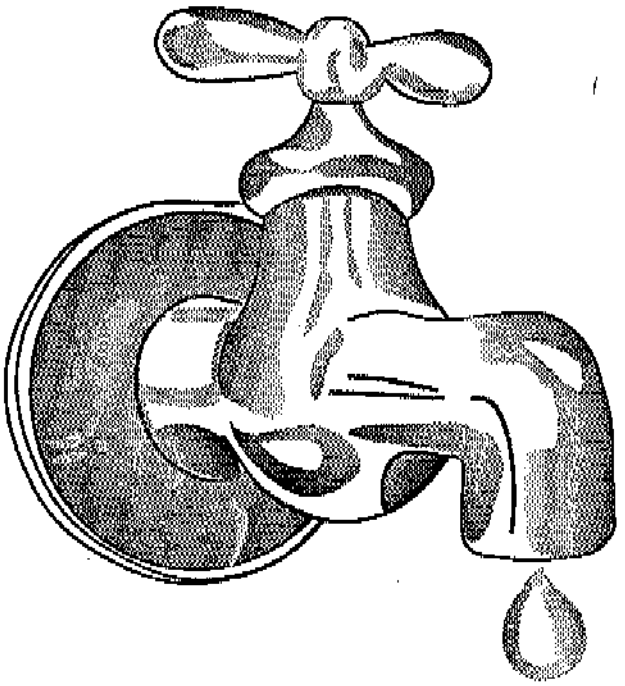

JOINT WATER COMMITTEE

WHITE PAPER

A SUMMARY OF THE SANTA MARIA VALLEY WATER PROBLEMS AND ALTERNATIVES

PREFACE

PURPOSE

The following "White Paper" is NOT a study of the State Water Project or its Alternatives. Rather it is a condensation of a myriad of studies conducted by a variety of agencies over recent years. It was our opinion that this issue has been "studied" to the point of exhaustion and what the people of this region really needed was a concise document that presented the results of these studies in laymans terms. This document has been prepared as a joint effort by knowledgeable volunteers from the Santa Maria Valley Chamber of Commerce and the Economic Development Association. We have made every effort to evenly present the data for each alternative to State Water and the State Water Project itself. The primary source and base line for statistical data was the "Santa Barbara County State Water Project Alternatives" document dated April 1985, prepared by the State Department of Water Resources. Those of you that would like more in depth and current technical data may find it in the reference material used to develop this "White Paper". We hope that this "White Paper" will create interest and increase the knowledge of the general population concerning the very real water quantity and quality crisis that is rapidly approaching this region and the possible solutions available. The Environmental Impact Report (EIR) to be released in late 1989 will contain more current cost data.

ACKNOWLEDGEMENT

This project was a joint effort of the Santa Maria Valley Chamber of Commerce and the Santa Maria Valley Economic Development Association through the Joint Water Committee; however, special acknowledgement is in order to those that contributed directly to the text of this "White Paper". We thank the following for their volunteer time, effort and knowledge:

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INTRODUCTION

WATER . . . NECESSARY FOR ALL LIFE!

The need for water is vital to life! The quality of that water is vital to the quality of that life.

Water for the Santa Maria Valley will play an ever important part in almost all future socio-political decisions. An understanding of the background of our water supply and those things which can be done to improve it is of utmost importance in how and why those decisions should be made.

Northern Santa Barbara County depends entirely on ground water for all of its needs. Fortunately, the Santa Maria Valley Underground Basin is large; estimated at 2.5 million ac/ft. (one acre foot of water = 326,000 gallons). The San Antonio Basin, which serves Vandenberg and parts of Lompoc, is not so fortunate. The Santa Maria Basin can be viewed as a large bank account (except, of course, no water is paid in interest!) into which rainfall runoff from the Cuyama River and the Sisquoc River sometimes makes a deposit. Only in very wet years that are considerably above normal does recharge greater than withdrawal occur.

The water users (borrowers from the bank) consist of two basic groups - i.e. Agriculture, which uses 80%, and the remaining 20% by Municipal and Industrial (M & I) of which the residential community is the major user.

The facts are that more water is drawn out of this underground basin each year than is recharged by rainfall. This creates an overdraft of about 20,000 acre/ft/yr. (or 6,520 million gallons/yr.) which is drawing down the surface elevation of the reservoir underground. Even though agriculture uses the vast majority of the water consumed, M & I pumping creates a special problem relating to quality.

Water, which is the most universal solvent in nature, will readily dissolve many salts. Since our resupply of water traverses many miles of riverbed and then percolates into the basin through porous soils, it continues to dissolve the salts it encounters enroute. These salts, known as Total Dissolved Solids (TDS), are the primary quality problem we face. Currently, City water is at TDS of 800 parts per million and rising at 10-20 ppm/year.

The major source of our purest water comes from deep percolation of the Sisquoc runoff and is found near the deepest bedrock ravine under Orcutt. This is why the City of Santa Maria and Cal Cities Water place their municipal supply wells there.

Since the pumping of City drinking water is continuous year round, the water surface of the basin under Orcutt is being depressed - currently about 80'. This depression causes additional flow from the Santa Maria River area and the westerly valley to migrate south and east toward this low spot. The river water (mostly from the Cuyama) has much higher TDS than the Sisquoc and foothill deep percolation waters which historically recharged our quality supply area. Thus, the continuation of over drafting exaggerates the quality problem for the domestic users in the Santa Maria - Orcutt area.

An alternative supply of quality water in an amount to reduce this pumping depression would greatly enhance the quality problem.

One large part of the quality problem stems from the portion of TDS which causes hardness of the water. To make this water more useable, most people use Ion Exchange Softeners which add about 12 - 13,000 tons per year of imported salt into the basin water supply. Each time the water is used, softened, and recharged, into the ground it continues this increasing cycle of more and more salt.

A Good Quality alternative source of water (such as State water with only 250/300 TDS or less) works on the problem in several very important ways.

1. Reduces overdraft
2. Reduces pumping depression
3. Drastically reduces the need for importation of salt for softening
4. Reduces plumbing and energy loss caused by TDS
5. Reduces energy loss by pumping from higher water levels underground
6. Improves health for domestic users
7. Improves short term and long term water quality
8. Protects agriculture from city dwellers.

An additional problem caused by the high TDS is the disposal of such waste water at the various Waste Water Treatment Plants. The high TDS must be reduced by edict from the State Water Quality Control Board and this will continue to pose a problem of treatment costs continually.

Water is an absolute necessity; we will pay anything it takes to have it! We need to strive to obtain the best "quality" water for the least cost in order to insure our valley's future as one of the finest places to live anywhere.

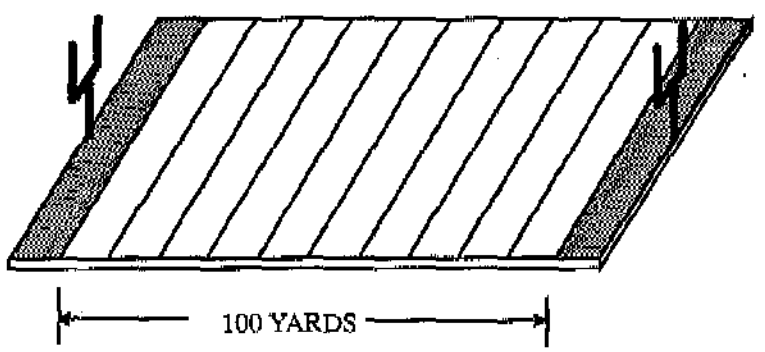
To do nothing (the no project alternative) will mean that an expensive water softening and treatment plant will be required by the State Health Dept. in about 10 - 12 years. Besides, costing $500 - $600/ac foot, none of the old problems will be resolved.

INTRODUCTION

1. Overdrafting will continue and increase
2. Pumping costs will continue to increase
3. Urban users will pressure agriculture
4. The treated water will still be poor (500 - 700 TDS)
5. Continued salt softening cycle and increases in importing of salt
6. Degradation of underground water supply will accelerate
7. Sea water intrusion may occur.

SO LETS DO SOMETHING! WE ARE FAR BETTER OFF TO IMPORT STATE WATER THAN TO CONTINUE THE EVER INCREASING IMPORTATION OF SALT!

WATER FACT



One acre-foot equals approximately 325,900 gallons, enough to fill a football field to a depth of one foot or supply the water needs of two families for a year.

WATER CONSERVATION

Conservation basically means reducing the amount of water used in agricultural, industrial and urban areas. While we will not discuss the industrial area, we will consider two major areas: agricultural and urban demands.

First, agricultural uses of available water has been placed at 80% as reported by the Department of Water Resources in 1983. The Rocky Mountain Institute places agricultural usage at 85% in their studies. Either way, it can be seen that agricultural uses of water to support the ever growing population are substantial. With continued growth and crop development figured until the year 2010, the Santa Barbara County Cooperative Extension estimates of 1985 indicate that we can expect a demand on the water supply that will create a deficit of approximately 8% annually during that time period.

In order to offset that 8% deficit, the traditional practices of crop rotation and drainage for soil conservation are not enough. Generally, they will provide at best 2% return. What is needed is an increased emphasis on the use of existing conservation techniques that are based in the following general areas:

1. Irrigation Methods - Based on individual crop and soil conditions.
2. Irrigation Scheduling - Established according to climate, time of year and current evapotransporation rates.
3. Rainfall - Taking advantage of Mother Nature's periodic contribution to crop irrigation needs.

When utilization of the above procedures occurs, as reported by the Department of Water Resources, an 8% annual savings in water usage can normally be expected. The Department of Water Resources, however, went on to say in their 1987 report, that through the use of system automation for irrigation, along with weather information provided by CIMIS, the California Irrigation Management Information System in the Santa Maria Valley, the water savings can be increased to 15% annually.

The second area of consideration for conservation of water is urban demand. The water demand in the home is broken into two major areas: (1) landscape usage outside the home and (2) personal usage inside the home.

According to a recent (1988) Los Angeles Times article, the estimated savings generated by conservation practices can be as high as 50% However, the daily usage is small when compared to agricultural usage. Whereas agricultural uses 80 - 85% of the daily water, urban use in the home is only about 3%.

Landscape requirements for the standard home is 400 - 500 gallons per day. For low density planting the average is 320 - 400 gallons per day. Basically, two methods can be used to generate savings in water usage. First, increased utilization of drought tolerant plants (in non-turf areas) for newer construction can reduce usage so that in some instances, irrigation of plants can be provided by existing rainfall only. Second, the utilization of automatic underground irrigation systems for turf areas can reduce outdoor use by up to 50% Once again, by utilizing the information available from CIMIS, proper scheduling of when and how much to water can reduce usage by 20 - 25% on existing home irrigation systems. With conservation, reduction to 230 - 280 gallons per day is obtainable, as per Jon Klusmire of the Rocky Mountain Institute.

Indoor usage can generally be reduced by a common sense approach to conservation along with the installation of some of the high tech appliances that are available today. Today, the average home uses 195 - 210 gallons internally per day. Typical usage is as follows:

On a daily basis:
toilets use 30%,
laundry uses 25%,
showers 20%,
drinking, cooking and hygiene at 15%,
washing dishes 3%.
However, leaks alone account for 7% of the daily use.

According to the Department of Water and Power in Los Angeles, in their forecast for 1988, with awareness and a common sense approach it can be seen that addressing the leaks alone can save 7% daily. Tim Skrove, of the Metropolitan Water District of Southern California reports that additionally, each one of the areas of usage can individually obtain as high as a 50% reduction through the utilization of today's high tech appliances: low-flush toilets, front end load washers and low flow shower nozzles to name just a few. When considering urban water usage, conservation through the methods noted above can generate overall annual reductions of 8 - 12%, as reported in April 1985 Department of Water Resources Study of Santa Barbara County.

These savings, coupled with the reductions possible from

ALTERNATIVES

agricultural usage could play a major role in better utilizing the rapidly diminishing fresh water resources available to us today. One of the contributing factors to the problem it would seem, however, is one of education. Only through the efforts of educational programs sponsored by organized governing bodies such as cities, Chambers of Commerce, etc. can we hope to make the public aware of the magnitude of the problem and the importance of the steps that they can individually and collectively take to address that problem. Water conservation is everyone's responsibility. We must all do our share to better share what we have.

WATER FACT

A leaky tiolet wasted six gallons of water daily.

WATER SAVING GUIDE

	CONSERVATIVE USE WILL SAVE WATER	NORMAL USE WILL WASTE WATER
SHOWER	Wet down, soap-up, rinse off 4 gallons	Regular shower 25 gallons
TUB BATH	May we suggest a shower?	Full tub 36 gallons
TOILET	Minimize flushing. Each use consumes 5 - 7 gallons	Frequent flushing is very wasteful
SHAVING	Fill basin 1 gallon	Tap running 20 gallons
BRUSHING TEETH	Wet brush. Rinse briefly 1/2 gallon	Tap running 10 gallons
ICE	Take only as much as you require	Unused ice goes down the drain
LEAKS	Please report immediately	A small drip wastes 25 gallons a day
ENERGY	Turn off light, TV heaters and air conditioning when not in room	Wasting energy also wastes water

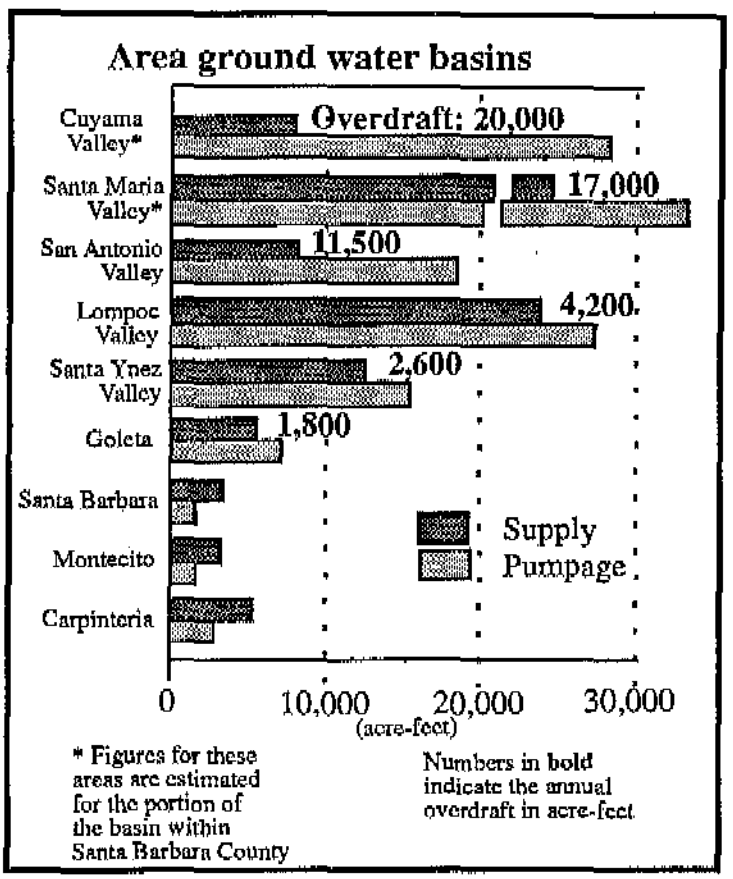
GROUND WATER RECHARGING VIA RECHARGE BASINS

The waters used in northern Santa Barbara County are pumped out of underlying ground water basins. These basins are presently overdrafted i.e. the average annual amount mined from the basins is greater than the amount which is naturally recharged by rain fall percolating downward into the basins.

There are only two ways to reach a balanced state. One is to reduce the amount used and the other is to increase the supply. One method used to increase the ground water supply in the Santa Maria Valley is increasing the percolation of rainfall into the ground via ground water recharge in basins or in the Santa Maria River bed. In order to better understand the concept of recharge basins it is necessary to discuss the fundamental concepts which explain it.

On undeveloped land early season rainfall soaks into the ground replenishing the moisture in the top few feet of soil. After the top soil layers become saturated additional rainfall will run off and pond in low points or reach a drainage channel where it travels downstream toward the ocean - generally saturating any previous soils underlying the channel. However, until the upper soils are totally saturated, the water will not continue downward into the ground water basin even if there is no impermeable layer preventing the downward migration. It has been determined that there is very little recharge of the ground water basin in undeveloped areas even if there are permeable soils below until total rainfall in a given year reaches 14 to 15 inches.

In the case of developed land, a reasonable percentage of the area is covered with impermeable surface materials (buildings, concrete, asphalt etc.). In general, water falling on these surfaces runs into surface or underground storm drainage systems which transport the water in impervious conduits downstream to some natural drainage system which ultimately carries the water to the ocean. It is obvious that collection of storm water runoff from developed areas and the transportation of it to a basin located in an area with highly permeable soils all of the way down to the ground water level facilitates ground water recharge from early season rains and, in general, results in recharge of the ground water basin far greater than occurs when rain falls on undeveloped areas. In this system, recharge occurs from all rainfall sufficient to create runoff and does not require replenishing the moisture in the topsoil over the entire drainage basin. It should also be noted that runoff from impervious surfaces in developed areas is generally of very good quality. It does not contain the high dissolved solids content of our natural rivers.



In the Santa Maria Valley much has already been done to increase ground water recharge. Twitchell Dam is used to collect and hold runoff from the Cuyama River. This water would normally run down the Santa Maria River and discharge into the ocean. Now it is released slowly after the rainy season where it soaks into the riverbed and recharges the ground water basin. It is estimated that the operation of Twitchell Dam in this manner

results in a recharge of approximately 20,000 acre feet per year. Runoff in the southerly portions of Santa Maria are collected into Simas and Adams Parks and transported to the LaBrea recharge basin. Runoff from the northerly portions of the Orcutt area are collected and transported into the new recharge basin located westerly of Stowell Road and southerly of Blosser Road. Much of the runoff from the easterly and northerly portions of Santa Maria along with agricultural tail waters are collected into recharge basins near the River just easterly of Highway 101 and in the basin near the north end of Blosser Road. Unfortunately, runoff waters carry fine soil particles. These particles settle out when the water stops moving and clog up the surface of the underlying soils. In order to continue recharging it is necessary to remove or break up this impervious layer with regular scheduled maintenance.

Retarding basins, which are basically used to reduce peak runoff flows, are required to be built into every new development in the Valley. These basins help in the recharge effort with incidental recharge (which occurs in the limited retention time in those areas underlaid with pervious soils) and by collecting and holding peak flows which might otherwise escape from the storm water collection and recharge system.

As is noted above, much is being done to recharge the ground water basin in the Santa Maria Valley. The system of collecting and transporting runoff to recharge basins and maximizing recharge by proper maintenance must be encouraged and enlarged in order to minimize the present overdraft of our ground water basins and allow time to bring supplemental water into the area.

WASTEWATER RECLAMATION

Wastewater reclamation is the planned reuse of wastewater for a beneficial use. The primary beneficial use in Santa Barbara County is the augmentation of water supplies by substitution of reclaimed water for potable water supplies.

The basic types of waste water which are available for reclamation are:

1. Municipal waste water.
2. Agricultural tailwater.
3. Oilfield brine.

Reclamation of municipal waste water is currently practiced in the North County, where 9 of the 10 treatment plants discharge their effluent either into land areas or ponds and streams, from where it is recharged into ground water and reused. However, 5 of the 6 plants in the south county discharge into the ocean, and the ability to reclaim the wastewater is therefore lost.

Agricultural tailwater is the portion of irrigation runoff and drainage that does not percolate or evaporate. After successive use, the content of salinity, herbicides, pesticides and fertilizers becomes substantial, and would require desalination as part of it's reclamation procedure.

Oilfield brine is presently disposed of through an ocean outfall in the Lompoc and Santa Maria areas. The salinity of the brine is within the brackish range, and would also require desalination of adequate treatment for reuse.

The use of reclaimed wastewater is dependent upon the quality of the product, and each step up in quality requires additional expense. The major uses in Santa Barbara County, in order of increasing quality requirements/cost are:

1. Agricultural Irrigation
2. Landscape Irrigation
3. Groundwater Recharge
4. Industrial Reuse
5. Direct Domestic Reuse

Agricultural irrigation accounts for over 80 percent of planned reuse in California. Historically, much use of reclaimed waste water for corp irrigation has been practiced in the Santa Maria Valley, upper Santa Ynez River Valley and the Lompoc area.

Landscape irrigation is the second largest category of reuse, and generally a secondary treatment and chlorination are required. Golf courses, cemeteries, parks and highway greenbelts are primary users.

Groundwater recharge with wastewater can be accomplished by two methods: surface spreading and percolation or direct injection, which is more expensive.

Industrial reuse potential is determined by water quantity and quality requirements which vary considerably with industry types. Practically all industrial users desire water of uniform quality and low chemical content, which is expensive to obtain.

Direct domestic reuse of wastewater is the most difficult to achieve technically, and is prohibited at present by the State Department of Health Services (SDHS). The first use of reclaimed wastewater would be to substitute it for the potable supplies now used for agricultural, industrial, recreational and landscape irrigation purposes. Only then would consideration be given to reclamation of wastewater for domestic use.

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SDHS requirements for reuse of wastewater include various levels of treatment and specific bacteriological criteria for various types of reuse. These include primary sedimentation, biooxidation, coagulation / clarification, filtration, disinfection. Even with proper treatment, reclaimed water is still high in total dissolved solids (TDS), mostly salts, and does not therefore aid in water quality.

Since most wastewater is already being reclaimed and reused via treatment plants and agricultural irrigation in the North County, the only increase in quantity would come from reclamation and reuse of the South Coast effluent. The entire sewered wastewater flow presently being discharged via ocean outflow in 18,900 acre-feet per year. However, estimated demands for reclaimed wastewater amount to only 9,325 acre-feet per year. An additional 2,200 acre-feet could be made available in the Lompoc area.

DESALINIZATION

One viable option for additional water for the Santa Maria Valley is through desalination. Desalination is/are the processes used to remove salt and other dissolved minerals from water. Other contaminants in water (e.g. dissolved metals, bacteria, and organics) may also be removed by some desalination processes.

Although California's Water Resources Director, David Kennedy, assured that sufficient water will be available in the state through the year 2010, two things are quite apparent, a) the water is not available to all locations, and, b) considerable money is now needed to expand existing systems not construct new ones.

Earlier in this report the over-draft condition and water quality in the Santa Maria Valley were discussed. It is obvious that additional water both in quantity and quality is needed. Desalination is an alternative, but an expensive one. The ocean is only about nine miles from Santa Maria and as a resource is unlimited in quantity. Building a desalination plant near the coast would not be overly expensive, but the cost per gallon for desalinating the water perhaps is. It could cost as much as $2000 per acre foot (versus $35 to $200 per acre foot from wells, canals, etc.). Many cities in Florida use the desalination process. The following was received from Peter R. Comean, Water Production Superintendent, city of Cape Coral, Florida.

"The City of Cape Coral has chosen a path utilizing only desalination. The technology of Reverse Osmosis (R.O.) is such that with deteriorating water quality your system (with no improvements) will be able to handle it. If there is severe deterioration, with minor improvements, the system will adapt. The original costs projections of R.O., were overstated, with the new advances in the technology, R.O., is becoming very feasible, as compared to conventional treatment. The quality of water is excellent. Although our State is tightening the restrictions placed on public water supplies, with R.O. you have no worries. The system can be set up, according to your feed water, to take out as much or as little as you require. Moreover, our product water is of such quality that we actually are able to "blend" raw water back in the product thereby increasing total flow of the plant yet not using the electricity or pretreatment needed to go through the membranes.

To recapitulate, we believe R.O. is the wave of the future. The quality, quantity and versatility of the treatment has no match. If you require any additional information, please contact me."

It should be mentioned that Cape Coral does not process ocean (or Gulf) water but rather a very brackish water in their aquifer. Total cost to process water there is estimated to be $5.26 / 1000 gals. or $1,714 / acre foot.

A consideration must be costs of a desalination plant and tranmission of the water to Santa Maria versus the costs of installing and operating a coastal aqueduct from Kings County tie-in at the California Aqueduct some 87 miles away. Ocean water will always be available. Will water from the California Aqueduct always be available?

Concensus of water experts indicate that of all water purification systems, desalination is the most expensive.

IN-LIEU PROJECTS

SCOPE: This report will look at potential local water projects for Santa Barbara County which would provide additional water to the five subareas of the County. These subareas are:

1. Cuyama
2. Santa Maria
3. San Antonio
4. Santa Ynez
   a. Upper - Santa Ynez Valley

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b. Lower - Lompoc Valley
5. South County

The data for this report is based on a study by Department of Water Resources, dated April 1985, titled "Santa Barbara County State Water Alternatives."

PROJECTS BY SUBAREA:

The following local projects have been selected as the most practical potential water options within Santa Barbara County. Each project is sized to provide an equal amount of water to the subarea as the State Water Project (SWP) entitlement would provide. Some of these local projects may not be economically feasible or desirable from a water quality or other standpoint.

I. CUYAMA SUBAREA: (1,600 AF/Y*)

Santa Barbara Canyon Reservoir - two possible sites in this area would provide 1,500 AF/Y at a local cost of $3,083 / AF. Cuyama subarea would still have an overdraft of nearly 20,000 AF/Y with this project. Construction cost: $36 million.

II. SANTA MARIA SUBAREA: (16,850 AF/Y)

A. Round Corral - this option proposes to build a dam on the Sisquoc River to develop a reservoir which would provide a maximum of 6,700 AF/Y for ground water basin recharge (similar to existing function of Twitchell Reservoir). Construction cost of 83.3 million with a water cost of $902/AF.

B. DESALINATION - could provide from 10,000 AF/Y to full entitlement of 16,850 AF/Y at a construction cost of $46 to $74 million and water cost of $1143/AF.

III. SAN ANTONIO SUBAREA: (23 AF/Y)

While the town of Casmalia has a SWP entitlement of 23 AFY, there are no viable local project alternatives for this subarea.

IV. SANTA YNEZ - UPPER SUBAREA: (2,580 AF/Y)

This area includes the communities of Santa Ynez, Los Olivos, Ballard, Solvang and Buellton.

A. Cachuma Reservoir plus conjunctive use - to provide 3,500 AF/Y, this project would entail the drilling of 22 new wells and the modification of existing reservoir operations to provide a more efficient delivery of surface water during drought years. Construction cost - $6.9 million and water cost of $76/AF.

B. Cachuma Reservoir enlargement - (maximum potential of 17,490 AF/Y) - the raising of Cachuma's existing dam by either 27, 33 or 42 feet would provide substantial increases in availability of surface water and therefore the Department of Water Resources is conducting a feasibility study on this project. Increasing the dam by 42 feet and incorporating conjunctive use involving 32 new wells would provide the maximum of 17,490 AF/Y. Construction cost - $90 million and water cost of $171 AF.

The added yield of any Cachuma enlargement would be shared by the South Coast, Upper Santa Ynez and possibly the Lower Santa Ynez subarea.

V. SANTA YNEZ - LOWER SUBAREA: (12,000 AF/Y)

Also known as the Lompoc Valley, this subarea includes the communities of: Lompoc, Vandenberg Village, Mission Hills and VAFB.

A. Lompoc pipeline - with the addition of this pipeline from Cachuma reservoir to Lompoc, the Upper Santa Ynez subarea alternatives could be utilized for this subarea. Additional project cost would be between $16 and 26.7 million at a water cost of $498 AF.

B Salsipuedes Reservoir - (2,850 AF/Y) - this project consists of building a 170 foot high earthen dam at Salsipuedes Creek (5 miles east of Lompoc). Project cost - $33.5 million and water cost of $922 AF.

C. Desalination - (6,400 to 12,000 AF/Y) - despite its high cost, this option is considered a potential source because of a limited number of water supply options for this subarea. Project cost - $54 million and water cost of $1,054 AF.

VI. SOUTH COAST SUBAREA: (12,435 AF/Y)

Includes the cities of Goleta, Santa Barbara and their surrounding communities to be served.

A. Cachuma enlargement of Bradbury Dam - to 27, 33 or 42 feet as previously discussed.

B. New Gibralter Dam - As previously discussed.

C. Goleta water re-use (phase I & II) - up to 2,800 AF/Y of potable water would be available thru upgrading of the Goleta Sewage Treatment Plant. Under phase I, secondary

treatment facilities would be added to the existing plant to provide an effluent suitable for irrigating landscapes and golf courses. Under phase II improvements, further desalting capacity would provide a blended effluent suitable for irrigating orchard crops such as avocados and lemons. Project cost - $12.8 million and water cost of $1,737 AF.

D. Desalination - (12,435 AF/Y) - currently under study by the City of Santa Barbara, this options could provide the full amount of SWP entitlement; but at a high cost. Project cost - $56 million and water cost of $1,100 AF.

*State Water Project Entitlement

STATE WATER

Santa Maria Valley has an annual water deficit of approximately 20,000 acre feet.

Along with better water utilization, recharge basins, conservation and better control of agriculture drainage, this valley has an opportunity to import water under the STATE WATER PROJECT (SWP).

Since 1963 Santa Maria and the County of Santa Barbara has paid the State of California for entitlement to about 50,000 acre feet of imported water. Santa Maria's share is 11,200 acre feet annually, which would take care of our current domestic demands.

State Water will provide a very clean, "soft" water supply for home use (approximately 250 - 300 parts per million of total dissolved solids). This would virtually do away with water softeners, extend the life of water heaters, dish washers and all domestic plumbing. Additionally, the discharged salt from the water softening process that goes back into the waste water process, and ultimately into the water basin, would be eliminated.

While water quality in the groundwater basin will probably continue to decline due to agricultural irrigation, importation of SWP Water with its lower total dissolved solids level would help offset this decline to some extent. Blending of high quality SWP water into local supplies will improve water quality to local residents. Seventy-thousand acre feet of imported water from the SWP will be supplied to San Luis Obispo and Santa Barbara Counties through an eighty mile pipeline ending at the Santa Maria River.

The cost of this project is substantial and will result in higher water bills for all Santa Maria Valley residents. The delivered cost will be approximately $600 per acre foot, and would more than double our current water cost. In spite of the high cost, State Water has been judged to be the lowest cost of all possible alternatives programs. Part of the cost will be recovered in savings on water softeners and increased life of appliances and plumbing . . . also, detergents and other washing additives. Under normal rainfall and snow pack conditions, the State will be able to meet all water delivery commitments throughout Southern and Central California.

However, there would be times, when several consecutive years of substandard precipitation would cause reduced deliveries to water users. If that happens, Santa Maria Valley households would draw their water from the water basin that has served the community over 100 years. Even under these adverse conditions, it has been projected that approximately 75% of the contracted water amounts would be delivered to our Valley.

The benefits of additional water from SWP are so great that they far out strip the additional costs and the possibility of reduced amounts delivered from time to time.

NO ALTERNATIVE SCENARIO

A review of projected consequences of no supplemental water supply being taken advantage of, for the Santa Maria Valley, will reveal several serious areas of concern. They are:

1. Continued degradation of current water supply.
2. Long term effect on agricultural policies.
3. The real possibility of severe water rationing.
4. Long term water rate escalation.

Regarding continued degradation of current water supply, a previous section of this publication outlines the general problems of high TDS (800 - 850 ppm), salt regeneration and recharge efficiency problems. Further comment is necessary to insure the readers understanding of the serious problems and costs involved with continuing with the absence of low TDS supplemental water. As outlined previously, the State of California mandates that as the TDS of a communities water supply reaches a continuing level of 1000 TDS, the community must, at their own expense, install and operate a filtration / treatment facility. The least expensive facility to produce a TDS output of 500 TDS is on the order of $40,000,000, initial cost of construction. Ongoing operating costs per acre foot would be $500 / $600, all of which would have to be passed on to the user. A conservative estimate would show these capital and operating costs would add

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something on the order of $35/$40 to the average users monthly cost for water.

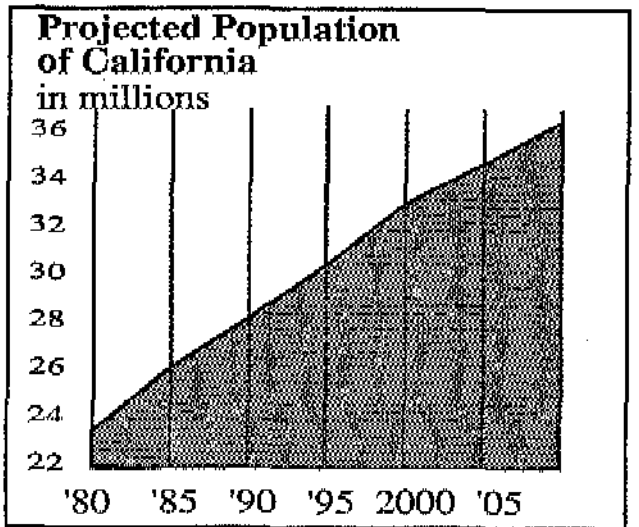
The second area of concern that would be exacerbated by not taking advantage of supplemental water, is the long term effect of agricultural policies in the county. This is a complex and all to real problem for which we have present day examples to draw conclusions from.

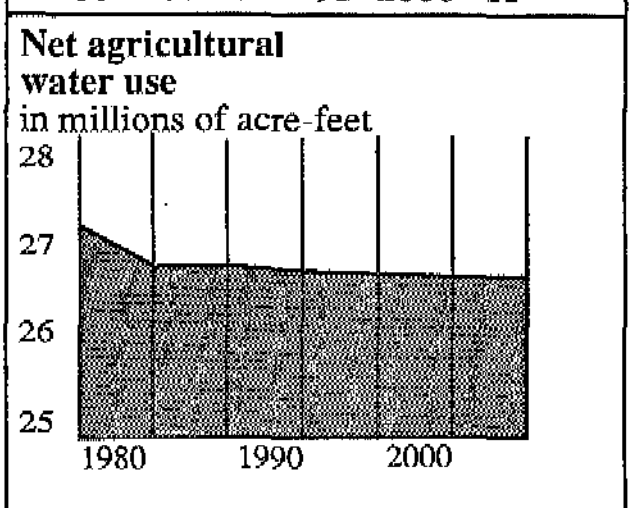
Historically agriculture has been a major economic contributor in the Valley. More subjectively many residents, old and new, see the agrarian aspect of our valley as important features of the environment and ambiance of the area, in otherwords, a major positive contributor to the quality of life.

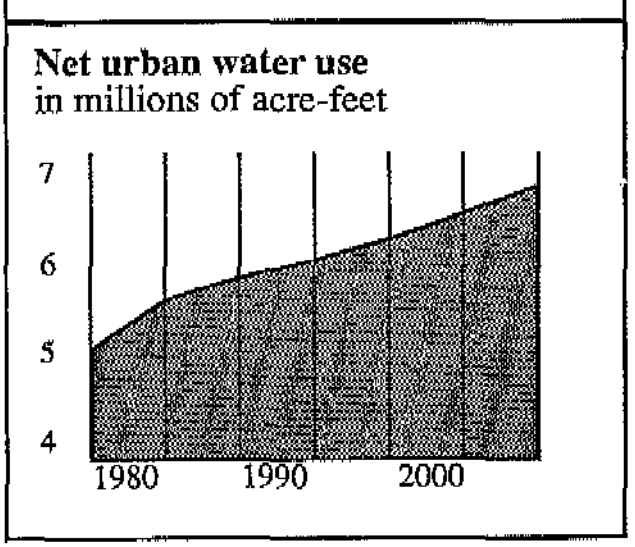
According to studies in recent years (1984), it can be shown that approximately 85,000 acres of land were under irrigation in 1975. By 1980, irrigation acreage had increased to 94,000 acres. Much of the increase is in the orchards (avocados in the south county and vineyards in the north county (Santa Ynez, San Antonio and Santa Maria). These studies indicate that projected irrigated agriculture will increase thru the year 2010, to approximately 100,000 acres. Continued pressure for water usage in agriculture, which uses 80% of our valley's water supply, with no supplemental water source, could very probably lead in time to a change in historical policy regarding agricultural land use. Continued overdrafting and ever rising costs to apply water to the crops, could result in a trend to reserve land use to urban usage. An example of this trend is already apparent in the Goleta Valley, where a moratorium on new water usage has forced significant shrinkage of agricultural usage. In addition our county government is pushing for metering of all agricultural pumping. Remember 80% usage by agriculture and 20% usage by urban acres.

Our concerns are highlighted from what history has demonstrated in the Goleta Valley. Specifically, Goleta through a "no state water" alternative has seen its agricultural lands converted to residential/commercial developments for purpose of providing additional water sources to the Water District. Additionally, as the conversion of agricultural lands did not provide "adequate" water supplies, the Goleta Water Board implemented a policy of mandatory water rationing and currently it has been proving an increase in water rates of over 300%. Notwithstanding the foregoing water policies being implemented in the Goleta Valley, is still in a state of drought and unable to make full deliveries of water.

A thorough study of this area of the water usage problem, fully supports energetic activity to quickly take advantage of the most cost effective supplemental water supply currently available to us.





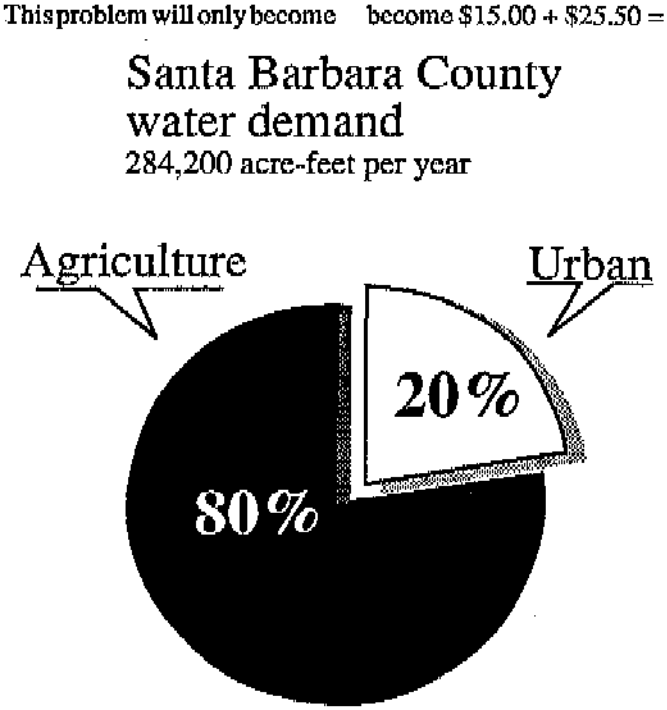


ALTERNATIVES

The spectra of water rationing is a very real and possible condition. Our neighbors to the north, in San Luis Obispo County, are already experiencing the early requirements of such a conservation measure. This problem will only become more severe with continued low rates of natural replenishment, and abandonment of viable alternative sources.

Several other factors can exasperate the rationing problem, eg. the ever increasing rise in TDS, which will in itself force us by state mandate, into very expensive water treatment requirements. This is the same cost that could be directed at good clean supplemental sources of water.

Even if there was zero growth in population and zero growth in agricultural usage in the next decade, with no supplemental water sources, the cumulative overdrafting of approximately 20,000 acre feet per year of our underground aquifer, will guarantee severe water rationing, plus expansive pre-treatment and effluent treatment costs, all of which will have to be borne by the urban water user.



The fourth area of concern is what can be projected in regards to water rates in general in the no alternative scenario. The elements that go to make up the monthly costs are generally as follows:

1. Per acre foot cost of the available water. (Well head costs)
2. Distribution costs.
3. Reserve allocation costs.
4. Administrative costs.

Additional "hidden" costs as they relate to our specific Valley conditions are:

Hard water costs

a. Water softening = $17.00
b. Bottle water = $5.00
c. Plumbing life span and
d. Water usage appliance life span, = $3.50

The four basic costs of water as outlined in 1- 4 above equate at present in the City of Santa Maria to an average city water bill of $15 / month.

To factor in the additional costs (A-D above) of high TDS (hard water) adds another $25/$26, now the real water costs become $15.00 + $25.50 = $46.50 / month.

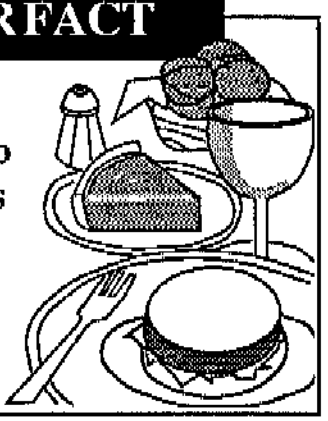
When we then consider the ultimate cost of a filtration / treatment plant we can expect in the near future to see an additional charge of something on the order of $40 / month added to current costs, for a total average monthly bill of $80.50.

With the completion of the DWR study and EIR report currently scheduled for completion in draft form in Oct / Nov of this year, we will have a current accurate estimate of SWP Costs. In the meantime a reasonable per acre foot cost for SWP has been established at $500 / acre ft. this would equate to approximately $25 for an average monthly city water bill, much lower than the cost of a no alternative cost as outlined above.

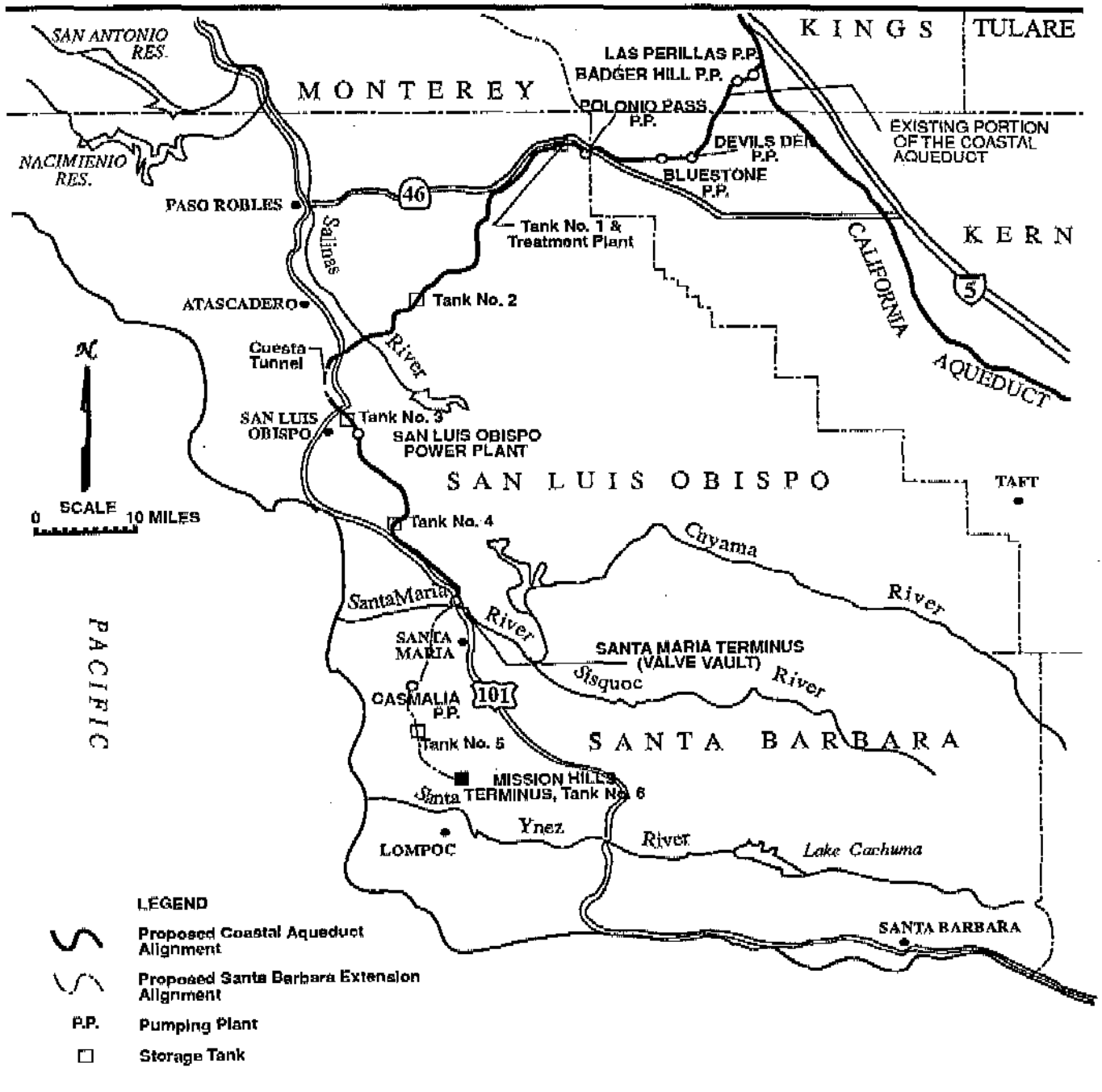
In addition to the lower monthly cost, imported water provides the opportunity for an immediate solution to the overdrafting problem. In good rainfall years, the aquifer will have the opportunity to replenish itself thru good groundwater management, and a natural purifying effect would be ongoing. In addition the trend will be toward reducing the hidden costs due to high TDS and effluent salting.

WATER FACT

It takes 4,500 gallons of water to produce one day's meals for one person.



STATE WATER PROJECT



PROPOSED COASTAL AQUEDUCT AND SANTA BARBARA EXTENTION

STATE WATER

In 1959, the California Legislature enacted the first legislation which ultimately resulted in the State Water Project. A comprehensive water development program had been formulated in the 1950's in recognition of the inability of local water sources to satisfy the growing demand across much of the state.

1959 saw the formalization of the State Water Project under the leadership of then Governor Edmund G. "Pat" Brown. The plan and the bonds which provided funding for it were approved by the voters of California with the passage of the California Water Resources Development Bond Act in November of 1960. The voters of the State, County of Santa Barbara, northern Santa Barbara County, and the City of Santa Maria each voted approval of the Project.

The Bond Act authorized the construction of various dams, reservoirs, hydroelectric power plants, pumping stations, canals, and so forth, including the construction of the Coastal Aqueduct. Construction of the major facilities started in the early 1960's and initial structures were completed in the late 1970's, except for the North Bay Aqueduct which was completed in 1988, and the Coastal Aqueduct, which will bring water to us.

Many of the water purveyors which were involved in the Project started to receive water from the facilities soon after completion. Others, such as Santa Barbara and San Luis Obispo Counties, chose to delay water delivery until the need for supplemental supplies was greater. In 1986, the City of Santa Maria, in concert with other North County entities and the County of San Luis Obispo, asked the State of California to begin the preliminary engineering study and the environmental review process.

This request was the result of several hearings held by the Santa Maria City Council, which explored the water supply problems of the city and the options which were available to the city to solve these problems. The consensus of the City Council was that the State Water Project offered the most cost-effective dependable source of high quality water for Santa Maria.

The environmental review process for the Coastal Branch was begun toward the end of 1986 and is scheduled for completion toward the end of 1989. The State of California is the lead agency conducting the review. At the completion of the preparation of the draft document, it will be distributed to interested parties and the general public for comment. This review process will take several months, after which the final Environmental Impact Report will be available for certification. The Environmental Impact Report, along with the information available from the Engineering Design Study (being done concurrently by the State), will provide Santa Maria and other water purveyors with the best possible information with which to make a final decision about the State Water Project. If the City Council (or any other water purveyor signatory to the Water Retention Contract) decides that the State Water Project is the most cost-effective solution to our water problems, they may direct the State Department of Water Resources to proceed with the construction process. It is important to note that any water purveyor may initiate the construction of the Coastal Aqueduct by notifying the State that they wish to do so. That right is reserved for the individual purveyors in the Retention Contracts between the Santa Barbara Flood Control and Water Conservation District and the purveyors. Once a purveyor asks the Flood Control District to direct the State to begin the construction process, each other contractor has six months to either participate in the project, or to lose the opportunity forever.

Each purveyor has the right and the responsibility to determine how they will conduct the process of choosing whether or not to participate in the State Water Project. In the case of private water companies, each will ask the County to conduct an advisory election before making the final decision. It is not clear whether the election can be binding on the private company. Public entities, such as cities and water districts, must hold elections if they plan to issue bonds to fund local improvements necessary to complete the project. They do not have to hold elections if they have funds available for the construction of the local improvements. For example, the City of Santa Maria, through the course of public hearings, determined that some type of facilities would be necessary in the future to remedy the deteriorating condition of our water supply. The Public Works Department and the Finance Department projected the future costs of such facilities and calculated the amount of money we would need to set aside each year to fund the improvements. The City Council approved a 5.5% surcharge on water bills in order to pay for the facilities. As a result, the City will not have to borrow money to pay for them. Even if the City Council chose not to pursue the State Water Project option, some sort of water quality improvement project will be necessary, and the funds will be available for that project when needed.

DEPENDABILITY OF "STATE WATER PROJECT" WATER DELIVERY

The water which is delivered by the State Water Project originates in the Sierra-Nevada Mountains of Northern California. Large rivers, such as the Feather River, produce the water which is captured by dams and held for release into the Sacramento River. This water flows into the Sacramento River. This water flows into the Sacramento Delta. Downstream, a portion of the Delta water is pumped out and into the California Aqueduct, which parallels Highway 5 south all the way to Lake Perris east of Riverside.

The State Water Project was designed to catch, hold, and deliver just over four million acre-feet of water annually. Because such facilities are expensive to build and because the capacity of the project was calculated to meet water needs into the future, not all the facilities were built during the initial construction. Presently, the project can deliver about two and one-half million acre feet annually. In order to meet contractual commitments, additional facilities will be necessary as those contractors demand water. Such facilities are presently under study.

Of the active contractors, the Metropolitan Water District in Southern California and agricultural users in the San Joaquin Valley are the two biggest customers. Approximately forty percent of the water delivered annually by the State Water Project is used by agriculture. This use by agricultural interests was anticipated and welcomed by those who designed the State Water Project, and, in fact, has been a boon to the San Joaquin Valley where hundreds of thousands of acres of previously unusable land have been converted to productive farmland. The farming interests are able to buy water as contractors, as well as surplus water from the project less expensively than they can pump water from groundwater basins.

This windfall for agriculturists is not absolutely secure, however. The State Water Project was intended primarily for urban/industrial users, with agriculturists being secondary beneficiaries. The State Water Contract distinguishes between the two types of users as follows:

Article 18. SHORTAGE IN WATER SUPPLY

(a) Temporary Shortages; Delivery Priorities

"In any year which there may occur a shortage due to drought or other temporary cause in the supply of project water available for delivery to the contractors, with the result that such supply is less than the total of the annual entitlements of all contractors for that year, the State shall, before reducing deliveries of project water to all contractors, reduce the delivery of project water to each contractor using such water for agricultural purposes by a percentage, not to exceed fifty percent (50%) in any one year or a total of one hundred percent (100%) in any series of seven consecutive years, of that portion of the contractor's annual entitlement for the receptive year which is to be put to agricultural use as determined by the State: Provided, that such percentage shall be the same for all such contractors. The maximum total reduction in deliveries allowable under the above provision shall be made before any reduction is made in project water deliveries for other uses. Any necessary reduction in deliveries of project water beyond said maximum total reduction allowable under the foregoing provision shall be apportioned among all contractors irrespective of the uses to which such water is to be put. In such event, the State shall reduce deliveries to each contractor in an amount which bears the same proportion to the total amount of such necessary further reduction that the contractor's annual entitlement bears to the total of the annual entitlements of all contractors for that year, all as determined by the State: . . ."

The essence of this section of the State Water Contract is that agricultural users must bear the first fifty percent (50%) reduction in water delivery before urban/industrial users experience any cut back at all, and then each would suffer equal reductions. The urban/industrial users enjoy substantial protection from interruption as a result of this provision. In fact, in the more than two decades since State Water Project water was first delivered, no substantial interruption has been experienced by any urban/industrial contractor. In the course of our present drought, no urban/industrial user of State Water Project water has suffered any reduction in water delivery, although customers using Cachuma Lake water are being cut back 20%. During the severe drought of 1976-77, a reduction of only 10% was necessary in State Water Project water deliveries. In addition to the excellent historical reliability of the State Water Project, the introduction of "new" water into the Santa Maria groundwater basin will tend to reverse the degradation of water quality and will reduce the overdraft presently occurring in the basin. However, one of the most important advantages the importation of State Water Project water will provide is the new source it will afford.

STATE WATER PROJECT

Presently, we have only a single source of water, and that is our groundwater basin. When we introduce State Water Project water into the valley, we will use it as our primary source of water. If delivery of State water is ever curtailed, we will still have our groundwater basin to draw from, and the basin will be in better condition that it is now because of our use of State Project water in the interim as our primary source. We will have two sources of water instead of only one. This dual source advantage is very important, not only in case of drought, but also in case of further contamination of the groundwater basin we presently rely on as our sole source of water.

"Quality of State Project Water"

		Monthly Average	Average for any 10yr Periond	Maximum
Total Dissolved Solids	ppm.	440	220	-
Total Hardness	ppm.	180	110	-
Chlorides	ppm.	110	55	-
Sulfates	ppm.	110	20	-
Boron	ppm.	0.6	-	-
Sodium Percentage	%	50	40	-
Fluoride	ppm	-	-	1.5
Lead	ppm.	-	-	0.1
Selenium	ppm.	-	-	0.05
Hexavalent Chromium	ppm.	-	-	0.05
Arsenic	ppm.	-	-	0.05
Iron & Manganese	ppm.	-	-	0.3
Magnesium	ppm.	-	-	125
Copper	ppm.	-	-	3.0
Zinc	ppm.	-	-	15
Phenol	ppm.	-	-	0.001

"STATE WATER PROJECT" WATER QUALITY

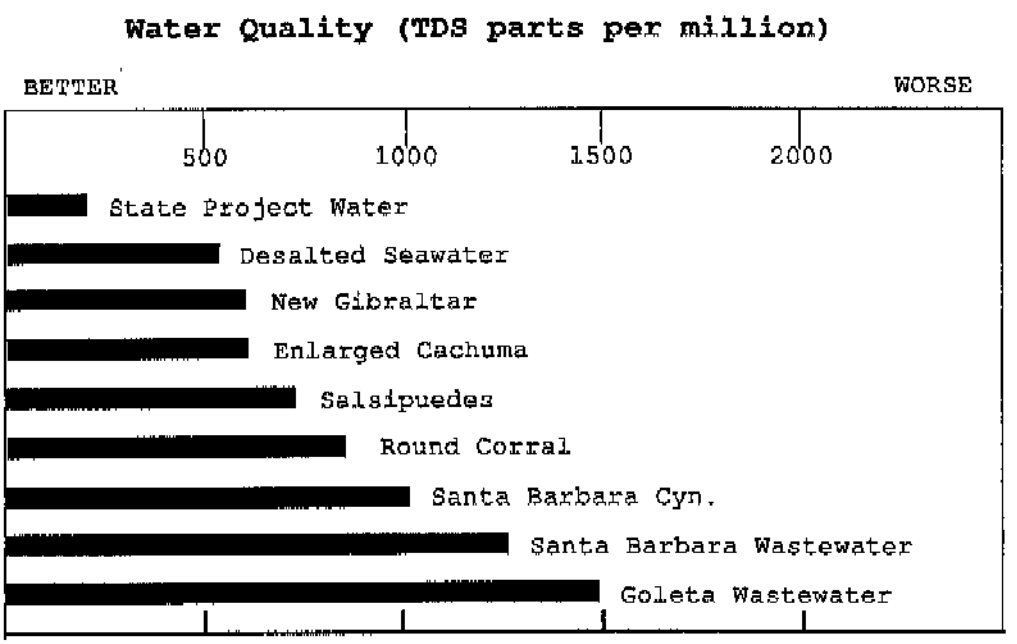
The subject of State Water Project water quality has been discussed at length in many forums. Many misstatements have been made, and much misinformation disseminated. The best source of accurate information about the quality of the water is the State Water Supply Contract itself:

Article 19. Water Quality

(a) Table of Water Quality Objectivies

"It shall be the objective of the State and the State shall take all reasonable measures to make available, at all delivery structures for delivery of project water to the Agency, project water of such quality that the following constituents do not exceed the concentrations stated as follows:"

The first two constituents are the most important for our consideration. The Total Dissolved Solids cannot exceed 440 ppm in any one month and cannot exceed 220 ppm as an



average for any ten (10) year period. The Total Hardness is limited in a like manner, affording the user a continuing source of very high quality water. In the years the project has been delivering water, no significant violation of these limitations has taken place.

Since the aqueduct which presently transports State Water Project water to the end of the Coastal Stub is open to the elements (the Coastal Aqueduct will be a closed pipe), the water requires local treatment before it can be served to the public. This treatment consists of filtration and chlorination and will be accomplished at a regional treatment plant in northern San Luis Obispo County. This treatment plant will be built and operated as a cooperative effort amongst all the participating purveyors in San Luis Obispo and Sant Barbara Counties. The treatment will be tailored to provide the highest quality water possible.

THE COST OF "STATE WATER PROJECT" WATER

In 1985, the Department of Water Resources published the results of a study called "SANTA BARBARA COUNTY STATE WATER PROJECT ALTERNATIVES". This study was a cooperative effort between Santa Barbara County and the State of California. The study examined various supplemental water alternatives available to each water purveyor in Santa Barbara County. One of the aspects of each alternative studied was cost. Although actual numbers may change as years pass, the cost relationships amongst water alternatives stays the same. (The only times these relationships might change would be if there was a breakthrough in desalination technology, major changes in energy costs, or similar events). This study determined that the costs of the three most practical alternatives for the Santa Maria Valley were:

1. State Water Project $430.00 ac / ft
2. Round Corral Reservoir $1,467.00 ac / ft
3. Desalination of Seawater $1,806.00 ac / ft

(Assumes no "in lieu" funding for the local projects)

Adding the cost of local treatment facilities construction, operation, and maintenance for the State Water Project water would bring the cost up to $600 - $650 ac / ft.

To compare the cost of State Water Project to no importation of additional resources one only needs to make a few simple calculations.

Since the typical valley single family residence uses less than 1/2 acre/feet per year (1815 cubic feet per mo. as reported in Santa Maria Project Assessment Manual, Oct. 1983), the water bill with 100% state water would be: ($620.00 / 2) /12 = $25.83 per month.

Currently the same City of Santa Maria bill for 1/2 acre foot per year is $15.50 per month.

So what a bargain! An increase of 70% (10.78/mo.) will provide a savings of $65.50/mo. in avoided treatment plant, softeners, bottled water, and plumbing costs (see pages14/15). Therefore with out state water the monthly bill is on the order of $80.50/mo. (1985 $) and with state water only $25/$26 (1985 $).

Although it is the least expensive, the transition from our present groundwater usage to State Water Project water would increase the customer's water bill substantially. There are several offsetting factors which effectively negate the change. First, home softening will no longer be necessary except for the most particular water user. Second, most people who are presently using bottled water for various reasons will no longer find that expense and inconvenience necessary. Thirdly, the shortened life expectancy of plumbing fixtures which results in premature replacement will be eliminated, thus saving substantial amounts of money. In addition to these direct savings to water users, the taxpayer will also save money, in that the city will be able to avoid the cost of premature replacement of the water distribution system. This cost runs into the hundreds of thousands of dollars every year. The end result of these direct cost savings is that the water user will pay no net increase for much higher quality water.

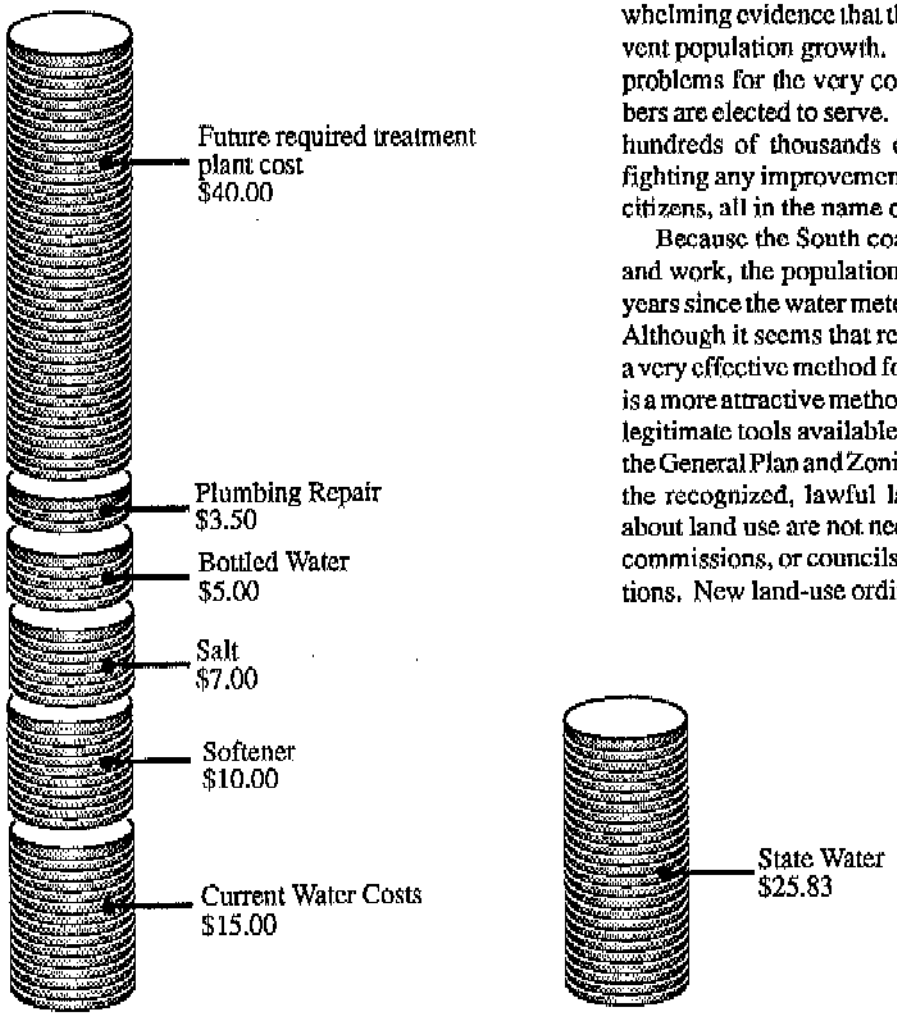
SUPPLEMENTAL WATER AND GROWTH

The essence of the opposition to the importation of State Water Project water is the fear by anti-growth advocates that any new source of water will permit and encourage the

growth of business and population. The reciprocal of this argument is that if you restrict a vital commodity such as water, you can restrict growth over the long term. The result of this theory put into practice can be seen in the Goleta Valley, where a water meter moratorium has been in effect since the early 1970's. During that time, with a few isolated exceptions, no new water service has been offered by the Goleta Water Board. The Board of Supervisors, however, were permitting some development to take place. These developments, without water meters, built their own private water systems. A proliferation of private systems aggravates the groundwater overdraft problem and prevents effective management of the groundwater basin.

At the same time, no new sources of water have been sought or secured, and in fact, every opportunity to gain new water sources has been resisted. In some cases, the Goleta Water Board has filed suit against various citizens, water agencies, cities, and even the County of Santa Barbara, in order to prevent others from securing new sources of water. This concerted effort has, at the same time, provided overwhelming evidence that the restriction of water does not prevent population growth. In fact, it creates a tangled web of problems for the very constituency the Water Board members are elected to serve. The Goleta Water Board has spent hundreds of thousands of taxpayer dollars in legal costs fighting any improvement in the delivery of water to Goleta citizens, all in the name of preventing growth.

Because the South coast is a very desirable place to live and work, the population has increased dramatically in the years since the water meter moratorium was placed in effect. Although it seems that restricting the supply of water is not a very effective method for controlling population density, it is a more attractive method to anti-growth advocates than the legitimate tools available to elected and appointed officials; the General Plan and Zoning Ordinances. Although these are the recognized, lawful land-use planning tools, decisions about land use are not necessarily permanent. New boards, commissions, or councils can change General Plan designations. New land-use ordinances defining zoning, and therefore the intensity of activity permitted, can be enacted, and this is discomforting to anti-growth people. However, the orderly growth of a community's population and business activity is rightfully controlled by the use of these land-use planning tools. To withhold a vital resource to further a specific political philosophy and thereby injure the whole of the community is not only wrong, it is immoral. Elected and appointed officials, by virtue of their offices, are obliged to provide adequate resources to their constituencies, and to then use them wisely.



WATER COST COMPARISON

AGRICULTURAL WATER OVERVIEW AND ITS RELATION TO THE STATE WATER PROJECT

I. Introduction

Santa Maria Valley residents share both land and water with agriculture. Local farmers grow fruits and vegetables on approximately 45,000 acres of farmland. Because of the lack of regular rainfall, the production of these "row" crops is dependent upon irrigation. The extraction of agricultural groundwater is achieved through a network of several hundred privately owned wells used by the overlying landowners for farm irrigation. Farmers obtain this water by first drilling wells on their land to tap in to the groundwater basin. Electrical pumps must then be installed to lift the water to the surface. Finally, various irrigation techniques are used to apply this water to the crops. Without this water the farming of virtually all of the high income specialty crops characteristic of Santa Maria Valley agriculture would become impossible.

The production of these "row" crops in the Santa Maria Valley each year generates approximately $350-million dollars into the local economy. Much of this money is imported into the Santa Maria area from the sale of these products throughout the United States and Canada. Moreover, agriculture provides employment opportunities for over 12,000 workers, representing an annual payroll of over $138-million dollars. As the largest single industry in Santa Barbara County, agriculture is the "engine" which propels the economic development of the Santa Maria Valley. Without water, this engine will run out of fuel. The tradition of agricultural land use and the economic wealth it creates for the Santa Maria area would be lost.

II. Agricultural and Urban Water Use Compared

Agriculture occupies the majority of the surface area within the Santa Maria Valley and likewise uses the majority of the groundwater under that land. Most estimates place current agricultural water use at 80% of the total amount. Municipal and industrial use comprises the remaining 20%. This ratio is likely to change in the next 25 years.

There are two primary reasons for this anticipated change. It can safely be assumed that the population of Santa Maria will continue to grow, which will spur increased economic activity. More people and new businesses will require more water, thereby increasing the demand by municipal and industrial users for water.

At the same time it appears that overall agricultural usage may remain constant or even decrease. The development and introduction of new irrigation techniques will result in less water being used per crop acre by farmers. This water savings may be offset to some extent by increases in irrigated farmland or multiple cropping of the same land.

It is difficult to foresee all of the developments or accurately predict future agricultural usage. However, in the next 25 years it is most likely that the urban demand for additional water will outpace agriculture's growth requirements regarding water. This may mean that the 80:20 ratio of agricultural to urban use may change to reflect a more evenly balanced ratio by the year 2015.

III. The Economic Importance of Conserving Water to Agriculture

The drilling of agricultural water wells and the pumping of groundwater to the surface is a cost of production that farmers must absorb. The operation of these pumps requires a great deal of costly electrical energy which the farmer must pay for. As water levels decline, more energy is needed to lift the water from deeper levels, thereby increasing these costs. Furthermore, when the water table goes down too far, the wells themselves may not reach these levels and will pump air. These wells must then be deepened or redrilled altogether. This represents a major expense to the farmer. As can be seen, it makes economic sense for farmers to conserve their water and use as little as possible. The farmer who minimizes his water usage in turn reduces his monthly energy bill. He also avoids the danger of drawing down the water table through heavy pumping.

The research and development of new irrigation techniques is changing agricultural water use practices. In the past 10 years many farmers have been able to use less water without cutting production through these new irrigation techniques. Examples of these are the use of sprinkler pipes

and drip lines, both of which are replacing traditional furrow irrigation. Using these new methods water is applied directly to the root zone of the plant thereby avoiding the loss of water through evaporation and run off. Due to the fact that these new irrigation systems use less water they become cost effective for the farmer who can pay for these systems through savings in pumping costs. It is anticipated that farmers will continue to adopt new irrigation techniques that will result in more efficient water use.

IV. Agricultural Water Problems

Agricultural water problems can be classified into two main areas; those dealing with quality and those pertaining to quantity.

1. Quality

The quality of the water within the Santa Maria Valley groundwater basin is deteriorating. The salinity levels in the water are increasing at an alarming rate. Water with high salinity content becomes a problem for agriculture because it cannot be used for certain salt sensitive crops. An example of this problem is found in the Lompoc Valley where crops have been "burned" and yields reduced due to the high salinity of the groundwater within that basin.

High salinity also increases the amount of water that must be used by agriculture. Farmers must periodically leach the soils of these accumulated salts. This is accomplished by flooding a field with water. This necessary "leaching" practice in turn requires more water which aggravates the overdraft.

2. Quantity

The continued overdrafting of the basin will result in all users competing more intensely for the available water. This will create pressures on agriculture to subordinate its use to the needs of the urban population. If there is not enough water to go around, priority will be given to human consumption over the growing of crops. Agricultural water use will be viewed as non-essential and thus can be sacrificed to maintain the quality of human life.

Any water shortage will thus affect agriculture first and the impact will be profound. Farmland located on the fringe of the groundwater basin will be lost as wells go dry. Farmland located close to urban areas will come under increasing urban development pressures. New projects will be forced to develop independent water sources as a condition of approval. The only available independent sources would be to obtain agricultural water rights located on agricultural land. This would direct urban growth toward prime agricultural lands. Finally, the logical end of the overdrafting would probably be an attempt by the County to adjudicate the basin allocating water rights and imposing mandatory rationing. A regulatory scheme such as this would place enormous pressures upon agriculture and it is not unforeseeable that farming companies would leave Santa Maria and relocate to other areas where water sources would be more available and the regulatory climate less intrusive.

V. The State Water Project as a Solution to Agricultural Water Problems

The development of additional water supplies will benefit agriculture. The State Water Project is unique from other possible supplemental local sources in that the water is of a much higher quality than local water with it's high salt content. Agriculture does not have an entitlement right to State Water and thus will not have access to use State Water. Moreover, this water is far too costly for agriculture to use. Farmers, however, would indirectly benefit from its importation in the following ways:

1. Quality

State Water is very high quality water in that it contains only about one quarter of the salt content of our local groundwater. This high quality "alpine" type water would probably render unnecessary the widespread use of water softeners by urban residents. These softeners use salts to soften water which then flows as sewage to local waste water treatment plants. At these plants the effluent is allowed to percolate back down into the ground, recharging the basin. The percolation of this high salt content effluent is one of the major causes of groundwater degradation within the basin. As this water is used and reused the salt concentration becomes higher and higher. The use of high quality State Water by urban residents would all but eliminate the need for water softeners. This major source of water degradation could thus be substantially reduced.

Moreover, the effluent produced by State Water will be of higher quality than the water currently in the basin. When State Water percolates into the basin at the waste water treatment plants, it will recharge the basin and tend to dilute the salt content cleansing the existing water supplies. This will retard the buildup of salts. Therefore the quality of the groundwater used by agriculture will be enhanced.

2. Quantity

Under the proposed State Water Project water purveyors will deliver this water to residential and business users. For the first time urban users would have an independent water source. Santa Maria Valley residents would not have to rely exclusively on the groundwater basin for their water needs. This would considerable lessen the amount of water that would need to be pumped for municipal and industrial uses. More water would then become available for agriculture. State Water would eat up a large chunk of the current overdraft and the life of the basin would be extended.

This would benefit agriculture because urban pumping pressures on the basin would be reduced thus easing the competition between agriculture and urban interests for the same water.

VI. Conclusion

In evaluating the State Water Project there appears to be an advantage for agriculture if the high quality imported water is delivered to urban areas. Agriculture would indirectly benefit because; 1) the cities will reduce their pumpage from the underground basin, leaving more water for agriculture; and, 2) effluents from sewage treatment plants will have much lower salt content, thus making them more usable for a wider range of crops.

This project was a joint effort of the Santa Maria Valley Chamber of Commerce and the Santa Maria Valley Economic Development Association through the Joint Water Committee.

Santa Maria Valley Chamber of Commerce

The Santa Maria Valley Chamber of Commerce has anticipated the growth and planned for the future of the Santa Maria Valley since 1902.

Today, as for the past eight decades, the Santa Maria Valley Chamber of Commerce is addressing the issues facing our community and offering leadership and reasoned action on its behalf. The Chamber plays a dynamic role in bringing before the public the issues of development, community facilities and business legislation important to the future of the entire Santa Maria Valley.

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Santa Maria Valley Economic Development Association

The Santa Maria Valley Economic Development Association (E.D.A.) is a non-profit economic and industrial development organization which works to attract diversified industry, maintain economic stability and create new jobs for the Santa Maria Valley.

Founded in 1961 as the Santa Maria Valley Developers, the E.D.A. consists of over 300 members and is considered one of the most influential business groups in the Santa Maria Valley.

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