PASO ROBLES
JOINT UNIFIED SCHOOL DISTRICT
HAZARD MITIGATION PLAN

Prepared for:

Paso Robles Joint Unified School District

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December, 2005

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List of Acronyms

CEQA	California Environmental Quality Act
CDFG	California Department of Fish and Game
ANSI	American National Standards Institute
APA	American Planning Association
CARS	California Revised Statutes
ASCE	American Society of Civil Engineers
CDC	Centers for Disease Control and Prevention
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DFIRM	Digital Flood Insurance Rate Map
DMA 2000	Disaster Mitigation Act of 2000
EHS	Extremely Hazardous Substance
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
FEMA	Federal Emergency Management Agency
FTE	Full-Time Equivalent
HAZMAT	Hazardous Material
HAZUS-99	Hazards United States1999
HAZUS-MH	Hazards United States Multi-Hazard
HMP	Hazard Management Plan
HMPT	Hazard Mitigation Planning Team
HUD	Department of Housing and Urban Development
IOM	Institute of Medicine
JUSD	Paso Robles Joint Unified School District
LEPC	Local Emergency Planning Committee
MMI	Modified Mercalli Intensity
NCDC	National Climate Data Center
NESDIS	National Environmental Satellite, Data and Information Service
NFIP	National Flood Insurance Program
NHC	National Hurricane Center

List of Acronyms (Continued)

NIBS	National Institute of Building Services
NIST	National Institute of Standards and Technology
NSF	National Science Foundation
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center
NWS	National Weather Service
SARA	Superfund Amendments and Reauthorization Act
SEMS	Standardized Emergency Management System
SERC	State Emergency Response Commission
UBC	Uniform Building Code
URS	URS Corporation
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forest Service
USGS	United States Geological Survey

1.0 EXECUTIVE SUMMARY

Across the United States, natural and human-caused disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The toll on families and individuals can be immense after a disaster, damaged businesses may not be able to contribute to the economy afterward, and damaged school facilities could halt essential education processes. The time, money and emotional effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems. The Paso Robles Joint Unified School District (otherwise referenced in this document as the District, School District, or JUSD) recognizes the consequences of disasters and the need to reduce the impacts of natural and human-caused hazards. In addition, the recent San Simeon earthquake that shook the City of Paso Robles in December, 2003, caused damage and loss of life that has focused the District's attention on the necessity of a Hazard Mitigation Plan.

The elected and appointed officials of the District know that with careful selection, mitigation actions in the form of projects and programs can become long-term, cost effective means for reducing the impact of natural and human-caused hazards. Applying this knowledge, the District has collaborated to prepare this Joint Unified School District Hazard Mitigation Plan (Plan) with the support of various District and City officials, URS Corporation consultants, the County of San Luis Obispo Department of Emergency Services, California Office of Emergency Services, and the Federal Emergency Management Agency (FEMA). This Plan is the result of X months of work to develop a Hazard Mitigation Plan that will guide the District toward greater disaster resistance in full accord with the character and needs of the District and the Disaster Mitigation Act of 2000. A complete description of how this Plan is organized is given in Section 3.3 (Plan Description).

Students and staff in the District are at risk from a variety of hazards that have the potential for causing loss of life and damage to property, infrastructure, and the environment. These potential hazards are identified and assessed in Section 6 (Risk Assessment) of this Plan and include the following: earthquake, flood, hazardous materials, and wildland fires. Historical experience and the risk assessment results confirm that earthquakes pose the greatest risk to the District.

The purpose of hazard mitigation is to implement actions that eliminate the risk from these hazards, or reduce the severity of the effects of hazards on people and property. Mitigation actions are both short-term and long-term activities that reduce the cause or occurrence of hazards; reduce exposure to hazards; or reduce effects of hazards through various means to include preparedness, response, and recovery measures. The District's proposed mitigation actions are defined in Section 7 (Mitigation Strategy) of this Plan.

Following each major disaster declaration, the District is required to review and update the Plan's mitigation strategy. Additionally, in compliance with FEMA regulations, the Plan must be reviewed, revised if appropriate, and resubmitted for approval within the next five years in order to continue to be eligible for various hazard mitigation grant funding sources, including the Hazard Mitigation Grant Program (HMGP). It is however, recommended that the Plan be reviewed annually to ensure it remains current.

2.0 OFFICIAL RECORD OF ADOPTION

The purpose of this section is to provide an overview of the Disaster Mitigation Act of 2000. This includes a review of the requirements, District adoption and supporting documentation.

2.1 DMA 2000 REQUIREMENTS

The Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390) provides an opportunity for States, Tribes, and local governments to take a new and revitalized approach to mitigation planning. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Act) by repealing the previous Mitigation Planning section (409) and replacing it with a new Mitigation Planning section (322). This new section emphasizes the need for State, Tribal, and local entities to closely coordinate mitigation planning and implementation efforts. It continues the requirement for a State mitigation plan as a condition of disaster assistance, and creates incentives for increased coordination and integration of mitigation activities at the State level through the establishment of requirements for two different levels of State plans: "Standard" and "Enhanced." States that demonstrate an increased commitment to comprehensive mitigation planning and implementation through the development of an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program (HMGP). Section 322 also established a new requirement for Local Mitigation Plans, and authorized up to 7% of HMGP funds available to a State to be used for development of State, Tribal, and Local Mitigation Plans.

To implement the DMA 2000 planning requirements, FEMA published an Interim Final Rule (the Rule) in the Federal Register on February 26, 2002. This Rule (44 CFR Part 201) established the mitigation planning requirements for States, Tribes, and local communities. Normally FEMA publishes a proposed rule for public comment before publishing a final rule. This process can result in a lengthy comment and response period, during which the proposed rule is not legally effective or enforceable. Because certain types of Stafford Act assistance are conditioned on having an approved mitigation plan, FEMA wanted to publish an effective rule providing the DMA 2000 planning requirements in order to position State and local governments to receive these mitigation funds as soon as possible.

TABLE 2-1
DMA 2000 REQUIREMENTS - PREREQUISITES

Adoption by the Local Governing Body
Requirement §201.6(c)(5): [The local hazard mitigation plan **shall** include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).
Element
A. Has the local governing body adopted the plan?
B. Is supporting documentation, such as a resolution, included?

Source: FEMA March 2004.

2.2 ADOPTION BY THE LOCAL GOVERNING BODY AND SUPPORTING DOCUMENTATION

The Paso Robles Joint Unified School District Mitigation Plan (Plan) meets the requirements of Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act) and Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000). This includes meeting the requirement that the District adopt the Plan.

The Paso Robles Joint Unified School District Hazard Mitigation Plan has been prepared by the District Hazard Mitigation Planning Team (HMPT) and adopted by the District via resolution, which is attached as Appendix A.

3.0 BACKGROUND

The purpose of this section is to provide an overview of the *Paso Robles Joint Unified School District Hazard Mitigation Plan* (Plan). This includes a review of the background, authority and purpose of the Plan, and a description of the Plan document.

3.1 INTRODUCTION

The Disaster Mitigation Act of 2000 (DMA), commonly known as the 2000 Stafford Act amendments, was approved by Congress on October 10, 2000. On October 30, 2000, the President signed the bill into law, creating Public Law 106-390. The purposes of the DMA are to amend the Stafford Act, establish a national program for pre-disaster mitigation, and streamline administration of disaster relief.

3.2 PLAN PURPOSE AND AUTHORITY

This Plan meets the requirements of the federal DMA, which calls for all communities and school districts to prepare mitigation plans. By preparing this Plan, the Paso Robles Joint Unified School District is eligible to receive federal mitigation funding after disasters and to apply for mitigation grants before disasters strike. This Plan starts an ongoing process to evaluate the risks for different types of hazards to the School District, and to engage the District in dialogue to identify which steps are most important to pursue to reduce these risks. This constant focus on planning for disasters will make the School District much safer.

The local mitigation planning requirements encourage agencies at all levels, local residents, businesses, and the non-profit sector to participate in the mitigation planning and implementation process. This broad public participation enables the development of mitigation actions that are supported by these various stakeholders and reflect the needs of the entire District.

States are required to coordinate with local governments in the formation of hazard mitigation strategies, and the local strategies combined with initiatives at the State level form the basis for the State Mitigation Plan. With the information contained in Local Mitigation Plans, States are better able to identify technical assistance needs and prioritize project funding. Furthermore, as communities prepare their plans, States can continually improve the level of detail and comprehensiveness of statewide risk-assessments.

For FEMA's Pre-Disaster Mitigation (PDM) grant program and Hazard Mitigation Grant Program (HMGP), a local jurisdiction must have an approved Local Hazard Mitigation Plan to be eligible for PDM and HMGP funding for Presidentially declared disasters after November 1, 2004. Plans approved at any time after November 1, 2004, will allow communities to be eligible to receive PDM and HMGP project grants.

Adoption by the local governing body demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in the plan. Adoption legitimizes the plan and authorizes responsible agencies to execute their responsibilities. The plan includes documentation of the resolution adopting the plan.

FEMA's Interim Final Rule requires that Local Plans be submitted to the State Hazard Mitigation Officer for initial review and coordination, with the State then forwarding the plans to FEMA for formal review and approval.

3.3 PLAN DESCRIPTION

The District Hazard Mitigation Plan consists of the following primary functions:

District Description

To provide an adequate background for the hazard profiles and risk assessments that are presented in subsequent chapters, the District is described in some detail. This description includes a general history and background, and also includes a discussion regarding the historical and predicted future enrollment trends for students, necessary expansions and remodels of school facilities, and economic forecasts that shape the District.

Historical Record, Hazard Profiles, Vulnerability Assessment

Through this procedure the planning team identified and compiled relevant data on all potential natural hazards that threaten the District facilities and the immediately surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the School District and how these events impacted populations and the property.

Based upon historical occurrences and best available data from agencies such as FEMA, U.S. Geological Survey, California Geologic Survey, and the National Weather Service, the planning team identified and described all natural hazards that threaten the School District. Detailed hazard profiles include information on the frequency, magnitude, location and impact for each hazard in addition to estimating the probabilities for future hazard events. Maps are included at the back of the Plan to delineate identified hazard areas and previous hazard occurrences.

Risk Assessment

This section reflects the collection and integration of the best available data, including an inventory of assets that may be affected by natural hazards such as students, staff, and District facilities.. This data was compiled by assessing the potential impacts from each hazard using FEMA's Hazards U.S. (HAZUS) multi-hazard loss estimation model and other risk modeling techniques. The subsequent information provides the District with information that outlines the full range of hazards the District may face and potential social impacts, damages and economic losses.

Mitigation Strategy

Based upon the findings of the capability assessment and the risk assessment, the consultant team worked with the District Hazard Mitigation Planning Team towards drafting an overall mitigation strategy for the District. These groups collaborated to engage in an interactive planning process by facilitating discussion on possible mitigation activities and by gaining consensus on the identification of the general planning goals and target objectives for the hazard mitigation plan. Based upon these goals and objectives, the District reviewed and adopted a comprehensive range of appropriate mitigation measures to address the risks facing the School District. Such measures include preventive actions, property protection techniques, natural resource protection strategies, structural projects, emergency services and public information and awareness activities.

4.0 PLANNING PROCESS

This section includes a delineation of various DMA 2000 regulatory requirements, as well as an identification of key stakeholders and planning team members within the School District. In addition, the necessary public involvement meetings and actions that were applied to this process are summarized.

4.1 DMA 2000 REQUIREMENTS

The table below summarizes the DMA 2000 requirements for documentation of the planning process. These requirements are addressed in the following text.

TABLE 4-1
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:*

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) 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 non-profit interests to be involved in the planning process; and

(3) 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

A. Does the plan provide a narrative description of the process followed to prepare the plan?

B. 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.?)

C. 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?)

D. Was there an opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?

E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?

Source: FEMA, March 2004.

4.2 PLANNING PROCESS

The Paso Robles Joint Unified School District hired URS Corporation (URS) to assist with the development of this Plan. The first step in the planning process was to establish a Planning Team comprised of existing District Staff and City officials. Gary Hoskins, Assistant Superintendent for Business, served as the primary point of contact for the

District. The Planning Team was formed as an advisory body to undertake the planning process and meeting dates were set for all members of the Team and interested parties to attend. Local District representatives included the individuals listed in Section 4.3 below.

The Planning Team also provided an opportunity for the City, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as business, academia and other private and non-profit interests to be involved in the planning process.

Once the Planning Team was organized, the following four-step planning process was implemented:

1. Organize Resources – From the beginning of the process, the District focused on the resources needed for a successful mitigation planning process. Essential steps included gathering necessary District information for the Plan as well as organizing the technical expertise required during the planning process
2. Assess Risks – Next the District identified the characteristics and potential consequences of hazards. Special attention was focused on the number of students/staff affected by each hazard and what impacts were important to District assets.
3. Mitigation Planning – After understanding the risks posed by each hazard, the District determined priorities and assessed various methods to avoid or minimize any undesired effects. The result of this study was a hazard mitigation plan and strategy for implementation.
4. Implementation of Plan and Monitoring Progress – The next step for the District is implementation and to ensure the success of an on-going program to minimize hazard impacts to the School District. Periodic evaluations will be conducted and revisions will be incorporated as needed.

The plan was prepared primarily during the 12-month period from October 2004 to October 2005. During this period, the Hazard Mitigation Planning Team Leader, Gary Hoskins, coordinated with the Team, other interested parties, and the planning consultant (URS Corporation). All parties worked very closely together during the preparation period.

After an administrative draft of the District's risk assessment was completed and reviewed by the Team, the HMPT Leader and URS focused on completing the draft capability assessment and mitigation strategy. This work required a high level of interaction between the HMPT Leader, other HMPT members, URS, and other relevant parties.

A meeting was held on February 9, 2005 with URS and the HMPT to discuss the risk assessment findings and proposed mitigation strategy. Seven individuals attended the meeting, including the HMPT District Leader, two representatives from URS Corporation, three representatives from Paso Robles JUSD (Operations and Maintenance and Fiscal Services), and a representative from the City of Paso Robles Community Development Department. See Appendix B (Meeting Sign-In Sheet).

Topics addressed at the meeting included the following:

- Status
- Phase 3 – Mitigation Strategy
- Next Steps
- Q&A

During the following months, the HMPT Leader and URS focused on completing the draft mitigation strategy and plan maintenance. In addition, the HMPT provided comments on the draft risk assessment. This work required a high level of interaction between the HMPT Leader, other HMPT members, URS, and other relevant parties.

A phone conference was held in October 2005, to finalize the Plan that would be presented to the public, to the California Office of Emergency Services (Cal OES), to FEMA, and to the School Board in December 2005. Three individuals, including the HMPT Leader and two consulting team staff, conducted the phone conference. Topics addressed on the phone included the following:

- Edits/revisions that the District had requested in the text of the Administrative Draft HMP
- Edits that the District had requested in the figures
- Updates that needed to be made to reflect increased numbers in both students and District staff. This update resulted in revisions to the risk assessment.

The Paso Robles Joint Unified School District Hazard Mitigation Plan was prepared and released at a School Board meeting on December 6, 2005. A press release/public announcement was also released at this time to notify the public of the HMP (see Appendix C). The District noticed the public by posting the announcement in the local paper, the District bulletin board, and the City Library.

The December 6th School Board meeting kicked off a 30-day comment period open to the public. Lastly, approximately one month later, following incorporation of the School Board and public comments, a Paso Robles JUSD Board meeting, which was open to the public, was held on January 10, 2006.

The Plan was adopted at the Paso Robles JUSD Board meeting on January 10, 2006.

4.3 DIRECTLY INVOLVED PARTIES

The School District established a Hazard Mitigation Planning Team. Members of the Planning Team included the following:

- Gary Hoskins — Team Leader, Paso Robles Public Schools, Assistant Superintendent for Business
- Ashley Lightfoot — Paso Robles Public Schools, Director of Maintenance & Operation
- Jason Taylor — Paso Robles Public Schools, Risk Manager
- Patrick Sayne — Paso Robles Public Schools, Superintendent

The District also hired a consultant, URS Corporation (URS), to assist with the planning process, analysis, and plan preparation. URS worked under the direction of the Team Leader throughout the process.

The information contained in the plan was provided by a wide range of sources that are cited throughout the plan as well as in the Acknowledgement and Sources. The HMPT Leader reviewed preliminary drafts of the plan, followed by the entire HMPT, as well as the public.

4.4 PUBLIC INVOLVEMENT

The Joint Unified School District Hazard Mitigation Plan was released for comment from the public and other interested parties on December 6, 2005. Approximately one month later, a Paso Robles JUSD Board meeting, which was open to the public, was held on January 10, 2006. All relevant comments and edits proposed by the School Board and the public were implemented into the Plan.

4.5 OTHER INTERESTED PARTIES

As noted above, a public notice was released that provided all interested parties with the opportunity to be involved in the planning process. As shown in the Acknowledgements and in Appendix B (Meeting Sign-In Sheet), the City of Paso Robles was a main participant in the formulation of the HMP. The District also forwarded the Public

Announcement and copies of the adopted plan to both the City of Paso Robles and the County of San Luis Obispo (Office of Emergency Services).

4.6 INCORPORATION OF EXISTING PLANS AND OTHER INFORMATION

Existing plans, studies, reports and technical information were incorporated throughout the planning process. This included a review and incorporation of significant information from the following key documents:

- *Paso Robles School District Emergency and Multi-Hazard Action Plan*
- *City of Paso Robles Hazard Mitigation Plan*
- *Draft State of California Draft Multi-Hazard Mitigation Plan*
- FEMA *Multi-Hazard Identification and Risk Assessment – A Cornerstone of the National Mitigation Plan*
- FEMA *How-To Guide #1: Getting Started: Building Support For Mitigation Planning (FEMA 386-1)*
- FEMA *How-To Guide #2: Understanding Your Risks – Identifying Hazards and Estimating Loss Potential (FEMA 386-2)*
- FEMA *How-To Guide #3: Developing The Mitigation Plan; Identifying Mitigation Actions And Implementing Strategies (FEMA 386-3)*
- FEMA *How-To Guide #4: Bringing the Plan to Life: Implementing the Hazard Mitigation Plan (FEMA 386-4)*
- FEMA *Multi-Hazard Mitigation Planning Guidance Under the Disaster Mitigation Act of 2000.*

A complete list of the sources consulted for information is given in Section 10, Sources.

5.0 DISTRICT DESCRIPTION

The purpose of this section is to provide basic background information on the Paso Robles Joint Unified School District (District). This includes a general history and background of the District facilities and surrounding areas, student and staff populations and facility values. Also included is a discussion regarding the historical and predicted future student enrollment trends, necessary expansions and remodels of school facilities, and economic forecasts that shape the District.

5.1 LOCATIONAL SETTING

The District is located in northern San Luis Obispo County. All but two of the District facilities are located within the City boundary of Paso Robles, California. Therefore, the City setting is the main focus of this section, as the characteristics of the City best describe the setting where the District facilities are located.

The Salinas River flows through the center of the City from south to north. Steep hills and canyons bound the community on the west, and open rolling hills to the east. Agriculture surrounds the area, and ranchlands are transitioning to vineyards to support the growing wine industry. Suburban residential development approved by San Luis Obispo County frames the City on the southern and eastern edges, with lower density residential to the north and west of the City. Agricultural uses both north and south of the City eventually give way to the unincorporated communities of San Miguel and Templeton. See Figure 5-1 (Location Map) for a delineation of the study area for this plan.

The District facilities are bordered on the south and west by the rugged mountainous ridges of the Santa Lucia Coastal Range, to the east by the low hills of the La Panza and Temblor Ranges, and to the north by the low hills and flat-topped mesas of the Diablo Range. The highest elevations in the vicinity are located in the Santa Lucia Coastal Range where many peaks are 2,000 to 3,400 feet above mean sea level (msl). The City's mean elevation is 720 feet above sea level. Substantial ridgelines are distributed throughout the western, southern, and eastern portions of the City. See Figure 5-1 for the major features within the study area.

The topography within the City is mainly from nearly level interspersed with rolling hills and a few steeper escarpments. Several areas in the City, including the developed areas west of Highway 101, the Salinas River basin, and areas north of Highway 46 east, are characterized by relatively flat topography. The elevation of the Salinas River bed drops at a gentle gradient about nine feet per mile within the Paso Robles city limits. Most of the downtown area and other areas west of the river have an average elevation of approximately 700 feet. In the hills to the west of the City, lands rise to an elevation of 1,300 feet. Land to the east of the Salinas River is characterized by low, undulating hills including relatively flat grassy plateaus, ridges, and steep oak tree-covered canyons and creek basins, and varies between 800 and 950 feet.

The District is within the Coast Range Physiographic Province. The Paso Robles area is exposed to seismic hazards from movement along several regional faults. The identified active fault zones in this area are the San Andreas (northeast of the City), Rinconada (south of the City), and Hosgri "Offshore Fault" (the Offshore Fault is seismically active, but available marine geophysical data indicate that future surface rupture is improbable along this fault). See Figure 6-1 (Fault Map).

The vegetation throughout the District and the City of Paso Robles is characteristic of Central California riverine valley habitats (see Figure 5-3), composed of oak woodlands, riparian vegetation along stream courses, grassland habitats, and agricultural lands (vineyards, orchards, and cultivated crops) that occur in a mosaic pattern across the landscape. There are also small wetland areas within the City, however they are too small to incorporate into the Vegetation Map. The non-native annual grassland vegetation comprises a large amount of the City area; approximately 1,580 acres (*City General Plan EIR, 2003*). The grassland vegetation is primarily a result of grazing activities that have occurred in the past. This habitat type is a naturalized community that has replaced previously existing native bunchgrass habitats and is now the most common vegetation type in the state of California. The

riparian habitat along the Salinas River (defined as Freemont Cottonwood in Figure 5-3) is generally considered to be of high value because of the variety of flora and fauna that occur in this habitat, their proximity to available water, and the cover and shade provided by the vegetation. The oak woodland habitat type (which also includes oak savanna) is generally located within grasslands and drainages and on alluvial terraces and floodplains. Oak woodland communities in the City are dominated by open to nearly closed canopies of blue oak (*Quercus douglasii*) with grass or shrub understories. The understory species composition can vary depending upon conditions such as moisture availability and soil type. Valley oaks (*Quercus lobata*) and Coast Live oaks (*Quercus agrifolia*) also contribute to the oak woodlands along and near the City's drainages. Oak savanna habitats are composed of oak trees distributed far enough apart throughout a landscape so that the community lacks a closed canopy.

This natural setting of rolling hills, waterways and affiliated vegetation types forms a basis for the extent of impacts the potential hazards may have on the School District. For example, steeper slopes and denser vegetation with multiple canopy layers pose a higher threat for wildfires than flatter areas with small amounts of vegetation (see Figure 6-11, Wildfire Hazard Areas).

5.2 CLIMATE

This portion of central western California generally has hot, dry summers and low rainfall. The Pacific Ocean is only about 25 miles west of the City, which exerts a moderating influence on seasonal temperature fluctuations and is negated somewhat by the mountainous terrain to the west.

The area is characterized by a Mediterranean climate with a wet season from October to early April and a dry summer season (low humidity). In general, most rainfall occurs in the range of hills and mountains nearest the coast (west) with a decreasing amount farther inland (east). In Paso Robles, the total annual precipitation is approximately 14 inches (see Figure 5-4). In winter, the average high temperatures range from the 50's to the 60's, with lows in the 30's. There are typically a number of winter nights when temperatures fall 10-15 degrees below freezing. In summer, the average daily highs are in the 90's, with some days exceeding 100. Summertime lows are typically in the 60's and 70's.

5.3 HISTORY AND GOVERNMENT

The first grammar school was established in 1877 and the first high school in 1894. The schools operated as separate districts: the Paso Robles Elementary School District and Paso Robles Union High School District until 1996 when they unified into the Paso Robles Joint Unified School District. The original districts were formed under the authority of the voters. The unification was done under special state legislation. The District today operates under a Board of Trustees. The Board consists of 7 members that are voted in to 4-year terms by the voters within the boundaries of the District. It is the role of the Board, using the input from the community they represent, to set the policy goals that school district staff translates into action.

The governing powers under the Board of Trustees are organized as follows: the Superintendent is the overall manager and representative for the District and the person who communicates directly with the Board. Under the Superintendent is the support of two Assistant Superintendents, one for instruction and one for business. The Assistant Superintendent for Instruction is directly affiliated with the Director of Pupil Services (who manages special and alternative education, principals and teachers). The Assistant Superintendent for Business, who is the Team Leader for the creation and management of this Plan, is directly affiliated with the Director of Personnel and the Business Department (which includes management for technology, food, purchasing, facilities and operations). It is the Facilities and Operations Departments that will be in direct coordination with the HMPT Leader to adhere to this Plan.

5.4 STUDENT AND STAFF POPULATION

Paso Robles Public Schools is the largest employer in the City of Paso Robles, with a monthly payroll of over $2.3 million. School District employees are divided into two categories; certificated (teachers, counselors, principals, etc.) and classified (paraeducators, secretaries, clerks, bus drivers, custodians, etc.). There are a total of 683 District employees. The District has the following employees within each category:

- Certificated 381 Full Time Equivalent
- Classified 302 129 Full Time and 173 part time

Table 5-1 demonstrates that the total student population for the District is currently at approximately 6,872 students. Over the next five years, the student population is predicted to increase to approximately 7,785 students (by 2010).

TABLE 5-1
PASO ROBLES PUBLIC SCHOOLS STUDENTS, 1990-2025

Jurisdiction	1990	2000	2005	2010	2020	2025
Paso Robles School District	5175	6272	6872	7785	9490	10,350

Source: District Facilities Master Plan Study, 2005

Table 5-2 shows the student breakdown vulnerable to potential hazards within the District (based the most current District records). The Paso Robles High School, George Flamson Middle School, and Daniel Lewis Middle School are the three District facilities that house the most students.

TABLE 5-2
PUBLIC SCHOOLS STUDENT POPULATION

School	# of Students
Bauer Speck Elementary	450
Georgia Brown Elementary	470
Pat Butler Elementary	425
Kermit King Elementary	430
Virginia Peterson Elementary	450
Winifred Pifer Elementary	560
George Flamson MS	750
Daniel Lewis Middle School	725
Paso Robles High School	2,250
Liberty Continuation High	90
PRISC	195
Phillips Freedom Community	40
Paso Robles Adult School	37

Source: District Records, 2005

The District also owns and manages several other facilities that draw from the students in the schools listed above, including the Family Resource Center, Teacher's Center, Support Services Facility, and the Culinary Arts Academy.

5.5 ECONOMY AND FORECASTED COSTS

The Paso Robles has seen sustained economical growth since 1993. This is the longest run of uninterrupted real (inflation adjusted) growth for a city in the Tri-Counties area (San Luis Obispo, Santa Barbara and Ventura). The average growth during the 1997 to 2000 time frame was an extraordinary 10.6 percent. The data for 2004 indicate a bit of a slowdown but growth nevertheless (2004 *City Economic Update*, UCSB Economic Forecast Project).

This strong economy and relatively high growth rate directly impacts the School District via student enrollment numbers, staffing needs and salaries. Enrollment for students in kindergarten through fifth grade has steadily increased since 2001. The population in these grade levels has increased by approximately 200 hundred students over the past four years. This growth rate in elementary school students of about 1.5% is expected to continue into 2006-2007. Elementary school capacities are adequate for the next five to seven years, however two schools (Speck and Brown, see the Facilities Map Figure 5-2) need to be upgraded at a cost of approximately $2.1 million (Paso Robles Public Schools 2003, *Facilities: Challenge for the Future*). The District has already commenced on the work for the Georgia Brown Elementary School (*Superintendent's Message*, Quarterly Newsletter, November 2004).

Middle school enrollment trends have recently been less stable, and student numbers even decreased by approximately 50 students in 2004. Middle school student numbers are forecasted to stay fairly stable or possibly decrease slightly over the next two years. Therefore, based upon growth that may level out, current facilities can handle the projected populations. However, the two main middle school facilities, Flamson and Lewis, are both in need of repair and upgrading. The District has recently been awarded approximately $1.4 million in federal funding from FEMA for earthquake damages (from 2003) that exist at the Flamson Middle School. The engineering report for retrofits and upgrades to the school total $4.7 million. The $1.4 million is specifically to repair damage that resulted from the 2003 earthquake. The District will apply to the state for matching funds. Those matching funds, combined with monies in the District's building funds, should be sufficient to eventually replace the structure at a cost of somewhere near $10 million. The state architect approval for the renewed building is anticipated to be obtained by early 2006. Construction should begin in early 2006 (the older structure would be mostly demolished in 2005), with a projected completion date of August '07.

Paso Robles High School enrollment has increased by approximately 500 students over the past four years. There are currently about 2,100 high school students, and this number is anticipated to stabilize or slightly increase over the next two years (Paso Robles Public Schools 2003, *Facilities: Challenge for the Future)*. District facility infrastructure is only designed for 1200 students; however, with additions ("relocatable" structures) the current facility can handle the projected student population for the next 5-7 years. Such additions include construction of a two-story addition building with fourteen classrooms and 400 additional lockers (for $5.5 million), additional science lab classrooms (for $190,000), and additional physical education teaching stations and support facilities (for $3.3 million). However, current enrollment projections combined with limits to the District's fiscal ability do not currently justify these projects.

5.6 FACILITIES AND SERVICES

Table 5-3 describes the District's facilities (including size and value) throughout the study area and Figure 5-2 shows their locations. The estimated values for these facilities are derived from District records. All of the District facilities are within the City of Paso Robles boundary, except for two. The Adelaida (historical site) is located approximately 12 miles west of the City, and the Phillips-Freedom School is located approximately 8 miles east of the City boundary.

The utilities infrastructure for these facilities is obtained from the City of Paso Robles (water provision, wastewater collection and treatment). Potential impacts to the City infrastructure by hazards is assessed in the City's Local Hazard Mitigation Plan (URS, 2004). The District depends on the City for public services such as fire protection and emergency services, police protection, and solid waste collection and disposal. The Paso Robles Department of Emergency Services (PRDES) provides fire suppression, emergency medical care, hazardous materials emergency intervention and control, water rescue, entrapment extrication, fire safety inspections, public fire safety education, fire

TABLE 5-3
DISTRICT-OWNED FACILITIES

Name	Description / Function	Year Built	Building Material	Building Size (S.F.)	Value ($)
Bauer- Speck	Elementary School	1927-1955 Built in stages	Wood frame, stucco, lath & plaster	60,473	13,305,000
Georgia Brown	Elementary School	1948	Wood frame, stucco, lath & plaster	38,782	8,550,000
Pat Butler	Elementary School	1990	Wood & metal frame, stucco	32,973	7,200,000
Child Development Center	Pre School	1974/1988 Built in stages	Modular	5,720	572,936
Culinary Arts Academy	Culinary School Food Service	1996	Wood & metal frame, stucco	15,741	3,540,000
George Flamson	Middle School	1924	Mixed – reinforced masonry	123,189	27,720,000
Family Resource Center (formerly Healthy Start)	Student Services	1991	Modular	2,880	122,000
Kermit King	Elementary School	2001	Wood & metal frame, stucco	35,105	7,900,000
Daniel Lewis	Middle School	1958-2003 Built in stages	Wood & metal frame, stucco	73,746	16,600,000
Liberty High	Continuation High School	1991	Wood & metal frame, stucco	9,930	2,250,000
Paso Robles High	High School	1979	Wood & metal frame, stucco	196,708	44,000,000
Virginia Peterson	Elementary School	1989	Wood & metal frame, stucco	42,140	9,480,000
Phillips Freedom	Community School	1938	Wood frame	4,089	615,000
Winifred Pifer	Elementary School	1994	Wood & metal frame, stucco	52,944	11,900,000
PRISC	Independent Study Center	1974	Modular	8,266	826,000
Support Services Facility	Maintenance/ Transportation	1989	Steel & stucco	24,684	3,116,508
Teachers Center	Curriculum & Instruction	1983	Wood frame & stucco	15,024	1,884,000
District Office	Administration	1990	Wood frame & stucco	17,060	2,267,968
War Memorial Stadium	Events	1946	Steel	3,800	1,500,000
Adelaida Historical Site	Historical Site – limited use	1900	Wood	2,000	275,000

Source: District Records

investigation, and disaster management and planning. The PRDES operates from three fire stations located within the City.

The District presently adheres to the adopted Paso Robles School District Emergency and Multi-Hazard Action Plan, which describes the role and operations of key Paso Robles School District personnel during an emergency incident. The plan sets forth standard operating procedures using the "Standardized Emergency Management System" (SEMS) used throughout the County of San Luis Obispo. The plan addresses specific procedures to follow in the event of an earthquake, flooding, fire, and/or a hazardous materials incident, which are all addressed in this HMP.

In summary, Table 5-4 demonstrates that the District owns and manages 13 school sites, which have a combined total value of approximately $150.9 million. The "other" seven facilities that are not specifically school sites, but are also owned and managed by the District are the following: the Adelaida historical site, the War Memorial Stadium, the District Office, the Family Resource Center, the Support Services Facility, the Teachers' Center, and the Culinary Arts Academy. Although the Family Resource Center and Culinary Arts Academy services students, these students are enrolled in one of the Districts' schools. Therefore, for the purposes of this Plan, these facilities are defined as "other" facilities rather than "schools," due to the fact they do not harbor student populations unique only to their facility.

TABLE 5-4
DISTRICT FACILITY SUMMARY, 2004
PASO ROBLES JOINT UNIFIED SCHOOL DISTRICT

Schools				Other Facilities			
No.	Total Value Of All Facilities ($ Million)	Total Square Footage	Total Population (Students and Staff)	No.	Total Value Of All Facilities ($ Million)	Total Square Footage	Total Population (Staff)
13	150.9	684,065	7,555	7	12.7	81,189	138

Source: District Records, 2005.

The major transportation routes through the Paso Robles that service these facilities are US Route 101 (extends north/south) and Highway 46 (extends east/west). Spring Street runs parallel to US Route 101 and is considered the main downtown corridor. Niblick Road and Creston Road are east of US Route 101, and these two major corridors provide transportation through the eastern residential and commercial areas. The Union Pacific Railroad also traverses through the area (parallel to US Route 101), and the City maintains its own airport, in the northeast corner of the City boundary.

5.7 PLANNING AND DEVELOPMENT

The District has received $1.4 million dollars in earthquake damage relief (from FEMA) since the San Simeon Earthquake. Additional funds are expected, as 2 school sites have not been funded. Damage repair is in progress and should be completed by December 2005. Pending final approval from FEMA, the District will receive a minimum of $8.4 million dollars to rebuild the main building at Flamson Middle School.

The District has submitted seven Hazard Mitigation Grant proposals to OES. If granted, the District will immediately proceed with the projects proposed. The money would be utilized District-wide.

The District maintains a 5-year Routine and Deferred Maintenance Program to address facility needs. The Program includes addressing hazards and unsafe conditions. The funds set aside each fiscal year are 3% of the District's budget plus a match in funds from the State.

In January 2005, the District purchased an elementary school site. An additional school is not needed at this time, but if planned future building development in Paso Robles comes to fruition, the site will be needed. The recently purchased site is 10 acres and mainly flat with easy access. The school site is located on Kleck Road south of Highway 46 and west of the Teacher's Center (see Figure 5-2, District-Owned Facilities Map). The District projects that August of 2008 would be the earliest that the school would be needed.

The proposed Chandler Ranch Development has identified at least one school site with the possibility of an additional site. One of these could be used for an elementary site and the other for a middle school. The larger of the Chandler Ranch sites is approximately 17 acres, located approximately 2 miles east of the Teacher's Center, south of Apion Court and north of Lyle Lane (see Figure 5-2, District-Owned Facilities Map). The second site that has been mentioned as a potential school site is adjacent to Barney Swartz Park. It may be within the flight pattern of the Paso Robles Airport, however, and subject to FAA approval to become a school site. It is on rolling land and would require grading and a drainage plan. Due to these site challenges, this site has not been identified in Figure 5-2 of this HMP.

6.0 RISK ASSESSMENT

The purpose of this section is to identify the hazards that can affect the School District, profile the major hazards, assess the risk of such hazards, describe the District's vulnerability, and estimate potential losses from the hazards. Each of these tasks is described in detail below. It is notable that this is the first time that a comprehensive effort of this kind has been undertaken for the District.

Information is provided on the School District and, when appropriate, the City of Paso Robles and San Luis Obispo County. This integrated information-gathering method was employed because the School District facilities are mainly within the City boundary (with the exception of the Adalaida Historical Site and the Phillips-Freedom School) and county information also applies. However, evaluation of hazard event scenarios is complicated because information is not always available at the District level for many hazards and may only be available at the local, county or state level. Because of this inconsistency, hazard and District information has been provided at the most localized level possible.

6.1 DMA 2000 REQUIREMENTS

The overall requirements for the risk assessment according to *DMA 2000* are shown in Table 6-1 and detailed further in subsequent tables. While technically only natural hazards must be addressed, human-caused hazards are also included in this plan (i.e. Hazardous Substance Release). In order to meet these requirements, the School District used the step-wise approach to the risk assessment detailed in *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA 2001). This approach consists of the following major steps:

- Identify and screen hazards
- Profile hazards
- Inventory assets
- Estimate losses
- Identify future risks

TABLE 6-1
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.

6.2 IDENTIFY AND SCREEN HAZARDS

The first step in the risk assessment process is the identification and screening of hazards, as shown in Table 6-2. Hazards identified include natural and human-caused hazards that might affect persons and property in the District. This includes hazards that have occurred in the past as well as those that may occur in the future (even if they have not yet occurred). The list of all possible hazards is screened to focus on the most likely or most damaging hazards.

TABLE 6-2
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	
A.	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.

A comprehensive list of potential hazards affecting communities in California was reviewed. The hazards considered for identification and screening are shown in Table 6-3. The hazards on the list were evaluated and screened by URS and the District Hazard Mitigation Planning Team (Team or HMPT) for profiling and vulnerability assessment. In making screening decisions, the Team considered a range of factors, including the following:

- Prior knowledge or perception of the relative risk presented by the hazards
- The ability to mitigate the hazard
- The known or expected availability of information on the hazard

6.3 HAZARD PROFILES

The DMA 2000 requirements for profiling the hazards are shown in Table 6-4. The intention is to present significant information on the location, extent (magnitude/severity), history, and probability of the hazards.

It is important for a District's risk mitigation and preparedness efforts to be founded on accurate information about the types and scale of damage that hazards could cause. This section contains a description of the major hazards that threaten the Paso Robles School District – earthquakes, floods, hazardous materials accidents, and wildfires – and the exposure and vulnerability of elements of the School District to these hazards. It presents descriptions of potential damage and consequences.

The best available data and technical methods were used to estimate possible losses caused by these various hazards. School District databases, which include information about building types, natural features, and important property uses, were extensively used to characterize the School District's hazards.

TABLE 6-3
HAZARD IDENTIFICATION AND SCREENING FOR PASO ROBLES SCHOOL DISTRICT

Hazard	Include?	Why or why not?	Other Comments
Avalanche	No	District not located in snow/mountain area.	
Airplane Crash	No	No experience / low probability.	
Coastal Erosion	No	District not located on coast.	
Coastal Storm	No	District not located on coast.	
Dam Failure	No	Failure of San Luis Dam on Santa Margarita Lake will not affect District.	City's General Plan confirms that Paso Robles is outside of the Dam's inundation zone (which is where the majority of the District's facilities are located)
Disease	No	No experience / low probability.	
Drought	No	Water storage is covered in the City's Hazard Mitigation Plan.	
Earthquake (Seismic)	Yes	Recent and historic earthquakes. Proximity to San Andreas fault.	Major historic earthquakes include 1983 Coalinga, 2003 San Simeon (Presidential disaster declaration), 2004 Parkfield
Expansive Soils	No	Has not been known to affect any District facility.	
Extreme Heat	No	Historic heat events have been recorded, however staff has been trained to know the signs and remedies for heat stroke/exhaustion.	
Flood	Yes	Historic events experienced by City.	Major historic floods include 1969 100-year flood, 1995 flood/landslide
Hailstorm	No	Low experience / low probability	
Hazardous (Hazmat)	Yes	Hazmat facilities that house extremely hazardous substances (EHS) located near District facilities. Major hazmat transportation routes transect Paso Robles.	
Hurricane	No	No experience / low probability	
Land Subsidence	No	Covered in earthquake hazard assessment.	
Landslide	No	Schools are not typically built on or directly adjacent to slopes.	No District facilities are located near areas in the City that have been known to slide in the past.
Tornado	No	No experience / low probability.	

TABLE 6-3 (CONTINUED)
HAZARD IDENTIFICATION AND SCREENING FOR PASO ROBLES SCHOOL DISTRICT

Hazard	Include?	Why or why not?	Other Comments
Tsunami	No	City not located on coast.	
Volcano	No	City not located near volcanic area.	
Wildfire	Yes	Historic events experienced and some facilities are located in moderate-high hazard areas.	
Windstorm	No	No significant historic events experienced in the area.	
Winter Storm	No	No significant historic events experience the area.	

Source: Paso Robles Joint Unified School District and URS, November 2004.

TABLE 6-4
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

A. Does the risk assessment identify the **location** (i.e., geographic area affected) of each natural hazard addressed in the plan?

B. Does the risk assessment identify the **extent** (i.e., magnitude or severity) of each hazard addressed in the plan?

C. Does the plan provide information on **previous occurrences** of each hazard addressed in the plan?

D. 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 District is exposed to a number of natural hazards that vary in their potential intensity. This mitigation plan assesses the District's vulnerability to these hazards, which were selected because of their likelihood of occurrence and potential consequences. These hazards are of great concern because they can occur independently, or in combinations, and can trigger secondary hazards.

The worst potential disaster that the District could face involves multiple hazards occurring at the same time. A major earthquake could trigger landslides, spark wildfires and release hazardous materials. If an earthquake occurred during the rainy winter season, flooding could occur, exacerbated by damaged stream culverts and storm drains. The District Safety Committee reviews and updates the *Emergency and Multi Hazard Action Plan* (Fall 2003) annually before the beginning of each school year, which specifically addresses response procedures and staff responsibilities for storms and floods, earthquakes, fires, power failure, hazardous materials incidents, violent acts, etc.

The specific hazards selected by the District for profiling have been examined in a methodical manner based on the following three factors, with each factor considered in detail for the hazards profiled:

- **Nature**: This topic provides basic information about the hazard that is sufficient to enable a user of the plan to comprehend its nature and distinguish it from other hazards. It also provides a basis for District leaders to understand the subsequent vulnerability assessment and loss estimates. The information for this section is drawn mainly from FEMA and other national agencies.
- **History**: Background information about previous occurrences of the hazard is provided. The focus is on disasters and other events that have occurred within the District boundary and, where District information is lacking, on major occurrences elsewhere in San Luis Obispo County, California or the United States. The information in this section is drawn mainly from databases of historical hazard events. Figures that display historical occurrences of the hazards in the District are referenced.
- **Future Events**: The focus of this topic is the probability of the hazard as well as its magnitude. The information in this section is drawn from a combination of FEMA and other national sources, San Luis Obispo County expertise, and the hazard event databases. Where possible, figures have been produced to display the susceptibility of areas to the hazards.

In an effort to provide as much information as possible about each hazard, extensive text analysis as well as associated tables and graphics have been included for each of the hazard profiles below. These hazard profiles should be considered introductory, with additional and more detailed analysis available via the many sources cited below and at the end of this document.

6.3.1 Earthquake

6.3.1.1 Nature

An earthquake is "…a sudden motion or trembling caused by an abrupt release of accumulated strain from the tectonic plates that comprise the earth's crust." These rigid plates, known as tectonic plates, are between 50 to 60 miles in thickness and move slowly and continuously over the earth's interior. The plates meet along their edges, where they move away, past or under each other at rates varying from less than a fraction of an inch up to five inches per year. While this sounds small, at a rate of two inches per year, a distance of 30 miles would be covered in approximately one million years (FEMA, 1997).

The tectonic plates continually bump, slide, catch, and hold as they move past each other which causes stress that accumulates along faults. When this stress exceeds the elastic limit of the rock, an earthquake occurs, immediately causing sudden ground motion and seismic activity. Secondary hazards may also occur, such as surface faulting, ground failure, and tsunamis. While the majority of earthquakes occur near the edges of the tectonic plates, earthquakes may also occur at the interior of plates.

The vibration or shaking of the ground during an earthquake is described by ground motion. 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. The following are the two kinds of seismic waves:

- 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), with particle motion in the same direction as wave travel. They move through the earth at approximately 15,000 mph.
- S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side-to-side (horizontal motion) due to particle motion at right-angles to the direction of wave travel. Unreinforced buildings are more easily damaged by S waves.

There are also two kinds of surface waves, Raleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

Seismic activity is commonly described in terms of magnitude and intensity. Magnitude (M) describes the total energy released and intensity (I) subjectively describes the effects at a particular location. Although an earthquake has only one magnitude, its intensity varies by location. Magnitude is the measure of the amplitude of the seismic wave and is expressed by the Richter scale. The Richter scale is a logarithmic measurement, where an increase in the scale by one whole number represents a tenfold increase in measured amplitude of the earthquake. Intensity is a measure of how strong the shock felt at a particular location, expressed by the Modified Mercalli Intensity (MMI) scale.

Another way of expressing an earthquake's severity is to compare its acceleration to the normal acceleration due to gravity. If an object is dropped while standing on the surface of the earth (ignoring wind resistance), it will fall towards earth and accelerate faster and faster until reaching terminal velocity. The acceleration due to gravity is often called "g" and is equal to 9.8 meters per second squared (980 cm/sec/sec). This means that every second something falls towards earth, it velocity increases by 9.8 meters per second. Peak ground acceleration (PGA) measures the rate of change of motion relative to the rate of acceleration due to gravity. For example, acceleration of the ground surface of 244 cm/sec/sec equals a PGA of 25.0 percent.

It is possible to approximate the relationship between PGA, the Richter scale, and the MMI, as shown in Table 6-5. The relationships are, at best, approximate, and also depend upon such specifics as the distance from the epicenter and depth of the epicenter. An earthquake with 10.0 percent PGA would roughly correspond to an MMI intensity of V or VI, described as being felt by everyone, overturning unstable objects, or moving heavy furniture.

One of the secondary hazards from earthquakes is surface faulting, the differential movement of two sides of a fault at the earth's surface. Linear structures built across active surface faults, such as railways, highways, pipelines, and tunnels, are at high risk to damage from earthquakes. 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).

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. Pore-water pressure may also increase sufficiently to cause the soil to behave like a fluid (rather than a soil) for a brief period and causing deformations. Liquefaction causes lateral spreads (horizontal movement commonly 10-15 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).

6.3.1.2 History

The District is considered to be part of the Coast Range Physiographic Province. The Paso Robles area is exposed to seismic hazards from movement along several regional faults. The identified active fault zones in this area are the San Andreas (northeast of the District boundary), Rinconada (south of most of the District facilities, but runs through the middle of the District's jurisdictional boundary), and Hosgri "Offshore Fault" (the Offshore Fault is seismically active, but available marine geophysical data indicate that future surface rupture is improbable along this fault). See Figure 6-1 (Fault Map).

Historically, most of the earthquakes that have occurred near the District have originated from movement along the San Andreas Fault, which lies approximately 38 miles northeast of Paso Robles (see Figure 6-2, Historic Earthquakes Map). An additional fault known as segments of the Jolon Fault transects the southwestern portion of Paso Robles, but converges with the Rinconada Fault to form one fault or fault zone near Mountain springs Road. Regional data regarding the activity of the Rinconada and Jolon Faults indicate that these faults may have been active as recently as the late Pleistocene (1.8 million to 11,000 years ago) in the vicinity of Paso Robles. However,

TABLE 6-5
EARTHQUAKE PGA, MAGNITUDE AND INTENSITY COMPARISON

PGA (%g)	Magnitude (Richter)	Intensity (MMI)	Description (MMI)
<0.17	1.0 - 3.0	I	I. Not felt except by a very few under especially favorable conditions.
0.17 - 1.4	3.0 - 3.9	II - III	II. Felt only by a few persons at rest, especially on upper floors of buildings.
			III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing automobiles may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
1.4 - 9.2	4.0 - 4.9	IV - V	IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing automobiles rock noticeably.
			V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
9.2 - 34	5.0 - 5.9	VI - VII	VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
			VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
34 - 124	6.0 - 6.9	VII - IX	VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
			IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
>124	7.0 and higher	VIII or higher	X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
			XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
			XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Source: Wald, Quitoriano, Heaton, and Kanamori, 1999.

there is no evidence that either fault has moved during the Holocene (approximately the last 11,000 years). It is estimated that the Rinconada Fault may be capable of producing a maximum credible earthquake (MCE) of 7.0. Neither of these faults are active with respect to fault rupture. Until recently, the largest historical earthquake in the vicinity was the magnitude 6.2 Bryson earthquake of November 1952. (Note; the epicenter of this earthquake was located less than 20 miles away from the District's Adelaida facility).

Recently, an earthquake of magnitude M_w 6.5 struck the area at 11:15:56 a.m. PST on Monday, December 22, 2003. The epicenter was 11 km (6.8 miles) NE of San Simeon, at a depth of 7.6 km (35.706N 121.102W). The earthquake struck in San Luis Obispo County. The earthquake was felt as far north as the San Francisco Bay area, and as far east as the San Joaquin Valley. Located 39 km (24.2 miles) from the epicenter, two people were killed in the City of Paso Robles, 47 people were reported injured, one building collapsed, and 20 buildings were severely damaged. District facilities incurred damages. Every school had varying degrees of damage, all of which were addressed by FEMA funding, ranging from $1,200 to $240,000. Countywide, 290 homes and 190 commercial structures were damaged. Structural damage was also noted in the City of Atascadero and in unincorporated areas of the county. The hospital in Templeton had the largest recorded ground motion of 0.48g, indicating rupture directivity to the SE from this earthquake. Local, state and federal disasters were declared.

There was a surprising amount of ground damage due to the 2003 San Simeon earthquake for what were relatively low levels of ground shaking. A directional preference of ground shaking was evident in the observed ground damage patterns and strong motion recordings. Besides liquefaction, geotechnical effects included lateral spreading, seismic compression, and potential basin effects. Repair costs from ground displacements were related mainly to the damage to highways from seismic compression, and to houses and infrastructure from lateral spreading.

Even more recently, On September 28, 2004 a magnitude 6.0 earthquake struck Central California near the town of Parkfield (approximately 30 miles northeast of Paso Robles). The quake caused no injuries or property damage in Paso Robles or Parkfield. However, in 1984 the United States Geological Survey predicted that a Magnitude 6 earthquake would occur on the San Andreas Fault near Parkfield within five years of 1988. The prediction was based on a sequence of 6 similar earthquakes that occurred every 22 years (on average) from 1857 to 1966. Although the 2004 Parkfield earthquake occurred over a decade later than predicted, its magnitude and behavior fulfilled the prediction, and minor property damage did occur within the Paso Robles JUSD.

6.3.1.3 Future Events

Probabilistic ground motion maps are typically used to assess the magnitude and frequency of seismic events. These maps measure the probability of exceeding a certain ground motion, expressed as PGA, over a specified period of years (Figure 6-3 and 6-4). Figure 6-3 displays the probability of exceeding a certain ground motion, expressed as PGA, in 50 years in the Western United States. This is a common earthquake measurement that shows three things: the geographic area affected, all colored areas on the map; the probability of an earthquake of each level of severity, 10.0 percent chance in 50 years; and the severity, the PGA as indicated by color. Note that this map expresses a 10.0 percent probability of exceedance and, therefore, there is a 90.0 percent chance that the peak ground acceleration displayed will not be exceeded during 50 years. The use of a 50-year period to characterize the percent chance of exceedance is arbitrary and does not imply the structures are thought to have a useful life of only 50 years. Similar maps exist for other measures of acceleration, probabilities, and time periods.

It is useful to note that, according to the US Geological Survey (USGS), a PGA of approximately 10.0 percent gravity is the approximate threshold of damage to older (pre-1965) dwellings or dwellings not made resistant to earthquakes. Only 6 of the 20 District facilities were built pre-1965. The 10.0 percent measure was chosen because, on average, it corresponds to the Modified Mercalli Intensities of VI to VII levels of threshold damage in California within 25 km (15.5 miles) of an earthquake epicenter. The earthquake hazard maps combine near and distant ground motions indiscriminately and should not be used for particular buildings (USGS, February 7, 2003).

Figure 6-4 (Peak Acceleration Map), displays the District's estimated probability of exceeding a 20-40% PGA in 50 years. As defined in Table 6-5, the District PGA approach 50%, which translates to MMI scale levels of VII-IX. All existing and proposed future development, however are located within the 20-40% PGA which correlates to an MMI level of VI-VII, which is defined in Table 6-5 as; "Damage negligible in buildings of good design and construction;

slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken."

Figure 6-5 (Ground Shaking Map) measures the potential intensity of ground shaking in and around the District. Ground shaking is a measure calculated by the California Geological Survey (CGS) and USGS seismic hazards model considering amplification in near surface soils using the amplification factors recommended by the building Seismic Safety Council (1997). The areas within and around the District are color-coded on the map as having a moderate or high potential for ground shaking. The ground shaking potential increases to the east, towards the active San Andreas Fault. Areas of highest ground shaking potential within the City include along the Salinas River corridor, either side of Highway 46 in north central Paso Robles, and the area in northeast Paso Robles, which includes the airport. The only District facility that is located within an area of relatively higher potential intensity of ground shaking is the Phillips-Freedom School, approximately 8 miles east from the City.

6.3.2 Flood

6.3.2.1 Nature

Flooding is the accumulation of water where there usually is not any or the overflow of excess water from a stream, river, lake, reservoir, or coastal body of water 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. Floods occur in all 50 US states and territories, with an estimated four percent of the total area of the United States subject to the 1-percent annual chance floodplain (also known as the 100-year floodplain). An estimated nine million US households and $390 billion in property are at risk within the 1-percent annual chance floodplain.

Nationwide damage from flooding has increased from $902 million annually during the period 1916-1950 to $2.15 billion annually, an increase of almost two-and-a-half times. The worst flood disaster in US history was caused by a series of storms from April to September of 1993 in the Upper Mississippi Basin. Nationwide there were 38 to 47 flood-related deaths and damage was estimated at $12 to $16 billion, including $4 to $5 billion in agricultural losses (FEMA, 1997).

There are a number of categories of floods in the U.S., including the following:

- Riverine flooding, including overflow from a river channel, flash floods, alluvial fan floods, ice-jam floods, and dam break floods
- Local drainage or high groundwater levels
- Fluctuating lake levels
- Coastal flooding, including storm surges
- Debris flows

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; while larger rivers typically have longer, more predictable flooding sequences and broad floodplains.

The cause of flooding in large rivers is typically prolonged periods of rainfall from weather systems covering large areas (e.g., tropical storms). These systems may saturate the ground and overload the rivers and reservoirs in

numerous smaller basins that drain into larger rivers. Localized weather systems (e.g., thunderstorms), may cause intense rainfall over smaller areas, leading to flooding in smaller rivers and streams. Annual spring floods, due to the melting of snow pack, may affect both large and small rivers and areas.

While there is no sharp distinction between riverine floods, flash floods, alluvial fan floods, ice jam floods, and dam-break floods, these types of floods are widely recognized and may be helpful in considering the range of flood risk and appropriate responses:

- Flash flood is a term in wide use by experts and the general population, but there is no single definition or clear means of distinguishing flash floods from other riverine floods. Flash floods 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 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 and ice jams may also lead to flash flooding. Urban areas are increasingly subject to flash flooding due to the removal of vegetation, covering of ground cover with impermeable surfaces, 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, which are described in detail in Section 6.3.7, are particularly dangerous due to the fact that they generally strike without warning and are accompanied by extreme velocity and momentum.

  Flash floods are the top weather-related killer in the United States, resulting in about 150 deaths every year, and are a significant hazard in California. Most, if not all, of these fatalities could have been avoided if those involved would have recognized the dangers of flash floods and taken a few simple actions to protect themselves (National Weather Service).

- As indicated by the name, alluvial fan floods occur in the deposits of rock and soil that have eroded from mountainsides and accumulated on valley floors in the pattern of a fan. Alluvial fan floods often cause greater damage than straightforward riverine flooding due to the high velocity of the flow, amount of debris, and broad area affected. Alluvial fan flooding is most prevalent in arid western states, such as California. Human activities may exacerbate flooding and erosion on alluvial fans via increased velocity along roadway acting as temporary drainage channels or changes to natural drainage channels from fill, grading, and structures. Alluvial fan floods are a significant hazard in California. Floods on alluvial fans are dangerous because they are unpredictable. Channels may migrate quickly, for example, and the water flow often travels at high velocity–much higher than usually found in rivers or streams. This velocity is usually much more of a problem than the depth of the flow. Such action on alluvial fans is often characterized as “sheet flow” because of the high speed and shallow depth. In contrast to other flood hazards (i.e. riverine situations), FEMA puts an average velocity on the Flood Insurance Rate Map (FIRM) when mapping an alluvial fan to draw attention to the additional hazard posed by velocity.

Local drainage floods may occur outside of recognized drainage channels or delineated floodplains due to a combination of locally heavy precipitation, a lack of infiltration, inadequate facilities for drainage and stormwater conveyance, and increased surface runoff. Such events frequently occur in flat areas, particularly during winter and spring in areas with frozen ground, and also in urbanized areas with large impermeable surfaces. High groundwater flooding is a seasonal occurrence in some areas, but may occur in other areas after prolonged periods of above-average precipitation. Losses associated with local drainage are most significant when they occur with other hazards described in this document, such as widespread flooding and thunderstorms; therefore, they are not analyzed as a distinct hazard.

Many urban areas that have historically been flood prone have been removed from the floodplain through the application of two construction types: (1) flood control dams, which reduce peak discharges; and, (2) levees, which redirect floods away from areas that would otherwise be inundated.

6.3.2.2 History

The greatest flood events in the District on record occurred during storms in the early months of 1969, 1973, and 1995. During these storm events, both storm drain and natural river channel capacities were exceeded resulting in substantial damage to public and private property throughout San Luis Obispo County. The Salinas River has a "flood stage" of 19 feet. The flood stage is the stage at which overbank flows are of sufficient magnitude to cause considerable inundation of land and roads and/or threat of significant hazard to life and property (California Department of Water Resources, Division of Flood Management).

The 1969 flood was one of the most severe flood years in San Luis Obispo County. There were two distinct floods, one at the end of January and the second a month later at the end of February. During the January flood, the Salinas River reached a discharge of over 28,000 ft^3/s and reached a stage of 23.8 feet from floodmarks (almost 5 feet above the river's flood stage), which resulted in water flooding into the 50-year flood zone. (The USGS "flood peak data" estimates the Salinas River to inundate the Paso Robles 50-year flood zone when discharges reach approximately 27,000 ft^3/s.) The San Luis Obispo Telegram-Tribune of January 25, 1969 described the Salinas River as "on a rampage." Hundreds of people were evacuated and homes were destroyed along the North and South River Roads.

On January 18, 1973, rainstorms flooded Paso Robles again. High winds cut the City's power, and the water in Lake Nacimiento approached the maximum capacity. Streets were flooded and sewer pump lift stations were inundated. Sand bagging the culvert at 23rd and Vine Streets required a full crew to prevent flooding damages to nearby homes. City street crews kept constantly on the move unclogging drains and barricading some areas (Daily Press, Paso Robles).

The flood of March 10,1995 also peaked at a maximum discharge of over 28,000 ft^3/s and reached a gage height of 22.99 feet, thereby inundating the 50-year flood zone once again (USGS Flood Peak Data). During this year, the District made FEMA claims for aid monies, not for water level flood damage, but for roof failure storm damage. District records show that roughly $8,000 in water damage claims were made and a little less than $6,000 in additional student transportation requirements because of washed-out roads.

6.3.2.3 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.

The most widely adopted design and regulatory standard for floods in the United States is the 1-percent annual chance flood and this is the standard formally adopted by FEMA. The 1-percent annual flood, also known as the base flood, has a 1 percent chance of occurring in any particular year. It is also often referred to as the "100-year flood," leading to the misconception that it should only occur once every 100 years. In fact, a 100-year flood may occur in any year, regardless of the time that has passed since the last one. Smaller floods occur more often than larger (deeper and more widespread) floods. Thus, a "10-year" flood has a greater likelihood of occurring than a "100-year" flood. Table 6-6 shows a range of flood recurrence intervals and their probabilities of occurrence.

TABLE 6-6
FLOOD PROBABILITY TERMS

Flood Recurrence Intervals	Percent Chance of Occurrence Annually
10 years	10.0%
50 years	2.0%
100 years	1.0%
500 years	0.2%

Source: FEMA, August 2001.

The San Luis Obispo County Planning Department has prepared maps delineating areas of known flood hazard (General Plan, 2003), which include:

- All areas along Huerhuero Creek, which flows approximately to the southeast.
- The area south of the airport is subject to flooding from Dry Creek, a tributary to Huerhuero Creek.
- The area along Linne Road is subject to flooding from Huerhuero Creek.
- Flooding may occur in the vicinity of Marquita Road, east of Route 101.
- The area bounded by Herdsman Way to the south, West Bethel Road to the west, and Highway 46 West to the north, is subject to flooding.
- Flooding may occur in an area north of Highway 46 West, west of Arbor Road, and south of Live Oak Road.

None of these identified locations are in close proximity to any District Facilities (see Figure 6-6).

Additionally, FEMA has published a FIRM for the city, dated September 16, 1981. Figure 6-6 shows the 100-year and 500-year floodplain areas within Paso Robles as determined by FEMA. The total Paso Robles area within the 100-year floodplain is shown in Table 6-7. As illustrated in this figure and table, the Paso Robles contains 1.38 square miles of identified 100-year floodplains. This represents 8 percent of the 17.34 total square miles that comprise Paso Robles. The majority of the flood prone areas within Paso Robles are associated with the Salinas River (which runs south-to-north through the center of the City) and its tributaries. Areas along the Huerhuero Creek and Dry Creek are also within the 100-year floodplain. Local flooding results when culverts become temporarily clogged during storms.

TABLE 6-7
100-YEAR FLOODPLAINS

Jurisdiction	Total Area in Square Miles	Area Within 100-Year Floodplain	
		Sq. Mi.	Percent
Paso Robles	17.34	1.38	7.9

Note: Floods may still occur outside of identified flood prone areas.

Source:FEMA, URS, July 2004.

No District facilities are located within FEMA's delineated 100-year floodplain. A few facilities are, however, within about one mile of the 100-year floodplain, including the Flamson Middle School, the War Memorial Stadium, and the Pat Butler Elementary School (see Figure 6-6). Several District facilities are located within the 500-year floodplain, which technically is an area that only has a 0.2% chance of flooding, annually. This definition of the predicted flooding occurrence, however, can potentially be proven incorrect as local drainage floods may occur outside of delineated floodplains due to a combination of locally heavy precipitation, a lack of infiltration, inadequate facilities for drainage and storm water conveyance, and increased surface runoff.

Figure 6-7 portrays the 100-year 24-hour "probable maximum precipitation" (PMP) in the District. The PMP in the City of Paso Robles over a 24-hour period is 5-6 inches in the west portion of the City, and 4-5 inches in the east portion. (To put this in perspective, the total annual average precipitation in Paso Robles is about 14 inches. See Figure 5-4.). About half of the District facilities are located in the west portion of Paso Robles, where precipitation probability is higher than the east portion. The Adelaida site, which is 12 miles west of Paso Robles, is located in the high precipitation zone, defined to have a PMP of greater than 8 inches over a 24-hour period. Hence, this site has a higher potential for flooding.

Note that this map displays an event with a 1 percent chance of being exceeded in any year, not an event that is expected to occur once every 100 years. The map was developed using multiple methods, including judgments based on record storms and related meteorological processes, with the results of the studies considered estimates because changes are likely to occur as understanding increases. The studies assumed that storm records for the preceding 80 years were representative and no allowance was made for climate change.

The Salinas Dam, located on the Salinas River upstream of Paso Robles in the Vicinity of the City of San Luis Obispo, has reduced the threat of flooding from smaller, more frequent flood events on the river, but is not designed to provide protection from the 100-year flood (FEMA, 1981).

The hazard data provided above are based on currently available flood hazard data and mapping. Future flood hazards, and the mapping used to define them, may be affected by changing conditions, such as increased runoff due to development, construction of flood control facilities, and climatic factors. While increased precipitation in the Western U.S. is likely due to global warming, the greatest threat of increased flooding in the District and the City of Paso Robles can be expected to come from the nearly 50 percent increase in population forecasted for the coming twenty years. This is likely to lead to a significant increase in impervious surfaces and, hence, flooding.

Presently the City requires new development projects to detain the runoff they create and meter its outflow so as not to exceed historic flows. Detention basins are designed to accommodate runoff commensurate with 100-year storms.

Furthermore, a 66-mile pipeline project has been proposed to increase water availability to San Luis Obispo County. The $190 million pipeline project would transport 17,000 acre-feet of water from Nacimiento Lake (northeast of the City of Paso Robles) to San Luis Obispo, serving several communities along the way, including Paso Robles. It is a concern for some that this pipeline may introduce a potential flooding hazard to the City, and therefore, the School District, if the pipeline were to break. This potential issue will be assessed in future updates of this Plan.

6.3.3 Hazardous Material (HAZMAT) Event

6.3.3.1 Nature

Hazardous materials (HAZMAT) may include hundreds of substances that pose a significant risk to humans. These substances may be highly toxic, reactive, corrosive, flammable, radioactive or infectious. They are present in nearly every community in the U.S., where they may be manufactured, used, stored, transported, or disposed. Because of their nearly ubiquitous presence, there are hundreds of HAZMAT release events annually in the U.S. that

contaminate air, soil, and groundwater resources, potentially triggering millions of dollars in clean-up costs, human and wildlife injuries, and occasionally cause human deaths (FEMA, 1997).

Hazardous material releases may occur from any of the following:

- Fixed site facilities (e.g., refineries, chemical plants, storage facilities, manufacturing, warehouses, wastewater treatment plants, swimming pools, dry cleaners, automotive sales/repair, gas stations, etc.)
- Highway and rail transportation (e.g., tanker trucks, chemical trucks, railroad tankers)
- Air transportation (e.g., cargo packages)
- Pipeline transportation (liquid petroleum, natural gas, other chemicals)

In response to concerns over the environmental and safety hazards posed by the storage and handling of toxic chemicals in the U.S., Congress passed the Emergency Planning and Community Right to Know Act (EPCRA) in 1986. These concerns were triggered by the 1984 disaster in Bhopal, India, in which more than 2,000 people died or were seriously injured from the accidental release of methyl isocyanate from an American owned Union Carbide plant. To reduce the likelihood of such a disaster in the U.S., EPCRA established specific requirements on federal, state and local governments, Indian tribes, and industry to plan for hazardous materials emergencies.

EPCRA's Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities working with facilities can use the information to improve chemical safety and protect public health and the environment (EPA, May 2003). Under EPCRA, hazardous materials must be reported to the Environmental Protection Agency (EPA), even if they do not result in human exposure. Such releases may include the following:

- Air emissions (e.g., pressure relief valves, smokestacks, broken pipes, water or ground emissions with vapors)
- Discharges into bodies of water (e.g., outflows to sewers, spills on land, water runoff, contaminated groundwater)
- Discharges onto land
- Solid waste disposals in onsite landfills
- Transfer of wastewater to public sewage plants
- Transfers of waste to offsite facilities for treatment or storage

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 bad due to the impairment of the physical integrity or even failure 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 anti-terrorism security at these facilities.

Due to the high level of risk posed by hazardous materials, numerous federal, state and local agencies are involved in their regulation, including the EPA, U.S. Department of Transportation (DOT), National Fire Protection Association (NFPA), FEMA, U.S. Army, and the International Maritime Organization.

Unless exempted, facilities that use, manufacture, or store hazardous materials in the U.S. fall under the regulatory requirements of EPCRA, enacted as Title III of the federal Superfund Amendments and Reauthorization Act (SARA) 42 U.S.C. §§11001-11050 (1988)). EPCRA has four major provisions:

- Emergency Planning (Section 301-303) is designed to help communities prepare for and respond to emergencies involving hazardous substances. It requires every community in the United States to be part of a comprehensive emergency response plan.
- The Governor of California has designated a State Emergency Response Commission (SERC) responsible for implementing EPCRA provisions within California. The SERC oversees Local Emergency Planning Committee (LEPC) districts. Emergency Release Notification (Section 304) includes a list of chemicals that if spilled must be reported, including Extremely Hazardous Substances (EHS). The SERC supervises and coordinates activities of each LEPC, establishes procedures for receiving and processing public requests for information collected under EPCRA, and reviews LEPC developed local emergency response plans. Facilities with an EHS at quantities exceeding the Threshold Planning Quantities (TPQ) must notify the SERC and LEPC and provide a representative to participate in the county emergency planning process.
- Hazardous chemical storage reporting requirements (Sections 311-312) that requires facilities possessing a threshold reporting quantity of a hazardous material under EPCRA (Section 311/312, 40 CFR Part 370) to submit an annual chemical inventory report (Tier II Hazardous Chemical Inventory Form) to the SERC, LEPC and local fire department; and
- Toxic chemical release inventory (Section 313).

Of the hundreds of hazardous materials, under the EPCRA regulatory scheme, those hazardous materials that pose the greatest risk for causing catastrophic emergencies are identified as an extremely hazardous substance, or an EHS. As noted above, the presence of EHSs in quantities at or above TPQ require additional emergency planning and mitigation activities. These chemicals are identified by the US 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* (EPA, October 2001).

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.

It should be noted that while comprehensive and readily accessible information is available on hazardous material release and facilities subject to EPCRA, there are numerous other sources of information on hazardous material facilities and incidents that are beyond the scope of this plan. A more in-depth analysis of potential hazardous material events would include the following:

- Risk Management Plan (RMP) facilities
- Tier II Hazardous Chemical Inventory Form facilities
- Toxic Release Inventory (TRI) facilities
- Pipelines and related facilities
- Railroad transportation facilities
- Explosive storage, sales, use, and manufacturing facilities
- Hazardous Materials Management Plan (HMMP) permit and Hazardous Materials Inventory Statement (HMIS) facilities
- Hazardous waste facilities (RCRA information and RMS databases)

- National Response Center Emergency Response Notification System (ERNS)
- U.S. Department of Transportation (DOT) Hazardous Materials Information Reporting System (HMIRS)
- California Hazardous Material Incident Reporting System (CHMIRS)
- California Department of Transportation (Caltrans)
- Trucking terminal facilities
- U.S. Office of Occupational Safety and Health Administration (OSHA) Injury, Illness, and Fatality Database
- 911 regional dispatch centers
- EPA Envirofacts and Window to My Environment
- EPA Enforcement and Compliance History Online (ECHO)

6.3.3.2 History

Some of the worst hazardous material events have occurred outside of the U.S., such the 1984 incident in Bhopal, India. Within the U.S., the National Response Center (NRC) reported an average of 280 hazardous material releases and spills occurred at fixed sites annually during the period 1987-1990. The US Department of Transportation reported an average of 6,774 hazardous material events annually during the period 1982-1991, with highways accounting for 81.4 percent, railroads 14.7 percent, and other events 6.6 percent. Additionally, highway transportation hazardous material events have caused more than 100 deaths, 2,800 injuries, and $22.4 million in damages (FEMA, 1997).

HAZMAT releases are a major concern for the District and communities in San Luis Obispo County. The San Luis Obispo County Environmental Health Department (EHD) provided information on the hazardous material events within the City for this School District Plan. In addition, hazardous material release reports were gathered from the NRC for the period 1990-2002 and screened to include only releases reported to the NRC of EHSs that met the Reportable Quantity (RQ) test under Section 304 of EPCRA (see *EPA List of Lists,* Section 304 EHS RQ). These materials pose the greatest risk for causing catastrophic emergencies.

A total of two significant HAZMAT release events (reported by the NRC) occurred within the City from 1987 to 2003, none of which prompted a state or federal disaster declaration. These release events are shown as green triangles in Figure 6-8 (Joslyn Sunbank Corporation and Chemron Corporation). The Chemron event (located by the airport) was a CO_2 release into the atmosphere. The amount is unknown, however there was no reported damage, injury, fatality or evacuation of nearby facilities. No District facilities are near the Chemron site. The other event (at Joslyn Sunbank), which occurred in the southeast portion of the City at 1740 Commerce Drive, was a release of 500 gallons of caustic soda, spilled from a pump due to a seal failure. This release was within one mile from the Virginia Peterson Elementary School. Local, county or state agencies responded to these incidents.

Seven releases within the District have been recorded by the U.S. Environmental Protection Agency, two of which occurred at the same site; the Zurn Industry Wilkins Division. These release events are shown as orange symbols in Figure 6-8. Of these releases none were incidents that were reported to the NRC. The two releases in the southeast portion of the City were within one mile from the Virginia Peterson Elementary School, however the release did not impact the school. The one release at the CTS Corporation was within one mile from the Winifred Pifer Elementary School, however the release did not impact the school. The Surgitek release, in the northeast portion of the City was not near any District facilities. The remaining two incidents occurred near the Paso Robles Municipal Airport, which is a substantial distance from any District facilities. Of the seven incidents, only two of the facilities are still in operation.

No reportable incidents have occurred within the transportation corridors (Route 101, the Union Pacific Railroad, and Highway 46).

6.3.3.3 Future Events

In California the majority of hazardous materials incidents are handled prior to becoming a disaster. Nevertheless, the District's emergency organization needs to be flexible and evolutionary in its response to a developing incident in order to accommodate both the large number of relatively routine minor releases to truly disastrous hazardous materials releases. Paso Robles is considered by most to be rural in nature and therefore, does not include large industrial facilities which house or manufacture large quantities of hazardous materials that could potentially cause a devastating release.

The District presently adheres to the adopted Paso Robles School District Emergency and Multi-Hazard Action Plan, which describes the role and operations of key Paso Robles School District personnel during an emergency incident. The plan sets forth standard operating procedures using the "Standardized Emergency Management System" (SEMS) used throughout the County of San Luis Obispo. The plan addresses specific procedures to follow in the event of an earthquake, flooding, fire, and/or a hazardous materials incident, which are all addressed in this HMP.

Comprehensive information on the probability and magnitude of hazardous material events across all types of sources (e.g., fixed facility, transport vehicle) is not available. Wide variations in the characteristics of hazardous material sources and between the materials themselves make such an evaluation very difficult.

The US Department of Transportation's Hazardous Materials Transportation Program is one of the most advanced probability and magnitude estimation programs. The program collects information on unintentional releases of hazardous materials, including the consequences, and analyzes them. One of the major efforts of the program is to identify low probability, high consequence events (which may not be apparent from incident data) and providing appropriate levels of protection (DOT, September 2003).

Areas of concern in the District are the Union Pacific Railroad and Highway 101, which are major interstate transportation routes that pass through the City of Paso Robles. In addition, Highway 46 East and West support relatively high traffic volumes. Trains and trucks commonly carry a variety of hazardous materials, including gasoline and various crude oil derivatives, and other chemicals known to cause human health problems. The District is exposed to the effects of a major catastrophic hazardous material emergency due to the proximity of these transportation routes to school facilities and densely populated areas of the city. However, when properly contained, these materials present no hazard to the District. But in the event of an accident or derailment, such materials may be released, either in solid, liquid or gas form. In the case of some chemicals (such as chlorine), highly toxic fumes may be carried far from the accident site. Although standard accident and hazardous materials recovery procedures are enforced by the state and followed by private transportation companies, the District facilities are at relatively high risk because of their location along interstate rail and highway corridors (General Plan, 2003).

Informal surveys conducted by the County Office of Emergency Services have indicated the presence of the following classifications of hazardous materials: explosives, poisons, corrosives, flammable liquids, combustible liquids, cryogenics, compressed gasses (flammable and non-flammable), radioactive materials, and oxidizers. Large pressurized natural gas pipelines traverse the District. Pesticides are stored at several sites around Paso Robles, mostly due to the number of vineyards and wineries in the vicinity of Paso Robles. Meridian Vineyards is located east of Paso Robles, approximately three miles from the Phillips-Freedom School (see Figure 6-9). Other small fixed facilities have varying uses of hazardous chemicals, but in general these do not pose a significant risk to the District. Air transportation of hazardous materials involves the smallest quantity, but still poses a potential hazard (Paso Robles Multi-Hazard Response Plan, 2003).

While it is beyond the scope of this plan to evaluate the probability and magnitude of hazardous material events in the District in detail, it is possible to determine the exposure of students, staff and District facilities should such an event occur. Of the facilities that were required to file an annual Tier II Material Inventory Report (under EPCRA) in San Luis Obispo County because of the presence of hazardous materials, seven were identified as having Extremely Hazardous Substance(s) (EHS). The locations of these facilities are shown on Figure 6-9. Due to the fact the accidental release of a hazardous substance from one of these facilities or transportation corridors may impact areas well beyond the site of the accident, potential hazard area zones of one-half mile and one mile are delineated in Figure 6-9. The substances recorded at these facilities include common hazardous substances, such as nitric acid, sulfuric acid, acetone, hydrocarbons, cadmium, etc. EHSs pose the greatest risk for causing catastrophic emergencies. Therefore, facilities with EHSs are considered a greater threat than situations where non-EHSs are involved.

As an arbitrary and somewhat overstated approach, in an effort to consider the "worst-case scenario," Figure 6-9 displays half-mile and one-mile "hazard area" zones around each EHS facility and major transportation corridor within the District to assess the potential impacts of a release. It is apparent in Figure 6-9 that many District schools and other facilities are within one-half mile from a major transportation corridor or a facility that stores EHS materials. The Pacific Bell EHS facilities west of Route 101 and the major transportation corridors are the sites that are closest to School District facilities, and therefore pose the highest potential risk.

6.3.4 Wildland Fire

6.3.4.1 Nature

A wildland fire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed, spread quickly, and are usually signaled by dense smoke that may fill the area for miles around. Wildfires can be human-caused through acts such as arson or campfires, or can be caused by natural events such as lightning. Wildfires can be categorized into four types:

- **Urban fires** are primarily those associated with structures and the activities in and around them. Most urban fires are caused by human activity.
- **Wildland fires** occur in forests or other generally uninhabited areas and are fueled primarily by natural vegetation.
- **Interface or intermix fires** occur where development and forest interface, with both vegetation and structures providing fuel. These are also referred to as urban-wildland interface fires.
- **Prescribed fires and prescribed natural fires** are intentionally set or natural fires that are allowed to burn for beneficial purposes.

Over the years, development standards have become more stringent to reduce the frequency and severity of urban fires. These are greatest in areas containing older buildings that do not meet current building codes. Utility facilities also present a potential urban fire hazard. Earthquakes or floods may rupture buried gas lines, while high winds or accidents could cause overhead electric lines to break. Either condition could result in a fire. Catastrophic earthquakes could cause widespread urban fires, as multiple gas and electrical lines could be broken or disrupted.

The following three factors contribute significantly to wildland fire behavior and, as detailed more fully later, they can be used to identify wildland fire hazard areas:

- **Topography**: As slope increases, the rate of wildland fire spread increases. South facing slopes are also subject to greater 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**: Weight and volume are the two methods of classifying fuel, with volume also referred to as fuel loading (measured in tons of vegetative material per acre). Each fuel is assigned a burn index (the estimated amount of potential energy released during a fire), an estimate of the effort required to contain a wildland fire, and an expected flame length. The fuel's continuity is also an important factor, both horizontally and vertically.
- **Weather**: Variations in weather conditions have a significant effect on the occurrence and behavior of wildfires. Short-term conditions, such as high heat, low humidity, and high winds, facilitate the ignition and rapid spread of fires. Conversely, cool temperatures, high humidity, and little to no wind reduce the risk of fires and allow fires to be contained more readily. Long-term conditions, such as prolonged drought, also play a major role in fire susceptibility.

The frequency and severity of wildland fires is also dependent upon other hazards, such as lightning, drought, and infestations (e.g., Pine Bark Beetle). In California, these hazards combine with the three other wildland fire contributors noted above (topography, fuel, weather) to present an on-going and significant hazard across much of California.

If not promptly controlled, wildland fires may grow into an emergency or disaster. Firestorms occur during extreme weather (e.g., high temperatures, low humidity, and high winds) with such intensity that fire suppression is virtually impossible. These events typically burn until the conditions change or the fuel is exhausted.

Even small fires can threaten lives and resources, and destroy improved properties. It is also important to note that in addition to affecting people, wildland fires may severely affect livestock and pets. Such events may require the emergency watering/feeding, shelter, evacuation, and even burying of animals.

The indirect effects of wildland fires can also 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 landslide hazards. The result may be catastrophic debris flows, such as occurred in Southern California following in the wildfires in summer 2003.

6.3.4.2 History

Historically, wildland fires have burned thousands of acres within the District's boundary, as shown in Figure 6-10, however no District facilities have been severely damaged. On average, 58 percent of these wildland fires are human caused, while 42 percent are lightning caused. Information on the location and size of wildland fire events in San Luis Obispo County were collected from a variety of sources. However, most of the information came from the following two sources:

- The USDA Forest Service has published a study titled *Development of Coarse-Scale Spatial Data for Wildland Fire and Fuel Management* (April 2002). This study describes and makes available seven coarse-scale (1 square kilometer) resolution spatial data layers for the conterminous U.S. to support national-level fire planning and risk assessments. One of the layers, National Fire Occurrence, 1986 to 1996, contains information on Federal and non-Federal wildland fire occurrence, including date, location, area burned, and cause. Information for wildland fires in California was retrieved from this layer. These events were screened to include only fires 100+ acres in size.
- The Fire and Resource Assessment Program (FRAP), which is part of the California Department of Forestry and Fire Protection (CDF). This data consists of CDF fires 300 acres and greater in size and USFS fires 10 acres

and greater throughout California from 1950 to 2003. Some fires before 1950, and some CDF fires smaller than 300 acres are also included. BLM fires are complete since 2002 for fires greater than 10 acres in size.

While Paso Robles has had urban fires, most have been relatively small and easily contained. The District and the City contains many older structures and the City requires that such buildings be brought up to code when made aware of such buildings. Despite these preventative activities, one larger fire occurred east of the City boundary in 1968. The fire burned approximately 1,067 acres (see Figure 6-10).

The District does not have complete or updated records for wildfire within the jurisdictional boundary. Figure 6-10 clearly demonstrates, however, that countless wildfires have occurred over the past 50 years within the District, some of which have been very near the Adelaida Historical Site and the Phillips-Freedom School. These sites are located in more densely vegetated areas outside of the City, and therefore have been more prone to wildfire over the years. The Bauer Speck Elementary School located in the City, endured fire damage in 1955. However, the fire was quickly contained and the facility was repaired.

No catastrophic fires have been recorded in recent history, particularly since emergency response and building codes have been improved. During the years 1997 through 1999 Paso Robles experienced $910,151 in cumulative fire loss in property valued at $17,632,226. This equates to an average fire loss to the value figure of $51.61 loss per $1,000 of value at risk.

6.3.4.3 Future Events

The District faces two types of fire hazards that threaten lives and property: urban and wildland fires. Wildland fire may also result in the loss of natural vegetation, loss of agricultural crops, and soil erosion. The outbreak and spread of wildland fires within the jurisdictional area is a potential danger, particularly during the dry summer and fall months. The buildup of understory brush, which under natural conditions would be periodically burned off, provides fuel to result in larger, more intensive fires.

The topography, climate, and vegetation of much of the District are conducive to the spread of wildfires. According to the California Department of Forestry and Fire Protection San Luis Obispo County Fire Hazard Map, almost all of the hillsides south of Highway 46 East, and the areas of the District north of Highway 46 East are located within "Wildland Areas that may contain substantial fire hazards and risks" (GIS Solutions Group, January 6, 2000).

Depending upon the needs of the user and the availability of data, there are many different approaches to fire modeling. However, nationally accepted or utilized wildland fire models have not been developed for the evaluation of wildland fire risk or conducting vulnerability analysis. In addition, most wildland fire modeling conducted to date has been focused on wildland fire behavior, not true probability and magnitude modeling. This is because the probability of ignition and the probable wildland fire size has generally not been considered. In addition, there have been major limitations in terms of software systems, data availability, and data coverage/resolution.

These limitations aside, with improving Geographic Information Systems (GIS) programs and data availability, there are a growing number of wildland fire hazard assessment models. In addition, as a part of the National Fire Plan, communities have also been identified across the U.S. that are at risk to wildland fires. The Fire and Resource Assessment Program (FRAP), prepared by the California Department of Forestry and Fire Protection, offers a statewide GIS layer (GRID format) of potential fire behavior rankings derived from wildland fuels and topography. The fuel ranking methodology assigns ranks based on expected fire behavior for unique combinations of topography and vegetative fuels under a given severe weather condition (wind speed, humidity, and temperature). The fuel ranking procedure makes an initial assessment of rank based on an assigned fuel model (based on surface fuels) and slope, then raises ranks based on the amount of ladder and/or crown fuel present to arrive at a fuel rank.

The fire hazard ranks for the District fall within four degrees of hazard: no fuel, low, medium and high hazard. These hazard ranks take into consideration fuel rank and fire rotation. In Figure 6-11, it is apparent that fire hazard increases beyond the boundaries of the city, as vegetation density increases as well as slope. The surface fuels within the District are displayed in Figure 5-3 (Vegetation Map). The areas delineated as grassland, oak woodland, and chaparral corresponds to areas of medium and high hazard designations in the Wildfire Hazard Areas map.

Generally, the District area within Paso Robles is defined as a low to medium hazard area, with higher hazard areas located west of Paso Robles, within the steeper terrain and canyons and east of the Salinas River, as slopes and vegetation increases (see Figure 6-11). The areas in and around the District that pose the highest fire hazard have steep slopes of 10-15% or greater and dense or tall vegetation. These occur primarily on hilltops and hillsides surrounding the developed areas of the District. Other than the site identified for a potential elementary school (north of Lyle Lane) and the Adelaide historical site, most of the District facilities are located in "no fuel" areas, or low hazard areas.

6.4 INVENTORY ASSETS

The third step in the risk assessment process is the identification of assets that may be affected by hazard events. The inventory of assets is divided into the following three major categories, each of which is analyzed in detail below:

- Population (students and staff)
- Schools
- Other District Facilities

Detailed information on these assets was provided in Section 5: District Description. This information was from a variety of sources, including the existing City of Paso Robles HMP and District Records.

6.5 VULNERABILITY ASSESSMENT

Vulnerability refers to the susceptibility to physical injury, harm, damage, or economic loss of the exposed people, buildings and infrastructure. District elements (or "assets") exposed to each hazard have been listed and mapped, and their vulnerability is discussed below. The specific requirements for the vulnerability assessment are shown in Table 6-8 to Table 6-11.

TABLE 6-8
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
A. Does the plan include an **overall summary** description of the jurisdiction's **vulnerability** to each hazard?
B. Does the plan address the **impact** of each hazard on the jurisdiction?

Source: FEMA, March 2004.

TABLE 6-9
DMA 2000 REQUIREMENTS – 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

A. 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?

B. 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.

TABLE 6-10
DMA 2000 REQUIREMENTS – 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

A. Does the plan estimate **potential dollar losses** to vulnerable structures?

B. Does the plan describe the **methodology** used to prepare the estimate?

Source: FEMA, March 2004.

TABLE 6-11
DMA 2000 REQUIREMENTS – RISK ASSESSMENT – ASSESSING VULNERABILITY – ANALYZING DEVELOPMENT TRENDS

Assessing Vulnerability: Analyzing Development Trends

Requirement §201.6(c)(2)(ii)(C): *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

Element

A. Does the plan describe land uses and development trends?

Source: FEMA, March 2004.

The fourth step of the risk assessment and its primary intent is the vulnerability assessment. This provides an approximation of vulnerability and potential losses from hazards, typically based on a commonly accepted methodology and event type. Wherever possible, a quantitative and comparable assessment of vulnerability to hazards was made. A summary of the vulnerability assessment is provided in Table 6-12.

Note that the loss 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, 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 and buildings to hazards. It is beyond the scope of this first Paso Robles School District Hazard Mitigation Plan to analyze other types of hazard impacts (e.g., people injured or killed, shelter requirements, loss of facility/system function, and economic losses). The data necessary for this detailed level of analysis is also not currently available. Such impacts may be addressed as possible with future updates of the plan.

6.5.1 Methodology

The hazards analyzed in this Plan have associated boundaries and/or levels of impact that represent the potential area and severity in which the hazard may occur. In most cases, the impact boundaries are divided into areas that reflect different levels or zones of impact. Within these areas are assets (populations and facilities), which are vulnerable to damage or harm from the hazards. These assets are grouped into four major categories for the purpose of the vulnerability assessment:

- Population (students and staff)
- Schools
- Other District Facilities
- Sites planned for future development (2)

Population information was obtained from District employment and student enrollment records. Using an integrated Geographic Information System (GIS) platform, each specific hazard and degree of impact (when applicable) was overlaid (using a “grid” method) on the population data and impact was determined based on whether the hazard area intersected any portion of the populated sites. Affected populated sites were selected this way and the total population affected was summarized. Value for the District’s facilities were determined by reviewing District records, such as grant applications and engineering reports. The District also identified their critical facilities and specific locations for the assessment. Parcel areas around each District facility are included as the potential impact area for each site. Therefore, the District facilities are defined as polygons that include the parking lots and associated ground areas of each site.

Each specific hazard and degree of hazard, when applicable (i.e. wildfire hazard was analyzed for low, medium, and high risks), was overlaid onto the GIS District facility locations (polygons) layer. Impact was determined based on whether the hazard boundary intersected any portion of a specific facility polygon. If a facility area (polygon) fell into more than one degree of hazard, the degree of hazard that covered the most area of the polygon was assumed. If the facility area was more or less equally divided between two degrees of a hazard, the higher hazard was assumed. These selected polygons were then summarized based on what type of structures they are: a school or an “other” facility (i.e. Teachers Center, Support Services, etc.). Numbers of facilities affected, the total square footage impacted, and dollar amounts for each were summarized for each hazard and degree of hazard.

TABLE 6-12
POTENTIAL HAZARD VULNERABILITY ASSESSMENT

Hazard	Methodology	Population		Schools			Other District Facilities			Future Development Sites
		Students	Staff	No.	Estimated Value (x$1000)	Square Footage	No.	Estimated Value (x$1000)	Square Footage	
Earthquake identified zones (liquefaction, shaking, fault proximity)	Exposure: High	40	7	1	615,000	4,089	0	0	0	None Affected
	Exposure: Moderate	0	103	0	0	0	3	8,540,508	55,449	Potential Middle School Site
	Exposure: Low	6,872	587	12	150,303,936	679,976	4	4,164,968	25,740	Potential Elementary School Site
Flood	Exposure: 100-year flood zone	0	0	0	0	0	0	0	0	None Affected
	Exposure: 500-year flood zone	6,092	507	10	132,923,936	602,731	3	3,889,968	23,740	Both Potential Elementary and Middle School Sites
HazMat	Exposure: .5-mile radius EHS facilities and .5-mile buffer transport corridors	2,475	342	7	59,488,936	275,624	5	10,162,508	62,129	Both Potential Elementary and Middle School Sites
	Exposure: 1-mile radius EHS facilities	5,147	413	8	100,552,936	452,943	1	2,267,968	17,060	None Affected
Wildland Fire	Exposure: High	0	0	0	0	0	0	0	0	None Affected
	Exposure: Medium	425	31	1	7,200,000	32,973	1	275,000	2,000	Potential Elementary School Site
	Exposure: Low	2,860	389	7	72,142,936	327,337	5	10,162,508	62,129	Potential Middle School Site

Future development areas (there are two) were identified by the District and mapped by URS. Impact on future development was determined by overlaying each hazard boundary with the polygons identified for future development. Impact was determined based on whether the hazard area intersected any portion of a specific polygon designated for future development.

6.5.2 Earthquake

Of all the hazards assessed in this section, an earthquake poses the greatest exposure and potential loss for the District, as shown in Table 6-12. Nearly all of the District's students, staff, and facilities are exposed to low ground shaking zones.

- Figures 6-1 through 6-5 clearly display the District's vulnerability to earthquakes. The District's close proximity to the active San Andreas Fault and the affiliated potential for intense ground shaking, as calculated by CGS and USGS, results in a potential hazard that could impact the entirety of the District. The District is defined by CGS and USGS as having a probable peak ground acceleration (PGA) of 20 - 80 percent (Figure 6-4). Table 6-5 defines this PGA as corresponding to an earthquake somewhere around a magnitude 5.0 to 7.0 on the Richter scale.

The District falls within several designated zones of ground shaking (another earthquake measurement, similar to peak ground acceleration), also defined by CGS and USGS (Figure 6-5). The northeast end of the District has potential for very high ground shaking intensity. Fortunately, these areas of the District are not currently populated. Only the Phillips-Freedom School approaches the eastern end of the District boundary.

Most of the District facilities are in areas of low ground shaking. This includes 6,872 students, 587 staff, 12 schools (worth $150.3 million), and 4 other facilities (worth $4.2 million). Only 3 "other" facilities fall within the area of moderate ground shaking, however these facilities have relatively high values that total $8.5 million. The potential middle school site would also be located an area of moderate ground shaking, and no value has yet been assigned to this facility.

The risk from earthquakes will continue to increase as the District's population grows and structures are built. The occurrence of the San Simeon earthquake in 2003 has heightened awareness of the hazard among District officials as well as the City population, providing opportunity for appropriate planning for future events.

6.5.3 Flood

The risk is moderate, as shown by Table 6-12 and Figure 6-6. Exposed within the 100-year flood zone are zero people and zero facilities. However 10 schools and 3 other facilities are located within the 500-year flood zone, which is a potential hazard.

The District facilities are not at a high risk for flooding due to the fact the 100-year flood zone is comprised of a relatively small portion of the District. However, the floodplain of the Salinas River affects a significant portion of the city's downtown area. The Salinas Dam, located on the Salinas River upstream of Paso Robles in the vicinity of the City of San Luis Obispo, has reduced the threat of flooding from smaller, more frequent flood events on the river, but is not designed to provide protection from the 100-year flood (FEMA, 1981).

Furthermore, a 66-mile pipeline project has been proposed to increase water availability to San Luis Obispo County. The $190 million pipeline project would transport 17,000 acre-feet of water from Nacimiento Lake (northeast of the Paso Robles) to San Luis Obispo, serving several communities along the way, including Paso Robles. It is a concern for some that this pipeline may introduce a potential flooding hazard to Paso Robles, if the pipeline were to break. Therefore, this potential issue will be assessed in future updates of this Plan.

6.5.4 Hazardous Materials

Overall, the Paso Robles faces a moderate risk from exposure to hazardous materials incidents, as shown in Table 6-12. This exposure was determined via two methods, the first of which is a one-half mile buffer around the seven Extremely Hazardous Substance (EHS) sites and the major transportation corridors within the District (Highway 101 and 46 East, and the railroad line, which is predominantly parallel to Highway 101), and the second of which is a 1-mile buffer around the EHS sites.

Within the one-half mile area around the seven EHS sites and transportation corridors, exposed are 2,475 students, 342 staff, 7 schools (worth $59.5 million) and 5 other facilities (worth $10.2 million). Both of the potential elementary and middle schools sites to be developed in the future are within the one-half mile zone of an EHS site or transportation corridor. These figures are for all seven EHS facilities and the three major transportation corridors (Figure 6-9) and, therefore, overstate the exposure since the probability of all seven facilities and corridors having an event simultaneously is very low. These EHS facilities are predominantly located within industrial and public facility zoned areas within Paso Robles (e.g., near the airport and along Highway 101) and not in close proximity to District facilities.

Within the one-mile zone around the EHS facilities, exposed are 5,147 students, 413 staff, 8 schools (worth $100.6 million), and one other facility (worth $2.3 million). As above, these figures are for the entirety of the EHS facilities and, therefore, overstate the exposure since a hazmat event at all of these facilities at one time is unlikely.

6.5.5 Wildland Fire

Much of the densely populated areas within the District (see Figure 5-5) have wildfire hazard designations of no fuel, low hazard or medium hazard, with a smaller portion of the District designated as having high wildfire hazard (see Figure 6-11). There are no potential District assets within this area of high wildfire exposure. The high wildfire hazard exists mainly in the hills west of the City along Mountain Springs Road and Peachy Canyon Road, as well as south of the City in areas along Spanish Camp Road and Prospect Avenue (see Figure 6-11).

Of less danger, but potential exposure, are areas of medium wildfire hazard. This hazard level includes 425 students, 31 staff, 1 school (worth $7.2 million), and one other facility (worth $275,000). Also, the site identified for a potential elementary school to be developed in the future is located within the medium wildfire hazard area.

Again of lesser danger, but of even greater exposure, are areas of low wildfire hazard. This includes 2,860 students, 389 staff, 7 schools (worth $72.1 million), and 5 other facilities (worth $10.2 million). The site identified for a potential middle school site to be developed in the future is located within the low wildfire hazard area.

7.0 MITIGATION STRATEGY

The Paso Robles Joint Unified School District's Hazard Mitigation Strategy describes the District's blueprint for reducing potential losses due to natural and human-caused hazards. This Strategy is based on the ability of District authorities, policies, programs, and resources to expand on and improve existing tools that will mitigate the effects of natural and human-caused hazards in the District's physical and human environment. Table 7-1 defines the DMA requirements for planning a hazard mitigation strategy. The District's hazard mitigation goals, along with their corresponding objectives, have guided the development and implementation of the specified mitigation actions.

TABLE 7-1
DMA 2000 REQUIREMENTS – MITIGATION STRATEGY

MITIGATION STRATEGY: *§201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

Source: FEMA, March 2004.

7.1 CAPABILITY ASSESSMENT

While not required by the *Disaster Mitigation Act of 2000*, an important component of the Mitigation Strategy is a review of the District's resources in order to identify, evaluate, and enhance the capacity of local resources to mitigate the effects of hazards. The first part of the Capability Assessment is a review of the District's legal and regulatory capability, including policies and plans to address hazard mitigation activities. This Assessment also describes the administrative and technical ability of the District's staff and personnel resources. The third part of the Assessment, which crosses all technical and regulatory boundaries, is the fiscal capability of the District to provide the financial resources to implement the mitigation strategy. The final part of the Capability Assessment is a summary review of the activities of each administrative division within the Paso Robles Joint Unified School District that supports hazard mitigation activities, and details any previous mitigation activities undertaken by these entities.

The legal and regulatory hazard mitigation capability of the District, as shown in Table 7-2, including a review of existing policies and plans that affect the physical or built environment in the District. In particular, the District's applicable Emergency and Multi-Hazard Action Plan and other regulatory guides provide specified support to hazard mitigation activities. This section lists various hazard mitigation tools and recognizes the District authorities.

The administrative and regulatory capability of Paso Robles Joint Unified School District, as shown in Table 7-3, provides an identification of the staff, personnel, and department resources available to expedite the actions identified in the Mitigation Strategy. The fiscal capability of the District to achieve the goals and objectives of the Mitigation Strategy is shown in Table 7-4. Specific financial and budgetary tools available to District include the District's general fund money, tax levies, federal and state grant monies, and impact fees applied to new development.

The local mitigation capability assessment describes the potential hazard mitigation activities that occur in the Paso Robles Joint Unified School District. Most importantly, the tables below detail the District's plans, policies, regulations, funding, and practices that promote or facilitate hazard mitigation, and provides contact information within the District.

The District has developed an Emergency and Multi-Hazard Action Plan, which also addresses Hazardous Materials Response. The plan recognizes potential HAZMAT risks and identifies methods to rapidly mobilize and take the necessary actions with resources available to save lives, reduce injuries, and minimize District

TABLE 7-2
LEGAL AND REGULATORY CAPABILITY

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)	Higher Level Jurisdiction Authority (Y/N)	Comments
A. Building code	N	Y	Y	Must adhere to state codes
B. Zoning ordinance	Y	-	-	District can rezone for its needs only
C. Subdivision ordinance or regulations	N	-	-	
D. Special purpose ordinances (floodplain management, stormwater management, hillside or steep slope ordinances, wildland fire ordinances, hazard setback requirements)	N	-	Y	State regulations
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	N	-	-	
F. Site plan review requirements	Y	-	Y	Division of the State Architect (DSA)
G. General or comprehensive plan	Y	-	-	
H. A capital improvements plan	Y	-	-	
I. An economic development plan	N	-	-	
J. An emergency response plan	Y	-	-	
K. A post-disaster recover plan	N	-	-	
L. Real estate disclosure requirements	N	-	-	
M. District and school boundaries	Y	-	-	

TABLE 7-3
ADMINISTRATIVE AND TECHNICAL CAPACITY

	Staff/Personnel Resources	Y/N	Department/Agency and Position
A.	Emergency Manager	Y	Superintendent
B.	Safety and Hazard Manager	Y	Established part-time position
C.	Personnel familiar with hazards/health issues	Y	Established position and Assistance through Schools Insurance Program for Employers (SIPE)
D.	Professionals trained in construction practices	Y	Division of State Architect (DSA) Inspector on staff
E.	Hazard waste and storm water management	Y	Trained employees on staff, and SIPE assistance
F.	Grant writer	Y	Established position
G.	Personnel with expertise to identify vulnerability to hazards	Y	Safety and Hazard Manager, Assistance from SIPE, Trained maintenance staff
H.	Hazard mitigation team and plan	-	Plan and grant application from Office of Emergency Services (OES) staff is being implemented

TABLE 7-4
FISCAL CAPABILITY

	Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
A.	Community Development Block Grants (CDBG)	No
B.	Capital improvements project funding	No
C.	Authority to levy taxes for specific purposes	Yes
D.	Fees for water, sewer, gas, or electric service	No
E.	Impact fees for homebuyers or developers for new developments/homes	Yes
F.	Incur debt through general obligation bonds	No
G.	Incur debt through special tax and revenue bonds	No

property/environmental damage from hazardous materials releases. The Plan addresses both transportation and fixed installation emergencies.

7.2 GOALS, OBJECTIVES AND ACTIONS

DRAFT Goals, Objectives and Actions (GOA)

The following vision and mission statement were developed by the District Hazard Mitigation Plan Team during the hazard mitigation plan preparation process and provided guidance to those involved in the preparation of the Paso Robles Joint Unified School District Local Mitigation Plan:

Vision: The District will be disaster resistant, enabling students and staff to enjoy an educational environment where the effects of disasters are greatly reduced or eliminated.

Mission: The mission of the Paso Robles Joint Unified School District Local Mitigation Plan is to help ensure an exemplary education in a safe environment by responding to emergency situations in a safe and timely manner through actions directed toward the protection of lives and property associated with the Joint Unified Paso Robles School District.

In order to accomplish the above vision and mission, specific goals and objectives have been established. Below is a summary of mitigation strategy terms, followed by the District's mitigation strategy.

7.2.1 Definitions

For the purpose of this Plan, the following definitions of Goals, Objectives, Actions and Implementation Strategy have been adopted from *Disaster Mitigation Act of 2000* guiding documents, and have been accepted as functional by all levels of government involved in hazard mitigation.

Goals: General guidelines that explain what you want to achieve. Goals are usually broad statements with long-term perspective.

Example: Goal 1: Protect schools from flooding.

Objectives: Defined strategies or implementation steps intended to attain the identified goals. Unlike goals, objectives are specific, measurable, and have a defined time horizon.

Examples: Objective 1.A: Reduce the number of structures in the 100-year floodplain.

Objective 1.B: Minimize future damage due to flooding of current structures in the 100-year floodplain by protecting or moving existing structures.

Actions: Specific actions that help achieve goals and objectives. Multiple mitigation actions may be defined to feed into an evaluation of the alternative actions.

Examples: Action 1.A.1: Adopt DSA standards, prohibiting new school development in the 100-year floodplain.

Action 1.B.1: Relocate 5 District structures on XYZ Street.

Action 1.B.2: Elevate 2 District structures on ABC Street.

Action 1.B.3: Retrofit 10 District structures on XYZ Street with storm shutters, elevated utilities, and water back flow valves.

Implementation Strategy: A comprehensive strategy that describes how the mitigation actions will be implemented.

Questions: How will the mitigation actions be prioritized?

Who will implement them?

When will they be implemented?

How will they be implemented?

7.2.2 Goals, Objectives and Potential Actions

In accordance with the *Disaster Mitigation Act of 2000*, the Paso Robles JUSD developed goals to reduce the District's vulnerability to natural and human-caused hazards, as shown in Table 7-5 and Table 7-6.

TABLE 7-5
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
A. 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.

TABLE 7-6
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.*
Element
A. Does the plan identify and analyze a **comprehensive range** of specific mitigation actions and projects for each hazard?
B. Do the identified actions and projects address reducing the effects of hazards on **new** buildings and infrastructure?
C. Do the identified actions and projects address reducing the effects of hazards on **existing** buildings and infrastructure?

Source: FEMA, March 2004.

Listed below are the District'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 District has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were originally derived from the preliminary draft *State of California Enhanced Hazard Mitigation Plan* that was developed in parallel to the *Paso Robles Joint Unified School District Hazard Mitigation Plan* as well as those of other San Luis Obispo County jurisdictions. The Paso Robles JUSD Hazard Mitigation Plan Team modified the goals and objectives in order to account for historic or potential hazards that could threaten the health, safety and welfare of the District's staff, students and/or facilities. The District Team met in February 2005 to consider

potential goals, objectives, and actions. At this meeting, specific consideration was given to the District's hazard identification/profiles and the vulnerability assessment results.

Members of the District's Hazard Mitigation Plan Team included the District's Assistant Superintendent for Business, Director of Maintenance and Operation, Risk Manager, and Superintendent. In addition, the Draft *Paso Robles JUSD Hazard Mitigation Plan,* including draft goals, objectives and actions, was available for review and comment by the public at a public meeting. After public and FEMA review, the JUSD Board of Trustees adopted the plan on January 10, 2006.

Goal 1. Promote disaster-resistant future development.

Objective 1.A Limit development of new school facilities in high hazard areas, which are defined by the maps in this Hazard Mitigation Plan.

Action 1.A.1 Ensure the hazard maps developed for this Hazard Mitigation Plan are used in the planning of new District facilities to determine whether or not safe locations are being selected. Based on the results, amend site locations as necessary.

Objective 1.B Ensure District adherence to the Division of the State Architect (DSA) and the State Fire Marshal's (SFM) policies for design and construction, which protect existing assets and minimize unsafe and/or hazard-prone new development.

Action 1.B.1 Continue to implement DSA and SFM policies, standards and codes relative to hazard safety engineering (i.e., fire-retardant roof covering and sprinkler systems, etc.).

Objective 1.C. Use FEMA funds to reconstruct the Flamson Middle School as a structurally hazard-safe school by August 2007. Complete the design by June 2005 and DSA approval by February 2006.

Action 1.C.1 Review the architectural plans for the Flamson Middle School replacement structure(s) to confirm that DSA and SFM-approved hazard-safety elements and innovative safety options are included in the plans.

Goal 2. Promote student and staff understanding and support for hazard mitigation.

Objective 2.A Promote partnerships between District managers and school employees to identify, prioritize, and implement mitigation actions between the District and the City, FEMA, the State of California, San Luis Obispo County, other local governments, as well as private industry, civic and non-profit groups.

Action 2.A.1 Continue to seek availability of Pre Disaster Mitigation (PDM) and Hazard Mitigation Grant Program funds (HMGP).

Action 2.A.2 Explore a variety of funding sources for the implementation of hazard mitigation actions.

Action 2.A.3 Continue and maintain relationships with the California Office of Emergency Services and the San Luis Obispo County Office of Emergency Services.

Objective 2.B Increase awareness of students and staff of hazards and opportunities for mitigation actions.

Action 2.B.1 Post a notice on the "pasoschools.org" website that the District's Hazard Mitigation Plan is available for review.

Action 2.B.2 Announce approval and provide an executive summary of the Hazard Mitigation Plan through school newsletters and the Superintendent's Quarterly Message.

Action 2.B.3 Distribute appropriate information sheets to teachers produced by FEMA that include suggested hazard mitigation actions.

Action 2.B.4 Encourage District teachers to incorporate a lesson plan into the annual curriculum that focuses on potential hazards in the District and the appropriate measures that students can take to avoid or successfully endure a hazard.

Action 2.B.5 Continue the current District practice of monthly safety in-service training for employees, and introduce the District HMP at the appropriate monthly training.

Goal 3. Build and support District capacity to warn staff about emergency situations and assist in their response.

Objective 3.A Improve upon existing capabilities to warn the District staff of emergency situations.

Action 3.A.1 Support the City's implementation of the local Emergency Alert System (EAS) and become familiar with the alert system process proposed by the City.

Objective 3.B Ensure that District managers, teachers and staff, and emergency response personnel are informed of and familiar with the District's Emergency and Multi-Hazard Action Plan and their associated specific responsibilities and roles.

Action 3.B.1 Conduct an annual review of the District's Emergency Action Plan for District staff and local authority (including the City's Fire Department, Police Department, County Environmental Health Department, and County Department of Emergency Services) lead by the District Director of Operations and Maintenance.

Action 3. B. 2 Continue to conduct the District-wide required disaster drills annually (10 drills for grades K-8, and 4 drills for grades 9-12), simulating a fire, an earthquake, etc., in order to educate and prepare students and to identify any needed HMP updates.

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

Objective 4.A Ensure District preparedness for emergency response actions for an earthquake.

Action 4.A.1 Conduct inspections of District radio-equipped field vehicles every six months to ensure radios are functioning correctly.

Action 4.A.2 Conduct inspections of all District facilities to confirm that Emergency Incident Command Personnel lists for the District are posted, as well as emergency numbers for the City and County help-lines.

Action 4.A.3 Perform annual observations of teachers conducting earthquake drill education for students by completing the District Site Observer Checklist (Section 5, District Emergency and Multi-Hazard Action Plan). Identify areas of needed improvement.

Action 4.A.4 Task the existing District Safety Committee with reporting any necessary HMP updates or revisions when classrooms are inspected annually to identify and mitigate potential earthquake and/or health hazards.

Goal 5. Reduce the possibility of damage and losses due to floods.

Objective 5.A Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.

Action 5.A.1 Continue to implement the District Storm Water Plan, which is in effect and coordinated with the County of San Luis Obispo.

Action 5.A.2 Encourage the City to implement bridge or culvert construction where District facilities are in locations susceptible to flooding.

Objective 5.B Protect future facilities from effects of floods.

Action 5.B.1 Design new facilities to minimize potential flood damage. (For example, ensure that finish floor elevations of new facilities are at least one foot above the base flood elevation; BFE).

Goal 6. Prevent or minimize damage and losses due to hazardous materials (hazmat) incidents.

Objective 6.A Inform existing schools and other District facilities of their proximity to sites that contain Extremely Hazardous Substances (EHSs) or have the potential for hazardous material releases, as defined in Figure 6-9 of this Hazard Mitigation Plan.

Action 6.A.1 Distribute Figure 6-9 (EHS Facilities and Potential Hazard Areas Map) to District staff along with Section 7 of the District's Emergency Action Plan (Hazardous Material Incident Response and evacuation Procedure).

Objective 6.B Reduce the number of, and volume of, hazardous materials at District-owned facilities.

Action 6.B.1 Maintain on-hand the minimum amount of chemicals required in the proper storage containers.

Action 6.B.2 Continue to incorporate worker "right-to-know" training at facilities identified by the District as storing a substantial amount of hazardous materials.

Objective 6.C Reduce the risk of injury or loss of life to first responders to hazardous materials incidents.

Action 6.C.1 Provide Department of Transportation (DOT) emergency response guidebooks to identified Emergency Incident Command Personnel.

Objective 6.D Increase student knowledge of safe handling and disposal of hazardous materials.

Action 6.D.1 High School Teachers shall conduct one lesson annually regarding safe handling and disposal of household chemicals.

Objective 6.E Ensure the proper handling and maintenance of hazardous materials in science/lab classrooms.

Action 6.E.1 Perform annual inspections (District Safety Committee staff) with the District's assigned "safety" consultant, and report any necessary storage and/or handling improvements.

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

Objective 7.A Ensure that state and local fire marshal requirements relative to fire safety are implemented in new facilities and maintained in existing facilities.

Action 7.A.1 Investigate current District landscaping practices to ensure that potential fire fuels are minimized and properly maintained.

Action 7.A.2 Conduct annual inspections of District facilities with the local fire marshal, and implement the marshal's recommendations.

Objective 7.B Educate the students and District staff about wildland fire dangers and the steps that can be taken to prevent or minimize their effects.

Action 7.B.1 Invite a chief and/or fire fighters from the City's Fire Department to give classroom presentations about fire danger.

Objective 7.C Consider fire safety when coordinating any District facilities planning.

Action 7.C.1 Consider the proximity of fire hydrants and the availability of water pressure when choosing locations for new facilities.

7.2.2.1 Potential Actions and Evaluation Process

As listed above, the District Hazard Mitigation Plan Team identified 31 potential hazard mitigation actions that will assist the District in mitigating the impact of natural and human-caused hazards. The *Disaster Mitigation Act of 2000* requires the evaluation of the potential mitigation actions, as noted previously in Table 7-6.

In order to evaluate these potential actions, the District Hazard Mitigation Plan Team used the STAPLEE criteria, which provides a systematic approach weighing the pros and cons of potential mitigation actions. STAPLEE stands for Social, Technical, Administrative, Political, Legal, Economic, and Environmental. For each of these characteristics, a series of questions was posed that assisted in evaluating the appropriateness of each potential action to the District. This process is defined, step-by-step, in FEMA's How to Guide, *Identifying Mitigation Actions and Implementation Strategies, April 2003.*

Members of the District's Hazard Mitigation Plan Team used the logic stated above, as well as the STAPLEE characteristics and respective questions to evaluate the potential mitigation actions, including the probable costs and benefits of the actions. This formed the basis of the hazard mitigation Action Plan described below.

7.2.2.2 Action Plan

The *Disaster Mitigation Action of 2000* requires the development of an action plan that includes prioritized actions and information on how the prioritized actions will be implemented, as shown in Table 7-7, below. Members of the District's Hazard Mitigation Plan Team worked together with URS Corporation to prepare an implementation strategy for the top 10 prioritized mitigation actions.

In order to focus on the District's hazard mitigation priorities and to comply with the *Disaster Mitigation Act of 2000*, the team members identified the District's top 10 priorities for hazard mitigation for the next five years (2005 through 2009; after which local jurisdiction hazard mitigation plans must be updated), as shown in Table 7-8. Note that additional actions may be considered if the prioritized actions are accomplished or events warrant consideration of additional actions. Information is provided for each of the actions listed in the Mitigation Action Plan on associated goals/objectives, category of benefit, implementation responsibility, and resources required.

TABLE 7-7
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
A. Does the mitigation strategy include how the actions are **prioritized**? (For example, is there a discussion of the process and criteria used?)
B. 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?)
C. 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.

TABLE 7-8
MITIGATION ACTION PLAN

Actions	Category of Benefit	Priority	Economic Justification	Implementation Responsibility	General Resources Required	Potential Funding Sources	Implementation Schedule
1.A.1 Ensure the hazard maps developed for this HMP are used in the planning of new District facility development sites to determine whether or not safe locations are being selected. Based on the results, amend site locations as necessary.	▪ Prevention ▪ Property Protection ▪ Structural Projects	High	Considering existing and potential hazards during site planning/selection significantly reduces the District's vulnerability.	▪ CDE[1] Consultant ▪ Facilities Plan Consultant	▪ 1 day per year of CDE consultant assistance ▪ Include maps in District Facilities Plan	General Fund	Year 1 - Ongoing
2.A.3 Build/maintain relationships with the California Office of Emergency Services and the San Luis Obispo County Office of Emergency Services.	▪ Prevention ▪ Emergency Services	Medium	Maintaining these relationships may lead to collaborative hazard mitigation actions and cost sharing.	▪ Assistant Superintendent ▪ Director of Operations	Negligible	General Fund	Year 1 - Ongoing

TABLE 7-8 (CONTINUED)
MITIGATION ACTION PLAN

Actions	Category of Benefit	Priority	Economic Justification	Implementation Responsibility	General Resources Required	Potential Funding Sources	Implementation Schedule
2.B.3 Distribute appropriate information sheets produced by FEMA that include suggested hazard mitigation actions to teachers.	▪ Prevention ▪ Property Protection ▪ Emergency Services ▪ Public Education and Awareness	High	Distributing FEMA information sheets can efficiently facilitate the exchange of information on hazard mitigation and enable teachers to select appropriate measures that could save lives and District property.	District Safety Coordinator	On agenda at monthly safety meeting	Negligible	Year 2
2.B.5 Continue the current District practice of monthly safety in-service training for employees, and introduce the District HMP at the appropriate monthly training.	▪ Prevention ▪ Property Protection ▪ Public Education and Awareness	Medium	This action uses an existing safety practice to introduce the District HMP, which can ultimately protect District resources.	District Safety Coordinator	12 hours FTE per month	Negligible	Year 2
3.A.1 Support the City's implementation of the local Emergency Alert System (EAS) and become familiar with the alert system process proposed by the City.	▪ Prevention ▪ Property Protection ▪ Natural Resources Protection	High	This action utilizes the City safety system to alert District employees and students of hazards, thereby avoiding additional safety costs for the District.	District Safety Coordinator	2 hours FTE per month	Negligible	Ongoing

TABLE 7-8 (CONTINUED)
MITIGATION ACTION PLAN

Actions	Category of Benefit	Priority	Economic Justification	Implementation Responsibility	General Resources Required	Potential Funding Sources	Implementation Schedule
3.B.1 Conduct an annual review of the District's Emergency Action Plan for District staff and local authority (including the City's Fire Department, Police Department, County Environmental Health Department, and County Department of Emergency Services) lead by the District Director of Operations and Maintenance.	▪ Prevention ▪ Property Protection ▪ Public Education and Awareness ▪ Natural Resources Protection	High	This action reduces the risk of damage to life and property within the District through annual planning and review.	▪ District Director of Operations and Maintenance ▪ District Safety Coordinator	5 days FTE per year	General Fund	Year 2 - Ongoing
3.B.2 Continue to conduct the District-wide required annual disaster drills, to educate and prepare teachers and students and to identify any needed HMP updates.	▪ Prevention ▪ Public Education and Awareness ▪ Emergency Services	Medium	Proper preparedness and response to disasters reduces potential damage/loss of life and/or District property.	▪ District Director of Operations and Maintenance ▪ District Safety Coordinator	1 day per month	General Fund	Year 1 - Ongoing

TABLE 7-8 (CONTINUED)
MITIGATION ACTION PLAN

Actions	Category of Benefit	Priority	Economic Justification	Implementation Responsibility	General Resources Required	Potential Funding Sources	Implementation Schedule
4.A.4 Task the existing District Safety Committee with reporting any necessary HMP updates/revisions when classrooms are inspected annually to identify and mitigate potential earthquake and/or health hazards. Include the local fire marshal in the inspections and implement his/her recommendations.	▪ Prevention ▪ Property Protection ▪ Emergency Services	High	This action implements HMP updates/revisions into an already-existing District annual inspection and reduces the potential impacts of earthquakes, hazardous materials and fire.	▪ District Safety Committee ▪ Fire Marshal	2 hours per month	Negligible	Year 2 - Ongoing
5.A.1 Continue to implement the District Storm Water Plan, which is in effect and coordinated with the County of San Luis Obispo.	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection	High	This action reduces the potential damages to life, property and resources of the District.	Director of Maintenance and Operations	2 days FTE per month	General Fund	Year 1 - Ongoing

TABLE 7-8 (CONTINUED)
MITIGATION ACTION PLAN

Actions	Category of Benefit	Priority	Economic Justification	Implementation Responsibility	General Resources Required	Potential Funding Sources	Implementation Schedule
7.C.1 Consider the proximity of fire hydrants and the availability of water pressure when choosing locations for new facilities.	▪ Prevention ▪ Property Protection ▪ Structural Projects	Medium	This action reduces the potential damage to District property due to fire.	▪ Assistant Superintendent ▪ CDE Consultant	Existing FTE, as needed	Negligible	Year 2 - Ongoing

Source: Paso Robles JUSD, March 2005.

[1]CDE = California Department of Education

8.0 PLAN MAINTENANCE PROCEDURES

The *Disaster Mitigation Act of 2000* requires a formal plan maintenance process to take place to ensure that the *Paso Robles Joint Unified School District (J.U.S.D.) Hazard Mitigation Plan* remains an active and applicable document. The plan maintenance process adopted by the District should include a schedule for monitoring and evaluating the plan at least every five years, implementation of the plan through existing programs, and continued public participation throughout the plan maintenance process is required.

This section also includes an explanation of how the Paso Robles Joint Unified School District intends to organize their efforts to ensure that improvements and revisions to the District's Plan occur in a well-managed, efficient, and coordinated manner.

This section includes the following three subsections, which are addressed in turn below:

- Monitoring, Evaluating, and Updating the Plan
- Implementation Through Existing Programs
- Continued Public Involvement

8.1 MONITORING, EVALUATING, AND UPDATING THE PLAN

The task of monitoring, evaluating, and updating the Plan also falls largely on the shoulders of the District because local resources to accomplish this task are most affectively applied by those who are most influenced by the Plan's implementation. In compliance with the *Disaster Mitigation Act of 2000* (see Table 8-1), the District details below a method to ensure that the Plan is reviewed and updated regularly.

TABLE 8-1
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
A. 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?)
B. 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?)
C. Does the plan describe the method and schedule for **updating** the plan within the five-year cycle?

Source: FEMA, March 2004.

The *Paso Robles J.U.S.D. Hazard Mitigation Plan* was prepared as a collaborative effort between URS Corporation and the District Hazard Mitigation Plan Team (HMPT). In order to maintain momentum and build upon previous hazard mitigation planning efforts and success, the District assigns the HMPT to monitor, evaluate, and update the Plan. In addition to the original members of the District HMPT, members of the Team may come from the District Board of Trustees, any District staff, staff from the Paso Robles City Planning Commission, and/or any other department representative responsible for implementing the District's Action Plan. This group includes a team leader,

who will serve as the primary point of contact for District, City, County, State, and Federal Officials, and who will coordinate all District efforts to monitor, evaluate, and revise the Plan.

The District's HMPT will conduct an annual review of progress implementing the *Paso Robles J.U.S.D. Hazard Mitigation Plan*, particularly the Action Plan. The review will include an evaluation of the following:

- Notable changes in the District's risk to natural or human-caused hazards.
- Impacts of development activities and related programs on hazard mitigation.
- Correspondence between the District's hazards and the Plan's goals, objectives, and actions.
- Progress on implementation of the Plan. If necessary, this will include identification of problems and suggested improvements.
- Actual progress implementing the Plan versus expectations.
- The adequacy of resources for implementation of the Plan.
- Participation of District staff and others in the Plan's implementation versus expectations.

The findings from this review will be presented annually by the District's HMPT to the District's Board of Trustees and also submitted in memorandum format to the San Luis Obispo County Office of Emergency Services (OES) and the California OES. The annual review will provide the basis for possible changes in the Plan's implementation through refocusing on new or more threatening hazards, changes to or increases in resources allocations, and engaging additional support for the Plan's implementation.

The *Disaster Mitigation Act of 2000* requires the updating of hazard mitigation plan's every five years at the local level. To ensure that this occurs, in the fourth year following adoption of the Plan, the District HMPT will undertake the following activities:

- Work with OES to thoroughly analyze and update the District's risk to natural and man-made hazards (as was done to prepare the original Plan).
- 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, including each goal, objective, and potential action.
- Prepare a new Action Plan with prioritized actions, responsible parties, and resources.
- Prepare a new draft *Paso Robles Joint Unified School District Hazard Mitigation Plan* and submit to the District's Board of Trustees for adoption.
- Submit an updated Plan to the California OES for approval.

8.2 IMPLEMENTATION THROUGH EXISTING PROGRAMS

The many processes that allow the District to function are also those that will ensure a viable outcome due to a hazard event or natural disaster. Therefore, District-level experts are those expected to ensure that the Plan's goals, objectives, and actions are implemented. In compliance with the *Disaster Mitigation Act of 2000* (see Table 8-2), described below are procedures to implement the hazard mitigation plan through existing programs.

TABLE 8-2
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
A. Does the plan identify other local planning mechanisms available for incorporating the requirements of the mitigation plan?
B. Does the plan include a process by which the local government will incorporate the requirements in other plans, when appropriate?

Source: FEMA, March 2004.

Within two years of the formal adoption of the Plan, the District will strive to incorporate into the processes of their existing planning mechanisms any policies or practices recommended for revision by the District's Hazard Mitigation Plan Team. The District currently utilizes numerous mechanisms to guide and control management and development in the District, some of which are:

- Regular Board of Trustees meetings,
- DSA and SFM policies, standards and codes relative to hazard safety engineering,
- Superintendent's quarterly messages to the public,
- Monthly safety in-service training for employees,
- District Emergency Action Plan,
- District Storm Water Management Plan,
- Annual disaster drills, and
- Annual inspections of facilities by the District Safety Committee.

Since the District has autonomy over most of these various tools (except for the DSA and SFM policies), it can augment them as necessary to address applicable hazard mitigation requirements.

After adoption of the *Paso Robles J.U.S.D. Hazard Mitigation Plan*, the District HMPT should encourage its divisions and departments to be aware of the hazards that are affected by the planning and development decisions they may make and implement. The HMPT will analyze any plan or policy amendments, and provide technical assistance to any division or department in implementing these requirements.

8.3 CONTINUED PUBLIC INVOLVEMENT

The District is dedicated to involving the public directly in the continual reshaping and updating of their *Hazard Mitigation Plan*. The District's HMPT members are responsible for the review and update of the Plan. Although they represent the public to some extent, the public is entitled to directly comment on and provide feedback regarding updates and revisions to the Plan. In compliance with the *Disaster Mitigation Act of 2000* (see Table 8-3), public access to the Plan and to the various revision processes will be made through mechanisms described below.

TABLE 8-3
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
A. Does the plan explain how **continued public participation** will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?)

Source: FEMA, March 2004.

Copies of the Plan will be provided to District personnel and kept on hand at the Superintendent's office as well as in the office of the Assistant Superintendent for Business. Upon approval, the existence and location of these documents will be made public through postings to be placed in visible locations in District facilities, as well as through an announcement on the Public School's website. Contained in the hard copies of the Plan are the address and phone number of the District's Hazard Mitigation Plan Evaluation Team leader (the Assistant Superintendent for Business), who is responsible for monitoring public comments and accepting suggestions regarding Plan revisions.

The District HMPT will also identify opportunities to raise awareness in the District about the Plan and the District's potential hazards. This could include attendance and provision of materials at the main Board of Trustees meetings, as well as District events.

9.0 SOURCES

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APPENDIX A

Official Record of Adoption

(Placeholder)

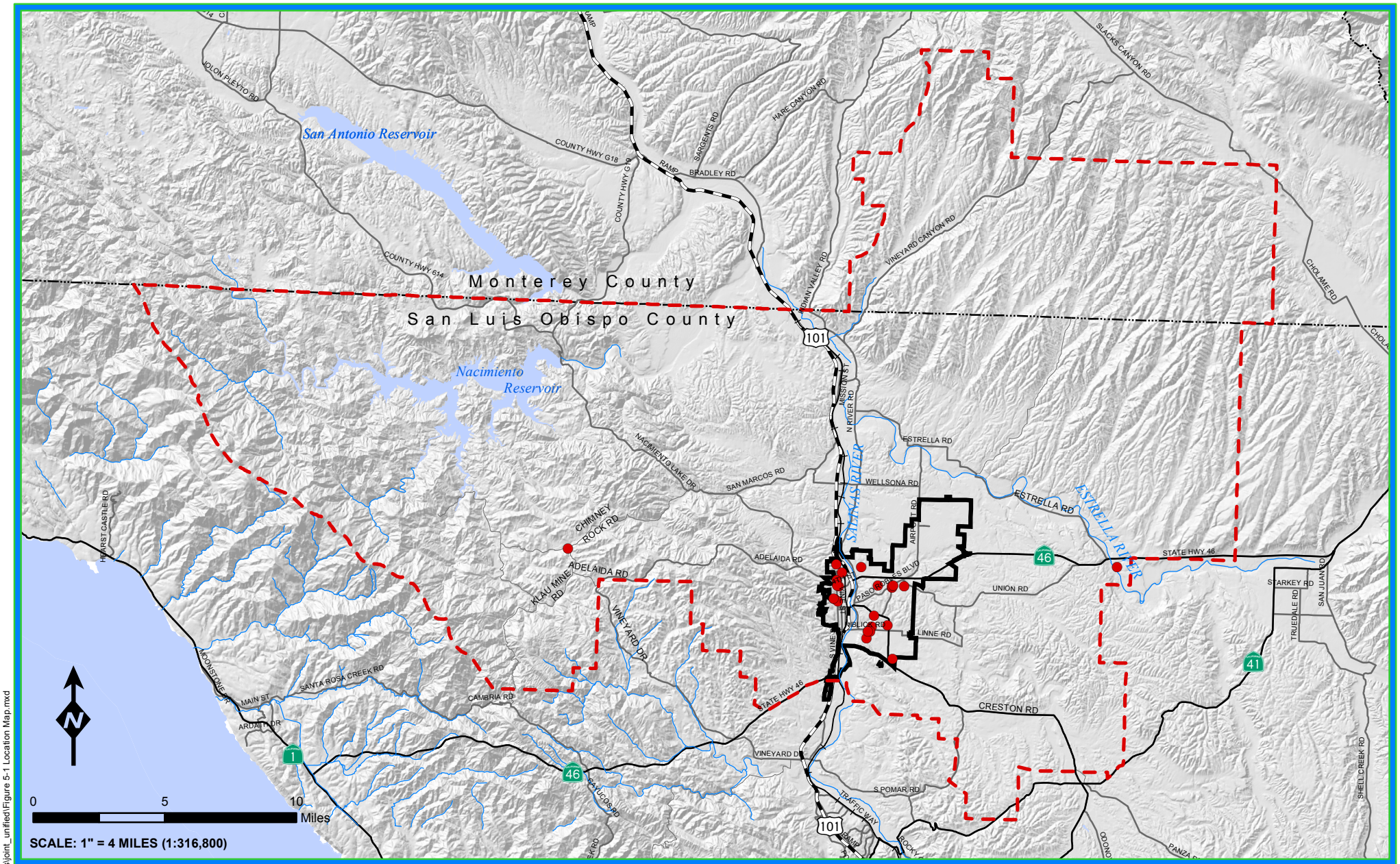
APPENDIX B

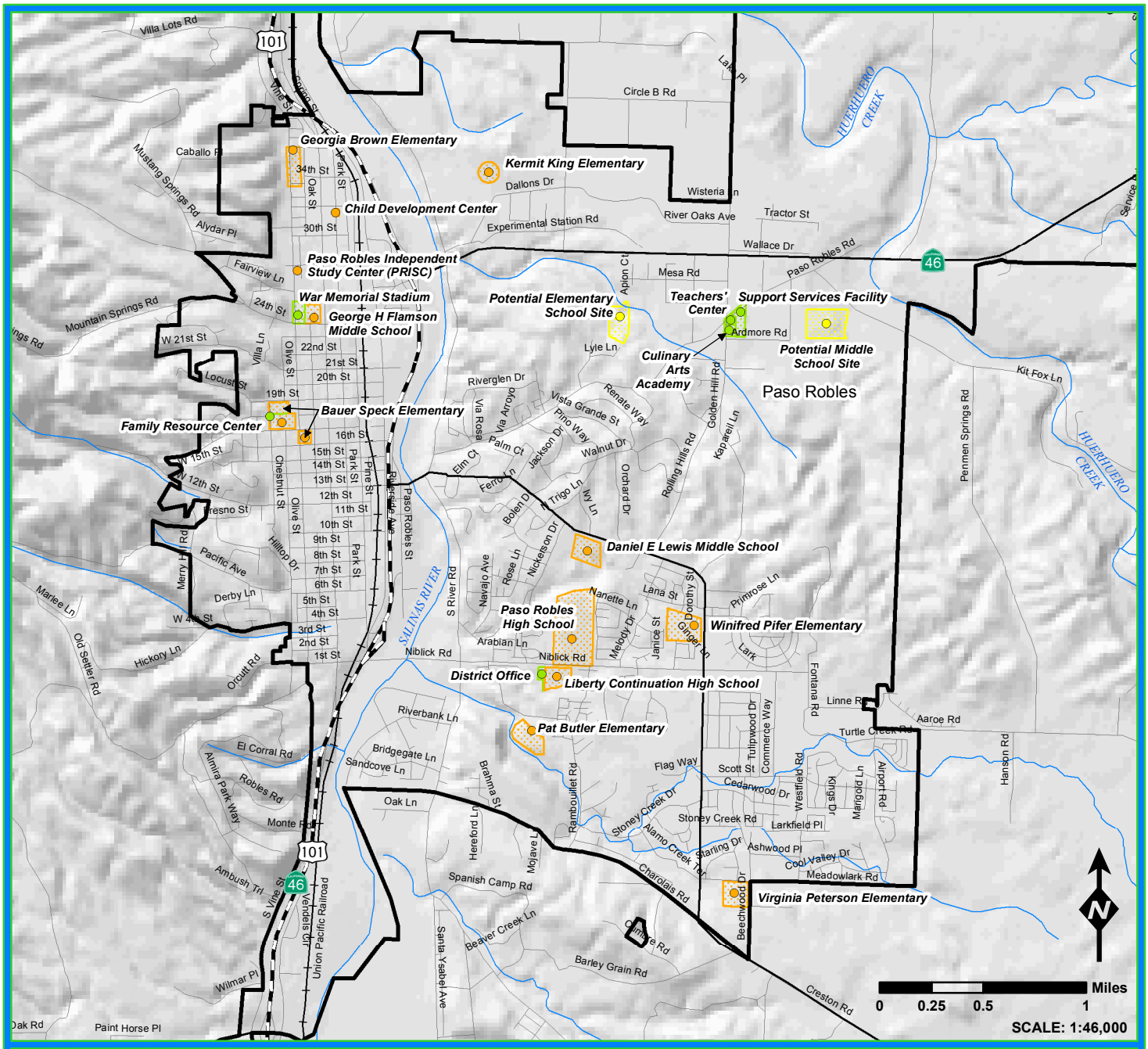
Meeting Sign-In Sheet

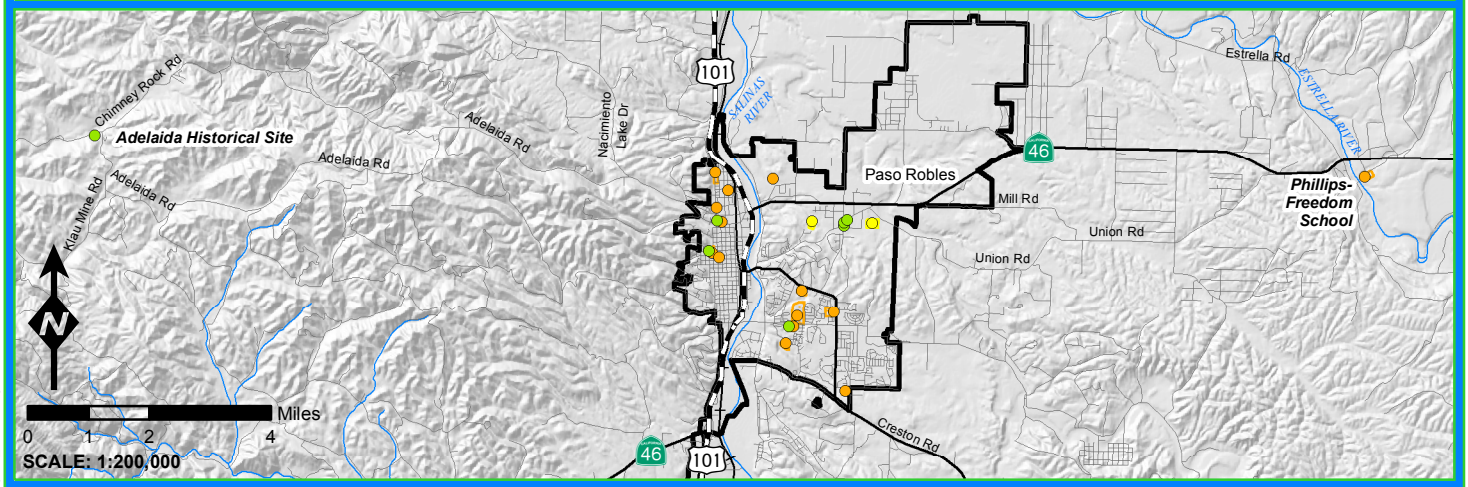
APPENDIX C

Public Announcement

(Placeholder)


San Antonio Reservoir
Nacimiento Reservoir
Monterey County
San Luis Obispo County
COUNTY HWY G18
COUNTY HWY G14
COUNTY HWY 614
BRADLEY RD
SARGENTS RD
HARE CANYON RD
VINEYARD CANYON RD
SLACKS CANYON RD
CHOLAME RD
DOWN VALLEY RD
N RIVER RD
MISSION ST
ESTRELLA RD
WELLSONA RD
SAN MARCOS RD
NACIMIENTO LAKE DR
CHIMNEY ROCK RD
ADELAIDA RD
KLAU MINE RD
VINEYARD DR
HEARST CASTLE RD
MOONSTONE DR
MAIN ST
ARDATH DR
SANTA ROSA CREEK RD
CAMBRIA RD
STATE HWY 46
CRESTON RD
UNION RD
LINNE RD
PASO ROBLES BLVD
S VINE
S POMAR RD
TRAFFIC WAY
ROCKY
ODONO
PANZA
STARKEY RD
TRUEDALE RD
SAN JUAN RD
SHELL CREEK RD
ESTRELLA RIVER
SALINAS RIVER
101
46
41
1
0
5
10
Miles
SCALE: 1" = 4 MILES (1:316,800)
Monterey
Kings
Paso Robles
Atascadero
Kern
San Luis Obispo
San Luis Obispo
Santa Maria
Santa Barbara
Legend
City of Paso Robles Boundary
US Route
State Route
December 2005
Road
Rail
Hydrology
County Boundary
Paso Robles Joint Unified School District Facility
Paso Robles School District Boundary
Source: City of Paso Robles, Census TIGER/Line, USGS NED Shaded Relief Imagery
Paso Robles School District
Hazard Mitigation Study
Location Map
URS
Figure 5-1
T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 5-1 Location Map.mxd





Legend

- City of Paso Robles Boundary
- US Route
- State Route
- Road
- Rail
- Hydrology

Paso Robles Joint Unified School District Facility (Point Location)
- School
- Future Development
- Other

Paso Robles Joint Unified School District Facility (Area Analyzed)
- School
- Future Development
- Other

December 2005

Source: City of Paso Robles, Census TIGER/Line, USGS National Elevation Dataset Shaded Relief Imagery

Paso Robles School District

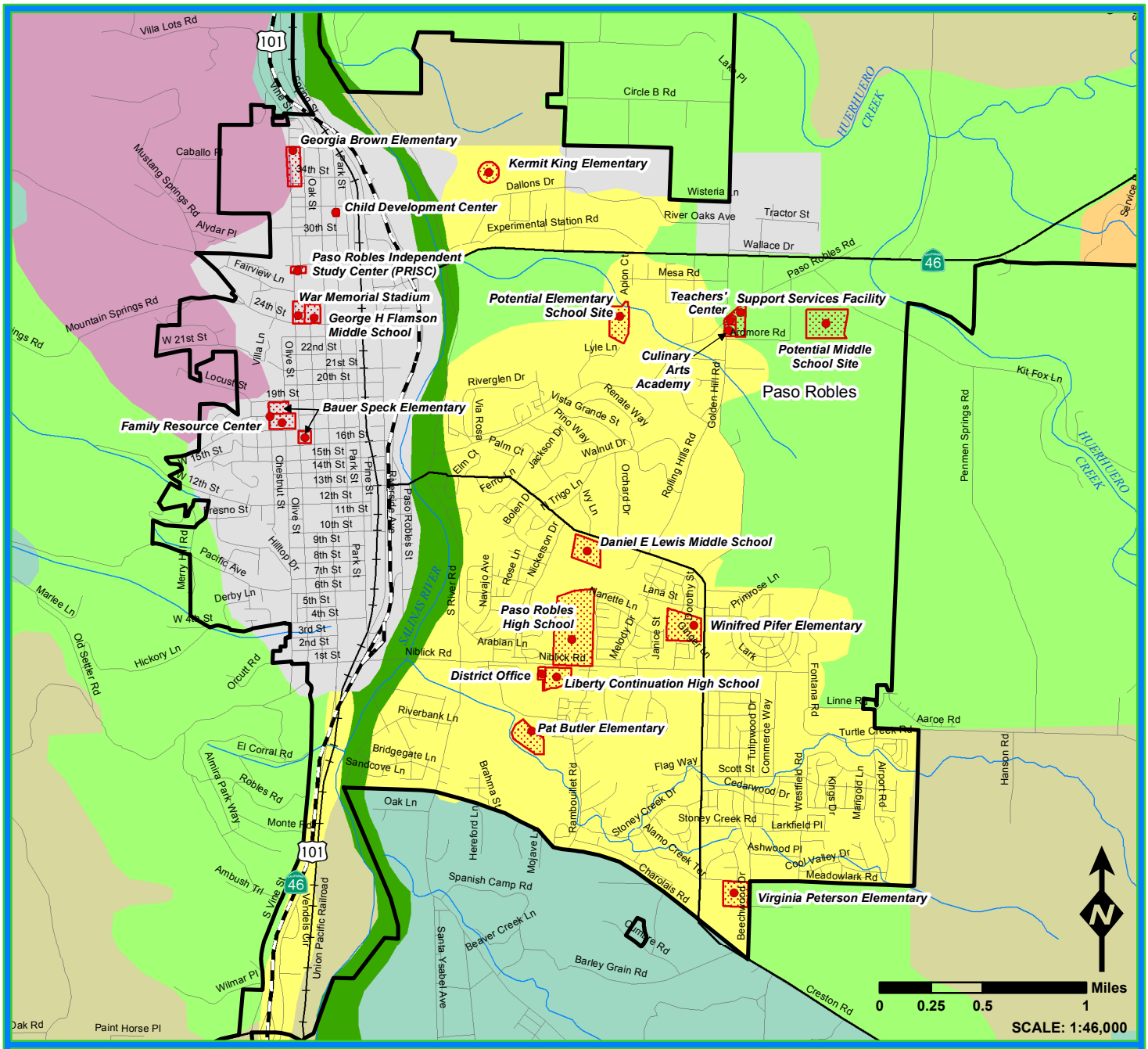
Hazard Mitigation Study

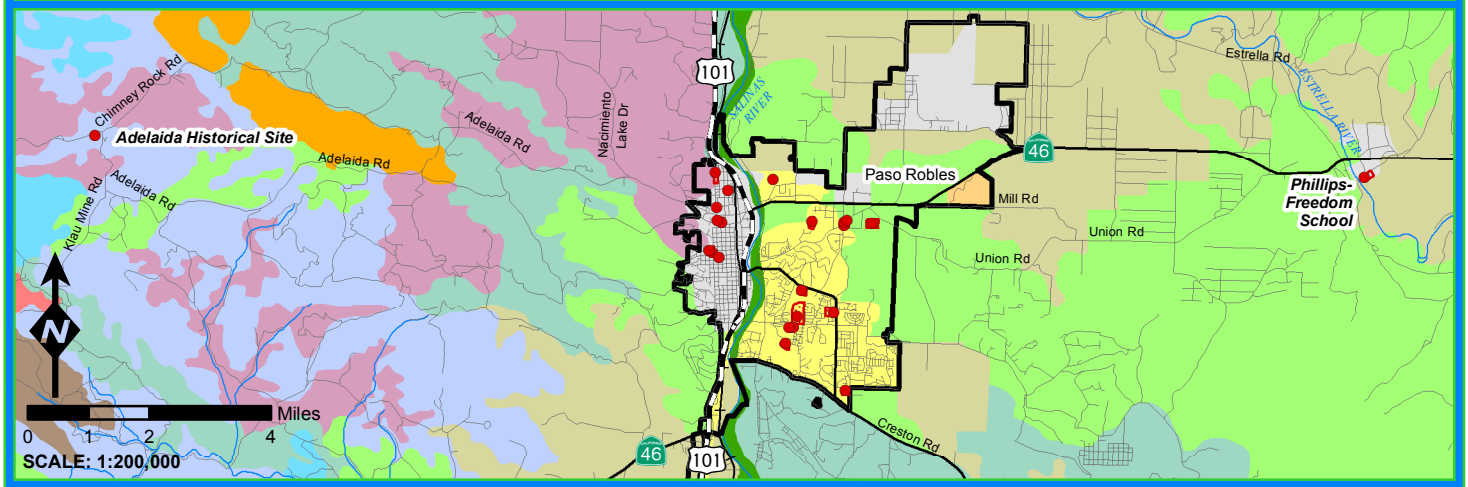
District-Owned Facilities Map

URS

Figure 5-2

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 5-2 District-Owned Facilities Map.mxd





Legend

- Agricultural Land
- Blue Oak Woodland
- Buck Brush Chaparral
- Chamise Chaparral
- Coast Live Oak Forest\Woodland
- Freemont Cottonwood
- Golf Course
- Mixed Urban
- Non-Native Grassland
- Orchard/Vineyard
- Red Shank Chaparral
- Residential
- Valley Oak Woodland

December 2005

Source: County of San Luis Obispo, U.S. Fish and Wildlife Service & University of California, Santa Barbara (1998), Census TIGER/Line.

Paso Robles School District

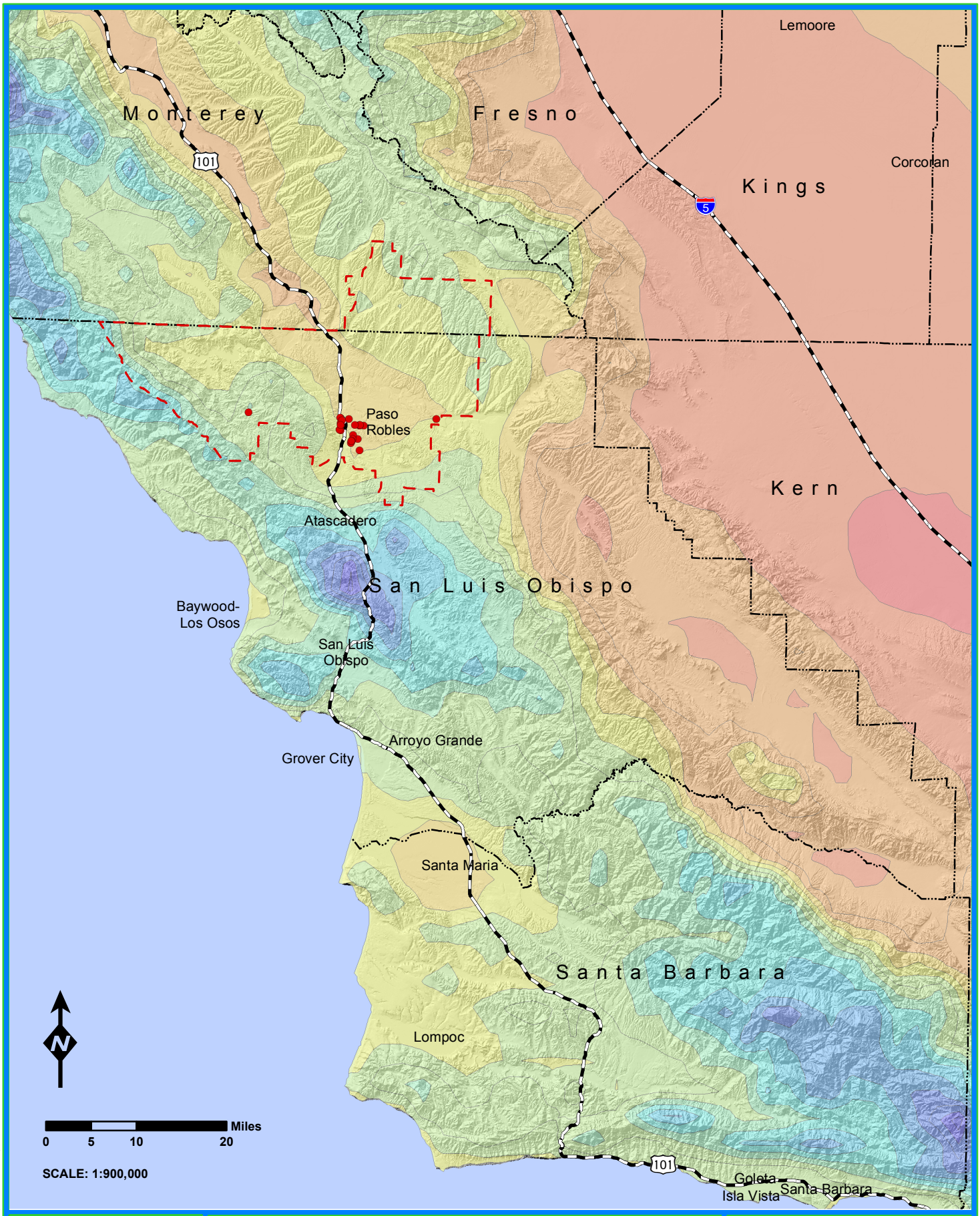
Hazard Mitigation Study

Vegetation Map

URS

Figure 5-3

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 5-3 Vegetation Map.mxd



Legend

- Paso Robles School District Boundary
- Paso Robles School District Facility
- Interstate/US Route
- County Boundary

December 2005

Source: Water and Climate Center of the Natural Resources Conservation Service, City of Paso Robles, Census TIGER/Line, USGS National Elevation Dataset (NED) Shaded Relief Imagery

Average Annual Precipitation 1961-1990
inches per year

4-6	12-14	20-24
6-8	14-16	24-28
8-10	16-18	28-32
10-12	18-20	32-36

Paso Robles School District
Hazard Mitigation Study
San Luis Obispo County
Precipitation
Figure 5-4

URS

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 5-4 San Luis Obispo Precipitation.mxd

Georgia Brown Elementary
51 Staff Members
470 Students

Kermit King Elementary
36 Staff Members
430 Students

Child Development Center
7 Staff Members
140 Students

Paso Robles Independent Study Center (PRISC)
12 Staff Members
195 Students

War Memorial Stadium

George H Flamson Middle School
72 Staff Members
750 Students

Teachers' Center
18 Staff Members

Support Services Facility
51 Staff Members

Potential Elementary School Site

Culinary Arts Academy
34 Staff Members

Potential Middle School Site

Family Resource Center
7 Staff Members

Bauer Speck Elementary
47 Staff Members
450 Students

Daniel E Lewis Middle School
55 Staff Members
725 Students

Paso Robles High School
136 Staff Members
2,250 Students

Winifred Pifer Elementary
51 Staff Members
560 Students

District Office
28 Staff Members

Liberty Continuation High School
10 Staff Members
127 Students

Pat Butler Elementary
31 Staff Members
425 Students

Virginia Peterson Elementary
44 Staff Members
450 Students

Paso Robles

Miles
0 0.25 0.5 1
SCALE: 1:46,000

Adelaida Historical Site

Phillips-Freedom School
7 Staff Members
40 Students

Miles
0 1 2 4
SCALE: 1:200,000

Monterey
Kings
Paso Robles
Atascadero
Kern
San Luis Obispo
San Luis Obispo
Santa Maria
Santa Barbara

Legend

City of Paso Robles Boundary
US Route
State Route
Road
Rail
Hydrology

December 2005

Source: City of Paso Robles, Census TIGER/ Line, USGS NED Shaded Relief Imagery

Student/Staff Density
Staff Proportion
Student Proportion

Paso Robles Joint Unified School District Facility (Point Location)
School
Future Development
Other

Paso Robles Joint Unified School District Facility (Area Analyzed)
School
Future Development
Other

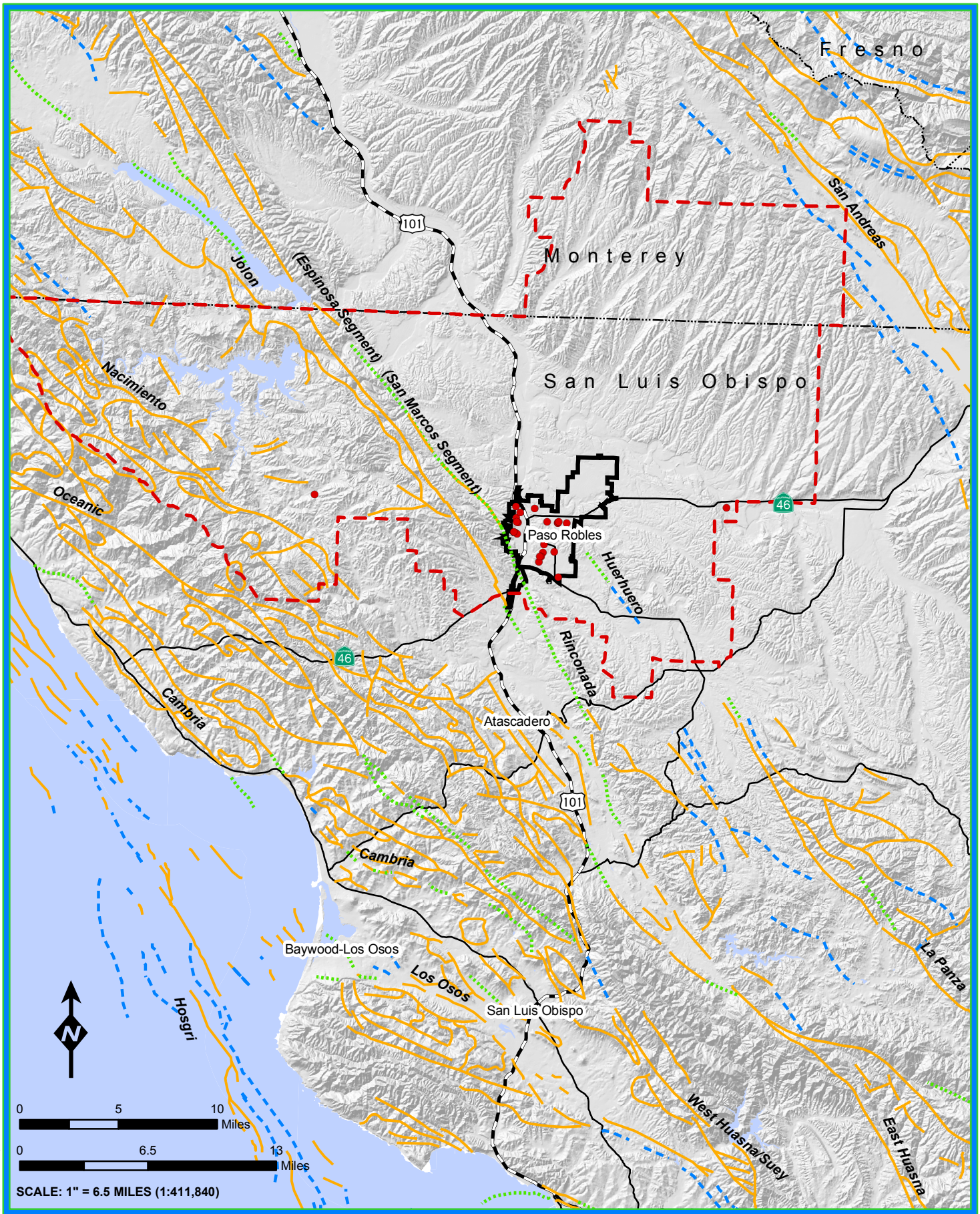
Paso Robles School District
Hazard Mitigation Study

Student/Staff Density Map

URS

Figure 5-5

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 5-5 Student-Staff Density Map.mxd



Legend

- Paso Robles School District Boundary
- City of Paso Robles Boundary
- Paso Robles School District Facility
- US Route
- State Route
- County Boundary

Faults

- Well Located On Land /Well Defined Offshore
- Approximately Located or Inferred On Land/Inferred Offshore
- Concealed

December 2005

Source: California Department of Conservation, Division of Mines and Geology, City of Paso Robles, Census TIGER/Line, USGS NED Shaded Relief Imagery

Paso Robles School District

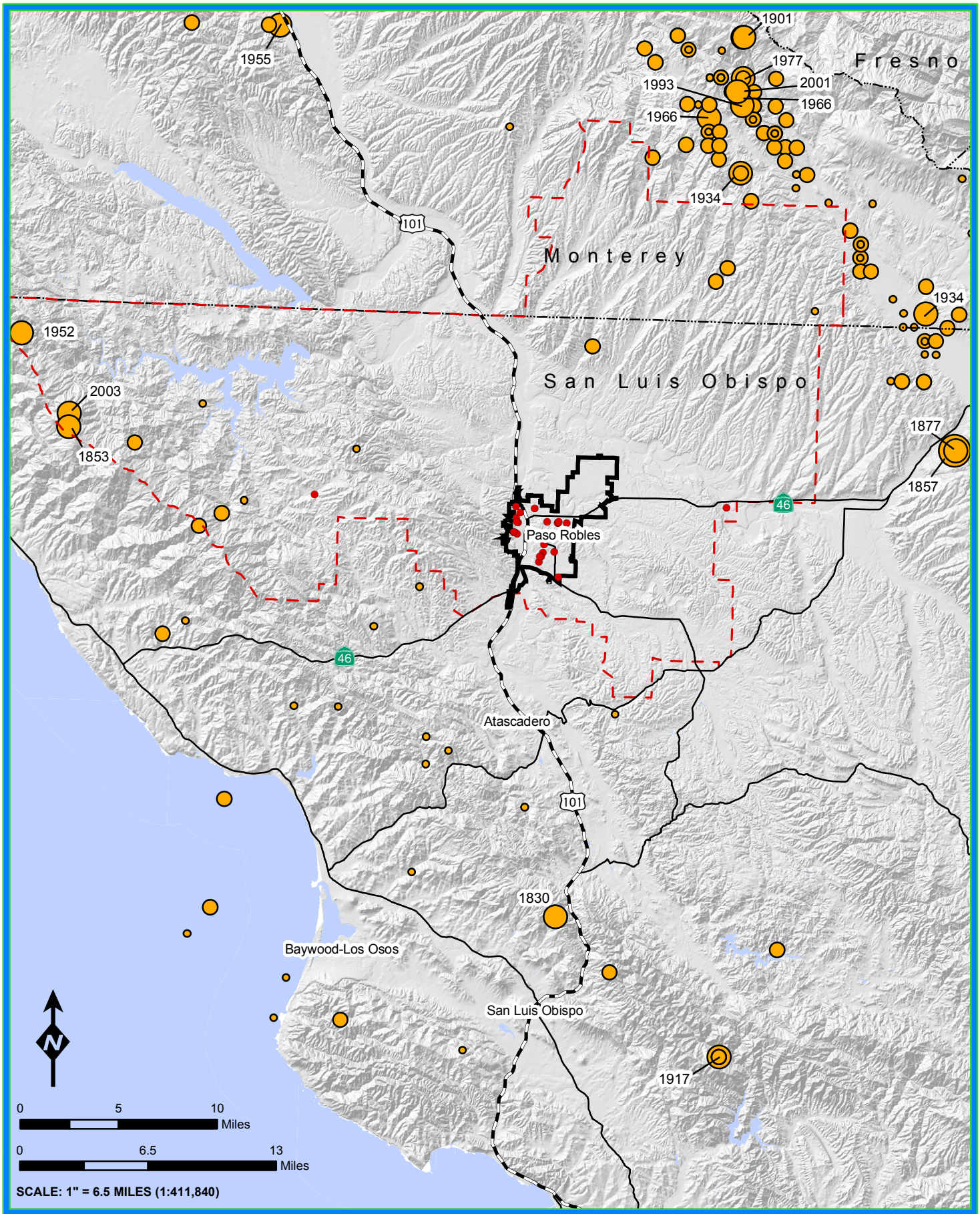
Hazard Mitigation Study

URS

Fault Map

Figure 6-1

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-1 Fault Map.mxd



Legend

- Paso Robles School District Boundary
- City of Paso Robles Boundary
- Paso Robles School District Facility
- US Route
- State Route
- County Boundary

Magnitude

- <3
- 3 - 5
- 5 - 7
- >7

December 2005

Source: California Geological Survey, USGS, FEMA Hazus-MH, City of Paso Robles, Census TIGER/Line, USGS NED Shaded Relief Imagery

Paso Robles School District

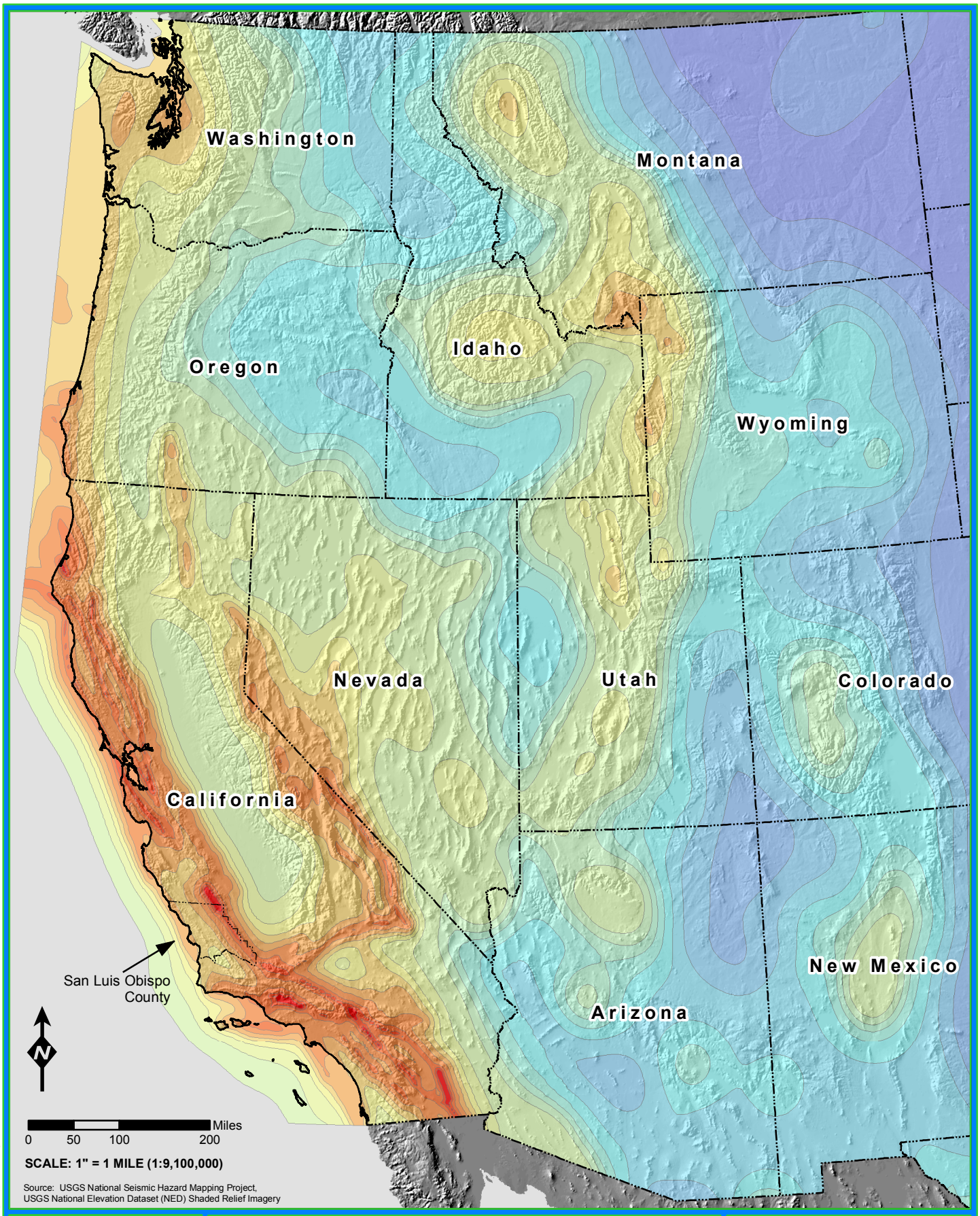
Hazard Mitigation Study

Historic Earthquakes Map

URS

Figure 6-2

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-2 Historic Earthquakes Map.mxd



Legend

Probabilistic Peak Ground Acceleration:

0.00	0.03	0.07	0.15	0.40
0.01	0.04	0.08	0.20	0.60
0.02	0.05	0.09	0.25	0.80
	0.06	0.10	0.30	1.00

December 2005

Paso Robles School District

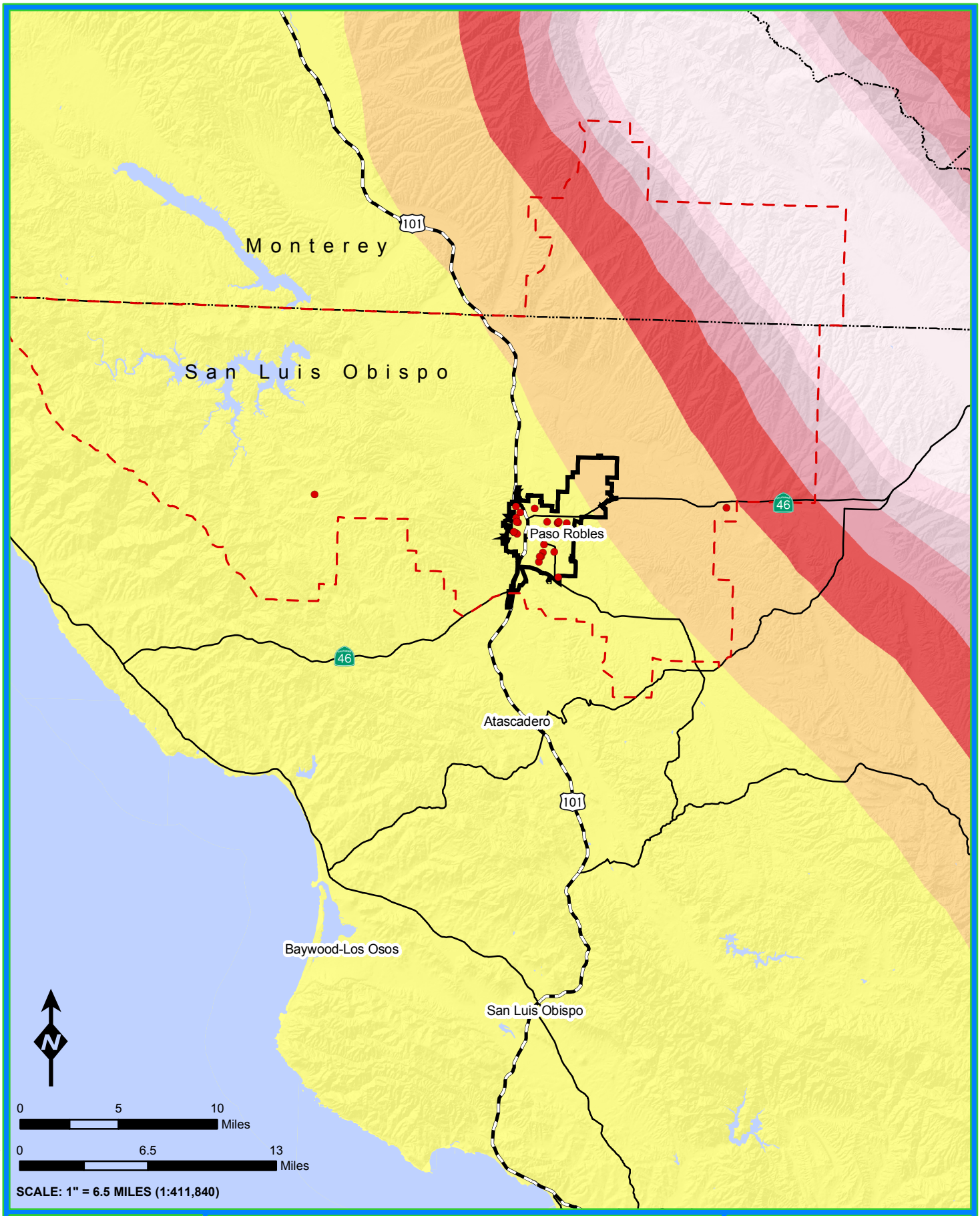
Hazard Mitigation Study

Western United States Peak Ground Acceleration Map

URS

Figure 6-3

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-3 Western United States Peak Ground Acceleration Map.mxd



Legend

- Paso Robles School District Boundary
- City of Paso Robles Boundary
- Paso Robles School District Facility
- US Route
- State Route
- County Boundary

December 2005

Source: California Geological Survey, City of Paso Robles, Census TIGER/Line, USGS NED Shaded Relief Imagery

Based on the USGS/CGS Probabilistic Seismic Hazards Assessment (PSHA) Model, 2002 (revised April 2003). 10% probability of being exceeded in 50 years.

Shaking (%g) Pga (Peak Ground Acceleration)

Firm Rock

< 10%	20 - 30%	40 - 50%	60 - 70%
10 - 20%	30 - 40%	50 - 60%	70 - 80%
			> 80%

Paso Robles School District

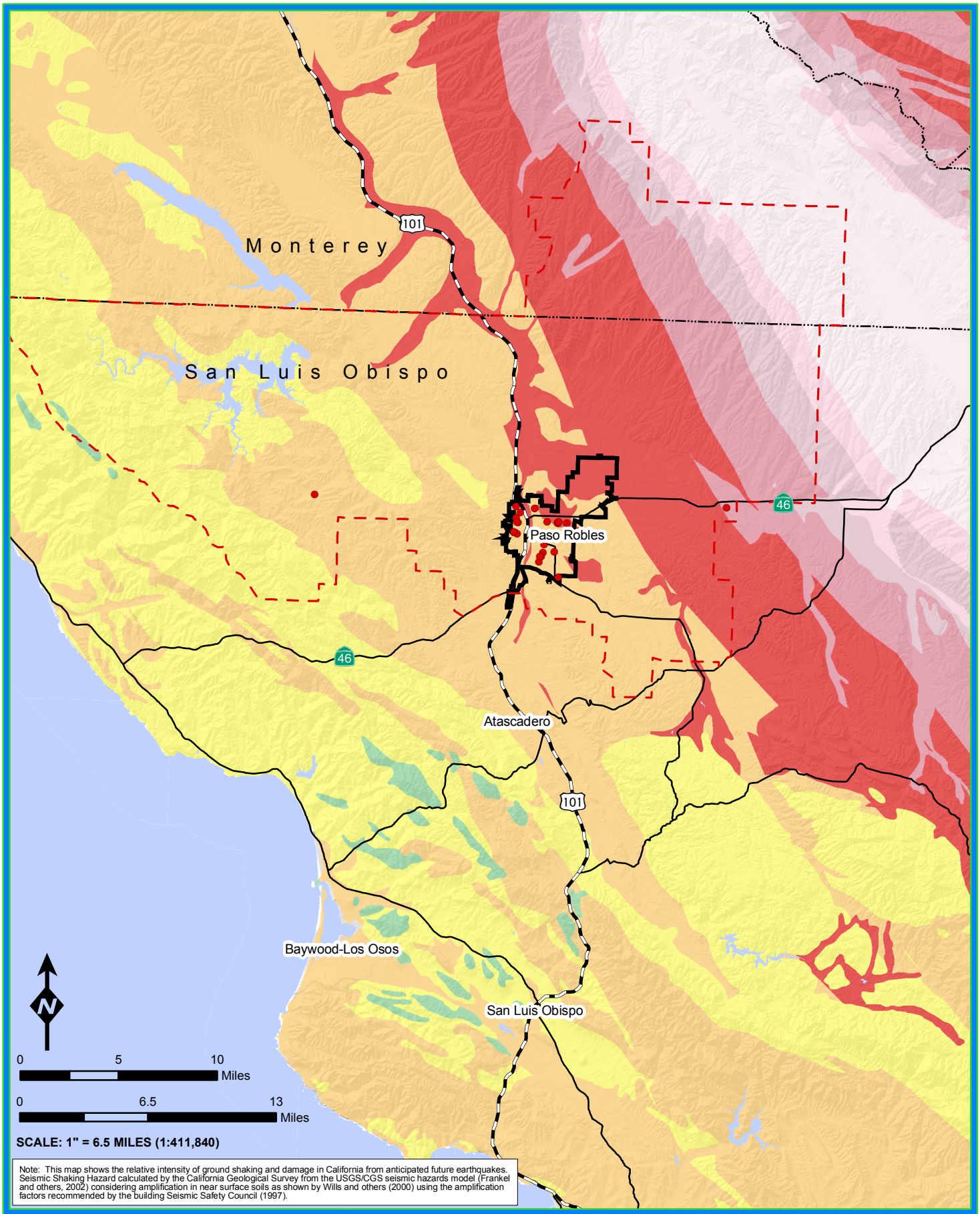
Hazard Mitigation Study

Peak Acceleration Map

URS

Figure 6-4

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-4 Peak Acceleration Map.mxd



Note: This map shows the relative intensity of ground shaking and damage in California from anticipated future earthquakes. Seismic Shaking Hazard 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) using the amplification factors recommended by the building Seismic Safety Council (1997).

Legend

- Paso Robles School District Boundary
- City of Paso Robles Boundary
- Paso Robles School District Facility
- US Route
- State Route
- County Boundary

December 2005

Source: California Geological Survey, City of Paso Robles, Census TIGER/Line, USGS NED Shaded Relief Imagery.

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.

Paso Robles School District

Hazard Mitigation Study

Ground Shaking Map

URS

Figure 6-5

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-5 Ground Shaking Map.mxd

Georgia Brown Elementary
Kermit King Elementary
Child Development Center
Paso Robles Independent Study Center (PRISC)
War Memorial Stadium
George H Flamson Middle School
Potential Elementary School Site
Teachers' Center
Support Services Facility
Potential Middle School Site
Culinary Arts Academy
Bauer Speck Elementary
Family Resource Center
Daniel E Lewis Middle School
Paso Robles High School
Winifred Pifer Elementary
District Office
Liberty Continuation High School
Pat Butler Elementary
Virginia Peterson Elementary
Paso Robles

Miles
0 0.25 0.5 1
SCALE: 1:46,000

Adelaida Historical Site
Phillips-Freedom School
Paso Robles

Miles
0 1 2 4
SCALE: 1:200,000

Monterey
Kings
Paso Robles
Atascadero
Kern
San Luis Obispo
San Luis Obispo
Santa Maria
Santa Barbara

Legend

City of Paso Robles Boundary
US Route
State Route
Road
Rail
Hydrology
Paso Robles Joint Unified School District Facility (Point Location)
Paso Robles Joint Unified School District Facility (Area Analyzed)
100 Year Floodplain
500 Year Floodplain

December 2005

Source: Federal Emergency Management Agency, Census TIGER/Line, USGS NED Shaded Relief Imagery

Paso Robles School District
Hazard Mitigation Study

URS

Floodplain Zones

Figure 6-6

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-6 Floodplain Zones.mxd

Georgia Brown Elementary
Kermit King Elementary
Child Development Center
Paso Robles Independent Study Center (PRISC)
War Memorial Stadium
George H Flamson Middle School
Potential Elementary School Site
Teachers' Center
Support Services Facility
Potential Middle School Site
Culinary Arts Academy
Paso Robles
Family Resource Center
Bauer Speck Elementary
Daniel E Lewis Middle School
Paso Robles High School
Winifred Pifer Elementary
District Office
Liberty Continuation High School
Pat Butler Elementary
Virginia Peterson Elementary
SALINAS RIVER
HUERHUERO CREEK
Miles
0 0.25 0.5 1
SCALE: 1:46,000

Adelaida Historical Site
Phillips-Freedom School
Paso Robles
SALINAS RIVER
ESTRELLA RIVER
Miles
0 1 2 4
SCALE: 1:200,000

Legend

- City of Paso Robles Boundary
- US Route
- State Route
- Road
- Rail
- Hydrology
- Paso Robles Joint Unified School District Facility (Point Location)
- Paso Robles Joint Unified School District Facility (Area Analyzed)

Precipitation in Inches

- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 8
- > 8

December 2005

Source: Census TIGER/Line, City of Paso Robles, USGS NED Shaded Relief Imagery

Paso Robles School District

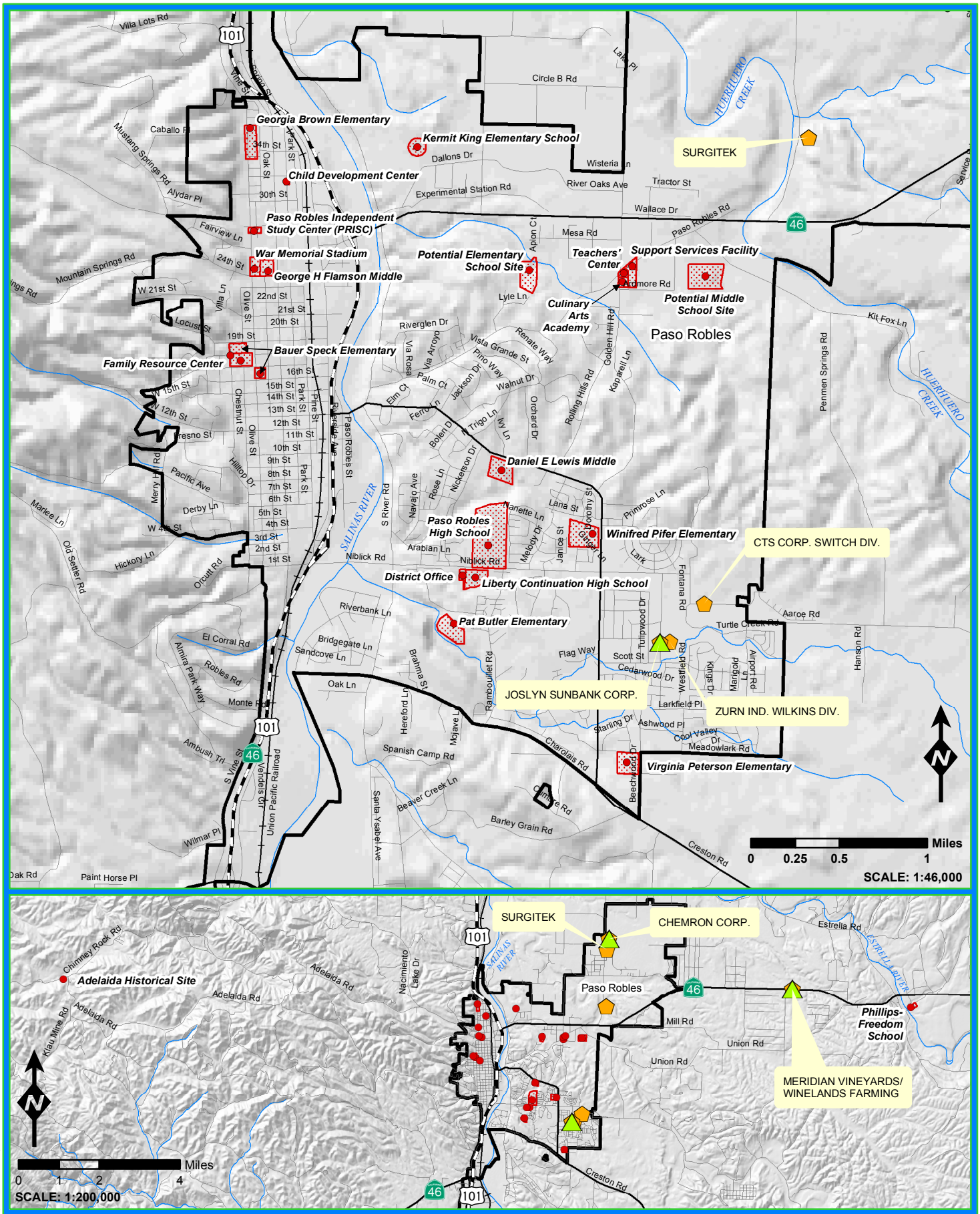
Hazard Mitigation Study

100-Year 24-Hour Probable Maximum Precipitation

Figure 6-7

URS

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-7 100-Year 24-Hour Probable Maximum Precipitation.mxd



Legend

- City of Paso Robles Boundary
- US Route
- State Route
- Road
- Rail
- Hydrology
- Paso Robles Joint Unified School District Facility (Point Location)
- Paso Robles Joint Unified School District Facility (Area Analyzed)

U.S. Environmental Protection Agency

- Toxic Release Inventory Facility (1987-1995)

The National Response Center (1990-2003)

- Hazardous Materials Release Incident

December 2005

Source: The National Response Center (NRC) (1990-2003), U.S. EPA/Office of Water/OST, City of Paso Robles, Census TIGER/Line, USGS National Elevation Dataset Shaded Relief Imagery

Paso Robles School District

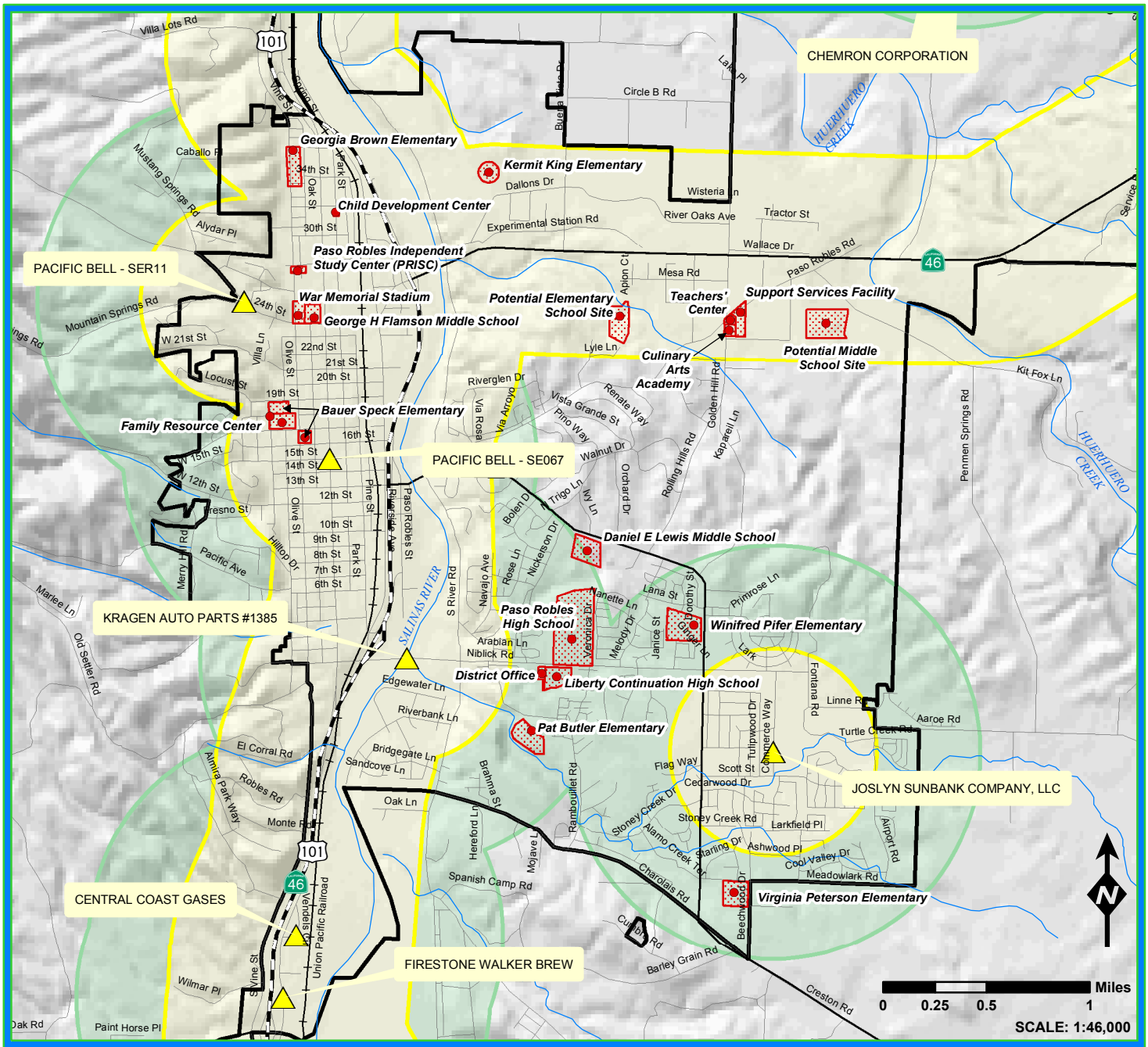
Hazard Mitigation Study

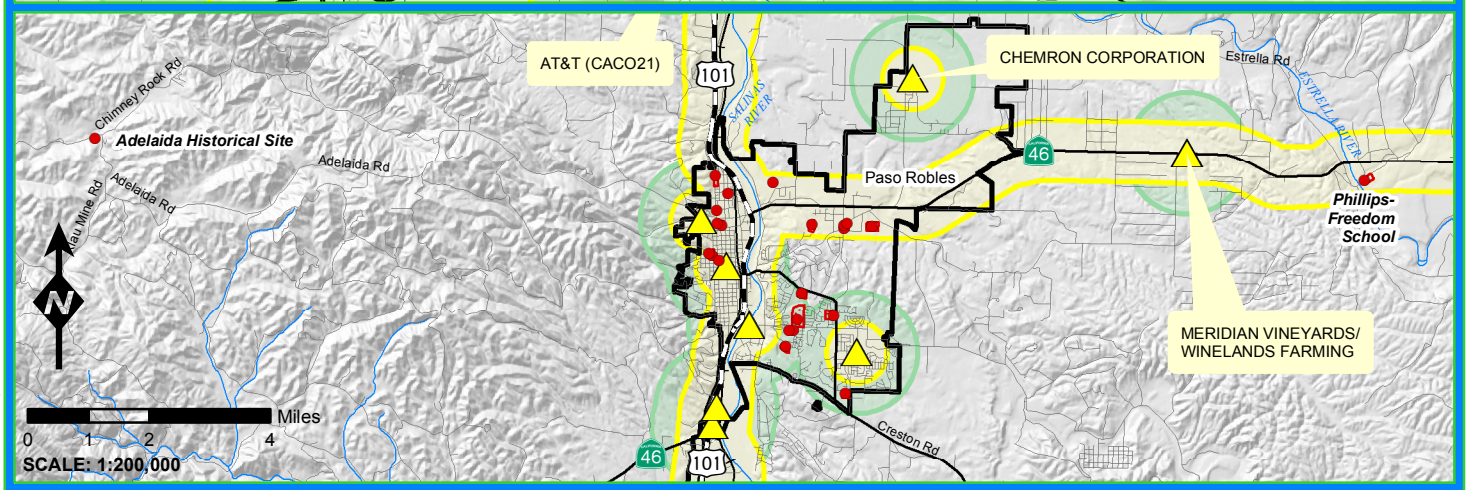
Historic Hazardous Materials Releases, 1987-2003

Figure 6-8

URS

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-8 Historic Hazardous Materials Releases, 1987-2003.mxd





Legend

- City of Paso Robles Boundary
- US Route
- State Route
- Road
- Rail
- Hydrology
- Paso Robles Joint Unified School District Facility (Point Location)
- Paso Robles Joint Unified School District Facility (Area Analyzed)
- EHS Facilities
- 0-0.5 mi from an EHS Facility or Transportation Corridor
- 0.5 - 1 mi. from an EHS Facility

December 2005

Source: County of San Luis Obispo Environmental Health Division, Census TIGER/Line, USGS NED Shaded Relief Imagery

Paso Robles School District
Hazard Mitigation Study
EHS Facilities and Potential Hazard Areas Map
Figure 6-9

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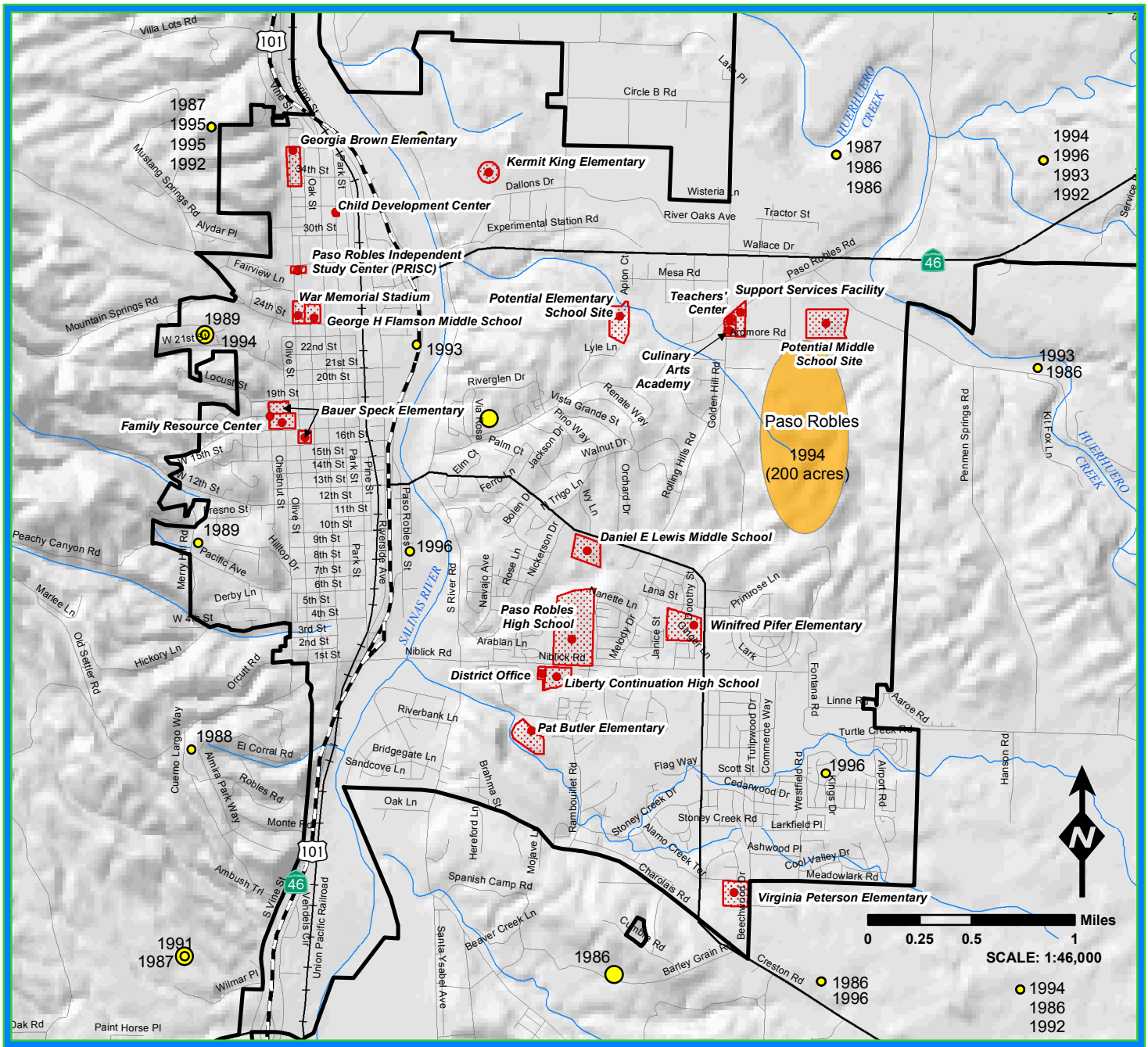
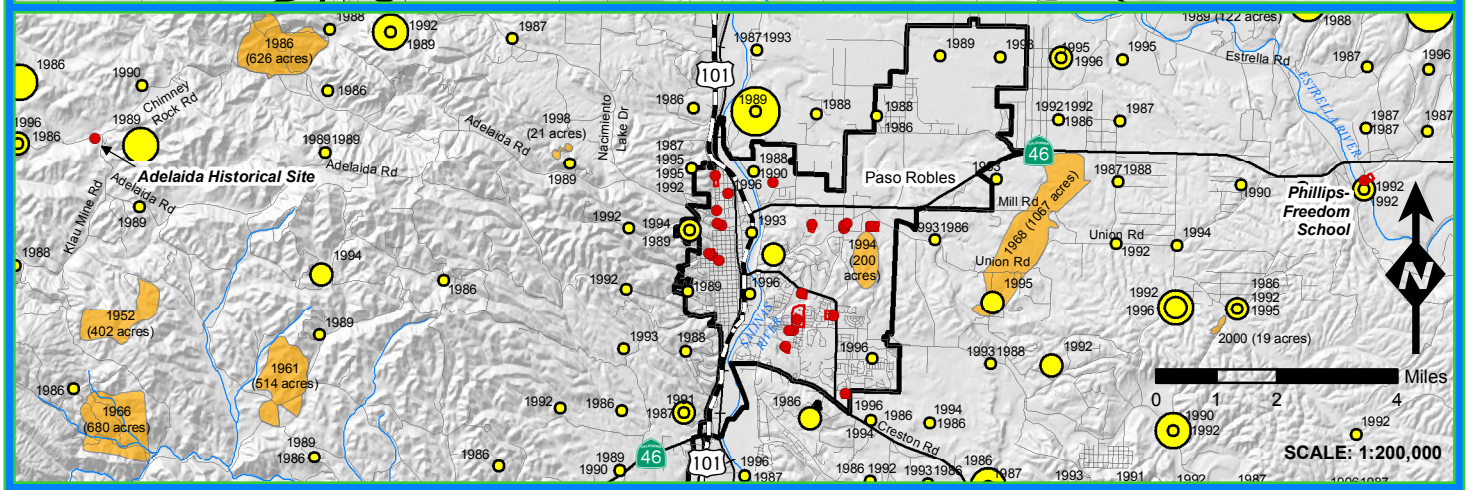
T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-9 EHS Facilities and Potential Hazard Areas Map.mxd





Legend

- City of Paso Robles Boundary
- US Route
- State Route
- Road
- Rail
- Hydrology
- Historic Fire
- Paso Robles Joint Unified School District Facility (Point Location)
- Paso Robles Joint Unified School District Facility

Fire Occurence (acres)

- 1-10
- 10-50
- 50-200
- 200-400

December 2005

Source: FRAP, California Department of Forestry and Fire Protection (2003), USFS (1999), City of Paso Robles, Census TIGER/Line, USGS NED Shaded Relief Imagery.

Paso Robles School District

Hazard Mitigation Study

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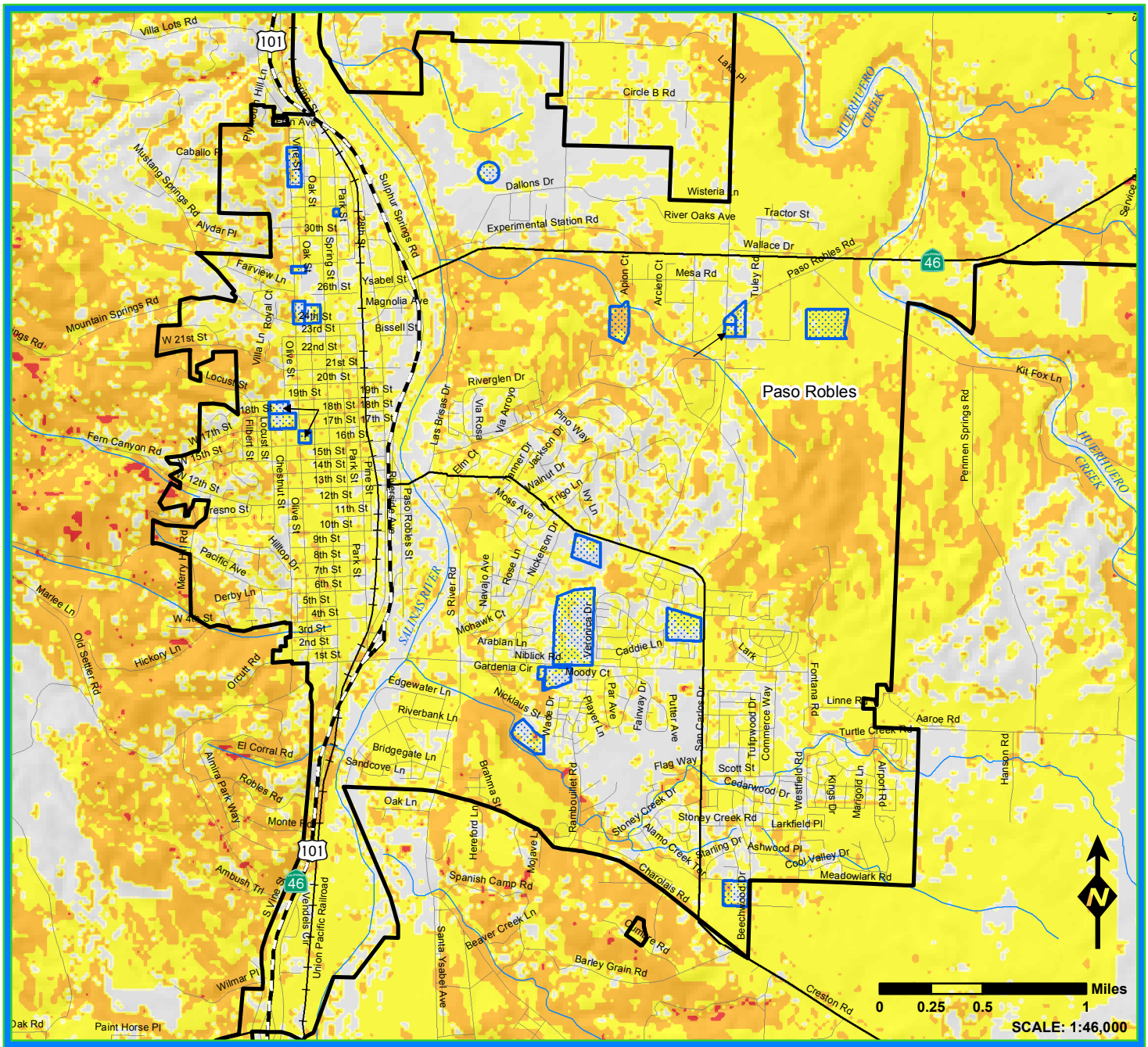
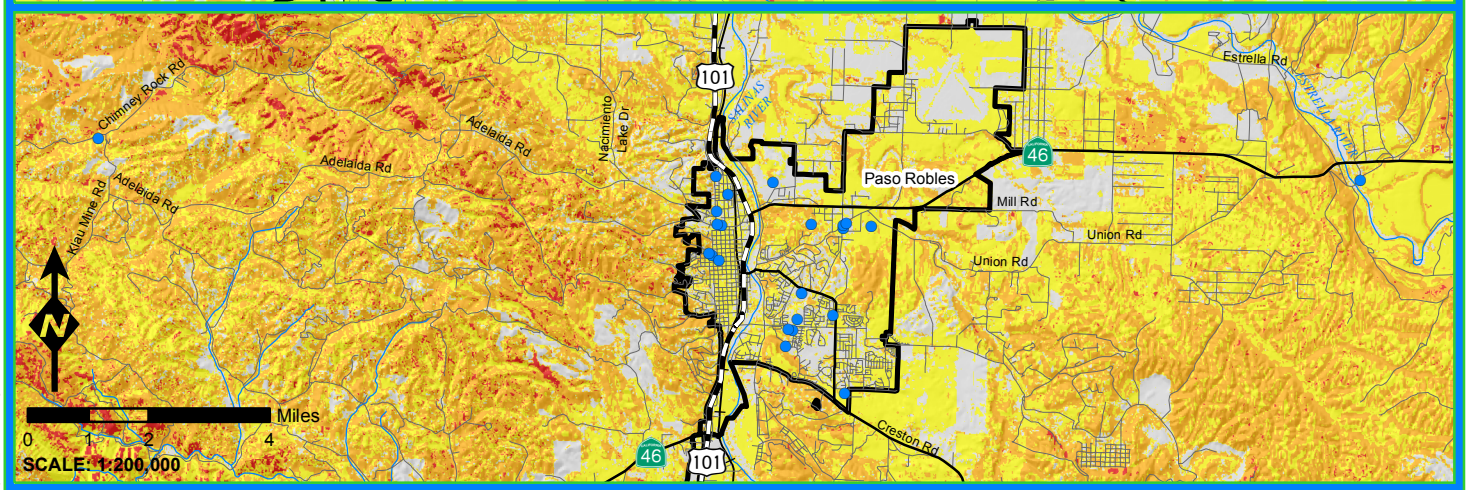
Historic Significant Wildfires, 1968-2002

Figure 6-10

T:\Paso_Robles_HMP\deliverables\joint_unified\Figure 6-10 Historic Significant Wildfire.mxd





Legend

- City of Paso Robles Boundary
- US Route
- State Route
- Road
- Rail
- Hydrology
- Paso Robles Joint Unified School District Facility (Point Location)
- Paso Robles Joint Unified School District Facility (Area Analyzed)

Wildfire Hazard

- No Fuel
- Low Hazard
- Medium Hazard
- High Hazard

December 2005

Source: FRAP, California Department of Forestry and Fire Protection (2004), City of Paso Robles, Census TIGER/Line, USGS NED Shaded Relief Imagery

Paso Robles School District

Hazard Mitigation Study

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Wildfire Hazard Areas

Figure 6-11

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