The exhibits in this section characterize the physical state of the Chino Basin with respect to groundwater production and artificial recharge. Future re-determinations of Safe Yield for the Chino Basin will be based largely on accurate estimations of groundwater production, artificial recharge, and basin storage changes over time.

Since its establishment in 1978, Watermaster has collected information to estimate total groundwater production from the Basin. The Watermaster Rules and Regulations require groundwater producers that produce in excess of 10 acre-feet per year (acre-ft/yr) to install and maintain meters on their well(s). Appropriative Pool, Overlying Non-Agricultural Pool, and Chino Desalter well production estimates are based on flow-meter data that are provided by producers on a quarterly basis. Agricultural Pool estimates are based on water duty methods and flow-meter data collected by Watermaster staff on a quarterly basis. Minimal producer estimates are determined by Watermaster staff on an annual basis. All production data in the Chino Basin are entered into Watermaster's database. Watermaster summarizes and reports on groundwater production data over the fiscal year (FY) that begins on July 1. Exhibit 6 shows the locations of all active production wells in the Basin during FY 2011/2012.

Exhibit 7 depicts the annual groundwater production by Pool for FY 1977/1978 through 2011/2012. There are two bar charts in Exhibit 7— 7a) shows the actual production by Pool as recorded in Watermasters' production database; 7b) shows the actual production in Watermaster's database for the Appropriative Pool, Overlying Non-Agricultural Pool, and Chino Desalter Authority (CDA), with the Agricultural Pool production amounts from the Chino Basin Model. The modeled agricultural production was determined using historical land use data, and land use requirements. Prior to the implementation of the meter installation program during 2001 to 2003, the modeled historical agricultural production is regarded as more accurate than the estimates of Agricultural Pool production in Watermaster's database.

Total groundwater production in Chino Basin has ranged from a maximum of about 189,000 acre-ft during FY 2008/2009 to a low of about 123,000 acre-ft during FY 1982/1983, and has averaged about 154,000 acre-ft/yr. The spatial distribution of production has shifted since 1978. Agricultural Pool production, which has been mainly concentrated south of the 60 Freeway, dropped from about 56 percent of total production in FY 1977/1978 to 15 percent as of FY 2011/2012. During the same period, Appropriative Pool production increased from about 38 percent of total production in FY 1977/1978 to 83 percent as of FY 2011/2012 (for this characterization, this is the sum of production for the Appropriative Pool and the CDA. Increases in Appropriative Pool production have approximately kept pace with the decline in agricultural production. Production in the Overlying Non-Agricultural Pool declined from about six percent of total production in FY 1977/1978 to two percent as of FY 2011/2012.

Exhibits 8 through 10 are maps that illustrate the location and magnitude of groundwater production at wells in the Chino Basin for FYs 1977/1978 (Watermaster established), 1999/2000 (commencement of the OBMP), and 2011/2012 (current conditions). These figures indicate the following:

- There was a basin-wide increase in the number of wells producing over 1,000 acre-ft/yr between 1978 and 2012. This is consistent with (i) the land transition from agricultural to urban uses, (ii) the trend of increasing imported water costs, and (iii) the construction of the desalters.
- From FY 1977/1978 to 1999/2000, production south of the 60 Freeway deceased from 59 percent to 32 percent of total production in the Chino Basin, while production north of the 60 Freeway increased from 41 percent to 68 percent of total production. This shift in production patterns is due to a decline in irrigated agriculture and an increase in urbanization south of the 60 Freeway, and an increase in urbanization north of the 60 Freeway.
- From FY 1999/2000 to 2011/2012, production north of the 60 Freeway deceased from 68 percent to 60 percent of total production in the Chino Basin, while production at wells south of the 60 Freeway increased from 32 percent to 40 percent of total production. The number of active agricultural wells in the southern portion of the Basin decreased by about 50 percent. The eight percent increase in total groundwater production south of the 60 Freeway is due to the onset of desalter pumping, which progressively increased since start-up in 2000 and currently totals about 30,000 acre-ft/yr.

The Chino Basin desalters were described in the OBMP Phase 1 Report (WEI, 1999) as facilities that would *"Enhance Basin Water Supplies"* and *"Protect and Enhance Water Quality."* Exhibit 11 is a map that displays the locations of the wells and desalter facilities, and summarizes the history of desalter production in the southern portion of the Chino Basin.

The objectives of the Chino Basin Groundwater Recharge Program are to enhance water supply reliability and improve groundwater quality throughout the Chino Basin by increasing the recharge of storm water, imported water, and recycled water. For further information on Watermaster's requirements for recharge, see Section 5.1 of the Peace Agreement, Article 8 of the Peace II Agreement, the 2010 Recharge Master Plan Update (WEI, 2010).

The Recycled Water Groundwater Recharge Program, which is implemented by IEUA and Watermaster, is subject to the following regulatory orders:

- California Regional Water Quality Control Board, Santa Ana Region, Order No. R8-2007-0039, Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster, Chino Basin Recycled Groundwater Recharge Program, Phase I and Phase II Projects, San Bernardino County. June 29, 2007.
- California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2009-0057. Amending Order No. R8-2007-0039, October 30, 2009.
- California Regional Water Quality Control Board, Santa Ana Region. Revised Monitoring and Reporting Program No. R8-2007-0039 for the Inland Empire Utilities Agency and Chino Basin Watermaster, Chino Basin Recycled Groundwater Recharge Program, Phase I and Phase II Projects, San Bernardino County. October 27, 2010.

Exhibit 12 shows the locations of the recharge basins in Chino Basin symbolized by the types of waters that are recharged, including storm water, urban runoff, recycled water, and imported water. The volumes of recharge that occur at each basin are monitored and recorded by IEUA. Exhibit 13 lists the operable recharge facilities in the Chino Basin and summarizes annual recharge by type for the

period of June 1, 2000 through June 30, 2012.[2] The following are the general trends in recharge:

- Storm-water recharge at the recharge basins was not measured prior to FY 2004/2005. Since then, annual storm-water recharge has ranged from about 4,700 acre-ft to 17,600 acre-ft and has averaged about 11,700 acre-ft/yr. Storm-water recharge is important to Watermaster because volumes greater than 5,600 acre-ft/yr are considered New Yield.

- Since 2000, annual imported-water recharge has ranged from 0 to 34,567 acre-ft and has averaged about 11,200 acre-ft/yr. The wide range in annual imported water recharged is reflective of the MWDSC Dry Year Yield (DYY) conjunctive use storage program in the Chino Basin. During FYs 2004/2005, 2005/2006, and 2006/2007, imported water recharge was well above average because the MWDSC was doing a "put" operation pursuant to the DYY storage program. During FYs 2007/2008, 2008/2009, 2009/2010, and 2010/2011, imported water recharge was well below average due to the lack of low-cost replenishment water supplied by MWDSC. In FY 2011/2012, about 22,500 acre-ft of imported water was recharged in Chino Basin. This large amount of imported water recharged during that year, is because of the availability of low-cost Tier 1 water from MWDSC at that time.

- Since 2000, annual recycled-water recharge has ranged from 49 to 8,634 acre-ft. In FY 2005/2006, recycled water recharge increased from an average of about 300 acre-ft/yr to about 4,700 acre-ft/yr after the implementation of the Recycled Water Groundwater Recharge Program. After the expansion of the program in 2007, recycled-water recharge continued to increase and reached a historical high of 8,634 acre-ft/yr in FY 2011/2012.

Since the late 1990s, the reuse of recycled water has increased in the Chino Basin. Recycled water is utilized two ways: (i) direct non-potable uses such as irrigation and (ii) indirect potable reuse via groundwater recharge. Exhibits 12, 13, and 14 characterize the reuse of recycled water in the Chino Basin through FY 2011/2012.

[2] The IEUA does not distinguish storm water from urban runoff in the recharge tabulations it submits to Watermaster.

117°40'0"W

117°20'0"W

34°0'0"N

San Gabriel Mountains

Cucamonga Fault Zone

Cucamonga Basin

Claremont Basin

Pomona Basin

Rialto-Colton Basin

Indian Hill Fault

San Jose Fault

Red Hill Fault

Barrier J

Rialto-Colton Fault

Loma Linda Fault

San Jacinto Fault

Puente Hills

Chino Hills

Chino Fault

Prado Flood Control Basin

Temescal Basin

El Sobrante de San Jacinto

Jurupa Mountains

Riverside Basins

San Bernardino County

Riverside County

Orange County

San Antonio Ck

Day Ck

Cucamonga Ck

Chino Ck

Santa Ana River

Lytle Ck

Foothill Blvd

Holt Blvd

Mission Blvd

Riverside Dr

Limonite Ave

Bellegrave Ave

Euclid Ave

Central Ave

Haven Ave

Etiwanda Ave

Sierra Ave

Riverside Ave

15

210

71

10

215

60

Groundwater Production Wells by Pool

- Agricultural Pool (Pool 1)
- Overlying Non-Agricultural Pool (Pool 2)
- Appropriative Pool (Pool 3)
- Chino Desalter Authority

OBMP Management Zones

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Approximate Location of Groundwater Barrier
- Location Concealed
- Location Uncertain

This map shows the location of active production wells by pool as of FY 2011/2012. Since its establishment in 1978, Watermaster has collected information to develop groundwater production estimates. Appropriative Pool, Overlying Non-Agricultural Pool, and Chino Desalter well production estimates are based on meter data. Agricultural Pool estimates are based on water duty methods and meter data. The Watermaster Rules and Regulations require groundwater producers that produce in excess of 10 acre-ft per year to install and maintain meters on their well(s). Many of the Agricultural Pool wells did not have properly functioning meters installed when the OBMP was adopted, and Watermaster initiated a meter installation program for these wells. Watermaster staff completed meter installation at the majority of the agricultural wells and began reading meters in 2003. Some wells were not metered due to the anticipated conversion of agricultural to urban land use. Watermaster records production data from these meters on a quarterly basis. A "water duty" method is used to estimate production at the agricultural wells that do not have meters. Minimal producer estimates are determined by Watermaster staff on an annual basis. All Chino Basin production data are entered into Watermaster's database.

Produced by:

WILDERMUTH ENVIRONMENTAL INC.

23692 Birtcher Drive
Lake Forest, CA 92630
949.420.3030
www.wildermuthenvironmental.com

Author: VMW

Date: 20121126

File: Exhibit_6.mxd

0 1 2 3 4 5 Miles

0 2 4 6 8 KM

2012 State of the Basin

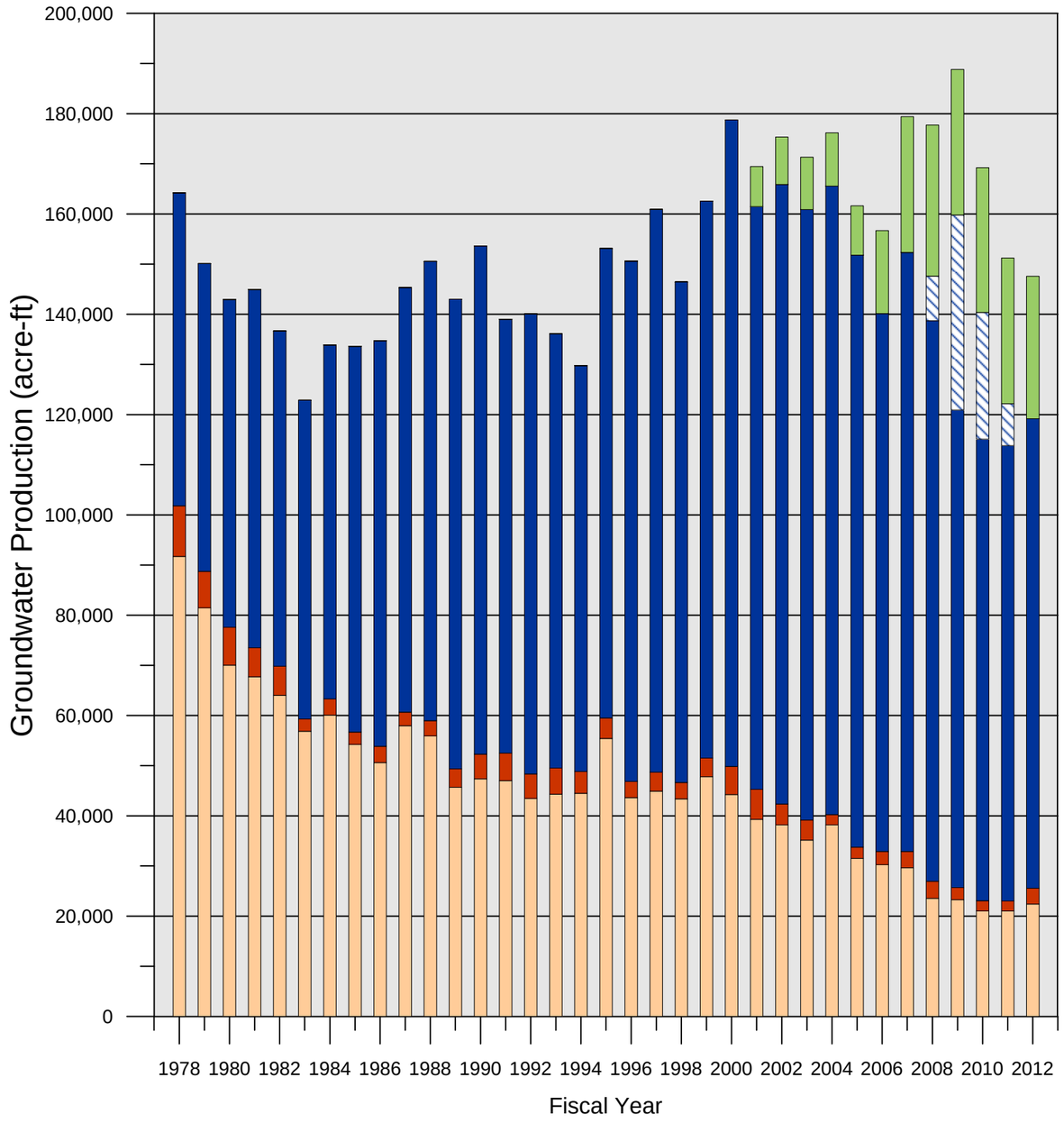
Basin Production and Recharge

Active Groundwater Production Wells

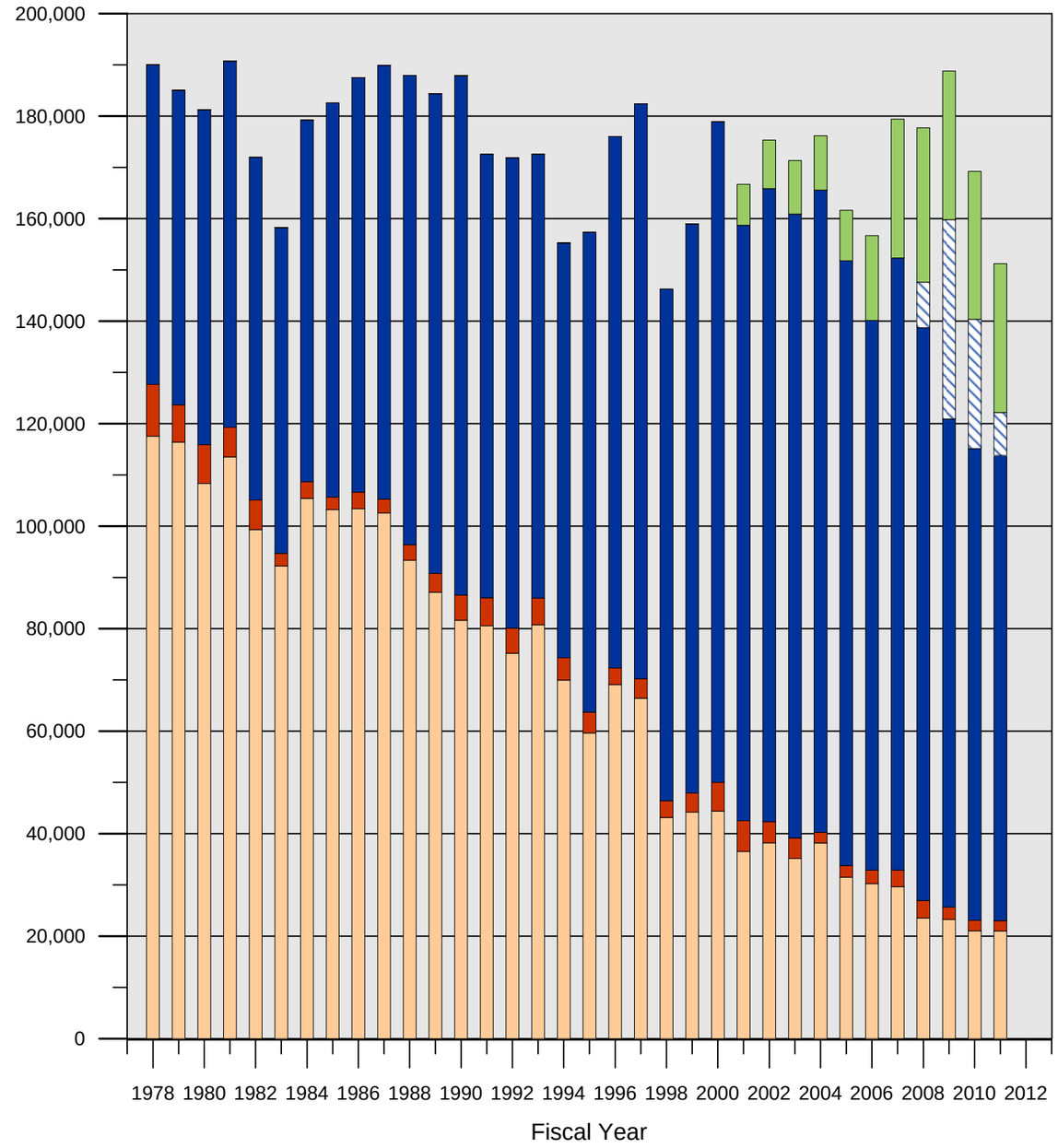
Fiscal Year 2011/2012

Exhibit 6

7a
Distribution of Groundwater Production in the Chino Basin
Agricultural Pool Production Amounts from Watermaster Database



7b
Distribution of Groundwater Production in the Chino Basin
Agricultural Pool Production Amounts from the Chino Basin Model



Produced by:

WILDERMUTH ENVIRONMENTAL INC.

23692 Birtcher Drive
Lake Forest, CA 92630
949.420.3030
www.wildermuthenvironmental.com

Author: NWS
Date: 06/05/2013
File: Exhibit_7_Production by Pool

- Agricultural Pool
- Overlying Non-Agricultural Pool
- Appropriative Pool
- Appropriative Pool - MWDSC Dry Year Yield Program
- Chino Desalter Authority

2012 State of the Basin
Basin Production and Recharge

Distribution of Groundwater Production
Fiscal Year 1978 to 2012

Exhibit 7

117°40'0"W

117°20'0"W

34°0'0"N

San Gabriel Mountains

Cucamonga Fault Zone

Cucamonga Basin

Claremont Basin

Pomona Basin

Rialto-Colton Basin

Indian Hill Fault

Red Hill Fault

San Jose Fault

Barrier J

Loma Linda Fault

Rialto-Colton Fault

San Jacinto Fault

Lytle Ck

San Antonio Ck

Haven Ave

Day Ck

Etiwanda Ave

Sierra Ave

Riverside Ave

Euclid Ave

Central Ave

Foothill Blvd

Holt Blvd

Mission Blvd

Cucamonga Ck

Riverside Dr

Jurupa Mountains

San Bernardino County

Riverside County

Riverside Basins

Puente Hills

Bellegrave Ave

Limonite Ave

Santa Ana River

Chino Fault

Chino Ck

Chino Hills

San Bernardino County

Orange County

Prado Flood Control Basin

Temescal Basin

El Sobrante de San Jacinto

15

210

71

10

215

60

This map shows the locations of wells and the magnitude of production in FY 1977/1978 when the Chino Basin Watermaster was established. Total production during this year was about 163,000 acre-ft, based on Watermaster records. Though, it is expected that actual groundwater production was significantly greater as agricultural production was likely under-reported. According to Watermaster records, the Agricultural Pool pumped 56 percent, the Appropriative Pool pumped 38 percent, and the Overlying Non-Agricultural Pool pumped 6 percent of total production. The production south of Highway 60 was about 96,500 acre-ft, accounting for about 59 percent of the total production. The production north of Highway 60 was about 66,500 acre-ft, accounting for about 41 percent of the total production.

Groundwater Production
Fiscal Year 1977/1978 (acre-ft)

- < 10
- 10 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 2,500
- 2,500 - 5,000
- > 5,000

OBMP Management Zones

Chino Desalter Wells

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Approximate Location of Groundwater Barrier
- Location Concealed
- Location Uncertain

Produced by:

WILDERMUTH ENVIRONMENTAL INC.

23692 Birtcher Drive
Lake Forest, CA 92630
949.420.3030
www.wildermuthenvironmental.com

Author: VMW

Date: 20121126

File: Exhibit_8.mxd

0 1 2 3 4 5 Miles

0 2 4 6 8 KM

2012 State of the Basin
Basin Production and Recharge

Groundwater Production by Well

Fiscal Year 1977/1978

Exhibit 8

117°40'0"W

117°20'0"W

34°0'0"N

San Gabriel Mountains

Cucamonga Fault Zone

Cucamonga Basin

Claremont Basin

Pomona Basin

Rialto-Colton Basin

Indian Hill Fault

San Jose Fault

Red Hill Fault

Barrier J

Lytle Ck

Loma Linda Fault

San Jacinto Fault

Rialto-Colton Fault

San Antonio Ck

Euclid Ave

Central Ave

Haven Ave

Day Ck

Etiwanda Ave

Sierra Ave

Riverside Ave

Foothill Blvd

Holt Blvd

Mission Blvd

Cucamonga Ck

Riverside Dr

Jurupa Mountains

San Bernardino County

Riverside County

Riverside Basins

Puente Hills

Bellegrave Ave

Limonite Ave

Mission Blvd

Santa Ana River

Chino Fault

Chino Ck

Chino Hills

San Bernardino County

Orange County

Prado Flood Control Basin

Temescal Basin

El Sobrante de San Jacinto

15 210 71 10 215 60

This map shows the locations of wells and the magnitude of production in FY 1999/2000. Total production during this year was about 178,700 acre-ft, based on Watermaster records. Though, it is expected that actual groundwater production was significantly greater as agricultural production was likely under-reported. According to Watermaster records, the Agricultural Pool pumped 25 percent, the Appropriative Pool pumped 72 percent, and the Overlying Non-Agricultural Pool pumped three percent of total production. Since FY 1977/1978, the location of groundwater production has shifted north with groundwater production south of Highway 60 declining from 59 to 32 percent of total production. Production north of Highway 60 has increased from 41 to 68 percent of total production. This shift in production was caused by dairy land replacing irrigated agricultural uses south of Highway 60, and an increase in appropriator production north of Highway 60 in response to urbanization.

Groundwater Production
Fiscal Year 1999/2000 (acre-ft)

- < 10
- 10 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 2,500
- 2,500 - 5,000
- > 5,000

OBMP Management Zones

Chino Desalter Wells

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Approximate Location of Groundwater Barrier
- Location Concealed
- Location Uncertain

Produced by:
WILDERMUTH ENVIRONMENTAL INC.
23692 Birtcher Drive
Lake Forest, CA 92630
949.420.3030
www.wildermuthenvironmental.com

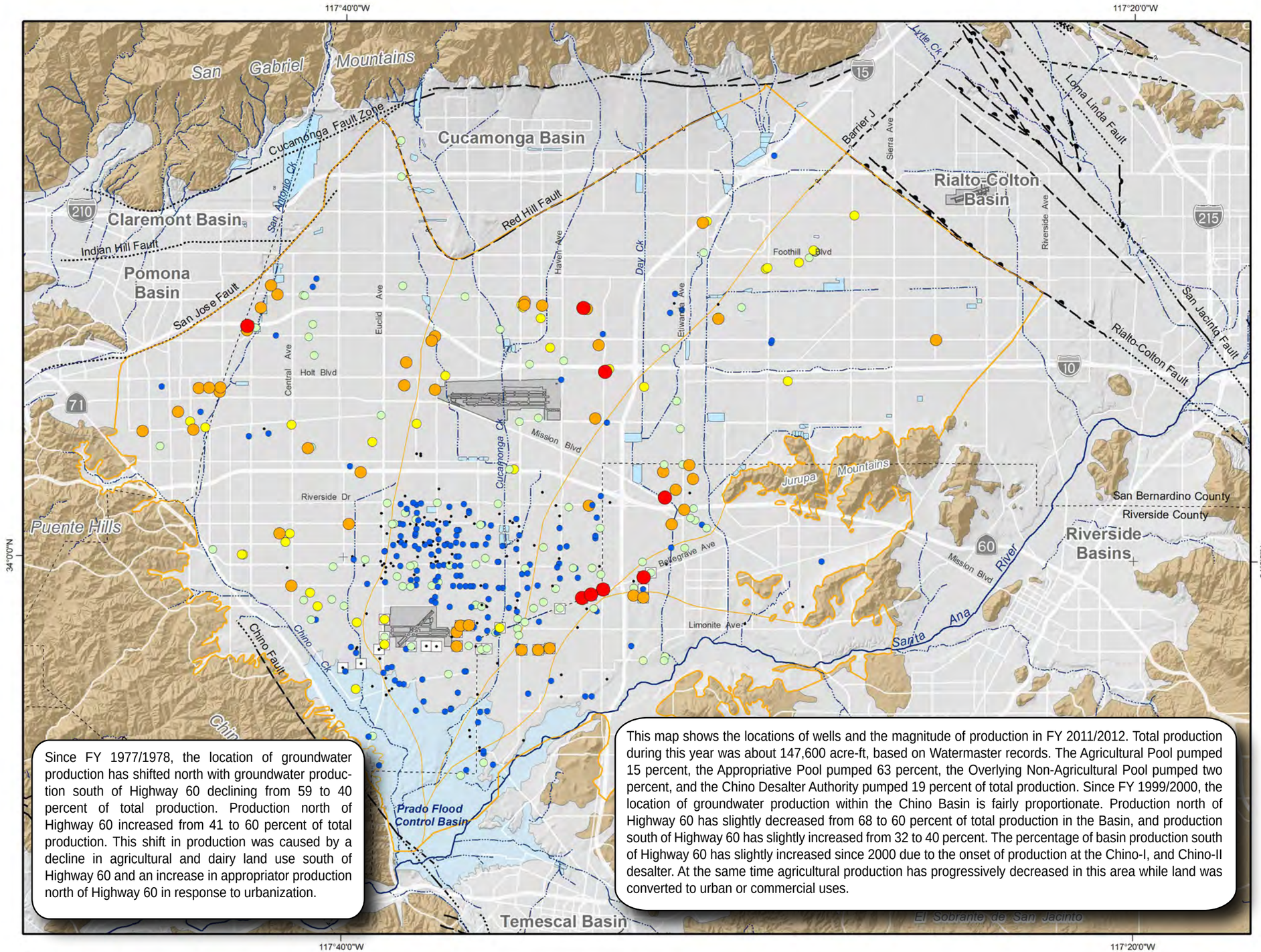
Author: VMW
Date: 20121126
File: Exhibit_9.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2012 State of the Basin
Basin Production and Recharge

Groundwater Production by Well
Fiscal Year 1999/2000

Exhibit 9



Since FY 1977/1978, the location of groundwater production has shifted north with groundwater production south of Highway 60 declining from 59 to 40 percent of total production. Production north of Highway 60 increased from 41 to 60 percent of total production. This shift in production was caused by a decline in agricultural and dairy land use south of Highway 60 and an increase in appropriator production north of Highway 60 in response to urbanization.

This map shows the locations of wells and the magnitude of production in FY 2011/2012. Total production during this year was about 147,600 acre-ft, based on Watermaster records. The Agricultural Pool pumped 15 percent, the Appropriative Pool pumped 63 percent, the Overlying Non-Agricultural Pool pumped two percent, and the Chino Desalter Authority pumped 19 percent of total production. Since FY 1999/2000, the location of groundwater production within the Chino Basin is fairly proportionate. Production north of Highway 60 has slightly decreased from 68 to 60 percent of total production in the Basin, and production south of Highway 60 has slightly increased from 32 to 40 percent. The percentage of basin production south of Highway 60 has slightly increased since 2000 due to the onset of production at the Chino-I, and Chino-II desalter. At the same time agricultural production has progressively decreased in this area while land was converted to urban or commercial uses.

Groundwater Production
Fiscal Year 2011/2012 (acre-ft)

- < 10
- 10 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 2,500
- 2,500 - 5,000
- > 5,000

OBMP Management Zones

Chino Desalter Wells

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Approximate Location of Groundwater Barrier
- Location Concealed
- Location Uncertain

Produced by:
WILDERMUTH ENVIRONMENTAL INC.
23692 Birtcher Drive
Lake Forest, CA 92630
949.420.3030
www.wildermuthenvironmental.com

Author: VMW
Date: 20121126
File: Exhibit_10.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 KM

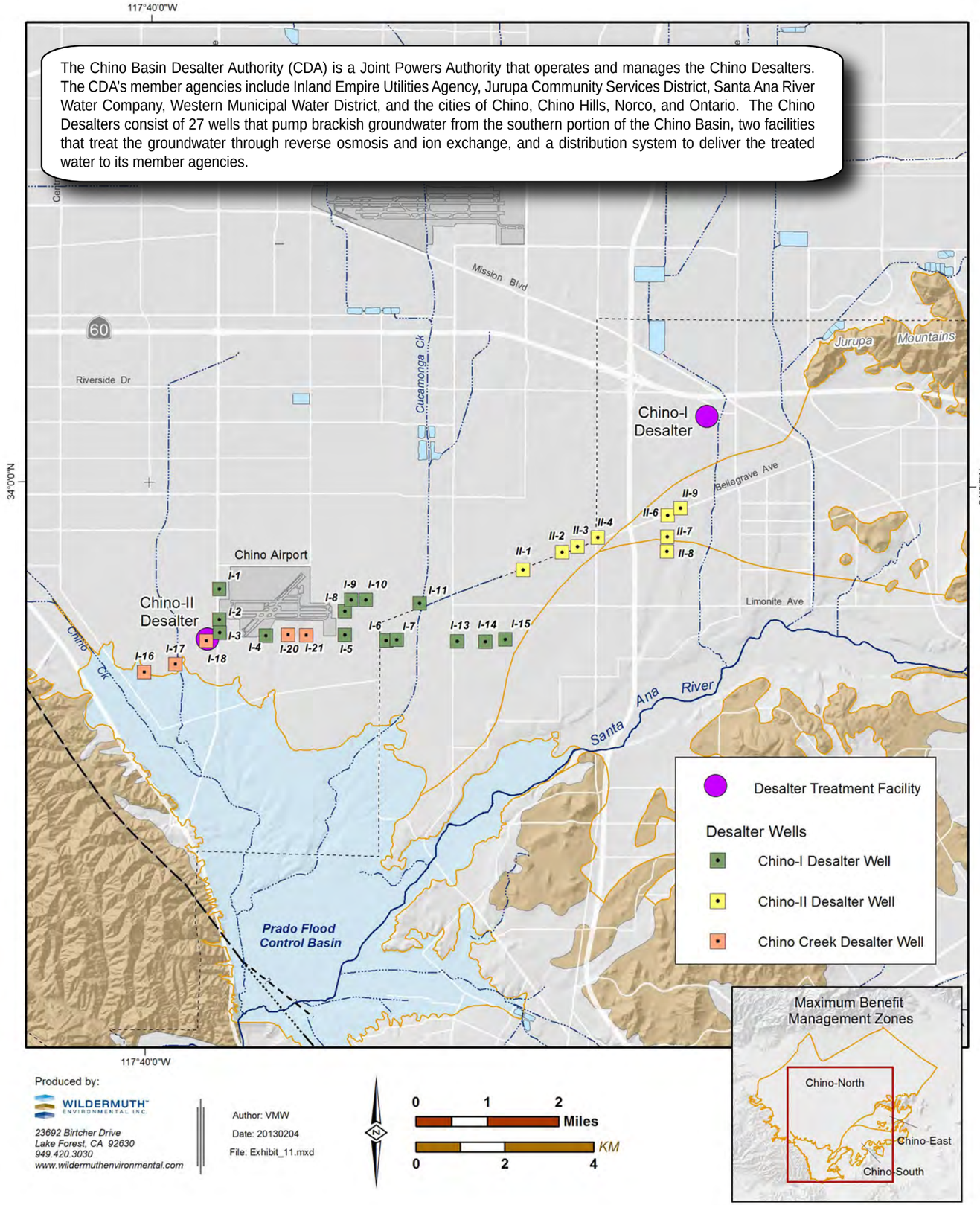
2012 State of the Basin
Basin Production and Recharge

Groundwater Production by Well

Fiscal Year 2011/2012

Exhibit 10

The Chino Basin Desalter Authority (CDA) is a Joint Powers Authority that operates and manages the Chino Desalters. The CDA's member agencies include Inland Empire Utilities Agency, Jurupa Community Services District, Santa Ana River Water Company, Western Municipal Water District, and the cities of Chino, Chino Hills, Norco, and Ontario. The Chino Desalters consist of 27 wells that pump brackish groundwater from the southern portion of the Chino Basin, two facilities that treat the groundwater through reverse osmosis and ion exchange, and a distribution system to deliver the treated water to its member agencies.



The need for the Chino Desalters was described in Program Elements 3 & 5 of the OBMP Phase 1 Report. During the 1900s, the land uses in southern portion of the Chino Basin were primarily agricultural, and groundwater was the primary water supply for agriculture. Over time, groundwater quality degraded in this area, and currently is not suitable for municipal use unless treated to reduce TDS, nitrate, and other contaminant concentrations. The OBMP recognized that urban land uses and their water demands would ultimately replace the agriculture. If municipal pumping did not replace the decreased agricultural pumping, groundwater levels would rise and discharge to the Santa Ana River. The potential consequences of this occurrence would be (i) loss of Safe Yield in the Chino Basin and (ii) degradation of the quality of the Santa Ana River which could impact the downstream beneficial uses of the River in Orange County. These consequences would come with high costs to the Chino Basin parties to mitigate, and to comply with water-quality regulations.

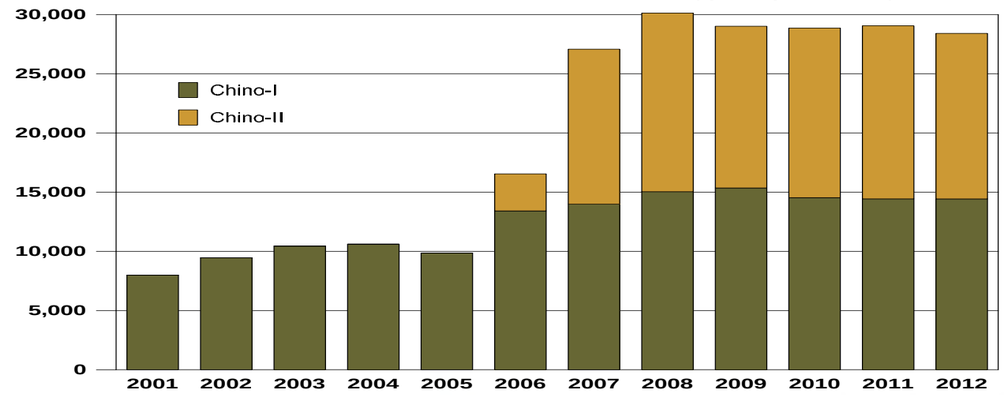
The Chino Desalters were hence designed to replace the expected decrease in agricultural production and accomplish the following objectives: meet the emerging municipal demands in the Chino Basin, maintain or enhance the Safe Yield, remove groundwater contaminants, and protect the beneficial uses of the Santa Ana River. The first desalter facility and well field, the Chino-I Desalter, began operation in 2000 and had an original design capacity of 8 mgd (about 9,000 acre-ft/yr). In 2005, Chino-I was expanded to a capacity of 14 mgd (about 17,000 acre-ft/yr). The Chino-II Desalter began operating in June 2006 at a capacity of 15 mgd (about 16,000 acre-ft/yr). Currently, the Chino-I and Chino-II Desalters produce about 30,000 acre-ft/yr of groundwater. Shown on the chart below is annual groundwater-production for the Chino Desalters.

The Chino Desalters are fundamental to achieving "Hydraulic Control" in the southern portion of Chino Basin. Hydraulic Control is achieved when groundwater discharge from the Chino-North management zone to Prado Basin is eliminated or reduced to de minimis levels. The Regional Board made Hydraulic Control a commitment for the Watermaster and IEUA in the 2004 Basin Plan Amendment in exchange for relaxed groundwater-quality objectives in Chino-North. These so-called "maximum benefit" objectives allow for the implementation of recycled-water reuse in Chino Basin for both direct use and recharge while simultaneously assuring the protection of beneficial uses of the Santa Ana River.

Pursuant to the Peace and Peace II Agreements, Watermaster's goal is 40,000 acre-ft/yr for desalter production. The CDA's most recent expansion was the construction of the Chino Creek Well Field (CCWF). Five wells of the CCWF were built in 2011 and 2012 in the southwestern portion of the Chino Basin. Production at the CCWF is scheduled to begin in 2015 and will help to achieve Hydraulic Control in the west where it has not yet been achieved.

As described in the Peace II Agreement, through re-operation and pursuant to a Judgment Amendment, Watermaster will engage in controlled overdraft of 400,000 acre-ft through 2030, allocated specifically to meet the replenishment obligation of the desalters (WEI, 2009b). Previous investigations have shown that re-operation is required to achieve Hydraulic Control (WEI, 2007). Re-operation water is divided into two tranches: the first tranche of 225,000 acre-ft is dedicated for the replenishment of groundwater produced by existing desalters; the second tranche of 175,000 acre-ft will be used at a rate of 10,000 acre-ft/yr through 2030 for the replenishment obligation of the current desalter expansion. The new yield created by desalter pumping and re-operation is credited to the desalters, and will be used to reduce the desalter replenishment obligation in the future.

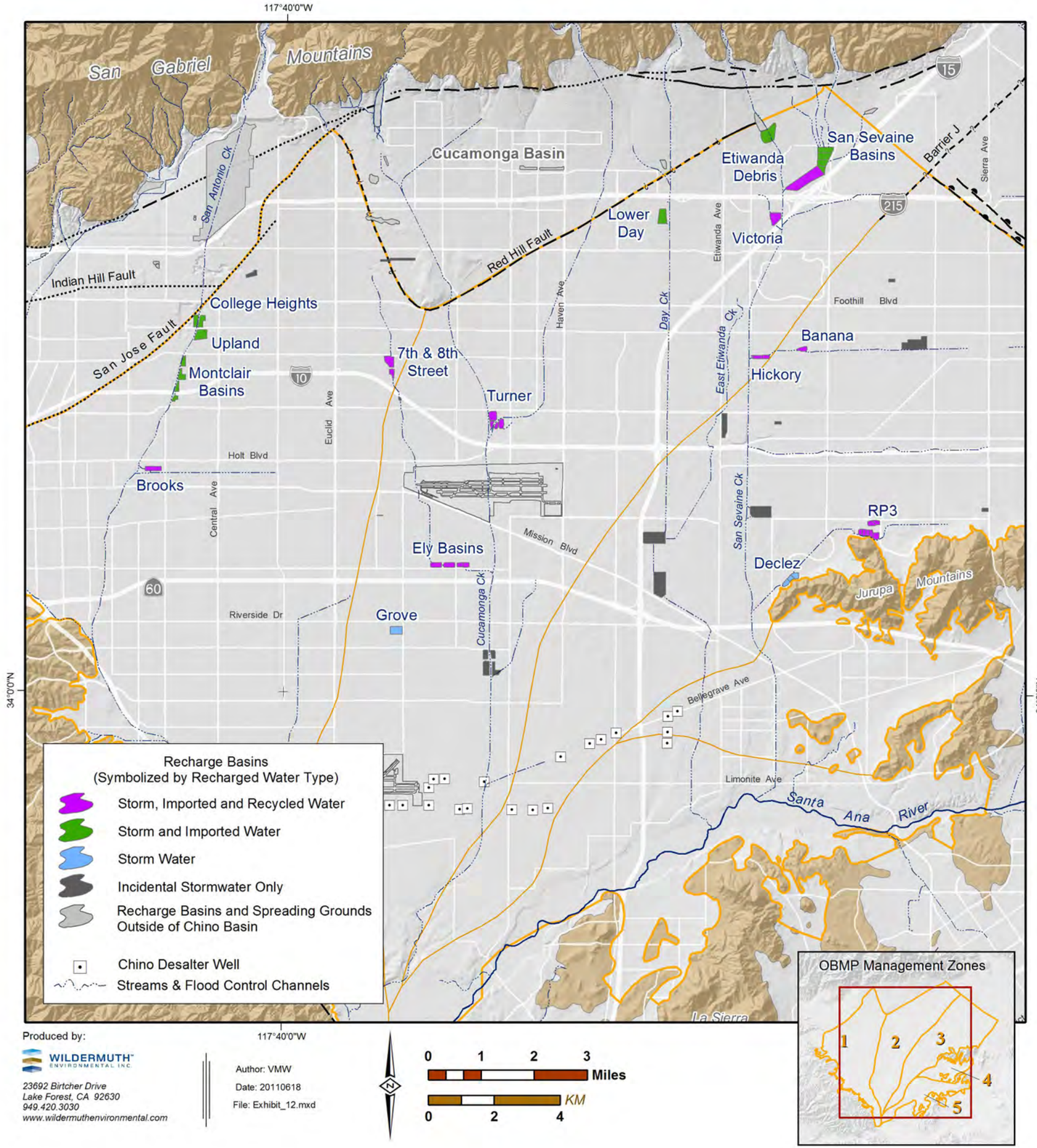
Groundwater Production for the Chino Desalters *(by fiscal year in acre-ft)*



2012 State of the Basin
Basin Production and Recharge

Desalter Well Production
Fiscal Year 2011/2012

Exhibit 11

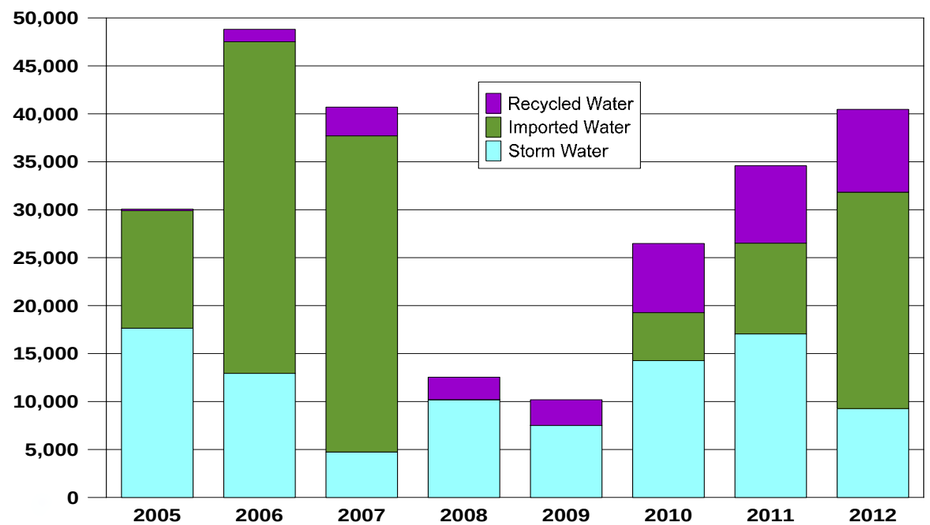


There are four types of water recharged within the Chino Basin: imported water, storm water, urban runoff, and recycled water. Since the implementation of the OBMP, the recharge of storm water and recycled water has increased in the Chino Basin, relieving some dependence on imported water for direct use and replenishment. The operation of the Chino Desalters and the increase in storm water recharge has provided mitigation for the expanded use of recycled water.

IEUA records daily volumes of all types of water routed to all recharge basins, and monitoring of all recharge is performed by IEUA. Since about 2004, sensors have been installed at some of the recharge basins to monitor stage, and the data are used to calculate recharge volumes. This monitoring program is important to Watermaster because storm-water recharge greater than 5,600 acre-ft/yr is considered new yield. The IEUA does not distinguish storm water from urban runoff in the recharge tabulations it submits to Watermaster. Watermaster maintains a centralized database of the recharge volumes. See Exhibit 13 for the fiscal year totals of recharged water by type, by recharge basin, for FYs 2000/2001 to 2011/2012.

Shown on the chart below is the annual recharge by water type since the initiation of the Chino Basin Recycled Water Groundwater Recharge Program in FY 2004/2005.

Water Recharged in the Chino Basin *(by fiscal year in acre-ft)*



2012 State of the Basin
Basin Production and Recharge

Groundwater Recharge in the Chino Basin

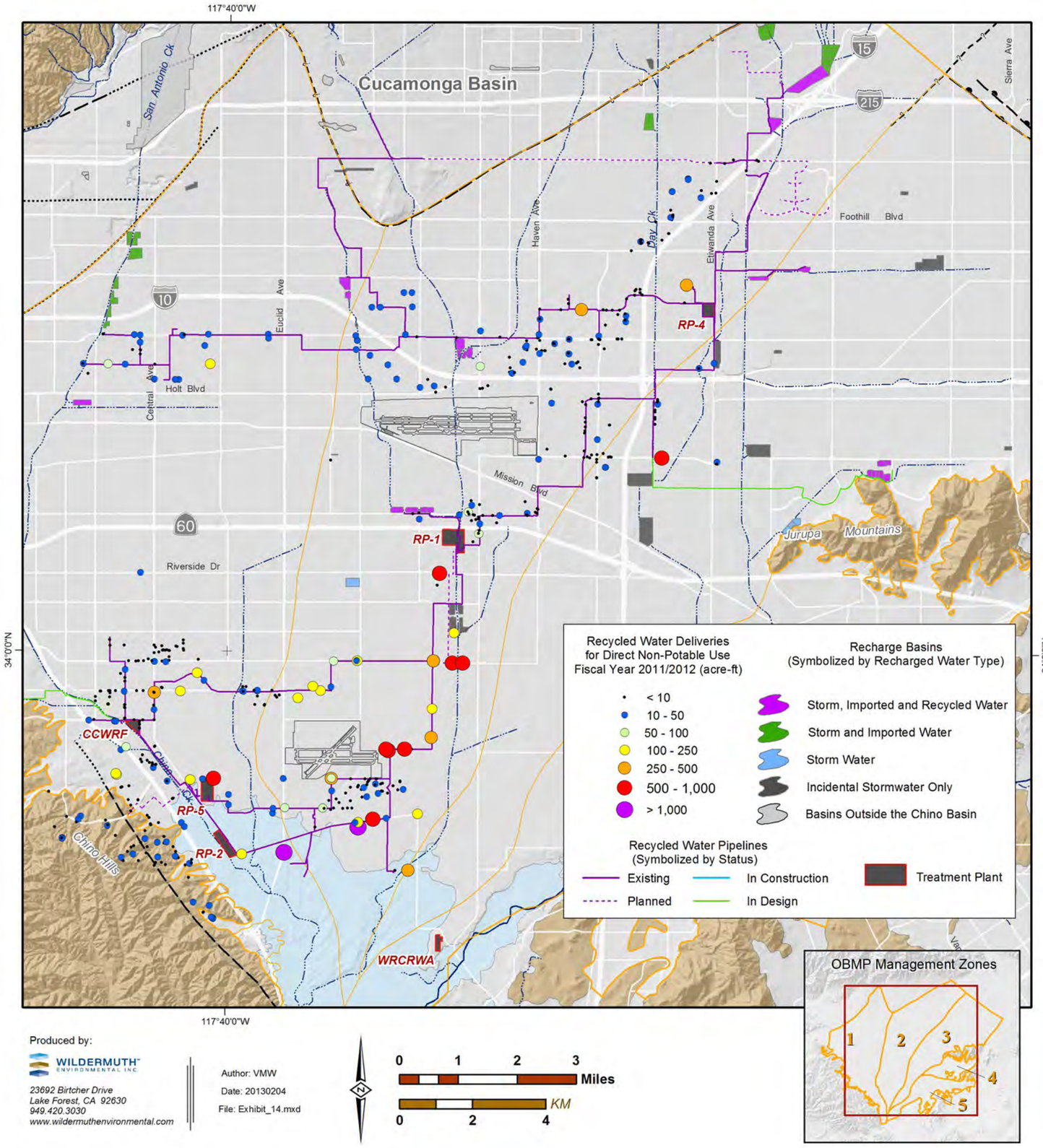
Exhibit 12

Exhibit 13
Summary of Annual Wet Water Recharge Records in the Chino Basin
(acre-ft)

Basin Name	FY 2000/2001				FY 2001/2002				FY 2002/2003				FY 2003/2004				FY 2004/2005				FY 2005/2006			
	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge
MVWD ASR Well	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	0	0	0	0	0	0	0	0
College Heights Basins	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	0	0	0	0	108	5,326	0	5,434
Upland Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	989	0	0	989	214	5,985	0	6,199
Montclair Basins	NM	6,530	0	6,530	NM	6,500	0	6,500	NM	6,499	0	6,499	NM	3,558	0	3,558	3,350	7,887	0	11,237	1,296	5,579	0	6,875
Brooks Street Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	1776	0	0	1,776	524	2,032	0	2,556
7th and 8th Street Basins	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	620	0	0	620	1,271	0	0	1,271
Ely Basins	NM	0	500	500	NM	0	505	505	NM	0	185	185	NM	0	49	49	2,010	0	158	2,168	1,531	0	188	1,719
Grove Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	0	0	0	0	133	0	0	133
Turner Basins	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	1428	310	0	1,738	2,575	346	0	2,921
Lower Day Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	2798	107	0	2,905	624	2,810	0	3,434
Etiwanda Debris Basins	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	2,812	0	2,812	0	2,137	0	2,137	20	2,488	0	2,508
Victoria Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	0	0	0	0	330	0	0	330
San Sevaine	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	1,211	0	1,211	2,830	1,621	0	4,451	2,072	9,172	0	11,244
Hickory Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	298	197	0	495	438	636	586	1,660
Banana Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	425	0	0	425	300	193	529	1,022
RP-3 Basins	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	1,105	0	0	1,105	767	0	0	767
Declez Basin	NM	0	0	0	NM	0	0	0	NM	0	0	0	NM	0	0	0	19	0	0	19	737	0	0	737
Totals:	NM	6,530	500	7,030	NM	6,500	505	7,005	NM	6,499	185	6,684	NM	7,582	49	7,631	17,648	12,258	158	30,065	12,940	34,567	1,303	48,810

Basin Name	FY 2006/2007				FY 2007/2008				FY 2008/2009				FY 2009/2010				FY 2010/2011				FY 2011/2012			
	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge
MVWD ASR Well	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	186	0	186	0	889	0	889
College Heights Basins	1	3,125	0	3,126	172	0	0	172	0	0	0	0	65	382	0	447	593	559	0	1,152	4	578	0	582
Upland Basin	195	7,068	0	7,263	312	0	0	312	274	0	0	274	532	0	0	532	1,308	899	0	2,207	222	2,118	0	2,340
Montclair Basins	355	10,681	0	11,036	859	0	0	859	611	0	0	611	937	4,592	0	5,529	1762	3,672	0	5,434	703	11,893	0	12,596
Brooks Street Basin	205	1,604	0	1,809	475	0	0	475	434	0	1,605	2,039	666	0	1,695	2,361	628	0	1,373	2,001	363	561	836	1,760
7th and 8th Street Basins	640	0	0	640	959	0	1,054	2,013	1,139	0	352	1,491	1,744	6	1,067	2,817	1583	543	1,871	3,997	1,047	572	641	2,260
Ely Basins	631	0	466	1,097	1,603	0	562	2,165	927	0	364	1,291	1,164	0	246	1,410	1415	83	757	2,255	1,096	885	393	2,374
Grove Basin	166	0	0	166	326	0	0	326	405	0	0	405	351	0	0	351	431	0	0	431	400	0	0	400
Turner Basins	406	313	1,237	1,956	1,542	0	0	1,542	1,200	0	171	1,371	2,220	0	397	2,617	2308	0	53	2,361	1,879	199	1,034	3,112
Lower Day Basin	78	2,266	0	2,344	303	0	0	303	168	0	0	168	540	3	0	543	703	894	0	1,597	158	1,439	0	1,597
Etiwanda Debris Basins	0	1,160	0	1,160	10	0	0	10	28	0	0	28	775	7	0	782	1213	147	0	1,360	100	567	0	667
Victoria Basin	260	0	0	260	427	0	0	427	250	0	0	250	494	2	0	496	461	69	773	1,303	221	281	665	1,167
San Sevaine	244	5,749	0	5,993	749	0	0	749	225	0	0	225	993	0	0	993	1049	1,707	396	3,152	436	1,228	513	2,177
Hickory Basin	536	212	647	1,395	949	0	567	1,516	199	0	46	245	700	7	856	1,563	371	10	776	1,157	258	515	783	1,556
Banana Basin	226	783	643	1,653	278	0	157	435	383	0	40	423	416	0	898	1,314	149	0	267	416	247	0	1,915	2,162
RP-3 Basins	802	0	0	802	511	0	0	511	613	0	106	719	1,902	1	2,051	3,954	2201	882	1,799	4,882	1,339	1,724	1,789	4,852
Declez Basin	0	0	0	0	730	0	0	730	656	0	0	656	774	0	0	774	877	0	0	877	798	0	65	863
Totals:	4,745	32,960	2,993	40,698	10,205	0	2,340	12,545	7,512	0	2,684	10,196	14,273	5,000	7,210	26,483	17,052	9,650	8,065	34,767	9,271	23,449	8,634	41,354

NM - Not measured



Produced by:

WILDERMUTH ENVIRONMENTAL INC.

23692 Birtcher Drive
Lake Forest, CA 92630
949.420.3030
www.wildermuthenvironmental.com

Author: VMW
Date: 20130204
File: Exhibit_14.mxd

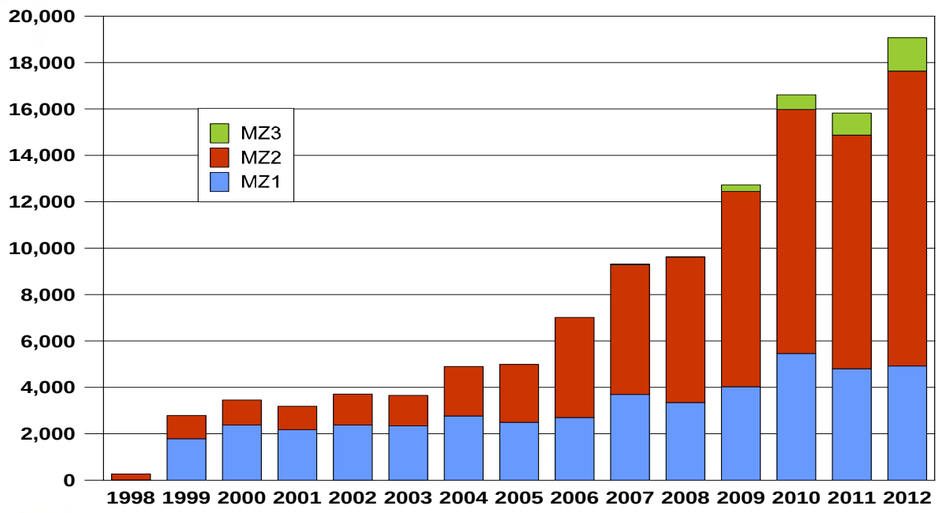
The direct use of recycled water in Chino Basin was an activity identified in the OBMP to achieve Goal No. 1 – Enhance Basin Water Supplies. The 2004 Basin Plan Amendment (Regional Board, 2004) was the instrumental regulatory construct that allowed for the aggressive expansion of recycled-water reuse in the Chino Basin. IEUA owns and operates the four treatment facilities in the Chino Basin which produce recycled water for reuse: Regional Plant No. 1 (RP-1), Regional Plant No. 4 (RP-4), Regional Plant No. 5 (RP-5), and Carbon Canyon Water Reclamation Facility (CCWRF).

This exhibit characterizes the direct use of recycled water in the Chino Basin from 1998 to 2012. Recycled water is reused directly for non-potable uses, which include: irrigation of crops, animal pastures, freeway landscape, parks, schools, and golf courses; commercial laundry and car washes; outdoor cleaning and construction; toilet plumping; and industrial processes. The direct use of recycled water began in 1997 after the completion of distribution pipelines from CCWRF to the cities of Chino and Chino Hills. The direct use of recycled water in Chino Basin has increased fivefold from about 250 acre-ft in FY 1997/1998 to about 19,000 acre-ft in FY 2001/2012. Direct use of recycled water increases the availability of native and imported waters for higher-priority beneficial uses. IEUA has progressively built infrastructure to deliver recycled water throughout much of the Chino Basin. IEUA member agencies that currently use recycled water for direct use are the cities of Chino, Chino Hills, and Ontario, CVWD, and MVWD. Future users of recycled water for direct use will include the cities of Fontana and Upland.

Recycled water also is used in the Chino Basin for indirect potable reuse via groundwater recharge. Currently, the recharge of recycled water can occur at the San Sevaine, Victoria, Banana, Hickory, Turner, 7th&8th Street, Ely, RP-3, and Brooks basins. Exhibit 12 shows the locations of the recharge basins that are used to recharge recycled in the Chino Basin, and Exhibit 13 shows the amount of recycled water recharged by basin.

In FY 2011/2012, about 8,600 acre-ft of recycled water was recharged. Total reuse of recycled water in the Chino Basin in FY 2011/2012 was about 28,000 acre-ft, which was about 50% of the total effluent produced from IEUA's treatment plants. IEUA is continuing its efforts to expand the recycled-water distribution system throughout the Chino Basin for direct non-potable uses and indirect potable reuse via recharge— further relieving demands on native and imported waters.

Direct Use of Recycled Water by Management Zone *(by fiscal year in acre-ft)*



2012 State of the Basin
Basin Production and Recharge

Recycled Water Deliveries for Direct Use
Fiscal Year 2011/2012

Exhibit 14