



# San Diego County Water Authority

A Public Agency

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November 14, 1996

TO: Board of Directors  
VIA: Ad Hoc Imported Water Committee  
FROM: Robert R. Campbell, IID Program Director  
RE: Summary and Analysis of Recent Western Water Transfer Activity  
(Information)

## SUMMARY

This report summarizes recent transfer activity in California and other western states which is relevant/similar to the Authority's transfer proposal with Imperial Irrigation District. Data on both short-term, or spot transfers, and long-term transfers was compiled. Within California, recent transfers have been almost exclusively short-term, with a few multi-year agreements for drought/future dry-year supplies. Examples of short-term transfers are limited outside California. While more long-term transfer activity occurs outside California, the majority of these transactions involve a relatively small amount of water. Given the unique attributes of the Authority/IID proposal, it is difficult to compare with other recent transfer activity.

## FISCAL IMPACT

None.

## STRATEGIC PLAN

This item is consistent with the Authority's Strategic Goals and Objectives Number 1. Water Supply Goal, item c-2, encouraging mechanisms to allow voluntary water transfers between willing sellers and buyers within the state.

## ENVIRONMENTAL COMPLIANCE

None. This is an information item.

## STAFF RECOMMENDATION

None. This is an information item.

### MEMBER AGENCIES

#### CITIES

• Condor • National  
• Poway • San Diego

#### COUNTY

#### IRRIGATION DISTRICTS

• Santa Fe • South Bay  
• Vista

#### PUBLIC UTILITY DISTRICT

• Palomar

#### WATER DISTRICTS

• Imperial • Otay  
• San Diego  
• Vista

#### FEDERAL AGENCY

• Penetration Metering Facility

#### MUNICIPAL WATER DISTRICTS

## ALTERNATIVES

None. This is an information item.

## DETAILED REPORT

### **Introduction**

The purpose of this discussion is to summarize recent water transfer activity in California and other western states which may be relevant to the Authority's water transfer discussions with Imperial Irrigation District (IID).

In order to gain insight into recent water transfer market activity, the Authority authorized a report on recent transfers in seven western states. This report entitled "Index of Western Water Transfers" focused on transfers of more than 10,000 acre-feet during the period 1986 - 1995. The report compiled data on both short-term, or spot transfers where water is made available for a limited duration (typically one year or less), and long-term transfers where purchaser and seller agree to a multi-year contract for annual deliveries, a water exchange, storage rights, or in some case cases, an option to purchase or lease at some future date.

With the focus on transactions involving more than 10,000 acre-feet, perhaps the most striking finding of the report was how few long-term transfers involve this amount of water. Long-term transfers of water rights are quite common in Colorado, New Mexico, and Utah but the quantity of water involved is usually less than 20 acre-feet. Only in California are large-scale transactions relatively common, but they are almost exclusively short-term. The report found that there was significant variability in the sale price of water indicating that the value of the water is highly dependent on locational aspects. There was considerable difference in price between annual sales of water and the permanent sale of a water entitlement. However, even with short-term transactions, variation in price was considerable, somewhat reflecting the buyer's ability to pay.

Based on this report, and other available resources, the following section summarizes recent short-term and long-term transfer activity, both inside and outside California that is similar and/or relevant (i.e. urban agency buyer) to the contractual arrangement the Authority and IID are currently discussing. Table 2, included at the end of this report, provides a summary of the transfer data presented below.

### Recent Short-term Transfer Activity (Within California)

The majority of the recent large scale, short-term transfer activity, including those involving urban water supply have occurred within California. Since the right to use water in California tends to be owned in large blocks by water supply agencies (rather than individually by the users of water) these short-term transfers tend to involve relatively large quantities of water.

Drought Supply Beginning in the late 1980's, as drought conditions across the state worsened, and prior to the establishment of the State Drought Water Bank, urban agencies sought to secure additional water supplies through the use of transfers. Examples of these transactions include the following:

- 1      Year:                    1987  
        Supplier:            Yuba County Water Agency  
        Acquirer:            State Water Project  
        Quantity:            83,100 acre-feet  
        Purchase Price:     \$5-\$10 per acre-foot  
        Comment:            One-time drought supply
  
- 2      Year:                    1989  
        Supplier:            Yuba County Water Agency  
        Acquirer:            East Bay Municipal Utilities District (EBMUD)  
        Quantity:            60,000 acre-feet  
        Purchase Price:     \$45 per acre-foot  
        Comment:            Water purchased by EBMUD, but never used.
  
3.     Year:                    1991  
        Supplier              Placer County Water Agency  
        Acquirer              City of San Francisco  
        Quantity:            23,900 acre-feet  
        Purchase Price:     \$100 per acre-foot  
        Conveyance Cost:    \$48 per acre-foot  
        Comment:            One-time transfer

### State Drought Water Bank

In 1991, at the height of the 1987-92 drought, the State Drought Water Bank (Water Bank) was created to move water from areas of greatest availability to areas of greatest need. The Department of Water Resources (DWR) purchased the water supplies primarily from northern California agricultural entities and sold these supplies

to entities experiencing drought shortages. During the first year of operation of the Water Bank, MWD purchased 215,000 acre-feet; the Authority purchased 21,600 acre-feet. The following examples are representative of Water Bank transactions.

- 1     Year:                     1991  
       Supplier:               Yuba County Water Agency  
       Acquirer:               State Water Bank  
       Quantity:               127,200 acre-feet  
       Purchase Price:         \$125 per acre-foot  
       Comment:                Reservoir storage reserves
  
- 2     Year:                     1991  
       Supplier:               Brophy Water District  
       Acquirer:               State Water Bank  
       Quantity:               36,000 acre-feet  
       Purchase Price:         \$125 per acre-foot  
       Comment:                Groundwater Exchange
  
3.    Year:                     1992  
       Supplier:               Merced Irrigation District  
       Acquirer:               State Water Bank  
       Quantity:               11,700 acre-feet  
       Purchase Price:         \$50 per acre-foot  
       Comment:                Reservoir storage
  
4.    Year:                     1994  
       Supplier                 Placer County Water Agency  
       Acquirer:               State Water Bank  
       Quantity:               20,000 acre-feet  
       Purchase Price:         \$50 per acre-foot  
       Comment:                From reservoir storage

Proposed Transfer Demonstration Project

Earlier this year, Orange County Water District (OCWD) proposed a one-year demonstration program to transfer 20,000 acre-feet from Placer County at \$250 per acre-foot, including delivery, to be used for groundwater recharge. Delivery of the water through the State Water Project must still be arranged.

### Recent Long-term Transfer Activity (Within California)

Even though the majority of the recent transfer activity within California has been of a short-term nature (one year or less), there have been some multi-year agreements/ transactions involving urban buyers. With the exception of MWD's water conservation agreement with IID, recent multi-year/long-term transfer agreements within California were used either to provide drought supplies or to secure long-term agreements for future short-term dry-year transfers. Examples of these type of transactions include a 3-year agreement between Yuba County Water Agency and Santa Clara Valley Water Conservancy District for drought supplies, the agricultural land fallowing agreement between MWD and the Palo Verde Irrigation District, the MWD/Areias Dairy Farms agreement and the Arvin-Edison/MWD Friant-Kern Water Transfer Program.

- |   |                  |  |  |
|---|------------------|--|--|
| 1 | Year:            | 1988   |  |
|   | Supplier         | Imperial Irrigation District   |  |
|   | Acquirer         | Metropolitan Water District  |  |
|   | Quantity:        | 106,000 acre-feet annually (35 year term)  |  |
|   | Purchase Price:  | \$120 - \$130 per acre-foot (cost based)   |  |
|   | Conveyance Cost: | None.  |  |
|   | Comment:         | Conserved water made available through the implementation of conservation projects       |  |
| 1 | Year:            | 1990   |  |
|   | Supplier         | Yuba County Water Agency   |  |
|   | Acquirer         | Department of Water Resources for Santa Clara Valley Water Conservancy District (SCVWCD) |  |
|   | Quantity:        | 90,000 acre-feet   |  |
|   | Purchase Price:  | \$45 per acre-foot   |  |
|   | Conveyance Cost: | \$34.14 per acre-foot  |  |
|   | Comment:         | SCVWCD took the water incrementally over a 3-year period.                                |  |
| 2 | Year:            | 1992   |  |
|   | Supplier:        | Palo Verde Irrigation District   |  |
|   | Acquirer:        | MWD  |  |
|   | Quantity:        | 186,000 acre-feet (over 2 years)   |  |
|   | Purchase Price:  | \$135 per acre-foot  |  |
|   | Conveyance Cost: | None.  |  |
|   | Comment:         | Water saved through land fallowing stored in Lake Mead.                                  |  |

- 3      Year:                    1993  
       Supplier:                Areias Dairy Farms  
       Acquirer:                MWD  
       Quantity:               33,000 acre-feet (over 20 years)  
       Purchase Price:        \$175 per acre-foot  
       Conveyance Cost:      State Water Project pumping cost
- 4      Year:                    1996  
       Supplier:                Arvin-Edison Water Storage District  
       Acquirer:                MWD  
       Quantity:                Minimum of 250,000 acre-feet, maximum of 350,000 acre-feet of groundwater storage at any one time; stored water available on demand - minimum of 40,000 acre-feet to a maximum of 75,000 acre-feet in any one year.  
       Purchase Price:        \$224 per acre-foot (initial 250,000 acre-feet of storage)  
                                  \$194 per acre-foot (after initial 250,000 acre-feet of storage)  
       Conveyance Cost:      \$60 per acre-foot (State Water Project pumping cost)  
       Comment:                Water stored in Arvin-Edison groundwater basin to be accessed on demand in dry years.

#### **Recent Short-term Transfer Activity (Outside California)**

As noted above, little in the way of large scale, short-term transfer activity involving urban water supply has occurred outside California. Unlike California, where water rights are most often held by a water district or water supply agency, in states such as Arizona and Colorado water rights are often held by individual users and are severable from the land. As a result, transfer amounts tend to be smaller (i.e. < 10,000 acre-feet), and more permanent. Relevant short-term transactions are summarized below.

- 1      Year:                    1991  
       Supplier:                City of Denver, CO  
       Acquirer:                City of Aurora, CO  
       Quantity:                10, 000 acre-feet  
       Purchase Price:        \$67 per acre-foot  
       Conveyance Cost:      None given.

#### **Recent Long-term Transfer Activity (Outside California)**

Since the mid-1980's, a number of large scale long-term transfer agreements (with urban buyers) have been executed in various western states including Arizona, Colorado, and Nevada. These agreements can be classified into three general types including agricultural land fallowing or "water ranching", lease option contracts, and permanent transfers of storage or contract rights. Examples of these transactions are discussed below.

### Water Ranching

This type of long-term transfer, often referred to as "water ranching" involves the purchase of land as a means of acquiring water or water rights. In Arizona, during the mid-1980's, largely in response to statutory regulations, a number of water ranches or water farms were purchased by cities for the purpose of removing agricultural land from production and transferring the water saved to urban areas. Table 1 summarizes several of these "water ranch" transactions including the approximate price paid per acre-foot to obtain the underlying groundwater pumping rights. It should be noted that to this day there has been no transfer of this water to urban areas.

**Table 1**

Name of Water Ranch	Owner	Acres	Associated Water (Acre feet per year)	Price (millions)	Date Purchased	Cost Per Acre Foot (\$/AF)
McMullen Valley	Phoenix	14,000	30,000 groundwater	\$30.5	1986	\$82
Avra Valley	Tuscon	22,518	60,000 groundwater	\$24.7	1971-1986	\$33
Pinal County Farms	Mesa	11,607	29,918 groundwater	\$29.1	1985	\$78
Planet Ranch	Scottsdale	8,400	13,500 surface water	\$11.6	1984	\$69

Source: "Arizona Farmer-Stockman," March 1988

Note: Cost per acre-foot based upon the sale of 30 year bonds at 7 percent. Costs do not include property taxes, the cost of delivery systems, and other factors that may be required to deliver water to the purchaser.

Lease Option Contracts

Under this type of long-term transfer, the acquiring entity purchases an option to lease for a specified period of time an annual contracted amount of water from the supplier. One of the more recent examples of this type of transfer is the 1994 agreement between the Del Webb Corporation in Arizona and the Ak-Chin Indian Community. Under the terms of this agreement, Del Webb acquired an option to lease for 100 years not less than 6,000 acre-feet and not more than 10,000 acre-feet from the Ak-Chin Community. Del Webb acquired the option for \$300,000. In the event the option is exercised, Del Webb will pay an up-front cost of \$1,200 (less the option payment) for each acre-foot of water leased under the option, and between \$53 and \$83 per acre-foot actually used. Assuming a 6 percent interest rate, the average annual cost for each acre-foot of water used would range from \$125 to \$155 per acre-foot.



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### Permanent Transfers of Storage or Contract Rights

This type of transfer has occurred on limited basis in other western states including Colorado and Nevada. Representative examples are shown below.

- 1      Year:                    1994  
       Supplier:                CF&I Steel Co.  
       Acquirer                 City of Colorado Springs  
       Quantity:                17,416 acre-feet in Turquoise Reservoir  
       Purchase Price:        \$477 per acre-foot (one-time payment)  
       Conveyance Cost:      Not applicable
  
2.     Year:                    1990  
       Supplier:                BMI, Inc.  
       Acquirer                 City of Henderson  
       Quantity:                15,878 acre-feet annually  
       Purchase Price:        \$120 per acre-foot (\$10 per acre-foot escalation every two years until the year 2000)  
       Conveyance Cost:      Not applicable  
       Comment:                "Reassignment" of Colorado River water to Henderson

### **Northern/Central California and Colorado River Core Transfer Opportunities**

The Authority's potential transfer agreement with Imperial Irrigation District can be best described as a "core transfer" of water (i.e. a specific amount of water would be conveyed to the Authority each year based on a long-term agreement). Based on the data collected for this report, no similar transfer of this type has been arranged, given the term, water rights, and quantities proposed.

According the Authority's Draft Water Resources Plan, intrastate transfers of Colorado River water are considered the best potential source for long-term transfers because of the priority of the water available from the agricultural agencies along the river. Interstate transfers of Colorado River water may also be possible, but still must overcome substantial obstacles. It is unlikely that interstate transfers will become viable until California and other states can reach agreement on a variety of issues such as river operations including surplus and shortage criteria. Water from the Colorado River is relatively high in total dissolved solids, which may cause additional treatment costs. In terms of environmental issues, existing river activities are being evaluated to determine their impact on endangered species of native fish. Until this evaluation is



completed, there will be continued uncertainty over future river operations and supplies.

The availability and reliability of future long-term transfers from northern and central California involving either the State Water Project (SWP) or Central Valley Project (CVP) will vary depending on the source of supply. Most of the water potentially available for transfer is from SWP or CVP contractors which hold junior rights to other agencies utilizing the same water supply. As such, these agencies must obtain a permit from State Water Resources Control Board in order to transfer water. Since many of these permits must be renewed every seven years, long-term transfer agreements may be difficult to achieve. The proposed Model Water Transfer Act for California, if acted upon by the state legislature, may address some of these issues. In terms of water quality, SWP supplies have relatively low salinity levels. However, water from the Bay-Delta can be high in organic compounds that can react with chlorine to form "disinfection byproducts", thus requiring additional treatment costs. One of the key environmental issues facing future transfers from central and northern California is the impact exports from the Delta would have on the Bay-Delta ecosystems. Future transfers will likely have to meet operating requirements yet to be established by Cal-Fed. It is expected that because of these operating requirements, future transfers from south of the Delta would probably encounter fewer constraints than those north of the Delta.

## **Conclusion**

The Authority's transfer proposal with Imperial Irrigation District differs in several aspects from virtually all of the recent transfer activity in the western states, including California. Unique attributes of the Authority's/IID proposed transfer include:

- 1 Reliability of the water supply based on IID's senior priority on the Colorado River.
2. The long-term nature of the proposed agreement.
3. The core transfer of a specific amount of water each year.
4. The large amount of water to be transferred on an annual basis.

The combination of these unique attributes makes it difficult to compare this proposal with other recent transfer activity. For example, within the state of California, large scale transfers have occurred, however, these transactions have either been short-term/spot transfers or multi-year agreements for drought or future dry-year

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- 2 The long-term nature of the proposed agreement.
3. The core transfer of a specific amount of water each year.
4. The large amount of water to be transferred on an annual basis.

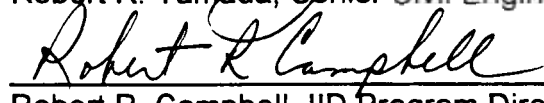
The combination of these unique attributes makes it difficult to compare this proposal with other recent transfer activity. For example, within the state of California, large scale transfers have occurred, however, these transactions have either been short-term/spot transfers or multi-year agreements for drought or future dry-year

supplies. Outside California, a number of long-term transfer agreements have been executed. However, the majority of these transactions tend to be for comparatively small amounts of water.

Prepared By:

  
Robert R. Yamada, Senior Civil Engineer

Reviewed by:

  
Robert R. Campbell, IID Program Director

**Table 2**

**SUMMARY OF TRANSFER ACTIVITY WITHIN AND OUTSIDE CALIFORNIA**

**Within California**

**Short-term**

Year	Supplier	Acquirer	Quantity	Purchase Price
1987	Yuba County Water Agency	State Water Project	83,100 AF	\$5-10 per AF
1989	Yuba County Water Agency	EBMUD	60,000 AF	\$45 per AF
1991	Placer County Water Agency	City of San Francisco	23,900 AF	\$48 per AF
1991	Yuba County Water Agency	State Water Bank	127,200 AF	\$125 per AF
1991	Brophy Water District	State Water Bank	36,000 AF	\$125 per AF
1992	Merced Irrigation District	State Water Bank	11,700 AF	\$50 per AF
1994	Placer County Water Agency	State Water Bank	20,000 AF	\$50 per AF

**Long-term**

1988	Imperial Irrigation District	MWD	106,000 AF	\$120 per AF
1990	Yuba County Water Agency	Dept. Water Res. for SCVWCD	90,000 AF	\$45 per AF
1992	Palo Verde ID	MWD	186,000 AF	\$135 per AF
1993	Areias Dairy Farms	MWD	33,000 AF	\$175 per AF
1996	Arvin-Edison Water Storage District	MWD	250,000 AF	\$224 per AF
			100,000 AF	\$194 per AF

**Outside California**

**Short-term**

1991	City of Denver, CO	City of Aurora, CO	10,000 AF	\$67 per AF
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**Long-term**

1994	CF&I Steel Co.	City of Colorado Springs	17,416 AF	\$477 per AF
1990	BMI, Inc.	City of Henderson	15,878 AF	\$120 per AF
1994	AK-Chin Indian Community	Del Webb Corporation	6,000-10,000 AF	\$125-\$155 per AF

Note: For water ranching data see Table 1

**Declaration of Vernice Rae Hartman**


I, Vernice Rae Hartman, declare that:

1. I am the Clerk of the Board for the San Diego County Water Authority, in San Diego, California. I hereby make this declaration in my official capacity on behalf of the San Diego County Water Authority.

2. I declare that the attached exhibit dated November 14, 1996, "SDCWA Board Letter Via Ad Hoc Imported Water Committee re: Summary and Analysis of Recent Western Water Transfer Activity (Information)" is a true and accurate copy which is retained in the files of the San Diego County Water Authority, in San Diego, California.

I certify under penalty of perjury under the laws of the State of California that the above statements are true.

Dated: This 22 day of May, 2002.

  
Vernice Rae Hartman