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BEFORE THE

STATE WATER RESOURCES CONTROL BOARD

STATE OF CALIFORNIA

In the Matter of Imperial Irrigation District's and San Diego County Water Authority's Amended Joint Petition for Approval of a Long-Term Transfer of Conserved Water	**COMMENTS OF SAN DIEGO COUNTY WATER AUTHORITY FOR AUGUST 30, 2005 WORKSHOP FOLLOWING WRO 2002-0013, AS REVISED IN ACCORDANCE WITH WRO 2002-0016**

I. INTRODUCTION

Following the execution of the 1998 Water Transfer Agreement, the Imperial Irrigation District ("IID") and the San Diego County Water Authority ("Authority") (collectively, the "Parties") submitted a Joint Petition for Approval of a Long-Term Transfer of Conserved Water to the State Water Resources Control Board ("SWRCB"). Following an extensive and elaborate hearing, and with the benefit of expansive environmental review of potential environmental impacts, the SWRCB issued its decision approving the transfer — *In the Matter of IID and SDCWA Amended*

Joint Petition for Approval of a Long-Term Transfer of Conserved Water (2002) Ord. WRO 2002-0013, as revised in accordance with Order WRO 2002-0016 (Final Order). Two specific conditions that are contained in that Final Order give rise to this Workshop.

II. DESALINATION

A. Desalination is Playing an Increasing Role in the Authority's Water Supply Future

The SWRCB's Final Order concludes that although desalination was, at that time, not a viable alternative to the transfer, desalination could become an important future source of water for Southern California. As such, the SWRCB directed the Authority to report to the SWRCB biannually, beginning within one year of the effective date of the SWRCB's approval of the transfer, on the Authority's progress toward implementation of any desalination projects. (Final Order, at 56.) These comments are submitted in compliance with that order.

The SWRCB's conclusion that desalination was not yet a viable alternative to the transfer was based on substantial evidence that desalination remained prohibitively expensive and therefore was unlikely to augment the Authority's water supply portfolio in a meaningful way, let alone provide a feasible alternative to the transfer and other imported sources. Further, the anticipated timing for development of a desalinated supply was inconsistent with the Authority's then-existing water supply demands and immediate need to secure greater reliability over those supplies. (*See, e.g.*, SDCWA, 2000 Urban Water Management Plan (2000 UWMP).)[1] The facts supporting the SWRCB's conclusion have not changed.

However, the Authority is pleased to announce that in just a few years the Authority has made substantial progress in its ongoing efforts to make desalination a water supply reality for San Diego County. Whereas in 2000, the Authority anticipated that desalination would provide only 25,000 acre-feet per year of additional supply beginning in 2020 (2000 UWMP), the Authority now projects that desalination will yield as much as 56,000 acre-feet by 2010 according to the San Diego County Water Authority, 2004 Annual Water Supply Report (2004 Report), attached as Exhibit 1.

[1] A copy of the Authority's 2000 UWMP was admitted into evidence as SDCWA Exhibit 7.

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The following table shows the Authority's projected use of desalination, as well as all water conservation savings and other supplies, in normal years, through 2025.

TABLE 1

Projected Water Conservation and Supplies – Authority Service Area[2]
Normal Year (AF/Year)

	2005	2010	2015	2020	2025
Water Conservation	54,900	74,400	83,400	93,200	101,952
Water Supply Sources:					
Metropolitan Supplies	526,000	345,400	343,400	290,800	310,900
Authority/IID Transfer	30,000	70,000	100,000	190,000	200,000
AAAC and CC Lining Projects	0	77,700	77,700	77,700	77,700
Seawater Desalination[3]	0	56,000	56,000	56,000	56,000
Local Surface Water	85,600	85,600	85,600	85,600	85,600
Recycled Water	33,400	45,100	51,800	53,400	53,400
Groundwater	31,100	53,500	57,500	59,500	59,500
Total Projected Supplies	706,100	733,300	772,000	813,000	843,123

The Authority's projected water supply demands for 2020, which are based in part on the San Diego Association of Governments' independent demographic projections, have remained constant at approximately 813,000 acre-feet. (*Compare* 2000 UWMP, at 5-2, and 2004 Report, at 9.) The Authority's planned development of desalinated supplies does not offset or replace the Authority's

[2] The conservation savings and annual supply mixes in years 2005, 2010, 2015, and 2020 are based on the Authority's 2000 UWMP and subsequent actions by the Authority's Board of Directors. The 2025 supply mix is based on the Authority's Master Plan and subsequent actions by the Board of Directors. The conservation savings in 2025 has been calculated by Authority staff in coordination with its member agencies.

[3] The Authority is currently preparing an environmental impact report for 50 million gallons per day (mgd) seawater desalination project at the Encina Power Plant in the City of Carlsbad that will yield approximately 56,000 acre-feet per year beginning in 2011. According to the Authority's Master Plan, which has been approved for planning purposes, the facility could be expanded to 80 – 100 mgd in the future and/or other facilities constructed to increase this supply source.

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need for the 200,000 acre-feet per year of conserved water made available by the transfer. Additionally, it is important to point out that the supply projections shown in Table 1 reflect the Authority's continuing emphasis on cost-effective water conservation programs. In 2003, the Authority's conservation programs accounted for 41,816 acre-feet in savings. By 2020, 93,200 acre-feet of annual savings are projected.

The Authority now anticipates the ability to further reduce its reliance on imported supplies from the Metropolitan Water District of Southern California (MWD), and thus northern California, with every new acre-foot of local supplies it develops, including desalination.

B. Desalination Represents a Fundamental Element of the Authority's Efforts to Improve Reliability Through Diversification

The Authority and its member agencies believe that the development of desalination and other local supplies is critical to securing reliability. Development of a diverse water supply portfolio provides for flexibility and adaptability, thereby improving water supply reliability, and ensuring that the San Diego region can meet its water supply demands, as required by law. (*See, e.g.*, Water Code §§ 10910, *et seq.* ("SB 620"); Gov't Code § 66473.7 ("SB 221"); Water Code App. § 45-5(11) (providing that the Authority "as far as practicable, shall provide each of its member agencies with adequate supplies of water to meet their expanding and increasing needs.").)

The following charts illustrate the dramatic improvement in supply diversification that the Authority anticipates achieving by 2020:

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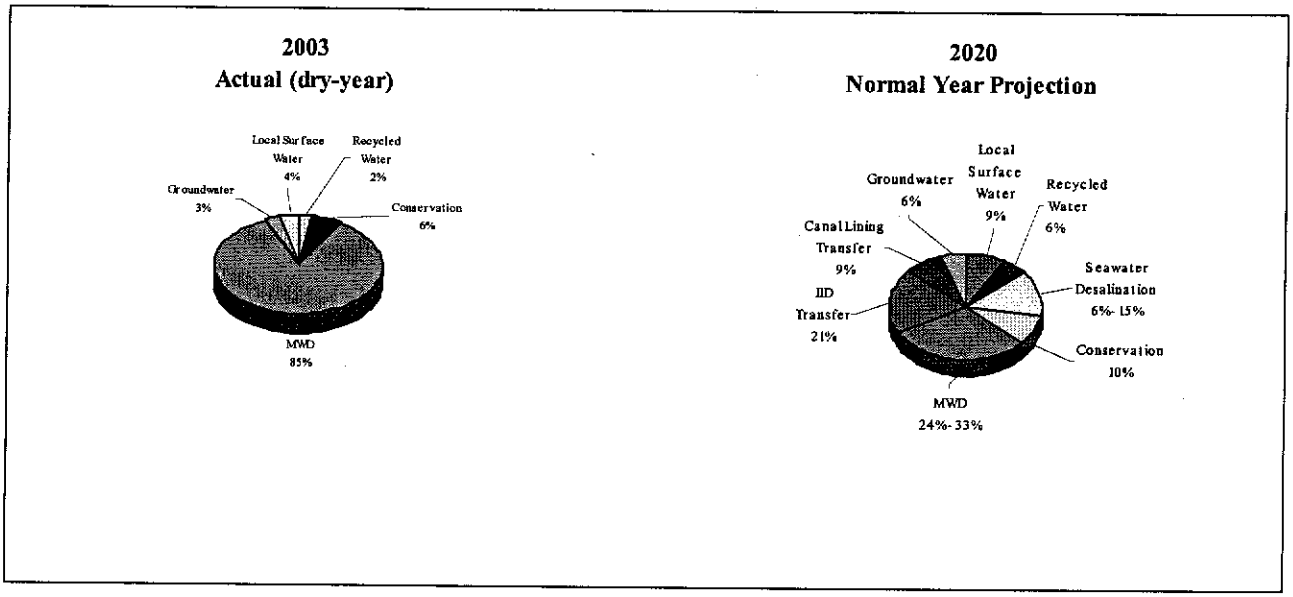
FIGURE 1[4]

Meeting the Region's Water Needs in the Year 2020



Notably, desalination, together with the transfer and the Quantification Settlement Agreement's (QSA) canal lining projects, will offset the Authority's historical single-source reliance on MWD by half.[5] Again, however, desalination does not provide an alternative to the transfer; it is a necessary element of the Authority's efforts to improve water supply reliability through diversification.

C. The Authority is Pursuing the Construction of a Regional Desalination Facility at the Encina Power Plant

Since early 2001, the Authority has been working diligently on planning and environmental review of regional desalination facilities to benefit all of its member agencies in San Diego County. The Authority has conducted feasibility studies for three sites within the county. At this time, the Authority's preferred site is the Encina Power Plant. As such, the Authority has initiated environmental review pursuant to the California Environmental Quality Act (*see* Notice of Preparation and Public Scoping Meeting Notice (NOP), attached as Exhibit 2), and has just finalized

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[4] *See* 2004 Report, at 3.

[5] As noted previously, conservation also plays a key role in reducing the Authority's dependence on imported sources. The Authority provided substantial evidence of its efforts to control demand through aggressive conservation at the hearing on this matter. (*See, e.g.*, 2000 UWMP.)

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an "Agreement Memorializing Certain Understandings and Establishing a Framework for Cooperation" with the City of Carlsbad, the Carlsbad Municipal Water District, and the Carlsbad Housing and Redevelopment Commission for the construction and implementation of a regional desalination facility.

As outlined in the attached NOP, the proposed project consists of a seawater desalination plant, together with appurtenant and ancillary facilities, to produce and distribute potable water through the Authority's aqueduct system. The desalination plant would be constructed on property currently owned by Cabrillo Power I LLC, co-located on-site at the existing Encina Power Station, immediately south of the Aqua Hedionda Lagoon in central coastal San Diego County. (NOP, at 3.) The project, if approved, would have a capacity to deliver up to 50 mgd (56,000 acre-feet per year) of Reverse Osmosis (RO) product water to existing local distribution systems and/or directly into the Authority's Second Aqueduct. Future projects might include further expansion of the plant. (NOP, at 4.)

D. The Authority is Investigating the Feasibility of a Regional Desalination Facility Located at the San Onofre Area of Camp Pendleton

In cooperation with other agencies, the Authority has completed an initial assessment of seawater desalination opportunities in the San Onofre area of the Camp Pendleton Marine Corps Base. The assessment identified no fatal flaws, and identified two sites in the San Onofre area that could potentially support a regional seawater desalination facility. Such a facility would reuse the existing San Onofre Nuclear Generating Station intake and discharge tunnels for Unit 1, currently in the process of being decommissioned. The Authority is beginning a more detailed study of the feasibility of such a project, which is currently scheduled for completion by mid-2007.

III. SOCIOECONOMIC IMPACTS

A. Background

The fundamental transaction contemplated by the initial form of the 1998 Water Transfer Agreement was for IID to make reliable water available for transfer to the Authority through incentive-based efficiency conservation. The agreement set forth guidelines for how the water was to be made available by IID for transfer to the Authority, as well as setting a price that would fairly

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compensate IID for its efforts. The Authority's willingness to pay the identified price was based on, among other things, IID's commitment to generate water through various types of conservation, a minimum quantity of which was to be "on-farm" or hard efficiency conservation. Fallowing of land was expressly prohibited. (1998 Water Transfer Agreement, Article 14.[6]) Although the 1998 Water Transfer Agreement with the Authority prohibited fallowing, IID had proposed parallel transfer agreements with the Coachella Valley Water District and MWD that did not.

The Parties anticipated that on-farm conservation would provide broad economic benefits to the Imperial Valley and the local community. The Authority believed that this economic stimulus would provide an additional strong incentive, and broad-based community support for, the 1998 Water Transfer Agreement. Thus, it is one of the primary reasons that both IID and the Authority preferred on farm conservation to long-term land fallowing.

The project proposed by the 1998 Water Transfer Agreement was subjected to extraordinary and comprehensive environmental review, unprecedented in the scope of its analysis. In addition to its analysis of the proposed transfer of water from IID to the Authority, which included the preferred approach of generating the water through efficiency conservation, it examined a suite of alternatives, including among other things, the generation of water for transfer to the Authority by fallowing. The environmental review concluded that on-farm conservation, although preferred for the reasons stated above, could result in a reduction of inflows to the Salton Sea – a potentially significant impact.

As such, following the SWRCB's issuance of the Final Order approving the transfer, the Authority and IID executed a Fourth Amendment to the Water Transfer Agreement in January of 2003, which was later revised and executed together with the signing of the QSA in October, 2003. (*See* Revised Fourth Amendment, attached as Exhibit 3.)[7] Among other things, the Revised Fourth Amendment temporarily relieved the contractual prohibition on land fallowing for a maximum of 15 years. (Revised Fourth Amendment, Article 14.)

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[6] A copy of the 1998 Water Transfer Agreement was admitted into evidence as IID Exhibit 7.

[7] With respect to socioeconomic impacts, the two documents are substantively the same.

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Although the Revised Fourth Amendment continued to prohibit long-term land fallowing by limiting the suspension on fallowing to a maximum of 15 years, the Parties recognized, and sought to address, the potential that socioeconomic impacts might result from a short-term land fallowing program. Accordingly, the Revised Fourth Amendment also set forth the Parties' expectations and commitments regarding the evaluation and mitigation of socioeconomic impacts that might result from the short-term land-fallowing program. (Revised Fourth Amendment, Article 14.)

Two key considerations weighed heavily on the Authority's decision to execute the Revised Fourth Amendment and suspend the prohibition on fallowing, thereby allowing water to be made available through methods that it believed were less costly[8] to IID and its farmers: (1) IID's pledge of its "best efforts" to minimize any socioeconomic impacts that might occur; and (2) the State of California's concurrent assurances, in the form of legislation, that it would assist the Parties in the evaluation, and if necessary, the mitigation of any such socioeconomic impacts.

B. IID's Best Efforts

Consistent with the 1998 Water Transfer Agreement, whereby IID retained discretion as to which efficiency conservation measures it would employ, the Revised Fourth Amendment provides that IID reserves its discretion as to how to implement a fallowing program. However, IID simultaneously gave the Authority its assurance that it would exercise its "best efforts" to minimize socioeconomic impacts.

> "IID shall exercise best efforts to minimize socioeconomic impacts from the land fallowing necessary to transfer Conserved Water to the Authority or to lessen environmental impacts related to the transfer of Conserved Water to the Authority."

(Revised Fourth Amendment, Section 14.5)

Armed with IID's covenant to expend its "best efforts" to minimize socioeconomic impacts attributable to land fallowing through its implementation of a conservation program, the Authority agreed to advance $10 million for the purpose of providing up-front money to redress any net

[8] The Authority has long contended that it is less expensive to generate water by land fallowing than efficiency based conservation. Yet the Revised Fourth Amendment does not make a distinction between the agreed-upon price for efficiency-based conservation and conservation by fallowing.

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negative socioeconomic impacts that might occur despite IID's "best efforts" to avoid or lessen them. The Revised Fourth Amendment also requires IID to provide an additional $10 million to assist in redressing any socioeconomic impacts, again, despite IID "best efforts" to avoid them in the first place.

The Authority reasonably believed that if IID satisfied its contractual "best efforts" covenant, the likelihood of uncompensated socioeconomic harm in excess of $20 million would be remote. As such, the Authority additionally agreed to provide sufficient funding to mitigate *any* actual measured impacts in excess of the initial $20 million payments — an unlikely event if IID proceeds as expected and develops a fallowing program that satisfied its "best efforts" covenant.

C. Senate Bills 482 and 277

The Authority's willingness to assume responsibility for any socioeconomic impacts resulting from the transfer, specifically the use of fallowing to conserve water for transfer, was also partially dependent upon assurances from the State of California, in the form of legislation enacted in 2002 and 2003, that the State would assist the Parties in their efforts to address any measured socioeconomic impacts. The fact that the Revised Fourth Amendment expressly contemplates legislation on the subject of socioeconomic impacts, coupled with the fact that the legislature approved two Senate Bills contemporaneously with adoption of the Final Order and the execution of the QSA, corroborates the reasonableness of this expectation.

Senate Bill 482 (Kuehl, 2002), adopted in the Fall of 2002, required that the Resources Agency and the Technology, Trade and Commerce Agency, *in consultation with IID, the Authority* and other affected parties, report to the Governor and the Legislature, on or before June 30, 2003, with respect to various aspects of the transfer relating to any realized or potential socioeconomic impacts, positive or negative. Indeed the Final Order itself relies on this legislation to address any socioeconomic impacts that might occur if fallowing is employed.

> "the transfer will be in the public interest, notwithstanding the potential socio-economic impacts associated with fallowing, but that socio-economic impacts should be minimized and mitigated to the extent feasible. SB 482 (Stats. 2002, ch. 617), provides a process for evaluating and mitigating any economic impacts of the transfer. We will reserve continuing authority to consider whether any additional measures should be taken based on the analysis and recommendations

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developed as part of that process."

(Final Order, at 74 (emphasis added), *see also* Final Order, at 91.)

Thereafter, SB 277 (Ducheny, 2003), signed in September of 2003, just a month prior to the execution of the QSA, amended the prior law to conditionally require that the Department of Food and Agriculture issue the required report.[9] These statutes were supported by the Parties and within their contemplation at the time they executed the QSA and related agreements.

In relevant part, SB 277 requires that the report contain a review of the following items:

(1) The expected nature and extent of any economic impacts related to the use of land fallowing in Imperial Valley in connection with the QSA.

(2) Measures taken by IID in formulating a fallowing program to minimize as far as practicable those economic impacts.

(3) Whether and to what extent funds provided to IID for transferred water under the QSA, together with any other funds that have been made available for these purposes would mitigate those impacts.

(4) The amount of any additional funds required to mitigate the economic impacts.

(Stats. 2002, ch. 617, § 9(a).)

SB 277 further provides that if the report concludes that additional funds are required to minimize socioeconomic impacts, the report was to include recommendations to the Governor and the Legislature on all of the following:

(1) *Proposed means for providing those additional funds, including, but not limited to, funding by the state*; and

(2) Formulation of a program, developed in consultation with the Department of Finance, the Resources Agency, the Employment Development Department, IID, Imperial Valley area governments, and any other entities deemed appropriate by the Secretary of Food and Agriculture, to administer those

[9] In all other respects relating to socioeconomic impacts, SB 277 is identical to SB 482.

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funds in the most effective manner.

(Stats. 2002, ch. 617, § 9(b) (emphasis added).)

To date, the State has not issued the report, nor taken any alternative action to assist the Parties in their efforts to avoid, lessen and/or address any socioeconomic impacts that may occur, despite the Parties' and the SWRCB's reliance on the State for this assistance. If the State is of the opinion there are no impacts, it has not formally expressed this view.

D. Salton Sea Determination

Despite the potential for socioeconomic impacts, the Final Order concluded that IID's short-term fallowing program will have significant beneficial environmental impacts in the Imperial Valley, not to mention the benefits the transfer and the QSA will provide to Southern California and the State as a whole. Hundreds of thousands of acre-feet of water generated by fallowing will be discharged into the Salton Sea during the fifteen-year suspension period for the express purpose of maintaining in-flow levels into the inevitably receding Salton Sea.

To the extent the State makes a determination as to the viability of a specific restoration plan and commits to the plan, the State, on its own action, can relieve IID of its requirement to continue fallowing and thereby dramatically curtail the potential for any socioeconomic harm in the Imperial Valley. In this way, the State can simultaneously take a quantum leap toward protection of the Salton Sea and curtail the land fallowing that some in the Imperial Valley find so objectionable.

E. Measurement and Mitigation of Any Socioeconomic Impacts

Even with the short-term nature of the fallowing program permitted by the Revised Fourth Amendment, IID's pledge to exercise its "best efforts" to implement a program that would minimize any socioeconomic impacts, and the Authority's and IID's contribution of $20 million to address any such impacts, the Parties also committed to establish an "Economists' Panel" that would evaluate whether and to what extent any socioeconomic impacts occur, negative or positive, as a result of the fallowing program, and a "Local Entity" to oversee the expenditure of the $20 million, or more,[10] in mitigation funds.

[10] As noted above, the Authority agreed to mitigate any actual impacts that may occur as a result of the fallowing program, provided IID exercised "best efforts" to avoid them in the first place.

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(1) **Economist Panel**

The Revised Fourth Amendment provides for the creation of an economist panel consisting of three highly qualified economic experts – the sole method authorized by the Revised Fourth Agreement for measuring any socioeconomic impacts. They are vested with the responsibility to "establish a Socioeconomic Methodology based on a Regional Economic Model, to conduct a longitudinal study" and to consider the economic data of the IID and Imperial County. The Revised Fourth Amendment specifies that certain methodologies are to be employed to estimate and measure the annual and cumulative socioeconomic impacts of land fallowing, if any. The panel consists of one panel member selected by the Local Entity (described below), one by the Authority and the third by the two selected panel members. The Economist Panel was constituted in accordance with the Revised Fourth Amendment and began work in June, 2004.

(2) **Economists' Reports**

The Economist Panel has issued two reports — in November 2004 and June 2005. Copies of the "First" and "Second" reports are attached as Exhibits 4 and 5, respectively. Significantly, neither report found that there has been any net negative socioeconomic impacts as a result of fallowing in the Imperial Valley. Key observations and findings in the reports are summarized below:

(a) First Report (November, 2004):

The first Economist Panel report reviewed the impact of fallowing for calendar years 2003 and 2004. With respect to the 2003 fallowing program, the report concludes that:

(i) The total amount of acreage fallowed in 2003 was 5,764 acres, of which 1,830 acres were fallowed to create water for transfer to the Authority and to provide mitigation water for the Salton Sea;

(ii) 10,000 acre-feet of water was transferred to the Authority;

(iii) IID received $2,580,000 from the Authority for transferred water;

(iv) $563,477 was paid to participating fallowing landowners, of which $459, 571 was paid to residents of Imperial County;

(v) 5,000 acre-feet of Salton Sea mitigation water was moved to 2004;

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With respect to the 2004 fallowing program, the report concluded that:

(i) The total amount of acreage fallowed in 2004 was 12,127 acres, of which 6,300 acres related to water transfer, including mitigation water;

(ii) 20,000 acre-feet of water was transferred to the Authority;

(iii) $5,340,000 was paid by the Authority to IID for transferred water;

(iv) $1,388,050 was paid by the QSA Joint Powers Authority (QSA JPA) for Salton Sea mitigation water, covering the requirements for 2003 and 2004;

(v) $1,746,244 was paid to participating fallowing landowners, of which $1,424,246 was paid to residents of Imperial County;

(vi) An estimated $2.8 million of transfer money proceeds were rebated by IID to its ratepayers;

(vi) 15,000 acre-feet was transferred to the Salton Sea for mitigation of transfer-related impacts (10,000 acre-feet initially scheduled for 2004 plus 5,000 held over from 2003);

(vii) $4,200,000 in 2003-2004 transfer revenue was retained by IID and unaccounted for at the time of the report.

The report also notes that "[w]hile the land fallowing program resulted in $1,900,000 in income losses, those losses were more than offset by the third-party benefits of landowner payments for fallowing, and IID rate rebate programs designed to provide community benefits from the transfer." The report further concluded that "[b]ased on the data available, the fallowing program increased the after-tax third-party income by $1,100,000. If IID had used the $4,200,000 it was holding, it would have the potential for increasing third-party incomes by $2,000,000 to $4,100,000 resulting in total third-party benefits of between $3,100,000 and $5,200,000."

(b) Second Report (June, 2005):

The second report issued by the Economist Panel in June 2005 reported the following with respect to IID's 2005 fallowing program. Based on the information available, the Panel believed that:

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(i) In 2005, IID is expected to make available through land fallowing 30,000 acre-feet of water for the Authority and 15,000 acre-feet of water for Salton Sea environmental mitigation, for a total of 45,000 acre-feet of water;

(ii) IID will receive net payments totaling approximately $9.2 million, which consist of $8,280,000 from the Authority for 30,000 acre-feet of water transferred to the Authority, and $1,439,001 from the QSA JPA for 15,000 acre-feet of water to be made available for Salton Sea mitigation, less IID's contribution to the QSA JPA;

(iii) Out of the $9.2 million received, IID will pay landowners approximately $2.2 million to remove 8,108 acres of irrigated farmland from production in order to make this water available. The remaining $7 million will be used for a variety of purposes, including payment for fallowing unrelated to the Authority/Salton Sea water transfer, replacement of lost water and hydropower revenues caused by land fallowing, administrative expenses connected to the fallowing program, and subsidization of IID agricultural water rates[11];

(iv) The fallowing-based water transfer to the Authority and the Salton Sea will increase third-party after-tax income in Imperial County by approximately $4.3 million. In addition, the fallowing program will produce an additional $91 thousand in local tax revenues;[12]

(v) The owners of businesses (primarily farm operations) and real property realize substantial benefits from the fallowing program. These benefits are in the form of water rate subsidies as IID has used funds to offset rate increases, cost reimbursements and additional economic activity made possible by the Revised Fourth Amendment; and

(vi) Negative socioeconomic impacts are felt by farm workers and other laborers as a result of lost income from reduced crop production. Similarly, some businesses

[11] "IID's Official Statement filed with the Municipal Securities Rulemaking Board in connection with its 2004 bond offering makes a straightforward connection between fallowing revenues and water rate subsidies. The financial projections . . . are predicated on an assumption that 'additional revenues from water transfers, on top of those allocated to compensate for lost water sales, will be made as needed to stabilize future water rates. These additional revenues *provide a means of distributing water transfer proceeds broadly among IID water users*, as well as to moderate future water rate increases (italics added).'" (Second Report, at 2.3.)

[12] This conclusion is established by modeling results based on the allowable (per the Revised Fourth Amendment) monies that can be counted to make the necessary determinations about socioeconomic impacts.

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providing supplies and services to the farm sector also are undoubtedly losing income due to reductions in crop production.

Despite the conclusions of the Economist Panel in their First and Second Reports, it should be noted that the Authority understands that there remains strong community opposition to land fallowing and a prevailing opinion with the Imperial Valley that there are unmitigated adverse socioeconomic impacts to some. Moreover, the Authority is informed that while the Revised Fourth Amendment provides for an independent Economists' Panel Report, IID has elected to commission its own report by Dr. Rodney Smith ("IID Report"), an expert who testified on socioeconomic impacts attributable to long-term fallowing in the hearings that gave rise to the Final Order.

As of the submittal of these comments, the Authority has no information as to standards that are applied in the report, the date on which it might be released, or its content. To the extent the report suggests that there is the potential for significant cumulative negative socioeconomic impacts, it may serve to further galvanize opposition to land fallowing and the present methodology for measuring socioeconomic impacts.

Regardless of the methodology employed by Dr. Smith or the conclusions drawn from the IID Report, like any other offering from IID or the Authority, the IID Report will likely trigger the same skepticism as that expressed by the Imperial Valley to the Economists' Panel Report. Accordingly, the Authority sees a real benefit to the State's assistance, under the auspices of SB 482 and 277, in re-directing the process from simply an accounting exercise to one that is designed to proactively assist the Parties in developing projects and programs that are expressly designed to offset any adverse impacts associated with land fallowing, real or apparent, thereby alleviating opposition to the continuing implementation of the QSA.

F. Creation of a "Local Entity"

The Revised Fourth Amendment provides for the creation of an entity — the "Local Entity" — for the purpose of administering the receipt of socioeconomic impact payments made by the Authority and IID, and disbursement of those funds to the community affected. The Revised Fourth Amendment requires the Local Entity's work to be transparent and requires the Local Entity to prepare and publish an annual report of its receipts and disbursements, as well as a budget annually

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for its administration of the program. The Revised Fourth Amendment further provides that the Local Entity and the Authority shall coordinate the efforts of the panel (described above) with the process required by section 9 of Chapter 617 of the 2002 Statutes (i.e., SB 482 and 277). The Local Entity was created in accordance with the Revised Fourth Amendment and is in operation today. But, as the State has taken no action under SB 277, as noted above, the expected coordination has not taken place.

It was the intention of the Authority and IID that the Local Entity would operate and conduct its business with the highest degree of efficiency and lowest administrative cost possible. In fact, the Local Entity is prohibited from owning real property or employing full-time employees. Staffing (other than ministerial staff) is provided as needed for free by the IID and the County of Imperial.

G. Payments to the Local Entity

The Revised Fourth Amendment also provides that the amount of funds that the Local Entity receives from IID and the Authority "shall be sufficient to pay the estimated and measured annual and cumulative socioeconomic impacts of land fallowing and reasonable costs of administration." By the end of 2006, the Authority will have paid $10 million, plus interest, to the Local Entity as in Initial Socioeconomic Impact Payment to offset any socioeconomic impacts that may occur. This includes an initial $100,000 to fund start-up administrative costs.

The Revised Fourth Amendment further provides that starting in "Year 8" of the transfer, or 2010, IID shall pay the Local Entity, by July 31 of each "Year", socioeconomic impact payments equal to five percent (5%) of the annual contract payments made by the Authority to the IID until IID's cumulative socioeconomic impact payments to the Local Entity equal $10 million in nominal dollars. Thereafter, the Authority is required to pay all further socioeconomic impact payments to the Local Entity in excess of the Authority's Initial Socioeconomic Impact Payment and the IID payment of $10,000,000.

IV. CONCLUSION

The 1998 Water Transfer Agreement will result in nearly $3.8 billion in income to the residents of Imperial County during the transfer's initial term of 45 years. On the assurances of IID that it would exercise its "best efforts" to implement a fallowing program that minimizes

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socioeconomic impacts in the region, and the State of California's assurances, in the form of legislation, that it too would assist the Parties in this regard, the Authority agreed to amend the 1998 Water Transfer Agreement by waiving a contractual prohibition on land fallowing for a limited period of fifteen years, agreeing to provide $10 million in up-front monies to assist the Imperial Valley in reducing the possibility of such impacts, and, importantly, assuming responsibility for any actual impacts in excess of 20 million dollars.

Although there may, and undoubtedly will be, instances of individual harm, the two Economists' Panel Reports indicate there has been no net adverse impact on the Imperial Valley as a result of the water transfer program. Notwithstanding this conclusion, the Authority understands that IID has expressed its concerns regarding the methods of measurement employed by the Economist Panel in its two reports. IID remains the Authority's valued partner and we acknowledge the mutual need to sustain broad support for the transfer and to address legitimate concerns. As such, the Parties have implemented informal processes under the 1998 Water Transfer Agreement to resolve the issue, just as they have resolved every other issue that has arisen in the past. The Authority remains committed to working with IID in good faith to resolve any outstanding issues and will continue to abide by the terms of the 1998 Water Transfer Agreement.

That said, the Parties, and the businesses and residents of the State as a whole, would benefit from a more holistic approach that focuses on the identification and implementation of proactive approaches that provide direct economic benefits to the Imperial Valley, and spread and multiply those benefits for the duration of the water transfer program. If the State believes that the socioeconomic impacts of the transfer are outweighed by the benefits, it should say so. If the State believes that, despite the overall net cumulative benefits of the transfer within the Imperial Valley, the fallowing program has harmed some segment(s) of the community, then the State's leadership and oversight of a program to address those impacts, as contemplated by SB 482 and 277, would be appropriate and greatly appreciated. In fact, it may be that in developing solutions to existing concerns about socioeconomic impacts, we may find that broader community support develops for a

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HATCH AND PARENT
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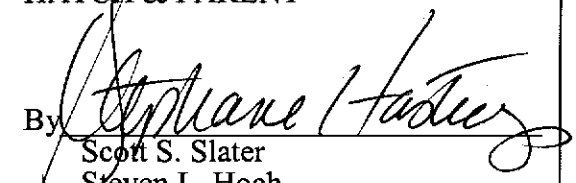
water transfer that remains essential to the implementation of the QSA and the economic well being of this State.

DATED: August 29, 2995

Respectfully submitted,

HATCH & PARENT

By 

Scott S. Slater
Steven L. Hoch
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Attorneys for Petitioner, San Diego County Water Authority

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PROOF OF SERVICE

I am a resident of the State of California, over the age of eighteen years, and not a party to the within action. My business address is 21 East Carrillo Street, Santa Barbara, California 93101-2782. On August 29, 2005, I served the within document:

COMMENTS OF SAN DIEGO COUNTY WATER AUTHORITY FOR AUGUST 30, 2005 WORKSHOP FOLLOWING WRO 2002-0013, REVISED IN ACCORDANCE WITH WRO 2002-0016

by placing said document in a sealed envelope with postage thereon fully prepaid, in the Federal Express facility at Santa Barbara, California as set forth below on the attached list, or by mailing the document electronically, to the parties that are indicated on the attached list.

SEE ATTACHED SERVICE LIST

I am readily familiar with the firm's practice of collection and processing correspondence for mailing. Under that practice it would be deposited with the U.S. Postal Service on that same day with postage thereon fully prepaid in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the above is true and correct. Executed this August 29, 2005, at Santa Barbara, California.

GINA M. LANE

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SDCWA Exh. 1

San Diego County Water Authority
2004 Annual Water Supply Report

Supply Reliability
Through Diversification

San Diego County
Water Authority

June 2004

Prepared by the
Water Resources Department

Available on the Internet at
www.sdcwa.org

2004 Annual Water Supply Report
Table of Contents

Section 1 - Introduction

The San Diego County Water Authority Administrative Code (Section 8.00.050) requires the Water Authority to provide its member agencies, the County of San Diego, and each city in the County of San Diego an annual statement regarding the Water Authority's water supplies, implementation of Water Authority plans, and programs to meet the future water supply requirements of its member agencies. This Report satisfies the Administrative Code requirements.

Section 3.1 of this Report provides documentation on the existing and planned water supplies being developed by the Water Authority, including the Water Authority-Imperial Irrigation District water transfer, All American and Coachella Canal lining projects, and seawater desalination. This documentation may be used by the Water Authority's member agencies in preparation of the water supply assessments and written verifications required under state law [Reference Water Code Sections 10910 through 10914 and Government Code Sections 65867.5, 66455.3, and 66473.7 and (commonly referred to as SB 610 and SB 221)].

Section 3.2 of this Report contains information regarding imported water supplies from Metropolitan Water District of Southern California's (Metropolitan's) 2003 Water Supply Report. When preparing the assessments and verifications for projects within its respective service areas, the Water Authority member agencies should use this Report, Metropolitan's March 2003 Report, and additional information developed by the member agency on local demands and supplies.

The Water Authority's 2000 Urban Water Management Plan (2000 UWMP) and Regional Water Facilities Master Plan (Master Plan) identify development of a diverse mix of resources to meet water supply reliability needs within the San Diego region. Development of a diverse supply provides for flexibility and adaptability in the resource mix to handle potential risks associated with managing and developing supplies. These risks could include environmental constraints, lack of political will, water supply contamination, and/or lack of funding.

Development of local supplies by the Water Authority's member agencies is a critical element to securing reliability. Therefore, Section 2.3 of this Report provides a brief discussion on the management and development of local supplies within the San Diego region compared with the supply targets included in the 2000 UWMP.

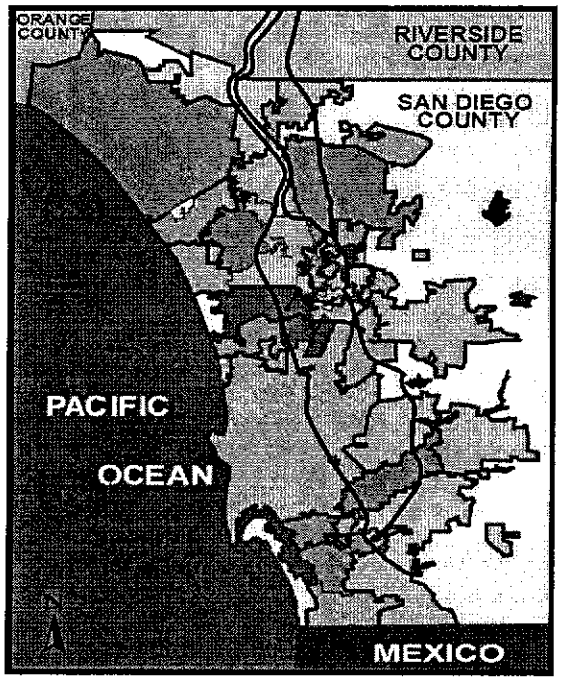
Senate Bills 610 and 221 – Water Availability and Land Use Approval

Senate Bill (SB) 610 and SB 221 amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the environmental documentation of certain large proposed projects. SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are available for certain large residential subdivisions of property prior to approval of a tentative map.

Section 2 - Regional Water Demand and Supply Overview

The Water Authority is a regional water agency, serving 23 member agencies within its service area (Figure 1). The Water Authority serves approximately 97% of San Diego County's population and provides 75-95% of the water utilized, depending upon the amount of local supply. The County Water Authority Act (Act), adopted by the California State Legislature, states that the Water Authority "as far as practicable, shall provide each of its member agencies with adequate supplies of water to meet their expanding and increasing needs."

Figure 1
Water Authority Service Area

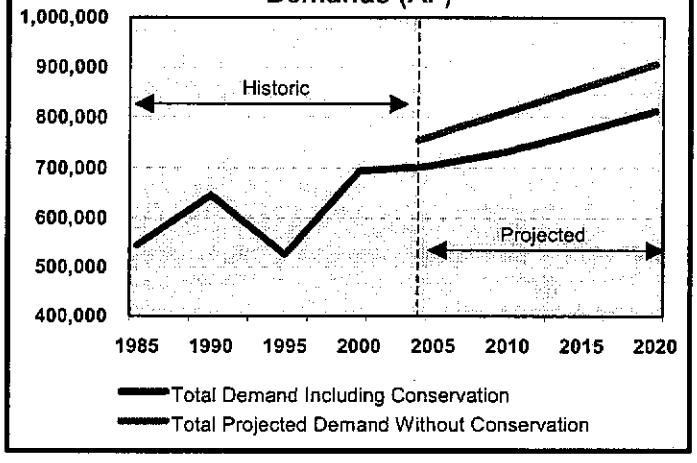


2.1 Regional Water Demands

In fiscal year (FY) 2003, water demand within the Water Authority's service area was about 649,600 acre-feet (AF). Imported supplies accounted for a significant percentage of the water used during the year. This considerable dependence on water sources from outside the region is attributable to low local surface and groundwater supplies, which resulted from several years (1999 – 2002) of below-normal local rainfall. In addition, projected development of additional member agency local supplies was not fully implemented by the end of FY 2003. Although imported water demands were above projected estimates, actual total use for FY 2003 tracked slightly below projected water demands.

Figure 2 shows historic regional water demand and total normal year water demand projections, with and without conservation. Under the current forecast, which is included in the Water Authority's 2000 UWMP, water demands with conservation are projected to reach 813,000 AF by the year 2020. The Water Authority forecasts demands using its demand forecast model (CWA-MAIN), which utilizes demographic and economic data derived from the San Diego Association of Governments (SANDAG) regional growth forecast.

Figure 2
Regional Historic and Projected Normal Demands (AF)

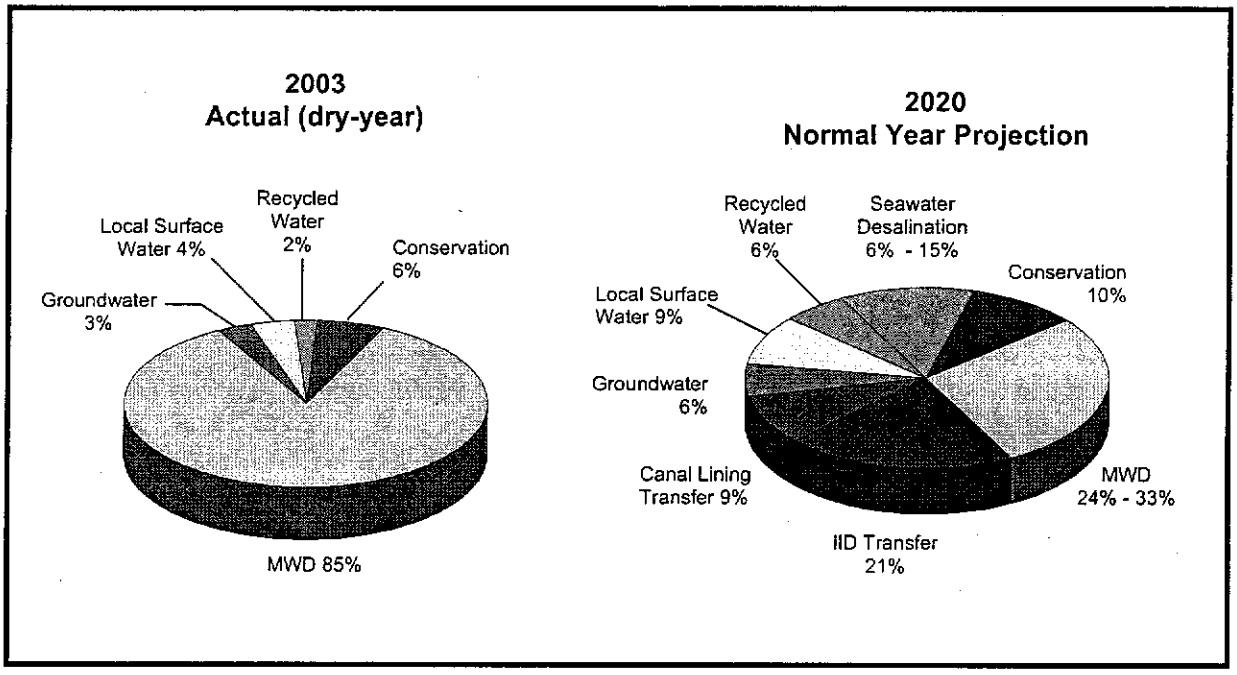


2.2 Regional Water Supply Diversification

For its first 57 years, the Water Authority purchased all its water from Metropolitan for distribution to its member agencies. Consistent with the Water Authority Act and 2000 UWMP, the Water Authority is now purchasing and delivering conserved agricultural water from the Imperial Irrigation District (IID). To further diversify the region's supply sources, the Water Authority is also implementing the All American Canal and Coachella Canal lining projects that will provide conserved water for delivery to the member agencies for 110 years. Consistent with the supply targets in the 2000 UWMP, the Water Authority is also pursing the development of a regional seawater desalination facility within San Diego County. These supplies are discussed in detail in Section 3.1 of this Report.

The San Diego region also relies on recycled water, groundwater, surface water, and conservation to meet the growing demand for water. These supplies are developed and managed by the local agencies and are a critical component of the overall reliability for the region. Figure 3 shows the Water Authority and its member agencies' plan for diversifying supplies by 2020 to reliably meet future water demands. The Water Authority anticipates that through development of the diverse mix of resources identified in Figure 3, the region will have adequate and reliable supplies to meet the projected growth in the region.

Figure 3
Meeting the Region's Water Needs in the Year 2020



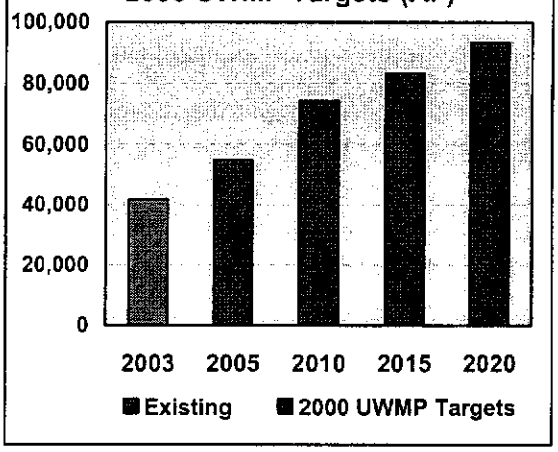
2.3 Local Water Supplies

A critical component of future reliability is development and management of local supplies and conservation programs by the Water Authority's member agencies. Development of a diverse and reliable water supply can only be obtained through a partnership between the Water Authority and its member agencies. In the Water Authority's 2000 UWMP, local supply targets were identified for water recycling, groundwater, and surface water, based on comments from member agencies. The following sections on water conservation and local supplies provide the status of the development and management of these supplies. Some of the member agencies have recently stated that the targets they provided for the 2000 UWMP are outdated and will most likely be revised downward in the 2005 UWMP.

2.3.1 Water Conservation

Water conservation, or demand management, is frequently the lowest-cost resource available to the Water Authority. Conservation reduces the amount of additional supplies the region will need to develop in the future. Between FY 1991 and FY 2003, consumers within the Water Authority's service area saved more than 280,000 AF of water through the Water Authority's and member agencies' water conservation programs. These savings have been accomplished through programs that target all customer classes (residential, agricultural, industrial, and commercial) and both outdoor and indoor water use. A complete discussion on the conservation programs is contained in the Water Authority's and member agencies' 2000 UWMPs.

Figure 4
Existing Water Conservation vs. 2000 UWMP Targets (AF)



The Water Authority's 2000 UWMP contained an annual conservation target of 93,200 AF of water savings by the year 2020. In FY 2003, approximately 41,816 AF of water was conserved. Figure 4 shows existing conservation savings compared with the targets included in the 2000 UWMP. Actual savings is tracking with the goals included in the plan.

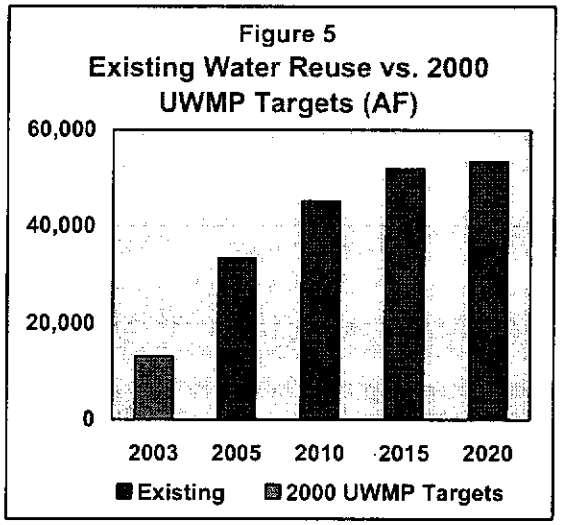
To reach the water conservation targets, continued funding at the local, regional, state, and federal levels is critical, along with an increased effort to develop outdoor water conservation programs.

2.3.2 Recycled Water

In addition to water conservation, implementation of water recycling is essential to using the region's water supplies efficiently. Water recycling is defined as the treatment and disinfection of municipal wastewater to provide a water supply suitable for non-potable reuse. A separate distribution system is required to deliver recycled water to uses such as the irrigation of golf

courses, parks and schools; and filling of lakes, ponds, and ornamental fountains. Recycled water is considered a drought-proof supply.

Based on input from the member agencies, a goal of 53,400 AF of recycled water by 2020 was identified in the Water Authority's 2000 UWMP. Currently, approximately 13,180 AF of recycled water is being used within the Water Authority's service area. Figure 5 shows the current supply development level and the water recycling targets for the region. As demonstrated by the graphic, an increased emphasis from the Water Authority and member agencies must be placed on developing this supply if the 2020 target is to be met.



Currently, local agencies are confronting obstacles that are making it difficult to meet the 2000 UWMP targets for development of recycled water. The primary obstacles that have been identified by the local agencies include market acceptance, distribution costs, high salinity levels, and lack of funding.

The Water Authority and its member agencies are taking steps to overcome the constraints associated with developing this supply. Recently, the Water Authority secured grant funding from both the State Water Resources Control Board and the Bureau of Reclamation to prepare a study that will provide specific recommendations for overcoming the obstacles that inhibit opportunities to maximize the beneficial use of recycled water. Grant funds will also be used to provide funding for local water recycling facilities planning and/or feasibility studies.

In addition, the City of San Diego is preparing a Water Reuse Master Plan 2005 to evaluate all aspects of a viable increased water reuse program, including but not limited to: 1) groundwater storage; 2) expansion of existing distribution system; 3) reservoirs for reclaimed water; 4) live stream discharge/wetlands development; and 5) reservoir augmentation.

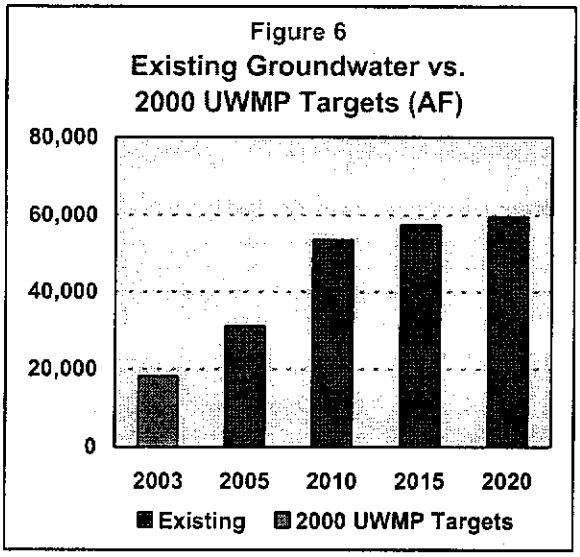
2.3.3 Groundwater

Management and development of groundwater supplies in the San Diego region is critical to the goal of diversifying the region's water resources. While supplies are limited due to geology and the semi-arid hydrologic conditions of the region, local agencies are taking actions to develop the supplies that are available. Once treated, groundwater is suitable for drinking and can be delivered directly into an agency's potable water distribution system.

Based on input from the member agencies, a goal of 59,500 AF of groundwater by 2020 was identified in the Water Authority's 2000 UWMP. Currently, approximately 18,144 AF of groundwater is being used within the Water Authority's service area. In addition, private well owners also draw on local basins, but the amount has not been accurately quantified for the

region. Figure 6 shows the current reported groundwater yield for the region and projected supply targets. As demonstrated by the graphic, a continuing emphasis from the Water Authority and member agencies must be placed on developing this supply to meet the 2020 target.

The challenges agencies face in implementing groundwater projects in the San Diego region include high saline water, resolution of water rights issues, lack of funding, and environmental and regulatory constraints.



The Water Authority, in close coordination with the City of Oceanside, is evaluating a potential groundwater storage and recovery project (conjunctive use) in the Lower San Luis Rey River Valley (Mission Basin). The feasibility study will identify project facilities, costs, and should be completed by mid-2004. Information from the study, and development of the project, will assist local agencies in developing similar projects in the coastal groundwater basins in San Diego County.

2.3.4 Local Surface Water

Surface water was the primary source of the region's water supply until imported water was made available in 1947 and is still considered an essential supply for the San Diego region. Surface water is defined as the rainfall runoff water captured in local reservoirs, which is treated to provide a water supply suitable for potable use. Surface water yields are highly variable since they are linked to fluctuations in hydrological cycles.

In the Water Authority's 2000 UWMP, a normal yield of 85,600 AF (based on a historic 24-year average) was used for planning purposes. Since 1980, annual surface water yields have ranged from a low of 21,000 AF to a high of 140,000 AF. Due to several years of below normal rainfall, the region used only 31,448 AF of surface water in FY 2003.

Maintaining water quality of the region's local surface reservoirs is critical to the reliability of this supply. Source water protection is considered a key element in protecting water quality. Member agencies and the Water Authority are working together to ensure that the protection of drinking water quality is included in land use policies and plans, and watershed management programs within San Diego County.

Section 3 - Documentation for Senate Bills 610 and 221 Reporting

3.1 San Diego County Water Authority Regional Water Supplies

The Water Authority has adopted plans and taken specific actions to develop adequate water supplies to help meet existing and future water demands within the San Diego region. This section contains details on the supplies being developed by the Water Authority. A summary of recent actions pertaining to development of these supplies includes:

- In accordance with the Urban Water Management Planning Act, the Water Authority adopted an UWMP in December 2000 that identifies a diverse mix of local and imported water supplies to meet future demands.

- In December 2003, the Water Authority certified a program environmental impact report for its Master Plan that identified development of seawater desalination as the preferred alternative to assist in meeting future regional demands. Work on the environmental documentation for a facility at the Encina Power Station has been initiated.

- Deliveries of transfer water from IID to San Diego County began in 2003.

- As part of the October 2003 Quantification Settlement Agreement, the Water Authority was assigned Metropolitan's rights to 77,700 AF of conserved water from the All American Canal and Coachella Canal lining projects. The Water Authority has begun implementation of these projects.

Through implementation of the Water Authority and member agency planned supply projects, along with reliable imported water supplies from Metropolitan, the region anticipates having adequate supplies to meet existing and future water demands.

To ensure sufficient supplies to meet projected growth in the San Diego region, the Water Authority uses SANDAG's most recent regional growth forecast in calculating regional water demands. The existing and future demands of the member agencies are included in the Water Authority's projections.

3.1.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

The Water Authority currently obtains imported supplies from Metropolitan and an increasing amount of conserved agricultural water from IID. There are 27 member agencies that purchase supplies from Metropolitan; the Water Authority is Metropolitan's` largest customer. The historical annual imported water deliveries from Metropolitan are contained in Section 2.3 of the Water Authority's 2000 UWMP.

Section 135 of Metropolitan's Act defines the preferential right to water for each of its member agencies. As calculated by Metropolitan, the Water Authority currently has a preferential right to about 15.54% of Metropolitan's supply, but accounts for approximately 28% of Metropolitan's water sales. Under preferential rights, Metropolitan could allocate water without

regard to historic water purchases or dependence on Metropolitan. The Water Authority and its member agencies are taking measures to reduce its dependence upon Metropolitan through development of additional supplies and a water supply portfolio that would not be jeopardized by a preferential rights allocation. Metropolitan has stated, consistent with Section 4202 of its Administrative Code, that it is prepared to provide the Water Authority's service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. When and as additional water resources are required to meet increasing needs, Metropolitan says it will be prepared to deliver such supplies. To seek clarification regarding the current application and legality of Section 135, the Water Authority board of directors voted in April 2004, to appeal a recent appellate court ruling that preserves Metropolitan's preferential right process. The board of directors authorized staff to petition for review by the State Supreme Court. The petition was filed on May 4, 2004.

The Water Authority has made large investments in Metropolitan's facilities and will continue to include imported supplies from Metropolitan in the future resource mix. As discussed in the Water Authority's 2000 UWMP, the Water Authority is planning to diversify its supply portfolio and reduce purchases from Metropolitan.

Implementation of water conservation measures within the Water Authority's service area is one of the most cost-effective means of reducing demands. The Water Authority's plan for achieving conservation savings and the estimated amount of future savings is discussed in detail in the Water Authority's 2000 UWMP.

To meet future demands and diversify its supplies, the Water Authority is now taking delivery of conserved agricultural water from IID, implementing the All American Canal (AAC) and Coachella Canal (CC) lining projects, and planning for the desalination of seawater. Table 1 summarizes the planned yields from these supply projects. Deliveries from Metropolitan are also included in Table 1, and are further discussed in Section 3.2 of this Report. The local supply targets were originally provided by the member agencies and are included in the Water Authority's Master Plan and 2000 UWMP.

The Water Authority's existing and planned supplies from the IID transfer, canal lining projects and seawater desalination are considered "drought-proof" supplies and should be available at the yields shown in Table 1 in both single-dry and multi-dry year scenarios. For dry-year yields from Metropolitan supplies, refer to Metropolitan's March 2003 Water Supply Report, discussed in Section 3.2 of this Report. The member agency preparing the water assessment and/or written verification will provide information on the dry-year yield from its local supplies for inclusion in the documents.

Table 1
Projected Water Supplies – Water Authority Service Area[2]
Normal Year (AF/year)

Water Supply Sources	2005	2010	2015	2020	2025
Metropolitan Supplies	526,000	345,400	343,400	290,800	310,900
Water Authority/IID Transfer	30,000	70,000	100,000	190,000	200,000
AAC and CC Lining Projects	0	77,700	77,700	77,700	77,700
Seawater Desalination[1]	0	56,000	56,000	56,000	56,000
Local Surface Water	85,600	85,600	85,600	85,600	85,600
Recycled Water	33,400	45,100	51,800	53,400	53,400
Groundwater	31,100	53,500	57,500	59,500	59,500
Total Projected Supplies	706,100	733,300	772,000	813,000	843,123

[1] The Water Authority is currently preparing an environmental impact report for 50 million gallons per day (mgd) seawater desalination project at the Encina Power Plant in the City of Carlsbad that will yield approximately 56,000 AF per year. According to the Water Authority's Master Plan, which has been approved for planning purposes, the facility could be expanded to 80 – 100 mgd in the future and/or other facilities constructed to increase this supply source.

[2] The annual supply mixes in years 2005, 2010, 2015, and 2020 are based on the Water Authority's 2000 UWMP and subsequent actions by the Water Authority board of directors. The 2025 supply mix is based on the Water Authority's Master Plan and subsequent actions by the board of directors.

As part of preparation of a written verification, an agency's shortage contingency analysis should be considered in determining sufficiency of supply. Section 6 of the Water Authority's 2000 UWMP contains a detailed shortage contingency analysis, which addresses a regional catastrophic shortage situation and drought management. The analysis demonstrates that the Water Authority and its member agencies, through the Emergency Response Plan and Emergency Storage Project, are taking actions to prepare for and appropriately handle an interruption of water supplies. The analysis also describes actions being taken by the Water Authority to firm up its supplies from Metropolitan to provide increased reliability in a drought and reduce, if not eliminate, shortages. The Water Authority, in conjunction with its member agencies, plans to develop a new drought allocation methodology in connection with the Water Authority's next UWMP update in 2005.

3.1.1a Water Authority-Imperial Irrigation District Water Conservation and Transfer Agreement

The Quantification Settlement Agreement (QSA) was signed in October 2003, and resolves long-standing disputes regarding priority and use of Colorado River water and creates a baseline for implementing water transfers. Details on the QSA are contained in Section 3.2 of this Report. With approval of the QSA, the Water Authority and IID were able to implement their Water Conservation and Transfer Agreement. This agreement not only provides reliability for the San Diego region, but also assists California in reducing its use of Colorado River water to its legal allocation.

Implementation Status

On April 29, 1998, the Water Authority signed a historic agreement with IID for the long-term transfer of conserved Colorado River water to San Diego County. Under the Water Authority-IID Agreement, Colorado River water will be conserved by Imperial Valley farmers who voluntarily participate in the program, and then transferred to the Water Authority for use in San Diego County. The water to be conserved is part of IID's Colorado River rights, which are among the most senior in the Lower Colorado River Basin.

On October 10, 2003, the Water Authority and IID executed an amendment to the original 1998 Water Authority-IID Water Transfer Agreement. The purpose of the amendment was to modify certain aspects of the 1998 Agreement to be consistent with the terms and conditions of the QSA and related agreements and to modify other aspects to lessen the environmental impacts of the transfer of conserved water. The amendment was expressly conditioned upon approval and implementation of the QSA, which was also executed on October 10, 2003.

A restructuring of the IID transfer for the first 15 years of the agreement was needed to avoid potential impacts to the Salton Sea from reduced agricultural flows to the Salton Sea that would be caused by the agricultural conservation measures in the Imperial Valley. The QSA requires that the baseline salinity levels at the Sea be maintained for 15 years while a plan to restore the Sea is developed and implemented. The amendments contemplate that IID will conduct a combined temporary fallowing and system improvement program during the first 15 years of the transfer. In the 16th year of the agreement, all temporary fallowing would end and all water for transfer would be produced through on-farm and system conservation measures.

On November 5, 2003, IID filed a complaint in Imperial County Superior Court seeking validation of 13 contracts associated with the Water Authority-IID water transfer and the QSA. Imperial County and various private parties filed additional suits in Superior Court, alleging violations of the California Environmental Quality Act (CEQA), the California Water Code, and other laws in connection with approval of the QSA, the water transfer, and related agreements. The lawsuits have been coordinated for trial. The IID, Coachella Valley Water District, Metropolitan, Water Authority, and State are defending these suits and coordinating to seek validation of the contracts. Implementation of the transfer provisions is proceeding during the litigation. For further information regarding the litigation, please contact the Water Authority's General Counsel.

Expected Supply

With execution of the QSA and related agreements, delivery of 10,000 AF of transfer water into San Diego County occurred in calendar year 2003. In accordance with the water transfer agreement with IID, 20,000 AF will be conserved and delivered to the Water Authority in 2004. The quantities will increase annually to 200,000 AF by 2021, and remain fixed for the duration of the transfer agreement. The initial term of the agreement is 45 years, with a provision that the agreement may be extended for an additional 30-year term by mutual agreement.

Transportation

The Water Authority entered into a water exchange agreement with Metropolitan on October 10, 2003, to transport the Water Authority-IID transfer water from the Colorado River to San Diego County. Under the exchange agreement, Metropolitan will take delivery of the transfer water through its Colorado River Aqueduct. In exchange, Metropolitan will deliver to the Water Authority a like quantity and quality of water. The Water Authority will pay Metropolitan's applicable wheeling rate for each acre-foot of exchange water delivered. According to the water exchange agreement, Metropolitan will make delivery of the transfer water for 35 years, unless the Water Authority elects to extend the agreement another 10 years for a total of 45-years.

Cost/Financing

The costs associated with the transfer are proposed to be financed through the Water Authority's rates and charges. In the agreement between the Water Authority and IID, the price for the transfer water will start at $258 per acre-foot and increase each year at a set price for the first five years. The 2004 price for transfer water is $267 per acre-foot. Procedures are in place to evaluate and determine market-based rates following the first five-year period.

In accordance with the October 2003 amended exchange agreement between Metropolitan and the Water Authority, the initial cost to transport the conserved water was $253 per acre-foot. Thereafter, the price shall be equal to the charge or charges set by Metropolitan's board of directors pursuant to applicable law and regulation, and generally applicable to the conveyance of water by Metropolitan on behalf of its member agencies.

The Water Authority will pay IID an up-front payment of $10 million to help offset socioeconomic impacts associated with temporary land fallowing. IID will credit the Water Authority for this up-front payment during years 16 through 45. At the end of the fifth year of the agreement, the Water Authority will prepay IID an additional $10 million for future deliveries of water. IID will credit the Water Authority for this up-front payment during years 16 through 30.

As part of implementation of the QSA and water transfer, the Water Authority also entered into an environmental cost sharing agreement. The agreement specifies that the Water Authority will contribute $64 million for the purpose of funding environmental mitigation costs and contributing to the Salton Sea Restoration Fund.

Written Contracts or other Proof

The supply and costs associated with the transfer are based primarily on the following documents:

- **Agreement for Transfer of Conserved Water by and between IID and the Water Authority (April 29, 1998).** This Agreement provides for a market-based transaction in which the Water Authority would pay IID a unit price for agricultural water conserved by IID and transferred to the Water Authority.

- **Amendment to Agreement between IID and the Water Authority for Transfer of Conserved Water (October 10, 2003).** Consistent with the executed QSA and related agreements, the amendments restructure the agreement and modify it to minimize the environmental impacts of the transfer of conserved water to the Water Authority.

- **Amended and Restated Agreement between Metropolitan and Water Authority for the Exchange of Water (October 10, 2003).** This agreement was executed pursuant to the QSA and provides for delivery of the transfer water to the Water Authority.

- **Environmental Cost Sharing, Funding, and Habitat Conservation Plan Development Agreement among IID, CVWD, and Water Authority (October 10, 2003).** This Agreement provides for the specified allocation of QSA-related environmental review, mitigation, and litigation costs for the term of the QSA, and for development of a Habitat Conservation Plan.

- **Quantification Settlement Agreement Joint Powers Authority Creation and Funding Agreement (October 10, 2003).** The purpose of this agreement is to create and fund the QSA Joint Powers Authority and to establish the limits of the funding obligation of CVWD, IID, and Water Authority for environmental mitigation and Salton Sea restoration pursuant to SB 654 (Machado).

Federal, State, and Local Permits/Approvals

- **Environmental Impact Report (EIR) for Conservation and Transfer Agreement.** As lead agency, IID certified the Final EIR for the Conservation and Transfer Agreement on June 28, 2002.

- **Addendum to EIR for Conservation and Transfer Agreement.** IID as lead agency and Water Authority as responsible agency approved addendum to EIR in October 2003.

- **Environmental Impact Statement (EIS) for Conservation and Transfer Agreement.** Bureau of Reclamation issued a Record of Decision on the EIS in October 2003.

- **Federal Endangered Species Act Permit.** The U.S. Fish and Wildlife Service issued a Biological Opinion on January 12, 2001, that provides incidental take authorization and certain measures required to offset species impacts on the Colorado River regarding such actions.

- **California Endangered Species Act Permit.** Application for Section 2081 permit is pending with California Department of Fish and Game.

- **State Water Resources Control Board (SWRCB) Petition.** SWRCB adopted Water Rights Order 2002-0016 concerning IID and Water Authority's amended joint petition for approval of a long-term transfer of conserved water from IID to the Water Authority and to change the point of diversion, place of use, and purpose of use under Permit 7643.

3.1.1b All American Canal and Coachella Canal Lining Projects

As part of the QSA and related contracts, the Water Authority was assigned Metropolitan's rights to 77,700 AF per year of conserved water from projects that will line the All American Canal (AAC) and Coachella Canal (CC). These projects will reduce the loss of water that currently occurs through seepage and that conserved water will be delivered to the Water Authority. This will provide the San Diego region with an additional 8.5 million AF of water over the 110-year life of the agreement.

Implementation Status

The AAC lining project is in the pre-design phase. The lining project consists of constructing a concrete-lined canal parallel to 23 miles of the existing AAC from Pilot Knob to Drop 3. National Environmental Policy Act (NEPA) and CEQA documentation is complete, environmental mitigation measures have been identified and Endangered Species Act consultations are pending. Under the current schedule, the project is expected to be completed in 2008.

The final design for the CC lining project is complete. Compliance with CEQA and NEPA has also been completed, including an amended Record of Decision by the Bureau of Reclamation. The amendment was required after the project design was revised from lining the existing canal to construction of a parallel canal. It is expected that construction should start in mid-2004 and be complete within two years, with deliveries beginning in early 2007.

Expected Supply

The AAC lining project will yield 67,700 AF of Colorado River water per year and the CC lining project will yield 26,000 AF per year. Under the October 10, 2003, Allocation Agreement, 16,000 AF per year of conserved canal lining water will be allocated to the San Luis Rey Indian Water Rights Settlement Parties. The remaining amount, 77,700 AF per year, will be available to the Water Authority beginning in approximately 2008. According to the Allocation Agreement, IID has call rights to a portion (5,000 acre-feet per year) of the conserved water upon termination of the QSA for the final 35 years of the Allocation Agreement and upon satisfying certain conditions.

Transportation

The October 10, 2003, Exchange Agreement between Water Authority and Metropolitan also provides for the delivery of the conserved water from the canal lining projects. The Water Authority will pay Metropolitan's applicable wheeling rate for each acre-foot of exchange water delivered. In the Agreement, Metropolitan will deliver the canal lining water for the term of the Allocation Agreement (110 years).

Cost/Financing

Under California Water Code Section 12560 et seq., the Water Authority would receive $200 million in state funds for construction of the projects. In addition, under California Water Code Section 79567, $20 million from Proposition 50 could also be available for the lining projects. Additionally, the Water Authority will receive $35 million for groundwater conjunctive use projects as part of the agreement. The Water Authority would be responsible for additional expenses above the grant funds provided by the state.

In accordance with the amended exchange agreement between Metropolitan and the Water Authority, the cost to transport the canal lining water is equal to the charge or charges set by Metropolitan's board of directors pursuant to applicable law and regulation and generally applicable to the conveyance of water by Metropolitan on behalf of its member agencies.

In accordance with the Allocation Agreement, the Water Authority will also be responsible for a portion of the net additional Operation, Maintenance, and Repair (OM&R) costs for the lined canals. The Secretary of Interior, working with the Canal Lining Projects OM&R Coordinating Committees, will determine the additional costs of operation, maintenance, and repair of the AAC and CC.

Any costs associated with the lining projects as proposed, are to be financed through the Water Authority's rates and charges.

Written Contracts or other Proof

The expected supply and costs associated with the lining projects are based primarily on the following documents:

- **U.S. Public Law 100-675 (1988).** Authorized the Department of the Interior to reduce seepage from the existing earthen AAC and CC. The law provides that conserved water will be made available to specified California contracting water agencies according to established priorities.

- **Allocation Agreement among the United States of America, The Metropolitan Water District of Southern California, Coachella Valley Water District, Imperial Irrigation District, San Diego County Water Authority, the La Jolla, Pala, Pauma, Rincon, and San Pasqual Bands of Mission Indians, the San Luis Rey River Indian Water Authority, the City of Escondido, and Vista Irrigation District (October 10, 2003).** This agreement includes assignment of Metropolitan's rights and interest in delivery of 77,700 AF of Colorado River water previously intended to be delivered to Metropolitan to the Water Authority. Allocates water from the AAC and CC lining projects for at least 110 years to the Water Authority, the San Luis Rey Indian Water Rights Settlement Parties, and IID, if it exercises its call rights.

- **Amended and Restated Agreement between Metropolitan and Water Authority for the Exchange of Water (October 10, 2003).** This agreement was executed pursuant to the QSA and provides for delivery of the conserved canal lining water to the Water Authority.

- **California Water Code Section 12560 et seq.** This Water Code Section provides for $200 million to be appropriated to the Department of Water Resources to help fund the canal lining projects in furtherance of implementing California's Colorado River Water Use Plan.

- **California Water Code Section 79567.** This Water Code Section identifies $20 million as available for appropriation by the California Legislature from the Water Security, Clean Drinking Water, Coastal, and Beach Protection Fund of 2002 (Proposition 50) to DWR for grants for canal lining and related projects necessary to reduce Colorado River water use. According to the Allocation Agreement, it is the intention of the agencies that those funds will be available for use by the Water Authority, IID, or CVWD for the AAC and CC lining projects.

- **Agreement between Metropolitan and Water Authority regarding Assignment of Agreements related to the ACC and CC Lining Projects.** This agreement was executed in April 2004 and assigns rights to the Water Authority for the following agreements that had been executed to facilitate funding and construction of the ACC and CC lining projects:

  * **California Department of Water Resources – Metropolitan Funding Agreement (2001).** Reimburse Metropolitan for project work necessary to construct the lining of the CC in an amount not to exceed $74 million.

  * **California Department of Water Resources – IID Funding Agreement (2001).** Reimburse IID for project work necessary to construct a lined AAC in an amount not to exceed $126 million.

  * **Metropolitan – CVWD Assignment and Delegation of Design Obligations Agreement (2002).** Assigns design of the CC lining project to CVWD.

  * **Metropolitan – CVWD Financial Arrangements Agreement for Design Obligations (2002).** Obligates Metropolitan to advance funds to CVWD to cover costs for CC lining project design and CVWD to invoice Metropolitan to permit the Department of Water Resources to be billed for work completed.

Federal, State, and Local Permits/Approvals

- **AAC Lining Project Final EIS/EIR (March 1994).** A final EIR/EIS analyzing the potential impacts of lining the AAC was completed by the Bureau of Reclamation (Reclamation) in March 1994. A Record of Decision was signed by Reclamation in July 1994, implementing the preferred alternative for lining the AAC. A re-examination and analysis of these environmental compliance documents by Reclamation in November 1999 determined that these documents continued to meet the requirements of the NEPA and the CEQA and would be valid in the future.

- **CC Lining Project Final EIS/EIR (April 2001).** The final EIR/EIS for the CC lining project was completed in 2001. Reclamation signed the Record of Decision in April 2002.

An amended Record of Decision has also been signed to take into account revisions to the project description.

3.1.1c Proposed Seawater Desalination Project at Encina

A Seawater Desalination Project (Project) is being proposed that would consist of a 50 mgd reverse osmosis desalination plant sited at the Encina Power Station in the City of Carlsbad. The Project would also include the pipelines and ancillary facilities necessary to convey product water from the plant to local and regional water distribution systems.

Implementation Status

In June 2003, the Water Authority board of directors approved including the Project in the Water Authority's FY 04 and FY 05 Capital Improvement Program (CIP) Budget. Funds have been budgeted to support planning activities related to the desalination plant and distribution facilities necessary to connect the plant with the Water Authority's pipelines. A comprehensive engineering study on the distribution facilities was recently completed. The Water Authority is currently preparing an EIR and anticipates release of a public draft EIR by the end of 2005. Simultaneously with the Water Authority's efforts, Poseidon Resources LLC, of Stamford, Conn., is pursing the implementation of a privately owned local supply project at the same location in the City of Carlsbad. The Poseidon project is also in the environmental review and planning stages.

Expected Supply

The Project is anticipated to produce 56,000 AF annually of new water supply generated from seawater drawn in by the Encina Power Station cooling water circulation system from the Pacific Ocean via the Agua Hedionda Lagoon. The Project would provide a new source of high quality water that would meet or exceed state and federal standards.

Cost/Financing

The total estimated capital cost of the Project was initially estimated at $272 million in 2001 dollars. This cost estimate is currently being evaluated and will likely be higher based on results from the conveyance feasibility study. The Water Authority is pursuing external funding to offset the capital and operating cost of the Project, including funding through the Metropolitan's Seawater Desalination Program (SDP), state funding through the recently passed Proposition 50, as well as federal funding opportunities.

The Water Authority secured federal funding in the FY 2004 Omnibus Appropriations Act (Act) for seawater desalination development. The Act includes a provision under the VA/HUD State and Tribal Assistance Grants account program that provides $750,000 for the Water Authority's seawater desalination program.

Federal, State, and Local Permits/Approvals

Table 2 provides a list of the major permits and discretionary actions required for the Project and the anticipated schedule for completion of the permitting process. Based on the estimated completion dates also shown in Table 2, the Water Authority anticipates the Project to be on-line in 2010.

Table 2
List of Major Permits and Discretionary Actions

Permit or Discretionary Action	Purpose	Scope	Scheduled Completion
Certification of Environmental Impact Report	Satisfy the requirements of the California Environmental Quality Act.	Those aspects of the proposed Project that may affect environmental quality.	2006
Endangered Species Act Compliance (ESA)	Satisfy ESA requirements.	Proposed distribution facilities.	2006
Domestic Water Supply Permit	Satisfy the requirements of the state and federal Safe Drinking Water Acts.	Source water and product water quality, treatment plant reliability, and monitoring program.	2006 (Conceptual approval)
National Pollutant Discharge Elimination System Permit	Satisfy the requirements of the federal Clean Water Act, California Water Code, Ocean Plan, and Comprehensive Water Quality Control Plan for the San Diego Region.	Proposed discharge of concentrated seawater to the Pacific ocean via existing cooling water discharge system.	2006
Coastal Development Permit	Satisfy the requirements of the California Coastal Act and the federal Coastal Zone Management Act.	Those aspects of the proposed Project that may affect coastal resources.	2007
Right-of-Way Acquisition for conveyance facilities	Acquire land necessary for construction of conveyance facilities.	Proposed distribution facilities.	2007

3.1.2 Water Authority's Capital Improvement Program and Financial Information

The Water Authority's annual CIP budget document includes a description of each of the projects and programs being implemented to ensure existing and future facilities are adequate to deliver water supplies throughout the region. The project costs, along with information on the activities that need to be completed, are included in the CIP document. A programmatic environmental impact report has been certified by the Water Authority board of directors for the Master Plan. The Master Plan identifies future facilities and other improvements to the Water Authority's system that are necessary to diversify supplies and maintain reliability throughout the region. Projects identified in the Master Plan will be included in the CIP based on Water Authority board of directors' approval.

One of the highest priority projects identified in the Master Plan is the development of additional treatment capacity within the region. During recent summers' the Water Authority has experienced peak-demand conditions that have slightly exceeded the regions rated treatment capacity. The Master Plan recommends development of an additional 50 million gallons per day (mgd) of treatment capacity immediately and another 50 mgd capacity by 2010. The Water Authority and its member agencies are evaluating alternatives to determine the most reliable and

cost-effective method of increasing regional treated water capacity. The Water Authority expects to select a preferred alternative by summer of 2004. In the near-term, the Water Authority and its member agencies are implementing short-term conservation programs and operational procedures to ensure adequate supplies during peak summer periods.

The Water Authority board of directors is provided a semi – annual and annual report on the status of development of the CIP projects. As described in the Water Authority's budget, a combination of long- and short-term debt and cash (pay-as-you-go) will provide funding for capital improvements. Additional information is included in the Water Authority annual budget. The Water Authority's annual report also contains selected financial information and summarizes the Water Authority's investment policy.

3.2 Metropolitan Water District of Southern California 2003 Water Supply Report

In March 2003, Metropolitan produced a document entitled, *Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability* (March 2003 Report). The objective of the March 2003 Report is to provide the member agencies, retail water utilities, cities, and counties within its service area with water supply information for purposes of developing water supply assessments and written verifications. The March 2003 Report states the approach to evaluating water supplies and demands is consistent with Metropolitan's 2000 Regional UWMP. As part of this process, Metropolitan utilizes SANDAG's regional growth forecast in calculating regional water demands for the Water Authority's service area.

3.2.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

Metropolitan is a wholesale supplier of water to its member public agencies and obtains its supplies from two primary sources: the Colorado River, via the Colorado River Aqueduct (CRA), which it owns and operates, and Northern California, via the State Water Project (SWP). The purpose of the March 2003 Report is to document the availability of these existing supplies and additional supplies necessary to meet future demands. Metropolitan has not yet updated the March 2003 Report. To ensure a thorough analysis of the water supplies available to serve existing and projected growth, supplemental information to the March 2003 Report is included in the following paragraphs.

Colorado River Aqueduct Deliveries

The March 2003 Report includes a description of Metropolitan's 550,000 AF per year basic annual apportionment water (Priority 4) along with the Colorado River supply projects that are necessary to maintain a full CRA. One of the actions that were finalized following distribution of the March 2003 Report is approval of the QSA and other related agreements. Signing of the QSA and related agreements will now allow implementation of Colorado River supply projects identified in Metropolitan's March 2003 Report. Information on these activities is discussed below.

The QSA is an integral part of California's Colorado River Water Use Plan to reduce dependency on Colorado River supplies. The QSA resolves long-standing disputes regarding

priority and use of river water and creates a baseline for implementing water transfers. Implementation of the QSA also enables California to receive the benefit of special surplus criteria for Colorado River supplies to significantly increase the probability of surplus deliveries and provide a "soft-landing" for California while it reduces its take on the Colorado River.

Written Contracts or other Proof

The following is a list of major QSA-related agreements and actions pertinent to water supply reliability in San Diego County along with the date that each were executed:

- **Passage of SB 654 (Machado), SB 317 (Kuehl), and SB 277 (Ducheny) (September 2003).** In September 2003, California's Governor signed three bills necessary to carry out the actions contained in the QSA and related agreements.

- **Quantification Settlement Agreement by and among Imperial Irrigation District, Metropolitan, and Coachella Valley Water District (October 10, 2003).** This Agreement and related agreements are intended to settle longstanding disputes regarding the priority, use, and transfer of Colorado River water, and to establish by agreement the terms for the further distribution of Colorado River water among agencies for up to 75 years. The agreement will also assist the agencies in meeting their water demands within California's apportionment of Colorado River water by identifying the terms, conditions, and incentives for the conservation and distribution of Colorado River water within California.

- **Colorado River Delivery Agreement among the Department of the Interior, Coachella Valley Water District, Imperial Irrigation District, Metropolitan, and Water Authority (October 10, 2003).** This Agreement provides federal authorization for water deliveries pursuant to the QSA. With approval by the Secretary of Interior, the Interim Surplus Guidelines have been reinstated.

- **Allocation Agreement among the United States, Metropolitan, Coachella Valley Water District, Imperial Irrigation District, the Water Authority, and the San Luis Rey Indian Water Rights Settlement Parties (October 10, 2003.)** This Agreement allocates water from the lining of the AAC and CC and assigns the right to 77,700 AF of conserved water per year from Metropolitan to the Water Authority in accordance with the Agreement.

Federal, State, and Local Permits/Approvals

- **Final Program Environmental Impact Report (June 2002) for Implementation of the Colorado River Quantification Settlement Agreement.** In June 2002, the three California Colorado River agencies (Metropolitan, IID, and CVWD) certified the Program Environmental Impact Report (PEIR) for the QSA.

- **Addendum to Final PEIR for Implementation of the Colorado River Quantification Settlement Agreement (October 2003).** The Addendum to the Final PEIR was approved by the agencies during the months of September and October 2003. The modifications to

the QSA require only minor changes to the evaluation in the certified Final PEIR to make it adequate under CEQA and do not require preparation of a subsequent EIR pursuant to CEQA.

- **Conservation Agreement among the Bureau of Reclamation, Imperial Irrigation District, Coachella Valley Water District, and San Diego County Water Authority (October 10, 2003).** This agreement is for the purpose of establishing the rights and obligations of the parties to implement the provisions of the Species Conservation Program. IID has commenced development of a habitat conservation plan (HCP) in accordance with the Federal and California Endangered Species Act, related to implementation of water conservation projects identified in the QSA. The HCP is not expected to be completed for up to three years after the execution of the QSA and the parties desire to participate with the Bureau of Reclamation in the implementation of the Species Conservation Program for the purpose of obtaining incidental take authorization pending completion of the HCP.

Colorado River Supply Conditions

The Colorado River watershed is experiencing the fifth consecutive year of a drought that has impacts throughout western United States. The period since 1999 is now officially the driest in the 98 years of recorded history of the Colorado River. The basin states are having discussions with the Bureau of Reclamation on potential drought management programs to reduce the risk of shortages. Metropolitan staff is involved in these talks. Some of the programs being considered are re-operation of the system to minimize evaporation, system loses, and potential for a drought water bank in Lake Mead. It should be noted that according to the "law of the river," California has a higher priority to supplies in times of shortages, but will need to take steps to ease the drought impacts on the other western states. Water Authority staff is evaluating imported water supply conditions to determine if the Water Authority needs to take additional steps to secure supplies to minimize risk of shortages.

Integrated Resources Plan

Metropolitan has released, for public review, a draft update to its 1996 Integrated Resources Plan (IRP). The update discusses supply reliability associated with execution of the QSA and includes a buffer supply to mitigate against the risks associated with implementation of local and imported supply programs. The planning buffer identifies an additional increment of water that could be potentially developed if other supplies are not implemented as planned. As part of implementation of the planning buffer, Metropolitan should evaluate supply development annually to ensure that the region is not over-developing supplies. If managed properly, the planning buffer will help ensure that the southern California region, including San Diego County, will have adequate supplies to meet future demands.

Future supply reliability relies not only upon actions by Metropolitan to secure reliable imported supplies, but local agencies developing local projects identified in the future resource mix. Table 3 demonstrates the diverse mix of resources and storage projects planned within Metropolitan's service area, and include the planning buffer. The information contained in the table is from Metropolitan's December 2003 draft IRP update.

Table 3
Summary of Metropolitan's IRP Update Dry-Year Targets (AF)

	2010	2020	2025
Conservation	865,200	1,027,600	1,106,900
Local Production[1]	1,808,966	1,911,193	1,922,608
Total Local Projects[2]	410,000	750,000	750,000
Groundwater Conjuntive Use	275,000	300,000	300,000
State Water Project	463,000	650,000	650,000
Colorado River Aqueduct	1,001,000	985,000	1,005,000
CVP/SWP Storage and Transfers[2]	300,000	550,000	550,000
MWD Surface Storage[3]	620,000	620,000	620,000

Source: Draft IRP Update, Metropolitan Water District, December 2003.

[1] Includes groundwater and surface production and imported supplies from the LA Aqueduct.

[2] Target includes 250,000 acre-foot planning buffer in years 2020 through 2025. The amount of supplies shown are not necessary to meet demands in those years, but must be considered in order to be available to mitigate for risks associated with supplies not being development. Metropolitan should evaluate supply implementation annually and adjust the amount of planning buffer accordingly.

[3] Represents annual production, not the total storage capacity.

SDCWA Exh. 2

NOTICE OF PREPARATION
PUBLIC SCOPING MEETING NOTICE

DATE: September 25, 2003

TO: Interested Agencies and Individuals

LEAD AGENCY: San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123

SUBJECT: Notice of Preparation of an Environmental Impact Report for the San Diego County Water Authority Seawater Desalination Project at Encina

The San Diego County Water Authority (Water Authority) will be the Lead Agency for the preparation of an Environmental Impact Report (EIR) in accordance with California Environmental Quality Act (CEQA) Guidelines (Cal. Code of Regs. Title 14 §15082 (a), 15103, 15375). The EIR will assess the environmental effects of implementing a proposed regional seawater desalination project in the City of Carlsbad. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by the Water Authority when considering your permit or other approval.

The purpose of this notice is: (1) to serve as the Notice of Preparation to potential Responsible Agencies, federal agencies involved in funding or approving the project, and Trustee Agencies responsible for natural resources affected by the project, pursuant to Section 15082 of the CEQA Guidelines; and (2) to advise and solicit comments and suggestions regarding the preparation of the EIR, environmental issues to be addressed in the EIR, and any related issues, from interested parties other than those noted above, including interested or affected members of the public. The Water Authority requests that any potential Responsible or Trustee Agency responding to this notice respond in a manner consistent with Guidelines Section 15082(b).

All parties that have submitted their names and mailing addresses will be notified as part of the current project's CEQA review process. If you wish to be placed on the mailing list or have any questions or need additional information, please contact the person identified below.

The project description, location, and potential environmental effects are provided in the attached materials.

Public Scoping Meeting: Two public open house and scoping meetings will be held on the seawater desalination project. The meetings will commence promptly at the addresses, dates, and times shown below:

Date: October 14, 2003
Time: Open house: 10:30 a.m. Scoping: 11:00 a.m.
Place: San Diego County Water Authority – Training Room
4677 Overland Avenue
San Diego, CA 92123

Date: October 14, 2003
Time: Open house: 5:30 p.m. Scoping: 6:30 p.m.
Place: Windmill Banquet and Catering – Grand Ballroom
890 Palomar Airport Road
Carlsbad, CA 92008

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but no later than 30 days after receipt of this notice. Please send your written responses, including the name of a contact person, to:

Mr. Larry Purcell
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233
Telephone: (858) 522-6752
Facsimile: (858) 268-7881

Project Title: Seawater Desalination Project at Encina

Signature: _____
Title: Director of Water Resources

Attachments

Attachment to Notice of Preparation of an Environmental Impact Report for the San Diego County Water Authority Seawater Desalination Project at Encina

WATER AUTHORITY BACKGROUND

The San Diego County Water Authority (Water Authority) was organized on June 9, 1944 to provide a safe and reliable water supply to its member agencies serving the San Diego Region. The Water Authority has 23 member agencies, consisting of six cities, 16 special districts and the Pendleton Military Reservation. As the regional water wholesaler, the Water Authority currently purchases water from the Metropolitan Water District of Southern California. The Water Authority's Urban Water Management Plan, adopted in December 2000, calls for diversification of the Authority's water supplies, including potential use of desalinated seawater.

The Water Authority is governed by a 34-member Board of Directors. The General Manager and staff implement the policies approved by the Board of Directors and handle the agency's day-to-day operations. The Water Authority has approximately 200 employees working within 11 major functional areas of responsibility: Administrative Services, Imported Water, Finance, Water Resources, Public Affairs, Engineering, Operations and Maintenance, Right of Way, Human Resources and Offices of the General Manager and General Counsel.

The current estimated population in San Diego County is 2.8 million people, 97 percent of who live within the Authority's service area. The service area lies within the foothills and coastal areas of the westerly third of San Diego County, encompassing approximately 909,000 acres.

PROJECT DESCRIPTION/BACKGROUND

The proposed project consists of a 50 million gallon per day (mgd) seawater desalination plant along with pipelines, pumps, and other appurtenant and ancillary water facilities to produce and distribute potable water through the Water Authority's aqueduct system. The Project is a Water Authority regional water supply project that may become a significant water supply source. The desalination plant portion of the Project would be constructed on property currently owned by Cabrillo Power I LLC (Cabrillo), co-located on-site at the existing Encina Power Station (EPS), immediately south of the Aqua Hedionda Lagoon. The EPS is owned and operated by Cabrillo. The EPS and underlying land are zoned by the City of Carlsbad as Public Utility.

The proposed co-location of related public utility/industrial land uses is a key element of the Project specifically designed to utilize built-in environmental and economic efficiencies, including ready access to electricity and the existing EPS seawater intake and discharge infrastructure, thereby keeping the cost of desalinated water competitive with the cost of new imported water supplies.

The Project would occupy an approximately four-acre site within the boundaries of the EPS, at the location of an existing fuel oil storage tank. The EPS is a coastal dependent land use located on the south shore of the Agua Hedionda Lagoon within the City of Carlsbad, in northern San Diego County. The EPS was originally constructed from 1948 to 1952 and has been in continual operation for approximately 50 years. The Project's regional location is shown in Exhibit 1, *REGIONAL VICINITY MAP*. As shown in Exhibit 2, *SITE VICINITY MAP*, surrounding features and land uses include the Pacific Ocean and Carlsbad Boulevard to the west, the Carlsbad State Beach and Agua Hedionda Lagoon to the west and north, Interstate 5, North County Transit District (NCTD) rail line, San Diego Gas & Electric (SDG&E) properties to the east, and Cannon

Road and adjacent residential community of Terra Mar to the south. Primary access to the site is provided from Carlsbad Boulevard via the Cannon Road interchange at Interstate 5.

The Project would have the capacity to deliver up to 50 mgd (56,000 acre-feet per year) of Reverse Osmosis (RO) product water to existing local distribution systems and/or directly into the Water Authority's existing Second Aqueduct. The desalinated water would be further distributed along several pipeline routes for ultimate use and consumption by homes and businesses in San Diego County. It is currently contemplated that the desalination plant portion of the Project would be initially sized for a 50 mgd facility; however, the water conveyance system would be sized to accommodate a potential future expansion of the facility to 100 mgd. Separate and subsequent environmental review would be required for any future expansion of the desalination facilities. The primary Project components are listed below:

On-Site Project Elements

- 50 mgd desalination facility with associated structures/facilities
- Two pump stations (intake and product water)
- Seawater supply pipeline connecting EPS seawater discharge to proposed desalination facility
- Concentrate disposal pipeline connecting proposed desalination facility to EPS discharge channel
- Waste disposal pipeline
- Product water conveyance pipeline
- Electrical substation, transformer and related appurtenances

Off-Site Project Elements

- One pump station (product water)
- Approximately 200 feet of pipeline to connect a new on-site waste disposal line to the regional sewer system
- Approximately 10 miles of 48- to 66-inch diameter pipeline to connect the desalination plant to the Water Authority' Second Aqueduct. The Project may connect to Maerkle Reservoir as a storage facility (refer to Exhibit 3, *CONCEPTUAL PIPELINE ALIGNMENTS*).
- The project may also require modification, replacement and/or a parallel pipeline and ancillary facilities (control structures and storage tanks) along portions of the existing Second Aqueduct.
- The project may require either replacement or a parallel pipeline and ancillary facilities (control structures and storage tanks) along portions of the Tri-Agency Pipeline (TAP).

The Seawater Desalination Process

Source water for the Project will come from warmed seawater diverted from existing cooling water pipelines at the EPS. Up to 104 mgd of seawater would be diverted from the EPS condenser outlets and routed to the desalination facility. The source water will be pre-treated, if necessary, and filtered through RO membranes to produce drinking water (product water). The product water may be stored in on-site facilities temporarily prior to transmission to regional storage and distribution systems. New pipelines and pump stations would be constructed for conveyance of the product water to the Water Authority and its member water agencies.

The by-product of the RO desalination process is water with approximately twice the typical salt concentration of seawater. This saline by-product water will be mixed with the return flow from the EPS cooling water system prior to discharge to the Pacific Ocean. Cooling water from the EPS generating units flows into a common discharge tunnel and through a warm water discharge pond before traveling through box culverts under Carlsbad Boulevard into a riprap-lined channel leading to the Pacific Ocean.

REGULATORY BACKGROUND

Pursuant to Section 15367 of the California Environmental Quality Act (CEQA), the Water Authority is the Lead Agency in the preparation of this EIR.

Actions identified to achieve approval of the proposed Project may include, but are not limited to: certification of the EIR by the Water Authority; a Coastal Development Permit from the California Coastal Commission; amendments to existing leases with the California State Lands Commission, a Domestic Water Supply Permit from the California Department of Health Services; a National Pollutant Discharge Elimination System (NPDES) Permit from the San Diego Regional Water Quality Control Board. Additional permits and approvals may be necessary (to be determined following refinement of project design) from the San Diego Air Pollution Control District (SDAPCD), Caltrans, and the Cities of Carlsbad, Oceanside, Vista, and San Marcos. Additional review may also be provided by federal, state and regional agencies including, but not limited to: the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, NOAA/U.S. National Marine Fisheries Service, U.S. Army Corp of Engineers, California Department of Fish and Game and State and County Environmental Health Offices.

SUMMARY OF KEY ENVIRONMENTAL ISSUES

A list of potentially significant environmental issues and related discussion is provided below, and will most likely be modified during the course of EIR preparation:

Aesthetics
Air Quality
Biological Resources
Geology and Soils
Hazards and Hazardous Materials
Hydrology and Water Quality
Land Use and Relevant Planning
Noise
Traffic/Circulation
Other CEQA mandated sections (i.e., alternatives, cumulative impacts, growth inducement, etc.) must also be evaluated in this EIR.

Aesthetics

The desalination facility would be located within the boundaries of the existing Encina Power Station, which currently consists of large fuel oil storage tanks, steam turbines, and a 400-foot tall emission stack. The facility would occupy an approximately four-acre area currently containing fuel oil tank #3. Aesthetic considerations within the Project site, if any, are minimal. However, the Project site is surrounded by elements that contribute to the scenic nature of the area (the Pacific Ocean, Agua Hedionda Lagoon, beaches and low coastal bluffs).

The desalination facility would be contained within structures that are smaller than those of the existing power plant. It is anticipated the specific facility design will include some combination of building setbacks, enhancement of existing berms and landscaping to further soften its appearance. Building design should be evaluated to fully assess the project's impacts, and suitable mitigation proposed as necessary. The proposed desalination facility would replace the existing dilapidated fuel oil storage tank with structures featuring architectural and landscaping enhancements, which can be considered a beneficial impact in regards to aesthetics.

The City of Carlsbad General Plan has designated specific transportation corridors as scenic roadways. Although a portion of Carlsbad Boulevard, which borders the Project site, has been designated as a "Community Theme Corridor" because of its visual access to beaches, the ocean, three lagoons and flower fields, no adverse impacts are expected to this scenic corridor given the relative small size of the building. New light sources associated with the Project will be regulated by local ordinance and are not expected to result in an intrusion to the surrounding area. Surface coatings and materials applied to all new structures are not anticipated to result in substantial glare impacts.

While construction of ancillary pipelines and pump stations may have aesthetic impacts, such impacts would be short-term in nature. As all pipelines would be placed underground (primarily within existing roadway right of way (ROW) and/or other easements), long-term aesthetic impacts are not anticipated to occur. Any pump station not placed completely underground would be designed to complement existing community character.

Air Quality

The Project is consistent with the existing underlying General Plan and zoning designations for the site and expected to be consistent with the adopted Air Quality Management Plan (AQMP) for the San Diego Air Basin (SDAB).

The desalination facility is not labor intensive from a day-to-day operations standpoint. As such, the Project will not create substantial increases in traffic volumes, and therefore would not noticeably affect current levels of long-term mobile source emissions.

The desalination process utilizes electric pumping equipment, which would account for additional electricity generation emissions. These emissions alone are not expected to be significant. Additionally, the electric pumps and other equipment required to operate the desalination facility are not anticipated to require additional permitting through the San Diego Air Pollution Control District (SDAPCD).

Short-term construction activities may result in temporary increases in emissions, dust and odors from construction equipment. In addition, demolition and removal of existing containment berms surrounding the EPS fuel oil storage tank #3 may require a substantial amount of off-site soil export. However, the Project site is located within an existing industrial area, removed from potentially sensitive receptors. Further, potential air pollutant emissions effects of pipeline and pump station construction activities are localized, short term and transient. All local and SDAPCD standards will be adhered to during the construction phase of the project. As supported by the preceding discussions, while Project impacts on air quality would not be substantial, because the proposed Project would be located within a non-attainment basin for certain criteria pollutants, the cumulative impact of the Project would likely be considered significant.

Biological Resources

The Project has the potential to affect marine and coastal biological resources through the discharge of water with increased salinity through the existing EPS discharge channel. The focus of the terrestrial impacts would relate to the off-site pipeline alignments. Additionally, sensitive bird species have been identified as utilizing the Agua Hedionda Lagoon as nesting or foraging habitat. These species and their habitat may also be affected by short-term construction of the desalination plant. Since the proposed desalination plant will draw source water from the existing cooling water pipelines at EPS, no increase in entrainment or impingement of marine organisms is anticipated.

Potential marine/coastal biological impacts of the proposed project would be related to the introduction of concentrated saline by-product water (brine) into the Pacific Ocean through the existing EPS discharge channel. Additional desalination byproduct compounds may be introduced into the marine environment. This could potentially affect marine resources immediately offshore of the discharge channel and coastal resources adjacent to the discharge channel. Also, construction of the off-site pipelines and pump stations, especially portions of the alignment proposed to go through undeveloped uplands, will need be evaluated relative to their potential to affect terrestrial biological resources and native habitats.

Geology and Soils

Numerous earthquake faults have been mapped within the Southern California region, although no faults have been identified within the Project site. Due to the widespread nature of earthquake hazards within Southern California, adverse effects to people or structures resulting from seismic activity such as ground shaking, surface rupture, and liquefaction are possible.

Because the topography of the Project site is relatively flat, with few slopes, the potential for landslides is considered minimal. Implementation of the Project would not result in substantial adverse effects to people or structures from landslides.

Implementation of the Project will require demolition and grading to remove the earthen containment berms surrounding existing fuel oil storage tanks, and to compact and smooth the existing topography of the site. Demolition and grading could reveal the presence of potentially contaminated soils, as fuel oil has historically been stored on-site. Construction activities will temporarily expose underlying soils, thereby increasing susceptibility to erosion until the Project is fully implemented. Likewise, potential impacts could arise from temporary stockpiling soil during pipeline construction activities. Portions of off-site pipeline alignments may require either deep open cuts and/or tunneling. Potential limitations of soils underlying the site that may affect the Project, including further analysis of the presence of petroleum contaminated soils and potential erosion and/or unstable soil conditions, including susceptibility to liquefaction, subsidence and soil expansion, will be assessed within the EIR.

Hazards and Hazardous Materials

Project operation will involve some routine transport, storage, use, and disposal of various water treatment chemicals such as non-gaseous sodium hypochlorite, ferric chloride, sulfur dioxide, carbon dioxide, anti-scalant and caustic soda. The project site, being located within the existing EPS facility, is relatively self-contained. Numerous redundant Federal, State, and Occupational Safety and Health Association (OSHA) regulations govern the transport, handling and storage of the on-site chemicals. In the unlikely event of a chemical spill, the impact would most likely be

directed at on-site personnel rather than the population at large. These hazards impacts will be addressed within the EIR.

The Project does not involve the emission or handling of hazardous materials within one-quarter mile of an existing or proposed school. No schools are currently located or proposed for construction within the proximity of the Project site.

There is a potential for the desalination facility site to contain hazardous materials related to historic and current generating station and fuel oil storage operations. Specifically, the site may include areas of contaminated soil from oil residues. In addition, potential impacts could result from unknown hazards and historic uses at the site encountered during storage tank demolition and Project construction activities. Implementation of the off-site pipeline/pump station elements of the proposed project is not anticipated to result in significant impacts in regards to hazards and hazardous materials.

The Project is located approximately 2.5 miles west of Palomar Airport, and approximately 17 miles southeast of the landing strip at Marine Corps' Camp Pendleton. Implementation of the Project is not anticipated to result in safety hazards related to air traffic or air space considerations for the people residing or working in the project area.

The Project conforms with the existing General Plan designation for the site, which was not found to conflict with any adopted emergency response plan at the time of adoption. Similarly, the general plan does not identify the Project site as subject to significant risks associated with wildland fires.

Hydrology and Water Quality

Encina Power Station discharges are currently permitted and regulated under a National Pollutant Discharge Elimination System (NPDES) permit through the San Diego Regional Water Quality Control Board (SDRWQCB). The Project would not increase seawater intake beyond current or permitted levels. Seawater would be diverted after it has already been through the generating station's once through non-contact cooling water system, and before it is returned to the ocean.

The Project would divert up to 104 mgd from the generating station's existing, permitted discharge of 857 mgd into the Pacific Ocean. Approximately 40 to 60 mgd of the diverted waters would be converted to product (potable) water through the desalination treatment processes, and routed to proposed and existing regional and local water distribution systems. The residual 40 to 60 mgd of by-product waters resulting from the desalination process will be recombined with the generating station effluent prior to ocean discharge. The constituency of the desalination process by-product water, source water, and product water and the applicable standards will be identified and evaluated within the EIR. Potential impacts on existing water conveyance facilities due to mixing of proposed desalination product water and existing potable water (i.e. corrosion, leaching, etc.) will also be addressed.

Project-related construction activities have the potential to temporarily degrade stormwater runoff. The Agua Hedionda Lagoon is identified on the County of San Diego 404(d) list for sedimentation. All aspects of the Project will conform with applicable NPDES permit requirements, including the incorporation of a Storm Water Pollution Prevention Plan (SWPPP) employing Best Management Practices (BMPs) to minimize soil erosion, sedimentation and turbidity. Details regarding aspects of the Project that could potentially provide substantial

additional sources of polluted runoff, or otherwise degrade water quality, will be provided within the EIR.

The Project does not involve residential construction and would not expose resident populations to potential flood hazards. Nor does the Project propose aspects or elements that would impede or otherwise alter flood flows. Further, the Project would be located in an area already committed to industrial uses recognizing and accommodating potential flood hazards implicit in coastal locations. While the Agua Hedionda Lagoon is located within a 100-year floodplain, the Project site itself is not.

Potential inundation by failure of a levee or dam is not a consideration at the Project site. Although the site is at a low enough elevation that it could conceivably be affected by significant tsunami, the likelihood of such an event is considered remote and unlikely.

Land Use and Relevant Planning

The Project will be located within the established industrial EPS site, and does not propose elements or aspects that would physically divide an established community.

The Project is generally consistent with the underlying General Plan and zoning designations for the site within the City of Carlsbad General Plan and Zoning Ordinance. The Project is also located within the South Carlsbad Coastal Redevelopment Plan area and is within Specific Plan 144. Although the project is exempt from local land use and building regulations, its location may have impacts on implementation of local land use plans for other, non-exempt, uses. The Project is within the Coastal Zone and is expected to require review by the California Coastal Commission as part of the Coastal Development Permit process. The site is within the Agua Hedionda Land Use Plan, which, although adopted by the City, has not been certified by the Coastal Commission. The effect of the water delivery system on local land use both inside and outside of the City of Carlsbad may also require evaluation. The Project's potential to conflict with applicable adopted Habitat Conservation Plan(s) (HCP) or Natural Communities Conservation Plan(s) (NCCP) will be identified within the EIR.

Noise

The Project site would be located immediately adjacent to an existing noise source, i.e., the Encina Power Station. Although construction of the desalination plant and its long-term operation are not expected to generate localized external noise sufficient to exceed established noise ordinances or thresholds of significance, an on-site noise analysis to identify any necessary mitigation measures will be performed.

Additionally, construction of the water conveyance pipeline(s) would temporarily increase noise levels in areas proximate to pipeline alignment(s), with potential effects on nearby sensitive receptors. Construction activities may also result in some ground-level noise or vibration levels at adjacent land uses. Potential impacts due to temporary construction noise will be assessed and mitigation measures proposed within the EIR.

The Project is located approximately 2.5 miles west of the McClellan Palomar Airport and approximately 17 miles southeast of the landing strip at the Marine Corps' Camp Pendleton. Given the lack of sensitive receptors near the Project site as well as the distance of these facilities in relation to the Project site, aircraft-related noise impacts at the Project site are not anticipated to be an issue.

Traffic/Circulation

The total number of average daily trips (ADT) associated with the operation of the Project is expected to be fairly low and is, therefore, not expected to cause a substantial increase in traffic in and around the Project site. The desalination facility is not labor intensive, and is not expected to result in significant impacts on the surrounding roadway network, nor will the trips generated by the Project meet the Congestion Management Plan (CMP) thresholds required to prepare a CMP Traffic Impact Analysis (TIA). Likewise, construction of the proposed desalination plant is not anticipated to cause any substantial impact on the roadway network.

The Project site is located over two miles from the McClellan Palomar Airport. Development of the site will not affect existing air traffic patterns.

Long-term Project operations are not anticipated to conflict with or affect policies, plans or programs supporting alternate transportation, nor create any dangerous intersections or incompatible vehicular uses. However, construction of the water conveyance pipelines to transport potable water may cause short term, temporary and reversible impacts to roadways, traffic circulation, and public transit. Additionally, these impacts, although temporary, could have an effect on both emergency access routes and on-street parking. The level of impact will be dependent on the precise alignment of the pipelines. These impacts will be fully analyzed and mitigation measures developed to minimize any significant impacts within the EIR.

Cultural Resources

Although the desalination facility site at the EPS has been previously disturbed, graded, and developed, portions of the off-site pipeline and pump station facilities may be constructed in native areas. These areas have the potential to contain archaeological, paleontological, and/or historical resources, and will be assessed.

Cumulative Impacts

As required by CEQA, potential cumulative impacts of the Project when added to all other reasonably foreseeable projects in the vicinity will be addressed within the EIR.

Growth Inducement

As the Project may become a substantial regional water supply source within San Diego County, impacts in regards to growth inducement may occur. Because the Water Authority provides water on a regional basis rather than jurisdictional level, it is not possible to identify a precise destination or use for any given increment of water supply. Nevertheless, it is conceivable that water from the Project may remove a potential barrier to regional growth. In addition, the Project pipelines and pump stations will be designed to accommodate a potential future increase in potable water production to 100 mgd. However, this would require expansion of the desalination plant, along with separate environmental documentation and revised regulatory permits, which would be prepared should this expansion occur.

The Water Authority has prepared a Draft Program EIR for its Water Facilities Master Plan, circulated for public review in August 2003. Issues associated with augmentation of regional water supplies to meet the regional population forecasts adopted by the San Diego Association of Governments (SANDAG) have been addressed in that Program EIR. To the extent not otherwise

covered by the Water Facilities Master Plan Program EIR and as required by CEQA, potential growth inducing impacts created by implementation of the Project will be assessed.

Alternatives

As required by CEQA Guidelines Section 15126.6, a range of reasonable alternatives to the Project, which would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects, will be assessed. The comparative evaluation of alternatives within the EIR will include the following:

- *No-Project Alternative* – An evaluation of the impacts associated with no construction and operation of the Project and related components, as well as the No-Project Alternative's ability to attain the basic objectives of the Project.
- *25 mgd Project Alternative* – A facility designed to produce 25 mgd of high quality drinking water onsite. This alternative may or may not connect to the Water Authority aqueduct.
- *100 mgd Project Alternative* - A facility designed to produce 100 mgd of high quality drinking water onsite.
- *Alternative Project Site* – An evaluation of the potential environmental effects of co-locating the Project at the Encina Wastewater Treatment Plant in Carlsbad.
- *Alternative Off-Site Pipeline and Pump Station Plan* – An evaluation of the potential environmental impacts associated with several proposed pipeline alignments and pump station locations, including the following:
  - Pumping product water from the desalination plant to the Second Aqueduct via the City of Carlsbad Maerkle Reservoir, the City of Oceanside Guajome Reservoir, and the North County Distribution Pipeline.
  - Pumping product water to local entities in the vicinity of the plant, including but not limited to, the City of Carlsbad, Vista Irrigation District, Vallecitos Water District, San Dieguito Water District and the City of Oceanside.
- *Alternative Water Supplies* – The EIR will address alternative water supply options, as set forth in the Regional Master Plan Program EIR, the Water Authority's Urban Water Management Plan, and Metropolitan Water District's Urban Water Management Plan.

Other issues for inclusion may be identified as a result of scoping or agency input.

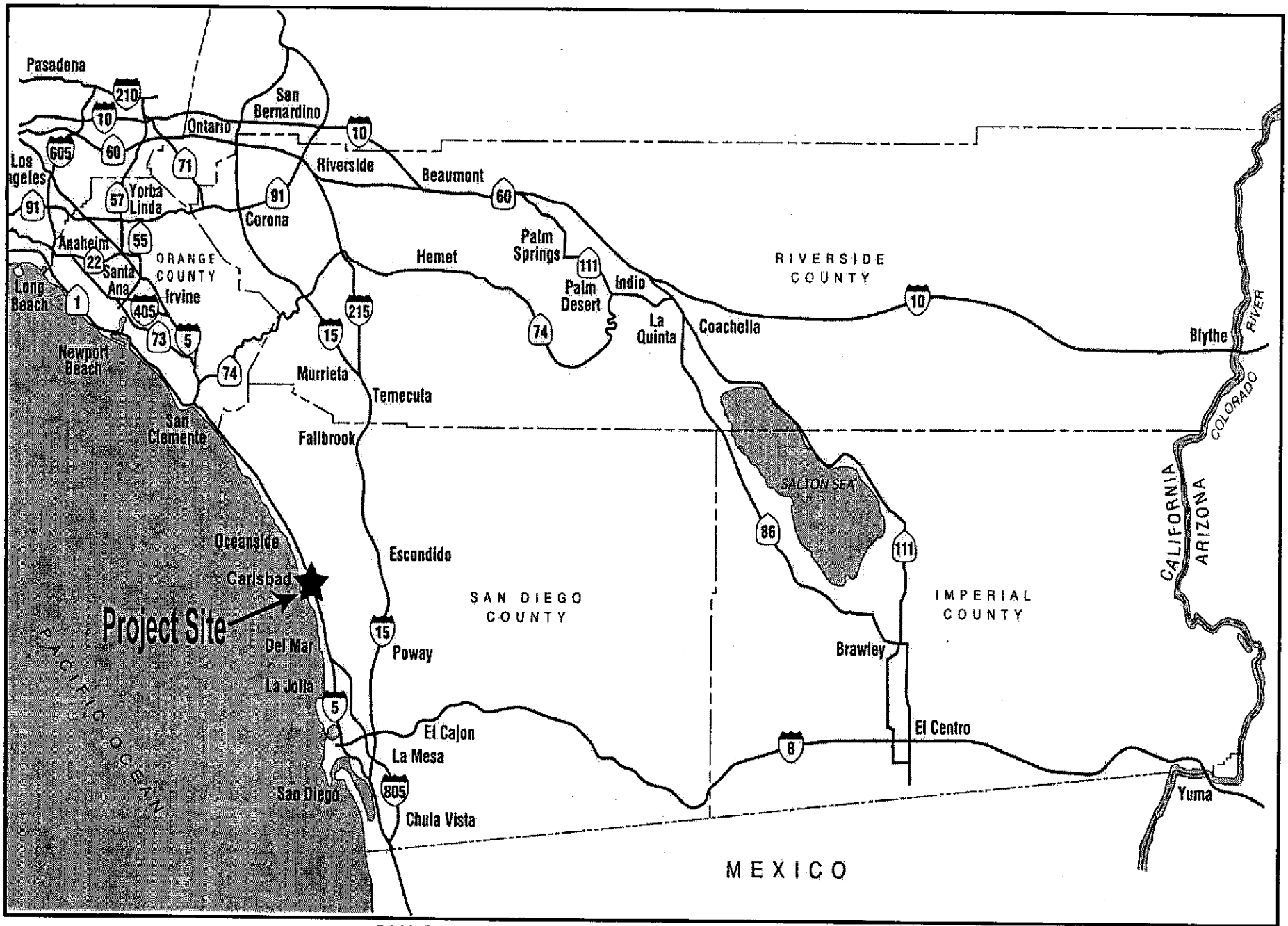
ENVIRONMENTAL REVIEW PROCESS

Following completion of the 30-day Notice of Preparation public review period, the Water Authority will incorporate relevant information into the Draft EIR, including results of public scoping and technical studies. The Draft EIR will be circulated for public review and comment for the required 45-day public review period. All individuals that have requested, in writing, will be placed on a Notice of Availability list for the Draft EIR. In addition, the Draft EIR and related materials will be available for review at the San Diego County Water Authority, 4677 Overland Avenue, San Diego, CA 92123. Following receipt of

all written comments on the Draft EIR, the Water Authority will prepare Responses to Comments as part of the Final EIR, which will be considered and acted upon by the Water Authority's Board of Directors. The Water Authority will provide notification of future public meetings for this project to individuals that have requested to be included on the project interest list.

Should you have any questions or comments regarding this Notice of Preparation, please contact Mr. Larry Purcell, San Diego County Water Authority, Water Resources Manager at (858) 522-6752.

Insert Exhibit 1
REGIONAL VICINITY MAP



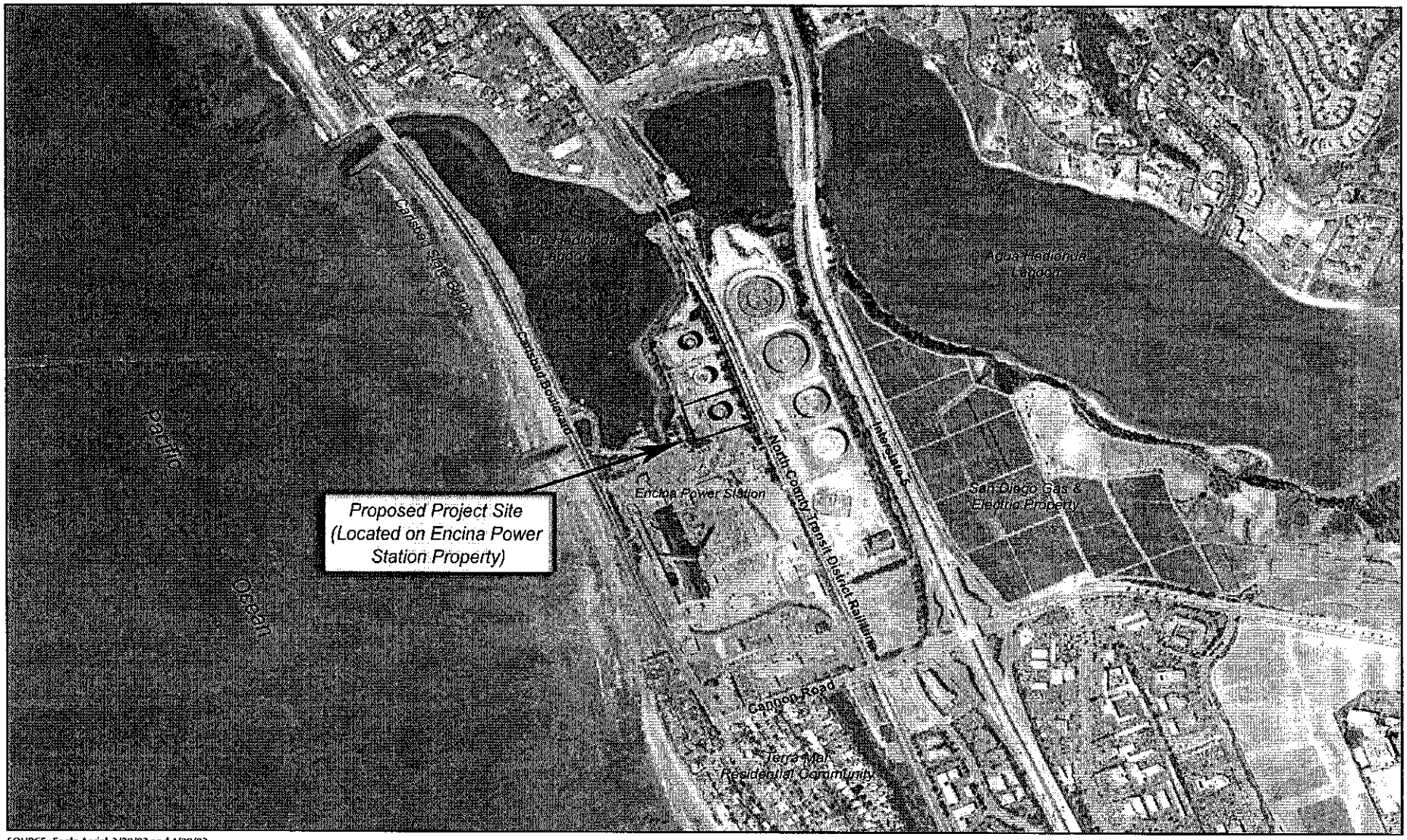
SAN DIEGO COUNTY WATER AUTHORITY SEAWATER DESALINATION PROJECT AT ENCINA

RBF CONSULTING

Regional Vicinity Map

Exhibit 1

Insert Exhibit 2
SITE VICINITY MAP



SOURCE : Eagle Aerial, 3/20/02 and 4/29/02.

SAN DIEGO COUNTY WATER AUTHORITY SEAWATER DESALINATION PROJECT AT ENCINA

Site Vicinity Map

Exhibit 2

RBF CONSULTING

9/10/03 JN 65-100058

Insert Exhibit 3
CONCEPTUAL PIPELINE ALIGNMENTS

SDCWA Exh. 3

REVISED FOURTH AMENDMENT TO AGREEMENT BETWEEN IMPERIAL IRRIGATION DISTRICT AND SAN DIEGO COUNTY WATER AUTHORITY FOR TRANSFER OF CONSERVED WATER

THIS REVISED FOURTH AMENDMENT TO THE AGREEMENT BETWEEN IMPERIAL IRRIGATION DISTRICT AND SAN DIEGO COUNTY WATER AUTHORITY (the "Amendment") dated as of October 10, 2003, by and between IMPERIAL IRRIGATION DISTRICT ("IID"), a California irrigation district and SAN DIEGO COUNTY WATER AUTHORITY ("Authority"), a California county water authority, amends that certain Agreement For Transfer of Conserved Water by and between Imperial Irrigation District and San Diego County Water Authority dated April 29, 1998 (the "Agreement"), and all previous amendments.

BACKGROUND

A. IID is a party to that certain Quantification Settlement Agreement ("QSA") among IID, Metropolitan Water District ("MWD") and Coachella Valley Water District ("CVWD"). The QSA and a number of other agreements defined in the QSA as Related Agreements (the "Related Agreements") will be executed by the parties to each of those Related Agreements, including, as applicable, the United States of America and the California Department of Water Resources ("DWR") upon completion of environmental review and satisfaction of a number of conditions. The QSA and the Related Agreements consensually establish the terms for the priority, use and distribution of Colorado River Water among IID, Authority, MWD and CVWD. The Related Agreements include, inter alia, the Agreement, the Agreement for Acquisition of Conserved Water By and Between Imperial Irrigation District and Coachella Valley Water District ("IID/CVWD Acquisition Agreement"), the Agreement for Acquisition of Conserved Water By and Between Imperial Irrigation District and The Metropolitan Water District of Southern California ("IID/MWD Acquisition Agreement"), the Amended and Restated Agreement Between The Metropolitan Water District of Southern California and the San Diego County Water Authority for the Exchange of Water, dated October 10, 2003 ("Exchange Agreement") and the Environmental Cost Sharing, Funding and Habitat Conservation Plan Development Agreement among CVWD, IID, and the Authority ("ECSA"), the Quantification Settlement Agreement Joint Powers Authority Creation and Funding Agreement ("QSA-JPA"), the Agreement for Transfer of Conserved Water By and Between Imperial Irrigation District and California Department of Water Resources ("IID/DWR Agreement"), the Agreement for Acquisition of Conserved Water By and Between the California Department of Water Resources and The Metropolitan Water District of Southern California ("DWR/MWD Acquisition Agreement"), and the Allocation Agreement Among the United States, IID, CVWD, MWD and the Authority ("Allocation Agreement").

B. This Amendment is to modify certain aspects of the Agreement to be consistent with the terms and conditions of the QSA and Related Agreements and to modify other aspects to temporarily lessen the environmental impacts of the transfer of Conserved Water from the IID to the Authority. This Amendment is expressly conditioned upon the satisfaction or waiver of all terms and conditions of the QSA and the occurrence of the QSA Effective Date as defined in the QSA.

C. All capitalized terms used and not otherwise defined herein shall have their respective meaning provided in the Agreement.

D. The Recitals to this Amendment and the Exhibits attached to this Amendment are a part of the terms of this Amendment.

CONDITIONS

1. Conditions to this Amendment. This Amendment is subject to the satisfaction of the following conditions on or before the dates specified below.

A. QSA. The QSA Effective Date, as defined in the QSA, has occurred by October 12, 2003.

B. Wheeling. The Authority and MWD have executed the Exchange Agreement on or before the QSA Closing Date as defined in the QSA.

C. SWRCB. The order of the State Water Resources Control Board conditionally approving the transfer of Conserved Water is modified as necessary to authorize the transfer consistent with this Amendment on or before October 31, 2003.

2. The parties agree that upon execution of this Amendment, and without regard to any conditions, each will act in good faith and exercise reasonable efforts to implement the Agreement as amended hereby. Upon satisfaction of all conditions precedent to this Amendment, the operative terms of this Amendment shall be effective and shall be governed by and construed in accordance with the laws of the State of California, without giving effect to the conflicts of laws principles thereof. This Amendment may be executed in any number of counterparts with the same effect as if the signatures thereto were upon one instrument. This Amendment constitutes an amendment and modification of the Agreement in accordance with § 18.9 of the Agreement and shall be read and construed with the Agreement as one instrument. Except as expressly amended hereby, the Agreement shall remain in full force and effect, and the parties hereby ratify, confirm and adopt the Agreement, as amended hereby.

TERMS

In consideration of the mutual covenants and agreements contained herein and for other good and valuable consideration and intending to be legally bound hereby, the IID and the Authority agree:

Article 1

Section 1.1(a) is modified by substituting the following definition:

"1.1(a) Actual Wheeling Rate – The rate per AF to be paid by the Authority to MWD as determined by agreement or arbitration, litigation or other dispute-resolution mechanism between the Authority and MWD for wheeling water from Lake Havasu to the Conveyance Path Terminus, calculated by dividing

the Agreement Year annual total of all required payments (exclusive of any fixed costs, and net of any benefit credits) by the difference between the total Agreement Year annual volume of Conserved Water transferred by the IID to the Authority less any Conveyance Losses from Lake Havasu to the Conveyance Path Terminus."

Section 1.1(c) is deleted.

Section 1.1(i) is modified by substituting the following definition:

*"1.1(i) **Agreement Year 1** – Calendar Year 2003."*

Section 1.1(n) is deleted.

Section 1.1(bk) is modified by replacing it in its entirety by the following:

"(bk) IID Environmental Cost Ceiling. A cost that is not of a magnitude in Effective-Date Dollars that will exceed thirty million dollars ($30,000,000.00)."

Section 1.1(cu) is modified to substitute *"in accordance with the ramp-up schedule set forth in modified § 3.1"* for the existing reference to *"by twenty thousand (20,000) AFY."*

Section 1.1(dc) is deleted.

Section 1.1(dv) is deleted.

Section 1.1(dw) is deleted.

Section 1.1 (ea) is modified to substitute *"(af)"* for *"(ag)."*

Section 1.1 (ec) is modified to substitute *"(ag)"*for *"(ah)."*

Section 1.1 (ed) is modified to substitute *"(ah)"* for *"(ai)."*

Section 1.1 (ee) is modified to substitute *"(ai)"* for *"(aj)."*

Section 1.1(eg) is deleted.

Section 1.1(eh) is deleted.

Article 2

No changes.

Article 3

Section 3.1 is in its entirety is replaced by substituting the following ramp up schedule and provision regarding the Stabilized Primary Quantity.

"Primary Transfer. Subject to satisfaction or waiver of the Contracting Landowner conditions of § 9.4, the quantity of Conserved Water transferred in Agreement Years 1 through 19 shall be as follows:

Agreement Year	*Quantity (AFY)*
1	*10,000*
2	*20,000*
3	*30,000*
4	*40,000*
5	*50,000*
6	*50,000*
7	*60,000*
8	*70,000*
9	*80,000*
10	*90,000*
11	*100,000*
12	*100,000*
13	*100,000*
14	*100,000*
15	*100,000*
16	*130,000*
17	*160,000*
18	*190,000*
19	*200,000*

Subject to satisfaction of the Contracting Landowner conditions of § 9.4, the Stabilized Primary Quantity will be two hundred thousand (200,000) AFY. The IID may not change the quantity of the Stabilized Primary Quantity once the amount has been established."

Section 3.2 is modified by replacing it in its entirety with the following:

"3.2 Discretionary Additional Transfers. Subject to the provisions of this section, if IID in its complete discretion wishes to transfer "Additional Available Water" between Agreement Year 1

through Agreement Year 18, it must offer that Conserved Water first to the Authority.

(a) Additional Available Water. "Additional Available Water" means that quantity of Conserved Water, if any, up to a maximum volume in any Agreement Year calculated by subtracting the ramp-up volume identified in modified § 3.1 for any Agreement Year from two hundred thousand (200,000) AFY. Additional Available Water does not include:

(i) Water that the IID transfers to MWD or CVWD under the QSA; or

(ii) Water conserved from the All-American Canal or Coachella Canal.

(iii) Water that IID transfers under the IID/DWR Agreement.

(b) Price. The price for Additional Available Water will be the same price as for the Primary Transfer Water transferred under § 3.1 concurrently.

(c) Procedure. The transfer of Additional Available Water shall proceed as follows:

(i) Notice to Acquirer. On or after January 1 of Agreement Year 2, on each occasion that it wishes to transfer Additional Available Water, the IID shall give a notice of its desire to transfer Additional Available Water ("Notice to Transfer"). The Notice to Transfer must contain the terms of the desired quantity, transfer start date, period over which the transfer would increase from the minimum to the maximum and any environmental, transportation, SWRCB approval, BOR approval or Landowner participation conditions.

(ii) Response to Notice; Meet and Confer. The Authority must either decline the offer of Additional Available Water, accept the terms and conditions contained in such Notice, respond with alternative acceptable terms and conditions, or meet and confer with the IID to determine whether mutually acceptable terms and conditions can be negotiated. The Parties have six (6) months from the giving of the Notice to Transfer to reach an agreement on the terms and conditions for the transfer of Additional Available Water or the Notice will be deemed rejected.

(iii) Condition Removal. Should the Parties agree that the transfer of Additional Available Water may be

conditioned on the satisfaction of environmental, transportation, SWRCB approval, BOR approval or Landowner participation conditions, the period for satisfaction of such conditions may not be longer than twenty-four (24) months from the date that the Parties reach agreement on the terms for transfer of the Additional Available Water. The Parties agree to proceed with reasonable diligence and use reasonable best efforts to satisfy any conditions for which a Party has accepted responsibility.

(iv) Start Date. The first day that Additional Available Water may be transferred to the Authority is the later of:

(A) January 1 of Agreement Year 3, or

(B) Six (6) months after the satisfaction of the last remaining condition referenced in § 3.2(c)(iii) above.

(v) Term. The term of transfer of Additional Available Water must end no later than the end of Agreement Year 18.

(vi) Waiver of Right to Acquire or Transfer. The failure of the Parties to negotiate acceptable terms and conditions for the transfer of Additional Available Water shall entitle the IID to give a "Notice of Waiver" which results in the Authority relinquishing any further rights as to a transfer of water under the Notice of Transfer which is the subject of the Notice of Waiver. If all of the agreed upon conditions for the transfer of Additional Available Water are not satisfied or waived, the IID shall be entitled to give a Notice of Waiver as to that Notice of Transfer.

New Section 3.5 is added in its entirety as follows:

"3.5 Early Transfer Water. In addition to any Conserved Water that IID may transfer to the Authority under §§ 3.1, 3.2, 3.3 or 3.4 herein, IID will transfer ten thousand (10,000) AF of Conserved Water in the manner set forth elsewhere in this Article 3 ("Early Transfer Water"). The Early Transfer Water shall be made available to the Authority at Imperial Dam in Calendar Years 2020, 2021 and 2022 as follows:

Calendar Year 2020:	*2,500 AF*
Calendar Year 2021:	*5,000 AF*
Calendar Year 2022:	*2,500 AF*

(a) Transfer Complete at Imperial Dam. IID effects a transfer of Early Transfer Water to the Authority under this Agreement by reducing its annual diversion (less return flows) from the Colorado River at Imperial Dam by an amount equal to the quantity of Early Transfer Water to be transferred to the Authority set forth in § 3.5. When the IID effects a transfer in that manner, the IID has satisfied its obligation to transfer such Early Transfer Water. The Authority accepts responsibility for the Early Transfer Water at Imperial Dam. The Authority assumes responsibility for all arrangements to divert and transport the Early Transfer Water to the Conveyance Path Terminus, including disruption or cost resulting from MWD conduct contrary to the provisions of the 1998 IID/SDCWA Transfer Agreement, the QSA or the Related Agreements.

(b) Authority's Scheduling Discretion. The Authority accepts the transfer of the Early Transfer Water beginning on January 1 of 2020, 2021 and 2022. The Authority has complete discretion within each Calendar Year for the requisite annual quantity on the scheduling of its diversions from the point of diversion to the Conveyance Path Terminus.

(c) Calendar-Year Limitation. The Authority's right to Early Transfer Water under this Amendment is not cumulative, and the Authority has no right to any quantity of Early Transfer Water that it does not divert within the Calendar Year that it is to be transferred. Thus, if the Authority fails to divert the Early Transfer Water to which it is entitled under this Amendment in any one Calendar Year, the amount to which the Authority is entitled (and the amount that IID is obligated to transfer under this Amendment) in any other Calendar Year is unaffected.

(d) Method of Conservation. IID may generate the Early Transfer Water in accordance with any method permissible under the 1998 IID/SDCWA Transfer Agreement or the QSA.

(i) Method of conservation. IID reserves complete discretion in determining how to create the Early Transfer Water in accordance with the 1998 IID/SDCWA Transfer Agreement or the QSA.

(ii) No landowner subscriptions required. Nothing herein shall be construed as requiring IID to solicit and secure landowner subscriptions to generate Early Transfer Water.

(e) Re-Transfer Prohibited. The Authority shall not re-transfer the Early Transfer Water for use outside the boundaries of the Authority."

New Section 3.6 is added in its entirety as follows:

"3.6 Transfer of Salton Sea Mitigation Water. IID shall transfer "Salton Sea Mitigation Water" to the Authority, at no cost or expense to the Authority, and the Authority shall deliver the Salton Sea Mitigation Water to the Salton Sea, at no cost or expense to the Authority, pursuant to the terms of this Section 3.6.

(a) Schedule. IID shall deliver Salton Sea Mitigation Water to the Authority as follows:

Agreement Year	*Calendar Year*	*Quantity (AF)*
1	*2003*	*5,000*
2	*2004*	*10,000*
3	*2005*	*15,000*
4	*2006*	*20,000*
5	*2007*	*25,000*
6	*2008*	*25,000*
7	*2009*	*30,000*
8	*2010*	*35,000*
9	*2011*	*40,000*
10	*2012*	*45,000*
11	*2013*	*70,000*
12	*2014*	*90,000*
13	*2015*	*110,000*
14	*2016*	*130,000*
15	*2017*	*150,000*

(b) Term. IID shall transfer the Salton Sea Mitigation Water to the Authority at no charge to the Authority and the Authority shall deliver the Salton Sea Mitigation Water to the Salton Sea for the lesser of (i) fifteen (15) Years or (ii) until

such time as IID transfers the Salton Sea Mitigation Water to the DWR pursuant to the IID/DWR Agreement.

(c) Purpose. IID shall transfer the Salton Sea Mitigation Water to the Authority and the Authority shall deliver the Salton Sea Mitigation Water to the Salton Sea for the sole purpose of providing mitigation water to the Salton Sea, consistent with the refined Salton Sea Habitat Conservation Strategy, as defined in the Amended and Restated Addendum to the Final Impact Report for the IID Water Conservation and Transfer Project (September 2003).

(d) Price. IID will be paid an amount that has a present value as of the Effective Date of fifty million dollars ($50,000,000) solely from the funds collected pursuant to the QSA-JPA on the schedule attached to the QSA-JPA.

(e) Exchange. The Authority shall deliver the Salton Sea Mitigation Water to the Salton Sea by either: (i) causing the Salton Sea Mitigation Water to be physically delivered to the Salton Sea; or (ii) if necessary, exchanging a portion of such water with CVWD or water from other sources to be delivered to the Salton Sea or cause such water to be delivered to the Salton Sea through forbearance arrangements with IID.

(f) IID Duty to Cooperate. IID shall reasonably cooperate with and assist the Authority in the delivery of Salton Sea Mitigation Water to the Salton Sea at no charge to the Authority.

Article 4

New Article 4.1(c) is added in its entirety as follows:

"4.1(c) Early Termination. The Authority may elect to terminate at the end of Year 35 if conditions identified in (ii) below are satisfied:

(i) Completion of Dispute Resolution – Within fifteen (15) years of the Effective Date, the Authority has reached agreement with MWD on the Actual Wheeling Rate or completed binding arbitration, litigation or other dispute-resolution mechanism with MWD to determine the Actual Wheeling Rate for Agreement Years 31 through 45.

(ii) Actual Wheeling Rate Trigger and Notice – If the Actual Wheeling Rate as determined

under (i) above exceeds one hundred twenty-five percent (125%) of the Base Wheeling Rate or the Authority has been unable to reach agreement with MWD or complete binding arbitration, litigation or other dispute-resolution mechanism, then the Authority has the right to terminate this Agreement for Transfer of Conserved Water as of the end of Agreement Year 35, but only if the Authority gives notice of such early termination no later than the end of Agreement Year 15. In any arbitration, litigation or other dispute-resolution mechanism to resolve the amount of the Actual Wheeling Rate, the Authority will cooperate, support and include IID's full participation as a real party-in-interest. Failure to give such notice before the end of Agreement Year 15 renders any right to early termination null and void and the Agreement shall continue through Agreement Year 45 regardless of the Actual Wheeling Rate. If the Authority exercises the right to terminate this Agreement as of the end of Agreement Year 35, this Agreement shall terminate at the end of Agreement Year 35 and IID shall have no further obligation to offer water to the Authority before offering water in any subsequent transfer to any other party.

Section 4.2 is deleted and replaced with the following:

"4.2 IID or the Authority may request the other to renew this Agreement on identical terms and conditions and for a Renewal Term of 30 years. Such request (the "Renewal Request") must be made no later than the end of Year 38. The Party not making the Renewal Request shall accept or reject the renewal in the exercise of its complete discretion, no later than the end of Year 40, and if no timely response is delivered, the Renewal Request is deemed rejected."

Section 4.3 is deleted and replaced in its entirety with the following.

"4.3 Right of First Refusal In the Event of Non-Renewal.

(a) If the Agreement is not renewed, then for a period of fifteen (15) years following the end of the Initial Term:

(i) The Party making a renewal request pursuant to Section 4.2 above is granted a right of first refusal;

(ii) If neither Party makes a renewal request pursuant to Section 4.2 above, neither Party shall have a right of first refusal;

(iii) If no Renewal Term occurs, despite a mutual agreement to renew, because of the failure to satisfy the conditions to renewal, then both Paries are granted a right of first refusal. Conditions to renewal include the same conditions precedent as for the Initial Term.

(b) A Party with a right of first refusal must first receive from the other party a proposal to transfer Conserved Water or a proposal to acquire water on terms consistent with this Agreement before a transfer proposal is extended to any other person or entity.

(c) The Party receiving the proposal shall have ninety (90) days to accept the proposal or propose other terms for transfer or acquisition and reach agreement.

(d) If no agreement is reached, the Party making the proposal may then solicit others to contract to transfer Conserved Water or acquire water on terms identical to or less valuable to the Party than the terms of the proposal not accepted when extended to the other Party, and the terms of any counterproposal exchanged pursuant to subsection (c).

(e) In determining whether a proposal is less valuable, the methodology described in Section 4.4(v) shall be utilized."

Article 5

Section 5.1(d) is modified by substituting the formula for the Base Contract Price as follows:

"5.1(d) Base Contract Price – The Base Contract Price shall be determined by the following formula:

[MWD Full Water Rate - Base Wheeling Rate] x [1 – Applicable Discount Rate] + 50% x [Base Wheeling Rate – the lesser of the Actual Wheeling Rate or 115% of the Base Wheeling Rate]

"The formula is expressed as the 'Base Contract Price equals [the MWD Full Water Rate minus the Base Wheeling Rate] multiplied by the difference between [one (1) minus the Applicable Discount Rate] plus fifty percent (50%) of the difference between [the Base Wheeling Rate minus the lesser of the Actual Wheeling Rate or one hundred fifteen percent (115% of the Base Wheeling Rate)].' Whether the Base Wheeling Rate is more than the Actual Wheeling Rate or the Actual Wheeling Rate is more than the Base Wheeling Rate will determine whether the difference is a positive or negative number and thus whether the Base Contract Price will increase or decrease."

Section 5.1(f)(x) is modified by replacing it in its entirety as follows:

"(x) Excluded Transactions: Any Transaction involving a transfer under an Adjunct Contract with MWD or CVWD, any transfer under the IID/MWD 1988 Agreement, any transfer of water conserved from the All-American Canal or the Coachella Canal, any transfer under this Agreement, or any transfer under the IID/DWR Agreement or the DWR/MWD Acquisition Agreement."

Section 5.1(w)(vii) is modified by replacing it in its entirety as follows:

"(vii) Excluded Transactions. Any transfers under this Agreement, any transfer under the IID/MWD 1988 Agreement, any transfer of water conserved from the All-American Canal or the Coachella Canal; any Transaction which became a binding contract between the parties to the Transaction before the Execution Date, or any transfer under the IID/DWR Agreement or the DWR/MWD Acquisition Agreement."

Section 5.2(a) is amended by deletion of the Shortage Premium from the formula for calculation of the price during the Initial Pricing Phase, for the period from Year 1 to Year 15 only, by adding the following provision as the last sentence:

"However, the Shortage Premium shall not be included in the formula until Agreement Year 16."

Section 5.2(a) is further modified by the addition of new Section 5.2(e) to substitute the price per AF as set forth below for Year 1 through Year 5; and to further substitute the price per AF as set forth below after Year 5 and up through Year 15, unless either IID or the Authority provides notice (the "Price Formula Notice") to the other by April 1 of any year that either has

elected to revert to the pricing formula set forth in Section 5.2(a); provided however that the Price Formula Notice cannot be given before April 1 in Year 5.

> *"5.2(e) Notwithstanding the provisions of § 5.2(a), the price per AF for Agreement Year 1 through Agreement Year 5, shall be as follows:*

Agreement Year	*Price per AF*
1	*$258*
2	*$267*
3	*$276*
4	*$286*
5	*$296*

> *Unless the IID or the Authority provides a notice by April 1 of any Year commencing with Agreement Year 5 (the "Price Formula Notice") that either has elected to revert to the pricing formula of § 5.2(a), then the price per AF for each of Agreement Years 6 through 15 that do not occur subsequent to the Price Formula Notice shall be as follows:*

Agreement Year	*Price Per AF*
6	*$306*
7	*$316*
8	*$327*
9	*$338*
10	*$349*
11	*$363*
12	*$376*
13	*$390*
14	*$405*
15	*$420*

> *If the Price Formula Notice is given, then commencing on January 1 of the subsequent Year, the price formula of § 5.2(a), subject to the provisions of § 5.2(b) and (c), shall govern."*

New Section 5.5 is added in its entirety as follows:

"5.5 Pricing for Early Transfer Water.

(a) Price. The price for the Early Transfer Water shall be one hundred and twenty-five dollars ($125.00) per acre foot in 1999 Dollars.

(b) Wheeling. The cost of wheeling the Early Transfer Water to the Authority's Conveyance Path Terminus shall be the sole financial responsibility of the Authority and shall not affect the Price specified in § 5.5(a) above.

(c) Environmental Costs. The Authority shall be solely responsible for any and all Environmental Review Costs, Environmental Mitigation Costs and Environmental Litigation Costs, all as defined in the ECSA attributable to the Early Transfer Water, including a proportionate share of the Environmental Review Costs and Environmental Litigation Costs incurred as part of the Joint EIR/EIS process applicable to the Agreement. Environmental costs attributable to the Early Transfer water shall be paid by the Authority in addition to the Price specified in § 5.5(a) above.

New Section 5.6 is added in its entirety as follows:

"5.6 Prepayment for Water. At the end of Agreement Year 5, the Authority shall prepay IID Ten Million Dollars ($10,000,000) for future deliveries of water. Interest on the prepayment shall begin to accrue at the end of Agreement Year 16 using the Authority's weighted average cost of funds for its short-term and long-term debt outstanding as shown in the Authority's annual financial report for each fiscal year ending June 30th. If not repaid sooner, beginning at the end of Agreement Year 16 through the end of Agreement Year 30, IID shall credit the Authority's monthly invoice in 180 equal monthly installments of $55,555.56 plus accrued interest pursuant to Section 6.1(a) herein.

Article 6

New Section 6.7 is added in its entirety as follows:

"6.7 Payments for Early Transfer Water. The Authority shall make its payments to IID in three annual installments on June 30 of each Calendar Year for the volume identified in § 3.5 above. The annual price per acre foot in 1999 Dollars as set forth in Section 5.5(a) above shall be adjusted for inflation as set forth in § 1.1(a)(x), except that instead of the Effective Date of April 29, 1998, the date of January 1, 1999, shall be used. The payments by the Authority to IID are for the transfer of the Early Transfer

Water, whether or not the Authority actually diverts any or all of the Early Transfer Water. The provisions of § 6.2 and 6.3 of the Agreement are applicable to all payments for Early Transfer Water."

Article 7

Section 7.1(b)(i)(C) is deleted.

Section 7.1(b)(ii) is modified by substitution of the following:

"Responsibility for Mitigation Measures. The Authority shall be responsible for implementing, at its cost, all environmental mitigation measures adopted as part of the environmental review process in order to mitigate the impacts of the "project" (A) on resources within San Diego County, and (B) caused by the transportation of Conserved Water to the Authority, and the costs and expenses for impacts on the Colorado River between Lake Havasu and Imperial Dam shall be reimbursed to the Authority pursuant to the QSA-JPA."

Section 7.1(b)(iii) is deleted.

Section 7.1(c)(ii) is deleted.

Section 7.1(d)(i) through the end of (C) is modified by substitution of the following:

"SWRCB. By October 31, 2003, the SWRCB has entered a Final Order that approves the IID's transfer of Conserved Water to the Authority under this Agreement on terms consistent with the QSA and the Related Agreements and acceptable to the Parties."

Section 7.1(e) is deleted.

Section 7.3 is modified by adding the following sentence to the end of §'7.3:

"Notice by the Authority that costs exceed the applicable specified caps shall be provided to the IID within fifteen (15) days of such determination being made by the Authority, and the IID shall provide notice within forty-five (45) days of receiving such notice from the Authority that the IID will contribute the additional costs as allowed, if the IID should chose to do so."

Article 8

Section 8.1(b)(ii) is modified by substitution of the following:

> *"(b)(ii) Responsibility for Mitigation Measures. The IID shall be responsible for implementing, subject to all costs and expenses being reimbursed pursuant to the QSA-JPA, all environmental-mitigation measures adopted as part of the environmental review process in order to mitigate the impacts of the 'project' on (A) resources within Imperial County, exclusive of the Colorado River between Imperial Dam and the northern county border, and (B) on the Salton Sea, exclusive of impacts in Riverside County."*

Section 8.1(b)(iii) is modified by substitution of the following:

> *"(b)(iii) After the Effective Date. If, after the Effective Date, initial mitigation costs or unanticipated environmental consequences result in additional mitigation above the IID Environmental Cost Ceiling, those costs shall not be the responsibility of IID and shall be paid pursuant to the terms of the ECSA and QSA-JPA."*

Section 8.1(c)(ii) is deleted.

Section 8.1(d)(i) through the end of (G)is modified by substitution of the following:

> *"SWRCB. By December 31, 2002, the SWRCB has entered a Final Order that approves the IID's transfer of Conserved Water to the Authority under this Agreement and which contains the findings on terms consistent with the QSA and the Related Agreements and acceptable to the Parties."*

Section 8.1(e) is deleted.

Section 8.3 is modified by adding the following sentence to the end of § 8.3:

> *"Notice by the IID that costs exceed the applicable specified caps shall be provided to the Authority within fifteen (15) days of such determination being made by the IID, and the Authority shall provide notice within forty-five (45) days of receiving such notice from the IID that the Authority will contribute the additional costs as allowed, if the Authority should chose to do so. This condition may also be satisfied by funding commitments made by the Authority, CVWD and the State of California pursuant to the terms of the ECSA and the QSA-JPA."*

Article 9

New Section 9.3 is added in its entirety as follows:

> *"9.3 State Contributions and State Loan Guarantee Condition Precedent. By October 31, 2003, the State Contributions and State Loan Guarantee, as defined in the ECSA, must have been committed for the benefit of the IID and others as set forth in the ECSA."*

New Section 9.4 is added in its entirety as follows:

> *"9.4 Contracting Landowner Condition Precedent. By October 31, 2003, the IID shall enter into contracts with the Landowners conditioned on the QSA, Related Agreements and the Secretarial Implementation Agreement, all being in the form approved by the IID, the effectiveness of the Fourth Amendment, and Section 9.3 having been satisfied, and that call for, and are expected to yield when the Water Conservation efforts have been fully implemented, at least one hundred thirty thousand (130,000) AFY of Conserved Water. IID shall commence a solicitation process for Landowner contracts as soon as reasonably practical following successful negotiation and documentation of the QSA, Related Agreements and the Secretarial Implementation Agreement, and which solicitation process shall attempt in good faith to be successfully concluded within five (5) months of commencement.*

Articles 10 to 13

No change.

Article 14

Section 14.2 is amended by the temporary deletion of the last sentence of Section 14.2 until January 1, of Agreement Year 16 as follows:

> *"Notwithstanding the foregoing, fallowing will be a permitted Water Conservation effort under IID contracts with its Contracting Landowners through Agreement Year 15. When IID is relieved of its obligation to transfer Conserved Water to the Authority by means of fallowing, IID and the Authority shall promptly meet and negotiate in good faith a reasonable schedule for IID to shift the creation of Conserved Water from fallowing to efficiency-based conservation. IID is "relieved of its obligation" when, without cost or expense to the IID, an environmental assessment of the impacts of the conversion from fallowing to efficiency under CEQA and NEPA is completed, along with all*

necessary governmental permits and approvals (including, to the extent required, the approval of CDFG, USFWS and SWRCB), and no additional environmental mitigation attributable to the impacts of the conversion is required, or if additional environmental mitigation is required, the costs of such additional environmental mitigation shall be the sole responsibility of the Authority for any amounts that such environmental mitigation costs are in excess of the Environmental Mitigation Cost Limitation, as defined in the QSA-JPA."

New Section 14.3 is added in its entirety as follows:

"14.3 Protection of IID Water Supply. During the Term of this Agreement, the Authority shall not, in any way pursue any legislative, administrative or judicial proceeding, or take any other action that could or would reduce IID's Senior Water Rights or IID's right to divert and use Colorado River water thereunder.

New Section 14.4 is added in its entirety as follows:

"14.4 Fallowing Protection for IID. During the term of this Agreement and for six (6) years thereafter, the Authority covenants that in any legislative, administrative, or judicial proceeding involving an evaluation or assessment of IID's use of water, the Authority shall conclusively presume that any water conserved through fallowing for either (a) transfer to the Authority or (b) used by IID to lessen environmental impacts caused by or related to the transfer of Conserved Water to the Authority, has been conserved by IID in the same volume as if conserved by efficiency improvements, such as by reducing canal seepage and spills or by reducing surface or subsurface runoff from irrigated fields. The Authority further covenants that it hereby supports IID in seeking to cause any legislative, administrative or judicial body evaluating or assessing IID's use of water during the Term of this Agreement and for six (6) years thereafter to make the same conclusive presumption. In addition, the Authority also covenants that during the Term of this Agreement and for six (6) years thereafter, the Authority shall not in any way seek or support, including any activity before any legislative, administrative or judicial body, (a) the creation of Conserved Water for transfer by IID after December 31, 2017 through the use of temporary or permanent fallowing or crop rotation or (b) the use by IID of its Senior Water Rights or IID created Conserved Water to lessen the environmental impacts on the Salton Sea or related to a decline in the elevation of the Salton Sea resulting from the transfer of Conserved Water by the IID to the Authority. The Authority acknowledges and hereby supports the right of the IID to create all

Conserved Water after Agreement Year 15 by efficiency improvements as reflected on the Compromise IID/SDCWA and QSA Delivery Schedule attached hereto as Exhibit 1 without creating or providing any water to lessen environmental impacts on the Salton Sea or related to a decline in the elevation of the Salton Sea. "

New Section 14.5 is added in its entirety as follows:

"14.5 Mitigation of Socio-Economic Impacts Caused by Land Fallowing. IID shall exercise best efforts to minimize socioeconomic impacts from the land fallowing necessary to transfer Conserved Water to the Authority and to lessen environmental impacts related to the transfer of Conserved Water to the Authority. In designing and implementing the fallowing program, IID shall further seek to facilitate the voluntary, broad-based participation by farmers to meet the IID's long-term water delivery requirements to the Authority. The Authority and IID agree that this Section 14.5 shall apply only to socioeconomic impacts attributable to the land fallowing conducted for transfer of Conserved Water to the Authority pursuant to this Agreement, and to lessen environmental impacts related to such transfers.

(a) Resolution of Disagreement Among the Parties Concerning the Socioeconomic Impacts Caused by Land Fallowing. IID and the Authority have a fundamental disagreement concerning the likely socioeconomic impacts caused by land fallowing to transfer Conserved Water to the Authority or to lessen environmental impacts related to the transfer of Conserved Water to the Authority. In order to avoid this disagreement from preventing the use of land fallowing, IID and the Authority have agreed that IID shall cause to be established no later than October 12, 2003, a Local Entity that will administer the receipt and disbursement of socioeconomic impact payments made by the Authority and IID.

(i) Establishment of Local Entity. IID shall cause the Local Entity to be established after consultation with the County of Imperial and other Imperial Valley local interests. The Local Entity's governance powers, reporting obligations and other relevant matters shall require the Local Entity to use the financial resources made available by the Authority and IID to

mitigate the socioeconomic impact of land fallowing with transparency and at reasonable administrative costs.

(ii) *Entity Operations. The Local Entity shall be operated with maximum efficiency to avoid incurring significant administrative costs. It shall not own real property or employ a full time staff. Staff (other than ministerial staff) will be provided as needed for free by the IID and the County of Imperial.*

(b) *Funding of Local Entity. The Authority and IID shall make the following socioeconomic impact payments to the Local Entity to mitigate both the socioeconomic impacts of land fallowing used to create Conserved Water to transfer to the Authority and to lessen environmental impacts related to the transfer of Conserved Water to the Authority, as identified pursuant to § 14.5(d) below and to cover reasonable administrative costs of the Local Entity.*

(i) *Local Entity's Funding Requirements. The Local Entity shall receive socioeconomic impact payments from the Authority and the IID sufficient to pay the estimated and measured annual and cumulative socioeconomic impacts of land fallowing and reasonable costs of administration. The cost of administration shall include the cost of the studies and measurements undertaken by the Economists Panel as specified below in § 14.5(c).*

(ii) *Authority's Initial Socioeconomic Impact Payment. The Authority shall pay the Local Entity an Initial Socioeconomic Impact Payment equal to the sum of ten million dollars ($10,000,000) in nominal Dollars to the Local Entity in four installment payments. The first installment payment shall be paid to the Local Entity on or before thirty (30) days from the Effective Date in the amount of one hundred thousand ($100,000) in nominal Dollars. The first installment is anticipated to cover the initial administrative expenses. The second*

installment payment shall be paid by the Local Entity by December 31, 2004, in the amount of two million dollars ($2,000,000) in nominal Dollars, plus interest from the Effective Date at an annual rate based on the one-year Treasury Note Rate on the Effective Date. The third installment payment shall be paid to the Local Entity by December 31, 2005, in the amount of three million dollars ($3,000,000) in nominal Dollars, plus interest from the Effective Date at an annual rate based on the two-year Treasury Note Rate on the Effective Date. The fourth installment payment shall be paid to the Local Entity by December 31, 2006, in the amount of four million dollars and nine hundred thousand dollars ($4,900,000) in nominal Dollars, plus interest from the Effective Date at an annual rate based on the three-year Treasury Note Rate on the Effective Date. Notwithstanding the above schedule of installment payments, the Authority shall accelerate any of the payments of the Initial Socioeconomic Impact Payment amount as necessary to assure that the funds available to the Local Entity are sufficient for the disbursements reasonably necessary to address the estimated and measured annual and cumulative socioeconomic impacts and reasonable administrative costs.

(iii) *IID Funding of the Local Entity. Starting in Agreement Year 8, IID shall pay the Local Entity by July 31 of each Year socioeconomic impact payments equal to five percent (5%) of the annual contract payments made by the Authority to the IID until IID's cumulative socioeconomic impact payments to the Local Entity equal ten million dollars ($10,000,000) in nominal Dollars.*

(iv) *Authority's Subsequent Socioeconomic Impact Payments. The Authority shall pay all further socioeconomic impact payments due to the Local Entity in excess of the*

Authority's Initial Socioeconomic Impact Payment and the monies available from IID's Funding of the Local Entity specified in § 14.5(b)(iii). The Authority shall make Subsequent Socioeconomic Impact Payments by June 30 of each Year to assure that the funds available to the Local Entity are sufficient for the disbursements reasonably necessary to address the estimated and measured annual and cumulative socioeconomic impacts and reasonable administrative costs.

(v) *IID's Reimbursement of the Authority's Initial Socioeconomic Impact Payment. Starting in Agreement Year 16 and continuing through Agreement Year 45, IID shall credit against the payment otherwise due from the Authority in an amount equal to ten millions dollars ($10,000,000) in nominal Dollars divided by the cumulative amount of water scheduled for delivery to the Authority between Agreement Year 16 and Agreement Year 45 as of Agreement Year 16. If the 1998 Agreement between IID and the Authority terminates before Agreement Year 45, the Authority has no right to receive any further reimbursement upon or after the termination for any unreimbursed portion of the Authority's Initial Socioeconomic Impact Payment.*

(vi) *Refund of Any Excess Authority Socioeconomic Impact Payments. After Agreement Year 15, or within 24 months after fallowing pursuant to this Section 14.5 has ceased, whichever is earlier, the Local Entity shall determine the amount, if any, the Authority's Cumulative Socioeconomic Impact Payments exceeds the difference between the Local Entity's cumulative funding requirements and IID's cumulative funding of the Local Entity. The Local Entity shall reimburse the Authority for the amount of any excess by the end of Agreement Year 16, or within 36 months*

after fallowing pursuant to this Section 14.5 has ceased, whichever is earlier..

(vii) *Annual Reporting to the Authority. Within ninety (90) days after the end of an Agreement Year, the Local Entity shall prepare and publish an annual report of the Local Entity's receipts and disbursements and prepare a budget for the administrative costs of the Local Entity for the following Agreement Year.*

(c) *Estimation and Measurement of the Socioeconomic Impacts of Land Fallowing. The annual and cumulative socioeconomic impacts shall be estimated and measured by a Socioeconomic Methodology based on a Regional Economic Model, a longitudinal study and consideration of economic data of the IID and Imperial County in accordance with the following procedure:*

(i) *Economists Panel. As soon as resonable after the Effective Date, a three-person panel of professional economists shall be formed with the responsibility to establish a Socioeconomic Methodology to estimate and measure the annual and cumulative socioeconomic impacts of land fallowing based on procedures to be developed for combining evidence from the different approaches specified in § 14.5(c)(iii-vi) below.*

(ii) *Appointment of Panel Members. One professional economist representative shall be appointed by the Local Entity, one by the Authority, and the third by the mutual consent of the Local Entity's and the Authority's representatives. The Local Entity's and the Authority's representatives shall serve at the pleasure of the appointing entity. The third representative shall serve a term of one-year. The third representative may be re-appointed by the mutual consent of the Local Entity's representative and the Authority's representative.*

(iii) *Responsibility of Economist Panel. The panel shall be responsible for developing and implementing a Socioeconomic Methodology based on a Regional Economic Model and corroborating studies as described below.*

(iv) *Development of Regional Economic Model. The panel shall develop the Regional Economic Model, including the key parameters, the necessary inputs to the model and the method of determining proper measurements based upon credible available information. The panel shall also develop the method of measuring and estimating socioeconomic impacts and the method of corroborating estimated socioeconomic impacts with credible evidence from countywide economic data and longitudinal studies, in a manner consistent with the Guidelines for Estimation and Measurement and in accordance with the Timeline for the Implementation of Defined Tasks as set forth in Exhibit 2 attached hereto.*

(v) *Periodic Adjustments to Regional Economic Model. The panel shall make periodic adjustments to the Regional Economic Model based upon credible available information and methods developed by the panel in accordance with the Guidelines for Estimation and Measurement. Periodic adjustments may be made, including but not limited to changes in the amount of acreage fallowed, cropping patterns, crop prices, crop yields, spending patterns, and other economic factors.*

(vi) *Corroborating Studies. The panel shall direct the corroborating studies. Before IID initiates land fallowing to make Conserved Water available for transfer to the Authority, the panel shall initiate a longitudinal analysis of socioeconomic impacts. Within two years from the date fallowing is initiated by IID, the panel will*

assess whether the longitudinal study provides credible evidence that adjustments should made to the socioeconomic impacts estimated by the Regional Economic Model. If adjustments are warranted, the panel shall adjust the socioeconomic impacts in accordance with methods consistent with the Guidelines for Estimation and Measurement.

(vii) *Panel Meetings. The panel shall meet as frequently as necessary to carry out its responsibilities. A meeting shall be convened at the request of any representative.*

(viii) *Deadline for Initial Findings. The panel shall present its initial assessment of the estimated annual and cumulative socioeconomic impacts of land fallowing to the Local Entity and the Authority no later than June 1, 2004.*

(ix) *Annual Reporting. The panel shall report annually by June 1 of each Year to the Local Entity and the Authority on updated estimated and measured annual and cumulative socioeconomic impacts of land fallowing.*

(d) *Disbursements. The Local Entity shall use the Socioeconomic Impact Payments paid by the Authority and the IID to pay the costs of mitigating the estimated and measured annual and cumulative socioeconomic impacts of land fallowing and reasonable administrative costs of the Local Entity. Except for the expenditure of the one hundred thousand dollars ($100,000) made available through the first installment payment of the Authority's Initial Socioeconomic Impact Payment and the funds necessary for reasonable administrative expenses, the Local Entity shall make future disbursements in accordance with an approved budget and economic mitigation plan. The economic mitigation plan shall be developed in consultation with the State of California Resources Agency, Department of Food and Agriculture, Department of Commerce, and Department of Finance.*

(e) *Dispute Resolution. If a dispute arises concerning the funding, disbursement or measurements of the socioeconomic impacts of land fallowing, the Local Entity and the Authority shall settle the matter by binding arbitration utilizing a process parallel to that set out in § 17.4, 17.5 and 17.7, except as set forth below:*

(i) *Meet and Confer Obligation. Before submitting a dispute to arbitration, the Local Entity and the Authority shall meet and confer in an attempt to resolve the dispute. No Administrative Committee shall be created or involved.*

(ii) *Appointments to Arbitration Panel. The Local Entity shall be entitled to appoint one arbitrator. The Authority shall be entitled to appoint one arbitrator. The two arbitrators appointed by the entities shall appoint a third arbitrator by mutual agreement.*

(iii) *Decision of Arbitration Panel. The arbitration panel shall use to the maximum extent practicable the principles and methods contained in the Measurement Guidelines to rule on the dispute submitted for arbitration. The decision issued by the arbitration panel shall be final.*

(f) *Coordination with SB 277 (2003 Stats. ch. 611). The Local Entity and the Authority shall coordinate the efforts of the panel regarding the initial assessment of the estimated annual and cumulative socioeconomic impacts from land fallowing with the process required by section 9 of Chapter 617 of the 2002 Statutes as amended. The panel shall coordinate its efforts with the State of California Resource Agency, Department of Food and Agriculture, Department of Commerce, and Department of Finance in order to avoid duplication of effort and inconsistent results. To the extent practicable, the panel shall obtain relevant data from theses departments and agency.*

(g) *Socioeconomic Litigation. To the extent litigation is commenced against the IID, the Authority, the Local Entity or the panel, the Authority and Local Entity shall*

cooperate and coordinate the defense of such litigation, and all costs of defense and any judgment resulting shall be treated as, and paid for, the same as a reasonable administrative cost of the Local Entity.

New Section 14.6 is added in its entirety as follows:

"14.6 Settlement and Efficiency Conservation Opportunity Payment. In consideration of (i) the settlements reached with CVWD and MWD through the QSA, and (ii) the opportunity to increase the conservation ramp-up schedule and utilize conservation methods of IID's choice, including efficiency conservation, as set forth in the IID/DWR Agreement, IID shall pay to the QSA-JPA twenty-four million dollars ($24,000,000) in Effective-Date Dollars, on the schedule attached as an exhibit to the QSA-JPA."

Article 15

Section 15.2(a) is amended to read in its entirety as follows:

"(a) Transfer. The IID fails to transfer Conserved Water or Early Transfer Water in the quantities and on the schedule specified in this Agreement or this Amendment."

Article 18

Section 18.1 is amended to add the following sentence:

"Notwithstanding anything to the contrary, the Local Entity referenced in § 14.5 shall be a third-party beneficiary of the Agreement for purposes of the provisions of § 14.5, and if the Local Entity is unable to exercise any rights as a third-party beneficiary, the County of Imperial is authorized to act in its stead."

Exhibits

Exhibit K to the 1998 IID/SDCWA Transfer Agreement is hereby replaced with the Colorado River Water Delivery Agreement as identified in the QSA.

IN WITNESS WHEREOF, IID and Authority have executed this Fourth Amendment as of the day and year first written above.

IMPERIAL IRRIGATION DISTRICT

By _____

Its PRESIDENT

By _____

Its Chief Counsel

SAN DIEGO COUNTY WATER AUTHORITY

By _____

Its General Manager

EXHIBIT 1

EXHIBIT 1
COMPROMISE IID/SDCWA AND QSA DELIVERY SCHEDULE

Agmt Yr	Cal Yr	IID/SD (KAF)	IID/CVWD (KAF)[1]	IID/MWD (KAF)	Total Delivery (KAF)	Total Efficiency (KAF)	Fallowing for Delivery (KAF)	Mitigation Fallowing (KAF)	Total Fallowing (KAF)
1	2003	10	0	0	10	0	10	5	15
2	2004	20	0	0	20	0	20	10	30
3	2005	30	0	0	30	0	30	15	45
4	2006	40	0	0	40	0	40	20	60
5	2007	50	0	0	50	0	50	25	75
6	2008	50	4	0	54	4	50	25	75
7	2009	60	8	0	68	8	60	30	90
8	2010	70	12	0	82	12	70	35	105
9	2011	80	16	0	96	16	80	40	120
10	2012	90	21	0	111	21	90	45	135
11	2013	100	26	0	126	46	80	70	150
12	2014	100	31	0	131	71	60	90	150
13	2015	100	36	0	136	96	40	110	150
14	2016	100	41	0	141	121	20	130	150
15	**2017**	**100**	**45**	**0**	**145**	**145**	**0**	**150**	**150**
16	2018	130	63	0	193	193	0	0	0
17	2019	160	68	0	228	228	0	0	0
18	2020	192.5	73	2.5	268	268	0	0	0
19	2021	205	78	5.0	288	288	0	0	0
20	2022	202.5	83	2.5	288	288	0	0	0
21	2023	200	88	0	288	288	0	0	0
22	2024	200	93	0	293	293	0	0	0
23	2025	200	98	0	298	298	0	0	0
24	2026	200	103	0	303	303	0	0	0
25	2027	200	103	0	303	303	0	0	0
26	2028	200	103	0	303	303	0	0	0
27-45	2029-2047	200	103	0	303	303	0	0	0
46-75	2048-2077	200	50	0	250	250	0	0	0

[1] or MWD if CVWD declines to acquire.

568252

Exhibit 2

Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline For Implementation of Defined Tasks

IID and the Authority have a fundamental disagreement concerning the likely socioeconomic impacts caused by land fallowing to transfer Conserved Water to the Authority or to lessen environmental impacts related to the transfer of Conserved Water to the Authority. The major source of this disagreement relates to different expectations regarding the crops likely to be fallowed. Other sources of potential disagreement involve the proper estimation and measurement of the economic impact of the crops actually fallowed on the economy of Imperial Valley.

The purpose of this Exhibit 2 is to provide guidelines for the estimation and measurement of socioeconomic impacts from land fallowing and to establish the timeline for implementation of defined tasks assigned to the Economists Panel ("Panel") established pursuant to Section 14.5(c). The Panel shall conduct its studies in accordance with the guidelines and timelines presented below.

Estimation and Measurement of Socioeconomic Impacts

The Panel shall develop and implement a Socioeconomic Methodology to estimate and measure the annual and cumulative socioeconomic impacts of land fallowing through the development and use of a Regional Economic Model, as corroborated by evidence from available data on countywide economic conditions and supplemental economic studies of the income and employment of third parties, and evaluated for reliability by standard sensitivity analysis techniques.

1. *Regional Economic Model.* Regional Economic Model shall be based on any necessary adjustments of the standard IMPLAN Model for the specific economic circumstances of Imperial County and shall include the following considerations in the construction of the Social Accounting Matrix (SAM):

    (a) The Panel shall identify the major industries in Imperial County and eliminate any sectors not relevant to the Imperial County economy from the national version of IMPLAN.

    (b) The Panel shall review and adjust, where necessary, the pattern of industry purchases of capital, labor and intermediate goods to reflect any differences between the structure of the economy of Imperial Valley and the structure of the SAM of the national version of IMPLAN. In considering adjustments to the coefficients of the agricultural sector, the Panel shall consider relevant data available from California and Arizona cooperative extension reports, direct survey evidence, and other credible sources.

(c) The Panel shall consider adjustments to the national expenditure coefficients from the national version of IMPLAN based on credible information pertaining to the expenditure patterns of recipients of capital and labor income in Imperial County.

(d) The Panel shall consider adjustments to the local and state government coefficients in the national version of IMPLAN based on credible information available from Imperial County governmental agencies and the California Franchise Tax Board.

(e) The Panel shall balance any adjustments made to the SAM by a commonly accepted method.

2. *Estimation of Socioeconomic Impacts.* The Panel shall use the Regional Economic Model to estimate the annual and cumulative third party socioeconomic impacts of land fallowing for the specific circumstances of Imperial County including the following considerations:

(a) Third-party impacts are defined as (i) changes in the after-tax income of individuals or entities residing in Imperial County not participating in the IID land fallowing program; and (ii) changes in the tax receipts of local governments within Imperial County.

(b) The Panel's determination of the crop acreage fallowed under the IID fallowing program shall be based on a negotiated method of utilizing information from cropping history of land fallowed, cropping patterns after land re-enters production, and other relevant information related to the economic conditions of crop markets and other relevant factors influencing cropping patterns.

(c) The Panel's determination of crop yields for land fallowed shall be based on a negotiated method using average crop yields in Imperial Valley as adjusted by credible evidence indicating that the crop yields of fallowed lands are expected to differ from average countywide crop yields.

(d) The Panel's determination of crop revenues from fallowed land shall be based on the average price for the crop fallowed (unless credible evidence can be generated regarding crop prices on fallowed lands) and the adjusted crop yield of fallowed land determined pursuant to 2(c).

(e) Determination of socioeconomic impact of land fallowing shall also consider the economic stimulus within Imperial County from contract payments received for land fallowing. The Panel's determination shall consider the implications of the mix of resident/nonresident landowners participating in the land fallowing program and the landowner/tenant split of IID land fallowing payments. The estimate of the economic stimulus shall also consider pro forma income tax liabilities of recipients of IID land fallowing payments. The Panel shall develop a

method for annualizing any up front payments receipts by participants in an IID land fallowing program. The Panel shall also consider how the recipient of any up front payments may affect savings and current consumption and the pattern of expenditures. If there is credible evidence that recipients of IID land fallowing payments would invest in farming capital, then the Panel shall consider the impact of such investment on the economy of Imperial Valley.

(f) Estimates of the impacts of land fallowing shall also include the stimulus effect of other components of IID land fallowing program, including dust/weed mitigation, IID program administration and environmental mitigation. Impact measurement shall also consider the stimulus effect of government grants for public works and business investment programs to facilitate economic development, but only if made available primarily to offset the socioeconomic impacts of land fallowing.

(g) Estimates of the impact of IID land fallowing on local tax revenues shall consider the impact of the IID land fallowing program on local tax bases.

(h) Determination of socioeconomic impact of land fallowing shall also consider credible evidence concerning the impact of the land fallowing program on land productivity.

(i) Calculation of socioeconomic impacts shall also include a sensitivity analysis of model outputs using a method to be negotiated. Sensitivity analysis is intended to assess the credibility of model outputs resulting from uncertainties about the value of key parameters in the regional economic model. Analysis may also consider qualitative factors such as specification of production functions, role of technological change and other capital investments, and other factors.

3. *Comparison of Estimated Impacts with County Economic Statistics.* Estimates of the socioeconomic impacts of land fallowing shall be corroborated with a negotiated method of examining evidence from countywide economic data on income, employment, and other relevant economic data. The negotiated method shall consider the statistical validity of testing the estimated magnitude of the socioeconomic impacts of land fallowing with countywide data. If the examination of county economic statistics provides statistically reliable information that the estimates from the Regional Economic Model are materially inaccurate, then the Panel shall make any necessary adjustments to the Regional Economic Model.

4. *Longitudinal Analysis.* The longitudinal study undertaken pursuant to Section 14.5(c)(vi) shall consider individuals providing labor and material

inputs to farmers in the Imperial Valley. The study shall examine the incidence and duration of unemployment resulting from fallowing, any adjustments made by businesses providing agricultural services, and other factors. Any credible evidence from longitudinal studies shall be considered in determining whether there should be an adjustment in the funding requirements of the Local Entity.

Timeline for Implementation of Defined Tasks

The Panel shall conduct their studies within the timelines presented below.

1. *Development of Regional Economic Model.* The Panel shall complete the development of the Regional Economic Model based on any adjustments made pursuant to 1(a)-(e) above within 45 Calendar Days of the commencement of work.
2. *Development of Necessary Methods to Estimate Socioeconomic Impacts.* Within 60 Calendar Days of the commencement of work, the Panel shall submit to the Local Entity and the Authority a written report summarizing the design and identification of necessary information for the methods required above for the estimation of socioeconomic impacts of land fallowing, including:
    a. the method and information to be used in determining crop acreage fallowed in accordance with Section 2(b)(above);
    b. the method and information to be used to adjust crop yields for specific lands fallowed relative to the countywide average of crop yields in accordance with 2(c) above;
    c. any evidence to be relied up to estimate that crop prices for fallowed lands differ from countywide average crop prices in accordance with 2(d) above,
    d. the methods and information to be used to estimate the economic stimulus within Imperial County from contract payments made for land fallowing in accordance with 2(e) above;
    e. the methods and information to be used to estimate the economic stimulus from other components of IID fallowing in accordance with 2(f) above;
    f. the methods and information to be used to estimate the impact of IID land fallowing on local tax revenues in accordance with 2(g) above;
    g. the methods and information to be used to consider the impact of land fallowing on land productivity in accordance with 2(h) above;
    h. the specification of the procedures to be relied upon to conduct the sensitivity analyses in accordance with 2(i) above; and
    i. identification of the specific economic statistics and methods to be used to corroborate the estimated socioeconomic impacts of land fallowing in accordance with 3 above.

3. *Initiation of Longitudinal Study.* Within 75 Calendar Days of the commencement of work, the Panel shall submit to the Local Entity and the Authority a written report describing the study design, anticipated budget, and timing of the longitudinal study to be undertaken pursuant to Section 14.5(c)(vi). The Local Entity and the Authority must approve the proposed study before the Panel can proceed with its study plans.

4. *Initial Estimates of the Annual and Cumulative Socioeconomic Impact of Land Fallowing.* Within 120 Calendar Days of the commencement of work, the Panel shall provide the Local Entity with a draft report of the estimated Annual and Cumulative Impact of Land Fallowing through Agreement Year 15. The report shall discuss how information expected to become available in subsequent years may require adjustments to the Panel's initial estimates.

5. *Annual Reporting.* The Panel shall submit an annual report on updated estimated and measured socioeconomic impacts of land fallowing as provided in Section 14.5(c)(ix). The annual report shall include a written work plan and proposed budget for the Panel's activities in the following fiscal year.

SDCWA Exh. 4

THIRD-PARTY IMPACTS OF LAND FALLOWING ASSOCIATED WITH IID-SDCWA WATER TRANSFER: 2003 AND 2004

Prepared For:

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November 2004

EXECUTIVE SUMMARY

The Quantification Settlement Agreement provided for the annual transfer of up to 200,000 acre-feet of water from the Imperial Irrigation District to the San Diego County Water Authority. Land fallowing is the defined method of water conservation in the initial stages of the transfer, to be replaced eventually by efficiency improvements. Responding to local concerns about the potential negative socioeconomic effects of fallowing, SDCWA and IID each agreed to commit $10 million to offset these impacts. The parties also created a Local Entity to develop and implement a plan to spend these funds.

A substantive disagreement between SDCWA and IID about the likely magnitude of socioeconomic impacts led the parties to create a panel of three economists (one appointed by the Local Entity, one appointed by SDCWA, and a third economist appointed jointly) to assess and measure the socioeconomic impacts of the fallowing program. SDCWA agreed to make additional payments to the Local Entity if the panel determined that cumulative socioeconomic impacts exceeded the $20 million committed by SDCWA and IID. This study is the first annual report of the economist panel.

Since beginning work in June 2004, the panel has worked to complete several tasks. Most important among these include the development and calibration of an IMPLAN economic model of the Imperial County economy as outlined in the QSA. This model is a standard tool used for regional economic analysis; it is available "off the shelf," but needs to be modified to fit actual county-level data on output levels, prices and other parameters. The panel has completed this task, and has also finished a cursory

review of the Imperial County economy, focusing on the agricultural sector and related industries.

Another task of the panel is to identify the changes in agricultural activity in IID resulting from the fallowing program. In the first year of the program, grower access to the fallowing program was allocated with an auction wherein growers submitted bids, or "willingness to accept" amounts that they would need to be paid to leave defined fields fallow for one year. Together with this monetary bid, growers also stated the identity of the crops that were planned on these fields. In the second year, a fixed price was offered to growers for fallowed acreage. As in the first year, growers reported to IID the crops that were planned on these fields. For this report, the panel has accepted this self-reported data at face value and has modeled the regional impacts of fallowing the identified crops. In the first two years of the program, the large majority of the crops fallowed were field crops such as alfalfa hay, sudan grass, bermuda grass and klein grass, which tends to minimize socioeconomic impacts due to the generally low level of labor and material inputs required to grow these crops.

The panel has tracked the flows of funds and resources related to the fallowing program. This data was incorporated into a regional economic model to assess third-party impacts. Third-party impacts are defined by the water transfer agreement as (i) changes in after-tax income of individuals or entities residing in Imperial County not participating in the IID land fallowing program; and (ii) changes in the tax receipts of local governments within Imperial County.[1]

[1] Revised Fourth Amendment to Agreement between IID and SDCWA for Transfer of Conserved Water, Exhibit 2, Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline for Implementation of Defined Tasks.

To understand the third party impacts of fallowing for water transfer, it is useful to create a mental ledger with a "minus" side for third party costs and a "plus" side for positive impacts. The "cost" side of the ledger for the fallowing program represents the reduction in economic activity and the "plus" side represents the stimulating impact of payments for water conservation and other activities such as administration and environmental mitigation. It is important to remember that in calculating third party impacts, we exclude changes in the incomes of program participants. That is, we do not count payments to landowners who are fallowing their land under the water transfer agreement, but we do count the affect of their increased spending on the incomes of other Imperial County residents as a potential third party benefit.

On the "cost" side of the ledger, the panel considered the lost income and tax receipts suffered as a result of fewer crops being grown in Imperial County. Fallowing causes less farm output to flow downstream to local industries such as dairies and processing plants, and also causes farmers to purchase fewer inputs. One complication in calculating negative impacts is that much of the QSA does not relate to the fallowing program; the provisions not directly relating to fallowing for transfer to San Diego need to be parsed out for purposes of calculating the socioeconomic impacts of fallowing. We note that in the early years of the agreement, there is much more fallowing than is required for the San Diego transfer since IID is using fallowing to pay back excess deliveries made by the Bureau of Reclamation. These paybacks have been prorated out of the total fallowing impacts.

On the "plus" side of the ledger, SDCWA has paid IID $258 per acre foot in 2003 and $267 in 2004 for water transferred to San Diego. IID has passed on a portion of these

funds to growers through the auction process and also rebated some of these funds to its ratepayers in 2004. IID is also receiving funds from the JPA (funded by SDCWA, IID and Coachella), which is paying IID $90 per acre foot for mitigation water destined for the Salton Sea and is also paying for air quality mitigation and other activities directly related to the fallowing program. As of this date, the panel is unable to account for the remaining portion of the money received by IID, and we have modeled the third party impacts of expenditures of these funds while not opining about whether these funds have actually been spent.

In its first two years of operation, the fallowing program produced the following results which form the basis of third party impacts:

2003 Fallowing Program

- 5,764 acres fallowed in 2003 of which 1,830 acres were fallowed for water transfer to SDCWA plus associated mitigation water for Salton Sea;
- 10,000 AF of water transfer to SDCWA;
- $2,580,000 paid by SDCWA to IID for transferred water;
- $563,477 paid to participating landowners with $459,571 paid to residents of Imperial County;
- 5,000 acre feet of Salton Sea mitigation water moved to 2004;
- $20,000 to be paid by JPA for air quality mitigation connected to land fallowing;

2004 Fallowing Program

- 12,127 acres fallowed in 2004 of which 6,309 acres related to water transfer including mitigation water;
- 20,000 acre feet of water transferred to SDCWA;
- $5,340,000 paid by SDCWA to IID for transferred water;
- $1,400,000 paid by the JPA to IID for Salton Sea mitigation water;

- $1,746,244 paid by IID to participating landowners with $1,424,246 paid to residents of Imperial County;
- An estimated $2.8 million of transfer proceeds rebated by IID to ratepayers;
- 15,000 acre feet transferred for Salton Sea mitigation (10,000 acre feet initially scheduled for 2004 plus 5,000 held over from 2003);
- $4.2 million in 2003-2004 transfer revenue retained by IID and unaccounted for at present.

Given verifiable resource and cash flows to date, the fallowing program has increased third party after-tax incomes in the Imperial Valley by $1.1 million in its first two years of operation. These net impacts include both the negative effects of land fallowing and the stimulating effects of defined payments from SDCWA and the JPA. The land fallowing program has resulted in $1.9 million of income losses. These losses were more than offset by the third-party benefits of landowner payments for fallowing (i.e., the increased spending by landowners participating in the fallowing program and not the payments themselves), expenditures for dust control paid for by the JPA and the IID rate rebate program designed to provide community benefits from the San Diego transfer.

Third party incomes would also be increased by IID's spending of unaccounted for transfer proceeds; these expenditures have the potential to increase third party incomes by $2.0 to $4.1 million, resulting in total third party benefits of between $3.1 and $5.2 million. Because it has not been verified how these funds have been spent, or even if they have been spent, we have modeled these impacts separately from the verifiable cash flows. If retained revenues are spent on construction projects, the positive impact on third party incomes is $2.0 million in addition to the $1.1 million in verifiable

positive impacts. If retained revenues are rebated to customers, then third party incomes increase by $4.1 million plus the $1.1 million in verifiable impacts. This analysis shows that since IID has elected to retain control over a large share of transfer proceeds, it can exert a major influence on the magnitude of third party impacts.

Table A
Impacts of Land Fallowing through 2004
(Dollar Figures in $1,000's)

Source of Impact	2003	2004	Cumulative
After-tax Third-Party Income*			
Land fallowing	($285)	($1,592)	($1,877)
Landowner payments	$87	$297	$ 384
Weed/dust control	$12	-	$ 12
IID customer rebate	-	$2,604	$2,604
Local Tax Receipts*			
Land fallowing	($29)	($148)	($ 177)
Landowner payments	$15	$52	$ 67
Weed/dust control	$1	-	$ 1
IID customer rebate	-	$91	$91
Net Quantified	**($199)**	**$1,304**	**$1,105**

*Impacts shown in Table A do not account for transfer revenue unaccounted for by the Economic Panel. The potential third-party impacts associated with those revenues are shown in Table B. The impacts shown in Table A are those that accrue to third parties to the IID-SDCWA water transfer. They do not include changes in income to landowners participating in the land-fallowing program.

Table B
Impacts of Potential Expenditure of Transfer Revenue Retained by IID
(Dollar Figures in $1,000's)

Unaccounted for Revenue from 2003 and 2004 Transfers	**$4,210**
Impact from Potential Expenditure of Retained Revenue	
Capital Projects Scenario*	
After-tax Third-Party Income	$1,804
Local Tax Receipts	$154
Third-Party Benefit if Expended on Capital Projects	**$1,958**
Income Transfer Scenario*	
After-tax Third-Party Income	$3,915
Local Tax Receipts	$137
Third-Party Benefit if Paid Out to IID Customers	**$4,052**

*IID's spending of retained transfer revenue cannot be verified at present. The expenditure scenarios in this table show the potential for this revenue to benefit third parties in Imperial County. The extent to which IID expenditures actually benefit third parties will depend on the actual or future uses of transfer revenue retained by IID.

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1.0 INTRODUCTION

1.1 Purpose of Report

The purpose of this report is to provide the annual and cumulative socioeconomic impacts of land fallowing in Imperial County for 2003 and 2004. The land fallowing addressed by this report only considered fallowed acres that can directly be attributed to the water transfer agreement between the San Diego County Water Authority and the Imperial Irrigation District. Specifically, the report identifies fallowing impacts on Imperial County output, labor income, owner income, property income, taxes, value added, and employment.

The report also identifies the socioeconomic methodology based on a regional economic model for Imperial County. Specifically, an IMPLAN Model for Imperial County is used for the regional economic model. However, extensive modifications were made to the basic IMPLAN Model in order to better reflect the agricultural economy of Imperial County. The modifications are detailed in this report. This report represents the joint effort of the economic panel assigned to the socioeconomic impact analysis.

1.2 Background

Four water agencies (San Diego County Water Authority, Coachella Valley Water District, Imperial Irrigation District, and the Metropolitan Water District of Southern California), and the State of California finalized the Quantification Settlement Agreement (QSA) for the Colorado River in October of 2003. This historic agreement provides California a transition period to implement water transfer and supply programs that will reduce California's over-dependence upon the Colorado River and reduce the state's draw to its 4.4 million acre-foot basic annual apportionment. The QSA commits the state to a restoration path for the Salton Sea and provides full mitigation for these water supply programs. The QSA assures California up to 75 years of stability in its Colorado River water supplies.

On October 10, 2003 the San Diego County Water Authority (SDCWA) and Imperial Irrigation District signed the "Revised Fourth Amendment to Agreement Between Imperial Irrigation District and San Diego County Water Authority for Transfer of Conserved Water." This agreement amends the April 29, 1998 agreement between SDCWA and IID. The fourth amendment includes but is not limited to: (1) the primary water transfer from IID to SDCWA; (2) water transfer to the Salton Sea; (3) the price per acre foot of transfer water; and (4) the mitigation of socioeconomic impacts caused by land fallowing.

The agreement's mitigation of socioeconomic impacts caused by land fallowing established a number of requirements. First, a Local Entity was established after consultation with the County of Imperial and other Imperial Valley local interest. The Local Entity administers the receipt and disbursement of socioeconomic impact payments made by the SDCWA and IID. A schedule of payments is also found in the Fourth Amendment. Second, a three-person panel of professional economists was formed with the responsibility of establishing a socioeconomic methodology to estimate and measure the annual and cumulative socioeconomic impact of land fallowing. SDCWA appointed one economist while the Local Entity appointed another economist. Together these economists chose a third economist for the panel. Third, the agreement set forth "Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline for Implementation of Defined Tasks (Exhibit 2)."[2]

1.3 Economic Panel

The economic panel consists of three economists. Dr. David Sunding from the University of California Berkeley was appointed by SDCWA. Dr. Gordon H. Kubota of CIC Research, Inc., was appointed by the Local Entity. After an extensive review of resumes. Dr. Sunding and Dr. Kubota chose Mr. David Mitchell of MCubed by mutual consent. The economic panel is supported by other economists, Mr. Eric Cutter of MCubed, Dr. Kenneth L. Shellhammer of CIC

[2] A copy of Exhibit 2 is presented in Appendix C.

Research, and Mr. Lawrence Ponseggi of CIC Research, who assist the economic panel in fulfilling its role in the socioeconomic analysis process.

1.4 Organization of Report

The report is divided into remaining sections. First, the IMPLAN Modeling Approach is discussed in detail. Basic input-output analysis is presented followed by key assumptions underlying predictive input-output models. Second, an economic profile of Imperial County is presented focusing on demographics, employment, and population. Third, Imperial County's agricultural profile is presented. This analysis focuses on agricultural production, acreage, relative importance to California, and agricultural linkages. Fourth fallowing and crop impacts are presented. Fallowed acres by crop type are presented for 2003 and 2004. The fallowed acreage is reduced to account for only that portion of the fallowing program that can be associated with the SDCWA-IID water transfer. Water transfer payments to IID and subsequent payments to farmers are identified. Fifth, the socioeconomic impacts of the 2003 and 2004 fallowing programs are identified and discussed. The focus of these impact estimates revolve around Imperial County output, labor income, owner income, property income, taxes, value added, and employment. Direct, indirect and induced impacts are considered in the analysis. Sixth, limitations to the analysis and outstanding issues are presented. Seventh, future research efforts are identified which would refine the analysis presented. Two Appendices document the work presented.

2.0 IMPLAN MODELING APPROACH

2.1 Basics of Input-Output Analysis

The Economic Panel estimated impacts to Imperial County output, income, and employment using a regional input-output (I-O) model. I-O models are commonly used as part of regional economic impact studies. I-O models describe trade flows between and among all major

sectors of the economy within a region and use this information to predict how some initial change in demand will cause changes to total regional output, income, and employment, as well as the distribution of these impacts.

An I-O model starts with a detailed set of accounts representing transactions among a region's major economic sectors. These sectors are:

- **Intermediate goods and services** – this sector includes all private business activities within a region. Data for this sector is typically very detailed and broken down by industries or activities (e.g. agricultural production activities, mining, manufacturing of various sorts, retail and wholesale trade, and services of various sorts).[3] The I-O accounts for the intermediate goods and services sector tally output, purchases, employment, and payments by industry. By representing who buys what from whom, the I-O accounting describes the trade flows within a region and between the region and the rest of the world (i.e. all other producers and consumers outside the boundaries of the region).
- **Households** – this sector accounts for regional transactions by people residing or employed in the region. Households are treated as both buyers of goods and services and sellers of labor. They buy consumer goods and services and constitute a major part of regional final demand. They also supply labor to regional industries; pay taxes to local, state, and federal governments; and receive government transfers and services.

[3] I-O models that can be purchased commercially typically have several hundred industries. The IMPLAN model used for this analysis includes approximately 500 industries. Not all industries included in a model are relevant to a particular region, however.

- **Government** – the government sector includes local, state, and national public authorities, both within and outside the region. The government sector, like the household sector, is a major component of final demand for goods and services produced in the region. It also provides services to households and industry and collects taxes.
- **Outside World** – The outside world sector accounts for trade flows, both imports and exports, crossing the region's borders.

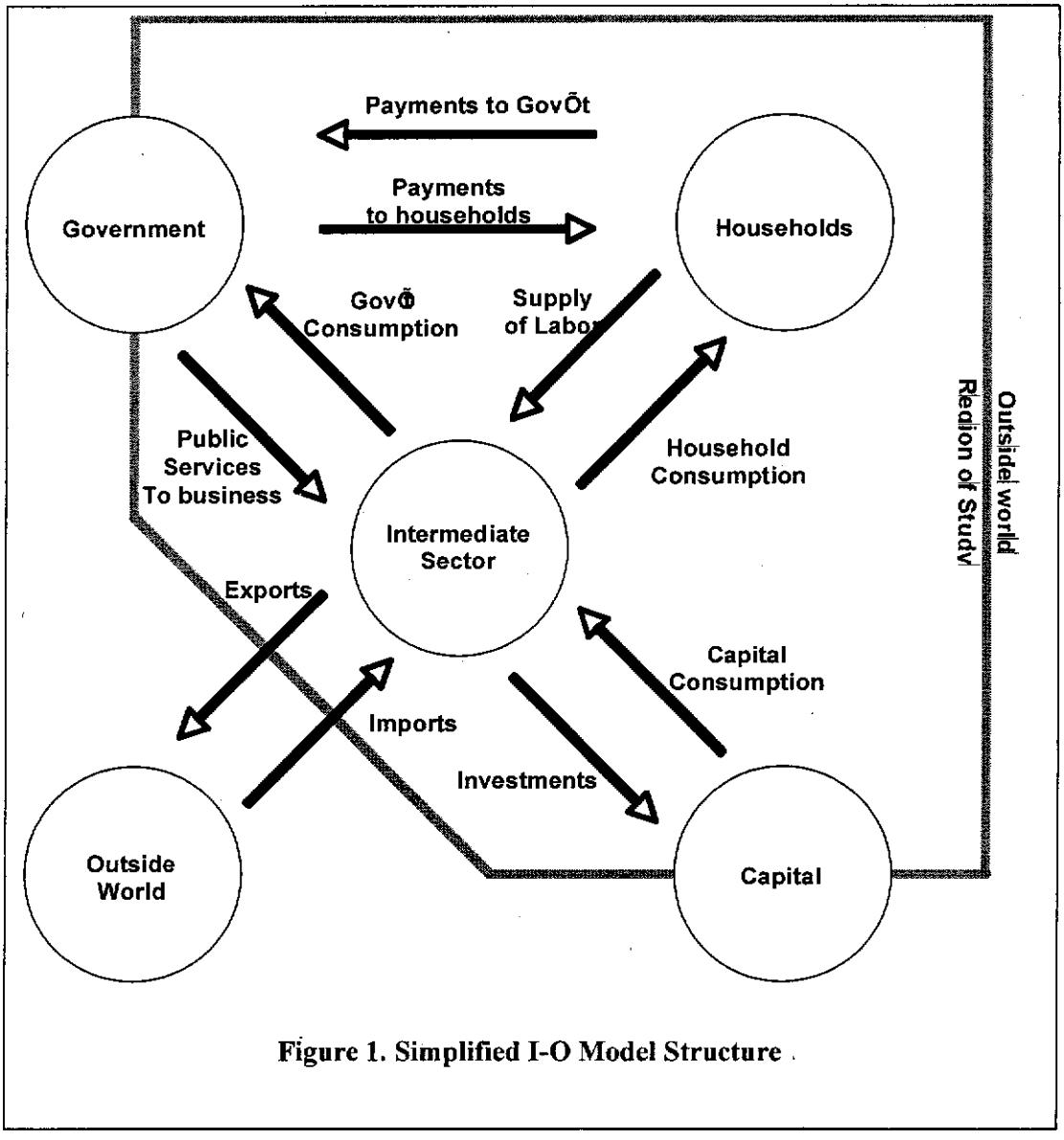


Figure 1. Simplified I-O Model Structure

- **Capital** – the capital accounts keep track of the region's stock of private capital, including both fixed capital and inventories.

Figure 1 shows, stylistically, the key interconnections between the sectors just described.[4] The gray line represents the geographic boundaries of the regional model. The intermediate goods and services and household sectors are wholly within the regional boundary. This means the model is only accounting for industry and household activity *within* the boundaries of the region.[5] The government and capital sectors are partly inside and partly outside the regional boundary, meaning some transactions with these sectors occur within the region, while others occur outside the region. For example, expenditures made by local government occur within the region, while taxes paid to the state or federal government by businesses and households exit the region. By definition, the outside world sector is completely outside the region – as previously noted, this sector captures the flow of imports and exports entering and exiting the region.

At the center of the model is the intermediate goods and services sector. This part of the model tracks sales by each industry to other industries (or to itself). These sales are called intermediate sales. In essence, this part of the model accounts for all the in-between steps of production occurring within the region a good or service takes on its way to becoming a final product. Sales by the intermediate sector to other sectors (e.g. households, government, outside world, or capital) are called sales to final demand. From the region's point of view, products sold to final demand are in their final stage of production, they are final products. They will either be used for consumption within the region, add to the region's capital stock, or leave the region as exports, either for additional processing, for consumption, or as capital.

At this point, the model as outlined above is a descriptive model. It describes the movement of goods and services within a region and the outside world; payments of taxes by

[4] Figure 1 is adapted from The Web Book of Regional Science. Ed. Randall W. Jackson. Regional Research Institute, West Virginia University, 1999.
[5] In the case of the Economic Panel's analysis, Imperial County is the model's geographic boundary.

businesses and households; transfers from government to businesses and households; and income received by labor and property owners.

The next step in I-O modeling is to turn this *descriptive* model into a *predictive* model. Whereas the descriptive model shows current trade patterns and payment flows for a region, a predictive model can be used to *estimate* how a change in final demand would alter these patterns and affect regional output, income, and employment. It can also estimate how a change in total output would be distributed across the different parts of the regional economy, and thus be used to evaluate the distribution of the impact. For example, if households within the region increased their consumption of broccoli, how would this affect total output for the region? To what extent would regional income be affected? Would there be an increase in employment? Which industries would benefit the most from the increased consumption of broccoli?

Estimating *multipliers* using the data from the descriptive model develops a predictive I-O model.[6] Multipliers summarize the rounds of transactions that occur within the region as a result of some initial change in final demand. For example, grocery stores respond to the increased household demand for broccoli by stocking more. They purchase extra broccoli from their wholesalers. These wholesalers respond in turn by purchasing more broccoli from vegetable processors. Eventually, this chain of transactions works down to broccoli producers, who may respond by planting more broccoli and purchasing more inputs such as fertilizer and field labor. Each round of transactions may imply changes in the purchases of other goods and services that support the production, warehousing, distribution, and selling of broccoli. The purpose of the multiplier is to capture the full range of regional transactions sparked by the initial change in final demand. An output multiplier of 1.5 for broccoli, for example, implies that a one dollar increase

[6] This is done through algebraic manipulation of the data tables that constitute the descriptive model. The mechanics of multiplier generation can be found in any textbook dealing with input-output analysis. A search of the internet will also provide numerous websites that explain in detail multiplier estimation.

in broccoli demand, would, after summing up all rounds of regional transactions, increase regional output by a dollar fifty.

Multipliers break down this total change in output into three components:

- **Direct effects** – these account for the change in output for industries experiencing the initial change in demand. In the case of the broccoli example, the direct effect would account for the increased purchases by grocery stores and any other retailer of broccoli.
- **Indirect effects** – these account for changes in inter-industry purchases as a result of production changes made by the industries experiencing the initial change in demand. In the case of the broccoli example, this would include all industries that are part of the chain of supply for broccoli within the region up to the wholesale level.
- **Induced effects** – these account for changes in household spending as a result of changes in household income stemming from the initial change in demand. For example, if grocery store workers increase their hours because they must stock more broccoli to meet the rise in demand, their income will increase. Some of this increase will be spent within the region. The same is the case for any other workers that increase their incomes as a result of the cascade of transactions sparked by the initial increase in the household demand for broccoli. The induced effects component of the multiplier accounts for the effect this change in household spending has on regional output.

2.2 Key Assumptions of Predictive I-O Models

Predictive I-O models are necessarily simplified representations of very complex economic phenomena. A predictive I-O model is based on a number of fundamental assumptions, which may or may not comport with real world economic relationships.

The key simplifying assumptions that underpin I-O analysis are as follows:

- **Fixed proportions production technology** – I-O models assume that production of any good or service requires a fixed list of ingredients. Neither the list nor the relative mix of

ingredients can change – the production technology is fixed. This rules out the possibility that firms will substitute one input for another in response to a change in relative prices. Changes in the economy may affect an industry's output but not the mix of commodities and services it requires to make its products.

- **Constant returns to scale** – This means all inputs to production increase proportionally as output is increased. If it requires one hour of labor to prepare an acre for planting, then it requires two hours of labor to prepare two acres. There are no economies or diseconomies of scale as production increases.[7]
- **No supply constraints** – I-O models assume there are no supply constraints on production. Supplies needed to increase output are assumed unlimited. This means that changes in demand will only affect output and will not affect *prices* for goods and services.
- **Homogenous sector output** – This means the proportions of all commodities produced by an industry are invariant to the level of total output. Under this assumption, an industry cannot increase the level of one product without proportionately increasing the output of all its other products.

It is important to keep these key model assumptions in mind when reviewing results from an input-output analysis. Depending on the context of the analysis, the assumptions may reasonably represent the underlying structure of the economy being modeled, or depart significantly. In the latter case, it is important to consider the extent and direction of bias departure from one or more key assumptions may cause in model results.

[7] Field preparation is an example where one might expect increasing returns to scale. As the amount of acreage increases, the relatively fixed cost of tractor transportation to the site and setup is spread over more acreage and the cost per acre decreases. I-O models rule out this possibility.

2.3 Using I-O to Estimate Impacts of a Water Transfer with Land Fallowing

Several recent studies have used I-O analysis to estimate regional impacts to output, income, and employment due to water transfers involving land fallowing. Howe and Goemans (2003) used I-O analysis to evaluate regional impacts of water transfers for three water markets in Colorado. Mitchell and Cutter (2004) used an I-O approach to evaluate regional impacts to Glenn and Colusa Counties in California of a land fallowing water transfer between Glenn-Colusa Irrigation District and Metropolitan Water District of Southern California (MWD). Mitchell and Mott (2002) completed a similar analysis for a proposed long-term land fallowing water transfer between Palo Verde Irrigation District and MWD. The EIS/EIR for the IID Water Conservation and Transfer Project also utilized I-O analysis to forecast the impacts to output, income, and employment within Imperial County of the proposed water transfer and removal of land from production.

In the present application, the scenario that begins the analysis is not a change in final demand. Rather, the scenario begins with a change in the price of water in the export market, and a payment to growers to release the water that is exported. This is accompanied by a reduction of output on fallowed farmlands. These events require treatment that is somewhat different from the conventional application of I-O analysis.

- **Increased revenue from higher prices.** The higher revenue for IID sales stems from a higher price in the water export market rather than an increase in the quantity of water sold. Because there actually is no increase in the quantity of water being sold there is no additional inputs required for the larger earnings. [There may be, however, some differences in the inputs required by IID due to possible differences in input requirements for the export of water than there might be for deliveries to agriculture].
- **Farm production inputs and services**. Because less acreage is under production, demand for farm inputs, such as chemicals, fuel, and seed decreases. Likewise, demand for services such as chemical application, harvesting, and transportation may decrease. It

is important when accounting for changes in demand for farm production inputs and services that the analysis distinguish between goods and services bought locally versus those imported from outside the region. Only local purchases of goods and services are relevant to the impact analysis. The easiest way to model these changes in on-farm demand is to rely on the I-O model's farm commodity production functions. However, it is frequently the case that these production functions, based primarily on national or statewide data, do not match very well local production conditions. It also often happens that the crops of interest are not represented in commercially available models. In these instances, an alternative, and typically more accurate, approach is to use Agricultural Extension Service crop budgets reflecting local growing conditions and costs and specific to particular crops to develop custom production functions for the I-O model. An example of the first approach can be found in Howe and Goemans (2003). An example of the second method is shown in Mitchell and Cutter (2004).

- **Commodity processing.** A decrease in planted acreage may reduce the commodity supply available to regional processors, which in turn may cause them to reduce their output or increase the prices they pay for commodities they process.[8] When assessing changes in demand for commodity processing it is important to determine the fraction of commodity output that is processed within the region versus exported outside the region. Only the portion of output processed within the region is relevant to the impact analysis. With this in mind, the economics panel is keeping a close eye on the feedlot cattle and slaughterhouse animal feed requirements, sugar processing plant requirements for sugar beets and cotton ginning requirements for raw cotton. These sectors are especially important to the health of the Imperial Valley economy, and although we found no

[8] Recall that a predictive I-O model can address only the first of these two phenomena.

special problems at current fallowing levels, it is something to keep an eye on as the number of fallowed acres increases.

- **On-farm labor**. Demand for on-farm labor may also decrease. The extent of change in the demand for farm labor will depend on the type of crops taken out of production and the amount of maintenance and improvement activity (e.g. weed and dust control, leveling, etc.) occurring on the fallowed acreage. It is also important to differentiate between changes in demand for hired versus owner/operator labor. Within some farming regions, owner/operator labor can account for a large fraction of the total labor requirement to produce some crops, such as grain and forage. Perhaps the most challenging issue is dealing with migrant farm labor. Much of the farm-labor in California is supplied by migrant farm-workers. Referring back to Figure 1, I-O models generally assume that most (but not necessarily all) of the labor to businesses is supplied by local households. In the case of agriculture we know that a significant amount of the labor force is migrant and may reside outside of the region for some of the year. This makes the accounting for changes in household expenditures more complicated.
- **Land Owner/Operator Expenditure of Net Transfer Revenue.** Payments to growers who reside in Imperial County are treated as income to those growers, and the impact on the rest of the local economy operates through their consumption expenditures in the local area. [If there were credible evidence that part of this income was invested in on farm capital that would also count as increased final demand in the local economy]. The important distinction in the treatment of the consumption expenditures is that it is all counted as induced impacts by the I-O analysis.
- **Irrigation District Expenditure of Net Transfer Revenue.** In most cases, revenue from land fallowing water transfers is shared between the land owner/operators removing land from production and the irrigation district managing the water system and holding the water rights or contracts. The net transfer revenue for the irrigation district is the

difference between its share of the transfer revenue and the revenue it would have received had there been no transfer. Positive net transfer revenue to the irrigation district represents an increase in regional income and potential expenditure. Expenditure of irrigation district net transfer revenue can take many forms. For example, it may be distributed to the district's customers in the form of rebates or reductions in water tolls or it may be spent on infrastructure improvements and capital projects. The type of expenditure is important because it will determine how much is retained by the regional economy. The timing of the expenditure is also important. If it occurs in the same period as land fallowing it may offset some or all of the negative impacts of taking land out of production. On the other hand, if the district expends net transfer revenue at a later date, there will be a lag between the dislocating effects from removing land from production and the offsetting positive effects of transfer revenue expenditure.

Table 1 summarizes the initiating changes in demand caused by water transfers with land fallowing and shows their direction of impact. The first thing to note is that the overall direction of impact may be positive or negative, depending on the terms and conditions of the transfer agreement and the value of crops affected.[9] It may turn out that the negative impacts of reduced planted acreage outweigh the positive impacts from regional spending of transfer revenue, or the opposite may be the case. Water transfers with land fallowing typically produce a range of demand changes that move in opposite directions, partially or wholly canceling out one another in aggregate. Because of this, how impacts are distributed is often as important as the overall magnitude of impact. While impacts in aggregate may be somewhat positive or somewhat negative, it is often the case that negative impacts concentrate in some sectors of the economy while positive impacts accrue in others. In effect, water transfers, especially if they involve taking land out of agricultural production, have the potential to redistribute income within the

[9] Bourgeon, J., K. Easter, and R. Smith (2004) illustrate potential changes in regional income resulting from water transfers under different conditions.

region. These redistributive impacts are often the greatest cause of concern to local communities and businesses.

Table 1.
Changes in regional demand induced by water transfers with land fallowing

Source of change	*Changes demand for ...*	*Direction of Impact*
Reduction in Planted Acreage	Purchased farm supplies	-
	Purchased farm services	-
	On-farm labor	-
	Crop processing, storage, transportation	-
Grower expenditures	Consumer goods	+
	On-farm improvements	+
Irrigation District expenditures	Consumer goods	+
	On-farm improvements	+
	Engineering/Construction	+

2.4 IMPLAN Analysis of IID-SDCWA Water Transfer

The Economic Panel used IMPLAN Professional™ I-O modeling software and data sets to implement the modeling approach outlined above.[10] IMPLAN data sets are available at the zip code, county, state, and national level. The model developed by the Economic Panel is based on the 2001 IMPLAN data set for Imperial County.

Two significant modifications to the base model and data were made by the Economic Panel to calibrate the model to local conditions. These were as follows:

- **Value of Farm Output.** The output of each agricultural sector in IMPLAN was calibrated to the output reported in the 2003 Imperial County Agricultural Commissioner's Report. In several cases the output reported by the county agricultural

[10] IMPLAN Professional ™ I-O modeling software was originally developed by the USDA Forest Service in cooperation with the Federal Emergency Management Agency and the USDI Bureau of Land Management to assist the Forest Service in land and resource management planning. The Minnesota IMPLAN Group, Inc. currently maintains the model and updates the data sets.

commissioner was higher than the IMPLAN data. Where output adjustments to the model were made, the value added components (employee compensation, proprietary income, other property income and indirect business taxes) were proportionally increased.

- **Crop Production Functions.** Detailed crop production functions were developed specifically for Imperial County with crop budgets provided by the University of California and University of Arizona Cooperative Extensions. This process is described in depth in subsequent sections of the report.

The Economic Panel used this modified I-O model for Imperial County to estimate changes in county output, after-tax income, and employment associated with the IID-SDCWA water transfer payments and land fallowing activities in 2003-2004. The next sections of this report describe the economy of Imperial County, the estimated changes in demand caused by land fallowing and disposition of net transfer revenue, and the resulting estimates of impact to regional output, after-tax income, and employment.

3.0 IMPERIAL COUNTY ECONOMIC PROFILE

Located in the southeast corner of the State, Imperial County is the 9th largest county in the state with an area covering nearly 4,600 square miles. It's location near the urban areas of greater Los Angeles and nearby San Diego in addition to bordering Mexicali, the largest industrial city and Capital of Baja California, causes some unique economic dynamics.

Imperial County receives on average less than three inches of rain a year making it one of the most arid regions in the state. Geographically, the County is three quarters made up of desert and mountainous lands. The remainder of the land is a mix of agricultural and urban areas.

3.1 Demographics

Imperial County has an estimated population of 156,562, making it one of the least populated counties in the State. This is reflected in its relative low density (34 persons per square mile) when compared to the State as a whole (217 per square mile according to the U.S. Census Bureau). The largest city in Imperial County is El Centro with a population of 40,509, followed by Calexico with a population of 32,602. The population grew at a rate of half a percent in the last year, but comparing the population changes between censuses (1990 to 2000) the rate of growth has been significantly higher than the State average (30% for Imperial County versus 14% for the State). Table 2 presents the population of Imperial County.

Table 2
Population and Housing

	POPULATION			OCCU-PIED HOUSING	PERSONS PER HOUSE-HOLD
CITY	TOTAL	HOUSE-HOLD	GROUP QUARTERS	UNITS	
IMPERIAL COUNTY					
EL CENTRO	40,509	39,622	887	11,843	3.346
CALEXICO	32,602	32,499	103	7,916	4.105
BRAWLEY	23,785	23,473	312	6,912	3.396
IMPERIAL	9,435	9,403	32	2,784	3.378
CALIPATRIA	7,851	3,663	4,188	995	3.681
HOLTVILLE	5,819	5,689	130	1,567	3.631
WESTMORLAND	2,247	2,247	0	637	3.527
UNINCORPORATED	34,314	28,635	5,679	9,229	3.103
COUNTY TOTAL	156,562	145,231	11,331	41,883	3.468

Source: State of California, Department of Finance, Demographic Research Unit, January 2004

As would be expected with it's proximity to Mexico, the proportion of the population of Hispanic origin is significantly higher (72%) to the percentage of the State as a whole (32%) based on the 2000 Census. However age breakdown is similar to that of the state.

Imperial County had 41,883 households of whom, 58 percent own their own home. This is comparable to the State average even though median household income is substantially lower ($32,000 versus $47,000 for the State in 1999 according to the 2000 U.S. Census). The reason for this is because the median house price is less than half the state average, making home ownership much more affordable in Imperial County than almost any other place in the state.

3.2 The Economy

The government sector, with 16,900 employees is the largest employer in Imperial County. Prior to 1997, farming (which currently employees 11,800) was the largest employer. Another important employment sector is retail trade (6,500 employees). Table 3 displays the major sectors of industry and their employment.

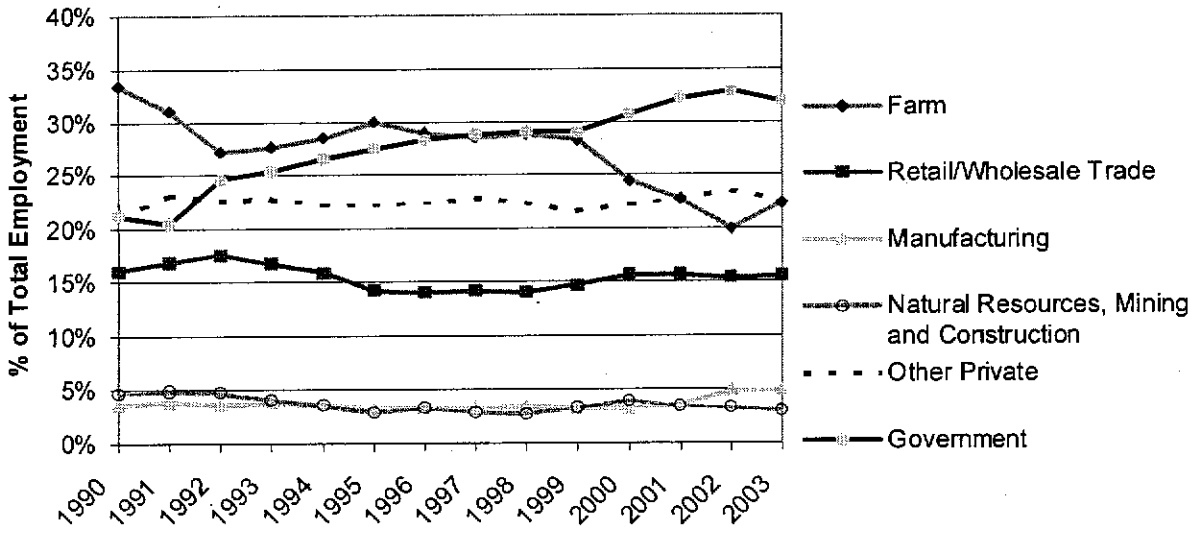
Table 3
Employment By Industry Sector

Industry	1993	2003	Percent Change
Farm	12,700	11,800	-7%
Natural Resources, Mining and Construction	1,900	1,600	-16%
Manufacturing	1,700	2,600	53%
Wholesale Trade	1,600	1,700	6%
Retail Trade	6,100	6,500	7%
Transportation, Warehousing and Utilities	900	1,900	111%
Information	400	400	0%
Financial, Insurance, and Real Estate	1,300	1,500	15%
Professional and Business Services	2,400	2,200	-8%
Educational and Health Services	1,900	2,400	26%
Leisure and Hospitality	2,900	2,600	-10%
Other Services	700	900	29%
Government	11,700	16,900	44%
Total, All Industries	46,200	53,000	15%

Source: State of California, Employment Development Department, June 2004

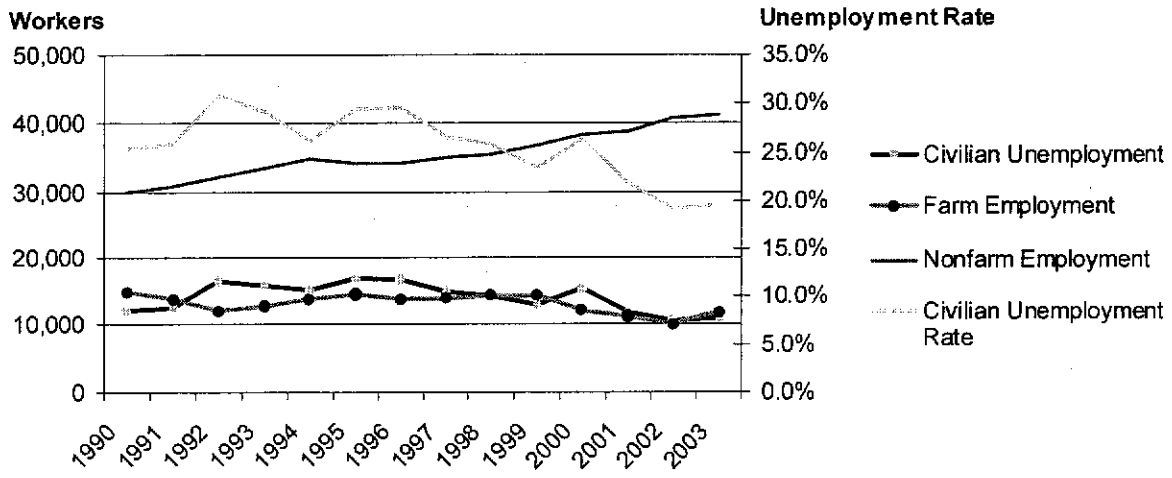
Figure 2 displays the percentage of total employment for major industry categories. As can be seen from the table a significant shift in importance to the local economy from farm employment to government employment occurred in the past decade. Consequently, fluctuations in farm employment does not have the impact on employment it once did. This is evident on Figure 3, which displays unemployment versus farm and non-farm employment. Unemployment in Imperial County was reported by the State of California, Employment Development Department to be 19.4% compared to 6.7% for the State as a whole.

Figure 2
Percentage of Employment By Industry



Source: State of California, Employment Development Department

Figure 3
Historical Relationship Between Employment and Unemployment



Source: State of California, Employment Development Department

Commuting of workers, both from Imperial County residents to jobs outside of the County and those commuting to Imperial County is evident in the data. Based on Census Data as compiled and reported by San Diego State University's California Center for Border and Regional Studies (CCBRES), seven percent (7%) of the residents of Imperial County work outside the county including one percent that work in Mexico. A similar percentage of the Mexicali population works in the United States (7.2% in the first quarter of 2003 according to the Centro de Estudios Economicos del Sector Empresarial de Mexicali, reported by CCBRES) of course, not all in Imperial County.

Employment is projected to grow by 28% between this year and 2020. As indicated on Table 4, this would be a little less than population is forecasted to grow.

Table 4
Forecasted Population and Employment

Year	Population (mid-year)	Wage & Salary Employment (000)
2004	158,084	51.5
2005	161,171	52.5
2006	164,200	53.6
2007	167,208	54.7
2008	170,158	55.6
2009	172,997	56.4
2010	175,772	57.1
2011	178,485	57.8
2012	181,178	58.5
2013	184,093	59.2
2014	187,249	60.1
2015	190,636	61.1
2016	194,235	62.1
2017	197,963	63.0
2018	201,827	64.0
2019	205,738	65.0
2020	209,673	66.1
% change 2004-2020	33%	28%

Source: State of California, Department of Transportation

4.0 IMPERIAL COUNTY AGRICULTURAL PROFILE

Imperial County agriculture is an important part of California agricultural production. California's agricultural production topped $29.8 billion in 2001 which is almost twice the production of its nearest state competitor, Texas. Agriculture, when combined with the states food processing industry, represents the second largest industry in California.

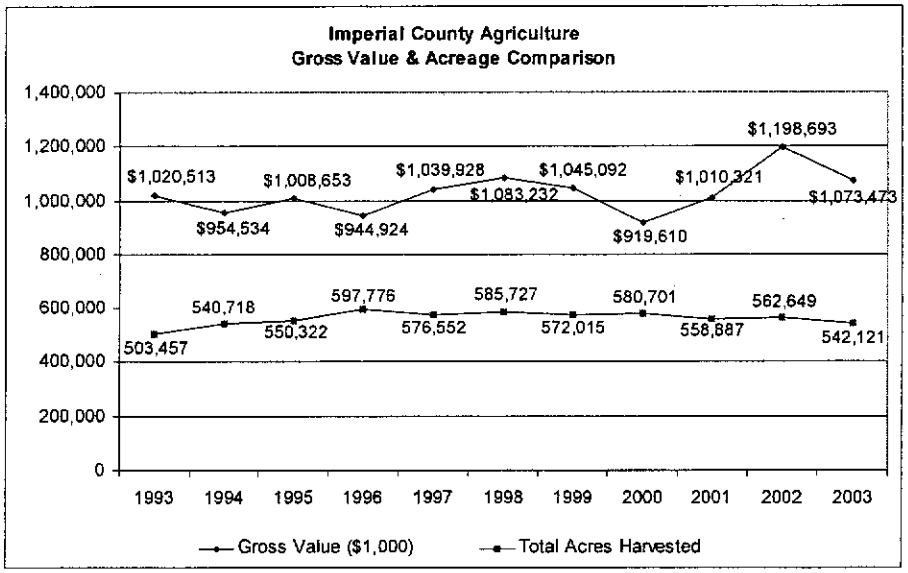
Based on the Agricultural Commissioners' Reports, Imperial County ranks 11th in agricultural production with a gross value exceeding $1 billion annually. In the 1993 – 2003 time period, Imperial County averaged more than 560,000 harvested acres per year. The California Employment Development Department indicates there are 381 agricultural establishments in Imperial County as of 2002. The agencies indicate that average monthly employment in

agriculture was 11,413. Excluding federal, state and local government, agriculture has the largest average monthly employment of any sector in the Imperial County economy.

4.1 Agricultural Production

From 1993 – 2003, the gross value of agricultural production ranged from a low $919,610,000 in 2000 to a high of $1,198,693,000 in 2002 (Figure 4). Over that time period, the average gross value was $1,027,179,000 with a standard deviation of $77,117,900 or 7.5 percent of the average.

Figure 4



Source: Imperial County Agricultural Crop and Livestock Report, 1993 – 2003.

In terms of major sectors, the average gross value of production varies greatly ranging from $4 million for nursery products to $432 million for vegetables and melons in the 1993 – 2003 time period (Table 5). In general, the largest sectors appear to have the greatest stability in terms of variability in gross production. Hay and pasture (10.7%), vegetables and melons (14.1%), sugar crops (15.8%), and cattle and calves (17.4%) exhibit the greatest stability in the gross value of production. It would appear that while overall gross production value is relatively stable, large variability occurs in some of the sectors.

Table 5
Gross Value of Production
1993 – 2003 Averages

Category	Average Gross Value of Production	Coefficient Of Variation
Other Livestock and Products	$ 45,787,000	30.9%
Cattle and Calves	183,701,000	17.4
Sheep/Lambs	8,627,000	35.3
Cotton	11,372,000	27.4
Food Grains	30,008,000	44.4
Hay and Pasture	182,309,000	10.7
Grass Seeds	22,132,000	37.3
Fruits and Tree Nuts	34,011,000	22.1
Vegetables and Melons	432,429,000	14.1
Sugar Crops	45,903,000	15.8
Miscellaneous Crops	25,847,000	44.1
Nursery Products	4,056,000	70.2

Source: Imperial County Agricultural Crop and Livestock Report, 1993 – 2003.

4.2 Production Acreage

From 1993 – 2003, harvested acreage ranged from a low 503,457 in 1993 to a high of 597,776 in 1996 (Figure 4). Over that time period, the average harvested acreage was 560,993 with a standard deviation of 26,297 acres or 4.7 percent of the average.

Table 6 provides the average acres for the 1993 – 2003 time period. Field crops appear to have the least variability (5.2%) while seed and nursery crops have the largest (28.2%).

Table 6
Harvested Acres
1993 – 2003

Category	*Average Harvested Acres*	Coefficient Of Variation
Field Crops	395,956	5.2%
Vegetables and Melons	102,744	9.8
Fruit and Tree Nuts	5,528	17.0
Seed and Nursery Crops	56,765	28.2

Source: Imperial County Agricultural Crop and Livestock Report, 1993 – 2003.

4.3 Relative Importance

Imperial County produces specific agricultural outputs that are important to the State of California agricultural production. As Table 7 indicates, Imperial County ranks first among counties for alfalfa (16.2%), sudan (70.3%), carrots (52.8%), and sugar beets (59.0%) producing significant percentages of the state output. Although ranked 11 overall, Imperial County produces specific crops that have greater relative importance when compared to other counties.

4.4 Agricultural Linkages

While most of the agricultural production in Imperial County is sent out of the County, there are important agricultural products that are used within the County. Some of Imperial County's agricultural products are linked to other operations within the County. Examples include but are not limited to slaughterhouse operations, sugar refining, and dairies.

Table 7

Relative Importance of Imperial County Agriculture to California
2001

Category	*State Rank*	Percent of State Production
Cattle & Calves	3	10.1%
Lettuce	2	11.6
Hay, Alfalfa	1	16.2
Broccoli	4	5.4
Salad Greens	2	2.3
Cauliflower	3	9.1
Onions	2	17.9
Potatoes	3	12.7
Carrots	1	52.8
Sugar Beets	1	59.0
Corn, Sweet	2	15.7
Grapefruit	5	5.1
Sheep and Lambs	3	12.1
Melon, Watermelon	5	9.4
Dates	2	28.3
Vegetable and Vinecrop Seeds	2	11.4
Melon, Honeydew	4	12.3
Hay, Sudan	1	70.3
Cabbage	5	11.4
Tangerines	4	2.8
Honey	4	5.4

Source: Summary of County Agricultural Commissioners' Reports, 2000 – 2001.

As an illustration, consider the relationship between a slaughterhouse, feedlot and hay farming. Brawley Beef slaughter 1600 head of cattle per day, five days a week, using 750 fulltime workers. The bulk of the beef comes from Imperial County feedlots with some beef from Yuma. The agricultural crop and livestock report for 2002 reports 3,351,011 cwt. of weight

gain for feedlot cattle. With a weight gain ratio of 6 lbs. of feed to 1 lb. of weight gain, substantial feed is necessary. If hay makes up 20 percent of the feed, 1200 lbs. is needed for each 1000 lbs. of weight gain. For 2002, 201,660 tons of hay were needed for feedlot operations. Using a weighted average of various hay crops of 6.35 tons per acre implies that 31,757 acres of hay were needed to support feedlot operations. Needless to say drastic reductions in hay production would impact feedlots which in turn could impact beef slaughter operations. In short, agricultural linkages within Imperial County are important to the agricultural economy.

5.0 QUANTIFIED THIRD-PARTY IMPACTS FROM 2003-2004 LAND FALLOWING AND WATER TRANSFER

Water transfer and land fallowing program activities in 2003-2004 have directly caused or will cause various changes in the demand for goods and services within the Imperial County. These include:

- Reduced purchases of farm production goods and services
- Expenditure of transfer proceeds by growers
- Expenditure of transfer proceeds by IID

An analysis of each of these changes follows.

5.1 Fallowed acres

Table 8 shows the acres fallowed to transfer water to SDCWA and the Salton Sea for 2003 and 2004. In 2003 the water transfer removed 1,830 acres from production – about 0.33% of average planted acreage in Imperial County between 1993-2003 (see Section 5). In 2004, this increased to 6,309 acres, or about 1.13% of average planted acreage. Note that acreages shown in Table 8 are less than the total amount of acreage fallowed by IID for 2003 and 2004. Additional fallowing was undertaken by IID to provide makeup water for Colorado River deliveries in prior

years. This additional fallowing is unrelated to the water transfer with SDCWA and is outside the scope of the Economic Panel's charge.[11]

The amount of each crop fallowed in 2003 and 2004 is based on what program participants reported to IID they would have planted on the fallowed acreage. In both years alfalfa, bermuda, sudan and wheat accounted for the majority of the fallowed acres, comprising 91% of the total in 2003 and 74% in 2004. In 2004, acreage that participants reported would have been planted to citrus, melons, or vegetables accounted for approximately 9% of fallowed acreage.

Table 8 also shows the value of crop production foregone in 2003 and 2004 due to the water transfer with SDCWA. These amounts are based on average yields and prices reported by the most recent Imperial County Agricultural Commissioner report. In 2003 the value of foregone crop production was approximately $960,000 – about 0.09% of average farm production value for Imperial County over the period 1993-2003. In 2004, this increased to approximately $5,04,000 – about 0.48% of Imperial County average farm production value.

The increase foregone production value in 2004 relative to 2003 is not proportional to the increase in the amount of acreage removed from production. In 2004 fallowed acreage increased by 240% while foregone production value increased by 425% relative to 2003. This disproportionate increase in foregone production value in 2004 is largely explained by the presence of citrus, melon, and vegetable acreage. While this acreage accounts for only about 9% of fallowed acreage in 2004, it comprises about 32% of foregone production value.[12]

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[11] The QSA Delivery Schedule calls for the delivery of 15,000 AF in 2003 and 30,000 AF in 2004. However, the actual deliveries were 10,000 AF in 2003 and 35,000 AF in 2004, representing 32% and 52% of the total water made available in 2003 and 2004 through land fallowing. These percentages were used to allocate fallowed acres and transfer payments to the transfer agreement as opposed to repayment of Colorado River water.

[12] Citrus in particular requires a substantial up-front capital investment. It seems unlikely to the Economic Panel that a grower would enroll productive and profitable citrus acreage into the fallowing program and forego this investment. It seems more likely that enrollment would occur only if the acreage were no longer bearing or was unprofitable and being taken out of production anyway. This raises the question of whether the reduction in economic activity associated with this acreage should be attributed to the land fallowing program. The Economic Impact Panel's current assessment of fallowing impacts for 2004 includes the citrus acreage. This may causes an overstatement of impacts from fallowing for 2004. This is an issue that the Economic Panel will give further attention to through corroborating studies it will undertake next year. These studies are discussed in Section 7 of the report.

Table 8

2003 and 2004 Fallowed Acres and Production Value

	2003		2004	
Crop	Acres	Value*	Acres	Value*
Alfalfa	370	0.23	1,943	1.18
Bermuda	795	0.34	2,058	0.87
Klien Grass	95	0.08		
Sudan	48	0.02	443	0.20
Wheat	456	0.23	902	0.45
Cotton	66	0.08		
Citrus			254	0.39
Melons			218	0.68
Sugar Beets			390	0.71
Vegetable			101	0.55
Total	1,830	0.96	6,309	5.04
*million $				

5.2 Reduced purchases of farm production goods and services

The changes in farm production shown in Table 8 imply changes in on-farm purchases of labor, goods, and services. The Economic Panel used the IMPLAN model to evaluate how these changes would impact the economy of Imperial County.

The Economic Panel's evaluation of the crop production functions that came with the IMPLAN model concluded that these functions provided a poor representation of growing conditions in Imperial County. It therefore opted to develop custom crop production functions using information from the University of California and University of Arizona Cooperative Extension crop production budgets. The crop budgets provided the necessary detail on the labor,

chemicals, fuel and other inputs required per acre for each crop.[13] Using this more detailed information, the Economic Panel was able to develop crop production functions more closely matching actual growing conditions in Imperial County.

The production functions developed by the Economic Panel have two major categories, physical inputs such as chemicals and fuel, and value added inputs, such as payments to labor and property, owner income, and taxes. Of the 14 categories, 10 were variable and included in the impacts from fallowing. Fixed inputs that do not vary with the amount of land in production, such as property taxes or overhead, were not included in the IMPLAN production functions. A summary of the production function for each crop included in the IMPLAN modeling is shown in Appendix B.

Table 9 summarizes the changes in farm purchases resulting from the water transfer with SDCWA in 2003 and 2004. The 2003 land fallowing reduced farm purchases by approximately $0.6 million. In 2004, farm purchases were reduced by about $4.5 million. The disproportionate increase in foregone farm input purchases between 2003 and 2004 are explained by the presence if citrus, melon, and vegetable acreage in the 2004 fallowing program. These are more input-intensive crops, especially with respect to the agricultural support services category, which includes contract farm labor.[14]

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[13] The Arizona budgets provided a greater level of detail than the Imperial County budgets, particularly with regards to labor, so budgets for Yuma and Pima Counties in Arizona were used when available (alfalfa, sudan, wheat, cotton, melons and vegetables). Budgets for Imperial County were available for bermuda and klein while Arizona budgets were not, so the ratio of bermuda and klein to alfalfa costs in the less detailed Imperial County budgets were used to approximate the more detailed Arizona budgets. Similarly, the ratio of sugar beet to carrot costs in the California budgets were used to approximate a more detailed budget for sugar beets from the Arizona budget for carrots. Finally citrus budgets were not available from the Arizona Extension or for Imperial County, but were available in sufficient detail from the California Extension for the San Joaquin Valley region. Appendix B contains the production budget for each crop modeled with IMPLAN.

[14] As discussed in a previous note, the Economic Panel is skeptical that the 2004 land fallowing program directly caused the removal of citrus orchard from irrigation and production. The current assessment of impacts includes this acreage. However, results from the corroborating studies the Economic Panel intends to undertake next year may result in changes to the 2004 impact assessment.

Table 9.
Summary of Foregone Farm Input Purchases

Input Category	2003	2004
Labor	$105,426	$423,259
Crop	49,737	237,524
Ag Support	56,960	1,319,477
Fuel & Oil	20,466	78,527
Chemical	152,695	532,137
Wholesale Trade	32,030	118,010
Gas Stations	3,974	15,525
Finance	42,036	189,239
Machinery Rental	0	60,715
Machine Repair	145,148	547,308
Materials	737	226,119
Total	$609,209	$3,747,840

The changes in farm input purchases shown in Table 9 provided the basis for estimating with the IMPLAN model changes in Imperial County output, income, tax receipts, and employment resulting from fallowed acreage in 2003 and 2004, the results of which are presented in Section 5.5.

5.3 Grower Payments

Growers participating in the land fallowing program were compensated directly for removing land from production. These payments were determined through a bidding process and varied by grower. Table 10 summarizes the average per acre and total grower payments made in 2003 and 2004 for land taken out of production as a result of the SDCWA water transfer. In 2003 payments totaling $563,477 -- an average of $308 per acre -- were made to growers removing land from production as a result of the SDCWA water transfer. In 2004, this increased to $1,746,224, or an average of $277 per acre.

The Economic Panel estimated that approximately 82% of 2003 payments went to recipients residing in Imperial County. In 2004, approximately 91% of payments went to

Imperial County residents. The Economic Panel assumed that none of the payments made to residents outside of Imperial County would be spent within Imperial County. Payments made to Imperial County residents were treated as increases in proprietor income and partially or wholly offset foregone proprietor income resulting from the land fallowing. The Economic Panel used the IMPLAN model to estimate the overall impact of payments made to Imperial County residents on county output, income, tax receipts, and employment. The results of this analysis are presented in Section 5.5.

Table 10
2003-2004 Payments made to Growers

	2003	2004
Total Payments	**$563,477**	**$1,746,224**
Imperial Co. residents	$459,571	$1,584,524
Residents outside Imperial Co.	$103,906	$161,700
Avg. $/Acre	$308	$277

5.4 Disposition Water Transfer Revenue to IID Customers

Under the transfer agreement SDCWA paid IID $258/AF in 2003 and $267/AF in 2004 for water delivered to SDCWA's service area. In addition, the JPA made $1.4 million in payment to IID for water delivered to the Salton Sea and $20,000 for dust/weed mitigation reimbursement. Payments to IID totaled $2.58 million in 2003 and $6.76 million in 2004. Some of this revenue was paid directly to landowners participating in the land fallowing program, as discussed in the previous section. Additionally, the IID Board of Directors voted to rebate some of the transfer revenue to all IID customers by reducing the water rate for 2004 by $1.00 per acre-foot. The intent of this action, as reflected in the IID Board Minutes of October 30, 2003, was to provide benefit to all IID water users. Based on average water sales over the last 10 years, the rebate represents an increase in the income of Imperial County residents of $2.8 million.[15]

[15] The Economic Panel requested 2004 water sales data from IID so that it could more accurately calculate the actual amount of transfer revenue rebated to IID customers. IID declined to provide the Economic Panel this information. Therefore, the Economic Panel is using the ten-year average sales as reported on Page H-5 of the IID budget.

Table 11 shows the Economic Panel's current understanding of the disposition of water transfer revenue related to land fallowing paid to IID through 2004.

Table 11
Disposition of 2003-2004 Water Transfer Revenues by IID

	2003	2004	Cumulative
SDCWA payments to IID for transfer water	$2,580,000	$5,340,000	$7,920,000
JPA payments to IID for mitigation water		$1,400,000	$1,400,000
JPA payments to IID for weed/dust control		$20,000	$20,000
IID payments to growers to fallow acreage	($563,477)	($1,746,244)	($2,309,721)
IID payments for dust/weed control	($20,000)	Unknown	($20,000)
IID administrative expenses	Unknown	Unknown	Unknown
IID Water Rate Rebate		($2,800,000)	($2,800,000)
Unaccounted for Transfer Revenue	$1,996,523	$2,213,756	$4,210,279

There are several important points to note about Table 11. First, the accounting of IID payments for dust/weed control is incomplete. The amounts shown in the table reflect payments to date made by IID to growers submitting claims for reimbursement. IID may receive additional claims from growers. Second, the Economic Panel does not have an estimate from IID of administrative expenses to date related to the transfer. Costs for additional dust/weed control and transfer administrative will be paid out of the transfer revenue retained by IID.

The unaccounted for transfer revenue, when expended by IID, will stimulate economic activity in Imperial County and offset to an unknown extent the negative impacts caused by land fallowing. The magnitude and distribution of this stimulus will depend on what activities IID funds. It is known that some of the retained revenue will be used to cover administrative expenses of the transfer, and likely some will be used for additional dust/weed control. It is also expected that some of the transfer proceeds will be used for environmental mitigation. Beyond these activities there is a broad range of possible expenditures that IID could make, ranging from capital projects to further customer rebates. IID has communicated to the Economic Panel that it is developing an expenditure plan for retained transfer revenue, but expects this plan will require

18 months to 2 years to finalize.[16] In the meanwhile, revenue retrained by IID remains in a special account earmarked for the water transfer agreement.[17]

Until this plan is in place the Economic Panel cannot state with any certainty how expenditure of the retained transfer revenue will affect the Imperial County economy. It can gauge the likely magnitude of impact based on plausible hypothetical expenditure of these funds, which is useful for discussing the probable net impact to regional income, tax receipts and employment resulting from 2003 and 2004 land fallowing and water transfer activity.

5.5 Results of the IMPLAN Impact Analysis

Measurement of Third-party Impacts

The Economic Panel's primary charge is to use the regional economic model of Imperial County to estimate the annual and cumulative third-party socioeconomic impacts of land fallowing.[18] Third-party impacts are defined by the water transfer agreement as (i) changes in after-tax income of individuals or entities residing in Imperial County not participating in the IID land fallowing program; and (ii) changes in the tax receipts of local governments within Imperial County.[19]

As discussed in Section 2, the total impact estimated by a regional I-O model can be divided into three components: (1) the direct impact; (2) the indirect impact; and (3) the induced impact. Some of these impacts accrue to individuals and entities residing in Imperial County participating in the IID land fallowing program, while other impacts accrue to non-participants. Therefore, in order to estimate the third-party impacts it is necessary to exclude from the results impacts to non-third-parties. Table 12 indicates whether an impact estimated by the regional economic model was included as a third-party impact. If the table indicates an impact was

[16] August 20, 2004, personal communication between John Eckhardt, IID, and Dr. Gordon Kubota, Economic Panel.
[17] Ibid.
[18] Revised Fourth Amendment to Agreement between IID and SDCWA for Transfer of Conserved Water, Exhibit 2, Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline for Implementation of Defined Tasks.

excluded, it means the impact was borne by an individual or entity participating in the land-fallowing program. N/A indicates the type of impact is not applicable to the analysis.

Third-party income impacts are defined by the water transfer agreement as changes in after-tax income. The Economic Panel used the IMPLAN model to estimate average tax rates for proprietor, property, and labor income within Imperial County. These rates were used to convert the income impacts reported by IMPLAN to after-tax income impacts.[20]

Table 12
Impacts Counted as Third-Party Impact

	Direct	Indirect	Induced
Fallowed Acreage			
Proprietor Income	No	Yes	Yes
Property Income	No	Yes	Yes
Labor Income	Yes	Yes	Yes
Tax Receipts	Yes	Yes	Yes
Employment	Yes	Yes	Yes
Grower Payments			
Proprietor Income	No	N/A	Yes
Property Income	N/A	N/A	Yes
Labor Income	N/A	N/A	Yes
Tax Receipts	N/A	N/A	Yes
Employment	Yes	Yes	Yes
IID Expenditures			
Proprietor Income	Yes	Yes	Yes
Property Income	Yes	Yes	Yes
Labor Income	Yes	Yes	Yes
Tax Receipts	Yes	Yes	Yes
Employment	Yes	Yes	Yes

[19] Ibid.
[20] Combined state and federal average tax rates were 26% for labor and proprietor income, and 7% for property income, which includes payments from rents, interest, dividends, royalties, and corporate profits.

Quantified Third-party Impacts from 2003-2004 Land Fallowing

The net quantified third-party impacts resulting from land fallowing to transfer water to SDCWA and the Salton Sea for 2003 are shown in Table 13.[21] These estimates do not account for potential impacts from unidentified expenditure of transfer revenue retained by IID (see Table 11), and therefore provide only a partial assessment of the impacts associated with the 2003 land fallowing program and water transfer. Once IID expenditures of retained revenue become known and are evaluated, the estimates of net impacts are likely to change.

The table shows that after-tax income to third parties decreased by $186,000; and local government tax receipts were reduced by $13,000. The regional economic model estimated a net loss of 16 jobs to the region – about 0.04% of 2003 Imperial County employment.

Table 13
Quantified Third-Party Impacts, 2003 Land Fallowing
($1,000)

Source of Impact	After-tax Income	Tax Receipts	Jobs
Fallowed Acreage	($285)	($29)	(19)
Grower Payments	87	15	2
IID Expenditures	12	1	1
Net Quantified Impact	($186)	($13)	(16)

Results are shown for 2004 in Table 14. Again, the table does not account for potential expenditures of transfer revenue retained by IID and therefore provides only a partial assessment of impacts. The table shows that after-tax income to third parties increased by approximately $1.3 million; and local government tax receipts decreased by approximately $5,000. The regional economic model estimated a net loss of 80 jobs – about 0.14% of 2003 Imperial County employment.

[21] Appendix A provides more detailed IMPLAN results for the interested reader. The appendix presents estimates of both total impact and third-party impact to the region. Direct, indirect, and induced impacts are presented by major economic sector.

Table 14
Quantified Third-Party Impacts, 2004 Land Fallowing
($1,000)

Source of Impact	After-tax Income	Tax Receipts	Jobs
Fallowed Acreage	($1,592)	($148)	(105)
Grower Payments	$297	$52	9
IID Expenditures	-	-	-
IID Customer Rebate	$2,604	$91	16
Net Quantified Impact	$1,309	($5)	(80)

Table 15 shows the cumulative quantified third-party impacts for 2003 and 2004. Through 2004, the cumulative impact to third-party after-tax income is a positive $1.1 million. The cumulative impact to local tax receipts is a negative $18,000. The program generated 96 fewer jobs than it lost over the two-year period.

Table 15
Cumulative Quantified Third-Party Impacts, 2003-2004 Land Fallowing
($1,000)

Source of Impact	After-tax Income	Tax Receipts	Jobs
Fallowed Acreage	($1,877)	($177)	(124)
Grower Payments	$384	$67	11
IID Expenditures	$12	$1	1
IID Customer Rebate	$2,604	$91	16
Net Quantified Impact	$1,123	($18)	(96)

The reader should be aware of the following cautions when reviewing and interpreting results shown in Tables 13, 14, and 15:

- The Economic Panel believes the quantified employment impacts and to a lesser extent the negative after-tax income impacts caused by land fallowing are somewhat overstated. There are two reasons for this belief.

1) First, the Economic Panel did not have reliable data to estimate the proportion of Imperial County farm workers residing outside the county. The definition of third parties is restricted to Imperial County residents. Because in actuality some amount of labor comes from outside the county while the regional economic model assumes that all labor comes from within Imperial County, quantified employment and income impacts are overstated to some extent.

2) Second, while the Economic Panel was able to distinguish between third-party and non-third-party income impacts and adjust the model results accordingly, this was not the case for employment impacts. The regional model does not distinguish between proprietor labor and hired labor. The Economic Panel was therefore unable to adjust the employment impacts to account for reductions in owner/operator labor on fallowed acreage. Consequently, the quantified third-party employment impacts include some owner/operator farm labor and therefore are overstated.

- Quantified employment impacts are <u>not</u> expressed as full-time equivalent jobs. The IMPLAN regional model counts jobs of all types – full time, part time, or seasonal. It is incorrect to view the job impacts reported in the tables as changes in full time employment.
- The net quantified impacts shown in the tables reflect only the IID expenditures reported to date to the Economic Panel of $20,000 for dust/weed control and $2.8 million in customer rebates. IID retains or has yet to account for expenditure of 45% of the water transfer payments made by SDCWA and the JPA for 2003 and 2004 – approximately $4.2 million. Expenditure of these funds has the potential to provide additional benefit to third-parties in Imperial County.
- The Economic Panel considered the likely magnitude of the impact to regional income from expenditure of IID retained transfer revenues by evaluating two hypothetical IID expenditure programs. The first assumed retained transfer revenue was returned to IID

customers in the form of rebates or reduced rates – essentially another transfer of income to households similar to the one affected by the 2004 water rate rebate. The second assumed retained transfer revenue was used by IID to fund capital improvement projects.[22] Under the first scenario, the net impact to third-parties, after accounting for changes in incomes and tax receipts due to land fallowing, weed/dust control, and customer rebates, was a positive $5.2 million. Under the second scenario, the net impact was a positive $3.1 million.[23]

6.0 LIMITATIONS TO ANALYSIS AND OUTSTANDING ISSUES

There remain significant limitations to the analysis presented in this report that we hope to remedy in future work. We will outline a few of these here, but the list is not meant to be exhaustive.

One major limitation of the analysis is the rigidity built into the IMPLAN framework that precludes many realistic responses to the water transfer. While specifically called for in the QSA, the framework leaves open the possibility that the economists panel will adopt an alternative to IMPLAN if, in the panel's judgment, actual economic responses to the fallowing program are inconsistent with the IMPLAN model's assumptions. For example, one common criticism of IMPLAN is that its fixed input-output coefficient assumption is tantamount to presuming that once a factor of production is unemployed as a result of fallowing, it remains unemployed for the duration of the program. In the case of labor, this assumption seems questionable since workers have well-documented responses to unemployment that include finding another job, migrating and retraining among others. A fuller economic model would account for these responses and

[22] These could be for environmental mitigation, for example, or community development.

[23] The smaller gain in regional after-tax income and tax receipts under the second scenario is due to the fact that Imperial County would import some of the engineering and construction services to implement capital projects. This results in an income leakage to the County.

work to re-calculate the new equilibrium wage rate, together with appropriate surplus levels for workers and firms.

Another limitation of the impact analysis is that we make no adjustment for the QSA provision limiting third party impacts to individuals and entities residing in Imperial County. A significant fraction of the Imperial County workforce, particularly in agriculture, resides in Mexico and travels to Imperial County for work. These individuals should be excluded from the analysis, recognizing that even though they do not reside in Imperial County, they may nonetheless spend some fraction of their incomes in the county.

With respect to land allocation, several significant questions remain. Perhaps most important is the question of what crops are fallowed to conserve water for transfer. At present, we have incorporated information provided by growers as to the identity of crops that would have been grown on fallowed land. It is an open question, however, whether land allocation would change in areas not participating in the program. For example, if a landowner reports that lettuce would have been grown on program land, it does not follow that less lettuce would be grown in Imperial County as a result of fallowing. The farmer could simply shift the lettuce acreage to his remaining land and fallow some other crop such as sudangrass.

Another limitation of the analysis is that we have used county-average yields to calculate impacts. As called for in the QSA, we will ultimately develop a procedure for adjusting yields to account for soil conditions in participating fields.

7.0 CORROBORATING STUDIES

Based on the Fourth Amendment, the economic panel is to driect corroborating studies. These studies represent forms of longitudinal analysis of socioeconomic impacts. Should the longitudinal studies provide credible evidence that adjustments should be made to the Regional Economic Model, the estimated socioeconomic impacts would be revised in accordance with the Guidelines for Estimation and Measurement (Exhibit 2 of Fourth Amendment).

7.1 Survey of Fallowed Land Owners

The economic panel recommends that an ex-post survey of landowners/operators be conducted on a periodic basis. The survey would document: (1) dust/weed abatement costs; (2) other costs of maintaining land during the fallowing period; (3) water transfer revenues used for investment in farming capital; (4) cost of putting fallowed land back into production; (5) perceived land productivity issues; and (6) whether farms resumed past cropping patterns or embrace new cropping patterns.

7.2 Farm Labor Survey

The economic panel is concerned that a significant portion of farm labor does not reside in Imperial County. Periodic surveys are recommended to determine the proportion of the farm wage bill that goes to employees not living in Imperial County. In addition, the seasonality of employment for out-of-county farm workers needs to be determined. Alternatively, the economic panel needs to know how much out-of-county workers spend within Imperial County.

7.3 Crop Production and Acreages

The economic panel plans to track crop production and acreages of fallowed crops in comparison to non-fallowed crops. In addition, the analysis would determine if actual production/acreages are consistent with the data provided by farmers in their fallowing. Agreements. The longitudinal analysis will also account for variability in production, value, and acreage.

7.4 Employment Analysis

In the last several years, the employment composition of workers in Imperial County appears to be changing. Specifically, farm workers appear to be a smaller and smaller proportion of total workers in Imperial County. As fallowing increases, the economic panel recommends

that the composition of farm vs. non-farm employment be analyzed in detail. By conducting such analysis, the estimates made by the Regional Economic Model regarding employment could be corroborated or changed accordingly.

7.5 Crop Budgets

While Imperial County has extensive published crop budgets, it is difficult to determine the labor component of those budgets. Determining the labor component of various vegetable crops is particularly troublesome. The economic panel recommends periodic crop budget surveys to determine the labor component explicitly. This effort would help to refine employment estimates made by the Regional Economic Model.

APPENDICES

APPENDIX A – IMPLAN TABLES

This appendix contains the result tables from the IMPLAN model. These tables show the total impacts to the region; not just the third-party impacts presented in the body of the report. Third-party impacts were derived from these tables as described in the body of this report. Impacts to income shown in the tables are after-tax impacts.

The tables are organized as follows:

- 2003 quantified impacts resulting from land fallowing, grower payments, and IID dust/weed control expenditures
- 2004 quantified impacts resulting from land fallowing, grower payments, IID dust/weed control expenditures, and IID rate rebate.
- Impact analysis of IID hypothetical expenditure of retained revenue from 2003 and 2004 water transfers.

2003 Output Impacts

2003 Fallowing Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	(964)	(108)	(2)	(1,074)
Manufacturing	-	(16)	(3)	(20)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(1)	(2)
Wholesale Trade	-	(33)	(11)	(44)
Transportation & Warehousing	-	(5)	(5)	(9)
Machine Rental & Repair	-	(134)	(13)	(147)
Retail trade	-	(8)	(21)	(29)
Commercial & Prof. Services	-	(48)	(66)	(113)
Government	-	(3)	(35)	(38)
Institutions	-	-	-	-
TOTAL	**($964)**	**($356)**	**($157)**	**($1,478)**

2003 Grower Payments Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	3	3
Manufacturing	-	-	4	4
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	14	14
Transportation & Warehousing	-	-	6	6
Machine Rental & Repair	-	-	16	16
Retail trade	-	-	27	27
Commercial & Prof. Services	-	-	82	82
Government	-	-	44	44
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$196**	**$196**

2003 Dust Control Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	20	2	0	22
Manufacturing	-	0	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	0	0	0
Wholesale Trade	-	1	0	1
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	1
Retail trade	-	0	1	1
Commercial & Prof. Services	-	1	2	3
Government	-	0	1	1
Institutions	-	-	-	-
TOTAL	**$20**	**$4**	**$5**	**$30**

2003 Labor Income Impacts

2003 Fallowing Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(78)	(28)	(0)	(107)
Manufacturing	-	(2)	(0)	(2)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(0)	(0)
Wholesale Trade	-	(9)	(3)	(12)
Transportation & Warehousing	-	(1)	(1)	(2)
Machine Rental & Repair	-	(13)	(3)	(16)
Retail trade	-	(2)	(6)	(8)
Commercial & Prof. Services	-	(9)	(16)	(24)
Government	-	(1)	(2)	(2)
Institutions	-	-	-	-
TOTAL	**($78)**	**($65)**	**($31)**	**($174)**

2003 Grower Payments Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	4	4
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	3	3
Retail trade	-	-	8	8
Commercial & Prof. Services	-	-	19	19
Government	-	-	2	2
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$39**	**$39**

2003 Dust Control Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	8	0	0	9
Manufacturing	-	0	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	0	0	0
Wholesale Trade	-	0	0	0
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	0
Retail trade	-	0	0	0
Commercial & Prof. Services	-	0	1	1
Government	-	0	0	0
Institutions	-	-	-	-
TOTAL	**$8**	**$1**	**$1**	**$10**

2003 Owner Income Impacts

2003 Fallowing Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(134)	(6)	(0)	(141)
Manufacturing	-	(0)	(0)	(0)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(0)	(0)
Wholesale Trade	-	(1)	(0)	(1)
Transportation & Warehousing	-	(0)	(0)	(0)
Machine Rental & Repair	-	(6)	(1)	(7)
Retail trade	-	(1)	(1)	(2)
Commercial & Prof. Services	-	(1)	(4)	(5)
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**($134)**	**($16)**	**($6)**	**($155)**

2003 Grower Payments Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	341	-	0	341
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	0	0
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	1	1
Retail trade	-	-	1	1
Commercial & Prof. Services	-	-	4	4
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$341**	**$0**	**$7**	**$348**

2003 Dust Control Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	1	0	0	1
Manufacturing	-	0	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	0	0	0
Wholesale Trade	-	0	0	0
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	0
Retail trade	-	0	0	0
Commercial & Prof. Services	-	0	0	0
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$1**	**$0**	**$0**	**$2**

2003 Property Income Impacts

2003 Fallowing Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(162)	(9)	(0)	(171)
Manufacturing	-	(1)	(1)	(2)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	0	0	0
Wholesale Trade	-	(3)	(1)	(4)
Transportation & Warehousing	-	(0)	(0)	(1)
Machine Rental & Repair	-	(27)	(2)	(29)
Retail trade	-	(0)	(1)	(1)
Commercial & Prof. Services	-	(16)	(10)	(25)
Government	-	(1)	(18)	(19)
Institutions	-	-	-	-
TOTAL	**($162)**	**($58)**	**($33)**	**($252)**

2003 Grower Payments Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	(0)	(0)
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	2	2
Retail trade	-	-	1	1
Commercial & Prof. Services	-	-	12	12
Government	-	-	22	22
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$41**	**$41**

2003 Dust Control Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(2)	0	0	(2)
Manufacturing	-	0	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	(0)	(0)	(0)
Wholesale Trade	-	0	0	0
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	0
Retail trade	-	0	0	0
Commercial & Prof. Services	-	0	0	1
Government	-	0	1	1
Institutions	-	-	-	-
TOTAL	**($2)**	**$1**	**$1**	**($0)**

2003 Indirect Business Tax Impacts

2003 Fallowing Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	(3)	(0)	(3)
Manufacturing	-	(0)	(0)	(0)
Water, sewage and other systems	-	-	-	-
Construction	-	(0)	(0)	(0)
Wholesale Trade	-	(6)	(2)	(8)
Transportation & Warehousing	-	(0)	(0)	(0)
Machine Rental & Repair	-	(5)	(1)	(6)
Retail trade	-	(1)	(2)	(3)
Commercial & Prof. Services	-	(1)	(2)	(4)
Government	-	(0)	(4)	(4)
Institutions	-	-	-	-
TOTAL	**$0**	**($17)**	**($12)**	**($29)**

2003 Grower Payments Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	-	0	0
Wholesale Trade	-	-	3	3
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	1	1
Retail trade	-	-	3	3
Commercial & Prof. Services	-	-	3	3
Government	-	-	5	5
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$15**	**$15**

2003 Dust Control Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	0	0	0	0
Manufacturing	-	0	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	-	-	-
Wholesale Trade	-	0	0	0
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	0
Retail trade	-	0	0	0
Commercial & Prof. Services	-	0	0	0
Government	-	0	0	0
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$0**	**$1**

2003 Total Value Added Impacts

2003 Fallowing Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(374)	(46)	(1)	(421)
Manufacturing	-	(3)	(1)	(5)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(0)	(1)
Wholesale Trade	-	(19)	(6)	(25)
Transportation & Warehousing	-	(2)	(2)	(4)
Machine Rental & Repair	-	(52)	(6)	(58)
Retail trade	-	(4)	(10)	(14)
Commercial & Prof. Services	-	(27)	(31)	(58)
Government	-	(2)	(24)	(25)
Institutions	-	-	-	-
TOTAL	**($374)**	**($155)**	**($81)**	**($611)**

2003 Grower Payments Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	341	-	1	342
Manufacturing	-	-	2	2
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	8	8
Transportation & Warehousing	-	-	2	2
Machine Rental & Repair	-	-	7	7
Retail trade	-	-	13	13
Commercial & Prof. Services	-	-	39	39
Government	-	-	30	30
Institutions	-	-	-	-
TOTAL	**$341**	**$0**	**$101**	**$442**

2003 Dust Control Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	9	1	0	9
Manufacturing	-	0	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	0	0	0
Wholesale Trade	-	0	0	1
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	0
Retail trade	-	0	0	0
Commercial & Prof. Services	-	1	1	2
Government	-	0	1	1
Institutions	-	-	-	-
TOTAL	**$9**	**$2**	**$3**	**$13**

2003 Employment Impacts

2003 Fallowing Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	(12)	(3)	-	(15)
Manufacturing	-	(0)	-	(0)
Water, sewage and other systems	-	-	-	-
Construction	-	-	-	-
Wholesale Trade	-	(0)	(0)	(0)
Transportation & Warehousing	-	(0)	(0)	(0)
Machine Rental & Repair	-	(1)	(0)	(1)
Retail trade	-	(0)	(1)	(1)
Commercial & Prof. Services	-	(1)	(1)	(2)
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**(12)**	**(5)**	**(2)**	**(19)**

2003 Grower Payments Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	-	-	-	-
Manufacturing	-	-	-	-
Water, sewage and other systems	-	-	-	-
Construction	-	-	-	-
Wholesale Trade	-	-	0	0
Transportation & Warehousing	-	-	-	-
Machine Rental & Repair	-	-	0	0
Retail trade	-	-	1	1
Commercial & Prof. Services	-	-	2	2
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**-**	**-**	**2**	**2**

2003 Dust Control Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	1	-	-	1
Manufacturing	-	-	-	-
Water, sewage and other systems	-	-	-	-
Construction	-	-	-	-
Wholesale Trade	-	-	-	-
Transportation & Warehousing	-	-	-	-
Machine Rental & Repair	-	-	-	-
Retail trade	-	-	-	-
Commercial & Prof. Services	-	-	-	-
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**1**	**-**	**-**	**1**

2004 Output Impacts

2004 Fallowing Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	(4,261)	(1,445)	(9)	(5,715)
Manufacturing	-	(57)	(16)	(74)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(3)	(6)	(9)
Wholesale Trade	-	(144)	(52)	(196)
Transportation & Warehousing	-	(26)	(22)	(48)
Machine Rental & Repair	-	(507)	(63)	(570)
Retail trade	-	(30)	(102)	(132)
Commercial & Prof. Services	-	(233)	(315)	(549)
Government	-	(18)	(168)	(186)
Institutions	-	-	-	-
TOTAL	**($4,261)**	**($2,462)**	**($754)**	**($7,478)**

2004 Grower Payments Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	9	9
Manufacturing	-	-	15	15
Water, sewage and other systems	-	-	0	0
Construction	-	-	4	4
Wholesale Trade	-	-	47	47
Transportation & Warehousing	-	-	19	19
Machine Rental & Repair	-	-	57	57
Retail trade	-	-	91	91
Commercial & Prof. Services	-	-	282	282
Government	-	-	151	151
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$675**	**$675**

2004 IID Rebate Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	16	16
Manufacturing	-	-	26	26
Water, sewage and other systems	-	-	0	0
Construction	-	-	7	7
Wholesale Trade	-	-	82	82
Transportation & Warehousing	-	-	34	34
Machine Rental & Repair	-	-	100	100
Retail trade	-	-	161	161
Commercial & Prof. Services	-	-	498	498
Government	-	-	266	266
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$1,192**	**$1,192**

2004 Labor Income Impacts

2004 Fallowing Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(275)	(505)	(1)	(782)
Manufacturing	-	(6)	(2)	(8)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(1)	(2)	(2)
Wholesale Trade	-	(39)	(14)	(53)
Transportation & Warehousing	-	(6)	(6)	(12)
Machine Rental & Repair	-	(50)	(13)	(63)
Retail trade	-	(7)	(29)	(37)
Commercial & Prof. Services	-	(47)	(74)	(121)
Government	-	(3)	(8)	(11)
Institutions	-	-	-	-
TOTAL	**($275)**	**($665)**	**($149)**	**($1,089)**

2004 Grower Payments Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	2	2
Manufacturing	-	-	2	2
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	12	12
Transportation & Warehousing	-	-	5	5
Machine Rental & Repair	-	-	11	11
Retail trade	-	-	26	26
Commercial & Prof. Services	-	-	67	67
Government	-	-	7	7
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$133**	**$133**

2004 IID Rebate Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	3	3
Manufacturing	-	-	3	3
Water, sewage and other systems	-	-	0	0
Construction	-	-	2	2
Wholesale Trade	-	-	22	22
Transportation & Warehousing	-	-	9	9
Machine Rental & Repair	-	-	20	20
Retail trade	-	-	46	46
Commercial & Prof. Services	-	-	118	118
Government	-	-	13	13
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$235**	**$235**

2004 Owner Income Impacts

2004 Fallowing Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(378)	(91)	(0)	(470)
Manufacturing	-	(0)	(1)	(1)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(1)	(1)
Wholesale Trade	-	(2)	(1)	(3)
Transportation & Warehousing	-	(1)	(1)	(2)
Machine Rental & Repair	-	(23)	(3)	(26)
Retail trade	-	(3)	(5)	(7)
Commercial & Prof. Services	-	(8)	(17)	(25)
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**($378)**	**($128)**	**($27)**	**($534)**

2004 Grower Payments Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	1,175	-	1	1,176
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	2	2
Retail trade	-	-	4	4
Commercial & Prof. Services	-	-	15	15
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$1,175**	**$0**	**$25**	**$1,200**

2004 IID Rebate Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	2,077	-	1	2,078
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	4	4
Retail trade	-	-	7	7
Commercial & Prof. Services	-	-	27	27
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$2,077**	**$0**	**$43**	**$2,121**

2004 Property Income Impacts

2004 Fallowing Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(509)	20	(1)	(490)
Manufacturing	-	(5)	(3)	(8)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	0	0	0
Wholesale Trade	-	(13)	(5)	(17)
Transportation & Warehousing	-	(3)	(2)	(5)
Machine Rental & Repair	-	(114)	(8)	(122)
Retail trade	-	(1)	(5)	(6)
Commercial & Prof. Services	-	(71)	(47)	(118)
Government	-	(5)	(85)	(90)
Institutions	-	-	-	-
TOTAL	**($509)**	**($191)**	**($156)**	**($857)**

2004 Grower Payments Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	2	2
Manufacturing	-	-	2	2
Water, sewage and other systems	-	-	0	0
Construction	-	-	(0)	(0)
Wholesale Trade	-	-	4	4
Transportation & Warehousing	-	-	2	2
Machine Rental & Repair	-	-	7	7
Retail trade	-	-	5	5
Commercial & Prof. Services	-	-	42	42
Government	-	-	76	76
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$140**	**$140**

2004 IID Rebate Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	3	3
Manufacturing	-	-	4	4
Water, sewage and other systems	-	-	0	0
Construction	-	-	(0)	(0)
Wholesale Trade	-	-	7	7
Transportation & Warehousing	-	-	3	3
Machine Rental & Repair	-	-	13	13
Retail trade	-	-	8	8
Commercial & Prof. Services	-	-	75	75
Government	-	-	135	135
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$248**	**$248**

2004 Indirect Business Tax Impacts

2004 Fallowing Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	(31)	(0)	(31)
Manufacturing	-	(1)	(1)	(2)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(0)	(0)
Wholesale Trade	-	(28)	(10)	(38)
Transportation & Warehousing	-	(0)	(0)	(1)
Machine Rental & Repair	-	(20)	(4)	(24)
Retail trade	-	(3)	(11)	(14)
Commercial & Prof. Services	-	(6)	(11)	(18)
Government	-	(0)	(20)	(21)
Institutions	-	-	-	-
TOTAL	**$0**	**($90)**	**($58)**	**($148)**

2004 Grower Payments Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	9	9
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	4	4
Retail trade	-	-	10	10
Commercial & Prof. Services	-	-	10	10
Government	-	-	18	18
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$52**	**$52**

2004 IID Rebate Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	16	16
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	6	6
Retail trade	-	-	17	17
Commercial & Prof. Services	-	-	18	18
Government	-	-	32	32
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$91**	**$91**

2004 Total Value Added Impacts

2004 Grower Payments Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	1,175	-	4	1,179
Manufacturing	-	-	5	5
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	26	26
Transportation & Warehousing	-	-	8	8
Machine Rental & Repair	-	-	25	25
Retail trade	-	-	45	45
Commercial & Prof. Services	-	-	134	134
Government	-	-	102	102
Institutions	-	-	-	-
TOTAL	**$1,175**	**$0**	**$349**	**$1,525**

2004 Fallowing Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(1,162)	(608)	(4)	(1,774)
Manufacturing	-	(12)	(6)	(18)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(1)	(2)	(3)
Wholesale Trade	-	(81)	(29)	(110)
Transportation & Warehousing	-	(10)	(9)	(19)
Machine Rental & Repair	-	(207)	(28)	(234)
Retail trade	-	(15)	(50)	(64)
Commercial & Prof. Services	-	(132)	(150)	(282)
Government	-	(9)	(113)	(122)
Institutions	-	-	-	-
TOTAL	**($1,162)**	**($1,075)**	**($390)**	**($2,627)**

2004 IID Rebate Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	2,077	-	7	2,084
Manufacturing	-	-	9	9
Water, sewage and other systems	-	-	0	0
Construction	-	-	2	2
Wholesale Trade	-	-	46	46
Transportation & Warehousing	-	-	14	14
Machine Rental & Repair	-	-	44	44
Retail trade	-	-	79	79
Commercial & Prof. Services	-	-	237	237
Government	-	-	180	180
Institutions	-	-	-	-
TOTAL	**$2,077**	**$0**	**$618**	**$2,695**

2004 Employment Impacts

2004 Fallowing Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	(43)	(43)	(0)	(86)
Manufacturing	-	(0)	(0)	(0)
Water, sewage and other systems	-	-	-	-
Construction	-	-	(0)	(0)
Wholesale Trade	-	(1)	(1)	(2)
Transportation & Warehousing	-	(0)	(0)	(1)
Machine Rental & Repair	-	(4)	(1)	(5)
Retail trade	-	(1)	(2)	(3)
Commercial & Prof. Services	-	(3)	(6)	(9)
Government	-	(0)	(0)	(0)
Institutions	-	-	-	-
TOTAL	**(43)**	**(52)**	**(10)**	**(105)**

2004 Grower Payments Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	-	-	-	-
Manufacturing	-	-	-	-
Water, sewage and other systems	-	-	-	-
Construction	-	-	-	-
Wholesale Trade	-	-	0	0
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	1	1
Retail trade	-	-	2	2
Commercial & Prof. Services	-	-	5	5
Government	-	-	0	0
Institutions	-	-	-	-
TOTAL	**-**	**-**	**9**	**9**

2004 IID Rebate Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	-	0	0
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	1	1
Retail trade	-	-	4	4
Commercial & Prof. Services	-	-	10	10
Government	-	-	0	0
Institutions	-	-	-	-
TOTAL	**-**	**-**	**16**	**16**

Potential Third-party Impacts of Unaccounted Transfer Revenue

Scenario 1: IID Customer Rebate

Hypothetical 2004 IID Rebate Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	24	24
Manufacturing	-	-	39	39
Water, sewage and other systems	-	-	0	0
Construction	-	-	11	11
Wholesale Trade	-	-	124	124
Transportation & Warehousing	-	-	52	52
Machine Rental & Repair	-	-	151	151
Retail trade	-	-	243	243
Commercial & Prof. Services	-	-	749	749
Government	-	-	401	401
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$1,793**	**$1,793**

Hypothetical 2004 IID Rebate Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	4	4
Manufacturing	-	-	5	5
Water, sewage and other systems	-	-	0	0
Construction	-	-	3	3
Wholesale Trade	-	-	33	33
Transportation & Warehousing	-	-	13	13
Machine Rental & Repair	-	-	30	30
Retail trade	-	-	69	69
Commercial & Prof. Services	-	-	177	177
Government	-	-	19	19
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$354**	**$354**

Hypothetical 2004 IID Rebate Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	3,123	-	2	3,125
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	2	2
Transportation & Warehousing	-	-	2	2
Machine Rental & Repair	-	-	6	6
Retail trade	-	-	11	11
Commercial & Prof. Services	-	-	40	40
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$3,123**	**$0**	**$65**	**$3,189**

Hypothetical 2004 IID Rebate Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	4	4
Manufacturing	-	-	6	6
Water, sewage and other systems	-	-	0	0
Construction	-	-	(0)	(0)
Wholesale Trade	-	-	11	11
Transportation & Warehousing	-	-	5	5
Machine Rental & Repair	-	-	20	20
Retail trade	-	-	12	12
Commercial & Prof. Services	-	-	112	112
Government	-	-	203	203
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$372**	**$372**

Hypothetical 2004 IID Rebate Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	2	2
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	24	24
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	9	9
Retail trade	-	-	26	26
Commercial & Prof. Services	-	-	27	27
Government	-	-	48	48
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$137**	**$137**

Hypothetical 2004 IID Rebate Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	3,123	-	10	3,134
Manufacturing	-	-	14	14
Water, sewage and other systems	-	-	0	0
Construction	-	-	3	3
Wholesale Trade	-	-	69	69
Transportation & Warehousing	-	-	21	21
Machine Rental & Repair	-	-	66	66
Retail trade	-	-	118	118
Commercial & Prof. Services	-	-	356	356
Government	-	-	270	270
Institutions	-	-	-	-
TOTAL	**$3,123**	**$0**	**$929**	**$4,052**

Hypothetical 2004 IID Rebate Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	-	0	0
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	2	2
Retail trade	-	-	6	6
Commercial & Prof. Services	-	-	14	14
Government	-	-	0	0
Institutions	-	-	-	-
TOTAL	**-**	**-**	**24**	**24**

Scenario 2: Construction Expenditures

Hypothetical 2004 IID Construction Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	3	11	14
Manufacturing	-	34	17	50
Water, sewage and other systems	-	0	0	0
Construction	4,210	1	11	4,222
Wholesale Trade	-	136	54	190
Transportation & Warehousing	-	86	22	109
Machine Rental & Repair	-	265	65	331
Retail trade	-	79	106	185
Commercial & Prof. Services	-	344	325	668
Government	-	28	173	201
Institutions	-	-	-	
TOTAL	**$4,210**	**$977**	**$783**	**$5,970**

Hypothetical 2004 IID Construction Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	0	2	2
Manufacturing	-	6	2	8
Water, sewage and other systems	-	0	0	0
Construction	925	0	3	928
Wholesale Trade	-	36	14	51
Transportation & Warehousing	-	18	6	24
Machine Rental & Repair	-	32	13	45
Retail trade	-	24	30	54
Commercial & Prof. Services	-	97	77	174
Government	-	6	8	14
Institutions	-	-	-	
TOTAL	**$925**	**$220**	**$155**	**$1,300**

Hypothetical 2004 IID Construction Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	0	1	1
Manufacturing	-	0	1	1
Water, sewage and other systems	-	0	0	0
Construction	328	0	1	329
Wholesale Trade	-	2	1	3
Transportation & Warehousing	-	2	1	3
Machine Rental & Repair	-	11	3	14
Retail trade	-	3	5	8
Commercial & Prof. Services	-	24	17	42
Government	-	-	-	-
Institutions	-	-	-	
TOTAL	**$328**	**$43**	**$29**	**$400**

Hypothetical 2004 IID Construction Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	1	2	3
Manufacturing	-	4	3	7
Water, sewage and other systems	-	0	0	0
Construction	(231)	(0)	(0)	(232)
Wholesale Trade	-	12	5	17
Transportation & Warehousing	-	11	2	13
Machine Rental & Repair	-	79	9	88
Retail trade	-	4	5	9
Commercial & Prof. Services	-	55	49	104
Government	-	7	88	95
Institutions	-	-	-	
TOTAL	**($231)**	**$174**	**$161**	**$103**

Hypothetical 2004 IID Construction Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	0	0	0
Manufacturing	-	1	1	1
Water, sewage and other systems	-	-	0	0
Construction	41	0	0	41
Wholesale Trade	-	26	10	36
Transportation & Warehousing	-	1	0	1
Machine Rental & Repair	-	10	4	14
Retail trade	-	8	11	19
Commercial & Prof. Services	-	8	12	19
Government	-	0	21	21
Institutions	-	-	-	
TOTAL	**$41**	**$54**	**$59**	**$154**

Hypothetical 2004 IID Construction Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	1	4	6
Manufacturing	-	11	6	17
Water, sewage and other systems	-	0	0	0
Construction	1,064	0	3	1,067
Wholesale Trade	-	77	30	107
Transportation & Warehousing	-	32	9	41
Machine Rental & Repair	-	132	29	160
Retail trade	-	39	51	91
Commercial & Prof. Services	-	185	154	339
Government	-	13	117	130
Institutions	-	-	-	
TOTAL	**$1,064**	**$490**	**$404**	**$1,958**

Hypothetical 2004 IID Construction Employee				
Jobs	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	0	0	0
Water, sewage and other systems	-	-	-	-
Construction	44	-	0	44
Wholesale Trade	-	1	0	2
Transportation & Warehousing	-	1	0	1
Machine Rental & Repair	-	2	1	3
Retail trade	-	2	2	4
Commercial & Prof. Services	-	6	6	12
Government	-	0	0	0
Institutions	-	-	-	
TOTAL	**44**	**12**	**11**	**67**

APPENDIX B
CROP PRODUCTION FUNCTIONS AND BUDGETS

This appendix contains the Agricultural Extension crop budget data used by the Economic Panel to develop customer crop production functions for use with the IMPLAN regional model for Imperial County.

Univ. of Arizona Agricultural Extension Yuma County Crop Budgets

Type	Aggregation	Crop Budget Category	Upland Cotton	Wheat	Sudan Hay	Alfalfa	Melon	Vegetable
		Output/Acre	**$1,074**	**$372**	**$460**	**$803**	**$3,136**	**$5,433**
Var.	Labor	Pre-Harvest Labor	63	25	22	48	89	189
Var.	Chemical	Fertilizer	59	96	87	39	180	99
Var.	Chemical	Insecticide	246	14		21	102	223
Var.	Chemical	Herbicide	12	16		12	56	56
Var.	Chemical	Other Chemicals					23	
Var.	Fuel & Oil	Fuel	20	4	5	6	24	40
Var.	Machine Repair	Repair	26	7	8	8	33	56
Fix	Irrigation	Water				26		
Var.	Crop	Seed/Transplant	9	15	16	38	43	636
Var.	Ag Support	Other Services and Rentals	153			-	243	75
Var.	Labor	Harvest Labor	10		18	31		
Var.	Chemical	Insecticide	33			-		
Var.	Chemical	Other Chemicals	30			-		
Var.	Fuel & Oil	Fuel	5		8	12		
Var.	Machine Repair	Repair	32		46	99		
Var.	Ag Support	Custom Harvest	66	75		-	1,812	3,150
Var.	Ag Support	Cotton Ginning	115			-		
Var.	Ag Support	Crop Assessment	10			-		
Var.	Materials	Other material	2	-	13	-		
Fix	Machinery	Overhead - Pickup	15	8	8	13	13	13
Var.	Finance	Operating Interest	27	6	19	22	166	14
Fix	Taxes	Taxes	9	1	7	13	5	10
Fix	Overhead	General Overhead	47	13	12	20	139	228
Fix	Machine Repair	General Farm Maintenance	28	8	7	12	84	136
Fix	Taxes	Property Taxes	28	14	14	37		
Var.	Property Inc.	Opportunity Interest	79	39	39	105	550	550
Fix	Irrigation	Water assessment	62	31	13	83	31	31
Fix	Machinery	Machinery	57	7	45	87	31	57
Fix	Finance	Equity Interest	23	4	8	9	12	25
Var.	Proprietary Inc.	Management services	75	21	20	32	223	364
Var.	Proprietary Inc.	**Returns**	**($266)**	**($34)**	**$46**	**$27**	**($725)**	**($521)**

Univ. of California Agricultural Extension Imperial County Crop Budgets

	Alfalfa	Bermuda	Klein	Sudan	Carrots	Sugar Beets
Preparation						
Stubble disc	$21	$21	$21		$21	
Big Ox		24	24			
Subsoil	39				29	39
Disc 1x	13	13	25	25	25	25
Triplane 1x	11				11	
Landplane	13					
Corrugate 1x	11					11
Flood	25				51	25
Disc 1x	14				25	25
Fertilizer	42	31		30	231	36
Disc 1x	14	13			13	
Triplane 2x	23	23	23	11	11	23
Dump borders	15	15	15	15	19	
Run borders	6	6		6	15	
Float				10		15
TOTAL LAND PREPARATION	245	144	107	96	460	189
Establishment						
Plant/Seed	48	36	59	60	117	63
Irrigate	25	54	54		185	
Cultivate					28	32
Thin					23	13
Work Ends						10
Herbicide	38	45	16		18	75
Insecticide	17					82
ESTABLISHMENT	127	135	129	60	370	275
TOTAL STAND AND ESTABLISHMENT	372	279	236	156	830	464
Production						
Herbicide	57				50	33
Irrigate	160	149	149	104	143	126
Fertilizer (dry)		98	98		74	81
Fertilizer (water-run)	25	36	36	17	16	
Insecticide	66				86	
TOTAL ANNUAL CULTURAL	308	283	283	121	789	615
Overhead						
Land Rent	170	100	125	90	225	175
Amortization	123	56	47			
Cash Overhead	78	57	59	44	163	116
TOTAL OVERHEAD	371	213	231	134	388	291
TOTAL PRE-HARVEST	1,050	774	749	411	2,008	1,369
Harvest						
Swather	64	41	41	23		
Rake	54	40	40	21		
Bale	83	117	105	72		
Haul & Stack	32	45	41	28		
TOTAL HARVEST	233	243	226	143	3,825	212
TOTAL COSTS	**$1,283**	**$1,016**	**$976**	**$554**	**$5,833**	**$1,581**

APPENDIX C

EXHIBIT 2 GUIDELINES FOR ESTIMATION AND MEASUREMENT OF SOCIOECONOMIC IMPACTS AND TIMELINE FOR IMPLEMENTATION OF DEFINED TASKS

Exhibit 2

Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline For Implementation of Defined Tasks

IID and the Authority have a fundamental disagreement concerning the likely socioeconomic impacts caused by land fallowing to transfer Conserved Water to the Authority or to lessen environmental impacts related to the transfer of Conserved Water to the Authority. The major source of this disagreement relates to different expectations regarding the crops likely to be fallowed. Other sources of potential disagreement involve the proper estimation and measurement of the economic impact of the crops actually fallowed on the economy of Imperial Valley.

The purpose of this Exhibit 2 is to provide guidelines for the estimation and measurement of socioeconomic impacts from land fallowing and to establish the timeline for implementation of defined tasks assigned to the Economists Panel ("Panel") established pursuant to Section 14.5(c). The Panel shall conduct its studies in accordance with the guidelines and timelines presented below.

Estimation and Measurement of Socioeconomic Impacts

The Panel shall develop and implement a Socioeconomic Methodology to estimate and measure the annual and cumulative socioeconomic impacts of land fallowing through the development and use of a Regional Economic Model, as corroborated by evidence from available data on countywide economic conditions and supplemental economic studies of the income and employment of third parties, and evaluated for reliability by standard sensitivity analysis techniques.

1. *Regional Economic Model.* Regional Economic Model shall be based on any necessary adjustments of the standard IMPLAN Model for the specific economic circumstances of Imperial County and shall include the following considerations in the construction of the Social Accounting Matrix (SAM):

    (a) The Panel shall identify the major industries in Imperial County and eliminate any sectors not relevant to the Imperial County economy from the national version of IMPLAN.

    (b) The Panel shall review and adjust, where necessary, the pattern of industry purchases of capital, labor and intermediate goods to reflect any differences between the structure of the economy of Imperial Valley and the structure of the SAM of the national version of IMPLAN. In considering adjustments to the coefficients of the agricultural sector, the Panel shall consider relevant data available from California and Arizona cooperative extension reports, direct survey evidence, and other credible sources.

(c) The Panel shall consider adjustments to the national expenditure coefficients from the national version of IMPLAN based on credible information pertaining to the expenditure patterns of recipients of capital and labor income in Imperial County.

(d) The Panel shall consider adjustments to the local and state government coefficients in the national version of IMPLAN based on credible information available from Imperial County governmental agencies and the California Franchise Tax Board.

(e) The Panel shall balance any adjustments made to the SAM by a commonly accepted method.

2. *Estimation of Socioeconomic Impacts.* The Panel shall use the Regional Economic Model to estimate the annual and cumulative third party socioeconomic impacts of land fallowing for the specific circumstances of Imperial County including the following considerations:

(a) Third-party impacts are defined as (i) changes in the after-tax income of individuals or entities residing in Imperial County not participating in the IID land fallowing program; and (ii) changes in the tax receipts of local governments within Imperial County.

(b) The Panel's determination of the crop acreage fallowed under the IID fallowing program shall be based on a negotiated method of utilizing information from cropping history of land fallowed, cropping patterns after land re-enters production, and other relevant information related to the economic conditions of crop markets and other relevant factors influencing cropping patterns.

(c) The Panel's determination of crop yields for land fallowed shall be based on a negotiated method using average crop yields in Imperial Valley as adjusted by credible evidence indicating that the crop yields of fallowed lands are expected to differ from average countywide crop yields.

(d) The Panel's determination of crop revenues from fallowed land shall be based on the average price for the crop fallowed (unless credible evidence can be generated regarding crop prices on fallowed lands) and the adjusted crop yield of fallowed land determined pursuant to 2(c).

(e) Determination of socioeconomic impact of land fallowing shall also consider the economic stimulus within Imperial County from contract payments received for land fallowing. The Panel's determination shall consider the implications of the mix of resident/nonresident landowners participating in the land fallowing program and the landowner/tenant split of IID land fallowing payments. The estimate of the economic stimulus shall also consider pro forma income tax liabilities of recipients of IID land fallowing payments. The Panel shall develop a

method for annualizing any up front payments receipts by participants in an IID land fallowing program. The Panel shall also consider how the recipient of any up front payments may affect savings and current consumption and the pattern of expenditures. If there is credible evidence that recipients of IID land fallowing payments would invest in farming capital, then the Panel shall consider the impact of such investment on the economy of Imperial Valley.

(f) Estimates of the impacts of land fallowing shall also include the stimulus effect of other components of IID land fallowing program, including dust/weed mitigation, IID program administration and environmental mitigation. Impact measurement shall also consider the stimulus effect of government grants for public works and business investment programs to facilitate economic development, but only if made available primarily to offset the socioeconomic impacts of land fallowing.

(g) Estimates of the impact of IID land fallowing on local tax revenues shall consider the impact of the IID land fallowing program on local tax bases.

(h) Determination of socioeconomic impact of land fallowing shall also consider credible evidence concerning the impact of the land fallowing program on land productivity.

(i) Calculation of socioeconomic impacts shall also include a sensitivity analysis of model outputs using a method to be negotiated. Sensitivity analysis is intended to assess the credibility of model outputs resulting from uncertainties about the value of key parameters in the regional economic model. Analysis may also consider qualitative factors such as specification of production functions, role of technological change and other capital investments, and other factors.

3. *Comparison of Estimated Impacts with County Economic Statistics.* Estimates of the socioeconomic impacts of land fallowing shall be corroborated with a negotiated method of examining evidence from countywide economic data on income, employment, and other relevant economic data. The negotiated method shall consider the statistical validity of testing the estimated magnitude of the socioeconomic impacts of land fallowing with countywide data. If the examination of county economic statistics provides statistically reliable information that the estimates from the Regional Economic Model are materially inaccurate, then the Panel shall make any necessary adjustments to the Regional Economic Model.

4. *Longitudinal Analysis.* The longitudinal study undertaken pursuant to Section 14.5(c)(vi) shall consider individuals providing labor and material

inputs to farmers in the Imperial Valley. The study shall examine the incidence and duration of unemployment resulting from fallowing, any adjustments made by businesses providing agricultural services, and other factors. Any credible evidence from longitudinal studies shall be considered in determining whether there should be an adjustment in the funding requirements of the Local Entity.

Timeline for Implementation of Defined Tasks

The Panel shall conduct their studies within the timelines presented below.

1. *Development of Regional Economic Model.* The Panel shall complete the development of the Regional Economic Model based on any adjustments made pursuant to 1(a)-(e) above within 45 Calendar Days of the commencement of work.
2. *Development of Necessary Methods to Estimate Socioeconomic Impacts.* Within 60 Calendar Days of the commencement of work, the Panel shall submit to the Local Entity and the Authority a written report summarizing the design and identification of necessary information for the methods required above for the estimation of socioeconomic impacts of land fallowing, including:
    a. the method and information to be used in determining crop acreage fallowed in accordance with Section 2(b)(above);
    b. the method and information to be used to adjust crop yields for specific lands fallowed relative to the countywide average of crop yields in accordance with 2(c) above;
    c. any evidence to be relied up to estimate that crop prices for fallowed lands differ from countywide average crop prices in accordance with 2(d) above,
    d. the methods and information to be used to estimate the economic stimulus within Imperial County from contract payments made for land fallowing in accordance with 2(e) above;
    e. the methods and information to be used to estimate the economic stimulus from other components of IID fallowing in accordance with 2(f) above;
    f. the methods and information to be used to estimate the impact of IID land fallowing on local tax revenues in accordance with 2(g) above;
    g. the methods and information to be used to consider the impact of land fallowing on land productivity in accordance with 2(h) above;
    h. the specification of the procedures to be relied upon to conduct the sensitivity analyses in accordance with 2(i) above; and
    i. identification of the specific economic statistics and methods to be used to corroborate the estimated socioeconomic impacts of land fallowing in accordance with 3 above.

3. *Initiation of Longitudinal Study.* Within 75 Calendar Days of the commencement of work, the Panel shall submit to the Local Entity and the Authority a written report describing the study design, anticipated budget, and timing of the longitudinal study to be undertaken pursuant to Section 14.5(c)(vi). The Local Entity and the Authority must approve the proposed study before the Panel can proceed with its study plans.

4. *Initial Estimates of the Annual and Cumulative Socioeconomic Impact of Land Fallowing.* Within 120 Calendar Days of the commencement of work, the Panel shall provide the Local Entity with a draft report of the estimated Annual and Cumulative Impact of Land Fallowing through Agreement Year 15. The report shall discuss how information expected to become available in subsequent years may require adjustments to the Panel's initial estimates.

5. *Annual Reporting.* The Panel shall submit an annual report on updated estimated and measured socioeconomic impacts of land fallowing as provided in Section 14.5(c)(ix). The annual report shall include a written work plan and proposed budget for the Panel's activities in the following fiscal year.

SDCWA Exh. 5

SECOND ANNUAL REPORT OF THE ECONOMIST PANEL CHARGED WITH MEASURING THE THIRD-PARTY IMPACTS OF LAND FALLOWING ASSOCIATED WITH IID-SDCWA WATER TRANSFER

Prepared for

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June 2005

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1. Introduction and Summary of Findings

The Quantification Settlement Agreement provides for the annual transfer of up to 200,000 acre-feet of water from the Imperial Irrigation District (IID) to the San Diego County Water Authority (SDCWA). Land fallowing is the defined method of water conservation in the initial stages of the transfer, to be replaced eventually by efficiency improvements. Responding to local concerns about the potential negative socioeconomic effects of fallowing, SDCWA and IID each agreed to commit $10 million to offset these impacts. The parties also created the Imperial Valley Economic Improvement Committee (Local Entity) to create a plan for mitigating impacts through expenditure of these funds.

A substantive disagreement between SDCWA and IID about the likely magnitude of socioeconomic impacts led the parties to create a panel of three economists (one appointed by the Local Entity, one appointed by SDCWA, and a third economist appointed jointly) to assess and measure the socioeconomic impacts of the fallowing program. SDCWA agreed to make additional payments to the Local Entity if the panel determined that cumulative socioeconomic impacts exceeded the $20 million committed by SDCWA and IID. This study is the second annual report of the economist panel and concerns activities undertaken in 2005, the third year of the water transfer agreement. The first study issued by the economist panel covered the years 2003 and 2004, and was released in November 2004.

Regrettably, the Local Entity has instructed its economist not to participate in the writing of this report. Thus, this report reflects the conclusions of the remaining economists, Dr. David Sunding, appointed by SDCWA, and the neutral economist, David Mitchell, appointed by mutual consent of Dr. Sunding and Dr. Gordon Kubota, the Local Entity's appointed economist. Also regrettable is the fact that IID has chosen not to cooperate with the economist panel. The District

has not responded to numerous data requests, and has even failed to respond to routine administrative requests pertaining to processing of contracts and budgeting. Despite IID's lack of cooperation, the panel has obtained a significant amount of data on the operation of the fallowing program. Included in this data are various reports filed by IID with the government that describe in detail its policies governing expenditure of fallowing proceeds, and how it intends to meet its obligations relating to the San Diego transfer. Additional information was obtained from sources including SDCWA, Metropolitan Water District, the Bureau of Reclamation, the California Employment Development Department, California Department of Food and Agriculture, the Imperial County Agricultural Commissioner and other sources detailed in the report.

According to the "Revised Fourth Amendment to Agreement between IID and SDCWA for Transfer of Conserved Water," in 2005 IID is to make available through land fallowing 30,000 acre-feet of water for SDCWA and 15,000 acre-feet of water for Salton Sea environmental mitigation, for a total of 45,000 acre-feet of water. In exchange for this water conservation, IID receives net payments totaling approximately $9.2 million.[1] Out of this revenue, IID pays landowners approximately $2.2 million to remove 8,108 acres of irrigated farmland from production in order to make this water available. IID is using the remaining $7 million of water transfer proceeds for a variety of purposes, including payment for fallowing unrelated to the SDCWA/Salton Sea water transfer, replacement of lost water and hydropower revenues caused by land fallowing, administrative expenses connected to the fallowing program, and subsidization of IID agricultural water rates. Much of this expenditure falls within the

[1] Total payments to IID are about half a million greater than this. However, part of the revenue the QSA-JPA pays IID for water transferred to the Salton Sea actually comes from IID itself. Therefore we report only the net proceeds from the sale of water.

Revised Fourth Amendment's definition of expenditures providing economic stimulus to offset the negative consequences of land fallowing, while some of it does not.

After modeling the changes in regional economic activity due to the expenditure of transfer revenues and associated land fallowing activity, it is the conclusion of the panel that in 2005 the fallowing-based water transfer to SDCWA and the Salton Sea increases third party after-tax income in Imperial County by approximately $4.3 million. In addition, the fallowing program produces an additional $91 thousand in local tax revenues. Table 1 below shows the sources of positive and negative impacts, and disaggregates impacts by segment of the local economy.

Table 1. 2005 Fallowing Program: Summary of Impacts

2005 THIRD PARTY IMPACTS: FALLOWING AND TRANSFER REVENUE DISPOSITION					
($1,000)	Labor Income	Owner Income	Property Income	Total Income	Taxes
Land Fallowing	($1,183)	($42)	($493)	($1,718)	($182)
Fallowing Payments	$177	$33	$186	$ 396	$69
Dust Control	$0	$0	$0	$0	$0
IID Administration	$50	$29	$64	$ 143	$12
Ratepayer Transfers	$293	$2,644	$309	$3,246	$114
Unallocated Revenue	$204	$1,837	$215	$2,256	$79
Total	($458)	$4,501	$281	$4,324	$91

While the 2005 fallowing program produces significant third party benefits to the Imperial Valley economy, these benefits are unequally distributed. Our modeling shows that owners of businesses (primarily farm operations) and real property realize substantial benefits from the fallowing program. These benefits are in the form of water rate subsidies, cost reimbursement and additional economic activity made possible by the fallowing agreement with SDCWA. However, not all segments of the Imperial Valley economy benefit from fallowing. In particular, farmworkers and other laborers are experiencing income losses resulting from lower

levels of crop production.[2] Similarly, some businesses providing supplies and services to the farm sector also are undoubtedly losing income due to reductions in crop production.

2. 2005 Fallowing Program: Activities and Cash Flows

2.1 Payments to IID for Transferred Water

Fallowing by landowners in IID results in a substantial stream of income flowing into the Imperial Valley. The price IID receives for transferred water is set by the revised fourth amendment to the1998 IID/SDCWA Transfer Agreement and the QSA-JPA agreement. For water transferred to San Diego, prices are set initially by a "deemed price schedule" specified in the revised fourth amendment. In 2005, San Diego pays to IID $276 per acre-foot for water transferred to San Diego; this amount grows to $286 per acre-foot in 2006 and $296 per acre-foot in 2007. Pursuant to the QSA-JPA agreement, the price to be received by IID for environmental mitigation water was $90.87 per acre-foot in 2003, escalating by 2.75% annually through the year 2017 when the District's obligation to make mitigation water available is terminated. In 2005, the price received for mitigation water is $96 per acre-foot.

At these prices, this year IID receives payments for fallowing equal to $8,280,000 for transfer of 30,000 acre-feet of water to San Diego and $1,440,000 for transfer of 15,000 acre-feet of environmental mitigation water to the Salton Sea. IID also pays for its share of QSA-JPA costs and for environmental restoration expenses related to fallowing. In 2005, these payments totaled $512,520.[3] Thus, IID's net receipts from SDCWA and the QSA-JPA are $9,207,480 in 2005.

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[2] The panel has yet to distinguish between labor income received by Imperial County residents and income received by individuals residing in other locations, including Mexico.

[3] *Financial Projections for 2004 Water System Project*. Stratecon, Inc., March 25, 2004. Table 6: Financial Projections of District Transfer Costs.

2.2 Disposition of IID Water Transfer Revenue

The IID board has adopted a policy of using a significant portion of these fallowing revenues to subsidize agricultural water rates and to cover various District costs, some of which result from fallowing and some of which do not. Table 2 below summarizes the cash flows relating to the fallowing program.[4] These cash flows, together with the identification of land fallowed and crops not produced, form the basis of the panel's calculation of third party impacts.

2.3 Use of Transfer Revenues for IID Rate Stabilization

IID's Official Statement filed with the Municipal Securities Rulemaking Board in connection with its 2004 bond offering makes a straightforward connection between fallowing revenues and water rate subsidies.[5] The financial projections contained in Appendix A of the Official Statement are predicated on an assumption that "additional revenues from water transfers, on top of those allocated to compensate for lost water sales, will be made as needed to stabilize future water rates. These additional revenues *provide a means of distributing water transfer proceeds broadly among IID water users*, as well as to moderate future water rate increases (italics added)."[6] The IID Official Statement states that agricultural water rates will increase by only 2.5% between the present and 2013 and that "an allocation of revenues from

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[4] Most of the information in Table 2 come from two appendices to *Official Statement, Imperial Irrigation District, 2004 Taxable Revenue Certificates of Participation (2004 Water System Project) Evidencing and Representing Proportionate, Undivided Interests of the Owners thereof, in Installment Payments to be made by the District. April 1, 2004.* Key tables from these two appendices are reproduced in Appendix C of this report.

[5] Official Statement, Imperial Irrigation District, 2004 Taxable Revenue Certificates of Participation (2004 Water System Project) Evidencing and Representing Proportionate, Undivided Interests of the Owners thereof, in Installment Payments to be made by the District. April 1, 2004. The Municipal Securities Rulemaking Board is a self-regulatory organization like the New York Stock Exchange or the National Association of Securities Dealers, Inc. that is subject to oversight by the Securities and Exchange Commission. The MSRB was created in 1975 by Congress to develop rules regulating securities firms and banks involved in underwriting, trading, and selling municipal securities- bonds and notes issued by states, cities, and counties or their agencies to help finance public projects.

The Board is authorized by Congress to make rules designed "to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in regulating, clearing, settling, and processing information with respect to, and facilitating transactions in municipal securities, to remove impediments to and perfect the mechanism of a free and open market in municipal securities, and, in general, to protect investors and the public interest."

water transfer activities" will be made to "stabilize rates so that they increase only by inflation at 2.5%, as discussed above."[7]

Since IID's water rate subsidy policy is explicitly intended to create third party benefits from the fallowing program, our report considers these benefits when calculating changes in third party incomes. Our modeling also considers that water rate subsidies in effect transfer income to IID ratepayers, and this income can be used to purchase other goods and services. In this way, the benefits of the water rate subsidy may extend beyond IID ratepayers to the broader Imperial Valley community.

IID has reported that $1,969,392 of fallowing proceeds was allocated to subsidize agricultural water rates in 2005, a figure that is predicated on District water sales of 2,535,000 acre feet.[8] By 2013, the allocation of water transfer proceeds to "rate stabilization" is projected to reach over $12.8 million annually, or roughly $5,000 per year for the owner of a 200-acre farm.[9] We note that while IID is projecting increased subsidies to agricultural water users, not all ratepayers are slated to receive such benefits. In particular, there appears to be no provision in the Official Statement for "stabilization" of urban water rates.

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[6] *Consulting Engineer's Report for 2004 Water System Project 2004 Taxable Certificates of Participation*, Davids Engineering, March 25, 2004, pp. 18-19.

[7] Davids Engineering, 2004, p. 19. The assumed rate inflation of 2.5% is low for California water districts. In a report filed with IID's Official Statement, Rodney Smith has estimated that over the period 1960 to 2002, MWD's water rates increased by 8.1% as compared to a CPI inflation rate of 3.9%. Stratecon, Inc., 2004, p. 6.

[8] Davids Engineering, 2004, Table 5: Land Acquisition and Water Transfer Cash Flow, p. 17.

[9] Davids Engineering, 2004, Table 7: Historical and Projected Water Department Cash Flow, pp. 20-21.

Table 2. 2005 IID-SDCWA Water Transfer Cash Flows

2005 Net Transfer Revenue	Amount	Source of Estimate
Payment from San Diego	$8,280,000.00	Revised 4th Amend.
JPA Payment for Mitigation Water	$1,440,000.00	Revised 4th Amend.
IID Payment to JPA and other environmental	$(512,520.00)	Stratecon, Table 6.
Subtotal	$9,207,480.00	
Transfer Revenue Distributed to IID Ratepayers		
Lost Water Sales – Col. R. Makeup Water	$356,833.20	DE, Table 5, adjusted to match IID fallowing acreage data.
Hydropower Costs – Col. R. Makeup Water	$52,570.30	DE, Table 5
Rate Stabilization	$1,969,392.00	DE, Table 5
Fallowing Payments - Col. R. Makeup Water	$1,112,216.91	DE, Table 5, adjusted to match IID fallowing payment data.
Subtotal Income Transfers to Ratepayers	$3,491,012.41	
IID Water Transfer Administrative Expenditures		
Administration	$220,631.00	DE, Table 5
Subtotal IID Administrative Expenditures	$220,631.00	
Fallowing Payments for SDCWA/Salton Sea Transfer		
Transfer Water - Local Landowner	$2,107,286.37	Fallowing data from IID
Subtotal Fallowing Payments for Transfer	$2,107,286.37	
Grand Total Transfer Revenues Providing Stimulus	$5,818,929.78	
Transfer Revenues Not Providing Stimulus		
Lost Water Sales – SDCWA/Salton Sea Transfer	$720,000.00	DE, Table 5
Hydropower Costs - SDCWA/Salton Sea Transfer	$106,073.70	DE, Table 5
Water Transfer Fallow Payments - Absentee Landowner	$136,888.72	Fallowing data from IID
Grand Total Transfer Revenues Not Providing Stimulus	$962,962.42	
Unallocated Water Transfer Revenue	$2,425,587.80	IID Board comments and IV Press articles suggests this was used for additional rate stabilization in 2005.
Sum Check	$9,207,480.00	

DE: Davids Engineering report filed as Appendix A of the Official Statement.
Stratecon: Stratecon, Inc. report filed as Appendix B of the Official Statement.

2.4 Use of Transfer Revenues to Cover Transfer-Related Costs

In addition to the rate subsidy program, IID is also using a significant portion of fallowing proceeds to cover transfer-related costs. For example, the Official Statement filed with the MSRB documents show that fallowing receipts are being used to cover lost water sales, hydropower losses, fallowing payments to landowners, and payments to the QSA-JPA for environmental mitigation. In Appendix 2, the Statement reads that the IID Board has "indicated that the transfers should also reimburse the District for lost water sales revenues and make payments to reflect the value of lost hydropower."[10]

Since landowners participating in the fallowing agreement do not pay volumetric charges for water on fallowed acres, the District experiences a loss in revenue as a result of fallowing. Under the assumption that IID costs are mostly fixed, landowners remaining in production must cover these lost revenues. The IID Board has adopted a policy of earmarking a portion of transfer proceeds to replace lost water sales revenue.[11] This allocation essentially is a policy to ensure the revenue neutrality of the water transfer on IID water sales. As such, the panel did not count it as an income transfer to ratepayers. Under the assumption that absent the water transfer the fallowed acreage would be in production, IID would have received the same amount of water sales revenue as it did with the transfer in place. In 2005, a total of $720,000 of fallowing revenues were allocated for this purpose.

IID also experiences lost hydropower sales as a result of the fallowing program. Davids Engineering has estimated that lost hydropower sales in 2005 amount to $158,644, based on a

[10] Stratecon, Inc., 2004, p. 8.
[11] Stratecon, Inc., 2004, Table 6: Financial Projections of District Transfer Costs (Base Case).

total transfer volume of 45,000 acre-feet.[12] Again, IID has taken the policy position that lost sales resulting from fallowing should be reimbursed by a transfer of fallowing proceeds.

IID must also pay landowners to participate in the fallowing program. In 2005, IID paid landowners approximately $2,200,000 to fallow 8,108 acres of irrigated farmland. Since not all of these landowners reside in the Imperial Valley, the panel made adjustments to these payments to account for "leakage" of revenues from the local economy. These adjustments are described in the next section of the report. Adjusting for leakage, a total of $2,107,286 in fallowing proceeds entered the Imperial Valley economy via landowner payments relating to the San Diego transfer and associated environmental mitigation. IID paid a total of $136,889 to landowners residing outside Imperial Valley in 2005.

In a similar manner, IID has earmarked a portion of fallowing proceeds to pay for the costs of administering the water transfer. Davids Engineering states that program administration costs are $220,631 in 2005.[13]

2.5 Use of Transfer Revenues for IID Costs Unrelated to Transfer

In addition to reimbursing the District for transfer-related costs, the IID Board has also chosen to allocate fallowing proceeds to pay other, unrelated District costs. Since these subsidies allow IID water users to avoid these costs, they are in effect transfers of income to ratepayers and are incremental to the rate stabilization policy described above.

At present, the IID fallowing program has three main goals. The first two have already been described: to make water available for transfer to SDCWA and to provide for environmental mitigation. The third purpose is unrelated to the SDCWA transfer: to pay back the Bureau of Reclamation for previous overuse of water. In 2005, IID used a total of $1,112,217 in

[12] Davids Engineering, 2004, Table 5: Land Acquisition and Water Transfer Cash Flow, p. 17.
[13] Id.

fallowing proceeds to finance its payback obligation to the Bureau. These subsidies are counted as an income transfer since they allow ratepayers to avoid the costs of a prior obligation, remembering that for purposes of the panel's work we must also account for payments to non-resident landowners.

2.6 Unallocated Transfer Revenue

Taking into account all 2005 fallowing revenues and uses of fallowing proceeds described thus far, there remains $2,425,588 in revenues that are unaccounted for by data in the Official Statement and other sources. However, statements made by the IID Board lead the panel to conclude that these unaccounted-for water transfer revenues are being used to cover general water department costs and should be treated as an income transfer to IID ratepayers.

In January 2005, the IID Board met to discuss options for closing a $2.5 million budget deficit. The directors discussed and ultimately rejected the possibility of raising agricultural water rates, leaving them at $16 per acre-foot. Director John Pierre Menvielle stated that "We have a hole and we're not going to raise rates to fill it."[14] An article on the same Board meeting that appeared in the *Imperial Valley Press* notes how the "$2.5 million deficit" was calculated: "Originally, the IID Water Department faced a $7.3 million deficit. The water transfer agreement yielded $4.8 million in revenue, leaving $2.5 million as yet unaccounted." This discussion indicates that water transfer revenues are being commingled with other water department funds and used to avoid rate increases needed to deal with a long-term deficit. Thus, the panel models the $2,425,588 in unaccounted-for funds as an income transfer to IID ratepayers, but treats them separately from other fallowing program costs and revenues. We note that even without the stimulus effect of this income transfer, the 2005 fallowing program produces significant and positive third party benefits in the Imperial Valley, even net of income losses from fallowing.

2.7 IID Efficiency Improvements

There has been some confusion over the use of fallowing proceeds to pay for efficiency improvements. While remaining agnostic about whether it is consistent with the revised fourth amendment to count the stimulus effects of such expenditures, the panel simply notes that the question appears to be premature. According to the Official Statement filed with the MSRB, IID is not currently expending *any* transfer proceeds on efficiency projects. In fact, IID has informed the government and its bondholders that it is spending nothing at all on efficiency conservation in 2005.

Appendix 2 of the Official Statement, prepared by Stratecon, Inc., calculates IID's planned expenditures for system and on-farm efficiency improvements. IID stated that it will not commence expenditures for efficiency improvements until 2008, and then only in the amount of $311,421 per year for interest payments on system investments.[15] On farm efficiency expenditures on 2004 Water System Project lands (i.e., Western Farms) will not begin until 2016.[16]

The District has indicated that the 2004 Certificates of Participation are the first phase of a three-step financing of water transfer expenditures. The 2004 Certificates were delivered to finance the acquisition of Project Lands, create a necessary reserve account, fund capitalized interest with respect to the 2004 Certificates and pay costs of delivery of the 2004 Certificates.[17] Second, there is expected to be a future financing of the District's system improvements. Projections developed by Stratecon, Inc. assume that IID secures 100% 30-year financing of

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[14] Imperial Valley Press, "IID Mulls Rate Hikes to Battle Deficit." January 13, 2005.
[15] Stretecon, Inc., 2004, Table 4: Financial Projections for 2004 Water System Project (Base Case).
[16] Ibid.
[17] Official Statement, p. 1. It can be argued that the favorable interest rates attached to the 2004 Certificates were due in part to the revenue stream generated by the fallowing program, although the panel has not calculated the benefit of such favorable financing terms in this report.

capital expenditures on system improvements at a rate of 5.5%.[18] Third, there is expected to be a future financing of the on-farm efficiency conservation the District will install on Project Lands. Stratecon, Inc. assumed that the IID secured 100% financing of capital expenditures on the components of tailwater recovery systems at 150 basis points above the 10-year Treasury note, with a term of 10 years for pumps and 20 years for pipes and reservoir, with issuance costs of 1.25%.[19] These projections assume a total of $162 million in system improvements and $42 million in on-farm costs of efficiency conservation to be carried out on Project Lands. Certificates will not be delivered to finance system and on-farm efficiency conservation until 2008 and 2016, respectively.[20]

3. 2005 Fallowing Program: Crops Removed from Production

The stimulating effects of fallowing revenues on the Imperial Valley economy must be weighed against the losses resulting from fallowing. The panel has concluded that crop fallowing relating to the SDCWA transfer and associated environmental mitigation produced over $1,718,000 in income losses in 2005. The panel relied on crop fallowing data for spring and summer 2005 to calculate the total acreage and mix of crops that were taken out of production. As of the writing of this report, IID has not released information on individuals participating in the 2005/2006 fallowing program. Thus, the panel's work required more assumptions than would normally be the case. However, IID staff informed the panel and the public that the 2004/2005 solicitation produced far more offers than needed, even adding in the requirements of the Bureau payback. In fact, IID staff selected participants in the 2004/2005 program by drawing randomly from the pool of applicants. Applicants not selected in this year were offered participation in the

[18] Stratecon, Inc., 2004, p. 9.
[19] Id.
[20] Stratecon, inc., 2004, Table 4: Financial Projections for 2004 Water System Project (Base Case).

2005/2006 program. Thus, there is good reason to believe that the crops fallowed in the second half of 2005 should be similar to the crops fallowed in the first half.

In 2005, a total of 12,127 acres are fallowed in IID. The transfer of water to San Diego and the Salton Sea accounts for two-thirds of this acreage (8,108 acres), while Colorado River makeup water accounts for the other third (4,019 acres). Table 3 below shows the final allocation of acreage by crop used in the panel's analysis.

Table 3. 2005 Fallowing Program Acreage Allocation

Acres fallowed:	Alfalfa	Bermuda	Sudan	Wheat	Cotton	Citrus	Melons	Beets	Veg.	Total
SD Transfer	2,519	2,727	847	634	-	320	148	843	69	8,108
Col. R. Makeup	1,248	1,351	420	314	-	159	75	418	34	4,019
Total	3,767	4,078	1,267	948	0	479	223	1,261	103	12,127

The acreage allocation shown in Table 3 relied on the following allocation rules:

1. Spring and Summer 2005 acreage were averaged for each crop category included in the IID database.
2. If a crop category contained two crops acreage was split 50/50 between these crops. If a crop category contained three crops 1/3 of the acreage was allocated to each crop.
3. The small amount of canola acreage was allocated to wheat.[21]
4. The small amount of dry onion acreage was allocated to sugar beets.[22]
5. Acreage with no crop designation was prorated to crop categories other than citrus.[23]

With one exception, these are the same allocation rules the panel used for 2003 and 2004 acreage. The one exception is the treatment of citrus acreage. The panel excluded citrus for the 2005 prorating because it has subsequently learned that this acreage would have been taken out of production regardless of the fallowing program. Consequently the panel excluded the citrus

[21] The panel was unable to locate Extension Service production budgets for canola.
[22] The panel deemed the amount of dry onion acreage too small to develop a separate production budget.
[23] It is unclear whether acreage lacking a crop designation for a season indicates that it would have been rotated of production for that season or that the landowner simply failed to indicate what would have been planted. The panel adopted the convention of assuming the land would have been in production and prorated undesignated acreage to the other crop categories. This may result in the panel overstating the amount of acreage that actually would have been in production.

acreage from the calculation of impacts to third-party income resulting from the fallowing program.

The panel translated reduced 2005 acreage shown in Table 3 into reduced on-farm purchases of labor, goods, and services using crop production functions it developed for the first report. Table 4 shows the estimated reductions in farm purchases for 2005.[24] The data in Table 4 provided the basis for estimating reductions in third-party income resulting from removing land from production. The panel used the IMPLAN model it developed for the first report to estimate these impacts.

Table 4. 2005 Reduction in Farm Purchases and Value Added

Total Crop Production Value*	$5,753,001
Value Added	
Labor	$529,615
Proprietary Inc.	$719,395
Property Inc.	$835,253
Taxes	-
Total Value Added	$2,084,264
Purchased Goods and Services	
Crop	$268,888
Ag Support (18)	$1,136,639
Fuel & Oil (142)	$100,855
Chemical (156)	$584,307
Wholesale Trade (390)	$126,163
Gas Stations (407)	$19,917
Finance (430)	$222,265
Machinery Rental (434)	$-
Machine Repair (483)	$721,761
Materials	$487,942
Total Purchased Goods and Services	$3,668,738

[24] The crop production functions the panel developed have two major categories, physical inputs such as chemicals and fuel, and value added inputs, such as payments to labor and property, owner income, and taxes. Of the 14 categories, 10 were variable and included in the impacts from fallowing. Fixed inputs that do not vary with the amount of land in production, such as property taxes or overhead, were not included in the IMPLAN production functions. A summary of the production function for each crop included in the IMPLAN modeling is shown in Appendix B.

* Based on 2003 yields and prices as reported by the Imperial County Agriculture Commissioner. 2003 data was the most recently available at the time this report was prepared.

4. 2005 Fallowing Program: Impacts to Third-Party Income and Tax Receipts

The panel's primary charge is to use the regional economic model of Imperial County to estimate the annual and cumulative third-party socioeconomic impacts of land fallowing.[25] Third-party impacts are defined by the water transfer agreement as (i) changes in after-tax income of individuals or entities residing in Imperial County not participating in the IID land fallowing program; and (ii) changes in the tax receipts of local governments within Imperial County.[26] The panel used the IMPLAN model to estimate average tax rates for proprietor, property, and labor income within Imperial County, and used these rates to convert the income impacts reported by IMPLAN into after-tax income impacts.[27]

Changes to third-party income and tax receipts derive from four sources:

- **Removal of Land from Production.** The 2005 fallowing program removes 8,108 acres of farmland from production. Reduced farm purchases resulting from this fallowing activity are summarized in Table 4. All direct, indirect, and induced impacts to income other than the direct impacts to proprietor and property income were counted as third-party impacts. Direct changes to proprietor and property income accrue to landowners participating in the fallowing program and therefore were not treated as third-party impacts. All direct, indirect, and induced impacts to tax receipts were counted as third-party impacts. The panel used the IMPLAN model

[25] Revised Fourth Amendment to Agreement between IID and SDCWA for Transfer of Conserved Water, Exhibit 2, Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline for Implementation of Defined Tasks.
[26] Ibid.
[27] Combined state and federal average tax rates were 26% for labor and proprietor income, and 7% for property income, which includes payments from rents, interest, dividends, royalties, and corporate profits.

with modified crop production functions it developed for its first report to calculate the direct, indirect, and induced changes to income and tax receipts.

- **Payments to landowners fallowing acreage**. Payments to landowners fallowing acreage for the water transfer are summarized in Table 2. Only payments to landowners residing in Imperial County were counted. All induced impacts to income stemming from these payments were counted as third-party impacts. The direct landowner payments themselves were not counted as third-party impacts, since these payments accrue to participants of the fallowing program. The panel modeled these payments as an increase in household income and used the IMPLAN household consumption function to determine the induced changes in county income.
- **IID Expenditures for administration**. IID expenditures to administer the fallowing program are summarized in Table 2. Per the Revised Fourth Amendment, all direct, indirect, and induced changes to income and tax revenues associated with these expenditures were counted as third-party impacts. The panel modeled these expenditures in IMPLAN using sector 445 (water supply and sewerage).
- **Income Transfers to IID Ratepayers**. Several IID policies resulted in the indirect transfer of land fallowing program revenues to IID ratepayers. These income transfers are summarized in Table 2 and can be divided into three categories: (1) rate stabilization, (2) payments for land fallowing and foregone water and hydropower sales connected to the payback of water to the Colorado River, and (3) unaccounted revenue which press accounts and IID Board minutes strongly suggest were used for rate stabilization. Water transfer revenues distributed to IID ratepayers under categories 1 and 2 totals $1.97 million and $1.52 million, respectively. Unaccounted

water transfer revenues (category 3) total $2.43 million. All direct and induced changes to income and tax receipts were counted as third-party impacts. These impacts were calculated in the same manner as impacts due to payments to landowners fallowing acreage to transfer water to SDCWA and the Salton Sea.

Net changes to aggregate third-party after-tax income and county tax revenues resulting from the 2005 fallowing-based water transfer to SDCWA and the Salton Sea are shown in Table 5. In 2005 the fallowing-based water transfer to SDCWA and the Salton Sea increases third party after-tax income in Imperial County by approximately $4.3 million. In addition, the fallowing program produces an additional $91 thousand in local tax revenues. Aggregate losses to third-party incomes resulting from land fallowing are more than compensated by aggregate gains to income resulting from fallowing payments to landowners, IID administrative expenditures, and distribution of water transfer proceeds to IID ratepayers.

Table 5. 2005 Changes to Third-Party After-Tax Income and Tax Revenues

2005 THIRD PARTY IMPACTS: FALLOWING AND TRANSFER REVENUE DISPOSITION					
($1,000)	Labor Income	Owner Income	Property Income	Total Income	Taxes
Land Fallowing	($1,183)	($42)	($493)	($1,718)	($182)
Fallowing Payments	$177	$33	$186	$ 396	$69
Dust Control	$0	$0	$0	$0	$0
IID Administration	$50	$29	$64	$ 143	$12
Ratepayer Transfers	$293	$2,644	$309	$3,246.00	$114
Unallocated Revenue	$204	$1,837	$215	$2,256	$79
Total	($458)	$4,501	$281	$4,324	$91

While the aggregate changes to third-party income resulting from the 2005 fallowing program are positive, the panel's modeling results indicate these benefits are not equally distributed across the county's population. Farm operations and owners of real property are realizing net gains to income. These income gains are in the form of water rate subsidies, cost reimbursement and additional economic activity made possible by the fallowing agreement with

SDCWA. However, not all segments of the Imperial Valley economy benefit from the fallowing program. In particular, farmworkers and other laborers are experiencing income losses resulting from reductions in crop production.[28] Similarly, some businesses providing farm sector supplies and services also are undoubtedly losing income as a result of reduced crop production in the valley.

Table 6 shows the cumulative changes to aggregate third-party income and local tax revenues resulting from land fallowing activity and water transfer revenues for 2003, 2004, and 2005. Results for 2003 and 2004 shown in Table 6 are from Table A of the panel's first year report. Through 2005, the panel estimates a net gain in third-party after-tax income and tax revenues of approximately $5.5 million.

[28] The panel has yet to distinguish between labor income received by Imperial County residents and income received by individuals residing in other locations, including Mexico.

Table 6. Impacts of Land Fallowing Through 2005
(Dollar Figures in $1,000's)

Source of Impact	2003*	2004*	2005	Cumulative
After-tax Third-Party Income				
Land fallowing	($285)	($1,592)	($1,718)	($3,595)
Landowner payments	$87	$297	$396	$ 780
Weed/dust control	$12	-		$ 12
IID Rate Stabilization	-	$2,604	$3,246	$5,850
IID Administration			$143	
Unaccounted transfer revenue			$2,256	
Local Tax Receipts				
Land fallowing	($29)	($148)	($182)	($ 359)
Landowner payments	$15	$52	$69	$ 67
Weed/dust control	$1	-		$ 1
IID Rate Stabilization	-	$91	$114	$ 205
IID Administration			$12	$ 12
Unaccounted transfer revenue			$79	$ 79
Net Quantified	**($199)**	**$1,304**	**$4,415**	**$5,520**

*Impacts shown for 2003 and 2004 are from Table A of the panel's first year report. Impacts for 2003 and 2004 do not include impacts associated with unaccounted transfer revenue for those years, though the IID Official Statement shows that some of the 2004 unaccounted revenues were used for rate stabilization.

5. Limitations to Analysis and Outstanding Issues

There are several limitations to the analysis of 2005 impacts that are important to note. The most important of these is that the panel was unable to confirm with IID the cash flows for the fallowing program shown in Table 2.[29] These cash flows are based on forward-looking statements contained in IID's Official Statement.[30] While there is no reason to doubt that the Official Statement accurately reflected IID's intended policies at the time it was filed with the

[29] IID chose not to respond to any of the information requests made by the panel during its preparation of the second year report. This significantly hampered the panel's ability to fulfill its charge under the Revised Fourth Amendment.
[30] See footnote 4.

Municipal Securities Rulemaking Board in 2004, it is important to emphasize that the panel's 2005 analysis is predicated on a set of projected expenditures that may differ from actual expenditures.

A second limitation to the analysis of 2005 impacts was the Local Entity's decision to exclude its economist from participation in our deliberations. Thus, this report reflects the conclusions of the remaining economists, Dr. David Sunding, appointed by SDCWA, and the neutral economist, David Mitchell, appointed by mutual consent of Dr. Sunding and Dr. Gordon Kubota, the Local Entity's appointed economist. Had the Local Entity permitted Dr. Kubota's participation, any substantive issues regarding data, methods, or assumptions between the three panelists, should there be any, could have been addressed prior to the release of the report.

Finally, many of the limitations discussed in the panel's first report remain. These limitations, including rigidities of the IMPLAN modeling framework, reliance on county average crop price and yield data, changes in cropping patterns due to the fallowing program, and the extent to which labor in key sectors of the Imperial Valley economy reside within versus without of the county were to be addressed by a number of corroborating panel studies in 2004-2005. Unfortunately, budget requests to IID made by Dr. Kubota and David Mitchell to work on these studies went unanswered and the studies failed to progress.

Appendix A – IMPLAN Model Results

[31] Revised Fourth Amendment to Agreement between IID and SDCWA for Transfer of Conserved Water, Exhibit 2, Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline for Implementation of Defined Tasks.
[32] A copy of Exhibit 2 is presented in Appendix C.
[33] I-O models that can be purchased commercially typically have several hundred industries. The IMPLAN model used for this analysis includes approximately 500 industries. Not all industries included in a model are relevant to a particular region, however.
[34] Figure 1 is adapted from The Web Book of Regional Science. Ed. Randall W. Jackson. Regional Research Institute, West Virginia University, 1999.
[35] In the case of the Economic Panel's analysis, Imperial County is the model's geographic boundary.
[36] This is done through algebraic manipulation of the data tables that constitute the descriptive model. The mechanics of multiplier generation can be found in any textbook dealing with input-output analysis. A search of the internet will also provide numerous websites that explain in detail multiplier estimation.

[37] Field preparation is an example where one might expect increasing returns to scale. As the amount of acreage increases, the relatively fixed cost of tractor transportation to the site and setup is spread over more acreage and the cost per acre decreases. I-O models rule out this possibility.
[38] Recall that a predictive I-O model can address only the first of these two phenomena.

[39] Bourgeon, J., K. Easter, and R. Smith (2004) illustrate potential changes in regional income resulting from water transfers under different conditions.
[40] IMPLAN Professional [TM] I-O modeling software was originally developed by the USDA Forest Service in cooperation with the Federal Emergency Management Agency and the USDI Bureau of Land Management to assist the Forest Service in land and resource management planning. The Minnesota IMPLAN Group, Inc. currently maintains the model and updates the data sets.

[41] The QSA Delivery Schedule calls for the delivery of 15,000 AF in 2003 and 30,000 AF in 2004. However, the actual deliveries were 10,000 AF in 2003 and 35,000 AF in 2004, representing 32% and 52% of the total water made available in 2003 and 2004 through land fallowing. These percentages were used to allocate fallowed acres and transfer payments to the transfer agreement as opposed to repayment of Colorado River water.
[42] Citrus in particular requires a substantial up-front capital investment. It seems unlikely to the Economic Panel that a grower would enroll productive and profitable citrus acreage into the fallowing program and forego this investment. It seems more likely that enrollment would occur only if the acreage were no longer bearing or was unprofitable and being taken out of production anyway. This raises the question of whether the reduction in economic activity associated with this acreage should be attributed to the land fallowing program. The Economic Impact Panel's current assessment of fallowing impacts for 2004 includes the citrus acreage. This may causes an overstatement of impacts from fallowing for 2004. This is an issue that the Economic Panel will give further attention to through corroborating studies it will undertake next year. These studies are discussed in Section 7 of the report.
[43] The Arizona budgets provided a greater level of detail than the Imperial County budgets, particularly with regards to labor, so budgets for Yuma and Pima Counties in Arizona were used when available (alfalfa, sudan, wheat, cotton, melons and vegetables). Budgets for Imperial County were available for bermuda and klein while Arizona budgets were not, so the ratio of bermuda and klein to alfalfa costs in the less detailed Imperial County budgets were used to approximate the more detailed Arizona budgets. Similarly, the ratio of sugar beet to carrot costs in the California budgets were used to approximate a more detailed budget for sugar beets from the Arizona budget for carrots. Finally citrus budgets were not available from the Arizona Extension or for Imperial County, but were available in sufficient detail from the California Extension for the San Joaquin Valley region. Appendix B contains the production budget for each crop modeled with IMPLAN.

[44] As discussed in a previous note, the Economic Panel is skeptical that the 2004 land fallowing program directly caused the removal of citrus orchard from irrigation and production. The current assessment of impacts includes this acreage. However, results from the corroborating studies the Economic Panel intends to undertake next year may result in changes to the 2004 impact assessment.
[45] The Economic Panel requested 2004 water sales data from IID so that it could more accurately calculate the actual amount of transfer revenue rebated to IID customers. IID declined to provide the Economic Panel this information. Therefore, the Economic Panel is using the ten-year average sales as reported on Page H-5 of the IID budget.
[46] August 20, 2004, personal communication between John Eckhardt, IID, and Dr. Gordon Kubota, Economic Panel.
[47] Ibid.
[48] Revised Fourth Amendment to Agreement between IID and SDCWA for Transfer of Conserved Water, Exhibit 2, Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline for Implementation of Defined Tasks.
[49] Ibid.

2005 Output Impacts

2005 Fallowing Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	(5,753)	(1,172)	(15)	(6,941)
Manufacturing	-	(69)	(25)	(94)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(3)	(9)	(12)
Wholesale Trade	-	(160)	(79)	(239)
Transportation & Warehousing	-	(27)	(33)	(60)
Machine Rental & Repair	-	(631)	(96)	(727)
Retail trade	-	(38)	(155)	(193)
Commercial & Prof. Services	-	(259)	(477)	(736)
Government	-	(19)	(254)	(274)
Institutions	-	-	-	-
TOTAL	**($5,753)**	**($2,380)**	**($1,143)**	**($9,275)**

2005 Grower Payments Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	12	12
Manufacturing	-	-	19	19
Water, sewage and other systems	-	-	0	0
Construction	-	-	5	5
Wholesale Trade	-	-	62	62
Transportation & Warehousing	-	-	26	26
Machine Rental & Repair	-	-	75	75
Retail trade	-	-	122	122
Commercial & Prof. Services	-	-	375	375
Government	-	-	200	200
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$897**	**$897**

[50] Combined state and federal average tax rates were 26% for labor and proprietor income, and 7% for property income, which includes payments from rents, interest, dividends, royalties, and corporate profits.

[51] Appendix A provides more detailed IMPLAN results for the interested reader. The appendix presents estimates of both total impact and third-party impact to the region. Direct, indirect, and induced impacts are presented by major economic sector.

[52] These could be for environmental mitigation, for example, or community development.

[53] The smaller gain in regional after-tax income and tax receipts under the second scenario is due to the fact that Imperial County would import some of the engineering and construction services to implement capital projects. This results in an income leakage to the County.

2005 IID Transfers To Ratepayers Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	20	20
Manufacturing	-	-	32	32
Water, sewage and other systems	-	-	0	0
Construction	-	-	9	9
Wholesale Trade	-	-	103	103
Transportation & Warehousing	-	-	43	43
Machine Rental & Repair	-	-	125	125
Retail trade	-	-	201	201
Commercial & Prof. Services	-	-	621	621
Government	-	-	332	332
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$1,487**	**$1,487**

2005 IID Admin Expenditures Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	0	1	1
Manufacturing	-	2	1	3
Water, sewage and other systems	221	-	0	221
Construction	-	0	5	5
Wholesale Trade	-	3	3	6
Transportation & Warehousing	-	1	1	3
Machine Rental & Repair	-	1	3	4
Retail trade	-	1	5	6
Commercial & Prof. Services	-	8	16	24
Government	-	2	8	11
Institutions	-	-	-	
TOTAL	**$221**	**$19**	**$43**	**$282**

2005 IID Unallocated Revenues Output				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	14	14
Manufacturing	-	-	22	22
Water, sewage and other systems	-	-	0	0
Construction	-	-	6	6
Wholesale Trade	-	-	71	71
Transportation & Warehousing	-	-	30	30
Machine Rental & Repair	-	-	87	87
Retail trade	-	-	140	140
Commercial & Prof. Services	-	-	432	432
Government	-	-	231	231
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$1,033**	**$1,033**

2005 Labor Income Impacts

2005 Fallowing Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(393)	(380)	(3)	(776)
Manufacturing	-	(8)	(3)	(11)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(1)	(2)	(3)
Wholesale Trade	-	(43)	(21)	(64)
Transportation & Warehousing	-	(7)	(8)	(15)
Machine Rental & Repair	-	(62)	(19)	(82)
Retail trade	-	(9)	(44)	(54)
Commercial & Prof. Services	-	(50)	(113)	(162)
Government	-	(4)	(12)	(16)
Institutions	-	-	-	-
TOTAL	**($393)**	**($564)**	**($226)**	**($1,183)**

2005 Grower Payments Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	2	2
Manufacturing	-	-	3	3
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	17	17
Transportation & Warehousing	-	-	7	7
Machine Rental & Repair	-	-	15	15
Retail trade	-	-	35	35
Commercial & Prof. Services	-	-	89	89
Government	-	-	9	9
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$177**	**$177**

2005 IID Transfers To Ratepayers Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	3	3
Manufacturing	-	-	4	4
Water, sewage and other systems	-	-	0	0
Construction	-	-	2	2
Wholesale Trade	-	-	27	27
Transportation & Warehousing	-	-	11	11
Machine Rental & Repair	-	-	25	25
Retail trade	-	-	58	58
Commercial & Prof. Services	-	-	147	147
Government	-	-	16	16
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$293**	**$293**

2005 IID Admin Expenditures Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	0	0	0
Manufacturing	-	0	0	0
Water, sewage and other systems	37	-	0	37
Construction	-	0	2	2
Wholesale Trade	-	1	1	1
Transportation & Warehousing	-	0	0	1
Machine Rental & Repair	-	0	1	1
Retail trade	-	0	1	2
Commercial & Prof. Services	-	2	4	6
Government	-	0	0	1
Institutions	-	-	-	
TOTAL	**$37**	**$4**	**$9**	**$50**

2005 IID Unallocated Revenues Labor Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	2	2
Manufacturing	-	-	3	3
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	19	19
Transportation & Warehousing	-	-	8	8
Machine Rental & Repair	-	-	18	18
Retail trade	-	-	40	40
Commercial & Prof. Services	-	-	102	102
Government	-	-	11	11
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$204**	**$204**

2005 Owner Income Impacts

2005 Fallowing Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(1,035)	(73)	(1)	(1,109)
Manufacturing	-	(0)	(1)	(1)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(1)	(1)
Wholesale Trade	-	(2)	(1)	(4)
Transportation & Warehousing	-	(1)	(1)	(2)
Machine Rental & Repair	-	(30)	(4)	(34)
Retail trade	-	(4)	(7)	(11)
Commercial & Prof. Services	-	(7)	(26)	(33)
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**($1,035)**	**($118)**	**($42)**	**($1,195)**

2005 Grower Payments Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	1,563	-	1	1,564
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	3	3
Retail trade	-	-	5	5
Commercial & Prof. Services	-	-	20	20
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$1,563**	**$0**	**$33**	**$1,596**

2005 IID Transfers To Ratepayers Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	2,590	-	1	2,591
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	2	2
Transportation & Warehousing	-	-	2	2
Machine Rental & Repair	-	-	5	5
Retail trade	-	-	9	9
Commercial & Prof. Services	-	-	33	33
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$2,590**	**$0**	**$54**	**$2,644**

2005 IID Admin Expenditures Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	0	0	0
Manufacturing	-	0	0	0
Water, sewage and other systems	27	-	-	27
Construction	-	0	1	1
Wholesale Trade	-	0	0	0
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	0
Retail trade	-	0	0	0
Commercial & Prof. Services	-	1	1	1
Government	-	-	-	-
Institutions	-	-	-	
TOTAL	**$27**	**$1**	**$2**	**$29**

2005 IID Unallocated Revenues Owner Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	1,799	-	1	1,800
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	1	1
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	4	4
Retail trade	-	-	6	6
Commercial & Prof. Services	-	-	23	23
Government	-	-	-	-
Institutions	-	-	-	-
TOTAL	**$1,799**	**$0**	**$38**	**$1,837**

2005 Property Income Impacts

2005 Fallowing Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(777)	(17)	(3)	(797)
Manufacturing	-	(6)	(4)	(10)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	0	0	1
Wholesale Trade	-	(14)	(7)	(21)
Transportation & Warehousing	-	(3)	(3)	(6)
Machine Rental & Repair	-	(127)	(12)	(140)
Retail trade	-	(1)	(8)	(9)
Commercial & Prof. Services	-	(82)	(71)	(154)
Government	-	(6)	(129)	(134)
Institutions	-	-	-	-
TOTAL	**($777)**	**($256)**	**($237)**	**($1,270)**

2005 Grower Payments Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	2	2
Manufacturing	-	-	3	3
Water, sewage and other systems	-	-	0	0
Construction	-	-	(0)	(0)
Wholesale Trade	-	-	5	5
Transportation & Warehousing	-	-	2	2
Machine Rental & Repair	-	-	10	10
Retail trade	-	-	6	6
Commercial & Prof. Services	-	-	56	56
Government	-	-	102	102
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$186**	**$186**

2005 IID Transfers To Ratepayers Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	3	3
Manufacturing	-	-	5	5
Water, sewage and other systems	-	-	0	0
Construction	-	-	(0)	(0)
Wholesale Trade	-	-	9	9
Transportation & Warehousing	-	-	4	4
Machine Rental & Repair	-	-	16	16
Retail trade	-	-	10	10
Commercial & Prof. Services	-	-	93	93
Government	-	-	168	168
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$309**	**$309**

2005 IID Admin Expenditures Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	0	0	0
Manufacturing	-	0	0	0
Water, sewage and other systems	53	-	0	53
Construction	-	(0)	(0)	(0)
Wholesale Trade	-	0	0	0
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	1
Retail trade	-	0	0	0
Commercial & Prof. Services	-	2	2	4
Government	-	1	4	5
Institutions	-	-	-	
TOTAL	**$53**	**$3**	**$8**	**$64**

2005 IID Unallocated Revenues Property Income				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	-	2	2
Manufacturing	-	-	4	4
Water, sewage and other systems	-	-	0	0
Construction	-	-	(0)	(0)
Wholesale Trade	-	-	6	6
Transportation & Warehousing	-	-	3	3
Machine Rental & Repair	-	-	11	11
Retail trade	-	-	7	7
Commercial & Prof. Services	-	-	65	65
Government	-	-	117	117
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$215**	**$215**

2005 Indirect Business Tax Impacts

2005 Fallowing Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	(26)	(0)	(26)
Manufacturing	-	(1)	(1)	(2)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(0)	(0)	(0)
Wholesale Trade	-	(31)	(15)	(46)
Transportation & Warehousing	-	(0)	(1)	(1)
Machine Rental & Repair	-	(25)	(6)	(31)
Retail trade	-	(4)	(16)	(21)
Commercial & Prof. Services	-	(7)	(17)	(24)
Government	-	(0)	(31)	(31)
Institutions	-	-	-	-
TOTAL	**$0**	**($95)**	**($87)**	**($182)**

2005 Grower Payments Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	12	12
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	5	5
Retail trade	-	-	13	13
Commercial & Prof. Services	-	-	13	13
Government	-	-	24	24
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$69**	**$69**

2005 IID Transfers To Ratepayers Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	20	20
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	8	8
Retail trade	-	-	21	21
Commercial & Prof. Services	-	-	22	22
Government	-	-	40	40
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$114**	**$114**

2005 IID Admin Expenditures Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	0	0	0
Water, sewage and other systems	8	-	-	8
Construction	-	0	0	0
Wholesale Trade	-	1	1	1
Transportation & Warehousing	-	0	0	0
Machine Rental & Repair	-	0	0	0
Retail trade	-	0	1	1
Commercial & Prof. Services	-	0	1	1
Government	-	0	1	1
Institutions	-	-	-	
TOTAL	**$8**	**$1**	**$3**	**$12**

2005 IID Unallocated Revenues Taxes				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	1	1
Water, sewage and other systems	-	-	0	0
Construction	-	-	0	0
Wholesale Trade	-	-	14	14
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	5	5
Retail trade	-	-	15	15
Commercial & Prof. Services	-	-	15	15
Government	-	-	28	28
Institutions	-	-	-	-
TOTAL	**$0**	**$0**	**$79**	**$79**

2005 Total Value Added Impacts

2005 Fallowing Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	(2,205)	(496)	(7)	(2,708)
Manufacturing	-	(15)	(9)	(24)
Water, sewage and other systems	-	(0)	(0)	(0)
Construction	-	(1)	(3)	(3)
Wholesale Trade	-	(90)	(44)	(134)
Transportation & Warehousing	-	(11)	(13)	(24)
Machine Rental & Repair	-	(245)	(42)	(287)
Retail trade	-	(19)	(75)	(94)
Commercial & Prof. Services	-	(147)	(226)	(373)
Government	-	(10)	(172)	(181)
Institutions	-	-	-	-
TOTAL	**($2,205)**	**($1,033)**	**($591)**	**($3,830)**

2005 Grower Payments Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	1,563	-	5	1,568
Manufacturing	-	-	7	7
Water, sewage and other systems	-	-	0	0
Construction	-	-	2	2
Wholesale Trade	-	-	35	35
Transportation & Warehousing	-	-	10	10
Machine Rental & Repair	-	-	33	33
Retail trade	-	-	59	59
Commercial & Prof. Services	-	-	178	178
Government	-	-	135	135
Institutions	-	-	-	-
TOTAL	**$1,563**	**$0**	**$465**	**$2,028**

2005 IID Transfers To Ratepayers Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	2,590	-	9	2,598
Manufacturing	-	-	12	12
Water, sewage and other systems	-	-	0	0
Construction	-	-	3	3
Wholesale Trade	-	-	58	58
Transportation & Warehousing	-	-	17	17
Machine Rental & Repair	-	-	55	55
Retail trade	-	-	98	98
Commercial & Prof. Services	-	-	295	295
Government	-	-	224	224
Institutions	-	-	-	-
TOTAL	**$2,590**	**$0**	**$770**	**$3,360**

2005 IID Admin Expenditures Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	-	0	0	0
Manufacturing	-	1	0	1
Water, sewage and other systems	125	-	0	125
Construction	-	0	2	2
Wholesale Trade	-	2	2	3
Transportation & Warehousing	-	1	0	1
Machine Rental & Repair	-	0	2	2
Retail trade	-	0	3	3
Commercial & Prof. Services	-	4	8	12
Government	-	1	6	7
Institutions	-	-	-	
TOTAL	**$125**	**$10**	**$22**	**$156**

2005 IID Unallocated Revenues Value Added				
($1,000) *(after tax)*	Direct	Indirect	Induced	Total
Agriculture	1,799	-	6	1,805
Manufacturing	-	-	8	8
Water, sewage and other systems	-	-	0	0
Construction	-	-	2	2
Wholesale Trade	-	-	40	40
Transportation & Warehousing	-	-	12	12
Machine Rental & Repair	-	-	38	38
Retail trade	-	-	68	68
Commercial & Prof. Services	-	-	205	205
Government	-	-	156	156
Institutions	-	-	-	-
TOTAL	**$1,799**	**$0**	**$535**	**$2,334**

2005 Employment Impacts

2005 Fallowing Employee				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	(62)	(33)	(0)	(94)
Manufacturing	-	(0)	(0)	(0)
Water, sewage and other systems	-	-	-	-
Construction	-	-	(0)	(0)
Wholesale Trade	-	(2)	(1)	(2)
Transportation & Warehousing	-	(0)	(1)	(1)
Machine Rental & Repair	-	(5)	(1)	(6)
Retail trade	-	(1)	(4)	(4)
Commercial & Prof. Services	-	(3)	(9)	(12)
Government	-	(0)	(0)	(0)
Institutions	-	-	-	-
TOTAL	**(62)**	**(44)**	**(16)**	**(121)**

2005 Grower Payments Employee				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	-	-	-
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	1	1
Retail trade	-	-	3	3
Commercial & Prof. Services	-	-	7	7
Government	-	-	0	0
Institutions	-	-	-	-
TOTAL	**-**	**-**	**12**	**12**

2005 IID Transfers To Ratepayers Employee				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	-	0	0
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	1	1
Machine Rental & Repair	-	-	1	1
Retail trade	-	-	5	5
Commercial & Prof. Services	-	-	12	12
Government	-	-	0	0
Institutions	-	-	-	-
TOTAL	**-**	**-**	**20**	**20**

2005 IID Admin Expenditures Employee				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	-	-
Manufacturing	-	-	-	-
Water, sewage and other systems	2	-	-	2
Construction	-	-	0	0
Wholesale Trade	-	-	-	-
Transportation & Warehousing	-	-	-	-
Machine Rental & Repair	-	-	-	-
Retail trade	-	-	0	0
Commercial & Prof. Services	-	0	0	1
Government	-	-	-	-
Institutions	-	-	-	
TOTAL	**2**	**0**	**1**	**2**

2005 IID Unallocated Revenues Employee				
($1,000)	Direct	Indirect	Induced	Total
Agriculture	-	-	0	0
Manufacturing	-	-	0	0
Water, sewage and other systems	-	-	-	-
Construction	-	-	0	0
Wholesale Trade	-	-	1	1
Transportation & Warehousing	-	-	0	0
Machine Rental & Repair	-	-	1	1
Retail trade	-	-	3	3
Commercial & Prof. Services	-	-	8	8
Government	-	-	0	0
Institutions	-	-	-	-
TOTAL	**-**	**-**	**14**	**14**

Appendix B – Crop Production Functions

This appendix contains the Agricultural Extension crop budget data used by the Economic Panel to develop customer crop production functions for use with the IMPLAN regional model for Imperial County.

Univ. of Arizona Agricultural Extension Yuma County Crop Budgets

Type	Aggregation	Crop Budget Category	Upland Cotton	Wheat	Sudan Hay	Alfalfa	Melon	Vegetable
		Output/Acre	**$1,074**	**$372**	**$460**	**$803**	**$3,136**	**$5,433**
Var.	Labor	Pre-Harvest Labor	63	25	22	48	89	189
Var.	Chemical	Fertilizer	59	96	87	39	180	99
Var.	Chemical	Insecticide	246	14		21	102	223
Var.	Chemical	Herbicide	12	16		12	56	56
Var.	Chemical	Other Chemicals					23	
Var.	Fuel & Oil	Fuel	20	4	5	6	24	40
Var.	Machine Repair	Repair	26	7	8	8	33	56
Fix	Irrigation	Water				26		
Var.	Crop	Seed/Transplant	9	15	16	38	43	636
Var.	Ag Support	Other Services and Rentals	153			-	243	75
Var.	Labor	Harvest Labor	10		18	31		
Var.	Chemical	Insecticide	33			-		
Var.	Chemical	Other Chemicals	30			-		
Var.	Fuel & Oil	Fuel	5		8	12		
Var.	Machine Repair	Repair	32		46	99		
Var.	Ag Support	Custom Harvest	66	75		-	1,812	3,150
Var.	Ag Support	Cotton Ginning	115			-		
Var.	Ag Support	Crop Assessment	10			-		
Var.	Materials	Other material	2	-	13	-		
Fix	Machinery	Overhead - Pickup	15	8	8	13	13	13
Var.	Finance	Operating Interest	27	6	19	22	166	14
Fix	Taxes	Taxes	9	1	7	13	5	10
Fix	Overhead	General Overhead	47	13	12	20	139	228
Fix	Machine Repair	General Farm Maintenance	28	8	7	12	84	136
Fix	Taxes	Property Taxes	28	14	14	37		
Var.	Property Inc.	Opportunity Interest	79	39	39	105	550	550
Fix	Irrigation	Water assessment	62	31	13	83	31	31
Fix	Machinery	Machinery	57	7	45	87	31	57
Fix	Finance	Equity Interest	23	4	8	9	12	25
Var.	Proprietary Inc.	Management services	75	21	20	32	223	364
Var.	Proprietary Inc.	**Returns**	**($266)**	**($34)**	**$46**	**$27**	**($725)**	**($521)**

Univ. of California Agricultural Extension Imperial County Crop Budgets

	Alfalfa	Bermuda	Klein	Sudan	Carrots	Sugar Beets
Preparation						
Stubble disc	$21	$21	$21		$21	
Big Ox		24	24			
Subsoil	39				29	39
Disc 1x	13	13	25	25	25	25
Triplane 1x	11				11	
Landplane	13					
Corrugate 1x	11					11
Flood	25				51	25
Disc 1x	14				25	25
Fertilizer	42	31		30	231	36
Disc 1x	14	13			13	
Triplane 2x	23	23	23	11	11	23
Dump borders	15	15	15	15	19	
Run borders	6	6		6	15	
Float				10		15
TOTAL LAND PREPARATION	245	144	107	96	460	189
Establishment						
Plant/Seed	48	36	59	60	117	63
Irrigate	25	54	54		185	
Cultivate					28	32
Thin					23	13
Work Ends						10
Herbicide	38	45	16		18	75
Insecticide	17					82
ESTABLISHMENT	127	135	129	60	370	275
TOTAL STAND AND ESTABLISHMENT	372	279	236	156	830	464
Production						
Herbicide	57				50	33
Irrigate	160	149	149	104	143	126
Fertilizer (dry)		98	98		74	81
Fertilizer (water-run)	25	36	36	17	16	
Insecticide	66				86	
TOTAL ANNUAL CULTURAL	308	283	283	121	789	615
Overhead						
Land Rent	170	100	125	90	225	175
Amortization	123	56	47			
Cash Overhead	78	57	59	44	163	116
TOTAL OVERHEAD	371	213	231	134	388	291
TOTAL PRE-HARVEST	1,050	774	749	411	2,008	1,369
Harvest						
Swather	64	41	41	23		
Rake	54	40	40	21		
Bale	83	117	105	72		
Haul & Stack	32	45	41	28		
TOTAL HARVEST	233	243	226	143	3,825	212
TOTAL COSTS	**$1,283**	**$1,016**	**$976**	**$554**	**$5,833**	**$1,581**

Appendix C – Tables from IID Official Statement

Davids Engineering, Inc., "Consulting Engineer's Report for 2004 Water System Project 2004 Taxable Certificates of Participation, March 25, 2004, Table 5.

Table 5. Land Acquisition and Water Transfer Cash Flow
Information obtained from Stratecon Inc.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Water Transfer:										
Revenue										
San Diego County Water Authority Revenues	5,340,000	8,280,000	11,440,000	14,800,000	16,929,717	21,632,134	26,862,512	32,664,628	39,065,382	46,383,531
Coachella Valley Water District	0	0	0	0	238,746	487,043	745,175	1,013,438	1,356,741	1,713,370
State Payment for Mitigation Water	1,387,993	1,439,001	1,971,431	2,532,056	2,601,688	3,207,881	3,845,447	4,515,654	5,219,814	8,343,002
Subtotal	6,727,993	9,719,001	13,411,431	17,332,056	19,770,151	25,327,058	31,453,134	38,193,720	45,651,936	56,439,904
Expenditures										
System OM&R	0	0	0	0	1,344,180	1,370,637	1,398,094	1,425,751	1,454,030	3,905,209
Operating Costs for Efficiency on Project Lands	0	0	0	0	0	0	0	0	0	0
Payment to Local Entity	0	0	0	0	0	0	1,343,128	1,633,231	1,954,269	2,319,177
Total Environmental	331,728	512,520	703,861	906,221	939,408	1,153,692	1,386,353	1,631,935	1,891,005	2,164,150
Lost Water Sales	1,046,400	1,236,560	1,519,624	1,816,069	1,861,470	2,179,545	2,512,360	2,860,453	2,865,936	3,227,062
Hydropower Costs	129,150	158,844	189,533	221,866	239,727	265,285	334,021	386,015	382,484	440,029
Meter Costs	0	0	0	0	0	0	0	0	924,246	1,141,531
Rate Stabilization [1]	1,423,156	1,969,382	2,211,484	7,888,970	8,871,421	9,686,792	10,333,231	11,004,712	12,070,529	12,803,878
Administration	143,500	220,631	301,529	386,335	395,993	487,071	582,456	682,308	786,784	896,059
Third Party On Farm Payments-efficiency	0	0	0	0	0	0	0	0	0	0
Third Party On Farm Payments-fallowing	3,654,058	4,206,731	5,089,103	6,002,598	6,124,952	7,087,027	8,081,812	9,110,054	8,790,837	9,853,721
Subtotal	6,727,993	8,304,479	10,015,134	17,332,056	19,770,151	22,250,248	25,971,382	28,733,457	31,110,100	36,750,816
Net Water Transfer	0	1,414,522	3,396,297	0	0	3,076,811	5,481,752	9,460,263	14,551,837	19,689,087
Land Leasing Operation:										
Revenue										
Revenues from Rental	1,959,480	4,062,074	4,204,282	4,345,309	4,540,681	4,585,570	4,626,011	4,661,799	4,692,435	4,717,687
Subtotal	1,959,480	4,062,074	4,204,282	4,345,309	4,540,681	4,585,570	4,626,011	4,661,799	4,692,435	4,717,687
Expenditures										
Tile, Repairs and Maintenance	50,000	102,500	105,063	107,689	110,381	113,141	115,969	118,869	121,840	124,886
Water Availability Charge	73,593	150,865	154,637	158,503	162,465	166,527	170,690	174,957	179,331	183,814
In Lieu Property Taxes	482,866	985,047	1,004,748	1,024,843	1,045,340	1,066,247	1,087,572	1,109,323	1,131,509	1,154,140
Land Maintenance Fallowing Costs	7,850	25,031	35,448	46,974	49,760	63,178	77,808	94,025	111,806	130,731
Land Administration	112,500	230,625	236,391	242,300	248,358	254,567	260,931	267,454	274,141	280,994
Fallowing Payments to Tenants	58,875	93,864	132,930	176,152	186,600	236,917	292,156	352,594	418,321	490,241
Subtotal	785,684	1,587,932	1,669,216	1,756,461	1,802,904	1,900,576	2,005,226	2,117,222	2,236,949	2,364,807
Net Land Leasing Operations	1,173,796	2,474,142	2,535,066	2,588,848	2,737,777	2,684,994	2,620,786	2,544,577	2,455,487	2,352,881

1) Rate Stabilization computed by Davids Engineering from Table 7

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Davids Engineering, Inc., "Consulting Engineer's Report for 2004 Water System Project 2004 Taxable Certificates of Participation, March 25, 2004, Table 7.

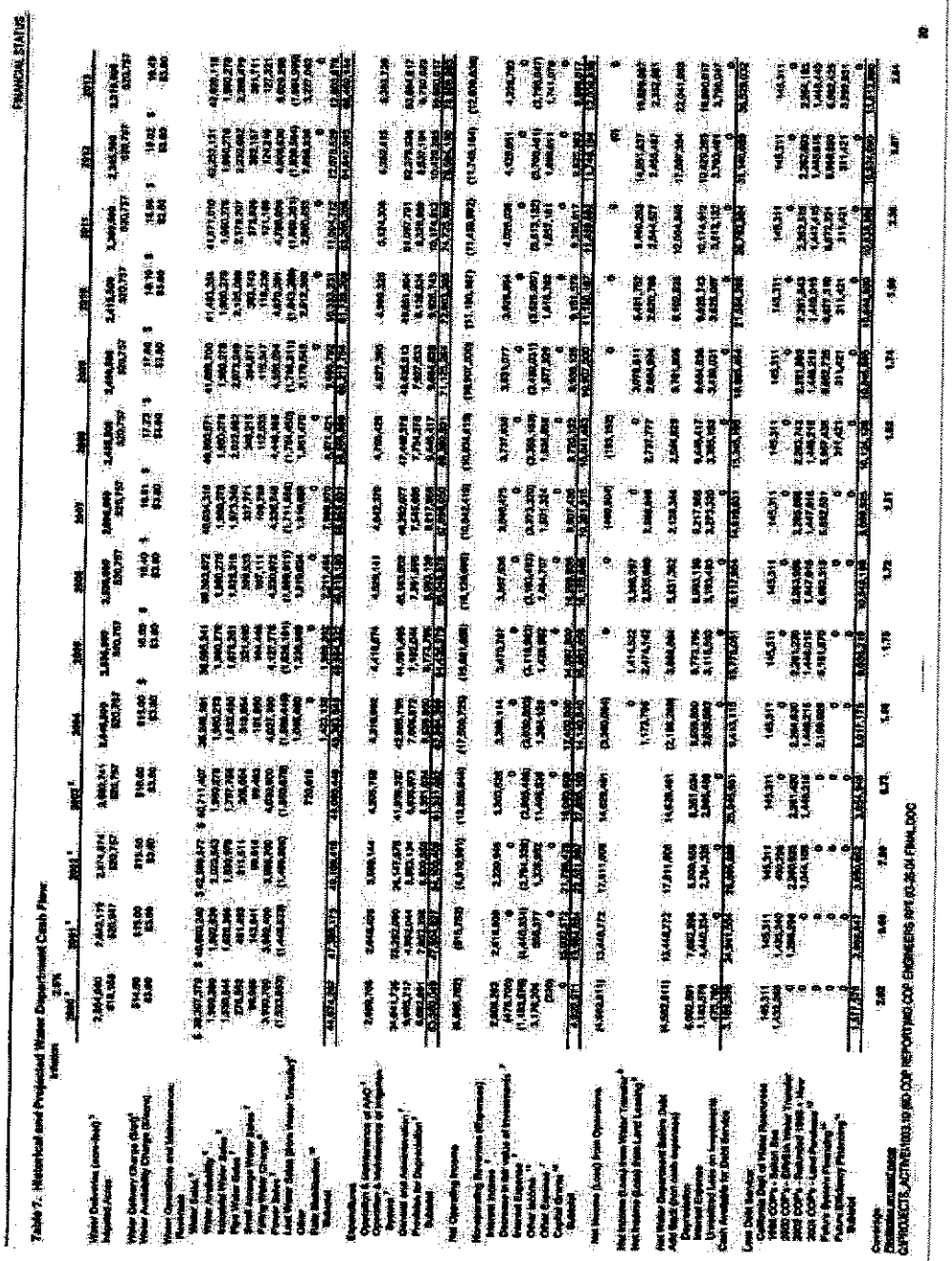

Table 7. Historical and Projected Water Department Cash Flow Con't

1) Source: 2000-2002 IID Finance and Treasury

2) Source: 2003 IID Draft Statement of Revenues, Expenses, and Changes in Net Assets

3) Deliveries based on QSA and related agreements and resulting water transfer schedules

4) Projected increasing in 2005 to $16/ac-ft, then increasing due to inflation

5) Projected as water deliveries multiplied by water charge minus the sum of the industrial, pipe and small acreage water sales

6) Projected equal to 2003 value

7) Projected based on 2003 and increasing due to inflation

8) Projected based on 2004 and increasing due to inflation

9) Information from Table 5 (source: *Stratecon Inc.*)

10) Rate Stabilization transfers net income from the water transfer to Water Department Operations as necessary so that the Net Income (Loss) from Operations remains zero or the smallest possible loss with the water rates growing at the assumed 2.5% inflation rate

11) Projected based on 2002 value inflated at 2.5% inflation rate

12) Includes Cal Trans projects through 2006 and MWD at $7.9 million in 2004 inflated at 2.5%

13) Sutter Securities provided DE with a debt service schedule based on an insurance of 30-year COP's for $69,940,000 at an average interest rate of 6.03%. Given the terms for the bond insurance secured and the ratings obtained by the rating agencies, the actual debt service payments may be less than estimated by Sutter Securities. As a result, the financial projections presented above overstate the revenues required to pay debt service.

14) Source: *Stratecon Inc.*(See Appendix B-Financial Projections for 2004 Water System Project)

Table 6
Financial Projections of District Transfer Costs (Base Case)

Year	*System OM&R*	*O&M Costs Efficiency on Project Lands*	*QSA-JPA Payments*	*Restoration Payments*	*Total Environmental*	*Lost Water Sales*	*Hydropower Costs*	*Meter Costs*	*Administration*	*Total*
2004	$0	$0	$270,674	$61,054	$331,728	$1,046,400	$129,150	$0	$143,500	$1,650,778
2005	$0	$0	$418,191	$94,329	$512,520	$1,236,560	$158,644	$0	$220,631	$2,128,356
2006	$0	$0	$574,316	$129,545	$703,861	$1,519,624	$189,533	$0	$301,529	$2,714,547
2007	$0	$0	$739,432	$166,789	$906,221	$1,816,068	$221,866	$0	$386,335	$3,330,490
2008	$1,344,180	$0	$761,615	$171,793	$933,408	$1,861,470	$238,727	$0	$395,993	$4,773,777
2009	$1,370,837	$0	$941,356	$212,336	$1,153,692	$2,179,545	$285,285	$0	$487,071	$5,476,429
2010	$1,398,024	$0	$1,131,196	$255,157	$1,386,353	$2,512,360	$334,021	$0	$582,456	$6,213,214
2011	$1,425,751	$0	$1,331,579	$300,356	$1,631,935	$2,860,453	$385,015	$0	$682,306	$6,985,461
2012	$1,454,030	$0	$1,542,967	$348,038	$1,891,005	$2,855,936	$382,464	$924,246	$786,784	$8,294,466
2013	$3,905,209	$0	$1,765,841	$398,310	$2,164,150	$3,227,062	$440,029	$1,141,531	$896,059	$11,774,041
2014	$6,192,057	$0	$1,818,816	$410,259	$2,229,075	$3,307,738	$467,431	$1,365,246	$918,461	$14,480,008
2015	$8,716,899	$0	$1,873,380	$422,567	$2,295,947	$3,390,432	$495,928	$1,595,578	$941,422	$17,436,206
2016	$9,388,064	$351,354	$1,929,582	$435,244	$2,364,826	$3,862,521	$525,557	$1,832,717	$964,958	$19,289,996
2017	$9,567,488	$840,321	$1,987,469	$448,301	$2,435,770	$4,488,432	$552,826	$2,599,710	$989,082	$21,473,629
2018	$9,750,377	$1,845,705	$2,661,221	$600,275	$3,261,497	$2,294,669	$740,442	$2,973,977	$1,317,951	$22,184,619
2019	$9,936,796	$2,627,366	$3,373,610	$760,965	$4,134,574	$3,163,083	$888,848	$3,359,295	$1,662,646	$25,772,809
2020	$10,126,815	$3,447,367	$4,126,346	$930,755	$5,057,101	$4,073,483	$1,044,211	$2,629,879	$2,023,752	$28,402,608
2021	$10,320,503	$3,864,822	$4,473,828	$1,009,134	$5,482,962	$4,540,509	$1,128,803	$2,196,396	$2,183,522	$29,717,517
2022	$10,517,932	$4,074,626	$4,608,043	$1,039,408	$5,647,451	$4,778,794	$1,177,006	$2,208,562	$2,238,110	$30,642,482
2023	$10,719,175	$4,292,506	$4,746,284	$1,070,590	$5,816,875	$5,026,156	$1,226,914	$2,221,031	$2,294,063	$31,596,720
2024	$10,924,307	$4,518,732	$4,888,673	$1,102,708	$5,991,381	$5,282,899	$1,278,582	$2,233,812	$2,351,415	$32,581,128
2025	$11,133,402	$4,753,587	$5,035,333	$1,135,789	$6,171,122	$5,549,338	$1,332,066	$2,246,913	$2,410,200	$33,596,629
2026	$11,346,538	$4,997,361	$5,186,393	$1,169,863	$6,356,256	$5,825,798	$1,387,425	$2,260,341	$2,470,455	$34,644,174

Statecon, Inc., "Financial Projections for 2004 Water System Project," March 25, 2004, Table 6.

Appendix D – Economist Panel Guidelines

Exhibit 2

Guidelines for Estimation and Measurement of Socioeconomic Impacts and Timeline For Implementation of Defined Tasks

IID and the Authority have a fundamental disagreement concerning the likely socioeconomic impacts caused by land fallowing to transfer Conserved Water to the Authority or to lessen environmental impacts related to the transfer of Conserved Water to the Authority. The major source of this disagreement relates to different expectations regarding the crops likely to be fallowed. Other sources of potential disagreement involve the proper estimation and measurement of the economic impact of the crops actually fallowed on the economy of Imperial Valley.

The purpose of this Exhibit 2 is to provide guidelines for the estimation and measurement of socioeconomic impacts from land fallowing and to establish the timeline for implementation of defined tasks assigned to the Economists Panel ("Panel") established pursuant to Section 14.5(c). The Panel shall conduct its studies in accordance with the guidelines and timelines presented below.

Estimation and Measurement of Socioeconomic Impacts

The Panel shall develop and implement a Socioeconomic Methodology to estimate and measure the annual and cumulative socioeconomic impacts of land fallowing through the development and use of a Regional Economic Model, as corroborated by evidence from available data on countywide economic conditions and supplemental economic studies of the income and employment of third parties, and evaluated for reliability by standard sensitivity analysis techniques.

1. *Regional Economic Model.* Regional Economic Model shall be based on any necessary adjustments of the standard IMPLAN Model for the specific economic circumstances of Imperial County and shall include the following considerations in the construction of the Social Accounting Matrix (SAM):

    (a) The Panel shall identify the major industries in Imperial County and eliminate any sectors not relevant to the Imperial County economy from the national version of IMPLAN.

    (b) The Panel shall review and adjust, where necessary, the pattern of industry purchases of capital, labor and intermediate goods to reflect any differences between the structure of the economy of Imperial Valley and the structure of the SAM of the national version of IMPLAN. In considering adjustments to the coefficients of the agricultural sector, the Panel shall consider relevant data available from California and Arizona cooperative extension reports, direct survey evidence, and other credible sources.

(c) The Panel shall consider adjustments to the national expenditure coefficients from the national version of IMPLAN based on credible information pertaining to the expenditure patterns of recipients of capital and labor income in Imperial County.

(d) The Panel shall consider adjustments to the local and state government coefficients in the national version of IMPLAN based on credible information available from Imperial County governmental agencies and the California Franchise Tax Board.

(e) The Panel shall balance any adjustments made to the SAM by a commonly accepted method.

2. *Estimation of Socioeconomic Impacts.* The Panel shall use the Regional Economic Model to estimate the annual and cumulative third party socioeconomic impacts of land fallowing for the specific circumstances of Imperial County including the following considerations:

(a) Third-party impacts are defined as (i) changes in the after-tax income of individuals or entities residing in Imperial County not participating in the IID land fallowing program; and (ii) changes in the tax receipts of local governments within Imperial County.

(b) The Panel's determination of the crop acreage fallowed under the IID fallowing program shall be based on a negotiated method of utilizing information from cropping history of land fallowed, cropping patterns after land re-enters production, and other relevant information related to the economic conditions of crop markets and other relevant factors influencing cropping patterns.

(c) The Panel's determination of crop yields for land fallowed shall be based on a negotiated method using average crop yields in Imperial Valley as adjusted by credible evidence indicating that the crop yields of fallowed lands are expected to differ from average countywide crop yields.

(d) The Panel's determination of crop revenues from fallowed land shall be based on the average price for the crop fallowed (unless credible evidence can be generated regarding crop prices on fallowed lands) and the adjusted crop yield of fallowed land determined pursuant to 2(c).

(e) Determination of socioeconomic impact of land fallowing shall also consider the economic stimulus within Imperial County from contract payments received for land fallowing. The Panel's determination shall consider the implications of the mix of resident/nonresident landowners participating in the land fallowing program and the landowner/tenant split of IID land fallowing payments. The estimate of the economic stimulus shall also consider pro forma income tax liabilities of recipients of IID land fallowing payments. The Panel shall develop a

method for annualizing any up front payments receipts by participants in an IID land fallowing program. The Panel shall also consider how the recipient of any up front payments may affect savings and current consumption and the pattern of expenditures. If there is credible evidence that recipients of IID land fallowing payments would invest in farming capital, then the Panel shall consider the impact of such investment on the economy of Imperial Valley.

(f) Estimates of the impacts of land fallowing shall also include the stimulus effect of other components of IID land fallowing program, including dust/weed mitigation, IID program administration and environmental mitigation. Impact measurement shall also consider the stimulus effect of government grants for public works and business investment programs to facilitate economic development, but only if made available primarily to offset the socioeconomic impacts of land fallowing.

(g) Estimates of the impact of IID land fallowing on local tax revenues shall consider the impact of the IID land fallowing program on local tax bases.

(h) Determination of socioeconomic impact of land fallowing shall also consider credible evidence concerning the impact of the land fallowing program on land productivity.

(i) Calculation of socioeconomic impacts shall also include a sensitivity analysis of model outputs using a method to be negotiated. Sensitivity analysis is intended to assess the credibility of model outputs resulting from uncertainties about the value of key parameters in the regional economic model. Analysis may also consider qualitative factors such as specification of production functions, role of technological change and other capital investments, and other factors.

3. *Comparison of Estimated Impacts with County Economic Statistics.* Estimates of the socioeconomic impacts of land fallowing shall be corroborated with a negotiated method of examining evidence from countywide economic data on income, employment, and other relevant economic data. The negotiated method shall consider the statistical validity of testing the estimated magnitude of the socioeconomic impacts of land fallowing with countywide data. If the examination of county economic statistics provides statistically reliable information that the estimates from the Regional Economic Model are materially inaccurate, then the Panel shall make any necessary adjustments to the Regional Economic Model.

4. *Longitudinal Analysis.* The longitudinal study undertaken pursuant to Section 14.5(c)(vi) shall consider individuals providing labor and material

inputs to farmers in the Imperial Valley. The study shall examine the incidence and duration of unemployment resulting from fallowing, any adjustments made by businesses providing agricultural services, and other factors. Any credible evidence from longitudinal studies shall be considered in determining whether there should be an adjustment in the funding requirements of the Local Entity.

Timeline for Implementation of Defined Tasks

The Panel shall conduct their studies within the timelines presented below.

1. *Development of Regional Economic Model.* The Panel shall complete the development of the Regional Economic Model based on any adjustments made pursuant to 1(a)-(c) above within 45 Calendar Days of the commencement of work.

2. *Development of Necessary Methods to Estimate Socioeconomic Impacts.* Within 60 Calendar Days of the commencement of work, the Panel shall submit to the Local Entity and the Authority a written report summarizing the design and identification of necessary information for the methods required above for the estimation of socioeconomic impacts of land fallowing, including:

   a. the method and information to be used in determining crop acreage fallowed in accordance with Section 2(b)(above);

   b. the method and information to be used to adjust crop yields for specific lands fallowed relative to the countywide average of crop yields in accordance with 2(c) above;

   c. any evidence to be relied up to estimate that crop prices for fallowed lands differ from countywide average crop prices in accordance with 2(d) above,

   d. the methods and information to be used to estimate the economic stimulus within Imperial County from contract payments made for land fallowing in accordance with 2(e) above;

   e. the methods and information to be used to estimate the economic stimulus from other components of IID fallowing in accordance with 2(f) above;

   f. the methods and information to be used to estimate the impact of IID land fallowing on local tax revenues in accordance with 2(g) above;

   g. the methods and information to be used to consider the impact of land fallowing on land productivity in accordance with 2(h) above;

   h. the specification of the procedures to be relied upon to conduct the sensitivity analyses in accordance with 2(i) above; and

   i. identification of the specific economic statistics and methods to be used to corroborate the estimated socioeconomic impacts of land fallowing in accordance with 3 above.

3. *Initiation of Longitudinal Study.* Within 75 Calendar Days of the commencement of work, the Panel shall submit to the Local Entity and the Authority a written report describing the study design, anticipated budget, and timing of the longitudinal study to be undertaken pursuant to Section 14.5(c)(vi). The Local Entity and the Authority must approve the proposed study before the Panel can proceed with its study plans.

4. *Initial Estimates of the Annual and Cumulative Socioeconomic Impact of Land Fallowing.* Within 120 Calendar Days of the commencement of work, the Panel shall provide the Local Entity with a draft report of the estimated Annual and Cumulative Impact of Land Fallowing through Agreement Year 15. The report shall discuss how information expected to become available in subsequent years may require adjustments to the Panel's initial estimates.

5. *Annual Reporting.* The Panel shall submit an annual report on updated estimated and measured socioeconomic impacts of land fallowing as provided in Section 14.5(c)(ix). The annual report shall include a written work plan and proposed budget for the Panel's activities in the following fiscal year.