



Date: March 17, 2011
To: Executive Board
From: Danielle Hutchings, Earthquake and Hazards Program Coordinator
Subject: Adoption of ABAG annex to Local Hazard Mitigation Plan for the San Francisco Bay Area

Executive Summary

116 cities, counties, and special districts have participated in the update of the multi-jurisdictional Local Hazard Mitigation Plan led by ABAG in accordance with the Disaster Mitigation Act of 2000. Planning for this update began in 2007 and included numerous regional and sub-regional workshops, issue-specific forums, and public outreach campaigns. The plan recognizes the regional nature of natural hazards and seeks to develop a regional vision and approach for mitigating their effects. By taking advantage of economies of scale and providing a base level of information and data for jurisdictions to take advantage of in the development of their annexes, we have created consistency across the region and increased participation rates of local jurisdictions. An approved LHMP allows jurisdictions to be eligible for various mitigation grants and to have the required 6.25% local match waived for Public Assistance money after a disaster.

The goal of the MJ-LHMP is to *maintain and enhance a disaster-resistant region by reducing the potential loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters.*

Relationship of the Plan to UASI

The Urban Areas Securities Initiative (UASI) is a national framework developed post-9/11 to enhance regional preparedness in major metropolitan areas. The main focus of UASI is on preparedness, response or recovery initiatives such as Regional Catastrophic Planning, Interoperable Communications, Information Sharing, and Chemical/Biological/Radiological/Nuclear capabilities. The Bay Area UASI has developed a number of plans which focus on the immediate response and initial 30 days following a disaster. With its core competencies in the areas of law enforcement, first response and emergency management, UASI does not have the broader competencies needed for mitigation planning, which involves projects undertaken before a disaster to reduce the impact of the disaster, such as structural retrofitting. ABAG has led the region in the area of mitigation planning for several decades.

Plan Organization

The plan has two components: a regional plan and local annexes. All of the plan documents are available at <http://quake.abag.ca.gov/mitigation>. The regional plan was developed collaboratively by ABAG and all of the participating jurisdictions. As part of this process, regional mitigation strategies and priorities were developed and adopted by the Executive Board in September 2009. The regional plan identifies major hazards that affect the Bay Area. These include hazards related to *earthquakes (surface faulting, ground shaking, liquefaction, landslides and tsunamis)* and *weather (flooding, landslides, wildfires and drought, sea level rise)*. Several of these weather-related hazards are influenced by climate change. Other hazards relate to man-made conditions, including releases of hazardous materials, dam failures, energy shortages, and weapons of mass destruction. These other hazards are only addressed as they relate to earthquake and weather-related hazards. The only one of these additional hazards that is readily mapped and analyzed is dam failure.

The plan is organized into eight chapters or commitment areas, which are related to the services supplied either directly, or indirectly, by local governments, rather than by hazard. The commitment areas are *infrastructure, health, housing, economy (private business), government services, education, environment, and land use*. Each chapter outlines the vulnerabilities in each commitment area to natural hazards and general mitigation actions and regional priorities for taking those actions were agreed upon by the participating jurisdictions to increase the disaster resistance of each of the eight commitment areas. These regional priorities formed the basis for locally identified mitigation actions or projects.

Each jurisdiction that participated in the plan is also required to develop a local annex which highlights the unique characteristics of each jurisdiction, their most significant hazards, recent disasters affecting the jurisdiction, their specific risk profile, and their local priorities for the regionally identified mitigation strategies. In addition, each jurisdiction developed several specific mitigation actions they intend to take over the next five years to reduce risk from natural hazards and a plan for implementing those actions.

Plan Status

The regional plan was approved by FEMA November 2010 and adopted by the Executive Board Administrative Committee in February 2011. Approval of *Taming Natural Disasters* allowed the participating cities, counties and special districts to adopt their local annexes. ABAG also wrote a local annex to the regional plan which was approved by FEMA, along with several other local annexes in March 2011. Approved annexes can be found at <http://quake.abag.ca.gov/mitigation/2010annex/>.

Next Steps

- ◆ Participating jurisdictions should submit their annexes to ABAG for initial review and ABAG will forward them to FEMA. Upon approval by FEMA, the annex must be adopted by resolution into the Safety Element of the city or county General Plan by November 2011. Special districts will adopt the plan by resolution of their governing body.
- ◆ ABAG will continue to provide assistance to participating jurisdictions in the development of their annexes as requested by the jurisdiction. In all cases, staff will review the annexes for the required elements before passing it on to FEMA
- ◆ Develop a plan for improving the process of updating the regional plan in 2015. Staff proposes that this include better outreach to elected officials, city managers and county administrators early in the process to achieve buy-in on the process from all levels of governments. In addition, regional mitigation actions should be reduced to a regional vision with a handful of broad, clear regional strategies and priorities. The vision should be implemented at the regional and local level through specifically identified mitigation projects. This will facilitate a regional discussion about priorities and may be a more effective way to involve the public in the conversation. The mitigation plan should also develop clearer connections between the SCS, regional recovery plan and local general plans. Finally, the mitigation plan should do a better job of modeling the risks to the region in a comprehensive manner and make the results available to local government and the public in a more effective way.

Recommended Actions

Following comment from the Executive Board and members of the public, staff respectfully requests for the Executive Board to pass the attached resolution adopting the ABAG annex to Local Hazard Mitigation Plan (LHMP) for the Bay Area, *Taming Natural Disasters*.

Attachments

ABAG annex to regional Local Hazard Mitigation Plan

Resolution adopting ABAG annex to the Local Hazard Mitigation Plan for the San Francisco Bay Area



ASSOCIATION OF BAY AREA GOVERNMENTS

Annex to 2010 Association of Bay
Area Governments
Local Hazard Mitigation Plan
Taming Natural Disasters

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Introduction

The Association of Bay Area Governments (ABAG) is a joint-powers agency owned and operated by the 101 cities and nine counties of the San Francisco Bay Area. The region has a population of 6,783,760, based on the 2000 census (and 6,960,079 estimated for 2008). For FY 09-10, ABAG's budget is \$28.9 million, including over \$9 million in consultant and pass-through services. ABAG employs approximately 80 people at the Joseph P. Bort MetroCenter in Oakland, Ca. In addition to housing MTC, ABAG and BART staff, as a public facility, the MetroCenter hosts a variety of public meetings including board and commission meetings, public hearings on planning, land use and transportation issues, hazard mitigation training and seminars. The building has a multi-purpose auditorium for hosting large meetings, and 8 conference rooms for smaller meetings. Most of the meetings are noticed so the public can attend with an average attendance of more than 20,000 attendees annually. While its principal offices are headquartered at the MetroCenter, additional employees are co-located with the Regional Water Quality Control Board at the State Office Building in Oakland.

ABAG's work is guided by its Executive Board. Its principal planning committee is its Regional Planning Committee. Both groups have been active in the development and review of the priorities for current and future mitigation activities in the region.

The Regional Planning Process

As the lead agency, ABAG developed and facilitated the regional planning process for the update of this Multi-Jurisdictional Local Hazard Mitigation Plan. The planning process ABAG undertook is described in Appendix A of the plan.

The Local Planning Process

Program managers from various ABAG departments, including Earthquake and Hazards, Water Resources, PLAN, and Financial Services met to discuss ABAG's mitigation priorities and identify key mitigation projects during 2009 and 2010. At these meetings, all of the mitigation strategies were reviewed. Each of the managers was responsible for briefing the group on regional strategies that were existing programs or high priorities. They also identified new strategies from the spreadsheet that would be appropriate as initiatives for ABAG to undertake moving forward. The decision on priority was made based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound, and not harmful to the environment or our heritage. This process was much smoother than in 2005, because priorities had been previously identified and only needed to be confirmed or updated.

These priorities were reviewed and approved by ABAG's Regional Planning Committee and Executive Board as described in the Public Meetings section below.

Review and Incorporation of Existing Information

As the lead for the Bay Area on this LHMP, all of the reports and studies available to ABAG regarding risks and hazards have been incorporated into the umbrella plan. In addition, the



structural assessment of the MetroCenter building, the only facility owned in part by ABAG, was reviewed for the development of this annex.

Process for Updating Plan Sections

ABAG lead the development of the 2005 multi-jurisdictional Local Hazard Mitigation Plan and prepared an annex to that plan. This Annex is an update of the Annex prepared for the 2005 plan. The lead in updating this Annex was taken by the Earthquake and Hazards Program Coordinator, who also led the regional process.

The Planning Process section has been updated to reflect the planning that took place for the 2010 plan update. However, as noted earlier, the process of assigning priorities was simplified because priorities had already been assigned in 2005.

The Hazard and Risk Assessment section has been updated to incorporate the new mapping compiled by ABAG for the overall multi-jurisdictional Local Hazard Mitigation Plan. The specific information on the MetroCenter building is revised because the building has been retrofitted.

The Mitigation Goals and Priorities section is greatly expanded. In the 2005 Annex, the focus was entirely on funding the needed seismic retrofit of the MetroCenter building. In accordance with the feedback received from the planning meetings, this Annex takes a much more comprehensive approach to mitigation.

The Plan Maintenance and Update section is essentially the same as the 2005 Annex, with the addition of some ideas for improving public participation in the process. During the last five years, ABAG has continually kept the public involved in the regional plan by including information on the LHMP and mitigation strategies whenever it gives presentations to the public to raise awareness of the regional plan. Our website also has a dedicated section for mitigation which posts all of the LHMP documents and annexes for public consumption.

Public Meetings

ABAG held four opportunities to seek input from the public on its own mitigation strategies. Documentation of these meetings is included in the MJP.

- (1) In a publicly noticed meeting of ABAG's Regional Planning Committee (RPC) on August 5, 2009, ABAG's priorities for mitigation strategies were discussed and public comment was sought. At this meeting RPC approved ABAG's mitigation priorities and recommended that they be approved by ABAG's Executive Board. No members of the public commented at this meeting, but RPC members provided several comments about the need to consider strategies to deal with mental health and to expand the discussion of nonprofits in the plan. Both of these comments were incorporated into the plan. Minutes of this meeting can be found online at <http://www.abag.ca.gov/meetings/regionalplanning.html>.
- (2) At a publicly noticed meeting of ABAG's Executive Board on September 17, 2009, the Executive Board moved to approve ABAG's priorities for mitigation strategies. Members of the public did not provide any comments on the priorities for mitigation strategies.



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Minutes of this meeting can be found online at <http://www.abag.ca.gov/meetings/execboard.html>.

- (3) At a publicly noticed workshop jointly held by MTC, ABAG, and several transit districts on September 22, 2009, the strategies and the background for setting strategy priorities was again discussed. The power point for the meeting is available upon request. Members of the public did not provide any comments on the priorities or the method of creating the Local Hazard Mitigation Plan Update.
- (4) Finally, ABAG's strategy priorities were posted and advertised on its website at <http://quake.abag.ca.gov/mitigation> beginning on August 5, 2009. No comments were received from the public regarding ABAG's priorities for mitigation. ABAG's *Service Matters* newsletter which has a circulation of 2,000 also advertised that ABAG's draft mitigation priorities were available for comment on the above webpage in its Sept/Oct 2009 issue. The newsletter is available electronically on ABAG's website.

ABAG believes that is important to foster better public participation for the umbrella LHMP in the next plan update and to seek public input on the development of the plan. This may be accomplished by holding workshops on key areas of interest such as housing, infrastructure, and land use and inviting the media to attend, as well as announcing the workshops in radio, TV and print media. These workshops would be open to the public and would be an opportunity to learn about the issues while seeking feedback on the mitigation plan and priorities. Letters to the editor on key topics mitigation topics of importance could also be produced by elected officials of our Executive Board.

Because ABAG doesn't have residents or customers the way a municipality or utility provider does, feedback on its Annex is most important from its Executive Board and Regional Planning Committee, whose meetings are open to the public. This annex will also be posted on our website and noticed through the news section on the homepage to seek additional public comment.

Hazard and Risk Assessment

As the lead agency of this Local Hazard Mitigation Plan, all relevant reports developed by ABAG have been incorporated into this plan. No additional reports describe the hazard or risk to the ABAG region.

The hazards and risks associated with the service area of ABAG (as a regional agency covering the entire 9-county Bay Area) are the same as those for the region as a whole. ABAG is a minority owner of the MetroCenter regional center. It owns no other facilities. Risks for the MetroCenter facility are:

Earthquake: The MetroCenter is located 5 miles from the Hayward fault and 15 miles from the San Andreas fault. It is in the next to highest category on the ground shaking potential map and outside the zone of earthquake-induced landslides on flat ground. While the MetroCenter is not in the CGS Liquefaction Zone, it is shown as subject to liquefaction to the USGS Liquefaction Susceptibility Map.

Tsunamis: The December 2009 version of the CalEMA tsunami evacuation planning maps indicated that the MetroCenter facility is not in this area. Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005.

Flooding: The MetroCenter is outside the 100-year and 500-year flood zones.



Landsliding: The MetroCenter is located on ground that is designated as flat land.

Wildfire: The wildland fire threat is moderate but the MetroCenter is located within the Wildland Urban Interface WUI-Threatened area.

Dam-Failure Inundation: The MetroCenter is not subject to dam-failure inundation.

Delta Levee Failures: The MetroCenter facility is not in an area protected by a levee, or in the Delta.

Drought: The operations of the MetroCenter are not significantly impacted by drought conditions.

Hazards Conclusion: The most significant hazard to the MetroCenter is earthquake shaking.

Risk Assessment: The MetroCenter building, when evaluated in 2004, was determined to be a partial collapse hazard building. (GOVT-a-1). In 2006 the MetroCenter was retrofitted to address its seismic vulnerability (GOVT-a-2)

The hazard mapping activities of ABAG are all part of the 53 maps shown on the ABAG website at <http://quake.abag.ca.gov/mitigation/> and described in Appendix C.

Repetitive Loss Properties

The MetroCenter building, ABAG's only property is not a repetitive loss property.

Past Occurrences of Disasters (natural and human-induced)

While a number of disasters have affected the City of Oakland and Alameda County, where the MetroCenter is located, only a few of those have affected this building directly. The MetroCenter sustained some minor damages from the Loma Prieta earthquake (broken glass, fallen ceiling tiles and fluorescent light fixtures, unsecured furniture), but many other buildings in downtown Oakland were more severely damaged. This event was the impetus for retrofitting the building.

The Mesherle shooting in January 2009 occurred during a holiday when the MetroCenter offices were closed; however, when the subsequent trial verdict was released on July 8, 2010, the MetroCenter was evacuated due to expected civil disturbance. Information on disasters declared in the Bay Area is in Appendix D.

More information on State and Federally declared disasters in Alameda County can be found at <http://quake.abag.ca.gov/mitigation/ThePlan-D-Version-December09.pdf>

National Flood Insurance Program

As joint powers agency, ABAG is not eligible to participate in the National Flood Insurance Program (NFIP). However, we are committed to working with the cities and counties of the Bay Area to continue to meet and exceed the requirements of compliance in the NFIP. These requirements include:

- ◆ Adoption and enforcement of floodplain management requirements, including regulating all and substantially improved construction in Special Flood Hazard Areas (SFHAs);
- ◆ Floodplain identification and mapping, including any local requests for map updates; and,
- ◆ Description of community assistance and monitoring activities.

ABAG maintains on its website, the most currently available DFIRM maps from FEMA in an interactive format that is useful to local governments. As noted in mitigation strategy LAND c-6, ABAG continues to seek location specific repetitive loss data to improve flood hazard mitigation planning for these properties.



Mitigation Goals

The goal of the ABAG MJ-LHMP is to maintain and enhance a disaster-resistant region by reducing the potential for loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters. This goal is unchanged from the 2005 plan and continues to be the goal of ABAG's mitigation program.

In addition, ABAG has the goal of improving the communication of our risk to natural disasters to the public and local governments. This will be done primarily through updating ABAG's Earthquake and Hazards Program website. ABAG also seeks to minimize transportation disruptions and reduce housing losses in earthquakes.

Over time, ABAG is committed to developing better hazard and risk information to use in making decisions about the cost-benefit of mitigation projects for the region.

Mitigation Activities and Priorities

Evaluation of Progress from 2005 Plan

In 2005, ABAG identified one specific mitigation project it wanted to complete: retrofit of its MetroCenter Facility. This strategy was completed and several other major regional mitigation efforts funded by FEMA HMGP grants were also completed.

MetroCenter Retrofit - Completed: ABAG determined that the combination of construction type, age, and shaking exposure to MetroCenter was significant. ABAG joined with the Metropolitan Transportation Commission (MTC) and the Bay Area Rapid Transit District (BART) to apply for a Pre-Disaster Mitigation grant to retrofit this building. MTC applied for, and received, approximately \$3 million dollars in the form of a PDM grant from FEMA for a seismic upgrade to the MetroCenter facility. The entire project cost approximately \$5 million and was completed in 2008. (GOVT a-2; INFR a-4)

Soft-Story Housing: ABAG received an HMGP grant to create a soft-story survey for the City of Oakland. A soft-story residential building is one that has open parking or commercial space on the first floor and housing on higher floors built prior to recent codes. In an earthquake, ground shaking causes such structures to sway and sometimes collapse. A soft-story collapse can have particularly disastrous consequences considering that they crush cars and kill people occupying the open areas.

Volunteer earthquake professionals assisted ABAG in collecting data on multifamily residential buildings in Oakland. The scope of the effort involved looking at parcels identified by the Alameda County Assessor's Office as having buildings on them (1) with 5 or more units, (2) between 2 and 7 stories in height, and (3) built prior to 1990. In the process of visiting these parcels, we found 53 additional buildings that fit these criteria that were not listed as buildings to visit, largely because they were listed as having "zero" stories. Thus, a total of 3,959 total parcels were visited and data were collected on 2,908 buildings to develop this list of final list of 1,479 potential soft-story buildings. That effort identified 1,479 potential soft-story buildings within the City and passed an ordinance requiring owners to hire an inspector. The results of that study can be found at <http://quake.abag.ca.gov/housing/softstory/>.



The City is now actively seeking funds to retrofit those dangerous buildings that will account for over two-thirds of their uninhabitable housing after a major earthquake. Many of those buildings are also low income housing. The City has found that while American Recovery and Reinvestment Act funds were focused on weatherization of housing, funds are generally not available for seismic retrofits, which costs approximately \$12,000 per unit. Financing mechanisms such as PACE bonds which were once seen as promising are no longer an option due to new restrictions imposed by Freddie Mac and Fanny Mae. ABAG is committed to working to secure a reliable source of funding for retrofitting these buildings across the region over the next five years.

ABAG also assisted the City of Sebastopol in conducting an inventory of its soft-story multi-family buildings. With eight volunteers, ABAG was able to survey 153 residential buildings with two or more units, two or more stories, built before 1990. Of those buildings, 30 were identified as suspicious soft stories and an additional 25 were identified as buildings of concern due to parking or commercial uses on the first floor. The City is working to notify the owners of these properties and encourage their retrofit.

Water System Mitigation: With an HMGP grant from FEMA, ABAG evaluated the vulnerability of the region's water system. The objective of the water system was to identify effective strategies for increasing the safety and reliability of the Bay Area's water supply system in disasters. Key components of that study included:

- Describing the Water Supply System – Compiling information on the water supply system, including system components and sources of water;
- Estimating Hazard Exposure – Overlay critical system components with various hazard maps to identify systems at risk;
- Identifying Water System Interdependencies – Creating flow charts and diagrams to describe the ways in which it interacts with other critical infrastructure to better estimate the ways that water supply can be disrupted due to a disaster;
- Assessment of Key Vulnerabilities – Convert disruption information to damage and associated loss estimates based on these probabilities.
- Assessing Mitigation Strategies – Develop a range of mitigation strategy priorities and associated benefit-cost information on the effectiveness of those strategies in various hazard scenarios. These strategies were included in the Local Hazard Mitigation Plan.
- Identifying Implementation Mechanisms – Work with water districts, city water departments, public water utilities, and others to better reflect water supply disruption risks, mitigation strategies, and implementation priorities.
- Planning Process and Public Outreach – Ensure public participation and involvement in the priority setting process.

The findings of that study formed the basis for the update of the water/wastewater section of the Infrastructure chapter of the regional Local Hazard Mitigation Plan.

Website Upgrade: With funding from the U.S. Geological Survey, ABAG completed an update and redesign of its earthquake and hazards website <http://quake.abag.ca.gov> with the goal of



improving the communication of hazards and risk to the public. The update focused on better navigation and usability and on technical improvements such as improving the interactive mapping interface and updating its Liquefaction Hazard maps to incorporated updated shaking maps and better base map data. Several of the hazards pages include better description of the hazard and the risks it presents for the region.

Future Mitigation Actions and Priorities

As a participant in the ABAG multi-jurisdictional planning process, ABAG staff took a lead role in the review and update of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan. On the other hand, ABAG *itself* is able to implement only some of those strategies. When reviewing the priorities assigned to individual strategies on the pages that follow, it is important to understand that these are the priorities for ABAG itself, not the overall priorities for the Local Hazard Mitigation Plan for the region.

The draft priorities were submitted to ABAG's Regional Planning Committee for review and Executive Board for approval in meetings described in the *Public Meetings* Section.

The following is a description of future mitigation priorities identified by ABAG as well as the proposed implementation method, priority, and existing and potential resources. These strategies relate to mitigation strategies which were identified as *High* or *Very High* in the mitigation strategy spreadsheet. In all cases the responsible department is ABAG's Planning Department, specifically the Earthquake and Hazards Program.

As noted in the Planning Process section, the decision on priority was made based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound, and not harmful to the environment or our heritage. This process for assigning priorities also involved consideration of both the hazard and risk information developed by ABAG and discussed in the overall multi-jurisdictional Local Hazard Mitigation Plan, as well as the assessments of the MetroCenter building, the only facility owned by MTC. These meetings also discussed the Overall Work Plan as well how these plans could be best integrated.

Climate Change Mitigation: ABAG is working with MTC, the Bay Area Air Quality Management District, and the Bay Conservation and Development Commission (BCDC) to reduce greenhouse gas emissions through developing land use policies that reduce dependence on cars for transportation. This is being lead by the FOCUS group of the Planning Department FOCUS is a regional development and conservation strategy that promotes a more compact land use pattern for the Bay Area. It unites the efforts of four regional agencies into a single program that links land use and transportation by encouraging the development of complete, livable communities in areas served by transit, and promotes conservation of the region's most significant resource lands. Through FOCUS, ABAG supports local governments' commitment to these goals by working to direct existing and future incentives to Priority Development Areas and Priority Conservation Areas. Priority Development Areas are locally identified infill development opportunity areas near transit. Priority Conservation Areas are regionally significant open spaces for which there exists a broad consensus for long-term protection. These areas have been identified based on criteria that are consistent with the Bay Area's regional goals.



In the coming years, The Earthquake and Hazards program is seeking to better integrate the mitigation strategies with this focus program through the Sustainable Communities Strategy (SCS) <http://www.onebayarea.org/index.htm>, which is being developed by ABAG in accordance with the requirements of SB 375. The SCS is a regional vision for the Bay Area that seeks to tackle pressing issues such as accommodating population growth while keeping the region affordable for all our residents, preserving open spaces, protecting our environment, and getting residents where they need to go, when they need to get there. As part of that vision, three long-term risks to the Bay Area have been identified that should be accommodated into the SCS: reliable water supply (Delta issues), sea level rise and earthquakes. It is our goal to make land use decisions on a regional scale with a better understanding of the hazards of those areas and seek ways to mitigate the hazards on a regional level. The initial vision scenario for the SCS will be completed in March 2011 and there will be several opportunities for public involvement. In 2013 a planning scenario will be developed based on the vision scenario.

Sea Level Rise: ABAG is working with BCDC as it updates its Bay Plan to accommodate new findings on climate change and sea level rise and develop policies to address them. http://www.bcdc.ca.gov/proposed_bay_plan/bp_amend_1-08.shtml

Housing: ABAG is the principal local government agency focusing on studying disaster impacts on housing. During the last five years, ABAG has helped to coordinate efforts related to encouraging cripple-wall retrofits of single family homes, as well as the mitigation of soft-story multifamily residential buildings. In the past NSF was interested in funding studies to look at damage patterns from earthquakes and develop loss estimates for future earthquakes which inform planning and decision making. These grants have been used by ABAG to develop models of housing and infrastructure losses in future earthquakes that are widely used throughout the Bay Area. NSF is no longer funding this kind of important work.

FEMA is one of the remaining agencies with money available for planning grants related to hazard and risk mitigation. While we understand the role of the state in obtaining those HMGP funds, planning at the regional level is also critically important. Without data on regional risks cities are unable to make good planning and policy decisions. The biggest constraint for implementing these housing projects is funding available for planning grants.

We believe that identification and retrofit of soft story housing is the highest priority for housing mitigation at this time. Soft-story housing accounts for two-thirds of potential housing losses in an earthquake, are the slowest to rebuild, and often house low-income and vulnerable populations. These housing losses will be responsible for a large part of the long-term shelter population and may lead to permanent displacement of residents outside the region. Many cities are actively working to solve this important problem individually, but a regional scale effort is needed with resources to fund the retrofit of these buildings. While many cities have undertaken soft-story surveys in the East Bay and San Francisco, identification of these buildings in the South Bay, Peninsula and North Bay is also a high priority.

ABAG also hopes to improve the quality of single-family seismic retrofits through contractor training programs and retrofit incentives tied to retrofit standards. ABAG is seeking funding for this effort through the California Earthquake Authority residential retrofit program.

Infrastructure: ABAG is in a unique position to examine the interrelationships among water, wastewater, and transportation systems related to hazards and risks. While some progress has



been made on this issue during the past five years, a better understanding of this issue is critical for disaster mitigation and recovery and will be one component of a recovery analysis project through Caltrans Division of Aeronautics.

Water Resources: ABAG, as funding allows, is working on creating more consistent and useful watershed management analysis tools (INFR d-2). In addition, ABAG, as funding allows, is working on better understanding of Delta risks and opportunities (INFR a-22). Funding for understanding risks of the Delta to the Bay Area is being sought through the USGS Hazard Reduction Program.

Recovery Planning: While ABAG has established a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities of various departments within its OWN organization, that process needs more work. ABAG is working to develop a more robust continuity of operations plan that outlines the major issues and tasks that are likely to be the key elements of recovery, particularly related to computer operations (GOVT b-2, b-3, b-4, and b-5).

ABAG is also pushing for a more comprehensive long-term recovery plan for the entire region, encompassing the local governments, businesses, and non-profit sectors. ABAG has applied for funding for this effort through the Bay Area Urban Areas Security Initiative and through Caltrans Division of Aeronautics for an evaluation of the regional airport system. ABAG is also developing a joint proposal with the San Francisco Urban Research Center to identify regulatory barriers to disaster recovery. As part of that effort, recovery performance milestones and metrics will be established for the resumption of key sectors and services such as critical infrastructure, roadways, power, water, sewer, hospitals, schools, and housing. This process will identify priorities for mitigation in the region when desired timeframes for resumption fall short of realistic estimates.

On-Going Mitigation Strategies

ABAG has many on-going mitigation programs which help to create a more disaster-resistant region. The following list highlights both those programs that identified as *Existing Programs* in the mitigation strategy spreadsheet and those that were identified as *Existing Programs, underfunded*. It is ABAG's priority to find additional funding for these on-going programs over time.

MetroCenter Facility: RAFC is contracting with URS Engineers to prepare a Building Occupancy Resumption Program (BORP) plan for MetroCenter facility. BORP permits owners of buildings to hire qualified structural engineers to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of critical infrastructure buildings. (INFR f-1)

ABAG is working on completing a comprehensive program to identify and mitigate problems with facility contents, architectural components, and equipment that would prevent its offices from being functional after major natural disasters (GOVT a-4). Funding for this program has been secured and is underway.



Lead Agency – Local Hazard Mitigation Plan: ABAG has taken the lead the lead in developing both the 2005 multi-jurisdictional Local Hazard Mitigation Plan, as well as the comprehensive update of that Plan in 2009-2010 (GOVT-e-1). As part of that effort, ABAG continues to look for opportunities to improve the risk assessment effort, particularly related to housing, infrastructure, and the Delta.

Disaster Recovery Planning Initiative: During the past two years, ABAG has been working with its Regional Planning Committee and others to assess the needs related to a regional long-term disaster recovery plan (GOVT-b-1).

Financial Services: ABAG Financial Services Program facilitates seismic retrofit financing (even though it does not provide financial incentives for retrofitting). (GOVT-a-2)

Public Information Activities: ABAG provides materials to the public related to family and business disaster preparedness and mitigation planning, largely through its website at <http://quake.abag.ca.gov>. (HSNG-k-2, HSNG-k-3, ECON-j-1, ECON-j-2)

Most recently, ABAG has worked with the water and wastewater agencies (through its Sewer Smart Program) to develop a program related to toilet disruption. (HSNG-k-13, ECON-j-8)

Efforts Related to Climate Change: Approximately half of the greenhouse gas emissions in the Bay Area are related to transportation. Thus, the largest impact that ABAG can have on weather-related hazards, such as wildfire and flooding, is indirectly through reducing greenhouse gas emissions. Smart Growth Preamble and Policies adopted by ABAG, MTC, BAAQMD and BCDC call for retrofit of infrastructure that serves urban areas over constructing new infrastructure to serve outlying areas in an effort to reduce those emissions. (LAND f-1) ABAG is also working to encourage compact urban areas which are served by transit to reduce dependence on the automobile. Finally, ABAG is the lead agency in promoting the development of the Bay Trail, a commute and recreational trail that will loop the Bay.

Incorporation into Existing Planning Mechanisms

ABAG will continue to work with the cities, counties, and special districts in the Bay Area to encourage them to adopt the Local Hazard Mitigation Plan and to assist them in integrating it into their overall planning process. This effort is specified in the Mitigation Strategy section under GOVT-e-1.

The final strategies and Annex will be adopted in the same resolution adopting the overall LHMP on following Approval Pending Adoption by FEMA.

Ongoing integration of the policies and programs identified in this Local Hazard Plan will occur at ABAG, particularly within the context of the Planning Department (including the Smart Growth, Water Resources, and Earthquake and Hazards programs), the Financial Services Program that facilitates seismic retrofit financing, and the activities of ABAG PLAN Corporation insurance pool.

There is no Regional General Plan in the Bay Area to which this Local Hazard Mitigation Plan can become a part. But the Sustainable Communities Strategy is similar to the General Plan for the region which sets a vision for the future and lays out a plan for achieving the regional vision. As part of that planning effort, major long-term risks to the region such as sea level rise,



earthquakes and failure of the Delta will be considered and incorporated into the plan. The hazards and risk information developed for this plan will be used in the development of the SCS. The Earthquake and Hazards Program will also be responsible for incorporating the regional strategies for mitigation that were identified as a high priority for the region into the vision scenario and final plan. These strategies will specifically be related to regional land use decisions and infrastructure improvements needed to support growth in the region.

ABAG will continue to work with the cities, counties, and special districts in the Bay Area to encourage them to adopt the Local Hazard Mitigation Plan and to assist them in integrating it into their overall planning process. This effort is specified in the Mitigation Strategy section under GOVT-e-1 and GOVT-e-2.

The Plan Update Process

ABAG, as the lead agency in the planning process, has a plan update process already covered in the overall LHMP. As stated in that document, ABAG will continue to update this plan over time. The plan will be updated at least every five years, as required by DMA 2000. The Earthquake and Hazards Program will monitor the plan on an on-going basis and evaluate the need for plan updates on a yearly basis. However, major disasters affecting our region, legal changes, and other triggers will also be used. For example, ABAG and MTC are currently investigating the possibility of moving to a different building in San Francisco. If this occurs, this LHMP Annex will need to be reviewed and the priorities re-evaluated.

ABAG will make use of various existing technical advisory committees and will form new committees, when warranted, to evaluate changes in knowledge and circumstances to determine if this plan should be updated, and, if so, in what ways. ABAG's Planning Department will take the lead in updating hazard mapping and risk information, while participating local governments will take the lead in developing and updating mitigation goals and strategies.

For example, ABAG will continue to update its geographic information system based on new information from state and federal agencies, as well as from research projects conducted by ABAG and others. The lead in this effort at ABAG will be the Planning Department, specifically the Earthquake and Hazards Program.

When an update occurs, participating local governments will be notified of the planned update and encouraged to participate. If changes are significant (that is, involve more than minor changes to, for example, the hazard mapping), all participating local governments will be involved in any needed updates in mitigation strategies and all will be asked to submit another resolution approving the plan.

In addition, public participation will be encouraged at specific issue-oriented workshops and forums as time and funding allow. As at the numerous workshops and forums held during the development of this initial plan, a wide variety of participation will be encouraged, including:

- ◆ local and state government staff and elected officials,
- ◆ private engineers, construction contractors, financial experts, and business owners,
- ◆ professional organizations,
- ◆ university professors, and
- ◆ non-profits.



ASSOCIATION OF BAY AREA GOVERNMENTS

Mitigation Plan Point of Contact

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ASSOCIATION OF BAY AREA GOVERNMENTS

Exhibit A - ABAG Regional Mitigation Strategy Spreadsheet

[available on CD or at <http://www.abag.ca.gov/bayarea/eqmaps/mitigation/strategy.html>]

Sample Adoption Resolution

CITY [COUNTY, DISTRICT] OF XXX RESOLUTION 0x-0x
Adoption of the Plan “Taming Natural Disasters” as the
[City/County/District] of xxx’s Local Hazard Mitigation Plan

Passed and Adopted [month date], 200x

WHEREAS, the Bay Area is subject to various earthquake-related hazards such as ground shaking, liquefaction, landsliding, fault surface rupture, and tsunamis; and

WHEREAS, the Bay Area is subject to various weather-related hazards including wildfires, floods, and landslides; and

WHEREAS, the *City/County/District* recognizes that disasters do not recognize city, county, or special district boundaries; and

WHEREAS, the *City/County/District* seeks to maintain and enhance both a disaster-resistant *City/County/District* and region by reducing the potential loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters; and

WHEREAS, the *City/County/District* is committed to increasing the disaster resistance of the infrastructure, health, housing, economy, government services, education, environment, and land use systems in the *City/County/District*, as well as in the Bay Area as a whole; and

WHEREAS, the federal Disaster Mitigation Act of 2000 (Act) requires all cities, counties, and special districts to adopt a Local Hazard Mitigation Plan to receive disaster mitigation funding from FEMA; and

WHEREAS, ABAG has approved and adopted the ABAG report *Taming Natural Disasters*, created in collaboration with the participating jurisdictions, as the multi-jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area;

NOW, THEREFORE, BE IT RESOLVED that the *City/County/District* adopts, and adapts with its local annex, this multi-jurisdictional plan as its Local Hazard Mitigation Plan.

NOW, THEREFORE, BE IT FURTHER RESOLVED that the *City/County/District* commits to continuing to take those actions and initiating further actions, as appropriate, as identified in the *City/County/District* Annex of that multi-jurisdictional Local Hazard Mitigation Plan [*required for Cities and Counties- by adopting this list of mitigation strategies as the Implementation Appendix of the Safety Element of Its General Plan*].

PASSED AND ADOPTED THIS xxth day of xx, 200x.

Sample Adoption Resolution

CITY [COUNTY, DISTRICT] OF XXX RESOLUTION 0x-0x
Adoption of the Plan “Taming Natural Disasters” as the
[City/County/District] of xxx’s Local Hazard Mitigation Plan

Passed and Adopted [month date], 200x

WHEREAS, the Bay Area is subject to various earthquake-related hazards such as ground shaking, liquefaction, landsliding, fault surface rupture, and tsunamis; and

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PASSED AND ADOPTED THIS xxth day of xx, 200x.

