

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

City of Brentwood
150 City Park Way
Brentwood, CA 94513



Table of Contents

| | |
|---|----|
| Introduction | 2 |
| The Regional Planning Process | 2 |
| The Local Planning Process | 2 |
| Public Meetings | 3 |
| Review and Incorporation of Existing Information | 3 |
| Process of Updating Plan Sections | 3 |
| Hazards Assessment | 4 |
| Past Occurrences Of Disasters (natural and human-induced) | 5 |
| Risk Assessment | 5 |
| Urban Land Exposure | 5 |
| Infrastructure Exposure | 6 |
| Exposure of County (City, District)-Owned Buildings, Plus Critical Healthcare Facilities and Schools | 7 |
| Repetitive Loss Properties | 9 |
| Other risks | 9 |
| National Flood Insurance Program | 9 |
| Mitigation Goals and Objectives | 9 |
| Mitigation Activities and Priorities | 10 |
| Future Mitigation Actions and Priorities | 10 |
| On-Going Mitigation Strategy Programs | 10 |
| Incorporation into Existing Planning Mechanisms | 11 |
| Plan Update Process | 11 |
| Mitigation Plan Point of Contact | 12 |
| Exhibit A – Jurisdiction Boundary Map | 13 |
| Exhibit B - Public Meeting Announcements | 14 |
| Exhibit C –Mitigation Strategies | 16 |



Introduction

The City of Brentwood incorporated in 1948, in Contra Costa County, California. Situated in the San Francisco Bay Area, the City is approximately 14.8 square miles (a map of the City's jurisdictional boundary is provided in Exhibit A). The City has a 2011 estimated population of 52,029 based on the California Department of Finance estimates. The City currently owns and maintains a City Hall, Library, Community Center, Technology Center, Senior Center, Police Department, Aquatic Center, Water Treatment Plant, Wastewater Treatment Plant, Women's Club, Solid Waste Facilities and Public Work Corporation Yard. The City's operating budget for 2011/2012 was adopted at \$177,060,785. The City employs 269 people on a full-time basis. The City provides local police services, zoning and building regulation, storm drain services, roadway services, sanitary sewer services, water services, and recreation and park services. School services fire services (through East Contra Costa Fire District) are provided by special districts.

The Regional Planning Process

The *City of Brentwood* participated in various ABAG workshops, conferences, and meetings, including:

- One County/City Workshops
- Two Water Workshops

For more information on these meetings and for rosters of attendees, please see Appendix A and H in the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan 2010 (MJ-LHMP). In addition, the City of Brentwood has provided written and oral comments on the multi-jurisdictional plan and provided information on facilities that are defined as "critical" to ABAG.

The Local Planning Process

Representatives from multiple City departments meet on a regular basis to identify and prioritize appropriate mitigation strategies. Personnel involved in these meetings included senior management and staff from the police department, planning, fleet/facilities maintenance and public works. The group was made up of planners, building department officials, facility managers, civil engineers, emergency managers, and police officials.

At the first meeting, general priorities and appropriate departments were identified. Subsequent meetings identified mitigation strategies, prioritized said strategies, and reviewed preliminary budgets and potential funding sources for strategies designated as "High" priority for City-owned-and-operated facilities.



No Formal meeting agendas, minutes, or sign-in sheet were prepared during this part of the process. City staff met in a collaborative approach to identify and review the various elements of the process.

Public Meetings

Opportunity for public comments on the DRAFT mitigation strategies was provided at a public meeting of the Disaster Council on November 22, 2011 at 10:30 am in the Park View Conference Room located at City Hall, 150 City Park Way, Brentwood, CA 94513 and advertised on the City of Brentwood’s website (Police Department page). The draft mitigation strategies were also published on the City of Brentwood’s website (Police Department page) for public viewing. No public comments were received from either the meeting or the internet posting. Copies of the internet posting are included as **Exhibit A** to the City of Brentwood’s 2010 Annex

The Mayor and City Council will consider adopting the plan in a public meeting via an official Resolution upon approval by FEMA. The mitigation strategies will become an implementation appendix of the Safety Element of the City of Brentwood’s General Plan.

Review and Incorporation of Existing Information

The following documents were reviewed and incorporated into this annex in addition to those documents referenced in Appendix A of the regional plan.

| Existing plans, studies, reports, and technical information | Method of incorporation into the jurisdiction annex |
|--|--|
| City of Brentwood General Plan, Health and Safety Element | Hazards Assessment and priority mitigation actions |
| Capital Improvements Plan | Priority mitigation actions and programs |
| City of Brentwood Emergency Response Plan | Priority mitigation actions and programs |

Process of Updating Plan Sections

The City of Brentwood did not participate in the 2005 Annex. The Planning Process section was filled out to reflect the process undertaken for establishing an Annex for the first time.

The Council’s highest priority is community involvement in City actions. It is, therefore, the responsibility of City staff to ensure this priority is met through a variety of methods, such as a hard copy and email subscription service for Council agendas and posting of agendas and staff reports at City Offices and on the City website. Written correspondence is forwarded to all Council members, and verbal comments are welcome at all Council meetings.



Hazards Assessment

The ABAG Multi-Jurisdictional Local Hazard Mitigation Plan, to which this is an annex, lists nine hazards that impact the Bay Area:

- Five related to earthquakes:
 - Faulting
 - Shaking
 - Earthquake-induced landslides
 - Liquefaction
 - Tsunamis

- Four related to weather:
 - Flooding
 - Landslides
 - Wildfires
 - Drought

Maps of these hazards and risks are shown on the ABAG website at <http://quake.abag.ca.gov/mitigation/>.

The City of Brentwood has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The City of Brentwood also referred to the FEMA FIRM maps. The conclusion is that earthquakes (particularly shaking), flooding (including dam failure), wildfire, and landslides (including unstable earth) pose a significant risk for potential loss.

The City of Brentwood does not face any natural disasters not listed in the ABAG multi-jurisdictional plan and no new hazards have been identified by the City of Brentwood since the original ABAG multijurisdictional plan was development of this plan in 2005.

While the City of Brentwood has undertaken a number of general hazard mapping activities since the first Safety Element was prepared by the City of Brentwood, all of these maps are less detailed and are not as current as those shown on the ABAG website at <http://quake.abag.ca.gov/mitigation/>.



Past Occurrences of Disasters (natural and human-induced)

The City of Brentwood has experienced a number of different disasters over the last 50 years, including numerous earthquakes, floods, droughts, energy shortages, and severe storms. The City experienced extraordinary amounts of rain which caused the sudden and unexpected flooding on December 31, 2005 and January 2, 2006, of several residential neighborhoods and a public park. This was due in large part to debris and vegetation that collected in a portion of Sand Creek. The debris and vegetation in Sand Creek has caused a clear and imminent danger, as well as the potential for serious damage, to private residences and public facilities when additional rain occurs.

More information on State and Federally declared disasters in the City of Brentwood can be found at <http://quake.abag.ca.gov/wp-content/documents/ThePlan-D-2011.pdf>

In addition to the declared disasters noted in Appendix D, locally significant incidents that have also impacted the City of Brentwood in the last several years include:

- Weather, Summer Heat and Winter Cold. During weather extremes Contra Costa county OES monitors situation with cities that are affected.

Risk Assessment

Urban Land Exposure

The City of Brentwood examined the hazard exposure of Brentwood’s urban land based on information in ABAG’s website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. The “2005 Existing Land Use with 2009 Mapping” file was used for this evaluation (in the existing plan, the file used was “Existing Land Use in 2000”).

In general, the hazard exposure of the City of Brentwood is increasing over time as the amount of urban land increases (In the last 5 years, 1437 acres of land has become urban). Brentwood actually reduced the acres of urban land in the 100 year flood zone over the last 5 years due to changes in the new FEMA flood maps. The following table described the exposure of urban land within the unincorporated County to the various hazards.

| Exposure (acres of urban land) | | | |
|--|-----------------------|-----------------------|---------------|
| Hazard | Plan Year 2005 | Plan Year 2010 | Change |
| <i>Total Acres of Urban Land</i> | 4426 | 5863 | 1437 |
| Earthquake Faulting (within CGS zone) | 0 | 0 | 0 |
| Earthquake Shaking (within highest two shaking | 3691 | 4627 | 936 |



| | | | |
|--|----------------|------|------|
| categories) | | | |
| Earthquake-Induced Landslides (within CGS study zone) ¹ | 0 | 0 | 0 |
| Liquefaction (within moderate, high, or very high liquefaction susceptibility) | 3729 | 4745 | 1016 |
| Flooding ² (within 100 year floodplain) | 204 | 114 | -90 |
| Flooding (within 500 year floodplain) | 71 | 220 | 149 |
| Landslides (within areas of existing landslides) | 367 | 634 | 267 |
| Wildfire (subject to high, very high, or extreme wildfire threat) | 427 | 556 | 129 |
| Wildland-Urban Interface Fire Threat | 3796 | 4945 | 1149 |
| Dam Inundation (within inundation zone) | 551 | 618 | 67 |
| Sea Level Rise ³ | not applicable | | |
| Tsunamis ⁴ (within inundation area) | not applicable | | |
| Drought ⁵ | 4426 | 5863 | 1437 |

¹ The California Geological Survey has not yet completed mapping for Contra Costa County.

² The decrease is due to better and more accurate mapping.

³ The sea level rise map is not a hazard map. It is not appropriate to assess infrastructure exposure to sea level rise.

⁴ Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. Acres of exposed land are not an appropriate analysis for this hazard. It should be noted that this map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.

⁵ The entire City of Brentwood is subject to drought.

Infrastructure Exposure

The City of Brentwood also examined the hazard exposure of infrastructure within the jurisdiction based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 216 miles of roadway in the City of Brentwood, the following are exposed to the various hazards analyzed.

| Exposure (miles of infrastructure) | | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| Hazard | Roadway | | Transit | | Rail | |
| | Plan Year 2005 | Plan Year 2010 | Plan Year 2005 | Plan Year 2010 | Plan Year 2005 | Plan Year 2010 |
| <i>Total Miles of Infrastructure</i> | 153 | 216 | 0 | 0 | 2 | 2 |
| Earthquake Shaking (within highest two shaking categories) | 153 | 216 | 0 | 0 | 2 | 2 |
| Liquefaction Susceptibility (within moderate, high, or very high liquefaction susceptibility) | 123 | 184 | 0 | 0 | 2 | 2 |
| Liquefaction Hazard (within CGS) | - | - | - | - | - | - |



| | | | | | | |
|--|----------------|-----|---|---|---|---|
| study zone) ¹ | | | | | | |
| Earthquake-Induced Landslides (within CGS study zone) ² | - | - | - | - | - | - |
| Earthquake Faulting (within CGS zone) ³ | - | - | - | - | - | - |
| Flooding (within 100 year floodplain) | 6 | 3 | 0 | 0 | 0 | 0 |
| Flooding (within 500 year floodplain) | 2 | 7 | 0 | 0 | 0 | 0 |
| Landslides (within areas of existing landslides) | 16 | 18 | 0 | 0 | 0 | 0 |
| Wildfires (subject to high, very high, or extreme wildfire threat) | 17 | 20 | 0 | 0 | 0 | 0 |
| Wildland-Urban Interface Fire Threat | 129 | 184 | 0 | 0 | 2 | 2 |
| Dam Inundation (within inundation zone) | 18 | 23 | 0 | 0 | 0 | 0 |
| Sea Level Rise ⁴ | not applicable | | | | | |
| Tsunamis ⁵ | not applicable | | | | | |
| Drought ⁶ | not applicable | | | | | |

¹ The California Geological Survey has not completed mapping for Contra Costa County.

² The California Geological Survey has not completed mapping for Contra Costa County.

³ The California Geological Survey has not completed mapping for Contra Costa County.

⁴ The sea level rise map is not a hazard map. It is not appropriate to assess infrastructure exposure to sea level rise.

⁵ Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. Miles of exposed infrastructure is not an appropriate analysis for this hazard. It should be noted that this map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.

⁶ Drought is not a hazard for roadways.

Exposure of City-Owned Buildings, Plus Critical Healthcare Facilities and Schools

Finally, the City of Brentwood examined the hazard exposure of critical health care facilities and schools located within the City of Brentwood, and City-owned buildings based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickcrit2010.html>. The City of Brentwood provided a list of the critical facilities it owns to ABAG. ABAG provided a detailed assessment of the hazard exposure of each of its facilities. The following number of facilities is exposed to the various hazards analyzed.

| Exposure (number of facility types) ¹ | | | | | | | | |
|--|----------------|----------------|----------------|----------------|-----------------------------------|----------------|--|----------------|
| Hazard | Hospitals | | Schools | | Locally owned critical facilities | | Locally owned bridges and interchanges | |
| | Plan Year 2005 | Plan Year 2010 | Plan Year 2005 | Plan Year 2010 | Plan Year 2005 | Plan Year 2010 | Plan Year 2005 | Plan Year 2010 |
| | | | | | | | | |

¹ The City of Brentwood did not participate in the 2005 Local Hazard Mitigation Plan so there is no data for 2005.



| | | | | | | | | |
|--|---|---|---|----|---|----|---|---|
| <i>Total Number of Facilities</i> | 0 | 0 | 0 | 20 | 0 | 39 | 0 | 4 |
| Earthquake Shaking (within highest two shaking categories) | 0 | 0 | 0 | 20 | 0 | 39 | 0 | 4 |
| Liquefaction Susceptibility (within moderate, high, or very high liquefaction susceptibility) | 0 | 0 | 0 | 18 | 0 | 34 | 0 | 4 |
| Liquefaction Hazard (within CGS study zone) ² | - | - | - | - | - | - | - | - |
| Earthquake-Induced Landslides (within CGS study zone) ³ | - | - | - | - | - | - | - | - |
| Earthquake Faulting (within CGS zone) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Flooding (within 100 year floodplain) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Flooding (within 500 year floodplain) | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 |
| Landslides (within areas of existing landslides) | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 |
| Wildfires (subject to high, very high, or extreme wildfire threat) | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Wildland-Urban Interface Fire Threat | 0 | 1 | 0 | 18 | 0 | 34 | 0 | 4 |
| Dam Inundation | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 4 |
| Sea Level Rise (exposed to 16in sea level rise) ⁴ | - | 0 | - | 0 | - | 0 | - | 0 |
| Sea Level Rise (exposed to 55in sea level rise) ⁵ | - | 0 | - | 0 | - | 0 | - | 0 |
| Tsunamis ⁶ (within inundation area) | - | - | - | - | - | - | - | - |
| Drought ⁷ | - | - | - | - | - | - | - | - |

² The California Geological Survey has not completed mapping for Contra Costa County.

³ The California Geological Survey has not completed mapping for Contra Costa County.

⁴ Sea level rise data was not available in 2005

⁵ Sea level rise data was not available in 2005

⁶ Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. It should be noted that this map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.

⁷ Drought will not affect locally owned facilities directly.



Repetitive Loss Properties

There is no repetitive loss properties in the City of Brentwood based on the information at <http://quake.abag.ca.gov/mitigation/pickflood.html>. In 2004 the City of Brentwood had no repetitive loss property that was outside the flood plain. It is currently unknown if the new repetitive loss property is also outside the flood plain. It is also unknown whether this property is residential, commercial, institutional, etc.

Other risks

The City of Brentwood plans to continue to work with ABAG to improve the risk assessment information being compiled by ABAG, including developing ways to assess how many soft-story buildings are located in the unincorporated areas of the County.

The City of Brentwood plans to work with ABAG to develop specific information about the kind and level of damage to buildings, infrastructure, and critical facilities which might result from any of the hazards previously noted.

National Flood Insurance Program

City of Brentwood has participated in the National Flood Insurance Program since 1998. Before FEMA released the Flood maps in June of 2009 we initiated an outreach program which included letters, flyers and a public meeting announcing the prospective changes and answering any questions the public may have had concerning the new maps. When construction and plans are reviewed all projects are checked for compliance with the City's Floodplain Management Ordinance. No projects are issued Grading or Building Permits unless it is in compliance.

Upon release of the FEMA Flood Maps many of the parcels newly identified as now in the floodplain on the maps of 2009 were actually not and were required to get a Letter of Map Revision (LOMR) at great expense. Some of the problems with NFIP are the inadequate research or lack thereof in preparing the new flood maps. The City continues to enforce the Floodplain Management Ordinance which does not allow construction in the floodplain unless the flood hazards are mitigated. The City of Brentwood does not participate in the Community Rating System.

Mitigation Goals and Objectives

The goal of the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan (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.



Additionally, the City of Brentwood has the specific objective of reducing the number of public and private buildings within the City of Brentwood that are vulnerable to the effects of earthquakes.

Mitigation Activities and Priorities

Future Mitigation Actions and Priorities

As a participant in the 2010 ABAG multi-jurisdictional planning process, the staff of the City of Brentwood helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan. 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.

These draft priorities were submitted to the City of Brentwood Management Team for review. The draft priorities will be provided to the City Council for adoption pending approval of this LHMP by FEMA.

The City planning team also prioritized specific mitigation tasks for the next 5 years. This list includes implementation process, funding strategy, responsible agency, and approximate time frame.

On-Going Mitigation Strategy Programs

The City of Brentwood has many on-going mitigation programs that help create a more disaster-resistant region. The following list highlights those programs identified as *Existing Programs* in the mitigation strategy spreadsheet. Others are on-going programs that are currently underfunded. It is the County's priority to find additional funding to sustain these on-going programs over time.

- Non-structural mitigation for building contents (GOVT-a-4);
- Installation of micro and/or surveillance cameras at critical public assets tied to web-based software (GOVT-a-6);
- Development of interoperable communications for first responders from cities, counties, special districts, state, and federal agencies. (GOVT-c-7);
- Participation in general mutual-aid agreements and agreements with adjoining jurisdictions for cooperative response to fires, floods, earthquakes, and other disasters (GOVT-c-13);
- Participation in FEMA's National Flood Insurance Program (GOVT-d-5)
- Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging



employees of these critical health care facilities to have family disaster plans and conduct mitigation activities in their own homes (HEAL-a-7);

- Sponsor the formation and training of Community Emergency Response Teams (CERT) through partnerships with local businesses (GOVT-c-3, ECON-j-5, HWNG-k-6);
- Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards (LAND-c-2);
- Continue to repair and make structural improvements to storm drains, pipelines, and/or channels to enable them to perform to their design capacity in handling water flows as part of regular maintenance activities (INFR—d-6, INFR-d-7)

Incorporation into Existing Planning Mechanisms

The City of Brentwood has several planning mechanisms which include:

- ◆ General plan safety element
- ◆ Capital Improvements Plan
- ◆ Strategic Plan - Safety

The City of Brentwood has a Safety Element in its General Plan that includes a discussion of fire, earthquake, flooding, and landslide hazards. This plan was adopted as an implementation appendix to the Safety Element. In addition, the City enforces the requirements of the California Environmental Quality Act (CEQA), which, since 1988, requires mitigation for identified natural hazards. The City has used these pre-existing programs as a basis for identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

Plan Update Process

As required Disaster Mitigation Act of 2000, the City of Brentwood will update this plan annex at least once every five years, by participating in a multi-agency effort with ABAG and other agencies to develop a multi-jurisdictional plan.

The City of Brentwood Police Department will ensure that the monitoring of this Annex will occur on an on-going basis, with the major disasters affecting our City, legal changes, notices from ABAG as the lead agency in this process, and other events triggering an Annex review. Finally, the Annex will be a discussion item on the agenda of the meeting of Department Directors at least once a year in April. At that meeting, the Department Directors will focus on evaluating the Annex in light of technological and political changes during the past year or other significant events. The Department Directors will be responsible for determining if the plan should be updated.

In addition to the above, the City is committed to reviewing and updating this Plan Annex at least once every five years, as required by the Disaster Mitigation Act of 2000. The City of Brentwood Police Department will contact ABAG four years after this plan is approved to ensure that ABAG plans to undertake the plan update process. If so, the County again plans to



participate in the multi-jurisdictional plan. If ABAG is unwilling or unable to act as the lead agency in the multi-jurisdictional effort, other agencies will be contacted, including the County's Office of Emergency Services. Counties should then work together to identify another regional forum for developing a multi-jurisdictional plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the County will provide the opportunity for the public to comment on the updates. A public notice will be posted prior to the meeting to announce the comment period and meeting logistics.

Mitigation Plan Point of Contact

Name: Timothy M Herbert
Title: Police Sergeant
Mailing Address: 9100 Brentwood Blvd Brentwood CA, 94513
Telephone: 925-809-7737
Email: therbert@brentwoodca.gov

Alternate Point of Contact

Name: Ben Tolero
Title: Police Lieutenant
Mailing Address: 9100 Brentwood Blvd Brentwood CA, 94513
Telephone: 925-809-7717
Email: btolero@brentwoodca.gov

Exhibit A – Jurisdiction Boundary Map

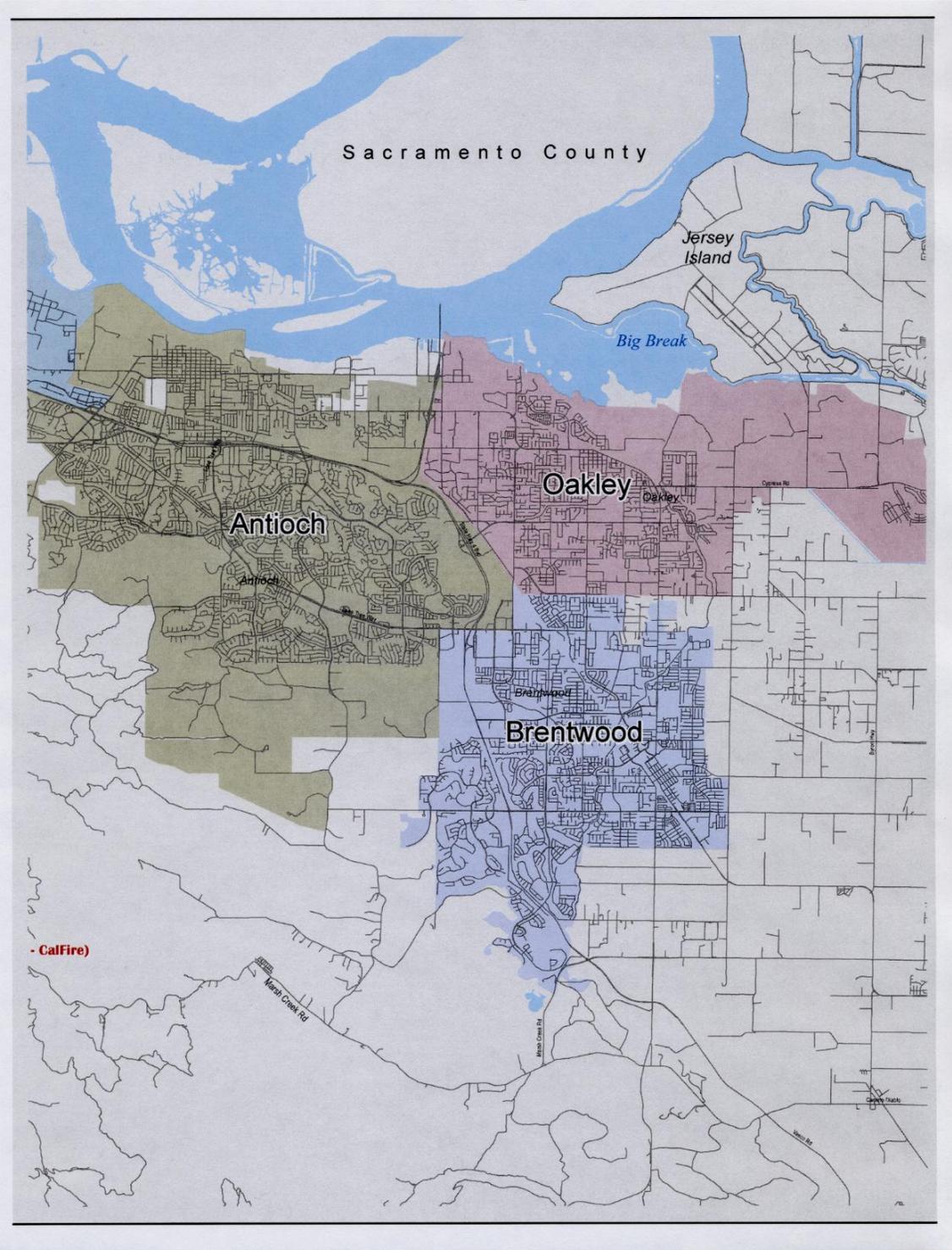


Exhibit B - Public Meeting Announcements

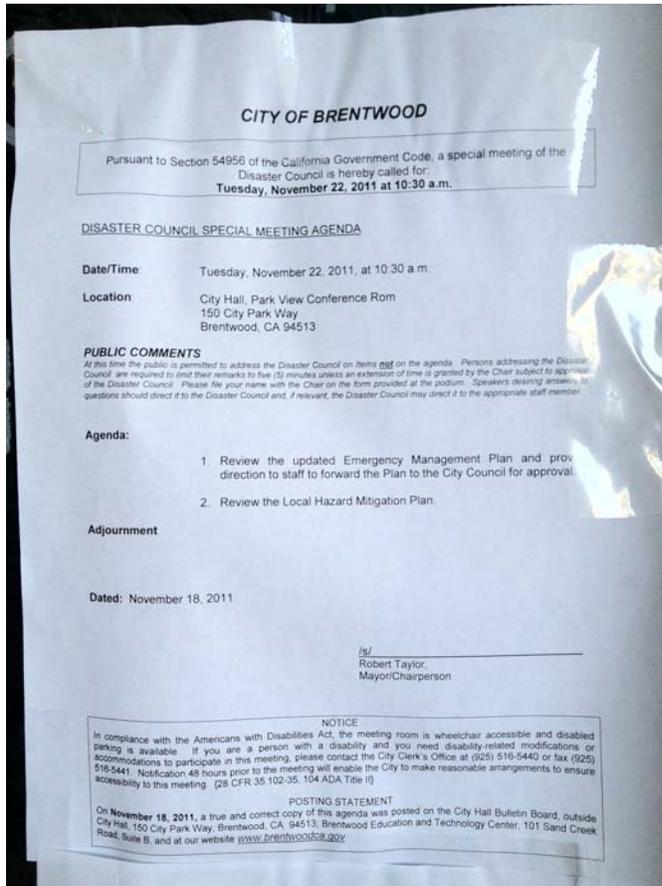




Exhibit B - Public Meeting Announcements



Exhibit C – Mitigation Strategies

Available on LHMP CD or at <http://www.abag.ca.gov/bayarea/eqmaps/mitigation/strategy.html>