SANTA BARBARA COUNTY GROWTH INDUCEMENT POTENTIAL OF STATE WATER IMPORTATION

Prepared by:

Santa Barbara County Water Agency
122 West Figueroa Street, Suite B
Santa Barbara, California 93101
(805) 568-3540

Contacts:

Robert B. Almy, Water Agency Manager
Jon Ahlroth, Senior Hydrologist
and

Pamela Gene Cosby, P.E., AICP
287 Kevin Street
Thousand Oaks, California 91360
(805) 494-9312

FINAL

March 15, 1991

COURT HOUSE

Santa Barbara County Water Agency

Robert B. Almy
Water Agency Manager

122 W. Figueroa St., Ste. B
Santa Barbara, California 93101
(805) 568-3540
Telecopier: (805)568-3549

March 15, 1991

Stephen L. Kashiwada
DEPARTMENT OF WATER RESOURCES
P.O. BOX 942836, Room 252-19
Sacramento, CA 94236-0001

SUBJECT: **STATE WATER PROJECT COASTAL BRANCH, PHASE II AND MISSION HILLS EXTENSION FINAL ENVIRONMENTAL IMPACT REPORT.**

Dear Mr. Kashiwada:

As you are aware, the County raised a number of issues regarding potential growth inducing impacts of supplemental water supplies, including the Coastal Branch Extension and related projects. In order to expedite completion of this EIR, and after discussion with your department, Santa Barbara County and the County's water purveyors have developed a more detailed analysis than previously available of local water demand and supply forecasts and the condition of local groundwater basins. The enclosed report, prepared by the County Water Agency, in consultation with the water purveyors, summarizes the results of that analysis.

We understand that this report will be incorporated into the final Environmental Impact Report for the SWP Coastal Branch Phase II project. We appreciate the opportunity to comment on that report and look forward to seeing the final document.

Sincerely,

Robert B. Almy
Water Agency Manager

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PAMELA GENE COSBY, P.E., AICP
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POTENTIAL GROWTH INDUCEMENT IMPACTS OF
STATE WATER IMPORTATION

There are three water resource projects now under consideration which could affect the long-term availability of water for Santa Barbara County residents. Two involve importing state water project water to the county: 1) the State Water Project Coastal Branch, Phase II and Mission Hills Extension, and 2) the Santa Ynez Extension to Lake Cachuma. Enlarging the Lake Cachuma reservoir is also under consideration. The California Department of Water Resources serves as the lead agency for the Environmental Impact Reports (EIR's) on the Coastal Branch Phase II project and the Lake Cachuma enlargement. The Santa Barbara County Water Purveyors Agency is preparing the Santa Ynez Extension EIR.

One of the environmental concerns for all three projects is whether or not importing state water. In its State Water Project Coastal Branch, Phase II and Mission Hills Extension EIR, the DWR used Detail Analysis Units (DAU's) to analyze water demand forecasts, groundwater basin overdrafts, agricultural land conversions and other issues affecting water supply and demand and growth inducement potential. Unique conditions in each water district suggest that a more detailed district level analysis would reveal important insights into the potential growth inducing impact state water importation could have.

To consider growth inducement potential at the water purveyor level, the Santa Barbara County Water Agency, in cooperation with local municipalities and water districts, initiated this study. The goal has been to quantify the expected population growth attributable to the increased water supply state water importation provides. The effects of developing alternative water supplies such as desalination, importing water by tanker or instituting groundwater basin management practices such as conjunctive use would be similar and in proportion to the projected increase in available domestic water.

Another use for the computer model developed during this study is as a water supply planning tool for Santa Barbara County. Many technical, environmental and economic issues must be addressed in long-term water resource planning, but this model could be a useful part of a regional analysis. Fifty years has commonly been considered the typical planning horizon for major water resource development projects since it often takes that long to estimate additional water needs, identify and evaluate potential water sources, select the preferred alternative, and design, permit and construct the necessary capital improvements. While this report only considers the twenty-year timeframe from 1990 through 2010, the most common General Plan build out period for localities, it provides a beginning and a framework for long-term water planning. It also places supplemental water supplies in context with existing supply shortfalls and potential for inducing growth.

Short-term operational planning goals include meeting the peak day and peak month water demand, retaining adequate reservoir storage and regular maintenance. Long-term planning focuses on developing water resources, meeting water quality

standards, and providing a buffer, or safety margin, against long-term droughts.

Any population growth that water development could induce would have secondary effects on community resources such as public services, air quality, and transportation. Evaluating these secondary impacts is beyond the scope of this report. Instead the focus is limited to quantifying the population growth that may be attributable to increasing available water supplies. Detailed analyses of the secondary impacts of growth associated with land use plan build out have already been provided in the EIR's for each General Plan.

REPORT ORGANIZATION

The basic methodology for this study has been evaluating historical trends in population growth and water demand for each water purveyor, projecting municipal and industrial (M & I) and agricultural water demand by purveyor, and comparing the projected demand with available and projected water supplies. The first section of this report summarizes the data collection and review process. In the next section, existing and projected water demand are evaluated for each water purveyor. The comparison of available water supplies with water demand considers "safe yields" for surface and groundwater supplies, the water quality of local sources, and the potential for alternative water resource development such as wastewater reclamation. The final two sections consider the impacts importing state water could have on improving water quality, meeting existing and projected water demand, and inducing population growth.

DATA COLLECTION AND REVIEW

During the course of this study, considerable assistance was provided by the water purveyors in Santa Barbara County, the California Department of Water Resources (DWR), Vandenberg Air Force Base (VAFB), the Santa Barbara County Resource Management Department (RMD), the Santa Barbara County Association of Governments (SBCAG) and the Community Development Departments of the six municipalities within the county. The actual scope of work was based upon discussions with Santa Barbara County Water Agency (SBCWA) staff and several meetings with the Santa Barbara Water Purveyors Agency (SBWPA) members.

Most of the study data came from the individual water purveyors and planning departments. The initial data request by letter and in two water purveyor meetings, one in the North County and one in the South County, was followed up with phone calls requesting clarification or supplemental information. Each water district, City Community Development Department and the County Comprehensive Planning Division provided available information on their historical and projected population estimates, water demand and water conservation trends. Particular attention was given to land use, population or dwelling unit forecasts, and water resource planning for the General Plan build out period. For districts serving agricultural customers, past and future irrigated acreages and water application rates were requested. Water supply data collected included historical water production by source, water quality, and both urban and agricultural return flows.

Considerable variation existed from water district to water district in the precision and types of available data sources. In several cases no data was available for 1970 because a Community Service District was formerly a private water company, records had been lost or for some other reason. Districts can maintain water records by either calendar year (January to December,) fiscal year (July to June) or Cachuma water year (May to May). Cropped acreage varies significantly each year, and frequently no records exist for actual agricultural acreages. Several districts have undergone significant shifts in land use patterns since 1970, particularly residential lot sizes and landscaping. To the degree possible, consistent assumptions have been used to evaluate each water district. Extensive footnotes to each table document the data sources and assumptions for each data point.

One of the most difficult data analysis tasks was to estimate water district populations since water district boundaries seldom coincide with land use planning boundaries such as municipal boundaries, census tract boundaries, county Community Planning Area boundaries, or the Detail Analysis Units boundaries used by the California Department of Water Resources in its Coastal Branch, Phase II EIR. The 1980 water district populations were taken from the 1985 Santa Barbara County State Water Project Alternatives Study. Prior to the 1990 Census, the most widely accepted Santa Barbara County economic and future population forecast was Forecast '89 prepared by the Santa Barbara County Association of Governments (SBCAG). Using some of the Forecast '89 demographic analysis such as household sizes, Census '90 data available to date and other data available from the water districts, SBCAG prepared the 1970 and 1990 water district populations used in this report.

Except for a few districts where better information was available, DWR data from the Coastal Branch EIR was used to estimate total agricultural acreage and water application rates within each DAU. DWR's analysis was based on periodic DWR surveys of all agricultural lands and irrigation practices.

The SBCWA used the Cachuma River model and other agency computer models to estimate the safe yields of county surface water sources. Groundwater basin safe yield estimates were taken from each basin's most recent geohydrology report available to the SBCWA. For some DAU's such as DAU 70, Santa Maria, the DAU has only one groundwater basin. For other DAU's, such as DAU 75, the South Coast, and DAU 74, Santa Ynez, groundwater overdraft conditions vary considerably between the various basins inside the DAU. As a consequence, using data available for each major groundwater basin within the DAU's is a more accurate method than the Coastal Branch, Phase II EIR approach of grouping all the groundwater basins together.

Once the basic data was collected, the SBCWA staff and consultant reviewed and analyzed the data and prepared the interconnected computerized tables contained in this report. The draft tables were distributed to each water purveyor for review. Each purveyor was contacted for comments at a meeting of the South County purveyors or by phone. Review copies of the revised tables and draft report were also distributed to the water purveyors and agencies. A final round of meetings was held with the water purveyors, one in the north and one in the south, to review the purveyors comments. The final report will be submitted to

the Department of Water Resources as part of Santa Barbara's County's comments on the Coastal Branch, Phase II EIR.

EXISTING AND PROJECTED WATER DEMAND

Water demand forecasts in this report are based on water district population forecasts and per capita water demand estimates adjusted for expected long-term conservation. This section describes the steps taken to estimate future population and water demand.

Population Forecasts

Six municipalities have incorporated in Santa Barbara County: Carpinteria, Guadalupe, Lompoc, Santa Barbara, Santa Maria, and Solvang. Prior population estimates for the county and six municipalities were available from the U.S. Census Bureau, California Department of Finance (DOF), the Santa Barbara County Association of Government's Forecast '89, and General Plans prepared for each municipality and county Planning Area. In Table 1, official estimates are given for 1970 through 2010, which is the General Plan build out year for most planning areas.

Table 2 presents historical and projected population estimates broken down by water district. The General Plan and Census estimates have been adjusted to reflect water district boundaries. The 1980 Census estimates were taken from the previously mentioned 1985 Santa Barbara County State Water Project Alternatives study prepared jointly by DWR and the Santa Barbara County Flood Control and Water Conservation District. In the extensive footnotes for Table 2, SBCWA and SBCAG have indicated the assumptions and methodology used to estimate each district's population. DOF and Forecast '89 municipal estimates are shown unchanged from Table 1 for comparison.

When the 1990 Census results became available, most Santa Barbara County communities had significantly more residents than predicted in prior state or local forecasts. The modified population forecasts shown in Table 2 adjust the General Plan population forecasts for the 1990 Census results, for proposed changes to the adopted General Plans or other factors noted in the table footnotes. These modified forecasts were then used to estimate future water demand.

To complicate population breakdowns by water district, Census '90 information available to date includes only limited census tract demographics. Consequently, numerous assumptions, such as household size, were made in order to estimate 1990 district populations. In its State Water Project Coastal Branch, Phase II EIR, the DWR used California Department of Finance county population estimates through 2035, then did its own population breakdown by Detail Analysis Units (DAU's). Because DAU boundaries roughly correspond to major groundwater basin boundaries but not other planning boundaries such as census tracts and county planning areas, direct comparisons between DWR's population and water demand forecasts and forecasts by planning agencies and water districts are difficult. Nevertheless, this report contains population forecasts as comparable as possible with the state forecasts. The most difficult hindrance to accurate forecasts was the lack

of available data to estimate rural and urban populations served by private wells instead of large water purveyors.

Population Trends

Santa Barbara County has been growing significantly faster than the United States average. During the 1970's the County grew by 13 percent. In the 1980's the growth rate increased to an average annual rate of 2.1 percent for a decade total of nearly 24 percent. Most of the last decade's growth has occurred outside the Santa Barbara-Goleta area, where growth was restricted to less than 10 percent because of the Goleta water moratorium and high housing costs. Santa Maria, Orcutt and Guadalupe all grew by more than fifty percent. Buellton and Solvang had the fastest growth rates with increases of 64 percent for the decade. Vandenberg AFB's population is dictated by the missions and programs the Department of Defense assigns to the base. After cutbacks in the shuttle program, on base military personnel and their dependents at Vandenberg AFB declined by almost 50 percent from 1970 to 1980. During the last decade base population has grown about 20 percent. The proposed relocation of Los Angeles AFB activities to Vandenberg AFB could return the base to its former population size.

General Plans and Future Growth Forecasts

General Plan documents define a community's growth and land use goals for the planning period. For most Santa Barbara County communities, the latest General Plan update projects build out of the master planned land uses within twenty years, which is typically 2007 or 2010. Before the General Plan is adopted, the planners and elected officials consider the community's goals and objectives. Through the planning and environmental review process, decision makers also consider the availability of resources such as jobs, land, air, water, transportation systems and public services to serve a growing community. The end result is an adopted General Plan and land use element which meet the community's goals and objectives and balance growth with the area's natural resources and the community's ability to provide the concomitant public facilities and services.

In the land use plan, planners specify through housing densities the maximum number of new residential units which could be built if the land is fully developed or "built out". This is the ultimate limit to growth unless the elected officials modify the General Plan. Commercial and industrial areas are similarly defined. In some localities planners also estimated the build out population. If not, the household size projected by SBCAG was used to calculate the General Plan build out population shown in Table 2.

How long it actually takes to reach master plan build out depends on the pace of economic growth and the city or county permitting process. Strong economic growth could lead to build out sooner than 2010; a weak economy would slow down development. If land uses have not been balanced between industrial, commercial and residential uses, the pace of build out would depend on residential development and job creation in other communities. If a municipality or the county wants to control the rate of growth or slow down development, they have the option of adopting a type of growth management ordinance which limits the annual number of building permits. During the last year,the City of Solvang

adopted a three percent annual growth rate. The County approved a 0.5 percent growth rate for Montecito with its most recent Community Plan update.

Future population forecasts can also be based on economic and demographic trends. In Report 86-P-1, DOF explains that its baseline cohort method of projecting population "assumes no fundamental institutional changes and no major changes to policies and practices related to air, land, and water use, housing and transportation plans and environmental issues. Every person has the right to migrate where he chooses and no major natural catastrophes or war will befall the State or the nation." Residential build out potential provided the ceiling for SBCAG's Forecast '89 growth projections, but an economic model determined the rate of development. Comparing the General Plan and modified forecasts in Table 2 with the SBCAG and DOF forecasts indicates that after corrections for the 1990 Census, the rates of growth assumed are reasonable and in line with forecasted economic growth.

Municipal and Industrial Water Demand

This study uses per capita water demand averages for each water purveyor to estimate future water demand. The quantities in Table 3 for gallons per capita per day include residential, industrial and commercial uses, but not agricultural water demand. This method assumes that each water district's mix of residential, industrial and commercial uses will remain about the same during the next twenty years.

Per Capita Water Demand

Per capita water demand is calculated for each water purveyor in 1970, 1980 and 1990 based on recorded water production and the census population estimates from Table 2. Gross water demand figures in Table 3 for the South Coast water districts and Santa Ynez River Water Conservation District Improvement District No. 1 include agricultural water, since these districts also serve agricultural customers. The formulas for gallons per capita per day (gpcd) exclude this agricultural water. All other districts serve municipal and industrial customers exclusively.

Since 1970 was an average water year, that is neither excessively wet or dry, and water conservation programs had not started by then in most communities, 1970 per capita water consumption rates have been used to estimate pre-conservation baseline water demand. These rates appear in the 0 percent conservation column under the General Plan Build Out (GPBO) water demand estimates on the right side of Table 3. Per capita water demand is multiplied by the modified General Plan Build out Population from Table 2 to estimate total water demand. In some districts where the 1970 per capita figures do not represent current land use conditions or other factors, a more representative per capita demand has been given. Typical per capita water consumption rates prior to implementing water conservation programs ranged from 150 to 200 gallons per day per resident. Communities with higher consumption rates have large residential lots requiring more landscape irrigation, (e.g., Montecito, Solvang and Orcutt,) warmer weather and/or certain soil types (e.g., San Antonio basin,) tourist populations not

counted in the census, (e.g., Solvang and Buellton,) or large daytime populations, (e.g., Vandenberg AFB.)

Another method sometimes used to forecast water demand is estimating the water demand for each acre of residential, industrial and commercial land. Several communities, including the City of Carpinteria and Vandenberg Air Force Base, have used this method. In these cases, their estimate of GPBO water demand is included in the 0 percent or 10 percent conservation total water demand column as appropriate.

Total Water Demand

To estimate the total gross M&I water demand, the 10 percent conservation gallons per capita per day (gpcd) figure for each district is multiplied times the census population for 1990 and times the modified General Plan populations for 2000 and 2010 as shown in Table 4. Net water demands shown in Table 6 are each district's gross M&I plus agricultural water demands from Table 4 less the M&I and agricultural groundwater return flow credits from Table 4. Return flow credits are discussed in greater detail below under water supply.

Water Conservation

The larger water districts (3,000 or more services or 3,000+ acre feet/year (AF/yr) water production) are required to prepare an Urban Water Management Plan by AB797. These plans usually include a water conservation program to reduce per capita water demand. A proposal to require Best Management Practices for water conservation statewide is being discussed by a North-South state water coalition and by the state legislature. During the current drought, per capita demand in Santa Barbara County has been reduced from 5 to 50 percent as shown by the low water consumption in Table 3 for 1990. In the long run, however, most people will not want to maintain the severe lifestyle changes which such high cuts in water consumption require. On the other hand, institutional shifts such as low-flow shower heads, drip irrigation systems and water conserving toilets will create permanent savings in water demand. Potential reductions in per capita and total water demand at conservation rates ranging from 0 percent to 20 percent are given in Table 3. For this report, long-term water conservation has been assumed to be 10 percent. Individual districts may have higher or lower conservation rates, but the water purveyors believe 10 percent to be a good average for planning purposes. The theoretical 1990 municipal and industrial (M & I) water demand in the absence of a drought and projected water demands for 2000 and General Plan Build Out with 10 percent conservation appear in Table 4.

Agricultural Water Demand

Historical agricultural water demand estimates provided by the water districts serving agricultural customers were included in the Table 3 gross water demand estimates. Future agricultural water demand is estimated based on the irrigated acreage and water application rates listed in Table 4. When available, acreage estimates and 1990 agricultural water demand for individual districts were provided by the water purveyors or planning departments. The majority of agricultural land, however, is served by private wells. For these areas, the DWR estimates of current and future agricultural land were assumed to be correct

since they are based on periodic DWR field surveys of planted acreage, crops and irrigation practices.

The water application rates for the land on private wells were based on DWR estimates by DAU and crop type provided in the State Water Project Coastal Branch, Phase II EIR. Irrigation rates for each district were based on typical crops in each district and DWR application rates for those crops. As shown in Table 4, DWR assumed water application rates will decrease over time as agricultural users employ more efficient irrigation practices. For instance, flood irrigation is used by fewer farmers than in the past since water costs have increased and because more water efficient methods such as drip irrigation are available.

One of the most important trends identified during this study is decreasing agricultural water demand. Although actual countywide irrigated acreage is forecast to decrease by little more than one percent from 1990 to 2010, agricultural water demand is expected to decrease by almost eight percent due to more efficient irrigation practices. This trend is even more important in some groundwater basins such as Santa Maria, where agricultural water demand could decrease by ten percent, and Cuyama, where agricultural water demand could decrease by as much as 25 percent. Irrigated farmland declines in these basins are partially offset by adding acreage in the Santa Ynez and San Antonio DAU's and elsewhere for vineyards, truck crops and berries.

Drought Buffer

Estimates of future water demand and supply are both subject to considerable uncertainty. Many unknowns could affect the actual supply and demand in the future. Examples include economic or climatic shifts, changes in land use development patterns, and the risk that future droughts could be significantly worse than droughts recorded during the 50 or 60 years of available hydrologic data. To respond to this uncertainty, a ten percent drought buffer could be added to the water demands presented in this report. Adding a drought buffer is a standard practice in long-term water resource planning. Since some water planners predict that the current drought could become the new worst drought on record, the wisdom of this practice is clear. On the other hand, if a water district, county or city adopts a drought buffer policy, it is necessary in a growth inducement analysis to ascertain that the additional water supply would, in fact, be held in reserve.

Three Santa Barbara County purveyors have formally adopted drought buffers. Goleta Water District maintains a 2,000 AF buffer and has included this policy n its upcoming referendum. The City of Santa Barbara adopted an 1800 AF safety margin, and Summerland Water District approved an ordinance requiring that the District hold five percent of its water supply in reserve for emergencies. Since this analysis does not include a drought buffer, the actual water supply requirement is understated, especially for these three districts.

EXISTING WATER SUPPLY

Santa Barbara County obtains its water supply from local surface supplies, groundwater and reclaimed wastewater. Since one objective of this study is to evaluate the adequacy of the long-term water supply, this report uses the safe yield for each water source. The safe yield for a surface water source is defined as the quantity of water which could be obtained each year whether or not a drought exists. Storing water in reservoirs during wet years for future droughts and during the winter storm period for use during the summer irrigation period increases a river's safe yield. Groundwater safe yield is defined as the perennial yield for the groundwater basin, that is the average amount of water by which a basin is recharged each year plus recoverable losses. These losses could be captured flow that would otherwise flow out of a basin or be lost to evapotranspiration. Some drought years will provide less recharge and wet years more, but the average recharge is considered the safe yield.

The total water supply available to each water purveyor from local sources is the sum of the surface water, reclaimed wastewater, groundwater and river well supplies. Each component of the existing safe yield water supply is listed in Table 5. The sections below provide more detail on each water source's characteristics.

Surface Water Supplies

Table 5 provides estimates of the safe yield provided by the Juncal, Gibraltar and Cachuma Reservoirs to water districts in the South Coast and Santa Ynez area. These water supply estimates have been obtained from a computer model of the reservoirs and riparian strip on the Santa Ynez River system. Based on a 62-year hydrologic study period, successive runs of the computer model take into account reservoir siltation, which reduces the safe yield, as well as tunnel infiltration, which also increases the safe yield.

Reclaimed Wastewater

Reclaimed wastewater is gaining increased acceptance as an alternative irrigation water source. Lompoc and the City of Santa Barbara already have reclaimed water systems in place and expect to expand their systems in the future. Lompoc's wastewater treatment plant is a secondary treatment facility. Santa Barbara's tertiary treatment plant allows a greater variety of reclaimed water use options. Several other water districts such as Goleta Water District have reclaimed wastewater systems in the planning stages. Table 5 gives estimates of the existing and future water supplies available from reclaimed wastewater where firm projects have been identified. Other projects may be constructed, but the locations and size are only speculative at this point.

The reclaimed wastewater figures in Table 5 represent potable water equivalents. One acre foot of reclaimed water usually equals less than one acre foot of potable water since higher water application rates are required to avoid salt buildup in the soil. This is not the case in Lompoc, however, since both local groundwater (1200 to 2000 TDS) and the wastewater treatment plant effluent (1200 TDS) have similar water quality.

Groundwater Supplies

By far the most important water resource for Santa Barbara County is groundwater. Nearly 85 percent of the 1990 countywide net water supply came from groundwater as shown in Table 5. Return flow credits to the groundwater basin can significantly reduce a water user's consumptive use of groundwater.

Return Flows

Some of the agricultural and M & I water used by a community returns to the river or groundwater basin to be used again. These return flows increase the overall quantity of water available. Some of the agricultural irrigation water infiltrates to the groundwater basin before it is used by the planted crops. As irrigation practices become more efficient, less water is wasted. On the other hand, return flows decrease accordingly. The agricultural return flow rates in Table 4 were taken from DWR's State Water Project Coastal Branch, Phase II EIR. They decrease with time to reflect the adoption of increasingly more efficient irrigation practices.

M & I water return flows come from landscaping irrigation water infiltration and wastewater treatment plant effluent. Table 5 provides estimates of M & I return flows based on the DWR Coastal Branch EIR and information provided by the water districts. M & I return flow credits for lawn irrigation are typically about 15 percent, but can be higher or lower depending on geohydrology and proximity to the ocean. In communities such as Summerland where the groundwater basin is unusable, no irrigation return flow credit is possible.

The greatest amount of groundwater basin recharge occurs at wastewater treatment plants with high rate percolation ponds. For example, the Mission Hills Community Services District has measured wastewater percolation pond rates equal to 46 percent of its domestic water supply. Several treatment plants discharge their effluent to the Santa Ynez River, however clay soils under the river are thought to limit groundwater infiltration. Other treatment plants, especially in the South Coast, discharge their effluent to ocean outfalls or into a river near the ocean. In these cases, little or no return flow credit is given. Some water purveyors such as Vandenberg AFB and Casmalia take their water supply from a groundwater basin outside their community. In this case, the return flow credit would accrue to the groundwater basin where the residents live or their wastewater treatment plant is located.

Groundwater Basin Safe Yields

The groundwater basin net safe yields in Table 5 have been calculated by adding the M & I and agricultural return flows to the basin safe yield. The Santa Maria, Cuyama and San Antonio DAU's are treated as single groundwater units. Infiltration from Twitchell Reservoir is treated as a groundwater source in the Santa Maria Basin. To more accurately represent the Santa Ynez DAU, it has been divided into four areas: 1) the Santa Ynez Uplands groundwater basin, 2) the Buellton Uplands groundwater basin, 3) the Santa Ynez River riparian system and Santa Rita subarea, and 4) the Lompoc groundwater basin.

Similarly the South Coast has been analyzed as several separate groundwater units: Carpinteria, Montecito, Santa Barbara, and Goleta. The belt of consolidated rock areas from Rincon to Point Arguello and behind the larger South Coast groundwater basins are grouped together for the analysis since they act as a series of small groundwater units which together provide a significant source of water. Some areas may have localized overdrafting, but most consolidated rock areas are assumed to be in balance. The area west of Goleta along the coast in DAU 75 has not been included in this analysis, so both the groundwater supply and demand are understated, perhaps by as much as 10,000 AF/year. This area has private well users but not water purveyors eligible for State Water Project (SWP) water.

Under California water law, groundwater is allocated by riparian water rights. Unless a groundwater basin is adjudicated as Goleta's basin has been, or a groundwater management program has been implemented, individual water purveyors can pump as much as they choose. Where more than one water district draws from the same groundwater basin, the safe yield has been divided for demonstration purposes between the water districts and private well pumpers on a pro rata basis according to their net groundwater production. In DAU's where future agricultural demand will decrease significantly, the remaining water users each share a larger portion of the safe yield. Groundwater users which increase their groundwater demand in future years also capture higher percentages of the safe yield. The most dramatic example of this effect is the City of Santa Maria. Between 1990 and 2010 their share of the groundwater basin safe yield would increase almost 60 percent due to population growth in the city and declining agricultural irrigation water demand.

Santa Ynez River Wells

The Santa Ynez River wells are different than the groundwater wells since the river wells draw appropriated water from the Santa Ynez River underflow. Solvang, Buellton and the Santa Ynez River Water Conservation District all have State Water Resources Control Board appropriations and intend to increase their river well pumping in the future. Water releases from Cachuma reservoir can be varied to meet the demand. For the purposes of this report, it has been assumed that the river well demand equals the supply. In the long run this assumption may not hold as the number and capacity of developed wells increase to equal the amount of water credits available for release from Cachuma reservoir. Court review of these water rights could also reduce the defined safe yield supply.

Groundwater Overdrafts

In Table 6 projected net water demands are given for 1990 under normal conditions, 2000 and General Plan Build Out, which is 2010. Net water demand, also called consumptive use, is the gross water demand less return flows. Comparing the projected water demand and the available water supply given in Table 6 reveals that insufficient safe yield water supplies currently exist in any DAU to meet the 1990 demand, much less the 2000 or General Plan Build Out water demand. Only Carpinteria County Water District (CWD) and the City of Solvang have surpluses in 1990. All water purveyors have deficits by 2010 with the exception of the City of Solvang, which takes its water primarily from their Santa Ynez River appropriated rights. The largest deficits are assigned to the

private water pumpers since they are the agricultural users who pump most of each basin's groundwater.

At present the water supply deficits are met by overdrafting or "mining" the groundwater basins. Overdrafting occurs when net groundwater pumping (gross pumping less return flows) exceeds the groundwater basin's safe yield. This option can be used for a finite period of time before the groundwater basin is emptied except for nonrecoverable water. Available working storage capacities for the major groundwater basins are given in Table 12 below.

TABLE 12
GROUNDWATER BASIN WORKING CAPACITIES

GROUNDWATER BASIN	WORKING CAPACITY (AF)
Carpinteria	50,000
Montecito	10,000
Goleta (All subbasins: West, North-Central, and East)	46,000
Santa Ynez Uplands	900,000
Lompoc	230,000
San Antonio	800,000
Santa Maria	1,500,000
Cuyama	1,500,000
SPECIAL BASINS/LIMITED DATA	
Ellwood to Point Conception Coastal Basins	N/A
Santa Ynez River Riparian Basin	Basin is maintained at 10,000 AF below full to capture Cachuma releases

* Working capacity is defined as the capacity difference between a full groundwater basin and the lowest desirable draw down level during a drought. If the aquifer is drawn down further, reservoir capacity could be permanently lost.

Source: Draft Santa Barbara County Comprehensive Plan Conservation Element Groundwater Resources Section

Although the Santa Maria groundwater basin is one of the largest with a storage capacity of 1,500,000 AF, it will take about 40 years at an average annual

overdraft of 39,000 AF (from Table 6) to exhaust the stored groundwater. Some of the potential impacts of continued groundwater overdrafting include: seawater intrusion, ground subsidence, declining water quality and dropping water tables. Dropping water tables will cause well yields to fall. Some wells may require deepening or different types of pumps to continue producing. When a groundwater basin is emptied of its "minable" water, the long-term groundwater supply will be reduced to the current perennial yield plus return flows. Higher pumping costs, saltwater intrusion and other impacts of overdrafting would remain. Unless a replacement water source is found, water users now dependent on groundwater would have limited supplies. The economic impacts would be severe.

Water Quality

Total Dissolved Solids (TDS) is a measure of water quality. Although some chemicals could still be present at unacceptable levels, generally the lower the TDS, the better the water quality. The primary or recommended California drinking water standard for Total Dissolved Solids (TDS) is 500 ppm or less; the mandatory or secondary maximum for TDS is 1000 ppm when a reasonable or feasible alternative is not available.

High TDS is characteristic of most water supplies in Santa Barbara County. According to the data in Table 8, the Mission Hills Community Service District is the only water purveyor which meets the recommended TDS standard. The City of Lompoc is unable to meet the mandatory standard and has a special exemption from the Department of Health Services. All other county purveyors have surface and groundwater supplies with TDS between 500 and 1000 TDS. The primary objections to the high TDS water are the taste and the need for water softening. Water softening increases the salinity of wastewater treatment plant effluent. High TDS levels in Santa Maria's and Lompoc's water supplies make it difficult for the either city's wastewater treatment plant to meet the National Pollution and Discharge Elimination System (NPDES) permit requirements.

One effect of continued groundwater overdrafting is to decrease average water quality. Water quality has already declined during the last twenty years in many groundwater basins. If this trend continues, some water districts will eventually see their groundwater quality reach TDS levels above 1000 TDS.

Alternative Water Supplies

Some of the water districts with insufficient water supplies are evaluating alternative sources of water to meet demand. Alternatives under consideration in addition to state water importation include water conservation, groundwater development, increasing the size of existing reservoirs, desalination, and tankering water to the county.

All of the districts have begun some type of water conservation program with varying effectiveness. During the last two years mandatory rationing has been instituted in several South Coast districts to cope with the ongoing drought. As discussed above, long-term conservation is expected to reduce water demand by an average of ten percent.

The most common water resource development plan has been for the water districts or private parties to drill additional wells. According to the County Environmental Health Department, several hundred private wells were drilled in 1990 in the Montecito basin alone. This approach only increases the rate of groundwater overdrafting. Deep bedrock wells may be feasible, however their capital and operating costs are considerably higher and the water quality is often much lower than the shallower alluvial aquifer's water quality. The Goleta Water District developed a bedrock test well, but legal decisions limiting the District's rights as a water appropriator have put the reliability of this well in question (Goleta Water District, Report on the Water Supply Management Plan, August 28, 1990.)

Another method of increasing effective groundwater safe yields is to use them conjunctively in combination with surface water sources. Conjunctive use involves reducing groundwater pumping below the perennial yield during wet years when surface water is plentiful. During dry years the groundwater basin is overdrafted to compensate for lower surface flows. When rainfall returns to normal, groundwater pumping is again reduced to levels lower than the perennial yield to allow the groundwater basin to replenish itself. This alternative requires strict groundwater basin management and would be difficult to implement while groundwater demand exceeds the safe yield even in normal years.

Several reservoir capacity enlargement projects have also been considered. Increasing the size of Gibraltar reservoir would have significant negative environmental impacts, so this project is less feasible than other potential water resource development projects. The CEQA (California Environmental Quality Act) review is now underway for a project to increase the size of Lake Cachuma.

Both the Goleta Water District and the City of Santa Barbara have seriously considered water tankering and seawater desalination projects to meet their short-term needs during the current extended drought. Detailed feasibility studies submitted to the City of Santa Barbara in July 1990 indicate that the capital and operating costs for offshore and onshore activities necessary to deliver 5000 AF/yr of tankered water for five years could be as high as $3200 to $4900 per acrefoot of water. Desalination studies submitted at the same time estimate that a desalination plant delivering 10,000 AF/yr of water would cost about $1750 per acrefoot. Other South Coast purveyors receiving desalinated water would pay an additional $600 per acrefoot for distribution facilities and operating costs. The City of Santa Barbara selected desalination as the most feasible of these alternatives; until the current drought ends, the City plans to pursue a turnkey desalination facility with a temporary five-year plant life. Goleta Water District has not yet made a decision on how to proceed.

One other water resource alternative developed in response to the drought is a complicated water exchange whereby 3600 acre feet per year of an emergency SWP allocation is being wheeled for a two year period through the Metropolitan Water District's facilities. Several cooperating Ventura County water purveyors agreed to a series of water exchanges to bring the water to Santa Barbara County.

STATE WATER IMPORTATION

SWP water importation is one of the larger water supply alternatives available to Santa Barbara County. This section discusses the potential quantity, quality and reliability of available SWP water. Also evaluated are imported water's potential impact on existing water quality, groundwater overdraft conditions and future development in the county.

State Water Entitlements

When the State Water Project (SWP) was originally created, the Santa Barbara County Flood Control and Water Conservation District contracted with DWR for delivery of 57,700 acre feet of SWP water. In 1981 the entitlement was reduced to 45,486 acre feet. Table 7 summarizes the existing entitlements for each water purveyor. Some districts have requested additional allocations; others may want to sell or lease their entitlements. To date, however, no modifications have been finalized.

The buy-back entitlements shown in the Table 7 are an additional 10,112 acre feet of state water which the districts have rights to purchase in accordance with a 1987 legal settlement between the County and DWR. That settlement allows the County to reacquire most of the entitlements relinquished in 1981.

Annual water charges paid by districts with entitlements are used to finance state water project facilities. These charges are paid whether or not the district receives water in any year. Tentative SWP facilities in the planning stages include additional pumps at the Banks Delta pumping plant, Delta Channel improvements to improve delivery efficiencies, and the Kern Water Bank groundwater basin conjunctive use project, all of which are expected to be complete by 2000 (DWR's Scenario B in the Coastal Branch EIR). The Los Banos Grande Off-stream Storage project would be completed by 2010 Scenario C in the Coastal Branch EIR). Other projects are also possible but more speculative.

Because SWP facility construction has lagged behind original construction schedules, system capacity does not equal system demand. As a result average expected deliveries, which are comparable to a sustainable reservoir yield, are significantly less than 100 percent of system demand. Using SWP operation study results given in the SWP Coastal Branch, Phase II EIR, the SBWPA has estimated that the average SWP deliveries under Scenario B would be 94.8 percent of entitlements. Under Scenario C, deliveries would be 92.5 percent. Deliveries under Scenario C are lower than Scenario B even though SWP system capacity is higher. This seeming discrepancy occurs because scheduled SWP contractor water demand will have increased even faster than system capacity.

Goleta Water District has based its water master plan assessment of state water deliveries on a more conservative basis. Considering only existing SWP facilities, the ratio of existing SWP capacity to contracted entitlements is 57.1 percent. Until additional SWP facilities are constructed, this could be a more reliable estimate of state water deliveries than DWR's average delivery assumptions used in this analysis.

In Table 7 these average SWP delivery percentages are used to estimate the average deliveries which each district would receive based on their entitlement. Scenario B average deliveries are used to calculate the potential deliveries in 2000 and, for comparison purposes, in 1990. Scenario C deliveries are assumed for the 2010 analysis.

Groundwater Overdraft Offsets

Groundwater overdrafts can be allocated to water districts in two basic ways. The first is to assign a pro rata share of the groundwater basin's safe yield based on each district's net groundwater demand (groundwater pumping less return flow credits). This method, which is discussed in greater detail in the groundwater demand section above, was used to develop Tables 5, 6, 8 and 9. The second method requires water districts to use state water in lieu of groundwater if an overdraft exists anywhere in the groundwater basin. Tables 10 and 11 are based on this second approach.

Pro Rata Groundwater Overdraft Shares

Table 8 contains estimates of the state water quantities needed to offset existing and projected groundwater overdrafting independent of state water needed to improve water quality. If state water were available in 1990, all of the water districts with state water entitlements would use state water to offset existing overdrafts with the exception of the Summerland County Water District (CWD). Typically water districts would use state water for ten to 28 percent of their water supply, but for several districts state water would comprise less than ten percent of their total 1990 water supply. On a countywide basis, state water used to offset groundwater overdrafting would equal five percent of the county's water supply. In the heavily overdrafted San Antonio basin where annual water pumping equals more than three times the safe yield, Vandenberg AFB officials intend to replace nearly 99 percent of their groundwater pumpage with state water (VAFB, 1991).

By 2000 (Table 8b), all water districts will need additional water supplies such as state water to offset groundwater overdrafting. By 2010 (Table 8c), state water offsetting local and surface water shortages would be eight percent of total county water supplies. Most water districts would take 10 to 30 percent of their water supplies from the SWP. As shown in Table 9c, several water districts would still have water supply shortages that would continue to be met by overdrafting: Southern California Water Company, the cities of Guadalupe and Santa Barbara, Goleta Water District, and Santa Barbara Research.

Basin Wide Groundwater Overdraft Offsets

The calculations in Table 10 assume that each state water contractor would take their entire state water entitlement. Groundwater would only be pumped if absolutely necessary, thereby increasing available supplies for non-state water contractors. If state water deliveries exceed a district's total demand less surface water supplies, the excess water would be leased to other water districts or private water users within the same groundwater basin. The Remaining Gross and Net Groundwater Demand columns from Table 10 tally the groundwater that each district would still have to pump after first using local surface sources and

state water to meet its water demand. Looking at Santa Maria as an example, the city would continue to pump 9,700 AF/year of groundwater at General Plan Build Out. After return flows are credited, their net impact on the groundwater basin would be a net import of 375 AF/year.

As shown in Table 11, every groundwater basin and DAU has an existing groundwater overdrafting condition which will increase in the future. State water deliveries could fully offset the shortfall through General Plan Build Out in the Santa Ynez and South Coast DAU's. Nevertheless, the Santa Maria, San Antonio and Cuyama groundwater basins would still have to continue overdrafting in 1990 and more so in 2010 even if state water is provided. Exercising the buy-back entitlements could reduce the remaining overdraft.

Conjunctive Use

State water can also be used conjunctively with local surface and groundwater supplies. State water is delivered on a uniform flow basis. With this as a given, examples of conjunctive use could include: 1) reserving local groundwater and/or surface water for use during summer peak demand periods, 2) reserving local groundwater for use during droughts affecting surface supplies in the local area or in the SWP system, and 3) using state water to recharge the groundwater basin during the wet winter season when water demand is low. Designing a conjunctive use program requires detailed hydrogeologic and economic analysis and is beyond the scope of this report. When and if SWP water is imported to Santa Barbara County, the water purveyors can pursue this option; however, it is not evaluated further here.

Water Quality Improvement

The average water quality for SWP deliveries from 1970 to 1988 is 258 ppm TDS (SWP Coastal Branch, Phase II EIR, p. 31). Tables 8a, 8b and 8c list the quantities of state water needed in 1990, 2000 and 2010, respectively, to blend with local supplies in order to meet the 500 ppm TDS drinking water standard. Percentages of state water used for blending range from 0 percent for Mission Hills to almost 80 percent for Lompoc. Most water districts are in the 40 to 60 percent state water range.

If each district is required to take its full state water entitlement, several water districts would have a blended water quality better than the recommended state drinking water standard. Blended water quality is calculated for each water purveyor in Table 10. As overall water demand increases from 1990 to 2010 and state water decreases as a percentage of the district's total water supply, water quality would gradually decline. Many water purveyors would again be unable to meet the primary drinking water standard.

Secondary water quality improvement impacts under either scenario would be a decreased need for water softening and decreased salinity of the wastewater treatment plant effluent. The resulting lower TDS of groundwater return flows combined with a reduction or elimination of groundwater overdrafting would slow the gradual decline in basin groundwater quality.

GROWTH INDUCEMENT IMPACTS

Two cases are relevant to analyze the potential growth inducing impacts of state project water importation. The first case is how state water would impact existing conditions for the existing population. The second case involves meeting the water demand associated with General Plan Build Out.

Impact on 1990 Conditions

In Table 9a each district's SWP water deliveries are first allocated to improving water quality. If additional state water is still available, it is applied towards offsetting any still remaining groundwater overdraft not offset by the state water used to improve water quality. In the last two columns of the table, an entry is made under Remaining SWP if potential deliveries are greater than the water needed to meet both the water quality and overdraft offset objectives. If either objective cannot be met, the quantity of additional water needed over and above state water deliveries is entered in the last column entitled "Remaining Deficit".

For some districts which have groundwater overdraft reduction as a first priority, the order of cumulative water quality and groundwater overdraft offsets should be reversed in Table 9a. The independent calculations in Table 8 and the combined total need would remain the same.

As indicated in Table 8a, every water district needs additional water supplies to meet either the overdraft offset or water quality improvement objectives or, in most cases, both. After both objectives have been met to the degree possible in each district for 1990, (see Table 9a,) approximately 8,600 acre feet or 20 percent of the 43,100 acre feet total average county state water deliveries (under a year 2000 scenario) would be available to support future population growth. 8,600 acrefeet of water represents 3.5 percent of Santa Barbara County's net water demand for 1990. Assuming an average post-conservation per capita demand of 200 gallons per capita per day, this water could support a population growth of 38,400 persons or a 10 percent increase over the County's 1990 population. At the rates of growth forecast in the various city and county General Plans, the county would reach this population level by 1993.

If Tables 10 and 11 are used to evaluate the impact of state water importation on 1990 conditions, one assumes that each water district will lease unused state water to other water districts and private water users in the same groundwater basin in order to offset groundwater overdrafts in the basin. Under this scenario, and without considering water quality, the state water deliveries would all be used to reduce groundwater overdrafts. No additional population growth could be supported.

In a final scenario where water districts are allowed to lease their state water to any water district or private user, the countywide groundwater overdraft could be reduced to 24,000 acre feet a year as shown in Table 11. In this case no water would be available to support population growth beyond 1990 levels.

Impact on General Plan Build Out

In analyzing the impact of state water imports on General Plan Build Out, one assumes that the city and county planning commissions, city councils and county board of supervisors considered the secondary impacts of population growth when they adopted the General Plans for each community. Plan adoption implies that the locality has considered its capacity to provide the public facilities and services necessary to support the population associated with General Plan build out. With this as a given, one can infer that some source of water would be developed to support the planned population increase whether that source is conservation, desalination, groundwater basin overdrafting or state water importation.

From Table 8c, every water district with a state water entitlement would need most of its SWP deliveries to meet the projected water demand and water quality objectives. If SWP water is first allocated to water quality improvement and then overdraft reduction as shown in Table 9c, the only water districts with SWP water deliveries not completely used would be Casmalia Community Services District (CSD), Vandenberg AFB, Mission Hills CSD, Santa Ynez River Water Conservation District ID #1, the Summerland County Water District (CWD), Montecito Water District, and Cuyama CSD. The unused 3100 acrefeet of water could support a population of 13,800 persons, which is about the average county population growth over 2 1/2 years. 3100 acrefeet represents seven percent of the expected Santa Barbara County SWP deliveries in 2010. If the water districts with unused state water are allowed to lease their SWP water to other districts or private users within the same DAU, all of the state water available would be allocated to offsetting groundwater overdrafting. If water districts were free to lease their SWP to anyone in the county, groundwater overdrafting could be reduced by a similar amount. Nevertheless, annual overdrafts of more than 34,000 acrefeet would still occur.

Mitigation Measures

This analysis was based on two scenarios. The first assumes that SWP imports will be dedicated by each recipient of state water to the public policy objectives of offsetting its proportionate share of groundwater overdrafts and improving water quality before it is made available to support future population growth. The second scenario is a more general assessment that assumes that all available SWP water is applied towards offsetting overdrafts in each groundwater basin, each DAU, and finally elsewhere in the county. This second scenario also assumes that individual entitlement holders would agree to lease or sell all or part of their entitlement and that physical facilities are in place to accommodate the transfers. Since this second scenario has not been adopted as public policy, it is shown for illustrative purposes only.

To ensure that the state water is permanently dedicated to the objectives of offsetting groundwater overdrafts and improving water quality, mitigation measures could be implemented by DWR, the County, the cities, each water district or agricultural users.

The ultimate development and adoption of mitigation measures, if needed, should be done cooperatively with individual purveyors and water users. Such a process

should also recognize each group's unique goals and needs. During 1990, Santa Barbara Water Purveyors Association members adopted a resolution stating their intent to dedicate state water deliveries towards offsetting their district's share of the overdraft in their groundwater basin. If these water district actions to manage the groundwater basins are not adequate to protect the groundwater resources, several other mitigation options are possible. They include:

- Each water district could adopt official policies or referenda restricting allowed SWP water uses as Goleta Water District has done.

- A conjunctive use program with groundwater and state water could be implemented.

- Water districts not needing their full SWP entitlements could sell or lease water entitlements to other districts within the county in accordance with the provisions of the Retention agreements.

- Agricultural users could pay a groundwater pump tax or otherwise compensate M&I users who replace their groundwater with state water.

- A basin by basin groundwater management plan could be implemented through a cooperative effort of the groundwater users in each basin.

- A basin by basin groundwater management plan could be implemented by a conservation district (such as the Santa Maria Valley Water Conservation District), a joint powers authority or some other county or state authority.

Concerns about total population growth potential are addressed in each locality's General Plan. Limits for the rate of growth could best be addressed by adopting a growth management ordinance tied to the General Plan. The growth management ordinance would specify the maximum number of development permits to be granted in one year. It would also take into account all of the resources affecting a community's ability to absorb population growth such as transportation and air quality as well as water availability. City and county planners can also scrutinize adopted General Plans for conformance with identified carrying capacities; nonconforming plans could be revised accordingly.

CONCLUSIONS

Santa Barbara County residents rely upon groundwater for more than 85 percent of their net water demand. Local surface sources and wastewater reclamation meet the rest of the demand. Agricultural users account for about 76 percent of water demand, and residential, industrial and commercial users account for the balance. Currently, many of the Santa Barbara County water purveyors are experiencing water supply shortfalls because of the extended drought or due to continued overdrafting of their groundwater basins. Furthermore, only a few water purveyors can meet the 500 ppm TDS recommended state drinking water standard. Additional water supplies, whether they are state water, desalinated water or some other sources, are needed to address these current problems. During the

next twenty years as each community builds out according to their adopted General Plans, the water supply shortfalls and water quality problems will increase. The demonstrated need for additional water supplies will also increase.

The secondary impacts of population growth associated with land use plan buildout have been previously evaluated in the EIR's for each General Plan. General Plan buildout targets have been selected after a balancing of all local resources with community goals for the future. Water which is available to support populations over and above the General Plan buildout population is considered growth inducing. However, after state water is allocated to address water quality improvement and offsetting the groundwater overdraft under 1990 conditions, less than twenty percent of the state water will be available to induce growth. At buildout, the county would have a net water supply deficit, even with full state water deliveries. If water districts are able to lease or sell their SWP entitlements to other county water users experiencing existing and projected shortfalls, the county's entire SWP entitlement could be used to improve water quality, offset groundwater overdrafting and meet the 1990 and General Plan buildout population water demands.

If General Plan buildout continues without additional water supplies from the state water project or some other source, even larger numbers of people will be at risk when the next drought comes. If one defines growth inducing as promoting growth beyond the General Plan Buildout population, the proposed project is not growth inducing. If one defines growth inducing as promoting population growth beyond the current population, even if it is included in the General Plan, the case for importing water to address existing 1990 water quality and quantity requirements is still quite clear.

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LIST OF PERSONS CONSULTED

Buellton Community Services District
Howard Hanson

California Cities Water Company
Tom Bunosky
Patrick Scanlon
Don Twomley

California Department of Finance
Hans Johnson

California Department of Water Resources
Debbie Braver
Steve Cowdin
David Inouye
Verne Knoop

Carpinteria Water District
Bob Lieberknecht

Casmalia Community Services District
Nick Irmiter

City of Carpinteria
Ray Severn

City of Guadalupe
Helen Elder
Dwayne Chisam
Benny Gonzales

City of Lompoc
Jeremy Graves
Hassein Maagami
Gary Keefe

City of Santa Barbara
Dale Brown
Bruce Burnworth
Steve Mack

City of Santa Maria
Jerry Frasier
Jim Perry
Reese Riddiough
John Shoals

LIST OF PERSONS CONSULTED - continued

City of Solvang
David Serge
Peter Lawson

County of Santa Barbara
Robert Almy
Jon Ahlroth
Shirley Martin
Alice McCurdy
Greg Mohr
Phil Overeynder
June Peugeot
Cliff Pauley
Alison Reitz
Tom Utterbach

Cuyama Community Services District
U. S. Wilson
Bob Rausen

Goleta Water District
Bob Paul
Nelson Evans

Hatch and Parent
Stan Hatch

La Cumbre Mutual Water Company
Dean May

Los Alamos Community Services District

Mission Hills Community Services District
John Lewis

Montecito Water District
Chuck Evans
Edward Girard

Morehart Land Company
Matthew Morehart

San Luis Obispo Environmental Coordination Office
Melissa Mooney

Santa Barbara County Association of Governments
Brian Bresolin
Mike Powers

LIST OF PERSONS CONSULTED - continued

Santa Barbara Research Center
William Murray
John Wiskel

Santa Barbara Water Purveyors Agency
Jim Stubchaer

Santa Ynez River Water Conservation District, Improvement District No. 1
Tom Petersen

Southern California Water Company
Alice F. S. Lou

Summerland Water District
Lloyd Fowler

Vandenberg Air Force Base
Tom Hom

Vandenberg Village Community Services District
Roger Brett
Jock Sutherland

LIST OF PREPARERS

Pamela Gene Cosby, Civil Engineer/Planner
Consultant
Registered Civil Engineer
American Institute of Certified Planners
Education:
BS Civil Engineering, Stanford University
MCRP, City and Regional Planning, Harvard University
Experience:
16 years of public and private experience in civil engineering and planning

Jon A. Ahlroth, Senior Hydrologist
Santa Barbara County Water Agency
Education:
Professional Engineering Degree, Geophysics, Colorado School of Mines
Experience:
15 years of experience in water resources analysis for Santa Barbara County

Brian Bresolin, Regional Analyst
Santa Barbara County Association of Governments

TABLE 1

SANTA BARBARA COUNTY POPULATION DATA AND FORECASTS

CITY AND UNINCORPORATED AREAS	1970 Census	1980 Census	1990 DOF	1990 Forcst'89	1990 GenPlan	1990 Census'90	2000 DOF	2000 Forcst'89	2000 GenPlan	2010 DOF	2010 GenPlan	GPBO GenPlan	2035 DOF
CITY OF CARPINTERIA	7,000	10,835	12,600	12,554	NA	13,747		14,479	NA		16,359	22,418	
CITY OF SANTA BARBARA	69,000	74,414	80,400	79,972	84,285	85,571		85,632	89,908		95,612	95,612	
CITY OF SOLVANG	NA	3,106	4,450	4,212	NA	4,741		5,637	NA		7,845	7,845	
CITY OF LOMPOC	25,000	26,267	33,850	33,630	37,600	37,649		39,165	43,900		46,000	46,000	
CITY OF SANTA MARIA	31,000	39,685	55,200	55,204	61,284	61,284		70,619	113,600		134,500	134,500	
CITY OF GUADALUPE	3,000	3,629	5,650	5,833	5,428	5,479		8,335	6,814		11,040	18,000	
UNINCORPORATED AREAS	NA	140,980	161,900	159,537	NA	161,137		180,311	NA		NA	NA	
COUNTY TOTALS	NA	298,916	354,050	350,942	NA	369,608	407,400	404,178	NA	435,700	NA	NA	498,800

NOTES ON TABLE 1:

1) Population estimates are for cities. If water district boundaries are not coincident with city boundaries, estimates may differ significantly from the water district population shown in Table 2.
2) "GPBO" signifies General Plan Buildout.
3) California Dept. of Finance (DOF) population estimates are taken from Reports 90 E–1, 89 P–1E, and 86 P–1.
4) Carpinteria forecasts are based on residential units forecasted in the "General Plan and Environmental Impact Report", 1986, prepared by Michael Brandman Associates.
5) Santa Barbara General Plan forecasts are given in residential dwelling units (DU's). Population estimates are based on household sizes of 2.35 in 1990, 2.37 in 2000, and 2.39 in 2010 (SBCAG). DU's are assumed to be 35,866 in 1990 and increase by 4,139 additional DU's by Build Out in 2010.
6) Solvang forecasts are based on the City's General Plan 1989 Land Use Element.
7) Lompoc General Plan forecasts are based upon Forecast '89 estimates updated for the 1990 Census results and preliminary General Plan update estimates provided by Jeremy Graves with the Dept. of Community Development.
8) Santa Maria forecasts are based on the "City of Santa Maria Sphere of influence Boundary and Concurrent Annexation Study", June, 1990, prepared by McClelland Consultants.
9) Guadalupe forecasts are taken from "Comprehensive General Plan, City of Guadalupe, California, A Framework for Planning, 1987–2007" and Helen Elder, City Planner

TABLE 2

POPULATION FORECASTS BY WATER PURVEYOR SERVICE AREAS AND DESIGNATED ANALYSIS UNITS

DAU and Subareas	1970 Census	1980 Census	1990 DOF	1990 Forcst'89	1990 GenPlan	1990 Census'90	2000 DOF	2000 Forcst'89	2000 GenPlan	2000 Modified	2010 DOF	2010 GenPlan	2010 Modified	Build Out GPBO	Build Out Modified
DAU 71:															
City of Santa Maria	32,340	39,685	55,200	55,204	54,597	60,229		70,619	76,808	82,440		92,360	97,992	92,360	97,992
Southern Calif Water Co	13,608	23,215			31,377	31,469			38,739	38,739		45,079	45,079	45,079	45,079
City of Guadalupe	3,115	3,700	5,650	5,833	5,428	5,695		8,335	6,886	7,020		11,112	11,379	18,072	18,206
S.M.Valley Industrial	0	0			0	0			0	0		0	0	0	0
Private SMV M&I, Ag	472	836			984	984			1,260	1,260		1,364	1,364	1,364	1,364
Casmalia CSD	230	226			164	164			164	164		164	164	164	164
TOTAL SANTA MARIA	49,765	67,662			92,386	98,541			123,692	129,457		149,915	155,814	156,875	162,641
DAU 73:															
Los Alamos CSD	722	734			887	890			1,081	1,085		1,318	1,322	2,024	2,024
Vandenberg AFB	10,705	5,421			6,544	6,544			9,816	9,816		9,816	9,816	9,816	9,816
Private SAV M&I, Ag	346	460			440	543			507	626		567	700	567	700
TOTAL SAN ANTONIO	11,773	6,615			7,871	7,977			11,405	11,527		11,701	11,838	12,406	12,539
DAU 74:															
City of Lompoc	24,084	26,270	33,850	33,630	35,557	35,711		37,122	41,857	41,857		43,957	43,957	43,957	43,957
Vandenberg Village CSD	4,523	5,839			6,793	6,793			7,884	7,884		9,149	9,149	9,149	9,149
Mission Hills CSD	3,000	2,755			3,430	3,121			4,326	4,326		5,222	5,222	6,118	6,118
Vandenberg AFB	5,362	2,715			3,277	3,277			4,226	4,226		4,226	4,226	4,226	4,226
Buellton CSD	1,500	2,242			3,688	3,688			5,321	4,505		6,954	5,321	6,954	5,321
City of Solvang	2,100	2,899	4,450	4,212	4,755	4,755		5,637	6,300	6,300		7,845	7,845	7,845	7,845
Santa Ynez RWCD ID#1	5,500	7,712			8,298	8,298			10,395	10,748		12,238	13,198	12,238	13,198
Private SY-Lom M&I, Ag	1,376	1,824			1,747	2,192			2,015	2,528		2,251	2,825	2,251	2,825
TOTAL SANTA YNEZ	47,445	52,256			67,546	67,835			82,324	82,373		91,843	91,743	92,739	92,639
DAU 75:															
Carpinteria CWD	9,400	13,410	12,600	12,554	17,052	17,102		14,479	19,516	19,541		21,980	21,980	21,980	21,980
Summerland CWD	1,000	1,245			1,438	1,442			1,747	1,641		2,056	1,840	2,056	1,840
Montecito WD	8,900	9,964			10,886	11,719			11,295	12,128		11,678	12,511	11,678	12,511
City of Santa Barbara	69,700	76,705	80,400	79,972	82,548	84,170		85,632	88,156	89,777		93,846	95,467	93,846	95,467
LaCumbre Mutual Water Co	3,363	4,000			4,129	4,141			4,368	4,368		4,596	4,596	4,666	4,666
Goleta WD	61,000	64,503			70,142	70,348			77,314	76,213		84,486	82,079	84,486	82,079
Private SC M&I, Ag	1,003	1,330			1,273	4,951			1,362	5,297		1,451	5,641	1,451	5,641
Morehart Land Co.	0	0			0	0			0	0		0	0	0	0
Santa Barbara Research	0	0			0	0			0	0		0	0	0	0
TOTAL SOUTH COAST	154,366	171,157			187,469	193,873			203,757	208,964		220,092	224,113	220,162	224,183
DAU 76:															
Cuyama CSD	1,114	625			662	662			850	850		861	861	861	861
Private CV M&I, Ag	452	601			718	718			755	755		793	793	793	793
TOTAL CUYAMA VALLEY	1,566	1,226			1,380	1,380			1,604	1,604		1,654	1,654	1,654	1,654
SANTA BARBARA COUNTY	264,915	298,916	354,050	350,942	356,651	369,606	407,400	404,178	422,782	433,926	435,700	475,206	485,163	483,837	493,657

NOTES ON TABLE 2:

1) These Detailed Analyses Units (DAU's) include only the watershed portion within Santa Barbara County.

2) The modified population columns indicate the General Plan population modified to account for the 1990 Census, proposed updates to the adopted General Plan or other factors.

[PLEASE SEE FOLLOWING SHEET FOR MORE NOTES ON TABLE 2]

NOTES ON TABLE 2 (continued):

3) 1980 Census population estimates were taken from the 1985 "Santa Barbara County State Water Project Alternatives Study" by DWR and SBCo Flood Control and Water Conservation District. Census population estimates have been adjusted for water district boundaries. Since the 1985 total population did not equal the total 1980 county population, the missing people were distributed proportionally to the DAU's in the areas outside water districts.

4) Unincorporated private well areas were assumed to grow at the rates given in Forecast '89 for the corresponding valley: Santa Maria/Guadalupe – (1990–2000)2.5%/(2000–2010)0.8%; Santa Ynez/Lompoc/San Antonio – 1.4%/1.1%; South Coast – 0.7%/0.6%; Cuyama – 0.5%/0.5%./M

5) Santa Maria's forecasts were based on the Santa Maria/Orcutt Sphere of Influence Boundary and Concurrent Annexation Study prepared by McClellandAssociates, 1990. Household size was assumed to be 3.01. Housing units in the Orcutt area served by Southern California Water Company (Cal–Cities Water Company) were not included in the city's forecast (9737 in 1990 increasing to 14,000 by build out.

6) Southern California Water Company service areas include Orcutt, Tanglewood, Lake Marie, and Sisquoc unincorporated developments. Household size was assumed to be 3.0 in 1990, decreasing to 2.95 by 2010 (SBCAG).

7) Guadalupe forecasts add the 18 residences served outside the city. Household size is assumed to be 3.88 in 1990 and 4.0 in 2000 and 2010. Buildout could occur by 2000 if economic growth allows.

8) Santa Maria Valley Industrial is numerous industrial operations including oil and gas drilling, vegetable processing plants, and several feedlots.

9) Casmalia was assumed to have a static population.

10) Los Alamos grew at 2% annually from 1980 to 1990; this growth rate was assumed to continue through 2010. Buildout was based on the Los Alamos area comprehensive plan and a household size of 3.55.

11) Vandenberg Air Force Base derives about 70% of its water from the San Antonio Ground Water Basin and about 30% from the Lompoc Plain and Terrace. VAFB provides domestic water supplies to the Lompoc Federal Prison, which is locat DAU 74, so the prison population is included in the VAFB population figure. For the purpose of assessing the ground water overdraft, the population has been allocated between DAU's 75 and 74 based on the groundwater source di as described in the "Proposed Closure of Los Angeles AFB, California and Relocation of Space Systems Division DEIR." Build out assumes the current population plus the impact population of 4940 additional military personnel an could be housed on base by 1997. The 1990 General Plan figure is based on the September 1990 resident population of 7383 given in the "Vandenberg Economic Impact Report" plus 2426 inmates at the federal prisons.

12) Lompoc's forecasts were based on the draft General Plan update. Lompoc State Prison population (2043 persons) was allocated to Vandenberg AFB, which provides the prison's water. GPBO is expected to occur by 2005.

13) Vandenberg Village grew at an annual rate of 1.5% from 1980 to 1990. This trend was assumed to continue, although the actual growth rate would be higher if the proposed development at VAFB occurs.

14) Mission Hills was assumed to grow at 28 new service connections a year from the current 1072 connections with a constant household size of 3.2 (Mission Hills CSD).

15) In the Santa Ynez Valley, growth forecasts were based on the RMD Comprehensive Plan. Half of the planned growth was allocated to Buellton and the balance to Santa Ynez River RCW ID#1. Household sizes were assumed to be 2.61 in 1990 and 2.57 in 2000 and 2010 for Buellton (SBCAG) and 3.3 in 2000 and 3.1 in 2010 for Santa Ynez ID#1.

16) Solvang population forecasts are taken from the Comprehensive Plan and assume a household size of 2.45 at buildout.

17) Carpinteria CWD GPBO based on Carpinteria Valley GPBO. City build out (5299 DU's @ 2.8 persons) plus unincorporated area buildout (1913 DU'S @ 2.29persons.) Buildout from Lawrance, Fisk & McFarland, Inc., "Water Resource Management Program Study for the City of Carpinteria", 1988, Tables 9 and 10.

18) Summerland GPBO forecast was based on adopted GP DU's (561) and hshld size of 2.58. Modified forecasts assumed proposed General Plan modification is adopted.

19) Montecito estimates were based on RMD estimates in the Montecito community plan and a current hshld size of 3.09 (SBCAG). Future growth was based on the 1/2% annual growth rate in the Revised Community Plan adopted in March 199 One–third of the 1990 Census population was assumed to be not served by the district.

20) City of Santa Barbara estimates assume that the number of persons served outside city boundaries remains constant. Household size is assumed to increase from current 2.35 in 1990 to 2.37 in 2000 and 2.39 in 2010 (SBCAG).

21) The Goleta WD and La Cumbre Mutual Water Company general plan estimates are based on the adopted and proposed general plan for the Goleta planning area. Buildout is assumed as 2020 for La Cumbre and 2010 for Goleta. SBCAG fore household size to decline from current 3.1 to 2.9 at GPBO for La Cumbre and current 2.69 to 2.6 for Goleta.

22) Cuyama CSD recently received state approval to increase service hookups by 72 based on their existing well capacity. SBCAG projects household size to increase from 1990 estimate of 2.91 to 2.96 in 2000 and 3.0 in 2010

Water District Population Forecast Caviats

Both 1970 and 1980 districts were adjusted to equal the census county totals
The 1970 estimates required that 3057 persons be proportionately subtracted while the 1990 did not require any adjustment.

Vacancy rates were not incorporated into the estimates which means the estimates of population could be high for those districts where housing units or number of hookups were used to calculate population.

In the case where water hookups were used in the population estimates there is a potential for error because an illegal unit could also be attached to the one water meter.

Household sizes for non census years and 1990 (data is not available from the 1990 census) were estimated based on demographic trends as discussed in the Regional Growth Forecast 89.

In some cases water district boundaries split tracts and blocks so housing units and or population was allocated in a proportionate manner.

The 1990 Census block maps are subject to errors such as misplaced roads or other geographical boundaries.

Vandenberg AFB buildout based on mission requirements. Proposed closure of other bases and relocation to VAFB will be individually accessed through the environmental review process and be subject to congressional review and approval.

1970 Water District Population Estimate Notes

DAU 71: *	
City of Santa Maria	1970 Census population, no California Water in 1970.
Southern Calif Water Co	Used 1980-1990 trend, no block data available for north county in 1970 (not urbanized)
City of Guadalupe	City population
S.M.Valley Industrial	N\A
Private SMV M&I, Ag	20% less than 1980
TOTAL SANTA MARIA	
DAU 73:	
Casmalia CSD	Resource Management (Cliff Pauley)
Los Alamos CSD	Resource Management (Cliff Pauley)
Vandenberg AFB	N\A
Private SAV M&I, Ag	N\A
TOTAL SAN ANTONIO	
DAU 74:	
City of Lompoc	
Vandenberg Village CSD	1459 hookups from Pam Cosby, 3.72 HHS = 5427 persons
Mission Hills CSD	Resource Management (Cliff Pauley)
Vandenberg AFB	Census Tract 26.0 and the Federal Prison
Buellton CSD	SB county Water and Sewage Facilities Plan 1971
City of Solvang	SB county Water and Sewage Facilities Plan 1971
Santa Ynez RWCD ID#1	SB county Water and Sewage Facilities Plan 1971
Private SY-Lom M&I, Ag	20% less than 1980
TOTAL SANTA YNEZ	
DAU 75:	
Carpinteria WD	SB county Water and Sewage Facilities Plan 1971
Summerland WD	SB county Water and Sewage Facilities Plan 1971
Montecito WD	SB county Water and Sewage Facilities Plan 1971
City of Santa Barbara	SB county Water and Sewage Facilities Plan 1971
LaCumbre Mutual Wtr.Co	1970 Block counts using 1970 water district bounderies
Goleta WD	SB county Water and Sewage Facilities Plan 1971
Private SC M&I, Ag	20% less than 1980
TOTAL SOUTH COAST	
DAU 76: *	
New Cuyama CSD	Resource Management (Cliff Pauley)
Private CV M&I, Ag	20% less than 1980

1990 Water District Population Estimate Notes

DAU 71: *	
City of Santa Maria	1990 population from the Census (61,284) and 50 units served outside the city limits X 2.85 HHS = 61,426 - California Cities 482 Units X 2.85 (1373) = 60052.
Southern Calif Water Co	1990 water hookup count X 2.5 HHS (lowered due to retirees moving into the area and to lower total population) 10459 X 3.0 = 31377
City of Guadalupe	1990 Census population (5479) + 18 additional units (3.88 HHS) = 5678
S.M.Valley Industrial	N\A
Private SMV M&I, Ag	Same as 1980
TOTAL SANTA MARIA	
DAU 73:	
Casmalia CSD	52 active residential water hookups X 3.16 HHS = 164 persons
Los Alamos CSD	281 Units from sphere of influence study X 3.16 HHS = 887
Vandenberg AFB	N\A
Private SAV M&I, Ag	Same as 1980
TOTAL SAN ANTONIO	
DAU 74:	
City of Lompoc	1990 Census population - the prison population allocated to VAFB
Vandenberg Village CSD	2185 hookups X 3.1 HHS
Mission Hills CSD	1072 hookups X 3.2 HHS
Vandenberg AFB	7752 persons from Base Comprehensive Plan with additional 2230 prison inmates and 307 prison staff, (from the 1990 Census).
Buellton CSD	Census tract 19.01 Blks 301-312, 407-409, 415-417, 420-426, 418, 402-405, 501-523: X 2.6 HHS
City of Solvang	1990 Census population
Santa Ynez RWCD ID#1	Census Tracts 19.06, 19.05, 19.03, and the corresponding Blocks, 2381 Units 2.61 HHS = 6271 persons.
Private SY-Lom M&I, Ag	Same as 1980
TOTAL SANTA YNEZ	
DAU 75:	
Carpinteria WD	City Census Population (13,707) + CT 17.01 (1460 units X 2.29 HHS = 3345) = 17052
Summerland WD	551 residential Units from buildout, 2.61 HHS = 1438
Montecito WD	10875 persons from Montecio community plan and additional 844 persons (from 1980 block counts) for additional areas in water district east of Montecito.
City of Santa Barbara	City pop in 1990 minus tracts 1.02, 13.01, 13.02, 2, and the appropriate blocks (2849 persons subtracted), 199 units added in for Mission Canyon and Barker area: (443 and 758 persons) = 83923
LaCumbre Mutual Wtr.Co	Telephone conversation with Pam Cosby 1332 Connections X 3.1 HHS = 4129 persons. (3.18 HHS based on 1970 H.U. and population)
Goleta WD	26348 HU from Resource MNGT buildout data, 2.69 HHS = 70826, minus La Cumbra WD (1332 hookups) = 25016 units X 2.69 = 67293 + S.B. city persons served by Goleta (2849) = 70142.
Private SC M&I, Ag	Goleta private wells estimated to support 1950 persons, Montecito wells 2000 persons and other south coast 1000 persons. Other county private allocated 591 proportionately.
TOTAL SOUTH COAST	
DAU 76: *	
New Cuyama CSD	Census Tract 18.00 BLK's 152-159, 227 HU X 2.9 HHS
Private CV M&I, Ag	Same as 1980

TABLE 3
HISTORICAL WATER DEMAND AND CONSERVATION POTENTIAL

DAU	1970			1980			1990			Projected GPBO M & I Gross Water Demand (AFY & PerCapita) with Conservation @:							
and Subareas	Populatn	Gross Wtr	GPCD	Populatn	Gross Wtr	GPCD	Populatn	Gross Wtr	GPCD	0%:Total	GPCD	5%:Total	GPCD	10%:Total	GPCD	20%:Total	GPCD
AU 71:																	
ty of Santa Maria	32,340	7,391	204	39,721	8,754	197	60,229	12,058	179	22,395	204	21,275	194	20,156	184	17,916	163
outhern Calif Water Co	13,608	NA	275	23,215	5,020	193	31,469	8,818	250	13,886	275	13,192	261	12,497	248	11,109	220
ty of Guadalupe	3,115	NA	200	3,700	757	183	5,695	723	113	4,079	200	3,846	190	3,671	180	3,263	160
M.Valley Industrial	0	7,200	NA	0	7,120	NA	0	6,000	NA	6,000	NA	5,700	NA	5,400	NA	4,800	NA
lvate SMV M&I, Ag	472	NA	155	800	89,739	155	984	122,379	155	237	155	225	147	213	140	189	124
asmalia CSD	230	NA	75	226	16	65	164	13	72	14	75	13	71	12	68	11	60
OTAL SANTA MARIA	49,765	NA	NA	67,662	111,406	288	98,541	149,991	252	46,610	256	44,251	243	41,949	230	37,288	205
AU 73:																	
s Alamos CSD	722	NA	280	734	230	280	890	256	257	635	280	603	266	571	252	508	224
ndenberg AFB	10,705	NA	515	5,421	3,129	515	6,544	3,600	491	6,898	627	6,551	596	6,206	564	5,516	502
ivate SAV M&I, Ag	346	NA	162	460	16,260	155	543	17,405	155	127	162	121	154	114	146	102	130
OTAL SAN ANTONIO	11,773	NA	NA	6,615	19,619	464	7,977	21,261	442	7,657	545	7,274	518	6,891	491	6,128	436
AU 74:																	
ty of Lompoc	24,084	3,511	130	26,270	3,638	124	35,711	5,252	131	7,878	160	7,484	124	7,090	117	6,302	104
ndenberg Village CSD	4,523	1,408	278	5,839	1,527	233	6,793	1,500	197	2,848	278	2,706	264	2,563	250	2,278	222
ssion Hills CSD	3,000	NA	200	2,755	583	189	3,121	629	180	1,371	200	1,302	190	1,234	180	1,097	160
ndenberg AFB	5,362	NA	500	2,715	1,567	515	3,277	1,803	491	2,367	500	2,249	475	2,130	450	1,894	400
dlton CSD	1,500	NA	300	2,242	752	299	3,688	1,083	262	1,788	300	1,699	285	1,609	270	1,431	240
ty of Solvang	2,100	919	391	2,899	1,146	353	4,755	1,963	369	3,243	369	3,080	371	2,918	352	2,594	313
nta Ynez RWCD ID#1	5,500	4,341	211	7,712	6,116	212	8,298	6,475	215	3,173	215	3,014	204	2,856	193	2,538	172
vate SY–Lom M&I, Ag	1,376	NA	164	1,824	55,120	157	2,192	56,334	155	519	164	493	156	467	148	415	131
OTAL SANTA YNEZ	47,445	NA	NA	52,256	70,449	173	67,835	75,039	192	23,186	223	22,027	212	20,868	201	18,549	179
AU 75:																	
rpinteria CWD	9,400	4,303	139	13,410	5,208	143	17,102	5,362	109	3,416	139	3,245	132	3,075	125	2,733	111
mmerland CWD	1,000	173	112	1,245	249	108	1,442	354	115	278	135	264	128	250	122	223	108
ntecito WD	8,900	4,349	366	9,964	3,702	278	11,719	4,024	265	5,129	366	4,873	348	4,616	329	4,103	293
y of Santa Barbara	69,700	13,522	167	76,705	14,148	153	84,170	13,461	132	17,836	167	16,944	158	16,052	150	14,269	133
Cumbre Mutual Water Co	3,363	1,846	424	4,000	1,716	345	4,141	1,297	260	2,214	424	2,104	402	1,993	381	1,772	339
leta WD	61,000	14,863	170	64,503	16,455	170	70,348	14,500	143	15,621	170	14,840	161	14,058	153	12,496	136
vate SC M&I, Ag	1,003	NA	158	1,330	9,225	151	4,951	19,415	155	998	158	949	150	899	142	799	126
rehart Land Co.	0	900	NA	0	900	NA	0	900	NA	0	NA	0	0	0	NA	0	NA
nta Barbara Research	0	NA	NA	0	100	NA	0	100	NA	167	NA	159	NA	150	NA	134	NA
TAL SOUTH COAST	154,366	NA	NA	171,157	50,703	226	193,873	58,413	141	45,493	181	43,219	172	40,944	163	36,395	145
U 76:																	
yama CSD	1,114	NA	282	625	282	403	662	185	249	272	282	258	268	245	254	218	226
vate CV M&I, Ag	452	NA	130	601	28,604	125	718	20,925	155	138	155	131	124	124	117	110	104
TAL CUYAMA VALLEY	1,566	NA	NA	1,226	28,886	267	1,380	21,110	200	410	221	389	210	369	199	328	177
NTA BARBARA COUNTY	264,915	NA	NA	298,916	281,063	NA	369,606	325,813	187	123,357	223	117,161	212	111,021	201	98,685	178

TES ON TABLE 3:

1) All Population figures are derived from the appropriate column of TABLE 2. The General Plan "GPBO" modified population figures from TABLE 2 are used to generate the GPBO water demand and values.

2) The 1970 condition is taken as the zero point for water conservation. Thus, conservation GPCD estimates use 1970 water demand as a base year. This was an "average" water demand year, neither dry or wet. When the 1970 per capita water demand is not available or does not represent current land use or pre–conservation demand, a representative pre–conservation per capita demand has been assumed for the district in the 0% conservation column.

(PLEASE SEE FOLLOWING SHEET FOR FURTHER NOTES ON TABLE 3)

TES ON TABLE 3 (continued):

3) Agricultural water demand has been excluded from per capita water calculations. The only districts which serve agricultural customers are Santa Ynez RWCD ID #1, Carpinteria CWD, Summerland CWD, Montecito WD, City of Santa Barbara, La Cumbre MWC, Goleta WD, and Morehart Land Company. Agricultural water demand has been included in the Santa Ynez River Water Conservation District ID #1 1990 water demand, but left out of the 1970 and 1980 estimates. Since a breakout of agricultural water demand was not available for Montecito WD, the gpcd estimates were not adjusted. Agricultural consumption is taken from Table 4.

4) Water consumption figures are provided by the water purveyors with the following exceptions: Vandenberg Air Force Base consumption was taken from the Draft Environmental Impact Statement, Proposed Closure of Los Angeles AFB, California and Relocation of Space Systems Division, U.S. Air Force. July 1990; Morehart Land Company was estimated at 3.0 AF/acre for 300 acres.

5) Some error exists in the district population and per capita water estimates since residents on private wells could not always be excluded from the district population estimates.

6) Where insufficient data is available to calculate 1970 per capita water demand to represent the pre-conservation condition, a value has been assumed. Districts where 1970 gpcd estimates are assumed include: Southern California Water Company, Guadalupe, Casmalia, Los Alamos, Vandenberg AFB, Mission Hills CSD, Buellton CSD, and the private well areas outside the water districts.

7) Casmalia CSD obtains its water from the Santa Maria GWB, and also is NOT within the San Antonio Creek watershed. Therefore, Casmalia is included in the Santa Maria study area DAU 71.

8) Lompoc's 0% conservation GPCD is taken from 1989 district water consumption data.

9) Summerland CWD's 1970 water demand of 114 gpcd is not representative of average pre-conservation water demand. 135 gpcd was substituted since it is a representative gpcd figure based on the average M & I water demand o 210 AF/year for FY 88 to FY90 and the 1987 estimated population of 1392.

0) Some water districts have unusually high per capita water demands because of large daytime populations (VAFB), large industrial operations (Santa Maria Valley Industrial) or tourism (Solvang and Buellton CSD.)

11) The per capita water demand estimates include a per capita share for commercial and industrial uses in addition to residential use.

12) The 1990 GPCD figures are unusually low because many districts had voluntary or mandatory water rationing during the extended drought. As a consequence, these figures are not the same as the theoretical 1990 GPCD figures in TABLE 4.

13) Several districts have drought buffer or safety margins which are a part of their water supply they hold in reserve as district policy (Goleta WD-2000 AF, City of Santa Barbara-1800 AF, and Summerland CWD--5% of water supply. Forecasted water demand should be increased by the safety margin for these districts and all others to account for uncertainty in predicting droughts, water supply reliability and population growth.

14) The City of Santa Barbara, using their own methodology, forecasts a combined M&I and agricultural water demand of 17,900 AF/yr at GPBO. This is roughly the same as the 0% conservation GPBO estimate of M&I water in TABLE 4 plus agricultural demand from TABLE 5.

TABLE 4

EXISTING AND PROJECTED M&I AND AGRICULTURAL APPLIED WATER USE AND RETURN FLOWS

DAU / Subareas	Theoretical 1990 M&I		Theoretical 1990 Agriculture				2000 M&I		2000 Agriculture				GPBO M&I		GPBO (About 2010) Agriculture			
	Totl AF	% Retms	Acres	ac-ft/ac	Totl AF	% Retms	Totl AF	% Retms	Acres	ac-ft/ac	Totl AF	% Retms	Totl AF	% Retms	Acres	ac-ft/ac	Totl AF	% Retms
71:																		
of Santa Maria	12,388	50%	0				16,957	50%					20,156	50%				
ern Calif Water Co	8,724	31%	0				10,740	31%					12,497	32%				
of Guadalupe	1,148	50%	0				1,415	50%					3,671	50%				
Valley Industrial	5,400	31%	0				5,400	31%					5,400	32%				
te SMV M&I, Ag	154	31%	50,920	2.4	122,208	31%	197	31%	51,240	2.3	117,852	29%	213	32%	49,940	2.2	109,868	28%
naria CSD	12	0%	0				12	0%					12	0%				
L SANTA MARIA	27,827	40%	50,920	2.4	122,208	31%	34,721	41%	51,240	2.3	117,852	29%	41,949	42%	49,940	2.2	109,868	28%
73:																		
Ramos CSD	251	37%	0				306	38%					571	43%				
enberg AFB	4,137	0%	0				6,206	0%					6,206	0%				
te SAV M&I, Ag	89	37%	8,243	2.1	17,310	37%	102	38%	8,510	2.0	17,020	34%	114	43%	9,060	1.9	17,214	31%
L SAN ANTONIO	4,477	3%	8,243	2.1	17,310	37%	6,614	2%	8,510	2.0	17,020	34%	6,891	4%	9,060	1.9	17,214	31%
74:																		
of Lompoc	4,685	30%	0				5,492	29%					7,090	29%				
enberg Village CSD	1,903	30%	0				2,209	30%					2,563	30%				
on Hills CSD	629	61%	0				872	61%					1,234	61%				
enberg AFB	1,652	60%	0				2,130	67%					2,130	67%				
ton CSD	1,115	17%	0				1,362	17%					1,609	17%				
of Solvang	1,873	17%	0				2,481	17%					2,918	17%				
a Ynez RWCD ID#1	1,798	30%	1,400	3.2	4,480	21%	2,326	30%	1,200	2.9	3,480	18%	2,856	30%	1,000	2.8	2,800	18%
te SY-Lom M&I, Ag	362	17%	27,977	2.0	55,953	21%	418	18%	28,250	2.0	56,500	18%	467	18%	28,520	2.0	57,040	18%
L SANTA YNEZ	14,016	32%	29,377	2.1	60,433	21%	17,290	33%	29,450	2.0	59,980	18%	20,868	32%	29,520	2.0	59,840	18%
75:																		
nteria CWD	2,392	7%	3,584	1.1	3,282	13%	2,733	7%	3,628	1.1	3,888	11%	3,075	7%	3,671	1.1	4,060	11%
nerland CWD	196	0%	179	2.0	168	0%	223	0%	179	1.6	286	0%	250	0%	179	1.1	197	0%
ado WD	4,324	7%	225	2.4	540	13%	4,475	7%	210	2.4	504	11%	4,616	7%	200	2.4	480	11%
f Santa Barbara	14,153	7%	500	2.0	1,000	13%	15,098	7%	450	2.0	900	11%	16,052	7%	400	2.0	800	11%
mbre Mutual Water Co	1,769	0%	45	2.0	90	0%	1,865	0%	23	2.0	46	0%	1,993	7%	0	2.0	0	0%
a WD	12,049	7%	2,034	1.6	3,254	13%	13,054	8%	1,900	1.6	3,040	11%	14,058	8%	1,800	1.6	2,880	11%
te SC M&I, Ag	789	7%	7,137	2.6	18,555	13%	844	7%	7,201	2.6	18,721	11%	899	7%	6,910	2.6	17,966	11%
hart Land Co.	0		300	3.0	900	13%	0	7%	300	2.9	870	11%	0	7%	300	2.9	870	11%
Barbara Research	100	7%	0		0		125	7%					150	7%				
L SOUTH COAST	35,772	7%	14,003	2.0	27,789	13%	38,416	7%	13,890	2.0	28,255	11%	41,094	7%	13,460	2.0	27,253	11%
76:																		
ma CSD	188	50%					242	50%					245	50%				
te CV M&I, Ag	94	25%	7,170	2.9	20,800	25%	99	25%	6,290	2.4	15,300	25%	124	21%	6,260	2.4	15,000	21%
L CUYAMA VALLEY	282	42%	7,170	2.9	20,800	25%	340	43%	6,290	2.4	15,300	25%	369	40%	6,260	2.4	15,000	21%
A BARBARA COUNTY	82,375	22%	109,713	2.3	248,541	26%	97,382	23%	109,380	2.2	238,407	24%	111,171	25%	108,240	2.1	229,175	23%

S ON TABLE 4:

1) All water demand estimates assume 10 % conservation over pre-conservation per capita water demand, which is usually 1970 rates. See Table 3, footnote 2.

2) Casmalia CSD obtains its water from the Santa Maria GWB (DAU 71) although it is physically located in DAU 73. Since Casmalia CSD is NOT within the San Antonio Creek watershed, there is no useable groundwater recharge. Therefore, Casmalia is included in the Santa Mariastudy area DAU 71.

(PLEASE SEE FOLLOWING SHEET FOR MORE NOTES ON TABLE 4.)

TES ON TABLE 4 (Continued):

3) The GPBO Production values (Totl AF) are derived using the 10% conservation GPCD's from TABLE 3 times the GPBO populations of TABLE 2. The year 2000 M&I values are derived from TABLE 2 populations & 10% conservation GPCD's from TABLE 3. The "theoretical 1990" water production values are based on the 1990 Census population from Table 2 times the 10% conservation GPCD values from TABLE 3. These figures represent theoretical 1990 water demand in non-drought year with some conservation. They are NOT the same as the 1990 actual demand in TABLE 3. (See TABLE 3, footnote 11.) The agriculture irrigated acreage totals are derived from the State Department of Water Resou Draft EIR on the Coastal Branch, TABLE 4, page 214.

4) Agricultural water duty factors and Ag and M&I return flows are based on district records and DWR's Coastal Aqueduct DEIR, Tables 4 and 6, PP. 214 AND 216. Where insufficient data was available to calculate irrigation water application rates, DWR rates were used based on typical crops in the DAU.

5) Agricultural acreages were based on forecasts provided by water districts and DWR.

6) Mission Hills CSD's return flow is based on 15% for lawn irrigation return flow and 46% for WWTP measured groundwater recharge through percolation ponds.

7) Summerland CSD agriculture is primarily citrus and avocado fields. The irrigation rate of 2.0 AF/year for 1990 is assumed to decline to 1.1 AF/year by 2010 (SCWD).

8) Urban return flows have been adjusted upward to account for reclaimed wastewater use by the following districts: Lompoc, and Goleta Water District.

9) The Buellton wastewater treatment facility, which serves Buellton and Solvang, discharges to the Santa Ynez Riparian Strip. Geologic conditions prevent this discharge from infiltrating to the groundwater basin (Buellton CSD), so return flows for these 2 districts reflect only urban irrigation returns.

TABLE 5

PRORATED SAFE YIELD WATER SUPPLY IN ACRE FEET PER YEAR

DAU	GWB Safe Yield for Year:			Juncal Yield for Year:			Gibraltar Yield for Year:			Cachuma:	WasteWater Rec for Year:			Total Supply for Year:		
and Subarea	1990	2000	GPBO	1990	2000	GPBO	1990	2000	GPBO	Nxt 50Yrs	1990	2000	GPBO	1990	2000	GPBO
AU 71:																
ity of Santa Maria	3927	5210	6241								0	0	0	3927	5210	6241
outhern Calif Water Co	3816	4554	5263								0	0	0	3816	4554	5263
ity of Guadalupe	364	435	1137								0	0	0	364	435	1137
.M.Valley Industrial	2362	2290	2274								0	0	0	2362	2290	2274
ivate SMV M&I, Ag	53523	51504	49078								0	0	0	53523	51504	49078
asmalia CSD	8	8	8								0	0	0	8	8	8
OTAL SANTA MARIA	64000	64000	64000								0	0	0	64000	64000	64000
AU 73:																
os Alamos CSD	67	70	115								0	0	0	67	70	115
andenberg AFB	1763	2280	2183								0	0	0	1763	2280	2183
ivate SAV M&I, Ag	4670	4150	4202								0	0	0	4670	4150	4202
OTAL SAN ANTONIO	6500	6500	6500								0	0	0	6500	6500	6500
AU 74:																
ty of Lompoc	2605	2558	3205								30	650	650	2635	3208	3855
andenberg Village CSD	1068	1217	1312								0	0	0	1068	1217	1312
ission Hills CSD	197	268	352								0	0	0	197	268	352
andenberg AFB	535	561	521								0	0	0	535	561	521
uellton CSD	784	950	1114								0	0	0	784	950	1114
ty of Solvang	1554	2059	2422								0	0	0	1554	2059	2422
anta Ynez RWCD ID#1	2380	2020	1806							2425	0	0	0	4805	4445	4231
ivate SY-Lom M&I, Ag	41124	42737	42064								0	0	0	41124	42737	42064
OTAL SANTA YNEZ	50249	52372	52795							2425	30	650	650	52704	55447	55870
AU 75:																
arpinteria CWD	2793	2997	3071							2572	0	0	0	5365	5569	5643
ummerland CWD	0	0	0							294	0	0	0	294	294	294
ontecito WD	898	942	1003	1292	1245	1074				2131	0	0	0	4319	4318	4208
ty of Santa Barbara	1251	1265	1284	300	300	300	3097	2695	1740	7570	669	1200	1200	12887	13030	12094
Cumbre Mutual Water Co	1300	1300	1300							330	0	0	0	1630	1630	1630
oleta WD	2300	2283	2322							8196	0	1000	1000	10496	11479	11518
ivate SC M&I, Ag	15203	15623	14810								0	0	0	15203	15623	14810
orehart Land Co.	736	729	725								0	0	0	736	729	725
anta Barbara Research	37	48	52								0	0	0	37	48	52
OTAL SOUTH COAST	24516	25188	24566	1592	1545	1374	3097	2695	1740	21093	669	2200	2200	50195	51944	50196
AU 76:																
uyama CSD	37	64	63								0	0	0	37	64	63
ivate CV M&I, Ag	6163	6136	6137								0	0	0	6163	6136	6137
OTAL CUYAMA VALLEY	6200	6200	6200								0	0	0	6200	6200	6200
ANTA BARBARA COUNTY	151464	154260	154061	1592	1545	1374	3097	2695	1740	23518	699	2850	2850	179598	184091	182766

OTES ON TABLE 5: 1) The term "GPBO" signifies General Plan Buildout.

2) In the GWB Safe Yield columns, the DAU TOTALS represent the GWB(s) total consumptive yield (net perennial yield after allowing for return flows). Each District's "Safe Yield" pro rata share of the groundwater basin's total "Safe Yield" is calculated based on each district's net water production values (water production minus return flows) found for the corresponding year on TABLE 5.

3) The Santa Maria, Cuyama, and San Antonio DAU's are each treated as single groundwater units. The Santa ynez DAU is divided into four subareas: 1) Lompoc GWB, 2) Buellton Uplands GWB, 3) Santa Ynez Uplands GWB, 4) Santa ynez Riparian strip plus the Santa Rita Subarea. The South Coast DAU is also divided into several groundwater units as follows: Carpinteria, Montecito, Santa Barbara, and Goleta groundwater Basins, and consolidated rock areas from Rincon to Point Arguello.

[PLEASE SEE FOLLOWING SHEET FOR MORE NOTES ON TABLE 5]

[NOTES ON TABLE 5: continued]

4) The Groundwater Basin firm yield share for each entity within the DAU's is developed in the following way (by DAU):

a. The DAU 71 perennial yield for consumptive use is determined as follows...
Estimated firm yield for pumpage = 90000 AFY (from SBCWA – DWR "State Water Alternative Study" pg. 29, dated April, 1985; {total Basin pumpage yield is ~ 110000 AFY, but 20000 AFY is outside DAU 71}).
Estimated firm yield for consumptive use = 64000 AFY (90000 times .71 {year 2000} consumptive use factor from SBCWA "Adequacy of the Santa Maria Groundwater Basin" pg.35, dated November, 1977).
Entity's share of this consumptive use safe yield is equal to the 64000 AFY multiplied by the entity's net pumpage (pumpage less return flows) and divided by the DAU total net pumpage.
Example; Santa Maria City: 64000 AFY times 50% of 12058 AFY divided by (60% of total M&I pumpage plus 69% of total Ag pumpage) gives a share of 3819 AFY out of the 64000 AFY total (see TABLES 4 & 5).

b. The DAU 73 perennial yield for consumptive use is 6500 AFY (from USGS Open File Report 80–750, pg. 40: 9800 AFY perennial yield less 3000 AFY ET loss at Barka Slough... with base flow reduced to three hundred acre feet per year equals (9800 – 3000 – 300) AFY = 6500 AFY remaining net perennial yield.
The entity's safe yield share of this amount is determined exactly the same as in the Santa Maria case.

c. The DAU 74 perennial yield for consumptive use is made up of the following components:
The Lompoc Groundwater Basin safe net yield is 15550 AFY, and the Lompoc area Agricultural CU is fixed at 13900 AFY (see July, 1977 "Adequacy of the Groundwater Resources in the Lompoc Area", pg. 2, and January, 1979 "Update on Lompoc Groundwater Basin Elements of Recharge", Table 2). This private agriculture along with the four M&I entities in the Lompoc area share the 15550 AFY net perennial yield pro–rata as a function of each entity's net groundwater pumpage (as in the Santa Maria case).
Buellton CSD is assumed to take 66% of its water from the Santa Ynez River Riparian strip, which is considered to be a "safe yield" source. The remaining 34% of its supply is taken from the Buellton Uplands Groundwater Basin which is assumed to be, for the purposes of this analysis, in a modest state of overdraft with private net pumpage set at 1500 AFY, and a net perennial yield set at 1000 AFY. The Buellton safe net yield share for this 34% portion of its demand is determined pro rata as in the other cases above.
The City of Solvang is assumed to have the capability to provide all of its demand from the Santa Ynez River riparian strip which is, as noted above, considered to be a safe yield supply. Thus the groundwater net perennial yield is set equal to the Solvang demand.
The Santa Ynez River Water Conservation District Improvement District Number One (hereinafter referred to as ID#1) is a user of water pumped from the Santa Ynez Upland Groundwater Basin. ID#1 also imports water into the Uplands Basin from Lake Cachuma, and from the Santa Ynez River Riparian strip. These imports are considered to be "safe" supplies and total 2484 and 1000 AFY respectively. Part (in this analysis one half) of the ID#1 M&I return flows do not return to the Uplands Groumwater Basin, but are returned to the riparian strip near Solvang as waste water flows. From the point of view of the Santa Ynez Uplands Basin, the ID#1 M&I returns are thus only one half of what the full returns are calculated to be from the apprpriate columns of TABLE 4. This reduction in ID#1 returns is taken into account in the first column of TABLE 6 and is employed in the groundwater net safe yield share formula for ID#1 above. The Santa Ynez Uplands Basin safe yield for consumptive use (net safe yield) is 8700 AFY, and the District plus private agricultural consumptive use is 10600 AFY (see December, 1977 "Adequacy of the Groundwater Basins of Santa Barbara County", Table VII–1, pg. VII–5). The ID#1 net safe yield share of the Uplands Basin is computed as follows: 8700 AFY times ID#1 net groundwater pumpage (from Uplands) divided by the total Uplands net groundwater pumpage. The ID#1 net GWP equals the ID#1 net demand (from TABLE 4) plus the wastewater returns to the riparian strip, minus the imports from Lake Cachuma, and minus the imports from the riparian strip. The total Uplands net groundwater pumpage equals the ID#1 net groundwater pumpage plus 10600 AFY minus the ID#1 net agricultural use plus the Santa Ynez Uplands private M&I consumptive use. The total groundwater net safe yield share to ID#1 is then equal to the sum of the riparian import (1000 AFY) plus the ID#1 share of the Uplands Groundwater Basin net safe yield.
The Private Santa Ynez to Lompoc M&I and Agricultural groundwater net safe yield share is determined by subtracting from the Private M&I plus Ag net groundwater demand the area deficit share (for privates) found in the Lompoc Basin area, the Buellton Uplands Basin, and in the Santa Ynez Uplands Basin. Those three areas are the places where overdraft is found in DAU 74. The remaining areas (Riparian strip and Santa Rita subarea) are considered to have enough elasticity to meet the remaining private pumpage consumptive use demand variations found in TABLE 4.

d. The South Coast DAU 75 perennial yield for consumptive use is determined (very much like the Santa Ynez DAU 74 case) as follows:
Carpinteria: Gross pumpage yield = about 4400 AFY; Net yield = 3740 AFY; private consumptive GWB pumpage = 850 AFY; Net District GWB pumpage = Net District demand less Cachuma deliveries, and less any reclaimed wastewater deliveries. The GWB net safe yield share is the pro rata portion of the 3740 AFY based upon net District and Private pumpages (as in the cases for the other water purveyors).
Montecito: Same method used here as for Carpinteria except net GWB safe yield = 1403 AFY (85% of 1650), Net District pumpage = Net demand less Cachuma, less wastewater, and less Jameson/Doulton, and net Private pumpage = 604 AFY (85% of 710 AFY). {NOTE: Summerland has no groundwater.}
Santa Barbara City: Same as Montecito and Carpinteria with net GWB yield @ 1318 AFY (85% of 1850 – 300 AFY... the 300 AFY is exported to LaCumbre). The basin Private net pumpage (besides LaCumbre) totals 128 AFY (85% of 150 AFY in the Foothill Basin, not counting LaCumbre). LaCumbre Mutual is assumed to have a safe groundwater net supply of 1300 AFY (300 AFY from Foothill Basin & 1000 AFY from the Goleta Central Basin.
Goleta GWB: Same as Carpinteria. Net GWB yield = 2635 AFY (85% of 4100 – 1000 AFY... the 1000 AFY is exported by LaCumbre). Private net pumpage = 850 AFY (85% of 1000 AFY). Part (10%) of Morehart Land Co. and all of Santa Barbara Research are considered to be included in this 850 AFY private net pumpage figure, and are calculated accordingly.
The Private South Coast M&I and Ag net safe yield figures are calculated as the sum of the net M&I and Ag consumptive use minus the Private M&I plus Ag overdraft (if any, otherwise set to zero) for each of the four South Coast groundwater basins, and minus 1000 AFY representing local pockets of overdraft in the consolidated rock areas from Rincon to Pt. Arguello. There is some elasticity in this net safe yield number thus calculated which represents additional yield available in some areas of this groundwater environment outside of the four South Coast Basins. Please note that in the cases for both DAU 74 and DAU 75 "Hidden" cells were used to calculate the Private M&I plus Ag net safe yield share for each of the groundwater basins in these DAU's.

5) The surface water safe yield determinations were made utilizing the Santa Ynez River Model. The model run (named "Base Run Z4") involves safe yield lake drafts at Juncal and Gibraltar and. The 1990 Base Run Z2 safe yield value is used for Cachuma–Tecolote. No cloudseeding was utilized. The yield values for Juncal and Gibraltar are lake safe yield plus tunnel average yield figures. The siltation rates are 25 AFY at Juncal and 225 AFY at Gibraltar. The GPBO condition for Juncal represents 50 years of siltation. Gibraltar, by that time, is kept sluiced out to about 1900 acre foot size, while Cachuma maintains its yield for this 50 yr period.

TABLE 6

EXISTING AND PROJECTED SAFE YIELD SUPPLY VERSES DEMAND AND RESULTING DEFICITS

DAU and Subareas	1990: Demand Net M&I	Net Ag	Total Net Dem	SafeYld Supply	minus # is Deficit	2000: Demand Net M&I	Net Ag	Total Net Dem	SafeYld Supply	minus # is Deficit	GPBO: Demand Net M&I	Net Ag	Total Net Dem	SafeYld Supply	minus # is Deficit
DAU 71; *															
City of Santa Maria	6194	0	6194	3927	-2267	8478	0	8478	5210	-3268	10078	0	10078	6241	-3837
Southern Calif Water Co	6020	0	6020	3816	-2204	7410	0	7410	4554	-2857	8498	0	8498	5263	-3235
City of Guadalupe	574	0	574	364	-210	708	0	708	435	-273	1835	0	1835	1137	-699
S.M.Valley Industrial	3726	0	3726	2362	-1364	3726	0	3726	2290	-1436	3672	0	3672	2274	-1398
Private SMV M&I, Ag	106	84324	84430	53523	-30906	136	83675	83811	51504	-32307	145	79105	79250	49078	-30172
Casmalia CSD	12	0	12	8	-5	12	0	12	8	-5	12	0	12	8	-5
TOTAL SANTA MARIA	16633	84324	100956	64000	-36956	20471	83675	104146	64000	-40146	24241	79105	103346	64000	-39346
DAU 73:															
Los Alamos CSD	158	0	158	67	-91	190	0	190	70	-120	326	0	326	115	-211
Vandenberg AFB	4137	0	4137	1763	-2375	6206	0	6206	2280	-3926	6206	0	6206	2183	-4022
Private SAV M&I, Ag	56	10905	10961	4670	-6291	63	11233	11297	4150	-7146	65	11878	11943	4202	-7741
TOTAL SAN ANTONIO	4351	10905	15257	6500	-8757	6459	11233	17692	6500	-11192	6597	11878	18474	6500	-11974
DAU 74:															
City of Lompoc	3280	0	3280	2635	-644	3899	0	3899	3208	-691	5034	0	5034	3855	-1179
Vandenberg Village CSD	1332	0	1332	1068	-264	1546	0	1546	1217	-329	1794	0	1794	1312	-483
Mission Hills CSD	245	0	245	197	-49	340	0	340	268	-72	481	0	481	352	-129
Vandenberg AFB	668	0	668	535	-132	713	0	713	561	-152	713	0	713	521	-192
Buellton CSD	926	0	926	784	-141	1131	0	1131	950	-180	1336	0	1336	1114	-222
City of Solvang	1554	0	1554	1554	0	2059	0	2059	2059	0	2422	0	2422	2422	0
Santa Ynez RWCD ID#1	1257	3539	4796	4805	9	1628	2854	4482	4445	-37	1999	2296	4295	4231	-64
Private SY-Lom M&I, Ag	301	44203	44504	41124	-3380	343	46330	46673	42737	-3935	383	46773	47156	42064	-5092
TOTAL SANTA YNEZ	9563	47742	57305	52704	-4602	11659	49184	60843	55447	-5396	14162	49069	63231	55870	-7361
DAU 75:															
Carpinteria CWD	2225	2855	5080	5365	285	2542	3460	6002	5569	-433	2859	3613	6473	5643	-830
Summerland CWD	196	168	364	294	-70	223	286	510	294	-216	250	197	447	294	-153
Montecito WD	4022	470	4491	4319	-172	4162	449	4610	4318	-292	4293	427	4720	4208	-512
City of Santa Barbara	13162	870	14032	12887	-1145	14039	801	14840	13030	-1810	14929	712	15641	12094	-3547
LaCumbre Mutual Wtr.Co	1769	90	1859	1630	-229	1865	46	1911	1630	-281	1853	0	1853	1630	-223
Goleta WD	11206	2831	14037	10496	-3541	12010	2706	14715	11479	-3236	12934	2563	15497	11518	-3979
Private SC M&I, Ag	733	16143	16876	15203	-1674	785	16662	17447	15623	-1824	836	15990	16825	14810	-2016
Morehart Land Co.	0	783	783	736	-47	0	774	774	729	-45	0	774	774	725	-49
Santa Barbara Research	93	0	93	37	-56	116	0	116	48	-68	140	0	140	52	-88
TOTAL SOUTH COAST	33406	24210	57616	50967	-6649	35742	25184	60926	52721	-8205	38095	24277	62371	50973	-11398
DAU 76: *															
Cuyama CSD	94	0	94	37	-57	121	0	121	64	-57	122	0	122	63	-60
Private CV M&I, Ag	71	15600	15671	6163	-9508	74	11475	11549	6136	-5413	98	11850	11948	6137	-5811
TOTAL CUYAMA VALLEY	165	15600	15765	6200	-9565	195	11475	11670	6200	-5470	220	11850	12070	6200	-5870
TOTAL S.B. COUNTY	64117	182781	246899	180370	-66528	74526	180750	255277	184868	-70409	83315	176178	259493	183543	-75950

NOTES ON TABLE 6:

1) The term "GPBO" signifies General Plan Buildout. The Columns "Net Dem" signify net Ag + M&I demands as calculated in the first two columns.

2) Casmalia CSD obtains its water from the Santa Maria GWB, and also is NOT within the San Antonio Creek watershed. Therefore, Casmalia is included in the Santa Maria study area DAU 71.

3) The TABLE 6 values are developed entirely from the Supply and Demand information developed on TABLES 4 and 5. The deficits are "consumptive use" figures and are the amounts of water needed to make a balance after allowing for return flows.

TABLE 7: DISTRIBUTION OF EXISTING AND BUY BACK SWP ENTITLEMENTS AND AVERAGE YIELDS TO SANTA BARBARA COUNTY PURVEYORS

DAU and Subareas	WITH EXISTING ENTITLEMENTS: Entitlmnt	Percent	Avg Dels Yr=2000	Avg Dels Yr=2010		ADD REACQUIRED ENTITLEMENT: BuyBack	Entitlmnt	Percent	Avg Dels Yr=2000	Avg Dels Yr=2010
DAU 71: *										
City of Santa Maria	11300	24.8%	10712	10453		4900	16200	29.1%	15358	14985
Southern Calif Water Co	3000	6.6%	2844	2775			3000	5.4%	2844	2775
City of Guadalupe	300	0.7%	284	278			300	0.5%	284	278
S.M.Valley Industrial										
Private SMV M&I, Ag										
Casmalia CSD	23	0.1%	22	21			23	0.0%	22	21
TOTAL SANTA MARIA	14623	32.1%	13862.6	13526.28		4900	19523	35.1%	18508	18059
DAU 73:										
Los Alamos CSD										
Vandenberg AFB	5330	11.7%	5053	4931			5330	9.6%	5053	4931
Private SAV M&I, Ag										
TOTAL SAN ANTONIO	5330	11.7%	5053	4931			5330	9.6%	5053	4931
DAU 74:										
City of Lompoc	4000	8.8%	3792	3700			4000	7.2%	3792	3700
Vandenberg Village CSD	600	1.3%	569	555		400	1000	1.8%	948	925
Mission Hills CSD	500	1.1%	474	463			500	0.9%	474	463
Vandenberg AFB	2670	5.9%	2531	2469			2670	4.8%	2531	2469
Buellton CSD	578	1.3%	548	535		422	1000	1.8%	948	925
City of Solvang										
Santa Ynez RWCD ID#1	2000	4.4%	1896	1850		1000	3000	5.4%	2844	2775
Private SY-Lom M&I, Ag										
TOTAL SANTA YNEZ	10348	22.7%	9810	9572		1822	12170	21.9%	11537	11257
DAU 75:										
Carpinteria CWD	2700	5.9%	2560	2498			2700	4.9%	2560	2498
Summerland CWD	300	0.7%	284	278			300	0.5%	284	278
Montecito WD	2185	4.8%	2071	2021		515	2700	4.9%	2560	2498
City of Santa Barbara	3000	6.6%	2844	2775		3000	6000	10.8%	5688	5550
LaCumbre Mutual Wtr.Co	1000	2.2%	948	925			1000	1.8%	948	925
Goleta WD	4500	9.9%	4266	4163			4500	8.1%	4266	4163
Private SC M&I, Ag										
Morehart Land Co.	200	0.4%	190	185			200	0.4%	190	185
Santa Barbara Research	50	0.1%	47	46		125	175	0.3%	166	162
Santa Barbara County	250	0.5%	237	231		-250		0.0%	0	0
TOTAL SOUTH COAST	14185	31.2%	13447	13121		3640	17575	31.6%	16661	16257
DAU 76: *										
Cuyama CSD	1000	2.2%	948	925			1000	1.8%	948	925
Private CV M&I, Ag										
TOTAL CUYAMA VALLEY	1000	2.2%	948	925		0	1000	1.8%	948	925
TOTAL S.B. COUNTY	45486	100.0%	43121	42075		10112	55598	100.0%	52707	51428

NOTES ON TABLE 7:

1) In the first Entitlement column, Santa Barbara County (Flood Control & Water Conservation District) holds 250 AFY of entitlement which was originally reserved for Goleta Water District. This entitlement is assumed to be disbursed to all Purveyors pro-rata who obtain additional State Water in the buy back column. It is shown as a minus in the South Coast DAU but does not appear in the South Coast totals. It (the 250 AFY) appears in the County wide totals.

2) SWP average deliveries are based on Table 10, P. 35 of the State Water Project Coastal Branch, Phase II DEIR. Scenario B (94.8% deliveries) has been assumed for 2000 and Scenario C (92.5% deliveries) for 2010.

3) The ratio of present SWP production capacity to total contractual obligations if 57.1%. If no additonal SWP facilities are constructed, each purveyor would only be able to rely on 57.1% of their entitlement. Goleta WD and La Cumbre MWC use this lower percentage in their urban water supply planning.

TABLE 8a: SWP VOLUMES REQUIRED TO MEET WATER QUALITY & GWB OVERDRAFT OBJECTIVES (1990 CONDITIONS)

DAU and Subareas	DEMAND – RecWW	PRESENT USE: Surface	Ground	WATER QUALITY: Surface	Ground	SWP NEEDED FOR: 500 Tds	Percent	GWB OD Share	Percent
DAU 71: *									
City of Santa Maria	12388		12388		840	7237	58.4%	2267	18.3%
Southern Calif Water Co	8724		8724		629	3034	34.8%	2204	25.3%
City of Guadalupe	1148		1148		836	668	58.1%	210	18.3%
S.M.Valley Industrial	5400		5400		800	NA	NA	NA	NA
Private SMV M&I, Ag	122362		122362		800	NA	NA	NA	NA
Casmalia CSD	12		12		670	5	41.3%	5	36.6%
TOTAL SANTA MARIA	150035		150035			10943	7.3%	4686	3.1%
DAU 73:									
Los Alamos CSD	251		251		700	NA	NA	NA	NA
Vandenberg AFB	4137		4137		700	1872	45.2%	2375	57.4%
Private SAV M&I, Ag	17399		17399		700	NA	NA	NA	NA
TOTAL SAN ANTONIO	21787		21787			1872	8.6%	2375	10.9%
DAU 74:									
City of Lompoc	4655		4655		1000	3137	67.4%	653	14.0%
Vandenberg Village CSD	1903		1903		614	609	32.0%	264	13.9%
Mission Hills CSD	629		629		392	0	0.0%	49	7.7%
Vandenberg AFB	1652		1652		700	747	45.2%	132	8.0%
Buellton CSD	1115		1115		840	652	58.4%	141	12.7%
City of Solvang	1873		1873		790	NA	NA	NA	NA
Santa Ynez RWCD ID#1	6276	2425	3851	588	633	1935	30.8%	562	9.0%
Private SY–Lom M&I, Ag	56316		56316		900	NA	NA	NA	NA
TOTAL SANTA YNEZ	74419	2425	71994			7080	9.5%	1802	2.4%
DAU 75:									
Carpinteria CWD	5674	2572	3102	600	750	2099	37.0%	0	0.0%
Summerland CWD	364	294	70	600	750	95	26.2%	70	19.3%
Montecito WD	4864	3423	1441	600	750	1428	29.4%	435	8.9%
City of Santa Barbara	14484	10967	3517	700	656	6890	47.6%	2006	13.8%
LaCumbre Mutual Wtr.Co	1859	330	1529	600	856	965	51.9%	229	12.3%
Goleta WD	15303	8196	7107	686	911	6808	44.5%	4219	27.6%
Private SC M&I, Ag	19344		19344		750	NA	NA	NA	NA
Morehart Land Co.	900		900		750	457	50.8%	47	5.3%
Santa Barbara Research	100		100		750	51	50.8%	56	56.4%
TOTAL SOUTH COAST	62892	25782	37110			18793	29.9%	7062	11.2%
DAU 76: *									
Cuyama CSD	188		188		850	111	59.1%	57	30.3%
Private CV M&I, Ag	20894		20894		1500	NA	NA	NA	NA
TOTAL CUYAMA VALLEY	21082		21082			111	0.5%	57	0.3%
TOTAL S.B. COUNTY	330216	28207	302009			38800	11.7%	15981	4.8%

NOTES ON TABLE 8a:

1) SWP denotes State Water Project imported water. GWB is an abbreviation for Ground Water Basin.
2) The Demand minus Reclaimed Waste Water (RWW) column uses gross demand levels from TABLE 4 and Waste Water Reclamation levels from TABLE 5.
3) The Surface supplies are as per TABLE 5, while the ground water usage is the difference between gross Demand – RecWW and the (Safe Yield) Surface supplies.
4) The Surface and Ground Water Quality figures represent typical and average water quality levels associates with these sources.
5) The next two columns display the volumes and percentages of imported State Project Water required to make the purveyors' overall blended water quality meet the 500 ppm TDS (Total Dissolved Solids) primary drinking water standard. SWP water is assumed to have a water quality of 258 ppm TDS.
6) The last two columns indicate each district's prorata share of the basin groundwater overdraft (from Table 5) and the percentage overdrafted groundwater is of the district's water supply.
7) Santa Barbara Research Center does not need state water to meet water quality standards since their manufacturing process already requires water treated by reverse osmosis.
8) Vandenberg AFB intends to use its state water allocation to replace nearly 99 percent of their groundwater pumpage. This is more than their prorata share of the groundwater overdraft.
9) Lompoc's raw groundwater quality is about 1359 ppm TDS. During water purification, water quality improves to 1000 ppm TDS. Treated groundwater at 1000 ppm would be mixed with SWP water to meet the 500 ppm TDS drinking water standard.

TABLE 8b: SWP VOLUMES REQUIRED TO MEET WATER QUALITY & GWB OVERDRAFT OBJECTIVES (2000 CONDITIONS)

DAU and Subareas	DEMAND – RecWW	PRESENT USE: Surface	Ground	WATER QUALITY: Surface	Ground	SWP NEEDED FOR: 500 Tds	Percent	GWB OD Share	Percent
DAU 71: *									
City of Santa Maria	16957		16957		840	9906	58.4%	3268	19.3%
Southern Calif Water Co	10740		10740		629	3734	34.8%	2857	26.6%
City of Guadalupe	1415		1415		836	823	58.1%	273	19.3%
S.M.Valley Industrial	5400		5400		800	NA	NA	NA	NA
Private SMV M&I, Ag	118049		118049		800	NA	NA	NA	NA
Casmalia CSD	12		12		670	5	41.3%	5	38.5%
TOTAL SANTA MARIA	152573		152573			14468	9.5%	6402	4.2%
DAU 73:									
Los Alamos CSD	306		306		700	NA	NA	NA	NA
Vandenberg AFB	6206		6206		700	2808	45.2%	3926	63.3%
Private SAV M&I, Ag	17122		17122		700	NA	NA	NA	NA
TOTAL SAN ANTONIO	23634		23634			2808	11.9%	3926	16.6%
DAU 74:									
City of Lompoc	4842		4842		1000	3263	67.4%	879	18.2%
Vandenberg Village CSD	2209		2209		614	707	32.0%	329	14.9%
Mission Hills CSD	872		872		392	0	0.0%	72	8.3%
Vandenberg AFB	2130		2130		700	964	45.2%	152	7.1%
Buellton CSD	1362		1362		840	796	58.4%	180	13.2%
City of Solvang	2481		2481		790	NA	NA	NA	NA
Santa Ynez RWCD ID#1	5806	2425	3381	588	633	1768	30.5%	590	10.2%
Private SY–Lom M&I, Ag	56918		56918		900	NA	NA	NA	NA
TOTAL SANTA YNEZ	76620	2425	74195			7498	9.8%	2202	2.9%
DAU 75:									
Carpinteria CWD	6621	2572	4049	600	750	2580	39.0%	673	10.2%
Summerland CWD	510	294	216	600	750	169	33.2%	216	42.3%
Montecito WD	4979	3376	1603	600	750	1501	30.1%	542	10.9%
City of Santa Barbara	14796	10565	4231	700	656	6967	47.1%	2660	18.0%
LaCumbre Mutual Wtr.Co	1911	330	1581	600	856	997	52.1%	281	14.7%
Goleta WD	15094	8196	6898	686	911	6676	44.2%	4024	26.7%
Private SC M&I, Ag	19565		19565		750	NA	NA	NA	NA
Morehart Land Co.	870		870		750	442	50.8%	45	5.2%
Santa Barbara Research	125		125		750	64	50.8%	68	54.5%
TOTAL SOUTH COAST	64471	25333	39138			19396	30.1%	8510	13.2%
DAU 76: *									
Cuyama CSD	242		242		850	143	59.1%	57	23.4%
Private CV M&I, Ag	15399		15399		1500	NA	NA	NA	NA
TOTAL CUYAMA VALLEY	15640		15640			143	0.9%	57	0.4%
TOTAL S.B. COUNTY	332939	27758	305181			44313	13.3%	21096	6.3%

NOTES ON TABLE 8b:

1) SWP denotes State Water Project imported water. GWB is an abbreviation for Ground Water Basin.
2) The Demand minus Reclaimed Waste Water (RWW) column uses gross demand levels from TABLE 4 and Waste Water Reclamation levels from TABLE 5.
3) The Surface supplies are as per TABLE 5, while the ground water usage is the difference between gross Demand – RecWW and the (Safe Yield) Surface supplies.
4) The Surface and Ground Water Quality figures represent typical and average water quality levels associates with these sources.
5) The next two columns display the volumes and percentages of imported State Project Water required to make the purveyors' overall blended water quality meet the 500 ppm TDS (Total Dissolved Solids) primary drinking water standard. SWP water is assumed to have a water quality of 258 ppm TDS.
6) The last two columns indicate each district's prorata share of the basin groundwater overdraft (from Table 5) and the percentage overdrafted groundwater is of the district's water supply.
7) Santa Barbara Research Center does not need state water to meet water quality standards since their manufacturing process already requires water treated by reverse osmosis.
8) Vandenberg AFB intends to use its state water allocation to replace nearly 99 percent of their groundwater pumpage. This is more than their prorata share of the groundwater overdraft.
9) Lompoc's raw groundwater quality is about 1359 ppm TDS. During water purification, water quality improves to 1000 ppm TDS. Treated groundwater at 1000 ppm would be mixed with SWP water to meet the 500 ppm TDS drinking water standard.

TABLE 8c: SWP VOLUMES REQUIRED TO MEET WATER QUALITY & GWB OVERDRAFT OBJECTIVES (GPBO CONDITIONS)

DAU and Subareas	DEMAND – RecWW	PRESENT USE: Surface	Ground	WATER QUALITY: Surface	Ground	SWP NEEDED FOR: 500 Tds	Percent	GWB OD Share	Percent
DAU 71: *									
City of Santa Maria	20156		20156		840	11775	58.4%	3837	19.0%
Southern Calif Water Co	12497		12497		629	4345	34.8%	3235	25.9%
City of Guadalupe	3671		3671		836	2134	58.1%	699	19.0%
S.M.Valley Industrial	5400		5400		800	NA	NA	NA	NA
Private SMV M&I, Ag	110081		110081		800	NA	NA	NA	NA
Casmalia CSD	12		12		670	5	41.3%	5	38.1%
TOTAL SANTA MARIA	151817		151817			18259	12.0%	7776	5.1%
DAU 73:									
Los Alamos CSD	571		571		700	NA	NA	NA	NA
Vandenberg AFB	6206		6206		700	2808	45.2%	4022	64.8%
Private SAV M&I, Ag	17328		17328		700	NA	NA	NA	NA
TOTAL SAN ANTONIO	24105		24105			2808	11.6%	4022	16.7%
DAU 74:									
City of Lompoc	6440		6440		1000	4340	67.4%	1368	21.2%
Vandenberg Village CSD	2563		2563		614	821	32.0%	483	18.8%
Mission Hills CSD	1234		1234		392	0	0.0%	129	10.5%
Vandenberg AFB	2130		2130		700	964	45.2%	192	9.0%
Buellton CSD	1609		1609		840	940	58.4%	222	13.8%
City of Solvang	2918		2918		790	NA	NA	NA	NA
Santa Ynez RWCD ID#1	5656	2425	3231	588	633	1715	30.3%	647	11.4%
Private SY–Lom M&I, Ag	57507	0	57507		900	NA	NA	NA	NA
TOTAL SANTA YNEZ	80058	2425	77633			8780	11.0%	3041	3.8%
DAU 75:									
Carpinteria CWD	7135	2572	4563	600	750	2841	39.8%	1069	15.0%
Summerland CWD	447	294	153	600	750	138	30.8%	153	34.3%
Montecito WD	5096	3205	1891	600	750	1613	31.6%	749	14.7%
City of Santa Barbara	15652	9610	6042	700	656	7198	46.0%	4324	27.6%
LaCumbre Mutual Wtr.Co	1993	330	1663	600	856	1045	52.4%	247	12.4%
Goleta WD	15938	8196	7742	686	911	7208	45.2%	4762	29.9%
Private SC M&I, Ag	18865	0	18865		750	NA	NA	NA	NA
Morehart Land Co.	870	0	870		750	442	50.8%	49	5.6%
Santa Barbara Research	150	0	150		750	76	50.8%	88	58.7%
TOTAL SOUTH COAST	66147	24207	41940			20560	31.1%	11440	17.3%
DAU 76: *									
Cuyama CSD	121		121		850	72	59.1%	0	0.0%
Private CV M&I, Ag	15644		15644		1500	NA	NA	NA	NA
TOTAL CUYAMA VALLEY	15765		15765			72	0.5%	0	0.0%
TOTAL S.B. COUNTY	337893	26632	311261			50479	14.9%	26279	7.8%

NOTES ON TABLE 8c:

1) SWP denotes State Water Project imported water. GWB is an abbreviation for Ground Water Basin.
2) The Demand minus Reclaimed Waste Water (RWW) column uses gross demand levels from TABLE 4 and Waste Water Reclamation levels from TABLE 5.
3) The Surface supplies are as per TABLE 5, while the ground water usage is the difference between gross Demand – RecWW and the (Safe Yield) Surface supplies.
4) The Surface and Ground Water Quality figures represent typical and average water quality levels associates with these sources.
5) The next two columns display the volumes and percentages of imported State Project Water required to make the purveyors' overall blended water quality meet the 500 ppm TDS (Total Dissolved Solids) primary drinking water standard. SWP water is assumed to have a water quality of 258 ppm TDS.
6) The last two columns indicate each district's prorata share of the basin groundwater overdraft (from Table 5) and the percentage overdrafted groundwater is of the district's water supply.
7) Santa Barbara Research Center does not need state water to meet water quality standards since their manufacturing process already requires water treated by reverse osmosis.
8) Vandenberg AFB intends to use its state water allocation to replace nearly 99 percent of their groundwater pumpage. This is more than their prorata share of the groundwater overdraft.
9) Lompoc's raw groundwater quality is about 1359 ppm TDS. During water purification, water quality improves to 1000 ppm TDS. Treated groundwater at 1000 ppm would be mixed with SWP water to meet the 500 ppm TDS drinking water standard.

TABLE 9a: ALLOCATION OF STATE PROJECT WATER

1990 DEMAND CONDITIONS:

DAU and Subareas	Net Demand	Local Sources	SWP Delvrys	SWP for Wtr Qual	W–Qual (ppm)	SWP for GWB OD	Remaing SWP	Remaing Deficit
DAU 71: *								
City of Santa Maria	6194	3927	10712	7237	500	0	3475	0
Southern Calif Water Co	6020	3816	2844	2844	508	0	0	0
City of Guadalupe	574	364	284	284	693	0	0	0
S.M.Valley Industrial	3726	2362	0	NA	800	NA	NA	NA
Private SMV M&I, Ag	84430	53523	0	NA	800	NA	NA	NA
Casmalia CSD	12	8	12	5	500	0	7	0
TOTAL SANTA MARIA	100956	64000	13853	10371		0	3483	0
DAU 73:								
Los Alamos CSD	158	67	0	NA	700	NA	NA	NA
Vandenberg AFB	4137	1763	4137	1872	446	503	1763	0
Private SAV M&I, Ag	10961	4670	0	NA	700	NA	NA	NA
TOTAL SAN ANTONIO	15257	6500	4137	1872		503	1763	0
DAU 74:								
City of Lompoc	3280	2635	3792	3137	500	0	655	0
Vandenberg Village CSD	1332	1068	569	569	508	0	0	0
Mission Hills CSD	245	197	474	0	382	49	425	0
Vandenberg AFB	668	535	1652	747	500	0	904	0
Buellton CSD	926	784	548	548	554	0	0	0
City of Solvang	1554	1554	0	NA	790	NA	NA	NA
Santa Ynez RWCD ID#1	4796	4805	1896	1896	502	0	0	0
Private SY–Lom M&I, Ag	44504	41124	0	NA	900	NA	NA	NA
TOTAL SANTA YNEZ	57305	52704	8931	6897		49	1985	0
DAU 75:								
Carpinteria CWD	5080	5365	2560	2099	500	0	460	0
Summerland CWD	364	294	284	95	510	0	189	0
Montecito WD	4491	4319	2071	1428	500	0	643	0
City of Santa Barbara	14032	12887	2844	2844	611	0	0	0
LaCumbre Mutual Wtr.Co	1859	1630	948	948	506	0	0	0
Goleta WD	14037	10496	4266	4266	608	0	0	0
Private SC M&I, Ag	16876	15203	0	NA	750	NA	NA	NA
Morehart Land Co.	783	736	190	190	646	0	0	0
Santa Barbara Research	93	37	47	47	473	9	0	–9
TOTAL SOUTH COAST	57616	50967	13210	11918		9	1293	–9
DAU 76: *								
Cuyama CSD	94	37	188	111	500	0	77	0
Private CV M&I, Ag	15671	6163	0	NA	1500	NA	NA	NA
TOTAL CUYAMA VALLEY	15765	6200	188	111		0	77	0
TOTAL S.B. COUNTY	246899	180370	40320	31169		560	8600	–9

NOTES ON TABLE 9a:

1) The Net Demand value comes from the Total Net Dem column on TABLE 6. The Local Sources column derives from the totals on TABLE 5. The SWP deliveries are either equal to the average State Water estimated deliveries for the year 2000, or the Demand minus WW Reclamation value from TABLE 8, whichever is smaller.
2) The State Water for water quality objectives (500 ppm overall blended TDS) is derived from TABLE 8 excepting where this volume exceeds the SWP delivery level on this table (9).
3) The water quality column displays the blended TDS level achieved by the introduction of SWP water (@ 258 ppm, TDS) as per the SWP Delvrys column, with local water sources at quality levels displayed in TABLE 8.
4) The SWP for GWB OD. column displays the quantity of SWP water required [in addition to the volume required to meet the water quality (500 ppm) objective] to make up that entity's (line item) share of the ground water overdraft.
5) Any remaining SWP water after satisfying water quality and groundwater overdraft requirements as defined above, shows up in the Remaining SWP column.
6) The Remaining Deficit column shows extra water required (in addition to the SWP imports) to make up that entity's ground water overdraft share. An NA indicates districts that have no state water entitlement. A negative value indicates that the expected state water deliveries would exceed the district's prorata overdraft without state water.
7) This table assumes that meeting the primary water quality standard has a higher priority than offsetting the groundwater overdraft. Some water districts consider offsetting the groundwater overdraft as their first priority. In either case, the cumulative quantity of SWP water required to meet both objectives would be the same.

TABLE 9b: ALLOCATION OF STATE PROJECT WATER

2000 DEMAND CONDITIONS:

DAU and Subareas	Net Demand	Local Sources	SWP Delvrys	SWP for Wtr Qual	W–Qual (ppm)	SWP for GWB OD	Remaing SWP	Remaing Deficit
DAU 71: *								
City of Santa Maria	8478	5210	10712	9906	500	0	806	0
Southern Calif Water Co	7410	4554	2844	2844	530	13	0	–13
City of Guadalupe	708	435	284	284	720	0	0	0
S.M.Valley Industrial	3726	2290	0	NA	800	NA	NA	NA
Private SMV M&I, Ag	83811	51504	0	NA	800	NA	NA	NA
Casmalia CSD	12	8	12	5	500	0	7	0
TOTAL SANTA MARIA	104146	64000	13853	13040		13	814	–13
DAU 73:								
Los Alamos CSD	190	70	0	NA	700	NA	NA	NA
Vandenberg AFB	6206	2280	5053	2808	420	1118	1127	0
Private SAV M&I, Ag	11297	4150	0	NA	700	NA	NA	NA
TOTAL SAN ANTONIO	17692	6500	5053	2808		1118	1127	0
DAU 74:								
City of Lompoc	3899	3208	3792	3263	500	0	529	0
Vandenberg Village CSD	1546	1217	569	569	522	0	0	0
Mission Hills CSD	340	268	474	0	381	72	402	0
Vandenberg AFB	713	561	2130	964	500	0	1166	0
Buellton CSD	1131	950	548	548	606	0	0	0
City of Solvang	2059	2059	0	NA	790	NA	NA	NA
Santa Ynez RWCD ID#1	4482	4445	1896	1768	500	0	128	0
Private SY–Lom M&I, Ag	46673	42737	0	NA	900	NA	NA	NA
TOTAL SANTA YNEZ	60843	55447	9409	7111		72	2225	0
DAU 75:								
Carpinteria CWD	6002	5569	2560	2560	502	0	0	0
Summerland CWD	510	294	284	169	455	46	69	0
Montecito WD	4610	4318	2071	1501	500	0	571	0
City of Santa Barbara	14840	13030	2844	2844	611	0	0	0
LaCumbre Mutual Wtr.Co	1911	1630	948	948	515	0	0	0
Goleta WD	14715	11479	4266	4266	604	0	0	0
Private SC M&I, Ag	17447	15623	0	NA	750	NA	NA	NA
Morehart Land Co.	774	729	190	190	643	0	0	0
Santa Barbara Research	116	48	47	47	482	21	0	–21
TOTAL SOUTH COAST	60926	52721	13210	12525		67	639	–21
DAU 76: *								
Cuyama CSD	121	64	242	143	500	0	99	0
Private CV M&I, Ag	11549	6136	0	NA	1500	NA	NA	NA
TOTAL CUYAMA VALLEY	11670	6200	242	143		0	99	0
TOTAL S.B. COUNTY	255277	184868	41767	35626		1270	4904	–33

NOTES ON TABLE 9b:

1) The Net Demand value comes from the Total Net Dem column on TABLE 6. The Local Sources column derives from the totals on TABLE 5. The SWP deliveries are either equal to the average State Water estimated deliveries for the year 2000, or the Demand minus WW Reclamation value from TABLE 8, whichever is smaller.
2) The State Water for water quality objectives (500 ppm overall blended TDS) is derived from TABLE 8 excepting where this volume exceeds the SWP delivery level on this table (9).
3) The water quality column displays the blended TDS level achieved by the introduction of SWP water (@ 258 ppm, TDS) as per the SWP Delvrys column, with local water sources at quality levels displayed in TABLE 8.
4) The SWP for GWB OD. column displays the quantity of SWP water required [in addition to the volume required to meet the water quality (500 ppm) objective] to make up that entity's (line item) share of the ground water overdraft.
5) Any remaining SWP water after satisfying water quality and groundwater overdraft requirements as defined above, shows up in the Remaining SWP column.
6) The Remaining Deficit column shows extra water required (in addition to the SWP imports) to make up that entity's ground water overdraft share. An NA indicates districts that have no state water entitlement. A negative value indicates that the expected state water deliveries would exceed the district's prorata overdraft without state water.
7) This table assumes that meeting the primary water quality standard has a higher priority than offsetting the groundwater overdraft. Some water districts consider offsetting the groundwater overdraft as their first priority. In either case, the cumulative quantity of SWP water required to meet both objectives would be the same.

TABLE 9c: ALLOCATION OF STATE PROJECT WATER

GPBO DEMAND CONDITIONS:

DAU and Subareas	Net Demand	Local Sources	SWP Delvrys	SWP for WtrQual	W-Qual (ppm)	SWP for GWB OD	Remaing SWP	Remaing Deficit
DAU 71: *								
City of Santa Maria	10078	6241	10453	10453	538	0	0	0
Southern Calif Water Co	8498	5263	2775	2775	533	460	0	−460
City of Guadalupe	1835	1137	278	278	726	421	0	−421
S.M.Valley Industrial	3672	2274	0	NA	800	NA	NA	NA
Private SMV M&I, Ag	79250	49078	0	NA	800	NA	NA	NA
Casmalia CSD	12	8	12	5	500	0	7	0
TOTAL SANTA MARIA	103346	64000	13517	13510		882	7	−882
DAU 73:								
Los Alamos CSD	326	115	0	NA	700	NA	NA	NA
Vandenberg AFB	6206	2183	4931	2808	414	1214	908	0
Private SAV M&I, Ag	11943	4202	0	NA	700	NA	NA	NA
TOTAL SAN ANTONIO	18474	6500	4931	2808		1214	908	0
DAU 74:								
City of Lompoc	5034	3855	3700	3700	574	0	0	0
Vandenberg Village CSD	1794	1312	555	555	537	0	0	0
Mission Hills CSD	481	352	463	0	378	129	333	0
Vandenberg AFB	713	521	2130	964	500	0	1166	0
Buellton CSD	1336	1114	535	535	647	0	0	0
City of Solvang	2422	2422	0	NA	790	NA	NA	NA
Santa Ynez RWCD ID#1	4295	4231	1850	1715	500	0	135	0
Private SY−Lom M&I, Ag	47156	42064	0	NA	900	NA	NA	NA
TOTAL SANTA YNEZ	63231	55870	9232	7468		129	1634	0
DAU 75:								
Carpinteria CWD	6473	5643	2498	2498	524	0	0	0
Summerland CWD	447	294	278	138	483	16	124	0
Montecito WD	4720	4208	2021	1613	500	0	409	0
City of Santa Barbara	15641	12094	2775	2775	573	1549	0	−1549
LaCumbre Mutual Wtr.Co	1853	1630	925	925	536	0	0	0
Goleta WD	15497	11518	4163	4163	600	599	0	−599
Private SC M&I, Ag	16825	14810	0	NA	750	NA	NA	NA
Morehart Land Co.	774	725	185	185	645	0	0	0
Santa Barbara Research	140	52	46	46	461	42	0	−42
TOTAL SOUTH COAST	62371	50973	12890	12341		2206	533	−2190
DAU 76: *								
Cuyama CSD	122	63	121	72	500	0	50	0
Private CV M&I, Ag	11948	6137	0	NA	1500	NA	NA	NA
TOTAL CUYAMA VALLEY	12070	6200	121	72		0	50	0
TOTAL S.B. COUNTY	259493	183543	40691	36200		4431	3132	−3072

NOTES ON TABLE 9c:

1) The Net Demand value comes from the Total Net Dem column on TABLE 6. The Local Sources column derives from the totals on TABLE 5. The SWP deliveries are either equal to the average State Water estimated deliveries for the year 2000, or the Demand minus WW Reclamation value from TABLE 8, whichever is smaller.
2) The State Water for water quality objectives (500 ppm overall blended TDS) is derived from TABLE 8 excepting where this volume exceeds the SWP delivery level on this table (9).
3) The water quality column displays the blended TDS level achieved by the introduction of SWP water (@ 258 ppm, TDS) as per the SWP Delvrys column, with local water sources at quality levels displayed in TABLE 8.
4) The SWP for GWB OD. column displays the quantity of SWP water required [in addition to the volume requred to meet the water quality (500 ppm) objective] to make up that entity's (line item) share of the ground water overdraft.
5) Any remaining SWP water after satisfying water quality and groundwater overdraft requirements as defined above, shows up in the Remaining SWP column.
6) The Remaining Deficit column shows extra water required (in addition to the SWP imports) to make up that entity's ground water overdraft share. An NA indicates districts that have no state water entitlement. A negative value indicates that the expected state water deliveries would exceed the district's prorata overdraft without state water.
7) This table assumes that meeting the primary water quality standard has a higher priority than offsetting the groundwater overdraft. Some water districts consider offsetting the groundwater overdraft as their first priority. In either case, the cumulative quantity of SWP water required to meet both objectives would be the same.

TABLE 10

EFFECTS OF OFFSETTING FULL GROUNDWATER BASIN OVERDRAFT WITH SWP WATER

DAU / Subareas	GROSS WATER DEMAND			SWP DELIVERIES			SURFACE & WASTEWTR SUPPLY			REMAINING GROSS GW DEMAND			REMAINING NET GW DEMAND			BLENDED WATER QUALITY		
	1990	2000	GPBO	1990	2000	GPBO	1990	2000	GPBO	1990	2000	GPBO	1990	2000	GPBO	1990	2000	GPBO
71:																		
of Santa Maria	12,388	16,957	20,156	10,712	10,712	10,453	0	0	0	1,676	6,244	9,703	(4,518)	(2,234)	(375)	337	472	538
hern Calif Water Co	8,724	10,740	12,497	2,844	2,844	2,775	0	0	0	5,880	7,896	9,722	3,176	4,566	5,723	508	531	547
of Guadalupe	1,148	1,415	3,671	284	284	278	0	0	0	864	1,131	3,393	290	423	1,558	693	720	792
Valley Industrial	5,400	5,400	5,400	0	0	0	0	0	0	5,400	5,400	5,400	3,726	3,726	3,672	800	800	800
te SMV M&I, Ag	122,362	118,049	110,081	0	0	0	0	0	0	122,362	118,049	110,081	84,430	83,811	79,250	800	800	800
nalla CSD	12	12	12	22	22	21	0	0	0	(9)	(9)	(9)	(9)	(9)	(9)	258	258	258
AL SANTA MARIA	150,035	152,573	151,817	13,863	13,863	13,526	0	0	0	136,172	138,710	138,291	87,093	90,283	89,819			
73:																		
Alamos CSD	251	306	571	0	0	0	0	0	0	251	306	571	158	190	326	700	700	700
enberg AFB	4,137	6,206	6,206	5,053	5,053	4,931	0	0	0	(916)	1,153	1,275	(916)	1,153	1,275	258	340	349
te SAV M&I, Ag	17,399	17,122	17,328	0	0	0	0	0	0	17,399	17,122	17,328	10,961	11,297	11,943	700	700	700
AL SAN ANTONIO	21,787	23,634	24,105	5,053	5,053	4,931	0	0	0	16,734	18,581	19,175	10,204	12,639	13,544			
74:																		
; Lompoc	4,685	5,492	7,090	3,792	3,792	3,700	30	650	650	863	1,050	2,740	(542)	(543)	684	396	419	574
enberg Village CSD	1,903	2,209	2,563	569	569	555	0	0	0	1,334	1,640	2,008	763	977	1,239	508	522	537
on Hills CSD	629	872	1,234	474	474	463	0	0	0	155	398	771	(229)	(134)	19	291	319	342
enberg AFB	1,652	2,130	2,130	2,531	2,531	2,469	0	0	0	(879)	(401)	(339)	(1,863)	(1,818)	(1,756)	258	258	258
ton CSD	1,115	1,362	1,609	548	548	535	0	0	0	567	814	1,075	378	583	801	554	606	647
f Solvang	1,873	2,481	2,918	0	0	0	0	0	0	1,873	2,481	2,918	1,554	2,059	2,422	790	790	790
a Ynez RWCD ID#1	6,276	5,806	5,656	1,896	1,896	1,850	2,425	2,425	2,425	1,954	1,485	1,381	475	161	20	502	492	491
e SY–Lom M&I, Ag	58,318	56,918	57,507	0	0	0	0	0	0	56,318	56,918	57,507	44,504	46,673	47,156	900	900	900
AL SANTA YNEZ	74,449	77,270	80,708	9,810	9,810	9,572	2,455	3,075	3,075	62,185	64,386	68,061	45,041	47,958	50,585			
75:																		
nteria CWD	5,674	6,621	7,135	2,560	2,560	2,498	2,572	2,572	2,572	543	1,489	2,065	(51)	870	1,403	460	502	524
nerland CWD	364	510	447	284	284	278	294	294	294	(214)	(69)	(124)	(214)	(69)	(124)	333	409	388
ecito WD	4,864	4,979	5,096	2,071	2,071	2,021	3,423	3,376	3,205	(630)	(468)	(130)	(1,003)	(837)	(506)	454	456	464
f Santa Barbara	15,153	15,996	16,852	2,844	2,844	2,775	11,636	11,765	10,810	673	1,387	3,267	(448)	231	2,056	611	611	612
mbra Mutual Water Co	1,859	1,911	1,993	948	948	925	330	330	330	581	633	738	581	633	598	506	515	536
a WD	15,303	16,094	16,938	4,266	4,266	4,163	8,196	9,196	9,196	2,841	2,632	3,580	1,575	1,253	2,139	608	604	625
le SC M&I, Ag	19,344	19,565	18,865	0	0	0	0	0	0	19,344	19,565	18,865	16,876	17,447	16,825	750	750	750
hart Land Co.	900	870	870	190	190	185	0	0	0	710	680	685	593	585	589	646	643	645
a Barbara Research	100	125	150	47	47	46	0	0	0	53	78	104	46	69	94	517	563	599
AL SOUTH COAST	63,561	66,671	68,347	13,210	13,210	12,890	26,451	27,533	26,407	23,900	25,927	29,050	17,954	20,182	23,074			
76:																		
ma CSD	188	242	245	948	948	925	0	0	0	(760)	(706)	(680)	(854)	(827)	(803)	258	258	258
e CV M&I, Ag	20,894	15,399	15,124	0	0	0	0	0	0	20,894	15,399	15,124	15,671	11,549	11,948	1500	1500	1500
AL CUYAMA VALLEY	21,082	15,640	15,369	948	948	925	0	0	0	20,134	14,692	14,444	14,817	10,722	11,145			
A BARBARA COUNTY	330915	335789	340346	42884	42884	41843	28906	30608	29482	259126	262297	269021	175109	181785	188168			

S ON TABLE 10:

The term "GPBO" signifies General Plan Buildout.

The year 2000 State Water average deliveries are shown with the 1990 cultural conditions to illustrate the present day impacts if State Water were available at this time.

Gross water demand values are from TABLE 4; SWP deliveries derive from TABLE 7; surface and wastewater supplies are from TABLE 5; the remaining gross groundwater demand is then calculated in this table (gross demand minus SWP deliveries minus surface & waste water supplies); the remaining net groundwater demand uses the same equation except the deliveries and supplies are subtracted from the Total Net Demand (from TABLE 6). Negative net groundwater demand values indicate districts where the state water delivery would exceed the demand if the water district continued to use its full local surface and reclaimed wastewater supplies. See Table 11 for overdraft reduction.

The blended water quality assumes that the water district will take its full SWP entitlement. If total supplies exceed demand, the district will first cut back on groundwater, then surface water.

TABLE 11

TOTAL GROUNDWATER OVERDRAFT BY DESIGNATED ANALYSIS UNITS

DAU and City	NET GW SAFE YLD	OVERDRAFT W/O SWP 1990	OVERDRAFT W/O SWP 2000	OVERDRAFT W/O SWP 2010	AVERAGE SWP DELIVERIES 1990	AVERAGE SWP DELIVERIES 2000	AVERAGE SWP DELIVERIES 2010	REMAINING AVE OVERDRAFT 1990	REMAINING AVE OVERDRAFT 2000	REMAINING AVE OVERDRAFT 2010	BASIN WATER DEMAND 1990	BASIN WATER DEMAND 2000	BASIN WATER DEMAND 2010
DAU 71: SANTA MARIA	64,000	(36,956)	(40,146)	(39,346)	13,863	13,863	13,526	(23,093)	(26,283)	(25,819)	150,035	152,573	151,817
DAU 73: SAN ANTONIO	6,500	(8,757)	(11,192)	(11,974)	5,053	5,053	4,931	(3,704)	(6,139)	(7,044)	21,787	23,634	24,105
DAU 74: SANTA YNEZ	50,249	(4,602)	(5,396)	(7,361)	9,810	9,810	9,572	5,208	4,414	2,210	74,419	7,080	80,058
DAU 75: SOUTH COAST	24,516	(6,649)	(8,205)	(11,398)	13,447	13,447	13,121	6,798	5,242	1,723	62,892	64,471	66,147
DAU 76: CUYAMA VALLEY	6,200	(9,565)	(5,470)	(5,870)	948	948	925	(8,617)	(4,522)	(4,945)	21,082	15,640	15,765
SANTA BARBARA COUNTY	151,464	(66,528)	(70,409)	(75,950)	43,121	43,121	42,075	(23,408)	(27,288)	(33,875)	330,216	263,399	337,893

TABLE 11 NOTES:

1) "GPBO" means General Plan Buildout.

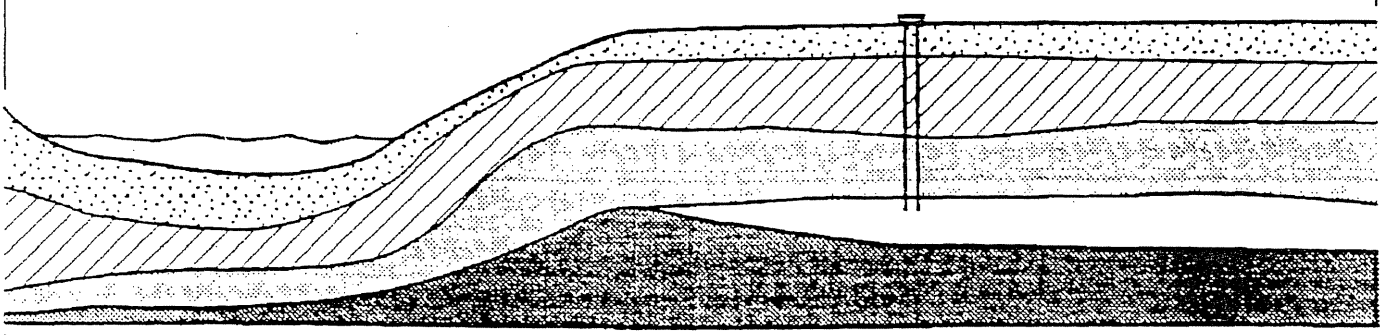
2) Year 2000 estimated average SWP deliveries are shown for 1990 to illustrate the overdraft impact of imported water under 1990 cultural conditions.

3) Negative overdraft values indicates that groundwater water pumping will exceed the basin's safe yield.

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT

Groundwater Resources Section
Conservation Element
Santa Barbara County Comprehensive Plan

October 1991



Santa Barbara County
Resource Management Department
County Water Agency

DAMES & MOORE

SBC 91-EIR-15
SCH 89082310

COURT HOUSE

Santa Barbara County Water Agency

Robert B. Almy
Water Agency Manager

122 W. Figueroa St., Ste. B
Santa Barbara, California 93101
(805) 568-3540
Telecopier (805)568-3549

October 7, 1991

To Interested Parties:

RE: Draft Program EIR on Groundwater Resources Section, Conservation Element, Santa Barbara County Comprehensive Plan. (EIR # 91-EIR-15)

Enclosed for your review you will find a copy of the Draft Program Environmental Impact Report (EIR) for the Groundwater Resources Section of the Conservation Element of the Santa Barbara County Comprehensive Plan. This EIR is an informational document for the public and County decision makers, prepared under the requirements of the California Environmental Quality Act (CEQA).

Background: In May 1989 the County Board of Supervisors initiated the Draft Groundwater Resources Section of the Conservation Element containing proposed goals and policies designed to guide the utilization and conservation of groundwater resources in the County. Primarily, these policies provide a framework to address the overdraft problem throughout the County.

Program EIRs: As defined by the California Environmental Quality Act, Program EIRs are used to evaluate the environmental impacts of a series of related actions that are essentially one "project" (CEQA Section 15168). Impacts are evaluated at a general level in a Program EIR because the specific actions or projects that would result from implementing the proposed plan or program usually cannot be accurately or completely predicted at the time of the plan adoption. Additional environmental review will occur for subsequent specific projects.

Summary of Impacts: Adoption of the proposed policies would not result in direct impacts to the environment. However, the subsequent **implementation** of the proposed goals and policies would have a cumulative beneficial impact on the groundwater resources of the County. Implementation of some of the proposed policies also could have a cumulative adverse effect on new land development projects, as well as the potential site specific impacts (air quality, traffic, growth inducement, geologic processes, biological resources, noise, polluting sources, public services, aesthetics, energy, recreation, archeological and historical resources,

hazardous materials) associated with development of supplemental water supply projects.

Public Review Period and Hearing Schedule: The Draft EIR public review period is 45 days and will close November 20, 1991. The purpose of the notification and review procedure is to gather public comments on the adequacy and completeness of the Draft EIR. Comments, both verbal and written, can only be accepted and responded to if they are submitted on or before the deadline date. If you challenge this environmental document in court you may be limited to raising only those issues you or someone else raised at the public hearings described below, or written correspondence delivered to the County Water Agency at, or prior to, the end of the comment period. Please limit comments to environmental issues only. Both written and verbal comments are welcome. Both will receive equal consideration. You may make both, but need only comment in either format.

Written Comments: Please submit any written comments before the end of the review period to:

Lynn Anderson-Rodriguez
County Water Agency
122 W. Figueroa St. Suite B
Santa Barbara, CA 93101

Two public workshop/hearings have been scheduled to provide background information on the development of the Groundwater Resources Section of the Conservation Element, and to receive verbal comments on the Draft EIR. These hearings will be held at the following two locations:

Santa Maria
Tuesday, November 12, 1991
7:00 p.m. Workshop on Draft Element
8:00 p.m. Public Hearing on Draft EIR
May Grisham Elementary School
610 Pinal Street
Orcutt, California

Santa Barbara
Thursday, November 14, 1991
1:00 p.m. Workshop on Draft Element
2:00 p.m. Public Hearing on Draft EIR
Board of Supervisors Hearing Room
105 East Anapamu Street
4th Floor
Santa Barbara County Government Center
Santa Barbara, California

A final environmental hearing, after the close of the public review period, has been scheduled for **Thursday, November 21, 1991 at 9:00 a.m. in the Planning Commission Hearing Room, 123 E. Anapamu St. Santa Barbara.** The purpose of this hearing is for staff to provide

verbal responses to the comments received during the review period.

Additional copies of the Draft EIR are available for review from the County Water Agency, 122 W. Figueroa St. Suite B, Santa Barbara; the County Resource Management Department (RMD) Public Counter at 123 E. Anapamu Street, Santa Barbara; and the North County RMD Office at 624 W. Foster Road in Santa Maria, and local libraries.

Subsequent Process: Following the end of the Draft EIR public comment period, a Final EIR will be prepared, including responses to comments received on the Draft EIR. The Final EIR, along with the Groundwater Resources Section of the Conservation Element, will then be presented to the County Planning Commission and Board of Supervisors for EIR certification and Element adoption. Public hearings before the Planning Commission and the Board of Supervisors are anticipated to occur in early 1992. Revisions to the Draft Element may be recommended prior to final adoption.

If you need additional information regarding the Draft Program EIR, please contact Lynn Anderson-Rodriguez at (805)568-3540.

Sincerely,

Lynn Anderson-Rodriguez
Program Manager

enclosures

EIRTRNS1.LTR