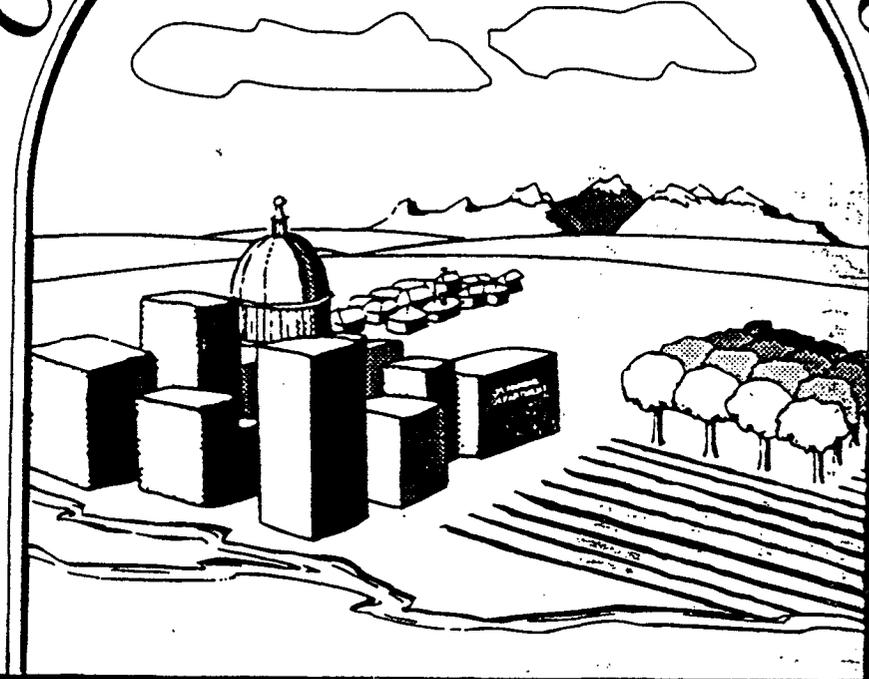


PERMISSION

# COUNTY OF SACRAMENTO



## GENERAL PLAN PLANNING FOR THE 21st CENTURY

DECEMBER 15, 1993

SACRAMENTO COUNTY GENERAL PLAN  
CONSERVATION ELEMENT

SECTION I

WATER RESOURCES

C. GROUND WATER RESOURCES

Goal: Adequate long-term quantity and high quality of ground water resources for both human and natural systems.

INTRODUCTION

Sacramento County, in the middle of the Central Valley, is located over the north central portion of California's Central Valley ground water basin. This extensive aquifer extends some 400 miles from Red Bluff to Bakersfield and averages 40 miles in width. The Central Valley aquifer is a complex system of different ground water basins composed of stratified sand, silt, and clay layers many thousands of feet thick. However, the average depth of strata bearing fresh water is 600 ft. below the surface. These deposits have been accumulating over the last 100 million years and are underlain by impervious bedrock. The important water-bearing sediments from oldest to youngest are, the Ione Formation, the Valley Springs Formation, the Mehrten Formation (the most productive formation), the Laguna Formation, the Fair Oaks Formation, the Arroyo Seco Gravels, and the Victor Formation. The portion of the Great Valley aquifer which underlays Sacramento County has an estimated capacity of more than 30,000,000 acre feet of fresh water.

Early settlers in the Sacramento Valley tapped into the ground water supply for irrigation and domestic use. The water table level remained fairly constant until about 1940, but from 1941 to 1970 the water level declined a little over one foot per year. Recharge is sufficient to resupply withdrawals only in the areas near the floodplains of the Sacramento, American, and Cosumnes Rivers. Away from these areas regular withdrawals have led to overdraft and cones of depression in the ground water tables. Increased irrigation in the middle part of the 20th century initiated the decline, particularly in Galt and Elk Grove. Increased urban development in both of these areas has compounded overdraft problems.

Long-term quality and availability of ground water for Sacramento area residents is dependent on two requirements: stabilizing ground water levels and keeping contaminants out of the aquifer. A stable water table requires the conjunctive use of surface water and ground water as well as the undiminished annual replenishment or recharge of the water table. The County's 1978 Water Plan outlined key elements for achieving a stable ground water table and recognized the need to draw from surface water sources. Ground water alone

cannot provide the county with needed water, and postponement of surface water agreements continues the accelerated rate of ground water depletion, to the point where the County may consider policies which would link further urban development to surface water availability and quality.

Much concern exists over long-term migration of toxic substances leaching from military and industrial operations into the aquifer. In addition, the proliferation of rural residential lots sewerred by septic systems generate sufficient nitrates in seepage to cause concentrations in ground water which exceed safe drinking water standards.

Policies and programs in this section address these issues under the following Policy Objectives:

1. Elimination of ground water overdraft.
2. Growth managed to protect ground water resources.
3. Understanding of ground water recharge and protection of recharge areas.
4. Ground water for domestic consumption which meets drinking water standards.
5. Agricultural-Residential land uses regulated so that nitrates from septic systems do not impair ground water quality.
6. County-wide monitoring of ground water quality.
7. Curtailed hazardous material seepage from underground storage tanks.

GROUND WATER OVERDRAFT

Objective: Ground water overdraft eliminated by the year 2000 and a balanced ground water table thereafter.

Intent: The best available estimate of safe yield, the amount of ground water which can be withdrawn without depleting present ground water levels, is 357,000 AF/yr. A 1987 estimate of ground water pumped for domestic uses and irrigation is 380,000 AF/yr. Average overdraft for the Sacramento Area is currently 0.5 foot/yr. Ground water levels have dropped approximately 35 feet since 1930, from an average water table elevation of 30 feet above sea level to 5 feet below sea level. Three major areas with considerable overdraft problems are the northeast area around McClellan Air Force Base, the south area around Galt, and an area around Elk Grove. The worst area is Elk Grove with its rapid urban development and total dependence on ground water, where water tables are as much as 70 feet lower than they were when pumping began.

This objective, to eliminate overdraft by the year 2000, was established by the County Water Plan adopted in 1978. However, the County cannot implement it until a source of surface water is secured and conveyed to overdraft areas. Water once intended for use at Rancho Seco may be the best option for surface water relief in the near term. It should be a top priority of the County to pursue an agreement with all involved agencies. Note that the term 'intermittent' as used in CO-19 refers to increases in available federal and

state contract water resulting from seasonal runoff. The policies and programs below for implementing conjunctive use of surface and ground water in the unincorporated area are consistent with the County's established approach.

The Water Policy Statement adopted by the Board of Supervisors on August 10, 1993, provides further policy direction on curtailing groundwater overdraft through conjunctive use.

Policies:

- CO-18. Work with area purveyors to investigate and implement a conjunctive use program between groundwater and surface water supplies, consistent with meeting the in-stream flow requirements of the American River.
- CO-19. Utilize intermittent water in conjunctive use with ground water in agricultural areas.

Implementation Measures:

- A. Seek immediate agreement with SMUD and USBR for utilization of 60,000 AF/yr of SMUD contract water to partially relieve ground water overdraft in Zone 40. (SCWA)
- B. Working with purveyors establish ground water management zones and levy extraction fees consistent with the Sacramento Country Water Agency in order to equitably assign both surface and ground water costs. (SCWA)
- C. Expand program for monitoring ground water withdrawals and determining when overdraft is occurring. (SCWA)
- D. Prepare a biannual report on ground water use, including a map of ground water elevations. (SCWA)
- E. Working with purveyors identify and prioritize areas to receive surface water for ground water overdraft relief and define zones of benefit. (SCWA)
- F. Working with purveyors develop comprehensive use plans for each zone of benefit. (SCWA)

GROWTH AND GROUND WATER

Objective: Growth managed to protect ground water quality and supply

Intent: Sacramento County has been continually frustrated in meeting its safe yield objective by the inability of all involved agencies to resolve disputes over water rights and contracts for available American River water. In the meantime, growth has increasingly shifted to the south area of the county, where ground water pumped for farmland irrigation has created a

long-standing overdraft problem. A current backlog of approved and unbuilt residences in Zone 40 (see Water Districts Map on page 112) is causing increasing public concern that the ground water supply will be exhausted before surface water is finally delivered to the area. Moreover, the County's past growth management policy in overdraft areas has become an issue in City-County negotiations for sharing water rights. The County cannot continue to approve development in the south area while ground water is the only source of water. Policy CO-20 is a key General Plan policy which must be strictly enforced. It applies to areas previously identified for non-urban uses that are within the Urban Area established by this Plan. Policy CO-20 applies to all new commercial and residential development.

Limited ground water is a constraint for Rancho Murieta, which is dependent on winter diversions and storage from the Cosumnes River and is already approaching full utilization of available water entitlement. The Rancho Murieta Community Services District (CSD) proposes augmenting their supply with ground water during drought years. The County will need to coordinate development approval with the CSD system expansion in implementing these policies.

The State sets quality standards for potable water from all sources of water which are used for domestic purposes. Ground water is often much purer than surface water as it has filtered through overlying sediments. However, contaminants can leach into the aquifer and, if present in unacceptable levels, require expensive treatment or render the water unfit for consumption. Generally, deeper aquifers receive less contamination than shallower ones (although some deep aquifers can have unacceptable levels of hydrogen sulfide, magnesium, and other salts where the geological formation is composed of marine sediments). The policies and implementation measures below reflect the County's regulatory approach to ensure acceptable ground water quality.

#### Policies:

- CO-20. In new development areas, as identified in Figure III-1 of the Land Use Element, entitlements for urban development shall not be granted until a Master Plan for water supply has been adopted by the Board of Supervisors and all agreements and financing for supplemental water supplies are in place. The land use planning process may proceed, and specific plans and rezoning may be approved.
- CO-21. The Master Water Plan shall include three planning objectives which direct the Plan to consider alternate conservation measures, achieve safe yield of ground water supply in conjunction with development in new urban growth areas, and formulate a five year monitoring program to review water plan progress.
- CO-22. Development entitlements shall not be granted in areas where no ground water exists and water purveyors have reached their capacity to deliver treated water unless all necessary agreements and financing to obtain additional water supply are secured.

- CO-23. Subdivisions and Parcel Maps shall be required to demonstrate adequate quantity and quality of groundwater prior to approval of residential lots in areas of the County where supply and quality are doubtful.
- CO-24. Development oriented artificial lakes, unless otherwise required by the County, shall not be approved in areas of ground water overdraft where ground water sources maintain lake level.
- CO-25. Should the Board of Supervisors determine that there is a significant adverse effect on ground water, including effects on quality, no building permits for urban commercial and residential uses shall be issued.

Implementation Measures:

- A. Closely monitor build-out at Rancho Murieta to ensure compliance with policies. (Planning)
- B. Develop a computer tracking program and prepare an annual report on new private and municipal wells within Sacramento County, their depth and nature of aquifer drawn from, and where data are available, their water quality. (Environmental Health)

GROUND WATER RECHARGE

Objective: Understanding of nature and extent of ground water recharge with key aquifer recharge areas protected.

Intent: The most significant ground water recharge in Sacramento County occurs along the stream channels of the American and Cosumnes River. The porous soils of the Cosumnes River floodplain, the gravels of the old American River channel, and the black sands of the Mehrten formation where exposed by stream channels also provide additional important recharge (Figure 1). It is important that land uses in these areas not impair ground water recharge. Continued agricultural use of these lands should be the highest priority. However, the intent of Policy CO-28 is not to preclude development in areas zoned urban prior to 1990.

Research and modeling of ground water supply conducted from 1961 to 1970 by the State Department of Water Resources resulted in Bulletin No. 118-3. To date, this remains the only source of research data on Sacramento County's ground water resources. This study involved many assumptions regarding infiltration rates, subsurface flows, and precipitation patterns in order to validate the model. Researchers continue to emphasize that the margin of error in the modelling process is considerable. It is appropriate to seek a more complete understanding of ground water recharge and movement, utilizing improved computer modeling capabilities. Funding for such research should come from water users, although the means of accomplishing this have yet to be worked out.

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Conservation Element  
(Adopted)



Policies:

- CO-26. Modify the yield estimates of ground water supply as supported by available data and, working in conjunction with area water purveyors, revise conjunctive use and other water supply policies as necessary during five-year General Plan updates.
- CC-27. Maintain agricultural zoning, and existing agricultural uses, in primary aquifer recharge areas identified as having a moderate to very high recharge capability (Figure 1). Rezone applications for categories other than agricultural within one quarter mile of ground water recharge capability boundaries shall supply hydrologic data pertinent to recharge capability before the rezone application shall be considered complete.
- CO-28. Discourage urban land uses in unincorporated areas with moderate to very high ground water recharge capability.
- CO-29. Discourage any nonagricultural land use in unincorporated areas with moderate to very high ground water recharge capability which could allow the percolation of pollutants into the ground water table.
- CO-30. Locate septic systems outside of primary ground water recharge areas, or if that is not possible, require the use of shallow leaching systems for disposal of septic effluent.

Implementation Measures:

- A. Develop study design for program to provide ongoing information on ground water recharge rates and ground water movement utilizing best available technology. (SCWA)
- B. Develop and adopt ordinance establishing funding mechanism. (SCWA)
- C. Implement ground water recharge studies. (SCWA)
- D. Develop procedures for implementing Policy CO-30. (Planning and Environmental Management Department)
- E. Develop procedures to fund ongoing studies of ground water recharge capabilities.

## RURAL RESIDENTIAL USES AND GROUND WATER

**Objective:** Agricultural-Residential land uses regulated to ensure that nitrates entering the ground water from septic disposal systems will not impair ground water quality.

**Intent:** Ground water currently supplies up to 60% of our water needs, generally offering a high quality, easily accessible supply of water to areas which do not receive surface water supplies. In order to maintain this resource it is important to protect it from contamination by sewage and chemicals. Septic tanks and their leach fields are a significant source of nitrates, therefore, it is important that the concentration and construction of septic disposal systems ensure that contamination of ground water resources will not occur. Factors which provide protection to the ground water supply are size of lot (especially if both a septic system and a water well are to be placed on the same parcel), type of septic system, design and materials used to construct wells, density and spacing of septic systems, and maintenance and monitoring of septic systems. Additionally, small scale agricultural operations where concentrations of manure or fertilizer exist, can impair ground water quality by increasing the level of nitrates in water percolating from ground surface. The policies below provide guidance relating rural residential development with individual septic disposal systems. Further discussion of the basis for 5-acre minimum parcel sizes outside the Urban Service Boundary in agricultural-residential areas is included in the Land Use Element.

The County has conceptually approved formation of a County Service Area (CSA) to provide on-site wastewater management. The CSA will initially provide maintenance services to subdivisions of over 100 lots utilizing septic systems. Among the functions of the CSA will be to take actions to prevent ground water contamination from on-site sewage disposal systems.

### Policies:

- CO-31. Notwithstanding any policies elsewhere in this plan, any new parcel created in an Agricultural-Residential area which is less than 5 acres and relies on either an interim or long-term septic disposal system shall be conditioned to redesign or replace septic systems if future testing indicates a trend line increase in nitrate levels.
- CO-32. In the event that ground water quality monitoring indicates a trend line increase in nitrate levels, new or replacement septic systems on preexisting legally established parcels less than 2.5 acres in size shall utilize sewage disposal systems which substantially mitigate the trend line nitrate levels in ground water.

Implementation Measures:

- A. Review and update regulations pertaining to the construction of septic systems and alternative septic disposal methods, including when alternative methods are required. (Environmental Health Division)
- B. Track the number of new and replacement septic systems within agricultural-residential areas, including their design in relation to lot size, and prepare an annual report for the Board of Supervisors. (Environmental Health Division)
- C. Establish a County Service Area to provide septic tank maintenance and develop proposed County Code to address the maintenance service and associated charges. (Environmental Health Division)
- D. Determine the need and means to extend maintenance service to parcels with existing on-site systems and address public education of septic system owners. (Environmental Health Division)

GROUND WATER QUALITY MONITORING

Objective: Comprehensive monitoring of ground water quality throughout the county.

Intent: Sacramento's reliance on ground water resources for domestic consumption makes ongoing comprehensive monitoring of ground water quality essential. The County's current efforts need to be substantially expanded and additional funding provided. The proposed CSA for septic system maintenance is an appropriate authority for levying assessments on residences with private septic systems. There may also be a need to establish a monitoring program which would encompass agricultural areas subject to concentrated applications of fertilizer.

Implementation Measures:

- A. Develop a ground water monitoring program for Zone 40 (Page 112, Water Districts Map). (SCWA and Environmental Health Division)
- B. Develop a county-wide ground water monitoring program, including phasing and financing. (Environmental Health Division)
- C. Implement ground water monitoring program. (Environmental Health Division)
- D. Prepare annual ground water quality report to the Board. (Environmental Health Division)

## UNDERGROUND STORAGE TANKS

Objective: Curtailed hazardous material seepage from underground storage tanks.

Intent: A source of ground water contamination includes poorly maintained underground storage tanks storing hazardous materials. Current County regulations, such as the 1983 Right-to-Know ordinance, have reduced contamination from underground tanks containing hazardous materials by requiring that the location of such tanks be registered and routine monitoring performed. However, the 1983 ordinance is focused upon alerting emergency response personnel to potentially dangerous or explosive materials. With over 4,600 underground tanks now registered in the county, most containing gasoline, it is necessary to increase environmental monitoring activities to prevent contamination.

### Implementation Measures:

- A. Provide staff support for monitoring tank testing programs and responding to contamination site cleanup. (Environmental Management Department)
- B. Operate under the agreed upon work authority for prosecuting crimes involving hazardous materials as defined by the Memorandum of Understanding between the County's Environmental Management Department and the State Department of Health Services. (Environmental Management Department)
- C. Develop procedures to inform business and the public about potential financial and criminal liability if routine or accidental release of undisclosed toxic chemicals should harm emergency personnel, employees, or the public. (Environmental Management Department)