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ECONOMIC IMPACTS OF THE "NO PROJECT" ALTERNATIVE DELTA ALTERNATIVES STUDY

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ECONOMIC IMPACTS OF THE "NO PROJECT" ALTERNATIVE

The "No Project" Alternative for the Delta Alternatives Study has been defined as no further construction of either SWP or CVP facilities to the year 2000, except for those facilities now under construction -- principally the Auburn-Folsom South Unit, New Melones Reservoir and the San Felipe Division (all CVP).

The following is an overview of the economic impacts to the year 2000 that may result without construction of new SWP or CVP facilities. The direction and order of magnitude of the critical impacts are presented here. Detailed assessment of impacts requires answers to such typical questions as:

* How will each of the SWP or CVP facilities be operated when the demand for water exceeds the available supply?

* What legal steps will the DWR, the USBR, the various water contractors, agricultural interests, private industry, and others take during prolonged water shortages to ensure compliance with existing water contracts, agreements and regulations?

* What policies, procedures and schedules will be used to manage groundwater tables throughout the State?

* To what extent will the Federal Government cooperate and provide assistance in mitigating the adverse impacts resulting from the "No Project" Alternative?

* How and to what extent will water conservation programs be implemented?

* To what extent will water reclamation programs be legally, physically and economically viable alternatives to meet increasing water demand?

* How will expected energy conservation programs affect the availability and price of water in various parts of California?

* How will the general state of the economy (i.e., inflation rate, unemployment, import-export policies, population growth, industrial expansion...) affect water management policies and plans in California?

In view of the foregoing uncertainties, the economic impacts of the "No Project" Alternative assume certain future conditions and make only rough estimates of the general implications. The economic implications of the "No Project" Alternative, as identified below, should be used to compare the various Plan Alternatives under consideration in the Delta Alternatives Study.

The following assumptions are further included in the definition of the "No Project" Alternative:

1) The present method of water transfer in the Delta will be continued.

2) The total volume of water pumped out of the Delta each year to the year 2000 will correspond to the "No Project" Alternative description, which projects approximate shortages in dependable Delta export supply (SWP or CVP combined) of 2.1 MAF/YR by 2000.

3) These water systems would be operated up to their full capability to supply water to areas that receive a portion of their water supplies from the Delta while meeting applicable water quality criteria in the Delta.

4) Each project will make use of the other projects' surplus supplies or transportation capacity when they can be made available, assuming purchase or exchange to balance respective surpluses and shortages.

5) The following existing SWP and CVP facilities are included:

Shasta Division (CVP)
Trinity Division (CVP)
Oroville Division (SWP)
Delta Cross Channel (CVP)
Contra Costa Canal (CVP)
Delta-Mendota Canal (CVP)
North Bay Aqueduct (SWP) (Partial Operation)
Clifton Court Forebay (SWP)
South Bay Aqueduct (SWP)
California Aqueduct (SWP) (Excludes four additional pumps at the Delta Pumping Plant)

San Luis Reservoir (SWP and CVP)

6) Existing and planned facilities (both SWP and CVP) will provide 5.9 MAF/YR of dependable supply for export in 1980, 6.2 MAF/YR in both 1990 and 2000, less reductions as follows:

a) A 0.2 MAF/YR reduction is assumed here for potential increase in Delta irrigation - 1980, 1990 and 2000.

b) A reduction for upstream depletion, including the Folsom-South Canal, is assumed here of 0.4 MAF/YR by 1990 and 0.8 MAF by 2000.

c) A 0.2 MAF/YR reduction is assumed here for increased Delta outflow required by deepening of Baldwin Ship Channel - 1980, 1990 and 2000.

d) Shortages in dependable supply from the present system are expected to be 0 through 1980, 1.5 MAF/YR by 1990 (1.0 MAF/YR agricultural shortage) and 2.1 MAF/YR by 2000 (1.4 MAF/YR agricultural shortage). These shortages are in addition to those shortages allowable in current SWP and CVP contracts. SWP contracts allow deficiencies in annual dependable supply for agricultural water deliveries of up to 50 percent in any one year and up to 100 percent in any of seven consecutive years (in years when water shortages esceed these amounts, agruculture and municipal contractors share these additional deficiencies equally.) CVP

contracts have similar provisions but allow deficiencies of up to 25 percent in any one year and up to a total of 100 percent in any of seven consecutive years for agriculture. It is estimated that by the year 2000 the CVP and SWP agricultural customers would receive, in a critical dry year, actual water deliveries 50 percent to 80 percent less than normal year requirements.

It is estimated that the total California portion of projected GNP will be approximately 6 percent lower than currently forecasted in 2000 without the proposed plan (or some alternative) than with it. (See Table 1 for details.)

Agriculture

The most profound economic impact of the "No Project" Alternative would certainly be felt by the agricultural sector, which depends on delivered water for its continued existence. The agricultural sector has historically included a significant proportion of marginal operations which are overburdened with debt and operating at profit margins barely high enough to sustain resident families. Water shortages could put many of these operations out of existence.

It is estimated that the "No Project" Alternative would reduce the value of anticipated increases in San Joaquin Valley agricultural production, beginning around 1989. By the year 2000, agricultural product value would be about 33 percent lower than it would be with planned increases in Delta pumping. (See Table 2 for details.) Alternative sources of water supply to users south of the Delta include primarily groundwater and Colorado River water, both of which are higher in TDS content than is Delta export water. (1)

Agricultural production is dependent not only upon water quantity, but also on water quality; high-yield crops (trees, vines, vegetables) require low TDS content water. SWP/CVP project water contains low TDS and, if delivered when needed, would provide increasing quantities of high-quality water to users south of the Delta. (Increases would be primarily in CVP water delivered.) (2) This would permit:

(1) Increased acreage in production

(2) Intensified farming and multiple crop uses

(3) Increased conversion to higher yield crops from field crops

(4) Reclamation of unusable acreage

(5) Reduction in the rate of groundwater overdraft (3)

Increased dependence on higher TDS content alternative sources would prevent-and even reverse-the trends noted above and act to reduce agricultural production. The alternative of overdrafting groundwater would lower the water table and would require more energy to pump the same volume of water from greater depth. Too much overdrafting would eventually lower groundwater basins to the point where they could no longer hold incremental rainfall and runoff in wet years. (4)

Agricultural impacts are based on projected shortages in dependable supplies of 1.0 MAF/YR by 1990 (0.4 from SWP and 0.6 from CVP) and 1.4 MAF/YR by 2000 (0.5 from SWP and 0.9 from CVP). In approximately one-half of the years during the 1980 to 2000 period, additional shortages might be expected in varying amounts over and above 50 percent (100 percent in any of seven consecutive years).

The "No Project" Alternative estimates are intended to show the general magnitude and timing of impacts only. They are based on the general relationship exhibited in the interegional growth model developed in early 1974 for the Growth Inducing Impacts Chapter of the Peripheral Canal EIR. Impacts could be felt sooner and on a larger scale if assumptions in that 1974 model are no longer valid as to groundwater supplies, alternative sources (such as Colorado River), and so on.

Employment

Because the affected area (south of the Delta) is the "breadbasket" of the state with the largest agricultural production in the U. S., changes which adversely affect the agricultural economy of the area would have profound secondary impacts on the entire state economy. Direct impacts would be felt by industries which process food and fiber, as well as industries that depend on them. Also included are industries that manufacture products associated with agriculture, such as cotton, alfalfa, animal feed, and so on. (5) As shortages in dependable export water occur, agricultural production would be threatened, particularly during critical irrigation periods. Fewer acres of farmland would be in production and shifts to more intensive farming would be delayed - both working to hold employment down. Further, marginal small farming operations would be adversely affected, also working to hold employment down.

Using a current (1974) index of dollar value of productivity of $16,100 per man-year of employment, (6) it is estimated that approximately 38,000 annual man-years (or approximately $600 million) will be lost in statewide annual productivity by 1984, due to anticipated shortages of dependable export. Almost 70 pencent of the total will occur in the San Joaquin Valley, with most of the balance in Southern California and the San Francisco Bay area. (7) This loss of productivity would amount to over 800,000 annual man-years by 2000, representing over $13 billion.

Recreation

In 1970 the California legislature approved $60 billion in bonds for recreation developments, planned in conjunction with SWP projects, primarily reservoirs. The number of "recreation days" (annual recreational user days at all facilities) increased enormously - from 410,000 in 1970 to 2.3 million in 1974. Recreational capacity was projected (in 1974) to be approximately 15 million recreation days by the year 2000. The user demand for water-related recreation in Southern California is such that any new facility is utilized to full capacity almost as soon as it opens. (8)

Because SWP reservoirs south of the Delta are primarily operated as regulating reservoirs rather than conservation reservoirs, they would not be operated much differently with the reduction in SWP yield under the "No Project" Alternative. Therefore, reduction in recreation use would not be directly proportional to reduction in dependable yield. Recreation use would be limited to the capacity of presently constructed recreation facilities. (9)

If the "No Project" Alternative results, the projections of recreation to the year 2000 would have to be revised downward. Assuming a dollar value of $1.50 per "recreation day" (10), revenues for recreation will

level off in 1984 (estimated at $13.2 million annually) and stay at a relatively flat level through the year 2000. This a decrease of over 14 percent from the $15.1 million in benefits from recreation projected for the year 2000. (See Table 3 for details.) Southern California reservoir operations will be affected by shortages. Pyramid, Castaic and Perris Lakes are all in Southern California and are primarily used to supply municipal and industrial users. They all have boating and fishing facilities.

If the reservoirs in Southern California are drawn down to provide water to consumers during temporary shortage periods, this impact could be even greater. Only a small proportion of projected "recreation days" could be expected from picknickers and others who only need to be close to water (as opposed to actual water users). Boating, water skiing and fishing from boats would be eliminated completely when water levels drop below the minimum from which boats can be launched. Shore fishing would be reduced, since the recreational fishing outtake depends on lake surface area. Further, food intake of some fish species would be curtailed, acting to reduce fish populations. (11)

Water Quality Penalty Costs

The quality of export water would not be as good as planned with the Peripheral Canal, since it would be somewhat higher in salt concentration than present deliveries. However, it would have to meet Delta quality standards (a current SWP operational requirement). Limiting the degradation of quality is part of the reason that the serious shortages in dependable export supplies are so large. It is estimated that the annual water quality will average about 300 ppm TDS, 85 ppm chlorine and 115 ppm hardness ($CaCO_3$). Shortages would, of course, create additional pressure on user districts to rely on greater quantities of water from non-Delta sources, particularly groundwater and Colorado River water. These alternatives are higher in TDS and would increase the overall TDS of water supplied. (12)

Even if demands for water in dry years could be met by alternative means, the quality of the water would deteriorate as TDS content increases. User costs (costs incurred through use of higher TDS content water) would increase by over $250 million annually by the year 2000, affecting agricultural and M&I users. (See Table 4 for details.)

The following typical water penalty costs could occur as TDS levels increase:

1) The utilities would be forced to service and replace pumping and transmission equipment more frequently, due to increased corrosion and/or scale deposits, requiring greater maintenance and capital equipment replacement costs. This would affect both agricultural and M&I users south of the Delta. (13)

2) Private users would encounter the same problems. This would translate into higher and more frequent repair and replacement costs for residential and industrial plumbing, water heaters and agricultural irrigation equipment. (14)

3) Certain industrial users (which depend on low salinity water for production processes) cannot use higher TDS content water and would be forced to resort to more expensive water conditioning. (15)

4) More residential users would use bottled water (Sparkletts, Arrowhead, etc.), which costs much more than system-supplied water. (16)

5) Industrial and agricultural customer water penalty costs (as discussed above) will ultimately be passed on to product consumers by means of higher prices, with impacts throughout their specific markets.

6) The higher salt content of the original water supply will lessen the number of recycling uses, such as ground water returned to its basin and reused.

Groundwater (17)

The incremental SWP water delivery schedule has been planned to decrease reliance on use of local groundwater supplies. The "No Project" Alternative would reduce this opportunity and water tables would be depleted as needed for supply, at increasing rates. As the groundwater level drops, the cost of pumping increases and the TDS level rises (further increasing water user costs). When any local groundwater supply runs out, stoppages would occur and expensive, emergency measures would be required. Unusual delivery methods and interruptions both have severe financial implications for many agricultural and industrial water users.

In some areas, allowing the water table to drop too low could cause subsidence and ground depressions. After a certain point, the strata become compacted and cannot be recharged, and the storage capacity is permanently reduced. This would cause increased short-term dependence on emergency sources of water and would force increased long-term dependence on alternative sources, such as Colorado River water. Existing contractural agreements will limit dependable supplies from alternative sources in the future, unless emergency conditions make greater volumes available for short-term use.

Agency Contractural Obligations (18)

Southern California water agencies are contracturally bound to supply water to their various service areas (SWP has 31 contracting agencies, 28 of which will divert water out of the Delta. CVP also serves over 50 agencies with water diverted from the Delta). They have assumed increased water availability from Delta pumping as planned. Alternative sources of water and emergency measures will require substantial additional capital to enlarge existing pipes, construct additional distribution systems, install new pipes and install additional pumping equipment.

If the "No Project" Alternative is adopted, litigation (seeking damages) against the State by water contractors (and by individuals) is possible - related to whether the State made "...all reasonable efforts...to complete the project facilities necessary for delivery of project water..." Article 6(c) of the standard SWP water contract reads as follows:

"6 (C) Obligation of State to Complete Facilities:

Subject to the availability of funds, the State shall make all reasonable efforts consistent with sound fiscal policies, reasonable construction schedules, and proper operating procedures to complete the project facilities necessary for delivery of project water to the Agency in such manner and at such times that said delivery can commence in or before the year specified in subdivision (a) of this article, and continue in the amounts designated in Table A of this contract."

A large proportion of annual repayment costs under SWP contracts are fixed in nature. These costs must be repaid by the SWP contractors regardless of the amount of water delivered during the year. These costs are financed by SWP contract water sales and in some cases, a portion of the costs are collected by means of area-wide taxes. (19) Large reductions in SWP water deliveries could cause a serious financial burden upon the agricultural community. Agriculture would not have the ability to pay high costs for reduced water supplies and with a reduction in income from water sales, increased taxes would be required to bridge the repayment gap. (20) Of course, higher water costs will be passed on to the consumer through higher prices for agricultural products.

There could be a reformulation of the SWP water entitlements if agriculture contractors are priced out of SWP water and default on their contracts. The State would possibly use the available supplies for delivery to Southern California M & I contractors. MWD could probably afford the increased price water since their alternatives for new supplemental supplies are sea water conversion and wastewater reclamation.

Bonding Requirements

Water districts have issued bonds to finance local projects under the assumption that increasing volumes of delivered SWP and CVP water would be forthcoming. With the "No Project" Alternative in effect, less water would be forthcoming than anticipated. Alternative, more expensive (and currently unplanned) sources of water would be required. As local water service districts receive less water, less water would be delivered to users. (21) This would either 1) reduce projected revenues, with local districts unable to meet existing debt service requirements, or 2) force increased service charges to users as costs are passed on. If service districts were to default on bond issues, the adverse publicity could drive some potential investors away from future California State bond issues. If demand for State bonds drops, the Moody's bond rating may also drop. The current rating is Aaa. A drop to Aa would mean an increase of 0.15 percent in interest rates. (22) Assuming the State issues over $400 million per year in new bonds, this drop, if experienced in 1985, would cost the State $7.8 million per year in higher interest, with substantial costs continuing through the year 2000.

The bond problem would be more severe in agriculture areas. In Buttonwillow, for example, an intake canal and internal distribution system was constructed (assuming greater future volumes of delivered water) at a cost

of about $10 million. If the "No Project" Alternative results, the system will be oversized. However, the local farmers would still have to pay water district add on charges for debt service on this project. With less water delivered than anticipated, they would also have to pay for some groundwater pumping. (23) Further, opportunities for additional reuse of water would be more difficult. Farm prices would inevitably increase to the final consumer. In addition, many small, marginal income farmers would not be able to meet their financial obligations (for pumping costs, new irrigation systems, general expenses, and so on) and could face bankruptcy. The burden of the debt would increase to the remaining farmers and to the local water service district. Bond default would be possible, as would failure to meet state water contract payments (local agencies would face reduced income from water deliveries, yet still have to continue funding of recent capital improvement programs). Local governments would suffer the impact of lower tax revenues as assessed valuations drop on marginal and bankrupt farm properties.

Contractual obligations and impact on bonds devolve upon all 31 SWP contracting agencies (including MWD) and the $1.75 billion bonds authorized as the primary funding for the SWP.

Groundwater Use by Local Farmers

Many local farmers have invested substantially to improve irrigation equipment on new areage, in anticipation of greater volumes of delivered water. Without the increased water deliveries, they would still be required to pay the debt on these investments. They would further have to pay for groundwater pumped from old wells. In many cases new wells would have to be dug and pumping facilities installed. Unused wells would have to be redug and pumps installed at lower levels. In some cases this would be impossible - since dangerously low groundwater levels already exist in some areas. (25)

Impacts on Other Public Districts

Schools, municipalities, sanitary districts and others would have to pay higher service charges for the water they receive. Since their operating costs would increase as a result, their sources of revenue (new bond issues, property taxes and surplus funds depletion) would also have to increase, producing net adverse public fiscal impacts. (26)

TABLE 1

ESTIMATES OF CALIFORNIA PORTION OF GNP
($ BILLIONS)

YEAR	WITH INCREASED DELTA PUMPING (AS PLANNED)	"NO PROJECT" ALTERNATIVE*	DIFFERENCE $	DIFFERENCE %
1976	$ 150.1	$ 150.1	0	0
1977	152.9	152.9	0	0
1978	155.8	155.8	0	0
1979	158.7	158.7	0	0
1980	161.7	161.7	0	0
1981	164.7	164.7	0	0
1982	167.8	167.8	0	0
1983	171.0	171.0	0	0
1984	174.2	173.6	0.6	0.3
1985	177.5	176.3	1.2	0.7
1986	180.8	178.8	2.0	1.1
1987	184.2	181.6	2.6	1.4
1988	187.7	184.3	3.4	1.8
1989	191.2	187.1	4.1	2.1
1990	194.8	190.0	4.8	2.5
1991	198.5	192.8	5.7	2.9
1992	202.2	195.7	6.5	3.2
1993	206.0	198.7	7.3	3.5
1994	209.9	201.7	8.2	3.9
1995	213.8	204.7	9.1	4.3
1996	217.8	207.8	10.0	4.6
1997	221.9	210.9	11.0	5.0
1998	226.1	214.2	11.9	5.3
1999	230.4	217.4	13.0	5.6
2000	234.7	220.5	14.2	6.1

*The "No Project" Alternative estimates are intended to show the general magnitude and timing of impacts only. They are based on the general relationships exhibited in the interregional growth model developed in early 1974 for the Growth-Inducing Impacts Chapter of the Peripheral Canal EIR. Impacts could be felt sooner and on a larger scale if assumptions in that 1974 model are no longer valid as to groundwater supplies, alternative sources (such as the Colorado River), and so on.

FIGURE 1

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($ BILLIONS)

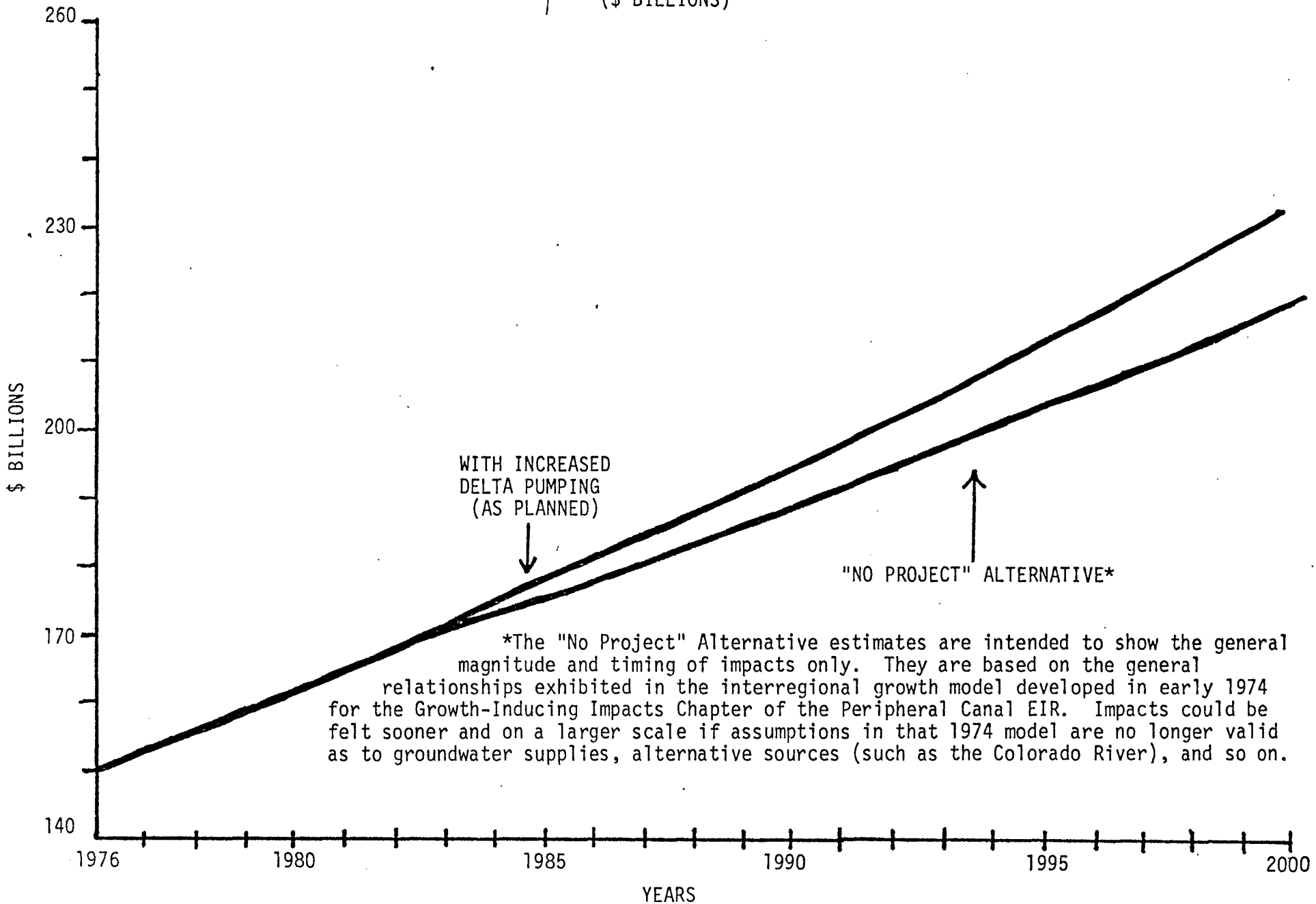

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TABLE 2

AGRICULTURAL PRODUCTION IN
THE SAN JOAQUIN VALLEY
($ MILLIONS)

YEAR	WITH INCREASED DELTA PUMPING (AS PLANNED)	"NO PROJECT" ALTERNATIVE *	DIFFERENCE $	DIFFERENCE %
1976	$ 3,880	$ 3,880	0	0
1977	4,070	4,070	0	0
1978	4,250	4,250	0	0
1979	4,450	4,450	0	0
1980	4,650	4,650	0	0
1981	4,870	4,870	0	0
1982	5,090	5,090	0	0
1983	5,330	5,330	0	0
1984	5,570	5,570	0	0
1985	5,830	5,830	0	0
1986	6,090	6,090	0	0
1987	6,370	6,370	0	0
1988	6,670	6,670	0	0
1989	6,980	6,280	700	10.0
1990	7,300	6,380	920	12.6
1991	7,630	6,470	1,160	15.2
1992	7,980	6,580	1,400	17.5
1993	8,350	6,690	1,660	19.9
1994	8,730	6,810	1,920	22.0
1995	9,130	6,930	2,200	24.1
1996	9,550	7,050	2,500	26.2
1997	9,990	7,180	2,810	28.1
1998	10,450	7,320	3,130	30.0
1999	10,930	7,470	3,460	31.7
2000	11,440	7,630	3,810	33.3

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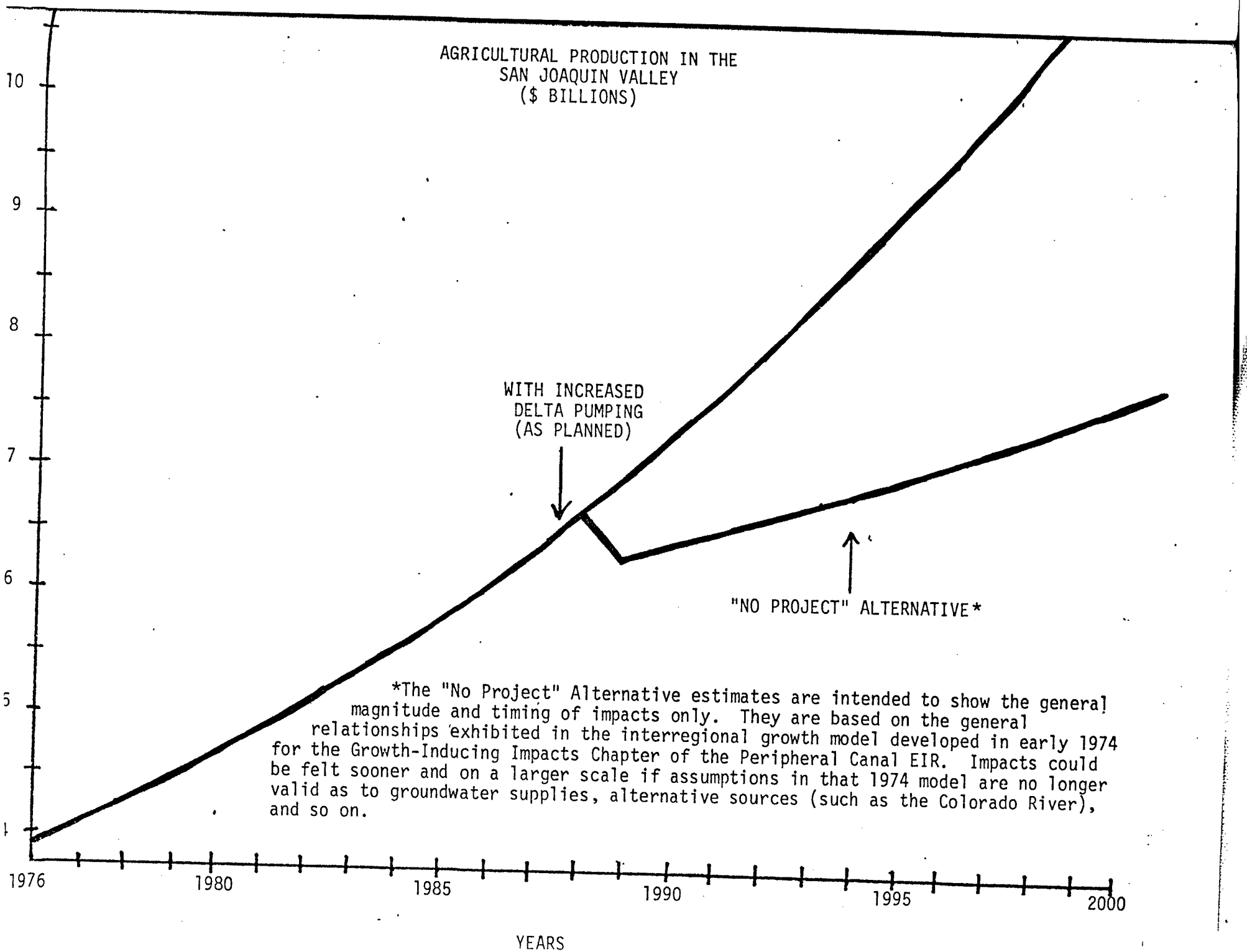

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TABLE 3

RECREATION BENEFITS SOUTH OF THE DELTA
($ MILLIONS)

YEAR	WITH INCREASED DELTA PUMPING (AS PLANNED)	"NO PROJECT" ALTERNATIVE *	DIFFERENCE $	DIFFERENCE %
1976	$ 7.2	$ 7.2	0	0
1977	9.4	9.4	0	0
1978	10.8	10.8	0	0
1979	12.0	12.0	0	0
1980	12.4	12.4	0	0
1981	12.6	12.6	0	0
1982	12.8	12.8	0	0
1983	13.0	13.0	0	0
1984	13.2	13.2	0	0
1985	13.4	13.2	0.2	1.5
1986	13.6	13.2	0.4	3.0
1987	13.7	13.2	0.5	3.8
1988	13.8	13.2	0.6	4.6
1989	14.0	13.2	0.8	6.1
1990	14.2	13.2	1.0	7.6
1991	14.5	13.2	1.3	9.9
1992	14.7	13.2	1.5	11.4
1993	14.8	13.2	1.6	12.1
1994	14.8	13.2	1.6	12.1
1995	14.9	13.2	1.7	12.9
1996	14.9	13.2	1.7	12.9
1997	15.0	13.2	1.8	13.6
1998	15.0	13.2	1.8	13.6
1999	15.1	13.2	1.9	14.4
2000	15.1	13.2	1.9	14.4

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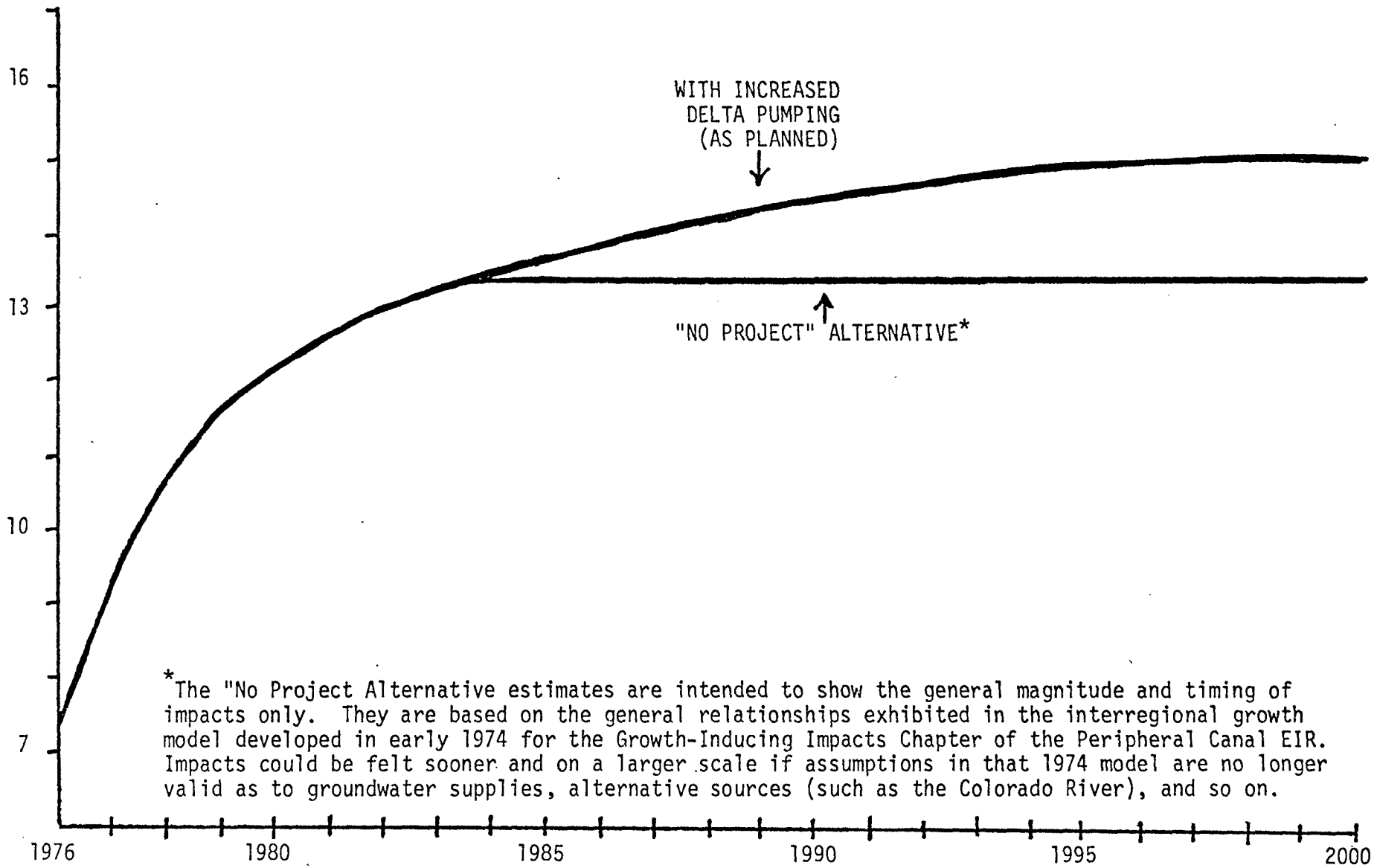

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TABLE 4

WATER QUALITY IMPACT USER COST
IN SOUTHERN CALIFORNIA
($ MILLIONS)

YEAR	WITH INCREASED DELTA PUMPING (AS PLANNED)	"NO PROJECT" ALTERNATIVE *	DIFFERENCE $	DIFFERENCE %
1976	$ 750	$ 750	0	0
1977	770	770	0	0
1978	800	800	0	0
1979	820	820	0	0
1980	840	840	0	0
1981	870	870	0	0
1982	890	890	0	0
1983	910	910	0	0
1984	930	930	0	0
1985	950	970	20	2.1
1986	970	1,010	40	4.1
1987	1,000	1,050	50	5.0
1988	1,020	1,070	50	4.9
1989	1,050	1,100	50	4.8
1990	1,070	1,140	70	6.5
1991	1,100	1,180	80	7.3
1992	1,120	1,220	100	8.9
1993	1,150	1,260	110	9.6
1994	1,180	1,310	130	11.0
1995	1,210	1,360	150	12.4
1996	1,240	1,410	170	13.7
1997	1,270	1,460	190	15.0
1998	1,300	1,510	210	16.2
1999	1,330	1,570	240	18.1
2000	1,360	1,620	260	19.1

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FIGURE 4

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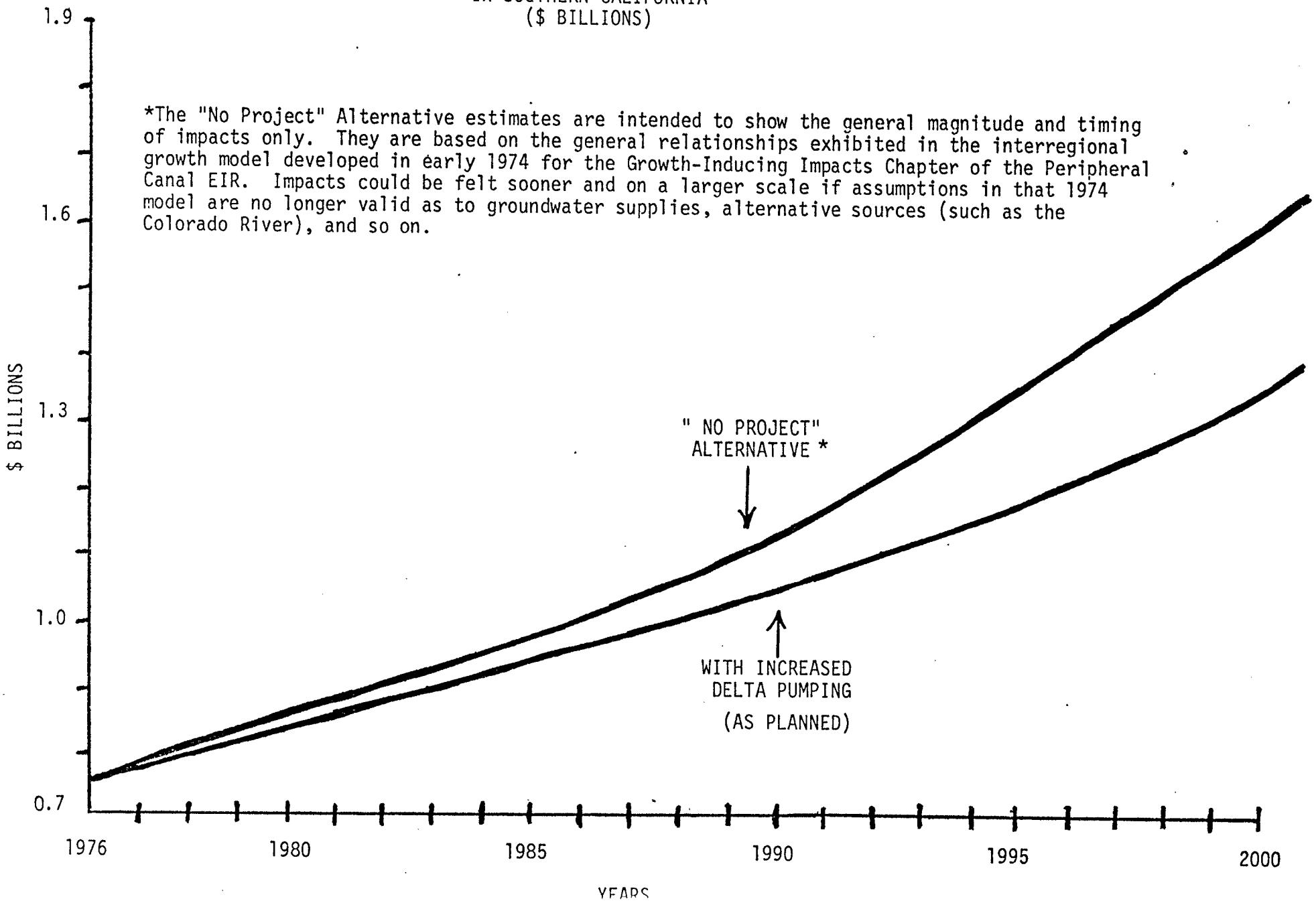

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(1) Office of the Attorney General, State of California; Sierra et al vs. Morton et al, First Draft for the Office of the Attorney General, State of California, Impacts outside of the Delta; prepared by Socio-Economic Systems, Inc., Los Angeles, in collaboration with California Municipal Statistics, Inc., June 18, 1974; pp. VIII-6,7.

(2) Ibid; pp. V-2,3.

(3) Ibid; pp.V-1 to V-9, and p. VIII-1.

(4) Ibid; pp. V-3 to V-5.

(5) Ibid; pp. VI-1,2.

(6) Ibid; p. VI-11.

(7) Ibid; p. VI-14, Table VI-2 (San Joaquin Valley = 25,881/ Total = 37,793 equals 68%)

(8) Ibid; pp. VII-1 to VII-3.

(9) Ibid; pp. VII-3,4.

(10) Ibid; p. VII-8.

(11) Ibid; p. VII-17.

(12) Ibid; p. VIII-3.

(13) Ibid; P. VIII-2.

(14) Ibid; p. VIII-6.

(15) Ibid; p. VIII-2.

(16) Ibid; p. VIII-3.

(17) Ibid; pp. IV-3 th IV-5.

(18) Ibid; pp. X-1 to X-4, and pp. IV-7,8.

(19) Ibid; p. X-2.

(20) Ibid; p. X-2.

(21) Ibid; p. IV-8.

(22) Ibid; p. X-4.

(23) Ibid; p. X-2.

(24) Ibid; p. X-2.

(25) Ibid; pp. X-11 to X-13.

(26) Ibid. p. X-9.

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