

## **6 APPENDICES**

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**6.1 APPENDIX A. SGA JOINT POWERS AGREEMENT**

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NOTE: THIS AGREEMENT SUPERCEDES AG2000-074.

**JOINT POWERS AGREEMENT BETWEEN THE CITY OF CITRUS HEIGHTS, THE CITY OF FOLSOM, THE CITY OF SACRAMENTO AND THE COUNTY OF SACRAMENTO CREATING THE SACRAMENTO-GROUNDWATER AUTHORITY**

This Agreement is made and entered into this 7<sup>th</sup> day of May, 2002, by and between the City of Citrus Heights, a municipal corporation, the City of Folsom, a municipal corporation, the City of Sacramento, a municipal corporation, and the County of Sacramento, a political subdivision of the State of California ("County").

**RECITALS**

**WHEREAS**, each of the parties to this Agreement is a local government entity functioning within the County of Sacramento; and

**WHEREAS**, pursuant to the Joint Exercise of Powers Act (Chapter 5 of Division 7 of Title 1 of the California Government Code), two or more public agencies may by agreement jointly exercise any power held in common by the agencies entering into such an agreement; and

**WHEREAS**, each of the parties hereto has under its police power the authority to regulate groundwater; and

**WHEREAS**, the parties hereto have each been either directly or indirectly involved in the process commonly referred to as the Sacramento Area Water Forum ("Water Forum"); and

**WHEREAS**, the Water Forum process has resulted in the development of a Groundwater Management Element, dated August, 1998 ("Groundwater Management Element"), which provides for the formation of a groundwater management authority for the north area of the County of Sacramento pursuant to a joint powers agreement between the City of Citrus Heights, the City of Folsom, the City of Sacramento and the County; and

**WHEREAS**, a true and correct copy of the Groundwater Management Element is attached hereto and incorporated herein as Exhibit "A"; and

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**WHEREAS**, the completion of the Water Forum process and the approval of the final Water Plan by the Water Forum stakeholders has been delayed for reasons unrelated to groundwater management issues; and

**WHEREAS**, the parties hereto and the Water Forum stakeholders who have been involved in the development of the Groundwater Management Element believe that it is in the public interest to move forward with the development of the institutional framework necessary to implement the Groundwater Management Element within the North Area Basin, rather than suspending those efforts until such time as the Water Forum process is finalized; and

**WHEREAS**, the formation of the joint powers authority contemplated by this Agreement is not legally dependent upon the finalization of the Water Forum process, but is independently authorized by state law; and

**WHEREAS**, the parties hereto find that it is to their mutual advantage and benefit to establish such a groundwater management authority pursuant to this Agreement in order to implement the groundwater management policies embodied in the Groundwater Management Element; and

**WHEREAS**, the parties hereto find and declare that the conservation of groundwater resources within the North Area Basin for agricultural and municipal and industrial uses is in the public interest and for the common benefit of all water users within the County of Sacramento; and

**WHEREAS**, the overriding purpose of the joint powers authority established pursuant to this Agreement is to maintain the sustainable yield of the North Area Basin as set forth in the Groundwater Management Element; and

**WHEREAS**, it is the desire of the parties hereto to use the groundwater management powers which they have in common that are necessary and appropriate to further the purposes for which the joint powers authority is being established; and

**WHEREAS**, the parties hereto are receptive to amending this Agreement in the future to include public agencies outside the County of Sacramento who have a specific and relevant interest in the North Area Basin.

**NOW, THEREFORE**, in consideration of the promises, terms, conditions, and covenants contained herein, the City of Citrus Heights, the City of Folsom, the City of Sacramento and the County hereby agree as follows:

1. **Incorporation of Recitals.** The foregoing recitals are hereby incorporated by reference.
2. **Definitions.** As used in this Agreement, the following words and phrases shall have the meanings set forth below unless the context clearly indicates otherwise.
  - (a) "Conjunctive use" shall mean the planned management and use of both groundwater and surface water in order to maintain the sustainable yield of the North Area Basin.
  - (b) "North Area Basin" shall mean the groundwater basin underlying the area within the boundaries of the Authority.
  - (c) "Sustainable yield" shall mean the amount of groundwater which can be safely extracted from the North Area Basin on an estimated average annual basis while maintaining groundwater elevations and groundwater quality at acceptable levels as set forth in the Groundwater Management Element. Sustainable yield requires a balance between extraction and basin recharge and is expressed as the number of acre feet of

groundwater per year which can be extracted from the North Area Basin on an average annual basis as set forth in the Groundwater Management Element.

(d) "Water Production," for purposes of determining assessments, fees or charges to support Water Costs of the Authority, means the total amount of groundwater produced within the boundaries of the Authority by each retail provider, by Agricultural Interests, and by Commercial/Industrial Self-Supplied Water Users for use within the boundaries of the Authority or other areas approved by the Board.

3. **Purpose.** This Agreement is being entered into in order to establish a joint powers authority for the following purposes:

- (a) to maintain the long-term sustainable yield of the North Area Basin;
- (b) to manage the use of groundwater in the North Area Basin and facilitate implementation of an appropriate conjunctive use program by water purveyors;
- (c) to coordinate efforts among those entities represented on the governing body of the joint powers authority to devise and implement strategies to safeguard groundwater quality; and
- (d) to work collaboratively with other entities, including groundwater management authorities that may be formed in other areas of the County of Sacramento and adjacent political jurisdictions, to promote coordination of policies and activities throughout the region.

4. **Establishment Of The Authority.** There is hereby established pursuant to the Joint Exercise of Powers Act a joint powers authority which shall be a public entity separate from the parties to this Agreement. The name of such entity shall be the Sacramento Groundwater Authority ("Authority"). The boundaries of the Authority shall be as follows: north of the American River to the Sacramento County line; bounded on the south by the

American River; on the west by the Sacramento River; on the north and east by the Sacramento County line; and including the City of Folsom. A map depicting the boundaries of the Authority is attached hereto and incorporated herein as Exhibit "B".

5. **Membership Of The Governing Board.** The governing body of the Authority shall be a Board of Directors of sixteen (16) members consisting of the following representatives who shall be appointed in the manner set forth in Section 7 of this Agreement:

(a) An elected member of the governing board or designated employee of each of the following public agencies: the City of Folsom, the City of Sacramento and the Sacramento County Water Agency.

(b) An elected member of the governing board of each of the following public agencies: the Carmichael Water District, the Citrus Heights Water District, the Del Paso Manor Water District, the Fair Oaks Water District, the Rio Linda/Elverta Community Water District, the Sacramento Suburban Water District, and the San Juan Water District.

(c) A member of the board of directors, or designee thereof, of each of the following private water purveyors or investor owned utilities: the Arden Cordova Water Company, California-American Water Company, the Natomas Central Mutual Water Company and the Orange Vale Water Company.

(d) One representative of Agricultural Interests within the boundaries of the Authority.

(e) One representative of Commercial/Industrial Self-Supplied Water Users within the boundaries of the Authority.

6. **Adjustment To Composition Of Governing Board.** Should circumstances change in the future, any person or entity may petition the parties hereto to amend this Agreement so as to add or delete representatives to the governing board to accurately reflect groundwater production within the boundaries of the Authority.

7. **Appointment Of Members Of Governing Board.**

(a) The members of the governing board of the Authority shall be appointed as follows:

- (i) The City of Folsom representative shall be appointed by the Folsom City Council.
- (ii) The Agricultural Interests representative shall be appointed by the County Board of Supervisors.
- (iii) The representative of Commercial/Industrial Self-Supplied Water Users shall be appointed by the Sacramento City Council.
- (iv) The Citrus Heights City Council shall appoint the representative of the Citrus Heights Water District.
- (v) The Sacramento City Council shall appoint the representatives of the following entities: Arden Cordova Water Company, California-American Water Company, the City of Sacramento, Del Paso Manor Water District, the Natomas Central Mutual Water Company, and Sacramento Suburban Water District.
- (vi) The County Board of Supervisors shall appoint the representatives of the following entities: Carmichael Water District, Fair Oaks Water District, Orange Vale Water Company, Rio Linda/Elverta Community Water District, San Juan Water District and the Sacramento County Water Agency.

(b) Prior to the appointment of the representatives of the entities described in subsections (a)(v) and (vi) above, those entities shall submit a recommended appointment for their respective representatives to the appointing authority. The appointing authority shall give consideration to such recommendations, but shall retain the absolute discretion to appoint any person satisfying the criteria for appointment set forth in Section 5 hereof.

8. **Governing Board Voting Requirements.**

(a) Each member of the governing board of the Authority shall have one vote. With the exception of fiscal items as set forth in subsections (b) and (c) below, a majority vote of all members of the governing board is required to approve any item.

(b) Fiscal items related to the **Administrative Costs** of the Authority shall require approval by a double majority consisting of the following: a majority vote of all members of the governing board and a majority vote weighted according to the financial contribution of each Retail Provider, of Agricultural Interests, or of Commercial/Industrial Self-Supplied Water Users to the total administrative budget for the last complete fiscal year. The weighted vote of each member of the governing board shall be established and fixed annually at the time the Financing Plan for the administrative budget is adopted, and shall remain in effect throughout the succeeding fiscal year and shall apply to all votes on fiscal items related to the Administrative Costs of the Authority.

(c) Fiscal items related to **Water Costs** shall require approval by a double majority consisting of the following: a majority of all members of the governing board and a majority vote weighted on the basis of Water Production as defined in Section 2(d) hereof.

(d) For purposes of subsection (c) hereof, the weighted vote of the representative of Agricultural Interests and the Commercial/Industrial Self-Supplied Water Users representative shall be weighted on the basis of groundwater production by all such interests and users within the boundaries of the Authority, adjusted to reflect any differential rate which may be paid by a particular classification of water users; e.g., if each acre-foot of water pumped equals one vote and Agricultural Interests pump 100,000

acre feet, but pay only 20% of the per acre-foot assessment, fee or charge levied on other types of pumpers, the vote of the Agricultural Interests representative would be calculated at 20,000 votes.

(e) Water Production, as defined in Section 2(d) hereof, shall be based on an annual determination by the governing body of the Authority during the previous calendar year. Until such time as the governing board of the Authority makes its annual determination of Water Production, the last complete yearly calculation shall be controlling for purposes of the double majority requirement set forth in subsection (c) above.

9. **Quorum.** A majority of the members of the governing board shall constitute a quorum for purposes of transacting business, except less than a quorum may vote to adjourn a meeting.

10. **Terms Of Office.** With the exception of the initial term of the representatives appointed by the City of Folsom and the City of Sacramento, the term of office of each member of the governing board the Authority shall be for a period of four (4) years. For the purpose of providing staggered terms of office, the term of the initial representatives appointed by the City of Folsom and the City of Sacramento shall be for a period of two (2) years. Thereafter, the term of office of each representative appointed by the City of Folsom and the City of Sacramento shall be for a period of four (4) years. Each member of the governing board shall serve at the pleasure of the appointing body and may be removed as a member of the governing board by the appointing body at any time. If at any time a vacancy occurs on the governing board, a replacement shall be appointed to fill the unexpired term of the previous representative pursuant to the provisions of Section 7 hereof within ninety (90) days of the date that such position becomes vacant.

11. **Alternates.** The City of Citrus Heights, the City of Folsom, the City of Sacramento and the County, in addition to their regular appointments, shall appoint one or more persons with the required qualifications to serve as alternate members of the governing board of the Authority. Any such alternates shall be empowered to cast votes in the absence of the regular members or, in the event of a conflict of interest preventing the regular member from voting, to vote because of such a conflict of interest.

12. **Organization Of The Authority.** The governing board of the Authority shall elect a chair, a vice chair and such other officers as the governing board shall find appropriate. Such officers shall serve for a term of one (1) year unless sooner terminated at the pleasure of the governing board.

13. **Treasurer, Controller, Clerk and Legal Counsel.** The governing board of the Authority shall appoint a treasurer, controller, clerk and legal counsel as it deems appropriate. The controller of the Authority shall cause an independent annual audit of the Authority's finances to be made by a certified public accountant in compliance with Government Code Section 6505. The treasurer of the Authority shall be the depositor and shall have custody of all money of the Authority from whatever source. The controller of the Authority shall draw warrants to pay demands against the Authority when the demands have been approved by the Authority or by its authorized representative pursuant to any delegation of authority adopted by the Authority. The treasurer and controller shall comply strictly with the provisions of statutes relating to their duties found in Chapter 5 (commencing with Section 6500) of Division 7 of Title 1 of the Government Code.

14. **Executive Director.** The governing board of the Authority shall appoint an Executive Director who shall be responsible to the governing board for the proper and efficient administration of the Authority as directed by the governing board pursuant to the provisions of

this Agreement or of any ordinance, resolution or order of the governing board. In addition to any other duties which may be assigned, the Executive Director shall have the following authority:

- (a) under the policy direction of the governing board, to plan, organize and direct all Authority activities;
- (b) to authorize expenditures within the designations and limitations of the budget approved by the governing board;
- (c) to make recommendations to and requests of the governing board concerning any matter which is to be performed, done or carried out by the governing board;
- (d) to have the authority to appoint, discipline, assign and otherwise supervise and control the activities of any employees or contractors which may be hired or retained by the Authority; and
- (e) to have charge of, handle and have access to any property of the Authority.

15. **Meetings.** The Authority shall provide for regular and special meetings in accordance with the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of Title 5 of the Government Code) or with any successor provision.

16. **Powers and Functions.**

- (a) The Authority shall have no power to regulate land use or to engage in the retail sale of water and shall be prohibited from restricting or otherwise limiting the extraction of groundwater within the boundaries of the Authority except by means of economic incentives and disincentives. The Authority shall further be prohibited from funding any capital construction projects. In addition, prior to October 13, 2003, the Authority shall be prohibited from levying annual fees or assessments to fund Water Cost payments that exceed an annual average charge during such five (5) year period of \$5.00 for each acre

foot (minimum \$0.00-maximum \$10.00) of groundwater pumped from the North Area Basin during such five (5) year period. Further, during any individual year of such five (5) year period, the Authority shall be prohibited from levying annual fees or assessments to fund Water Cost payments that exceed a charge of \$10.00 for each acre foot of groundwater pumped from the North Area Basin during any such year. For purposes of this section, Water Costs shall include the cost of water, pumping and treatment costs, and other costs related to any Conjunctive Use program administered by the Authority.

(b) Subject to the limitations set forth in subsection (a), the Authority shall have any and all powers commonly held by the parties hereto necessary or appropriate to regulate groundwater within the boundaries of the Authority including, but not limited to, the following powers:

- (i) Collect and monitor data on the extraction of groundwater from, and the quality of groundwater in, the North Area Basin;
- (ii) Establish and administer a Conjunctive Use program for the purpose of maintaining Sustainable yields in the North Area Basin consistent with the Groundwater Management Element;
- (iii) Buy and sell water on other than a retail basis;
- (iv) Exchange water;
- (v) Distribute water in exchange for ceasing or reducing groundwater extractions;
- (vi) Spread, sink and inject water into the North Area Basin;
- (vii) Store, transport, recapture, recycle, purify, treat or otherwise manage and control water for the beneficial use of persons and property within the Authority;

(viii) To implement any Conjunctive Use program which the Authority deems necessary to maintain Sustainable yields in the North Area Basin consistent with the Groundwater Management Element; and

(ix) Study and plan ways and means to implement any or all of the foregoing powers.

(c) For purposes of exercising the authority set forth in subsection (b), and subject to the limitations set forth in subsection (a), the Authority shall have the following corporate and political powers:

(i) To sue and be sued in all actions and proceedings in all courts and tribunals.

(ii) To adopt a seal and alter it at its discretion.

(iii) To take by grant, purchase, gift, devise or lease, to hold, use and enjoy, and to lease, convey or dispose of, real and personal property of every kind, within or without the boundaries of the Authority, necessary or convenient to the full exercise of its power.

(iv) For the common benefit of the Authority, to store water in underground water basins or reservoirs within and outside the Authority, to appropriate water and acquire water rights within or outside the Authority, to import water into the Authority, and to conserve, or cause the conservation of, water within or outside the Authority.

(v) To exercise the right of eminent domain to take any property necessary to supply the Authority or any portion of it with replenishment water; provided that the right of eminent domain may not be exercised with respect to water and water rights, and may not be exercised with respect to any property owned or occupied

by any of the parties hereto or the entities represented on the governing board of the Authority.

(vi) To act jointly, or cooperate, with the United States or any agency thereof, the state, or any county or agency thereof, or any political subdivision or district therein, including flood control districts, private and public corporations, and any person, so that the powers of the Authority may be fully and economically exercised.

(vii) To cause taxes, assessments, fees or charges to be levied in accordance with applicable State law, and in a manner consistent with the Groundwater Management Element, to accomplish the purposes of the Authority.

(viii) To require the permitting of groundwater extraction facilities within the boundaries of the Authority, to maintain a record of extraction with respect to any such facilities, and to require the installation of meters on groundwater extraction facilities for the purpose of determining the amount of groundwater being extracted from the North Area Basin.

(ix) To make contracts, employ labor and to do all acts necessary for the full exercise of the Authority's powers.

(x) To carry on technical and other investigations of all kinds necessary to further the purposes of the Authority.

(xi) To fix rates at which water acquired by the Authority shall be sold for replenishment purposes, and to establish different rates for different classes of service or conditions of service, provided that the rates shall be uniform for like classes and conditions of service.

(xii) To participate in any contract under which producers may voluntarily agree to use surface water in lieu of groundwater, and to that end the Authority may become a party to the contract and pay from Authority funds that portion of the cost of the surface water as will encourage the purchase and use of that water in lieu of pumping so long as persons or property within the boundaries of the Authority are directly or indirectly benefitted by the resulting replenishment of the North Area Basin.

(xiii) To apply for, accept and receive state, federal or local licenses, permits, grants, loans or other aid from any agency of the United States, the State of California, or other public or private entity necessary or appropriate for the Authority's full exercise of its powers.

17. **Budgets.** Within ninety days after the first meeting of the governing board of the Authority, and thereafter prior to the commencement of each fiscal year (defined as July 1 through June 30), the governing board shall adopt a budget for the Authority for the ensuing fiscal year.

18. **Termination.** This Agreement shall remain in effect until terminated by one of the parties hereto pursuant to this section. This Agreement may be terminated by any of the parties hereto at any time and for any reason by providing ninety (90) days written notice of termination to the other parties. Except as provided in Section 19(b) hereof, the Authority shall automatically terminate upon the effective date of the termination of this Agreement.

19. **Disposition Of Authority Assets Upon Termination.**

(a) In the event of the termination of the Authority where there will be a successor public entity which will carry on the functions of the Authority and assume its assets, the assets of the Authority shall be transferred to the successor public entity.

(b) If there is no successor public entity which will carry on the functions of the Authority and assume its assets, the assets shall be returned to the parties hereto in proportion to the contribution of each party during the term of this Agreement.

(c) If there is a successor public entity which will carry on some of the functions of the Authority and assume some of its assets, the assets of the Authority shall be allocated by the governing board of the Authority between the successor public entity and the parties hereto.

20. **Liabilities.** The debts, liabilities and obligations of the Authority shall be the debts, liabilities and obligations of the Authority alone, and not of the parties to this Agreement.

21. **Rules.** The governing board of the Authority may adopt from time to time such rules and regulations for the conduct of its affairs as it deems necessary and appropriate.

22. **Minutes.** The clerk appointed by the governing board of the Authority shall cause to be kept minutes of all meetings of the governing board, and shall cause a copy of the minutes to be forwarded to each member of the governing board and to each of the parties hereto.

23. **Effective Date.** The Authority was created on October 13, 1998. This Agreement, which replaces and supercedes all prior Agreements and Amendments to the Joint Powers Agreement creating the Authority, shall become effective when the governing bodies of all the parties shall have authorized its execution.

24. **Amendments.** This Agreement may only be amended by the affirmative vote of the governing bodies of all of the parties hereto.

**IN WITNESS WHEREOF,** the parties hereto execute this Agreement on the date first

written above.

CITY OF CITRUS HEIGHTS

Dated: 6/26/02

By Roberta MacGlasse  
Mayor

Attest:

Approved As To Form:

[Signature]  
City Clerk

[Signature]  
City Attorney

CITY OF FOLSOM

Dated: 8.18.02

By [Signature]  
Mayor

Attest:

Approved As To Form:

[Signature]  
City Clerk

[Signature]  
City Attorney  
8/16/02

CITY OF SACRAMENTO

Dated: 6-18-02

By Heather Fargo  
Mayor

Attest:

Maria C. Burrows  
City Clerk

Approved As To Form:

Joe John  
City Attorney

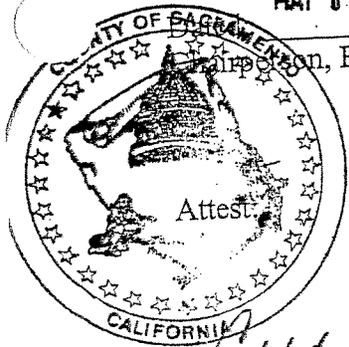
COUNTY OF SACRAMENTO

By Don Nettoli

Approved As To Form:

John F. Whit  
County Counsel

MAY 07 2002



Chairperson, Board of Supervisors

Attest:

Mary H. Turner  
Clerk of the Board

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## **6.2 APPENDIX B. WATER SUPPLY DATA BY SGA MEMBER AGENCY**

**Appendix B** of the SGA GMP includes the Cooperating Agencies RWMP, Phase I, Technical Memorandum 3. (Appendix A of TM 3 includes the water supply data by agency.) This document was completed in 1999, and the information contained herein is current as of that time.

Organizations and names remain unchanged (e.g., the SGA and Sac Suburban are not mentioned, but their predecessors are referenced (Sacramento North Area Groundwater Management Authority and Arcade Water District/Northridge Water District)). Recently constructed and expanded facilities may be listed as proposed (e.g., CWD's Bajamont WTP). Non-SGA member agencies are included (e.g., Roseville).

The revision and update of this document may be undertaken in the future.

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*Technical Memorandum Three:*  
*Summary of Existing Water Supplies*

**REGIONAL WATER MASTER PLAN  
PHASE I: SCOPE OF WORK AND WORK PLAN DEVELOPMENT**

**TM 3: SUMMARY OF EXISTING WATER SUPPLIES**

## **INTRODUCTION**

### **OVERVIEW**

This technical memorandum provides an inventory and qualitative characterization of the existing surface water, groundwater, and reclaimed water supplies currently available to the American River Basin Cooperating Agencies (Cooperating Agencies) and other users of the lower American River and the connected groundwater basin (see Figure 1). This inventory has four specific objectives:

- To summarize the water rights and contract entitlements that prescribe the surface water and groundwater supplies available for use by the Cooperating Agencies and selected other users of the lower American River and the connected groundwater basin.
- To identify the impact of the proposed Water Forum plan on the availability of those surface water and groundwater supplies.
- To summarize the general quality of the available surface water and groundwater supplies.
- To describe how anticipated future regulatory and institutional considerations might impact surface water and groundwater availability.

This information will be used in conjunction with information on existing and projected demands to identify the magnitude and timing of the individual Cooperating Agencies' need for supplemental supplies.

### **PRESENTATION OF DATA**

Three types of information are summarized in this memorandum: grouped data, regional data, and agency-specific data. The grouped data and regional data are provided in the sections that follow; the agency-specific data are presented in Appendix TM 3/A.

#### **Grouped Data**

In the Water Forum plan, water supply and demand data were sometimes aggregated to larger purveyor groupings. Pursuant to the direction of the Cooperating Agencies Coordinating Committee, the initial water supply data developed for this memorandum are consistent with the agency groupings adopted in the Water Forum plan. These groupings are inclusive of all water purveyors in Sacramento County north of the American River. The individual agencies associated with each Water Forum grouping are listed in Table 1. Water supply information is also presented in this memorandum on an agency-by-agency basis (see Appendix TM 3/A).

In Placer County, the Water Forum groupings include:

- City of Roseville
- Placer County Water Agency

In Sacramento County, the Water Forum groupings include:

- Carmichael Water District
- City of Folsom
- City of Sacramento Place of Use north of the American River
- Natomas Central Mutual Water Company
- North Central Group (see Figure 2)
- San Juan Family (see Figure 3)

Each of these groupings is described in further detail in subsequent sections of this memorandum.

Table 1

Mix of Water Supplies Used North of the American River

WATER FORUM GROUPINGS <i>Individual Agencies</i>	GROUND- WATER	SURFACE WATER				
		American River			Sacramento River	
		Water Rights	Water Contracts	Agreements	Water Rights	Water Contracts
<b>SACRAMENTO COUNTY</b>						
Carmichael WD (1)	X	X				
City of Folsom (1)		X	X, P (2)			
City of Sacramento Place of Use						
City of Sacramento North (1)	X	X			X	
CUCC - Arden Area and Sierra Oaks (1)	X					
Del Paso Manor Water District	X			X		
Arcade Water District - Town & Country (1)	X			X		
Arden Cordova WSC - Arden Town	X					
SCWMD - Arden Park Vista (1)	X					
Portion of Natomas Central MWC	X				X	
North Central Group						
Northridge Water District (1)	X		P	N		
Arcade Water District - North Highlands (1)	X					
CUCC - Antelope and Royal Oaks (1)	X					
Rio Linda/Elverta Community Water District (1)	X					
McClellan AFB	X		P			
NCMWC and Miscellaneous Areas	X(3)					
Natomas Central MWC	X		P		X	X
Sacramento International Airport	X				X	X
SCWMD - Northgate (1)	X					
San Juan Family(4)		X	X,P			
Citrus Heights Water District (1)	X	X	X			
Fair Oaks Water District (1)	X	X	X			
Orange Vale Water Company	X	X	X			
SJWD - Sacramento County Retail Area (1)		X	X			
SJWD - Placer County Retail Area (1)		X	X			
Portion of City of Folsom (1)		X	X			
<b>PLACER COUNTY</b>						
Placer County Water Agency - American River		X	X			
Placer County Water Agency - Sacramento River						P
City of Roseville (1)	X		X	X		

NOTES:

- (1) Member of the American River Basin Cooperating Agencies.
- (2) The City of Folsom has a subcontract with Sacramento County Water Agency (SCWA) pending approval of the SCWA's "Fazio Water" contract with the United States Bureau of Reclamation.
- (3) Groundwater is used by landowners within company boundaries, but is pumped from privately owned wells.
- (4) The San Juan Family Grouping includes the San Juan Water District retail service areas in Sacramento and Placer Counties, Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, and that portion of the City of Folsom north of the American River.

LEGEND:

- X Existing Available Water Supply
- P Pending Water Supply
- N Northridge Water District began negotiations of an agreement for surface water with the City of Sacramento that has not been finalized.

### **Regional Data**

Regional data described in this memorandum generally apply to more than one agency and include general surface water, groundwater, and water quality data, as well as regulatory and institutional considerations.

### **Agency-Specific Data**

Agency-specific data are provided on an agency-by-agency basis in Appendix TM 3/A. These data include specific water rights and contract entitlements for surface water; local groundwater usage, elevations, and quality; use of surface water and groundwater in the Water Forum plan; and regulatory and institutional considerations that may affect specific surface water rights or contract entitlements and/or the use of groundwater.

## **INVENTORY OF AVAILABLE WATER SUPPLIES**

Water purveyors in northern Sacramento County and southern Placer County utilize both surface water and groundwater. As shown in Table 1, some agencies rely exclusively on either groundwater or surface water to meet their needs; others use a combination of surface water and groundwater. Figure 4 illustrates the general water use pattern of the agencies by source.

The inventory of water supplies included in this memorandum identifies the surface water and groundwater supplies available to the Cooperating Agencies (and others as listed mentioned above). The objective is to summarize the existing surface water and groundwater supplies currently utilized by water purveyors in northern Sacramento County and southern Placer County. For individual agencies, this may include combinations of groundwater; American River water diverted pursuant to water rights, contract entitlements, or other agreements; or Sacramento River water diverted pursuant to water rights or contract entitlements.

### **SURFACE WATER SUPPLIES**

This section provides a regional overview of available surface water supplies from the Sacramento River and the lower American River pursuant to water rights, contract entitlements, and other agreements. This information is presented on an agency-by-agency basis in Table 2. It is also recognized that there are proposed plans to serve surface water across agency boundaries (e.g., the Arden-Arcade Conjunctive Use Plan). Where applicable, these plans are discussed in Appendix TM 3/A.

#### **American River Water Rights**

Five of the Cooperating Agencies identified in Table 1 have water rights on the American River: Carmichael Water District, City of Folsom, City of Sacramento, San Juan Water District, and Placer County Water Agency. The City of Sacramento and Natomas Central Mutual Water Company also have water rights on the Sacramento River (see Table 1). Details of these water rights are summarized in Table 2.

The place of use for the Carmichael Water District's water right is coincident with the boundaries of the District.

The place of use for the City of Folsom's water right is coincident with the city limits and portions of the lands owned by Aerojet.

The place of use of the City of Sacramento's water rights on the American River extends beyond the boundaries of the city limits. As shown on Figure 5, the authorized place of use outside the city limits includes (1) portions of Citizens Utilities Company of California (CUCC or Citizens Utilities) Arden and Sierra Oaks service areas, (2) the Del Paso Manor Water District, (3) the Arcade Water District Town

Table 2

Water Rights and Contract Entitlements Held by the Cooperating Agencies and Others

AGENCY HOLDING WATER RIGHT OR CONTRACT ENTITLEMENT	STATE NUMBER OR CONTRACT NUMBER	DIRECT DIVERSIONS		DIVERSIONS TO STORAGE		MAXIMUM USE IN ACRE-FEET	PRIORITY DATE OR CONTRACT DATE	TYPE OF USE (a)	PLACE OF USE
		Begin	End	Begin	End				
<b>SACRAMENTO COUNTY</b>									
Arcade, WD	Agreement with City of Sacramento	Jan-1	Dec-31			26,064	2/13/64		That portion of the Arcade Water District that lies within Area "D" of the City's Place of Use
Arden Cordova Water Service Company	Pre-1914 Water Right					10,000	1/1/1853	M	Rancho Cordova Service Area
Carmichael WD	A00138	Jan-1	Dec-31			10,800	9/18/75	J,D	District Boundary
	A004743	Nov-1	Nov-1	10		3,600	8/22/25	J,D,M	District Boundary
	A012567	Jan-1	Dec-31	25		18,100	3/1/48	J,D,M	District Boundary
<b>TOTAL</b>						<b>32,500</b>			
City of Folsom	Pre-1914 Water Right					22,000	1/1/1853	M	City Boundary
	Purchased from Arden Cordova					5,000			City Boundary
	Contract pending with Sacramento County Water Agency(PL101-514)					7,000			East Area
<b>TOTAL</b>						<b>34,000</b>			
<b>City of Sacramento - American River</b>									
	A012321	Nov-1	Aug-1	500			10/29/47	M	Authorized Place of Use
	A012622	Nov-1	Aug-1	310	Nov-1	Aug-1	2/13/48	M	Authorized Place of Use
	A016060	Nov-1	Aug-1	1200	Nov-1	Aug-1	7/29/48	M	Authorized Place of Use
	USBR Contract 14.06-200-6407	Jan-1	Dec-31	175			9/22/54	M, R, J	Authorized Place of Use
<b>City of Sacramento - Sacramento River</b>									
	Pre-1914 Water Right	Jan-1	Dec-31	675 (b)		245,000 (b)	6/28/57	M	Authorized Place of Use
	A001743	Jan-1	Dec-31	225			Pre-1914	M	N/A
	USBR Contract 14.06-200-6407	Jan-1	Dec-31	225 (b)		81,000 (b)	3/30/20	M	City
<b>Del Paso Manor Water District</b>									
	Agreement with City of Sacramento	Jan-1	Dec-1	2460			6/28/57	M	City
	Settlement Contract with USBR					98,200			District Boundary
<b>Natomas Central Mutual Water Company</b>									
	Contract with USBR					22,000			Water Company service area
<b>TOTAL</b>						<b>120,200</b>			Water Company service area
<b>Northridge Water District</b>									
	Pending Agreement with City of Sacramento					9,023	not implemented		Area "D" within City's Place of Use
<b>Sun Juan Water District</b>									
	Section 215 water - Contract No. 8-07-200-W1473	Jan-22	Feb-28				1/22/98	M, I	District Boundary
	Contract pending with PCWA	Jan-1	Dec-31	75(c)		29,000	2/11/28	D, I	North Central Group, San Juan Family
	A005830	Jan-1	Dec-31	75(c)		33,000 (c)	1/1/1853	D, I	SIWD wholesale service area
	S000656	Jan-1	Dec-31	75(c)		33,000 (c)			SIWD wholesale service area
	Contract with USBR					11,200			SIWD wholesale service area
	Contract pending with USBR(PL101-514)					13,000			Sacramento County portion of SIWD wholesale service area
	Contract with PCWA					25,000			Placer County portion of SIWD retail service area
<b>TOTAL</b>						<b>82,200</b>			
<b>PLACER COUNTY</b>									
<b>City of Roseville</b>									
	Contract with USBR					32,000			City Boundary
	Contract with PCWA					30,000			City Boundary
<b>TOTAL</b>						<b>62,000</b>			
<b>Placer County Water Agency - American River</b>									
	A018085					120,000			Agency Service Area
	S959	Jan-1	Dec-31	40		28,900	1864		Agency Service Area
	Contract with USBR					35,000 (d)			Agency Service Area
	Contract with PG&E					100,000			Agency Service Area
<b>TOTAL</b>						<b>283,900</b>			
<b>Placer County Water Agency - Sacramento River</b>									
	Pending agreement on potential Sacramento River exchange					35,000			Pending

NOTES:

- (a) Water Use Types: I - Irrigation, M - Municipal, D - Domestic, R - Recreational, J - Industrial
- (b) Maximum annual usage is not specified in the City permits. In its water rights settlement contract with the USBR, the City agreed to limit its diversions to the rates and amounts shown and the USBR agreed to guarantee the supply.
- (c) The combined total delivery limit for A005830 and S000656 is 75 cfs, with a maximum annual use of 33,000 acre-feet.
- (d) Total contract for 117,000 acre-feet per year. Water in excess of 35,000 acre-feet per year under discussion.

**REGIONAL WATER MASTER PLAN**  
**TM 3: SUMMARY OF EXISTING WATER SUPPLIES**

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and Country service area, (4) the Sacramento County Water Maintenance District Arden Park Vista service area, (5) the Arden-Cordova Water Service Company Arden Town service area, and (6) portions of the Northridge Water District and the Carmichael Water District. In addition, a portion of the City of Sacramento’s American River place of use overlaps with the place of use for the Sacramento River water rights and contract entitlements of the Natomas Central Mutual Water Company.

The place of use for the San Juan Water District’s water rights is the District’s wholesale service area which encompasses the San Juan Water District retail service areas in Sacramento and Placer Counties, the Citrus Heights Water District, the Fair Oaks Water District, the Orange Vale Water Company, and that portion of the City of Folsom that lies north of the American River (see Figure 3).

The Placer County Water Agency place of use is the agency’s boundary. This boundary is somewhat larger than Agency’s service area and encompasses the City of Roseville, the San Juan Water District’s Placer County retail service area, and the Citrus Heights Water District Placer County service area.

**American River Contract Entitlements**

In Sacramento County, two agencies have existing water supply contract entitlements with the United States Bureau of Reclamation (Reclamation) Central Valley Project (CVP): the City of Folsom and the San Juan Water District. San Juan Water District provides CVP water to agencies within its wholesale service area (see Figure 3). Details of these contract entitlements are summarized in Table 2.

In addition, the San Juan Water District and the Sacramento County Water Agency have pending water supply contract entitlements with Reclamation from Public Law (PL) 101-514 (commonly referred to as “Fazio Water”). San Juan Water District’s pending contract entitlement is for 13,000 acre-feet per year. This supply would be used within San Juan’s Sacramento County wholesale area. The Sacramento County Water Agency’s pending contract is for 22,000 acre-feet per year. The Sacramento County Water Agency would use this supply within Zone 40 (south of the American River). The City of Folsom has a pending subcontract with the Sacramento County Water Agency for 7,000 acre/feet per year (out of the potentially available 22,000 acre/feet per year). Details of these pending contract entitlements are summarized in Table 2.

Northridge Water District has a pending water contract with Placer County Water Agency. The proposed place of use for the Northridge Water District contract with Placer County Water Agency includes the service areas of Northridge Water District, San Juan Water District, Fair Oaks Water District, Orange Vale Water Company, Citrus Heights Water District, Arcade Water District North Highlands service area, McClellan Air Force Base, Citizens Utilities Antelope and Lincoln Oaks\Royal Oaks service areas, and Rio Linda/Elverta Community Water District (see Figure 6). The State Water Resources Control Board has not yet approved the change in the place of use required for this transfer.

In Placer County, there are three agencies with water contracts: City of Roseville, San Juan Water District, and Placer County Water Agency. The City of Roseville has two water contracts: one with Reclamation for CVP water and another with the Placer County Water Agency. San Juan Water District has a water contract with Placer County Water Agency under which it can provide water to those portions of its retail and wholesale service areas located in Placer County. The San Juan Water District can also provide CVP contract supplies to its Placer County retail service area.

Placer County Water Agency has water contracts with Reclamation and PG&E. Placer County Water Agency also has existing contracts to supply water to the City of Roseville and San Juan Water District, as well as a pending contract to supply water to Northridge Water District as described above.

### **Other Agreements**

The City of Sacramento has agreements with the Arcade Water District and the Del Paso Manor Water District to make surface water available for use within the portions of their service areas that lie within the City's place of use. The City entered into negotiations for a similar agreement with Northridge Water District, but such an agreement was never consummated.

Northridge water district has a temporary contract with Reclamation for surplus water (often referred to as Section 215 water). Northridge has exercised this contract since 1991. Section 215 water is available on an intermittent basis subject to hydrologic conditions.

### **GROUNDWATER SUPPLIES**

This section provides a regional description of the geologic and hydrogeologic conditions of the underlying groundwater basin and the water level trends based on comparison of water level maps from the years 1968 and 1996.

#### **Geologic Conditions**

The groundwater resources of Sacramento County have been extensively investigated and reported in the Department of Water Resources (DWR) Bulletin 118-3, Evaluation of Ground Water Resources: Sacramento County (July 1974). Bulletin 118-3 identifies the various geologic formations that constitute the water-bearing deposits underlying Sacramento County. These formations include an upper aquifer system consisting of the Victor, Fair Oaks, and Laguna Formations, and a lower aquifer system consisting primarily of the Mehrten Formation. These formations are typically composed of lenses of interbedded sand, silt, and clay interlaced with coarse-grained stream channel deposits. These deposits form a wedge thickening from east to west at a fairly constant rate to a maximum thickness of 2,000 feet near the Sacramento River.

#### **Hydrogeologic Conditions**

Groundwater occurs in an unconfined to semi-confined state throughout the area. Semi-confinement may occur in local areas, and the degree of confinement typically increases with depth. Groundwater in the Victor, Fair Oaks, and Laguna Formations is typically unconfined. The deeper Mehrten Formation, a major source of groundwater, exhibits semi-confined conditions.

Groundwater in the region moves from sources of recharge to areas of discharge. Most recharge to the local aquifer system occurs along active stream channels where extensive sand and gravel deposits exist. As a result, the highest groundwater elevations occur near the American and Sacramento Rivers.

#### **Groundwater Levels**

Intensive use of the groundwater basin has resulted in a general lowering of groundwater elevations near the center of the basin away from the sources of recharge. As early as 1968, pumping depressions were evident in both northern Sacramento County and southern Placer County (see Figure 7). By 1996, these depressions had grown and consolidated into a single cone of depression centered in the northern Sacramento County (see Figure 8). A hydrologic section of the aquifer system showing the groundwater elevations for 1968 and 1996 is shown on Figure 9. The location of this hydrologic section is shown on Figure 10. The differences in groundwater elevations on an agency-by-agency basis for the 1968 to 1996 period are reviewed in Appendix TM 3/A.

### **RECLAIMED WATER**

Currently, limited opportunities exist for using reclaimed water north of the American River. In Sacramento County, the most probable reclaimed water opportunity exists at the Sacramento Regional

Wastewater Treatment Plant (Sac Regional) located on the Sacramento River near Freeport (well south of the American River and the service areas of the Cooperating Agencies). At this time, however, Sac Regional does not appear to be a likely source of reclaimed water for the area north of the American River. The cost of pumping reclaimed water from Sac Regional to the service areas of the Cooperating Agencies is prohibitive. A more economic reclamation program might include the scalping of wastewater flows north of the American River for treatment at satellite plants. Note, however, there may be significant legal issues regarding large scale recycling at Sac Regional and the resultant decrease in the release of treated effluent to the Sacramento River.

In Placer County, the City of Roseville is currently pursuing a reclaimed water program. Large-scale opportunities for use by the Cooperating Agencies, however, have not been investigated.

## **IMPACT OF PROPOSED WATER FORUM PLAN**

This section summarizes the year 2030 water supply scenarios described in the proposed Water Forum plan based on the year types adopted by the Water Forum. Generally speaking, the intent of the proposed Water Forum plan is to increase the use of groundwater in dry years and reduce surface water diversions. The decrease in available dry year diversions is a consequence of the objective of the Water Forum to provide in-stream flows in the lower American River for environmental purposes. In wet years, when more surface water is available, diversions will be increased and groundwater pumping will be reduced, thereby promoting recharge of the basin.

### **WATER YEAR TYPES**

The proposed Water Forum plan identifies three principal water year types. These year types are based on estimated March through November unimpaired inflow into Folsom Lake and are categorized as wet/average years, drier years, and driest years.

#### **Definition of Wet/Average Years**

For most diverters, wet/average years are defined in the proposed Water Forum plan as those years when the projected March through November unimpaired inflow into Folsom Lake is equal to or greater than 950,000 acre-feet. For the pending water contract between Placer County Water Agency and Northridge Water District, the proposed Water Forum plan defines a wet/average year as those years when the March through November unimpaired inflow into Folsom Lake is greater than 1,600,000 acre-feet. For the City of Sacramento, diversion from the American River at an expanded E.A. Fairbairn Water Treatment Plant is based on meeting Hodge Flows in the lower American River.<sup>1</sup>

#### **Definition of Drier Years**

For most diverters, a drier year is defined in the proposed Water Forum plan as those years when the projected March through November unimpaired inflow into Folsom Lake is less than 950,000 acre-feet, but equal to or greater than 400,000 acre-feet. For some diverters, the drier year diversion amounts are still being negotiated.

#### **Definition of Driest Years**

The driest years, also referred to as “conference years”, are defined in the proposed Water Forum plan as those years when the projected March through November unimpaired inflow into Folsom Lake is less than 400,000 acre-feet. For some diverters, the driest year diversion amounts are still being negotiated.

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<sup>1</sup> Hodge Flows are a minimum flow requirement on the lower American River and are described in Appendix G of the Water Forum *-Draft Recommendations for the Water Forum Agreement* (January 1997).

## **PROPOSED WATER FORUM PLAN WATER SUPPLY AVAILABILITY**

In order to implement the proposed Water Forum plan, groundwater pumping will be increased in the drier and driest years when less surface water is available from the American River. In the wet/average years, surface water diversions will be increased and groundwater pumping will be reduced.

### **Surface Water Supply Availability**

Many of the water purveyors have access to surface water through water rights and water contract entitlements. The proposed Water Forum plan prescribes the volume of American River water available to each water agency for each year type (within their respective existing water rights and contract entitlements). Table 2 lists the water rights and contract entitlements for each agency. The surface water supplies available to each agency under the Water Forum plan for the various year types are summarized in Table 4.

### **Supplemental Supplies**

Supplemental supplies will be used to make up the difference between demand and surface water availability. For a given agency, the need for supplemental supplies may be met through one or more of the following: groundwater extractions, demand management through either conservation or rationing, and reclaimed water. Rationing would generally be considered only by those agencies without access to groundwater to meet demands in the drier and driest years.

### **Groundwater Supply Availability**

To address declining groundwater levels, the Water Forum negotiated an acceptable groundwater equilibrium elevation at which to operate the basin. Groundwater studies indicated that the selected groundwater elevation in the basin located in Sacramento County north of the American River coincided with a long-term average annual groundwater pumping rate of 131,000 acre-feet per year. This is roughly equal to the 1990 groundwater pumping rate for that area and is considered to be the long-term sustainable yield of the groundwater basin for an assumed acceptable level of impact on groundwater elevations. Table 3 shows the estimated 1990 groundwater pumping rate for the Water Forum Groupings and the individual agencies. The proposed Water Forum plan groundwater pumping rates will increase in dry years and decrease in wet years compared to the long-term average. The assumed groundwater pumping rates for the different year types are presented in Table 4.

### **Water Use by Year Type**

The proposed wet/average, drier, and driest years water use is described below to bracket the range of surface water and supplemental water use in each year type.

#### ***Water Use in Wet/Average Years***

In wet/average years, surface water diversions would be maximized. In those years, surface water use by the Cooperating Agencies (and others as listed mentioned above) would total about 386,350 acre-feet per year. Estimates for each agency's surface water use in wet/average years are shown in Table 4.

Supplemental supplies would make up the difference between demands and available surface water supplies. In wet/average years, the need for supplemental supplies is estimated to be about 81,400 acre-feet per year and is generally assumed to be met with groundwater supplies. All of this groundwater pumping would occur in Sacramento County. It should be noted that this is well below the 131,000 acre-feet per year long-term sustainable yield estimate. In Placer County (including the City of Roseville and Placer County Water Agency), there would be limited groundwater pumping for users served by

Table 3

Estimated 1990 Groundwater Pumping Amounts (a)

WATER FORUM GROUPING AND/OR AGENCY	ESTIMATED PUMPING (AF)
<b>SACRAMENTO COUNTY</b>	
Carmichael WD	5,400
City of Folsom	0
City of Sacramento Place of Use	53,500
City of Sacramento North	22,000
Citizens Utilities - Arden Area and Sierra Oaks	3,300
Del Paso Manor Water District	1,600
Arcade Water District - Town and Country	19,500
Arden Cordova Water Service Company - Arden Town	1,100
Sacramento County Water Maintenance District - Arden Park Vista	4,500
Portion of Natomas Central Mutual Water Company	1,500 (b)
<b>North Central Group</b>	<b>60,800</b>
Northridge Water District	16,500
Arcade Water District - North Highlands	5,000
Citizens Utilities - Antelope and Royal Oaks	19,500
Rio Linda/Elverta Community Water District	16,500
McClellan Air Force Base	3,300
<b>NCMWC and Miscellaneous Areas</b>	<b>11,500</b>
Natomas Central Mutual Water Company	9,000
Sacramento International Airport	1,700
Sacramento County Water Maintenance District - Northgate	800
<b>San Juan Family</b>	<b>200</b>
Citrus Heights Water District	40
Fair Oaks Water District	0
Orange Vale Water Company	160
San Juan Water District - Sacramento County Retail Area	0
San Juan Water District - Placer County Retail Area	0
Portion of City of Folsom that lies north of American River	0
<b>SACRAMENTO COUNTY TOTAL:</b>	<b>131,400</b>
<b>PLACER COUNTY</b>	
PCWA - American River	0
PCWA - Sacramento River	0
City of Roseville	0
<b>PLACER COUNTY TOTAL:</b>	<b>0</b>
<b>TOTAL FOR SACRAMENTO AND PLACER COUNTY:</b>	<b>131,400</b>

(a) Information available based on proposed Water Forum plan groupings. Where appropriate the information is approximately disaggregated to individual agencies.

(b) Estimated land owner groundwater pumping within Natomas Central Mutual Water Company.

Table 4

## Summary of Proposed Water Forum Plan Water Supply Mix by Water Year Type (a)

WATER FORUM GROUPING AND/OR AGENCY	YEAR 2030 WATER FORUM PLAN YEAR TYPES					
	Wet and Average Years		Drier Years		Driest Years	
	Surface Water	Supplemental Supplies (b)	Surface Water	Supplemental Supplies (b)	Surface Water	Supplemental Supplies (b)
Carmichael Water District	12,000	0	12,000	0	12,000	0
City of Folsom	34,000	0	34,000 to 22,000	0 to 12,000 (c)	20,000	14,000 (c)
City of Sacramento Place of Use North of American River	60,100	37,400	60,100	37,400	51,600	45,200
City of Sacramento North of American River	42,100	22,000	42,100	22,000	42,100	22,000
Citizens Utilities - Arden Area and Sierra Oaks	0	3,300	0	3,300	0	3,300
Del Paso Manor Water District	0	1,600	0	1,600	0	1,600
Avenide Water District - Town and Country	12,000	6,000	12,000	6,000	5,500	14,500
Arden Cordova Water Service Company - Arden Town	0	1,400	0	1,400	0	1,400
Sacramento County Water Maintenance District - Arden Park Vista	0	3,100	0	3,100	0	3,100
Portion of Natamas Central Mutual Water Company	6,000	0	6,000	0	6,000	0
<b>North Central Group</b>	<b>29,000</b>	<b>35,800</b>	<b>0</b>	<b>64,800</b>	<b>0</b>	<b>64,800</b>
Northridge Water District	12,300	7,200	0	19,500	0	19,500
Fair Oaks Water District - North Highlands	5,200	0	0	5,200	0	5,200
Citizens Utilities - Anheike and Royal Oaks/ Lincoln Oaks	10,000	9,900	0	19,900	0	19,900
Rio Linda/Elverta Community Water District	0	18,700	0	18,700	0	18,700
McClelan Air Force Base	1,500	0	0	1,500	0	1,500
<b>Natomas Central Mutual Water Company/Miscellaneous Areas</b>	<b>44,450</b>	<b>7,400</b>	<b>44,450</b>	<b>7,400</b>	<b>44,450</b>	<b>7,400</b>
Natomas Central Mutual Water Company	44,450	0	44,450	0	44,450	0
Sacramento International Airport	0	6,300	0	6,300	0	6,300
Sacramento County Water Maintenance District - Northgate	0	1,100	0	1,100	0	1,100
<b>San Juan Family</b>	<b>82,200</b>	<b>0 (d)</b>	<b>82,200 to 52,200</b>	<b>0 to 30,000 (d)</b>	<b>52,200</b>	<b>30,000 (d)</b>
Citrus Heights Water District	21,300	0 (d)	21,300 to 10,300	0 to 11,000 (d)	10,300	11,000 (d)
Fair Oaks Water District	18,300	0 (d)	18,300 to 9,000	0 to 9,500 (d)	9,000	9,500 (d)
Orange Vale Water Company	8,800	0 (d)	8,800 to 4,300	0 to 4,500 (d)	4,300	4,500 (d)
San Juan Water District - Sacramento County Retail Area	6,500	0 (d)	6,500 to 5,500	0 to 1,000 (d)	5,500	1,000 (d)
San Juan Water District - Placer County Retail Area	25,000	0 (d)	25,000 to 21,300	0 to 3,700 (d)	21,300	3,700 (d)
Portion of City of Folsom north of the American River	2,000	0 (d)	2,000 to 1,800	0 to 300 (d)	1,800	300 (d)
<b>PCWA - American River</b>	<b>35,500</b>	<b>0</b>	<b>35,500</b>	<b>0</b>	<b>35,500</b>	<b>0</b>
<b>PCWA Transfer - Sacramento River</b>	<b>35,000</b>	<b>0</b>	<b>35,000</b>	<b>0</b>	<b>35,000</b>	<b>0</b>
City of Roseville	54,900	0	54,900 to 39,800	0 to 15,100	39,800	15,100
<b>TOTAL:</b>	<b>387,150</b>	<b>80,600</b>	<b>357,350 to 300,250</b>	<b>110,400 to 167,500</b>	<b>290,550</b>	<b>177,200</b>

**NOTES:**

- (a) Water supply data based on proposed Water Forum plan.
- (b) The need for supplemental supplies may be D32met by demand side management (conservation or rationing), reclaimed water, or groundwater extraction.
- (c) The City of Folsom has no significant groundwater resources. Thus, this need for supplemental supplies will be satisfied through demand management, reclaimed water, surface water transfers, or a combination of all three.
- (d) Based on a pro rata distribution of water supplies, but all water rights and contract entitlements are held by the San Juan Water District and provided to the wholesale service area through water service contracts. In the 'drier' and 'driest' years, San Juan Family demands will be reduced by up to 15 percent as described in the proposed Water Forum plan. In those years, areas without access to groundwater will be served treated surface water (namely, the San Juan retail service areas in both Sacramento and Placer County and the portion of the City of Folsom north of the American River). Those areas with access to groundwater will be supplied with a combination of surface water and groundwater (namely, Fair Oaks Water District, Citrus Heights Water District, Orange Vale Water Company).
- (e) Based on proposed Water Forum plan. Includes 25,000 acre-foot of M&I water from the Sacramento River and 10,000 acre-foot of agricultural water from the Feather River.

these agencies. Estimates for each agency's supplemental supplies in a wet/average year are shown in Table 4.

#### ***Water Use in Drier Years***

In drier years, surface water diversions by the Cooperating Agencies (and others as listed mentioned above) would be less than those in wet/average years, ranging from 357,350 to 300,250 acre-feet per year. In drier years, the annual diversion amounts prescribed in the Water Forum plan are on a sliding scale based on the inflow to Folsom Lake. Estimates for each agency's surface water use in drier years are shown on Table 4.

Supplemental supplies would make up the difference between demands and available surface water supplies. The need for supplemental supplies is estimated to range from 110,400 to 167,500 acre-feet per year. Most of this (110,400 to 148,700 acre-feet per year) would occur in Sacramento County. It should be noted that in some drier years, the groundwater pumping rate in Sacramento County would exceed the 131,000 acre-feet per year sustainable yield estimate. In Placer County, the City of Roseville would use up to 15,100 acre-feet per year of supplemental supplies. Estimates for each agency's groundwater use in drier years are shown in Table 4.

#### ***Water Use in Driest Years***

In the driest years, surface water diversions would be minimized, totaling 290,550 acre-feet per year. As shown in Table 4, this is almost a 100,000 acre-foot per year reduction in diversions from the wet/average years. In the driest years, the need for supplemental supplies would increase to 177,200 acre-feet per year. In Sacramento County, much of the 158,400 acre-feet of supplemental supplies would be derived from groundwater pumping. This exceeds the 131,000 acre-feet per year long-term sustainable yield estimate. The greatest amounts of additional conservation and rationing would be required in the driest years. As shown in Table 4, this is almost a 100,000 acre-foot per year increase in supplemental supplies compared to wet/average years.

## **WATER QUALITY**

### **EXISTING WATER QUALITY REGULATORY FRAMEWORK**

The Safe Drinking Water Act (SDWA) was enacted in 1974. Through this legislation, the federal government gave the United States Environmental Protection Agency (EPA) the authority to set standards for contaminants in drinking water supplies in throughout the country.

The 1986 Amendments to the SDWA identified 83 additional contaminants to be regulated by the EPA. For each contaminant, the EPA was required to establish a maximum contaminant level (MCL) or a treatment technique (TT) to limit the level of these compounds in drinking waters. The EPA was also required to recommend a Best Available Technology (BAT) for removal of each contaminant during treatment. The 1986 Amendments required EPA to regulate the 83 contaminants within three years of promulgation and to identify 25 additional contaminants for regulation every three years thereafter.

The California Department of Health Services (DHS) is responsible for the implementation of all federal EPA regulations in the State of California. DHS must enforce regulations that are at least as strict as those promulgated by EPA. Table 5 presents a summary of the current federal regulations enforced by DHS through Title 22 of the California Administrative Code.

**Table 5  
Summary of Current Federal Drinking Water Regulations**

Regulation	Year of Promulgation of Final Rule	Number of Contaminants	Targeted Contaminants
National Interim Primary Drinking Water Regulations (NIPDWR)	1975-1981	7	Total Trihalomethanes, Arsenic, Radionuclides
Fluoride	1986	1	Fluoride
Phase I Standards	1987	8	VOCs
Phase II Standards	1991	36	IOCs, SOCs, VOCs
Phase V Standards	1992	23	IOCs, SOCs, VOCs
Surface Water Treatment Rule (SWTR)	1989	5	Turbidity, Microbial Contaminants
Total Coliform Rule (TCR)	1989	1	Microbial Contaminants
Lead and Copper Rule (LCR)	1991	2	Lead and Copper

Source: Montgomery Watson (May 1997)

## **SURFACE WATER QUALITY**

### **American River**

American River water is generally characterized as high quality surface water that is low in alkalinity, low in disinfection by-product precursor materials, low in mineral content, and low in organic contamination. Limited data also indicates that the source of water is low in microbial contamination from *Giardia* and *Cryptosporidium*. Turbidity levels in the American River tend to be higher in the winter than summer because of higher flows associated with winter storms.

The following profile of American River water quality from Folsom Lake to the confluence with the Sacramento River is based on reports for specific diversions at Folsom Lake (*Water Treatment Plant Expansion and Master Plan, Future Regulatory Considerations Technical Memorandum*, prepared for the City of Roseville), Carmichael Water District (*Preliminary Design Report Bajamont Way Membrane Filtration Plant*, prepared for Carmichael Water District), and E.A. Fairbairn Water Treatment Plant on the American River (*E.A. Fairbairn Water Treatment Plant - Finalization of Preliminary Design Technical Memoranda*, prepared for City of Sacramento Department of Utilities).

### **Folsom Lake**

Water diverted from Folsom Lake is provided to the agencies shown on Figure 11: City of Roseville, San Juan Water District, Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, and the City of Folsom. In addition, Northridge Water District has received Section 215 water from Folsom Lake. Because the treatment facilities serving these areas share a common Folsom Dam intake facility, the raw water is considered to be similar. Figure 12 shows the locations of the water treatment plants for the City of Roseville, San Juan Water District, and the City of Folsom.

Characterization of Folsom Lake water quality is based on data collected by the City of Roseville from 1992 through 1997. Some additional data for total organic carbon, *Giardia*, and *Cryptosporidium* were collected from the San Juan Water District. Folsom Lake water satisfies all the current federal

regulations for raw and treated water listed on Table 5. All three agencies use conventional treatment with disinfection to provide treated water that exceeds current Title 22 drinking water quality standards.

***American River at Carmichael Water District's Proposed Bajamont Way Membrane Plant***

Downstream of Folsom Lake, water is diverted from the American River by Carmichael Water District at four Ranney Collectors, which provide incidental sand filtration. With chlorine disinfection, these facilities provide treated drinking water in compliance with all the state drinking water requirements. The Surface Water Treatment Rule has had a large impact on the Carmichael Water District surface water supply. The DHS has mandated multi-barrier treatment on the surface water supply, necessitating construction of a water treatment plant for continued use of the American River supply. The location of the proposed water treatment plant is shown on Figure 12.

***American River at City of Sacramento's E.A. Fairbairn Water Treatment Plant***

The City of Sacramento diverts water from the American River at the E.A. Fairbairn Water Treatment Plant (see Figure 12). Water diverted at the plant undergoes conventional treatment and disinfection. The treated water exceeds current Title 22 drinking water quality standards.

***Additional Data***

Some water quality data are available for the infiltration wells of Arcade Water District (see Figure 12). This diversion point is located between Carmichael Water District's plant and the E.A. Fairbairn Water Treatment Plant, and the water diverted there is considered to be of similar quality to these two sites. The shallow infiltration wells provide incidental sand filtration. Arcade Water District provides treated drinking water in compliance with all the state drinking water requirements.

***Sacramento River at City of Sacramento's Sacramento River Water Treatment Plant***

This discussion of Sacramento River water quality is based on a report on the Sacramento River Water Treatment Plant (*Sacramento River Water Treatment Plant - Finalization of Preliminary Design Technical Memoranda*, prepared for the City of Sacramento Department of Utilities). Water diverted at the Sacramento River Water Treatment Plant is used within the city limits of the City of Sacramento. Located at the confluence of the Sacramento and American Rivers (as shown on Figure 12), the plant uses conventional treatment with disinfection to provide treated water that exceeds current Title 22 drinking water quality standards.

**GROUNDWATER QUALITY**

Groundwater throughout the area is generally of good quality for municipal uses. It is a bicarbonate type with total dissolved solids ranging from 150 milligrams per liter (mg/l) to 300 mg/l and averages about 200 mg/l. Hardness ranges from 20 mg/l to 150 mg/l and averages about 95 mg/l. Fresh groundwater is underlain by saline connate water at depths ranging from 800 feet in the east to 2,000 feet in the west.

The main water quality problem is the presence of iron and manganese. Throughout the area, iron and manganese are found randomly in wells. Iron concentrations range up to 5 mg/l, but typically do not exceed 2 mg/l. Manganese concentrations up to 2 mg/l have been reported, but normally do not exceed 0.3 mg/l. Current drinking water standards are 0.3 mg/l for iron and 0.05 mg/l for manganese. Iron and manganese in these concentrations are not a health hazard, but do cause laundry and fixture staining and taste problems.

**Table 6  
Summary of Types of Contaminants in Principal Plumes**

Contaminant Site	Volatile Organic Compounds	Heavy Metals	Inorganic Compounds	Phenols	Aromatic Hydrocarbons	Pesticides
Southern Pacific Transportation Co. Yard	X	X				
Pacific Gas and Electric Yard		X	X	X	X	
McClellan Air Force Base	X	X		X		
Aerojet/McDonnell-Douglas	X	X				X
Santa Fe Pacific Pipelines (Sacramento Site)	X		X			
Purity Oil (Sacramento Site)	X		X			
Purity Oil (Rancho Cordova Site)	X	X	X			

**Source:** Bookman-Edmonston Engineering, Inc. (September 1996)

In Sacramento and Placer Counties, numerous industrial contamination plumes threaten groundwater quality. The locations of these sites are shown on Figure 13. They include McClellan Air Force Base, Santa Fe Pacific Pipelines (Sacramento Site), Purity Oil (Sacramento Site and Rancho Cordova Site), Aerojet/McDonnell-Douglas, and Southern Pacific Transportation Company Yard. Table 6 lists the contaminants present at each site.

These contamination plumes have forced some wells to be taken out of service and continue to threaten other local groundwater supplies. For example, contaminant plumes from Aerojet have crossed beneath the American River and have threatened wells in Fair Oaks Water District. In addition, wells in Citizens Utilities and Arden-Cordova Water Service Company have also been impacted and shut down because of contaminant migration. The effects of local groundwater contamination must be considered in any conjunctive use plan.

## **ANTICIPATED FUTURE CONSIDERATIONS**

### **INSTITUTIONAL CONSIDERATIONS**

Several institutional considerations may affect short-term and long-term surface water supply availability in the Sacramento and American Rivers. It is likely that any outcome from these programs could potentially reduce the amount of water available on the Sacramento River and/or the American River. These institutional considerations include:

- Central Valley Project Improvement Act (CVPIA)
- CALFED Bay-Delta Process
- State Water Resources Control Board Hearings on the Draft Water Quality Control Plan for the San Francisco Bay-San Joaquin Delta Estuary.
- Administration of the Endangered Species Act
- National Marine Fisheries Service (NMFS) Endangered Species Listings

**ANTICIPATED FUTURE REGULATORY FRAMEWORK**

The EPA is currently in the process of formulating several new regulations needed to maintain compliance with the Surface Water Drinking Act and its amendments. It is anticipated that the new regulations listed on Table 7 will be promulgated and finalized within the next several years. These regulations may require additional treatment of surface water and groundwater. Surface water supplies could also be affected by some of the anticipated regulations. For example, the Enhanced Surface Water Treatment Rule will most likely regulate *Cryptosporidium*. Groundwater in the region may also be affected by some of the anticipated regulations. Both radon and arsenic are present in groundwater and may require additional treatment. The Groundwater Disinfection Rule is expected to require all water agencies utilizing groundwater supplies to provide disinfection prior to distribution.

**Table 7  
Summary of Anticipated Future Regulations**

Regulation	Expected Date	Targeted Contaminants	COMMENTS
Phase III Phase IV	Unknown 2000	Radionuclides Disinfectants/ Disinfection by-products	Will include regulation on radon Also called the Disinfectants/Disinfection By- Products Rule
Phase VIb Enhanced Surface Water Treatment Rule (ESWTR)	Unknown 2000	IOCs, SOCs, VOCs Microbial	-- Most likely will regulate <i>Cryptosporidium</i>
Arsenic	Unknown	Arsenic	Most likely will lower MCL ten- fold
Groundwater Disinfection Rule (GWDR)	Unknown	Microbial	Most likely will require CT on well (groundwater) sources
Information Collection Rule (ICR)	Promulgated May 14, 1996	For information only	Purpose is to generate and collect data on many contaminants

**Source:** Montgomery Watson (May 1997)

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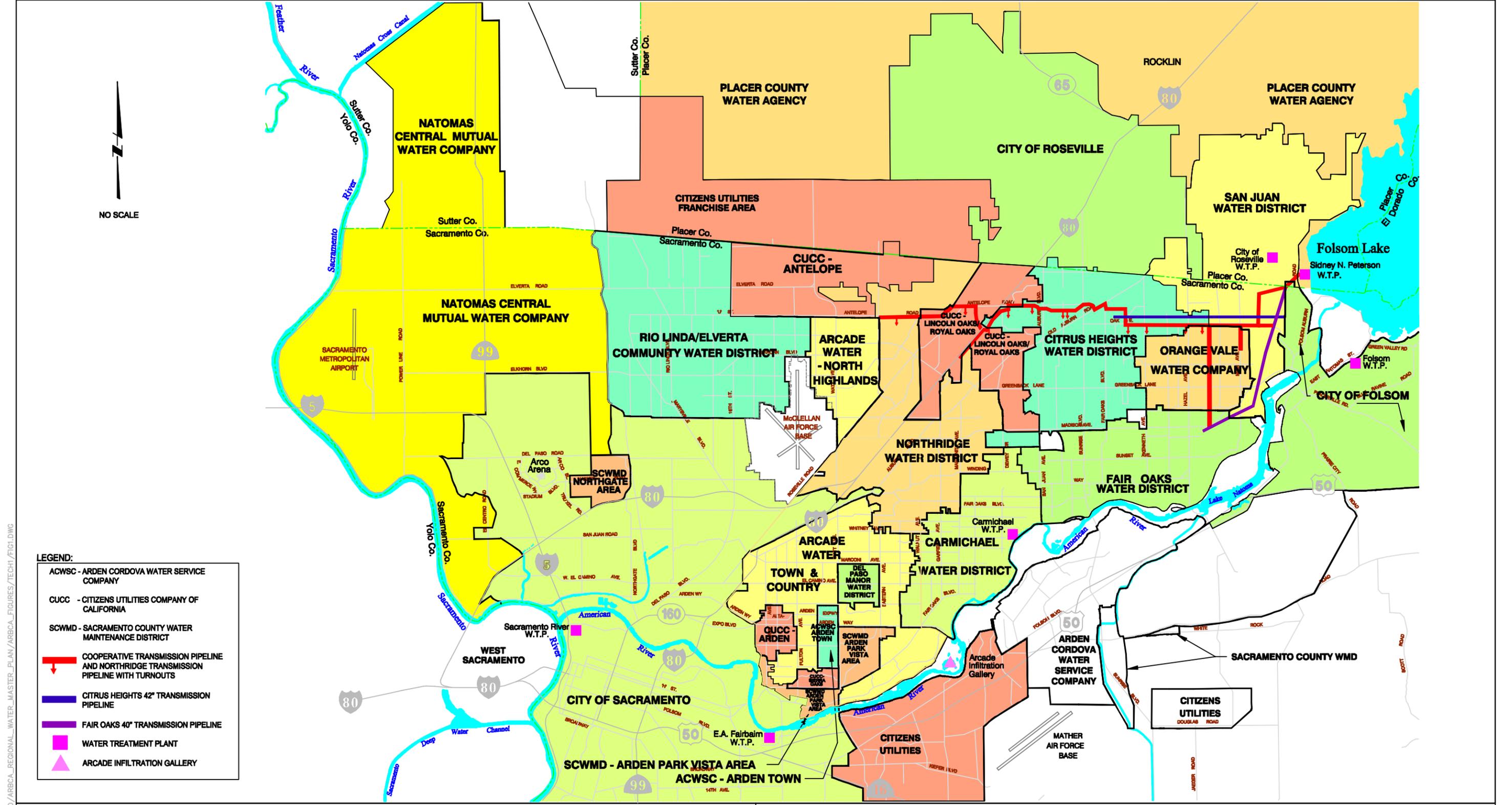
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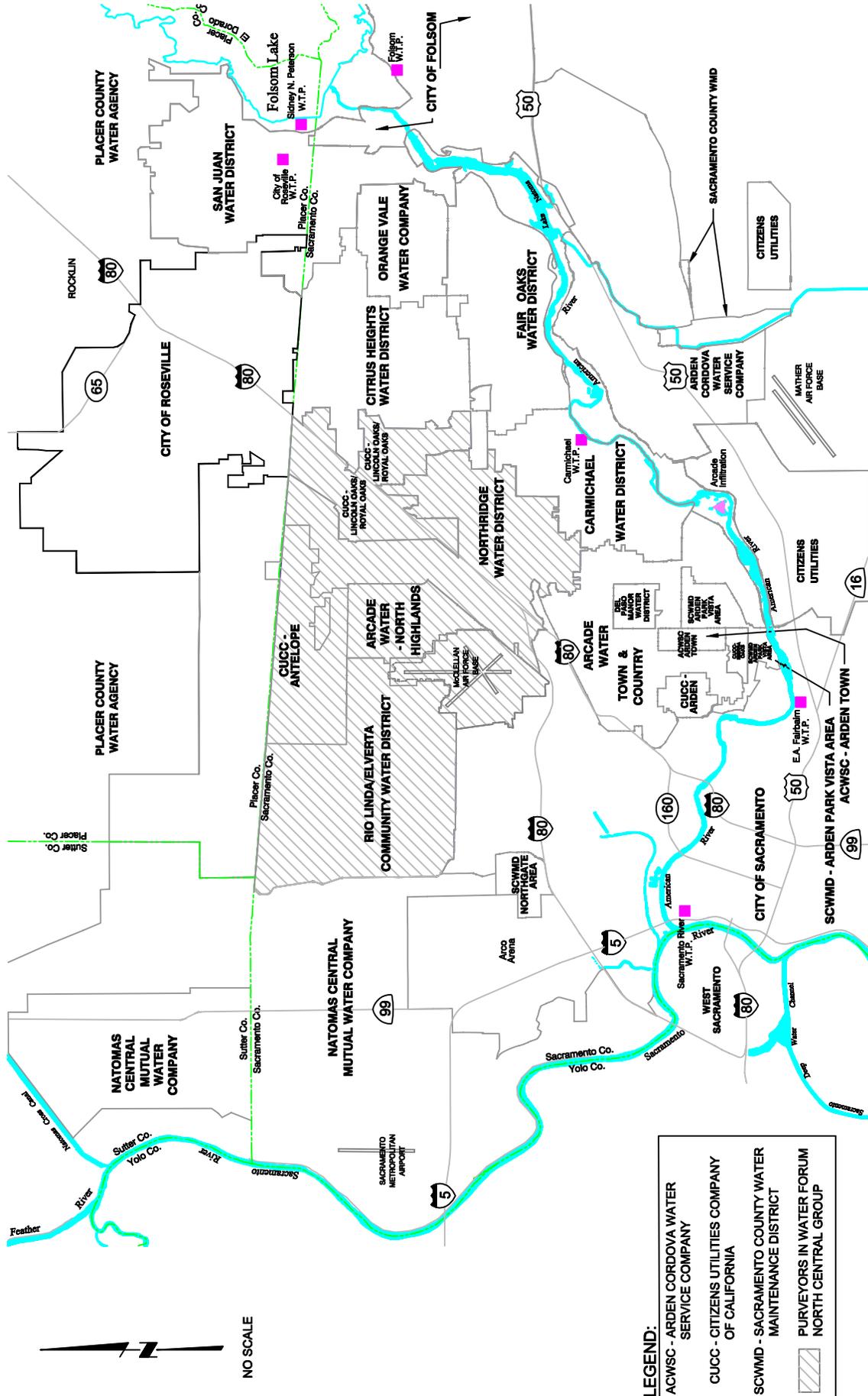
# American River Basin Cooperating Agencies

# Location of Water Purveyors

## Regional Water Master Plan

Figure 1

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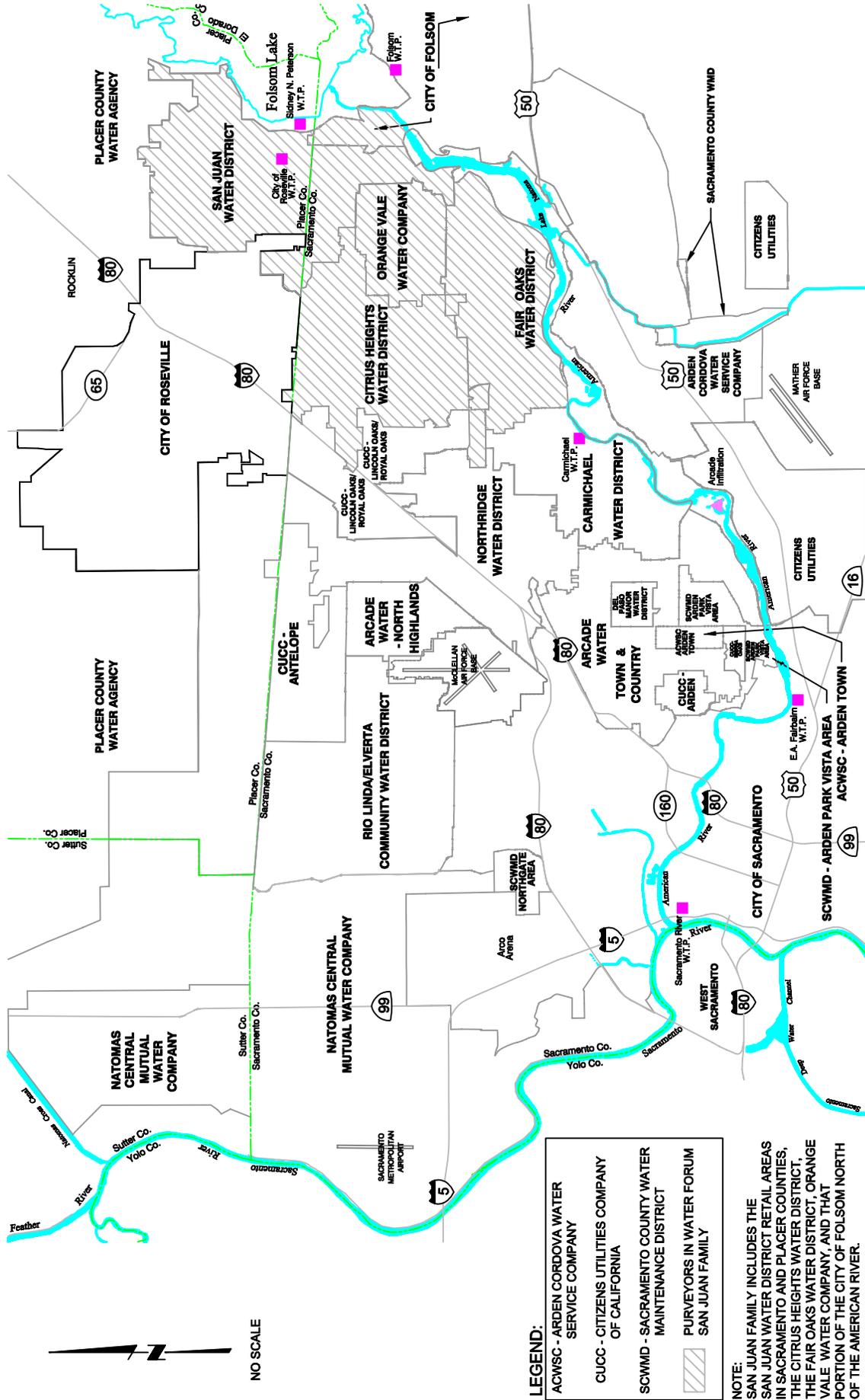


**Purveyors in Water Forum Grouping  
North Central Group**

**American River Basin Cooperating Agencies**

Regional Water Master Plan

Figure 2

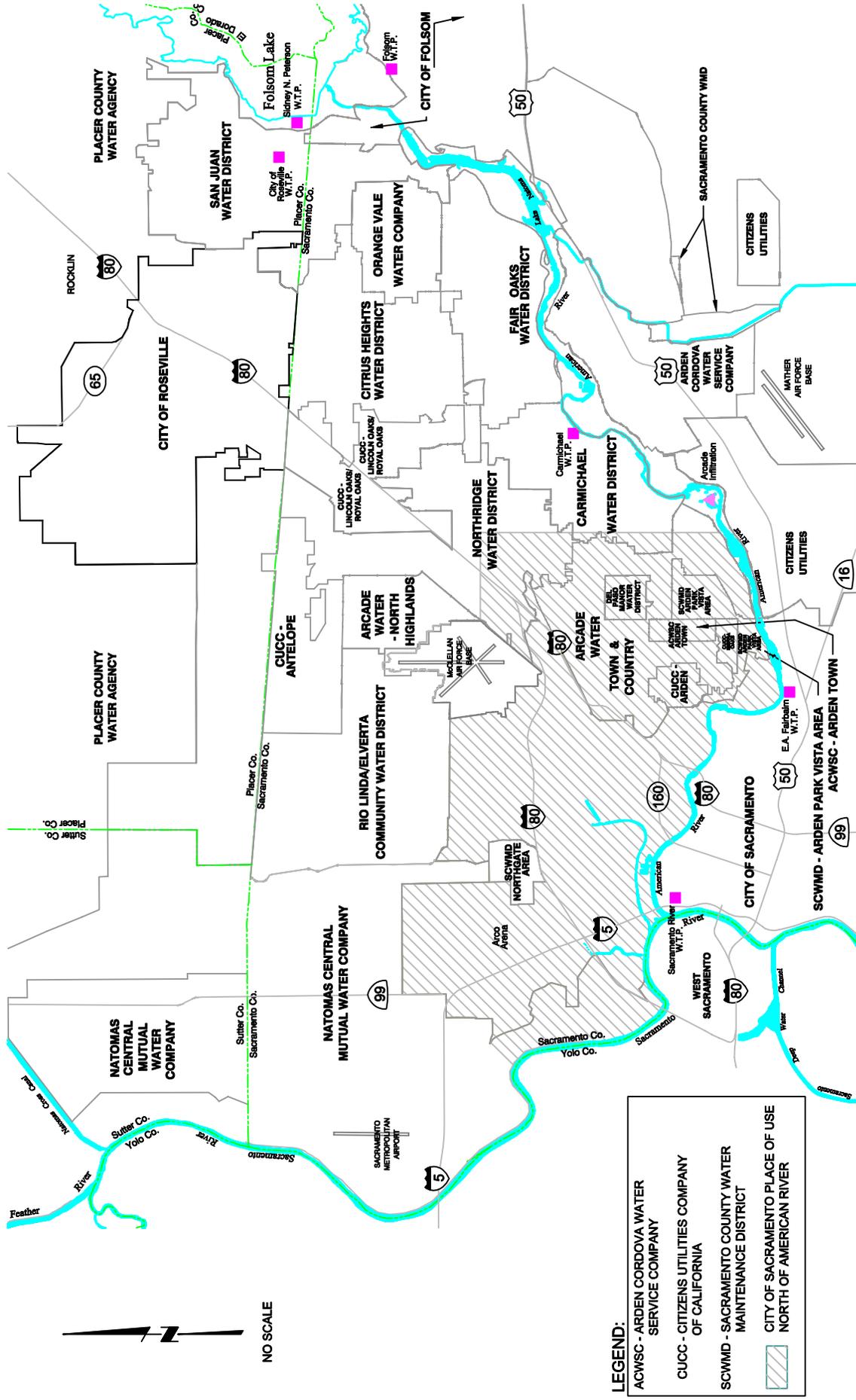


**American River Basin Cooperating Agencies**  
 Regional Water Master Plan

**Purveyors in Water Forum San Juan Family**

Figure 3



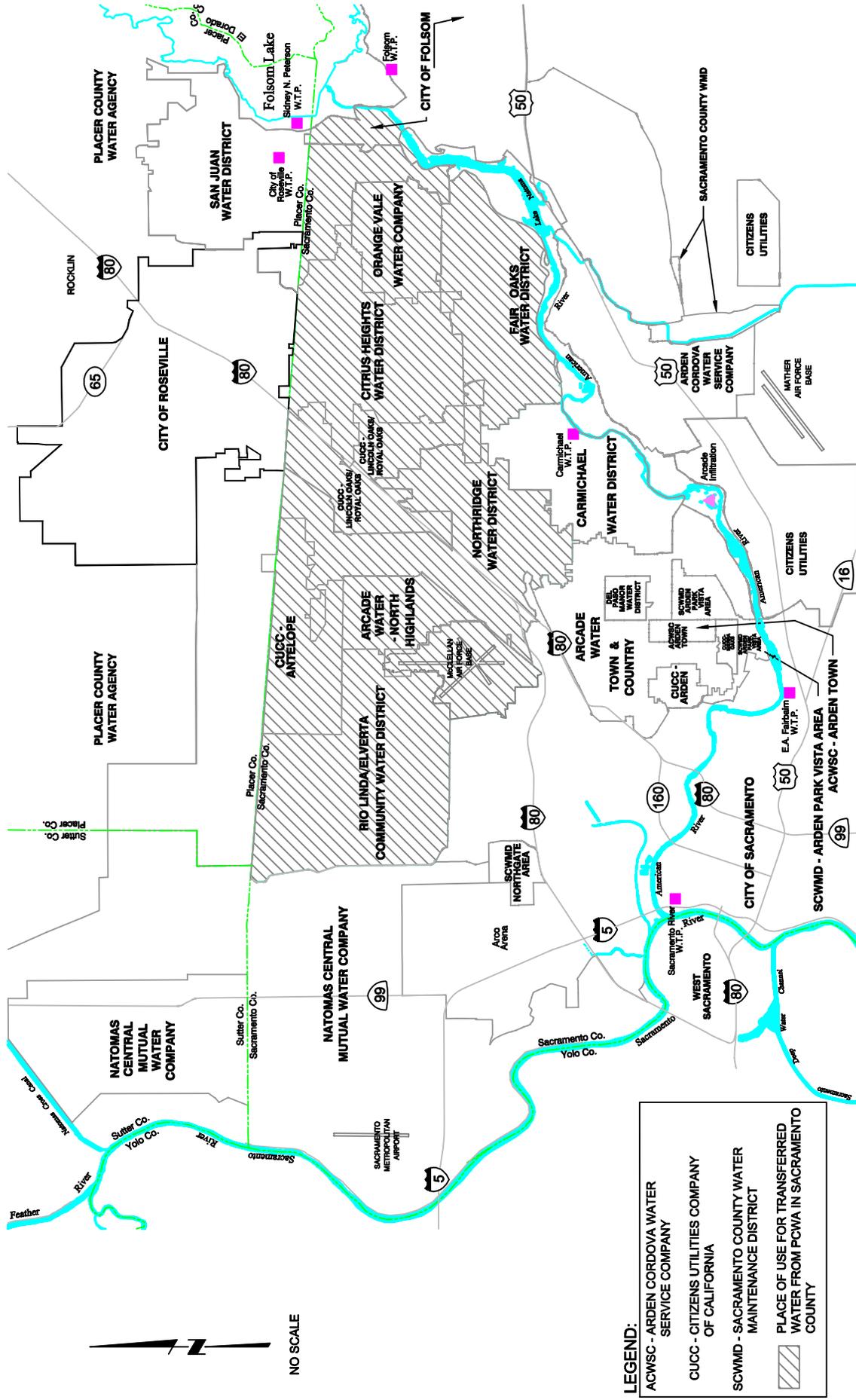


**American River Basin Cooperating Agencies**

**Regional Water Master Plan**

**City of Sacramento Authorized Place of Use North of American River**

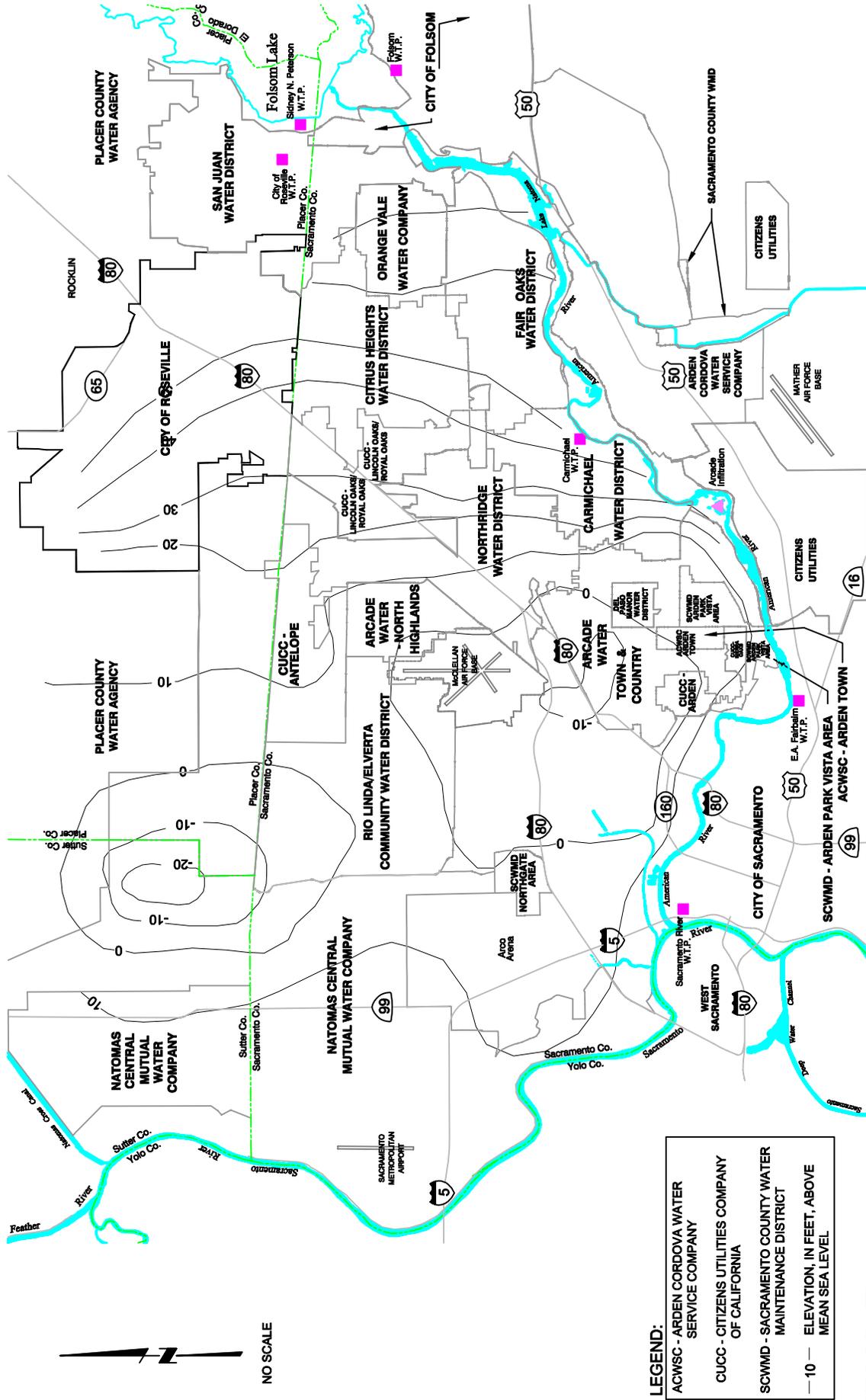
**Figure 5**



**American River Basin Cooperating Agencies**  
Regional Water Master Plan

**PCWA Transfer Water in Sacramento County Place of Use**

Figure 6



NO SCALE

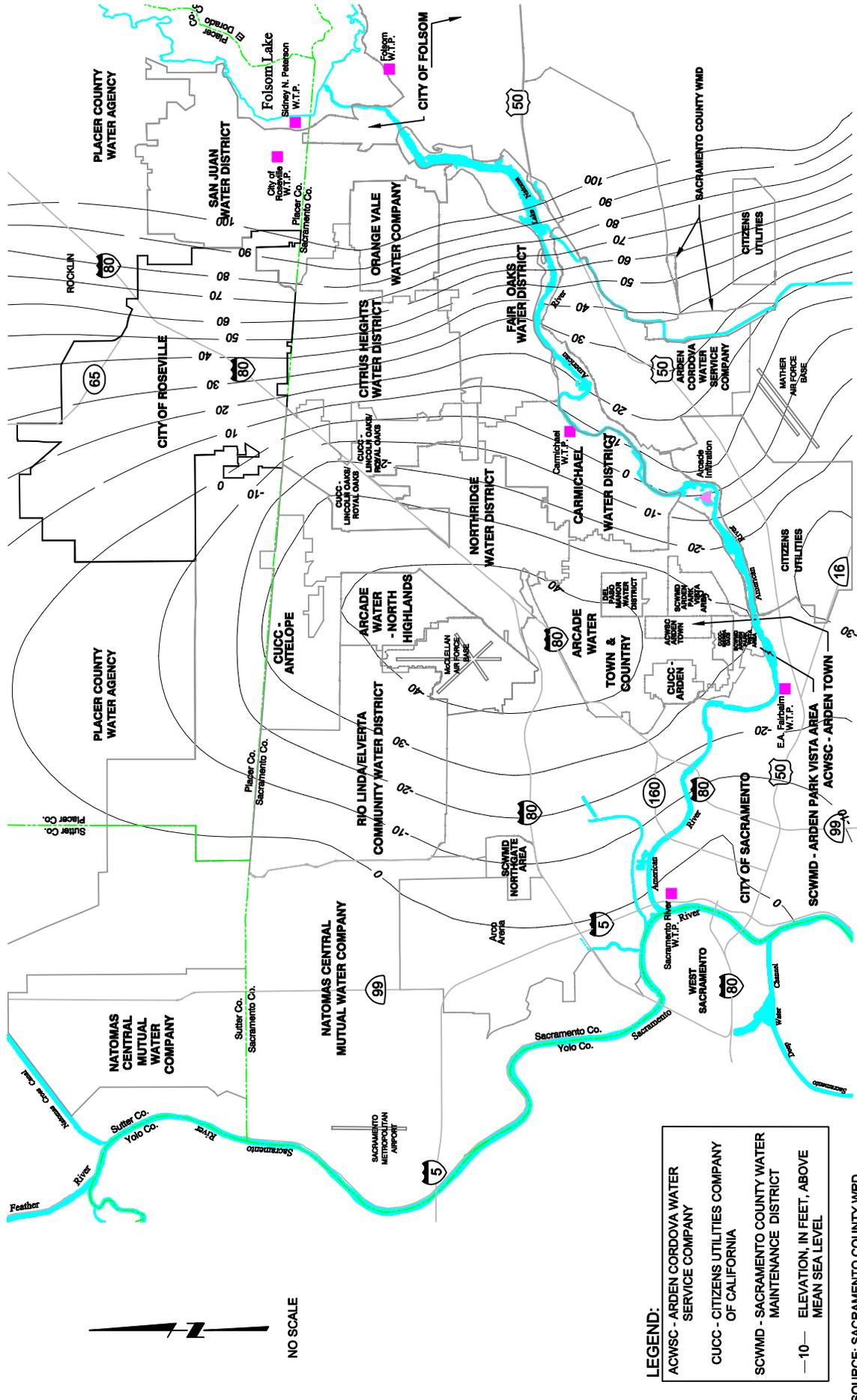
- LEGEND:**
- ACWSC - ARDEN CORDOVA WATER SERVICE COMPANY
  - CUCC - CITIZENS UTILITIES COMPANY OF CALIFORNIA
  - SCWMD - SACRAMENTO COUNTY WATER MAINTENANCE DISTRICT
  - 10 — ELEVATION, IN FEET, ABOVE MEAN SEA LEVEL

SOURCE: DWR BULLETIN 116-3

**American River Basin Cooperating Agencies**  
Regional Water Master Plan

**Groundwater Elevation Above Mean Sea Level (Spring 1968)**

Figure 7



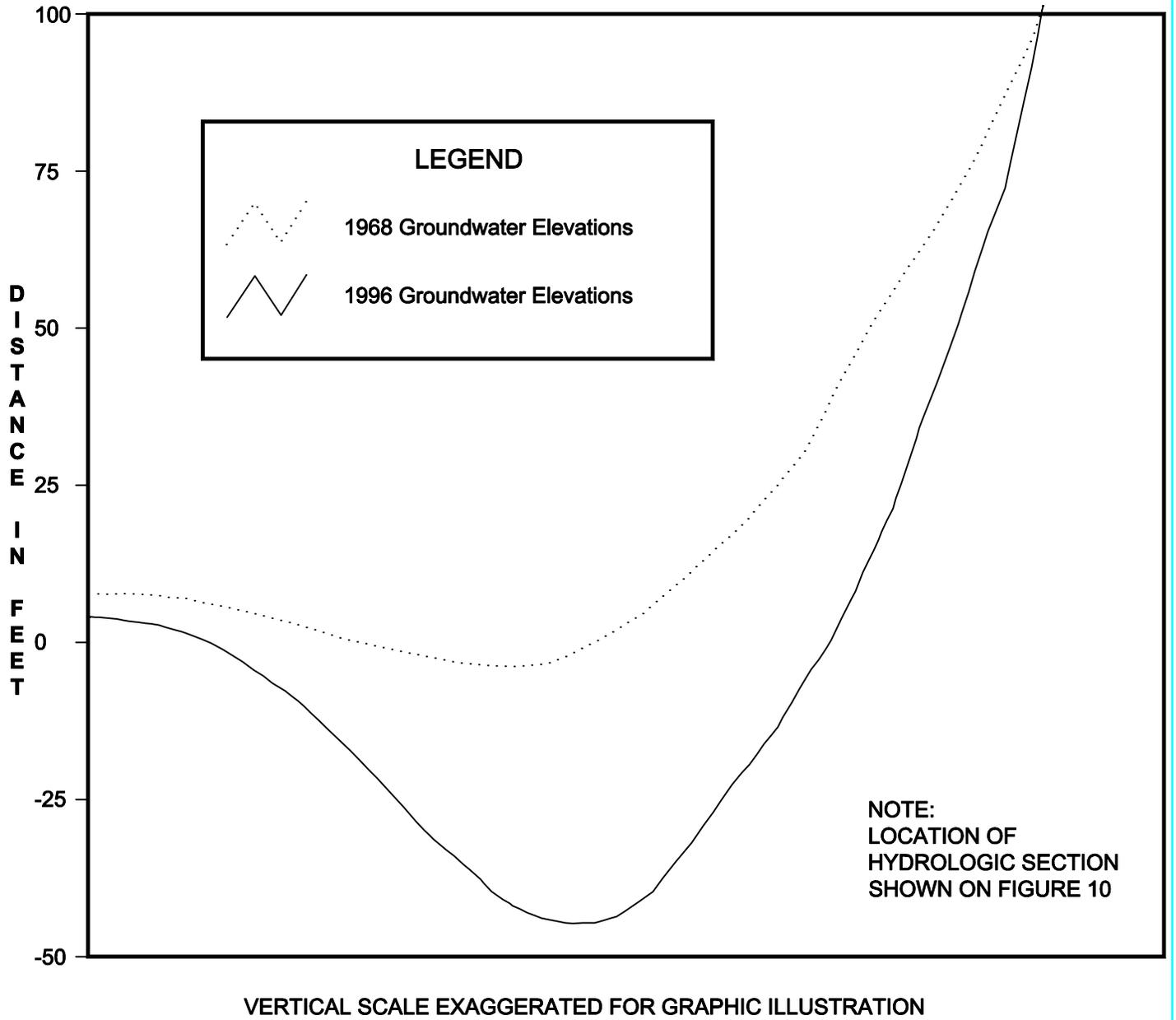
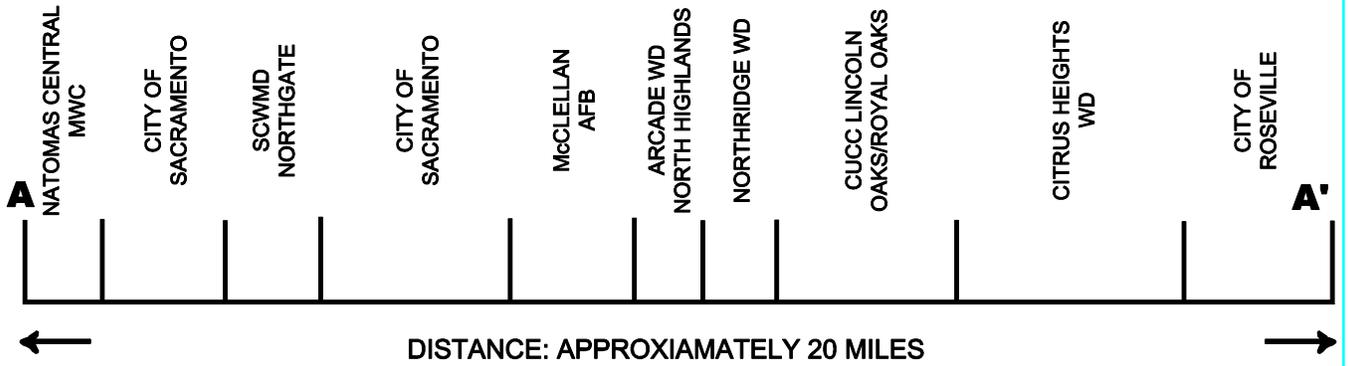
## American River Basin Cooperating Agencies

### Regional Water Master Plan

## Groundwater Elevation Above Mean Sea Level (Fall 1996)

Figure 8

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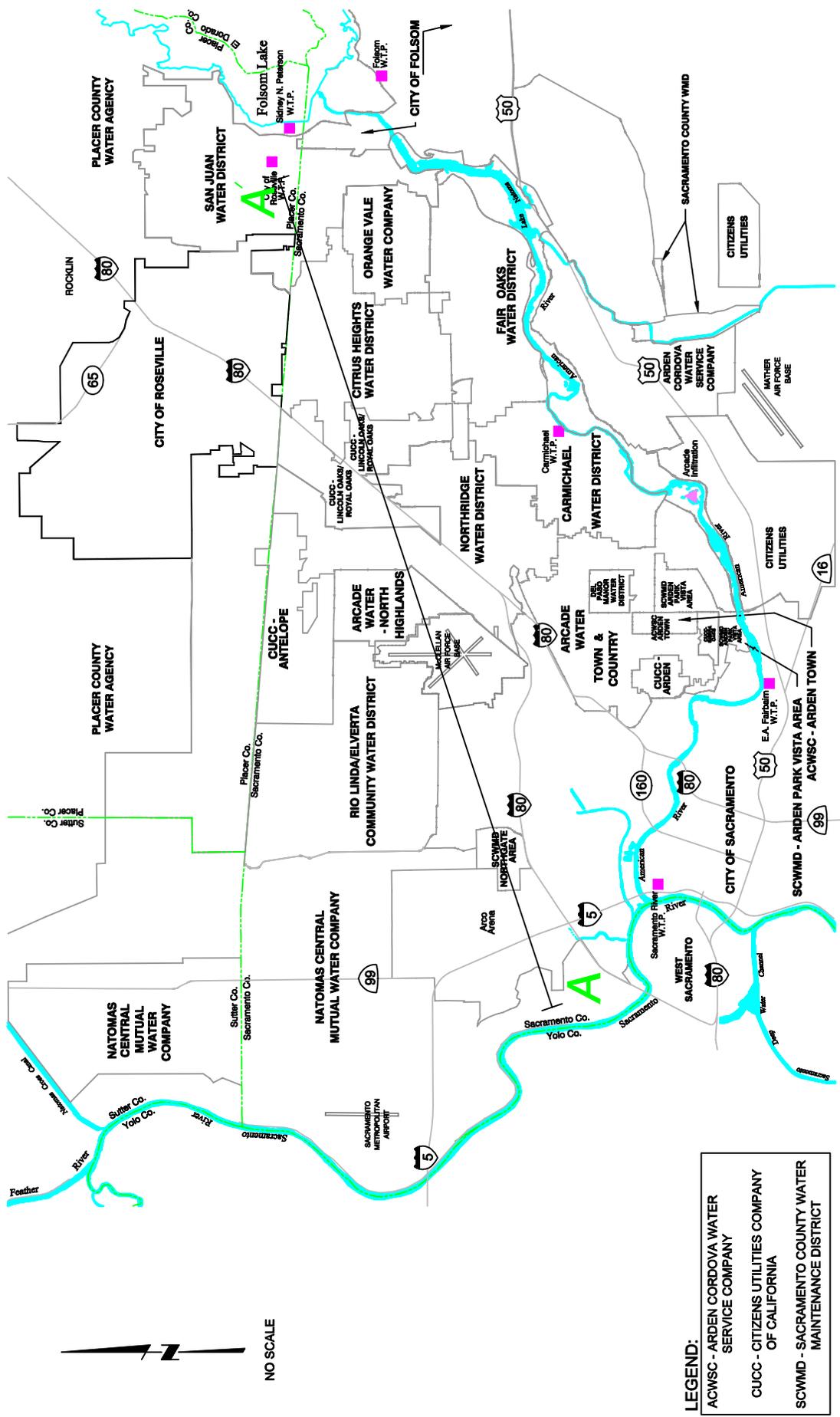


**American River Basin  
Cooperating Agencies**

Regional Water Master Plan

**Hydrologic Section A-A' of Aquifer  
System (See Figure 10)**

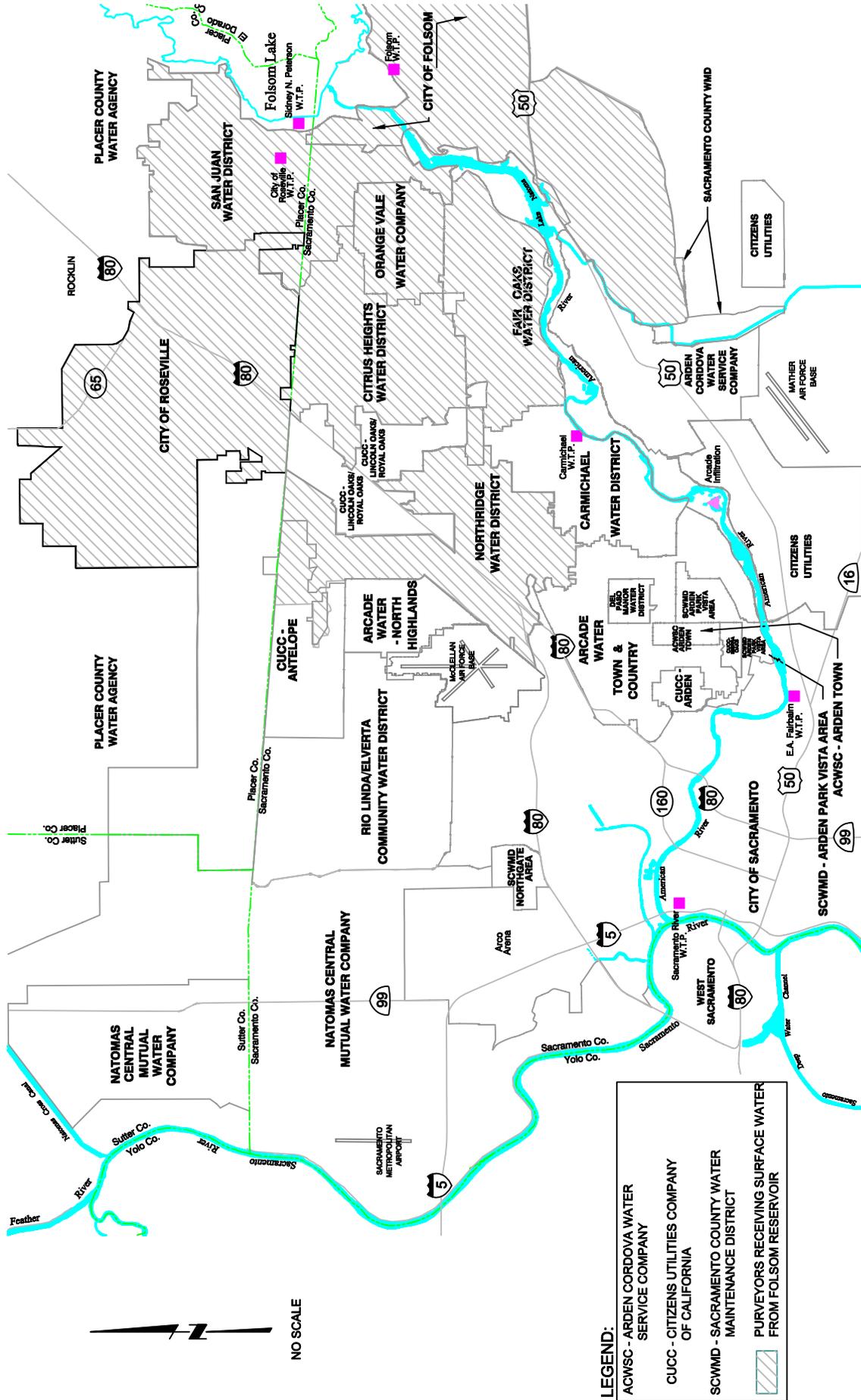
Figure 9



**American River Basin Cooperating Agencies**  
 Regional Water Master Plan

**Location of Hydrologic Section of Aquifer System Depicted in Figure 9**

Figure 10

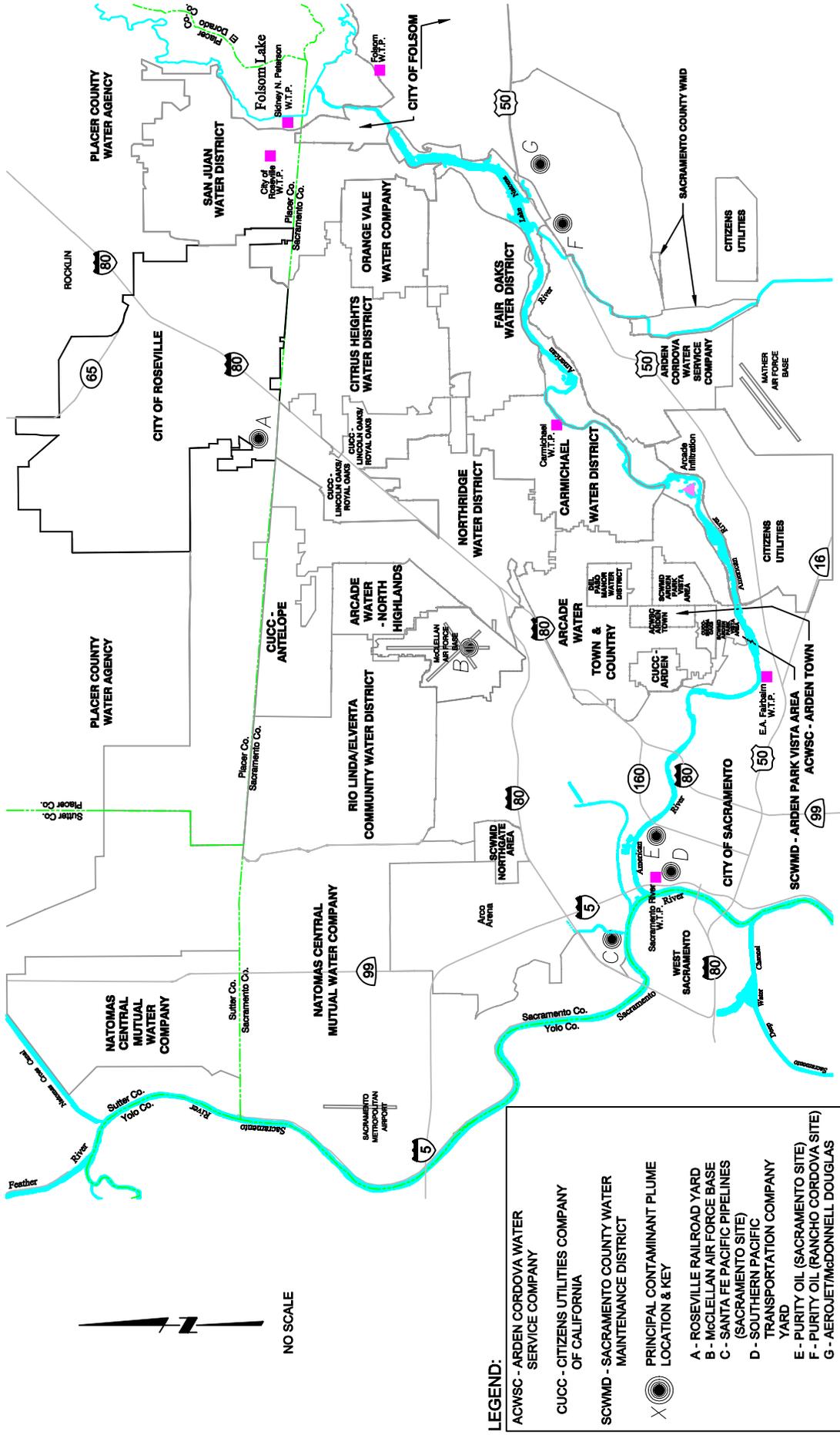


**American River Basin Cooperating Agencies**  
Regional Water Master Plan

**Purveyors Currently Receiving Surface Water Diverted Directly from Folsom Reservoir**

Figure 11





**American River Basin Cooperating Agencies**

**Regional Water Master Plan**

**Principal Contaminant Plume in Sacramento County**

**Figure 13**

**REGIONAL WATER MASTER PLAN**  
**TM 3: SUMMARY OF EXISTING WATER SUPPLIES**

**APPENDIX A - INDIVIDUAL AGENCY DATA**

## **ARCADE WATER DISTRICT**

### **General Description**

Arcade Water District (Arcade) has two service areas: the Town and Country service area and North Highlands service area (see Figure 1). The Town and Country service area is located within Area “D” of the City of Sacramento’s American River water rights place of use (see Figure 5). The Town and Country service area lies within the City of Sacramento Place of Use Group as defined by the proposed Water Forum plan. The demands of the Town and Country service area are presently being met in part by Arcade’s American River well system; the balance is met from groundwater.

The North Highlands service area is included as part of the North Central Group (Figure 2) as defined by the proposed Water Forum plan. Because this area has no access to surface water at the present time, all demands are met with groundwater. Note, however, that Arcade has requested turnouts from the Cooperative Transmission Pipeline. As part of the North Central Group, it is included in the place of use of the pending water supply contract between Placer County Water Agency and Northridge Water District (see Figure 6).

### **Surface Water**

Arcade Water District has a contract agreement with the City of Sacramento for 26,064 acre-feet of raw water diversion off the American River for use in the Town and Country service area (see Table 2). The contract agreement is also described in the City of Sacramento discussion and is a component of the Arden-Arcade Plan described below. To date, a maximum of 3,500 acre-feet per year of the total amount has been utilized.

Raw surface water diverted at the American River well system is of similar quality to that diverted at the Carmichael Water District’s Proposed Bajamont Way plant and the E.A. Fairbairn Water Treatment Plant.

### **Groundwater**

Both of Arcade Water District’s service areas overlie the groundwater basin and have access to groundwater. In 1968, groundwater elevations in the Town and Country service area ranged from 10 feet above sea level to 10 feet below sea level (Figure 7). By 1996, increased groundwater pumping in the basin had lowered groundwater elevations to 30 to 45 feet below sea level (Figure 8). The 1968 groundwater elevations for the North Highlands service area ranged from zero to 10 feet above sea level (Figure 7). By 1996, the groundwater elevations had lowered to 40 to 45 feet below sea level (Figure 8).

McClellan Air Force Base, located between the two service areas, is a site of known groundwater contamination. Contaminants include volatile organic compounds and heavy metals. Migration of these contaminants off site could potentially threaten the District’s groundwater supplies.

### **Proposed Water Forum Plan Water Supply Availability**

Arcade Water District has not agreed to the procedural agreements of the proposed Water Forum plan. As part of the proposed Water Forum plan, the Town and Country service area will meet its 2030 demands with 11,200 acre-feet of surface water and 11,400 acre-feet of groundwater in wet/average years. In drier years, Arcade would operate on a similar water use pattern. In the driest years, the Town and Country service area would use 3,500 acre-feet of surface water and 19,100 acre-feet of groundwater.

At this time, the water supply mix for the North Highlands service area in the wet/average and drier years is undetermined. As mentioned, this service area lies within the place of use of the pending water

**REGIONAL WATER MASTER PLAN**  
**APPENDIX A of TM 3: SUMMARY OF EXISTING WATER SUPPLIES**

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service contract between Placer County Water Agency and Northridge Water District, but the level of participation is uncertain. In the driest years, when this water would not be available, the service area would use groundwater to meet all its needs.

It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

**Arden-Arcade Plan**

In 1964, Arcade Water District entered into an agreement with the City of Sacramento granting the District "the right ... to divert from the American River, that portion of its permanent supply which Arcade required for serving any portion of Area D ...". The boundaries of the Arden-Arcade Plan service area are (1) the city limits of the City of Sacramento on the west, (2) the city limits and the American River on the south, (3) the Carmichael Water District on the east, and (4) the city limits and the Northridge Water District on the north (see Figure A-1).

The boundaries that were established encompassed area water purveyors with a mutual need and desire for supplemental surface water. Water purveyors with potential entitlements to Area D surface water include:

- Arcade Water District (Town and Country service area)
- Arden-Cordova Water Service Company (Arden Town service area)
- Sacramento County Water Maintenance District (Arden Park Vista service area)
- Citizens Utilities (Arden Area and Sierra Oaks service areas)
- Del Paso Manor Water District

The total entitlement for the above purveyors is estimated on an acreage basis at 43,600 acre-feet per year according to a formula. Under the Arden-Arcade Plan, Arcade Water District proposes to utilize surface water in amounts to equal the total entitlements of the Arcade Water District and those cooperating water purveyors within Area D. It is the Arcade Water District's intent that the portion of Northridge Water District and Carmichael Water District in Area D would be served if requested by those Districts prior to development of final plans for the Arden-Arcade Plan area. Northridge Water District and Carmichael Water District represent an additional nearly 10,000 acre-feet of Area D entitlement for an approximate total of 53,600 acre-feet.

The City of Sacramento has indicated its willingness to provide surface water to Area D purveyors, provided such use is limited to areas covered by the City's water entitlements. Under the existing agreement for Area D surface water, "use up to the full amount of the water right is permissible ...". Recent correspondence has affirmed that the City will provide wholesale water to Arcade Water District as a lead agency in the Arden-Arcade Plan. It should be noted that the City's willingness to provide treated surface water to Area D might depend on the proposed Water Forum plan.

## **ARDEN-CORDOVA WATER SERVICE COMPANY**

### **General Description**

The Arden-Cordova Water Service Company (Arden-Cordova) has two service areas: the Arden Town service area located north of the American River located within the City of Sacramento Authorized Place of Use and the Rancho Cordova service area located south of the American River just west of the City of Folsom (see Figure 1). The Rancho Cordova service area has access to groundwater and the American River through a diversion from the Folsom South Canal to meet its water supply needs. The Arden Town service area has access only to groundwater (with the exception of the Arden-Arcade Plan discussed under the Arcade Water District).

### **Surface Water**

Arden-Cordova has a 10,000 acre-foot water right on the American River. This right and a pre-1914 water right of up to 22,000 acre-feet of American River water are held in a Co-Tenancy Agreement with the City of Folsom. In 1994, Arden-Cordova and the City of Folsom entered into an agreement wherein Arden-Cordova agreed to sell and Folsom agreed to buy 5,000 acre-feet of water each year. Arden-Cordova uses the remaining 5,000 acre-feet per year of American River water for treatment and delivery to the Coloma Water Treatment Plant.

### **Groundwater**

Groundwater is used as the main source of supply for each service area. In 1968, groundwater levels in the Arden Town service area ranged from about sea level to 10 feet above sea level (Figure 7). By 1996, increased groundwater pumping in the basin had lowered groundwater elevations to about 30 to 35 feet below sea level (Figure 8). In the Rancho Cordova service area, 1968 water levels ranged from about 20 to 50 feet above sea level (Figure 7). By 1996, groundwater elevations ranged from about 10 to 30 feet above sea level (Figure 8).

Groundwater quality in the Arden Town service area is typical of the basin. In the Rancho Cordova service area, however, numerous wells have been shut down because of contamination from nearby industrial activities at Aerojet/McDonnell-Douglas.

### **Proposed Water Forum Plan Water Supply Availability**

Arden-Cordova has not participated in the Water Forum. As such, that process does not prescribe their future water use patterns.

## **CARMICHAEL WATER DISTRICT**

### **General Description**

The Carmichael Water District (Carmichael), located along the north bank of the American River (Figure 1), presently uses a combination of surface water from the American River and groundwater to meet its demands. The western edge of the District lies within the City of Sacramento Authorized Place of Use for American River water (Figure 5).

### **Surface Water**

Carmichael has three water rights, the details of which are summarized on Table 2. The first two water rights have been perfected and allow Carmichael to divert up to 14,400 acre-feet per year. The third right, if perfected, would allow an additional 18,100 acre-feet per year to be diverted. Historically, Carmichael has diverted up to 14,400 acre-feet per year.

### **Groundwater**

Carmichael overlies the groundwater basin. Because the District is located near a source of recharge, it is on the edge of the cone of depression rather than near its center. In 1968, groundwater elevations in the District ranged from 10 feet to 50 feet above sea level (Figure 7). By 1996, groundwater elevations had lowered to 10 to 25 feet below sea level (Figure 8). The groundwater quality is good, and there are no nearby contamination plumes. Carmichael annually uses about 5,400 acre-feet of groundwater.

### **Proposed Water Forum Plan Water Supply Availability**

The proposed Water Forum plan shows Carmichael will meet its entire 2030 water supply needs with surface water totaling 12,000 acre-feet per year. This holds true for all year types, wet/average, drier, and driest years. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

## **CITIZENS UTILITIES COMPANY OF CALIFORNIA**

### **General Description**

Citizens Utilities Company of California (Citizens Utilities or CUCC) has four service areas in Sacramento County north of the American River: Antelope, Lincoln Oaks/Royal Oaks, Arden, and Sierra Oaks (Figure 1). Citizens Utilities provides water service in Placer County for the Sabre City Mobile Home Park and is the exclusive franchisee for water service in western Placer County. The Antelope and Lincoln Oaks/Royal Oaks service areas are in the Water Forum North Central Group (Figure 2). The Arden and Sierra Oaks services areas are in the Water Forum Sacramento Place of Use Group (Figure 5). Citizens Utilities relies exclusively on groundwater. However, the Arden and Sierra Oaks service areas may have access to American River diversions through the Arden-Arcade Plan, and the Antelope, Lincoln Oaks/Royal Oaks service areas lie within the place of use of the proposed Placer County Water Agency water transfer to the Northridge Water District (see Figure 6).

### **Groundwater**

Groundwater is currently used to meet all demands in each service area. Groundwater elevations in the Antelope and Lincoln Oaks/Royal Oaks service areas ranged from about sea level to 20 feet above sea level in 1968 (Figure 7). By 1996, increased groundwater pumping in the basin lowered groundwater elevations to about 30 feet below sea level to 10 feet above sea level (Figure 8).

In the Arden service area, 1968 groundwater elevations ranged from about sea level to 10 feet above sea level (Figure 7). In 1996, groundwater elevations were at about 30 feet below sea level (Figure 8). Groundwater quality is typical of the basin. McClellan Air Force Base is located near the Antelope service area, and contaminants migrating off site may threaten local groundwater supplies (Figure 13).

### **Proposed Water Forum Plan Water Supply Availability**

As part of the proposed Water Forum plan, the Antelope and Lincoln Oaks/Royal Oaks service areas and other North Central Group water users would have access to 29,000 acre-feet of surface water in wet/average years, pending the contract with Placer County Water Agency (Table 4). For the drier and driest years, no contract surface water would be available, and all the demands would be met with groundwater. The Arden and Sierra Oaks service areas are anticipated to remain on groundwater for all year types (Table 4). It should be noted that this supply mix is used to meet the Water Forum demands including full implementation of the BMP's.

## **CITRUS HEIGHTS WATER DISTRICT**

### **General Description**

The Citrus Heights Water District (Citrus Heights) is located north of the American River in eastern Sacramento County and southern Placer County (Figure 1). It receives surface water on a wholesale basis from San Juan Water District and is included in the San Juan Family as defined in the proposed Water Forum plan (Figure 3). It uses primarily surface water provided from the San Juan Water District to meet its needs. Limited amounts of groundwater are used for peaking.

### **Surface Water**

Citrus Heights has a contract with the San Juan Water District to purchase a minimum of 17,000 acre-feet per year of American River surface water. Recently, Citrus Heights has used between 17,000 acre-feet and 21,000 acre-feet of surface water per year. The water is diverted from Folsom Lake and treated at San Juan Water District's Peterson Water Treatment Plant. It should be noted that CVP water supplies, which make up a portion of San Juan Water District's total surface water supply, might be subject to deficiencies of up to 25 percent in dry years.

### **Groundwater**

Citrus Heights overlies the groundwater basin and presently uses groundwater to meet peak demands. In 1968, the groundwater elevation in Citrus Heights ranged from about 20 to 100 feet above sea level (Figure 7). By 1996, increased groundwater pumping in the basin had lowered groundwater elevations in the District to 10 feet below sea level to 100 feet above sea level (Figure 8). Citrus Heights is located on the eastern edge of the cone of depression. Their average groundwater use since 1971 has been approximately 735 acre-feet per year.

### **Proposed Water Forum Plan Water Supply Availability**

The proposed water use patterns for Citrus Heights are considered collectively as part of the San Juan Family. In wet/average years, the San Juan Family would use up to 82,200 acre-feet per year of surface water to meet all its needs. Groundwater would not be needed, except for occasional peaking purposes.

In drier years, the San Juan Family would use a decreasing amount of surface water from 82,200 acre-feet to 52,200 acre-feet based on inflows into Folsom Lake. In these years, up to 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater would be used to meet the remaining demands of the San Juan Family (see Table 4) as described in the proposed Water Forum plan. The proposed Water Forum plan does not define the distribution of surface water and groundwater to the members of the San Juan Family. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

In the driest years, the San Juan Family collectively would use 52,200 acre-feet of surface water and 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater to meet the remaining demands.

In the drier and driest years, San Juan Water District would continue to provide surface water first to those areas in the wholesale area that do not have access to groundwater. The conservation efforts described will affect the available surface water supplies. The remaining surface water would be provided on a pro rata basis to the remaining wholesale area that has access to groundwater. Groundwater pumping would be used in conjunction with the additional conservation to meet any demands not met by surface water. In the drier and driest years, additional conservation would account for about 12,300 acre-feet, and groundwater pumping would account for about 17,700 acre-feet.

**REGIONAL WATER MASTER PLAN**  
**APPENDIX A of TM 3: SUMMARY OF EXISTING WATER SUPPLIES**

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Applying this to Citrus Heights shows that in the driest years, Citrus Heights would meet its demand using about 10,300 acre-feet of surface water with the balance made up from a combination of conservation and groundwater pumping (Table 4).

## **CITY OF FOLSOM**

### **General Description**

The City of Folsom (Folsom) is located in the northeast corner of Sacramento County (Figure 1). Most of Folsom is located south of the American River and is served treated surface water from Folsom's Water Treatment Plant. The small portion located north of the American River is served by the San Juan Water District and is considered part of the San Juan Family. For water supply estimates, the proposed Water Forum plan considers Folsom as its own group. Most of Folsom is located east of the groundwater basin; thus, surface water is currently exclusively utilized.

### **Surface Water**

The City of Folsom has a pre-1914 water right of up to 22,000 acre-feet of American River water (Table 2). This right and a 10,000 acre-foot water right owned by Arden-Cordova Water Service Company are held in a Co-Tenancy Agreement. In 1994, Folsom and Arden-Cordova entered into an agreement wherein Arden-Cordova agreed to sell and Folsom agreed to buy 5,000 acre-feet of water each year.

Folsom also is in the process of subcontracting with Sacramento County Water Agency for 7,000 acre-feet of American River water for delivery from Folsom Lake as authorized by Public Law (PL) 101-514 (commonly referred to as "Fazio Water"). The City of Folsom has a total of 34,000 acre-feet of American River water from these three sources.

### **Groundwater**

The limited groundwater available to the southwestern part of the city is contaminated by volatile organic compounds from the Aerojet/McDonnell-Douglas and by volatile organic compounds, heavy metals, and inorganics from Purity Oil (Rancho Cordova site).

### **Proposed Water Forum Plan Water Supply Availability**

As part of the proposed Water Forum plan, Folsom would meet its entire 2030 demands with surface water. In wet/average years, Folsom would divert and use the entire 34,000 acre-feet of surface water. In drier years, it would divert and use a decreasing amount of surface water from 34,000 acre-feet to 22,000 acre-feet. In the driest years, it would reduce its diversions to 20,000 acre-feet per year. Folsom will meet its demands in the drier and driest years by using supplemental supplies. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

## **CITY OF ROSEVILLE**

### **General Description**

The City of Roseville (Roseville) is located in southwestern Placer County (Figure 1). For water supply estimates, the proposed Water Forum plan considers Roseville as its own group. The western part of Roseville is located along the edge of the groundwater basin, which can provide limited amounts of groundwater to Roseville. Roseville currently meets most of its water supply needs with surface water.

### **Surface Water**

Roseville has a contract with the United States Bureau of Reclamation (Reclamation) Central Valley Project (CVP) for 32,000 acre-feet of American River water and a contract with Placer County Water Agency for 30,000 acre-feet of American River water. Historically, the CVP water has been subject to shortages of up to 25 percent. All of this surface water is diverted from Folsom Lake and treated at the City of Roseville Water Treatment Plant.

### **Groundwater**

Limited amounts of groundwater are available along Roseville's western margins. In 1968, groundwater elevations in Roseville ranged from about 20 to 100 feet above sea level (Figure 7). By 1996, groundwater elevations had dropped about 20 feet and ranged from about sea level to 80 feet above sea level (Figure 8). Roseville is located east of the cone of depression.

### **Proposed Water Forum Plan Water Supply Availability**

As part of the proposed Water Forum plan, Roseville would meet its 2030 demands with surface water and groundwater. In wet/average years, it would divert and use the entire 54,900 acre-feet of water. In drier years, it would divert and use a decreasing amount of surface water from 54,900 acre-feet to 39,800 acre-feet. In the driest years, it would divert 39,800 acre-feet of water. In the drier and driest years, the balance of the demands would be met with groundwater, additional conservation, and reclaimed water. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

## **CITY OF SACRAMENTO**

### **General Description**

A portion of the City of Sacramento lies north of the American River in western Sacramento County. The City exercises water rights on both the American River and the Sacramento River and uses groundwater.

### **Surface Water**

The City has rights to use water from both the American and Sacramento Rivers. The water available to the City is under its rights as modified by a water rights settlement contract between the City and Reclamation.

The City claims a pre-1914 right to divert up to 75 cfs of Sacramento River water.

The City holds Permit 992 (A1743, 3/30/20) for diversion of up to 225 cfs from the Sacramento River. The allowable place of use is the City.

The City holds four permits for diversion of American River water: Permits 11358 (A12140, 10/29/47) and 11361 (A16060, 9/22/54) for direct diversion of up to 675 cfs; and Permits 11359 (A12321, 2/13/48) and 11360 (A12622, 7/29/48) for rediversion of up to 589,000 acre-feet per year of water diverted by SMUD at its Upper American River Projects. The allowable place of use for the American River water is a specified area of some 96,000 acres that includes the City as well as areas in Sacramento County on the east side of Sacramento.

In 1957, the City and Reclamation entered into a permanent water rights settlement contract under which the City agreed to limit its diversion to not more than 225 cfs of Sacramento River water and not more than 675 cfs of American River water. In turn, Reclamation guaranteed the availability of those amounts to the City with no dry year deficiencies.

The City has agreements with Arcade Water District and Del Paso Manor Water District to make surface water available for use within the portions of their service areas that lie within the City's allowable place of use. The City entered into a similar agreement with Northridge Water District, but it was never implemented.

### **Groundwater**

The northeast part of Sacramento uses groundwater to meet its demands. In 1968, groundwater elevations in this part of Sacramento ranged from about 10 feet below sea level to sea level (Figure 7). By 1996, groundwater elevations had dropped about 40 feet and ranged from about 20 to 40 feet below sea level (Figure 8). Numerous contamination sites located in and around the City could pose a threat to conjunctive use plans (see Figure 13).

### **Proposed Water Forum Plan Water Supply Availability**

Under the proposed Water Forum plan, the City would utilize a complex combination of water from the American River, Sacramento River, and underlying groundwater basin to meet its 2030 demands. It is based on water year types. Rather than try to explain the details of the operation, the reader is referred to pages 145 to 148 of the Draft Recommendation of the Water Forum Agreement (January 1997).

## **FAIR OAKS WATER DISTRICT**

### **General Description**

Fair Oaks Water District (Fair Oaks) is located on the north bank of the American River in eastern Sacramento County (Figure 1). It receives surface water on a wholesale basis from San Juan Water District and is included in the San Juan Family Water Forum Grouping (Figure 3). Fair Oaks relies primarily on surface water provided by the San Juan Water District. Limited amounts of groundwater are used to meet remaining demand.

### **Surface Water**

Fair Oaks receives American River water through its contract with the San Juan Water District. The water is diverted from Folsom Lake and treated at Peterson Water Treatment Plant. Fair Oaks has a contract with the San Juan Water District to purchase a minimum of 15,000 acre-feet per year. It should be noted that the CVP water supplies, which make up a portion of the San Juan District's total surface water supply, might be subject to deficiencies of up to 25 percent in dry years.

### **Groundwater**

Fair Oaks overlies the groundwater basin and primarily uses groundwater to meet peak demands. In 1968, the groundwater elevation in Fair Oaks ranged from about 30 feet to 100 feet above sea level (Figure 7). By 1996, increased groundwater pumping in the basin had lowered groundwater elevations to 10 feet below sea level to 100 feet above sea level (Figure 8).

### **Proposed Water Forum Plan Water Supply Availability**

The proposed water use patterns for Fair Oaks are considered collectively as part of the San Juan Family. In wet/average years, the San Juan Family would use up to 82,200 acre-feet per year of surface water to meet all of its needs. Groundwater would not be needed, except for occasional peaking purposes.

In drier years, the San Juan Family would use a decreasing amount of surface water from 82,200 to 52,200 acre-feet based on inflows into Folsom Lake. In these years, up to 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater would be used to meet the remaining demands of the San Juan Family (Table 4) as described in the proposed Water Forum plan. The proposed Water Forum plan does not define the distribution of surface water and groundwater to the members of the San Juan Family. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

In the driest years, the San Juan Family collectively would use 52,200 acre-feet of surface water and 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater to meet the remaining demands.

In the drier and driest years, San Juan Water District would continue to provide surface water first to those areas in the wholesale area that do not have access to groundwater. The conservation efforts described will affect the available surface water supplies. The remaining surface water would be provided on a pro rate basis to the remaining wholesale area that has access to groundwater. Groundwater pumping would be used in conjunction with the additional conservation to meet any demands not met by surface water. In the drier and driest years, additional conservation would account for about 12,300 acre-feet, and groundwater pumping would account for about 17,700 acre-feet.

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Applying this to Fair Oaks shows that in the driest years, Fair Oaks would meet its demand using about 9,000 acre-feet of surface water with the balance made up from a combination of conservation and groundwater pumping (Table 4).

## **NATOMAS CENTRAL MUTUAL WATER COMPANY**

### **General Description**

The Natomas Central Mutual Water Company (Natomas) is located in northwestern Sacramento County and southern Sutter County adjacent to the Sacramento River (Figure 1). Natomas has water rights and contracts to Sacramento River water (Table 2). Surface water is supplemented with minor amounts of groundwater from privately owned wells. The Sacramento County portion of Natomas, Sacramento International Airport, and the Sacramento County Water Maintenance District Northgate service area are collectively referred to in the Water Forum plan groupings as the Natomas Central Mutual Water Company and Miscellaneous Users. A portion of Natomas is located within the City of Sacramento's Authorized Place of Use.

### **Surface Water**

Natomas has a settlement contract with Reclamation for a base supply of 98,000 acre-feet per year and a contract entitlement for CVP water of 22,000 acre-feet per year (Table 2). The place of use for this water is the water company service area that includes both the Sacramento County and Sutter County areas.

### **Groundwater**

Groundwater is pumped by landowners using private wells. Natomas as a water company does not provide any groundwater. In 1968, groundwater elevations in Natomas ranged from about sea level to 15 feet above sea level (Figure 7). Because Natomas is located so close to the Sacramento River, groundwater elevations are fairly constant over time; thus, 1996 groundwater elevations remained at about sea level to 15 feet above sea level (Figure 8). Groundwater is slightly mineralized near the airport; otherwise, it is typical of groundwater quality in the basin.

### **Proposed Water Forum Plan Water Supply Availability**

The proposed Water Forum plan shows that this group will meet all its 2030 water supply needs with surface water from the Sacramento River. This holds true for all year types, wet/average, drier, and driest. The total water use is projected to be 44,450 acre-feet of surface water and 7,400 acre-feet of groundwater. The portion of Natomas within the City of Sacramento place of use will meet its needs with about 6,000 acre-feet of surface water in all year types.

It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

## **NORTHRIDGE WATER DISTRICT**

### **General Description**

The Northridge Water District (Northridge) is located in the northern Sacramento County (Figure 1). The western portion of Northridge is located within the City of Sacramento's Authorized Place of Use, but presently Northridge does not receive any surface water from the City (Figure 5). The proposed Water Forum plan refers collectively to Northridge, the Citizens Utilities Antelope and Lincoln Oaks/Royal Oaks service areas, McClellan Air Force Base, and the Rio Linda/Elverta Community Water District as the North Central Group. Northridge's water supply needs have historically been met entirely by groundwater. In the last several years, however, groundwater has been supplemented with increasing amounts of Section 215 surface water. The construction and subsequent operation of the Cooperative Transmission Pipeline has given Northridge the ability to more fully utilize the Section 215 water.

### **Surface Water**

Since 1991, Northridge has received some surface water from Section 215 Contract No. 8-07-20-W1473. Beginning in 1998, this water was delivered to Northridge through the Cooperative Transmission Pipeline. Northridge also has a contract pending with the Placer County Water Agency to import up to 29,000 acre-feet per year of American River water. The annual amount of the delivery to Northridge is subject to limitations based on water year types defined by the proposed Water Forum plan.

In addition, Northridge entered into discussion for an agreement with the City of Sacramento for 9,023 acre-feet per year of American River water to made available for use within that portion of Northridge's service area that lies within the City's existing American River allowable place of use. The agreement has not been implemented.

### **Groundwater**

At certain times, groundwater is used to meet almost all of Northridge's water demands. Projected groundwater use is expected to decline in the future as the result of the importation of surface water. In 1968, groundwater elevations in Northridge ranged from 5 feet below to 30 feet above sea level (Figure 7). Increasing groundwater pumping in the basin resulted in declining water levels to such an extent that by 1996 the elevations ranged from about 20 to 40 feet below sea level (Figure 8).

The general groundwater quality is typical of the basin and considered good. Contamination plumes of volatile organic compounds and heavy metals west of Northridge at McClellan Air Force Base threaten local groundwater supplies. Some wells on the base and in neighboring areas have been shut down because of contaminant migration.

### **Proposed Water Forum Plan Water Supply Availability**

As part of the proposed Water Forum plan, Northridge and other North Central Group water users would have access to 29,000 acre-feet of water in wet/average years, pending the contract with Placer County Water Agency. For the drier and driest years, however, no contract water is expected to be available and all the demands will be met with groundwater. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

## **ORANGE VALE WATER COMPANY**

### **General Description**

The Orange Vale Water Company (Orange Vale) is located north of the American River in eastern Sacramento County (Figure 1). It receives surface water on a wholesale basis from San Juan Water District and is included in the San Juan Family as defined by the proposed Water Forum plan (Figure 3). Orange Vale uses primarily surface water provided from San Juan Water District to meet its needs. Groundwater is used to meet any remaining demands including for peaking and emergency purposes.

### **Surface Water**

Orange Vale receives American River water through its contract with San Juan Water District (Table 2). Orange Vale has a contract with San Juan Water District to purchase a minimum of 7,500 acre-feet per year of American River water. The water is diverted from Folsom Lake and treated at San Juan Water District's Peterson Water Treatment Plant. It should be noted that CVP water supplies, which make up a portion of San Juan Water District's total surface water supply, might be subject to deficiencies of up to 25 percent in dry years.

### **Groundwater**

Orange Vale primarily uses groundwater to meet peak demands. In 1968, groundwater elevations ranged from about 50 feet to 100 feet above sea level (Figure 7). By 1996, increased groundwater pumping in the basin had lowered groundwater elevations in Orange Vale to 60 feet to about 100 feet above sea level (Figure 8). Orange Vale is located on the east of the cone of depression along the edge of the useable aquifer system.

### **Proposed Water Forum Plan Water Supply Availability**

The proposed water use patterns for Orange Vale are considered collectively as part of the San Juan Family. In wet/average years, the San Juan Family would use up to 82,200 acre-feet per year of surface water to meet all of its needs. Groundwater would not be needed, except for occasional peaking purposes.

In drier years, the San Juan Family would use a decreasing amount of surface water from 82,200 to 52,200 acre-feet based on inflows into Folsom Lake. In these years, up to 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater would be used to meet the remaining demands of the San Juan Family (Table 4) as described in the proposed Water Forum plan. The proposed Water Forum plan does not define the distribution of surface water and groundwater to the members of the San Juan Family. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

In the driest years, the San Juan Family collectively would use 52,200 acre-feet of surface water and 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater to meet the remaining demands.

In the drier and driest years, San Juan Water District would continue to provide surface water first to those areas in the wholesale area that do not have access to groundwater. The conservation efforts described will affect the available surface water supplies. The remaining surface water would be provided on a pro rate basis to the remaining wholesale area that has access to groundwater. Groundwater pumping would be used in conjunction with the additional conservation to meet any demands not met by surface water. In the drier and driest years, additional conservation would account for about 12,300 acre-feet, and groundwater pumping would account for about 17,700 acre-feet.

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Applying this to Orange Vale shows that in the driest years, Orange Vale would meet its demand using about 4,300 acre-feet of surface water with the balance made up from a combination of conservation and groundwater pumping (Table 4).

## **PLACER COUNTY WATER AGENCY**

### **General Description**

The Placer County Water Agency (PCWA) is located in the western part of Placer County (Figure 1). PCWA currently has water rights and contracts on the American River and a pending water contract on the Sacramento River (Table 2). In the proposed Water Forum plan, PCWA is considered its own group with all its demands met with surface water.

### **Surface Water**

PCWA has 120,000 acre-feet per year of water rights on the American River. In addition, they have a water contract entitlement with Reclamation for 117,000 acre-feet of CVP water. The CVP water is subject to shortages of up to 25 percent. On this contract, water in excess of 35,000 acre-feet is under discussion. PCWA also has a contract with PG&E for 100,400 acre-feet of water from the Yuba and Bear Rivers. PCWA also has a pending water contract with the California State Water Project (SWP) to divert 35,000 acre-feet of Sacramento River or Feather River water to be treated and used in western Placer County.

### **Groundwater**

Groundwater is available in the western portion of PCWA's service area. PCWA does not provide groundwater, but private wells are used. In 1968, groundwater elevations in the PCWA ranged from about 15 feet below sea level to 10 feet above sea level (Figure 7). By 1996, increased groundwater pumping in the basin had lowered groundwater elevations to about 30 feet below sea level to about 10 feet above sea level (Figure 8).

### **Proposed Water Forum Plan Water Supply Availability**

In all proposed Water Forum plan year types, PCWA is expected to meet all its demands with surface water from the American and Sacramento Rivers (Table 4). This totals 70,500 acre-feet per year.

## **RIO LINDA/ELVERTA COMMUNITY WATER DISTRICT**

### **General Description**

Rio Linda/Elverta Community Water District (Rio Linda/Elverta) is located in the northwestern part of Sacramento County (Figure 1). It currently uses groundwater to meet all its needs. The proposed Water Forum plan combines Rio Linda/Elverta into the North Central Group (Figure 2).

### **Groundwater**

Rio Linda/Elverta meets all its water needs with groundwater. In 1968, groundwater elevations in Rio Linda ranged from about 15 feet below sea level to sea level (Figure 7). By 1996, increased groundwater pumping in the basin had lowered groundwater elevations to about 10 to 40 feet below sea level (Figure 8). McClellan Air Force Base is located to the east of Rio Linda. Contamination from the base has migrated off site and shut down wells, requiring some of the eastern parts of Rio Linda to be served by an alternate water supply.

### **Proposed Water Forum Plan Water Supply Availability**

As part of the proposed Water Forum plan, Rio Linda/Elverta and other North Central Group water users would have access to 29,000 acre-feet of water in wet/average years, pending the contract with Placer County Water Agency. For the drier and driest years, no contract water would be available, and all the demands would be met with groundwater. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP's as presented in the proposed Water Forum plan.

## **SACRAMENTO COUNTY WATER MAINTENANCE DISTRICT**

### **General Description**

The Sacramento County Maintenance District (County) has two service areas north of the American River: the Arden Park Vista service area and Northgate service area (Figure 1). The Arden Park Vista area is located within the City of Sacramento's Authorized Place of Use and is considered by the Water Forum to be part of the City of Sacramento Place of Use water users group (Figure 5). Also, the Arden Park Vista area may have access to American River diversions through the Arden-Arcade Plan.

The Northgate service area is located outside the City of Sacramento Authorized Place of Use and is considered by the Water Forum as part of the Natomas Central Mutual Water Company group. All of the demands of the Arden Park and the Northgate service areas are met by groundwater.

### **Groundwater**

As mentioned, groundwater is used to meet all the demands in each service area. Groundwater elevations in the Northgate service area were about sea level in 1968 (Figure 7). By 1996, increased groundwater pumping in the basin lowered groundwater elevations to about 20 feet below sea level (Figure 8).

In the Arden Park Vista area, 1968 groundwater elevations ranged from about sea level to 10 feet above sea level (Figure 7). In 1996, groundwater elevations were at about 30 feet below sea level (Figure 8).

### **Proposed Water Forum Plan Water Supply Availability**

The Northgate area and the Arden Park Vista area will continue to use groundwater to meet all their demands in all the proposed Water Forum plan year types (Table 4).

## **SAN JUAN WATER DISTRICT**

### **General Description**

The San Juan Water District (San Juan) has both retail and wholesale service areas located in northeastern Sacramento County and southern Placer County (Figure 1). The San Juan retail service areas shown on Figure A-2 includes those in both Placer County and Sacramento County. The wholesale service area shown on Figure 3 includes the San Juan Water District retail area, Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, and that portion of the City of Folsom north of the American River. For water supply analysis, the proposed Water Forum plan considered the wholesale area in Sacramento County and Placer County as the San Juan Family (Figure 3). It should be noted that the place of use of some of the water rights and contract entitlements include the entire wholesale service area. This is explained further below.

### **Surface Water**

San Juan has a pre-1914 water right of 33,000 acre-feet of American River water and a contract entitlement with the CVP for 11,200 acre-feet per year (Table 2). Both of these supplies can be used in the wholesale service area. The CVP water is subject to shortages of up to 25 percent. In addition, San Juan contracts with Placer County Water Agency for 25,000 acre-feet of water that can only be used in the Placer County wholesale service area as shown on Figure A-3. San Juan also is in the process of contracting with Reclamation for 13,000 acre-feet of American River water for delivery from Folsom Lake as authorized by PL 101-514 (often referred to as “Fazio Water”), which can only be used in the Sacramento County portion of the wholesale service area as shown on Figure A-4. All of these surface water supplies are diverted from Folsom Lake and treated at San Juan Water District’s Peterson Water Treatment Plant.

### **Groundwater**

The retail area of San Juan Water District is located east of the groundwater basin. Surface water is used to meet all of the retail area’s demands.

### **Proposed Water Forum Plan Water Supply Availability**

The proposed water use patterns for San Juan are considered collectively as part of the San Juan Family. In wet/average years, the San Juan Family would use up to 82,200 acre-feet per year of surface water to meet all of its needs. Groundwater would not be needed, except possibly for peaking purposes.

In drier years, the San Juan Family would use a decreasing amount of surface water from 82,200 to 52,200 acre-feet based on inflows into Folsom Lake. In these years, up to 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater would be used to meet the remaining demands of the San Juan Family (Table 4) as described in the proposed Water Forum plan. The proposed Water Forum plan does not define the distribution of surface water and groundwater to the members of the San Juan Family. It should be noted that this supply mix is used to meet the demands including full implementation of the BMP’s as presented in the proposed Water Forum plan.

In the driest years, the San Juan Family collectively would use 52,200 acre-feet of surface water and 30,000 acre-feet of additional conservation (up to 15 percent) and groundwater to meet the remaining demands.

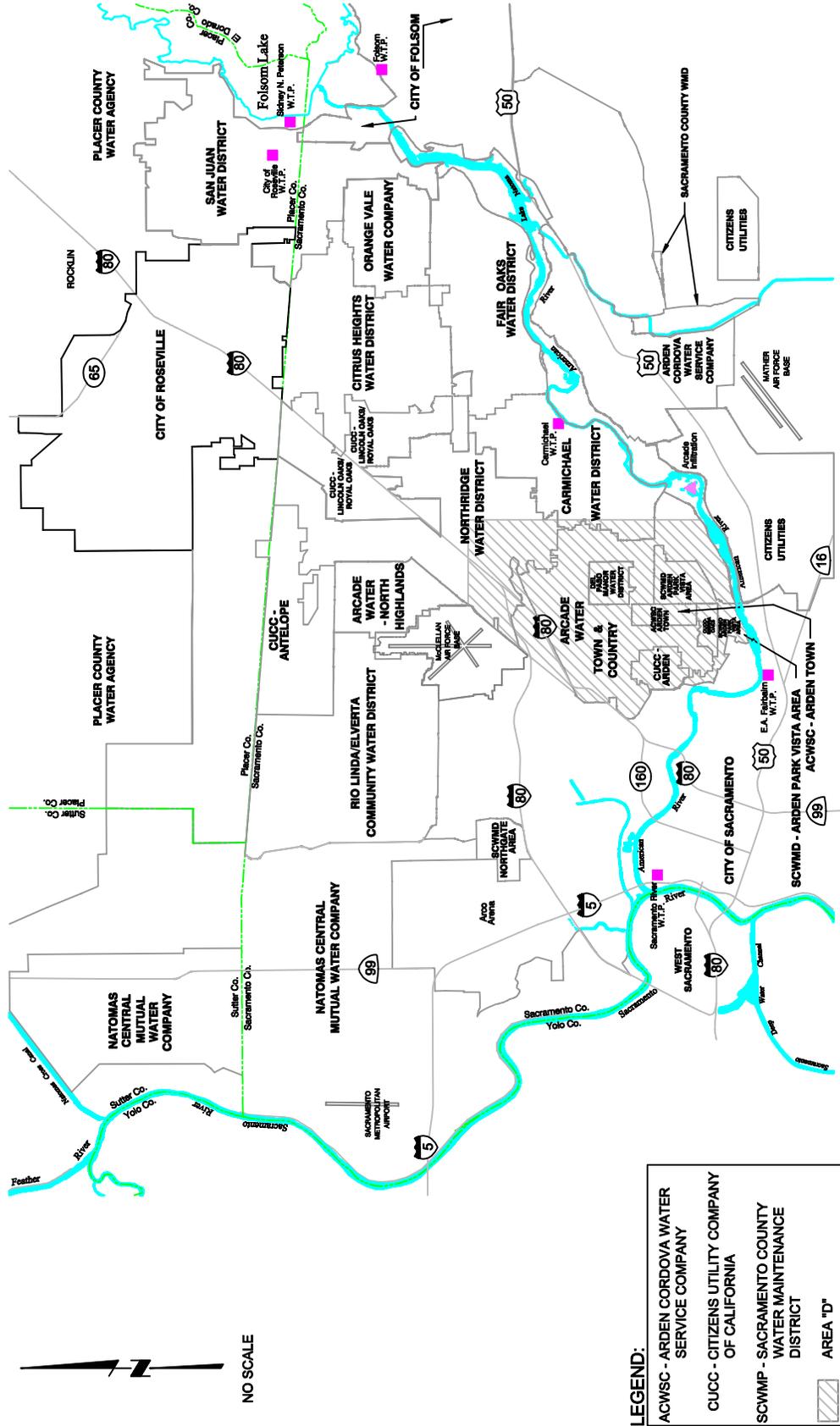
In the drier and driest years, San Juan would continue to provide surface water first to those areas in the wholesale area that do not have access to groundwater (San Juan Water District retail area and City of Folsom). The conservation efforts described will affect the available surface water supplies. The

**REGIONAL WATER MASTER PLAN**  
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remaining surface water would be provided as available to the remaining wholesale area (Citrus Heights Water District, Fair Oaks Water District, and Orange Vale Water Company). Groundwater pumping would be used in conjunction with the additional conservation to meet any demands not met by surface water. In the drier and driest years, additional conservation would account for about 12,300 acre-feet, and groundwater pumping would account for about 17,700 acre-feet.

In the driest years, San Juan would meet its demand using about 5,500 acre-feet and 21,300 acre-feet of its available surface supplies in the Sacramento County and Placer County retail areas, respectively. The balance would be made up from increased conservation (Table 4).

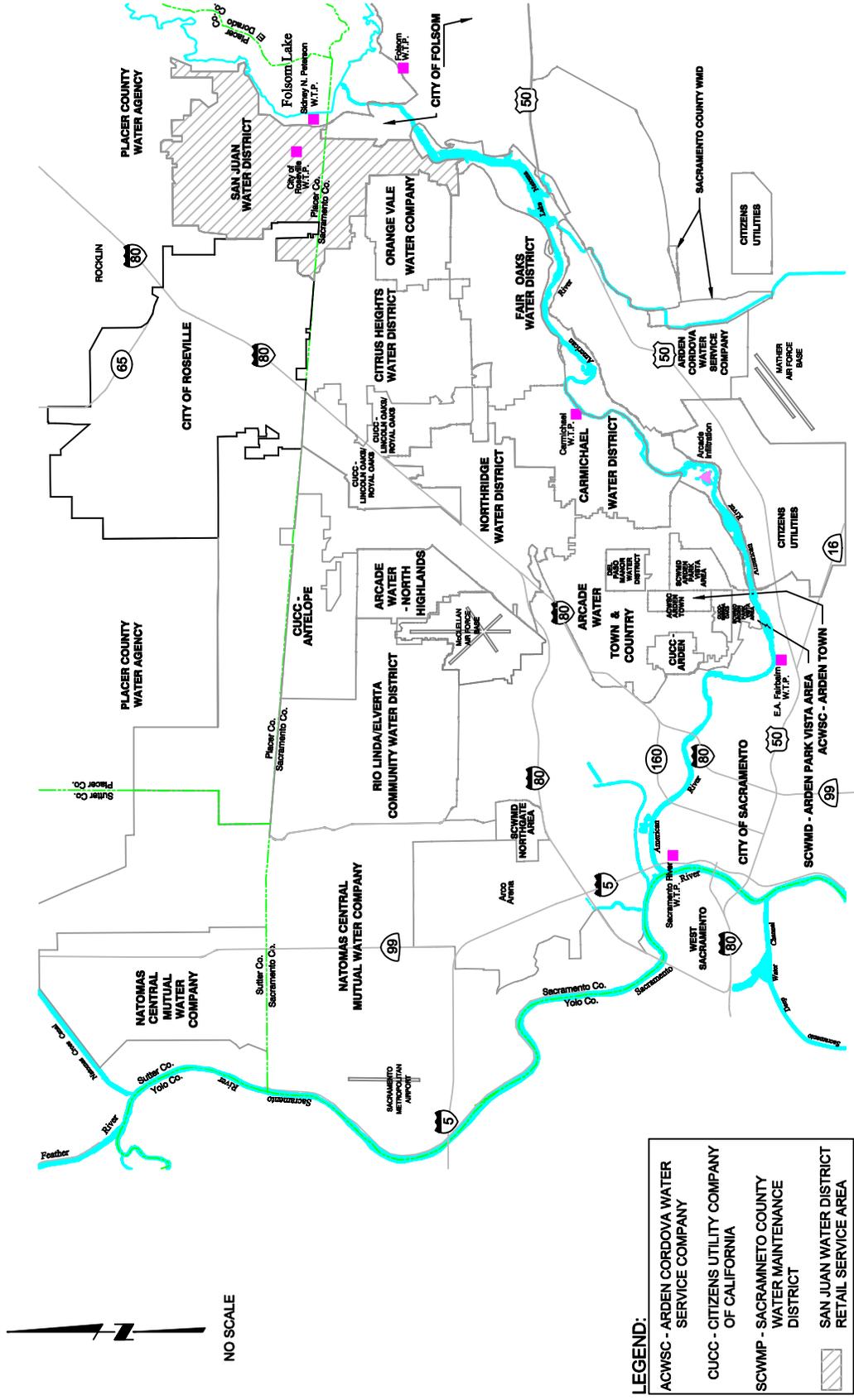


**American River Basin Cooperating Agencies**

Regional Water Master Plan

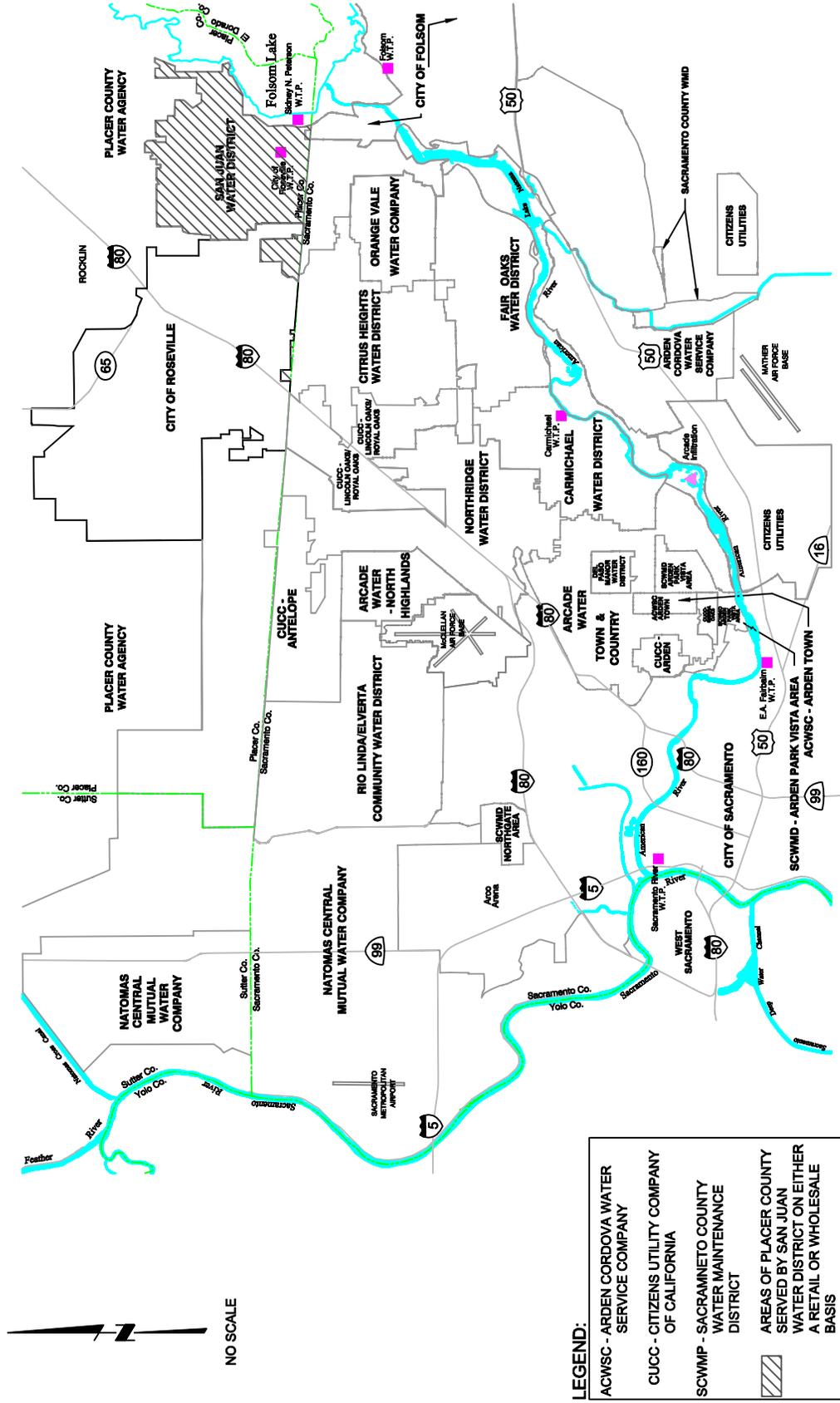
**Arden - Arcade Conjunctive Use Plan and Area "D"**

Figure A-1



**American River Basin Cooperating Agencies**  
Regional Water Master Plan

**San Juan Water District Retail Service Areas**  
Figure A-2



## American River Basin Cooperating Agencies

### Regional Water Master Plan

## Areas of Placer County Served By San Juan Water District On Either a Retail or Wholesale Basis

Figure A-3



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**6.3 APPENDIX C. OUTREACH AND EDUCATION**

**6.3.1 Attachment A. SGA's Notices Published in the Sacramento Bee**

**6.3.2 Attachment B. "Summary of Public Outreach Plan for Groundwater Management"  
(Lucy & Company, 2003).**

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SGA GMP -- Appendix C, Attachment A

REGIONAL WATER AUTHORITY  
5620 BIRDCAGE ST #100  
CITRUS HEIGHTS CA 95610-

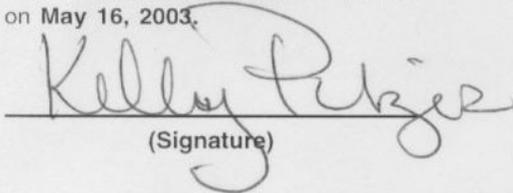
DECLARATION OF PUBLICATION  
(C.C.P. 2015.5)

COUNTY OF SACRAMENTO  
STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

May 16, 2003

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Sacramento, California, on May 16, 2003.

  
(Signature)

NO 170 PUBLIC NOTICE

**Sacramento Groundwater Authority**

**NOTICE OF PUBLIC PARTICIPATION**

The Sacramento Groundwater Authority (SGA) is a joint powers authority (JPA) charged with protection and management of the groundwater basin underlying Sacramento County north of the American River. To maintain a sustainable groundwater resource for the more than half-million citizens that rely upon the basin for their daily water needs, SGA is developing a groundwater management plan. This is the first critical step in implementing an active groundwater management program that will ensure a safe supply for our present and future generations.

Public participation is encouraged in development of this plan. To a large degree, the public is already well-represented in this process. For example, signatories of the JPA include the County of Sacramento, the City of Sacramento, the City of Citrus Heights, and the City of Folsom. These signatories have delegated their authority to a sixteen member Board comprised of elected officials and other individuals selected by the signatories. Board members include representatives of California American Water Company, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Sacramento, County of Sacramento, Del Paso Manor Water District, Fair Oaks Water District, Natomas Central Mutual Water Company, Orange Vale Water Company, Rio Linda/Elverta Community Water District, Sacramento Suburban Water District, San Juan Water District, Southern California Water Company and individual representatives from agriculture and self-supplied groundwater users.

SGA encourages any individual interested in the development of this groundwater management plan to participate by either working through their respective water supplier representative on the SGA Board or by attending any of our public Board meetings held the second Thursday of each month. For more information on Board meetings or to find out who your Board representative is, please contact Rob Swartz of SGA at (916) 967-7692.

ITI: May 16, 2003

REGIONAL WATER AUTHORITY  
5620 BIRDCAGE ST #180  
CITRUS HEIGHTS CA 95610-

DECLARATION OF PUBLICATION  
(C.C.P. 2015.5)

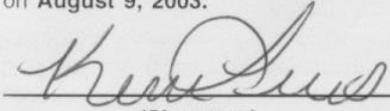
COUNTY OF SACRAMENTO

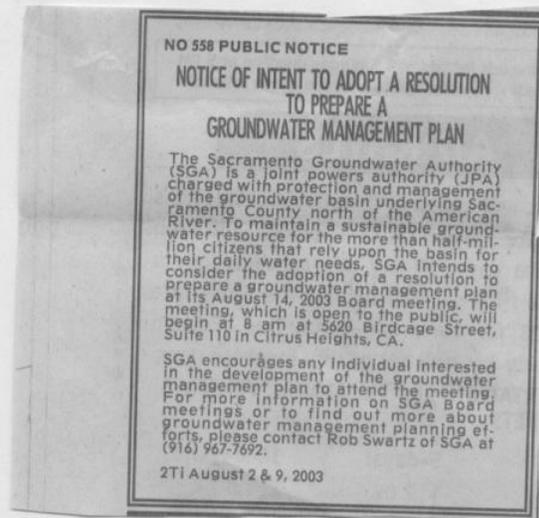
STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

August 2, 9, 2003

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Sacramento, California, on **August 9, 2003**.

  
(Signature)



REGIONAL WATER AUTHORITY  
5620 BIRDCAGE ST #180  
CITRUS HEIGHTS CA 95610-

DECLARATION OF PUBLICATION  
(C.C.P. 2015.5)

COUNTY OF SACRAMENTO  
STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

August 20, 27, 2003

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Sacramento, California, on **August 27, 2003**.

  
(Signature)

Legal  
Notices

2005

Legal  
Notices

2005

NO 618 PUBLIC NOTICE

RESOLUTION NO. 2003-06

A RESOLUTION OF THE SACRAMENTO  
GROUNDWATER AUTHORITY DECLARING ITS  
INTENT TO PREPARE A GROUNDWATER  
MANAGEMENT PLAN AND ADOPTING A  
STATEMENT OF PUBLIC PARTICIPATION

The Board of the Sacramento Groundwater Authority (SGA) does hereby find that:

WHEREAS, the SGA was formed under the Joint Exercise of Powers Act (Chapter 5 of Division 7 of Title 1 of the California Government Code), pursuant to a Joint Powers Agreement by and among the City of Citrus Heights, the City of Folsom, the City of Sacramento, and the County of Sacramento dated August 11, 1998; and

WHEREAS, the SGA was created for the purposes of protecting, preserving, and enhancing, for current and future beneficial uses, the groundwater resources in the North Area Groundwater Basin, in Sacramento County, north of the American River; and

WHEREAS, one of the SGA's primary functions is to develop, adopt and implement a plan for the management of groundwater resources in the North Area Groundwater Basin.

NOW, THEREFORE, be it resolved that:  
1. The SGA intends to develop, adopt and implement a groundwater management plan for the North Area Groundwater Basin, in Sacramento County, north of the American River. Among other components, SGA's groundwater management plan shall include the following components:

- a. Basin Management Objectives;
- b. Components relating to the monitoring and management of groundwater levels, groundwater banking, groundwater quality, inelastic land surface subsidence, and changes in surface flow and surface water levels or quality or are caused by groundwater pumping;
- c. Monitoring protocols to track changes in conditions related to the components in section (b) and to generate information for the purpose of meeting Basin Management Objectives and establishing effective management of groundwater;
- d. A plan to involve other local agencies and water purveyors in the North Area Groundwater Basin in the development of the groundwater management plan;
- e. A map depicting the area overlying the North Area Groundwater Basin, as defined by California Department of Water Resources Bulletin No. 118, the jurisdictional area of the SGA, and the boundaries of other local agencies and water purveyors in the North Area Groundwater Basin;
- f. Rules related to implementation of the groundwater management plan.

2. The SGA further intends to provide and allow broad opportunity for public involvement in the development of the groundwater management plan for the North Area Groundwater Basin. SGA's plan for public involvement shall include the following:

- a. The formation of a Technical Review Committee and Policy Committee to guide development of the groundwater management plan;
- b. Preparation of a Public Outreach Plan;
- c. Public review and comment period and public hearings.

3. This resolution supercedes and replaces Resolution 2003-03, adopted on March 13, 2003.

PASSED AND ADOPTED by the Board of Directors of the Sacramento Groundwater Authority, on August 14, 2003.

2T: Aug. 20th & Aug. 27th 2003

REGIONAL WATER AUTHORITY  
5620 BIRDCAGE ST STE 180  
CITRUS HEIGHTS CA 95610-

DECLARATION OF PUBLICATION  
(C.C.P. 2015.5)

COUNTY OF SACRAMENTO

STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

November 28, 2003 &

December 5, 2003

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Sacramento, California, on December 5, 2003.

  
(Signature)

**NO 131 PUBLIC NOTICE**

**NOTICE OF INTENT TO ADOPT  
A GROUNDWATER MANAGEMENT PLAN**

The Sacramento Groundwater Authority (SGA) will hold a public hearing on December 11, 2003 to consider adopting a Groundwater Management Plan (GMP) for the groundwater basin underlying Sacramento County north of the American River. SGA is a joint powers authority created by agreement between the cities of Citrus Heights, Folsom, and Sacramento, and the County of Sacramento to collectively manage the groundwater basin.

The GMP outlines a set of actions to protect our crucial groundwater resources for present and future water supply needs. The overall goal of the GMP is to ensure a viable groundwater resource for beneficial uses, including agricultural, industrial, and municipal uses, and to support the Sacramento Area Water Forum's historic agreement to provide a reliable and safe water supply through the year 2030 while preserving the fishery, wildlife, recreational, and aesthetic values of the lower American River. To achieve this goal, the GMP sets forth five management objectives and five primary plan components that identify the specific actions to implement the plan. Among the components is the first comprehensive monitoring plan established for the area, which will be of great benefit in tracking the overall health of the underlying basin.

The public is invited to attend and provide comments at the Board hearing on December 11, 2003, which will begin at 8 a.m. at 5620 Birdcage Street, suite 110 in Citrus Heights, CA. Any protests by landowners in the area covered under the plan must be provided to the SGA, in writing, prior to completion of this meeting. Please contact Rob Swartz at (916) 947-7692 or [rswartz@rwah20.org](mailto:rswartz@rwah20.org) if you would like to obtain a copy of the GMP or want more information on SGA Board meetings.

Run 2T1, November 28 & Dec 5, 2003

## **Summary of Public Outreach Plan for Groundwater Management**

### **Situation Analysis**

#### **Introduction**

The Sacramento Groundwater Authority (SGA) was formed to protect the health of the groundwater basin within the northern portion of Sacramento County. The authority is charged with monitoring and managing both the water supply and quality of the groundwater basin underlying the service areas of water purveyors north of the American River. SGA plans to complete a Groundwater Management Plan (GMP) compliant with Senate Bill 1938 (SB 1938) in 2003. Additionally, developing a more comprehensive groundwater management program that is acceptable to stakeholders is one of the organization's top priorities. While SGA members understand the need for groundwater management, members also recognize that significant opportunities exist for banking and exchange partnerships with potential to generate revenue needed for infrastructure enhancements to increase local supply reliability.

The GMP will seek to establish a regional management approach, while maintaining local agency autonomy, for the groundwater basin at a time when increasing statewide demand is being placed on limited water resources. After the GMP is approved, the SGA will further develop a comprehensive groundwater management program with policy guidelines for managing the groundwater basin (water accounting framework), banking and exchange opportunities and potential partnership arrangements with outside entities to help offset local financing needs. A complete data management system is also an integral part of the groundwater management program.

In 2003, SGA approached Lucy and Company to conduct research and prepare a strategic public outreach plan for various stakeholder groups in the groundwater basin. To obtain the best qualitative analysis of issues and concerns about groundwater management, banking and exchange, water transfers and SGA policies about managing the groundwater basin, primary focus group and secondary research was conducted. This effort was supported by funds from the California Department of Water Resources Integrated Storage Investigations Program. A brief summary of both research efforts is included in this section. For a complete research summary, see Appendix A.

From the research, a strategic public outreach plan was written to include an analysis of target audiences, and objectives, strategies and tactics recommended for implementation of the groundwater management plan. The public outreach plan also recommends different strategies and tactics to gain stakeholder acceptance of the groundwater management program, including plans for banking and exchange, which could become controversial if not appropriately managed. The complete public outreach plan is included in Section II.

#### **Background**

In California, the only truly universal law governing groundwater pumping is the state constitutional mandate that "water not be wasted or put to an unreasonable use." In fact, California and Texas, which are the highest pumping states in the nation, are the only two states without legislated groundwater pumping restrictions. On average, California uses 1.3

million acre-feet of groundwater more than is naturally or artificially recharged, according to projected water budgets<sup>1</sup> The fact that 75 percent of California's yearly precipitation falls north of Sacramento, while more than 75 percent of the demand is south of the state capitol helps explain why groundwater management is critical.

Historically, the state has maintained that local water purveyors are better equipped than the state to manage the complexity of groundwater basins, but the water purveyors must take the initiative to protect the quality and quantity of water in the aquifers. Groundwater pumpers must agree among themselves how best to manage and protect their basins, and where needed, construct infrastructure for replenishing the groundwater basin through conjunctive use. With the passage of Assembly Bill 3030 in 1992 and SB 1938 in September 2002, local water providers such as those members of the SGA are more inclined to take the reins and actively collaborate to employ conjunctive use, implement banking and exchange projects, and take advantage of state financing opportunities.

### **Senate Bill 1938**

Senate Bill 1938 requires that new groundwater management plans include the following components: documentation of a public involvement statement; basin management objectives; monitoring and management of groundwater elevations, water quality, land subsidence, changes in surface water flows affecting groundwater levels or quality or due to pumping; plans to involve other agencies within the basin; adoption of monitoring protocols by basin stakeholders; and a map of the basin showing the area to be managed. Organizations applying for state grant funds for groundwater-related projects must have an adopted SB 1938-compliant groundwater management plan.

### **groundwater management Program Approach**

The groundwater management program under development by the SGA incorporates elements of the Water Forum Agreement and the American River Basin Cooperating Agencies Regional Water Master Plan (RWMP). The RWMP objective is to identify the facilities and operational agreements necessary to implement the Water Forum Agreement. Elements of the conjunctive use program are currently being implemented.<sup>2</sup> The Water Forum Agreement prescribes a conjunctive use program for Folsom Lake, the lower American River, and the adjacent groundwater basin.

The average annual operational yield determined in the Water Forum Agreement for the SGA area is 131,000 acre-feet per year. Historical overpumping of the basin is estimated to have created 1.5 million acre-feet of available storage (i.e. de-watered aquifer capacity), with a cone of depression centered in the vicinity of the former McClellan Air Force Base. Approximately 400,000 to 500,000 acre-feet of the de-watered aquifer space are assumed to be usable for recharge.

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<sup>1</sup> Water Education Foundation, Layperson's Guide to Groundwater (1998)

<sup>2</sup> MWH, "Draft Workplan for Groundwater Management Plan," Sacramento Groundwater Authority (February 2003)

The RWMP recommends taking advantage of the regional cone of depression in the Sacramento area and integrating the operation of Folsom Lake with the recharge of the groundwater basin.

### **Stakeholder Involvement**

The SGA recognizes the need to incorporate stakeholder input, both internal and external, into its groundwater management efforts. In the Sacramento region, stakeholder involvement has proven to be an important ingredient to crafting agreements. For example, stakeholders have hailed the Water Forum Agreement as a model of successful stakeholder outreach. "You can have political discourse where each side has its own set of facts and they never intersect. The staff was able to gain the trust of most folks. The group then worked on creating a common set of facts rather than spending time developing their own facts to do war with," explained Ron Stork, senior policy advocate with the environmental protection group Friends of the River.

"In my view, a process like this is the way you get things done with contentious public policy issues. The 'I win, you lose' way was not getting anything done," Jim Ray, civil engineer, (firm name).

The SGA does not presume that groundwater management program activities will not generate "political" or public opposition. Consequently, the SGA recognizes the critical importance of keeping stakeholder groups of the Water Forum Successor Effort as well as sectors of the public aware, involved and engaged in the groundwater management program development.

### **External Stakeholder Environment**

The timing of a recently publicized initiative forecasting water crises in the Western United States may assist the SGA in communicating to external stakeholders the vital need for a GMP this year and its associated groundwater management program. In Water 2025, released by the U. S. Department of Interior in May 2003, federal officials described the conflict potential in the Central Valley as "highly likely," due to drought, population growth and aging facilities.

"Today, in some areas of the West, existing water supplies are, or will be, inadequate to meet the water demands of people, cities, farms, and the environment even under normal water supply conditions.

"Water conflicts can have serious social, economic, and environmental impacts. Through Water 2025, the department advocates four key tools to help prevent future conflict and crises over water in the West.

1. Conservation, Efficiency, and Markets
2. Collaboration
3. Improved Technology
4. Remove Institutional Barriers and Increase Interagency Coordination"

The GMP and groundwater management program will demonstrate that the SGA is already working to implement these recommendations. In particular, Water 2025 suggests that participating in the innovative Environmental Water Account (EWA) through the CalFed process is one example of how Central Valley water agencies are addressing the inequities in the current water supply. “This account (EWA) provides a mechanism for state and federal governments to purchase water from willing sellers in order to meet important ecological restoration goals in the San Francisco Bay Delta region.” The SGA participated in two pilot studies between 2001 and 2002 to bank and exchange water for the EWA and the Sacramento Area Flood Control Agency, and will pursue similar opportunities under the groundwater management program. The EWA represents one of several program elements being undertaken by CALFED to improve water supply reliability.<sup>3</sup>

SGA’s public outreach efforts could indirectly benefit from the collaborative initiative. Water 2025, and the public meetings the Interior department will hold this summer across the West, will help raise awareness among the public about the importance of groundwater and the best ways to manage and protect the resource. The meetings, which will engage farmers, environmentalists, water managers and others, will add weight to the arguments to act now to implement a groundwater management plan and program.

While the timing may be appropriate for the public to be able to grasp the need for groundwater management, they may find groundwater management concepts, such as banking and exchange particularly difficult to understand. The following qualitative research found that banking and exchange is a particularly complex subject to explain to lay public.

Additionally, proposed water transfer agreements, in particular from agricultural to urban communities, have historically been emotionally charged debates often referred to as “water grabs.” The Owens Valley/Los Angeles water war and the city of Los Angeles’ water exports from Mono Lake continue to be frequently cited, as justifiable reasons for suspicion about agreements to transfer water to Southern California.

### **Internal Stakeholder Environment**

As in the pilot banking and exchange program, the SGA members may choose to continue to participate in future banking and exchange programs as one of the mechanisms to manage the groundwater basin. The SGA joint powers agreement allows SGA to make the contractual arrangements required to implement programs, while also providing potential partners with the prerequisite political and legal certainty for entering into banking and exchange agreements.

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<sup>3</sup> CALFED Bay-Delta Program, “California’s Water Future: A Framework for Action (June 2000) In the report, also known as the CALFED Record of Decision, actions are identified that will be taken to expand storage capacity by approximately 950,000 acre-feet, and implement a major expansion of more environmentally sensitive groundwater storage for an additional 500,000 to 1 million acre-feet. In addition, local agencies will continue to independently develop storage projects to meet local needs

Although the SGA may hold broad regulatory powers in managing the basin, the members of the SGA will likely pursue an implementation approach that favors voluntary agreements as opposed to regulatory dictums, given the favorable conditions for cooperative conjunctive use projects in the basin. Consequently, the RWMP focused on the identification and development of economic incentives/disincentives policies to encourage/discourage certain operational behaviors.<sup>4</sup> These are among the policy decisions SGA will seek agreements with its member agencies.

## **Primary Research Summary**

The following section summarizes the findings of a focus group study conducted for the Sacramento Groundwater Authority by Lucy & Company. The groups were conducted in April and May 2003, to determine the reactions of several interest groups to SGA's planned implementation of a groundwater management plan (GMP) and program. Lucy & Company facilitated two groups of SGA board members, one group of industry representatives, one group of community leaders, and two groups of residential ratepayers.

The focus groups discussed the topics of the value of adopting a groundwater management plan, the role of SGA in implementing a GMP to manage the basin, and participation in groundwater banking and exchange programs such as CalFed's Environmental Water Account. Many key results or messages came from the focus groups and are summarized into several categories below. A detailed accounting of the focus group discussions is included in Appendix A.

## **Groundwater Management Plan**

- ◆ Development of a GMP is critical for the Sacramento region; industry participants ranked monitoring water quality as the primary need for a GMP.
- ◆ For board participants, the most compelling reason for the SGA to adopt a GMP was "Local control will be taken away if no plan is in place." Second-most compelling was "The resource cannot be sustained without management."
- ◆ The cost of water treatment would constitute a primary reason for an individual agency's GMP-associated rate increases.
- ◆ Some agencies are already making changes or constructing infrastructure to accommodate the GMP, and are willing to do more.
- ◆ Some board members felt the goals for a groundwater management plan should emphasize policies and procedures over regulatory measures, but a few insisted on the inclusion of a regulatory element to address special circumstances.
- ◆ Board members generally favored coordination with adjacent basins, although they differed on whether it should happen now or wait until SGA has its groundwater management program in place.
- ◆ Industry participants favored regional cooperation as the means through which the groundwater basin would best be managed, with none preferring individual agencies, city or county ordinances, and/or adjudication in court.

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<sup>4</sup> MWH, "Draft Regional Water Master Plan," American River Basin Cooperating Agencies (April 2003)

## **Conjunctive Use**

- ◆ Community leader and residential participants generally comprehended the definition of conjunctive use and could restate the definition in their own words; the concept was well-received.
- ◆ Several board and industry participants cautioned that the role between the state and local agencies must be handled with care to reduce the risk of the state legislating a management role.
- ◆ Board and industry participants believed the state wants to see locally controlled projects with statewide benefits.

## **Sacramento Groundwater Authority**

- ◆ Industry participants were fairly familiar with SGA; however, they were less familiar with its pilot projects. Familiarity with SGA appeared higher among the community leaders; however, when probed, most mischaracterized the authority of the organization. Some residential participants thought they had heard of SGA, but few were clear on its mission.
- ◆ Board members pointed out that full implementation of SGA's mission would not occur until the plan was in place. A few recognized SGA's regulatory authority to levy pumping fees to ensure that the basin is protected; however, the participants want SGA to assume this role only when necessary.
- ◆ Given groundwater management and protection through SGA versus individual agencies, board members generally sought a middle ground and emphasized that SGA should become involved only in unusual circumstances. Industry participants leaned more toward centralization.
- ◆ Board members felt that the GMP should dictate when the regulatory arm of SGA would take effect, such as when a purveyor started pumping excess water to sell elsewhere.
- ◆ Board members believed an adjudication process to determine baseline pumping allowances is unnecessary and would generally face strong opposition.
- ◆ Board members favored one of two tiered-rate options tied to pumping allowances as the means of controlling groundwater extractions, with a regulatory fee only if necessary.
- ◆ Industry participants favored regulation through economic incentives/disincentives with implementation of a regulatory fee only as a backstop measure to avoid overdraft conditions and ensure basin protection. Agricultural representatives, however, strongly opposed any regulation or fee structure.

## **Banking and Exchange**

- ◆ Community leaders and residential participants had more difficulty understanding and restating the banking and exchange definition; simplification of the definition and the inclusion of graphics or illustrations depicting the concept would help.
- ◆ After lengthy discussion, community leaders were generally able to understand the value of banking and exchange, and to see benefits associated with it.
- ◆ Several wondered who determines water needs, at what point those needs are met, and where and how the water would be banked or stored, and how sellers would “get it

back.”

### **Preferred Recipients of Water Sales by Five Geographic Areas**

- ◆ Participants across all groups cautioned against the potential dilemma of local shortages in years of drought due to water sales elsewhere.
- ◆ Board members and industry participants cautioned that local needs must first be met before water benefits other purposes, such as the EWA.
- ◆ Board members supported the idea of short-term water sales to other areas, but only if such sales are conducted on a regional basis to minimize the potential for competition among water purveyors and maximize opportunities for reciprocity.
- ◆ All participants preferred water sales to regions located closer to them, e.g. counties adjacent to Sacramento and Sacramento Valley agricultural interests; least favored was Southern California.
- ◆ Some participants across all groups wanted to sell water to the highest bidder, but generally residents were leery of the potential for bidding wars.

### **Water Rates**

- ◆ Most community leaders and residential participants thought that Sacramento’s water rates were reasonable, if not inexpensive.
- ◆ Board members felt that ratepayers would react more positively to a GMP-related rate increase if the agencies explained that the increase would fund improved infrastructure.
- ◆ Residential participants felt infrastructure is a more justifiable reason for a rate increase than other reasons.
- ◆ A few residential participants felt thwarted by their attempts at public input into rate issues with their respective water purveyors. They felt a board’s decision to increase rates was decided prior to a public hearing.
- ◆ Several residential participants questioned how banking and exchange would offset their rates. A few participants would more readily accept banking and exchange if its implementation would reduce the amount of water bill increases or hold rates steady.

### **Public Outreach/GMP Outreach**

- ◆ Board members again emphasized that a GMP should be in place before implementing public outreach efforts – efforts they deemed to be important.
- ◆ Some noted that the inclusion of high-level influentials, such as local elected officials, in any outreach campaign enables them to become ambassadors for the program to ratepayers; at the same time, they acknowledged the difficulty of educating influentials on water-related issues.
- ◆ Ratepayers would put more credence behind a GMP outreach campaign if it was communicated by individual agencies, according to some board and industry participants.
- ◆ Message consistency and standardization would be critical regardless of the medium or the spokesperson – thus key messages must be developed for all audiences.

- ◆ Most community leaders would be comfortable allowing their water agency board or elected officials to make decisions about the groundwater management program.
- ◆ Community leader and residential participants suggested a variety of outreach methods be implemented to reach them and solicit their input; however, few residential participants would attend a public meeting about the GMP and any associated activities such as the banking and exchange water transfers.

## **Primary Research Recommendations**

### **Internal**

- ◆ SGA and member agencies should work within the framework of the Water Forum Agreement. The WFA has already gained broad stakeholder acceptance.
- ◆ Given the increasingly pervasive inequities of water supply in Northern California versus unmet demand in Southern California, state lawmakers may feel encouraged to pass measures over local groundwater management. Since SGA members anticipate the GMP may pre-empt adjudication by the courts, legislation by the state or ordinances by the county exercising authority in managing the groundwater basin, internal stakeholders must realize resolving differences is in their best interest. The authority should emphasize that the GMP will help ensure local control of the basin.
- ◆ Continue ongoing internal education to full SGA membership and consider conducting a member survey and facilitated meeting to resolve differences on policy issues associated with the GMP or program.
- ◆ Determine “principles of agreement” that will become ground rules for members to follow with groundwater management program activities.
- ◆ Reinforce that the GMP will ensure local needs are always met first. SGA should consistently implement this policy to sustain trust and credibility among member agencies and stakeholders.
- ◆ Although internal stakeholders generally preferred participating with regional partners as opposed to Southern California partners, the SGA should emphasize that the potential for state funding from partnerships or grants increases by participating in projects that also benefit other areas of the state.
- ◆ Through meeting presentations, keep others in water industry informed of progress in conjunctive use in order to learn about additional opportunities for cost-sharing partnerships, grant funding, and collaboration.

### **External**

- ◆ Emphasize that the SGA has been committed to conducting early public outreach about the GMP and its groundwater management program and outreach will be sustained as the program evolves.
- ◆ Given the complexity of the concept of banking and exchange, come to an agreement on consistent definitions about banking and exchange, and conjunctive use and develop illustrations to accompany them. Encourage member agencies to use them frequently on newsletters or bill inserts.
- ◆ Address predominant concerns about “meeting local needs first” by continuing SGA’s pursuit of short-term pilot projects to ensure adequate resources during a drought and continued growth phase in longer-term agreements as authority gains acceptance of plan.

- ◆ Make presentations to the Water Forum Successor Effort stakeholder groups, local elected officials and key lawmakers on water committees, reiterating that a groundwater management program fulfills a key Water Forum goal of protecting and managing the north-area groundwater basin.
- ◆ Use Folsom Lake as a visual aid to describe the potential capacity of storage within the groundwater basin.
- ◆ Educate stakeholders about how the goal of the groundwater management program is to ensure reliability, if not “drought-proof” the region’s water supply.
- ◆ If local elected officials and member agency board members are kept updated, they can act as “ambassadors” to educate external audiences. SGA should not, however, assume local elected officials and board members are the only communication vehicle. Previous qualitative and quantitative research, performed by the Water Forum, indicated that Sacramento area residents viewed elected officials as having little credibility.
- ◆ Although ratepayers are unlikely to attend a public meeting about banking and exchange programs, qualitative research suggested they want to be invited to give input via a Web site or a postcard. Work with SGA member agencies to solicit input from ratepayers about any components of the groundwater management program which are likely to raise controversy such as rate increases, banking and exchange, or agreements with purveyors outside the region.
- ◆ Work with ACWA to reach key legislators about the groundwater management program and its benefits.
- ◆ A number of residential focus group participants receive their information via the newspaper or television news. Work with the news media to raise their understanding about the concepts of conjunctive use, banking and exchange and outside funding agreements and the value of all to sustaining the reliability of water in the Sacramento region.

## **Secondary Research Summary**

The secondary research in this report highlights lessons learned about public outreach with highly sensitive water projects. The five case studies were based on telephone interviews with general managers or public information staff with Orange County Water District, Madera Irrigation District, Semitropic Water Storage District, Metropolitan Water District of Southern California and Dublin San Ramon Services District. More detailed accounts of the interviews are included as Appendix B.

While each project differed, and some succeeded while others failed, several recommendations about public outreach can be gleaned from the case studies:

- ◆ Actively involve the local community from the start and continue soliciting their involvement throughout the design and implementation phases of a project.
- ◆ Local control is critical. Allow local water purveyors to locally manage the project, as agricultural communities in particular are suspicious of “outsiders” implementing projects within their basin.
- ◆ Solicit input from regional water agencies sharing the same groundwater basin; do not assume stakeholder outreach has succeeded by working with one local purveyor.
- ◆ Regularly update local elected officials about project plans and benefits, and supply them with answers to local concerns.
- ◆ Clearly spell out the benefits to the local community of any project.

- ◆ Do not conclude that public outreach is done after an environmental impact report has been approved. Continue public outreach as opposition can mount during any phase of a project.
- ◆ Agricultural communities are fiercely protective of what they consider to be “their” groundwater basins, so proceed with caution. Be prepared to answer technical questions, listen and resolve differences before moving forward.

**6.4 APPENDIX D. STANDARD OPERATING PROCEDURE FOR MANUAL WATER  
LEVEL MEASUREMENTS**

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# **ATTACHMENT A**

## **FIELD MANUAL**

**STANDARD OPERATING PROCEDURE**

**For**

**MANUAL WATER LEVEL MEASUREMENTS**

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## **1.0 SCOPE AND APPLICATION**

The purpose of this Standard Operating Procedure (SOP) is to set guidelines for the determination of the depth to water and separate phase chemical product (i.e., gasoline or oil) in a water supply well, monitoring well, or piezometer. These standard operating procedures may be varied or changed as required, dependent on site conditions, and equipment limitations. In all instances, the actual procedures employed will be documented and described on the field form. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

Generally, water-level measurements taken in piezometers, or wells are used to construct water table or potentiometric surface maps and to determine flow direction as well as other aquifer characteristics. Therefore, all water level measurements in a given district should preferably be collected within a 24 hour period and SGA's area within one week. However, certain situations may produce rapidly changing groundwater levels that necessitate taking measurements as close in time as possible. Large changes in water levels among wells may be indicative of such a condition. Rapid groundwater level changes may occur due to:

- Atmospheric pressure changes
- Changes in river stage, impoundments levels, or flow in unlined ditches
- Pumping of nearby wells
- Precipitation
- Tidal influences

## **2.0 METHOD SUMMARY**

A survey mark should be placed on the top of the riser pipe or casing as a reference point for groundwater level measurements. If the lip of the riser pipe is not flat, the reference point may be located on the grout apron or the top of the outer protective casing (if present). The measurement reference point should be documented on the groundwater level data form. All field personnel must be made aware of the measurement reference point being used in order to ensure the collection of comparable data. Before measurements are made, water levels in piezometers and monitor wells should be allowed to stabilize for a minimum of 24 hours after well construction and development. Measurements in water supply wells need to be noted as questionable if pumping has or is occurring. In low yield situations, recovery of water levels to equilibrium may take longer. All measurements should be made as accurately as possible, with a minimum accuracy of 0.1 feet. Future measurements may have to be more accurate (measurements to the nearest 0.01 foot may be needed for conjunctive use projects, ect.). Ideally, the minimum measurement accuracy is 0.1 feet and the recommended accuracy is 0.01 feet.

If there is reason to suspect groundwater contamination, water level measuring equipment must be decontaminated and, in general, measurements should proceed from the least to the most contaminated wells. This SOP assumes an absence of contamination and no need for air monitoring or decontamination.

Open the well and monitor the headspace with the appropriate air monitoring instrument if the presence of volatile organic compounds is suspected. For electrical sounders lower the device into the well until the water surface is reached as indicated by a tone or meter deflection. Record the distance from the water surface to the reference point. Measurement with a chalked tape will

necessitate lowering the tape below the water level and holding a convenient foot marker at the reference point. Record both the water level as indicated on the chalked tape section and the depth mark held at the reference point. The depth to water is the difference between the two readings. Remove measuring device, replace riser pipe cap, and decontaminate equipment as necessary. Note that if a separate phase is present, an oil/water indicator probe is required for measurement of product thickness and water level.

### **3.0 POTENTIAL PROBLEMS**

1. Cascading water, particularly in open-hole or rock wells, may interfere with the measurement.
2. Some older types of electric sounders are only marked at five-foot intervals. A surveyor's tape is necessary to extrapolate between the 5-foot marks.
3. Oil or other product floating on the water column can insulate the contacts of the probe on an electric sounder and give false readings. For accurate level measurements in wells containing floating product, a special oil/water level indicator is required, and the corrected water level must be calculated.
4. Tapes (electrical or surveyor's) may have damaged or missing sections, or may be spliced inaccurately.
5. An airline may be the only available means to make measurements in sealed production wells but the method is generally accurate only to approximately 0.2 foot.
6. When using a steel tape, it is necessary to lower the tape below the water level in order to make a measurement. This assumes knowledge of the approximate groundwater level.

### **4.0 EQUIPMENT**

The electric water level indicator and the chalked steel tape are the devices commonly used to measure

water levels. Both have an accuracy of 0.01 feet. Other field equipment may include:

- Air monitoring instrumentation
- Well depth measurement device (sounder)
- Chalk
- Ruler
- Site logbook
- Paper towels and trash bags
- Decontamination supplies (assumed unnecessary)
- Groundwater level data forms

### **5.0 PROCEDURES**

#### **5.1 Preparation**

1. Determine the number of measurements needed, the methods to be employed, and the equipment and supplies needed.
2. Decontaminate or pre-clean equipment, and ensure that it is in working order.

3. Coordinate schedule with staff and regulatory agency, if appropriate.
4. If this is an initial visit, perform a general site survey prior to site entry in accordance with a current approved site specific Health and Safety Plan (if applicable).
5. Identify measurement locations.

## **5.2 Procedures**

Procedures for determining water levels are as follows:

1. If possible, and when applicable, start at those wells that are least contaminated and proceed to those wells that are most contaminated.
2. Rinse all the equipment entering the well.
3. Remove locking well cap, note well ID, time of day, and date on the groundwater level data form.
4. Remove well cap.
5. If required by site-specific condition, monitor headspace of well with a photoionization detector (PID) or flame ionization detector (FID) to determine presence of volatile organic compounds, and record results in logbook.
6. Lower water-level measuring device into the well. Electrical tapes are lowered to the water surface whereas chalked steel tapes are lowered generally a foot or more below the water surface. Steel tapes are generally chalked so that a 1-to 5-foot long section will fall below the expected water level.
7. For electrical tapes record the distance from the water surface, as determined by the audio signal or meter, to the reference measuring point and record. For chalked tapes, an even foot mark is held at the reference point, once the chalked section of the tape is below the water level. Both the water level on the tape and the foot mark held at the reference point is recorded. The depth to the water is then the difference between the two readings. In addition, note the reference point used (top of the outer casing, top of the riser pipe, ground surface, or some other reproducible position on the well head). Repeat the measurement.
8. Remove all downhole equipment, replace well cap and locking steel caps.
9. Rinse all downhole equipment and store for transport to the next well.
10. Note any physical changes, such as erosion or cracks in protective concrete pad or
11. Note any physical changes, such as erosion or cracks in protective concrete pad or variation in total depth of well on groundwater level data form.

## **6.0 CALCULATIONS**

To determine groundwater elevation above mean sea level, use the following equation:

where:

$$E_w = E - D$$

$E_w$  = Elevation of water above mean sea level (feet) or local datum

$E$  = Elevation above sea level or local datum at point of measurement (feet)

**D** = Depth to water (feet)

## 7.0 QUALITY ASSURANCE/QUALITY CONTROL

The following general quality assurance/quality control (QA/QC) procedures apply:

1. All data must be documented on the groundwater level data forms.
2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified.
3. Each well should be tested at least twice in order to compare results. If results do not agree to within 0.02 feet, a third measurement should be taken and the readings averaged. Consistent failure of consecutive readings to agree suggests that levels are changing because of one or more conditions as indicated in Section 1, and should be noted on the field form.
4. Results should be compared to historical measurements while in the field and significant discrepancies noted and resolved if possible.
5. Wells for which no or questionable measurements are obtained need to have the codes entered on the field form as follows:

<b>No Measurement</b>		<b>Questionable Measurement</b>	
<b>0</b>	Discontinued	<b>0</b>	Caved or deepened
<b>1</b>	Pumping	<b>1</b>	Pumping
<b>2</b>	Pumphouse locked	<b>2</b>	Nearby pump operating
<b>3</b>	Tape hung up	<b>3</b>	Casing leaking or wet
<b>4</b>	Can't get tape in casing	<b>4</b>	Pumped recently
<b>5</b>	Unable to locate well	<b>5</b>	Air or pressure gauge measurement
<b>6</b>	Well destroyed	<b>6</b>	Other
<b>7</b>	Special	<b>7</b>	Recharge operation at nearby well
<b>8</b>	Casing leaking or wet	<b>8</b>	Oil in casing
<b>9</b>	Temporarily inaccessible		
<b>D.</b>	Dry well		
<b>F.</b>	Flowing well		

6. The surveyor(s) must complete all fields on the field form and initial. Upon return from the field, appropriate corrective actions need to be communicated and completed prior to the next survey event.
7. All data entered into electronic spreadsheet or database should be double-keyed or hard copy printed and proofed by a second person.
8. Questionable wells or measurements noted during data compilation need to result in corrective actions if applicable.

## **8.0 HEALTH AND SAFETY**

This SOP assumes that only uncontaminated wells are being measured. If not, a current approved site Health and Safety Plan should be consulted..

## **9.0 REFERENCES**

Driscoll, F.G. 1986. Groundwater and Wells. Second Edition. Chapter 16. *Collection and Analysis of Pumping Test Data*. pp 534-579. Johnson Filtration Systems Inc. St. Paul, Minnesota.

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**6.5 APPENDIX E. FINAL DRAFT – “RELATIONSHIP OF THE WATER FORUM  
AGREEMENT TO LAND USE DECISION MAKING”, WATER FORUM  
SUCCESSOR EFFORT, JANUARY 2002**

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**Final Draft:**  
**IV. Relationship of the Water Forum Agreement to Land Use  
Decision-Making**  
**Water Forum Successor Effort**

**February, 2002**

**A. Background**

Water Forum signatories include cities and counties that have land use planning responsibilities and water purveyors that have water planning responsibility. Water Forum signatories recognize the need to coordinate between water resources planning and land use decision-making. Land use decisions should be based on reliable information regarding water supply and infrastructure availability. Conversely, water supply planning and management decisions should be informed by land use decisions.

This section documents the work of the Land Use Committee (note, this sub-committee's name will be changed for as a result of the procedure described herein) during 2001-2002 to implement the land use/water use coordination procedures for the Water Forum Agreement. The recommendations have been developed and discussed at a series of meetings between the members of the Land Use Committee with the assistance of the planning directors (or their designees) from each jurisdiction and a representative from LAFCO to review and react to the ideas. The entire Water Forum Successor Effort approved the procedures as of March 2002.

This section does not provide all of the details required for day-to-day implementation. It leaves some of the implementation procedures up to each local land use and water agency to determine with Water Forum staff assistance. In developing this section, the Water Forum considered a range of options for implementation. The land use procedures adopted here are designed to evolve as they are used and tested – an “adaptive management” approach. This section also only focuses on Sacramento County (particularly related to groundwater). Signatories recognize that other entities share the groundwater basin including those not signatory to the Water Forum Agreement. Additional discussion may be needed in addressing the full range of water supply-land use related issues.

The signatories acknowledge that there are a number of existing laws and procedures in place to link land use decisions and water supply. These include Senate Bills 221 and 610, adopted in 2001 and in place as of January 1, 2002, as well as other water supply information requirements set forth in Chapter 881 of the California Water Code ,the CEQA process, “can and will serve” letters from water purveyors and related requirements. The procedures outlined here are meant to augment established procedures and ensure consistent implementation.

Senate Bill 221 of 2001 (codified generally in California Government Code sections 66473, 66455, 65867, 66499 regarding subdivision provisions and sections 10631,10635 and 10910 of the California Water Code) prohibits cities and counties from approving large subdivision proposals (including those done by development agreement) unless a finding is made of adequate and reliable water supply. This finding is to based on information supplied by the water

purveyor (within 90 days of a request from the land use agency) including whether supplies are available in dry and multiple dry years and for existing and future water users. If new water sources are to be considered, the supply has to have secured water rights, infrastructure financing and permits and approvals. If the water purveyor does not provide the data or indicates that there is not adequate long-term water to supply the project, the local jurisdiction has the option of investigating alternative water supplies provided all the same tests of “adequacy” are met. This bill only applies to residential subdivisions over 500 units, or for small water systems (5,000 connections or fewer), a residential project that would use up more than 10% of the water connections. Urban infill and affordable housing projects are exempted from the water supply requirements.

Senate Bill 610 of 2001 (codified generally in California Water Code sections 10631, 10657, 10910, 10911, 10912) requires all water purveyors that prepare Urban Water Management Plans and rely on groundwater, to incorporate additional information in their plans and submit this to DWR for review. The information includes data on groundwater basin condition, present and potential extractions, management plans in place, future uses and adequacy of the basin, etc. The new provisions also revise several minor sections of a previous land use-water supply bill.

The new State law provisions further requires that for any large development project or plan (including general plan amendments) that receives an environmental impact report (EIR) or negative declaration (including mitigated negative declaration), a water supply assessment must be completed and included as part of the project review. If the project was assumed in the water purveyor’s most recent Urban Water Management Plan or has a received a water supply analysis comparable to what the bill calls for, then that information can simply be incorporated into the project review and provided to the land use decision-makers. If the project was not assumed in the UWMP, then the land use agency requests a separate water supply assessment from the purveyor. With each of the new provisions, the purveyor has 90 days to provide the data (with a 30 day extension option) and it includes all water supplies and demands relevant to the proposal. The assessment is similar to that required for large subdivisions involving normal, dry and multiple dry years, factoring in all existing and future water users (including groundwater users if that is the source), and providing considerable detail on any future water sources that might be envisioned. If the water purveyor indicates that water supply is not or may not be available, SB 610 requires some discussion of how the purveyor and/or the local jurisdiction plan to augment supplies to account for the proposal. All of these data are to be included in the environmental review and in the record for review by the land use agency.

The new provisions for long-range planning (ie. SB 610) apply to residential projects over 500 units (or over 10% of the connections for small water districts), commercial projects over 500,000 square feet, office projects over 250,000 square feet, industrial park projects over 40 acres or 650,000 square feet, mixed use projects meeting any of the thresholds and 500 room hotel/motels.

## **B. Intent, Framework Agreements, Goals and Assumptions**

### **Intent**

It is the intent of the signatories that land use decisions dependent on water supply from the American River or the three groundwater sub-basins in Sacramento County be consistent with the limits on water supply from the American River and the estimated average sustainable yield for those groundwater sub-basins as negotiated in the *Water Forum Agreement*.

### **Framework Agreements**

The following agreements from the *January 2000 Water Forum Agreement* serve as a framework for this section:

1. All signatories recognize that land use decision-making authority remains the responsibility of land use agencies and neither the Water Forum nor the Successor Effort has any formal land use authority. These procedures do not provide any additional authority.
2. Signatories agree to comply with all relevant sections of the State Water Code and Government Code related to the coordination of water supply and land use decisions. If water supply/land use coordination laws are amended or new laws created, the Water Forum Successor Effort will revisit the procedures in this section to ensure compliance with State law.
3. Signatories will reference the *Water Forum Agreement*, including agreed upon estimated annual sustainable yields of each of the three sub-basins of the groundwater basin of Sacramento County (north area 131,000 acre-feet; south area 273,000 acre-feet; Galt area 115,000 acre-feet) and limits to diversions from the American River in their water master plans and urban water management plans.
4. The *Water Forum Agreement* includes surface water and groundwater to meet the region's projected water needs for growth planned to the year 2030. Included in Appendix B of the Agreement is a description of the methodology and assumptions used by the Water Forum for assessing the demand to the year 2030, and a map delineating geographic boundaries used in projecting demand in Sacramento County.
5. In the unincorporated portions of Sacramento County only, signatories retain the ability to support or oppose water facilities that would serve new development outside the Urban Services Boundary as defined in the Sacramento General Plan, December 1993. All parties also retain the right to support or oppose the sizing of water distribution facilities that would allow service to the new development outside the Urban Services Boundary.
6. The *Water Forum Agreement* contains estimated average annual yields for each of the sub-areas of the groundwater basin in Sacramento County and limits to diversions from the American River. Beyond these agreements, limits on water from other sources have not been negotiated as part of the *Water Forum Agreement*. Signatories retain the right to support or oppose water projects that would use water from sources that have not been negotiated as part of the agreement.

7. The *Water Forum Agreement* focuses on providing a reliable and safe water supply and protecting the Lower American River. As such it is not an agreement on land use planning. Therefore, all signatories retain the ability to support or oppose land use decisions on any basis except water supply availability insofar as these water supply decisions are consistent with the *Water Forum Agreement*.
8. There is a need for greater information exchange than just having water purveyors provide project-by-project assessments of water supply availability. Therefore, signatory water purveyors agree to participate in a proactive program to educate all land use authorities in the region about the provisions of the *Water Forum Agreement*.

## Goals

Two goals were developed for the Water Forum Successor Effort to implement the framework agreements in the *Water Forum Agreement (January 2000)*.

Goal # 1 is follows:

Goal #1: Procedures will be developed by the Water Forum Successor Effort to advise land use agencies as they assess the consistency of proposed land use decisions with the estimated annual sustainable yield of the three sub-basins in Sacramento County and the diversions from the American River negotiated as part of the Water Forum Agreement.

This goal has been further defined by *Water Forum* signatories as follows:

- ***The procedure should provide land use agencies with clear, factual and timely information on water supply entitlements (consistent with the Water Forum Agreement) and infrastructure capacity, as compared to current, committed and planned water demand as land use agencies consider new land use proposals that come before them. Signatories want to ensure that future land use decisions are coordinated with water supply availability.***

The second goal for the Water Forum Successor Effort is a necessary part of implementing the first goal:

Goal # 2: To create guidelines for developing the periodic accounting of the Water Forum “water budget.”

*(Note: This report only addresses goal #1. Work on goal #2 will begin in the winter of 2002.)*

## Assumptions

To develop the water supply/land use procedures, several assumptions were made:

1. Some type of Water Forum staff and some form of an interest-based Sub-Committee (called the Water Demand and Supply Information Committee) comprised of Water Forum Successor Effort members would remain active over the long term. Local water purveyors will be the primary sources of contact and information for the land use authorities with

support from the Water Forum. Signatories acknowledge that they do not want to create a new “bureaucracy” for land use or water supply or have Water Forum staff burdened by reviewing many environmental and related planning documents.

2. The existing land use planning and decision-making processes will continue as currently practiced. This means that many development proposals will be consistent with local general plans (GPs), and many will not. It also means that various jurisdictions will be revising and updating their GP’s over time.
3. The Water Forum will be able to develop an objective and widely agreed upon water budget accounting/monitoring process as indicated in goal #2 for the Water Demand and Supply Information Committee. The procedures developed in this section need such a process to be implemented.
4. The land use procedures delineated here are intended to be clear, effective, as simple (and cost-effective) as possible to administer, flexible enough to adapt to changing circumstances, and cover all jurisdictions in a consistent manner. Procedures can be adapted for particular jurisdictions provided they are consistent with the guidelines in this section. These procedures are consistent with and complimentary to the requirements set forth in State law related to land use/water use coordination.
5. The procedures will need to be revised, adapted and evolve as the processes are tested and parties learn more about specific cases.

### **C. Specific Procedural Agreements**

The proposed procedures are divided into three elements:

- Overall recommendations to implement immediately to improve coordination of land use and water use.
- A procedure for addressing community-initiated general plan updates and specific plans, as well as LAFCO approvals including sphere of influence changes.
- A procedure for addressing privately initiated land use development proposals.

#### **1. Overall Recommendations**

The following agreements are designed for immediate implementation.

- a. Signatory water purveyors will send a copy of their most recent Urban Water Management Plans (including any water conservation plans) to the land use authorities in their purview and agree to meet and discuss the plans. This will allow purveyors to take full advantage of any established data sources, planning documents and existing information and procedures.

- b. Water Forum staff will research the existing landscape water conservation ordinances of each local jurisdiction and provide this information to WFSE members to be included in the Water Efficiency discussions. The WFSE will use a Sub-Committee to monitor and work on water efficiency issues.
- c. Water Forum staff will contact signatory water purveyors to review the communication procedures that the purveyor and the land use agency use to periodically exchange information (at least once per quarter) about pending land use applications and water supply/demand availability and status. Summaries of the information exchanges will be provided to WF staff in memo or spreadsheet form.
- d. The land use agency and water purveyor will collaborate to provide WF staff with a compilation of land use changes approved during the course of each year and associated water demands. This cumulative total should be updated at least once per year so WF staff can update the current water use assumptions and keep track of regional water demands.
- e. Water Forum staff will send WF agreements, water supply assumptions, and other relevant information to the planning and public works departments of the recently-incorporated city of Elk Grove to assist them as the city develops its new general plan. Similar information exchange will be needed as other communities incorporate or embark on new general plans.
- f. Individual water purveyors and land use agencies may develop their own internal ways of implementing the land use/water supply information procedures, provided they are comparable to the procedures established in this section and consistent with State law. Each jurisdiction may develop streamlined procedures such as standard checklists, as long as the information remains accessible to the public.
- g. The roles of the key players in the process need to be well defined as follows:

**Water Forum Staff:** provide regional water information; act as a checkpoint to ensure that water-related information is prepared in a timely way according to a pre-agreed upon and consistent method; serve as monitor for the cumulative water budget.

**Water Purveyor Staff:** provide localized water data including major facilities and infrastructure needs and availability; serve as the primary link to the local land use authority; update urban water master plans to be used in the monitoring process; work with, request information from and provide timely data to WF staff to keep the regional water budget accurate and up to date.

**Sacramento Groundwater Authority Staff:** provide groundwater information in their service area (north of the American River) for land use/water use coordination purposes; become the authority and take a lead role in providing up-to-date groundwater management data in the north sub-basin.

**Land Use Agency:** continue to process planning applications and publicly-initiated plans as they do now; inform water purveyor of upcoming projects; take the water data provided and highlight it prominently in the application review process. Incorporate information into the review process as set forth in recent State requirements.

**Water Demand and Supply Information Committee:** provide a public forum for discussion of water/land use coordination issues; serve as a sub-committee of the Water Forum Successor Effort to review correspondence and process for significant land use/water use issues.

Other agencies may play a role in the future such as any groundwater management entity in south Sacramento County, the Regional Water Authority, Placer County or others.

- h. Water Forum staff may respond directly to project proponents, non-governmental and citizen groups as requested, but will typically refer people to the local land use agency and/or local water purveyor for routine information needs. WF information will be provided when requested and as a routine matter when GP amendments and updates occur.

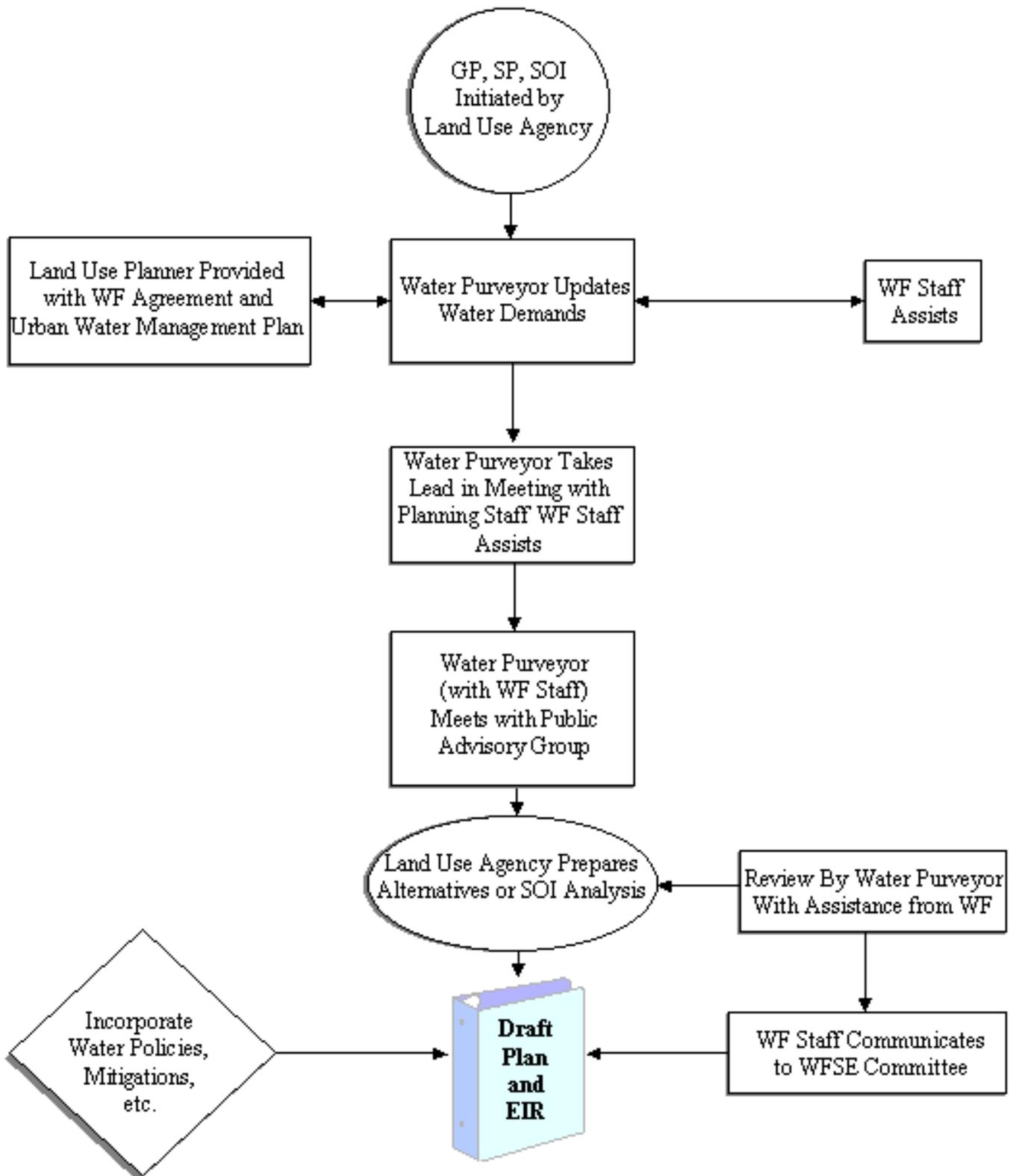
## **2. Procedure for General Plans/Specific Plans/LAFCO Decisions**

(Please refer to diagram 1.) For community-initiated general plan updates, major specific plans (e.g. County GP, Elk Grove GP) and annexations, Water Forum information will be made available as early as possible to inform the planning process. This process would also be used for sphere of influence requests to LAFCO.

- a. When a jurisdiction undertakes a general plan update, Water Forum staff will request that the water purveyor update the existing baseline water use/demand calculations to reflect current conditions. This will keep improving the information base as the WF moves toward more detailed monitoring. WF staff may provide technical assistance.
- b. When a jurisdiction undertakes a GP or SP or requests an SOI change, the water purveyor and Water Forum staff will work together to communicate with the land use agency to ensure that the jurisdiction has the WF agreement (with highlighted key sections) and any other relevant material. The water purveyor will request a meeting with planning staff to interpret, clarify and explain the WF agreements, procedures, goals, technical data etc. WF staff may participate. When applicable, the land use agency will request the water purveyor to provide the water supply assessment information set forth in State law to be included in the environmental review of the project.
- c. The water purveyor (with WF staff assistance) will offer to meet with a GP or SP committee (or comparable public body), attend a public workshop or forum or comparable venue to help inform advisors and decision-makers of the WF agreement and related water issues. Once this is done, the appropriate decision-makers in the GP or SP process may debate their land use issues as they choose with information from the water purveyor or WF and other stakeholders.

- d. Once a Draft GP or SP and Draft EIR are issued, the WF may become involved in the notification/comment process as described in the next section. When applicable, the land use planner will incorporate the water supply assessment information required by State law into the environmental review and provide it for consideration by the land use agency.

**Diagram 1**  
**Public Proposals: General Plan Update,**  
**Specific Plan, LAFCO Sphere of Influence**



- e. Each jurisdiction may amend its GP (or various SPs) from time to time in a way that has no effect (or minimal effect) on water demands. Any GP or SP amendment that has minimal effect on water demands such as a change to a circulation or noise element will not be reviewed. Likewise, a package of multiple, single-parcel GP amendments without significant water supply implications may not be reviewed at the time of application, but will be incorporated into the annual cumulative record.
- f. For sphere of influence (SOI) requests, LAFCO is mandated to address water supply as a public services issue. As a result, SOI requests are subject to the review procedure outlined in this report. SOI requests often occur with minimal information on the ultimate land uses that may be sought within the SOI area. Therefore, the level of detail and analysis on water supply and demand may be quite general. The water purveyor with assistance from WF staff will supply the best available information to LAFCO at the time of SOI request. LAFCO may impose conditions on the SOI approval that future annexations will have to be consistent with the WF agreement and potentially provide additional data on how the area is to be served with water.
- g. The WF staff will keep the Water Demand and Supply Information Committee (or its successor) apprised of relevant consultation in these planning efforts. All WF-related responses will include sufficient context and background information to convey the complex regional water issues and implications (i.e. no simplistic “sound bites”).

### **3. Procedure for Development Proposals**

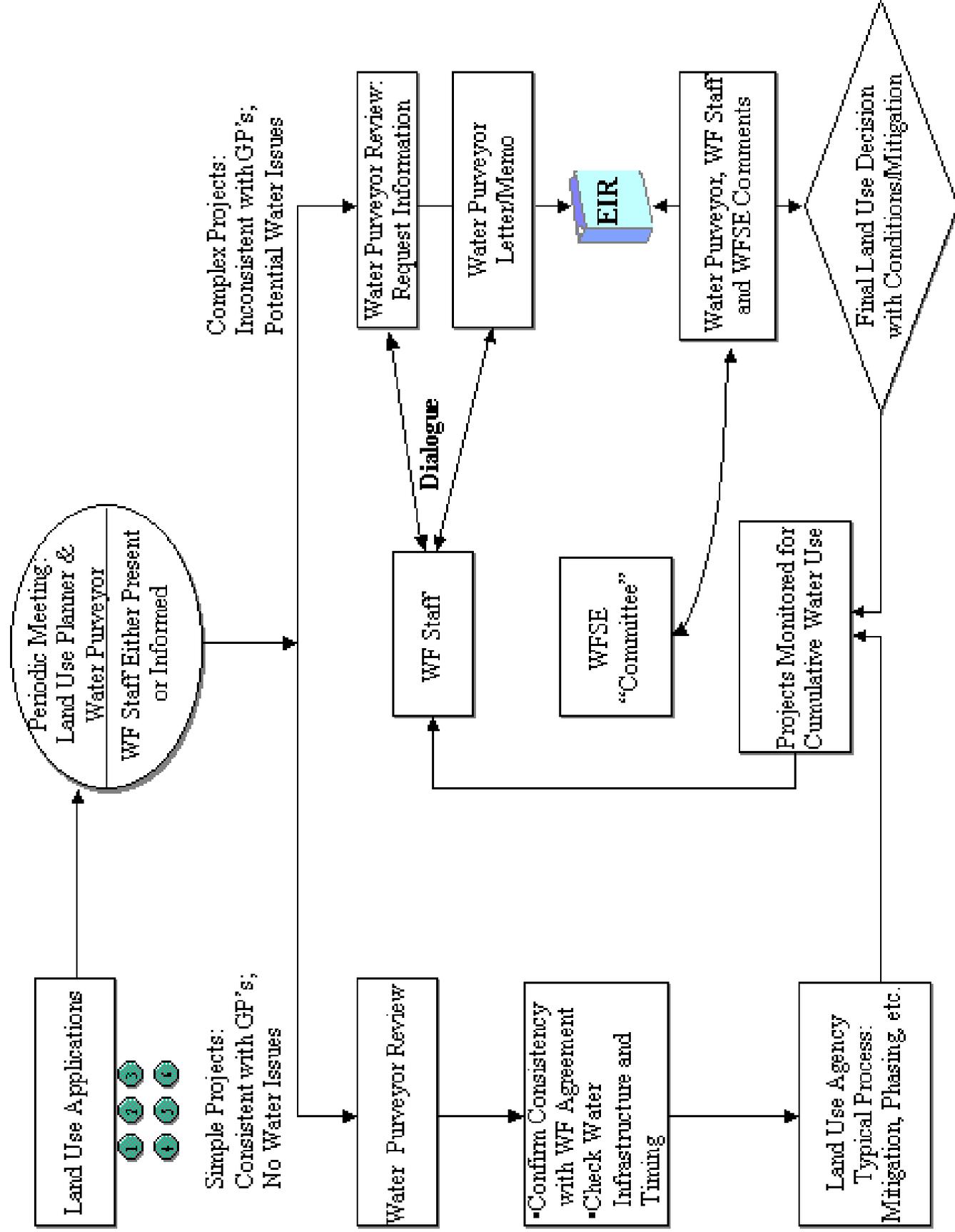
(See diagram #2 for a diagrammatic view.) For privately initiated development proposals (that are formally submitted for entitlements to a city or county), the following procedure will be used.

#### **Simpler Cases**

Certain land use proposals that are consistent with the community’s general plan land use diagram contained in the WF agreement, and/or where water use is clearly not an issue, will require the following relatively simple procedure.

- a. The water purveyor will notify the land use agency (via letter, memo, checklist or other written form) affirming consistency with the WF agreement. This would not be an endorsement of the project. However, it would clearly indicate whether the proposed project is assumed as part of the water use/demands calculated in the WF water budget and is consistent with the water allocations in the WF. WF staff will be notified of this communication at the time of the periodic meeting/information exchange. If the proposal is a residential subdivision greater than 500 units, then the land use agency and water purveyor will follow the water supply determination procedures required by State subdivision law.

**Diagram 2**  
**Privately - Initiated Development Proposals**



- b. The water purveyor may also provide information about available major facilities and infrastructure relative to the timing of proposed development. Overall water demands may be within the ultimate WF water allocation, but certain major facilities necessary to provide water may not yet be constructed. Land use authorities would have the ability to make informed decisions about project timing, phasing or mitigation relative to water-related infrastructure. It may be possible to utilize the development process to provide some early facility improvements. If the water supply determination requirements of State subdivision law apply, information on future water supply infrastructure will need to include applicable water rights, financing, and permits and approvals.
- c. Many land use proposals (even those that change a GP designation, such as from commercial to light industrial) may have little or no measurable effect on water use. In these routine cases, the water purveyor's existing procedure of reviewing the application and providing information is sufficient.

### **More Complex Proposals**

The following process will be used for major development proposals that may result in a significant departure in water demand from what was anticipated in the WF agreement. These are likely to be proposals outside the County's Urban Services Boundary or proposals outside current city boundaries seeking annexation and a change from non-urban to urban uses. For these type of proposals, the requirements of State law regarding water supply/land use coordination may apply and will be followed by local land use agencies and water purveyors.

- a. The land use agency and water purveyor will determine whether a proposal fits in this complex category during their periodic meetings/information exchange. The land use agency will also determine if the proposal is large enough to be subject to State water supply/land use coordination requirements.
- b. WF staff or any WF stakeholder may request that a particular land use proposal is "called up" for Water Forum discussion.
- c. For complex projects, the following procedure will apply:
  - (1) The land use agency will notify the water purveyor and WF staff of the project as early in the process as reasonable. This may occur on a routine basis as each application is submitted or through the periodic meeting/information exchange (after a formal application has been filed). The land use agency will provide enough detail on the project so all parties clearly understand the land uses requested and project location to enable an estimate of water demand and proposed water supply. Water purveyor staff will discuss the project with the land use staff to establish a dialogue and determine if there are likely to be potential water problems and what solutions are possible. The WF staff may participate. If the

project is subject to State law requirements, the land use agency will specifically request the water supply assessment required under those statutes as part of the information.

- (2) Water purveyor staff will send a preliminary letter or memo to the land use agency staff with copies to WF staff and the Water Demand and Supply Information Committee with the following information:
  - a) Description of appropriate WF information such as total water budget for that jurisdiction and assumptions about infrastructure.
  - b) A statement indicating the appropriate level of water supply analysis to be undertaken in the planning process (usually through environmental review).
  - c) A statement indicating whether the project is within or outside the water budget agreed to in the WF.
  - d) If State law requirements apply, then the water purveyor will provide any additional information needed.
- (3) Once a draft environmental analysis is completed (EIR or negative declaration), the water purveyor staff will review the water use component of the environmental document and consult with WF staff, as necessary. The environmental document should address key issues like water supply availability, infrastructure/facilities, and potential water supply implications of the project. A complete analysis needs to address wet and normal years, dry years and critically dry years. The analysis also needs to address potential groundwater impacts and concerns. If State law requirements apply, the water supply analysis also needs to include the information required by those statutes.
- (4) WF staff will bring the most significant proposals forward to the Water Demand and Supply Information Committee (or its successor) for discussion. The Committee will not evaluate the project's land uses, but rather whether the water supply proposal has any implications for the WF agreement. If water use has not been adequately considered this is the opportunity for the WFSE to raise the issue formally.
- (5) The Committee will discuss and seek agreement on an appropriate response and then direct a letter back to the land use and water purveyor staff as part of the planning process. In the event the Committee can not agree, a procedure has been established (see sub-section 6). These letters will become part of the package of material to help inform land use decision-makers.
- (6) Any communications will be made available to the WFSE plenary. An issue can be brought up to the plenary level at any time for broader dialogue.

#### 4. Information Types

The following types of information may be included in comment letters from the WF and/or water purveyors. The information that is actually included will vary depending on the development application, its location and water source, when the application is filed relative to the water budget and other factors.

- a. Overall water budget for the region and purveyor-specific agreements based on periodic monitoring (water supply and demand) as per WF agreement.
- b. Overall statements regarding whether the water requirements of the land use proposal are consistent with the WF agreement, and the implications that may have for WF members.
- c. Information regarding whether the land use proposal lies outside the County's Urban Services Boundary as defined in the Sacramento General Plan of 1993 and its relationship to the WF agreement.
- d. In assessing the availability of water supply for new land uses in Sacramento County, the land use agencies shall take into account reasonable estimates of the following:
  - Sustained yield of the groundwater basin;
  - Best available data on current use of the sub-basin;
  - Anticipated use of currently unexercised water rights (or the proportion of use the land use proposal is of the unallocated portion of the basin);
  - Unmet demand within the Urban Policy Area;
  - Water demand for new uses between the Urban Policy Area and the Urban Services Boundary; and
  - Potential implications of this extraction on basin management or other issues.
- e. Specific facilities and infrastructure needed for the land use proposal. Potentially, there may be water entitlements still needed to supply the land use proposal. Description of where facilities are in the process of development; funding status; time until completion; and related issues.
- f. An objective, factual assessment of the level of efficiency with which the water is used in the land use proposal. For example, this may indicate how the specific land use proposal compares to the average per capita water demand for similar types/densities of land use.
- g. Effectiveness of the water demand management programs that have occurred to date on a regional and local basis.
- h. Identify local or regional limitations or thresholds that might limit water use, groundwater extraction, etc. or require major new water entitlements or facilities.

- i. Specific implications of the land use proposal based on the proposed water source or some characteristic of the proposed water plan (storage, conveyance, treatment, etc.).
- j. Commentary on the information provided as part of complying with the State requirements set forth regarding land use and water supply coordination.

## **5. Specific Challenges**

One particular type of development proposal presents a unique challenge because it is “partially” within the assumed land use/water budget of the WF. These are proposals that occur on County lands between the urban services boundary and the urban policy areas. To estimate overall water demands to the year 2030, the WF water budget assumed water use in these areas (18,000 AFY plus potential conversion of current agricultural use of groundwater), but the water was not allocated either geographically or in time. For these areas, the same notification/comment process referenced above is to be used. Some of these projects may fall into the “complex” category.

Urbanization of any type between the Urban Services Boundary and Urban Policy Boundary will likely require a change in general plan land use and trigger the notification process. It is possible that in the early years, the water purveyor and others may have limited concerns with proposals that are able to secure water. Currently, County projects are subject to policy CO-20 (a policy of the Sacramento General Plan Conservation Element) which requires a water master plan prior to project approval. Over time, however, as the WF water budget accounting (Goal #2) demonstrates the water supply situation, proposals may receive more attention. Land use proposals that require significant amounts of water in areas without historic groundwater pumping, may also merit more attention. The signatories recognize the positive value of County policy CO-20 in requiring water supply plans and use of supplemental surface water. Continuing this type of requirement will help the WF monitor and plan for future water supplies.

Another specific type of proposal is a citizen initiative that has a major affect on land use. These proposals would be analyzed if WF staff or members determine that they merit examination. However, signatories acknowledge that land use agencies, water purveyors or WF members may not hear about such proposals in a timely way. It is the responsibility of each member of the WF to bring such proposals to the attention of the WF staff, Water Demand and Supply Information Committee or plenary if they believe the proposal has a material affect on water use. If a proposal is forwarded for discussion, it will be treated similarly to a complex development project.

## **6. In Case of Disagreements**

The Water Forum discussed what procedure should be in place if the Water Demand and Supply Information Committee (or its successor) does not reach agreement on how to respond to a particular land use proposal. The following procedure was agreed upon:

- a. Some form of “Water Demand and Supply Information Committee” will be maintained to consider land use/water supply issues. This group will be a sub-committee of the Water

Forum and must be representative of all the WF interests and have sufficient expertise and interest to address land use/water use questions.

- b. In the event of a disagreement, the Committee will use the decision-making procedure that has guided the WFSE (75% of every caucus have to agree for a decision to move forward). If that level of agreement can not be achieved, the WF response will indicate areas of agreement and disagreement and the nature of the divergent positions. That way, the WFSE would not delay sending its response until it was too late in the process to have influence.

**“Land Use” Committee Membership Who Worked on the Original Procedure (2001-2002)**

*Water Purveyor Interests*

Tom Barandas, Natomas Central Mutual Water Company  
Gordon Tornberg, City of Folsom Public Works

*Public Interests*

John Coppola, County of Sacramento Water Resources Division  
Jim McDonald, City of Sacramento Planning Department  
Gary Page, Sacramento County Alliance of Neighborhoods  
Robert Sherry, County of Sacramento Planning Department  
Gary Reents, City of Sacramento Utilities Department  
Peter Brundage, LAFCO (invited guest)

*Environmental Interests*

Ellen Hemmert, ECOS  
Vicki Lee, Sierra Club  
Bill Berry, Save the American River Association  
Ron Stork, Friends of the River  
Earl Withycombe, ECOS

*Business Interests*

Brian Holloway, Association of Realtors  
Bruce Houdesheldt, Building Industry Association (BIA)  
Jim Ray, Jr., MacKay and Soms, and BIA  
Jack Sevey, AKT

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## **6.6 APPENDIX F. MODELING**

Chronological listing of water resource planning studies involving groundwater modeling recently performed in the SGA area.

- Sacramento County Groundwater Model Development and Basin Groundwater Yield for the Sacramento County Water Agency, MWH June 1993
- American River Water Resources Investigation – Planning Report and Environmental Impact Report/Environmental Impact Statement, U.S. Bureau of Reclamation, 1997.
- Final Report – Sacramento County Water Agency, Baseline Conditions for Groundwater Yield Analysis, Montgomery Watson, 1997.
- American River Basin Cooperating Agencies Regional Water Master Plan – Phase I, Final Report, Montgomery Watson, December 1999.
- American River Basin Cooperating Agencies Regional Water Master Plan – Phase II, Various Technical Memoranda, Montgomery Watson, December 1999 to Present.
- Water Forum Agreement, January 2000.
- American River Basin Regional Conjunctive Use Program – Groundwater Storage Program Construction Grant Application, MWH, December 2001.

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