

Bay Area Regional Disaster Resilience Action Plan Initiative Kick-Off Workshop

Summary of Proceedings

Held November 1, 2011
at NASA Ames Research Center, Moffett Field, CA

Executive Summary

Representatives of Bay Area government, private sector, and non-profit organizations met on November 1, 2011, at the NASA Ames Research Center, Moffett Field for the Kick-off Workshop for the Bay Area Regional Resilience Action Plan Initiative. The workshop was the first regional event in the 14-month Initiative by the Association of Bay Area Governments (ABAG) and the Bay Area Economic Council in collaboration with a broad coalition of Bay Area organizations. The goal of the Initiative is to enable Bay Area stakeholders to develop a Regional Disaster Resilience Action Plan focusing on recovery and restoration that is compatible with, supports and supplements current Bay Area jurisdictions' and State plans, policies, and capabilities. The workshop was structured in roundtables with breakout sessions to facilitate information sharing and identify what should be included in the Action Plan. Major topics addressed at the workshop were: transitioning from response to recovery decision-making; long-term housing for displaced residents and rebuilding; land use, and other related recovery issues; examples of recovery lessons learned, post-disaster business retention, and financing mitigation and recovery for resilience.

Selected Outcomes

Issues that that need to be included in the Action Plan or require further exploration:

- *Housing* – Assuring realistic procedures for long-term temporary housing; greater focus on post-earthquake housing recovery; involvement of insurance industry in developing owner incentives for retrofitting structures; the problem of underinsured home owners; tested procedures for determining how emergency housing will be distributed
- *Community Recovery* – Special needs and undocumented individuals; recovery-related human behavioral issues; relocation and reentry of displaced individuals; role of faith-based and community service organizations; leveraging public-private partnerships; need for a public outreach and education campaign for community resilience; and determination of recovery guidance and standards.
- *Infrastructure Interdependencies* – Restoration of critical infrastructure—priorities, processes, and timetables; need for involvement of utilities and other essential service providers in regional recovery planning; multi-state disaster coordination; recovery-related cyber security issues; and exploration of ways, including legislation, to address mitigation measures for infrastructures pre and post-disaster.
- *Continuity* – Sharing information among businesses on continuity plans; back-up command and control centers for businesses; assuring job availability for displaced persons; lessons learned for security issues from disasters; and a more formal public/private sector partnership to facilitate collaborative working agreements on recovery.
- *Recovery Decision-making and Financial Issues* – Need to look at the entire 12-county region on disaster recovery; roles of local, state, and federal (including military) agencies and regional organizations in recovery and how to improve collaboration; better accuracy and transparency of the resource allocation process post-disaster and educating the public on what is available and what they should expect; outreach to local community political leaders to join in recovery planning; an inventory of recovery-related Bay Area plans; and exploring options for pre-and post-event mitigation and recovery investments.

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Bay Area Regional Disaster Resilience Initiative Kick-Off Workshop

More than 180 representatives of Bay Area government, private sector, and non-profit organizations that have roles and responsibilities or significant interest in disaster recovery and restoration convened on November 1, 2011 at NASA Ames Research Center, Moffett Field for the Kick-off Workshop for the Bay Area Regional Resilience Action Plan Initiative. The focus of the Workshop was to examine priority issues that will be factors in how well Bay Area communities can withstand a major earthquake or other regional disaster or incident and how rapidly and effectively they can rebound with limited damage to the regional economy and public well-being.

The Workshop was the first regional event in a 14-month Initiative by the Association of Bay Area Governments (ABAG) and the Bay Area Economic Council in collaboration with a broad coalition of Bay Area public, private sector, and non-profit organizations, and other regional agencies and associations. An impetus for the Initiative and the workshop was lessons learned from recent earthquakes in Haiti, Chile, New Zealand, and especially Japan. These events highlighted the importance of ensuring the quality of life, the economy, and economic competitiveness of the Bay Area in the event of a major disaster or incident that causes widespread damage or destruction to interdependent lifelines and other infrastructures, businesses, residential housing, and the institutions—schools, healthcare facilities, government services, and social services—that support Bay Area citizens.

The goal of the Initiative is to enable Bay Area stakeholders to develop a Regional Disaster Resilience Action Plan focusing on recovery and restoration that is compatible with, supports, and supplements current Bay Area jurisdictions' and State emergency management, continuity, mitigation and other plans, procedures, policies, and technologies, and also incorporate best practices from other regions. The Action Plan will take into account infrastructure interdependencies and mutual assistance and other cooperative agreements with regions beyond the Bay Area that will expedite recovery and restoration.

Funding for the Initiative is provided by the Regional Catastrophic Preparedness Grant Program (RCPGP) of the Bay Area Urban Areas Security Initiative (UASI) with support by private sector and other contributions. Co-Organizers of the workshop included: the Association of Bay Area Governments, Bay Area Center for Regional Disaster Resilience, Bay Area Council, California Resiliency Alliance, National Disaster Resiliency Center (and workshop host), and the Carnegie Mellon University Disaster Management Initiative. The Workshop sponsor was Exponent.

1. Workshop Objectives

Objectives of the workshop were to:

1. Enable Bay Area stakeholder organizations to share perceptions on and to explore and discuss selected high-priority issues and how to better fulfill their resilience objectives, roles, and missions;

2. Assist Bay Area businesses and other organizations to improve their disaster recovery and continuity plans;
3. Point out priority recovery issues that should be examined to develop a regional Action Plan;
4. Highlight existing Bay Area capabilities to address major disasters and incidents;
5. Identify and discuss gaps and types of activities to improve the Bay Area's capacity to withstand, adapt, and rapidly return to normal, and as necessary, a new normal.

2. Scope

- The Kick-Off Workshop was designed to begin the process of gaining information, insights and perspectives for the Action Plan through presentations from practitioners and experts with stakeholder interactive discussions on a set of significant disaster recovery issues. The issues were selected by a stakeholder Workshop Development Team as particularly important for recovery and longer-term restoration after a major earthquake. Challenges of transitioning from response to recovery decision-making;
- Providing long-term housing for displaced residents, rebuilding housing and commercial facilities, land use, and other related recovery issues;
- Examples of recovery lessons learned;
- Assuring businesses remain in the Bay Area; and
- Financing mitigation and recovery for resilience.

3. Format

The day-long workshop was structured to provide participants with the maximum opportunity to share information and discuss issues and challenges, as well as identify what needs and potential activities should be included in the Action Plan that can enhance Bay Area disaster recovery capabilities. After opening remarks, there was a short overview of the Bay Area Disaster Resilience Initiative followed by four roundtable discussions with short presentations by key representatives of private sector, government, and non-profit organizations. Each roundtable was followed by participant questions and comments and then by concurrent facilitated breakouts* in

* Breakout facilitators were volunteer members of the Workshop Development Team:
Peter Ohtaki, Executive Director, California Resiliency Alliance
Jim Turner, Private Sector Liaison Officer, San Francisco Department of Emergency Management
Stephen Baruch, Emergency Management & Business Continuity Advisor, Nexis Preparedness Systems
Kathleen Cha, Senior Communications Officer, ABAG

which participants collectively addressed several challenging questions that were designed to raise awareness and stimulate problem solving and information sharing. The last roundtable was followed by interactive discussion among all participants. There was also a working lunch with a presentations and discussion on lessons learned from previous disasters. (*For the session issues questions, see Appendix C.*)

4. Highlights of Proceedings and Participant Observations

Note: The following highlights of the presentations and participant observations and discussions will be factored into the Gap Analysis, in addition to information from future Initiative workshops, the regional table top exercise, lessons learned from other regional events and activities, and data collected on Bay Area plans, tools, technologies and other capabilities to ensure the Action Plan and supporting Gap Analysis are as accurate as possible.

4.1. Opening Remarks

The workshop opened with short remarks from Bay Area business and political leaders. ***Russell Hancock, President and CEO, Joint Venture Silicon Valley***, commented on the need to focus on disaster recovery in the region and the importance of the Bay Area Disaster Resilience Action Plan Initiative. He expressed his hope that the Bay Area can become a showcase for preparedness for the world. ***Jerry Hill, California State Assembly Member, 19th District***, referred to the devastation of San Bruno in the September 2010 natural gas pipeline explosion, and in Santa Cruz from the Loma Prieta earthquake in October 1989, pointing out that first responders know what to do in a disaster, “but do we know what to do to rebuild the communities?” ***Jim Wunderman, President and Chief Executive Officer, Bay Area Council*** emphasized the need to know “what is before us” when an earthquake occurs, and that businesses can’t wait for recovery—they have to recover quickly. Bay Area organizations must work together—they cannot function separately, and in some cases legislation may be necessary. He cited legislation that was passed to enable the ferries to help in transport across the Bay if bridges were affected in an earthquake. ***Steve Jordan, Executive Director, National Disaster Resiliency Center (NDRC) and workshop site host***, welcomed the participants and spoke briefly of the mission of the NDRC and its activities.

4.2. Overview of Bay Area Regional Disaster Resilience Action Plan Initiative

Danielle Hutchings, Earthquake and Hazards Program Coordinator, ABAG, described four characteristics of a resilient region—capabilities to minimize a disaster’s disruption on everyday life and the economy (hazard mitigation, preparedness), prevent or minimize loss or damage to life, property, and the environment (emergency response), quickly return citizens to work, reopen businesses, restore essential services needed for economic functionality (recover), and able to survive, adapt, evolve, and grow in the face of turbulent change (adapt). She provided a description of the Initiative, and the process and timetable for completion of development of the Action Plan. She outlined the multi-step process to bring together interested key public, private, and non-profit stakeholder organizations in the 12-county Bay Area region and set up a broad cross-sector Initiative Planning Group to select the major focus areas and priority issues that

comprise the outline of the Action Plan, undertake a Gap Analysis through assessing existing Bay Area capabilities against disaster recovery needs, and identify gaps and short, medium, and longer-term activities that can address the shortfalls and enhance Bay Area resilience. A series of events focusing on key recovery issues will be used to facilitate development of the Action Plan, including the present Kick-Off meeting. A second workshop will be held in January focusing on recovery aspects of lifelines and other critical infrastructure interdependencies, followed by a regional tabletop exercise and a workshop to review and complete the Action Plan in September. Both the Action Plan and Gap Analysis will undergo coordination by the Initiative Planning Group before finalization. In October, the implementation phase will begin with selection of projects and activities, determination of lead and partner organizations, development of requirements, schedules, and milestones, and identification of financial and expertise resources to support the work. Many of the Action Plan activities will be “quick wins” and some will need state and federal seed money and private sector contributions. The action plan will be a “living document” that will be continually updated as new lessons are learned and needs identified. Overall, there are significant benefits from the Action Plan development process—building collaboration, trust, and relationships among the various participating stakeholder organizations and individuals. The Initiative is fundamentally a stakeholder-driven, collaborative process, and the outcome will be a strategy to improve the region’s resilience and avoid re-creating the wheel. The Action Plan will not result in unfunded mandates and will respect jurisdictional and organizational authorities, missions, and interests.

Paula Scalingi, Executive Director, Bay Area Center for Regional Disaster Resilience, provided an overview of the initial framework, which had been distributed to participants at the beginning of the workshop. She explained that the framework was the outline for the Action Plan and was comprised of 16 focus areas, each with priority issues that together covered all aspects of disaster recovery, including preparedness, mitigation, response, prevention, and protection that had a direct bearing on recovery. The focus areas and priority issues been identified by the Bay Area Regional Disaster Resilience Initiative Planning Group through a meeting and follow-on conference calls over the past few months. See the 16 focus area outlined in Appendix C *Initial Action Plan Framework*.

4.3. Session 1 Roundtable: Transitioning from Response to Recovery

John Wieczorek, Deputy Regional Administrator, Cal EMA Coastal Region, outlined the state’s process for disaster recovery that entails initial damage estimates that are incorporated into the Response Information System (RIMS), followed by damage assessment teams to assess impacts on jurisdictions. He said that Local Assessment Centers would be established under the California Standardized Emergency Management System (SEMS) and debris removal undertaken. There would be coordination among state and local agencies. SEMS would not end with response but continue with different organizations joining the process.

Michael Haralambakis, Deputy Director, Recovery Division, Region IX, Federal Emergency Management Agency (FEMA), noted that effective recovery depends on pre-disaster preparedness, and that response and recovery start at the same time. For example, the decision of where to shelter people and debris placement will impact long-term recovery. He cited the National Recovery Framework, which will be rolled out shortly, which provides guidance for federal, state, tribal, local government, and citizens to support disaster recovery. He noted the

need for the whole community to be involved in preparedness and provided an example in the Joplin, MO, tornado devastation of people losing their personal identifications and how government worked with banks to enable them to use checks.

Bruce Martin, Fire Chief, City of Fremont, pointed out that local priorities determine recovery priorities and there is no clean line regarding when response ends and recovery begins. This was a lesson learned when he was part of a California emergency response mutual aid assistance team deployed to New York after Hurricane Irene. New York is a home rule state in which each jurisdiction determines its own policies. Local priorities take precedence; collaboration is essential. There was no top-down model like SEMS. People were self-reliant. The private sector filled gaps as needed and individuals took care of themselves. He gave as an example Bank of America's mobile banking centers and Verizon COWS (Cells on Wheels) trucks with equipment to provide wireless communication in disaster areas.

Jerry Hill, California State Assembly Member, 19th District, said that Jim Wunderman and the Bay Area Council have been extraordinary models of resilience. Important factors in expeditious recovery are coordination, communication, and collaboration. Government can't stand in the way, but must facilitate recovery.

Steve Jordan, Executive Director, National Disaster Resiliency Center, pointed out that recovery can go on for years. The need is to get the community back to a sense of normalcy. He said response is not a federal responsibility, but is local, and that 95 percent of people in a disaster are assisted by a neighbor. He noted that "safety is not the absence of danger; it is the result of preparedness." The goal is to build stronger, more resilience regions although enhancing capabilities within communities.

Breakout Session Results

Participants discussed issues involved in developing an organizational structure for managing regional recovery, including roles and responsibilities of government private sector and non-profit organizations, coordination, and decision-making. (*See Appendix B for Session 1 Issues Discussion Questions.*) Many of the points discussed focused around recovery decision-making. Issues raised included:

- *Roles and Responsibilities:*
 - There are many different gaps and perceptions on recovery. A significant gap is understanding roles and responsibilities in disaster recovery and that the Bay Area is highly diversified—some jurisdictions have high capacity for resilience and others a low capacity.
 - People and organizations have roles during recovery that are often forced upon them by circumstances. They may not understand the impacts of decisions made on recovery, such as economic development choices or relocation of individuals. Stakeholder awareness needs to be raised to understand these consequences. This means the broad stakeholder community must be involved in planning. At the same time, we need to figure out how to "trickle up" in determining what needs to be done, rather than rely on trickle down from

government. Decisions need to be made at the local level and include federal, state, and local agencies.

- Non-profits and faith-based organizations play huge roles in recovery, and government starts to step back after response ends.
- The San Francisco Empower Communities Program has developed cross-sector councils for routine topics that can address preparedness issues.
- There should be a work group created or daylong workshop conducted on roles, responsibilities, and decision-making for recovery.
- *Economic recovery issues:*
 - The focus in recovery planning should be on “community continuation” not just business continuity. The influx of companies coming into a devastated region from outside to help rebuild can displace local businesses and hurt the economy. There is a need for mechanisms for local businesses to participate in restoration and recovery through developing a network of resources to call.
 - Credentialing for private sector organizations remains a problem post-event. For example, a city can authorize individuals to have access to a disaster site, but law enforcement personnel must recognize them.
 - There should be a regional donation management system established before an event happens; currently “donations are siloed.”
- *Information sharing:*
 - There is a need for a common operating picture through stakeholder and general public information sharing. “The problem is that all the players who need to share information aren’t.”
 - A Bay Area wide system should be created to enable government agencies to share information with the private sector. This can be accomplished through developing an inventory of the information needs of key stakeholder groups and using cloud computing and social media. An example was provided of the U.S. Army Corps of Engineers using Facebook during the Mississippi River floods to reach people. At the same time, there is always concern about sensitive data getting into the public domain that will increase vulnerability, and that social media tools such as Twitter and Facebook use up bandwidth needed for response and initial recovery efforts.
 - Communications and critical IT resilience for recovery need to be addressed. Organizations should determine how they can “fall back on old fashioned ways” (for example, hard-wired telephones) of communicating for 30 to 60 days after a regional disaster. A potential mitigation measure is expansion of the 211 system to the whole Bay Area. Also, ABAG could assist through providing hosting information for regional recovery with a data repository and information sharing.

- *Community and neighborhood resilience:*
 - The need to focus on people and communities in the recovery process and build community capacity for resilience in advance through public information, training, and education; finding ways to reward people who are prepared.
 - Shelter-in-place should be assessed in terms of feasibility and process. It is unclear how shelter-in-place could be enforced. For example, 55 percent of employees in San Francisco do not live there.
 - Sustaining medical surge capacity would be a challenge. Support hospitals would be set up within 12-24 hours in an emergency, but the need to continue supporting them could be long-term.

4.4. Session 2 Roundtable: Long-term Housing for Displaced Individuals and Rebuilding Housing

Alessa Adamo, Executive Director, SF CARD (Moderator), pointed out that “you can’t plan in a silo” on issues such as temporary housing and business recovery. She gave as an example the fact that San Francisco is 49 square miles with 750,000 residents, but during the day, the population swells to 1.5 million, of which 750,000 need to leave at the end of the day to go home. The challenge was finding temporary housing for a densely populated area that relies on resources outside the jurisdiction.

Laurence Kornfield, Special Assistant to City Administrator for Earthquake Safety Implementation, City and County of San Francisco, spoke on the Community Action Plan for Seismic Safety (CAPSS) project to reduce earthquake risks. He said the CAPSS work plan is a 20 to 30 year program aimed at assuring, after major earthquakes, that residents will be able to stay in their own homes, quickly have access to important privately run community services, no buildings will collapse catastrophically, and businesses and the economy will quickly return. A key issue is redefining what is sufficient to enable individuals to safely stay in their homes. He noted there was a shelter-in-place task force to define habitability standards. The goal was to have community-based institutions to serve people sheltering in place within a half mile of their home to enable 95 percent of residents to shelter-in-place. Right now 25 percent of the population cannot shelter in place.

Karma Hackney, Individual Assistance Branch, California Emergency Management Agency, pointed out the importance of coming to consensus on what long-term housing requires. Who would be in charge; what does long-term mean? We need to scope the problem and consider the magnitude of the recovery process. Tent cities and cruise ships are not realistic for long-term sheltering. Is the idea to relocate individuals and families from the Bay Area? If so, how do we determine where to put mobile homes or other temporary shelters? How would we bring them back? There is a need for guidelines and decisions. Then there is the additional challenge of bringing businesses back without people to staff them or customers to patronize them. There will be ordinance and zoning issues that will need to be addressed for temporary housing. There should be regional discussion on these issues—a regional task force with state and federal support. Solutions will need to address local needs.

Piotr Moncarz, Corporate Vice President, Exponet, said restoring the economy of Silicon Valley is a significant issue in looking at Bay Area disaster recovery. Different parts of the Bay Area will need to be treated differently. A related key issue is how to restore and salvage/replace the contents of buildings to restore businesses. For example, medical buildings that are red-tagged for demolition would have important patient and other records inside.

G.L. Hodge, Administrator, Providence Baptist Church and Member, Interfaith Council and San Francisco Foundation for Vulnerable Communities, focused on the need for faith-based organizations to be involved in the stakeholder coalition for Bay Area Disaster Resilience Initiative. People will come to churches in a disaster looking for help. Churches must be prepared to provide assistance. There won't be time to wait for the government local response system to get organized. It's necessary to work from the bottom up. An issue is how transportation can be arranged for individuals in temporary housing and supporting people in need. Churches will be a major resource for assisting individuals with food banks, transportation, and other services, such as Meals on Wheels. It will be necessary to educate citizens on how to volunteer for what needs to be done, and that they don't have to be vulnerable because they are part of a vulnerable population.

Comments and Breakout Session Results

Participants discussed plans for housing and providing essential community services for displaced individuals and families, including at-risk individuals, and providing them access to their jobs and neighborhoods; procedures for tagging damaged homes and determining home demolition, restoration, and land use; and the authorities of financial and other institutions regarding mortgages and other financial obligations, and costs of rebuilding. (*See Appendix B for Session 2 Issues Discussion Questions.*) There were many key points raised, mostly in the form of questions that need to be addressed:

- *Insurance issues:*
 - Many people are underinsured. A challenge for town homes and condominiums is that Home Owners Associations can't afford insurance. There will be legal and liability issues associated with what HOAs must cover regarding damages and what portions of the building a tenant must cover.
 - Many people don't understand what is and is not covered and discover belatedly they are underinsured. It was noted that people in the Loma Prieta earthquake had 15 minutes or less to recover what was important to them before abandoning their homes.
- *Issues involved with long-term housing:*
 - How can enough skilled help be assured for damage assessment and tagging homes in a regional disaster that impacts a significant part of the state?
 - What are the provisions for getting children back to school and family-accessible shelters for pets?
 - A huge issue is how disaster lifeline supplies—emergency power, food, water, sanitary facilities, pharmaceuticals, diapers, and other necessities for daily living—will be

distributed and sustained over a long period of time. How can we undertake prolonged mass care?

- How will regional mass transit be managed to service neighborhoods and communities? Is there a regional transportation plan for prolonged disaster recovery?
- What rights will renters have?
- How will disaster service workers be housed?
- What regulatory waivers will be necessary for long-term housing?
- *Incentivizing resilience:*
 - How do we get businesses to remain in the Bay Area if there are few to no customers in the first few months after a regional disaster?
 - Need for better building standards and mitigation of significant infrastructure vulnerabilities.
 - How can local governments work together to have an integrated baseline resilience capacity for their jurisdictions and the Bay Area?
 - Ways to finance mitigation and building retrofits could include voluntary donations, through the insurance industry or through Small Business Administration loans.
- *Post-disaster behavioral issues:*
 - People have difficulty understanding that a major earthquake or other devastating event will take months to years of recovery. Many believe the solution is to temporarily leave the Bay Area or stay with relatives until “things get back to normal”, which is envisioned to be a matter of days or a few weeks. They do not take into account issues such as the need for employment, paying mortgages, or keeping children in school over the long-term.
 - There are no federal or state plans to relocate large numbers of people out-of-the-area; rather the focus on shelter-in-place. At the same time, the term shelter-in-place has different meanings to different people. The cities of Dublin and Livermore have established a committee to look at what needs to be done on temporary housing.
 - Recreating a sense of community is important, as well as a sense that the community is safe and secure. At-risk individuals and groups will require a wide variety of services, including in-home care, and specialized supplies (e.g., wheel chairs, respirators, and other equipment).
 - How can a “new normal” be created in which people will be content to live for a time? Different people and groups will have different needs. For example, access to sports stadiums and facilities and resumption of football or baseball team play will be a symbol of normalcy to many.
 - People need to deal with the fact that they cannot rebuild in areas prone to liquefaction or which post-disaster are environmentally contaminated, and they may need to meet stricter and more expensive building standards and code upgrades that they cannot afford.

- There will be diverging political, economic, and societal issues centering around land use and other rebuilding decisions that will require negotiation and cross-jurisdiction trade-offs.
- How will jurisdictions address relocation by choice of displaced homeowners to neighboring communities where damage is less or not an issue?

4.5. Working Lunch: Looking Back at Recovery Lessons Learned

Robert Dolci, Acting Director, Center Operations, NASA Ames Research Center, provided reflections on the Hurricane Katrina recovery from his tenure at NASA’s Stennis Space Center. He said that Stennis was able to stage and facilitate distribution of FEMA and state resources, but that unfortunately, there was no comparable federal large facility in the New Orleans area. In the first week after Katrina, 500 trucks delivered 20 million pounds of ice and 2.6 million gallons of water, as well as 1.8 million MREs. There were 28 federal agencies and their components and 25 states contributing. He noted that Moffett Field is a regional FEMA storage and staging location and will be used for this purpose if there is a regional disaster.

4.6. Session 3 Roundtable: Assuring the Bay Area Remains in Business

Peter Ohtaki, Executive Director, California Resiliency Alliance (Moderator), observed that in a major regional disaster it is the small businesses that “go under” and the large firms and particularly IT and tech firms can readily move their operations elsewhere or their staff can work remotely.

Richard McCarthy, Executive Director, California Seismic Safety Commission, commented that the 1985 Kobe earthquake and the one in 1999 in Taiwan resulting in both localities losing a major share of their businesses. Likewise the Bay Area in a disaster will lose market share. There are 30 major corporations in the state. It is necessary to protect market share through removing regulations and incentivizing businesses to remain or, if they leave, to return. There needs to be out-of-the-box thinking on how to deal with these issues.

Raelene Wong, Director of Global Business Continuity, Applied Materials, observed that we are still struggling to get business and government together. We need a common operating platform to achieve this with everyone working from the same assumptions. A key issue is how cities will prioritize building inspections, because this will impact recovery decisions. Businesses will need to focus on relocation and housing employees. There is a need to ensure that R&D does not leave the Bay Area permanently.

Bill Corder, Regional Director of Public Safety, Westfield Shopping Centers, noted that it was difficult for businesses to comprehend disaster consequences. While in smaller towns, businesses tend to have relationships with local government officials, in larger cities, this is often not the case, and private sector organizations find it hard to be included in emergency response planning, training, or exercises. The best success for the private sector in partnering with government has been with public safety agencies. It is necessary to partner with government to know what the public requires in an emergency and to convey information on private sector needs. The key is not to let politics become involved in recovery issues because this enables the media to amplify

problems. The Incident Command System (ICS) gets “really muddy” when the responders arrive at the scene of the disaster or event. Businesses often have a separate command post to handle suppliers and other resource needs. The issue remains who is in charge in a disaster and how will regional decision-making be coordinated. There is a need for operational standards for resilience to assist a community on rebuilding decisions, which will determine what businesses return. “The frustration is that brilliant people talk about what needs to be done and not do it.”

Breakout Session Results

Participants discussed business disruptions in a major earthquake, business contingency plans and earthquake insurance, how decisions would be made on restoring and rebuilding damaged or destroyed commercial buildings, and assistance and incentives that could be provided to retain business in the Bay Area. (See Appendix B for Session 3 Issues Discussion Questions.) Observations included:

- *Business continuity challenges:*
 - Looking at the consequences for Japanese businesses and manufacturers from the recent earthquake and tsunami, there should be an assessment of potential impacts on Bay Area businesses from disrupted supply chains in a major disaster. In some cases, businesses will find their product or service severely impacted, while other industries, such as construction, might thrive because of rebuilding needs.
 - Large businesses should have a hot site—a recovery service that allows a business to continue computer and network operations in the event of a disaster. Small businesses need to set up contracts with suppliers to assure supply chain continuity.
 - Examples of ways to expedite business resumption include tax holidays, a financial safety net for small businesses, and social services targeted at the private sector.
- *Business rebuilding issues:*
 - Business continuity plans should include rebuilding. The challenge is determining what will happen or what to invest and where. Businesses will need to determine their customer base. Clean up time would depend on the type of disaster and be hard to calculate. It will be difficult to know how much housing needs to be rebuilt, and if businesses are uncertain whether residents will return, they will not rebuild or relocate to the Bay Area.
- *Business recovery financial issues:*
 - Financial lending institutions will be instrumental in regional business recovery.

4.7. Session 4 Roundtable: Financing Recovery & Resilience

Paula Scalingi, Executive Director, Bay Area Center for Regional Disaster Resilience (Moderator), said financing recovery, including pre and post-event mitigation, is one of the most challenging needs. There may be existing mechanisms in the Bay Area that can be leveraged or an approach from disasters in other parts of the nation that could provide a model.

Matt Regan, Vice President of Government Relations, Bay Area Council, underscored that the “picture was not rosy.” Financing recovery is “not a geography problem but a government and economic problem.” If a major earthquake occurred now, “the state is broke and the public is economically stressed.” As a result, both federal and state governments would bring much less money to assist in recovery. Difficult decisions must be made on what investments to make. Priority should be on infrastructures that will be essential to getting the region up and running. There is a six to eight week window to get infrastructure operational before businesses will leave. Restoration will be hampered by poor transportation planning, necessitating long commutes because of damage to bridges and tunnels. State legislation may be required for waivers to restore infrastructure to avoid expensive review and evaluation processes. However, if speed is necessary, it would be best to by-pass legislative solutions, if possible. Public-private partnerships can assist in building relationships that can expedite recovery decision-making.

Peter Crase, Disaster Assistance Program Manager, Cal EMA, opened by noting that FEMA has been running low on money and the state is economically stressed. Cal EMA works only with government and the public. On recovery financial issues, they do briefings, handle applications, and reimburse local governments for disaster impacts. Political pressure can speed up the procedures.

Bob Canter, President and CEO, Emeryville, Chamber of Commerce, commented that businesses will be impacted by disasters differently. The larger corporations are better prepared—they can go off-site or to other states. We are never going to rescue every business. After Hurricane Katrina devastated New Orleans, one third of the population left and one-fourth of businesses did not return. Businesses don’t think about disaster impacts until a threat emerges, then they will forget again after a few days. Small Businesses have a misconception that FEMA will help. Emeryville is upgrading its continuity plan. It has a grant to provide backpacks to businesses. There is a small business continuity plan template. This is the type of issue that local and regional Chambers of Commerce continue to push. Chambers of Commerce are a good way to spread the message about disaster preparedness and resilience. This is an issue that everyone can get their arms around.

Larry Souza, Principal – Real Estate and Financial Economist, Johnson Souza Group, Inc., pointed out that we need to look at financing recovery from both a monetary and fiscal policy standpoint. We need a financial system that can be continuous. If a disaster strikes, there will be a run on money and the local economy will shut down. The goal is to provide access to capital. There needs to be inter-institutional cooperation. The Federal Reserve would be the lead for financing recovery in concert with financial institutions, the FDIC, and the Federal Home Loan Bank. Tools that are already available are tax credits, revenue bonds, and federal credit guarantees. Community block grants could be created, along with tax credits for construction projects, HUD Block Grants, accelerated application and cost recovery to attract capital, and bridge and long-term loans secured. There also could be reconstruction loans and bonds. Redevelopment and Development zones could be utilized. However, there would need to be federal and state legislation in many cases to effect these changes.

Interactive Discussion Results

Participants discussed issues around securing funds for restoration of buildings and infrastructure, and mechanisms that could be used or created to provide these resources. (*See Appendix B for Session 4 Issues Discussion Questions.*) Issues raised included:

- *Government assistance:*
 - FEMA will provide public assistance only. There is no FEMA grant program for business disaster assistance.
- *Other Assistance:*
 - Businesses can resort to the SBA for loans, but they must qualify first. Requirements include having insurance and financial books in order.
 - There are also forgivable loan programs.

5. Workshop Results

The following results are based on participant views expressed during and after the workshop, attendee evaluations, and comment cards.

Overall, participants were interested and motivated in moving forward to develop a Bay Area Regional Disaster Resilience Action Plan and ensuring it covers all significant issues, and raised a wide range of needs and ideas. Several participants referred to the importance of determining recovery priorities and acting on them. As one private sector representative observed, “The problem with lessons learned is that we don’t learn them.” Many participants commented in their evaluations that the workshop was a “good first step” in this direction. Topics that participants identified that should be included in the Action Plan Framework or which needed further study:

Housing Issues – Need for greater focus on post-earthquake housing recovery; involvement of the insurance industry in developing owner incentives for retrofitting structures; policies and procedures to address assistance for renters; the problem of underinsured home owners and incentives for rental insurance; procedures for determining how emergency housing will be distributed to those who need it and how to “enforce this;” holding an exercise with financial institutions, the Small Business Administration, and other key agencies and organizations with single family and multi-family housing owners to walk through a scenario and “see how it will play out for planning housing recovery.”

Community Resilience Recovery Issues – Special needs and undocumented individuals; relocation and reentry after evacuation and rebuilding; children-related recovery issues; role of faith-based organizations and community service organizations such as the Salvation Army and United Way; creation of partnerships of business, local government, and non-profits at the community level; need for a public outreach and education campaign for community preparedness and resilience; coordination among and support for Community Emergency Response Teams (CERTs); how to effectively handle donations for recovery; and determination of guidance and standards for community resilience.

Infrastructure Resilience and Interdependencies – Restoration of banks/financial institutions and other critical infrastructure—priorities, processes, and timetable; need for involvement and collaboration of utilities and other essential service providers that serve the Bay Area regional recovery planning; outreach and involvement with neighboring states where interdependencies extend; post-cyber attack restoration and security issues; and exploration of ways, including legislation, to address mitigation measures for infrastructures pre-disaster.

Business and Operational Continuity – Sharing information on steps that businesses are taking to help prepare their employees in their homes and communities for disasters; back-up command and control centers for businesses; assuring job availability for displaced persons; lessons learned for security issues from disasters; virtual recovery sites for public agencies; ways to share and transfer knowledge on continuity, including recovery issues; and a more formal public/private sector partnership that would facilitate collaborative working agreements on recovery issues, including a legal document template that could be used for this purpose.

Recovery Decision-making and Financial Issues – Need to look beyond San Francisco to the whole Bay Area and have an agreed disaster recovery mission; greater understanding of the roles of local, state, and federal (including military) agencies and regional organizations in recovery and how to improve collaboration and centralized communications systems; improving the accuracy and transparency of the resource allocation process post-disaster and educating the public on what is available and when, and what they should expect; outreach to local community political leaders to gain their involvement in recovery planning; inventory of recovery-related Bay Area plans; idea of a pre-event registration of homes, people, and assets to assist in recovery; exploring the feasibility of creating a “reverse 911” system across the entire Bay Area; and examination of the connection between longer-term recovery and climate change. Several participants noted a key need was, as one put it, “how to get local, state, and federal agencies involved in emergency planning to agree on one plan” for the Bay Area.

6. Next Steps

Participants were informed they would be provided a summary of workshop proceedings, which would also be provided to the broader Bay Area Resilience Coalition organizations and associations. The workshop findings would be incorporated into the Action Plan framework and the supporting Gap Analysis. Activities to obtain information on capabilities, findings, and needs would include a stakeholder survey, focus group meetings and interviews with key practitioners, experts, and other key Bay Area stakeholder representatives, collection of outcomes and lessons learned from regional workshops and exercises around the Bay Area, and research on existing plans, tools, and technologies that are available for Bay Area disaster recovery. A template for stakeholders’ use to provide a capability description for the Gap Analysis has been developed and is on the ABAG website. As needed, discussion groups on priority topics will be created or existing groups utilized for this purpose. ABAG’s website will be expanded in the coming year to provide a repository of regional capabilities and drafts of the Action Plan, Gap Analysis, and other Initiative support documents for stakeholder review and comment. An important and continuing focus of the Initiative will be to foster increasing interaction and collaboration among regional stakeholders, jurisdictions, Cal EMA and other state agencies, and FEMA Region IX and other federal partners.

6.1 Workshop Follow-On Events

Participants were invited to join in planning the next workshop, to be held January 31, 2012, which will focus on lifeline and other critical infrastructure and essential service provider dependencies and interdependencies. A regional tabletop exercise focusing on significant recovery issues identified in the workshops and other Action plan development activities will be held in late spring. A stakeholder exercise design team will be set up to develop the exercise after the next workshop.

Appendix A

Workshop Participating Organizations

AAA Insurance Exchange	Cisco Systems, Inc – Tactical Operations
Adjusters International	City of Berkeley Housing & Community Services
Alameda County	City of Clayton
• GSA-Purchasing	City of Emeryville
• Sheriff's Office	City of Fremont
Allied Barton Security Services	City of Oakland Office of Emergency Services
AMEC Environment & Infrastructure	City of San Rafael Office of Emergency Services
American Red Cross	City of San Ramon
• Bay Area	City of Santa Clara
• Silicon Valley	City of Sunnyvale
Amgen	Contra Costa Health Services
Amtrak	Eastern Contra Costa Transit Authority
Anderson Niswander, Inc.	EBMUD
Applied Materials	Eden I&R/211 Alameda County
Arup	Emeryville Chamber of Commerce
Association of Bay Area Governments	EPMI-MORH 1 Apartments
AT&T	Exponent
Bay Area Center for Regional Disaster Resilience	FBI
Bay Area Council	Franklin Templton Investments
Bay Area Preparedness Initiative	Fremont Fire Department
Bay Area Rapid Transit (BART)	GeoHazards International
Berkeley Fire Department	Google
Business Recovery Managers Association (BRMA)	Health Education Services
California Air National Guard	HEG, Inc
129th Rescue Wing	Intel
CALFIRE – South Santa Clara Co. FD	Jeanne Perkins Consulting
California Community College	Joint Venture Silicon Valley
California Department of Public Health	Kwan Henmi Architecture/Planning
• Drinking Water Program	Lawrence Livermore National Laboratory
California Emergency Management Agency (Cal EMA)	Livermore-Pleasanton Fire Dept.
California Hospital Association	Metropolitan Transportation Commission
California Resiliency Alliance	Mineta Transportation Institute
California Seismic Safety Commission	Monterey County OES
California State Assembly	Mountain View Fire Dept.
California Volunteers	NASA Ames Research Center
Caltrans	National Disaster Resiliency Center
Carnegie Mellon University	Naval Postgraduate School
CERT / RACES	NetApp
	Nexis Preparedness Systems, Inc.

Nossaman LLP
North County Fire Authority
Northern California Regional Intelligence
Center (NCRIC)
Northroad Builders
Pacific Gas and Electric Company
Paramount Maintenance, Inc.
Peralta Community College District
Port of Oakland
Providence Baptist Church of San Francisco
RAI Laboratory LLC
Ravenswood Family Health Center
Ready47
San Francisco International Airport
San Francisco
• Dept. of Emergency Management
• Fire Dept. – Neighborhood Emergency
Response Team
• Office of the City Administrator, GSA
SF CARD (Community Agencies Responding
to Disaster)
San Jose State University
Santa Clara County OES
Santa Clara University
Santa Clara Valley Transportation Authority
Santa Clara Valley Water District
San Mateo County Sheriff's OES
SecTek, Inc – Protective Services Div.
Secured Environment
SLAC National Accelerator Laboratory
South Bay Regional PSTC
Southern Marin FD CERT
SRI International
Stanford University
Suulutaaq, Inc.
UC Berkeley Goldman School
Ultratech, Inc.
U.S. Coast Guard
• Sector San Francisco
• Base Support Unit Alameda
U.S. Department of Health & Human
Services
U.S. Department of Homeland Security
• FEMA
• Office of Health Affairs

U.S. Drug Enforcement Administration
U.S. General Services Administration,
Region 9
U.S. Small Business Administration
• Office of Disaster Assistance
URS Corporation
Verizon Wireless
Visa, Inc.
Wells Fargo
Western Digital Media, Inc.
Western Disaster Center
Westfield Shopping Centers
Young and Lamay Associates

Appendix B

Breakout Session Issues Questions

Session 1: Transitioning from Response to Recovery

1. When does the Standardized Emergency Management Systems (SEMS), which provides the organizational structure for managing a Bay Area unified disaster response, end?
 - What takes its place to orchestrate Bay Area recovery and restoration?
2. What are the roles and responsibilities of federal, state, and local governments in recovery?
3. How will jurisdictions coordinate on recovery priorities and activities?
4. How will private sector and non-profit organizations and associations participate in recovery decision-making?

Session 2: Housing for Displaced Individuals & Rebuilding Housing

1. What are the plans for housing and providing essential community services for tens of thousands of people whose homes are either destroyed or damaged in a major earthquake?
 - How will transportation be arranged to enable them to continue their jobs and visit their neighborhoods?
 - How will “special populations”—the elderly, disabled, low-income, homeless, be addressed?
2. How will “tagging” of damaged homes be conducted and what does it entail?
3. How are decisions made on home demolition, restoration, and land use?
 - What are jurisdiction’s recovery authorities? Rights of property owners?
 - How will financial institutions handle mortgages on destroyed, damaged, or abandoned property?
 - How will uninsured homeowners and rental property owners finance the rebuilding of their properties?

Session 3: Assuring the Bay Area Remains in Business

1. How long could businesses expect to be disrupted in a major earthquake if they are impacted by physical damage to critical infrastructure?
2. Do Bay Area businesses typically include major disaster recovery in contingency plans?
3. Do they have earthquake insurance?

4. How will decisions be made on restoring and rebuilding damaged or destroyed commercial buildings?
5. What assistance or incentives could be provided by government or the private sector to keep businesses from going out of business or leaving the Bay Area?

Session 4: Financing Recovery & Resilience

1. How will the enormous amount of funds necessary for restoring and rebuilding housing, commercial buildings, and infrastructure be acquired?
 - Government resources?
 - Private Sector Resources?
2. What existing mechanisms would be used or could be created to provide the investment dollars needed to restore communities and infrastructure?

Appendix C

Bay Area Regional Disaster Resilience Initiative Initial Draft Action Plan Framework

This outline of topics and respective issues is the initial draft framework for the Bay Area Disaster Resilience Action Plan—a roadmap of activities that will build on what already has been accomplished by jurisdictions and organizations to improve our region’s ability to recover from a major earthquake or other disaster. This framework will serve as the scaffolding for the Action Plan, which will be constructed over the next year through a “Whole Community” process that involves all interested stakeholders from throughout the 12-County Bay Area region—businesses, utilities, non-profits, community groups and institutions, schools and other academic institutions, local governments, and tribal, state, and federal agency partners. The framework will also be used for a supporting Gap Analysis that will inventory current Bay Area preparedness, mitigation, response, recovery, and other capabilities that have a direct bearing on recovery in order to identify areas that still need attention while avoiding “recreating the wheel.”

Your knowledge, expertise and insights are essential to the Action Plan’s effectiveness in charting a path forward to make the Bay Area disaster resilient. Please look over the following draft Framework and let us know what should be added or changed. ABAG will post an updated Draft 2 on its Earthquake and Hazards Program website after the Kick-Off Workshop to enable comment by all interested Bay Area stakeholders.

- 1. Significant Events that could Impact the Bay Area’s Economy, Environment, and the Health, Safety, and Well Being of Citizens** (*e.g., earthquakes and tsunamis, firestorms, prolonged rain events with widespread flooding and landslides, pandemics, terrorist attacks, events caused by aging infrastructures and systems failures, and technological disasters*)
 - Major all hazards threats and events, natural and manmade, including unanticipated significant events that would have region-wide impacts and require significant recovery and restoration
 - Current level of understanding of damages and consequences for lifelines, other infrastructures, and housing, commercial, and other structures from these threats and events

- 2. Lifeline and Other Infrastructure Dependencies and Interdependencies – Recovery Challenges** (*includes the 18 U.S. Department of Homeland Security infrastructure sectors and also community institutions, schools and academic institutions, housing sector, as well*

as people—the staff and customers of Bay Area government agencies, businesses, social and other services, individuals and families)

- Identification and prioritization of Bay Area critical infrastructures and essential services, including, interdependencies-related vulnerabilities that extend outside the Bay Area and cascading impacts that could impede recovery, taking into account supply chains and other supporting services, such as labor unions and construction firms
- Awareness of lessons learned from recent disasters
- Status of regional interdependencies analysis capabilities and expertise
- Capabilities to ensure confidentiality of proprietary and sensitive infrastructure, health, and other data

3. Preparedness and Mitigation to Better Withstand and Rapidly Recover (*actions that can be taken before a major event to lessen the consequences, stem cascading impacts, expedite recovery, and keep down recovery costs*)

- Jurisdiction and organizational plans and procedures
- Security and physical protection and prevention measures
- Guidelines and Standards
- Pre-event mitigation actions and financial, political and cultural challenges (e.g., retrofitting/hardening housing, other structures and critical assets; creating backup/redundant systems and remote operations; upgrading aging infrastructures; incentivizing broader insurance coverage)

4. Regional Response Policies, Plans, and Solutions that Affect Recovery (*focus on those areas of disaster response that would have a direct impact on how quickly the Bay Area can recover with limited economic, social, environmental consequences*)

- Cooperation and coordination among jurisdictions on plans, procedures, and activities
- Evacuations and re-entry plans
- Short-term sheltering, including non-traditional sheltering alternatives
- Infrastructure interdependencies impacts that can complicate response
- Post-disaster lifeline resources (food, water, fuels, pharmaceuticals, etc.)

- Certification of response and other essential workers for site access
- Hospital and healthcare surge capacity
- Security for hospitals, pharmacies, and grocery stores
- Arrangements for at risk populations (infants and children, assisted living/nursing home residents, disabled, homeless, and economically stressed individuals; prison inmates)
- Providing information and communicating with non-English speaking groups
- Missing persons and mortuary issues
- Arrangements for pets, livestock, and disposal of dead animals
- Mutual aid agreements (cross-jurisdiction and multi-state)
- Availability of emergency managers and first responders
- Communicating with responders, utilities and other service providers, broader business community, volunteer-based organizations, and general public
- Debris management for response, including temporary siting
- Resource requirements and management
- Logistics and supplies availability

5. Recovery Priorities (*focus on the range of immediate to longer-term recovery needs, recognizing that these needs and objectives will change over time from immediate post-event*)

- Planning for recovery
- Roles and missions (federal, state, tribal, local, private sector, non-profit/community)
- Recovery management structure—what organizations, how organized, and which mechanisms will be used (or need to be created)
- Decision-making (cross-jurisdiction, cross-sector, cross-discipline)
- Cooperation and coordination
- Prioritization of service restoration

- Resource requirements and management
- Damage assessment, inspection, and availability and certification of personnel
- Hazardous materials handling
- Debris removal
- Decontamination of soil, buildings and assets, reservoirs/waterways
- Monitoring of air and water quality
- Managing volunteer aid and donations
- Returning to operation businesses, schools, and faith-based facilities that enable communities and the economy to rebound
- Identifying and securing government and other types of assistance
- Keeping businesses in the Bay Area—assistance and incentives

6. Rebuilding and Reconstruction Challenges *(focus on long-term (post-event to ten years or more) activities and issues that must be addressed to rebuild housing, businesses, and infrastructure and enable communities to return to a “new normal” and receive financial reimbursements)*

- Long-term housing needs
- Other issues involved in design, reconstruction and rebuilding to achieve a “new normal”
- Prioritization of reconstruction of infrastructure, housing, commercial facilities, and other buildings in an era of limited resources
- Coordination structure and mechanisms that will be used for long-term reconstruction activities and projects—what organizations, how organized, and which mechanisms will be used (or need to be created)
- Decision-making (cross-jurisdiction, cross-sector, cross-function)

7. Regional Recovery Roles, Responsibilities, and Authorities to Enable Collective Recovery *(developing the cooperative multi-jurisdictional, cross-sector, and cross-discipline process for addressing region-wide priorities when response and the Standardized Emergency Management System (SEMS) ends)*

- Defining and understanding of recovery roles, responsibilities, and authorities of federal, state, tribal, and local agencies
- Defining and understanding recovery roles and responsibilities of private sector organizations, non-profits, community institutions, and other groups
- Organizational structures that could enable effective recovery/restoration and the transition from response to recovery—what entities would be involved, how organized, and how would these structures work?
- Recovery decision-making (cross-jurisdiction, cross-sector, cross-discipline)—what organizations would be involved and what mechanisms used?
- Jurisdictional authorities and cultural and other challenges to regional cooperation on disaster recovery

8. Environmental Resilience *(covers environmental hazards, potential consequences, capabilities and timeframes for cleanup to enable repopulation of affected areas, and other environmental issues that affect recovery and restoration)*

- Types of environmental impacts (e.g., hazardous materials, contamination of buildings and assets, soil, water systems; sewage releases; chemical, biological, and radiological events)
- Consequences for the Delta and other waterways and water supplies, fish, and wildlife
- Organizational roles and authorities in environmental damage assessment and re-occupancy of impacted areas
 - Federal government
 - State
 - Tribal
 - Local jurisdictions
 - Private sector
- Detection, alert and warning, and assessment capabilities, including timeliness
- Decontamination and hazardous materials disposal capabilities (procedures and technologies)
- Emergency management preparedness, response, and recovery plans for events with significant environmental impacts

9. Communications and Information Sharing for Recovery *(focus on examining how the “Whole Community” can be engaged in appropriate ways in two-way information sharing to improve preparedness and facilitate recovery, as well as provide a common operating picture, or situational awareness, to help decision-makers)*

- Multi-jurisdiction from local to state, tribal, and federal agencies and cross-sector
- Local government agencies sharing of information and best practices
- Process—collection, storage, integration, analysis, dissemination, and related security and proprietary data issues
- Utilization of state and municipal information fusion centers
- Innovative ways to use traditional media, social media, and public communications
- Inclusion in information sharing of schools and other institutions, faith-based, and other organizations with significant populations; also among families and individuals
- Health and Healthcare information-related issues
- Communications systems reliability, resilience, and security

10. Continuity of Operations of Business, Government, and Community Institutions and Social Service Providers *(focus on the need for individual organizations that are located within the Bay Area to be resilient—to have the continuity plans and capabilities that enable them to deal with disruptions and damage and restore operations and business services as rapidly as possible)*

- Pre-event preparedness and mitigation that affect recovery (addressing interdependencies and supply chains, remote siting, back-up systems, building in redundancies, preservation of vital records, etc.)
- Identification of essential operations and business activities, including supply chains
- External outreach to service providers and customers to address infrastructure interdependencies and associated consequences from major disasters and events
- Operational challenges associated with loss of services and damage to assets
- Assuring essential staff, including technical experts, and general workforce
- Assuring access to information and situational awareness

- Addressing challenges for small and medium businesses (retail, manufacturing, and other commercial firms) and organizations
- Assessment of potential damage or disruptions to operational and business services, including logistics, suppliers, customers, availability of truck drivers, warehouses, etc.
- Telecommuting, including the “last mile issue,” and teleconferencing issues
- Workforce policy issues (compensation, absences, safe workplace rules, flexible payroll issues, etc.)
- Notification and provision of information to employees
- Training of employees
- Testing of continuity plans and procedures

11. Creating Disaster Resilient Communities, Families, and Individuals *(focus on the resilience and recovery capabilities of individuals, families, neighborhoods, communities, and special populations—children, the elderly, and disabled individuals—and the social service and other organizations that serve them)*

- Challenges and needs
- Understanding and dealing with psychological impacts, including enabling individuals to embrace a “new normal” and be willing to help create it
- Identifying and addressing individual and family assistance needs
- Education and academic institutions (daycare centers, schools, colleges and universities, libraries, community centers)
- Faith-based institutions and volunteer organizations
- School and business closures
- Event cancellations (e.g., sporting events, concerts, and other events that contribute to regional identity)
- Insurance issues
- At risk individuals (e.g., elderly, disabled, economically and mentally-stressed)
- Ethnic, cultural, tribal, and other special constituencies and groups

- Individual and family recovery needs

12. Legal, Regulatory, and Liability Issues that Affect Recovery *(focus on cross-sector challenges that affect government agencies, businesses, and non-profits)*

- Human resources and other employee issues
- Insurance issues
- Contractual issues (e.g., with suppliers and customers, union-related and tenant issues)
- Challenges associated with meeting regulatory requirements and standards, obtaining waivers and permits, and creating temporary policies and procedures
- Liability associated with preventative medical actions
- Issues involved in competing rights and authorities (land use issues, resident's rights related to housing, and other challenges)
- Privacy issues
- Ethical issues

13. Public Outreach and Education *(focus on raising awareness of threats and consequences, addressing public expectations, and effectively communicating what citizens and organizations should do individually and collaboratively to develop disaster resilience)*

- Developing and implementing a coordinated regional public information strategy with focus on different constituency needs: private sector, general public, cultural and other groups
- Communications mechanisms that can be used, including social media, public communications, and other systems
- How to engage and utilize media pre and post-disaster
- Promoting community involvement in disaster recovery
- Developing a “Culture of Preparedness and Resilience” that empowers individuals, organizations, and communities to collaborate to make necessary improvements

14. Exercises and Training for Recovery *(focus on need to engage “Whole Community” from neighborhoods to regional, multi-state, and at national-level, and engaging private and non-profits, tribal, and government organizations at all levels)*

- Identifying, and tailoring exercises and training to meet the needs of target audiences—government, business community, utilities, non-profits, tribes, communities, neighborhoods, and residents
- Targeted workshops and exercises that focus on key areas in the Bay Area Disaster Resilience Action Plan, e.g., roles, authorities, and responsibilities, information sharing and communications, response challenges that directly affect recovery, and other specific recovery issues
- Inclusion of private sector and non-profit organizations with government (all levels) and tribes in regional workshops and exercises
- Training on procedures and processes for incident and recovery management that takes into account business interests and perspectives
- Training tools and activities (course curriculum, webinars, workshops, “train the trainers,” etc., that can be incorporated into regional disaster preparedness plans

15. Specialized Lifeline and Sector-Specific Needs that Affect Recovery and Restoration

(note: the following lifeline and sector focus areas will be fleshed out, each one having a set of priority issues that will be addressed in the Action Plan)

- A. Transportation (all modes—road, rail, maritime, waterways, mass transportation, ferries, freight and shipping, including roads, bridges, tunnels)
- B. Energy (electric power, natural gas, fuels, alternative energy sources)
- C. Communications and Critical IT Systems
- D. Water and Waste-Water Systems
- E. Agriculture and Food Industries
- F. Dam and Levees
- G. Seaports
- H. Airports
- I. Hospitals, Healthcare, Public Health, and Emergency Services
- J. Banking, Finance, and Insurance Services
- K. Disaster Supply Chains (drug stores, grocery stores, and temporary food and water distribution, etc.)
- L. Schools/other Academic Institutions
- M. Housing Sector

16. Financial and Other Resource Needs for Bay Area Disaster Recovery and Resilience
(focus on how Bay Area businesses, community institutions, and other organizations and individuals will identify and have access to the enormous amounts of funds, expertise, and other assistance to invest in recovery and rebuilding activities that could continue for years, as well as what mechanisms and avenues could be utilized or created for this purpose)

- Post-disaster assistance (government and other funding/reimbursement) from:
 - Federal, State, and Local governments
 - Private sector
 - Non-profit and community organizations
 - Financial institutions (e.g., low-interest loans, mortgage forgiveness/renegotiation)
 - Other mechanisms that can provide assistance (e.g., redevelopment agencies)
 - Volunteer and public service organizations
- Meeting protection and mitigation needs to expedite recovery and build disaster resilience
 - Potential investment mechanisms
 - Recovery bonds
 - Loans and incentives to small and medium businesses
 - Funds and technical support needed for training and exercises