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)

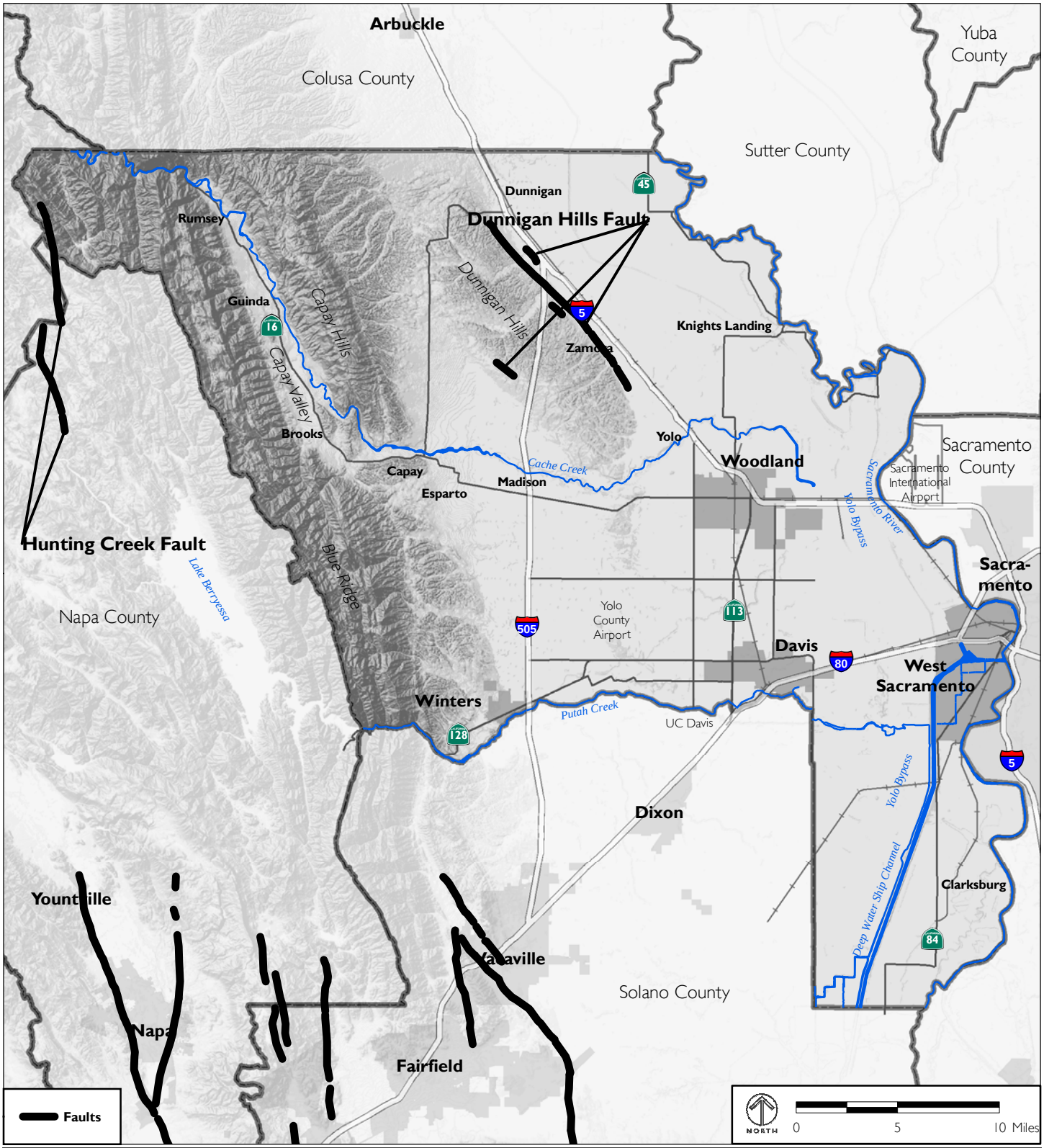
1. Geologic and Seismic Hazards

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.

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



Source: USGS, 1996.

FIGURE HS-1

FAULTS

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. 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.

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

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.

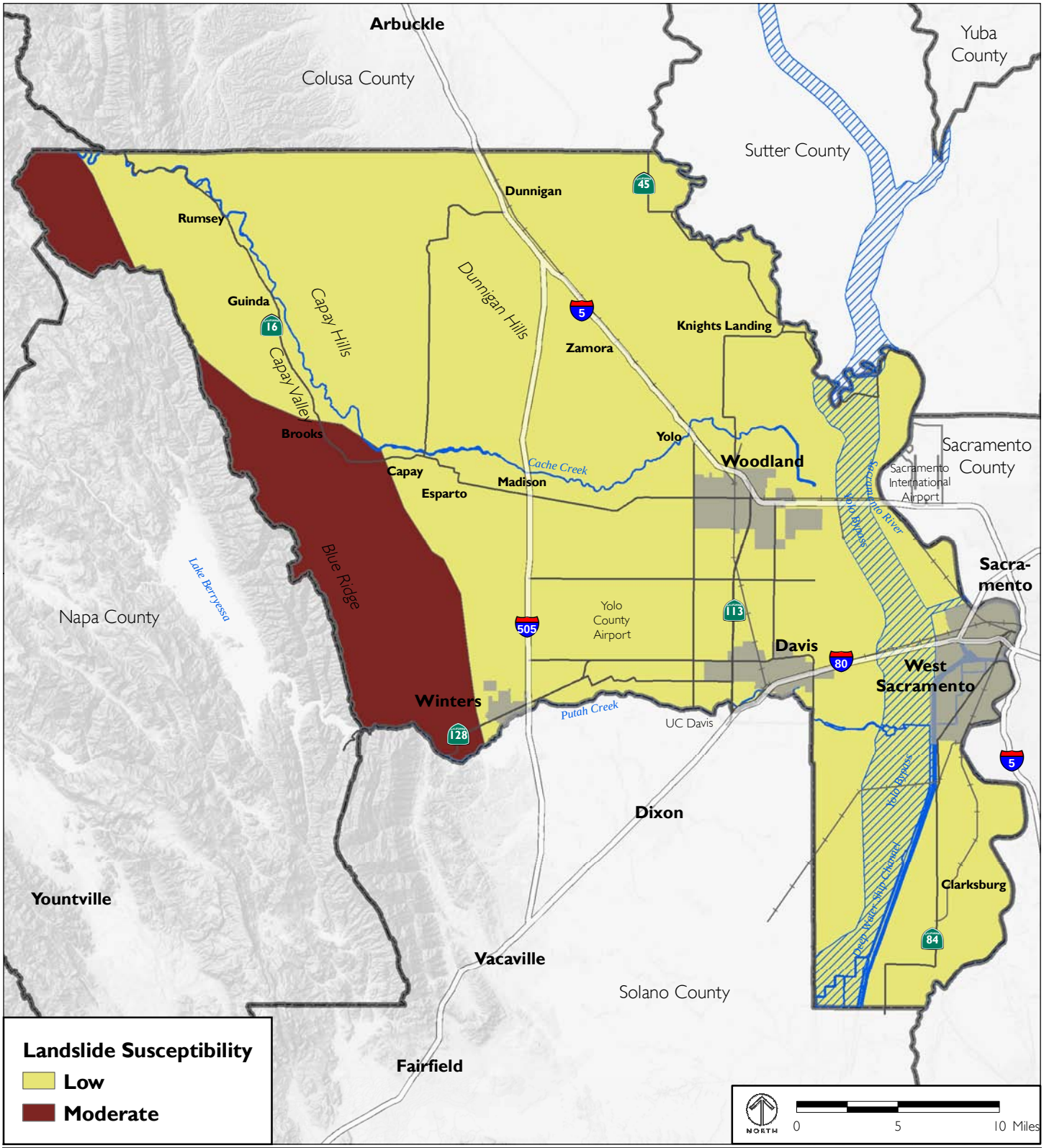
Yolo County faces exposure to mudslides primarily along Cache Creek, in the same areas where landslides are a risk. At the Yolo County/Colusa County boundary, State Route 16 passes through the open preserve area of the Cache Creek Regional Park. For about a mile, the highway is bordered by Cache Creek 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, medium, high and very high expansiveness. Soils with "Low" expansiveness have the potential to change up to 3 percent in volume between the wet and dry state of the soil. Soils with "High" and "Very High" expansiveness require structural accommodations to mitigate 4 percent to 9.5 percent changes in soil volume. Contraction volumes greater than 4 percent directly impact soil suitability for roads, bridges, structures and other types of development. Figure HS-3 identifies expansive soils in the County.

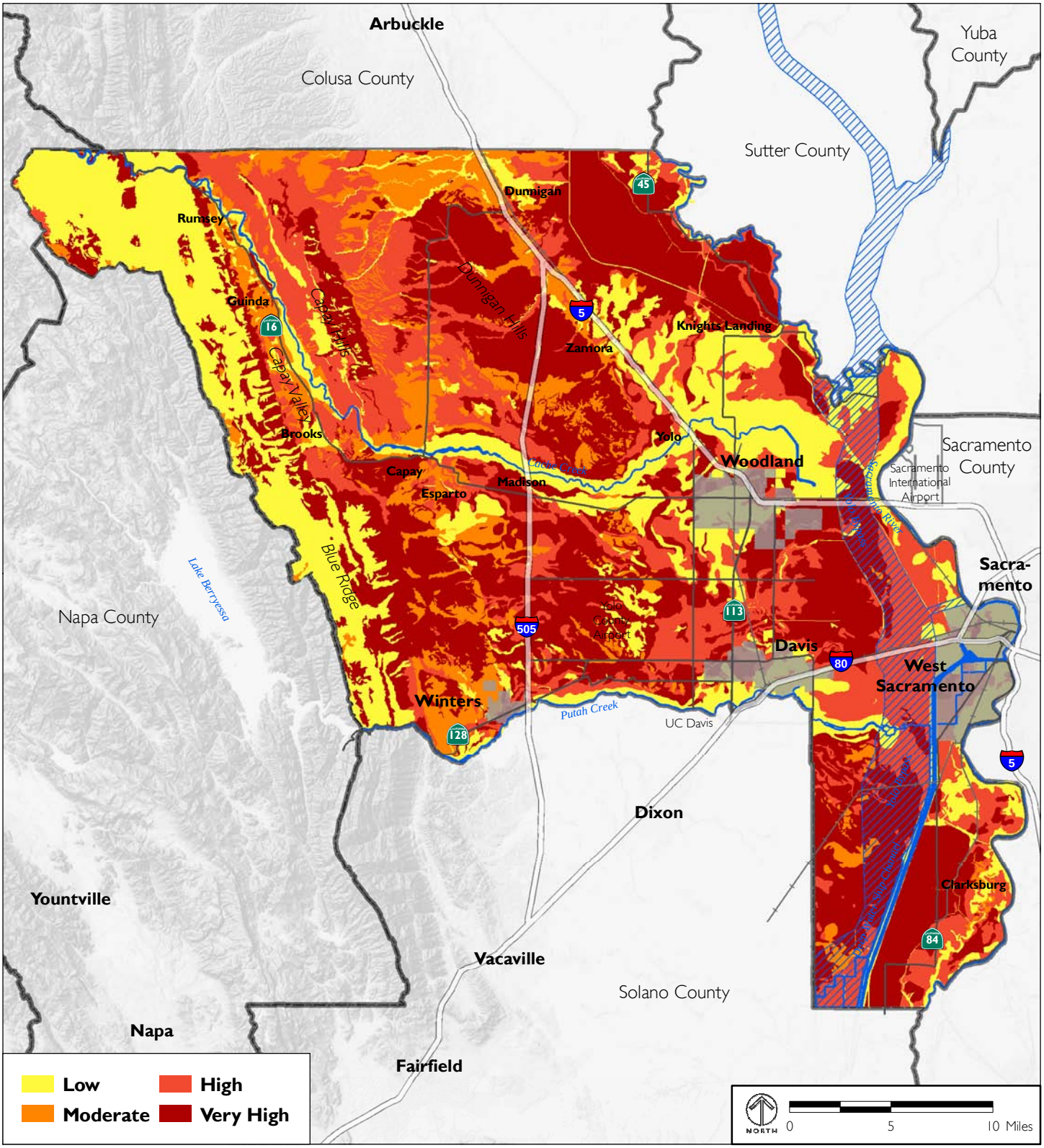
In addition to the natural hazards addressed above, the County faces potential risk from a possible eruptive event at Mount Konockti located in Lake County. Although an eruption is possible, historic events associated with this volcano were non-explosive,



Source: USGS, 2001.

FIGURE HS-2

LANDSLIDE SUSCEPTIBILITY



Source: Natural Resources Conservation Service, 2007.

FIGURE HS-3

EXPANSIVE SOILS

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

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

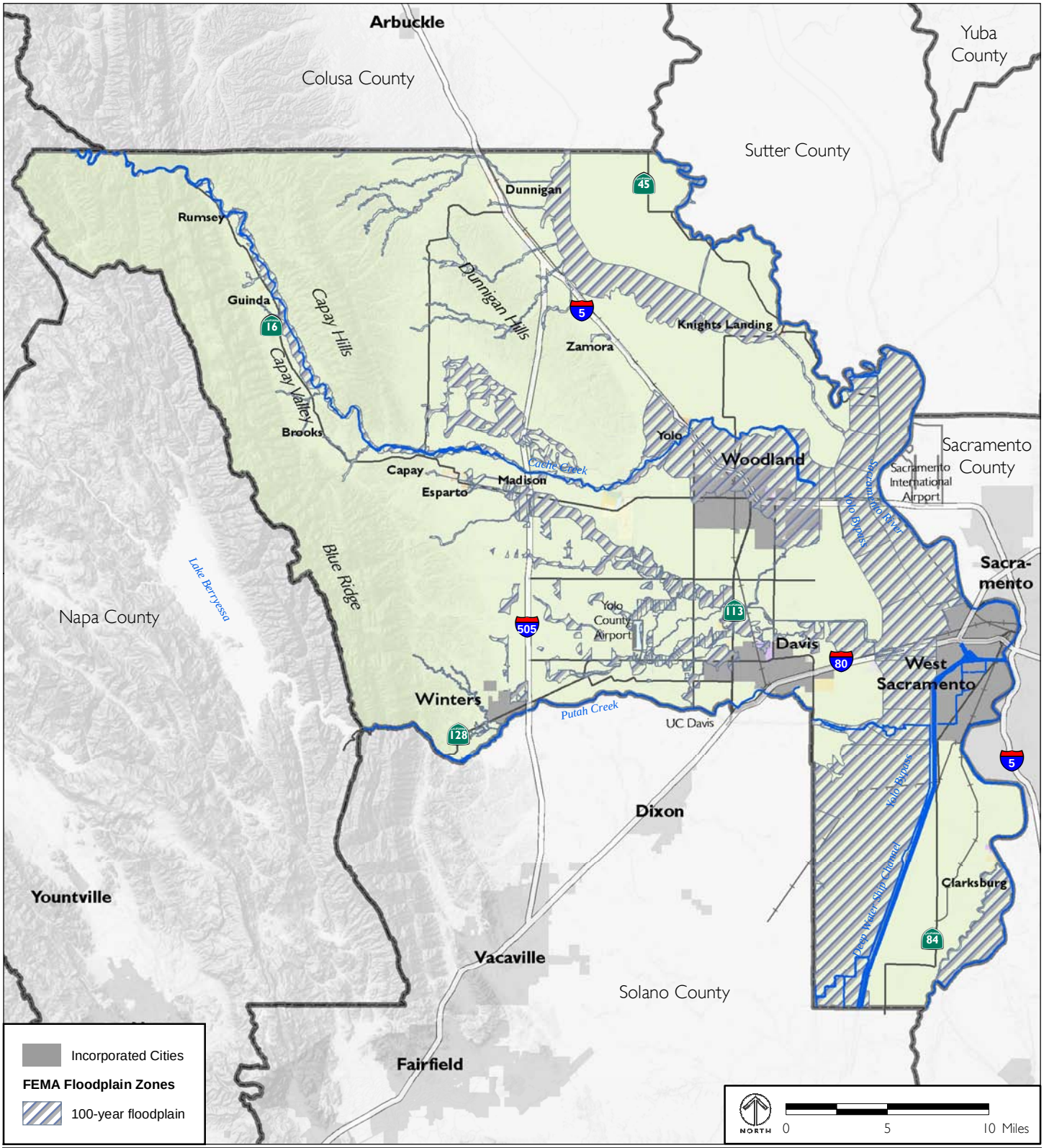
Located in a natural floodplain, Yolo County has five primary watersheds with the potential for flooding: Cache Creek Basin/Woodland; the Sacramento River corridor (including the Yolo Bypass, as well as Clarksburg and Knights Landing); Willow Slough, (including Madison and Esparto), Colusa Basin Drain (including Knights Landing) and Dry Slough (including Winters, DQ University, County Airport, and Davis). 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. Figure HS-4 identifies the existing 100-year floodplain contours as identified by FEMA for Yolo County. Levees along the Sacramento River, Yolo Bypass, and Cache Creek are currently being evaluated to determine whether they meet either the 100-year or 200-year flood standard. The results of these levee studies may change the extent and/or depth of flooding shown on the FIRMs.

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.

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.

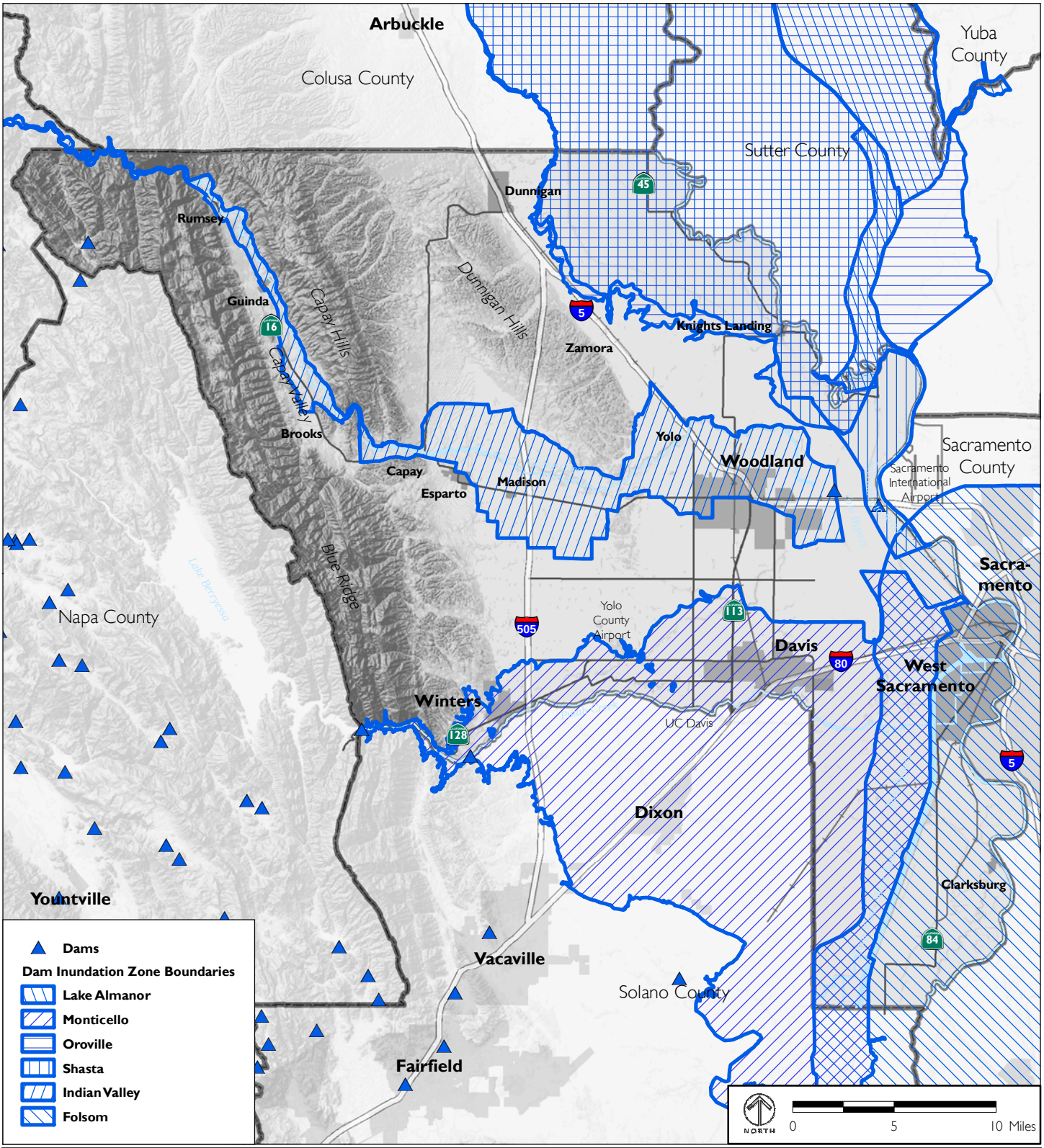
Responsibility for flood protection is distributed among many agencies at various levels of government. At the federal level the three primary agencies are the Army Corps of Engineers, the FEMA, and the Bureau of Reclamation. At the state level the primary agencies are Department of Water Resources and the Reclamation 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 Storm



Source: Yolo County GIS, 2006.

FIGURE HS-4

100-YEAR FLOODPLAIN



Source: California Office of Emergency Servivces, 2000.

FIGURE HS-5

DAM INUNDATION

Drainage Maintenance District, various County Service Areas, and the Sacramento River West Side Levee District.

Yolo County has approximately 215 miles of 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 those 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. However, 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. As such, the local levees face potential reclassification on future federal flood protection maps with no prospect for resolution in the immediate future.

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 properly adopted 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.

c. Implementation Program

Action HS-A4 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-A5 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-A6 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-A7 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-A8 Require new developments to detain the stormwater runoff caused by a 100-year storm event. (Policy HS-2.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A9 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-A10 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-A11 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-A12 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-A13 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-A14 Restrict proposed land uses within 500 feet of the toe of any flood control levee, including but not limited to:

- Prohibit permanent unlined excavations;
- Basements or swimming pools 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-A15 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. (Policy HS-2.2)
Responsibility: County Administrator's Office
Timeframe: Ongoing

Action HS-A16 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-A17 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-A18 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-A19 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. This 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-A20 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-A21 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-A22 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-A23 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-A24 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-A25 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-A26 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-A27 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-A28 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 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
Timeframe: 2014/2015

Action HS-A29 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-A30 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-A31 Require that all residential development projects located within floodplains include a prominent deed disclosure regarding the potential flood risk to future buyers. (Policy HS-2.4)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A32 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-A33 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-A34 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-A35 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-A36 Continue to work with the Flood Control District and the City of Woodland 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
Timeframe: Ongoing

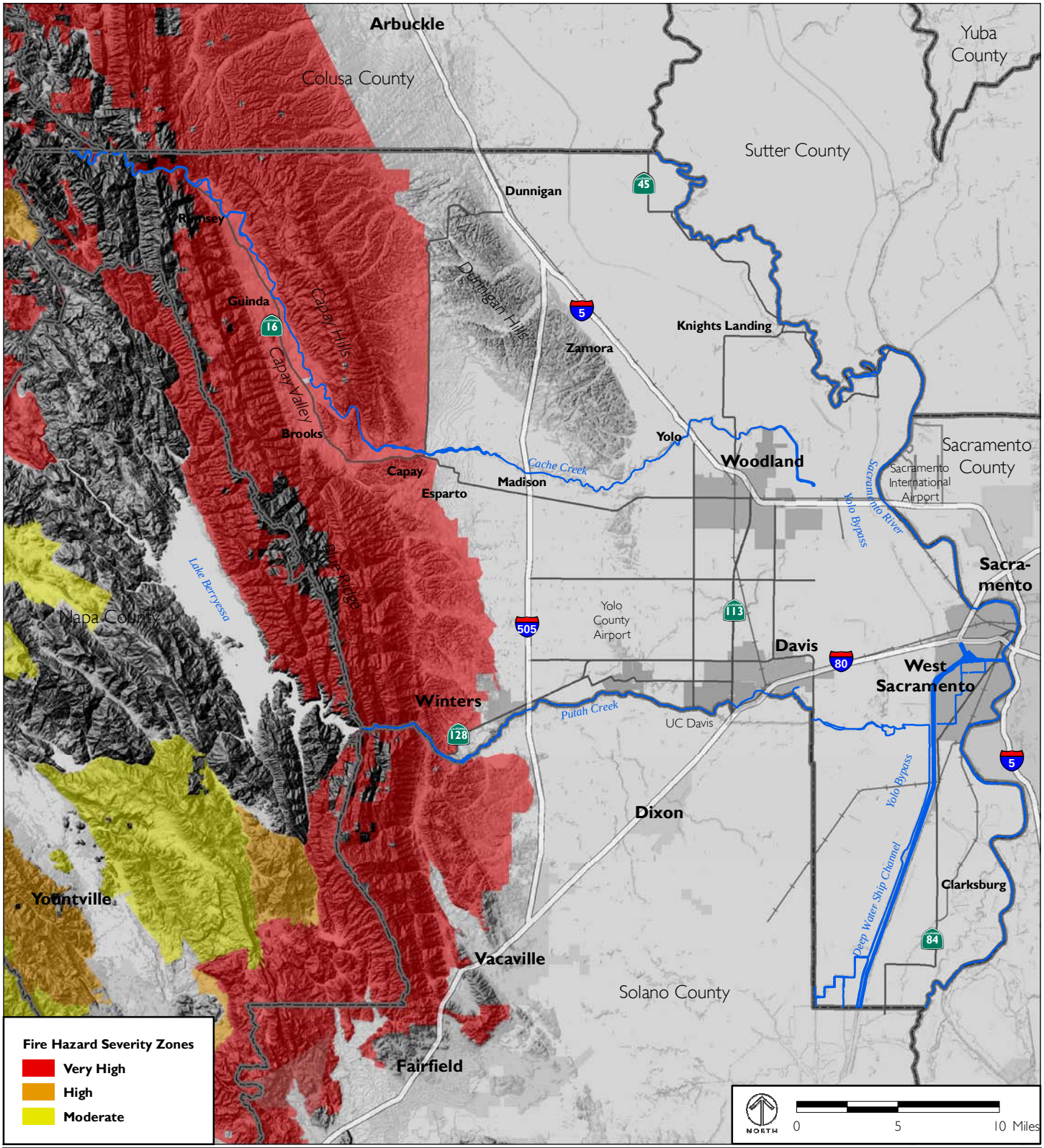
3. Wildland Fires

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 (CDF) has developed a Fire Hazard Severity Scale which 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 CDF 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 the State Department of Forestry and Fire protection (CDF). 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.



Source: CAL-Fire, 1985.

FIGURE HS-6

FIRE HAZARD SEVERITY ZONES IN STATE RESPONSIBILITY AREAS (SRA)

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	**Wildland Fires. 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.

c. Implementation Program

Action HS-A37 Require development to establish "defensible space" by providing for clearance around structures, using fire-resistant ground cover, building with fire-resistant roofing materials, and taking other appropriate measures. (Policy HS-3.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A38 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-A39 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-A40 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-A41 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-A42 Coordinate with the Clarksburg Fire District to ensure compatibility of permitted land use activities within the Delta Primary Zone with applicable properly adopted 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-A43 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-A44 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 so-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 Phase II environmental site assessments in the Esparto community. The grant funds will also be used to conduct community outreach activities.

There are no Superfund sites in the unincorporated County. The Frontier Fertilizer Company site located on County Road 32A in Davis is the only listed Superfund site within Yolo County.

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.

[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.

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	**Hazardous Materials. 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-A45 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: residential uses, hospitals and nursing/ convalescent homes, hotels and lodging, schools and daycare centers and habitat for species of concern. (Policy HS-4.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A46 New development and redevelopment in areas previously used for 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. (Policy HS-4.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HS-A47 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-A48 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-A49 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-A50 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 southwest of the City of Woodland, 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 flights all over the world. 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 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	**<u>Airport Operations</u>. 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 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.

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

[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.

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

c. Implementation Program

Action HS-A51 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
- State Route 160 (South River Road) – South from West Sacramento into Sacramento County at several cross points along the Sacramento River
- County Road 22 – West 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 Mitigation Plan (MHMP). The MHMP provides the framework for coordination with agencies and plans required for eligibility of Federal disaster assistance.

According to this plan, hazard mitigation is any sustained action taken to eliminate or reduce long-term risk to human life, property, and the environment posed by a hazard. The purpose of the MHMP is to integrate hazard mitigation strategies into the activities and programs of the local jurisdictions and special districts, and to the extent practical, into the activities of private sector organizations.

The Federal Disaster Mitigation Act of 2000 (DMA 2000), Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a mitigation plan that describes the process for identifying hazards, risks and vulnerabilities, identify and prioritize mitigation actions, encourage the development of local mitigation and provide technical support for those efforts. Section 65302.6 of the California Government Code specifies the required elements of such a plan. The adopted MHMP provides the framework for coordination with agencies and plans required for eligibility of for Federal disaster assistance, and satisfies the State requirements for content.

b. Regulatory Framework

GOAL HS-6	**Emergency Preparedness. Provide timely and effective emergency response to reduce the potential loss of life and property.**

Policy HS-6.1 Respond to catastrophic emergencies by:

- Continuing and restoring critical services.
- Maintaining order.
- Supporting evacuations.
- Distributing emergency supplies.
- Ensuring search/rescue operations and medical care.
- Saving lives and protecting property.
- Repairing and restoring essential public infrastructure.
- Mobilize the necessary resources to carry out emergency response efforts.
- Coordinating operations with other jurisdictions.
- Disseminating emergency public information.
- Establishing emergency operation centers and maintaining communications.

Policy HS-6.2 Provide continuous advance planning to anticipate potential threats and improve emergency response effectiveness.

Policy HS-6.3 Ensure the compatibility of permitted land use activities within the Delta Primary Zone with applicable properly adopted emergency preparedness policies of the Land Use and Resource Management Plan of the Delta Protection Commission.

Policy HS-6.4 Encourage adequate infrastructure and resources to provide for local food security in emergencies and to restore food system integrity and operation after an emergency.

c. Implementation Program

Action HS-A52 Develop a disaster response program to enhance the short-term and long-range recovery of affected areas, assist in the return to normal life for local residents, and expedite the reconstruction of homes, businesses, and public facilities. (Policy HS-6.1, Policy HS-6.2)

Responsibility: Office of Emergency Services
Timeframe: 2009/2010

Action HS-A53 Prepare and update emergency access/evacuation routes, including the removal of potential traffic impediments. (Policy HS-6.1, Policy HS-6.2)
Responsibility: Office of Emergency Services
Timeframe: 2009/2010

Action HS-A54 Implement the programs and procedures in the Yolo Operational Area Multi-Hazard Mitigation Plan. (Policy HS-6.1)
Responsibility: Office of Emergency Services
Timeframe: Ongoing

Action HS-A55 Conduct ongoing public outreach efforts regarding procedures and plans to be followed in the event of an emergency. (Policy HS-6.2)
Responsibility: Office of Emergency Services
Timeframe: Ongoing

Action HS-A56 Develop multiple stress scenarios on a regular basis where key evacuation routes are blocked and/or alternative communication methods are inoperable, and refine emergency response plans accordingly. (Policy HS-6.2)
Responsibility: Office of Emergency Services
Timeframe: Ongoing

Action HS-A57 Create an inventory of significant urban, rural, and natural hazards and provide standards for avoidance and/or mitigation of such hazards in an emergency. (Policy HS-6.2)
Responsibility: Office of Emergency Services
Timeframe: 2010/2011

Action HS-A58 Study the implications of climate change for future emergencies, including the increased risk and severity of fires; increased frequency and intensity of drought; expanded and deeper areas of flooding; and associated changes in disease vectors. (Policy HS-6.2)
Responsibility: Office of Emergency Services
Timeframe: Ongoing

Action HS-A59 Ensure well-organized and efficient coordination between government, health, and community emergency response agencies. (Policy HS-6.2)
Responsibility: Office of Emergency Services
Timeframe: Ongoing

D. Noise

To control noise and to protect sensitive uses from excessive noise is a concern throughout Yolo County. Although the county's rural setting and predominantly agricultural character generally afford a quieter environment, there are a number of significant sources of environmental noise, including noise associated with various modes of transportation, and industrial and agricultural operations.

1. Background Information

This section describes some of the key concepts and terms utilized in noise analysis.

a. Understanding Noise

Noise can be defined as a sound or series of sounds that are intrusive, irritating, objectionable and/or disruptive to daily life. Noise varies widely in its scope, source, and volume. For instance, noise ranges from individual occurrences, such as a lawn mower, to the intermittent disturbances of train whistles, to the fairly constant noise generated by traffic on freeways. Noise is primarily a concern when generated in the vicinity of noise-sensitive uses such as residences, schools and daycare centers, places of worship and hospitals.

The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative frequency of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness depends on the intensity of sound waves and how your ear receives them.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. These are listed in Table HS-1. The most basic unit of measurement is the decibel (dB), which is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a 10-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Generally, the human ear cannot perceive a difference between two noises that are less than three decibels different from one another.

There are several methods of characterizing sound. In California, the *A-weighted sound level* or *dBA* is commonly used. Representative outdoor and indoor noise levels in units of dBA are shown in Table HS-2. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy over an average

TABLE HS-1 **DEFINITIONS OF ACOUSTICAL TERMS**

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	Sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network, which de-emphasizes very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% (respectively) of the time during the measurement period.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level, CNEL	The Average A-weighted noise level during a 24-hour day, obtained after adding 5 decibels to measurements taken in the evening (7 to 10 pm) and 10 decibels to measurements taken between 10 pm and 7 am.
Day/Night Noise Level, L_{dn}	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: 2003 General Plan Guidelines, Governor's Office of Planning and Research.

period of one hour. This energy-equivalent sound/noise descriptor is called the Equivalent Continuous Noise Level, and is abbreviated L_{eq}.

Since the sensitivity to noise increases during the evening and at night—because excessive noise interferes with the ability to sleep—24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level (CNEL)* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm to 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm to 7:00 am) noise levels. The *Day/Night Average Sound Level (L_{dn}),* is essentially the same as CNEL, with the exception that the evening time period is grouped into the daytime period.

TABLE HS-2 **TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT**

Noise Generators (At a Given Distance from Noise Source)	A-Weighted Sound Level in Decibel	Noise Environments	Subjective Impression
Near jet engine	140		
	130		Pain threshold
	120	Rock music concert	
Auto horn (10 feet)	100		Very loud
	90	Noisy urban street	
School cafeteria	80		Moderately loud
Freeway traffic	60		
	50	Department store	
	30	Quiet bedroom	Quiet
Whisper	20		
Rustle of leaves in wind	10		
	0		Threshold of hearing

Source: U.S. Department of Housing and Urban Development, Noise Guidebook, Washington D.C., page 1.

b. Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors:

- **Geometric Spreading.** Geometric spreading is the effect of noise attenuation (reduction) based on whether a noise comes from a single localized source (a point source), or occurs over a distance, such as in the case of highway noise.
- **Ground Absorption.** Ground absorption occurs when the noise path is close to the ground, as it is in the case of highway noise, and the nature of the ground surface has a significant effect on the amount of noise reflected. In particular, hard surfaces and smooth water bodies reflect more noise than soft surfaces such as dirt, grass, or low vegetation.
- **Atmospheric Effects**. Atmospheric conditions can have a significant effect on noise propagation. Wind has been shown to be the most important meteorological factor within approximately 500 feet of the source, whereas vertical changes in air-temperature are more important for greater distances. Other factors, such as humidity and turbulence, also have significant effects.

- **Shielding**. Large objects or barriers in the path between a noise source and a receiver can substantially lower noise levels at the receiver. Natural features, such as hills or other terrain features, and man-made features, such as walls or berms, contribute to shielding. Although the amount of reduction varies depending on the size of the object and the frequency content of the noise source, a barrier that breaks the line of sight between a source and a receiver will typically result in a decrease of at least 5 dBs, and a taller barrier may provide as much as a 20 dB decrease in noise.

c. State Regulations

California's noise insulation standards became effective in 1974. In 1988, the Building Standards Commission approved revisions to these standards (Title 24, Part 2, California Code of Regulations). The ruling states, "Interior noise levels attributable to exterior sources shall not exceed 45 dBA in any habitable room. The noise metric shall be measured in either CNEL or L_{dn}, consistent with the noise element of the local General Plan." Additionally, the commission specifies that residential buildings or structures proposed to be located within exterior L_{dn} contours of 60 dBA or greater, generated by an existing or planned freeway, expressway, parkway, major street, thoroughfare, rail line, rapid transit line or industrial noise source, shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior L_{dn} of 45 dBA.

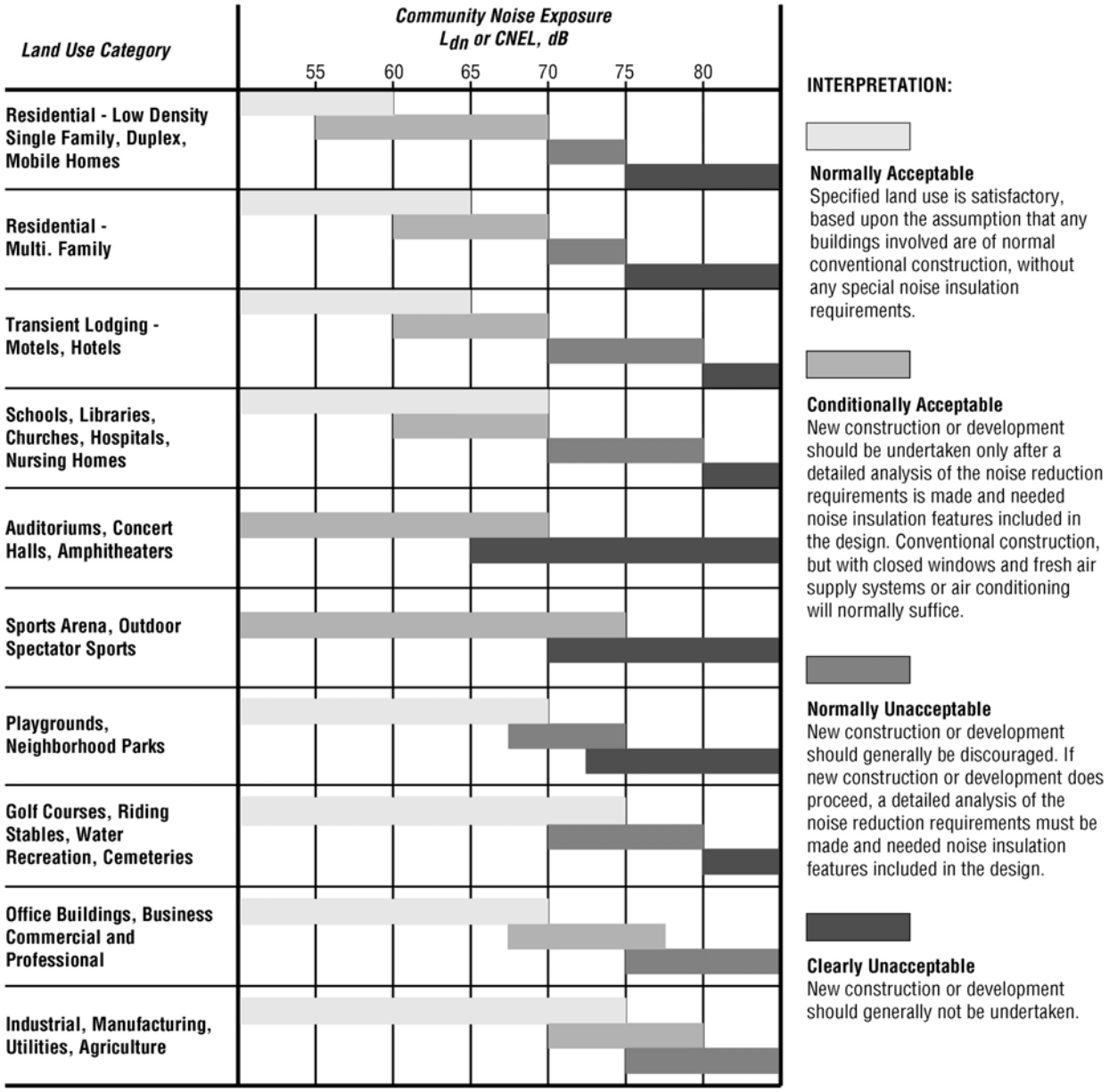
The State Office of Noise Control has developed guidelines showing the compatibility of a range of noise levels for various land use categories. The noise standards are intended to provide guidelines for the development of noise elements. These basic guidelines may be tailored to reflect the existing noise and land use characteristics of a particular community.

d. Exterior Noise Standards

The Noise Compatibility Guidelines in Figure HS-7 describes the exterior noise standards (excluding airport noise sources which are addressed later in this element) recommended by the State for new development projects according to land use. The guidelines define noise in terms of L_{dn} expressed in decibel units, with outdoor L_{dn} described by four primary categories: normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. Where the chart shows overlapping L_{dn} ranges for two or more compatibility categories, local conditions should be considered in evaluating land use compatibility at specific locations.

The noise compatibility matrix is to be used as a guideline to achieve long-term noise compatibility for land uses in the unincorporated county. These guidelines assist in determining the compatibility of various land uses within a certain noise environment, and for the location of development and transportation system projects that may impact existing uses.

Figure HS-7 Noise Compatibility Guidelines



Source: 2003 General Plan Guidelines, Governor's Office of Planning and Research.

The standards identified are consistent with the State Office of Noise Control Guidelines and California State Noise Insulation Standards.[5]

e. Interior Noise Standards

California's noise insulation standards were officially adopted by the California Commission of Housing and Community Development in 1974 and became effective in August 1974. In November 1988, the Building Standards Commission approved revisions to these standards (Title 24, Part 2, California Code of Regulations). The ruling states, "Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be measured in either CNEL or L_{dn}, consistent with the noise element of the local General Plan."

Additionally, the commission specifies that residential buildings or structures to be located within exterior L_{dn} contours of 60 dBA or greater of an existing or adopted freeway, expressway, parkway, major street, thoroughfare, rail line, rapid transit line or industrial noise source shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior L_{dn} of 45 dB.

2. Existing Noise Environment

Before developing an effective noise program, it is important to understand the nature and extent of local noise problems, including the locations of major noise sources, sensitive uses which might be affected by noise, and current levels of noise exposure. This information can be used by the County to develop measures to avoid or mitigate noise exposure to the extent feasible.

Existing noise conditions in Yolo County were assessed as part of the General Plan update, in order to document existing noise sources, and, to the extent possible, quantify noise from these sources. The dominant sources of noise in Yolo County are mobile, related to automobile and truck traffic, aircraft and train transportation. Stationary sources in the county include farming activities, mining activities, commercial and industrial facilities, and construction sites.

3. Mobile Noise Sources

Mobile noise sources generally include those associated with various modes of transportation, including roadway traffic, trains, and aircraft operations.

a. Roadway Traffic

The County has eight highways and a number of arterials and major streets. As required by State law, existing noise levels on these roadways have been assessed using traffic noise modeling based on existing traffic volumes and the FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108), the standard model recommended by the FHWA and Caltrans for traffic noise prediction.

[5] These standards are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A.

Table HS-3 provides a summary of traffic noise modeling results for the freeways and highways in the County, based on existing traffic conditions, which consider allowed vehicle speeds, and average daily traffic volumes. As shown in the table, noise volumes are highest along the most heavily traveled roadways, particularly the State and Interstate highways.

- **Interstate 80**. Interstate 80, which traverses a portion of the county from Davis to the Sacramento County line, is the major source of roadway noise in Yolo County. Noise levels along Interstate 80 range from 73 to 75 dBA L_{dn} at 100 feet from the road centerline.
- **Interstate 5.** Interstate 5 travels through eastern Yolo County. Noise levels along Interstate 5 at 100 feet from the road centerline of Interstate 5 range from 65 to 70 dBA L_{dn}, with the highest noise levels along roadway segments closest to the Sacramento County line.
- **Interstate 505**. Interstate 505 is also a major source of roadway noise. Noise levels at 100 feet from the roadway centerline range between 61 and 64 dBA L_{dn}. The segment near Winters experiences the highest volumes of traffic and levels of roadway noise along Interstate 505.
- **Highway 113.** Highway 113 provides a key north-south connection from Davis to Woodland, and north to Knights Landing. Along its most heavily traveled southern portions, noise levels at 100 feet from the roadway centerline are 54 to 70 dBA L_{dn}, with the noisiest segments found close to the Solano County line.
- **Highway 16.** Highway 16 provides the major connection from Interstate 5 through Woodland, and northwest through the Capay Valley. Noise levels at 100 feet from the roadway centerline range from 63 to 65 dBA $L_{dn.}$ The highest noise levels along the roadway are generally found on segments west of Interstate 505.
- **Highway 128.** Highway 128 connects from the Napa County line west through Winters to Interstate 505. Noise levels at 100 feet from the roadway centerline vary from 62 to 63 dBA $L_{dn,}$ with highest volumes found to the immediate east of the Interstate 505 interchange.
- **Highway 84.** Highway 84 connects West Sacramento to the Clarksburg Area. The more southerly portions of the highway see much lower traffic volumes than in West Sacramento and noise levels are correspondingly lower, at an estimated 57 dBA L_{dn} at 100 feet from the roadway centerline.
- **Highway 45.** Highway 45 branches off from Highway 113 in Knights Landing and parallels Highway 5 in northern Yolo County. The southern section of this highway between Country Road 108 and Country Road 98A experiences traffic noise levels at 100 feet from the centerline of up to 54 dBA $L_{dn.}$

In addition to these routes, a number of County roads are heavily traveled and generate relatively high noise levels along some or all of their length. Table HS-4 provides a summary of traffic noise modeling results for the County roads, based on existing traffic conditions, which consider allowed vehicle speeds, and average daily traffic volumes. As shown in the table, County roads with noise levels greater than 60 L_{dn} include County Road 98, which parallels Highway 113 to the west, between Davis and

TABLE HS-3 **EXISTING HIGHWAY TRAFFIC NOISE LEVELS**

Roadway	ADT[a]	L_{dn}[b] (dBA) 100 feet from Centerline	Centerline to 70 L_{dn} (feet)	Centerline to 65 L_{dn} (feet)	Centerline to 60 L_{dn} (feet)
Interstate 80					
West Sacramento to Davis	55,400	74.5	189	402	864
Davis to Solano County Line	44,200	73.5	164	347	743
Interstate 5					
Sacramento County Line to Woodland	21,100	70.0	101	212	455
Woodland to County Road 17	12,200	67.7	72	148	316
County Road 17 to Interstate 505	7,700	65.7	< 50	110	233
Interstate 506 to Colusa County Line	10,400	67.0	66	134	284
Interstate 505					
Solano County Line to Highway 16	4,900	63.7	< 50	83	173
Highway 16 to Interstate 5	3,000	61.6	< 50	62	126
Highway 113					
Solano County Line to County Road 27	22,700	70.3	105	223	477
County Road 27 to Woodland	15,300	68.6	83	172	367
Woodland to County Road 17	3,200	61.8	< 50	65	131
County Road 17 to County Road 13	900	54.3	< 50	< 50	< 50
County Road 13 to Sutter County Line	1,500	56.5	< 50	< 50	59
Highway 16					
Woodland to County Road 94B	10,000	64.8	< 50	97	208
County Road 94B to Interstate 505	9,700	64.6	< 50	95	204
Interstate 505 to County Road 87	8,400	64.0	< 50	86	185
County Road 85B to County Road 78	6,700	63.0	< 50	74	160
Highway 128					
Interstate 505 to Winters	9,300	62.3	< 50	66	142
Winters to County Road 86	7,000	63.2	< 50	76	164
Highway 84					
Clarksburg Road to West Sacramento	1,600	56.8	< 50	< 50	62
West Sacramento to Business Interstate 80	18,900	67.5	69	148	318
Business Interstate 80 to Interstate 80	14,700	66.4	58	125	269
Highway 45					
County Road 108 to County Road 98A	800	53.8	< 50	< 50	< 50

[a] Average Daily Traffic.
[b] The 24 hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Source: LSA Associates, Inc., August 2008.

TABLE HS-4 **EXISTING COUNTY ROADWAY TRAFFIC NOISE LEVELS**

Roadway Segment	ADT [a]	L_{dn} [b] (dBA) 100 feet from Centerline	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)
County Road 85 - Highway 16 to County Road 14	400	48.6	< 50	< 50	< 50
County Road 85 - County Road 14 to County Road 8	100	42.6	< 50	< 50	< 50
County Road 87 - Highway 16 to County Road 19	200	45.6	< 50	< 50	< 50
County Road 88 - County Road 29A to County Road 27	1,100	53.0	< 50	< 50	< 50
County Road 88 - County Road 27 to County Road 24	1,300	53.7	< 50	< 50	< 50
County Road 88 - County Road 24 to Highway 16	1,000	52.6	< 50	< 50	< 50
County Road 94B - Highway 16 to County Road 19	600	50.4	< 50	< 50	< 50
County Road 98 - Solano County to County Road 31	2,400	56.4	< 50	< 50	58
County Road 98 - County Road 31 to County Road 29	3,300	57.8	< 50	< 50	71
County Road 98 - County Road 29 to County Road 27	4,000	58.6	< 50	< 50	81
County Road 98 - County Road 27 to County Road 24	5,200	59.7	< 50	< 50	97
County Road 98 - County Road 24 to Highway 16	7,800	61.5	< 50	59	126
County Road 98 - Highway 16 to Interstate 5	4,600	59.2	< 50	< 50	89
County Road 99 - West Covell Boulevard to County Road 27	1,800	55.1	< 50	< 50	< 50
County Road 99 - County Road 27 to Woodland	3,100	57.5	< 50	< 50	68
County Road 101A - West Covell Boulevard to County Road 29	2,400	56.4	< 50	< 50	58
County Road 102 - East Covell Boulevard to County Road 28H	6,500	60.7	< 50	52	112
County Road 102 - County Road 28H to County Road 27	5,600	60.1	< 50	< 50	101
County Road 102 - County Road 27 to Interstate 5	11,900	63.3	< 50	78	167
County Road 102 - Interstate 5 to County Road 17	4,900	59.5	< 50	< 50	93
County Road 102 - County Road 17 to County Road 13	6,100	60.4	< 50	< 50	107
County Road 105 - County Road 32A to County Road 28H	600	50.4	< 50	< 50	< 50
Old River Road - County Road 127 to County Road 22	3,900	58.5	< 50	< 50	80
Russell Boulevard - Interstate 505 to County Road 93A	4,400	59.0	< 50	< 50	86

TABLE HS-4 **EXISTING COUNTY ROADWAY TRAFFIC NOISE LEVELS** (CONTINUED)

Roadway Segment	ADT [a]	L_{dn} [b] (dBA) 100 feet from Centerline	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)
County Road 31 - County Road 93A to County Road 96	3,900	58.5	< 50	< 50	80
County Road 31 - County Road 96 to County Road 98	4,900	59.5	< 50	< 50	93
County Road 29A - Interstate 505 to County Road 95	300	47.3	< 50	< 50	< 50
County Road 29 - County Road 95 to County Road 98	600	50.4	< 50	< 50	< 50
County Road 29 - Highway 113 to County Road 102	400	48.6	< 50	< 50	< 50
County Road 28H - County Road 102 to County Road 105	700	51.0	< 50	< 50	< 50
County Road 27 - Interstate 505 to County Road 96	900	52.1	< 50	< 50	< 50
County Road 27 - County Road 96 to County Road 98	1,100	53.0	< 50	< 50	< 50
County Road 27 - County Road 98 to Highway 113	1,700	54.9	< 50	< 50	< 50
County Road 24 - Interstate 505 to County Road 95	800	51.6	< 50	< 50	< 50
County Road 24 - County Road 95 to County Road 98	2,100	55.8	< 50	< 50	53
County Road 23 - County Road 85B to County Road 89	1,100	53.0	< 50	< 50	< 50
County Road 19 - County Road 87 to Interstate 505	700	51.0	< 50	< 50	< 50
County Road 19 - Interstate 505 to County Road 94B	600	50.4	< 50	< 50	< 50
County Road 16A - County Road 98 to Highway 113	300	47.3	< 50	< 50	< 50
County Road 17 - Highway 113 to County Road 102	1,100	53.0	< 50	< 50	< 50
County Road 14 - County Road 85 to County Road 90A	400	48.6	< 50	< 50	< 50
County Road 14 - County Road 90A to Interstate 5	900	52.1	< 50	< 50	< 50
County Road 13 - Interstate 5 to Highway 113	1,100	53.0	< 50	< 50	< 50
County Road 12A - County Road 85 to Interstate 505	100	42.6	< 50	< 50	< 50
County Road 12A - Interstate 505 to Interstate 5	100	42.6	< 50	< 50	< 50

[a] Average Daily Traffic.
[b] The 24 hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Source: LSA Associates, Inc., August 2008.

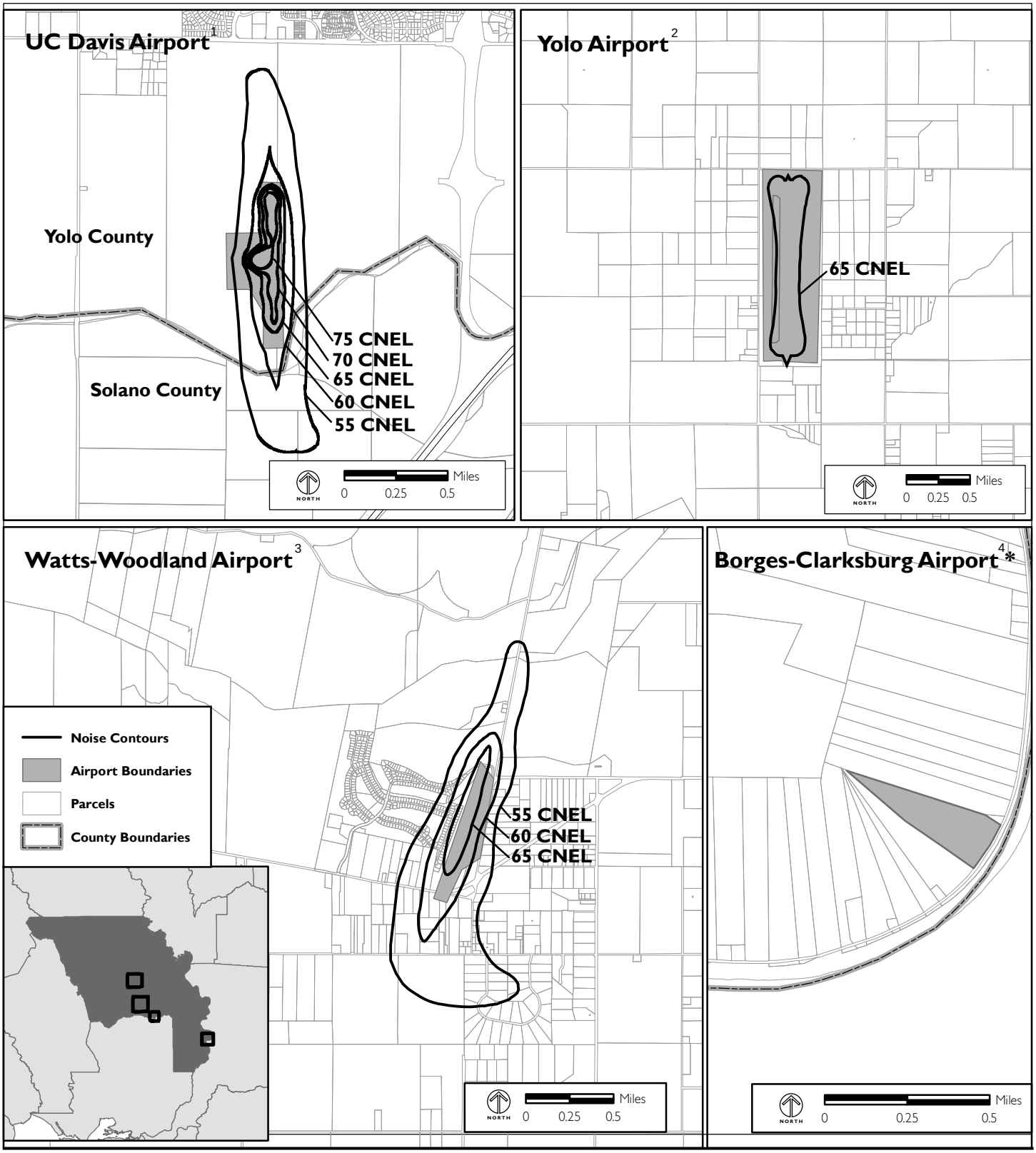
Woodland, and County Road 102, which parallels Highway 113 to the east, connecting Davis and Knights Landing. Based on existing traffic volumes, all other roadway segments within Yolo County that are shown in the Circulation Element of this General Plan have existing traffic noise levels well below 60 dBA L_{dn} at 100 feet from the roadway centerline.

b. Aircraft

Aircraft operations in the vicinity of airports can be a significant source of noise. There are four airports located within the county, as shown in Figures HS-8 and HS-9. In addition, Sacramento International Airport is situated outside of Yolo County, but generates noise that affects county lands.

- Yolo County Airport is owned by Yolo County and serves Davis, Woodland, Winters and the wider county area. The facility is located about 6 miles from Davis, Woodland and Winters. Noise contours for the Yolo County Airport are depicted in Figure HS-8.
- Watts-Woodland Airport is a privately-owned aviation facility located west of Woodland. Noise contours for the Watts-Woodland Airport are depicted in Figure HS-8.
- University Airport is owned by the University of California and serves Davis and Yolo County. The facility is located about two miles south of the City of Davis. Noise contours for the University Airport are depicted in Figure HS-8.
- Borges-Clarksburg Airport is a privately-owned airport just north of Clarksburg. According to airport staff, airplane activity is variable, but typically very minimal, averaging one aircraft operation a day. This airport has no affect on County property, as the 65 CNEL line lies within the privately-owned property. A map of the Borges-Clarksburg Airport property is shown in Figure HS-8.
- Sacramento International Airport is a large, commercial airport located just west of the Yolo County line, providing hundreds of daily domestic and international departures. Although located in Sacramento County, noise from the operation of this airport does affect Yolo County. The approximate area of affect is illustrated in Figure HS-9.

As indicated earlier in this element, the Sacramento Area Council of Governments has been designated the Airport Land Use Commission (ALUC) for the counties of Sacramento, Sutter, Yolo, and Yuba. SACOG has prepared a Comprehensive Land Use Plan (CLUP) for the Sacramento International Airport, Yolo County Airport, Watts-Woodland Airport, and Borges-Clarksburg Airport. The University Airport is required to have an Airport Layout Plan (ALP) which has been prepared by UCD. The purpose of these plans 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 per the Airport Land Use Commission Law.

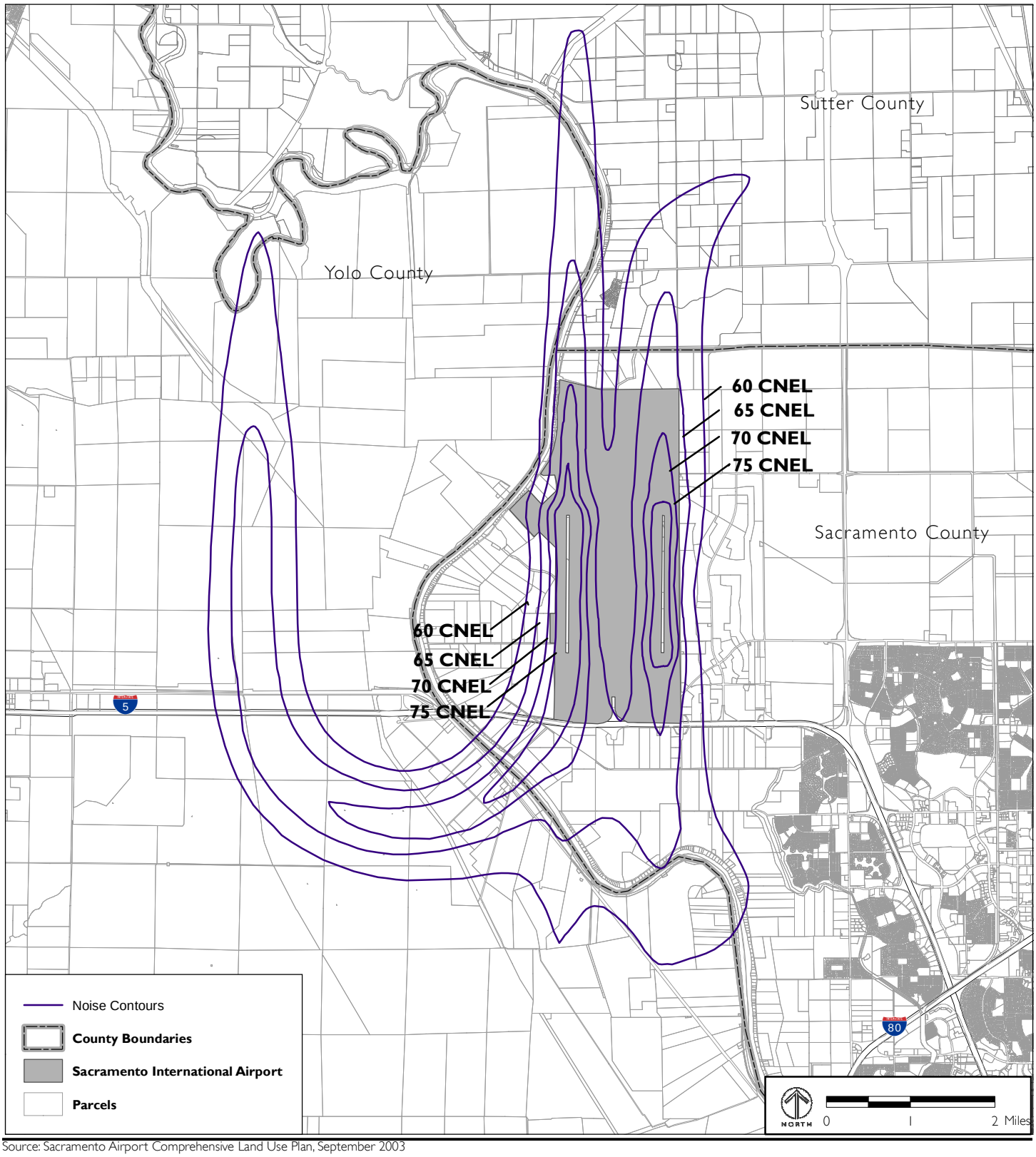


* No noise contours currently exist for the Borges-Clarksburg Airport

Sources:
1 UC Davis Long Range Development Plan 2003-2015 Final EIR, October 2003
2 Yolo County Airport Comprehensive Land Use Plan, November 1998
3 Watts-Woodland Airport Comprehensive Land Use Plan, September 2003
4 Borges-Clarksburg Airport Comprehensive Land Use Plan, April 1994

FIGURE HS-8

LOCAL AIRPORT CURRENT NOISE CONTOURS



Source: Sacramento Airport Comprehensive Land Use Plan, September 2003

FIGURE HS-9

SACRAMENTO INTERNATIONAL AIRPORT CURRENT NOISE CONTOURS

c. Trains

Yolo County has three active rail lines, one of which, the Union Pacific Railroad line, carries both freight and passenger trains. The train noise contours were calculated following Federal Transportation Administration guidelines: *Transit Noise and Vibration Impact Assessment,* 2006 and are summarized in Table HS-5.

TABLE HS-5 **TRAIN NOISE CONTOURS**

Line	$65L_{dn}$[a] (dBA)
Union Pacific	930
California Northern	11
Sacramento River Train	10

[a] Distance from the center of rail line to the $65L_{dn}$ noise contour.

- **Union Pacific Railroad (UPRR).** The UPRR maintains a rail line that runs through Yolo County from West Sacramento to Davis. The rail line carries both freight trains and Amtrak passenger trains. According to Union Pacific personnel, 35 daily freight train passages typically occur on the line. Freight train lengths vary widely, from as few as four to as many as 120 rail cars and from two to eight locomotives, operating at an average speed of 70 miles per hour.

  Amtrak passenger rail service also uses the UPRR rail line. An average of 21 daily eastbound trains and 21 daily westbound trains utilize the line. Each train typically uses four rail cars and one locomotive per train, traveling an average speed of 79 miles per hour.

  Assuming the worst case of 35 daily freight trains, each with eight locomotives and 120 cars traveling at 70 miles per hour, and assuming the worst case of 42 daily passenger trains, each with one locomotive and four cars traveling at 79 miles per hour, the estimated combined railroad noise levels at 100 feet from the railroad centerline is approximately 89 dBA L_{dn}. The estimated distance to the 65 L_{dn} contour is 930 feet for this worst case condition for freight and passenger train operations on this rail line.

- **California Northern Railroad Company.** The California Northern rail line is a freight line that runs through Davis and Woodland, and along Interstate 5 past Dunnigan. The freight line schedule varies depending on seasonal demands. The rail line carries an average of two trains daily, using between one and 50 rail cars and one or two locomotives, traveling at an average speed of 15 mile per hour. The estimated railroad noise level at 100 feet from the railroad centerline is approximately 45 dBA L_{dn}. The estimated distance to the $65L_{dn}$ contour is 11 feet from the rail line.

- **Sacramento River Train.** The Sacramento River Train is operated by the Sierra Northern Railroad Company as an entertainment passenger train that runs from Woodland to West Sacramento. According to Sierra Northern Railroad personnel, typically one round trip runs per day. The trains typically have between two and 25 rail cars with one or two locomotives, traveling at an average speed estimated at 15 miles per hour.[6] Assuming the worst case of two daily train bypasses, each with 25

[6] David Magaw, President, Sierra Northern Railway. Personal Communication with Jones and Stokes, October 12, 2004.

cars and two locomotive traveling at 15 miles per hour, the estimated railroad noise levels at 100 feet from the railroad centerline is approximately 44 dBA L_{dn}. The estimated distance to the 65L_{dn} contour is 10 feet from the rail line.

4. Stationary Noise Sources

Stationary noise sources generally include those associated with stationary (non-mobile) operations such as farming, mining, industry and food processing, and construction.

a. Farming Activities

The primary sources of noise related to farming activity in Yolo County are nighttime diesel pump operations, nighttime harvesting, crop-dusting aircraft, and bird deflection devices. Typical noise levels from tractors as measured at a distance of 50 feet range from about 78 dBA to 106 dBA L_{max}, with an average of about 84 dBA L_{max}. These noise levels are considered to be reasonably representative of noise levels from other wheeled and tracked farm equipment.[7]

b. Mining Activities

Mining activities in Yolo County mostly comprise sand and gravel extraction operations, and are limited to locations along the Cache Creek corridor that are generally isolated from residential development and other sensitive land uses.

Primary noise sources associated with mining activities include heavy equipment operations for material extraction, processing activities and material trucking. Table HS-6 provides a summary of typical noise level produced by common mining operations, although the actual noise generated from mining activities will vary based on the type and intensity of the operations.

The Off Channel Mining Plan (OCMP) establishes the following noise standards:

- 80 dBA-L_{eq} at property boundaries (6:00 a.m. to 6:00 p.m.)
- 60 dBA-L_{eq} at off-site residences or noise-sensitive uses (6:00 a.m. to 6:00 p.m.)
- 65 dBA-L_{eq} at property boundaries (6:00 p.m. to 6:00 a.m.)

Five mining locations in the County were monitored for noise. The locations and the results are shown in Tables HS-7 and HS-8. All five locations were monitored during their daytime operations, primarily within or near to the property boundaries. Each operation was found to be within the 80 dBA-L_{eq} standard set out by the OCMP.

c. Other Commercial/Industrial Facilities and Plants

Food processing, winery, olive oil processing, and other commercial/industrial facilities are also a source of noise in the County. Mechanical equipment and trucking are the primary sources of noise associated with these facilities. Associated trucking trips on County roads are accounted for in the traffic noise analysis.

[7] Bolt, Beranek & Newman, 1987. *Noise Control for Buildings and Manufacturing Plants*.

TABLE HS-6 **NOISE PRODUCED BY TYPICAL MINING OPERATIONS AT 500 FEET**

Activity	Range of Maximum Sound Levels (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)	L50
Loading and Batching	80 to 85	83	58
Rock Plant Operations	87 to 103	98	67
Excavator/Haul Truck	83 to 94	88	50
Scrapers	83 to 91	87	60

Source: Bolt, Beranek & Newman, 1987. *Noise Control for Buildings and Manufacturing Plants.*

Seven facilities of this type were monitored for noise during their daytime operations. The locations and the results are shown in Tables HS-7 and HS-8.

d. Construction

Two types of short-term noise are emitted during construction. First, construction crew commutes and the transport of construction equipment and materials to construction sites would incrementally increase noise levels on access roads leading to the sites. Although there would be a relatively high single event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 feet would generate up to a maximum of 86 dBA L_{max}), the effect on longer term (hourly or daily) ambient noise levels would be minimal. Second, noise would be generated during excavation, grading, and erection of buildings. Construction typically occurs in discrete steps, each of which has a distinctive mix of equipment and, consequently, distinctive noise characteristics. These various sequential phases would change the character of the noise generated on each site and, therefore, the noise levels surrounding these sites as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table HS-9 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

5. Future Noise Environment

a. Mobile Noise Sources

i. Roadway Traffic

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate future traffic-related noise conditions on highways and major roadways throughout the County. The resultant noise levels were weighed and summed over a 24-hour period in order to determine the L_{dn} values. The future average daily traffic (ADT) volumes for roadway segments in the project vicinity were used in the traffic noise impact analysis with the modeled receiver located 100 feet from the roadway

TABLE HS-7 **SHORT-TERM AMBIENT NOISE MONITORING LOCATIONS AND PRIMARY NOISE SOURCES**

Site Number	Facility	Monitoring Location	Primary Noise Sources
1	RH Phillips - (winery) 26800-44 County Road 12A	18 ft east of parking lot entrance, 22 ft west of steam boilers	Compressor, steam boilers
2	Granite - Esparto (sand and gravel mine), 15560 County Road 87	142 ft southeast of rock plant	Rock plant operations, bull dozer
3	Teichert - Esparto (sand and gravel mine), 27940-44 County Road 19A	39 ft south of end of parking lot, 54 ft northeast of machinery	Gravel equipment/ machinery
4	Cemex - Madison (sand and gravel mine), 30288 State Route 16	36 ft southwest of asphalt loading ramp, 98 ft south of asphalt plant	Asphalt plant (rock plant not in operation)
5	Syar - Madison (sand and gravel mine) – 16560 County Road 89	65 ft southeast of sand plan, 92 ft south of gravel plant	Sand plant, soft gravel plant, occasional trucks/loaders/scrapers
6	Mariani – Winters (ag-ricultural processing), 30455 County Road 31	82 ft southwest of transporting tunnel, 96 ft southeast of warehouse & cylinder processors	Processing at warehouse & materials moving through tunnels
7	Teichert - Woodland (sand and gravel mine), 35460-68 County Road 20	62 ft southwest of rock plant, 122 ft south of sand plant	Rock & sand plant operations
8	Pirmi - Woodland (rice mill), 854 Kentucky Avenue	27 ft south of Tank 51, 42 ft east of Tank 8, 82 ft southeast of Pit 4	Operations in Pit 4, processing
9	Syar - Woodland (batch plant), 39820 Kentucky Avenue	96 ft west of fuel tanks, 46 ft northwest of batch plant	Batch plant operations, on-site trucks
10	Medland Field Airport - Davis (crop duster private airport), 41155-71 County Road 27	48 ft north of driveway, 4 ft east of end of runway	Maintenance operations in hangar, on-site trucks
11	County Landfill - Davis (solid waste disposal), 44082-90 County Road 28H	144 ft north of landfill	Equipment operating in landfill, trucks
12	Clark Pacific[a] - Woodland (concrete plant), 40600 County Road 18C	100 ft from batch plant	Batch plant operation, concrete transfer trucks, vibrators, forklifts, grinders

[a] This noise monitoring data taken from *Initial Study/Mitigated Negative Declaration Zone File #2007-078, Clark Precast, LLC's "Sugarland" Project*. February 22, 2008.
Source: LSA Associates, Inc., 2008.

TABLE HS-8 **SHORT-TERM AMBIENT NOISE MONITORING RESULTS**[a]

Site Number	Date	Start Time	dBA L_{eq}	dBA L_{max}	dBA L_{min}
1	8/19/08	9:00 a.m.	66.3	82.7	62.4
2	8/19/08	9:55 a.m.	59.5	76.5	53.0
3	8/19/08	10:55 a.m.	71.2	77.1	68.3
4	8/19/08	12:05 p.m.	78.3	89.9	67.0
5	8/19/08	12:55 p.m.	74.0	85.7	54.0
6	8/19/08	1:45 p.m.	75.5	87.2	55.5
7	8/20/08	10:20 a.m.	76.6	79.3	73.7
8	8/20/08	11:05 a.m.	82.0	86.7	74.4
9	8/20/08	11:40 a.m.	64.5	82.4	61.2
10	8/20/08	12:55 p.m.	56.2	72.8	36.2
11	8/20/08	1:28 p.m.	75.2	91.2	64.1
12	11/15/07	24 hr	75 L_{dn}[b]	ND[c]	ND[c]

[a] This noise monitoring data taken from *Initial Study/Mitigated Negative Declaration Zone File #2007-078, Clark Precast, LLC's "Sugarland" Project*. February 22, 2008.
[b] L_{dn} is the 24-hour A-weighted average sound level, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
[c] ND = No Data available.
Source: LSA Associates, Inc., 2008.

centerline. The projected noise levels for highway traffic in the horizon year of 2030 are summarized in Table HS-10 and for major roadways are summarized in Table HS-11.

- **Interstate 80**. Interstate 80, which traverses a portion of the county from Davis to the Sacramento County line, is projected to continue as the major source of roadway noise in Yolo County. Noise levels along Interstate 80 range from 74 to 75 dBA L_{dn} at 100 feet from the road centerline.
- **Interstate 5.** Interstate 5 travels through eastern Yolo County. Noise levels along Interstate 5 at 100 feet from the road centerline of Interstate 5 will range from 71 to 73 dBA L_{dn}, with the highest noise levels along roadway segments closest to the Sacramento County line.
- **Interstate 505**. Interstate 505 will continue to be a major source of roadway noise. Noise levels at 100 feet from the roadway centerline will range between 68 and 69 dBA L_{dn}. The segment near Winters experiences the highest volumes of traffic and levels of roadway noise along Interstate 505.

TABLE HS-9 **TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS**

Type of Equipment	Range of Maximum Sound Levels (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	68 to 80	77
Scrapers	83 to 91	87
Haul Trucks	83 to 94	88
Electric Saws	66 to 72	70
Portable Generators	71 to 87	80
Rollers	75 to 82	80
Dozers	85 to 90	88
Tractors	77 to 82	80
Front-End Loaders	86 to 90	88
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	85
Air Compressors	76 to 89	85
Trucks	81 to 87	85

Source: Bolt, Beranek & Newman, 1987. *Noise Control for Buildings and Manufacturing Plants.*

- **Highway 113.** Highway 113 provides a key north-south connection from Davis to Woodland, and north to Knights Landing. Its heavily traveled southern portions are expected to continue to be the greatest source of noise, with noise levels at 100 feet from the roadway centerline are 61 to 71 dBA L_{dn}. The noisiest segments will found close to the Solano County line.
- **Highway 16.** Highway 16 provides the major connection from Interstate 5 through Woodland, and northwest through the Capay Valley. Noise levels at 100 feet from the roadway centerline will range from 66 to 70 dBA $L_{dn.}$ The highest noise levels will continue to be generally found on segments west of Interstate 505.
- **Highway 128.** Highway 128 connects from the Napa County line west through Winters to Interstate 505. Noise levels at 100 feet from the roadway centerline vary from 62 to 63 dBA $L_{dn,}$ with highest volumes found to the immediate east of the Interstate 505 interchange.

TABLE HS-10 **FUTURE HIGHWAY TRAFFIC NOISE LEVELS**

Roadway	ADT[a]	L_{dn}[b] (dBA)	Centerline to 70 L_{dn} (feet)	Centerline to 65 L_{dn} (feet)	Centerline to 60 L_{dn} (feet)
Interstate 80					
West Sacramento to Davis	66,900	75.3	214	456	979
Davis to Solano County Line	56,000	74.5	191	405	870
Interstate 5					
Sacramento County Line to Woodland	43,700	73.2	161	343	738
Woodland to County Road 17	30,600	71.6	128	271	582
County Road 17 to Interstate 505	27,700	71.2	120	254	545
Interstate 506 to Colusa County Line	41,300	72.9	155	331	711
Interstate 505					
Solano County Line to Highway 16	15,700	68.7	84	175	374
Highway 16 to Interstate 5	13,800	68.2	78	161	343
Highway 113					
Solano County Line to County Road 27	27,100	71.1	118	250	537
County Road 27 to Woodland	26,400	71.0	116	246	528
Woodland to County Road 17	15,300	68.6	83	172	367
County Road 17 to County Road 13	4,900	61.7	< 50	60	130
County Road 13 to Sutter County Line	9,800	64.7	< 50	96	205
Highway 16					
Woodland to County Road 94B	15,600	66.7	61	130	280
County Road 94B to Interstate 505	12,700	65.8	53	113	244
Interstate 505 to County Road 87	31,100	69.7	96	206	444
County Road 85B to County Road 78	20,200	67.8	72	155	333
Highway 128					
Interstate 505 to Winters	12,900	63.7	< 50	82	177
Winters to County Road 86	9,800	64.7	< 50	96	205
Highway 84					
Clarksburg Road to West Sacramento	3,700	60.4	< 50	< 50	107
West Sacramento to Business Interstate 80	35,000	70.2	104	223	480
Business Interstate 80 to Interstate 80	28,600	69.3	91	195	419
Highway 45					
County Road 108 to County Road 98A	1,300	55.9	< 50	< 50	54

[a] Average Daily Traffic.
[b] The 24 hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Source: LSA Associates, Inc., August 2008.

TABLE HS-11 **FUTURE COUNTY ROADWAY TRAFFIC NOISE LEVELS**

Roadway Segment	ADT [a]	L_{dn} [b] (dBA) 100 feet from Centerline	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)
County Road 85 - Highway 16 to County Road 14	1,800	55.1	< 50	< 50	< 50
County Road 85 - County Road 14 to County Road 8	1,200	53.4	< 50	< 50	< 50
County Road 87 - Highway 16 to County Road 19	1,300	53.7	< 50	< 50	< 50
County Road 88 - County Road 29A to County Road 27	8,400	61.8	< 50	62	133
County Road 88 - County Road 27 to County Road 24	11,100	63.0	< 50	74	160
County Road 88 - County Road 24 to Highway 16	7,900	61.5	< 50	59	127
County Road 94B - Highway 16 to County Road 19	1,100	53.0	< 50	< 50	< 50
County Road 98 - Solano County to County Road 31	4,300	58.9	< 50	< 50	85
County Road 98 - County Road 31 to County Road 29	6,300	60.6	< 50	51	110
County Road 98 - County Road 29 to County Road 27	7,200	61.1	< 50	56	120
County Road 98 - County Road 27 to County Road 24	7,600	61.4	< 50	58	124
County Road 98 - County Road 24 to Highway 16	9,200	62.2	< 50	66	141
County Road 98 - Highway 16 to Interstate 5	8,600	61.9	< 50	63	135
County Road 99 - West Covell Boulevard to County Road 27	1,900	55.4	< 50	< 50	< 50
County Road 99 - County Road 27 to Woodland	2,700	56.9	< 50	< 50	63
County Road 101A - West Covell Boulevard to County Road 29	6,300	60.6	< 50	51	110
County Road 102 - East Covell Boulevard to County Road 28H	9,700	62.4	< 50	68	146
County Road 102 - County Road 28H to County Road 27	12,700	63.6	< 50	81	175
County Road 102 - County Road 27 to Interstate 5	14,700	64.2	< 50	90	193
County Road 102 - Interstate 5 to County Road 17	17,900	65.1	< 50	102	220
County Road 102 - County Road 17 to County Road 13	13,200	63.8	< 50	83	179
County Road 105 - County Road 32A to County Road 28H	5,200	59.7	< 50	< 50	97
Old River Road - County Road 127 to County Road 22	15,300	64.4	< 50	92	198

TABLE HS-11 **FUTURE COUNTY ROADWAY TRAFFIC NOISE LEVELS** (CONTINUED)

Roadway Segment	ADT [a]	L_{dn} [b] (dBA) 100 feet from Centerline	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)
Russell Boulevard - Interstate 505 to County Road 93A	6,800	60.9	< 50	54	115
County Road 31 - County Road 93A to County Road 96	7,000	61.0	< 50	55	118
County Road 31 - County Road 96 to County Road 98	7,800	61.5	< 50	59	126
County Road 29A - Interstate 505 to County Road 95	700	51.0	< 50	< 50	< 50
County Road 29 - County Road 95 to County Road 98	2,400	56.4	< 50	< 50	58
County Road 29 - Highway 113 to County Road 102	3,500	58.0	< 50	< 50	74
County Road 28H - County Road 102 to County Road 105	5,200	59.7	< 50	< 50	97
County Road 27 - Interstate 505 to County Road 96	4,500	59.1	< 50	< 50	88
County Road 27 - County Road 96 to County Road 98	3,100	57.5	< 50	< 50	68
County Road 27 - County Road 98 to Highway 113	6,700	60.8	< 50	53	114
County Road 24 - Interstate 505 to County Road 95	2,400	56.4	< 50	< 50	58
County Road 24 - County Road 95 to County Road 98	4,600	59.2	< 50	< 50	89
County Road 23 - County Road 85B to County Road 89	5,200	59.7	< 50	< 50	97
County Road 19 - County Road 87 to Interstate 505	7,600	61.4	< 50	58	124
County Road 19 - Interstate 505 to County Road 94B	3,200	57.6	< 50	< 50	70
County Road 16A - County Road 98 to Highway 113	2,300	56.2	< 50	< 50	56
County Road 17 - Highway 113 to County Road 102	1,200	53.4	< 50	< 50	< 50
County Road 14 - County Road 85 to County Road 90A	2,300	56.2	< 50	< 50	56
County Road 14 - County Road 90A to Interstate 5	2,100	55.8	< 50	< 50	53
County Road 13 - Interstate 5 to Highway 113	6,100	60.4	< 50	< 50	107
County Road 12A - County Road 85 to Interstate 505	200	45.6	< 50	< 50	< 50
County Road 12A - Interstate 505 to Interstate 5	200	45.6	< 50	< 50	< 50

[a] Average Daily Traffic.
[b] The 24 hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Source: LSA Associates, Inc., August 2008.

- **Highway 84.** Highway 84 connects West Sacramento to the Clarksburg Area. The more southerly portions of the highway will continue to see much lower traffic volumes than in West Sacramento with correspondingly lower noise levels, at an estimated 60 dBA L_{dn} at 100 feet from the roadway centerline.
- **Highway 45.** Highway 45 branches off from Highway 113 in Knights Landing and parallels Highway 5 in northern Yolo County. The southern section of this highway between Country Road 108 and Country Road 98A will continue to experience low traffic noise levels at 100 feet from the centerline of up to 60 dBA L_{dn}.

In addition to these routes, a number of County roads will continue to be heavily traveled and generate relatively high noise levels along some or all of their length. Table HS-11 provides a summary of traffic noise modeling results for the County roads, based on projected traffic conditions, which consider allowed vehicle speeds, and average daily traffic volumes. As shown in the table, County roads with noise levels greater than 60 L_{dn} are expected to include County Roads 98, 101A, 102, 105, 31, 27, 19, and 13, in addition to Old River Road and Russell Boulevard. However, all of these roadways are expected to be below 65 $L_{dn.}$ Based on projected traffic volumes, all other roadway segments within Yolo County that are shown in the Circulation Element of this General Plan are expected to have existing traffic noise levels below 60 dBA L_{dn} at 100 feet from the roadway centerline.

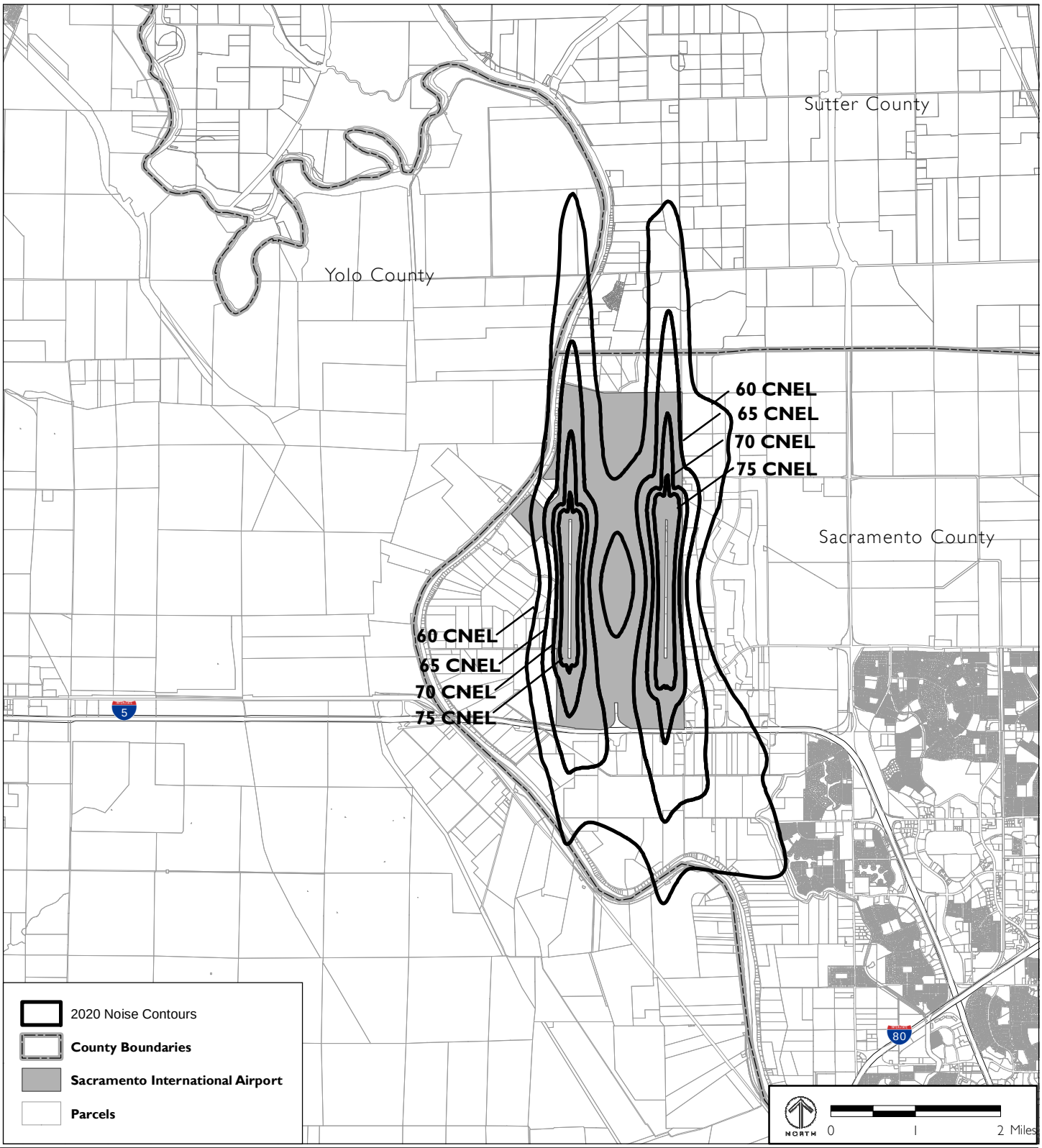
ii. Aircraft

The Sacramento International Airport is expected to grow its services through 2020, the Airport's current planning horizon. The Airport plans to physically expand into neighboring properties, increase flight frequency for both passenger and cargo aircraft, and provide additional airport related infrastructure. As shown in Figure HS-10, the CNEL 65 dB contour is projected to cover 3,382 acres in 2020, all of which lies within Sacramento County.

The Yolo County Airport is in its third and final stage of development, including expansion and improvements to the airport facility. The final phase of the project includes the development of a parallel connecting taxiway and holding apron, expected to be complete in 2015. It is expected that 145 airplanes will utilize the airport annually, operating some 101,000 incoming and outgoing flights each year. There are no incompatible uses located or planned within the CNEL 65 dB noise contours.[8]

As identified in the comprehensive land use plans for the Borges-Clarksburg Airport and the Watts-Woodland Airport, neither facility expects to add any substantial new facilities or increase airport traffic by a significant level. In addition, the University Airport has no planned expansions or increases of level of service.

[8] Sacramento Area Council of Governments, Yolo County Airport Comprehensive Land Use Plan, October 1999, page 18.



Source: Sacramento Airport Comprehensive Land Use Plan, September 2003

FIGURE HS-10

SACRAMENTO INTERNATIONAL AIRPORT FUTURE NOISE CONTOURS

iii. Trains

There are no known plans for train traffic in Yolo County to increase during the time of this General Plan. However, in the event that train traffic does increase, noise associated with trains is unlikely to exceed that described in Section 3.c. of this element. The calculated existing conditions railroad noise levels evaluated a conservative scenario that assumed a "worst case" railroad operations scenario. The analysis assumed that the maximum estimated number of locomotives, rail cars, and train-passings per day for each of the railroad operators. Future railroad noise levels are not expected to increase over these calculated conservative existing conditions train-related noise levels.

b. Stationary Noise Sources

i. Mining Activities

The sand and gravel mining activities described in Section 8.b. of this element are expected to continue through 2027 under the existing off-channel mining permits approved for a 30-year period in 1997. Therefore, mining-related noise levels are not expected to increase over the levels discussed in Section 4.b. of this element. Prior to the completion of the 30-year period, the County is likely to consider the extension of off-channel mining into new aggregate reserves along Cache Creek. If the permits are extended, they will be subject to the goals, policies and actions of this element and to the noise regulations of the Off-Channel Mining Plan (OCMP).

ii. Farming Activities

Farming activities on agricultural land in Yolo County are strongly promoted in the General Plan and therefore expected to expand. Table LU-7 in the Land Use and Community Character Element estimates an increase of about 820 acres of stationery agricultural industrial and commercial uses e.g. grain operations, feed stores, wineries, etc) over the 320 acres of existing such uses operating within the County's current base of about 600,000 acres of agriculturally designated land. There may also be resulting increases in intensity of agricultural activity and/or changes in crops or operations that may occur. This is not accounted for in Table LU-7. The sum total of this expected increase in all types of agricultural activity would have to result in an approximate doubling of existing noise sources for there to be a perceptible resulting increase in ambient noise levels above existing conditions. For example, twice the number of pieces of farming equipment operating at the same time on agricultural land would be necessary to produce a perceivable increase in ambient noise levels. This level of activity increase is not anticipated to occur.

c. Other

i. Commercial/Industrial Facilities and Plants

Commercial and industrial facilities, particularly related to processing of agricultural products, are expected to expand during the lifetime of this General Plan. They are likely to exceed the levels described in Section 4.c. of this element, but are unlikely to double on any particular site, making it unlikely that the expansion would result in a perceivable increase in ambient noise levels. Expansion will be subject to the policies

and actions in this element, which are designed to reduce conflicts between commercial and industrial uses and sensitive receptors.

ii. Construction

The amount of construction that will take place in Yolo County under this General Plan is likely to exceed the current amount of construction. However, the same types of construction noise described in Section 4.d. of this element is expected to occur with the construction that takes place in the future. New commercial, industrial and residential construction will be focused in Dunnigan, Esparto, Knights Landing, Madison, Elkhorn and around highway interchanges, with more limited development in Monument Hills, Yolo and Zamora. In each of these locations, construction noise will be within the limits described in Section 4.d. of this element and subject to the policies of this element.

d. Policy Framework

GOAL NO-1	**Noise Compatibility. Protect people from the harmful effects of excessive noise.**

Policy NO-1.1 Ensure that existing and planned land uses are compatible with the current and projected noise environment.

Policy NO-1.2 Ensure the compatibility of permitted land use activities within the Primary Delta Zone with applicable properly adopted noise policies of the Land Use and Resource Management Plan of the Delta Protection Commission.

Policy NO-1.3 Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.

Policy NO-1.4 For proposed new development, where it is not possible to reduce noise levels in outdoor activity areas to 60 dB CNEL or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB CNEL may be allowed, provided that all available reasonable and feasible exterior noise level reduction measures have been implemented.

Policy NO-1.5 Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.

Policy NO-1.6 Support improvements to at-grade crossings to eliminate the need for train whistle blasts in, near, or through communities.

Policy NO-1.7 Encourage railroad companies to adopt operational strategies that reduce the potential for noise and interrupted traffic flow.

Policy NO-1.8 Encourage local businesses to reduce vehicle and equipment noise through fleet and equipment modernization or retrofits, use of alternative fuel vehicles and installation of mufflers or other noise reducing equipment.

6. Implementation Program

Action NO-A1 Adopt a comprehensive Noise Ordinance that includes the following components:

- Standards for acceptable exterior and interior noise levels, their applicability and any specific exceptions to those standards.
- Guidelines and technical requirements for noise measurements and acoustical studies to determine conformance with provisions of the ordinance.
- Standards for construction equipment and noise-emitting construction activities.
- Regulations for the noise generated by events, including truck loading and unloading, operation of construction equipment, and amplified music. (Policy NO-1.1, Policy NO-1.4, Policy NO-1.5)

Responsibility: Planning and Public Works Department
Timeframe: 2010/2011

Action NO-A2 Regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of noise to the following sensitive receptors: residential uses, hospitals and nursing/convalescent homes, hotels and lodging, and appropriate habitat areas. (Policy NO-1.1, Policy NO-1.4)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A3 Review proposed development projects for compatibility with surrounding and planned uses in accordance with the Noise Compatibility Guidelines; however these guidelines shall not be applied to outdoor activity areas nor shall they be used to prohibit or preclude otherwise allowed density and intensity of development. (Policy NO-1, Policy NO-1.4)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A4 Require the preparation of a noise analysis/acoustical study, including recommendations for attenuation, for all proposed projects which may result in potentially significant noise impacts to nearby sensitive land uses. (Policy NO-1.1, Policy NO-1.4)

Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A5 Require a noise analysis/acoustical study, with recommendations for attenuation, for all proposed development within noise-impacted areas that may reasonably be expected to be exposed to levels that exceed the appropriate Noise Compatibility Guidelines standards. (Policy NO-1.1, Policy NO-1.4)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A6 Require architectural design and site planning techniques to meet interior noise attenuation requirements in a manner that does not discourage allowed density or intensity, architectural quality, or pedestrian connectivity, such as:

- Locating noise-sensitive interior spaces, such as living rooms and bedrooms, furthest from noise sources.
- Orienting buildings to shield noise sensitive outdoor spaces from a noise source.
- Using noise insulating windows and building materials.
- Providing open space, berms or walls, or landscaped areas between occupied dwellings and noise generators.
- Locating dwellings as far as possible from noise generators.
- Requiring effective sound barriers for new residential developments adjacent to existing freeways and highways.
- Discouraging the construction of sound walls; where used, sound walls shall be screened with vegetation, berms and similar methods of mitigation, and shall be screened with a landscape buffer. (Policy NO-1.1, Policy NO-1.4)

Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A7 Limit land uses, consistent with adopted Comprehensive Land Use Plans (CLUP), within identified airport safety zones. (Policy NO-1.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A8 Refer proposed development projects within areas requiring airport land use compatibility review to the Airport Land Use Commission. (Policy NO-1.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A9 Designate appropriate zoning that avoids placing significant new noise sensitive land uses in proximity of existing or planned commercial and industrial uses. (Policy NO-1.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A10 Minimize noise conflicts between current and proposed transportation networks by encouraging compatible land uses around critical segments with higher noise potential. (Policy NO-1.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A11 Designate and maintain established truck routes where noise conflicts with land uses are least likely to occur. (Policy NO-1.1, Policy NO-1.5)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A12 Identify locations and work with the California Department of Transportation to mitigate freeway noise that adversely affects unincorporated residential land uses. (Policy NO-1.5)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A13 Minimize potential noise conflicts by establishing compatible land uses and larger setbacks adjoining truck routes and other critical transportation corridors that tend to generate greater levels of noise. (Policy NO-1.1, Policy NO-1.5)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A14 Where feasible, utilize alternative road surfacing materials that minimize vehicle noise. (Policy NO-1.1, Policy NO-1.5)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action NO-A15 Reduce impacts from groundborne vibration associated with rail operations by requiring that vibration-sensitive buildings be sited at least 100 feet from the centerline of the railroad tracks, whenever feasible. (Policy NO-1.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

E. Health Care

1. Background Information

The Yolo County Health Department provides detection and prevention of communicable diseases, public health laboratory services, emergency preparedness, health education, immunizations, and registration of births and deaths; it also supports and monitors special programs for families with children, senior citizens and other populations with special health needs and provides medical care to the medically indigent residents of Yolo County. In addition, the Yolo County Department of Alcohol, Drug and Mental Health Services provides such services through outpatient clinics and Regional Resource Centers in Woodland, West Sacramento, and Davis, school-based sites, and through a network of community agencies and independent providers.

The County has two main hospitals and multiple smaller medical clinics. The locations of medical facilities in Yolo County are shown in Figure PF-5. The two hospitals in Yolo County are:

- Woodland Memorial Hospital, run by Catholic Healthcare West
- Sutter Davis Hospital

These two hospitals are non-profit, provide emergency services and feature state-of-the-art medical technology.

Non-profit medical clinics in Yolo County include CommuniCare Health Centers, Esparto Family Practice, Winters Healthcare and the Cowell Student Health Center. CommuniCare Health Centers, Winters Healthcare and Esparto Family Practice offer affordable and culturally appropriate health care services for Yolo County residents who are low-income and uninsured or underinsured. Each city in Yolo County has one of these clinics. The CommuniCare Health Care Center in Knights Landing is closing due to state funding cuts. The Cowell Student Health Center, on the UC Davis Campus, provides basic services to University students. Multiple private clinics and health care providers, most associated with Woodland Healthcare, Sutter Davis Hospital, Kaiser or UC Davis Medical Center, offer outpatient care in each of the cities in Yolo County. Most of their subspecialty care is referred to higher level facilities in Sacramento.

Yolo County's residents are generally healthy, with lower incidence of disease and other health indicators in Yolo County in comparison with the State at large.[9] However, this is variable by city, with Davis, which is a university city, having a much healthier and better insured population. A list of prominent health issues in Yolo County include:

- Mental health care access for children
- Dental care for low-income children
- Access to medical specialists for under or uninsured residents
- Drug and alcohol use

[9] California Department of Public Health, *2007 County Health Status Profiles*, Yolo County Data Sheet.

- Obesity
- Lack of transportation from rural areas
- Lack of affordable housing
- Lack of affordable childcare
- Lack of transportation as a health access issue
- Lack of organized after-school activities for teens

This General Plan addresses transportation (in the Circulation Element), housing (in the Housing Element), childcare (in the Public Facilities and Services Element), and general community health and fitness (in this element and in the Land Use and Community Character Element).

2. Policy Framework

GOAL HC-1	**Health Care. Create a community environment that supports individual and social health.**

Policy HC-1.1	Require community design that provides opportunities for safe, healthy, and easily accessible community interaction.
Policy HC-1.2	Support efforts to provide basic health care and mental health services in each community.
Policy HC-1.3	Strive to ensure that reasonable access to adequate primary, preventative and specialty health, dental and mental care is available throughout Yolo County.
Policy HC-1.4	Accommodate the health needs of special populations.
Policy HC-1.5	Encourage supportive housing, residential board and care, group homes, and hospice care in all communities.
Policy HC-1.6	Maintain a range of social services for families and individuals.
Policy HC-1.7	Protect vulnerable populations including youth, the elderly, and disabled.
Policy HC-1.8	Design communities to promote an active healthy lifestyle, personal fitness, and access to healthy foods.
Policy HC-1.9	Encourage builders to incorporate universal building design techniques that enable seniors and persons with disabilities to remain in their homes.
Policy HC-1.10	Support State and federal efforts to provide health care for all populations.

Policy HC-1.11 Ensure that the County is prepared for health emergencies or disasters which affect the health of the community.

3. Implementation Program

Action HC-A1 Promote and support cross-cultural education and awareness of the importance of a regular healthcare provider and preventive health care. (Policy HC-1.2, Policy HC-1.7)
Responsibility: Health Department
Timeframe: Ongoing

Action HC-A2 Work with non-profit and other service providers to expand priority services identified in the upcoming Maternal, Child and Adolescent Health (MCAH) 5-Year Action Plan and other health-oriented community assessments. (Policy HC-1.2, Policy HC-1.3, Policy HC-1.7)
Responsibility: Health Department, Department of Alcohol, Drug and Mental Health Services Department
Timeframe: Ongoing

Action HC-A3 Coordinate with hospitals and local physicians to expand the availability of health care services within the County's unincorporated communities and services to the medically indigent throughout the County. (Policy HC-1.2, Policy HC-1.3)
Responsibility: Health Department
Timeframe: Ongoing

Action HC-A4 Allow for services and housing for special populations to be linked to ensure convenient access. (Policy HC-1.4)
Responsibility: Department of Employment and Social Services, Department of Alcohol, Drug and Mental Health Services Department, Health Department
Timeframe: Ongoing

Action HC-A5 Provide opportunities to expand in-home care, assisted living opportunities, and services for low-income seniors and disabled households. (Policy HC-1.4)
Responsibility: Department of Employment and Social Services
Timeframe: Ongoing

Action HC-A6 Expand support services for aging members of the population to meet the needs of the county's growing older population. (Policy HC-1.4)
Responsibility: Department of Employment and Social Services
Timeframe: Ongoing

Action HC-A7 Accommodate pedestrian, bicycle, and transit needs in public rights-of-way and streetscape design. (Policy HC-1.1, Policy HC-1.8)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HC-A8 Adopt infrastructure standards for residential neighborhoods and downtown commercial areas that are designed to decrease traffic speeds and increase pedestrian and bicycle safety. (Policy HC-1.1, Policy HC-1.8)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HC-A9 Require that new development incorporates a diversity of housing types that address residents with different incomes, family sizes, ages, and accessibility needs. (Policy HC-1.9)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HC-A10 Emphasize pedestrian oriented neighborhoods with connected sidewalks and trails that provide convenient access to goods, services, and community resources. (Policy HC-1.1, Policy HC-1.8)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HC-A11 Promote community design that creates a compatible and integrated balance of residential density, green space, and job centers. (Policy HC-1.1)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HC-A12 Consider the health consequences of proposed project design, as a part of the development review process. (Policy HC-1.1, Policy HC-1.8)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing

Action HC-A13 Ensure that zoning requirements accommodate and encourage opportunities for services to be established in each community to serve vulnerable populations. (Policy HC-1.4)
Responsibility: Planning and Public Works Department
Timeframe: Ongoing