division supervisor and State division supervisor or liaison will jointly deploy to the Operational Area EOCs and coordinate with the EOC Director. The joint State/Federal division supervisors provide a direct means of coordination and assistance with situational awareness and formulation of resource requests. Normally, in accordance with SEMS, Operational Area resource requests go through the State Regional Operations Center in Walnut Creek to the State Operations Center in Rancho Cordova, California. The joint State/Federal division supervisors will support in the submittal and coordination of resource requests following the earthquake by providing forward located State/Federal representation at the impacted Operational Areas.

5.1.3 Coordination of State and Federal Military Resources

Purpose

Defense Support of Civil Authorities (DSCA) plays a critical role in supporting disaster response efforts, and Department of Defense (DoD) interests are served (allowing DoD to rapidly return to its' primary mission) through consistent and comprehensive involvement in planning and coordination with other Federal agencies, departments and interagency partners.

Constraints

DSCA is provided by DoD when requested by appropriate civil authorities, either local authorities in the case of Immediate Response or a Lead Federal Agency request under the Stafford and/or Economy Act authorizations. However DSCA response must not impede or obstruct DoD's primary mission, as determined by the SecDef or delegated military authorities.

Legal Considerations

Both U.S. Code (Posse Comitatus Act, Title 18) and DoD policy prohibits active, direct or the appearance of Title 10 military forces engaged in civilian law enforcement, unless specifically authorized under the Constitution or statute. This prohibition does not apply to National Guard personnel in Title 32 or State Active Duty (SAD) status operating under the authority and orders of the Governor.

Mission

Defense Support of Civil Authorities (DSCA) plays a critical role in supporting disaster response efforts, and Department of Defense (DoD) interests are served (allowing DoD to rapidly return to its' primary mission) through consistent and comprehensive involvement in planning and coordination with other Federal agencies, departments and interagency partners.

Military Support: Provide coordinated Defense Support of Civil Authorities (DSCA) and National Guard Domestic Operations (NGDO) within the designated area of operations in response to requests for support: protect life, property, critical infrastructure and provide humanitarian assistance. Military Support will continue until directed to transition functions to civil authorities.

CNG may be tasked by OES (through a mission task) to provide resources in support of the response. California may also request support from National Guard units in other States via EMAC. CNG and

National Guard personnel from other States will respond in a Title 32 duty status and remain under the control of the Governor via the Adjutant General. Their operations in the field will be directed by one or more Task Force Commanders or Joint Task Force Commanders operating under proper State authority.

Potential missions for CNG and National Guard personnel from other States include:

- Ground, air, and water transportation
- Support to law enforcement agencies/security
- Medical services
- Communications
- Engineering
- Water purification
- Logistics management/distribution
- Damage assessment/aerial reconnaissance

DoD may be tasked by FEMA (through a mission assignment) to provide resources in a Title 10 duty status for Civil Support operations. Once these assignments have been issued, DoD personnel carrying out missions will remain under the control of the Secretary of Defense via U.S. Northern Command. Their operations in the field will be directed by one or more Task Force Commanders or Joint Task Force Commanders operating under proper Federal authority. The defense coordinating officer (DCO) will serve as the link between the Unified Coordination Group and the Task Force Commander.

Potential missions for DoD personnel in a Title 10 status are similar to those of the National Guard except for the limits on domestic law enforcement imposed by the Posse Comitatus Act of 1878. Due to their greater capabilities, DoD organizations may be tasked to deliver extraordinary services in areas such as naval vessel power generation/water purification, enhanced field-level medical services, and airlift.

Neither State nor Federal military authorities have incident command responsibilities, but as described above, provide command and control for military resources through one or more task forces or joint task forces. State and Federal military resources will be coordinated with civilian resources to achieve unity of effort through the IAP process carried out under the oversight of the Unified Coordination Group.

5.1.4 Coordination with Tribal Governments

There are seventeen federally recognized tribal communities in the 16-county region covered by this plan. Some have tribal lands or own property. There are a number of non-federally recognized tribes in the region. Within SEMS, tribal governments may coordinate their efforts and requests for resources through OA EOCs in their respective counties or work directly with the state or federal government.

5.1.5 Coordination with Other States

Cal OES is responsible for procuring out-of-state resources through either state-to-state mutual aid or EMAC. Initially, this process occurs at the SOC, where decisions to request resources from other states or through EMAC are made based on whether local, mutual aid, state agency, or nongovernmental/private sector resources are otherwise available. As the joint state/federal organization shifts to the JFO, the decision to request resources from other states or through EMAC is

made by the joint Operations section as part of the process for evaluating the availability of resources to carry out operational objectives.

5.2 Communication

This section provides a general discussion of incident communications.

5.2.1 Emergency Communications

The communications response is centered upon the following priorities:

- Support to the Staging Area Branch at staging areas, ISBs, and logistics nodes with deployable communications capabilities essential for the command and control of resource transportation, staging, and distribution.
- Support to field-level operations with deployable communications capabilities, including task forces (TFs) (e.g., Fuel TF, Water Delivery TF, and Feeding TF) and reception centers.
- Deployable communications support to Geographic Operations field components.
- Support to essential public communications services through the facilitation of site access, in coordination with the private sector.
- Conduct damage assessments of communications infrastructure and provide situational awareness on the status of communications architecture and communication system recovery efforts.
- Deployable communications support to local jurisdictions and first responders.

The strategies to achieve the priorities above include support to:

- **Staging Area Branch**: Deployable communications support will be provided at facilities that support the operation.
- **Field level Task Forces**: Deployable communications support will be provided to TFs formed in the Operations Section, including TFs focused on survivor movement, sheltering, fuel, or other operations, as well as to their associated field elements. TF field elements may be located at fuel staging or transfer points, large shelters, or passenger debarkation points.
- **Geographic Operations field components**: Deployable communications support will be provided to field elements of the Geographic Operations organization. Field components may include Branches or Division offices co-located in OAs.
- **Essential public communications**: Public communications restoration support will be provided, including facilitating access for service providers to transport cell-on-wheels or other portable communication centers to impacted areas through the clearing of obstacles and enabling access and movement within restricted areas.
- **Local jurisdictions and first responders**: To support communications between emergency responders and their local counterparts, provide:
- Radio handsets and bridging equipment to link radio systems in the incident area.

5.2.2 Intelligence and Information Sharing Protocols

The Unified Coordination Group formulates joint objectives and implements a joint IAP process based on a common operating picture. The common operating picture is achieved through a formal reporting methodology managed by the joint Planning Section. The joint Planning Section implements an

Information Plan based on defined Essential Elements of Information (EEI) to provide the basis for gathering and analyzing available information.

5.2.3 External Communications

Cal OES will coordinate public information efforts through its Office of Public Information, which will work with other state agencies to coordinate, exchange, and disseminate disaster-related information. In a Bay Area earthquake incident, Cal OES will initially conduct public information functions through the SOC.

The State Public Information Officer (PIO) will activate and direct public information procedures during the response to the emergency. The State PIO will coordinate with other local and state entities to ensure accuracy and consistency in public information messaging. Additional support for the execution of public information functions may be drawn from other state agencies, volunteers, or participants in the Public Information Officer Mutual Aid Program

A state JIC is initially activated in the SOC and serves as the principal source for public information.

State and federal Public Information and Warning stakeholders will be critical in providing timely and accurate information to affected audiences that will:

- Inform survivors of actions they can take to protect themselves and their families
- Provide guidance to survivors on sheltering in place and survivor movement operations;
- Inform survivors about available mass care, medical, and other resources;
- Direct survivors away from dangerous areas and away from routes that are essential for response operations; and
- Disseminate family reunification information.

Public Information and Warning capabilities will also be essential for handling media response and managing misinformation and rumor control and will be required for handling requests for tours and briefings from state and nationally elected officials.

5.3 Oversight

Oversight for the response to the earthquake occurs in accordance with the State Emergency Plan, SEMS, NIMS, and the NRF. Key oversight concepts related to the earthquake response are covered under Section 6.3 of the California Catastrophic Incident Base Plan CONOP.

5.3.1 Field-Level Response

At the field response level, emergency response personnel and resources, under the command of an appropriate authority, carry out tactical decisions and activities in direct response to the earthquake. In general, the incident commander is a local government official, although other entities may have specific authority to assume that role. A Unified Command or Area Command may be formed, depending on the specific circumstances of the incident.

5.3.2 Local Governments

Local governments include cities, counties, and special districts. Local governments are responsible for the management and coordination of the emergency response and recovery activities within their jurisdictions. State entities, such as the University of California and California State University campuses in the Bay Area, also have responsibility to manage and coordinate the overall emergency response and recovery activities within their jurisdictions. Similarly, although not considered local governments, Federal entities, such as the National Park Service, also have responsibility to manage and coordinate the response within their jurisdictions.

As described in Section 5.1.4**,** tribal entities function as local governments within SEMS.

5.3.3 Operational Areas

Bay Area earthquake response is primarily a local responsibility, local governments are in charge of all resources under their operational control and state and federal operations are in support of local response. An OA is an intermediate level of the state emergency services organization in SEMS consisting of a county and all political subdivisions within the county area. Each California county is designated in the California Emergency Services Act (ESA) as an OA and may be used by the county and its associated political subdivisions for the coordination of emergency services and to serve as a link in the communications system during an emergency.

5.3.4 Region

The regional level manages and coordinates information and resources among Operational Areas within the region, and between the Operational Areas and the State level. The regional level also coordinates overall State agency support for emergency response activities within the region. As stated in **Section 2.3,** the REOC will not be functional as a result of the earthquake, but OES will manage these functions at the State level.

5.3.5 State

The State of California, through Cal OES at the SOC, coordinates state resources and coordinates state mutual aid resources in support of OAs. In accordance with the ESA and the SEP, the Governor directs all state agencies to use their resources in response to an incident. The Cal OES Director is responsible for coordination of the response activities of all state agencies. These agencies, while operating under their respective authorities, take action in accordance with the objectives identified by the UCG.

The State Coordinating Officer (SCO) is empowered by the Governor of California to coordinate state disaster assistance. The SCO is the focal point of state coordination within the State/Federal Unified Coordination Group (UCG), ensuring integration of state emergency management functions, resource allocation, and integration of state activities in support of local requirements. The SCO is responsible for coordinating state and local assistance efforts with the FCO normally at a FEMA/State Joint Field Office (JFO).

5.3.6 Federal

FEMA is the lead federal emergency management agency and coordinates support to states. In

accordance with the NRF, the FCO is responsible for coordinating the federal response. Federal agencies and departments, working through ESFs and mission assignments from FEMA, take action in accordance with the objectives identified by the UCG.

5.3.7 Unified Coordination Group

The UCG manages the joint state/federal response using Unified Command principles and ensures that decisions are made based upon mutually agreed-upon objectives. The UCG oversees the development of objectives based on priorities set by the Governor. The Operations Section of the UCG implements strategies through state EF/federal ESF and supporting agencies. The UCG does not assume responsibility for field-level Incident Command activities but provides a structure for the command, control, and coordination of state and federal resources not yet delivered to affected areas.

6. Plan Maintenance

The Governor's Office of Emergency Services is responsible for the maintenance, update, and dissemination of the BAEP. Working with FEMA, CalOES will evaluate the BAEP biannually and modify the plan on the basis of changes in laws, regulations, policies, State or Federal systems, or procedures, and after action reports and lessons learned from major activations or exercises. OES and FEMA will distribute the revised document to the appropriate local, State, Federal, and private-sector entities.

ANNEX A:
INCIDENT TASK ORGANIZATION AND COORDINATION

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ANNEX B: INTELLIGENCE AND SITUATIONAL AWARENESS

Rapid evaluation of the earthquake impact is essential as a coordinated appraisal of the intensity and extent of the incident is critical to supporting decision-making. The flow of information from local jurisdictions and Operational Area Emergency Operations Centers (EOCs) to the Governor's Office of Emergency Services (OES), the Federal Emergency Management Agency (FEMA), and the Joint Field Office (JFO) will require a disciplined approach to facilitate effective development of a common operating picture and to compensate for the earthquake- driven degradation of the communications system.

B.1 Potential Sources of Information

Example sources of information include the following:

- The California State Warning Center
- Local, tribal, and private-sector representatives at the field level
- Information obtained by OES from local and regional agencies, Operational Area EOCs, mutual aid coordinators, post-Earthquake Information Clearinghouse, and other entities through the Web EOC and other means of communication
- Earthquake data from:
    - National Earthquake Information Center, run by the U.S. Geological Survey (USGS)
    - Seismological laboratories at the University of California-Berkeley and California Institute of Technology in Pasadena California Integrated Seismic Network, which includes the California Geological Survey, the USGS, OES, the University of California-Berkeley and the California Institute of Technology
    - California Geological Survey
    - Department of Water Resources (DWR) instrumentation along the State Water Project
    - Earthquake Information Clearinghouse, which may provide field observations within a few hours of the earthquake as research teams reach the affected area
- Predictive modeling. Potential sources include:
    - Loss estimation models based on actual earthquake data prepared using HAZUS by the USGS, OES, FEMA, and others
    - Predictive modeling by the U.S. Army Corps of Engineers of potential commodity requirements based on the magnitude of the earthquake
- Department Operations Centers of State agencies, such as the Joint Emergency Operations Center run by the California Department of Public Health and the California Emergency Medical Services Authority
- Emergency operations centers of Federal Agencies
- State and Federal assessment teams such as State/Federal Preliminary Damage Assessment teams
- Reports from State and Federal response teams in the field
- Media reports

Generally, the most accurate information is obtained from those on the ground, closest to the potential or actual incident site. Incident commanders and the planning sections within their incident management teams are often the most reliable sources of information. Planning sections at various levels analyze the information and turn that information into useful intelligence for managers and

senior leaders. This step is vital in terms of providing data necessary for decision-makers to prioritize activities and the deployment and employment of critical, but often limited, resources.

B.2 Intelligence Collection and Utilization

At the State and Federal levels, initial efforts to gain situational awareness will occur at the State Operations Center (SOC) and at separate Federal operations centers. Once the Unified Coordination Group is formed and the integrated State/Federal organization is established at the JFO, responsibility for intelligence collection and utilization is assumed by the joint Planning Section. The Situation Unit of the Planning Section will develop an Information Collection Plan for gathering information from the sources outlined above in as comprehensive and consistent manner as the circumstances of the earthquake will allow. The Planning Section will compile sources of information and provide validation and analysis to develop a common operating picture that will be shared with local government, State, and Federal agencies operations centers and elected officials.

Because the extent of damage will not be uniform throughout the 16 counties, situational awareness within Operational Areas will not be consistent and the pace of response operations will vary. During the early stages of response, requirements will far exceed resources, requiring that the Unified Coordination Group prioritize resource allocation consistent with capabilities. A concern for the Unified Coordination Group will be to ensure that sufficient resources are available for those areas where situational awareness is poorest and damage is likely the most severe.

B.3 Essential Elements of Information (EEIs)

Essential Elements of Information (EEIs) are the critical items of information required by senior leaders within a particular timeframe that, when related to other available information and intelligence, may be used to reach a logical decision.

Generally, EEIs revolve around critical data that are focused on the operational objectives established by the Unified Coordination Group. For example, EEIs necessary during immediate response efforts may relate to the status of medical facilities, number of patients by categories, status of transportation systems, and status of utility infrastructure. To assist the Unified Coordinating Group with formulation of appropriate joint objectives based on a common operating picture, a formal reporting methodology must be provided to all levels, including Operational Areas, branches, divisions, and any State or Federal organizations, such as State and Federal assessment teams, in order to focus collection efforts on EEIs to prioritize the kinds of information required.

ANNEX C:

OPERATIONS

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ANNEX X:

EXECUTION CHECKLIST

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Table 1: BAEP Supporting Agencies

State	Federal
Alameda County Water District	Corporation for National and Community Service
Association of Bay Area Governments (ABAG)	Department of Commerce
Bay Area Council	Department of Defense (DOD)
Bay Area Response Coalition FIRST	Department of Energy (DOE)
Bay Conservation and Development Commission (BCDC)	Department of Health and Human Services (HHS)
California Conservation Corps	Department of Homeland Security/National Protection and Programs Directorate (DHS/NPPD)
California Department of Aging	Department of Justice (DOJ)
California Department of Alcohol and Drug	Department of Labor (DOL)
California Department of Corrections & Rehabilitation	Department of the Interior (DOI)
California Department of Developmental Services (DDS)	Department of Transportation (DOT)
California Department of Food & Agriculture	Department of Veterans Affairs (VA)
California Department of Forestry and Fire	DHS Federal Emergency Management Agency (FEMA)
California Department of General Services	DHS Office of Cyber and Infrastructure Analysis (OCIA)
California Department of Health Care Services (DHCS)	DHS Office of Infrastructure Protection (IP)
California Department of Housing and Community Development (HCD)	DHS Science and Technology Directorate (S&T)
California Department of Insurance (CDI)	DHS Transportation Security Administration (TSA)
California Department of Managed Healthcare (DMHC)	DHS United States Coast Guard (USCG)
California Department of Mental Health	DOD Office of the Special Assistant for Transportation Engineering (SATE)
California Department of Motor Vehicles	DOD U.S. Army Corps of Engineers (USACE)
California Department of Personnel Administration	DOT Federal Aviation Administration (FAA)
California Department of Public Health	DOT Federal Highway Administration (FHWA)
California Department of Rehabilitation	DOT Federal Motor Carrier Safety Administration (FMCSA)
California Department of Social Services	DOT Federal Railroad Administration (FRA)
California Department of Technology Services	DOT Federal Transit Administration (FTA)
California Department of Toxic Substances Control	DOT Maritime Administration (MARAD)
California Department of Transportation	DOT National Highway Traffic Safety Administration (NHTSA)
California Department of Veteran Affairs	DOT Pipeline and Hazardous Materials Safety Administration (PHMSA)

State	Federal
California Department of Water Resources	DOT Research and Innovative Technologies Administration (RITA)
California Emergency Medical Services Authority (EMSA)	DOT Surface Transportation Board (STB)
California Employment Development Department (EDD)	Environmental Protection Agency (EPA)
California Energy Commission	Federal On-Scene Coordinators (OSCs)
California Environmental Protection Agency (Cal/EPA)	National Response Team (NRT) and Regional Response Teams (RRTs)
Department of Toxic Substance Control (DTSC)	Environmental Response Team (ERT)
Office of Environmental Health Hazard Assessment (OEHHA)	Radiological Emergency Response Team (RERT)
State Water Resources Control Board (SWRCB)	CBRN Consequence Management Advisory Division (CBRN CMAD)
CalRecycle	Federal Emergency Management Agency (FEMA)
Air Resources Board (ARB)	Federal Energy Regulatory Commission
California Governor's Office of Emergency Services (Cal OES)	FEMA External Affairs/Congressional Affairs Office
California Governor's Office of Emergency Services (Cal OES) Safety Assessment Program (SAP)	FEMA External Affairs/Joint Information Center (Public Affairs)
California Health and Human Services Agency (CHHS)	FEMA External Affairs/Private Sector Office
California Highway Patrol	Health Inspection Service
California Infrastructure and Development Bank (IBank)	National Institute of Standards and Technology (NIST)
California Integrated Waste Management Board	National Joint Information Center (NJIC)
California Managed Risk Medical Insurance Board (MRMIB)	NOAA
California Natural Resources Agency (CNRA)	Small Business Administration (SBA)
California Coastal Commission (CCC)	U.S. Air Force
Department of Forestry and Fire Protection (CAL FIRE)	U.S. Army
California National Guard	U.S. Army Corps of Engineers
California Office of Emergency Services (Cal OES)	U.S. Coast Guard (USCG)
California Office of Statewide Health Planning and Development (OSHPD)	District/Sector Incident Management Divisions
California Office of Systems Integration	National Strike Force (NSF) Team
California Public Utilities Commission (CPUC)	National Strike Force Coordination Center
California Seismic Safety Commission	Public Information Assist Team (PIAT)
California State and Consumer Services Agency	National Pollution Funds Center (NPFC)
California State Warning Center (CSWC)	U.S. Department of Agriculture (USDA)
California Transportation Commission	U.S. Department of Agriculture, Animal Plant

State	Federal
California Utilities Emergency Association (CUEA)	U.S. Department of Agriculture, Forest Service
California Veterinary Medical Association	U.S. Department of Commerce/Economic Development Administration (EDA)
California Volunteers	U.S. Department of Education (ED)
Caltrans	U.S. Department of Energy
City of San Francisco	U.S. Department of Health and Human Services (HHS)
City of Oakland	U.S. Department of Homeland Security, National Communications System
City of Palo Alto	U.S. Department of Homeland Security, U.S. Coast Guard
City of San Jose	U.S. Department of Housing and Urban Development (HUD)
County of Alameda	U.S. Department of Interior, Geological Survey
County of Contra Costa	U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms, and Explosives
County of Marin	U.S. Department of Labor (DOL)
County of Mendocino	U.S. Department of the Treasury
County of Monterey	U.S. Department of Transportation (DOT)
County of Napa	U.S. Department of Transportation, Federal Highway Administration
County of Sacramento	U.S. Environmental Protection Agency
County of San Benito	U.S. General Services Administration
County of San Francisco	U.S. Navy
County of San Joaquin	U.S. Small Business Administration (SBA)
County of San Mateo	
County of Santa Clara	
County of Santa Cruz	
County of Solano	
County of Sonoma	
County of Yolo	
Department of Real Estate Development	
East Bay Economic Development Alliance	
East Bay Leadership Council	
East Bay Municipal Utility District	
Ecology and Environment	
Emergency Medical Services Authority (EMSA)	
Humane Society of the United States	
Local Governments	
Medical Planning Resources	
Metropolitan Transportation Commission (MTC)	
Pacific Gas & Electric Company	

Sate	Federal
Regional Disaster Medical and Health Coordination (RDMHC) Program	
San Francisco Public Utilities Commission	
Silicon Valley Leadership Group	
State Lands Commission	
Water Emergency Transportation Authority (WETA)	

Table 2: Acronyms

Acronyms and Abbreviations	
ABAG	Association of Bay Area Governments
ACS	Alternate Care Sites
ARC	American Red Cross
BAEP	Bay Area Earthquake Plan
BTH	California Business, Transportation, and Housing Agency
CHHS	California Health and Human Services Agency
CHP	California Highway Patrol
CNG	California National Guard
COA	Course of Action
CONOP	Catastrophic Incident Base Plan, Concept of Operations
CUEA	California Utilities Emergency Association
DCO	Defense Coordinating Officer
DHS	U.S. Department of Homeland Security
DoD	U.S. Department of Defense
DSCA	Defense Support of Civil Authorities
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utilities District
EEI	Essential Elements of Information
EMAC	Emergency Management Assistance Compact
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOM	California Public Health and Medical Emergency Operations Manual
ESA	Emergency Services Act
ESF	Emergency Support Function
FCO	Federal Coordinating Officer
FEMA	Federal Emergency Management Agency
FOUO	For Official Use Only
GeOps	Geographic Operations
HazMat	Hazardous Material
HAZUS	Hazards United States
IAP	Incident Action Plan
IMAT	Incident Management Assistance Team
JFO	Joint Field Office
JIC	Joint Information Center
MHOAC	Medical/Health Operational Area Coordinator
MRC	Medical Reserve Corps
MTC	Metropolitan Transportation Commission
NGDO	National Guard Defense Operations
NGO	Non-Governmental Organization

Acronyms and Abbreviations	
N-IMAT	National Incident Management Team
NIMS	National Incident Management System
NRCC	National Response Coordination Center
NRF	National Response Framework
OA	Operational Area
OES	California Governor's Office of Emergency Services
OSHPD	California Office of Statewide Health Planning and Development
PGA	Peak Ground Acceleration
PIO	Public Information Officer
PODs	Points of Distribution
PPD	Presidential Policy Directive
PRT	Debris Planning and Response Team
REOC	Regional Emergency Operations Center
RRCC	Regional Response Coordination Center
SAD	State Active Duty
SCO	State Coordinating Officer
SECC	State Emergency Communications Coordinator
SecDef	Secretary of Defense
SEMS	Standardized Emergency Management System
SEP	California State Emergency Plan
SFPUC	San Francisco Public Utilities Commission
SIP	Shelter In Place
SOC	State Operations Center
TAG	The Adjutant General
TF	Task Force
UASI	Urban Area Security Initiative
UCG	Unified Coordinating Group
USGS	U.S. Geological Survey
WETA	Water Emergency Transportation Authority