

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

City of Rio Vista

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Introduction

The City of Rio Vista is a small city in eastern Solano County, California, located on the Sacramento River. The City had a population of 7,360 people, based on the 2010 census¹. The City's 2011-12 General Fund budget is approximately \$16.5 million. The City currently employs approximately thirty-nine (39) full-time and four (4) part-time or seasonal people. The City provides full local police and fire services. A map of the County's jurisdictional boundary is provided in Exhibit A. Located adjacent to the Sacramento River the City experiences flooding, including a significant flood in January 2007.

The Regional Planning Process

The City of Rio Vista is familiar with the process of preparing this kind of plan. The City's General Plan Safety Element, last updated in 2002, includes a discussion of fire, earthquake, flooding, and landslide hazards. In addition, the City routinely enforces the requirements of the California Environmental Quality Act (CEQA) (which, since 1988, have required mitigation for identified natural hazards). The City's effort has focused on building on these pre-existing programs and identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

Many of the activities conducted by the City were fed into the planning process for the multi-jurisdictional plan. The City participated in various ABAG workshops and meetings, including the "PlanWorkshop" meeting. 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 has provided oral comments on the multi-jurisdictional plan, particularly related to flooding issues. Finally, the City provided ABAG information on facilities that are viewed as "critical."

The Local Planning Process

Key City staff met on two occasions to identify and prioritize mitigation strategies appropriate for the City. Departments or Divisions involved in these meetings included Planning, Community Development, Building & Safety, City Manager, City Engineer, Public Works, Fire, Finance, and Police. At the first meeting, the general priorities and appropriate City departments were identified. The City provided an opportunity for the public to comment on the DRAFT mitigation strategies selected by City staff at the Public Safety Commission meeting of October 31, 2011. The resolution adopting the plan and strategies was on the City Council agenda on November 3, 2011. At this meeting the City provided an opportunity for additional public comment.

In addition to public and staff participation recounted above, the City of Rio Vista has had substantial involvement in emergency management, preparedness and mitigation activities for more than a decade. This involvement is highlighted and described as follows:

- **Jan and Rich Rogala, Dimensions Unlimited, Inc.**, Emergency Management Consulting Firm, - are also residents of Rio Vista. Dimensions Unlimited prepared the City's current Emergency Operations Plan & Flood Mitigation Plan. Many excellent

¹ For complete Census information on this city, see <http://www.bayareacensus.ca.gov/>.

opportunities for public participation, education and training in emergency management were offered during the process of preparing the Operations Plan. It is very unusual for a city the size of Rio Vista to have this level of expertise available to its citizens, staff and elected officials.

- **Community Emergency Response Teams (CERTs)** – The City’s first 30-member CERT was established in 2006. A second CERT is anticipated to complete training in February 2012.

Review of Existing Reports, Studies and Plans

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
Rio Vista General Plan, Safety Element	Hazards Assessment and priority mitigation actions
Capital Improvements Plan (CIP)	Priority mitigation actions and programs
City of Rio Vista a Flood Plan	Priority mitigation actions and programs
City of Rio Vista Comprehensive Emergency Management Plan	Priority mitigation actions and programs

Process for Updating Plan Sections

The process began with a thorough review of the 2005 Local Hazard Mitigation Plan. This was completed during the City staff’s comprehensive review of the 2010 workshops with ABAG. New FEMA and ABAG data on hazards susceptibility was incorporated as well as an updating of the risk assessments with the new data. The plan included a more complete review of historical hazards and the 2010 planning process. The material was further updated to reflect minor changes in the City’s policies and programs since 2005. There were no separate meetings that specifically addressed the updates from the 2005 LHMP other than those in the following sections.

Public Meetings

Opportunity for public comments on the DRAFT mitigation strategies was provided at a public meeting with the Public Safety Commission at 4pm on October 31, 2011, at City Hall, and advertised on the City of Rio Vista website. The draft mitigation strategies were also published on the City of Rio Vista website 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 B** to the City of Rio Vista 2010 Annex.

The City Council will adopt 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 Rio Vista General Plan.

Hazards Assessment

The ABAG multi-jurisdictional Local Hazard Mitigation Plan, to which this is an Annex, lists nine (9) 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

All except two (2) of these hazards (surface faulting and tsunamis) impact the City of Rio Vista. The Rio Vista fault has displayed no movement over the last 200 years, nor has there been any recent evidence of surface faulting or tectonic creep. (Gilbert and Associates, 1975 – and - Jones and Stokes Associates, 1974 – Rio Vista General Plan, Pg.11-7, 2002.)

While the City has undertaken a number of general hazard mapping activities since the first Safety Element was prepared by the City, 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/>.

Information on disasters declared in Solano County is at <http://quake.abag.ca.gov/mitigation/disaster-history.html>.

Past Occurrences Of Disasters (natural and human-induced)

The City of Rio Vista has experienced a number of different disasters over the last 50 years. The most significant recent disaster was a flood in January 2007.

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

Though there is no specific mention of Rio Vista in the declared disasters noted in Appendix D, locally significant incidents that have also impacted Rio Vista in the last several years include a noteworthy flood in January 2007.

Risk Assessment

Urban Land Exposure

The City examined the hazard exposure of City urban land based on the information on ABAG's website at: <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 3,465 urban acres (Total City acreage is 4,103) in the City:

- **Earthquake Faulting** – No active faults run within the city so rupture of a fault is not a direct concern. The Rio Vista Fault has shown no movement in the last 200 years, nor has it exhibited earthquake faulting or tectonic creep.
- **Earthquake Shaking** – No acres are in the highest two categories of shaking potential. Faults closest to the City and Montezuma Hills area are the Rio Vista Fault and the Midland Fault, both of which have been historically inactive (no movement over the last 200 years) and are poorly understood.
- **Earthquake-induced Landslides** – the California Geological Survey has not completed mapping of this hazard in the City of Rio Vista. However, because few areas have been mapped as landslides, this hazard is viewed as similar to that posed by weather-related hazards.
- **Earthquake liquefaction** – 600 acres are in areas of moderate, high, or very high liquefaction susceptibility.
- **Tsunamis** – Tsunamis have been determined to present a minimal hazard for the City of Rio Vista.
- **Flooding** – 281 urban acres (8%) are in the 100-year flood plain, while an additional 15 urban acres are in 500-year flood-prone areas. The adjacency of the entire eastern edge of the City to the Sacramento River, however, poses a unique risk from the combination of stormwater runoff and tidal action.
- **Landslides** – 2,062 urban acres (59.5%) are recorded as susceptible to “Few Landslides.” No urban acres are in areas of “Mostly Landslides” or “Many Landslides.”
- **Wildfires** – No acres are subject to High, Very High, or Extreme wildfire threat, nor are there any urban acres located in wildland-urban interface threat areas.
- **Dam Inundation** – 425 (12%) urban acres are subject to dam inundation in the event that Monticello Dam failed. Monticello is located in Napa and Solano Counties, 30 miles west of Sacramento. The Dam was built between 1953 and 1957, and flows into Putah Creek as its direct, primary spillway.
- **Drought** – all 4,103 acres are subject to drought in Rio Vista, just as all of California is at risk for long-term impacts from drought.

Infrastructure Exposure

The City also examined the hazard exposure of infrastructure based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 40 miles of roadway in the City,

- ◆ **Earthquake Faulting** – No active faults run within the city so rupture of a fault is not a direct concern.
- ◆ **Earthquake Shaking** – Three (3) miles of Pipeline Under Roads; one (1) mile of Highway grade roadway; and, two (2) miles of Minor Street grade roadway are in the modest/median category of shaking potential.
- ◆ **Earthquake-induced Landslides** – the California Geological Survey has not completed mapping of this hazard in the City of Rio Vista. However, this is unlikely to be an issue because no roads are in existing landslide areas.

- ◆ **Earthquake Liquefaction** – Six (6) miles of roadway (One (1) mile of Highway grade, plus five (5) miles categorized as Minor Street grade) are in areas of Very High liquefaction susceptibility. This assessment is matched by a total of six (6) miles of Pipeline Under Roads listed as having Very High liquefaction susceptibility.
- ◆ **Tsunamis** – Tsunamis have been determined to present a minimal hazard for the City of Rio Vista.
- ◆ **Flooding** – Two (2) miles of roadway and two (2) miles of pipeline are in the 100-year flood plain. No other infrastructure is listed as vulnerable to either 500-yr flood, or ‘other’ forms of flood impact.
- ◆ **Landslides** – No roads are in areas of existing landslides.
- ◆ **Wildfires** – No (0) miles of City infrastructure are listed as subject to High, Very High, or Extreme wildfire threat, nor is any City infrastructure included in wildland-urban interface threat areas.
- ◆ **Dam Inundation** – Eight (8) miles of roadway and under road pipeline are considered to be in an area subject to dam inundation.
- ◆ **Drought** – is not assessed as a hazard for roadways and infrastructure.

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

Finally, the City examined the hazard exposure of critical health care facilities, schools, and city-owned buildings based on the information on ABAG’s website at

<http://quake.abag.ca.gov/mitigation/pickcrit.html>.

- ◆ **Earthquake Faulting** – No active faults run within the city so rupture of a fault is not a direct concern. The Rio Vista Fault has shown no movement in the last 200 years, nor has it exhibited earthquake faulting or tectonic creep. ABAG research identifies the following facilities as having some degree of risk exposure: No health services facilities; 3 schools; 3 City facilities; 1 County facility; and, 2 bridges.
- ◆ **Earthquake Shaking** – All 3 schools; 3 City facilities; 1 County facility and 2 bridges are listed in the moderate/middle categories of shaking potential.
- ◆ **Earthquake-induced Landslides** – The California Geological Survey has not completed mapping of this hazard for the City of Rio Vista.
- ◆ **Earthquake Liquefaction** – The three City-owned facilities are recorded as Very High susceptibility for post-earthquake liquefaction. All other facilities regarded as having hazard exposure (3 schools, 1 County building site and 2 bridges) are determined to be Low/Very Low susceptibility.
- ◆ **Tsunamis** – Tsunamis have been determined to present a minimal hazard for the City of Rio Vista.
- ◆ **Flooding** – No critical health care facilities, schools, or government-owned facilities are in either the 100-year flood plain or in other flood-prone areas. All Rio Vista identified facilities (3 schools; 3 City facilities; 1 County facility and 2 bridges) are listed as “Minimal or Undetermined Flood Hazard.” The City plans to work with ABAG to review and expand assessment information and historical data regarding flooding and critical facilities.
- ◆ **Landslides** – no critical health care facilities, schools, or government-owned facilities are in areas, which have a history of landslides.
- ◆ **Wildfires** – Identified facilities (3 schools; 3 City facilities; 1 County facility and 2 bridges) are determined to be subject to Moderate to Low threat of wildfire.

- ◆ **Dam Inundation** – No critical health care facilities; 2 schools; 1 city-owned facility; 1 County owned facility; and 1 bridge are in locations considered to be subject to dam failure inundation.
- ◆ **Drought** – Drought will not affect city buildings directly. However, the City does operate and manage its own water-supply distribution system.

Repetitive Loss Properties

There are **three (3)** repetitive loss properties with a total of **eight claims** reported in the City, per information recorded at: <http://quake.abag.ca.gov/mitigation/pickflood.html>.

Other risks

The City plans to work with ABAG during 2012 to improve the risk assessment information being compiled by ABAG, as well as to review and expand assessment information and historical data regarding flooding and critical facilities. As of the end of 2010, the City had provided ABAG with information on unreinforced masonry buildings. There are currently no soft-story apartments located in the City.

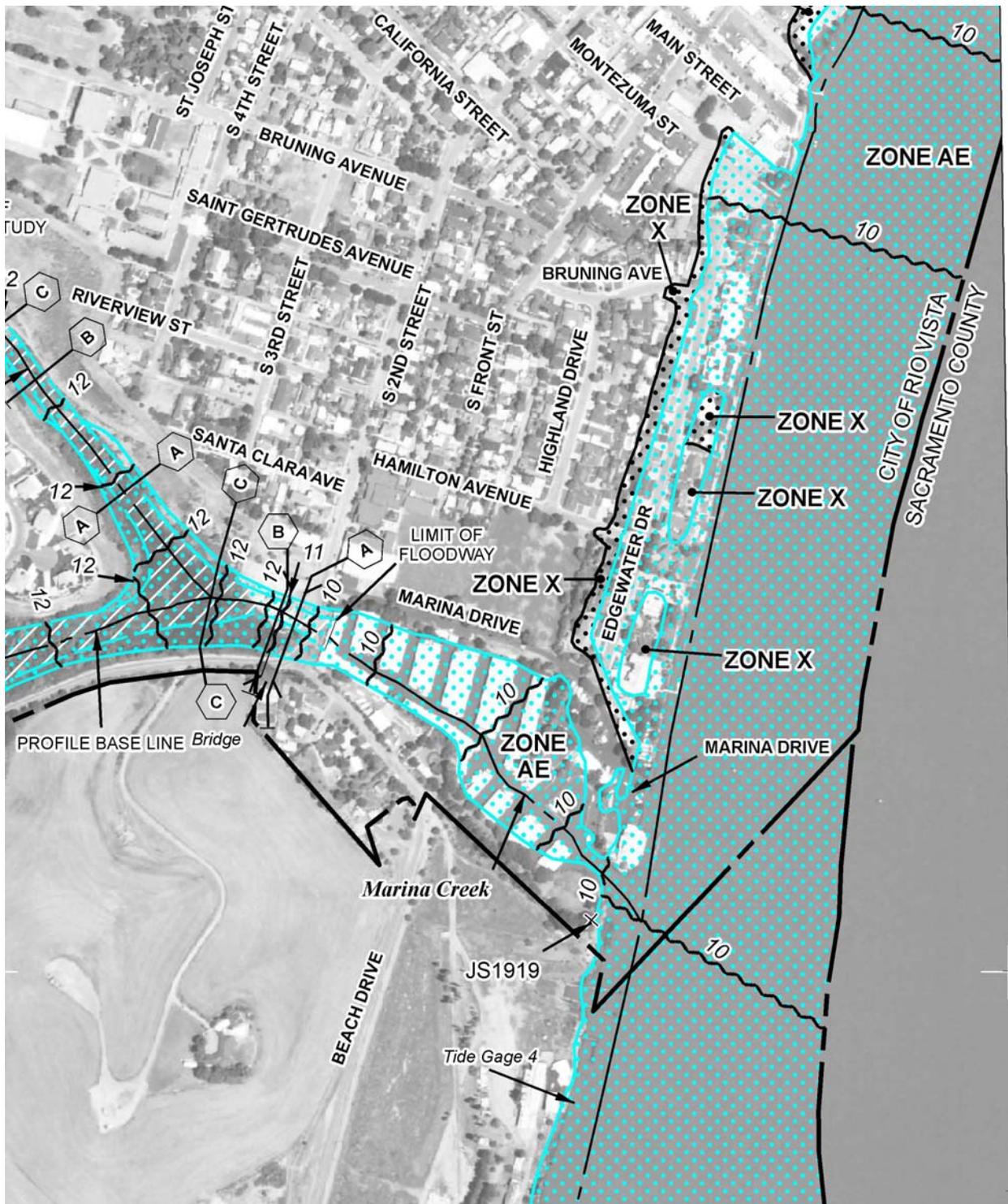
Drought, though a potential problem in the City, is not fully assessed. The City will work with ABAG and various water supply and resource agencies on this issue.

The City 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.

As these impacts are not fully developed, the City has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The City has concluded that earthquakes (particularly shaking), flooding, wildfire, and landslides (including unstable earth) pose a significant risk for potential loss.

National Flood Insurance Program

The City of Rio Vista has participated in the National Flood Insurance Program since 1981. The City's entry into the National Flood Insurance Program (NFIP) is recorded as 5/19/1981 (with emergency entry date of 6/13/1975) and the City's status is noted as "Participating".



Mitigation Goals and Objectives

As a participant in the ABAG multi-jurisdictional planning process, City of Rio Vista staff helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan. 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 the City of Rio Vista in designing its mitigation program.

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

Mitigation Activities and Priorities

Evaluation of Progress from 2005 Plan

In 2005, mitigation actions and priorities were identified. The attached list indicates each of the strategies identified, along with responsible party, action taken, and current status of progress.

1. Enforce and/or comply with the State-mandated requirement that site-specific geologic reports be prepared for development proposals within Alquist-Priolo Earthquake Fault Zones, and restrict the placement of structures for human occupancy. (This Act is intended to deal with the specific hazard of active faults that extend to the earth's surface, creating a surface rupture hazard.)
 - Existing Program – Implemented through project related CEQA implementation
2. Recognizing that the California Geological Survey has not completed earthquake-induced landslide and liquefaction mapping for much of the Bay Area, identify and require geologic reports in areas mapped by others as having significant liquefaction or landslide hazards.
 - Under Study - Continue to monitor CGS Information
3. Support and/or facilitate efforts by the California Geological Survey to complete the earthquake-induced landslide and liquefaction mapping for the Bay Area.
 - Existing Program – Existing Policies and procedures
4. Review development proposals to ensure that they incorporate required and appropriate fire-mitigation measures, including adequate provisions for occupant evacuation and access by emergency response personnel and equipment.
 - Existing Program – Integrated into project review
5. Establish and enforce requirements for new development so that site-specific designs and source-control techniques are used to manage peak stormwater runoff flows and impacts from increased runoff volumes.
 - Existing Program – Integrated into project review
6. Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards.
 - Existing Program – Integrated into project review
7. Provide an institutional mechanism to ensure that development proposals adjacent to floodways and in floodplains are referred to flood control districts and wastewater agencies for review and comment (consistent with the NPDES program).
 - Existing Program – Integrated into project review
8. Establish and enforce regulations concerning new construction (and major improvements to existing structures) within flood zones in order to be in compliance with federal

requirements and, thus, be a participant in the Community Rating System of the National Flood Insurance Program.

- Existing Program – Integrated into project review
9. Establish and enforce provisions (under subdivision ordinances or other means) that geotechnical and soil-hazard investigations be conducted and filed to prevent grading from creating unstable slopes, and that any necessary corrective actions be taken prior to development approval.
 - Existing Program – Implemented through project related CEQA implementation
 10. Require that local government reviews of these investigations are conducted by appropriately trained and credentialed personnel.
 - Existing Program – Integrated into project review
 11. Establish and enforce grading, erosion, and sedimentation ordinances by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation prior to development approval.
 - Existing Program – Integrated into project review
 12. Establish and enforce provisions under the creek protection, storm water management, and discharge control ordinances designed to control erosion and sedimentation.
 - Existing Program - Cooperation with County Department of Resource Management & Project Related
 13. Establish requirements in zoning ordinances to address hillside development constraints, especially in areas of existing landslides.
 - Existing Program – Implemented through project related CEQA implementation
 14. Establish a buffer zone between residential properties and landslide or wildfire hazard areas.
 - Existing Program – Integrated into project review
 15. Discourage, add additional mitigation strategies, or prevent construction on slopes greater than a set percentage, such as 15%, due to landslide or wildfire hazard concerns.
 - Existing Program – Implemented through project related CEQA implementation
 16. Protect as open space areas susceptible to extreme hazards.
 - Existing Program – In existing General Plan policies
 17. Provide new buffers and preserve existing buffers between development and existing users of large amounts of hazardous materials, such as major industry, due to the potential for catastrophic releases due to an earthquake or terrorism. (Flooding might also result in release or spread of these materials, however it is unlikely.)
 - Existing Program – In existing General Plan policies

Future Mitigation Actions and Priorities

As a participant in the 2010 ABAG multi-jurisdictional planning process, the staff of the City of Rio Vista 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. Representatives from multiple departments then met on a regular basis to review progress on the City's 2005 strategies, to identify and prioritize additional mitigation strategies to update the list

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 has many on-going mitigation programs that help create a more disaster-resistant region, as described above. As flood concerns are primary for the City of Rio Vista a Flood Plan has been completed and submitted to FEMA for review in 2011.

Incorporation into Existing Planning Mechanisms

The City has a Safety Element in its General Plan that includes a discussion of 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 Rio Vista 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 Community Development Department will ensure that monitoring of this Annex will occur. The plan will be monitored on an on-going basis. However, the major disasters affecting our City, legal changes, notices from ABAG as the lead agency in this process, and other triggers will be used. Finally, the Annex will be a discussion item on the agenda of the meeting of Department leaders at least once a year in April. At that meeting, the department heads will focus on evaluating the Annex in light of technological and political changes during the past year or other significant events. The Department leaders will be responsible for determining if the plan should be updated.

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 City 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

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Email: jarmer@ci.rio-vista.ca.us

Exhibit A - Jurisdiction Boundary Map

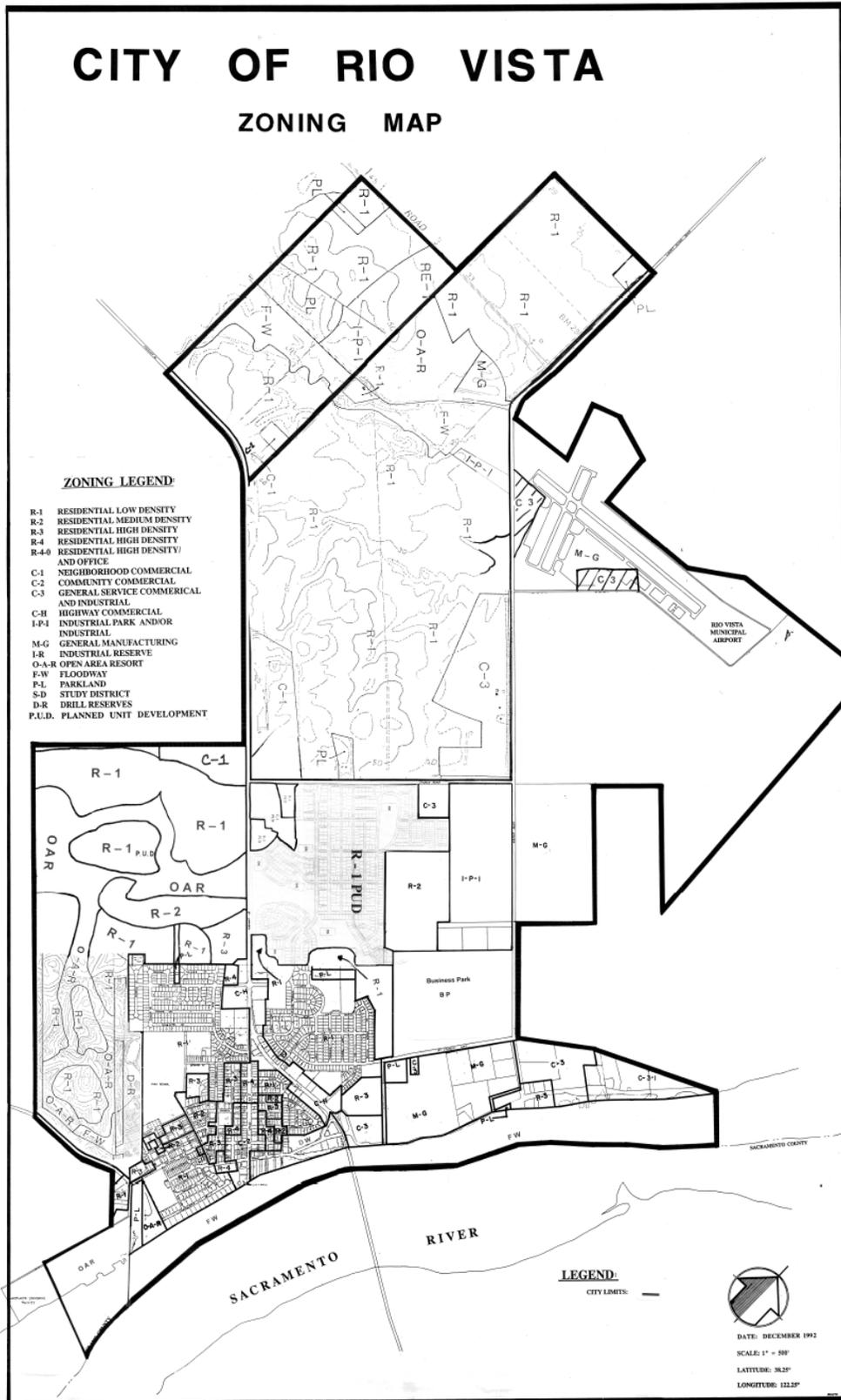


Exhibit B - Public Meeting Announcements

NOTICE OF PUBLIC HEARING

LOCAL HAZARD MITIGATION PLAN

NOTICE IS HERBY GIVEN that the City Council of the City of Rio Vista has scheduled a public hearing on the MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN – RIO VISTA ANNEX on November 17, 2011 at 7:00 p.m. in the City Council Chambers, One Main Street, Rio Vista, CA.

The City of Rio Vista is participating in the Association of Bay Area Government's (ABAG) Multi-Jurisdictional Local Hazard Mitigation Plan process. Based on the Federal Disaster Mitigation Act of 2000 (DMA 2000), this plan outlines a process which cities, counties, and special districts can follow to develop a Local Hazard Mitigation Plan. Development of this plan is a requirement for certain benefits from CalEMA and FEMA. The local hazard mitigation planning process analyzes a community's risk from natural hazards, coordinates available resources, and implements actions to reduce or eliminate risks.

Copies of the Draft Local Hazard Mitigation Plan – Rio Vista Annex, including mitigation strategies, are available for review at the City of Rio Vista Planning Division, One Main Street, Rio Vista, CA 94571, or by calling Jennifer Armer, Associate Planner at (707) 374-2205 x111.

/s/ Carolyn Parkinson, MMC
Interim City Clerk
City of Rio Vista