
6.10 HYDROLOGY, FLOODING, AND WATER QUALITY

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INTRODUCTION

This section of the EIR evaluates the potential environmental effects related to hydrology and water quality associated with implementation of the proposed Sutter County General Plan (proposed General Plan). The analysis includes a review of surface water, groundwater, flooding, stormwater/drainage, and water quality. Section 6.13, Public Utilities, describes water supply and capacity issues.

The proposed General Plan includes policies in the Environmental Resources and Public Health and Safety elements that guide development and infrastructure practices to help preserve and protect the County's surface water and groundwater resources, and to minimize the potential for loss of life, personal injury and property damage associated with flooding.

Two comment letters received on the NOP (from Yuba City and Cal EMA) requested consideration of hydrology issues (floodplain mapping and impacts on drainage facilities). These topics are addressed in this section.

Background information for this section is primarily from the 2008 *Sutter County General Plan Update Technical Background Report* (TBR), Section 4.3 (Hydrology and Water Quality and Section 5.5 (Flood Hazards). Data sources updating the TBR information are referenced in footnotes. Technical studies prepared by West Yost Associates in support of the General Plan policy document also identify potential environmental issues related to drainage/flooding, and water quality, which were considered in the impact analysis.

The TBR is available electronically on the County's website (<http://www.co.sutter.ca.us/pdf/cs/ps/gp/tbr/tbr.pdf>) and on CD at the back of this document.

ENVIRONMENTAL SETTING

The discussion of hydrology, flooding and water quality included below is presented on a countywide basis. There are no unique issues present in any of the five Growth Areas associated with hydrologic issues; therefore, these areas of the county are not specifically discussed in the environmental setting.

Regional Hydrology

Climate and Precipitation

Sutter County's climate is generally characterized by hot, dry summers, with relatively moderate, wet winters, similar to Mediterranean climates. Precipitation rates are greatest during late fall to early spring followed by the dry season from later spring to early fall. The mean annual precipitation for Sutter County ranges from 21 inches on the eastern boundary to approximately 16 inches along the western boundary, with a county-wide average of approximately 18 inches. Historically, there have been several large storms that have resulted in flooding within the county, the largest of which occurred in 1955, 1962, 1986, and 1997.

Surface Water and Drainage

Sutter County is located between the Sacramento River on the west and the Feather River on the east, in the northern portion of the relatively flat Sacramento Valley. Sutter County lies entirely within the Sacramento River watershed, which includes the Feather and Bear rivers. Other notable regional hydrology features are Coon and Pleasant Grove creeks and Markham and Auburn ravines in the southeastern portion of the County and the Snake River on the east side of the Sutter Buttes. The Sutter Bypass is a major manmade flood control area that acts as an overflow collector of flood flows in the Sacramento River after passing through the Butte Slough and the Butte Sink. The Sutter Bypass starts north of Pass Road, westerly of the Sutter Buttes generally in a south-southeast orientation for about 27 miles until it intercepts the Feather River about three miles downriver from the rural community of Nicolaus. Figure 3-2 in Chapter 3, Project Description, shows the locations of these features in the county and regional context.

Because there are no significant water storage reservoirs in Sutter County, rainfall percolates into the soil, runs off into local streams and rivers, and evaporates. By late summer, most small creeks and streams are generally dry and the rivers are at their lowest levels. Some small creeks have water during the dry season due to agricultural irrigation and drainage and/or from drainage in upstream urban areas.

Sacramento River

The Sacramento River is the largest river (in terms of volume of water and length) in the state and drains approximately 27,210 square miles of watershed, including Sutter County. It forms a major portion of the western County boundary as it enters from Colusa County and extends south down to the Sacramento County boundary. The river supports various beneficial uses, including recreational, agricultural, and wildlife. The river is not used for municipal or domestic water supplies in the county. Water in the Sacramento River is generally of good quality and is treated and used for municipal and industrial water

supplies up and downstream of Sutter County. The State Water Resources Control Board (SWRCB) publishes updates to the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins to improve water quality and maintain beneficial uses in the Sacramento and San Joaquin Rivers. The Basin Plan describes water quality concerns for the Sacramento River that includes agriculture, forestry, urban land uses, and stormwater runoff. Further, the Sacramento River is listed in the SWRCB's Total Maximum Daily Load (TMDL) program for mercury and unknown toxicity. The SWRCB TMDL programs are implemented pursuant to Clean Water Act (CWA) Section 303(d) for impaired waterbodies. TMDL programs are plans that describe how an impaired waterbody will meet federal water quality standards.

Feather River

The Feather River forms a major portion of Sutter County's eastern boundary. Like the Sacramento River, the Feather River provides beneficial uses, including recreational, agricultural, and wildlife. The City of Yuba City obtains a large portion of its annual water supplies for municipal and domestic use from the river. Water quality in the Feather River is generally good, but is listed in the SWRCB's TMDL program for chlorpyrifos (an agricultural insecticide), Group A pesticides, mercury, and unknown toxicity.

Bear River

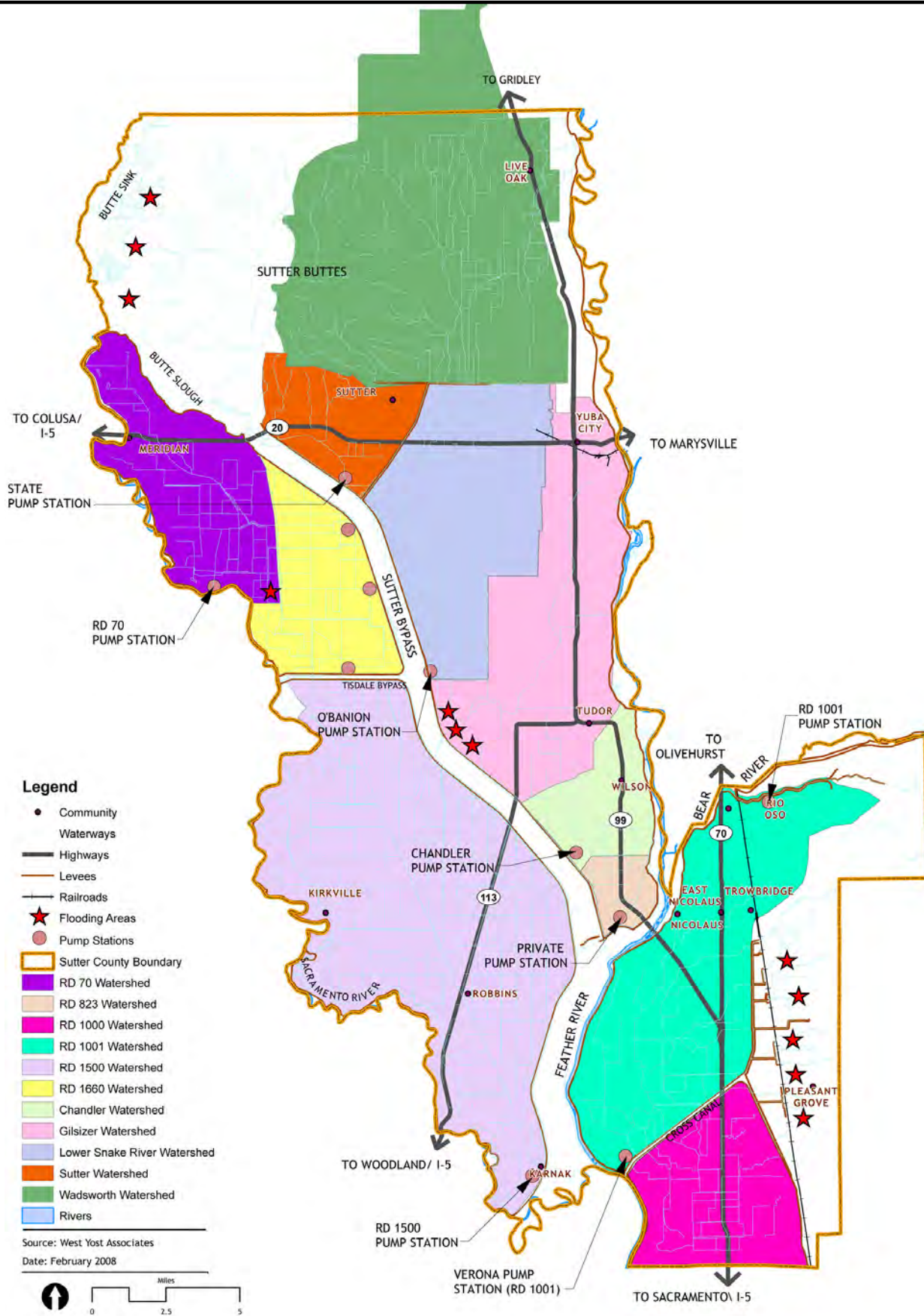
The Bear River enters Sutter County from Placer County near the city of Wheatland in Yuba County. It generally flows in a south-southwest direction until it meets the Feather River about one mile upstream from the rural community of Nicolaus. Although smaller than the Sacramento and Feather rivers, the Bear River also provides beneficial uses that include recreational, agricultural, and wildlife. River flows are generally controlled by the Camp Far West Reservoir in Yuba County. Water quality in the Bear River is generally good, but is listed in the SWRCB's TMDL program for diazinon (a widely used agricultural pesticide).

Drainage

Sutter County is a rural, agricultural area with over 94 percent of the county designated for agricultural and open space uses, as shown in Table 3-1 in Chapter 3, Project Description.

Drainage Watersheds

There are 11 major drainage watersheds within Sutter County. Figure 6.10-1 shows the drainage sheds in the policy area. Stormwater drainage throughout much of Sutter County is provided by piped storm drain conveyance systems (in the communities) and open channel systems in the rural/agricultural areas. Stormwater flowing in these systems is either pumped or gravity drains into the Sacramento River, the Sutter Bypass, or the Feather River. These stormwater systems are owned and operated by a variety of agencies including



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reclamation districts, municipalities, Sutter County, and the State of California within each drainage shed, as described below.

Wadsworth Watershed. This watershed drains from the north to the south through a series of channels into the East Intercepting Canal or the West Intercepting Canal, which drain into the Wadsworth Canal, a leveed channel that flows into the Sutter Bypass channel. The West and East Intercepting Canals and the Wadsworth Canal are owned, operated, and maintained by the California Department of Water Resources (DWR). Contributing drainages include:

- Live Oak Slough (also called the RD 777 Main Canal), which is owned, operated and maintained by RD 777. This channel drains portions of the City of Live Oak.
- RD 777 Laterals 1, 2, and the RD 777 West Intercepting Canal (RD 777 WIC), which are owned, operated and maintained by RD 777. This channel drains portions of the City of Live Oak.
- Morrison Slough is within the RD 2056 service area; however, the majority of Morrison Slough is located on private property, and does not receive routine maintenance by a public agency, except at public roadway crossings.
- Snake River is within the RD 2054 service area; however, the majority of the Snake River is located on private property, and does not receive routine maintenance by a public agency, except at public roadway crossings.
- Sand Creek and the Sutter City Lateral are not within a public district service area. These channels are mostly located on private property, and do not receive routine maintenance unless provided by the property owners.

Gilsizer Slough Watershed. The slough was originally a natural channel, and it flows generally to the southwest until it reaches the Sutter Bypass Levee. At the levee, the slough enters a constructed channel (the State Drain) that flows to the northwest, against the ground slope to the O'Banion Pump Station. The O'Banion Pump Station is owned by the State of California and includes 6 pumps, each with a capacity of 120 cfs. It lifts water from the Gilsizer Slough (and the lower Snake River, see below) into the Sutter Bypass. The Gilsizer Slough is owned and maintained by the Gilsizer County Drainage District or by private property owners.

Lower Snake River Watershed. This watershed was originally part of the Wadsworth watershed but disconnected by construction of the East and West Intercepting Canals. The Lower Snake River watershed drains from the north to the southwest through a series of channels that drain to the O'Banion Pump Station, including:

- Live Oak Canal, which is owned, operated and maintained by Sutter County.
- Lower Snake River – Much of the Lower Snake River is located on private property, and receives maintenance only if provided by the property owners.

- Little Blue Creek – Little Blue Creek is mostly located on private property and receives little maintenance.
- State Drain – This channel is owned, operated, and maintained by California Department Water Resources.

Sutter Watershed. This watershed includes the unincorporated Community of Sutter and drains to the south through several ditches, all of which leads to DWR Pump Station 3. The pump station lifts water from the Sutter Basin into the Sutter Bypass.

Chandler Watershed. This watershed drains to the south through several ditches, all of which lead to the Chandler Pump Station (State Pump Station 1), which is owned by the State of California.

RD 823 Watershed. This watershed drains to the south through several ditches, all of which lead to a privately owned pump station that discharges to the Feather River.

RD 70 Watershed. This watershed drains to the southwest through several ditches, all of which lead to the RD 70 pump station that discharges to the Sacramento River.

RD 1660 Watershed. Most of the RD 1660 watershed drains to the southwest through one primary ditch to the RD 1660 main pumping station, which lifts water into the Tisdale Bypass. RD 1660 also has a pumping plant along the Sutter Bypass at Oswald Road and a pumping plant along the Sutter Bypass at McClatchy Road.

RD 1500 Watershed. This watershed provides agricultural drainage, levee maintenance (54.35 mile of levees), and flood control services in southwest Sutter County. This watershed drains to the southeast through the Main Drain that runs from near the Tisdale Bypass to the southeast to the District's Pumping Plants 1, 2, and 3, located at the Sutter Bypass.

RD 1001 Watershed. This watershed drains to the south through several ditches and channels to the Verona Pump Station, which lifts the water into the Cross Canal. RD 1001 also has three small pump stations that lift stormwater from the northern portion of this watershed into the Yankee Slough. The communities of Nicolaus, East Nicolaus, Trowbridge, and Rio Oso are within this drainage shed.

Butte Sink. The northwest most corner of Sutter County is a low area called the Butte Sink that experiences routine flooding. Floodwater from this area flows into the Sutter Bypass.

There are numerous locations in these sheds that experience localized flooding. Those areas are shown on Figure 6.10-1.

Urban Drainage Systems

The cities of Live Oak and Yuba City have urban storm drain systems that collect runoff from the developed areas and convey it to detention basins and drainage channels. Ultimately, the runoff flows to the Feather River, the Sutter Bypass, or the Wadsworth Canal (which flows to the Sutter Bypass). Sometimes stormwater must be pumped into these rivers/channels. Runoff from much of the rest of the County is collected in roadside ditches and agricultural drains, and ultimately flows to, or sometimes is pumped into, the Feather River, Sacramento River, or the Sutter Bypass.

Soil Erodibility

Erosion occurs naturally in most systems, and the rate at which erosion occurs is largely a function of climate, soil cover, slope conditions, and inherent soil properties such as texture and structure. Water is the dominant agent of erosion and is responsible for most of the breakdown processes as well as most of the transport processes that result in erosion. Erosion increases with increasing slope, increasing precipitation, and decreasing vegetative cover. The vulnerability of erosion of natural soil types (erodibility) has been mapped by the U.S. Soil Conservation Service in a Soil Survey for Sutter County. Potential erodibility has been grouped in the following three generalized categories:

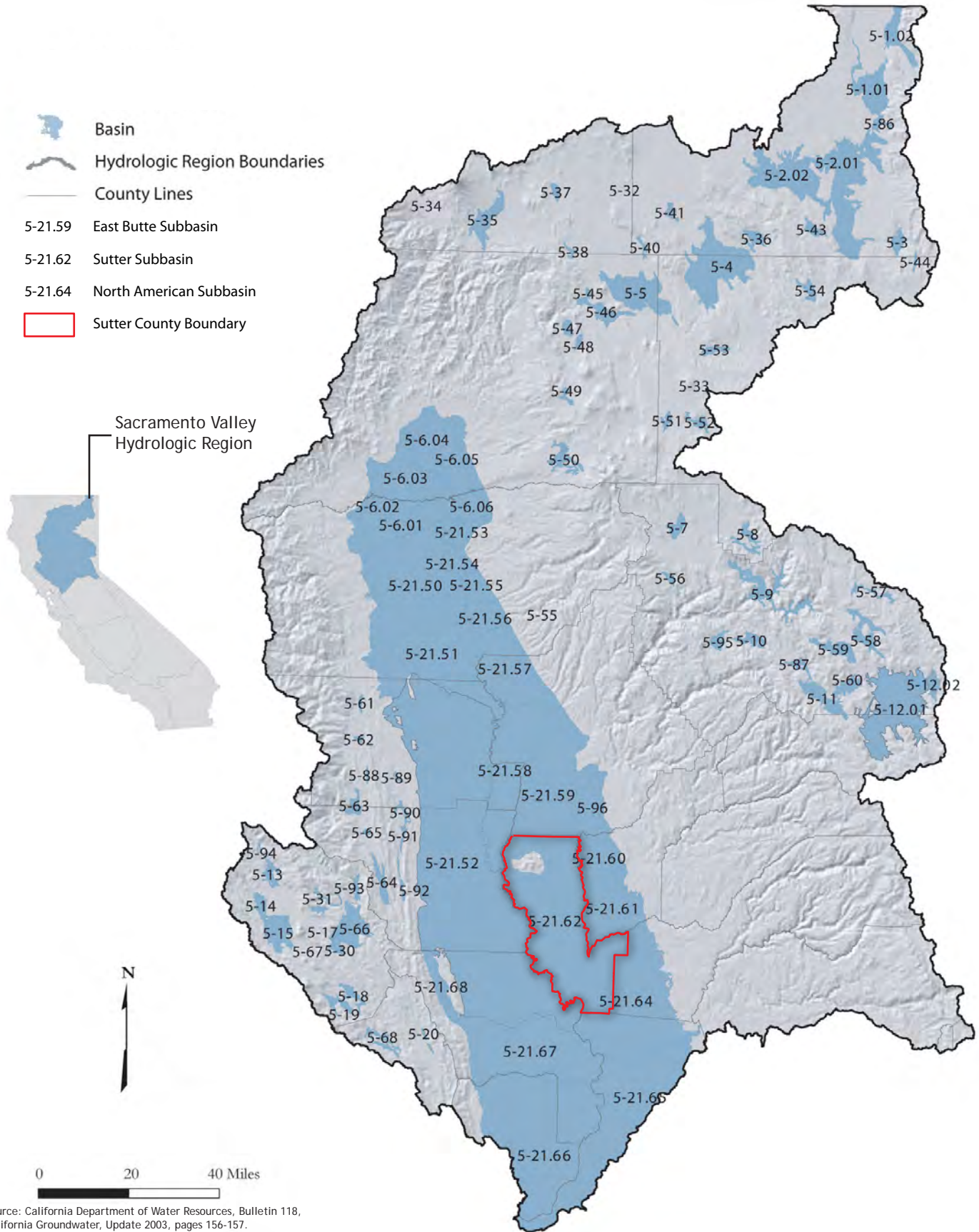
- Slight – 83 percent of Sutter County soil types have been identified in the Soil Survey as having slight erodibility and generally consist of those soil types with slopes of 0-9 percent.
- Moderate – 10 percent of Sutter County soil types have been identified in the Soil Survey as having moderate to high erodibility and generally consist of those soil types with slopes of 9 to 30 percent.
- High – 5.5 percent of Sutter County soil types have been identified in the Soil Survey as having high to very high erodibility and generally consist of those soil types with slopes of 30 to 75 percent.

Groundwater

Groundwater Basins

Sutter County is located within the greater Sacramento Valley Groundwater Basin. There are three large subbasins that underlie almost all of the policy area: (1) East Butte, (2) Sutter, and (3) North American subbasins (Figure 6.10-2). Portions of smaller subbasins (Colusa, West Butte) underlie a small portion of the county on the west, generally along the Sacramento River. A portion of South Yuba basin borders the county on the east.

The northern part of the county is in the East Butte subbasin, which also underlies Butte County to the north. The Sutter subbasin comprises all of the area south of the East Butte



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subbasin between the Sacramento River and the Feather River. Areas to the east of the Feather River are in the North American subbasin, which extends east into Placer County.

East Butte Subbasin. The surface area of the East Butte subbasin is 265,390 acres (415 square miles). The policy area comprises approximately 53,500 acres (about one-fifth) of the subbasin. Groundwater level fluctuations for composite wells average about 4 feet during normal years and up to 10 feet during drought years. The groundwater fluctuations for wells constructed in the confined and semi-confined aquifer system average 4 feet during normal years and up to 5 feet during drought years. Estimates of groundwater extraction for agricultural; municipal and industrial; and environmental wetland uses are 104,000, 75,500 and 1,300 acre-feet respectively. Deep percolation of applied water is estimated to be 126,000 acre-feet. The southern portion of the East Butte subbasin within Sutter County is relatively stable, with seasonal fluctuations in groundwater levels of about four feet during normal precipitation years. The estimated specific yield for the East Butte subbasin is 5.9 percent. The estimated storage capacity to a depth of 200 feet is approximately 3,128,959 acre-feet.¹ Withdrawal from the basin is not adjudicated.^{2,3}

Sutter Basin. The surface area of the Sutter subbasin is 234,400 acres (366 square miles). The policy area encompasses approximately 231,000 acres. DWR records indicates groundwater levels have remained relatively constant. DWR hydrographs indicate a shallow-depth water table. Most groundwater levels in Sutter subbasin tend to be within about 10 feet of ground surface. Estimated inflows in the Sutter subbasin include natural recharge at 40,000 acre-feet and applied water recharge at 22,100 acre-feet. There was no artificial recharge. Estimated outflows include urban extraction at 3,900 acre-feet and agricultural extraction at 171,400 acre-feet. DWR estimates a useable storage potential of five million-acre feet for Sutter County. There are no published reports that specifically discuss the amount of groundwater in storage for the Sutter subbasin.⁴ Withdrawal from the basin is not adjudicated.⁵

1 California Department of Water Resources, California's Groundwater, Bulletin 118, updated 2003. Sacramento Valley Groundwater Basin, East Butte Subbasin 5-21.59.

2 The California Water code does not authorize the State of California to manage groundwater. In some basins, however, the amount of water that can be extracted has been defined by a court. In the court decision, the court appoints a Watermaster to oversee the court judgment and specifies how much each of the parties to the decision can extract. In other basins, each landowners correlative right has not been defined. In these basins, groundwater may be managed by agencies that obtain their authority from the Water Code, or there may be little or no management.

3 California Department of Water Resources, Groundwater Management: Court Adjudications. October 2009, <www.water.ca.gov/groundwater/gwmanagement/court_adjudications.cfm>.

4 California Department of Water Resources, California's Groundwater, Bulletin 118, updated 2003. Sacramento Valley Groundwater Basin, Sutter Subbasin 5-21.62.

5 California Department of Water Resources, Groundwater Management: Court Adjudications. October 2009, <www.water.ca.gov/groundwater/gwmanagement/court_adjudications.cfm>.

North American Subbasin. The surface area of the subbasin is 351,000 acres (548 square miles). The policy area comprises approximately 82,600 acres (about one-fourth) of the subbasin. Groundwater conditions vary considerably across the North American subbasin. Groundwater levels have been high and relatively stable in the northern and western portions of the subbasin. This is in contrast to groundwater level declines that have occurred in much of the central, eastern, and southern portions of the subbasin. Overdraft has historically occurred in the latter areas and appears to still be occurring in the central portion of the subbasin east of the policy area and east of the Natomas Basin. In recent years, groundwater levels have stabilized in other areas where historical overdraft has been reported. This suggests that overdraft conditions have abated in most of the subbasin. Groundwater levels are generally higher in the upper zone, creating a downward gradient for vertical flow. DWR does not identify the North American subbasin as overdrafted. There are no actual available estimates of groundwater in storage in the North American subbasin; however, the estimated groundwater storage capacity of the subbasin is 4.9 million ac-ft. This volume does not indicate what portion of the storage can safely be extracted (the safe yield) to meet water demands in the subbasin. The volume of groundwater extraction cannot exceed the rate of groundwater recharge over a period of years without causing a depletion of aquifer storage. DWR reports inflows include natural recharge at 83,800 acre-feet and applied water recharge at 29,800 acre-feet. There was no artificial recharge. Estimated outflows include urban extraction at 109,900 acre-feet and agricultural extraction at 289,100 acre-feet.^{6,7} Withdrawal from the basin is not adjudicated.⁸

Groundwater Recharge

Major surface water sources described above are major sources of groundwater recharge to the groundwater subbasins underlying Sutter County. Other sources of groundwater recharge in Sutter County are from deep percolation of rainfall, agricultural irrigation, and subsurface inflow from adjacent groundwater basins, as described above.⁹

Groundwater Management

Sutter County has begun preparation of a Groundwater Management Plan. A goal of the plan is to determine the quantity and quality of available groundwater and how to best

6 Sutter County, Sutter Pointe Specific Plan Draft EIR, SCH #2007032157, prepared by EDAW, December 2008, p. 3.9-11.

7 California Department of Water Resources, California's Groundwater, Bulletin 118, updated 2003. Sacramento Valley Groundwater Basin, North American Subbasin 5-21.64.

8 California Department of Water Resources, Groundwater Management: Court Adjudications. October 2009, <www.water.ca.gov/groundwater/gwmanagement/court_adjudications.cfm>.

9 California Department of Water Resources, California's Groundwater, Bulletin 118, updated 2003. Sacramento Valley Groundwater Basins 5-21.59, 5-21.62, 5-21.64.

manage the existing groundwater basins. Completion of the plan is currently on hold.¹⁰ Please refer to Section 6.13, Public Utilities-Water Supply, for additional information about groundwater supplies.

Flooding

Flooding is a concern in the county. The policy area, which includes all land within the county's boundaries, is susceptible to four types of floods: levee failure/overtopping, localized flooding, riverine (slow rise) flooding, and dam failure inundation.

Levees and Flood Protection

Major storm events can produce high flows throughout the Sacramento, Feather, and Bear river systems. The primary method of flood protection provided in the County is via a system of levees or earthen embankments along the Sacramento and Feather rivers that contain high river flows within these constructed channels. When the capacity of the river levee system is exceeded, the bypass system accommodates the additional flows to take the load off the primary levee system during critical peak flow periods.

There are currently approximately 280 miles of levees protecting Sutter County lands from flooding. These levees provide the County with protection against flooding from the Sacramento River, Feather River, Sutter Bypass, Tisdale Bypass, Wadsworth Canal, Bear River, Yankee Slough, Natomas Cross Canal, East Side Canal, and the Pleasant Grove Canal.

As described in the TBR (Section 5.5, Flood Hazards), a number of studies have been completed or are in progress that will affect flood protection and FEMA flood mapping within the county. These include the Lower Feather River Floodplain Mapping Study, Upper Feather River Floodplain Mapping Study, Natomas Basin Project, Sutter County Feasibility Study, and the DWR Levee Evaluation Program. In the Lower Feather River Floodplain Mapping Study, the area roughly south of Stewart Road between the Feather River and the Sutter Bypass, the area between the Feather River, the Natomas Cross Canal and Highway 70, and also large portions of the area east of Highway 70 were determined to be in the floodplain. The Upper Feather River Floodplain Mapping Study indicates large portions of northern Sutter County within the 100-year floodplain.

When FEMA first produced flood maps for the county, most of the levees were assumed to provide adequate protection based on studies prepared by the U.S. Army Corps of Engineers (Corps) in the 1960s. However, these levees do not meet the current levee protection criteria and are not accredited by FEMA. This is a significant issue because FEMA, as a part of its Map Modernization Program, now requires that all levees be

10 Dan Peterson, Chief, Sutter County Water Resources Division, personal communication to PBS&J, April 12, 2010.

accredited before the protection they provide will be recognized and reflected on new or updated flood maps. This is true for all levees, even those that were recognized as providing protection on previous maps. To obtain certification, a levee owner must provide FEMA with engineering data that demonstrates compliance with all of the appropriate levee criteria. These requirements include evaluations of freeboard, closure structures, embankment protection, embankment and foundation stability, settlement potential, interior drainage, operations and maintenance, and as-built conditions.

Status of 100-Year Flood Hazard Maps

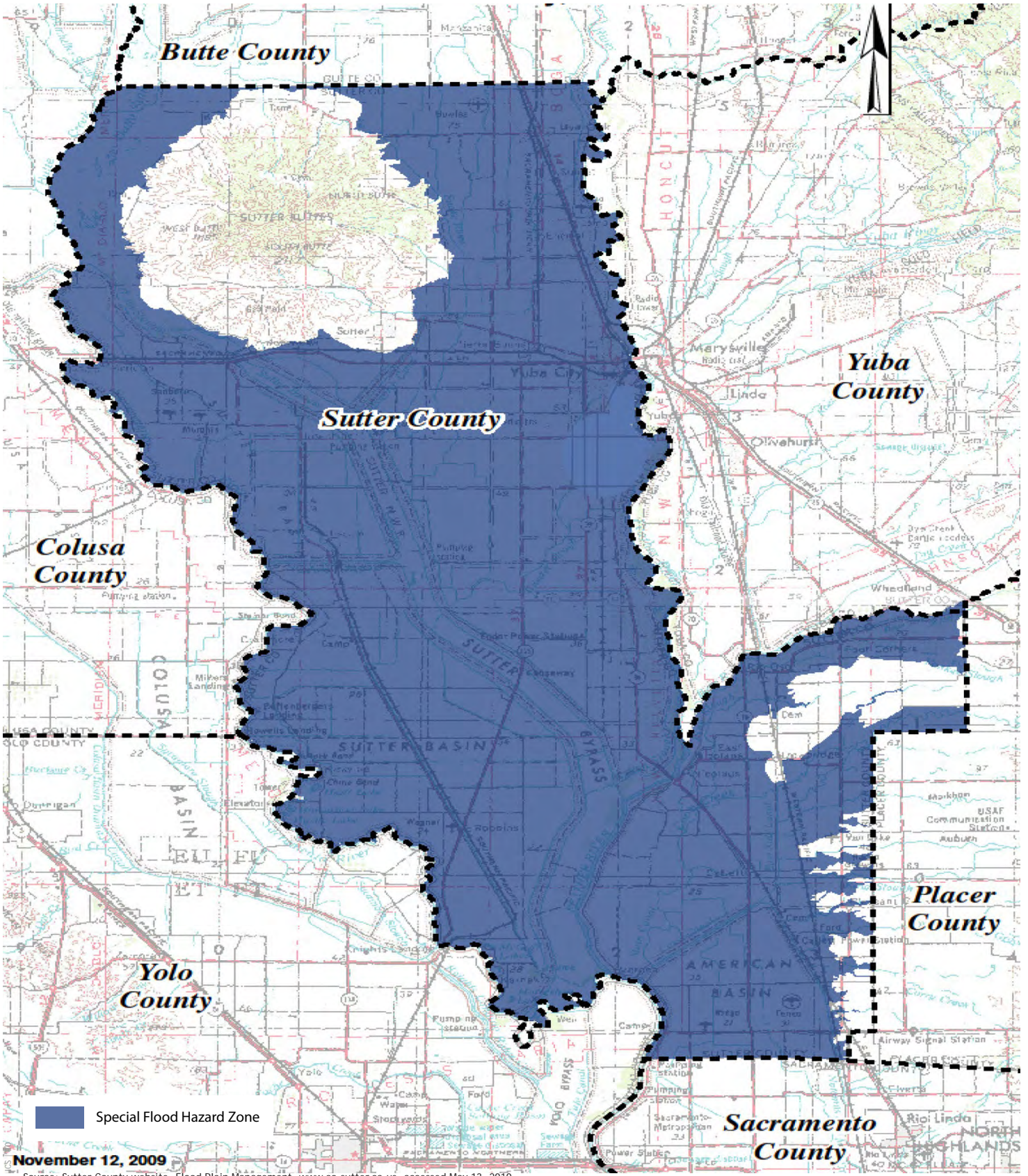
FEMA produces and continuously updates flood hazard data in support of the National Flood Insurance Program (NFIP). In December 2008, FEMA adopted new digital Flood Insurance Rate Maps (FIRMs) for areas south of Bogue Road and east of the Sutter Bypass. Sutter County anticipates that FEMA will submit draft maps for the remainder of the County in the December 2010 timeframe.¹¹ The new FIRMs show that most of Sutter County – with the exception of the higher ground in the Sutter Buttes vicinity, the area east of Trowbridge, and isolated areas of high ground near the Placer County line – are in a special flood hazard area (SFHA).¹² Figure 6.10-3 shows the extent of the SFHAs.

It is expected that FEMA will issue a Letter of Final Determination in August 2011. New FIRMs for all of Sutter County will go into effect six months later (February 2010). This will trigger mandatory flood insurance for many Sutter County residents, affect insurance rates for current policy holders, and affect construction standards for new buildings.

Flood Protection System Improvements

Sutter County is actively working with several other agencies to ensure that the river and bypass levee system that protects the County has adequate conveyance capacity, freeboard, and that the structural integrity of the levees meets federal standards. Sutter County and other agencies are also working to ensure that the structural integrity of the levees is thoroughly evaluated and the required repairs and maintenance are performed. Sutter County is one of several members of the Sutter Butte Flood Control Agency (SBFCA). SBFCA is a Joint Exercise of Powers Agency that includes Sutter and Butte County; the cities of Yuba City, Live Oak, Gridley, and Biggs; Levee District 1 and 9; and the Sutter County Water Agency. The purpose of the SBFCA is to plan, design, acquire, construct, operate, maintain, and manage flood control facilities to protect its member agencies.¹³ The SBFCA

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- 11 Daniel Peterson, Chief, Water Resources Division, Sutter County, personal communication to PBS&J, April 6, 2010.
- 12 West Yost Associates, Sutter County General Plan Update Land Use Alternatives Analysis, September 2009, Chapter 4.D: Utilities Analysis.
- 13 Ibid.



is currently developing a set of "Early Implementation Projects" that would restore 100-year flood protection for much of Sutter and Butte counties.¹⁴

SBFCA's goal is to repair 44-miles of levees in Sutter and Butte counties, reduce flood risk and remove more than 34,200 properties from SFHAs. To raise the local cost-share of this ambitious, \$250 million project, SBFCA is considering a once-per-year assessment on properties that would benefit from levee improvements. Individual property assessments will vary based on relative risk of flooding, depth of flooding, size of structure, size of parcel, and land use classification. On April 14, 2010, the SBFCA Board of Directors authorized a Proposition 218 mail ballot process for the proposed assessment. To pass, the assessment must receive more than 50 percent of the weighted vote for all ballots returned. The proposition passed by 71 percent and was approved by the SBFCA Board on July 14, 2010.¹⁵ Construction is anticipated to begin by 2012, with completion of the levee improvements in the 2016 timeframe.¹⁶

A portion of southern Sutter County south of the Cross Canal and east of the Sacramento River is in the Natomas Basin.¹⁷ The Sacramento Area Flood Control Agency (SAFCA) is managing the efforts for that area to provide 100-year (and future 200-year) flood protection.¹⁸

Development of areas with shallow flooding (less than about 3 feet) could potentially achieve the required flood protection by importing fill material to raise the development above the flood level. However, for large developments and for deeper flooding depths, this approach is usually cost-prohibitive.¹⁹

Localized Flooding

Localized flooding problems are often caused by flash flooding, severe weather, or an unusual amount of rainfall. Flooding from these intense weather events usually occurs in areas experiencing an increase in runoff from impervious surfaces associated with development and urbanization as well as inadequate storm drainage systems. The term "flash flood" describes localized floods of great volume and short duration. In contrast to

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- 14 Sutter County. Flood Protection Fact Sheet. <www.co.sutter.ca.us/doc/government/depts/pw/wr/fp/fpfacts>. Flood Insurance Rate Maps (FIRM) and Flood Insurance Study (FIS) for Sutter County. <www.co.sutter.ca.us/doc/government/depts/pw/fema_fis>, accessed March 8, 2010.
- 15 Per written communication from Steve Geiger, Sutter County Senior Planner, based on communication from Dan Peterson, August 11, 2010.
- 16 Daniel Peterson, Chief, Water Resources Division, Sutter County, personal communication to PBS&J, April 6, 2010.
- 17 The approximately 53,000-acre Natomas basin includes land north of the confluence of the American and Sacramento rivers, south of the Cross Canal (in Sutter County), and west of the Pleasant Grove Creek Canal and Natomas East Main Drainage Canal.
- 18 West Yost Associates, Sutter County General Plan Update Land Use Alternatives Analysis, September 2009, Chapter 4.D: Utilities Analysis.
- 19 Ibid.

riverine flooding, this type of flood usually results from a heavy rainfall on a relatively small drainage area. Precipitation of this sort usually occurs in the winter and spring. Flash floods often require immediate evacuation within the hour.²⁰

Pleasant Grove Area

The Pleasant Grove area of Sutter County occasionally experiences localized flooding during large storm events. This localized flooding is typically widespread and relatively shallow. The area has been mapped as within the FEMA 100-year flood zone. This localized flooding has been exacerbated by increased development in Placer County upstream of this area. High water levels in the Sacramento River and the Natomas Cross Canal also contribute to this localized flooding, as described further below. Shallow localized flooding also occurs on a relatively frequent basis. This localized flooding occurs because the local drainage infrastructure is inadequate, and not because of failure of a major levee.

Sutter County has been working with Placer County, SAFCA, and other agencies to address this localized flooding and other flooding in the region. In 1994, SAFCA prepared the *Reconnaissance-Level Report South Sutter County Flood Control Alternatives*. This report determined that the causes of the localized flooding are high water levels in the Sacramento River, the Cross Canal, the East Side Canal, and Pleasant Grove Canal. These high water levels reduce the effectiveness of the channel system to convey stormwater to the Sacramento River, which can result in overtopping of the local levees. Also east of the railroad tracks, localized flooding occurs due to the inadequate capacities of the creek channels and culverts. This report also concluded that increased development east of Sutter County would further exacerbate the existing localized flooding problems. This study evaluated eight alternative solutions. For example, one solution was to construct a parallel Cross Canal, but the cost was estimated at about \$70 million (in 1994 dollars). Another alternative included allowing this area to continue to flood and constructing flood protection for just the individual houses and other higher value structures (\$22 million). Other alternatives were evaluated that had lower costs, but they did not significantly reduce the localized flooding in this area.²¹

The Sutter Pointe Specific Plan (SPSP) is the only growth area identified in the General Plan that could be affected by Pleasant Grove flooding issues. The remainder of the land uses would remain agricultural.

20 Yuba City and Sutter County, Yuba City-Sutter County, California Multi-Hazard Mitigation Plan, prepared by AMEC, October 2007, pp. 44-45.

21 West Yost Associates, Sutter County General Plan Update, Issue Discussion Paper: Utilities, June 2008.

Drainage Infrastructure Capacity

As development occurs, the construction of roads, parking lots, buildings, and other impervious areas causes runoff rates to increase (versus mostly unpaved agricultural land). The increased runoff can cause increased flooding within the development area, or upstream or downstream of the development. The County requires (through its Department of Public Works Design Standards) that development projects mitigate their increased runoff to prevent the potential for increased flooding. This is usually accomplished through the construction of stormwater detention basins, or vaults that hold back the runoff to be equal to or less than the runoff rate from the same area prior to the development. Stormwater master plans prepared as part of a specific plan for a development area is a standard method for providing cost-effective drainage mitigation.²²

The City of Yuba City General Plan, adopted in 2004, included development of the areas west of the existing city limits to Township Road and from Pease Road south to Bogue Road. Much of this area is currently farmland, and unless peak flow attenuation facilities are provided as a component of any new developments, the runoff rate would increase significantly. If the runoff rate is allowed to increase without implementing appropriate mitigation measures, the potential for localized flooding would increase. To prevent this increased flooding, Yuba City prepared the *West Yuba City Master Drainage Study* (March 2006) that identified the channels, culverts, peak flow attenuation basins, and pump stations needed to eliminate the potential increase in flooding within the city and downstream in the county. Future development in the eastern part of Yuba City was not evaluated in the *West Yuba City Master Drainage Study*. A draft amendment to this report was also prepared (April 4, 2007) that changed the recommended project to a lower cost alternative. The *Yuba City Storm Drain Nexus Fee Study* (June 23, 2006) and an associated draft amendment (dated April 6, 2007) were also prepared that developed the drainage impact fees needed to fund the required improvements. Neither the Master Drainage Study nor the Nexus Fee Study has been adopted by the City.²³

The City of Live Oak recently updated its General Plan and projects the City to double or triple in size at full build out. Much of this area is currently subject to localized flooding for the 10-year and 100-year storm events due to inadequate infrastructure capacity. The City of Live Oak is preparing a Master Drainage Plan that will identify necessary infrastructure improvements such as channels, culverts, peak flow attenuation basins, and pump stations

22 West Yost Associates, Sutter County General Plan Update Land Use Alternatives Analysis, September 2009, Chapter 4.D: Utilities Analysis.

23 West Yost Associates, Sutter County General Plan Update, Issue Discussion Paper: Utilities, June 2008.

needed to eliminate the potential increase in flooding from future development within and upstream/downstream of the City.²⁴

Riverine (Slow Rise) Flooding

Riverine flooding, defined as when a watercourse exceeds its “bank-full” capacity, generally occurs as a result of prolonged rainfall, or rainfall that is combined with already saturated soils from previous rain events. This type of flood occurs in river systems whose tributaries may drain large geographic areas and include one or more independent river basins. The onset and duration of riverine floods may vary from a few hours to many days. Factors that directly affect the amount of flood runoff include precipitation amount, intensity and distribution, the amount of soil moisture, seasonal variation in vegetation, snow depth, and water-resistance of the surface due to urbanization. In the Sutter County policy area, slow rise riverine flooding predominantly occurs from heavy and continued rains, sometimes combined with snowmelt, increased outflows from upstream dams, and heavy flow from tributary streams. These intense storm events can overwhelm the local waterways within the policy area as well as the integrity of the levee system. The warning time associated with slow rise floods will assist in life and property protection. According to the 2006 Sutter County Operational Area Emergency Operations Plan (EOP), slow rise flooding is a well-established and potentially large-scale threat to the area.²⁵

Dam Failure Inundation

In addition to levee failure or overtopping of the levees, there is a potential for flooding as a result of a dam failure. There is currently only one dam located within Sutter County that is under the jurisdiction of DWR’s Division of Safety of Dams (DSOD). The Steidlmayer #3 Dam is located in the northwest interior of the Sutter Buttes. It is relatively small, and any failure of this dam would result in minimal property damage. There are, however, 10 larger dams outside the county listed in Table 6.10-1, all under the jurisdiction of the DSOD, that have the potential to cause significant flooding in Sutter County if any were to fail.²⁶ These dams are operated by various entities for several purposes, including flood control, water supply, fisheries, and other beneficial uses.

There have been no dam failures within or affecting the policy area. However, during the winter storms and flooding of 1996 and 1997, the Oroville Dam reportedly came very close to overtopping. With regard to the likelihood of future occurrences, all area dams have performed well during past disasters and are expected to exceed their design limits during future events, but the county remains at risk to dam failures from numerous dams under a

24 City of Live Oak, Draft 2030 General Plan Draft EIR, December 2009, p. 4.10-16.

25 Yuba City and Sutter County, Yuba City-Sutter County, California Multi-Hazard Mitigation Plan, prepared by AMEC, October 2007, pp. 44-45.

26 Maps showing potential dam failure inundation hazard areas are not publicly available.

TABLE 6.10-1

**DAMS UNDER STATE JURISDICTION
WITH POTENTIAL TO FLOOD SUTTER COUNTY**

Dam Name	Owner	Stream	Type	Capacity (Acre Feet)
Oroville Dam	State DWR	Feather River	Earth	3,537,577
New Bullards Bar	Yuba County Water Agency	Yuba River	Variable Radius Arch	969,600
Camp Far West Dam	South Sutter Water District	Bear River	Earth and Rock	103,000
Lake Almanor	Pacific Gas & Electric	North Fork Feather River	Hydraulic Fill	1,308,000
Thermalito Afterbay Dam	State DWR	Feather River	Earth	57,041
Thermalito Forebay Dam	State DWR	Feather River	Earth	11,768
Shasta Dam	US Bureau of Reclamation	Sacramento River	Gravity	4,552,000
Whiskeytown Dam	US Bureau of Reclamation	Clear Creek (Sacramento River)	Gravity	241,100
Folsom Dam	US Bureau of Reclamation	American River	Gravity	1,010,000
Englebright Dam	Corps of Engineers	Yuba River Radius Arch	Variable	70,000

Source: Sutter County, 2030 General Plan Update Technical Background Report, 2008, Table 5.5-1

variety of ownership and control and of varying ages and conditions. As a result, the potential exists for future dam failures to occur that could adversely affect public safety and property in the policy area.²⁷

Water Quality

Urban Runoff

Constituents found in urban runoff vary as a result of differences in rainfall intensity and occurrence, geographic features, the land use of a site, as well as vehicle traffic and percent of impervious surface. In the Sutter County region, there is a natural weather pattern of a long dry period from May to October. During this seasonal dry period, pollutants contributed by vehicle exhaust, vehicle and tire wear, crankcase drippings, spills, and atmospheric fallout accumulate within the urban watershed. Precipitation during the early portion of the wet season (November to April) washes these pollutants into the stormwater runoff, which can result in elevated pollutant concentrations in the initial wet weather runoff. This initial runoff with peak pollutant levels is referred to as the "first flush" of a storm event or events. Concentrations of heavy metals present in dry weather runoff (e.g., runoff during the dry season is generated by landscape irrigation, street washing, etc.) are

²⁷ Yuba City and Sutter County, Yuba City-Sutter County, California Multi-Hazard Mitigation Plan, prepared by AMEC, October 2007, p. 79.

typically lower than concentrations measured in wet weather runoff (runoff generated during the rainy season primarily by precipitation).

Pollutants can enter stormwater runoff as it flows over the ground surface. A summary of pollutant types contained in runoff from various land uses is provided in Table 6.10-1. All of these land use types occur within Sutter County, with agricultural being the most wide spread of these land uses.

Sutter County is covered by a Phase 2 permit of the National Pollutant Discharge Elimination System (NPDES) regulations (see discussion under “Regulatory Context” heading below). These regulations are intended to reduce the pollutants that are discharged to surface water bodies. Sutter County has addressed water quality issues through their storm drainage design criteria and through the joint Yuba City – Sutter County Stormwater Management Plan to meet Phase 2 NPDES requirements. The County is also in the process of adopting Ordinance Code Chapter 1790, Stormwater Management and Discharge Control.

Agricultural Runoff

Sutter County is dominated by agriculture for production of numerous fruits, vegetables, and row crops. Crops produced in the County include rice, hay, safflower, almonds, plums, and peaches. Farmers in the County use a large variety of herbicides and pesticides during the growing season to control a variety of plant diseases and pests. In addition, farmers use fertilizers to ensure successful crop production.

Use of these compounds results in residual concentrations of herbicides, pesticides, and fertilizers entering stormwater runoff or irrigation return water ditches. Some stormwater runoff and return water from agricultural irrigation discharge into local streams and rivers affecting water quality. The SWRCB has identified agricultural runoff as a major factor affecting water quality in local drainages and the Sacramento, Feather, and Bear rivers. Water quality data for the Sacramento, Feather, and Bear rivers list the pesticide diazinon, insecticide chlorpyrifos, and Group A pesticides as constituents that require TMDL monitoring and reduction to ensure beneficial uses within these water bodies. These pesticides and insecticide are commonly used as part of agricultural practices.

Wastewater Treatment Plant Discharges

In addition to urban stormwater and agricultural runoff, two municipal wastewater treatment plants in the County discharge to local channels and rivers. Yuba City discharges its treated effluent to the Feather River. The City of Live Oak discharges its effluent to a Reclamation District 777 drainage canal, which flows to the Sutter Bypass and the Sacramento River. Both facilities are subject to effluent discharge requirements set by the

Central Valley Regional Water Quality Control Board (CVRWQCB) under the NPDES program for point-source discharges.

Groundwater Quality

The source of potable water for most of Sutter County is groundwater (except most of Yuba City). Throughout most of the County, potable water is provided by privately owned wells that serve individual properties.

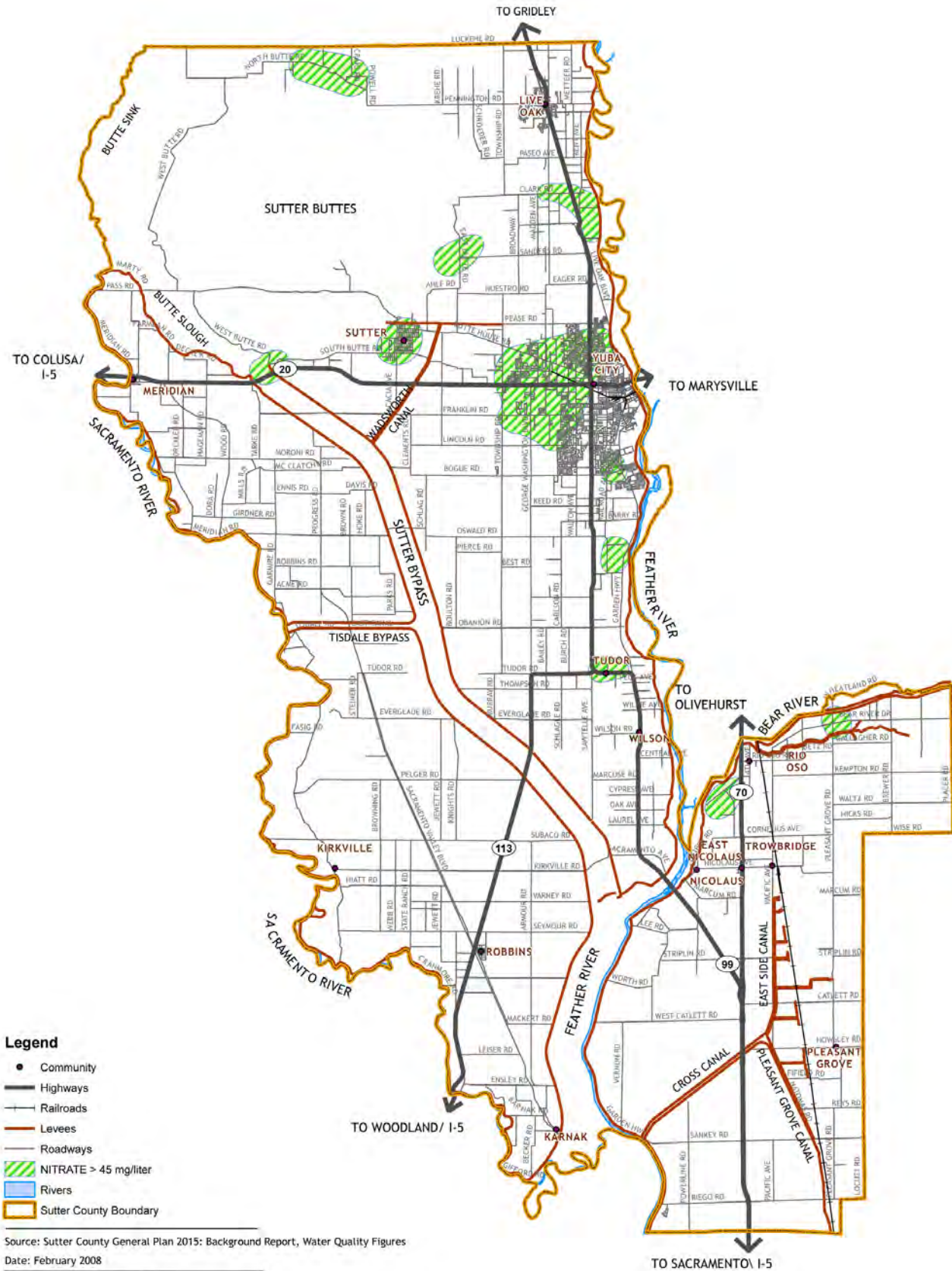
Groundwater quality in Sutter County is monitored by DWR, the State Department of Health Services (DHS), and Sutter County. The primary groundwater chemistry in Sutter County is calcium, magnesium, sodium, chloride, sulfate, and bicarbonate. Recent groundwater data in portions of the county report chemical elements and compounds in amounts that exceed drinking water quality safety and aesthetic standards. In addition, groundwater quality is expected to degrade in the future unless measures are taken to reduce contaminants in soil and prevent additional contamination from occurring. In the southern portion of the county within the North American Subbasin, groundwater quality is impaired by high levels of total dissolved solids, manganese, and arsenic.

Nitrate

On-site wastewater treatment systems, or septic systems, are an effective method of treating wastewater from individual or small groups of houses and businesses. Privately owned septic systems provide for the treatment and disposal of wastewater throughout much of the rural areas of Sutter County. Also many homes and businesses in the small communities within Sutter County use septic systems, including the communities of Sutter, Rio Oso, Nicolaus, East Nicolaus, and Trowbridge. Yuba City, the city of Live Oak, and the community of Robbins are the only areas in the county with sanitary sewer collection systems and wastewater treatment facilities. All other areas rely on septic systems. Almost all of the solids and scum removed when tanks are pumped (septage) from Sutter County is disposed of and treated at Yuba City's wastewater treatment plant.

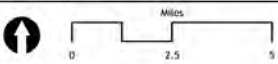
Septic systems can lead to contamination of groundwater if they are not properly sited, designed, constructed, operated and maintained. In such cases, septic systems can introduce nitrates, salts, bacteria, viruses, medications, household chemicals, and other contaminants into the groundwater. These contaminants can then enter potable water supplies through pumping of the contaminated water through water supply wells. Nitrate contamination can also come from agricultural practices.

The MCL for nitrate in potable water is currently 45 mg/L and may be reduced to 10 mg/L in the future (as nitrate). Figure 6.10-4 shows areas of the County with high nitrate



- Legend**
- Community
 - Highways
 - Railroads
 - Levees
 - Roadways
 - ▨ NITRATE > 45 mg/liter
 - Rivers
 - Sutter County Boundary

Source: Sutter County General Plan 2015: Background Report, Water Quality Figures
Date: February 2008



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concentrations in the groundwater. As illustrated in the map, the areas of high nitrate levels are generally concentrated around Yuba City, with isolated areas in the northern part of the county and in the south county south of the Bear River.

Sutter County is considering various options to help reduce groundwater contamination from septic systems. These include connecting homes or business to a wastewater treatment plant, enacting stricter septic system regulations, and/or increasing the minimum lot size on which septic systems can be used. Construction of new sewer systems from the homes/businesses to a wastewater treatment plant, or, the use of highly technical on-site systems is a feasible option, but would likely be expensive. This approach could be suitable for the area just south of Yuba City characterized by ranchette parcels because this area could be connected to the City's existing sewer system. Also, Sutter County is evaluating the feasibility of connecting the community of Sutter to the Yuba City Wastewater Treatment Plant.

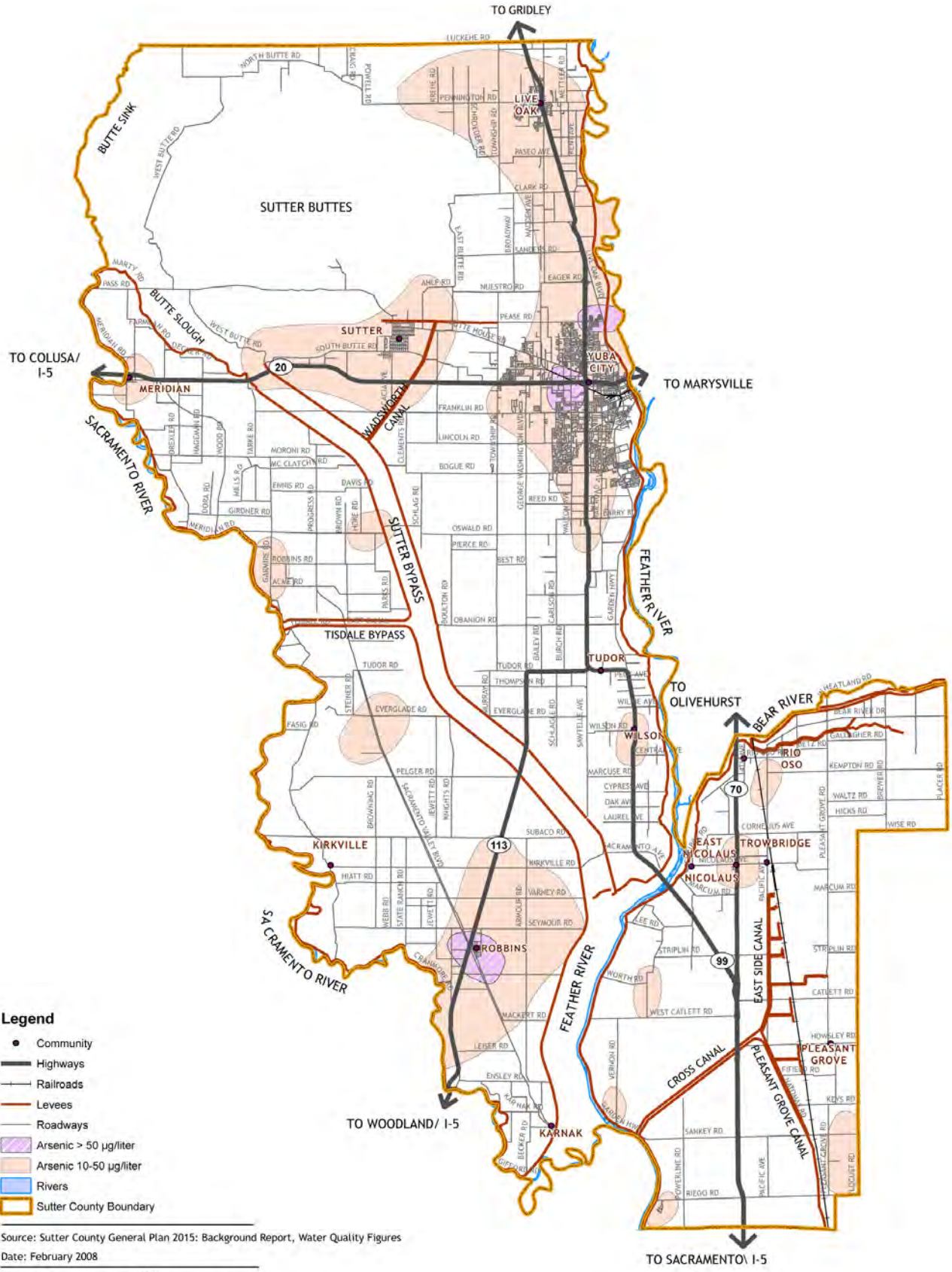
The State is considering Assembly Bill 885 - California Onsite Wastewater Treatment System (OWTS) Regulations (AB 885). If enacted, AB 885 will result in stricter septic system regulations to prevent contamination of groundwater. Sutter County could also pass stricter regulations even if AB 885 is not enacted. An option that would increase the minimum lot size would result in fewer houses/businesses using septic systems, which would result in greater dilution of septic system effluent by the underlying groundwater and reductions in the concentration of contaminants in the groundwater. The County's Groundwater Management Plan (in preparation) could also provide recommendations for minimum parcel sizes needed for use of septic systems.²⁸

Arsenic

Arsenic occurs naturally in the soils/bed rock of several areas in Sutter County. This naturally occurring arsenic enters the groundwater at concentrations that exceed the EPA's maximum contaminant level (MCL) of 10 µg/L (micrograms per liter). The EPA arsenic MCL applies only to public water systems (not to private wells). Many of the private and public groundwater wells in the county do not meet the current MCL. Groundwater in local districts near Yuba City has an average arsenic concentration of 14.4 µg/L. Figure 6.10-5 shows the locations where naturally occurring arsenic levels exceed standards. The City is evaluating options to address this issue, including converting these existing groundwater districts to surface water supplies.²⁹

28 West Yost Associates, Sutter County General Plan Update, Issue Discussion Paper, June 2008, pp. 5-8.

29 Ibid., pp. 2-4.



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REGULATORY CONTEXT

Federal

Flood Hazards

Executive Order 11988 (Flood Plain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial flood plain values. Specifically, federal agencies are directed to avoid conducting, allowing, or supporting actions on the base flood plain unless the agency finds that the base flood plain is the only practicable alternative location.

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on Corps studies and approved agency studies. FEMA is also responsible for distributing the FIRMs, which are used in the NFIP. These maps identify the locations of SFHAs, including the 100-year flood zone.

The National Flood Insurance Act of 1968 made federally subsidized flood insurance available to property owners in communities that participate in the NFIP, which is administered by the FEMA. Sutter County participates in the NFIP and is subject to its regulations, which are implemented through local ordinances and standards, as described under the "Local" subheading, below.

FEMA allows nonresidential development in SFHAs; however, construction activities are restricted depending upon the potential for flooding within each area. Federal regulations governing development in a SFHA are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR), which enables FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year flood plains. In addition, the Flood Disaster Protection Act of 1973 and the National Flood Insurance Reform Act of 1994 mandate the purchase of flood insurance as a condition of federal or federally related financial assistance for acquisition and/or construction of buildings in SFHAs of any community.

Water Quality Protection

The federal CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon bio-monitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards.

The federal Environmental Protection Agency (EPA) has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs to the SWRCB and the RWQCB.

Section 303(d) and Total Maximum Daily Loads (TMDLs)

Section 303(d) of the CWA bridges the technology-based and water quality-based approaches for managing water quality. Section 303(d) requires that states make a list of waters that are not attaining standards after the technology-based limits are put in place. For waters on this list (and where the U.S. EPA administrator deems they are appropriate), the states are to develop TMDLs. TMDLs are established at the level necessary to implement applicable water quality standards. A TMDL must account for all sources of pollutants that cause the water to be listed. Federal regulations require that TMDLs, at a minimum, account for contributions from point sources and nonpoint sources. Specific TMDLs applicable to Sutter County surface waters are summarized under state regulations.

National Pollutant Discharge Elimination System (NPDES)

The goal of the NPDES diffuse source regulations is to improve the quality of stormwater discharged to receiving waters to the “maximum extent practicable” (MEP) through the use of BMPs. The NPDES permit system was established in the CWA to regulate point source discharges (a municipal or industrial discharge at a specific location or pipe) and certain types of diffuse source dischargers. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements. Nonpoint pollution sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Urban stormwater runoff and construction site runoff, however, are diffuse-sources regulated under the NPDES permit program because they discharge to receiving waters at discrete locations in a confined conveyance system. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that the U.S. EPA must consider in setting effluent limits for priority pollutants.

For diffuse-source discharges (e.g., municipal stormwater and construction runoff), the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the MEP. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a Comprehensive Stormwater Management Program. State implementation of the NPDES program as it relates to the 2030 General Plan is discussed below under State regulations. For regulated point source discharges, aside from stormwater runoff, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge.

State

Flood Hazards

Several recent legislative actions have imposed stricter regulation of flood-prone areas. Senate Bill 5 (SB 5) requires the State to establish a Central Valley flood protection plan by 2012, and within two years after the adoption of a flood protection plan by the Central Valley Flood Protection Board (CVFPB, formerly the Reclamation Board), communities within the Sacramento-San Joaquin Valley must amend their general plans to include the data and analysis contained in the plan, identify goals and policies for the protection of lives and property from flooding, and include related feasible implementation measures. Within one year of the general plan adoption, zoning ordinance amendments must be enacted to maintain consistency with the general plan. By 2015, for areas with a population of 10,000 or greater, local governments cannot approve new developments unless the land under review has 200-year flood protection or efforts are in place to provide that level of protection. For areas with a population of less than 10,000, new developments cannot be approved unless the area has 100-year flood protection. Under AB 70, local governments could be held financially liable if they unreasonably approve new developments that are susceptible to flood damage. AB 162 requires jurisdictions to annually review areas covered by the general plan that are subject to flooding as identified by FEMA or DWR. It also allows flood risk to be considered in evaluating the available land suitable for urban development if the flood protection infrastructure required for development would be impractical due to cost or other considerations. The state is also required under AB 156 to prepare flood maps for areas in the Central Valley that are protected by state levees and to annually notify owners of property behind those levees of their flood risks, starting in 2010.

The status of the County's efforts to implement the applicable requirements is described in the Environmental Setting, above.

California Code of Regulations (CCR) Title 23 establishes regulations related to the State Plan of Flood Control and State adopted floodways. These regulations are applicable to the levee systems included in the Sacramento River Flood Control Project.

Water Quality Protection

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwater) and directs the RWQCBs to develop regional Basin Plans.

NPDES General Construction Activity Stormwater Permit

The SWRCB permits all regulated construction activities under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAR000002) adopted September 2, 2009. Every construction project that disturbs one acre or more of land surface or that is part of a common plan of development or sale that disturbs more than one acre of land surface would require coverage under this Construction General Permit. To obtain coverage, the landowner or other applicable entity must file Permit Registration Documents (PRDs) prior to the commencement of construction activity, which include filing a Notice of Intent (NOI), preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP), and submitting other documents and fees required by this Construction General Permit.

The required SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges. The SWPPP required under the Construction General Permit must include specific minimum requirements for construction stormwater quality BMPs, a determination of sediment Risk Level, a Rain Event Action Plan, and monitoring and reporting requirements. Risk levels are based on a matrix of project sediment risk and receiving water risk. Sediment risk is based on estimated soil loss, as calculated by the Revised Universal Soil Loss Equation (RUSLE). Receiving water risk is based on whether a project drains to a sediment-sensitive water body. A sediment-sensitive water body is either on the most recent 303d list for water bodies impaired for sediment; has an EPA-approved TMDL implementation plan for sediment; or has the beneficial uses of cold freshwater habitat, fish spawning, and fish migration. The Risk Level for a particular development project under the 2030 General Plan would be site-specific. The County has adopted an ordinance for implementing NPDES requirements (see "Sutter County Land Grading and Erosion Control Ordinance" under the "Local" subheading, below).

NPDES Construction Dewatering General Permit

Dewatering during construction is sometimes necessary to keep trenches or excavations free of standing water when improvements or foundations/footings are installed where groundwater levels tend to be shallow. Clean or relatively pollutant-free wastewater that poses little or no threat to water quality may be discharged directly to surface water under certain conditions. The CVRWQCB has adopted a general NPDES permit for short-term discharges of small volumes of wastewater from certain construction-related activities. Permit conditions for the discharge of these types of wastewaters to surface water are specified in "General Order for Dewatering and Other Low-Threat Discharges to Surface Waters" (Order No. 5-00-175, NPDES No. CAG995001). Discharges may be covered by the permit provided they are (1) either four months or less in duration, or (2) the average dry

weather discharge does not exceed 0.25 million gallons per day. Construction dewatering, well development water, pump/well testing, and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the permit. The general permit also specifies standards for testing, monitoring, and reporting, receiving water limitations, and discharge prohibitions.

Post-Construction Stormwater Quality Management

The Municipal Storm Water Permitting Program regulates storm water discharges from municipal separate storm sewer systems (MS4s). MS4 permits were issued in two phases, as noted above. Under Phase I, which started in 1990, the RWQCBs have adopted NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. These permits are reissued as the permits expire. As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities. The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program (SWMP) with the goal of reducing the discharge of pollutants to the MEP. MEP is the performance standard specified in Section 402(p) of the CWA. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations.

The MS4 Phase II applies to urban and urbanizing areas, not rural areas. The only MS4 area in Sutter County is within the sphere of influence of Yuba City. Sutter County is a co-permittee with the City of Yuba City and implements the Phase II MS4 General Permit requirements through its storm drainage design criteria, as discussed further below, and through the joint Yuba City – Sutter County Stormwater Management Plan.

Recycled Water General Permit

In July 2009, the SWRCB released the General Waste Discharge Requirements for Landscaping Irrigation Uses of Municipal Recycled Water (Recycled Water General Permit), allowing municipal entities to distribute disinfected tertiary-treated recycled water to select customers for landscaping irrigation (Order No. 2009-0006-DWQ). The Recycled Water General Permit is intended to further the state's Recycled Water Policy (CCR Title 22) and California Water Code Section 13552.5, both of which encourage recycled water for non-potable uses. Under the Recycled Water General Permit, "recycled water" is limited to recycled water produced by a public entity at a municipal wastewater treatment plant. The Recycled Water General Permit notes that the use of recycled water may not be appropriate for all scenarios because of unique site-specific characteristics and conditions.

In addition, because there are certain public health concerns associated with recycled water, the Recycled Water General Permit includes exposure control measures, including minimum setback distances, signage, method of application, and use restrictions and only allows use of water treated to CCR Title 22 tertiary treatment requirements. Other potential public health issues, such as cross-contamination of recycled water and potable water sources, control of recycled water salinity, and chlorination are regulated under the Recycled Water Policy and the Water Code. If development projects under the 2030 General Plan would use recycled water (which must meet the standards noted above), landscape irrigation with recycled water would require coverage under this Recycled Water General Permit or an individual permit.

Regional

Central Valley Flood Protection Board

The CVFPB, formerly "Reclamation Board," owns and oversees all "project levees" developed as part of the federally-funded Sacramento River Flood Control Project. The Corps shares regulatory oversight with the CVFPB. State Maintenance Areas and local levee and reclamation districts have responsibility for maintaining the levees.

The CVFPB ensures the integrity of the Sacramento River Flood Control Project through a permit process. A permit is required for any project or plan of work that meets the following: (1) either within federal flood control project levees and within a Board easement, or may have an effect on the flood control functions of project levees, (2) is within a Board designated floodway, or, (3) is within regulated Central Valley streams listed in Title 23 of the CCR. Any project that proposes to work in a regulated stream, designated floodway on federal flood control project levee slopes or within 10 feet of the levee toe. Such activities might include, but are not limited to boat docks, ramps, bridges, sand and gravel mining, placement of fill, fences, landscaping and irrigation facilities.

Water Quality Control Plan (Basin Plan)

The Basin Plan governing water quality for Sutter County is the *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin*, 1998, 4th edition, as amended. The Basin Plan establishes water quality objectives, and implementation programs to meet stated objectives and to protect the beneficial uses of water in the Sacramento-San Joaquin River Basin. Because Sutter County is located within the CVRWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements.

Local

Sutter County 2015 General Plan

The County's 2015 General Plan contains policies and implementation measures relevant to hydrology and water quality. The 2015 General Plan included policies focusing on minimizing risk and property damage from flooding, protection of surface water and groundwater resources and quality, and stormwater runoff management. The 2015 policies did not, however, reflect the requirements established by SB 5 pertaining to planning and other efforts necessary to ultimately provide for 200-year flood protection. Upon approval of the proposed General Plan, all policies and implementation measures in the 2015 General Plan would be superseded. Therefore, they are not included in this analysis.

Floodplain Management Ordinance

As a participant in the NFIP, Sutter County is required to adopt and enforce a floodplain management ordinance that minimizes future flood risks to new or existing construction. The Floodplain Management Ordinance (Chapter 1780 of the Sutter County Codes and Ordinances) includes methods and provisions for:

- Restricting land-use in flood prone areas;
- Requiring flood protection measures at the time of initial construction for uses that are vulnerable to floods;
- Controls the alteration of natural floodplains;
- Controls activities that may increase flood damage; and
- Prevents or regulates unnatural diversions of floodwaters that could increase flood hazards in other areas.

The current Floodplain Management Ordinance was adopted in October 2008. The ordinance refers to the revised FIRMs dated December 2, 2008 and all subsequent amendments and/or revisions (1780-320). The ordinance will be amended, as necessary, to reflect minor changes (including referencing the revised FIRMs) sometime between the Letter of Final Determination (August 2011) and the effective date of the new FIRMs (February 2012).

Flood Hazard Disaster Planning

The County's principal emergency response plan is the *Yuba City-Sutter County, California Multi-Hazard Mitigation Plan*, adopted in January 2008. The purpose of the plan is to meet the requirements of the Disaster Mitigation Act and thereby maintain continued eligibility for certain hazard mitigation (or disaster loss reduction) programs from FEMA. The plan lays out the strategy that will enable Sutter County to become less vulnerable to future disaster

losses. The plan reviews the County's capabilities with regard to reducing impacts of natural hazards (e.g., flooding, dam failure) and identifies recommended action items to reduce vulnerability to these hazards. The plan addresses the unincorporated county, as well as the cities of Yuba City and Live Oak, and six participating districts: the Gilsizer County Drainage District, Levee District One, and Reclamation Districts 1001, 1500, 70, and 1660.

The plan identifies the following goals and objectives related to flood hazard protection, but it does not contain any specific policies.

Goal 1: Improve community awareness about hazards that threaten our communities and identify appropriate actions to minimize their impacts upon people and property.

Objective 1.1: Increase public awareness about the nature and extent of hazards they are exposed to, where they occur, and recommend responses to identified hazards (create/continue an outreach program, provide educational resources and training)

Goal 2: Minimize Risk and Vulnerability to Flood Hazards

Objective 2.1: Improve the integrity of the levees to at least 100-year flood protection

Objective 2.2: Eliminate open drainage ditches within 20' of traveled roadways within urbanized areas

Objective 2.3: Minimize damage/loss to roads

Objective 2.4: Identify/Protect evacuation routes

Objective 2.5: Reduce localized flooding from storm events

Objective 2.6: Provide Protection for community critical facilities

Sutter County Public Works Design Standards

The Sutter County Department of Public Works Design Standards, adopted by the Sutter County Board of Supervisors on January 24, 2006, sets guidelines for regulating and designing streets, highways, alleys, drainage, sewerage, street lighting, water supply facilities, and related public improvements.

Sutter County's storm drainage design criteria are summarized below.

- Habitable structures shall be protected from the 100-year flood. For arterial roads, two travel lanes in each direction shall be protected from the 100-year flood. For other roads, one travel lane in each direction shall be protected from the 10-year flood.

- Drainage systems shall be designed to accommodate the ultimate development of the entire upstream watershed.
- The grading plan shall ensure that the flow from a 100-year design storm can flow through the development without flooding structures even in the event of a failure of the storm drain collection system.
- Runoff rates shall be calculated using the rational method for areas less than 100 acres. For areas greater than 100 acres, or watersheds of any size using runoff detention storage, a unit hydrograph method (using a rainfall-runoff computer model like HEC-1) shall be used with a storm duration of 24 hours.
- Storm drains (closed conduits) shall be designed for the peak 10-year runoff with the maximum hydraulic grade line at least 0.5 foot below the inlet grate/maintenance hole covers. The minimum pipe size shall be 12 inches. The minimum velocity shall be 2 fps. The pipe slope shall equal the hydraulic gradient and the pipe shall be sized with full flow.
- Open channels shall be designed for the peak 100-year flood event. The minimum velocity shall be 2 fps for the 100-year flow rate. The maximum velocity shall be 6 fps for earthen channels, 8 fps for bottom-lined channels and 10 fps for fully lined channels. No channel freeboard requirements are provided.

No detention basin criteria are provided.

These standards were developed for relatively small rural development projects that have occurred in the County in the past. Some of these standards are not suitable for moderate and large development projects, such as the SPSP in south Sutter County within the Natomas Basin. Also, for some complex infrastructure projects, the standards do not provide enough guidance to plan or design the required facilities.³⁰ The 2030 General Plan policies and implementation programs address these issues. Implementation program 3.33, in particular, requires updates to the County improvement standards. Sutter County Water Resources Division completed its section of the design standards last year. The design standards are now in the Sutter County Engineering Branch waiting for implementation.

Sutter County Land Grading and Control Ordinance

The Sutter County Design Standards require all construction sites, regardless of the area disturbed, to implement BMPs to mitigate the discharge of pollutants and provide erosion control in accordance with the NPDES Construction Activity General Permit. The Design Standards reference the California Stormwater Quality Association's (CESQA) Stormwater Best Management Practice Handbook, Construction for guidance on use of BMPs.

30 Ibid., Utilities.

Sutter County adopted a Land Grading and Erosion Control Ordinance in December 2009 (Ordinance No. 1522). It is codified as a new Chapter 1770 in the Sutter County Codes and Ordinances. The requirements of Chapter 1770 apply to all lands within the unincorporated area of the County and those areas in County drainage districts. The new Chapter 1770 provides a comprehensive code for land grading and erosion control to minimize damage to properties, the degradation of water quality of watercourses, and the disruption of natural drainage flows. The ordinance updates regulations as required under the County's NPDES permit.

Yuba City-Sutter County Storm Water Management Program

As a co-permittee with the City of Yuba City, the County implements the NPDES Phase II MS4 General Permit requirements through the joint Yuba City – Sutter County Stormwater Management Plan (SWMP), which was adopted in 2003. The SWMP includes the required six minimum control measures required under the NPDES Phase II MS4 program: public education and outreach; public participation/involvement; illicit discharge detection and elimination; construction site runoff control; post-construction runoff control; and pollution prevention/good housekeeping.

IMPACTS AND MITIGATION MEASURES

Methods of Analysis

Hydrology, flooding, and water quality effects were qualitatively evaluated by reviewing the proposed General Plan land use map and development assumptions to determine which areas of the County would experience changes in land use. The analysis identifies the types of land use changes that have the potential to create hydrology, flooding, or water quality impacts. Land use changes with the greatest potential for project-induced hydrologic and water quality changes were assumed in the conversion of undeveloped or vacant land, including agricultural land, to impervious surfaces supporting urban uses because such changes would generate new or increased stormwater runoff and/or water quality impacts. There is a comprehensive regulatory framework in place in the county to ensure consistency with federal and state water quality programs, and the analysis assumes compliance with these regulations because they are mandatory. Areas subject to flood hazards were identified by reviewing the proposed land use map in the context of new FEMA SFHA mapping and the results of ongoing studies and FEMA decisions. The proposed General Plan attempts to identify areas in the county most likely to support development without experiencing flooding, and includes policies to address those problems. Extensive hydrologic modeling has been and will continue to be performed to identify flood elevations for required flood insurance programs. As such, the impact analysis assumes the regulatory process in place for imposing FEMA and local regulations for flood hazard protection does not require additional detailed evaluation or quantification. Potential

groundwater recharge impacts were based on previous hydrologic studies prepared for the groundwater basin, as indicated in the footnotes. The analysis of dam failure inundation impacts is necessarily qualitative because mapping showing potential hazard areas are not publicly available. There are no components of the proposed General Plan that would directly affect dam operations. Historic information suggests while dam failure cannot be prevented, the likelihood is remote and there is no compelling evidence to support a detailed or quantitative analysis. Impacts pertaining to groundwater quality (nitrate from septic system use) were qualitatively evaluated by reviewing the types of proposed land uses relative to the availability of sewer infrastructure and existing regulations and proposed programs and policies to address the issue. Arsenic levels in groundwater as it relates to the quality of potable water supply for existing and future growth is evaluated in Section 6.13, Utilities-Water Supply.

The impact analysis analyzes buildout of the proposed General Plan under both the adjusted buildout scenario as well as full buildout.

Proposed Sutter County General Plan Goals and Policies

The following goals and policies from the proposed General Plan area relevant to hydrology, flooding, and water quality within the policy area are listed below. The proposed General Plan also contains numerous policies related to water supply planning/infrastructure. To the extent such policies are assumed to mitigate a specific impact in this section, they are listed here. Please see Section 6.13, Public Utilities-Water Supply, for the complete list of water supply policies.

ENVIRONMENTAL RESOURCES ELEMENT (ER)

Water Resources and Quality

Goal ER 6 Preserve and protect the County's surface water and groundwater resources.

Policies

- ER 6.2 **Surface Water Resources.** Protect the surface water resources in the County including the Sacramento, Feather and Bear Rivers and their significant tributaries.
- ER 6.4 **Groundwater Recharge Areas.** Require new development to preserve areas that provide important groundwater recharge, stormwater management and water quality benefits such as undeveloped open spaces, natural habitat, riparian corridors, wetlands, and natural drainage areas.
- ER 6.5 **Regional Coordination on Groundwater Use.** Coordinate with local and regional jurisdictions on groundwater use to minimize overdraft conditions of aquifers.
- ER 6.7 **Water Rights.** Support the protection of the existing water rights of water agencies and providers within Sutter County. Do not support out-of-area water transfers where they would adversely impact water supply within Sutter County. Support

either out-of-area, or in-basin water transfers that would not negatively impact water supply within Sutter County.

- ER 6.8 **Recycled Water.** Explore the feasibility of utilizing recycled water, where appropriate, cost effective, and safe.
- ER 6.9 **Water Use Reduction.** Implement, as appropriate, the reduction measures in the Climate Action Plan targeted to reduce water use. Such measures may include: adopting a per capita water use reduction goal; implementing a water conservation and efficiency program; providing incentives for new development to reduce potable water use; installing water meters for uses not using wells; encouraging water suppliers to adopt a water conservation pricing schedule; encouraging upgrades in water efficiency; providing training and education on water efficiency; and increasing recycled water use.
- ER 6.10 **Stormwater Quality.** Control pollutant sources from construction and operational activities, and improve stormwater runoff quality, through the use of stormwater protection measures in accordance with County, State, and federal regulations.
- ER 6.11 **New Development.** Require new development to protect the quality of water resources and natural drainage systems through site design, and use of source controls, stormwater treatment, runoff reduction measures, best management practices, and Low Impact Development.
- ER 6.12 **Natural Watercourses.** Require new development to integrate natural watercourses and provide buffers between waterways and urban development to minimize disturbance of watercourses and to protect water quality.
- ER 6.13 **Education.** Educate the public about practices and programs to minimize water pollution.

Implementation Programs

- ER 6-A Develop a Countywide Groundwater Management Plan and participate in the development and implementation of an Integrated Regional Water Management Plan.
- ER 6-B Conduct a study to determine the feasibility of utilizing recycled water, where appropriate, cost effective, and safe.
- ER 6-C Update and revise the joint Yuba City – Sutter County Stormwater Management Plan to include the growth areas.
- ER 6-D Require new development that incorporates or is adjacent to natural watercourses to consult with the U.S. Army Corps of Engineers, California Department of Fish and Game, and/or the Regional Quality Control Board to determine the appropriate buffer width between waterways and urban development.

INFRASTRUCTURE ELEMENT (I)

Water Supply

Goal I 1 Ensure the availability of an adequate, reliable, and safe potable water supply for current and future County residents, businesses, and other water users.

Policies

- I 1.1 **Availability.** Require new development to study, coordinate and plan the provision of potable water services to support the new development and demonstrate the availability of a long-term, safe, and reliable potable water supply.
- I 1.8 **New Development.** Require new development to provide water systems supporting the development based on the following guidelines for water supply:
- a. Urban development, and suburban development on parcels less than one acre in size, shall utilize community water systems.
 - b. Rural development, and suburban development on parcels one acre or larger in size, shall utilize community water systems where feasible and cost effective as determined by the County. If utilizing a community water system is not feasible, individual wells may be used where the water demand/intensity of new development is appropriately limited and where adequate and safe long-term water supply can be provided without negatively impacting adjacent land uses or water supplies.
 - c. Agricultural areas may utilize individual water wells.
- I 1.11 **Improve Water Availability.** Support the creation of new water projects in appropriate locations that improve water availability for urban, rural, and agricultural water uses in Sutter County, including recycled water projects.
- I 1.12 **Water Conservation.** Support water conservation programs that increase water use efficiency, and provide incentives for adoption of water-efficiency measures.
- I 1.13 **Water-Efficient Landscaping.** Require the use of water-efficient landscaping in new development.

Wastewater

Goal I 2 Ensure efficient and safe collection, treatment, and disposal of wastewater, biosolids, and septage.

Policies

- I 2.8 **New Development.** Require new development to provide wastewater systems supporting the development based on the following guidelines for wastewater collection and disposal:
- a. Urban development shall utilize publicly-owned treatment works [POTW].
 - b. Rural development and suburban development shall utilize POTW when feasible and cost effective as determined by the County. If utilizing a POTW is

not feasible, rural development may utilize individual wastewater treatment and disposal systems where soil conditions are acceptable; all County, state, and federal requirements can be met; the wastewater generation/intensity of new development is appropriately limited; and long-term disposal can be provided without negatively impacting adjacent land uses or groundwater supplies.

- c. Agricultural areas may utilize individual wastewater treatment and disposal systems where soil conditions are acceptable and all County, state, and federal requirements can be met.

12.9 **Connection to Publicly-Owned System.** Connect existing developed areas to publicly-owned treatment works where practical.

12.10 **Groundwater Protection.** Continue to regulate the siting, design, construction and operation of wastewater disposal systems in accordance with County regulations to minimize contamination of groundwater supplies.

Stormwater

Goal I 3 Ensure stormwater runoff is collected and conveyed safely and efficiently.

Policies

13.1 **Availability.** Require new development to study, coordinate and plan the provision of stormwater services to support the new development and demonstrate the availability of long-term, safe, and reliable stormwater collection, and conveyance.

13.2 **Infrastructure Planning.** Establish stormwater collection master plans for areas served, or to be served, by County-owned or County-operated stormwater systems. Ensure that the required infrastructure is successfully planned and designed.

13.3 **Capital Funding.** Require new development to construct or fully fund its needed stormwater infrastructure.

13.4 **Efficient Infrastructure.** Require stormwater infrastructure that is to be owned or operated by the County to be designed and constructed to minimize the long-term life cycle costs of the infrastructure. Require the plans and design of stormwater infrastructure to be owned and/or operated by another public agency or private utility be approved by the servicing agency/utility.

13.5 **Dedications.** Require fee title dedication of land (or easements if determined appropriate by the Public Works Director) to the County to ensure adequate space for, access to, operation of, maintenance of, and repair of the stormwater infrastructure.

13.6 **Operations and Maintenance Funding Plans.** Require new development to establish funding plans to cover the long-term operation, maintenance, and repair of the development's stormwater infrastructure.

- 13.7 **Provision of Services.** Minimize County operated stormwater systems serving urbanized areas. Transfer County operated stormwater systems in urban areas to incorporated cities, water agencies, County drainage districts, or public community service districts where and when feasible and beneficial to the customers.
- 13.8 **New Development.** Require new development to provide stormwater systems supporting the development based on the following guidelines for stormwater collection and conveyance:
- a. Urban development shall utilize underground storm drain systems sized to collect and convey peak flows from the 10-year storm; and may utilize overland flow systems and open channels sized to convey peak flows from the 100-year storm. Detention facilities shall be consolidated at publicly-owned points in the system.
 - b. Rural development and suburban development shall utilize underground storm drain systems where feasible and cost effective as determined by the County, sized to collect and convey peak flows from the 10-year storm; and may utilize overland flow systems and open channels sized to convey peak flows from the 100-year storm. If utilizing an underground system is not feasible, rural development may utilize detention facilities and open channels for stormwater collection and conveyance, provided these systems prevent property damage from a 100-year storm event.
 - c. Agricultural areas may utilize detention facilities and open channels for stormwater collection and conveyance, provided these systems prevent property damage from a 100-year storm event.
- 13.9 **Connection to Publicly-Owned System.** Connect existing developed areas to publicly-owned stormwater drain or open channel systems where practical.
- 13.10 **Mitigation of Stormwater Flows.** Require new development to adequately mitigate increases in storm water flow rates and volume.
- 13.11 **Stormwater Quality.** Ensure that new development protects water quality in runoff, streams, and rivers.
- 13.12 **Joint Use of Open Channels and Detention Basins.** Parks or sports fields may be located within stormwater detention basins where practical. Bicycle paths and walkways may be located within stormwater conveyance channels, or on service roads for channels, where practical. Open channels and stormwater detention basins shall normally not be used for habitat purposes.

Implementation Programs

- 11-A Review new development applications in unincorporated areas to ensure that adequate water service will be available through the County, or other service providers, to serve the new development. Require evidence of service availability.
- 11-B Condition new development to perform a water supply assessment in accordance with the requirements of state law.

- I 1-I Review new development to ensure that proposed water systems are adequate and appropriate for the type of development and are consistent with federal, state, and local codes and standards, and master plans.
- I 1-J Require a groundwater study prior to development of new well systems serving urban/suburban and rural/suburban development to identify potential effects on aquifer volume and groundwater levels and the extent to which existing municipal and agricultural wells could be affected. The results of the study shall be used to develop the proper siting, design, and operation of new or expanded well systems, including a process for ongoing monitoring and contingency planning.
- I 1-N Develop water conservation standards for new development to increase water use efficiency.
- I 2-H Review new development to ensure that proposed wastewater systems are adequate and appropriate for the type of development and are consistent with federal, state, and local codes and standards, and master plans.
- I 2-I Apply, and update as necessary, County code and development standards regarding on-site wastewater disposal. Permit on-site wastewater treatment and disposal on existing lots only when appropriate for the type of development, where a publicly-owned collection system is not reasonably available, and where such disposal will not constitute a hazard to health or water supplies.
- I 2-J Condition new development, where authorized to utilize individual wastewater treatment and disposal systems as an interim measure, to connect to a publicly-owned wastewater collection system and treatment works when the publicly-owned collection system is within 200 feet of the development, and the system owner agrees to allow the connection.
- I 2-K Require existing development using individual wastewater treatment and disposal systems to connect to a publicly-owned wastewater collection system and treatment works when the publicly-owned collection system is within 200 feet of the development, the system owner agrees to allow the connection, and the individual system no longer complies with applicable regulations or requires significant repairs.
- I 2-L Restrict new development use of septic systems in areas that are prone to flooding or that have a seasonal high water table and/or water seepage problems.
- I 3-A Review new development applications in unincorporated areas to ensure that adequate stormwater service will be available through the County, or other service providers (including the State for any State-owned pump stations), to serve the new development. Require evidence of service availability. If the use of State-owned pump stations is proposed, sufficient capacity shall be demonstrated through completion of a drainage study that is incorporated into any countywide or master drainage study.

- I 3-B Develop stormwater service guidelines and possible agreements with the cities of Live Oak and Yuba City for the provision of stormwater service within the cities' spheres of influence.
- I 3-C Develop a Countywide stormwater master plan consistent with this General Plan; require design of stormwater systems to be consistent with the approved master plan; and ensure stormwater systems are constructed consistent with the approved designs.
- I 3-D Apply, and update as necessary, County improvement standards regarding stormwater drainage, infrastructure, planning, design and construction disposal.
- I 3-E Condition new development to construct infrastructure and dedicate land to support development as identified in the Countywide stormwater master plan or other development studies. Condition new development to construct necessary stormwater infrastructure prior to the issuance of building permits for residential development or certificate of occupancy for non-residential development; or if appropriate, ensure the stormwater infrastructure is adequately financed through development impact fees or by agreement.
- I 3-F Where the development's contribution to the stormwater infrastructure exceeds its fair share, require the development to fully fund the infrastructure and be reimbursed as the County receives impact fees/funding from other future development benefitting from the improvements.
- I 3-G Condition new development to develop and implement a financing mechanism to fund the long-term operations and maintenance needs of the stormwater infrastructure. Funding plans shall ensure the collection of sufficient funds to cover current and anticipated future expenditures, capital replacements, and cost increases. Funding should normally be collected through service fees and assessments.
- I 3-H Review new development to ensure that proposed stormwater systems are adequate and appropriate for the type of development and are consistent with federal, state, and local codes and standards, and master plans.
- I 3-I Require existing development using individual detention or retention facilities to connect to a publicly-owned stormwater collection system when the publicly-owned collection system is within 200 feet of the development and the system owner agrees to allow the connection.
- I 3-J Condition new development to adequately study and plan local drainage for the development. Require that new development conform to the relevant County, State, and Federal requirements and standards governing stormwater drainage and water quality.
- I 3-K Consider opportunities for joint recreational use of new public detention basins and open channels.

PUBLIC HEALTH AND SAFETY ELEMENT (PHS)

Flood Protection

Goal PHS 1 Minimize the potential for loss of life, personal injury and property damage associated with floods.

Policies

PHS 1.1 **NFIP.** Continue to participate in the National Flood Insurance Program and the Community Rating System.

PHS 1.2 **Minimize Risk of Flood Damage.** Require a minimum of 100-year flood protection and regulate development in accordance with local, State, and federal requirements to avoid or minimize the risk of flood damage.

PHS 1.3 **Flood Protection for New Development.** Require new development in urban and/or urbanizing areas to provide 200-year flood protection within three years of adoption of the Central Valley Flood Protection Plan in accordance with state regulations, and require new development outside urban or urbanizing areas to provide 100-year flood protection in accordance with Federal regulations.

PHS 1.4 **Development in Dam Inundation Areas.** Require new development located in dam inundation areas to consider the risks from dam failure.

PHS 1.5 **Essential Facilities.** Require that new essential public facilities (e.g., hospitals, health care facilities, emergency shelters, fire stations, etc.) be located, when feasible, outside of flood hazard zones, as defined by FEMA, or designed to maintain the structural and operational integrity of the facility during flooding events.

PHS 1.6 **Inter-Agency Coordination.** Coordinate efforts with local, regional, State, and federal agencies to maintain and improve the existing levee system to protect life and property.

Emergency Response and Disaster Preparedness

Goal PHS 4 Respond appropriately, effectively, and efficiently to natural and human-made emergencies and disasters.

Policy

PHS 4.6 **StormReady Program.** Continue to be a member of the StormReady Program ensuring a higher level of community awareness to minimize the loss of life and property from severe weather.

Implementation Programs

PHS 1-A Work with local, regional, State, and federal agencies to develop funding mechanisms to finance local flood protection responsibilities, and pursue funding to improve flood protection in Sutter County.

- PHS 1-B Evaluate whether new development should be located within flood hazard zones as designated by FEMA. If new development is located within a flood hazard zone, the identification of construction methods or other methods, as well as elevation and floodproofing, will be required to minimize damage consistent with the County's Floodplain Management Ordinance.
- PHS 1-C Annually review the unincorporated areas of Sutter County that are subject to flooding as identified by floodplain mapping prepared by FEMA or DWR, and amend the General Plan as appropriate to reflect any changes.
- PHS 1-D Require new development to be consistent with regional flood improvement efforts, and contribute its fair-share basis to regional solutions to improve flood protection to meet State and federal standards.
- PHS 1-E Require new development that would be located in areas subject to flood hazards to provide risk notifications to the new residents.
- PHS 1-F Once the Central Valley Flood Protection Plan is adopted, amend the General Plan within 24 months and Zoning Code within 36 months to be consistent with that Plan.

Standards of Significance

For the purposes of this EIR, impacts to hydrology, flooding and water quality are considered significant if the proposed General Plan would:

- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation;
- violate any water quality standards or waste discharge requirements, including NPDES waste discharge or stormwater runoff requirements, state or federal antidegradation policies, enforceable water quality standards contained in the Central Valley RWQCB Basin Plan or statewide water-quality control plans, or federal rulemakings to establish water quality standards in California;
- create or contribute runoff water that would exceed the capacity (peak flow) of existing or planned stormwater drainage systems;
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam;³¹

31 For purposes of these thresholds, "flood hazard area" means an area that does not meet the minimum level of flood protection required by state or federal law, whichever is more stringent. Depending on when the Central Valley Flood Protection Plan takes effect, 100-year protection is considered to be the standard applicable until 2015. At that point, the applicable standard would be governed by SB 5, namely, either 200-year protection or "adequate progress" (as defined by the requirements of SB 5) toward meeting the 200-year protection standard by 2025.

- place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or FIRM or other flood hazard delineation map;
- place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a substantial lowering of the level of the local groundwater table; or
- substantially degrade water quality and violate any water quality objectives set by the SWRCB, due to increases in sediments and other contaminants generated by construction or operational activities.

Impacts and Mitigation Measures

6.10-1 Implementation of the proposed General Plan could increase exposure of people and/or property to risk of injury and damage from a 100-year flood.

As shown in Figure 6.10-3, nearly all of Sutter County is anticipated to be in a FEMA special flood hazard zone. The 2030 General Plan would designate land for future development both in undeveloped areas as well as in developed areas that would increase the number of residents and structures exposed to potential hazards from regional flooding.

As required by SB 5, the General Plan includes policy PHS 1.2, requiring a minimum of 100-year flood protection and development regulations, and policy PHS 1.3 that requires new development in urban and/or urbanizing areas to provide 200-year flood protection within three years of adoption of the Central Valley Flood Protection Plan, and new development outside the urban or urbanizing areas to provide 100-year protection. Sutter County is actively working with several other agencies to ensure that the river and bypass levee system that protects the County has adequate conveyance capacity, freeboard, and that the structural integrity of the levees meets federal standards. Sutter County is one of several members of the SBFCA. SBFCA is a Joint Exercise of Powers Agency that includes Sutter and Butte counties; the cities of Yuba City, Live Oak, Gridley, and Biggs; Levee District 1 and 9; and the Sutter County Water Agency. The purpose of the SBFCA is to plan, design, acquire, construct, operate, maintain, and manage flood control facilities to protect its member agencies. A large portion of southern Sutter County is in the Natomas Basin, and for that area, SAFCA is managing the efforts to provide 100-year (and future 200-year) flood protection.

Policies PHS 1.1 and PHS 1.6 require the County to maintain eligibility under the NFIP and cooperate with regional flood planning efforts. To maintain eligibility, the County updated its Floodplain Management Ordinance in October 2008. Because the ordinance refers to the FIRMs dated December 2, 2008 and all subsequent amendments and/or revisions (1780-320), only minor changes (including referencing the revised FIRMs anticipated in December

2010 and June 2011) would be necessary. The ordinance imposes specific requirements on new development.

Funding mechanisms to implement the flood protection program would be developed through local and regional cooperative efforts (Implementation Program PHS 1-A for policy PHS 1.2). The County would continue to implement the StormReady Program (policy PHS 4.6).

New public facilities such as hospitals, health care facilities, emergency shelters, and fire stations, for example, which would be constructed to serve future development under the General Plan could be subject to flood hazards, depending on location. Policy PHS 1.5 encourages the County to site such facilities outside flood hazard zones. However, for those locations that cannot be sited outside a flood hazard zone, policy PHS 1.5 would require these facilities remain operational during flood events.

Implementation of the policies in the General Plan, in combination with the requirements under the current Floodplain Management Ordinance and the County's participation in the SBFCA, would ensure the County's responsibility for managing flood hazard risk to existing and future development is managed in accordance with federal, state, and local laws and regulations. This would reduce the potential for placement of housing or structures in a 100-year flood hazard zone that could impede or redirect flood flows, or expose people and property to 100-year flood hazard. Impacts would be *less than significant*.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with flooding assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

6.10-2 Implementation of the proposed General Plan could increase stormwater peak flow runoff rates that could exacerbate localized flooding.

The proposed General Plan land use designations would increase the number of acres that could be developed with urban uses by approximately 33,000 acres (slightly more than 8 percent of the policy area). This includes the 7,528-acre SPSP that was previously analyzed under a separate EIR. The areas evaluated in the Sutter County General Plan EIR total approximately 25,000 acres, excluding the SPSP area. New residential, commercial,

and industrial land uses would increase impervious surfaces within the policy area. As the density of an area is intensified, natural vegetated pervious ground-cover could be converted to impervious surfaces such as paved streets, rooftops, and parking lots that increase runoff rates. The introduction of new or expanded impermeable surface areas would affect absorption rates, drainage patterns, and/or the rate of surface runoff. If drainage infrastructure capacity is insufficient to accommodate increased runoff, existing localized flooding conditions could be exacerbated within the development area or upstream or downstream of the development.

Construction of storm drainage systems is most cost effective when a system can be constructed to serve large numbers of properties or if stormwater service can be connected to an existing system. The systems also need to be planned and sized to serve the expected level of development. Typically, this occurs through preparation of a stormwater master plan or a master drainage plan as part of a large development project or a specific plan for a development area.

Both the cities of Live Oak (in cooperation with RD 777) and Yuba City are in the process of developing master drainage plans to address future development. Implementation Program I 3-B provides for cooperation between the County and Live Oak and Yuba City to develop stormwater service guidelines and possible agreements. When those plans are implemented, drainage capacity would be managed to reduce the potential for increased localized flooding as a result of future growth in those urban areas.

The area of proposed Agricultural Rural Community north of Butte Avenue and along Butte Avenue would be drained into the West Intercepting Canal and would then flow to the Wadsworth Canal and the Sutter Bypass. The rest of the Sutter community would drain through storm drain systems to a detention basin located near the south edge of the community. From the basin, this water could either be pumped into the Wadsworth Canal or flow down to the existing State of California-owned pump station located near the confluence of the Wadsworth Canal and the Sutter Bypass. It is not known if there is sufficient capacity at the State-owned pump station. A drainage study should be prepared that evaluates the adequacy of the State's pump station and compares the costs of expanding that station (if needed) with the cost of constructing a new pump station to pump into the Wadsworth Canal.³² Until such a study is completed and necessary performance standards and design criteria are identified to ensure the pump station has sufficient capacity, there is the potential storm flows from future development within the community of Sutter could create or contribute runoff water that would exceed the capacity (peak flow) of an existing or planned stormwater drainage system.

32 West Yost Associates, Sutter County General Plan Update Land Use Alternatives Analysis, September 2009, Chapter 4.D: Utilities Analysis.

The County requires (through its Department of Public Works Design Standards, (which are being updated) that development projects mitigate their increased runoff to prevent the potential for increased flooding. This can be accomplished through peak flow attenuation (e.g., detention basins) and/or increasing the conveyance capacity of the drainage system. In addition, for the unincorporated county, the General Plan contains numerous policies and implementation programs to ensure stormwater runoff is collected and conveyed efficiently to reduce the potential for localized flooding. Proposed General Plan policies I 3.1, I 3.3, I 3.6, I 3.8, and I 3.10 require new development to develop a plan and construct or fully fund stormwater systems to mitigate flows, and to provide for long-term operation and maintenance of the development's system. Specifically, implementation program I 3-A requires that the County review new development applications in unincorporated areas to ensure that adequate stormwater service will be available through the County, or other service providers (including the State for any State-owned pump stations), to serve the new development. Evidence of service availability would be required. If the use of State-owned pump stations is proposed, sufficient capacity shall be demonstrated through completion of a drainage study that is incorporated into any countywide or master drainage study. Policy I 3.2 provides an option for County-owned systems to be developed. For those systems operated by the County or dedicated to the County, policies I 3.4 and I 3.5 direct the County's responsibilities to maintain the facilities. Other approaches to ensuring integration of stormwater infrastructure include: General Plan policy I 3.7, which encourages limiting County-operated stormwater systems in urban areas and transferring County systems in urban areas to cities, water agencies, drainage districts, or public community service districts where and when feasible and beneficial to the customers; and, policy I 3.9, which directs that existing developed areas be connected to publicly-owned stormwater drain or open channel systems where practical. Joint use of open channels and detention basins for active and passive recreation is also encouraged (policy I 3.12).

Implementation of the proposed policies and implementation programs would ensure that stormwater flows could be accommodated through existing or new stormwater drainage systems, and impact would be *less than significant*.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with stormwater runoff assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

6.10-3 Implementation of the proposed General Plan would increase the amount of developed area that could be subject to flood inundation from dam failure.

The Steidlmayer #3 Dam (under the jurisdiction of the DSOD) is located in the northwest interior of the Sutter Buttes. It is relatively small, and any failure of this dam would result in minimal property damage. There are, however, 10 larger dams outside the county listed in Table 6.10-1, all under the jurisdiction of the DSOD, that have the potential to cause significant flooding in Sutter County if any were to fail. These dams are operated under a variety of goals and regulations including flood control, water supply, fisheries, and other beneficial uses.

When dams are constructed for flood protection, they usually are engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If a larger flood occurs, then that structure would be overtopped. Overtopping is the primary cause of earthen dam failure in the United States. Failed dams can create floods that are catastrophic to life and property as a result of the tremendous energy of the released water. A catastrophic dam failure could easily overwhelm local response capabilities and require mass evacuations to save lives. Impacts to life safety would depend on the warning time available and the resources to notify and evacuate the public.³³

There are no aspects of the proposed General Plan that would directly affect dam operations that could, in turn, increase dam failure potential. However, implementation of the proposed General Plan would result in additional development that could be exposed to flooding from failure or damage of one of these dams if the location is in an area subject to dam failure flows. All area dams have performed well during past disasters and are expected to exceed their design limits during future events, but the county remains at risk to dam failures from numerous dams under a variety of ownership and control and of varying ages and conditions. As a result, the potential exists for future dam failures to occur in the policy area.³⁴

Proposed policy PHS 1.4 requires that if new development is located in dam inundation areas that risks from dam failure will be considered. Such risks can be determined by reviewing the appropriate dam failure inundation maps and associated reports, which

33 Yuba City and Sutter County, Yuba City-Sutter County, California Multi-Hazard Mitigation Plan, prepared by AMEC, October 2007, p. 76.

34 Ibid., p. 79.

typically describe time of arrival and flooding depths. While these reports are not publicly available, government entities do have access to the data for hazard planning purposes. The County has prepared and currently implements a Multi-Hazard Mitigation Plan that describes planning scenarios, response capabilities, and mitigation strategy for flooding as a result of dam failure.

Although dam failure inundation cannot be avoided, with proper siting of new development and implementation of existing emergency response planning programs, implementation of the 2030 General Plan would not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of dams. Impacts would be *less than significant*.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with dam failure assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

6.10-4 Construction of new development under the proposed General Plan would generate additional sources of stormwater runoff that could contain urban contaminants that could affect receiving water quality.

Development of the residential, commercial, and industrial land use designations in the proposed General Plan could include result in construction activity on approximately 33,000 acres, primarily as a result of conversion of undeveloped (vacant or agricultural) land to urban uses and some infill projects through changes in land use/zoning.

The substantial construction-related alteration of on-site drainages could result in soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from project related construction sites. This contaminated runoff could enter on-site drainage channels and ultimately off-site drainage channels. Many construction-related wastes have the potential to degrade existing water quality by altering the dissolved-oxygen content, temperature, pH, suspended-sediment and turbidity levels, or nutrient content, or by causing toxic effects in the aquatic environment. Therefore, project-related construction activities could violate water quality standards or cause direct harm to aquatic organisms.

Localized erosion hazards are relatively low because the areas of the county that could be developed under the proposed General Plan are generally flat and the soil types have little erosion hazard. However, intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of drainage channels. Further, the compaction of soils by heavy equipment may reduce the infiltration capacity of soils and increase the potential for runoff and erosion. Non-stormwater discharges could result from activities such as construction dewatering procedures, or discharge or accidental spills of hazardous substances such as fuels, oils, concrete, paints, solvents, cleaners, or other construction materials.

Policy ER 6.10 strives to reinforce the need to control pollutant sources from construction to help protect water quality. To accomplish this, the project-related erosion and water quality impacts would be minimized through implementation of State-required water quality protection regulations and the County's Land Grading and Erosion Control Ordinance (Chapter 1770 of the County Code), which conforms to State NPDES requirements pertaining to General Construction Activity permits. The provisions of the Land Grading and Erosion Control Ordinance would apply to all lands within the unincorporated area of the County and those areas in County drainage districts where development under the proposed General Plan could occur.

To address potential construction-related impacts, project applicants would be required to comply with the following:

- Filing of a NOI for coverage under the current adopted State NPDES General Permit for Discharges of Storm Water Runoff associated with Construction Activity to the SWRCB for the regulation of storm water discharges caused by the proposed project's construction activities, such as clearing, grading, stockpiling, or excavation activities, that result in soil disturbances at the proposed project site.
- Erosion control BMPs, sediment control BMPs, and good housekeeping practices (e.g., clean up of leaks and spills, proper storage of chemicals and equipment, trash pick-up, general clean up of common areas, and others), to be implemented during construction. Examples of construction site BMPs from the CASQA include: scheduling construction to occur during non-rainy seasons; preserving existing vegetation; mulch or straw to cover the ground surface; geotextile fabrics or/and mats to cover the ground surface; soil binders to prevent erosion; drainage swales and slope drains; and sediment basins.
- Preparation of a SWPPP, which includes a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills) to include a description of the type and location of erosion and sediment control BMPs to be implemented at the project site; and, a BMP monitoring

and maintenance schedule to determine the amount of pollutants leaving the proposed project site.

- The SWPPP must also include a determination of sediment Risk Level, a Rain Event Action Plan, and monitoring and reporting requirements. Risk levels are based on a matrix of project sediment risk and receiving water risk.
- Effluent monitoring and reporting for pH and turbidity in stormwater discharges is required to determine compliance with General Permit terms for action levels and effluent levels. The General Permit also requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements.

County staff would be responsible for ensuring projects comply with these requirements by ensuring improvement and grading plans contain the specific requirements and through inspections, monitoring, and, if necessary, enforcement.

There are no elements of the proposed General Plan that are expected to violate water quality standards, result in substantial erosion-related water quality effects, or otherwise adversely affect water quality as a result of construction of future growth envisioned under the plan. Impacts would be *less than significant*.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with water quality assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

6.10-5 Operation of new developed land uses under the proposed General Plan would generate additional sources of stormwater runoff that could contain urban contaminants that could affect receiving water quality.

Development under the General Plan would increase the amount of land that could be developed with urban uses by approximately 33,000 acres to accommodate new residential, commercial, and industrial land uses, which would increase impervious surfaces within the policy area. As the density of an area is intensified, natural vegetated pervious ground-cover could be converted to impervious surfaces such as paved streets, rooftops, and parking lots that increase runoff rates. The introduction of new or expanded impermeable surface areas would affect absorption rates, drainage patterns, and/or the

rate of surface runoff, which could affect water quality by potentially increasing sediment and contaminant loads. The extent to which water quality could be affected would depend on the volume of stormwater and the type and levels of contaminants.

Water quality impacts that could occur from future development activities in the policy area would typically be associated with the following land uses:

- Residential – Residential activities often involve conventional maintenance of landscaping (e.g., using fertilizers, herbicides, pesticides, fungicides, and other chemicals) that can enter stormwater runoff. In addition, motor vehicle operation and maintenance introduces oil and other petroleum-based products, heavy metals such as copper from brake linings, and surfactants from cleaners and waxes into residential runoff. Pet and animal waste from yards, trails, and stream corridors can enter storm water runoff or flow directly into stream channels.
- Commercial – Commercial businesses often perform conventional maintenance of landscaped areas and use fertilizers, herbicides, pesticides, and other chemicals, which can enter stormwater runoff. Motor vehicle operation and maintenance also contribute oil and other petroleum-based products, heavy metals such as copper from brake linings, and surfactants into storm water runoff. Auto mechanic shops, nurseries and hardware supply stores, salvage yards, dry cleaners, graphic and photographic processing shops, recycling businesses, mining and aggregate operations, as well as other commercial and industrial businesses can potentially contribute concentrated quantities of hazardous substances directly or indirectly into stormwater runoff, as well as groundwater, if not properly contained and monitored. Commercial businesses that store, use, or handle hazardous materials above certain amounts (55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases) are required to file a Hazardous Materials Business Plan (see Section 6.9, Hazards and Hazardous Materials for more information pertaining to hazards).
- Industrial – Industries often use or store greater quantities of urban pollutants that can degrade stormwater runoff. Industries are required to comply with NPDES permits specifically designed to monitor and reduce pollutants in stormwater runoff. Proper maintenance, use of structural BMPs, and good housekeeping practices are used to ensure pollutants like petroleum products, trash, cleaning fluids, and silt do not degrade stormwater quality.
- Recreation – Parks and golf courses often practice conventional landscaping methods and maintain recreation areas using fertilizers, herbicides, pesticides, and algaecides, which can enter stormwater runoff or flow directly into stream channels.
- Infrastructure – In addition to the above-mentioned operational surface water quality pollutants from urban land use conditions, construction and operation of roadways and drainage improvements (e.g., culverts, discharge points and alteration of natural drainage flow conditions) can alter normal and stormwater

drainage flows in waterways that could alter natural erosion and siltation conditions resulting in higher sedimentation rates.

In summary, runoff from urban development typically contains oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as nutrients from fertilizers and animal waste, sediment, pesticides, herbicides, and other pollutants. Also, sizable quantities of animal waste from pets (e.g., dogs, cats, and horses) contribute bacterial pollutants into surface waters. Precipitation during the early portion of the wet season conveys a majority of these pollutants in the stormwater runoff, resulting in short-term high pollutant concentrations in the initial wet weather runoff. This initial runoff, containing peak pollutant levels, is referred to as the “first flush” of storm events.

The urbanized Yuba City area of the county operates under the Yuba City-Sutter County joint NPDES MS4 Phase II permit for stormwater municipal discharges to surface waters. The permit requires that the County impose water quality and watershed protection measures for all development projects in urban areas. The intent of the waste discharge requirements in the permit is to attain water quality standards and protection of beneficial uses consistent with the CVRWQCB's Basin Plan. The NPDES permit prohibits discharges from causing violations of applicable water quality standards or result in conditions that create a nuisance or water quality impairment in receiving waters. A key component of the NPDES permit is the implementation of six minimum control elements: (1) public education and outreach, (2) commercial/industrial control, (3) detection and elimination of illicit discharges, (4) construction stormwater control, (5) post-construction stormwater control for new development and redevelopment (6) pollution prevention/good housekeeping for municipal operations).

Minimum control element 5 (post-construction stormwater control) of the SWMP specifically requires implementation of non-structural and structural controls. As described in the SWMP, non-structural controls can include limiting certain types of growth to areas that can support it without compromising water quality, and possible implementation of buffer strips to minimize disturbance and maximize open spaces. Implementation program ER 6-C would also require the joint Yuba City – Sutter County Stormwater Management Plan to be updated and revised to include the growth areas. The General Plan focuses development in urban areas where new development can connect to new or expanded stormwater drainage infrastructure (Policy I 3.8 and Implementation Programs I 3-I and I 3-J). Facilities included in drainage infrastructure such as drop inlets and detention basins include features to help remove contaminants urban runoff to help protect receiving water quality. Policy ER 6.12 requires the use of buffers between waterways and urban development. Implementation Program ER 6-D for policy ER 6.12 requires consultation with appropriate government agencies to determine the buffer strips.

Another non-structural control is Low Impact Development (LID), which is required under policy ER 6.11. LID is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. There are many practices that have been used to adhere to these principles such as bio-retention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological functions.³⁵

At the individual development level, the use of BMPs to achieve structural source controls is required under policy ER 6.10 (comply with adopted regulations). Permanent BMPs reduce pollutants that enter runoff from developed areas after construction is completed. Examples of permanent BMPs from the CASQA include:

- Vegetation and landscaping.
- Pervious pavement.
- Covering trash storage areas, fueling areas, and loading docks. These areas can also be elevated slightly to prevent stormwater from flowing onto these areas. Drains from these areas can also be connected to sanitary sewers rather than storm drains.
- Infiltration trenches and basins.
- Wet or dry treatment basins.
- Treatment wetlands.
- Vegetated swales and buffer strips.
- A variety of commercially available water quality drain inlets.

In combination, the above-referenced policies, along with the SWMP, support the general intent of Stormwater policy I 3.11 (ensure new development protects water quality in runoff, streams, and rivers) and Water Resources policy ER 6.2 (protect surface water resources in the county, rivers, and tributaries). This would reduce the potential for implementation of the General Plan to substantially degrade water quality or violate any water quality objectives set by the SWRCB, due to increases in urban contaminants generated by operational activities to a ***less-than-significant level***.

35 Description of LID from U.S. Environmental Protection Agency, Polluted Runoff (Non-Point Source), <www.epa.gov/nps/lid>.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with water quality assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

6.10-6 Groundwater use to meet future potable demand in the policy area could affect groundwater levels or availability.

The General Plan proposes changes in land use that would increase the demand for potable water to meet future growth (see Impact 6.13-1 in Section 6.13, Public Utilities – Water Supply and Infrastructure). Table 6.13-2 in Section 6.13, Public Utilities – Water Supply and Infrastructure lists the existing and future demand for the planning areas. Groundwater is and will remain the year-round source of potable supply. The net increase in groundwater demand is projected be approximately 11,200 ac-ft/yr (Table 6.13-2). The increased demand is expected to be met through the installation and operation of additional groundwater wells (Impact 6.13-2) because it would not be feasible to provide the supply through a single water supply source.³⁶ The County is also not considering surface water as a potential potable supply for those areas because the level of development would not be sufficient to justify the cost (with the exception of the SPSP).³⁷ As explained in Impact 6.13-1, SPSP, which has the greatest potable demand of all the planning areas, will use a combination of groundwater and surface water for initial phases, transitioning to groundwater use only in winter months and surface water as primary supply. The water supply for the SPSP has been identified, and extensive studies for that project have shown no adverse effect on availability (see “Growth Areas – Sutter Pointe Specific Plan,” below).

Increased groundwater extraction to meet future potable water supply has the potential to affect existing groundwater wells used for municipal (domestic) and private supply, and, under certain circumstances, agricultural supply by altering aquifer characteristics. The following summarizes potential effects for each of these water uses.

36 West Yost Associates, Sutter County General Plan Update Land Use Alternatives Analysis, Section D: Utilities Analysis, p. 16.

37 West Yost Associates, Sutter County General Plan Update Infrastructure Discussion Paper, June 2008, p. 4.

Domestic Groundwater Use. From a supply availability perspective, the withdrawal of an additional approximately 11,000 ac-ft/yr of groundwater for potable uses, which would be obtained from three groundwater basins (see Table 6.13-4), would not represent a substantial reduction, as explained in Impact 6.13-2 in Section 6.13, Public Utilities – Water Supply and Infrastructure. Water levels are relatively stable, none of the basins are reported as in overdraft condition, and withdrawals from the basins are not limited by law.

Most of Sutter County uses groundwater for potable water supplies. In the rural areas, most of the groundwater is pumped by privately owned wells. There are also several municipal and community potable water systems within Sutter County. These systems primarily rely on groundwater. Yuba City uses groundwater to supplement surface water from the Feather River, which is the main source of potable supply for the city.

Depending on the locations, depth, timing of withdrawals, and pumping rates of new wells, there is the potential to affect groundwater availability for existing municipal and private uses. This could occur by creating cones of depression in the vicinity of the new pumping well(s), which could temporarily or permanently lower groundwater tables or decrease the volume of groundwater at existing public and private wells. In addition, in some cases, water demand from urban development may be offset by a reduction in agricultural water demand.

Agricultural Groundwater Use. The main source of irrigation water for agriculture is diversion of surface water from the Feather and Sacramento rivers. Irrigation water supplies are maintained and operated by several irrigation water companies and districts in the county. Section 6.13, Utilities – Water Supply and Infrastructure, provides additional information about agricultural water use. Generally, irrigation water supplies throughout the county are adequate. During shortages of surface water, some of the irrigation districts and companies are able to supplement the surface water supplies with groundwater or through surface water purchases from other sources. Dry-year water shortages are of increasing concern for some of the purveyors. Future strategies for addressing potential shortfalls in groundwater during dry years include increased use of groundwater, conjunctive use programs,³⁸ reuse of irrigation runoff, or decreasing system losses from unlined irrigation channel seepage. Additional surface water rights for summertime diversions from the Sacramento or Feather rivers or other nearby surface water bodies is unlikely.³⁹

38 A conjunctive use program includes use of surface water supplies when they are available (e.g., during normal and wet years). During dry years when the surface water supply is reduced, groundwater is also used. The approach results in an adequate water supply in dry years by recharging the underlying aquifer during normal and wet years.

39 West Yost Associates, Sutter County General Plan Update Infrastructure Discussion Paper, June 2008, p. 14.

The proposed General Plan land use diagram and related policies and programs do not propose changes in agricultural practices that would change the amount of groundwater used by the agencies and districts for supplemental supply, or the timing of withdrawals. However, the increased demand on groundwater to meet future potable supply for the policy area would involve the installation and operation of additional groundwater wells and additional groundwater extraction. Depending on the locations, depth, timing of withdrawals, and pumping rates of the wells, there is the potential to affect groundwater availability for agricultural uses. As described for domestic wells, this could temporarily or permanently lower groundwater tables or decrease the volume of groundwater at irrigation well locations at times when it is needed to supplement surface water supplies.

Approach to Groundwater Management. The potential for implementation of the proposed General Plan to substantially deplete groundwater supplies such that there would be a net deficit in aquifer volume or a substantial lowering of the level of the local groundwater table can be minimized through a coordinated and comprehensive approach to planning for new groundwater supplies and ensuring the operation of new wells does not interfere with existing well operations for both domestic and agricultural uses.

Proposed General Plan policies and implementation measures that would reduce potential impacts include Water Supply Infrastructure policies I 1.1, I 1.8, I 1.11, ER 6.5., ER 6.6, ER 6.7 and Implementation Program ER 6-A for policy ER 6.5. Policies and implementation programs encouraging conservation and use of recycled water would also help reduce groundwater extraction (policies I 3.12, I 1.13, and ER 6.8 and Implementation Programs I 1-M and ER 6-B). Water Resources and Quality policies and implementation programs that would help reduce the potential for groundwater extraction for potable supply to adversely affect reduce aquifer volumes or groundwater levels include policies ER 6.3 and ER 6.5.

Policy I 1.8(b) indicates private wells may be used for rural and suburban development where water demand/intensity of new development is limited and because a public water system is not feasible. For such use, the policy requires that the use of private wells must demonstrate that such use will not negatively affect adjacent land uses or water supplies. Typically, a groundwater study that identifies how the aquifer would be affected by well operation would be used to identify potential effects on the aquifer and groundwater levels in the area of effect. Proper well siting and operation, or other measures to reduce effects on nearby wells, would be based on the results of that study. The requirement to impose a similar condition on new wells for urban and suburban development is also stated in policy I 1.8(a). Further, a mechanism to ensure proper studies are conducted and recommendations implemented is not provided as an implementation program. Implementation program I 1-J requires that a groundwater study be prepared prior to development of new well systems serving urban/suburban and rural/suburban development to identify potential effects on aquifer volume and groundwater levels and

the extent to which existing municipal and agricultural wells could be affected. The results of the study shall be used to develop the proper siting, design, and operation of new or expanded well systems, including a process for ongoing monitoring and contingency planning. Because the demand for water (and number of wells) in urban development would be greater than in rural/suburban settings, the magnitude of potential impacts of new well use could be a concern if the appropriate studies and performance standards are not identified prior to development of new public water systems using groundwater. Because policies and implementation programs would be in place to protect groundwater supplies and quality for new urban and suburban water systems, and an implementation program would be in place to ensure that appropriate groundwater studies are conducted prior to development of new well systems serving urban/suburban and rural/suburban development, the impact would be *less than significant*.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with groundwater and groundwater withdrawal assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

6.10-7 Implementation of the proposed General Plan would result in the conversion of undeveloped land to urban uses, which could affect groundwater recharge potential.

The Sacramento, Feather, and Bear rivers are the major sources of groundwater recharge to the groundwater subbasins within Sutter County. Other sources of groundwater recharge in Sutter County are from percolation of rainfall, agricultural irrigation, and subsurface inflow from adjacent groundwater basins. The conversion of undeveloped land (particularly agricultural land) to urban uses would increase impervious surface coverage, which has the potential to reduce groundwater recharge. The conversion of agricultural land to urban uses is projected to total approximately 25,000 acres. However, the effect on groundwater recharge would not be substantial or adverse. First, recent groundwater studies prepared for the North American subbasin underlying the southeastern part of the County (where the SPSP is situated and would represent the largest (in area) extent of undeveloped land use conversion), show that because agricultural groundwater pumping would be reduced, there would be a net positive effect on groundwater recharge in that area. Second,

groundwater levels throughout that basin are expected to rise because of the conversion from agricultural irrigation to urban uses.⁴⁰ In addition, with the exception of dry years, agricultural irrigation demand is met with surface water (see Section 6.10, Public Utilities-Water). For the remaining growth areas and communities in Sutter County overlying the Sutter and East Butte subbasins, the proposed General Plan does not propose any land use changes along the three major rivers where recharge is substantial because proposed policy ER 6.4 requires new development to preserve areas that provide important groundwater recharge benefits. Impacts would be *less than significant*.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with groundwater recharge assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

6.10-8 Implementation of the proposed General Plan could result in new land uses that would use on-site wastewater disposal systems, such as septic systems, which have the potential to further degrade groundwater quality.

Privately owned septic systems provide for the treatment and disposal of wastewater throughout much of the rural areas of Sutter County. Also, many homes and businesses in the small communities within Sutter County use septic systems, including the communities of Sutter, Rio Oso, Nicolaus, East Nicolaus, and Trowbridge. Yuba City, the city of Live Oak, and the community of Robbins are the only areas in the county with sanitary sewer collection systems and wastewater treatment facilities. All other areas rely on septic systems.

On-site wastewater treatment systems, or septic systems, are an effective method of treating wastewater from individual or small groups of houses and businesses. To function successfully, septic systems must be installed at locations with appropriate soil conditions. These appropriate conditions include permeable soils with adequate depth to groundwater. Much of the flat Sacramento Valley floor in Sutter County has soils with high clay content and very shallow groundwater. Some of these areas also have hardpan soil layers, which restricts percolation of septic tank effluent. In areas with clay or hardpan soils,

40 Sutter County, Sutter Pointe Specific Plan Draft EIR, December 2008, Section 5.7.7: Cumulative Impacts-Hydrology and Water Quality.

failure of septic systems often leads to untreated or partially treated effluent rising to the ground surface. In areas with high groundwater, failure of septic systems often results in contamination of the groundwater with partially treated tank effluent. Both of these failure types do occur periodically in Sutter County. Septic systems must also be designed correctly, be installed in appropriate locations, and be operated and maintained appropriately. Sutter County ensures that septic systems are designed and installed appropriately by requiring that the system be permitted by the Community Services Department (Environmental Health Division). The permitting process includes testing of the soils to determine suitability for use with septic systems. An approved consultant must prepare the plans for the system, and the plans must be reviewed and approved by the County's Environmental Health Division. Environmental Health also inspects the construction to ensure that the system is installed correctly.

Septic systems can lead to contamination of groundwater if they are not properly sited, designed, constructed, operated and maintained, as described above. In such cases, septic systems can introduce nitrates, salts, bacteria, viruses, medications, household chemicals, and other contaminants into the groundwater. These contaminants can then enter potable water supplies through pumping of the contaminated water by water supply wells.

Nitrate contamination can come from several sources, commonly including septic systems and agricultural practices. There are areas of the County with high nitrate concentrations in the groundwater that may be partially the result of septic systems. The MCL for nitrate in potable water is currently 45 mg/L (as nitrate) and may be reduced to 10 mg/L (as nitrate) in the future. The addition of new septic systems could exacerbate the groundwater nitrate problem.

In addition to the requirements of AB 885, which will provide more stringent siting, design, construction, and operational standards than current regulations, the 2030 General Plan includes several policies and implementation programs to help reduce the potential for growth in the policy area to contribute to or exacerbate groundwater quality problems associated with septic systems. Policies I 2.8 through I 2.10 require that existing and new urban and suburban development be connected to a publicly owned treatment works (POTW) where feasible and cost-effective. If using a POTW is not feasible in rural or agricultural areas, on-site wastewater systems would be allowed, provided they are sited, designed, constructed, and operated properly. Please see also Impact 6.13-4 in Section 6.13, Public Utilities – Wastewater. Compliance with the proposed policies and state law would ensure that impacts would be reduced to a *less-than-significant level*.

Full Buildout Analysis

Under the full buildout scenario, the same effects would occur as discussed above under the adjusted buildout scenario. Concerns associated with septic systems assumed full buildout conditions. However, the additional growth that could occur under full buildout would go beyond 2030 and future planning efforts and environmental analysis would address this additional growth and the potential implications of this growth.

Mitigation Measure

None required.

Growth Areas

Rural Planned Communities

Sutter

Impacts related to flooding due to dam failure inundation, construction and post construction stormwater quality, groundwater recharge, and groundwater quality are described in Impacts 6.10-3 through 6.10-8, respectively. For impacts associated with the 100-year flood and localized flooding related to storm drainage infrastructure capacity limitations, there are additional considerations beyond those noted in Impacts 6.10-1 and 6.10-2, respectively.

100-Year/200-Year Flood Protection: It is anticipated that future FIRMs will continue to show the community of Sutter and/or adjacent areas as falling outside the SFHAs because Sutter is located on higher ground adjacent to the Sutter Buttes (see Figure 6.10-3). However, the area south of the old railroad may be mapped into a SFHA.⁴¹ For any locations in the SFHA, compliance with policies and programs identified in Impact 6.10-1 would reduce impacts to less-than-significant levels.

Impacts associated with stormwater peak flow rates would be reduced to a less-than-significant level through the implementation of policy I 3.1 and implementation program I 3-A, and no additional mitigation is required.

East Nicolaus/Trowbridge

Impacts related to flooding due to dam failure inundation, construction and post construction stormwater quality, groundwater recharge, and groundwater quality would be as described in Impacts 6.10-3 through 6.10-8, respectively. For impacts associated with the

41 West Yost Associates, Sutter County General Plan Update Land Use Alternatives Analysis, September 2009, Chapter 4.D: Utilities Analysis.

100-year flood and localized flooding related to storm drainage infrastructure capacity limitations, there are additional considerations beyond those noted in Impacts 6.10-1 and 6.10-2, respectively, but they do not result in new significant impacts or the need for additional mitigation.

100-Year/200-Year Flood Protection. East Nicolaus is near the anticipated special flood hazard zone boundaries. The need for raising first floors or filling building pads above the BFE would be location-dependent. For example, at the intersection of Highway 70 and Nicolaus Avenue, the BFE is at roughly elevation 46.0 feet and the ground elevation is about 40 feet. A new building would have to have a first floor elevation at least seven feet above the existing ground at this location, which is not cost effective. However, Cornelius Avenue east of Highway 70 is above the floodplain and no raising/filling would be required. In other areas, it would be feasible to fill/raise building pads above the 100-year floodplain level.

Trowbridge is mostly outside of the FEMA 100-year floodplain, and it would not be necessary to fill or raise building pads in this area. The southern section of Trowbridge is just within the FEMA floodplain, and it appears that it would be feasible to raise building pads above the floodplain level.⁴²

The designated Employment Center area between East Nicolaus and Trowbridge is mostly outside of the FEMA 100-year floodplain, but the southern and western edges of this area are just within the floodplain. It would, however, be feasible to fill/raise these building pads above the 100-year floodplain.⁴³

In the event filling/raising building pads is infeasible, the proposed General Plan policies and implementation programs outlined in Impact 6.10-2 would ensure impacts would be less than significant, and no additional mitigation is required.

Localized Flooding (Storm Drainage System Capacity). The proposed change in land use designations from AG-20 and AG-80 (decrease in acreage) to AG-RC (increase in acreage and dwelling units) would result in a small, net increase in impervious surfaces associated with residential development (rooftops, driveways, hardscaping) and would comprise the major source of new runoff rates and volumes in this growth area. Storm drainage service would be provided to this growth area through a system of storm drain pipes, ditches, and detention basins and possibly pump stations. These systems would ultimately flow to the Verona Pump Station and would be pumped into the Natomas Cross Canal.⁴⁴ The approach to ensuring stormwater flows from this growth area are adequately accommodated would be as described in Impact 6.10-2, and no additional mitigation is required to ensure drainage capacity that could cause localized flooding is exceeded.

42 Ibid.

43 Ibid.

44 Ibid.

Spheres of Influence

Yuba City – North and South

Flooding, construction and post construction stormwater quality, groundwater recharge, and groundwater quality impacts would be as described in Impacts 6.10-1 through 6.10-8, respectively. There would be no new significant impacts or the need for additional mitigation.

Sutter Pointe Specific Plan Area

The SPSP project would generally result in the same types of hydrology, flooding, and water quality impacts identified for the 2030 General Plan and described in Impacts 6.10-1 through 6.10-8, although the magnitude of the impacts would differ. The following summarizes how the SPSP project elements would mitigate impacts identified in the SPSP Draft EIR.

Unique to the SPSP growth area is its location in the Pleasant Grove watershed, which experiences localized flooding during large storm events. This localized flooding is typically widespread and relatively shallow, and has been exacerbated by increased development in Placer County upstream of this area. High water levels in the Sacramento River and the Natomas Cross Canal also contribute to this localized flooding. The SAFCA is implementing a series of levee improvement projects to achieve 100-year flood protection for the Natomas Basin. Also, SAFCA will ultimately improve the levees to achieve a 200 year level of flood protection. Sutter Pointe will participate in the SAFCA projects by paying the appropriate fees.⁴⁵

The SPSP drainage system includes storm drain inlets and pipelines that flow to detention basins. A total of 12 basins will be constructed, ranging in size from 40 to 288 acre feet. The basins will also provide storm water treatment. From the basins, stormwater will be pumped into the RD 1000 channel system, and then pumped again into the Sacramento River, the Natomas Cross Canal, or the Pleasant Grove Creek (also called the East Main Drain).⁴⁶

The SPSP would result in construction site stormwater runoff that could affect water quality. The Draft EIR concluded with implementation of the State general permit requirements for a SWPPP and construction site BMPs, this would not result in significant impacts. For post-construction stormwater quality, the Draft EIR identified a mitigation measure to require development and implementation of site-specific BMPs coordinated with the planned drainage system design and a water quality monitoring maintenance plan. The design criteria described in the Master Drainage Plan for the SPSP are designed to comply with the

45 Ibid.

46 Ibid.

Sutter County Department of Public Works and the Stormwater Quality Design Manual for the Sacramento and South Placer Regions Water Quality Detention Basin Design Criteria. The permanent BMPs to be used in the stormwater treatment system described in detail in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions have been shown to be effective in reducing contaminant levels in urban runoff.⁴⁷

Groundwater to meet the projected demands of the SPSP would be withdrawn from the Natomas Basin portion of the North American subbasin. The groundwater supply assessment for the SPSP demonstrated that under a full buildout scenario with conservative pumping estimates, groundwater extracted from the Natomas Basin and the North American subbasin over the 35-year horizon would be sufficient to meet the demands of the SPSP as well as other pumpage in the Natomas Basin and the North American subbasin. The study also showed that while there would be a reduction in deep percolation to the groundwater basin underlying the SPSP site as a result conversion of irrigated agricultural land to urban land uses, recharge from the Sacramento River to the aquifer would be unaffected by groundwater pumping. Local stream recharge was predicted to increase due to a combination of reduced deep percolation and a cone of depression caused by the project wells. This would result in a corresponding reduction in Sacramento River streamflow, but the magnitude of the reduction as a percentage of total streamflow would be very small. Overall, the inflow to the groundwater basin minus the outflow from the basin would be a positive amount, and there would be no significant adverse effects on groundwater supplies or recharge.⁴⁸

The SPSP would generate wastewater. Flows from the SPSP would be collected in a wastewater collection consisting of sewer pipelines, pump stations distributed through the community and one central pump station/storage facility. The central pump station will pump the wastewater to the Sacramento Regional County Sewer District's (SRCSD) Upper Northwest Interceptor (UNWI). In the UNWI, the wastewater will flow (along with wastewater from several other communities) to the Sacramento Regional Wastewater Treatment Plant, where it will be treated and discharged to the Sacramento River.⁴⁹ Because an OWTS would not be used, there would be no potential for adverse groundwater quality impacts.

Industrial/Commercial (I/C)

The Industrial/Commercial land use designation would be primarily along Highway 99 within the community of Tudor (71 acres). For the Tudor area, 100-year flood hazard, runoff water quality, and groundwater impacts would be as described in Impacts 6.10-1 through 6.10-8,

47 Sutter County, Sutter Pointe Specific Plan Draft EIR, SCH #2007032157, Prepared by EDAW, December 2008, pp.3.7-60 - 3.7-61.

48 Ibid., 3.7-61 - 3.7-62.

49 West Yost Associates, Sutter County General Plan Update Land Use Alternatives Analysis, September 2009, Chapter 4D: Utilities Analysis.

above. Storm drainage service would be provided using the existing ditches, channels and pump stations. Individual developments will need to construct on-site detention basins to prevent causing flooding impact to the upstream and downstream areas.⁵⁰ The approach to ensuring localized flooding effects are adequately accommodated is described in Impact 6.10-2. Approximately 2 acres would be in the Yuba City SOI south growth area. Please see the summary under the Yuba City SOI growth area subheading.

Employment Corridor (EC)

Most of the EC acreage would be in the Yuba City SOI north and south growth areas (approximately 223 acres), with the remaining acreage in the East Nicolaus/Trowbridge growth area and unincorporated county (11 acres total). Impacts would be as described for the Yuba City SOI north and south growth areas and the East Nicolaus/Trowbridge growth area, above. For the unincorporated county, impacts would be as described in Impacts 6.10-1 through 6.10-8.

Cumulative Impacts and Mitigation Measures

The cumulative context for the analysis of special flood hazard zone issues (100- and 200-year flood) is the policy area in combination with locations in adjoining counties (Placer and Sacramento) for which new floodplain mapping and levee improvements to achieve 200-year protection are required under state law. The cumulative context for localized flooding (stormwater drainage) is the policy area in combination with upstream contributing urban sheds in Placer County that drain to Sutter County. The cumulative context for dam failure inundation flood hazard is the policy area. The cumulative context for surface water quality impacts is the Sacramento River watershed and subsheds thereof that drain the policy area. For groundwater sources and quality, the cumulative analysis comprises the Sacramento Valley Groundwater Basin underlying Sutter County, Placer County, and Sacramento County.

6.10-9 Cumulative development within the policy area and adjoining counties would increase development in locations subject to 100-year flood hazard.

Several recent legislative actions have imposed stricter regulation of flood-prone areas in the Sacramento Valley. Senate Bill 5 requires that within two years after the adoption of a flood protection plan by the CVFPB, communities within the Sacramento-San Joaquin Valley must amend their general plans to include the data and analysis contained in the plan, goals and policies for the protection of lives and property from flooding, and related feasible implementation measures. Within one year of the general plan adoption, zoning ordinance amendments must be enacted to maintain consistency with the general plan. By 2015, for areas with a population of 10,000 or greater, local governments cannot

50 Ibid.

approve new developments unless the land under review has 200-year flood protection or efforts are in place to provide that level of protection. For areas with a population of less than 10,000, new developments cannot be approved unless the area has 100-year flood protection. AB 162 requires jurisdictions to annually review areas covered by the general plan that are subject to flooding as identified by FEMA or DWR. It also allows flood risk to be considered in evaluating the available land suitable for urban development if the flood protection infrastructure required for development would be impractical due to cost or other considerations. The state is also required under AB 156 to prepare flood maps for areas in the Central Valley that are protected by state levees and to annually notify owners of property behind those levees of their flood risks, starting in 2010.

Cumulative development in adjacent Placer and Sacramento counties would result in the placement of structures in areas designated as 100- or 200-year floodplains. However, projects in the areas requiring additional flood protection would be required by law to comply with all applicable state and local regulations regarding flooding and flooding hazards, including protection of residents and workers from 100- and 200-year flood flows, as described above. Further, the necessary levee improvements would be implemented under the authority of the state flood program. Therefore, this cumulative condition without the project would not result in a cumulative impact.

As described in Impact 6.10-1, implementation of the policies in the General Plan, in combination with the requirements under the current Floodplain Ordinance and the County's participation in the SBFCA, will ensure the County's responsibility for managing flood hazard risk to existing and future development is managed in accordance with federal, state, and local laws and regulations. This will reduce the potential for placement of housing or structures in a 100-year flood hazard zone that could impede or redirect flood flows, or expose people and property to 100-year flood hazard (and 200-year, where applicable).

Therefore, the proposed project's contribution to the impact from 100- and 200- year flood flows would not be cumulatively considerable, and impacts would be *less than significant*.

Mitigation Measure

None required.

6.10-10 Cumulative development would increase impervious surfaces that would generate additional stormwater runoff that could cause localized flooding if drainage capacity is insufficient.

Sutter County receives stormwater flows from major streams draining incorporated and unincorporated Placer County to the west, including Coon Creek, Markham Ravine, Auburn

Ravine, Ingram Slough, Orchard Creek, Curry Creek, and Pleasant Grove Creek. These streams ultimately discharge to the Natomas Cross Canal in Sutter County. Urban development in Placer County discharging stormwater to these streams has and will continue to increase the rate and volume of stormwater runoff. Hydrologic modeling is performed to determine the necessary facilities to comply with Placer County Flood Control and Water Conservation District stormwater mitigation standards and to determine what the downstream water surface elevations would be at the Sutter County line. In addition to construction of necessary on-site facilities, regional retention/detention facilities are also used. For example, a Settlement Agreement between Sutter County and the City of Lincoln signed in 1998 establishes the requirements for stormwater runoff from proposed developments in Lincoln be mitigated by the City of Lincoln by using regional retention/detention facilities within watersheds draining to the Cross Canal. Development in Roseville and surrounding unincorporated Placer County also use a regional approach to mitigating stormwater volumes. The net effect of these programs is to reduce the potential for upstream flooding within Placer County, but it also helps reduce downstream flooding potential in Sutter County.

Within the policy area, development would result in the same localized flooding impacts associated with inadequate drainage infrastructure as described in Impact 6.10-2 because the land use disturbance would be the same. The County will require that development projects mitigate their increased runoff to prevent the potential for increased localized flooding. Policies I 3.1, I 3.3, I 3.6, I 3.8, and I 3.10 require new development to develop a plan and construct or fully fund stormwater systems to mitigate flows, and to provide for long-term operation and maintenance of the development's system. Policy I 3.2 provides an option for County-owned systems to be developed. For those systems operated by the County or dedicated to the County, policies I 3.4 and I 3.5 direct the County's responsibilities to maintain the facilities. Other approaches to ensuring integration of stormwater infrastructure include: General Plan policy I 3.7, which encourages limiting County-operated stormwater systems in urban areas and transferring County systems in urban areas to cities, water agencies, drainage districts, or public community service districts where and when feasible and beneficial to the customers; and policy I 3.9, which directs that existing developed areas be connected to publicly-owned stormwater drain or open channel systems where practical. Joint use of open channels and detention basins for active and passive recreation is also encouraged (policy I 3.12). Implementation Program I 3-B provides for cooperation between the county and Live Oak and Yuba City to develop stormwater service guidelines and possible agreements. When those plans are implemented, drainage capacity would be managed to reduce the potential for increased localized flooding as a result of future growth in those urban areas.

In view of the proposed General Plan policies, programs, and approach to stormwater drainage master planning, and efforts on a regional watershed level to effectively manage

stormwater flows, the project's contribution would not be cumulatively considerable, and the cumulative impact would be *less than significant*.

Mitigation Measure

None required.

6.10-11 Cumulative development would increase the number of people and structures that could be exposed to dam failure inundation hazard.

Implementation of the General Plan could expose developed areas to flooding from failure or damage of one of these dams if the location is in an area subject to dam failure flows. All area dams have performed well during past disasters and are expected to exceed their design limits during future events, but the county remains at risk to dam failures from numerous dams under a variety of ownership and control and of varying ages and conditions. As a result, the potential exists for future dam failures to occur in the policy area.⁵¹

As explained in Impact 6.10-2, proposed policy PHS 1.4 requires that if new development is located in dam inundation areas that risks from dam failure would be considered. Although dam failure inundation cannot be avoided, with proper siting of new development and implementation of existing emergency response planning programs, cumulative development would not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of dams. Cumulative impacts would be *less than significant*.

Mitigation Measure

None required.

6.10-12 Cumulative development would increase the potential for pollutants and sediment to be carried in stormwater runoff from construction sites into waterways in the Sacramento, Feather, and Bear rivers and their tributaries, which could affect water quality.

Construction activities in the Sacramento River watershed (including the contributing American, Feather, Bear, and Yuba river watersheds) would create the potential for soil erosion and sedimentation. Construction may also result in accidental release of other pollutants to surface waters. Each of the projects that would generate stormwater runoff from a construction site in the watershed would be required to comply with NPDES construction activity stormwater discharge permits from the CVRWQCB, which are designed

51 Yuba City and Sutter County, Yuba City-Sutter County, California Multi-Hazard Mitigation Plan, prepared by AMEC, October 2007, p. 79.

to prevent significant water quality impacts. Therefore, implementation of the regional projects would not result in a cumulative impact.

Development in the policy area would also be required to comply with the State permit, as well as with the County's Land Grading and Erosion Control Ordinance, which implements the State general permit. Therefore, the proposed project's contribution to the temporary, short-term construction-related water quality impact would not be cumulatively considerable. Impacts would be *less than significant*.

Mitigation Measure

None required.

6.10-13 Cumulative development would increase the potential for urban pollutants to be carried in stormwater runoff into waterways in the Sacramento River watershed, which could affect water quality.

Results of comprehensive water quality monitoring of the Sacramento River and its major tributaries (Feather, Yuba, and American rivers) since 1998 have shown that Basin Plan water quality objectives are being met, and that the river is a high quality source from which to draw water for municipal use. In particular, organophosphate pesticide levels are trending downward in response to restrictions on the use of diazinon and chlorpyrifos and resulting changes in their use in both agricultural and residential applications. In recent decades, treatment for municipal wastewater, industrial wastewater and management of urban stormwater runoff has increased and improved greatly. Industries and municipalities now provide at least secondary treatment of wastewater prior to disposal into the river. In addition to wastewater treatment, large and medium size cities are implementing urban stormwater programs to reduce the impacts of urban runoff to adjacent waterways.⁵²

Cumulative development in the portion of the Sacramento River watershed comprising Placer, Sacramento, Sutter, and Yuba counties collectively could result in development of currently undeveloped land, thereby increasing the amount of impervious surfaces and resulting in the potential for an increase in runoff from urbanized land uses. Runoff could carry increased levels of post-construction urban contaminants that could affect receiving water quality in the Sacramento River watershed. Examples of such contaminant categories are summarized in Impact 6.10-5. Throughout the region, individual jurisdictions have developed and are implementing stormwater management programs, as summarized below, to reduce pollutants in stormwater.

Placer County has developed its *Placer County Stormwater Management Plan 2003-2008* in compliance with NPDES Phase II regulations. The Placer County SWMP is a comprehensive

52 Sacramento River Watershed Program, Monitoring Program Summary, December 2006.

program designed to reduce pollution in stormwater runoff in western portions of Placer County, which includes streams that drain to the Cross Canal. The City of Roseville (with Pleasant Grove and Curry creeks contributing flows to the Cross Canal) has also developed its own SWMP in compliance with NPDES Phase II regulations. The City of Lincoln (with Markham Ravine, Coon Creek, Auburn Ravine, Orchard Creek, and Ingram Slough ultimately draining to the Cross Canal) is completing a SWMP. The County of Sacramento and the cities of Sacramento, Folsom, Citrus Heights, Elk Grove, Rancho Cordova, and Galt have a joint NPDES permit for storm water management programs within their own jurisdictions. The City of Sacramento implements a Stormwater Quality Improvement Plan (SQIP) to reduce the pollution carried by stormwater into local creeks and rivers. In addition, the County of Sacramento and the cities of Sacramento, Folsom, Citrus Heights, Elk Grove, Rancho Cordova, Galt, and Roseville have collaborated and published the Stormwater Quality Design Manual for Sacramento and South Placer Regions (May 2007) to meet the regulatory requirements of their respective municipal stormwater NPDES permits. Yuba County and the City of Marysville adopted a SWMP in 2004, which jointly implements System the NPDES Phase II requirements for small MS4s.

Within the policy area, development would result in the same urban stormwater pollution impacts as described in Impact 6.10-5 because the land disturbance (and increase in impervious surfaces generating stormwater runoff) would be the same. The County would require that development projects mitigate their increased runoff to prevent the potential for increased water quality degradation due to urban runoff. This mitigation would occur either through implementation of the Yuba City-Sutter County SWMP or through General Plan Stormwater policy I 3.11 and Water Resources and Quality policies ER 6.2, ER 6.10, ER 6.11, and ER 6.12. In addition, The General Plan focuses development in urban areas where new development can connect to new or expanded stormwater drainage infrastructure (Stormwater policy I 3.8 and Implementation Program I 3-J). Facilities included in drainage infrastructure such as drop inlets and detention basins include features to help remove contaminants urban runoff to help protect receiving water quality. Therefore, the project's contribution would not be cumulatively considerable, and the cumulative impact would be *less than significant*.

Mitigation Measure

None required.