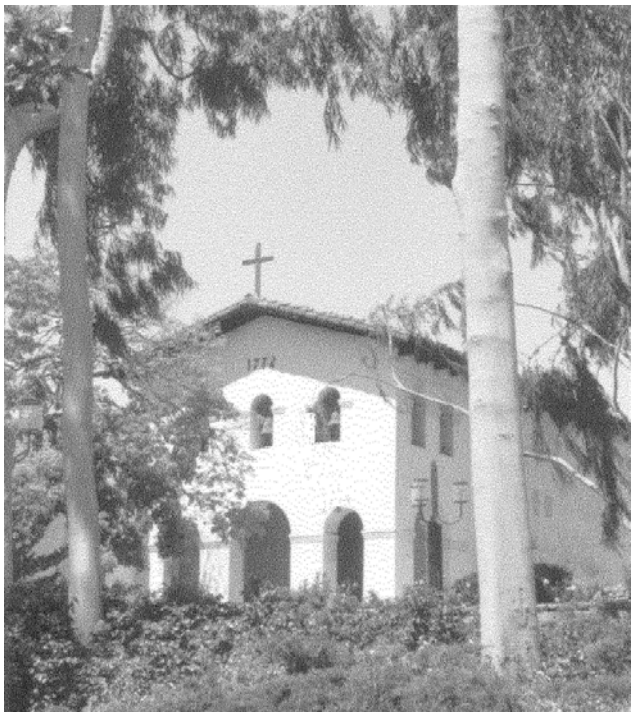
city of
san luis obispo

Local Hazard Mitigation Plan



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Acronyms

DMA Disaster Management Act of 2000

EHS Extremely Hazardous Substance

EPA United States Environmental Protection Agency

EPCRA Emergency Planning and Community Right to Know Act

FEMA	Federal Emergency Management Act
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
HMGP	Hazard Mitigation Grant Program
LHMP	Local Hazardous Mitigation Plan
NFIP	National Flood Insurance Program
PDM	Pre Disaster Mitigation Grant Program
SFHA	Special Flood Hazard Area

1.1 DISASTER MITIGATION ACT OF 2000

DMA 2000 was passed by Congress to emphasize the need for mitigation planning to reduce vulnerability to natural and human-caused hazards. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; 42 United States Code 5121 et seq.) by repealing the act's previous Mitigation Planning section (409) and replacing it with a new Mitigation Planning section (322).

To implement the DMA 2000 planning requirements, the Federal Emergency Management Agency (FEMA) published an Interim Final Rule in the *Federal Register* on February 26, 2002 (FEMA 2002a). This rule (44 Code of Federal Regulations Part 201) established the mitigation planning requirements for states, tribes, and local communities. The planning requirements are identified in their appropriate sections throughout the LHMP.

Applying this knowledge, the City of San Luis Obispo has prepared a Local Hazard Mitigation Plan (LHMP) that will guide San Luis Obispo toward greater disaster resistance in full accord with the character and needs of the community and Federal requirements. The potential hazards identified and assessed in this version of the LHMP include earthquakes, floods, hazardous materials events, landslides, wildland fires, and windstorms. Mitigation actions include a range of specific actions and projects that reduce the effects of each hazard, with particular emphasis on protecting new and existing buildings and infrastructure.

This LHMP has been prepared to meet FEMA's requirements of DMA 2000 and the Interim Final Rule, thus making it eligible for funding and technical assistance from state and Federal hazard mitigation programs. Following each major disaster declaration, the City is required to review and update the mitigation strategy. Additionally, in compliance with FEMA regulations, this LHMP must be reviewed, revised if appropriate, and resubmitted for approval within the next 5 years so that the City continues to be eligible for various hazard mitigation grant-funding sources. This LHMP was adopted by the San Luis Obispo City Council on March 7, 2006, reviewed by the Governor's Office of Emergency Services, and approved by FEMA.

1.2 PLAN DESCRIPTION

This LHMP consists of seven sections, as described below. Additionally, the DMA 2000 planning requirements are identified in their appropriate sections throughout the LHMP.

Planning Process

Section 2 describes the planning process, identifies the Hazard Mitigation Team members and the key stakeholders within the community and surrounding region. In addition, this section documents public outreach activities and the review and incorporation of relevant plans, reports, and other appropriate information.

Risk Assessment

Section 3 describes the process through which the Hazard Mitigation Team identified and compiled relevant data on all potential natural hazards that threaten the City and the immediate

surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the City and how these events impacted residents and their property.

In addition, Section 5 identifies potentially vulnerable assets such as people, housing units, critical facilities, special facilities, infrastructure and lifelines, hazardous materials facilities, and commercial facilities. This data was compiled by assessing the potential impacts from each hazard using a Geographic Information System (GIS) and FEMA's natural hazards loss estimation model, HAZUS-MH. The resulting information identifies the full range of hazards that the City could face and potential social impacts, damages, and economic losses.

Capability Assessment

Although not required by DMA 2000, Section 4 provides an overview of the City's legal and regulatory, administrative and technical, and fiscal resources in the following areas for addressing hazard mitigation activities:

Mitigation Strategy

As Section 5 describes, the Hazard Mitigation Team developed a list of mitigation goals, objectives, and actions based upon the findings of the risk assessment and the capability assessment. Based upon these goals and objectives, the Hazard Mitigation Team reviewed and prioritized a comprehensive range of appropriate mitigation actions to address the risks facing the community. Such measures include preventive actions, property protection techniques, natural resource protection strategies, structural projects, emergency services, and public information and awareness activities.

Plan Maintenance Process

Section 6 describes the Hazard Mitigation Team's formal plan maintenance process to ensure that the LHMP remains an active and applicable document. The process includes monitoring, evaluating, and updating the LHMP; implementation through existing planning mechanisms; and continued public involvement.

References

The section lists the reference materials used to prepare this LHMP.

Appendices

The appendices include the Adoption Resolution (A), maps and figures (B), public involvement process (C), and a crosswalk for compliance with the DMA 2000 (D).

This section provides an overview of the planning process; identifies the Disaster Preparedness Committee and Hazard Mitigation Team members, and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used in the development of this LHMP.

The requirements for the planning process, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Planning Process

Planning Process

§201.6(b): An open public involvement process is essential to the development of an effective plan.

Documentation of the Planning Process

Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests to be involved in the planning process; and
- Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Requirement §201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Element

- Does the plan provide a narrative description of the process followed to prepare the plan?
- Does the plan indicate who was involved in the planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?)
- Does the plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)
- Was there an opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?
- Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?

Source: FEMA, March 2004

2.1 OVERVIEW OF PLANNING PROCESS

The development of the San Luis Obispo LHMP originated from the City's Emergency Response Plan and the Safety Element of the General Plan in August 2004. During the initial stages of the planning process, the Disaster Preparedness Committee created a Hazard Mitigation Team to provide input and guidance into the San Luis Obispo LHMP.

Once the Hazard Mitigation Team was formed, the following five-step planning process took place during the 5-month period from October 2004 to February 2005.

- **Organize resources:** The Hazard Mitigation Team identified resources, including City staff, agencies, and local community members that could provide technical expertise and historical information needed in the development of the San Luis Obispo LHMP.

- **Assess risks:** The Hazard Mitigation Team identified the hazards specific to the City, and developed the risk assessment for the seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
- **Assess capabilities:** The Hazard Mitigation Team reviewed current administrative and technical, legal and regulatory, and fiscal capabilities to determine whether existing provisions and requirements adequately address relevant hazards.
- **Develop a mitigation strategy:** After reviewing the risks posed by each hazard, the Hazard Mitigation Team developed a comprehensive range of potential mitigation goals, objectives, and actions. Subsequently, the Hazard Mitigation Team identified and prioritized the actions to be implemented.
- **Monitor progress:** The Disaster Preparedness Committee and Hazard Mitigation Team developed an implementation process to ensure the success of an ongoing program to minimize hazard impacts to the community.

2.2 HAZARD MITIGATION TEAM

2.2.1 Formation of the Hazard Mitigation Team

As previously noted, the planning process began in August 2004. The Disaster Preparedness Committee, having the overall responsibility of ensuring that the City's Emergency Plan, started the planning process. The Disaster Preparedness Committee, which is comprised of the Fire Chief and department representatives from Fire, Police, Public Works, Utilities, and Administration, delegated the planning process to an ad hoc committee called the Hazard Mitigation Team. The Hazard Mitigation Team members, led by Chief Wolfgang Knabe, are listed in Table 2-1. The Hazard Mitigation Team meetings are described below.

Table 2-1
City of San Luis Obispo Hazard Mitigation Team

Name	Position
Ken Hampian	City Administrative Officer
Wendy George	Assistant City Administrative Officer
Deborah Linden	Police Chief
Wolfgang Knabe	Fire Chief (chair)
William Statler	Finance Director
Jay Walter	Public Works Director
John Mandeville	Community Development Director
Paul LeSage	Parks and Recreation Director
John Moss	Utilities Director
Monica Irons	Human Resources Director
Jonathan Lowell	City Attorney

(As of August, 2004)

2.2.2 Hazard Mitigation Team Meetings

The Hazard Mitigation Team met 10 times over the 5-month planning period from September 2004 through January 2005. During the preliminary meetings, the Hazard Mitigation Team developed available hazard data through interviews, meetings, City and county records, and GIS. In addition, the Hazard Mitigation Team developed a risk assessment and the City's GIS department conducted a vulnerability analysis. By December 2004, the Hazard Mitigation Team utilized public meetings, including City Council Meetings, Planning Commission Meetings, and Historical Committee Meetings, to solicit public input. In January 2005, the Hazard Mitigation Team met to review the risk assessment and develop a mitigation strategy and maintenance plan to ensure that the LHMP remains current and meets the goals, objectives, and action items established in the LHMP.

The City submitted a draft copy of the LHMP to FEMA Region IX for review in February 2005 and received comments on the LHMP in August 2005. In October 2005 the City hired URS Corporation for technical and advisory services necessary to complete the LHMP. In November 2005, the City hired a new Fire Chief, John Callahan, who became the chair of the Hazard Mitigation Team.

2.3 PUBLIC INVOLVEMENT

As noted in the previous section, shortly after the planning process began, the Hazard Mitigation Team invited participation from the general public as well as public and private agencies. Information about the General Plan's Safety Element, and therefore relevant sections of the LHMP and planning process, was broadcast on local cable network Charter Cable Television - Government Access Channel 20 and the City's website. In addition, information about the Safety Element, and subsequently the LHMP, was addressed during City Council meetings, Planning Commission Meetings, and the Historical Committee meetings from December 2004 to February 2005.

The following entities were invited to each of the above meetings:

- City Departments
- San Luis Obispo County Administration
- Local civic associations and nonprofit organizations, including San Luis Obispo Chamber of Commerce, Downtown Association, Residents for Quality Neighborhoods, Santa Rosa Park Senior Group, and a Disabled Citizens Group
- Local colleges and universities, including California State Polytechnic University San Luis Obispo (Cal Poly) and Cuesta Community College

In November 2005, the City issued a press release regarding the preparation of the LHMP. The press release was posted on City's Web site and included a phone number and email address for comments during the drafting stage. Additionally, a month later in December, the City mailed letters regarding the preparation of the LHMP to the following entities:

- San Luis Obispo County
- Cities of Arroyo Grande, Grover Beach, Paso Robles, Pismo Beach, and San Luis Obispo

- California Polytechnic State University at San Luis Obispo

In January 2006, a second press release was issued to announce the availability of the Public Review Draft of the San Luis Obispo LHMP. The City posted a copy of the Public Review Draft on its Web site in February before the March 7 City Council meeting. Additionally, the City provided an e-mail address as well as a physical mailing address to receive public comments.

The press releases and notification letter are included in Appendix C.

2.4 INCORPORATION OF EXISTING PLANS AND OTHER RELEVANT INFORMATION

During the planning process, the Hazard Mitigation Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the LHMP. A synopsis of the sources follows.

- *City of San Luis Obispo General Plan*: The Land Use Element provides information on existing land use and future development trends. The Safety Element provides information for the initial hazard identification process and development of the mitigation strategy.
- *City of San Luis Obispo Emergency Plan*: This plan outlines current mitigation activities and response procedures, which were used for the mitigation strategy.
- *City of San Luis Obispo Municipal Code:* These codes regulate development and land use and were used for the capability assessment and mitigation strategy.
- *San Luis Obispo County General Plan:* The county's General Plan was used for the risk assessment because it contains information on hazard areas adjacent to the City limits.
- *State of California Multi-Hazard Mitigation Plan:* This plan, prepared by OES, was used to ensure that the City's LHMP was consistent with the State's Plan.

The following FEMA guides were also consulted for general information on the LHMP process:

- *How-To Guide #1: Getting Started: Building Support For Mitigation Planning* (FEMA 2002c)
- *How-To Guide #2: Understanding Your Risks – Identifying Hazards and Estimating Loss Potential* (FEMA 2001)
- *How-To Guide #3: Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies* (FEMA 2003a)
- *How-To Guide #4: Bringing the Plan to Life: Implementing the Hazard Mitigation Plan* (FEMA 2003b)

This section identifies and profiles the hazards that could affect San Luis Obispo, assesses the risk of such hazards, describes the City's vulnerability, and estimates potential losses from the hazards. Each of these tasks is described in detail below.

In compliance with DMA 2000, the requirements for the risk assessment are described below.

DMA 2000 Requirements: Risk Assessment – Overall

Risk Assessment

§201.6(c)(2): The plan **shall** include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

Source: FEMA, March 2004.

3.1 OVERVIEW OF A RISK ASSESSMENT

A risk assessment requires the collection and analysis of hazard-related data to enable local communities to identify and prioritize appropriate mitigation actions that will reduce losses from potential hazards. The risk assessment has five steps, as outlined below and described in detail throughout the remainder of Section 3.

Step 1: Identify and Screen Hazards

Hazard identification is the process of recognizing natural and human-caused events that threaten an area. Natural hazards result from unexpected or uncontrollable natural events of sufficient magnitude to cause damage. Human-caused hazards result from human activity and include technological hazards and terrorism. Technological hazards are generally accidental or result from events with unintended consequences (for example, an accidental hazardous materials release). Terrorism is defined as the calculated use of violence (or threat of violence) to attain goals that are political, religious, or ideological in nature. Even though a particular hazard may not have occurred in recent history in the study area, all hazards that may potentially affect the study area are considered; that are unlikely to occur, or for which the risk of damage is accepted as very low, are then eliminated from consideration.

Step 2: Profile Hazards

Hazard profiling is accomplished by describing hazards in terms of their history, magnitude, duration, frequency, location, and probability. Hazards are identified through collection of historical and anecdotal information, review of existing plans and studies, and preparation of hazard maps of the study area. Hazard maps are used to determine the geographic extent of the hazards and define the approximate boundaries of areas at risk.

Step 3: Identify Assets

Assets are defined as the population, buildings, and critical facilities and infrastructure that may be affected by hazard events. Asset information may be obtained from participating communities, the U.S. Census Bureau, and FEMA's HAZUS-MH software. Asset information is organized and categorized for analysis using GIS.

Step 4: Assess Vulnerabilities

A vulnerability analysis predicts the extent of exposure that may result from a hazard event of a given intensity in a given area. The assessment provides quantitative data that may be used to identify and prioritize potential mitigation measures by allowing communities to focus attention on areas with the greatest risk of damage.

Step 5: Analyze Future Development Trends

The final stage of the risk assessment process provides a general overview of development and population growth that is forecasted to occur within the study area. This information provides the groundwork for decisions about mitigation strategies in developing areas and locations in which these strategies should be applied.

3.2 HAZARD IDENTIFICATION AND SCREENING

The requirements for hazard identification, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Risk Assessment – Identifying Hazards

Identifying Hazards

Requirement §201.6(c)(2)(i): [The risk assessment **shall** include a] description of the type of all natural hazards that can affect the jurisdiction.

Element

- Does the plan include a description of the types of all natural hazards that affect the jurisdiction? If the hazard identification omits (without explanation) any hazards commonly recognized as threats to the jurisdiction, this part of the plan cannot receive a Satisfactory score. Consult with the State Hazard Mitigation Officer to identify applicable hazards that may occur in the planning area.

Source: FEMA, March 2004.

The risk assessment process is the identification and screening of hazards, as shown in Table 3-1. During the initial stages of the planning process in 2004, the Hazard Mitigation Team identified 21 possible hazards that could affect San Luis Obispo. The Planning Team evaluated and screened the comprehensive list of potential hazards based on a range of factors, including prior knowledge or perception of the relative risk presented by each hazard, the ability to mitigate the hazard, and the known or expected availability of information on the hazard (See Table 3-1). The Hazard Mitigation Team screened all 19 possible hazards and determined that 6 hazards pose the greatest threat to San Luis Obispo: earthquakes, floods, hazardous materials events, landslides, windstorms, and wildland fires. The remaining 13 hazards excluded through the screening process were considered to pose a lower threat to life and property in San Luis Obispo due to the low likelihood of occurrence or the low probability that life and property would be significantly affected. Should the risk from these hazards increase in the future, the San Luis Obispo LHMP can be updated to incorporate vulnerability analyses for these hazards.

Table 3-1
Identification and Screening of Hazards

Hazard Type	Should It Be Profiled?	Explanation
Avalanche	No	City is not located in area prone to frequent or significant snowfall.
Coastal Erosion	No	City is not located along the coast.
Coastal Storm	No	City is not located along the coast.
Dam Failure	No	The City is not located in immediate proximity to any dam or earthen structures.
Drought	No	The City has established policies for allocation of water, water supply, and annual watering. Additionally, the City has adopted a Water Shortage Contingency Plan that diminishes the effects of this hazard.
Earthquake	Yes	The City is located in a geologically complex and seismically active region.
Expansive Soils	No	The City has not experienced significant problems due to expansive soils.
Extreme Heat	No	While extreme temperatures are known to occur, prolonged heat waves are rare.
Flood	Yes	Parts of the community are located near floodplains and drainage ways. Heavy rains can cause localized flooding in certain areas.
Hailstorm	No	No significant historic events have occurred in the City.
Hurricane	No	No significant historic events have occurred in the City.
Landslide	Yes	City is vulnerable to slope instability, especially after prolonged rainfalls.
Severe Winter Storm	No	No significant historic events have occurred in the City.
Tornado	No	No significant historic events have occurred in the City.
Tsunami	No	City is not located along the coast.
Volcano	No	No significant historic events have occurred in the City.
Wildfire	Yes	The City faces wildland fire hazards due mainly to its climate and to the hills around and within the City.
Windstorm	Yes	Windstorms have caused trees to fall.
Other: Hazard Materials	Yes	Hazardous materials (hazmat) facilities are located within and near the City. Major hazmat transportation routes transect the City.

3.3 HAZARD PROFILE

The requirements for hazard profile, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Risk Assessment – Profiling Hazards

Profiling Hazards

Requirement §201.6(c)(2)(i): [The risk assessment **shall** include a] description of the location and extent of all natural hazards that can affect the jurisdiction. The plan **shall** include information on previous occurrences of hazard events and on the probability of future hazard events.

Element

- Does the risk assessment identify the **location** (i.e., geographic area affected) of each natural hazard addressed in the plan?
- Does the risk assessment identify the **extent** (i.e., magnitude or severity) of each hazard addressed in the plan?
- Does the plan provide information on **previous occurrences** of each hazard addressed in the plan?
- Does the plan include the **probability of future events** (i.e., chance of occurrence) for each hazard addressed in the plan?

Source: FEMA, March 2004.

The specific hazards selected by the Planning Team for profiling have been examined in a methodical manner based on the following factors:

- Nature
- History
- Location
- Extent
- Probability of Future Events

The hazards profiled for San Luis Obispo are presented in Sections 3.3-1 through 3.3-6 in alphabetical order. The order of presentation does not signify the level of importance or risk.

3.3.1 Earthquakes

3.3.1.1 Nature

An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of the earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and, after just a few seconds, can cause massive damage and extensive casualties. The most common effect of earthquakes is ground motion, or the vibration or shaking of the ground during an earthquake.

The severity of ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. Ground motion causes waves in the earth's interior, also known as seismic waves, and along the earth's surface, known as surface waves. Two kinds of seismic waves exist. P (primary) waves are longitudinal or

compressional waves similar in character to sound waves that cause back-and-forth oscillation along the direction of travel (vertical motion). S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side to side (horizontal motion). Also two kinds of surface waves exist: Raleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

In addition to ground motion, several secondary hazards can occur from earthquakes, such as surface faulting. Surface faulting is the differential movement of two sides of a fault at the earth's surface. Displacement along faults, both in terms of length and width, varies but can be significant (e.g., up to 20 feet), as can the length of the surface rupture (e.g., up to 200 miles). Surface faulting can cause severe damage to linear structures, including railways, highways, pipelines, and tunnels.

Earthquake-related ground failure due to liquefaction is another secondary hazard. Liquefaction occurs when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of the empty spaces between granules to collapse. Porewater pressure may also increase sufficiently to cause the soil to behave like a fluid for a brief period and cause deformations. Liquefaction causes lateral spreads (horizontal movements of commonly 10 to 15 feet, but up to 100 feet), flow failures (massive flows of soil, typically hundreds of feet, but up to 12 miles), and loss of bearing strength (soil deformations causing structures to settle or tip). Liquefaction can cause severe damage to property.

3.3.1.2 History

Historically, most of the earthquakes that have occurred near San Luis Obispo have originated from movement along the San Andreas Fault, which lies approximately 35 miles northeast of the City. However, the most recent earthquake to affect San Luis Obispo occurred at 11:15:56 am Pacific Standard Time on December 22, 2003. The epicenter of the magnitude 6.5 earthquake was approximately 7 miles northeast of San Simeon at a depth of 4.7 miles (35.706N 121.102W), 45 miles from San Luis Obispo. Two people were killed in the City of Paso Robles. Countywide, 47 people were reported injured and 290 homes and 190 commercial structures were damaged. Although the City of San Luis Obispo had some minor damage, no major damage or deaths occurred.

3.3.1.3 Location, Extent, and Probability of Future Events

The Los Osos fault zone, also known as the Edna fault zone, main strand lies near the intersection of Los Osos Valley Road and Foothill Boulevard. Other fault zones, in the vicinity of San Luis Obispo are the West Huasna, Oceanic, and Rinconada. All of these faults were the sources of magnitude M>6.0 during the Quarternary. These faults are considered potentially active and present a moderate fault rupture hazard to developments near them. Appendix B, Figure B-1, shows the locations of faults in the immediate San Luis Obispo area.

The probabilistic seismic hazard model, as shown in Appendix B, Figure B-1, displays both fault locations and the relative intensity of ground shaking and damage from anticipated future earthquakes. As such, the central and northern portion of San Luis Obispo is located within the lower-moderate range of the earthquake shaking potential model, while the western and southern portions of the City fall within the higher-moderate range and, therefore, may experience stronger earthquake shaking.

3.3.2 Floods

3.3.2.1 Nature

Flooding is the accumulation of water where usually none occurs or excess water from a stream, river, lake, reservoir, or coastal body of water overflows onto adjacent floodplains. Floodplains are lowlands adjacent to water bodies that are subject to recurring floods. Floods are natural events that are considered hazards only when people and property are affected.

Nationwide, floods result in more deaths than any other natural hazard. Physical damage from floods includes the following:

- Inundation of structures, causing water damage to structural elements and contents.
- Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.
- Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects.
- Destruction of crops, erosion of topsoil, and deposition of debris and sediment on croplands.
- Release of sewage and hazardous or toxic materials as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

Floods also result in economic losses through closure of businesses and government facilities, disrupt communications, disrupt the provision of utilities such as water and sewer service, result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

In San Luis Obispo, the most common type of flooding event is riverine flooding, also known as overbank flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions, to wide, flat areas in plains and coastal regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and land use characteristics. Flooding in steep, mountainous areas is usually confined, strikes with less warning time, and has a short duration. Larger rivers typically have longer, more predictable flooding sequences and broad floodplains.

In addition to riverine flooding, San Luis Obispo is susceptible to flash flooding. Flash flood is a term widely used by experts and the general population, but no single definition or clear means of distinguishing flash floods from other riverine floods exists. Flash floods are generally understood to involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring of new channels. The intensity of flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Dam failure may also lead to flash flooding. Urban areas are increasingly subject to flash flooding due to the removal of vegetation, installation of impermeable surfaces over ground cover, and construction of drainage systems. Wildfires that strip hillsides of vegetation and alter

soil characteristics may also create conditions that lead to flash floods and debris flows. Debris flows are particularly dangerous due to the fact that they generally strike without warning and are accompanied by extreme velocity and momentum.

Finally, localized flooding may occur outside of recognized drainage channels or delineated floodplains due to a combination of locally heavy precipitation, increased surface runoff, and inadequate facilities for drainage and stormwater conveyance. Such events frequently occur in flat areas and in urbanized areas with large impermeable surfaces. Local drainage may result in "nuisance flooding," in which streets or parking lots are temporarily closed; and minor property damage occurs. Because the effects are not widespread and damage is typically minimal, they are not studied in detail as part of this LHMP.

3.3.2.2 History

The most serious flood events on record in San Luis Obispo occurred during storms in the early months of 1969, 1973, 1993, 1995, and 2001.

Flooding during 1969 was the most damaging. Two floods occurred, one at the end of January and the second at the end of February. During this 2-month period, a local rain gage recorded an accumulated precipitation total of 39.79 inches.

3.3.2.3 Location, Extent, and Probability of Future Events

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies often use historical records, such as stream flow gages, to determine the probability of occurrence for floods of different magnitudes. The probability of occurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year.

Factors contributing to the frequency and severity of riverine flooding include the following:

- Rainfall intensity and duration
- Antecedent moisture conditions
- Watershed conditions, including steepness of terrain, soil types, amount and type of vegetation, and density of development
- The existence of attenuating features in the watershed, including natural features such as swamps and lakes and human-built features such as dams
- The existence of flood control features, such as levees and flood control channels
- Velocity of flow
- Availability of sediment for transport, and the erodability of the bed and banks of the watercourse

These factors are evaluated using a hydrologic analysis to determine the probability that a discharge of a certain size will occur; and a hydraulic analysis to determine the characteristics and depth of the flood that results from that discharge.

The magnitude of flood used as the standard for floodplain management in the United States is a flood having a probability of occurrence of 1 percent in any given year. This flood is also known as the 100-year flood or base flood. The most readily available source of information regarding the 100-year flood is the system of Flood Insurance Rate Maps (FIRMs) prepared by FEMA. These maps are used to support the National Flood Insurance Program (NFIP). The FIRMs show 100-year floodplain boundaries for identified flood hazards. These areas are also referred to as Special Flood Hazard Areas (SFHAs) and are the basis for flood insurance and floodplain management requirements. The FIRMs also show floodplain boundaries for the 500-year flood, which is the flood having a 0.2 percent chance of occurrence in any given year. FEMA has prepared a FIRM for the City of San Luis Obispo, dated July 1981. FEMA is currently in the process of preparing a countywide digital FIRM for San Luis Obispo County, which will incorporate the flood hazard information currently shown separately on the City of San Luis Obispo FIRM.

Rivers and streams where FEMA has prepared detailed engineering studies may also have designated floodways. The floodway is the channel of a watercourse and portion of the adjacent floodplain that is needed to convey the base or 100-year flood event without increasing flood levels by more than 1 foot and without significantly increasing flood velocities. The floodway must be kept free of development or other encroachments. FEMA has not designated floodways within the City of San Luis Obispo.

The FIRM for the City of San Luis Obispo shows identified SFHAs for the following flooding sources: San Luis Obispo Creek, Stenner Creek, Old Garden Creek, Prefumo Creek, Laguna Lake, and several tributaries.

Appendix B, Figure B-2 shows the extent of the 100- and 500-year floodplains within San Luis Obispo. The City is most prone to shallow flooding (1 to 3 feet) along the San Luis Obispo Creek and Laguna Lake. Local waterways typically reach and then decline from flood stage in a matter of hours. However, flooding problems can be aggravated by numerous natural and human-made obstructions in the channels. Flooding in these areas generally occurs during the rainy season from October - April.

3.3.3 Hazardous Materials Events

3.3.3.1 Nature

Hazardous materials may include hundreds of substances that pose a significant risk to humans. These substances may be highly toxic, reactive, corrosive, flammable, radioactive, or infectious. Numerous Federal, State, and local agencies including the U.S. Environmental Protection Agency (EPA), U.S. Department of Transportation, National Fire Protection Association, FEMA, U.S. Army, and International Maritime Organization regulate hazardous materials.

Hazardous material releases may occur from any of the following:

- Fixed site facilities (such as refineries, chemical plants, storage facilities, manufacturing, warehouses, wastewater treatment plants, swimming pools, dry cleaners, automotive sales/repair, gas stations, etc.)
- Highway and rail transportation (such as tanker trucks, chemical trucks, railroad tankers)

- Air transportation (such as cargo packages)
- Pipeline transportation (liquid petroleum, natural gas, and other chemicals)

Unless exempted, facilities that use, manufacture, or store hazardous materials in the United States fall under the regulatory requirements of the Emergency Planning and Community Right to Know Act (EPCRA) of 1986, enacted as Title III of the Federal Superfund Amendments and Reauthorization Act (42 United States Code 11001–11050; 1988). Under EPCRA regulations, hazardous materials that pose the greatest risk for causing catastrophic emergencies are identified as Extremely Hazardous Substances (EHSs). These chemicals are identified by the EPA in the *List of Lists – Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112 of the Clean Air Act*. Releases of EHSs can occur during transport and from fixed facilities. Transportation-related releases are generally more troublesome because they may occur anywhere, including close to human populations, critical facilities, or sensitive environmental areas. Transportation-related EHS releases are also more difficult to mitigate due to the variability of locations and distance from response resources.

In addition to accidental human-caused hazardous material events, natural hazards may cause the release of hazardous materials and complicate response activities. The impact of earthquakes on fixed facilities may be particularly serious due to the impairment or failure of the physical integrity of containment facilities. The threat of any hazardous material event may be magnified due to restricted access, reduced fire suppression and spill containment, and even complete cut-off of response personnel and equipment. In addition, the risk of terrorism involving hazardous materials is considered a major threat due to the location of hazardous material facilities and transport routes throughout communities and the frequently limited antiterrorism security at these facilities.

On behalf of several Federal agencies including the EPA and the U.S. Department of Transportation, the National Response Center serves as the point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment within the United States.

3.3.3.2 History

The National Response Center's Web-based query system of non-Privacy Act data shows that since 1990, 38 oil and chemical spills (gasoline and crude oil) have occurred within the City. Eleven of these spills occurred at a fixed location while 27 occurred in vessels, railroads, or pipelines. The EPA has recorded 5 airborne hazardous material releases and no airborne toxic releases within City limits since 1997.

3.3.3.3 Location, Extent, and Probability of Future Events

The EPA's regulated facilities within City limits include 4 facilities that are permitted to discharge to water and almost 100 facilities that are hazardous waste handlers. Generally, the small, fixed facilities (drycleaners, auto body shops, etc.) have varying uses of hazardous chemicals, but in general do not pose a significant risk to the City.

Based on previous occurrences, the likelihood of a small oil or chemical spill occurring is only twice a year. Therefore, a hazardous material event would have the highest potential to occur

along Highway 101, State Routes 1 and 227, and Union Pacific Railroad. The trains and trucks that use these transportation arteries commonly carry a variety of hazardous materials, including gasoline, other crude oil derivatives, and other chemicals known to cause human health problems.

Comprehensive information on the probability and magnitude of hazardous material events across all types of sources (such as fixed facilities or transport vehicles) is not available. Wide variations among the characteristics of hazardous material sources and among the materials themselves make such an evaluation difficult. While it is beyond the scope of this LHMP to evaluate the probability and magnitude of hazardous material events in the City in detail, it is possible to determine the exposure of population, buildings, and critical facilities should such an event occur. Of the facilities that were required to file an annual EPA Tier II Material Inventory Report in San Luis Obispo City because of the presence of hazardous materials, three were identified as having EHSs. The substances recorded at these facilities include common hazardous substances, mainly sulfuric acid. EHSs pose the greatest risk for causing catastrophic emergencies. Areas at risk of hazardous material events, as shown in Appendix B, Figure B-3, include any area within a 1-mile radius of Highway 101, State Routes 1 and 227, the Union Pacific Railroad tracks, and EHS fixed facilities within the city limits.

3.3.4 Landslides

3.3.4.1 Nature

Landslide is a general term for the dislodgment and fall of a mass of soil or rocks along a sloped surface or for the dislodged mass itself. The term is used for varying phenomena, including mudflows, mudslides, debris flows, rock falls, rock slides, debris avalanches, debris slides, and slump-earth flows. Landslides may result from a wide range of combinations of natural rock, soil, or artificial fill. The susceptibility of hillside and mountainous areas to landslides depends on variations in geology, topography, vegetation, and weather. Landslides may also occur due to indiscriminate development of sloping ground or the creation of cut-and-fill slopes in areas of unstable or inadequately stable geologic conditions.

Additionally, landslides often occur together with other natural hazards, thereby exacerbating conditions, as described below.

- Shaking due to earthquakes can trigger events ranging from rock falls and topples to massive slides.
- Intense or prolonged precipitation that causes flooding can also saturate slopes and cause failures leading to landslides.
- Landslides into a reservoir can indirectly compromise dam safety, and a landslide can even affect the dam itself.
- Wildfires can remove vegetation from hillsides, significantly increasing runoff and landslide potential.

3.3.4.2 History

Landslide events are common occurrences outside of the City limits, along the steep slopes and the coastal mountain areas of the county. The largest landslide events within the county have been associated with severe winter storms and strong El Nino events (1982-1983, 1994-1995, 1997-1998, and 2004-2005). Only small landslides along unstable slopes saturated during prolonged and/or intense rain events have occurred within the City.

3.3.4.3 Location, Extent, and Probability of Future Events

As shown in Appendix B, Figure B-4 San Luis Obispo is considered to have a moderate risk of landslides. Slope instability in the City generally increases with steepness and distance from the San Luis Obispo Creek, with areas of steep terrain that consist of fractured soil or thin layers of clay that are susceptible to erosion and landslide. Only the most northern and most western portions of the City are considered to be at high risk to landslides.

The likelihood of sliding increases during or after a period of heavy rain, when saturated soil fractures or weak spots give way. Therefore, while slides generally occur during the rainy season, after very wet winters, deep-seated landslides can continue to become active for many months, extending well into the summer. These landslides range in size from less than an acre to several that extend over a mile of hillside. Geologists consider San Luis Obispo to be prone to deep-seated, slow-moving landslides. However, even where slides are recognized, it is often hard to accurately predict the frequency or magnitude of potential future movement.

3.3.5 Wildland Fires

3.3.5.1 Nature

A wildland fire is a type of fire that spreads through all types of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildland fires can be caused by human activities (such as arson or campfires) or by natural events such as lightning. Wildland fires often occur in forests or other areas with ample vegetation. In addition to wildland fires, wildfires can be classified as urban fires, interface or intermix fires, and prescribed burns.

The following three factors contribute significantly to wildland fire behavior and can be used to identify wildland fire hazard areas:

- **Topography:** As slope increases, the rate of wildland fire spread typically increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior. However, ridge tops may mark the end of wildland fire spread, since fire spreads more slowly or may even be unable to spread downhill.
- **Fuel:** The type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the “fuel load”). The ratio of living to dead plant matter is also important. The risk of fire is increased significantly during periods of

prolonged drought as the moisture content of both living and dead plant matter decreases. The fuel's continuity, both horizontally and vertically, is also an important factor.

- **Weather:** The most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. By contrast, cooling and higher humidity often signals reduced wildland fire occurrence and easier containment.

The frequency and severity of wildland fires is also dependent upon other hazards, such as lightning, drought, and infestations (such as the recent damage to Southern California alpine forests by the pine bark beetle). If not promptly controlled, wildland fires may grow into an emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. In addition to affecting people, wildland fires may severely affect livestock and pets. Such events may require emergency watering/feeding, evacuation, and shelter.

The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards, as described above.

3.3.5.2 Disaster History

As shown in Appendix B, Figure B-5, wildland fires are common occurrences in San Luis Obispo County. The most significant wildland fires within the county have been located in the northern division of the Los Padres National Forest. The 1994 Highway 41 Fire involved over 51,000 acres and threatened the City on its northern boundary. The fire was stopped prior to damaging City property. The 1996 Highway 58 Fire involved 115,000 acres and caused minor damage to City properties. Fortunately, no lives were lost in either incident.

3.3.5.3 Location, Extent, and Probability of Future Events

Appendix B, Figure B-5 displays both the location and extent of wildland fire hazard areas for San Luis Obispo. This map is based on general slope and vegetation type. Most of the City is considered to be at low risk to wildland fires. However, the risk of wildland fires increases to moderate and high hazard classifications at the City limits as this area is part of a wildland/urban interface zone, where development meets rural areas of combustible vegetation.

Generally, fire susceptibility throughout California dramatically increases in the late summer and early autumn as vegetation dries out, decreasing plant moisture content and increasing the ratio of dead fuel to living fuel. Based on previous occurrences, the likelihood of a significant wildland fire (10,000 acres or greater) to occur in the neighboring unincorporated county is once every four years. It is not expected that a significant wildfire will occur within the incorporated City limits. However, other various factors, including humidity, wind speed and direction, fuel load and fuel type, and topography, can contribute to the intensity and spread of wildland fires. In addition, common causes of wildland fires in California include arson and negligence.

3.3.6 Windstorms

3.3.6.1 Nature

Winds are horizontal flows of air that blow from areas of high pressure to areas of low pressure. Wind strength depends on the difference between the high- and low-pressure systems and the distance between them. Therefore, a steep pressure gradient results from a large pressure difference or short distance between places and causes strong winds. Windstorms associated with cyclonic systems, and their cold fronts, can damage trees and temporarily disrupt power and communication facilities, but usually cause only minor damage to structures.

3.3.6.2 History

According to the National Climatic Data Center, San Luis Obispo has been affected by over 11 high wind events from 1998-2004. In February 1998, three windstorm events slammed the Central Coast, including San Luis Obispo, within a six day period. Only three months later, a small tornado developed over the City, knocking power out and damaging four houses. Additionally, windstorms have caused severe damage to the large aging Ficus trees in the City's Downtown area.

3.3.6.3 Location, Extent, and Probability of Future Events

The entire City of San Luis Obispo is subject to strong southeasterly winds associated with powerful coldfronts. These winds, which are usually part of a strong Pacific storm, generally occur during the winter months, from November through February. In addition, northwesterly winds frequent the climate of the central coast of California, including San Luis Obispo, during the spring and summer. These wind events are usually associated with a relatively strong, zonal upper-level jet over the State and a passage of frontal storm systems into the US from the Pacific. Both high northwest and southeast wind events associated with coldfronts and zonal upper-level jet systems can reach sustained winds of 35-45 mph with wind gusts of 65-75 mph within San Luis Obispo.

3.4 ASSET INVENTORY

This section describes the third step in the risk assessment process, which is the identification of assets that may be affected by hazard events. Assets identified for the risk assessment include population, buildings, and critical facilities and infrastructure that may be affected by hazard events. The assets identified are discussed in detail below. Sections 3.4.1 and 3.4.2 provide a complete list of assets and insurance or replacement values where applicable.

3.4.1 Population and Building Stock

Population data, as shown in Table 3-2 and Appendix B, Figure B-6, were obtained from the 2000 U.S. Census. Data were collected at the census block level for the City. The City's total population for 2000 was 44,671.

Table 3-2
Estimated Population and Building Inventory

Population	Residential Buildings		Nonresidential Buildings	
2000 Census Population Count	Total Building Count	Total Value of Buildings	Total Building Count	Total Value of Buildings
44,671	12,798	$3,557,844,000	290	$593,340,000

Source: FEMA HAZUS-MH and U.S. Census 2000 population data.
[a] Population count using census blocks within the city limits.

Estimated numbers of residential and nonresidential buildings and replacement values for those structures, as shown in Table 3-2, were obtained from the U.S. Census, the City, and HAZUS-MH by census block. A total of 12,798 residential buildings were considered in this analysis, including single-family dwellings, mobile homes, multifamily dwellings, temporary lodgings, institutional dormitory facilities, and nursing homes. A total of 290 nonresidential buildings were also analyzed, including industry, retail trade, wholesale trade, personal and repair services, professional and technical services, banks, medical offices, religious centers, entertainment and recreational facilities, theaters, and parking facilities.

3.4.2 Critical Facilities and Infrastructure

A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. Similar to critical facilities, critical infrastructure includes infrastructure that is essential to preserving the quality of life and safety in the City. Critical facilities and infrastructure identified within the City are shown in Table 3-3 and Appendix B, Figure B-7.

Table 3-3
Critical Facilities and Infrastructure

Category	Facility	Location	Estimated Value Per Structure/Mile
City Hall	City Hall	990 Palm St.	$5,442,760
Police and Fire Stations	Fire Station #1	2160 Santa Barbara St.	$3,321,741
	Fire Station #2	136 N. Chorro St.	$324,534
	Fire Station #3	1280 Laurel Ln.	$375,351
	Fire Station #4	1395 Madonna Rd.	$321,573
	Police Main Building, Garage, Annex	1042 Walnut St.	$3,289,166
Hospitals	Sierra Vista Regional Medical Center	1010 Murray Av.	$8,260,000
	French Hospital Medical Center	1911 Johnson Av.	$8,260,000
Schools (San Luis Coastal Unified School District)	Bishop Peak / Teach Elementary	451 Jaycee Dr.	$590,000
	Pacheco Elementary	375 Ferrini	$590,000
	CL Smith Elementary	1375 Balboa	$590,000
	Hawthorne Elementary	2125 Story St.	$590,000
	Laguna Middle School	11050 Los Osos Valley Rd.	$590,000
	Old Pacheco Elementary	165 Grand Av.	$590,000
	Pacific Beach High School	11950 Los Osos Valley Rd.	$590,000
	San Luis Obispo High School	1499 San Luis Dr.	$590,000
	Sinsheimer Elementary	2755 Augusta	$590,000
Community & Recreational Facilities	Library	995 Palm St.	$996,196
	Meadow Park Recreational Center	2333 Meadow	$895,928
	Mitchell Park Senior Center	1445 Santa Rosa St.	$662,309
	Ludwick Community Center	864 Santa Rosa St.	$1,590,644
	Sinsheimer Pool & Park	900 Southwood Dr.	$1,800,000
Other City-Owned Facilities	City Corporation Yard	25 Prado Rd.	$3,061,366
	Prado Day Center	45 Prado Rd.	$429,648
	Parking Garage	Marsh & Chorro Sts.	$14,772,497
	Parking Garage	Palm St.	$5,416,409
	Utilities Administration	879 Morro St.	$677,423
	Community Development & Public Works Administration	919 Palm St.	$18,000,000
	Parks and Recreation Dept. Building	1341 Nipomo St.	$716,578
Potable Water and Wastewater Facilities	Water Treatment Plants and Stenner Hyrdo Plant*	Stenner Creek Rd.	$33,040,288
	Waste Water Treatment Plant	35 Prado Rd.	$47,715,215
Infrastructure	Federal Highway 101	5.35 linear miles**	$55,620,853
	State Routes 1 and 227	4.94 miles	$25,689,892
	Railroads	4.19 miles	$5,813,789
	Bridges	46	$40,766,870

* Not within City limits and therefore not analyzed, ** 10.7 miles counting Northbound and Southbound Lanes separately,
Source: SLO City, HAZUS

3.5 VULNERABILITY ASSESSMENT

The fourth step of the risk assessment and its primary intent is the vulnerability assessment. This section includes an overview of the vulnerability assessment, methodology, data limitations, and exposure analysis.

3.5.1 Overview of a Vulnerability Assessment

The requirements for a risk assessment, as stipulated in DMA 2000 and its implementing regulations, are described below.

- A summary of the community's vulnerability to each hazard that addresses the impact of each hazard on the community.

DMA 2000 Requirements: Risk Assessment, Assessing Vulnerability, Overview

Assessing Vulnerability: Overview

Requirement §201.6(c)(2)(ii): [The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.

Element

- Does the plan include an **overall summary** description of the jurisdiction's **vulnerability** to each hazard?
- Does the plan address the **impact** of each hazard on the jurisdiction?

Source: FEMA, March 2004.

- An identification of the types and numbers of existing vulnerable buildings, infrastructure, and critical facilities and, *if possible*, the types and numbers of vulnerable future development.

DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Identifying Structures

Assessing Vulnerability: Identifying Structures

Requirement §201.6(c)(2)(ii)(A): The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.

Element

Does the plan describe vulnerability in terms of the **types and numbers** of **existing** buildings, infrastructure, and critical facilities located in the identified hazard areas?

Does the plan describe vulnerability in terms of the **types and numbers** of **future** buildings, infrastructure, and critical facilities located in the identified hazard areas?

Source: FEMA, March 2004.

- Estimate of potential dollar losses to vulnerable structures and the methodology used to prepare the estimate.

DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Estimating Potential Losses

Assessing Vulnerability: Estimating Potential Losses

Requirement §201.6(c)(2)(ii)(B): [The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Element

- Does the plan estimate **potential dollar losses** to vulnerable structures?
- Does the plan describe the **methodology** used to prepare the estimate?

Source: FEMA, March 2004.

3.5.2 Methodology

The methodology used to prepare the dollar estimates for vulnerability is described below. Potential dollar losses are summarized in Tables 3-4, 3-5, and 3-6 in Section 3.5.4.

A conservative exposure-level analysis was conducted to assess the risks of the identified hazards. This analysis is a simplified assessment of the potential effects of the hazard on values at risk without consideration of probability or level of damage.

Using GIS, the building footprints of critical facilities were compared to locations where hazards are likely to occur. If any portion of the critical facility fell within a hazard area, it was counted as impacted. Using census block level information, a spatial proportion was used to determine the percentage of the population and residential and nonresidential structures located where hazards are likely to occur. Census blocks that are completely within the boundary of the hazard area were determined to be vulnerable and were totaled by count. A spatial proportion was also used to determine the amount of linear assets, such as highways and pipelines, within a hazard area. The exposure analysis for linear assets was measured in miles

Replacement values or insurance coverage, obtained by the City of HAZUS-MH, were developed for physical assets; however, they were not calculated for this version of the LHMP. Potential loss estimates may be addressed with future updates of the LHMP.

3.5.3 Data Limitations

The vulnerability estimates provided herein use the best data currently available, and the methodologies applied result in an approximation of risk. These estimates may be used to understand relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning hazards and their effects on the built environment, as well as approximations and simplifications that are necessary for a comprehensive analysis.

It is also important to note that the quantitative vulnerability assessment results are limited to the exposure of people, buildings, and critical facilities and infrastructure to hazard. It was beyond the scope of this LHMP to develop a more detailed or comprehensive assessment of risk (including annualized losses, people injured or killed, shelter requirements, loss of

facility/system function, and economic losses). Such impacts may be addressed with future updates of the LHMP.

3.5.4 Exposure Analysis

The results of the exposure analysis are summarized in Tables 3-4, 3-5, and 3-6 and in the discussion below.

Table 3-4
Potential Hazard Vulnerability Assessment – Population and Buildings

Hazard	Methodology	Population	Buildings	
			Residential	Nonresidential
Earthquakes	High	17,132	5,016	212
	Moderate	25,774	7,225	62
Floods	100-year flood zone	3,220	867	93
	500-year flood zone	5,179	1,694	20
Hazardous Materials Events	1-mile radius EHS facilities	23,497	5,793	199
	1-mile buffer transportation corridors	33,732	9,013	252
Landslides	High	342	139	1
	Moderate	12,246	3,787	21
Wildland Fires	Extreme	238	70	0
	High	333	152	0
	Moderate	1,729	591	6
	Low	41,528	11,675	268
Windstorms	Descriptive	**	**	**

** The total population and buildings are equally vulnerable to windstorms.

Table 3-5
Potential Hazard Vulnerability Assessment – Critical Facilities

Hazard	Methodology	City Hall	Police and Fire Stations	Hospitals	Schools	Community & Recreational Facilities	Other City-Owned Facilities	PW and WW Facilities	Total
Earthquakes	High	1	3	1	4	3	7	1	20
	Moderate	0	2	1	5	2	0	0	10
Floods	100-year	0	0	1	2	1	3	1	8
	500-year	0	0	1	4	2	0	0	7
Hazardous Materials Events	1-mile radius EHS facilities	1	3	1	5	3	7	1	21
	1-mile buffer transportation corridors	1	4	2	6	5	7	1	26
Landslides	High	0	0	0	1	0	0	0	1
	Moderate	0	0	1	4	1	0	0	6
Wildland Fires	Extreme	0	0	0	0	0	0	0	0
	High	0	0	0	1	0	0	0	1
	Moderate	0	0	0	0	0	0	0	0
	Low	1	5	2	8	5	7	1	29
Windstorms	Descriptive	**	**	**	**	**	**	**	**

** All critical facilities are equally vulnerable to windstorms.

Table 3-6
Potential Hazard Vulnerability Assessment – Critical Infrastructure

Hazard	Methodology	Federal Highway (Miles*)	State Routes (Miles	Railroads (Miles)	Bridges (Number)
Earthquakes	High	7.0	2.59	0.52	30
	Moderate	3.69	2.35	3.67	15
Floods	100-year	2.11	0.91	0.05	29
	500-year	1.56	0.22	0.12	10
Hazardous Materials Events	1-mile radius EHS facilities	9.39	1.91	1.32	28
	1-mile buffer transportation corridors	10.7	4.94	4.19	42
Landslides	High	0	0	0	0
	Moderate	2.52	0.36	1.12	7
Wildland Fires	Extreme	0	0	0	0
	High	0	0	0	0
	Moderate	0.06	0	0	0
	Low	10.64	4.94	4.19	46
Windstorms	Descriptive	**	**	**	**

*The Northbound and Southbound lanes of Hwy 101 were calculated separately when considering miles impacted for Federal Highways.

** All critical infrastructure are equally vulnerable to windstorms.

3.5.4.1 Earthquakes

Of all the hazards assessed in this LHMP, an earthquake poses the greatest exposure and potential loss for the City. As shown in Appendix B, Figure B-1, the entire City is at risk to earthquakes. Approximately 40 percent city's population and residential structures, and 70 percent of the city's critical facilities and nonresidential structures are exposed higher-moderate ground-shaking zones. The rest of the City has the potential for lower-moderate ground-shaking intensity. This portion includes approximately 60 percent of the city's total population and residential buildings and 30 percent of the city's total nonresidential buildings and critical facilities.

3.5.4.2 Floods

The risk posed by the 100-year flood to San Luis Obispo is minimal to moderate, with less than ten percent of the total population residing in the SFHA. Within the 100-year flood zone 3,220 people and 867 residential buildings are exposed. However, approximately 30 percent of the critical facilities and nonresidential facilities are located within the 100-year flood zone.

3.5.4.3 Hazardous Materials Events

Within the 1-mile buffer around the three EHS sites, over half of the city's population and residential structures are exposed to EHS sites. This includes 23,497 people, 5,793 residential buildings, 199 nonresidential buildings, and 21 critical facilities are exposed. These figures are for all three EHS facilities and, therefore, overstate the exposure since the probability of all three facilities having an event simultaneously is very low.

Within the 1-mile buffer around the transportation facilities, nearly 75 percent of the City's population and residential structures and 90 percent of the nonresidential structures and critical facilities are exposed to a hazardous material transport event. This area includes 33,732 people, 9,013 residential buildings, 252 nonresidential buildings, and 26 critical facilities. As above, these figures are for the entirety of the transportation corridors and, therefore, overstate the exposure since a hazmat event along the corridors is unlikely to affect all of the area within the 1-mile buffer.

3.5.4.4 Landslides

Approximately 30 percent of the City's total population is exposed to high and moderate landslides. The high landslide hazard area includes only 342 people, 139 residential buildings, 1 nonresidential building, and 1 critical facility. However, 12,246 people, 3,787 residential buildings, and 6 critical facilities are located in the moderate landslide hazard area.

3.5.4.5 Wildland Fires

Most of the City has wildland hazard designation of low, with a small portion of the city designated as moderate, high, and extreme designations. Within the areas of moderate, high, and extreme exposures are 2,300 people (5 percent of the total population), 813 residential buildings, 6 nonresidential buildings, and 1 critical facility. Of less danger are areas of low wildfire hazard.

These areas include 41,528 people (95 percent of the total population), 11,675 residential buildings, 268 nonresidential buildings, and 29 critical facilities.

3.5.4.6 Windstorms

The entire City is equally susceptible to windstorms. Therefore, the City's entire population, critical facilities and infrastructure, and building stock are at risk to this hazard.

3.5.5 Future Development

The City of San Luis Obispo has a residential growth limit ordinance that sets a growth limit for residential units at 1 percent per year, averaged over a 3-year period. Although exemptions occur for lower cost housing, the average residential growth for all housing over the past 10 years has been from 0.5 to 0.8 percent, or about 120 units per year. This rate is expected to rise over the next 10 years to around 200 units per year because the City has recently approved a large residential expansion area. This area is located in the southern portion of the City being vulnerable to earthquake hazards.

The City of San Luis Obispo monitors nonresidential growth in several sectors, all of which fluctuate significantly over time depending on the economy. Nonresidential growth has generally occurred in the southern and western portions of the City. This area is at risk to flood hazards. The southwest portion of the City also has a number of fault lines associated with it.

While not required by DMA 2000, an important component of a hazard mitigation plan is a review of the City's resources to identify, evaluate, and enhance the capacity of those resources to mitigate the effects of hazards. This section evaluates City resources in three areas—legal and regulatory, administrative and technical, and financial—and assesses capabilities to implement current and future hazard mitigation actions.

4.1 LEGAL AND REGULATORY CAPABILITIES

The City currently supports hazard mitigation through its regulations, plans, and programs. The San Luis Obispo Municipal Code outlines hazard mitigation-related ordinances in 7 of its 12 titles. Additionally, pursuant to State planning laws, the General Plan includes a safety element with policies and programs to protect the community from risks associated with seismic, geologic, flood, and fire hazards. Another planning document used was the Emergency Response Plan, which establishes official City policy for response to emergencies in hazard-prone areas.

In addition to policies and regulations, the City participates in several hazard mitigation programs including the NFIP as well as the City's Unreinforced Masonry and Hazard Mitigation Programs.

Table 4-1 summarizes the City's hazard mitigation legal and regulatory capabilities.

Table 4-1
Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Plans	General Plan Safety Element	Establishes policies, programs, goals, and objectives to protect the community from risks associated with seismic, geologic, flood, and fire hazards.
	City of San Luis Obispo Emergency Plan	This plan outlines current mitigation activities and response procedures, which were used for the mitigation strategy.
	Water Shortage Contingency Plan	While drought is not considered a high hazard in the City, this plan reduces the threat of drought through water conservation and allocation measures.
Programs	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods.
	Unreinforced Masonry Hazard Mitigation Program	A program that requires seismic strengthening for unreinforced masonry buildings by July 1, 2010.
Polices and Ordinances (Municipal Code)	Chapter 8.08 Hazardous Weeds and Debris	Requires property owners to maintain property around structures, including firebreaks, trees adjacent to structures, and screens over the outlets of chimneys, and to mow dry noxious weeds located within certain distances from structures, property lines, and edges of roadways.
	Chapter 8.28 Hazardous Chemicals Transport	Does not allow the transportation of certain material determined to pose an extreme and unreasonable risk to persons residing in the City.
	Chapter 15.08 Fire Prevention Code	Requires the maintenance of access roads, removal of obstructions, availability water supply for fire protection, authorization of additional safeguards.
	Chapter 15 Uniform Codes Adopted	Maintains the current versions of uniform codes, including Code for the Abatement of Dangerous Buildings, Housing Code, Fire Code, etc.
	Chapter 17.84 Flood Damage Prevention	Addresses NFIP requirements, including methods and provisions for protecting structures against flood damage at the time of initial construction; controlling the alterations of natural floodplains and filling, grading, dredging, and other development that may increase flood damage; and preventing or regulating the construction of flood barriers that will unnaturally divert floodwaters or may increase flood hazards in other areas.

4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capability assessment identifies the staff and personnel resources available within the City to engage in mitigation planning and carry out mitigation projects. The City government consists of 10 departments: Police, Fire, Public Works, Utilities, Community Development, Parks and Recreation, Human Resources, Finance and Information Technology, Administration, and City Clerk. The City may increase its technical resources by drawing upon San Luis Obispo County staff. Currently, the City participates in the countywide Hazardous Materials Response Team and FireSafe Council. The City has its own Community Emergency Response Training. The administrative and technical capabilities of the City are listed in Table 4-2.

Table 4-2
Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Community Development
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Community Development, Public Works
Planner(s) or engineer(s) with an understanding of human-made or natural hazards	Community Development, Public Works, Fire Department
Floodplain manager	Public Works
Personnel skilled in GIS and/or HAZUS-MH	Information Technology, Public Works, Community Development
Director of Emergency Services	Mayor
Finance (grant writers, purchasing)	Finance
Public Information Officers	Administration

4.3 FINANCIAL CAPABILITIES

The fiscal capability assessment lists the specific financial and budgetary tools that are available to the City for hazard mitigation activities. These capabilities, which are listed in Table 4-3, include both local and Federal entitlements.

Table 4-3
Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity; however, it is only eligible for use with two-thirds voter approval.
Fire Prevention Fees & Fines	Can be used for hazard mitigation. Funds are raised through inspection and hazardous material fees and fines.
Enterprise Funds	Can be used for hazard mitigation. Funds are raised through street, utility, and parking fees.
General Funds	Can be used for hazard mitigation. Funds are raised through Sales and Transit Occupancy Taxes.
Development Impact Fees	There are development impact fees for water, wastewater, and transportation improvements.
Incur debt through general obligation bonds	Can be used for any hazard mitigation activity; however, it is only eligible for use with two-thirds voter approval.
Incur debt through special tax and revenue bonds	Debt funded from special taxes can be used for any hazard mitigation activity; however, it is only eligible for use with two-thirds voter approval. Debt funded from enterprise fund revenues (such as water fees) can be approved by the Council.
Incur debt through private activity bonds	Can be used for any hazard mitigation activity.
FEMA Hazard Mitigation Grant Program (HMGP) and Pre Disaster Mitigation (PDM) grants	HMGP grant funding is available to local communities after a Presidentially declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects. PDM funding is available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only.

The following provides an overview of the four-step process for preparing a mitigation strategy: developing mitigation goals and objectives, identifying and analyzing potential actions, prioritizing mitigation actions, and implementing an action plan.

5.1 MITIGATION GOALS AND OBJECTIVES

The requirements for the local hazard mitigation goals, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy – Local Hazard Mitigation Goals

Local Hazard Mitigation Goals

Requirement §201.6(c)(3)(i): [The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Element

- Does the plan include a description of mitigation **goals** to reduce or avoid long-term vulnerabilities to the identified hazards? (**GOALS** are long-term; represent what the community wants to achieve, such as "eliminate flood damage"; and are based on the risk assessment findings.)

Source: FEMA, March 2004.

During a Hazard Mitigation Team meeting in November 2004, the team members reviewed the hazard profiles and risk assessment results as a basis for developing mitigation goals and objectives. Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. Objectives are statements that detail how a community's goals will be achieved. Typically, objectives define strategies or implementation steps to attain identified goals. Using the *San Luis Obispo General Plan Digest 200* as a guideline, the Hazard Mitigation Team developed nine goals with associated objectives to reduce or avoid long-term vulnerabilities to the identified hazards. This mitigation planning process was reviewed and refined in December 2005.

5.2 POTENTIAL MITIGATION ACTIONS

The requirements for the identification and analysis of mitigation actions, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy - Identification and Analysis of Mitigation Actions

Identification and Analysis of Mitigation Actions

Requirement §201.6(c)(3)(ii): [The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

DMA 2000 Requirements: Mitigation Strategy - Identification and Analysis of Mitigation Actions

Element

- Does the plan identify and analyze a **comprehensive range** of specific mitigation actions and projects for each hazard?
- Do the identified actions and projects address reducing the effects of hazards on **new** buildings and infrastructure?
- Do the identified actions and projects address reducing the effects of hazards on **existing** buildings and infrastructure?

Source: FEMA, March 2004.

In addition to developing goals and objectives, the Hazard Mitigation Team created a list of potential mitigation actions. Mitigation actions are activities, measures, or projects that help achieve the goals and objectives of a mitigation plan. Mitigation actions are usually grouped into six broad categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects.

The Hazard Mitigation Team reviewed the City's hazard mitigation capabilities and risk assessment as a basis for developing potential mitigation actions. In addition, particular emphasis was placed on actions that reduced the effects of hazards on both new and existing buildings and infrastructure.

5.3 OVERVIEW OF THE MITIGATION GOALS, OBJECTIVES, AND POTENTIAL ACTIONS

Listed below are the City's specific hazard mitigation goals and objectives as well as related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

Goal 1. Promote disaster-resistant development.

Objective 1.A Ensure that local plans, policies, and programs are consistent with the hazard information identified in the LHMP.

Action 1.A.1 Review the Safety Element, Municipal Code, Zoning Regulations, hazard area maps, and LHMP implementation strategies for consistency with each other.

Objective 1.B. Educate City employees to increase their awareness of hazards, emergency response, and recovery.

Action 1.B.1 Train fire fighters, police officers, building inspectors, and public works and utilities staff to levels appropriate for their hazard mitigation tasks and responsibilities.

Action 1.B.2 Provide training for City staff who apply its building regulations and planning standards, emphasizing the lessons learned in locations that have experienced disasters.

Action 1.B.3 Conduct disaster-preparedness exercises for the types of hazards discussed in this LHMP.

Action 1.B.4 Apply training to City staff to deal with emergencies and to levels appropriate for their hazard mitigation tasks and responsibilities.

Objective 1.D Pursue available grant funding to implement mitigation measures.

Action 1.C.1 Review FEMA grant applications and establish internal procedures to streamline the application process.

Action 1.C.2 Apply for PDM and HMGP grants to fund mitigation actions identified in the LHMP.

Goal 2. Promote public awareness to prepare for, respond to, and recover from natural and human-made hazards.

Objective 2.A Educate the public to increase their awareness of hazards, emergency response, and recovery.

Action 2.A.1 Establish a budget and identify funding sources for mitigation outreach.

Action 2.A.2 Support the efforts and education of people with disabilities to prepare for disasters.

Action 2.A.3 Distribute appropriate public information about hazard mitigation programs and projects at City-sponsored events.

Action 2.A.4 Train citizens to deal with emergencies at times when professional responders would be overwhelmed.

Goal 3. Reduce the possibility of damage and losses due to earthquakes.

Objective 3.A Protect existing assets, as well as any future development, from the effects of earthquakes.

Action. 3.A.1 Continue to enforce the Uniform Building Code provisions pertaining to grading and construction relative to seismic hazards.

Action 3.A.2 Continue to enforce Uniform Building Code requirements for addressing liquefaction potential in the design of structures.

Action 3.A.3 Continue to implement the Unreinforced Masonry Hazard Mitigation Plan and strengthen buildings identified in Levels A and B.

Action 3.A.4 Continue to participate in the rehabilitation loan program that helps correct earthquake-risk nonmasonry building problems, including chimney bracing and anchoring water heaters.

Action 3.A.5 Develop and provide managers of mobile home parks with information on how to improve the seismic performance of mobile homes.

Action 3.A.6 Do not permit new development atop known faults.

Action 3.A.7 Require looped water mains in new development areas, so leaks can be isolated while preserving water service in most of the area.

Goal 4. Reduce the possibility of damage and losses due to floods.

Objective 6.A Protect existing assets and new development from floods.

Action 4.A.1 Develop and carry out environmentally sensitive flood reduction programs.

Action 4.A.2 Enlarge human-made bottlenecks, such as culverts, to reduce the effects of nuisance flooding.

Action 4.A.3 Require engineered floodplain and hydrologic analysis to be prepared for new development projects within or directly adjacent to 100-year floodplains.

Action 4.A.4 Limit uses in floodways to those tolerant of occasional flooding, including but not limited to outdoor recreation and natural resource areas.

Goal 5. Reduce the possibility of damage and losses due to hazardous materials events.

Objective 5.A Protect existing assets, as well as new development, from hazardous materials events.

Action 5.A.1 Require businesses that use, store, or transport hazardous materials to ensure that adequate measures are taken to protect public health and safety.

Action 5.A.2 Work with Caltrans to require all transport of hazardous materials to follow approved routes.

Action 5.A.3 Work with Union Pacific to ensure adequate precaution and preparedness regarding rail transport of hazardous materials.

Action 5.A.4 Use the City's Web site to post information regarding the safe handling and disposal of household chemicals.

Goal 6. Reduce the possibility of damage and losses due to landslides.

Objective 6.A Protect existing assets, as well as new development, from landslides.

Action 6.A.1 Require construction and maintenance of natural and/or human-made retaining structures that will help control landslide risk in key residential and/or commercial areas.

Action 6.A.2 Retrofit or implement stabilizing measures for hillside developments or moderate to high landslide areas that predate current best practices and codes.

Action 6.A.3 Require any development proposed in an area of moderate or high landslide potential to be subject to review and recommendation by a State-registered engineering geologist.

Goal 7. Reduce the possibility of damage and losses due to wildland fires.

Objective 7.A Protect existing assets, as well as new development, from wildland fires.

Action 7.A.1 Create a defensible space ordinance which requires that buildings that are in areas of moderate fire hazard areas and which are close to areas of high or extreme fire hazard areas shall have noncombustible exteriors.

Action 7.A.2 Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.

Action 7.A.3 Require an enhanced fire protection plan in high or extreme wildland fire hazard areas.

Goal 8. Reduce the possibility of damage and losses due to windstorms.

Objective 8.A Protect existing assets, as well as new development, from windstorms.

Action 8.A.1 Develop restrictions on planting large or rapidly growing trees near power lines and major arterials.

Action 8.A.2 Develop a program to assist property owners in selecting trees that are powerline friendly.

Action 8.A.3 Improve the safety and reliability of overhead lines through improved design, maintenance, right-of-way management, and inter-utility cooperation.

Action 8.A.4 Adopt prescriptive high wind design standards for new critical facilities.

5.4 ACTION PLAN

As listed above, the Hazard Mitigation Team identified 36 potential mitigation actions that will assist the City in mitigating the impact of natural and human-caused hazards. The DMA 2000 requires the evaluation, selection, and prioritization of the potential mitigation actions, as described below.

DMA 2000 Requirements: Mitigation Strategy - Implementation of Mitigation Actions

Implementation of Mitigation Actions

Requirement: §201.6(c)(3)(iii): [The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Element

- Does the mitigation strategy include how the actions are **prioritized**? (For example, is there a discussion of the process and criteria used?)
- Does the mitigation strategy address how the actions will be **implemented and administered**? (For example, does it identify the responsible department, existing and potential resources, and timeframe?)
- Does the prioritization process include an emphasis on the use of a **cost-benefit review** (see page 3-36 of *Multi-Hazard Mitigation Planning Guidance*) to maximize benefits?

Source: FEMA, March 2004.

The Hazard Mitigation Team reviewed the following questions to help identify the actions that would best help the City fulfill its mitigation goals and objectives, thereby reducing or avoiding long-term vulnerabilities to the identified hazards.

- Does the action mitigate assets identified as vulnerable in the LHMP's Risk Assessment?
- Is the action economically feasible (either through a grant or current funding sources)?
- Are proper laws, ordinances, and resolutions in place to implement the action?
- Is political and public support enough to implement the action and ensure its success?
- Does the action enforce and/or enhance current mitigation actions, as identified in LHMP's Capability Assessment?

Through this process, the Hazard Mitigation Team identified seven mitigation actions to be included in the LHMP action plan. Once selected, the Hazard Mitigation Team prioritized the actions based on a ranking system of high, medium, and low. The following considerations for this ranking process included:

- Benefits versus costs
- Ease of implementation
- Multi-objective actions
- Time

Additionally, the Hazard Mitigation Team identified how the action will be implemented and administered, including which departments or agencies would be responsible, existing and potential funding sources, and time frame. The final action plan is outlined in Table 5-1.

Table 5-1
Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline	Economic Justification	Priority Level
Action 1.B.3	Conduct disaster-preparedness exercises for the types of hazards discussed in this LHMP	Fire	Nuclear Power Preparedness Budget	Annual	Well-trained City staff will reduce loss of life, property damage, and ensure continuity of operations in all future large-scale disasters.	High
Action 2.A.4	Train citizens to deal with emergencies at times when professional responders would be overwhelmed	Fire	FEMA grant, business sponsorships, tuitions	Quarterly	Well-trained citizens will reduce loss of life and property damage and be an additional resource to emergency responders. Ensure self-sufficiency of citizens during the first 72 hours following a disaster.	High
Action 3.A.3	Continue to implement the Unreinforced Masonry (URM) Hazard Mitigation Plan and strengthen buildings identified in Levels A and B.	Community Development	HMGP or PDM grants	Level A by July 2007, Level B by July 2012	Secured structures will reduce loss of life, property damage, and ensure continuity of operations in a future earthquake event.	High
Action 3.A.5	Develop and provide owners of mobile homes with information on how to improve seismic performance of mobile homes.	Fire/Community Development	FEMA grant	December, 2007	Prevent large-scale loss of lives and reduce mobile home property damage.	High
Action 5.A.1	Require businesses that use, store, or transport hazardous materials to ensure that adequate measures are taken to protect public health and safety	Fire	Certified Unified Program Agency (CUPA)	Annual	Reduce the potential for hazardous materials spills by insuring proper storage, containment, and identification of hazardous materials.	High
Action 7.A.2	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.	Fire/Natural Resources Director/Parks and Recreation	FEMA and Fire Safe Council grants	Annual	Reduce the potential for wildland fires by improving and expanding the current fuel management program.	High

Table 5-1
Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline	Economic Justification	Priority Level
Action 1.C.1	Review FEMA grant applications and establish internal procedures to streamline the application process	Fire	FEMA grant	Annual	Grant funds supplement the City's budget for implementing hazard mitigation in all aspects of risk.	Moderate

This section describes a formal plan maintenance process to ensure that the LHMP remains an active and applicable document. It includes an explanation of how the City and the Hazard Mitigation Team intend to organize their efforts to ensure that improvements and revisions to the LHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail below:

- Monitoring, evaluating, and updating the LHMP
- Implementation through existing planning mechanisms
- Continued public involvement

6.1 MONITORING, EVALUATING, AND UPDATING THE LHMP

The requirements for monitoring, evaluating, and updating the LHMP, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Monitoring, Evaluating, and Updating the Plan

Monitoring, Evaluating and Updating the Plan

Requirement §201.6(c)(4)(i): [The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Element

- Does the plan describe the method and schedule for **monitoring** the plan? (For example, does it identify the party responsible for monitoring and include a schedule for reports, site visits, phone calls, and meetings?)
- Does the plan describe the method and schedule for **evaluating** the plan? (For example, does it identify the party responsible for evaluating the plan and include the criteria used to evaluate the plan?)
- Does the plan describe the method and schedule for **updating** the plan within the five-year cycle?

Source: FEMA, March 2004.

The City's Disaster Preparedness Committee will be responsible for monitoring, evaluating, and updating the LHMP. This committee is comprised of the Fire Chief and representatives of the police, public works, utilities, and administration departments. In addition to the Disaster Preparedness Committee, other interested parties, including members of the Hazard Mitigation Team, City Council, Planning Commission, and any other department representative, can be responsible for implementing the LHMP's action plan. The Fire Chief and Fire Department will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and revise the LHMP.

Every January the Disaster Preparedness Committee will monitor progress made within the LHMP by conducting a review of the progress in implementing the LHMP, particularly the action plan. The annual review will provide the basis for possible changes in the LHMP's action plan by refocusing on new or more threatening hazards, adjusting to changes to or increases in resource allocations, and engaging additional support for the LHMP implementation. The Fire Chief and Fire Department will initiate the annual review 1 month prior to the date of adoption. The findings from this review will be presented annually to the City Council. The review will include an evaluation of the following:

- Notable changes in the City's risk of natural or human-caused hazards

- Impacts of land development activities and related programs on hazard mitigation
- Progress made with the LHMP action plan (identify problems and suggest improvements as necessary)
- The adequacy of resources for implementation of the LHMP
- Participation of City agencies and others in the LHMP implementation

In addition to the annual review, the Disaster Preparedness Committee will update the LHMP every 5 years. To ensure that this update occurs, in the fourth year (2009) following adoption of the LHMP, the Disaster Preparedness Committee will undertake the following activities:

- Thoroughly analyze and update the City's risk of natural and human-made hazards.
- Provide a new annual review (as noted above), plus a review of the three previous annual reports.
- Provide a detailed review and revision of the mitigation strategy.
- Prepare a new action plan with prioritized actions, responsible parties, and resources.
- Prepare a new draft LHMP and submit it to San Luis Obispo City Council for adoption.
- Submit an updated LHMP to the California OES for approval.

The plan will be maintained in a three-ring binder with a checklist to indicate changes made and persons making the changes.

6.2 IMPLEMENTATION THROUGH EXISTING PLANNING MECHANISMS

The requirements for implementation through existing planning mechanisms, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Incorporation into Existing Planning Mechanisms

Incorporation into Existing Planning Mechanisms

Requirement §201.6(c)(4)(ii): [The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Element

- Does the plan identify other local planning mechanisms available for incorporating the requirements of the mitigation plan?
- Does the plan include a process by which the local government will incorporate the requirements in other plans, when appropriate?

Source: FEMA, March 2004.

After the adoption of the LHMP, the Disaster Preparedness Committee will ensure that the LHMP, in particular the action plan, is incorporated into existing planning mechanisms. The Disaster Preparedness Committee will achieve this incorporation by undertaking the following activities:

- Review the Safety Element and ensure that it is consistent with the risk assessment and action plan in the LHMP. Update, if necessary.
- Review the hazard assessment studies and emergency response plans of utilities and of transportation agencies and companies operating in the San Luis Obispo area, and update the City's Emergency Plan, including evacuation routes, as necessary.
- Work with other agencies in the area to expand and keep current safety-related information. The City will use sufficiently detailed analysis of hazards, and will update the City's safety and emergency plans as new information becomes available.
- Keep current and implement its Multihazard Emergency Response Plans, as required by the California Emergency Services Act.

Follow-up actions will include coordination meetings with the City's Public Works, Utilities, Community Development and Finance/IT Departments to ensure inclusion of mitigation strategies into ongoing City processes. These processes include City efforts from building standards to public works projects to the Capital Improvement Program. These coordination meetings will be facilitated by the Fire Department and will occur within 90 days of the report's adoption by the City Council.

6.3 CONTINUED PUBLIC INVOLVEMENT

The requirements for continued public involvement, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Continued Public Involvement

Continued Public Involvement

Requirement §201.6(c)(4)(iii): [The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.

Element

- Does the plan explain how **continued public participation** will be obtained? (For example, will there be public notices, an ongoing mitigation plan committee, or annual review meetings with stakeholders?)

Source: FEMA, March 2004.

The City is dedicated to involving the public directly in the continual reshaping and updating of the LHMP. Hard copies of the LHMP will be provided to each department. In addition, a downloadable copy of the plan and any proposed changes will be posted on the City's Web site. This site will also contain an e-mail address and phone number to which people can direct their comments or concerns.

The Disaster Preparedness Committee will also identify opportunities to raise community awareness about the LHMP and the City's hazards. This effort could include attendance and provision of materials at City-sponsored events. Any public comments received regarding the LHMP will be collected by the Fire Department, included in the annual report to the City Council, and considered during future LHMP updates.

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Appendix A
Adoption Resolution

RESOLUTION NO. 9773 (2006 Series)

A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN LUIS OBISPO APPROVING THE DISASTER MITIGATION ACT (DMA 2000) CITY OF SAN LUIS OBISPO LOCAL HAZARD MITIGATION PLAN

WHEREAS, the Local Hazard Mitigation Planning Team has drafted a Local Hazard Mitigation Plan to advance better mitigation planning and projects within the City of San Luis Obispo and,

WHEREAS, each City department and the public has contributed to this planning approach under the direction of the Federal Disaster Mitigation Act of 2000 and,

WHEREAS, the San Luis Obispo City Council agrees to abide by the Disaster Mitigation Act 2000 guidance and grant guidelines and this plan represents the compliance with same;

NOW, THEREFORE, BE IT RESOLVED that the plan entitled "City of San Luis Obispo Local Hazard Mitigation Plan" is formally adopted as our plan and road map to a more disaster resistant community.

On motion of Council Member Ewan, seconded by Vice Mayor Settle, and on the following roll call vote:

AYES:	Council Members Brown, Ewan and Mulholland, Vice Mayor Settle and Mayor Romero
NOES:	None
ABSENT:	None

R 9773

Resolution No. 9773 (2006 Series)
Page 2

The foregoing Resolution was passed and adopted this 7th day of March 2006.

Mayor David F. Romero

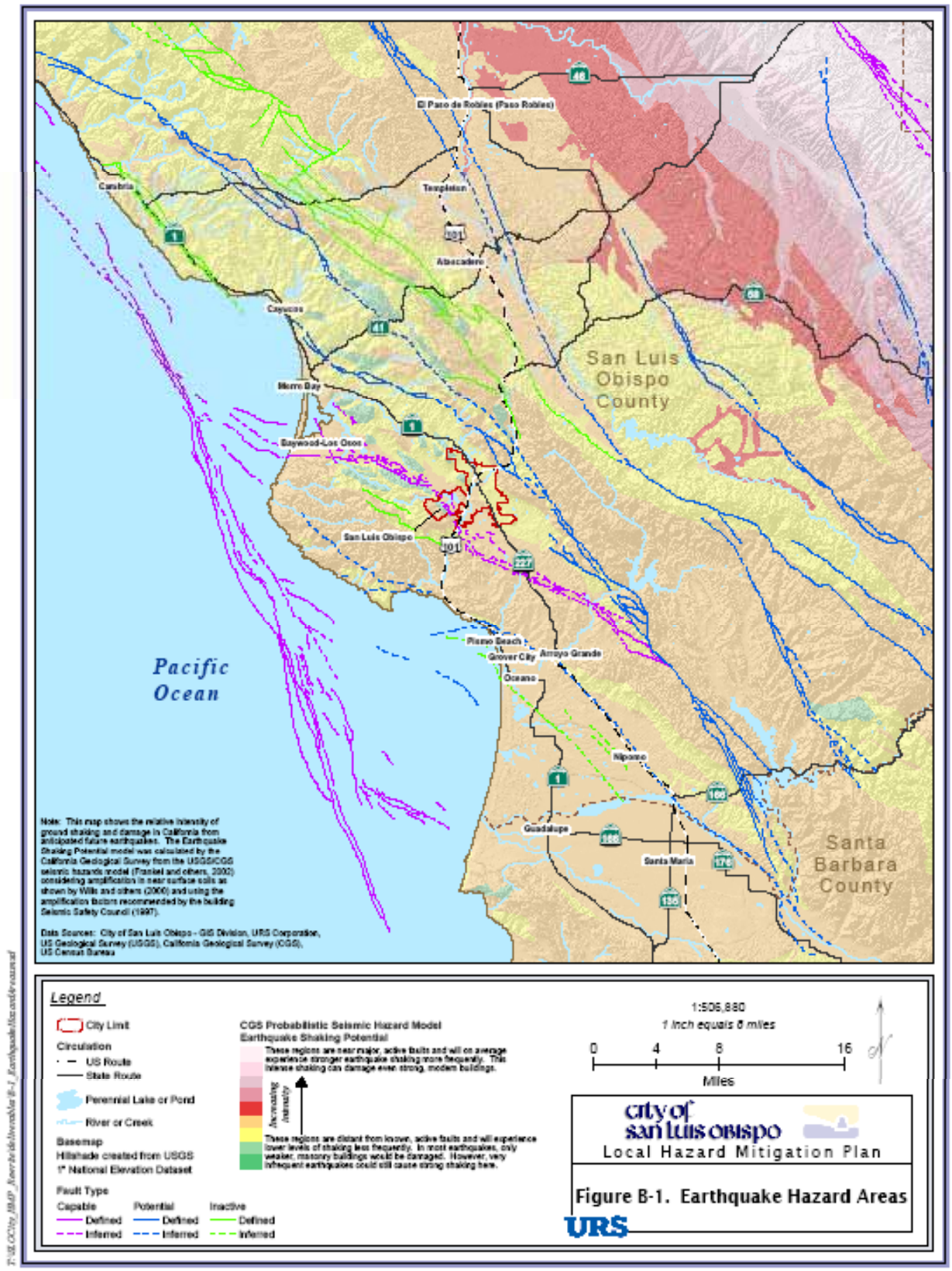
ATTEST:

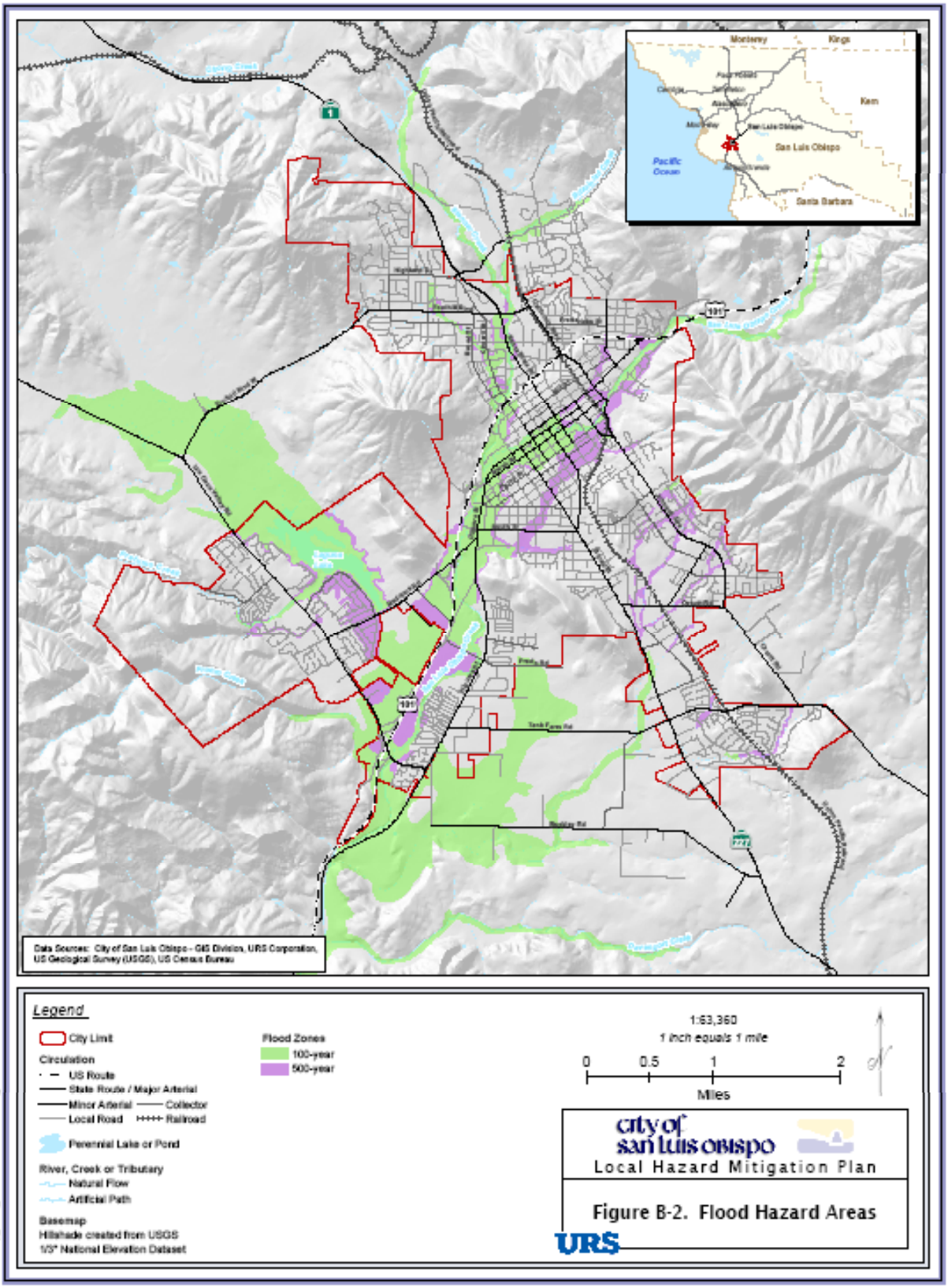
Audrey Hooper
City Clerk

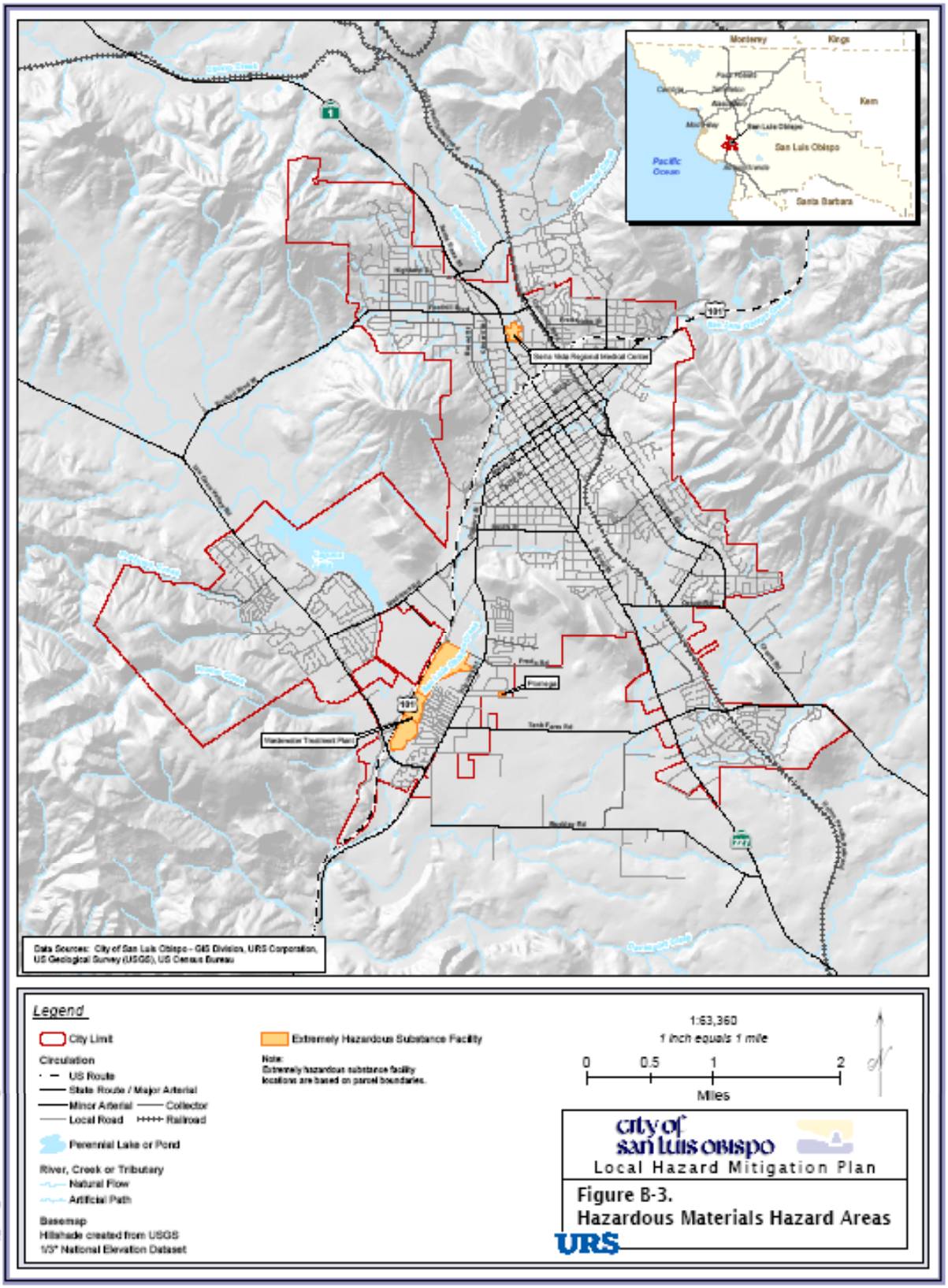
APPROVED AS TO FORM:

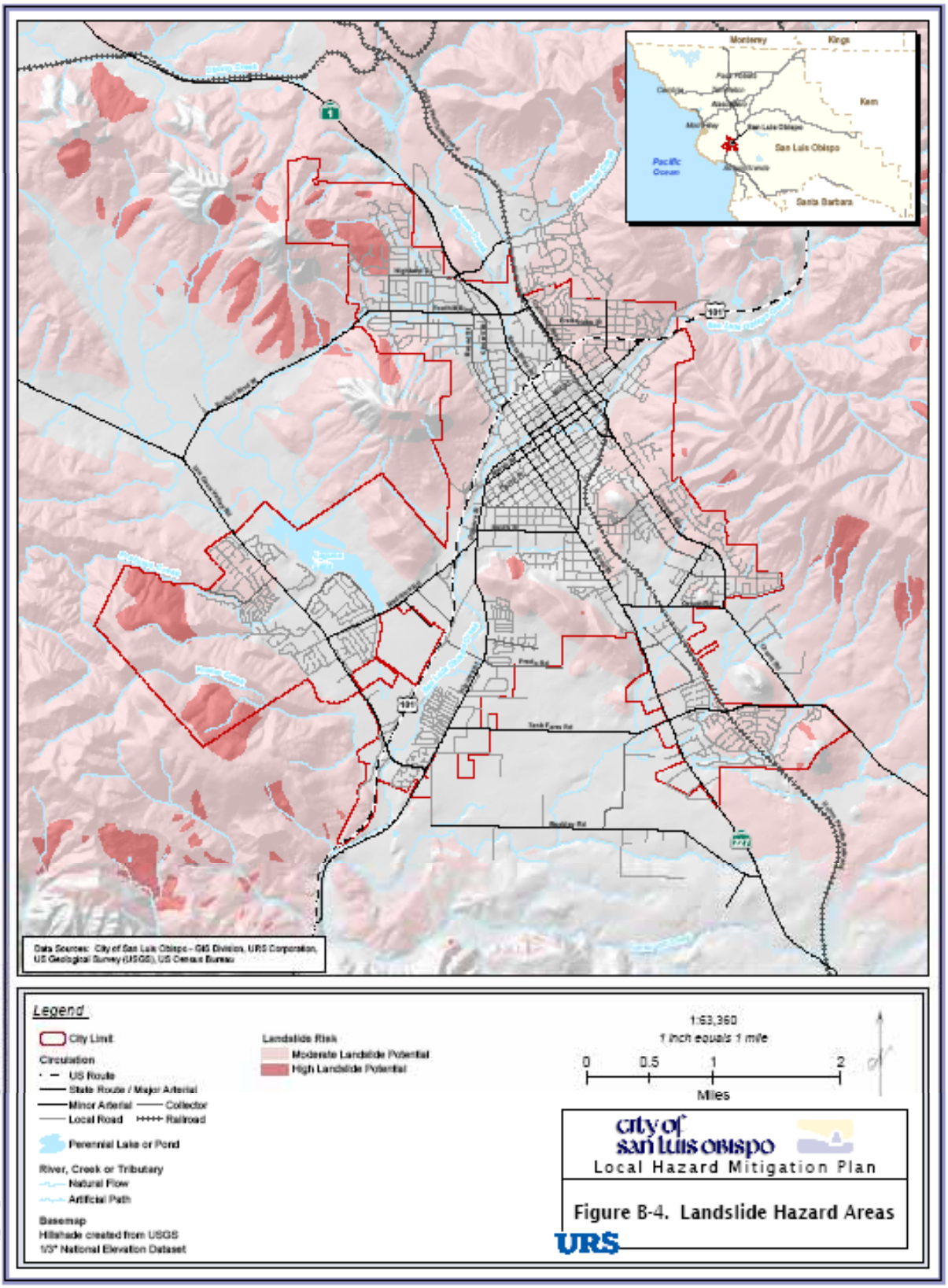
Jonathan P. Lowell
City Attorney

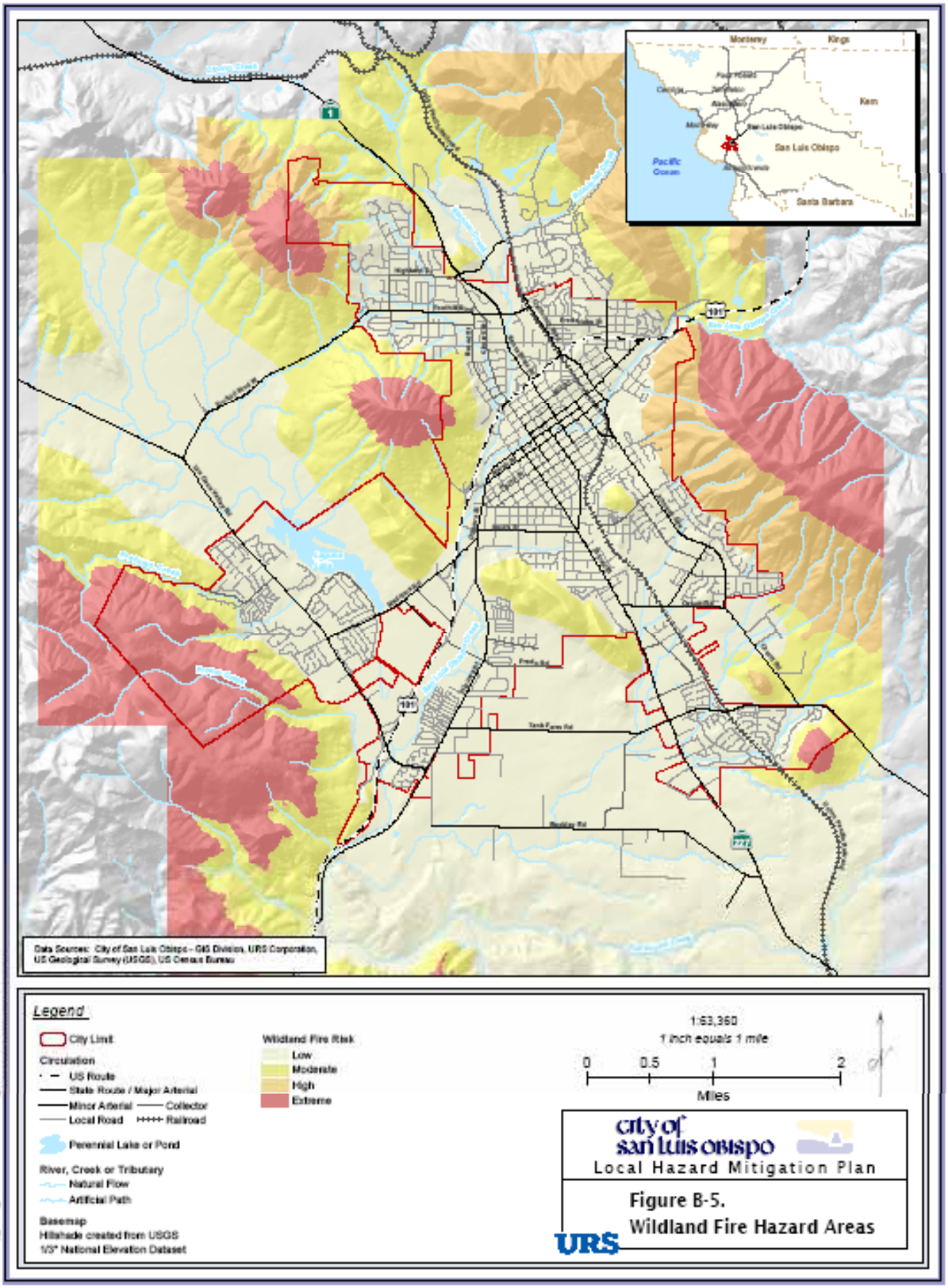
Appendix B
Figures

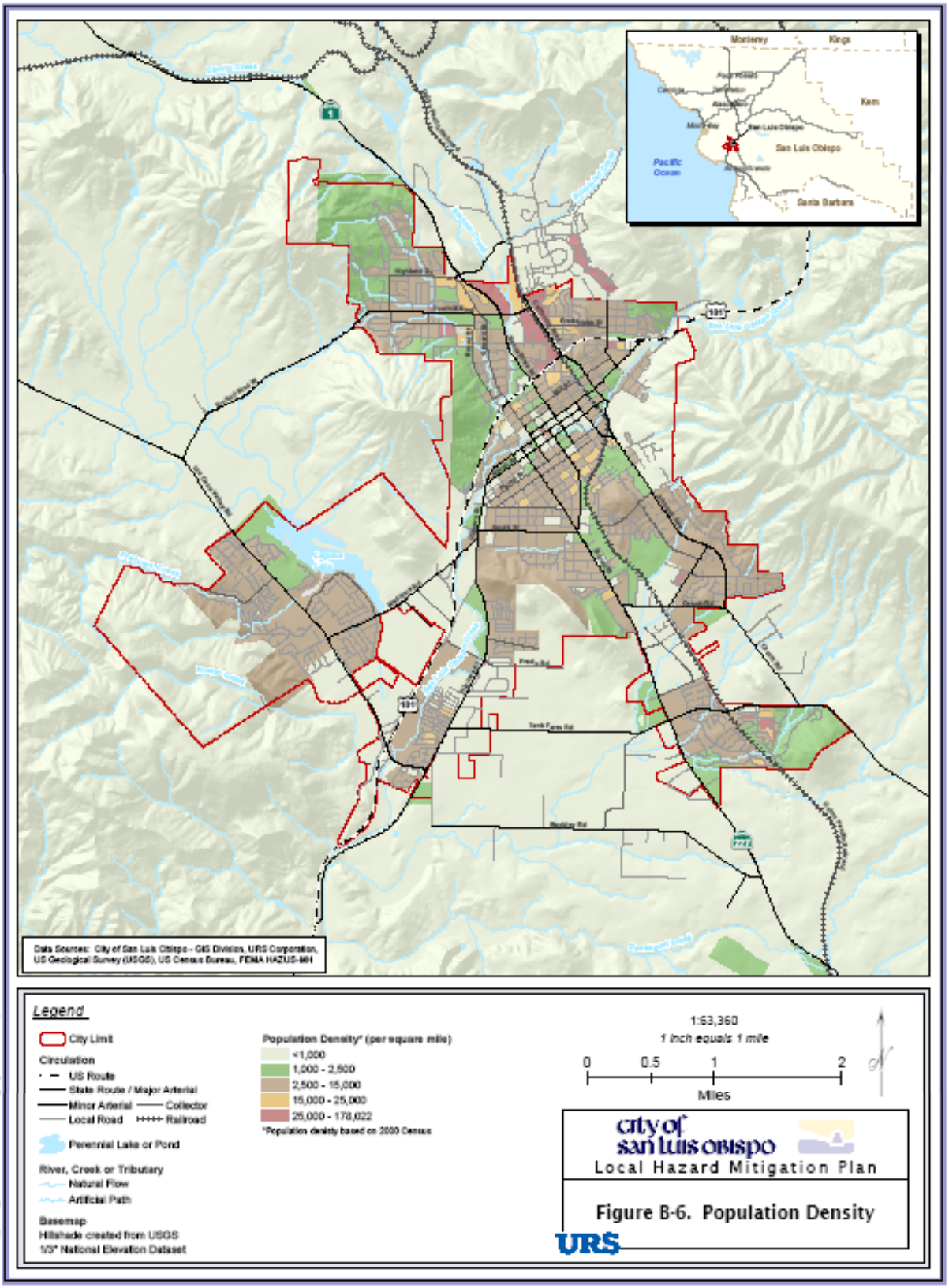

El Paso de Robles (Paso Robles)
Cambria
Templeton
Atascadero
Cayucos
Morro Bay
Baywood-Los Osos
San Luis Obispo
Pismo Beach
Grover City
Arroyo Grande
Oceano
Nipomo
Guadalupe
Santa Maria
San Luis Obispo County
Santa Barbara County
Pacific Ocean
Note: This map shows the relative intensity of ground shaking and damage in California from anticipated future earthquakes. The Earthquake Shaking Potential model was calculated by the California Geological Survey from the USGS/CGS seismic hazards model (Frankel and others, 2002) considering amplification in near surface soils as shown by Wills and others (2000) and using the amplification factors recommended by the building Seismic Safety Council (1997).
Data Sources: City of San Luis Obispo - GIS Division, URS Corporation, US Geological Survey (USGS), California Geological Survey (CGS), US Census Bureau
Legend
City Limit
Circulation
US Route
State Route
Perennial Lake or Pond
River or Creek
Basemap
Hillshade created from USGS
1° National Elevation Dataset
Fault Type
Capable
Potential
Inactive
Defined
Inferred
CGS Probabilistic Seismic Hazard Model
Earthquake Shaking Potential
These regions are near major, active faults and will on average experience stronger earthquake shaking more frequently. This intense shaking can damage even strong, modern buildings.
Increasing intensity
These regions are distant from known, active faults and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking here.
1:506,880
1 inch equals 8 miles
0
4
8
16
Miles
city of san luis obispo
Local Hazard Mitigation Plan
Figure B-1. Earthquake Hazard Areas
URS

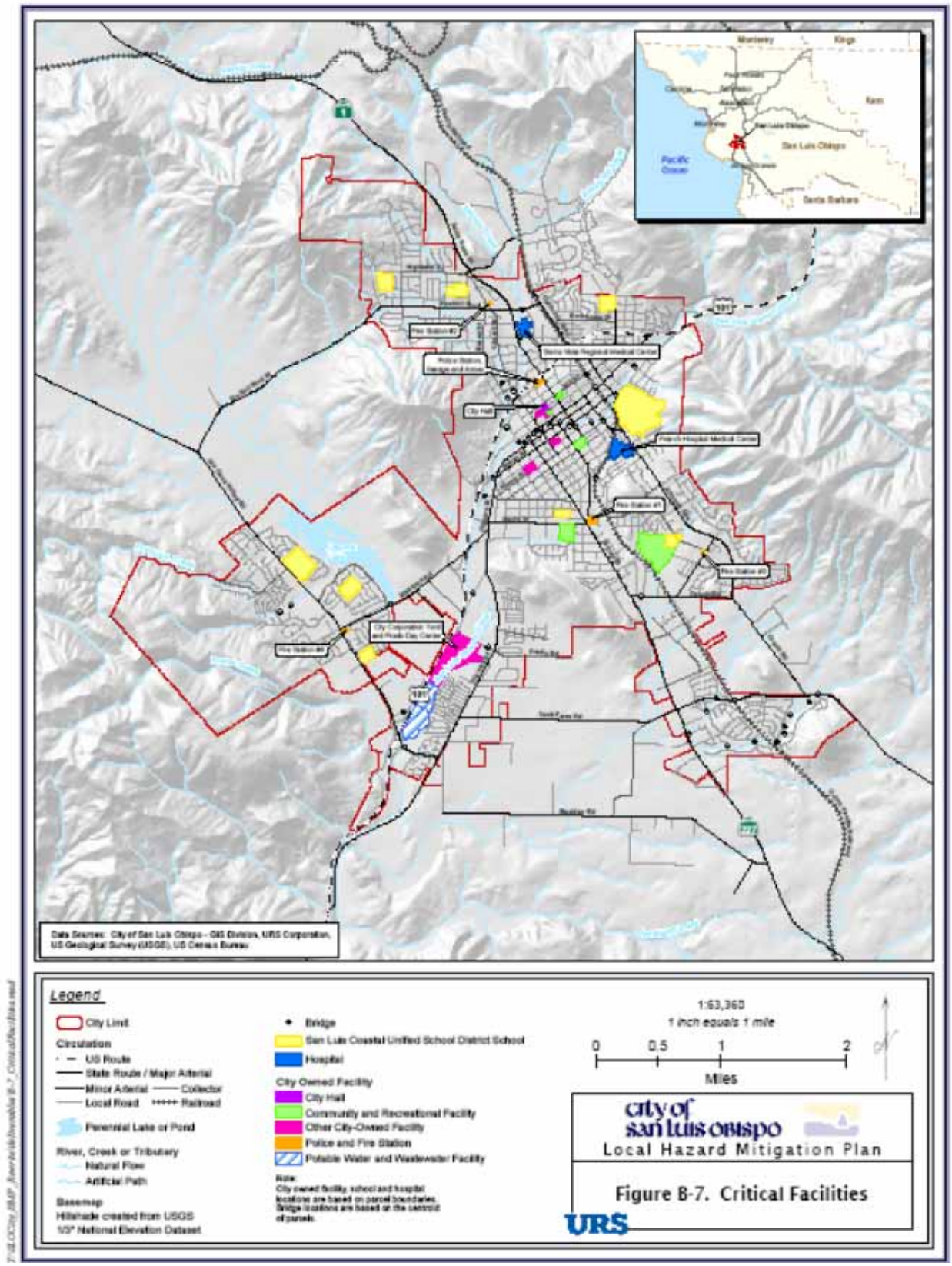

Monterey
Kings
Kern
San Luis Obispo
Pacific Ocean
Santa Barbara
Data Sources: City of San Luis Obispo - GIS Division, URS Corporation, US Geological Survey (USGS), US Census Bureau
Legend
City Limit
Circulation
US Route
State Route / Major Arterial
Minor Arterial
Collector
Local Road
Railroad
Perennial Lake or Pond
River, Creek or Tributary
Natural Flow
Artificial Path
Basemap
Hillshade created from USGS
1/3" National Elevation Dataset
Flood Zones
100-year
500-year
1:63,360
1 inch equals 1 mile
0
0.5
1
2
Miles
city of san luis obispo
Local Hazard Mitigation Plan
Figure B-2. Flood Hazard Areas
URS


Monterey
Kings
Kern
San Luis Obispo
Santa Barbara
Pacific Ocean
Data Sources: City of San Luis Obispo - GIS Division, URS Corporation, US Geological Survey (USGS), US Census Bureau
Legend
City Limit
Circulation
US Route
State Route / Major Arterial
Minor Arterial
Collector
Local Road
Railroad
Perennial Lake or Pond
River, Creek or Tributary
Natural Flow
Artificial Path
Basemap
Hillshade created from USGS
1/3" National Elevation Dataset
Extremely Hazardous Substance Facility
Note:
Extremely hazardous substance facility locations are based on parcel boundaries.
1:63,360
1 inch equals 1 mile
0
0.5
1
2
Miles
city of san luis obispo
Local Hazard Mitigation Plan
Figure B-3.
Hazardous Materials Hazard Areas
URS


Monterey
Kings
Kern
San Luis Obispo
Santa Barbara
Pacific Ocean
Data Sources: City of San Luis Obispo - GIS Division, URS Corporation, US Geological Survey (USGS), US Census Bureau
Legend
City Limit
Circulation
US Route
State Route / Major Arterial
Minor Arterial
Collector
Local Road
Railroad
Perennial Lake or Pond
River, Creek or Tributary
Natural Flow
Artificial Path
Basemap
Hillshade created from USGS
1/3" National Elevation Dataset
Landslide Risk
Moderate Landslide Potential
High Landslide Potential
1:63,360
1 inch equals 1 mile
0
0.5
1
2
Miles
city of san luis obispo
Local Hazard Mitigation Plan
Figure B-4. Landslide Hazard Areas
URS


Monterey
Kings
Kern
San Luis Obispo
Santa Barbara
Pacific Ocean
Data Sources: City of San Luis Obispo - GIS Division, URS Corporation, US Geological Survey (USGS), US Census Bureau
Legend
City Limit
Circulation
US Route
State Route / Major Arterial
Minor Arterial
Collector
Local Road
Railroad
Perennial Lake or Pond
River, Creek or Tributary
Natural Flow
Artificial Path
Basemap
Hillshade created from USGS
1/3" National Elevation Dataset
Wildland Fire Risk
Low
Moderate
High
Extreme
1:63,360
1 inch equals 1 mile
0
0.5
1
2
Miles
city of san luis obispo
Local Hazard Mitigation Plan
Figure B-5.
Wildland Fire Hazard Areas
URS


Monterey
Kings
Kern
San Luis Obispo
Santa Barbara
Pacific Ocean
Data Sources: City of San Luis Obispo - GIS Division, URS Corporation, US Geological Survey (USGS), US Census Bureau, FEMA HAZUS-MH
Legend
City Limit
Circulation
US Route
State Route / Major Arterial
Minor Arterial
Collector
Local Road
Railroad
Perennial Lake or Pond
River, Creek or Tributary
Natural Flow
Artificial Path
Basemap
Hillshade created from USGS
1/3" National Elevation Dataset
Population Density* (per square mile)
<1,000
1,000 - 2,500
2,500 - 15,000
15,000 - 25,000
25,000 - 178,022
*Population density based on 2000 Census
1:63,360
1 inch equals 1 mile
0
0.5
1
2
Miles
city of san luis obispo
Local Hazard Mitigation Plan
Figure B-6. Population Density
URS


Legend
City Limit
Circulation
US Route
State Route / Major Arterial
Minor Arterial
Collector
Local Road
Railroad
Perennial Lake or Pond
River, Creek or Tributary
Natural Flow
Artificial Path
Basemap
Hillshade created from USGS
1/3" National Elevation Dataset
Bridge
San Luis Coastal Unified School District School
Hospital
City Owned Facility
City Hall
Community and Recreational Facility
Other City-Owned Facility
Police and Fire Station
Potable Water and Wastewater Facility
Note:
City owned facility, school and hospital locations are based on parcel boundaries.
Bridge locations are based on the centroid of parcels.
1:63,360
1 inch equals 1 mile
0
0.5
1
2
Miles
city of san luis obispo
Local Hazard Mitigation Plan
Figure B-7. Critical Facilities
URS

Appendix C
Public Involvement

About the Dept
History
Facilities
Apparatus
Administration
Operations
Training/Equipment
Public Outreach
Fire Prev/Life Safety
Disaster Prep
C.E.R.T.
Developer's Guide
Photo Gallery
Links
Fire Dept News
FAQs
What's New
How are we doing?
Department Home

city of
san luis OBISPO

FIRE DEPARTMENT

Search Contact Us Home

City of San Luis Obispo's Disaster Mitigation Planning Effort

The City of San Luis Obispo is carrying out a planning effort, known as the Hazard Mitigation Plan, to asses risks posed by natural and manmade disasters and identify ways to reduce those risks. The hazards identified in this plan include floods, earthquakes, hazardous materials events, landslides, wildland fires, and windstorms. This plan is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

The draft plan will be made available in early 2006. The City intends to submit the final version of this plan to FEMA by February 2006. The public is invited to participate in this planning process. For additional information, or to submit comments, please contact the plan's Project Manager, Viv Dilts, at 805-781-7382 or vdilts@slocity.org.

San Luis Obispo City Fire Department Hires New Fire Chief

John Callahan has been appointed Fire Chief for the City of San Luis Obispo by Ken Hampian, City Administrative Officer. Hampian said Callahan will start on Tuesday, November 1 and will be sworn in at the City Council meeting that night.

Chief Callahan served the Los Angeles City Fire Department for over 32 years until he retired from that department in 2003. As a Deputy Chief and Commander of Operations with LA City Fire, he held the second highest-ranking position in the Department. During his career he managed the implementation of a Computer Aided Dispatch (CAD) System, acted as commander of the Fire Suppression and Rescue Bureau, and oversaw Disaster Preparedness, Communications and Dispatch, and In-Service Training. In addition, he oversaw LAFD preparations for the 2000 Democratic National Convention and served as the Department's liaison with the Mayor and City Council. Chief Callahan has extensive experience with major emergencies such as brush fires and earthquakes, both in preparedness and response.

Chief Callahan holds a Bachelor of Arts degree in Management from the University of Redlands, and a degree in Fire Technology. He has also received extensive training from the National Fire Academy's Executive Fire Officer Program. He has served as the Vice-President of the LAFD Chief

December 8, 2005

Mike Pond, Chief
City of Morro Bay Fire Department
715 Harbor Street
Morro Bay, CA 93442

Dear Chief Pond:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

Planning efforts will focus on potential impacts of natural hazards including floods, earthquakes, hazardous materials events, landslides, wildland fires, and windstorms within the City limits. Mitigation measures will focus on prevention, property and natural resource protection, public education and awareness, enhanced emergency services, and improved management practices for structural projects.

The draft plan will be made available in early 2006. The City intends to submit the final version of this plan to FEMA by February 2006. The public, including local agencies, is invited to participate in this planning process. Interested persons can contact me at 781-7382 or e-mail me at vdilts@slocity.org

Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

Terry Fibich, Fire Chief
City of Grover Beach Fire Department
P O Box 365
San Luis Obispo, CA 93483

Dear Chief Fibich:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

John Allen, Sergeant
City of Arroyo Grande Police Department
200 North Halcyon Road
Arroyo Grande, CA 93420

Dear Sergeant Allen:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

Cal Poly State University
Administration
Attn: Vicki Stover
Cal Poly University
San Luis Obispo, CA 93407

Dear Ms. Stover:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

Ken Johnson, Fire Chief
City of Paso Robles Dept of Emergency Services
900 Park Street
Paso Robles, CA 93446

Dear Fire Chief Johnson:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

Tom Way, Fire Captain
City of Atascadero Fire Department
6005 Lewis Avenue
Atascadero, CA 93422

Dear Fire Captain Way:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

Dan Turner, Chief
County Fire OA Coordinator
CDF/County Fire
635 North Santa Rosa Street
San Luis Obispo, CA 93405

Dear Fire Chief Turner:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

Pat Hedges, Sheriff-Coroner
Law Enforcement OA Coord.
Sheriff's Department
P.O. Box 32
San Luis Obispo, CA 93406

Dear Sheriff-Coroner Hedges:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 8, 2005

Ron Alsop, Emergency Services Coordinator
Op Area Coordinator
County of San Luis Obispo OES
County Govt. Ctr., Rm. 370
San Luis Obispo, CA 93408

Dear Ron:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst

December 27, 2005

Terry Fibich, Fire Chief
City of Arroyo Grande Fire Department
P O Box 550
Arroyo Grande, CA 93421-0550

Dear Chief Fibich:

The City of San Luis Obispo is carrying out a planning effort to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan, known as the Hazard Mitigation Plan, is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

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Sincerely,

Viv Dilts

Administrative Analyst