8 HEALTH AND SAFETY ELEMENT

This element ensures that appropriate consideration of both natural and human-made hazards and risks are factored into land use decision-making. Several of the County's existing communities (such as Clarksburg, Knights Landing, and Madison) face issues regarding flood protection and/or levee stability. Recent legislation on the issue of flood protection, management, and control has changed the regulatory landscape and the goals, policies, and actions of this element address this. General emergency preparedness is also addressed. Appropriate control of noise environment is an important issue for the County, especially given that many normal agricultural practices emit considerable noise at times. The Noise section addresses this issue. Policies addressing the link between community design and individual health are also included, as are policies in support of accessible health care, especially for vulnerable populations.

A. Introduction

1. Context

The Health and Safety Element provides information about the potential risks in Yolo County associated with natural and human-made hazards. It specifically addresses the protection of the community from any unreasonable risks associated with these hazards and also contains information and policies regarding general emergency preparedness. The goals, policies, and actions in the Element seek to reduce death, injuries, and damage to property from natural and human-made hazards and minimize the negative effects of natural disasters such as flooding, fires and seismic events.

2. Contents

The Health and Safety Element is organized into three sections:

- Safety
- Noise
- Health Care

The subsection for each of these topics is formatted as follows: Background Information, Policy Framework, and Implementation Program. Within the Policy Framework and Implementation Program sections, policies and actions related to climate change are denoted with the symbol "🌎".

3. Background Information

Summary background information for each topic of this element is provided in the relevant subsection below.

B. Regulatory Framework

1. State General Plan Requirements

This Health and Safety Element combines two of the seven required elements of a General Plan: the Noise Element and the Safety Element. It also addresses other topics of importance to Yolo County including emergency preparedness and community health care.

State law (Section 65302g of the Government Code) mandates that the safety element address the following:

- Seismically induced surface rupture.
- Ground shaking.
- Ground failure.
- Tsunami.
- Seiche.
- Dam failure.
- Slope instability.
- Mudslides.
- Landslides.
- Subsidence.
- Liquefaction.
- Other seismic hazards.
- Other geologic hazards.
- Flooding.
- Wildland and urban fires.
- Mapping of known seismic and other geologic hazards.
- Evacuation routes as related to fire and geologic hazards.
- Military installations as related to fire and geologic hazards.
- Peak load water supply requirements as related to fire and geologic hazards ("fire flow").
- Minimum road widths as related to fire and geologic hazards.
- Clearances around structures as related to fire and geologic hazards.
- Flood hazard zones.
- National Flood Insurance Program maps published by FEMA.
- US Army Corps of Engineers information about flood hazards not addressed.
- Central Valley Flood Protection Board designated floodway maps.
- Dam failure inundation maps.
- DWR Awareness Floodplain Mapping Program maps.
- DWR 200-year floodplain maps.
- Maps of levee protection zones.
- Areas subject to inundation with failure of project or non-project levees or floodwalls not addressed.
- Historic data on flooding including areas subject to flooding, areas vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding not addressed.

- Existing and planned development in flood hazard zones including structures, roads, utilities, and essential public facilities not addressed.
- A listing of local, state, and federal agencies with responsibility for flood protection, including special districts and local offices of emergency services not addressed.

State law (Section 65302f of the Government Code) mandates that the Noise element analyze and quantify current and projected noise levels from all of the following:

- Highways, freeways, primary arterials and major local streets.
- Rail lines and ground rapid transit.
- General aviation, heliports, military airports, aircraft overflights, jet engine test stands, and all other ground and maintenance functions related to airport operations.
- Industrial plants and railyards.
- Military installations.
- Other ground stationary sources.

That same section of the Government Code state law also requires the County to recognize the State Noise Element Guidelines, and provide noise contours for all of the noise sources listed above using Community Noise Equivalent Levels (CNEL) or Day/Night Average Sound Level (L_{dn}) measurement levels, and based on monitoring or acceptable modeling. The noise contours are to be used to determine land use so that exposure to excessive noise can be minimized. The noise element must include actions that avoid existing and foreseeable noise problems, and address the State's noise insulation standards.

Yolo County has addressed all of the above items within this element, with the following exceptions:

- Tsunamis – As defined in the General Plan Guidelines, this phenomenon is a large ocean wave generated by an earthquake in or near the ocean. Yolo County has no coastline nor is it proximate to the ocean, and therefore, the General Plan does not address this particular type of event.
- Military Installations – The County essentially has no military installations or facilities. The only military facility in the County, the McClellan/Davis Telecommunication Site, has been declared surplus by the Army and is now closed. Discussion regarding this facility and plans to convert it to a County open space facility are addressed in the Conservation and Open Space Element.
- Peak Load Water Supply – Also known as "fire flow," this issue is addressed in the Public Facilities and Services Element under Section G, Fire and Emergency Medical Service.
- Minimum Road Widths – This topic is addressed in the Circulation Element.
- Central Valley Flood Protection Board designated floodway maps, DWR Awareness Floodplain Mapping Program maps, DWR 200-year floodplain maps, Maps of levee protection zones – At the time of this General Plan update, this information is not

available. An action item has been added to monitor the progress of the State in these areas and amend the General Plan in the future as appropriate.

It should be noted as well that the topic of wildland fire suppression is also discussed in the Public Facilities and Services Element.

2. Other Requirements

Other regulatory requirements specific to the topics addressed in this element are discussed within the applicable subsections.

C. Safety

This section discusses safety in Yolo County as it pertains to naturally occurring hazards as well as hazards relating to human operations. The six topics listed below are included in this section:

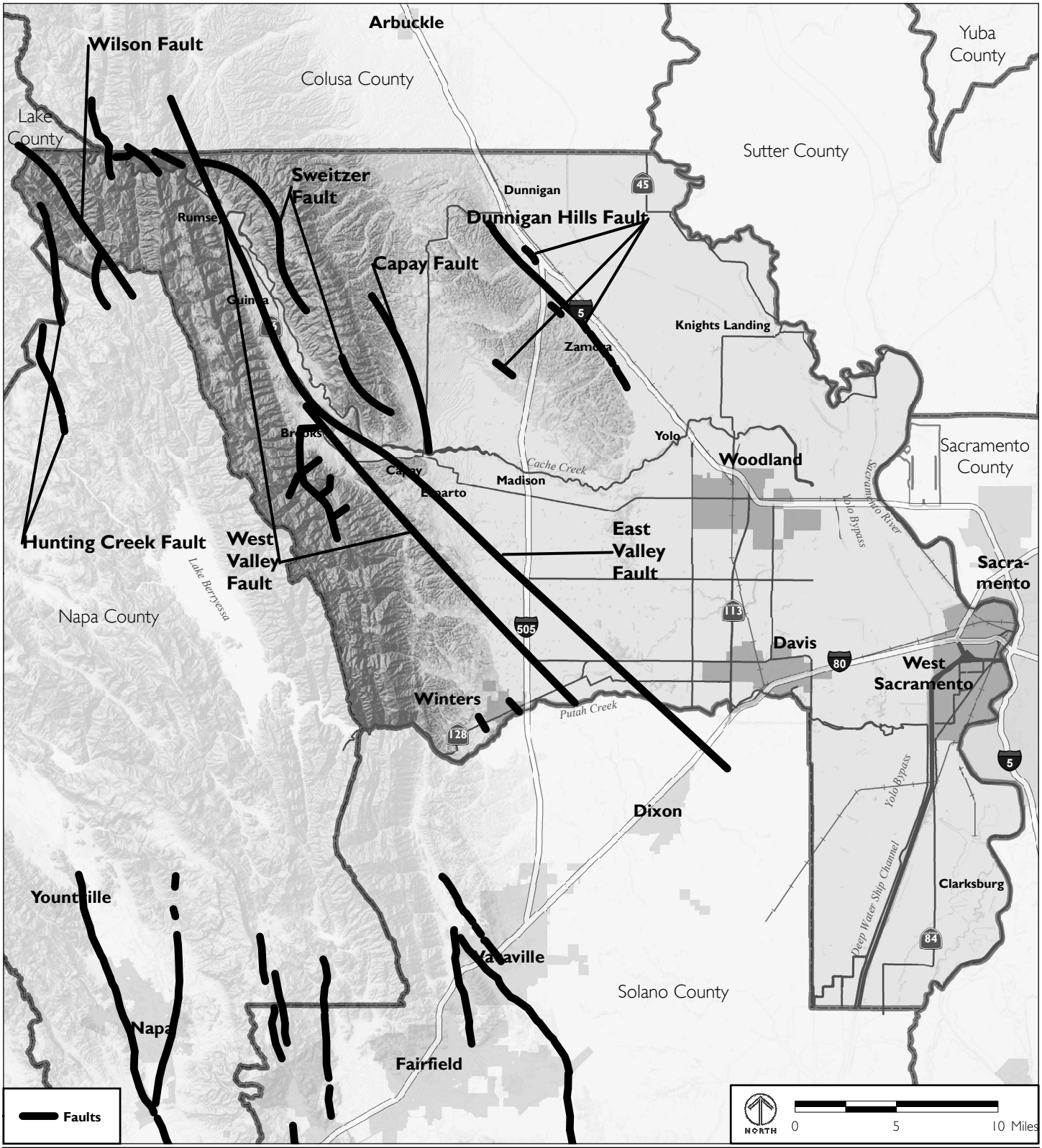
1. Geologic and Seismic Hazards (Goal HS-1)
2. Flood Hazards (Goal HS-2)
3. Wildland Fires (Goal HS-3)
4. Hazardous Materials (Goal HS-4)
5. Airport Operations (Goal HS-5)
6. Emergency Preparedness (Goal HS-6)

1. Geologic and Seismic Hazards

The Geologic and Seismic Hazards section of this element provides goals, policies, and actions that guide Yolo County in ensuring adequate safety from seismic activity and unstable geologic conditions.

a. Background Information

There are two known faults in Yolo County, the Hunting Creek Fault and the Dunnigan Hills Fault, as shown in Figure HS-1. The Dunnigan Hills Fault is not active and the Hunting Creek Fault is located within a sparsely populated area of the county. While Yolo County has a low probability for earthquake hazards compared to the rest of California, it is subject to seismic activity both within and near the County and thus, there is a risk of damage to structures and property as a result.



Source: USGS, 1996; Yolo County GIS, 2009; Cotton/Bridges/Associates, 2004.

FIGURE HS-1

FAULTS

The Hunting Creek Fault is located in the far northwestern portion of the County, which is the only fault in the County subject to surface rupture. As shown in Figure HS-1, only a small portion of the fault lies within Yolo County, and is in an area that is sparsely populated and not planned for any growth or development other than individual farm dwellings that might be built in the future. Development near a fault subject to surface rupture is regulated by the Alquist-Priolo Act. The Act requires a detailed fault-rupture hazard investigation and prohibits development directly over any traces of the active fault line.

The other active or potentially active fault is the Dunnigan Hills Fault, which extends west of Interstate 5 between the town of Dunnigan and northwest of the town of Yolo. This fault has been active in the last 10,000 years, but has not been active in historic times.

In addition to the Hunting Creek and Dunnigan Hills faults, major faults in the Coast Ranges and in the Sierra Nevada foothills are capable of producing groundshaking that could affect Yolo County residents. The April 1892 Vacaville-Winters earthquake that caused severe damage to Winters and lesser damage to Davis, Woodland, and other parts of the County, is believed to have originated from a segment of a complex zone of blind thrust faults that lie to the south in Solano County on the western side of the lower Sacramento Valley.[1]

The effects of groundshaking during a maximum intensity earthquake is likely to involve structural damage to stucco, masonry walls and chimneys, which could expose people to falling objects and possible building collapse. The degree of such hazards is controlled by the nature of the underlying soil and rock materials, the magnitude of and distance from the quake, the duration of ground motion and the structural characteristics of the building.

Another risk from seismic activity is liquefaction, which is the rapid transformation of saturated, loose, fine-grained sediment to a fluid-like state because of earthquake ground shaking. Liquefaction can result in substantial loss of life, injury, and damage to property. In addition, liquefaction increases the hazard of fires because of explosions induced when underground gas lines break, and because the breakage of water mains substantially reduces fire suppression capability.

Landslides are another risk associated with seismic activity. Landsliding is the natural process of relatively rapid downslope movement of soil, rock and rock debris as a mass. The rate of landsliding is affected by the type and extent of vegetation, slope angle, degree of water saturation, strength of the rocks, and the mass and thickness of the deposit. Some of the natural causes of this instability are earthquakes, weak materials, stream and coastal erosion, and heavy rainfall. In addition, certain human activities tend to make the earth materials less stable and increase the chance of ground failure.

[1] Yolo County General Plan Update Background Report, January 2005, page 3-5; Yolo County OES.

Activities contributing to instability include extensive irrigation, poor drainage or groundwater withdrawal, removal of stabilizing vegetation and over-steepening of slopes by undercutting them or overloading them with artificial fill. These activities cause slope failure, which normally produce landslides and differential settlement and are augmented during earthquakes by strong ground motion.

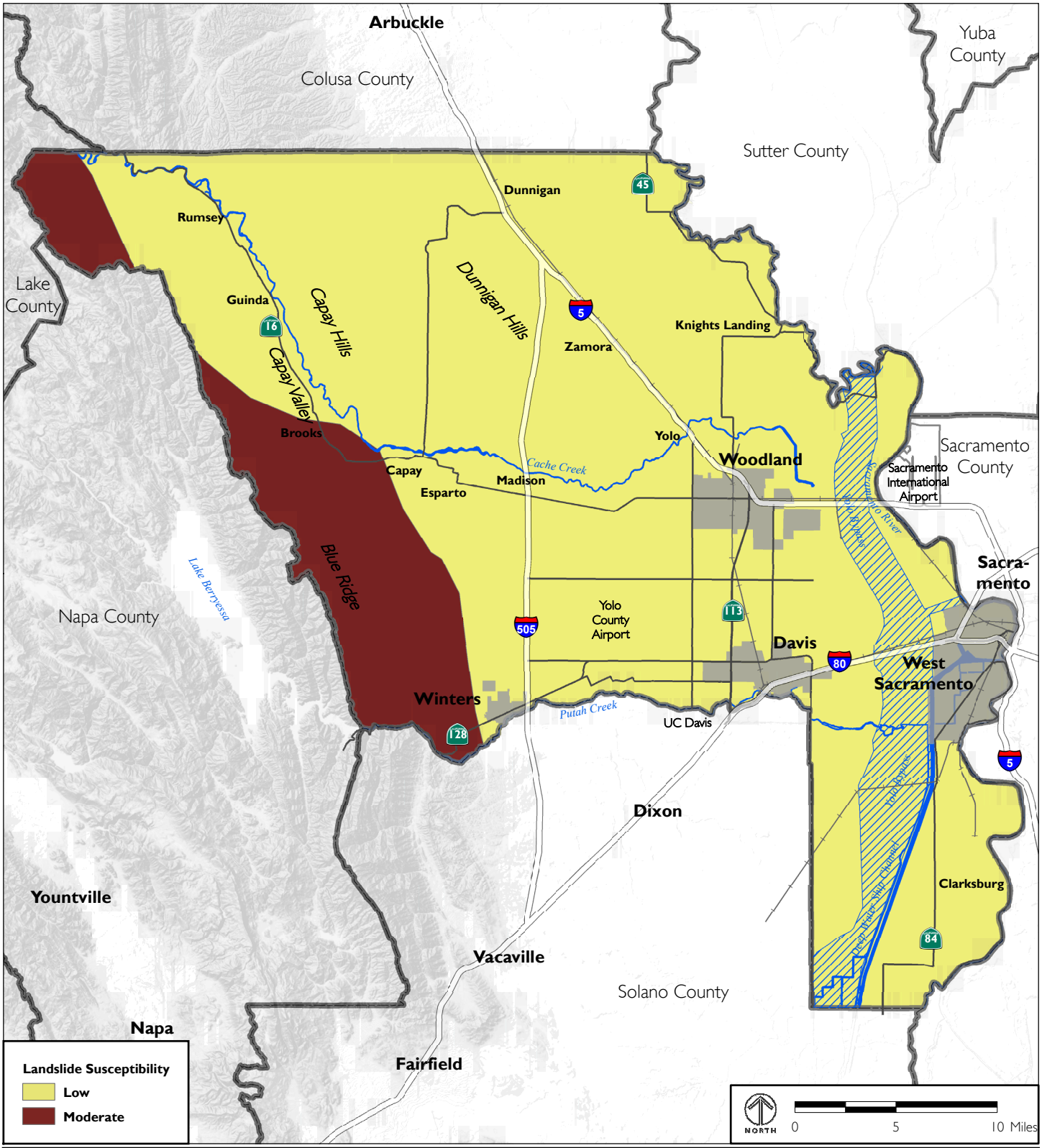
In Lake County, northwest of Yolo County, a landslide along the south bank of the North Fork of Cache Creek was discovered in 1998. This landslide is located approximately 1.5 miles downstream of the Indian Valley Dam. The landslide mostly affects Lake County. Also the Capay Valley area is particularly susceptible to landslides, as it is composed of poorly consolidated marine sediments, on either side of a rapidly moving watercourse (Cache Creek) with significant uncontrolled flood volumes. Elsewhere in the County however, landslides are generally not a significant hazard. Figure HS-2 identifies areas with higher potential for landslides, based on soil stability characteristics.

Yolo County faces exposure to mudslides primarily along Cache Creek, in the same areas where landslides are a risk. At the Yolo County/Colusa County boundary, State Route 16 passes through the open preserve area of the Cache Creek Regional Park. For about a mile, the highway is bordered by Cache Creek on the west and canyon walls on the east. The canyon walls are subject to rock and mud slides during heavy winter rains. The rock and mudslides create traffic hazards by occasionally blocking the highway. A road closure gate is along that segment of the highway. This gate prohibits traffic from entering this segment when major rock and mudslides occur.

Areas of Yolo County also experience land subsidence. Subsidence, the decrease of ground elevation, has natural causes and human induced causes. Since the 1950's, the most common cause of subsidence in Yolo County has been groundwater withdrawal, which has resulted in as much as 4 feet of elevation change in some parts of the County. The East Yolo subbasin area has been affected most dramatically, with communities near Zamora, Knights Landing and Woodland having experienced damage and loss of structural integrity to highways, levees, wells and irrigation canals.

Additional information on this topic is provided in the General Plan Background Report (see pages 2-20 and 2-21, Figure Hydro-7, and pages 3-6 and 3-7).

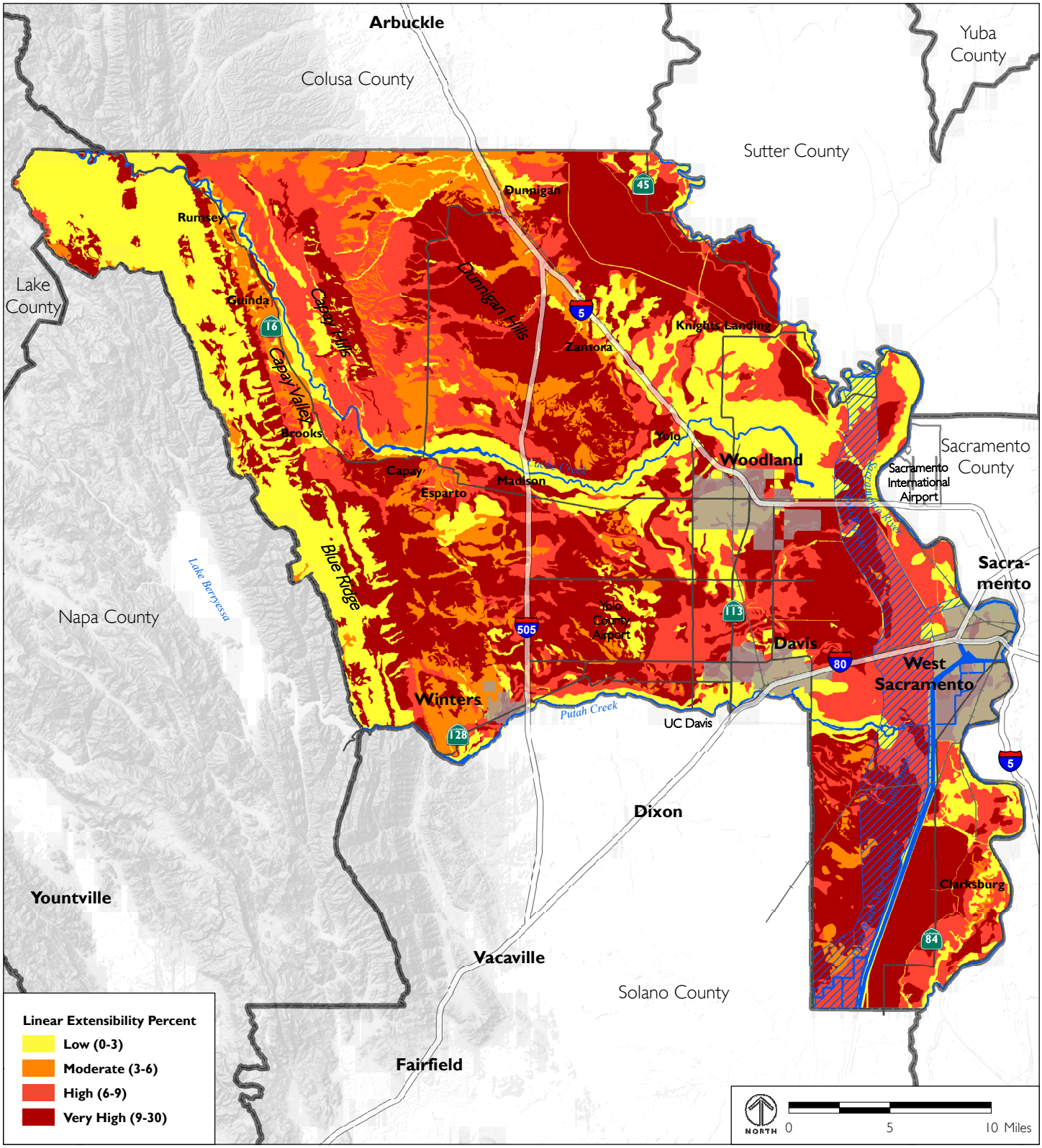
Some soils in Yolo County expand and contract depending on the level of moisture that they contact, impacting their suitability for safe development. These soils vary in distribution and degree of expansiveness. As shown in Figure HS-3, Yolo County soils are characterized by low, moderate, high, and very high expansiveness. Soils with "low" to "moderate" expansiveness have the potential to change up to 6 percent in volume between moist and dry conditions. Soils with "high" and "very high" expansiveness have the potential to change between 6 and 30 percent in volume. Soils rated "high" or "very high" require structural accommodations to ensure soil suitability for roads, bridges, structures and other types of development. Figure HS-3 identifies expansive soils in the County.



Source: USGS, 2001.

FIGURE HS-2

LANDSLIDE SUSCEPTIBILITY



Source: Natural Resources Conservation Service, 2007.

FIGURE HS-3

EXPANSIVE SOILS

In addition to the natural hazards addressed above, the County faces potential risk from a possible eruptive event at Mount Konockti located in Lake County. Although an eruption is possible, historic events associated with this volcano were non-explosive, and generally involved air fall tuff activity. As with any active geologic system, there is no sound predictive method for assessing risk associated renewed activity in a dormant volcanic system with no recent eruptive history.

b. Policy Framework

GOAL HS-1	**Geologic Hazards. Protect the public and reduce damage to property from earthquakes and other geologic hazards.**

Policy HS-1.1 Regulate land development to avoid unreasonable exposure to geologic hazards.

Policy HS-1.2 All development and construction proposals shall be reviewed by the County to ensure conformance to applicable building standards.

Policy HS-1.3 Require environmental documents prepared in connection with CEQA to address seismic safety issues and to provide adequate mitigation for existing and potential hazards identified.

c. Implementation Program

Action HS-A1 Require a geotechnical analysis for construction in areas with potential geological hazards and/or for purposes of environmental analysis. Recommendations of the geotechnical analysis shall be implemented. (Policy HS-1.1, Policy HS-1.2, Policy HS-1.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A2 Rely upon the most current and comprehensive geological hazard mapping available in the evaluation of potential seismic hazards associated with proposed new development. (Policy HS-1.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A3 Continue to participate in the Yolo County Subsidence Network and implement its recommendations. (Policy HS-1.2, Policy HS-1.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A4 Integrate geologic hazard information into the County Geographical Information System. (Policy HS-1.1)

Responsibility: Information Technology Department
Timeframe: 2010/2011

2. Flood Hazards

The Flood Hazards section of this General Plan provides goals, policies, and actions that guide Yolo County in ensuring adequate safety from flooding for Yolo County communities.

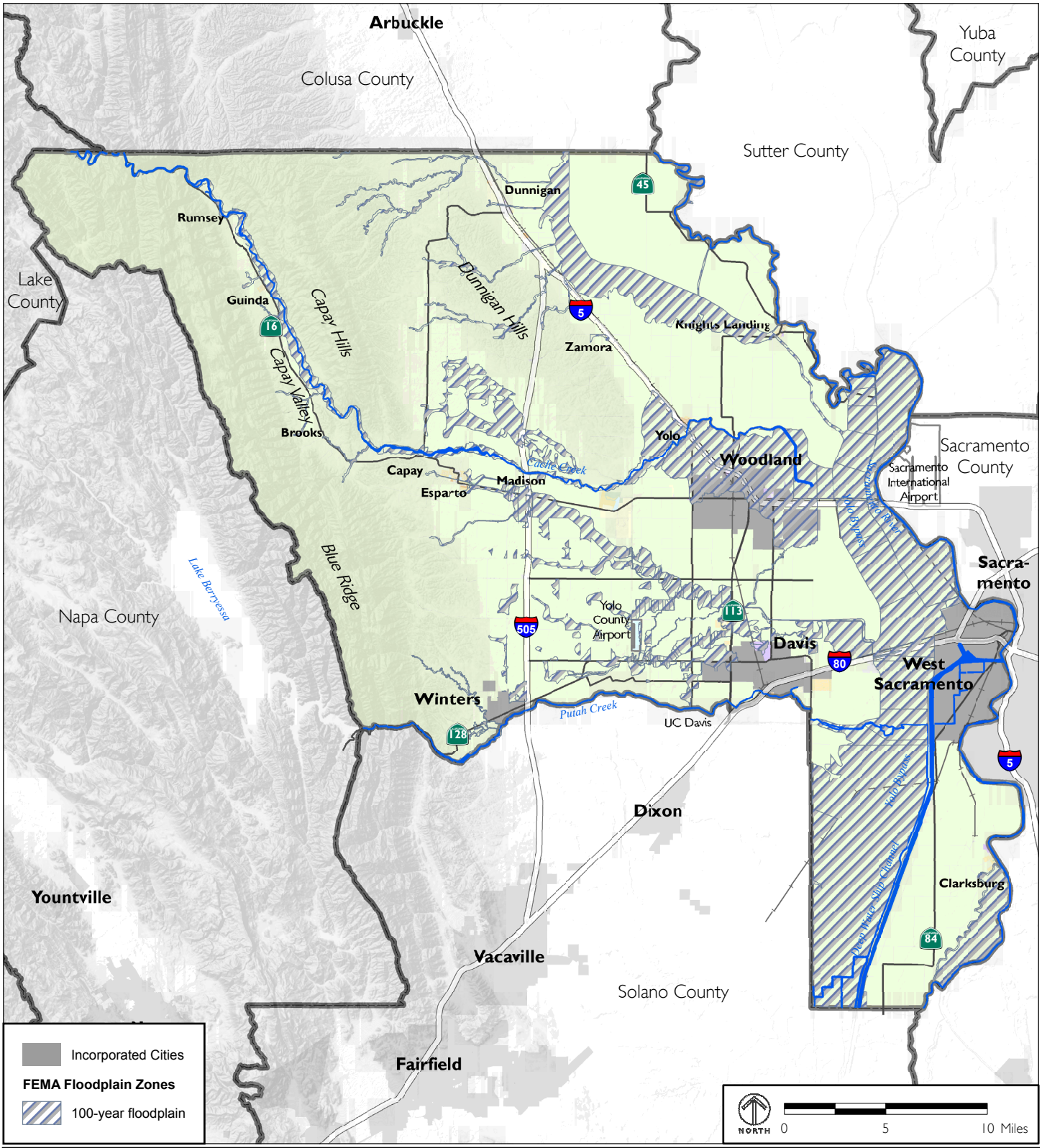
a. Background Information

Yolo County has five primary watersheds with the potential to impact unincorporated communities: Cache Creek Basin; the Sacramento River corridor including the Yolo Bypass (Clarksburg and Knights Landing); Willow Slough (Madison and Esparto), Colusa Basin Drain (Knights Landing) and Dry Slough (West Plainfield, North Davis Meadows and Binning Farms).

The threshold for unacceptable flood risk has traditionally been associated with the "100-year flood". The Federal Emergency Management Agency (FEMA) creates Flood Insurance Rate Maps (FIRMs) that designate 100-year floodplain zones. A 100-year floodplain zone is the area that has a one in one hundred (1 percent) chance of being flooded in any one year based on historical data. State law requires that urban areas, defined as those exceeded a population of 10,000, shall provide 200-year flood protection. The FIRMs do not show the 200-year floodplain; however, draft maps have been created by the State Department of Water Resources (DWR) showing these areas and are currently under review. Figure HS-4 identifies the existing 100-year floodplain contours as identified by FEMA for Yolo County. FEMA has also recently released new draft FIRMs, showing changes to the floodplain using more recent climate assumptions, as well as assumptions regarding the likelihood of flooding due to levee failure. Adoption of the FIRMs is expected in 2010.

In addition to hazards from natural flood events, portions of Yolo County are also located downstream of several dams with large inundation areas, as shown in Figure HS-5. In the unlikely event that any of these dams were to fail, the inundation zones indicate areas that could potentially be flooded. If the dams at Indian Valley Reservoir, Lake Berryessa or along the Sacramento, Feather or American rivers were to fail, the majority of the cities of Woodland, Winters and Davis would be inundated by floodwaters. The entire unincorporated communities of Rumsey, Capay, Madison, Knights Landing and Clarksburg and parts of Guinda, Esparto, Monument Hills and Yolo are located within dam inundation zones.

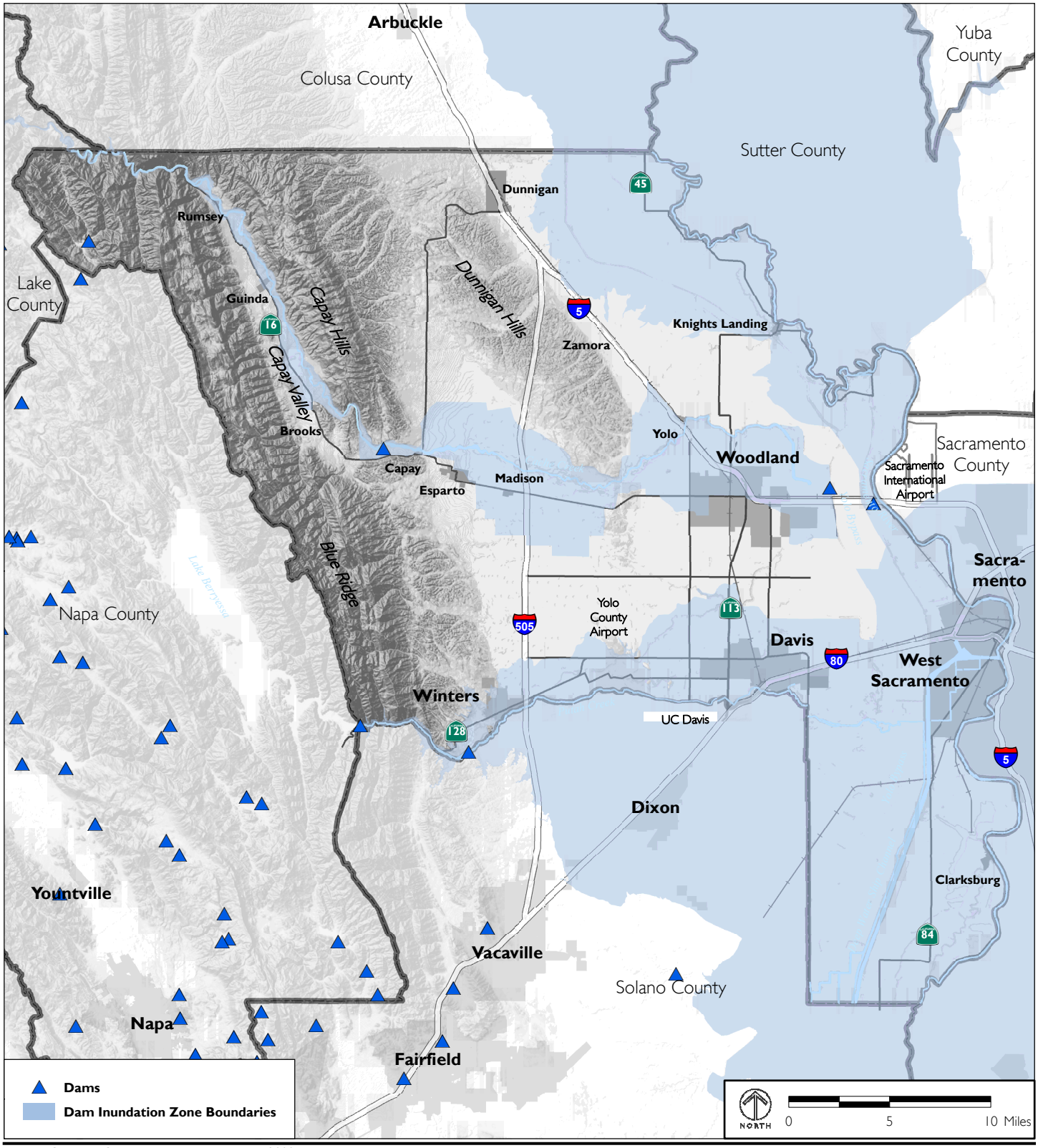
As a result of rapid population growth and escalating housing costs in the past ten years, there has been increasing pressure in the Sacramento Valley to build homes and other structures in natural floodplains. There has been limited growth within the floodplains of unincorporated Yolo County, however, due to policies that have restricted growth in general within the unincorporated area.



Source: Yolo County GIS, 2009.

FIGURE HS-4

100-YEAR FLOODPLAIN



Source: California Office of Emergency Servivces, 2000.

FIGURE HS-5

DAM INUNDATION

Development within the floodplain can have negative environmental implications that can both lead to increased risk of flooding and expose people and property to flooding risks. Urban development increases the amount of impervious surface and therefore increases surface water runoff and accelerates the timing of peak runoff flows. This results in increased erosion, sedimentation and water quality problems in surface runoff, as well as increased risk of flooding.

Responsibility for flood protection is distributed among many agencies at various levels of government. At the federal level the three primary agencies are the Army Corps of Engineers, the FEMA, and the Bureau of Reclamation. At the state level the primary agencies are Department of Water Resources and the Central Valley Flood Protection Board. At the local level in Yolo County and the region these agencies include: the County of Yolo and each of its four cities; the Yolo County Flood Control and Conservation District, 15 local reclamation districts, the Knights Landing Ridge Drainage District, the Madison Esparto Regional County Service Area, the Snowball Levee County Service Area, other CSAs, various Community Service Districts and the Sacramento River West Side Levee District.

Yolo County has approximately 215 miles of project levees, managed by various agencies, including the County, 13 reclamation districts, one levee district, one drainage district, and the California Department of Water Resources. These levees provide flood protection to West Sacramento, Woodland, Knights Landing, Clarksburg, Davis and important agricultural lands. In addition, the Yolo Bypass, the Sacramento Weir, and the Fremont Weir help protect Sacramento and other urban communities in the region from flooding by the Sacramento River. Some levees, particularly the project levees that protect parts of the City of Woodland and unincorporated Yolo County, the vicinity of Cache Creek and the town of Yolo, only provide a 10-year level of flood protection rather than the 100-year federal standard. Without work to improve these levees, additional development in Yolo County's floodplain could put more residents at risk of flooding hazards.

The local levees have been assumed to provide adequate protection since their acceptance into the Sacramento River Flood Control Project in 1918. Recently, where insufficient geotechnical information exists to evaluate the integrity of the levees, the State Department of Water Resources has taken the position, in conjunction with FEMA, that levees may not be recertified. DWR has completed geotechnical evaluations of the urban Sacramento River Flood Control Project levees within the county, and proposed to do additional (as yet unknown) evaluations of non-urban levees in the next two years. Preliminary indications are that local levees will not be considered adequate to protect against the 100-year flood.

The State Assembly and Senate, in 2006 and 2007, produced legislation governing various aspects of flood planning. The following list includes legislation applicable to Yolo County:

- AB 5 – Flood Management. Renames the Department of Water Resources (DWR) Reclamation Board as the Central Valley Flood Protection Board (CVFPB), and expands its size, duties, and powers. Makes clarifying and technical changes to the State's new flood planning legislation.
- AB 70 – Flood Liability. Requires a city or county to contribute its fair share to property damage caused by a flood, to the extent that the jurisdiction increased the State's exposure to liability by approving new development within the boundary of a state flood control project.
- AB 162 – Requires cities and counties to address flood-related matters in the land use, conservation, safety, and housing elements of their General Plans.
- AB 930 – Flood Management. Expands the powers of the Sacramento Area Flood Control Agency to include the acquisition of land easements.
- SB 5 – Flood Management. Requires DWR and the CVFPB to prepare and adopt a Central Valley Flood Protection Plan by 2012. Requires cities and counties in the Sacramento–San Joaquin Valley to amend their General Plan and Zoning Ordinances to be consistent with a newly adopted Flood Management Plan within 36 months of flood plan adoption. Establishes other flood protection requirements for local land-use decisions consistent with the Central Valley Flood Protection Plan.

Senate Bill 5 (2007) establishes higher standards of flood protection (generally 200 year protection) for urban and urbanizing areas (defined as areas of at least 10,000 residents, or which will grow to 10,000 or more within the next 10 years). Other areas remain subject to the pre-existing 100-year standard for protection. Yolo County's unincorporated communities are all well under the 10,000 population threshold at this time and therefore are generally not affected by this new legislation, however, future planned growth in Dunnigan will be required to meet the higher 200-year standard.

b. Policy Framework

GOAL HS-2	**Flood Hazards. Protect the public and reduce damage to property from flood hazards.**

Policy HS-2.1	Manage the development review process to protect people, structures, and personal property from unreasonable risk from flooding and flood hazards.
Policy HS-2.2	Ensure and enhance the maintenance and integrity of flood control levees.
Policy HS-2.3	Actively update and maintain policies and programs to ensure consistency with State and federal requirements.
Policy HS-2.4	Clearly communicate the risks, requirements, and options available to those who own land and live within the floodplain.

Policy HS-2.5 Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable flood control and protection policies of the Land Use and Resource Management Plan of the Delta Protection Commission.

Policy HS-2.6 Maintain the structural and operational integrity of essential public facilities during flooding.

Policy HS-2.7 Manage the floodplain to improve the reliability and quality of water supplies.

Policy HS-2.8 Consider and allow for the ecological benefits of flooding while balancing public safety and the protection of property.

c. Implementation Program

Action HS-A5 Require a minimum of 100-year flood protection for new construction, and strive to achieve 200-year flood protection for unincorporated communities. Where such levels of protection are not provided, require new development to adhere to the requirements of State law and the County Flood Damage Prevention Ordinance. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A6 Continue to require habitable structures in the 100-year floodplain to be designed and constructed so that they do not significantly contribute to cumulative flooding that could pose a hazard to surrounding landowners and/or the public. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A7 Yolo County shall not approve any discretionary permit, or ministerial permit, that would result in the construction of a new residence, for a project located within a flood hazard zone, unless the County can make the findings identified in Section 65962a of the Government Code. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A8 Locate new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities. Where such location is not feasible,

incorporate methods to minimize potential flood damage to the facility. (Policy HS-2.6)
Responsibility: Planning and Public Works Department, General Services Department, Office of Emergency Services
Timeframe: Ongoing

Action HS-A9 Require new developments to detain the stormwater runoff created on-site by a 100-year storm event. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A10 Limit the construction of extensive impermeable surfaces and promote the use of permeable materials for surfaces such as driveways, and parking lots. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A11 Locate new structures outside of the floodplain, where feasible, and implement appropriate methods to minimize potential damage where new construction occurs within flood hazard zones.(Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A12 Evaluate the feasibility of designating land as open space for future bypass systems to prevent flooding hazards. Work with State and Federal agencies to include such bypasses in the Central Valley Flood Protection Plan, where appropriate. Ensure that responsible agencies fund the purchase of flood easements where bypass systems are designated. (Policy HS-2.1)
Responsibility: Parks and Resources Department
Timeframe: Ongoing

Action HS-A13 Review development proposals to ensure that the need to maintain flood control capacity is balanced with consideration of the environmental health of watercourses that convey floodwaters so as not to cause significant erosion, sedimentation, water quality problems, or loss of habitat. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A14 Require a minimum 50-foot setback for all permanent improvements from the toe of any flood control levee. (Policy HS-2.2)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A15 Restrict proposed land uses within 500 feet of the toe of any flood control levee, including but not limited to:

- Prohibit permanent unlined excavations;
- Large underground spaces (such as basements, cellars, swimming pools, etc) must be engineered to withstand the uplift forces of shallow groundwater;
- Prohibit below-grade septic leach systems;
- Engineered specifications for buried utility conduits and wiring;
- Prohibit new water wells;
- Prohibit new gas or oil wells;
- Engineered specifications for levee penetrations; and
- Require landscape root barriers within 50 feet of the toe. (Policy HS-2.2)

Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A16 Support the efforts of levee maintenance districts with efforts to secure State and Federal funding for geotechnical studies of levees and implementation of associated improvements, as well as their ongoing maintenance. (Policy HS-2.2)
Responsibility: County Administrator's Office
Timeframe: Ongoing

Action HS-A17 Encourage flood hazard reduction projects along the Sacramento River to be consistent with the guidelines of the Sacramento River Corridor Floodway Management Plan. (Policy HS-2.2)
Responsibility: Parks and Resources Department
Timeframe: Ongoing

Action HS-A18 Coordinate with local, State and Federal agencies to define existing and potential flood problem areas, including the possible impacts associated with global climate change, and to maintain and improve levees and other flood control features. (Policy HS-2.2)
Responsibility: Planning and Public Works Department
Timeframe: 2012/2013

Action HS-A19 Develop a detailed maintenance and funding plan for levees under County control, to ensure that levee safety is maintained. (Policy HS-2.2)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A20 Support and encourage responsible agencies to site new levees or major rehabilitation of levees at a distance from the river and from existing levees, where feasible. These setback levees would provide a degree of redundancy in the system, increase the land available for habitat and flood storage, reduce operation and maintenance costs, and help to ensure the integrity of the structures. (Policy HS-2.2)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A21 Private development of levees should be limited to those cases where the construction meets national levee standards, the project is in conformance with the State's comprehensive plan for flood damage reduction, and a public agency agrees to provide long-term maintenance of the levee. (Policy HS-2.2)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A22 Ensure that the upgrade, expansion, or construction of any flood control levee demonstrates that it will not adversely divert flood water or increase flooding. (Policy HS-2.2)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A23 Work cooperatively with other local agencies and interested parties to develop funding mechanisms to finance the local share of design, construction, and capital costs for repairs and improvements to flood control levees. (Policy HS-2.2)
Responsibility: Parks and Resources Department
Timeframe: Ongoing

Action HS-A24 Improve the county's classification within the Federal Emergency Management Agency Community Rating System. (Policy HS-2.3)
Responsibility: Planning and Public Works Department
Timeframe: 2009/2010

Action HS-A25 Pursuant to Sections 65302.9 and 65860.1 of the Government Code, amend the Zoning Ordinance and General Plan, as appropriate, to be consistent with the adopted Central Valley Flood Protection Plan. (Policy HS-2.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A26 Review on an annual basis those portions of the unincorporated area that are subject to flooding, based on mapping prepared by the Federal Emergency Management Agency and/or the Department of Water

Resources, and amend the General Plan as appropriate to reflect any changes. (Policy HS-2.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A27 Revise the Health and Safety Element, concurrently with the regular update to the Housing Element, to include new information regarding floodplain mapping and/or regulation. (Policy HS-2.1, Policy HS-2.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A28 Take all reasonable and feasible actions to mitigate potential flood damage for new construction on agriculturally designated land in areas protected by the Sacramento River Flood Control Project and related flood protection efforts. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A29 Pursuant to Section 8201 of the State Water Code, develop local plans for flood protection, including analysis of financing options to construct and maintain any needed improvements, to address how 100-year floodplain protection for each community may be provided. Those communities that are economically disadvantaged and at greatest risk shall have priority in developing flood protection plans. The cities shall be consulted in development of the plans, which shall be consistent with the Central Valley Flood Protection Plan. (Policy HS-2.1, Policy HS-2.2)
Responsibility: Parks and Resources Department, Planning and Public Works Department
Timeframe: 2014/2015

Action HS-A30 Maintain and update on a regular basis the County Flood Damage Prevention Ordinance, to ensure its conformity with the State Model Flood Ordinance and all Federal Emergency Management Agency requirements. (Policy HS-2.1, Policy HS-2.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A31 Inform the public about the specific risks of living in areas at risk of flooding, and provide steps property owners can take to reduce their exposure to flood damages. Encourage all landowners within the 100- or 200-year floodplain, and/or within areas protected by levees, to purchase and maintain flood insurance. (Policy HS-2.4)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A32 Require that all residential development projects located within floodplains include a signed waiver regarding the potential flood risk to future buyers. (Policy HS-2.4)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A33 Develop and implement a public outreach campaign to notify landowners and tenants of their flood status, options for flood insurance, evacuation plans, flood protection programs, locally responsible flood agencies, and other related topics. (Policy HS-2.4)
Responsibility: Parks and Resources Department, Planning and Public Works Department, Office of Emergency Services
Timeframe: 2010/2011

Action HS-A34 Amend the County's Development Agreement enabling ordinance to include the applicable restrictions from Section 65865.5 of the Government Code. (Policy HS-2.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A35 Develop emergency response plans and systems for floodplain evacuation and flood emergency management. Educate the public regarding these plans. (Policy HS-2.4)
Responsibility: Office of Emergency Services
Timeframe: Ongoing

Action HS-A36 Evaluate the creation of a countywide agency to provide flood control and protection. (Policy HS-2.2, Policy HS-2.4, Policy HS-2.6)
Responsibility: County Counsel, County Administrator's Office, Parks and Resources Department
Timeframe: 2009

Action HS-A37 Continue to work with the Flood Control District, the City of Woodland, other appropriate agencies and private landowners to develop strategies and pursue funding for the implementation of projects to improve flood protection for urban and rural residents along lower Cache Creek. (Policy HS-2.2)
Responsibility: County Administrator's Office, Parks and Resources Department, Planning and Public Works Department
Timeframe: Ongoing

3. Wildland Fires

The Wildland Fires section of the Health and Safety Element establishes goals, policies, and actions to ensure safety from wildland fires in and around the County of Yolo.

a. Background Information

Wildland fire danger varies throughout Yolo County. The County is characterized by relatively level valley floor landscapes to the south and east; this lack of topography and complex fuels leads to very little severe fire behavior. In the increasingly hilly landscapes rising to the north and west, the rugged topography creates a landscape where fires can spread rapidly upslope and access for suppression equipment is limited.

To quantify the potential risk from wildland fires, the California Department of Forestry and Fire Protection (CalFire) has developed a Fire Hazard Severity Scale that uses three criteria in order to evaluate and designate potential fire hazards in wildland areas. The criteria are fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents) and topography (degree of slope). According to CalFire maps for Yolo County, the western portion of the county, west of Esparto and Winters, is designated as a Very High Fire Severity Zone (VHFSZ), as shown in Figure HS-6. The VHFSZ in Yolo County is in a State Responsibility Area (SRA), meaning that fire suppression is under the control of CalFire. Government Code Sections 51175 through 51189 require the State to identify and classify fire hazards and to designate VHFSZs in Local Responsibility Areas (LRAs), or areas where local agencies are responsible for fire suppression rather than the State.

Since the VHFSZs in Yolo County are in a SRA rather than an LRA, they are not subject to the aforementioned Government Code.

The County and its municipalities do fight a large number of vegetation fires, particularly during the summer. These fires tend to occur along major highways and railroads, and usually do not damage structures. However, fires can be exacerbated by hot north winds during periods of extremely low humidity. In addition, if they are fed by dry grass and vegetation they can easily grow out of control. Wildland fires can damage structures and facilities, and the County must be prepared for protection from dangerous wildland fires, especially where urban and non-urban landscapes meet.

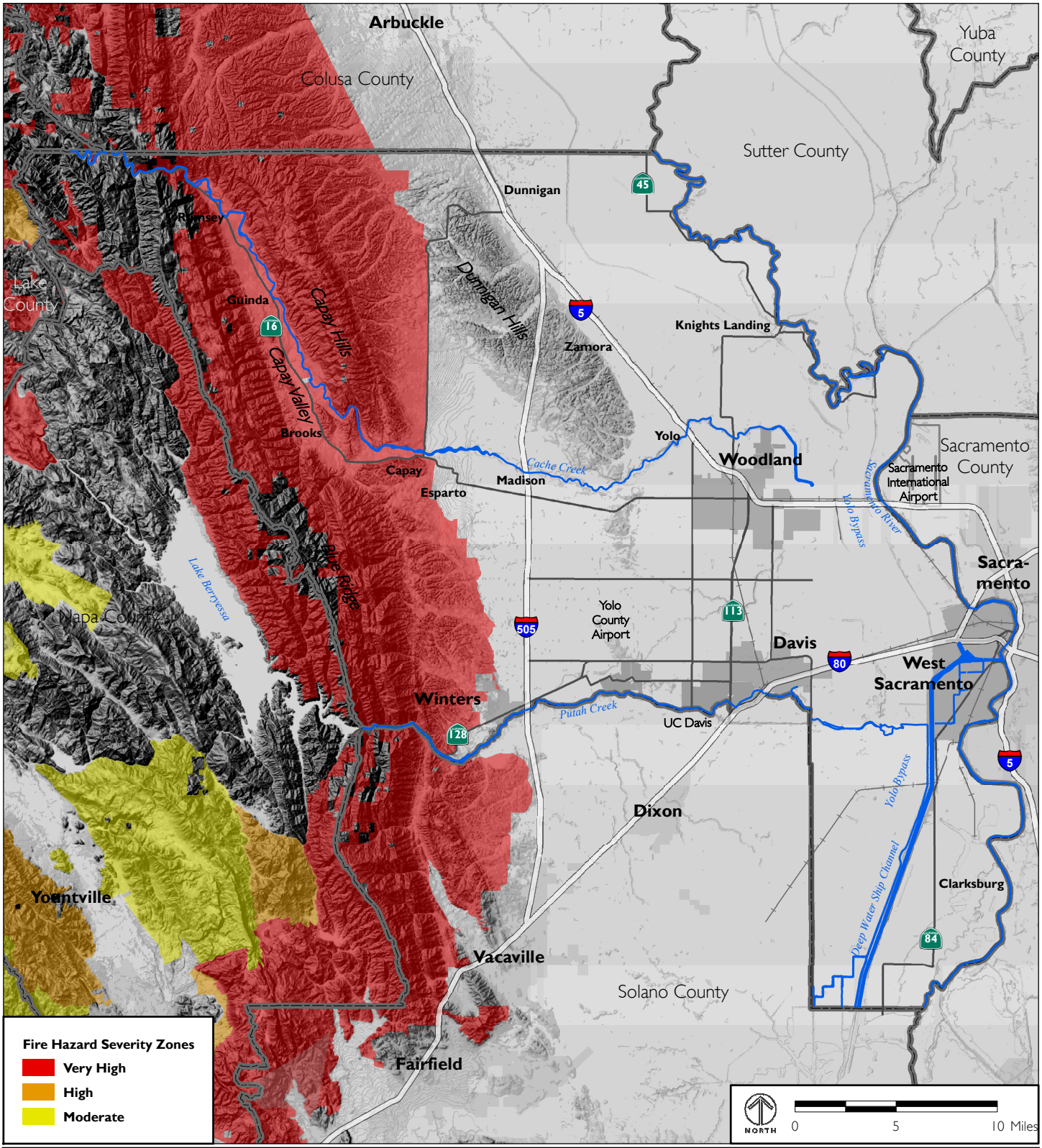
b. Policy Framework

GOAL HS-3	**<u>Wildland Fires</u>. Protect the public and reduce damage to property from wildfire hazard.**

Policy HS-3.1 Manage the development review process to protect people, structures, and personal property from unreasonable risk from wildland fires.

Policy HS-3.2 Encourage well-organized and efficient coordination between fire agencies and the County.

Policy HS-3.3 Clearly communicate the risks, requirements, and options available to those who own land and live in wildfire hazard areas.



Source: CAL-Fire, 1985.

FIGURE HS-6

FIRE HAZARD SEVERITY ZONES IN STATE RESPONSIBILITY AREAS (SRA)

c. Implementation Program

Action HS-A38 Require new and/or existing development to establish "defensible space" by providing for clearance around structures, using fire-resistant ground cover, building with fire-resistant roofing materials, fuel load reduction, and taking other appropriate measures. (Policy HS-3.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A39 Require the design and construction of new roadways and driveways in fire hazard areas to be of sufficient width, radius and grade to facilitate access by fire-fighting apparatus. (Policy HS-3.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A40 Require land divisions within the very high and high risk Fire Hazard Severity Zones to demonstrate the following:

- guaranteed availability of adequate water;
- provision of more than one access point for firefighting equipment;
- permanent maintenance of defensible space around all buildings; and
- use of fire-resistant materials in construction. (Policy HS-3.1)

Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A41 Cluster residential units located in areas of high fire risk with adequate access to maintained emergency evacuation routes to ensure adequate access for firefighting equipment and escape routes for residents in rural areas. (Policy HS-3.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A42 Assist dependent fire districts with development impact fees, legal counsel, grant applications, and fee waivers, where feasible. (Policy HS-3.2)
Responsibility: County Administrator's Office, County Counsel
Timeframe: Ongoing

Action HS-A43 Coordinate with the Clarksburg Fire District to ensure compatibility of permitted land use activities within the Delta Primary Zone with applicable fire safe policies of the Land Use and Resource Management Plan of the Delta Protection Commission. (Policy HS-3.2)

Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A44 Implement State recommendations for fire prevention in Fire Hazard Severity Zones. (Policy HS-3.1)
Responsibility: Planning and Public Works Department
Timeframe: 2009/2010

Action HS-A45 Coordinate with fire districts to ensure fire safe design and construction of new development. (Policy HS-3.2)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

4. Hazardous Materials

The Hazardous Materials section of the Health and Safety Element establishes goals, policies, and actions to ensure safety from hazardous materials in and around the County of Yolo.

a. Background Information

There are several forms of hazardous materials in Yolo County. Common products such as gasoline, paint solvents, household cleaning products and refrigerants are categorized as hazardous materials and are present throughout Yolo County. Industrial operations, often employing hazardous substances, may leave behind contaminating underground storage tanks and/or residual pollutants that infiltrate the County's natural resources. "Brownfield" sites are those where expansion or redevelopment is complicated by real or perceived contamination from prior or current uses[2]. Superfund sites are significantly contaminated properties as designated by the federal Environmental Protection Agency (EPA) list.

The County regulates the construction, operation, repair and removal of underground storage tanks (USTs) in Yolo County through its Underground Storage Tank program. Leaking USTs in the County are common, and are often associated with airports, farms and abandoned railroad lines. The Environmental Health Division (EHD) maintains a list of leaking USTs.[3]

There are several brownfield sites identified in the community of Esparto that are polluted with hazardous substances and/or where petroleum leakage has been identified. The County has two $200,000 grants from the EPA's Brownfields Program to prevent, assess, safely clean up, and sustainably reuse these sites. These funds will also be used to create a brownfield inventory and conduct up to five Phase I and three

[2] Environmental Protection Agency, *Brownfields and Land Revitalization*, http://www.epa.gov/brownfields/, accessed on June 30, 2008.

[3] Yolo County Department of Environmental Health, *Underground Storage Tank Program*, http://www.yolocounty.org/Index.aspx?page=109, accessed June 30, 2008.

Phase II environmental site assessments in the Esparto community. The grant funds will also be used to conduct community outreach activities.

There is one Superfund site located in the unincorporated County, which is the landfill at UC Davis. The Frontier Fertilizer Company site is a second listed Superfund site, but is located with the City of Davis.

The handling, transportation and disposal of hazardous waste is of concern to all communities and residents. Proper regulation of hazardous materials will ensure that detrimental effects of human exposure and environmental contamination are minimized. Hazardous materials and wastes are regulated through various federal, state and local agencies. The EHD is part of the County Health Department and regulates hazardous materials in Yolo County. In case of an emergency, the *Yolo Operational Area Hazardous Materials Emergency Response Plan* provides for an organized and structured response. This plan defines the structure of the emergency response effort made by the county Hazardous Materials Response Team. This team becomes active when deemed necessary by a fire department officer, and combines the forces of the UC Davis, Davis, West Sacramento and Woodland fire departments and the EHD.

The EHD maintains the Hazardous Materials Business Plan and Inventory Program. The program enforces the State "right-to-know" laws passed in 1984, and requires local businesses to provide public access to information about the types and amounts of chemicals being used on their property. Businesses must plan and prepare for a chemical emergency through the preparation of a Hazardous Materials Inventory that is certified annually and a Hazardous Materials Business Emergency Response Plan that is certified annually and inventory of hazardous materials updated annually. EHD also regulates the use, storage, and treatment of hazardous wastes and above-ground storage tanks.

b. Policy Framework

GOAL HS-4	**<u>Hazardous Materials</u>. Protect the community and the environment from hazardous materials and waste.**

Policy HS-4.1 Minimize exposure to the harmful effects of hazardous materials and waste.

Policy HS-4.2 Inspect businesses regularly for compliance with their Hazardous Materials Inventory and Hazardous Materials Business Emergency Response Plan.

Policy HS-4.3 Encourage the reduction of solid and hazardous wastes generated in the county.

c. Implementation Program

Action HS-A46 Provide adequate separation between areas where hazardous materials are present and sensitive uses. The following land uses are considered sensitive receptors for the purpose of exposure to hazardous materials: residentially designated land uses, hospitals and nursing/convalescent homes, hotels and lodging, schools and day care centers and neighborhood parks. (Policy HS-4.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A47 New development and redevelopment in areas previously used for agricultural, commercial, or industrial uses shall ensure that soils, groundwater, and buildings affected by hazardous material releases from prior land uses, as well as lead paint and/or asbestos potentially present in building materials, will not have the potential to affect the environment or health and safety of future property owners or users, and any affected areas shall be properly abated. A Phase I Environmental Site Assessment (ESA) to American Society for Testing and Materials (ASTM) standards shall be required where appropriate and a Phase II ESA may be required in certain circumstances based on the recommendations/results of the Phase I. Where the Phase I report has identified agricultural cultivation prior to the 1980s, a shallow soil investigation shall be performed at the property in accordance with DTSC guidance for sampling agricultural properties. (DEIR MM HAZ-1) (Policy HS-4.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A48 Develop a GIS-based map from the information submitted in the filed Hazardous Materials Inventories and Hazardous Materials Business Emergency Response Plans so that emergency responders are aware of potential dangers and can prepare accordingly. (Policy HS-4.2)
Responsibility: Health Department
Timeframe: 2010/2011

Action HS-A49 Promote public education about the safe disposal of used syringes and needles, household hazardous waste, such as motor oil, florescent bulbs, sharps/syringes, and batteries, including the locations of disposal sites. (Policy HS-4.3)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A50 Cooperate with other agencies in the prevention and control of potential oil spills, including coordination with the State Oil Spill Program (SOSP). The SOSP shall be incorporated into local

emergency and safety plans, standards, and ordinances. (Policy HS-4.1)
Responsibility Health Department, Office of Emergency Services
Timeframe: Ongoing

Action HS-A51 Complete the remediation and reclamation of the County's former burn dump sites. (Policy HS-4.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

5. Airport Operations

The Airport Operations section of the Health and Safety Element provides goals, policies, and actions that guide Yolo County in ensuring adequate airport safety.

a. Background Information

Yolo County owns and operates the Yolo County Airport, one of four general aviation airports in the County. Two of the other airports, Watts-Woodland Airport and Borges-Clarksburg Airport, are privately-owned, while the University Airport is owned by UC Davis. The County is also affected by a fifth airport, Sacramento International, which lies just outside the County boundaries.

Yolo County Airport, located four miles west of the City of Davis, is the largest airport in the County based on runway size. Seventy aircraft are based at the field and, on average, 165 aircraft operations occur per day.[4]

The Sacramento International Airport is located immediately outside Yolo County in Sacramento County, and is the largest airport in the vicinity. With more than 150 flights departing daily on 14 commercial airlines, the airport offers international flights. While the airport is not inside Yolo County, noise, safety and land use compatibility concerns do extend into Yolo County and must be addressed in this General Plan.

The Sacramento Area Council of Governments has been designated the Airport Land Use Commission (ALUC) for the counties of Sacramento, Sutter, Yolo, and Yuba. Under the authority of the Airport Land Use Commission Law, Chapter 4, Article 3.5 of the California Public Utilities Code, the ALUC has prepared airport comprehensive land use plans (CLUPs) for four of the airports that affect Yolo County. The University Airport is required to have an Airport Layout Plan (ALP) which has been prepared by UCD.

The purpose of Airport Land Use Commission Law is to protect public health and safety by adopting land use standards that minimize exposure to safety hazards and excessive levels of noise and to prevent the encroachment of incompatible land uses around airports. The law designates airport safety zones around each of the airports and has

[4] Source: Background Report for the Yolo County General Plan Update, January 2005. Updated data provided by http://www.airnav.com, assessed August 15, 2007.

specific land use compatibility requirements that are consistent with this General Plan as described in the Land Use Element.

b. Policy Framework

GOAL HS-5	**Airport Operations. Protect the community from the risks associated with airport operations and protect airports from the economic impacts of encroachment from incompatible land uses.**

Policy HS-5.1 Ensure that land uses within the vicinity of airports are compatible with airport restrictions and operations.

Policy HS-5.2 Ensure that new development near commercial and public use airports is consistent with setbacks, height, and land use restrictions as determined by the Federal Aviation Administration and the Sacramento Area Council of Governments Airport Land Use Commission. Ensure that development proximate to private airstrips addresses compatibility issues. (DEIR MM HAZ-3)

Policy HS-5.3 Respect and conservatively enforce airport safety zones as identified in airports CLUPs.

Policy HS-5.4 Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable airport policies of the Land Use and Resource Management Plan of the Delta Protection Commission.

c. Implementation Program

Action HS-A52 Develop appropriate Aviation Disaster Response Plans. (Policy 5.1, Policy HS-5.2, Policy HS-5.3)
Responsibility: Office of Emergency Services
Timeframe: 2010/2011

6. Emergency Preparedness

a. Introduction

The Yolo County Office of Emergency Services (OES) is responsible for coordinating the County government's role in preparation and response to a disaster or large scale emergency within Yolo County. The OES works closely with other emergency management operations in the cities of Davis, West Sacramento, Winters, and Woodland, and with UC Davis, the Rumsey Tribe, various special districts, authorities and joint-power authorities within County boundaries. In the event of an emergency, the OES is charged with responding to the unincorporated areas of Yolo County, providing support to jurisdictions within Yolo County, or both. To assist with such efforts, the Office coordinates local volunteers through the Disaster Service Worker (DSW) Program.

Emergency evacuation is an integral component of the County emergency management system. The OES also conducts ongoing evaluation of potential evacuation routes, including capacity and condition of roadways and potential barriers to the use of roadways, such as flooding. There are no set evacuation routes; rather, they are established for particular events based on circumstances at the time.

The main focus is on three operational concerns: 1) Local/community evacuation; 2) Area wide evacuation; and 3) Large scale traffic management during regional evacuations. Primary state and local arterial and secondary ground transportation routes have been identified and are included in general preparedness and response planning efforts The following primary egress points are recognized:

- Interstate 5 – North towards Redding and south into Sacramento
- Interstate 80 – East into Sacramento and west toward Solano County and the San Francisco Bay Area
- Interstate 505 – South to the junction of E/WB Interstate 80
- State Route 16 – West from Woodland into the Capay Valley and then north into Colusa County.
- State Route 45 – North from Knights Landing into Colusa County
- State Route 84 – South from West Sacramento into Solano County with two crossing east into Sacramento County across the Sacramento River
- State Route 113/County Road 102 – North from Woodland into Sutter County and south from Davis
- State Route 128 – West from Winters into Napa County
- County Road 22 – East from Woodland into West Sacramento and then into Sacramento at two locations across the Sacramento River
- County Road 98 – South from Woodland into Solano County

In addition, the County collaborates with neighboring counties and the State to prepare for regional evacuation and movement of people during emergencies. This includes evaluation of en route support to emigrating traffic, designation of major highway traffic capacities, and implementation of traffic control protocols to ensure the rapid, unobstructed, safe, and efficient movement of vehicles engaged in regional evacuations.

Countywide emergency preparedness plans outline procedures that reduce death and injuries or damage to property and minimize the economic and social dislocation resulting from natural and human-made hazards. Emergency preparedness procedures must be FEMA-approved to be eligible for disaster recovery assistance and mitigation funding. In January 2006, Yolo County released a FEMA-approved, multi-jurisdictional local multi-hazard mitigation plan entitled the Yolo Operational Area Multi-Hazard