Local Groundwater
Assistance Program FY 2000-2005

The Local Groundwater Management Assistance Act of 2000 (California Water Code Section 10795 et seq.) was enacted to provide grants to public agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities. The enabling legislation (Assembly Bill 303) declared groundwater a valuable natural resource in California that should be managed to ensure its safe production and quality. Over the course of five years, the Department of Water Resource (DWR) awarded nearly $28 million in Local Groundwater Assistance (LGA) grants to local agencies to conduct 128 projects. This document provides an overview of the LGA Grant Program. It describes the solicitation and award process, describes funded projects and summarizes their benefits, and presents program statistics, including the amount of funds awarded and number of applications submitted.

Grant Award
Process And Advisory Panel

Technical Advisory Panel

Consistent with the Act, DWR formed a Technical Advisory Panel (TAP) made up of representatives of water interests and other stakeholders from hydrologic regions throughout the State. The legislation required TAP panelists to have knowledge of groundwater; at least three members were to be board members of a local public agency that has adopted a groundwater management plan (GWMP); and the panel was to include a licensed civil engineer, geologist, and hydrogeologist. The TAP assisted DWR in developing grant program criteria, reviewed DWR evaluations of projects, and made grant funding recommendations to DWR. Over the five years of the program, TAP members included:

Patricia Larson	Coachella Valley Water District
Francis Borcalli	Wood Rogers
James Uptegrove	Uptegrove and Loos Engineering Surveying
Kirby Brill	Mojave Water Agency
Linda Cole	Valley Water Protection Association
Lisa Anderson	Metropolitan Water District of Southern California
Mark McKean	Kings River Conservation District
Mike Tognolini	East Bay Municipal Utility District
Roy Herndon	Orange County Water District
Tom Stokely	Trinity County Planning Department
Steve Bachman	United Water Conservation District
Sandy Denn	Glenn-Colusa Board of Directors
Walt Ward	Modesto Irrigation District

Grant Solicitation and Award Process

In consultation with the TAP, DWR developed Proposal Solicitation and Application Packages (PSPs) for each of the five funding cycles. The PSPs contained the application requirements and scoring criteria, which were reviewed and revised with each funding cycle to reflect program priorities and preferences. DWR solicited applications through mailings, email notifications, web page announcements, news releases, and presentations at numerous meetings.

DWR implemented a rigorous public outreach program to increase awareness of the LGA Grant Program and assist applicants. Over the five years of funding, DWR conducted 19 grant application workshops on the program throughout the state:

Table 1 — Workshop Schedule

Spring 2001	Fall 2001	Fall 2002	Fall 2003	Fall 2004
Chico	Chico	Fresno	Riverside	Bakersfield
Fresno	Fresno	Red Bluff	Sacramento	Redding
Ontario	Ontario	Sacramento	San Luis Obispo	Sacramento
		San Bernardino	Santa Rosa	San Diego
		San Jose		

For each of the five funding cycles, DWR utilized a similar grant review process. DWR staff reviewed applications to determine whether completeness and eligibility criteria were met. Staff then scored complete and eligible applications based on the published scoring criteria and developed project evaluation summaries. Using the scores, evaluation summaries, amount of available funding, and program priorities, DWR developed initial funding recommendations for consideration by the TAP and released for public comment. Public meetings were held to receive comments on the ranking process and funding recommendations and for the TAP to consider the applications and develop its recommendations. The TAP considered the geographic distribution of grant awards in addition to the other criteria. The lists of recommended projects were presented to the CALFED/California Bay-Delta Authority for concurrence before final funding determinations were made by the Director of DWR.

Agricultural well in Santa Barbara County

Grant Awards

Groundwater recharge in Southern California

Over the five funding cycles, DWR reviewed 330 applications and funded 128 applicants (39%) for a total of $27.8 million. Table 2 below provides a summary of the amounts awarded by Fiscal Year (FY).

Table 2 — Grant funding by Fiscal Year

Fiscal Year	Number of Applications Received	Number of Projects Funded	Total Grant Requests	Total Grant Amount
2000 - 01	64	23	$14,423,213	$5,000,000
2001 - 02	50	21	$10,773,976	$4,439,500
2002 - 03	69	26	$15,354,867	$5,784,675
2003 - 04	72	28	$16,965,756	$6,200,000
2004 - 05	75	30	$17,609,428	$6,400,000
TOTALS	330	128	$75,127,240	$27,824,175

Grant awards were distributed widely throughout the state. Over the course of five years, 128 grants were awarded to 89 local agencies in 45 of California's 58 counties. Every hydrologic region in the state has received funding.

Awarded
Projects and Benefits

The LGA Grant Program has funded a broad variety of projects to improve our understanding, monitoring, and management of California's groundwater resources. Funded activities include the following examples:

Table 3 — Example Funded Activities

Groundwater Studies	• Evaluate hydrogeologic data; • Determine the potential for natural and artificial recharge; • Evaluate conjunctive use of groundwater and surface water; • Develop and calibrate groundwater models to assist in managing groundwater resources; • Examine alternate methods of reducing impacts of high water tables; • Determine the potential to use untreated imported water and treated wastewater for groundwater recharge; • Evaluate groundwater pumping scenarios for better basin storage; and • Evaluate alternatives to improve water supply reliability and to protect and improve water quality.
Groundwater Monitoring	• Develop and implement a groundwater monitoring program; • Install monitoring wells to assist in characterizing groundwater conditions; • Monitor groundwater quality, salt water intrusion, water levels, and subsidence; • Install subsidence monitoring systems including extensometers; • Install data loggers; • Perform aquifer tests; • Estimate the extent of groundwater overdraft; and • Monitor surface water and groundwater to determine interrelationships.
Groundwater Management	• Plan variations in amount and locations of pumping over time to better utilize basin storage space; • Extend a GWMP to other basins in a region; • Develop a basin-wide management plan and management scenarios; • Develop basin management objectives (BMOs); • Integrate groundwater management with other water management strategies; • Evaluate potential third-party impacts and mitigation options related to groundwater management; • Destroy abandoned wells to eliminate potential vertical contaminant conduits to groundwater; and • Develop a geographic information system (GIS) or other data management system for evaluating groundwater.

Stored Water Recovery Unit in Semitropic Water Storage District

Distribution

Table 4 quantifies the activities performed under the LGA Grant Program. All projects funded in FYs 2000-01 and 2001-02, most funded in FY 2002-03, and some funded in FY 2003-04 have been completed. The remaining projects are ongoing and should be completed by 2007. Table 4 displays by Fiscal Year and by category the ongoing or completed project activities. Many projects included multiple activity types.

Table 4 — Funded Project Activity Category

Fiscal Year	Groundwater Management	Groundwater Studies	Models and Databases	Wells	Monitoring Events
2000-2001	17	0	23	101	773
2001-2002	18	23	19	74	303
2002-2003	7	23	10	69	1,067
2003-2004	11	21	14	88	360
2004-2005	30	52	14	95	163
TOTALS	83	119	80	426	2,666

The categories in Table 4 include:

Groundwater Management — Develop or revise of GWMPs, establish BMOs, and conduct public and stakeholder outreach and education;

Groundwater Studies — Conduct geologic, hydrogeologic, geophysical studies; conjunctive use feasibility studies; aquifer tests; assess aquifer storage and recovery (ASR); evaluate aquifers for water supply; and analyze pumping scenarios;

Models and Databases — Develop or update computer models, basin conceptual models, and GIS and other data management systems;

Wells — Install single and multiple-completion monitoring wells, construction of test and pilot wells for water supply development, and destroy abandoned water wells; and

Monitoring Events — Measure groundwater elevations; analyze water quality; measure surface elevations to monitor subsidence; conduct isotope analysis; analyze soil chemistry, soil moisture, and other soil parameters; install and monitor stream gauges.

Tables 5 through 9 present the applicant, project description, county, and the grant amounts awarded in each fiscal year of the program.

Agricultural well discharge to an irrigation ditch during pretest in Reclamation District 2068.

Funding Websites

DWR Grants and Loans:

http://www.grantsloans.water.ca.gov/grants/assistance.cfm

http://www.grantsloans.water.ca.gov/grants/index.cfm

State Water Resources Control Board Grant Program:

http://www.waterboards.ca.gov/funding/index.html

State Water Resources Control Board Revolving Fund Loans:

http://www.waterboards.ca.gov/funding/srf.html#funding

Other websites related to project and development funding opportunities:

http://www.ibank.ca.gov/state/ibank/ibank_homepage.jsp

FY 2000-01
Projects and Awards

FY 2000-01
Grant Awards 23

Table 5 — FY 2000-01 Projects

Grant Recipient	Project Description	County	Grant Amount	Status
Calaveras County Water District	Performed a hydrologic assessment, groundwater sampling, data management system, groundwater budget analysis, and a recharge analysis.	Calaveras	$241,180	Complete
Carpinteria Valley Water District	Destroyed wells to eliminate contaminant conduit.	Santa Barbara	$250,000	Complete
City of Clovis	Reviewed hydrogeologic conditions, located existing wells, determined environmental and project impacts, evaluated installing groundwater monitoring system wells at recharge facility, and installed a nested monitoring well.	Fresno	$167,200	Complete
Consolidated Irrigation District	Installed twenty-two monitoring wells, which contributed to improved groundwater monitoring and groundwater management programs, and water quality testing was performed.	Fresno/Kings/ Tulare	$200,000	Complete
Daly City	Installed three monitoring wells to monitor potential saltwater intrusion. Ran a model to investigate pumping variations and to use surface water and groundwater resources.	San Francisco/ San Mateo	$250,000	Complete
Eastern Kern County Resource Conservation District	Collected, summarized, and interpreted groundwater data. To evaluate drawdown and water quality, a hydrogeologic conceptual model was developed and data gaps were identified.	Kern	$207,000	Complete
Elsinore Valley Municipal Water District	Completed a GWMP to enhance water supply reliability, manage basin yield, maintain water quality, and better understand basin hydrogeology.	Riverside	$250,000	Complete

Grant Recipient	Project Description	County	Grant Amount	Status
Glenn County	Installed three multi-completion monitoring wells and extensometers. Evaluated aquifer system to determine the extent, interconnectivity, recharge, and storage capacity of the aquifers underlying the County.	Glenn	$250,000	Complete
Inyo County	Groundwater and vadose zone models were developed to better manage groundwater and surface water in the Owens Valley to avoid adverse changes to native vegetation.	Inyo	$250,000	Complete
Lake County Flood Control and Water Conservation District	Studied local geology and hydrology data along with water quality conditions. Developed a model and options for addressing overdraft in the Big Valley Basin.	Lake	$179,004	Complete
Marina Coast Water District	Investigated deep aquifer for water supply.	Monterey	$250,000	Complete
Metropolitan Water District of Southern California	Installed eleven backhoe test pits, two pilot infiltration test spreading basins, and four monitoring wells with instrumentation.	Riverside	$250,000	Complete
Mojave Water Agency	Screened and selected two best combinations of projects and management actions to address agency water management issues.	San Bernardino	$250,000	Complete
Pajaro Valley Water Management Agency	Conducted a supplemental well assessment on aquifer storage and recovery projects by collecting and organizing data.	Santa Cruz/ Monterey	$30,450	Complete
Root Creek Water District	Developed a groundwater GIS database by reviewing historical groundwater information. Surveyed monitoring wells. Conducted water quality testing. Logged exploratory soil borings to obtain detailed geologic information near possible groundwater recharge sites.	Madera	$162,300	Complete
City of San Diego, Helix Water District, Padre Dam Municipal Water District	Described the San Diego River system conceptual GWMP and performed numerical analyses of the groundwater basins.	San Diego	$250,000	Complete
Scotts Valley Water District	Constructed three monitoring wells and added geologic, water level, and hydraulic data to database. Performed analysis of formation samples to provide more accurate information of sandstone and shale formations.	Santa Cruz	$250,000	Complete
Semitropic Water Storage District	Performed a water quality assessment, developed removal technologies for arsenic and chromium, estimated conceptual level cost, sampled eight wells for water quality data, and drilled two monitoring wells.	Kern	$167,300	Complete
Shasta County Water Agency	Conducted alternative analysis and modeling to help improve water supply reliability.	Shasta	$134,066	Complete
Sierra Valley Groundwater Management District	Installed three cluster monitoring wells to provide information on subsurface geologic conditions, water levels, and groundwater quality.	Plumas/Sierra	$250,000	Complete
Tehama County Flood Control and Water Conservation District	Performed an inventory and analysis project that evaluated water resources in general, current issues, physical setting, water management, and evaluated water quality results.	Tehama	$190,000	Complete
United Water Conservation District with City of Oxnard	Collected groundwater samples and aquifer parameters at discrete depth intervals, updated regional groundwater model to test effectiveness of potential mitigation measures. Evaluated current irrigation waters, supplemental surface water, and reclaimed wastewater.	Ventura	$248,600	Complete
Westlands Water District	Drilled and logged thirty-eight borings to evaluate recharge potential along Arroyo Pasajero.	Fresno	$72,900	Complete
		Total FY 2000-01	$5,000,000	

FY 2001-02
Projects and Awards

FY 2001-02
Grant Awards 21

Table 6 — FY 2001-02 Projects

Grant Recipient	Project Description	County	Grant Amount	Status
Butte County	Installed two multi-completion monitoring wells in one borehole equipped with extensometers in areas where water level and subsidence information is needed. Performed water quality analyses.	Butte	$249,000	Complete
Crescenta Valley Water District	Installed, developed, tested, and sampled three monitoring wells to identify new production well sites in the Verdugo Basin. Conducted groundwater level and water quality monitoring. Completed studies that estimated annual recharge, estimated basin outflow, and reported on monitoring.	Los Angeles	$250,000	Complete
Eastern Municipal Water District	Created a regional water resources database, incorporating data records that existed on hard copy and in multiple electronic formats. Developed an interface to maps and GIS information to the database.	Riverside	$200,000	Complete
Eastside Water District	Developed preliminary plans for several conjunctive water management alternatives that have the potential of improving water supply reliability, protecting water quality, and providing environmental benefits. Identified locations and facilities needed to reduce overdraft.	Stanislaus	$200,000	Complete
Glenn County	Installed a multi-completion well. Performed groundwater quality analyses. Developed a web page to make monitoring information widely available.	Glenn	$250,000	Complete
Kings River Conservation District	Installed four monitoring well clusters (seven wells total) to study the conditions south of the Tulare Lake Basin. Installed data loggers and dedicated pumps and completed water level monitoring and mineral water quality analysis to establish baseline values. Performed ongoing monitoring of production and cluster wells to establish trends.	Kings	$250,000	Complete

Grant Recipient	Project Description	County	Grant Amount	Status
Lassen County	Gathered and analyzed seismic refraction data. Developed a dedicated monitoring well and a GIS to examine and analyze existing groundwater conditions.	Lassen	$200,000	Complete
Los Angeles Department of Water and Power	Installed five monitoring wells on the west side of the Owens Valley to monitor groundwater. Performed geophysical logs for each well to improve geohydrologic conceptual model. Measured thirty-eight water levels and refurbished one existing monitoring well.	Inyo	$250,000	Complete
Mendocino City Community Services District	Evaluated existing geological and hydrogeological reports, maps, and geologic cross-sections; performed data gap analysis; and installed ten additional permanent monitoring wells and ten temporary observation wells. Following well testing, expanded the GIS system by adding groundwater data and conducted modeling of the hydrogeology.	Mendocino	$200,000	Complete
Mojave Water Agency	Installed a single nested well in the Victorville Fan Unit in the vicinity of the Oro Grande Wash. Data gathered from the installation and monitoring of this well defined the hydrogeology of the study area.	San Bernardino	$250,000	Complete
Monterey County Water Resources Agency	Installed four new dedicated monitoring wells and performed geophysical logs. Collected baseline well water quality and water level information. Added new monitoring well information to the agency's database.	Monterey	$250,000	Complete
Pajaro Valley Water Management Agency	Reviewed, refined, and expanded the groundwater and surface water data collection program to compile data related to current project needs and for future undefined needs. Assembled database on existing wells and researched well records.	Santa Cruz	$38,500	Complete
Sacramento Groundwater Authority	Identified and collected existing groundwater information to populate a data management system and utilize it to determine a baseline condition. Information gained formed the basis for understanding groundwater systems and served as reference to evaluate the benefits of future management actions on groundwater quality and storage.	Sacramento	$200,000	Complete
San Benito County Water District	Developed a GIS database of water quality. Evaluated the water quality data to characterize water quality problems and sources. Prepared water quality-monitoring program.	San Benito	$200,000	Complete
San Juan Basin Authority	Developed environmental monitoring program to evaluate changes that resulted from groundwater extractions associated with a desalination project. Installed six monitoring wells and stream gauges. Collected and analyzed water samples.	Orange	$250,000	Complete
Santa Clara Valley Water District	Constructed two four-well monitoring sites in Cupertino and Palo Alto. Performed slug tests on seven monitoring wells to estimate aquifer parameters.	Santa Clara	$250,000	Complete
Semitropic Water Storage District	Developed and constructed eight monitoring wells. Completed quality management monitoring and operations study. Developed GIS groundwater database. Studied the potential to increase aqueduct return water pumping.	Kern	$250,000	Complete
Shasta County Water Agency	Grouped multiple individual management strategies into feasible plans. Evaluated those plans using basin model. Developed a water resources management plan and performed public outreach activities.	Shasta	$100,000	Complete
Squaw Valley Public Service District	Established a monitoring network for surface stream flows and groundwater level measurements. Developed hydrogeologic cross sections to assist in updating groundwater model. Abandoned one well. Installed three stream gauges to characterize groundwater to surface water relationships. Updated the Basin's groundwater model to confirm sustainable yield estimates.	Placer	$202,000	Complete
Tehama County Flood Control and Water Conservation District	Conducted an analysis of groundwater storage and movement during normal and drought years. Determined GIS locations of existing wells. Installed two 1,000 foot deep dual completion wells.	Tehama	$200,000	Complete
Yolo County Flood Control & Water Conservation District	Developed a groundwater monitoring program and a database to inventory existing and future groundwater data for the county. Baseline groundwater conditions in the county were also identified.	Yolo	$200,000	Complete
		Totals FY 2001-02	$4,439,500	

FY 2002-03
Projects and Awards

FY 2002-03
Grant Awards 26

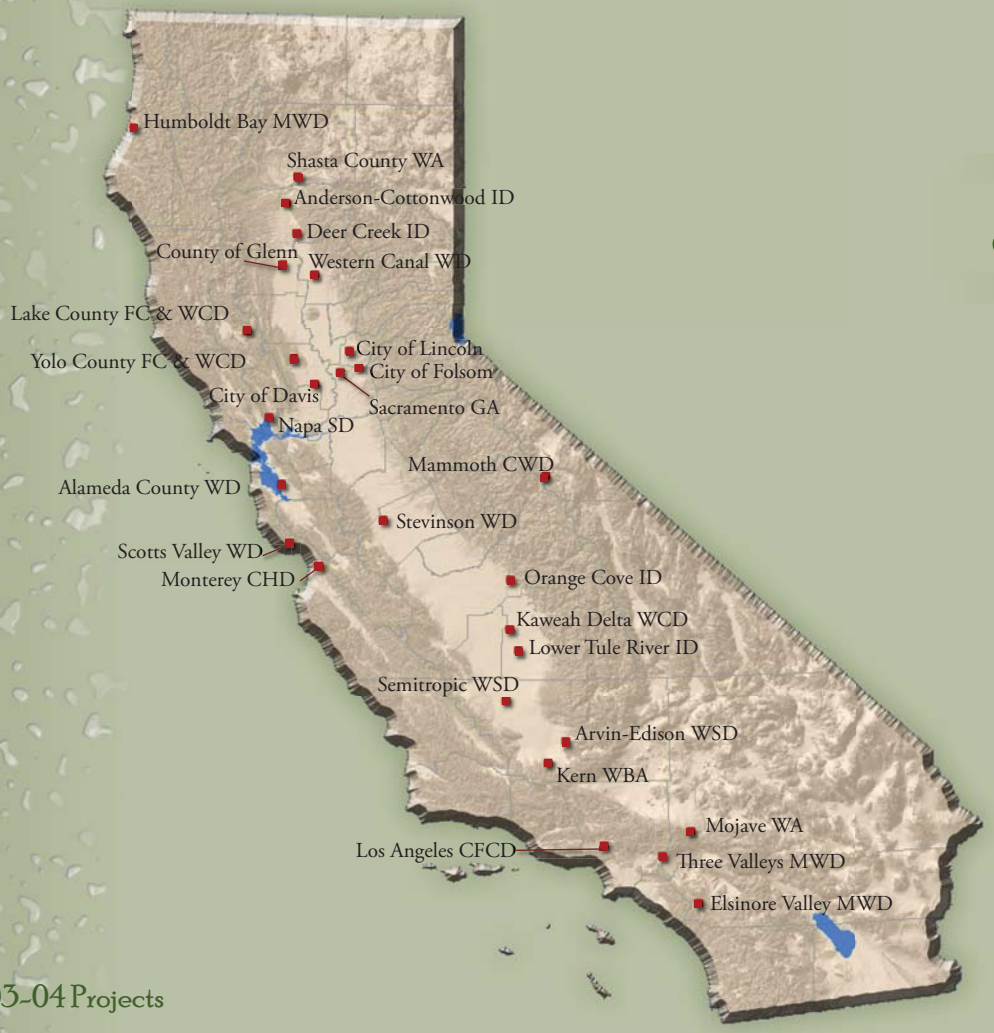
Table 7 — FY 2002-03 Projects

Grant Recipient	Project Description	County	Grant Amount	Status
Borrego Water District	Constructed two monitoring wells in the Borrego Valley Basin and outfitted wells with data loggers.	San Diego	$171,000	Complete
Crescenta Valley Water District	Developed and utilized a groundwater flow model to evaluate the hydrogeology and groundwater flow in the Verdugo Basin. Evaluated four alternatives in the Basin with potential for small neighborhood storm runoff recharge projects.	Los Angeles	$185,000	Complete
City of Davis	Performed a study to better understand the sustainability and long-term potable drinking water supply capability of the regional deep aquifer in southern Yolo County.	Yolo	$225,000	Complete
Dunnigan Water District	Characterized existing groundwater data, designed and implemented a water-level and water-quality monitoring program, reviewed alternative conjunctive use strategies, and developed BMOs.	Yolo	$249,830	Complete
Fresno Irrigation District	Monitored 12 wells for water quality parameters and collected groundwater level data. Installed flow meters in five recharge basins. Prepared a GWMP. Evaluated a multi-agency cooperative effort to fund construction of conjunctive use facilities for storm water.	Fresno	$220,000	Complete
Glenn County	Installed two multi-completion monitoring wells. Converted three wells from production to monitoring. Installed a subsidence monitoring network. Conducted two large scale aquifer performance tests in the unconfined aquifers of the Stony Creek Fan.	Glenn	$250,000	Complete
Inland Empire Utilities Agency	Installed two nested monitoring wells to help determine whether groundwater originating in the upper part of the Chino Basin is discharged to the Santa Ana River. Evaluated hydrologic control of the basin.	San Bernardino	$250,000	Complete

Grant Recipient	Project Description	County	Grant Amount	Status
Kaweah Delta Water Conservation District	Constructed five dual-completion wells to assess the vertical separation between confined and unconfined conditions. Developed a basin-wide numerical groundwater model to evaluate groundwater impacts and benefits from five different agricultural and urban water use and water supply availability scenarios.	Tulare	$230,000	Complete
Kern Water Bank Authority	Installed a triple completion monitoring well, data loggers, and performed various water quality tests. Continued database development and data analysis.	Kern	$220,000	Complete
Kings River Conservation District	Formed a Basin Advisory Panel, compiled data, and updated a GWMP that included management options, current conditions, goals and objectives, implementation plan, and financing and governance options.	Fresno	$220,000	Complete
Los Osos Community Services District	Determined the extent of salt water intrusion into the upper aquifer and in lower aquifer zones. Determined the source of recharge to the area's deep aquifer, and the feasibility of artificial recharge. Produced water level contour maps, performed aquifer tests, and re-surveyed key monitoring wells.	San Luis Obispo	$220,000	Complete
Madera County Resource Management Agency	Analyzed groundwater conditions in the Oakhurst Basin by developing groundwater hydrographs, geologic mapping, well inventory, and analysis of water quality. Developed a GWMP and policies for development in the area.	Madera	$250,000	Complete
Marina Coast Water District	Drilled a 1,700-foot deep monitoring well. Evaluated vertical gradients. Compared groundwater elevations and quality data to other wells to establish flow directions to evaluate the potential for sea water intrusion.	Monterey	$250,000	Complete
Montara Sanitary District	Constructed five monitoring wells, installed stream flow gauging equipment, developed a groundwater model and a GWMP.	San Mateo	$175,169	Complete
Pleasant Valley Water District	Developed a groundwater quality monitoring program, performed a well survey, populated a data management system, modified extraction wells for monitoring, analyzed water quality samples, and evaluated water quality data.	Fresno	$220,000	Complete
Quincy Community Services District	Performed an assessment to establish the hydrogeologic basis for a GWMP for the American Valley. Evaluated and tested four deep wells and two spring sites for water quality.	Plumas	$243,932	Complete
Rainbow Municipal Water District	Developed a GWMP for Rainbow Valley area by involving stakeholders. Performed a basin hydrologic analysis to improve water quality, create a reliable local water supply, and assist in meeting statewide objectives.	San Diego	$199,810	Complete
Reclamation District 2068	Conducted a study to evaluate the feasibility of using groundwater to offset surface water. Installed one multi-completion monitoring well, performed a pump test, and installed a subsidence bench mark. Updated the GWMP and developed a model of the basin.	Yolo	$249,614	Complete
San Bernardino Valley Water Conservation District	Installed two wells, north and south of the Santa Ana River spreading basins, to evaluate recharge operations and groundwater levels and flow. Performed pump tests, geophysical logging, and analyzed water quality parameters.	San Bernardino	$230,000	Complete
San Jacinto Mountain Area Water Study Agency	Identified available water resources and prioritized water facility improvements and management practices. Developed a basin-wide Water Resources Management Plan for long-term use of local groundwater and surface water resources. Analyzed critically dry period recharge and extraction from the study area.	Riverside	$225,000	Complete
Santa Clara Valley Water District	Installed nine monitoring wells at eight sites in Coyote and Llagas subbasins to fill data gaps in the groundwater monitoring system.	Santa Clara	$249,320	Complete
Squaw Valley Public Service District	Installed a monitoring well, investigated water quality variations, performed outreach and education activities, and monitored surface water and groundwater characteristics to assist in verifying the Basin's hydrogeologic model.	Placer	$171,000	Complete
Denair Community Services District	Install two dual-completion monitoring wells to support further development of an existing hydrogeologic model to assure quality drinking water during peak production periods.	Stanislaus	$200,000	Ongoing
Merced Area Groundwater Pool Interests	Install 24 monitoring wells at six locations to monitor groundwater levels and monitor five stream gauges in Bear Creek to determine groundwater/surface water relationships. Survey about 290 wells using GPS.	Merced	$250,000	Ongoing
South Tahoe Public Utility District	Develop a numerical groundwater model to understand the hydrogeology, use groundwater temperature to better delineate recharge sources and rates, and predict groundwater flow and contaminant transport.	El Dorado	$200,000	Ongoing
Three Valleys Municipal Water District	Evaluated the potential to deliver untreated imported water into the San Antonio Spreading Grounds for groundwater recharge.	Los Angeles	$230,000	Complete

Total FY 2003-04 $5,764,675

FY 2003-04
Projects and Awards



FY 2003-04
Grant Awards 28

Table 8 — FY 2003-04 Projects

Grant Recipient	Project Description	County	Grant Amount	Status
Alameda County Water District	Installed eight groundwater monitoring wells in four locations in the northwest region of the Niles Cone Groundwater Basin.	Alameda	$249,900	Complete
Elsinore Valley Municipal Water District	Install one dual-completion monitoring well and three transducers to better understand the hydrology of the Elsinore Basin, the San Jacinto River, and Lake Elsinore.	Riverside	$250,000	Complete
Mojave Water Agency	Evaluate the feasibility of groundwater recharge and conjunctive use by imaging surveys, refraction seismic profiling, installing two multi-completion monitoring wells, and performing groundwater modeling.	San Bernardino	$250,000	Complete
Sacramento Groundwater Authority	Install 11 monitoring wells to enhance groundwater management, provide early warning of threats to groundwater quality, and ensure that area rivers are not threatened by increased groundwater extraction.	Sacramento	$249,857	Complete
Anderson-Cottonwood Irrigation District	Conduct groundwater monitoring, evaluate conjunctive use potential and impacts, and develop a GWMP.	Shasta	$175,000	Ongoing
Arvin-Edison Water Storage District	Conduct a GIS well survey, convert 40 abandoned wells into active monitoring wells, install six data loggers, establish a district-wide groundwater quality baseline, and update stratigraphic maps to improve and upgrade the existing groundwater monitoring program.	Kern	$250,000	Ongoing
City of Davis	Develop a GWMP.	Yolo	$110,000	Ongoing

Grant Recipient	Project Description	County	Grant Amount	Status
Deer Creek Irrigation District	Drill two dedicated monitoring wells, purchase groundwater level monitoring equipment, and develop a Data Management System to improve groundwater management.	Tehama	$225,000	Ongoing
City of Folsom	Evaluate existing data and conduct a field investigation that includes exploratory test wells, aquifer testing, and one year of water level and quality monitoring. Explore the viability of developing a groundwater resource for banking or dry year use.	Sacramento	$250,000	Ongoing
Glenn County	Perform a water needs analysis, prepare a water delivery and distribution system infrastructure map, and complete a GWMP that includes identifying future needs to facilitate groundwater management and coordinated management of water resources within the County.	Glenn	$225,000	Ongoing
Humboldt Bay Municipal Water District	Develop a GWMP, install four monitoring wells, perform a seismic refraction study, and develop a conceptual model of the aquifer to determine long term demand capability.	Humboldt	$247,770	Ongoing
Kaweah Delta Water Conservation District	Collect and evaluate groundwater data to update the existing GWMP.	Tulare/ Kings	$185,000	Ongoing
Kern Water Bank Authority	Install two triple-completion monitoring wells and two data loggers to fill a gap in water quality data.	Kern	$250,000	Ongoing
Lake County Flood Control and Water Conservation District	Inventory, analyze, and document existing water resource conditions in the County to develop a Countywide GWMP.	Lake	$225,000	Ongoing
City of Lincoln	Establish five new dedicated monitoring wells to improve the City's ability to manage groundwater.	Placer	$180,713	Ongoing
Los Angeles County Flood Control District	Install three monitoring wells to determine the impacts of a recharge project on groundwater quality and quantity.	Los Angeles	$220,000	Ongoing
Lower Tule River Irrigation District	Update GWMP to include BMOs and construct eight monitoring wells in the vicinity of the Deer Creek spreading basins.	Tulare	$221,760	Ongoing
Mammoth Community Water District	Install seven monitoring wells, conduct hydrogeologic modeling, and complete a comprehensive GWMP.	Mono	$200,000	Ongoing
Monterey County Health Department	Develop a Well Destruction Program, including a GIS database of abandoned wells, a public outreach/education component, and revisions to the County groundwater ordinance.	Monterey	$210,000	Ongoing
Napa Sanitation District	Conduct a feasibility study and evaluate aquifer storage recovery with reclaimed water.	Napa	$250,000	Ongoing
Orange Cove Irrigation District	Develop a groundwater monitoring and drought preparedness program to enhance groundwater management.	Fresno/ Tulare	$250,000	Ongoing
Scotts Valley Water District	Update the groundwater basin computer model to reflect the new understanding of geologic structure and hydrology of the Santa Margarita Groundwater Basin.	Santa Cruz	$225,000	Ongoing
Semitropic Water Storage District	Install one extensometer for monitoring subsidence in the water bank well field.	Kern	$200,000	Ongoing
Shasta County Water Agency	Develop and adopt a final water management strategy for the Redding Basin. Update the GWMP and groundwater model for the basin.	Shasta	$225,000	Ongoing
Stevinson Water District	Construct sixteen monitoring wells to investigate the source of high TDS groundwater on the west side of the San Joaquin River.	Merced	$225,000	Ongoing
Three Valleys Municipal Water District	Examine alternative methods, benefits, and impacts of pumping groundwater during times of high/rising water levels that result in property damage.	Los Angeles/ San Bernardino	$225,000	Ongoing
Western Canal Water District	Install three multi-completion monitoring wells in areas that are not currently monitored to fill in the gaps in groundwater quality and levels.	Butte / Glenn	$175,000	Ongoing
Yolo County Flood Control and Water Conservation District	Develop an Integrated Groundwater Surface Water Model for the Cache Creek Project and set the framework for a countywide hydrologic model to better manage and operate the Cache Creek Basin for agriculture and municipal uses.	Yolo	$250,000	Ongoing
		Total FY 2004-05	$6,200,000	

FY 2004-05
Projects and Awards

FY 2004-05
Grant Awards 30

Table 9 — FY 2004-05 Projects

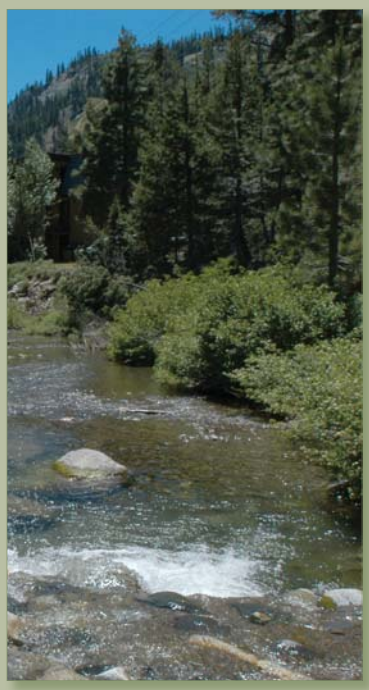
Grant Recipient	Project Description	County	Grant Amount	Status
Alameda County Water District	Install eight monitoring wells to assist in monitoring and managing the Niles Cone Groundwater Basin.	Alameda	$249,943	Ongoing
Alpine County	Develop a GWMP to implement groundwater management projects geared towards meeting regional BMOs.	Alpine	$129,723	Ongoing
City of Anaheim	Destroy nine abandoned wells to eliminate contaminant conduit pathways.	Orange	$250,000	Ongoing
Bighorn-Desert View Water Agency	Gather and synthesize existing data to develop a conceptual model. Perform a geophysical investigation and install two monitoring wells.	San Bernardino	$168,300	Ongoing
Borrego Water District	Construct two monitoring wells to characterize the deepest aquifer in the Borrego Valley Groundwater Basin.	San Diego	$193,200	Ongoing
Butte County	Develop a web-based Basin Management Objective and Information Center with GIS components to support groundwater management throughout the County.	Butte	$247,820	Ongoing
Crescenta Valley Water District	Conduct geophysical evaluations to enhance management of the basin for long-term supply.	Los Angeles	$250,000	Ongoing
Eastern Municipal Water District	Evaluate and quantify nitrogen losses in recycled water as it percolates from storage ponds to the groundwater table.	Riverside	$200,000	Ongoing
Elsinore Valley Municipal Water District	Conduct water quality sampling, aquifer testing, and model development and calibration to address septic sourced nitrate contamination.	Riverside	$168,300	Ongoing

Grant Recipient	Project Description	County	Grant Amount	Status
Glenn Colusa Irrigation District	Construct three triple-completion dedicated monitoring wells.	Glenn/ Colusa	$250,000	Ongoing
Indian Wells Valley Water District	Install and monitor ten monitoring wells in five targeted areas where recharge may be occurring. Collect water quality samples, collect continuous water level measurements and determine trends.	Kern	$249,725	Ongoing
Inland Empire Utilities Agency	Install and sample two nested, multiple-depth piezometers in the projected path of a groundwater contamination plume.	San Bernardino	$250,000	Ongoing
Inyo County	Develop a groundwater model for the Bishop/Laws area to assess the effects of alterations to the groundwater flow system and changes in water related land use.	Inyo	$89,410	Ongoing
Kings River Conservation District	Monitor existing recharge facilities, conduct feasibility studies and field investigations to locate and design new facilities, create an inventory of available distribution and conveyance facilities, and improve regional monitoring.	Fresno	$249,410	Ongoing
City of Lincoln	Determine the risks of contaminant migration by conducting a series of aquifer tests.	Placer	$183,640	Ongoing
Los Angeles County Flood Control District	Expand a telemetry system to allow for real time reading of groundwater elevations, injection rates, and wellhead pressures to help manage seawater intrusion.	Los Angeles/ Orange	$250,000	Ongoing
Madera County Resource Management Agency	Create an action plan for groundwater protection throughout the County to prioritize groundwater management programs and mechanisms.	Madera	$250,000	Ongoing
Mendocino City Community Services District	Construct monitoring wells, install data loggers, develop a Drought Contingency Plan, revise aquifer testing protocol, and create a geo-database.	Mendocino	$144,400	Ongoing
Modesto Irrigation District	Develop and implement a real-time Well Field Optimization Project to facilitate well field operations in support of conjunctive use, reduce irrigation spillage, conserve energy, and control contaminant migration	Stanislaus/ San Joaquin	$250,000	Ongoing
Northeastern San Joaquin County Groundwater Banking Authority	Determine the source, distribution, and migration rate of saline groundwater throughout the Eastern San Joaquin Groundwater Basin.	San Joaquin	$212,700	Ongoing
Sacramento Groundwater Authority	Develop an enhanced modeling tool with sufficient details and features to support the analysis of alternative groundwater management scenarios.	Sacramento	$249,840	Ongoing
Sacramento Suburban Water District	Construct two new monitoring wells, install instrumentation in five existing wells, convert three existing wells to monitoring wells, and establish benchmark elevation of new and existing wells.	Sacramento	$250,000	Ongoing
San Benito County Water District	Install a depth-specific multi-port monitoring well to define basin hydrostratigraphy and water quality changes with depth.	San Benito	$250,000	Ongoing
City of San Bruno	Install two monitoring well clusters and develop a hydrologic data management system to understand the groundwater in areas deemed vulnerable to seawater intrusion.	San Mateo	$249,870	Ongoing
San Timoteo Watershed Management Authority	Establish a baseline subsidence monitoring program and determine past subsidence within the Beaumont Basin.	Riverside	$168,300	Ongoing
Semitropic Water Storage District	Install 21 data loggers and conduct two aquifer tests to upgrade the collection and analysis of groundwater data.	Kern	$193,061	Ongoing
Tehama County Flood Control and Water Conservation District	Install two 1,000-foot-deep triple-completion monitoring wells and data loggers in 11 existing monitoring wells.	Tehama	$202,970	Ongoing
City of Tracy	Develop a regional GWMP for the Tracy Groundwater Subbasin to support conjunctive use programs.	San Joaquin	$184,842	Ongoing
United Water Conservation District	Install four monitoring wells to determine the distribution of saline intrusion in the southern Oxnard Plain Basin.	Ventura	$168,300	Ongoing
Yuba County Water Agency	Install six dedicated monitoring wells to supplement the existing well network and determine the effects of water transfers on the aquifer.	Yuba	$246,246	Ongoing
		Total FY 2004-05	$6,400,000	

Example Projects

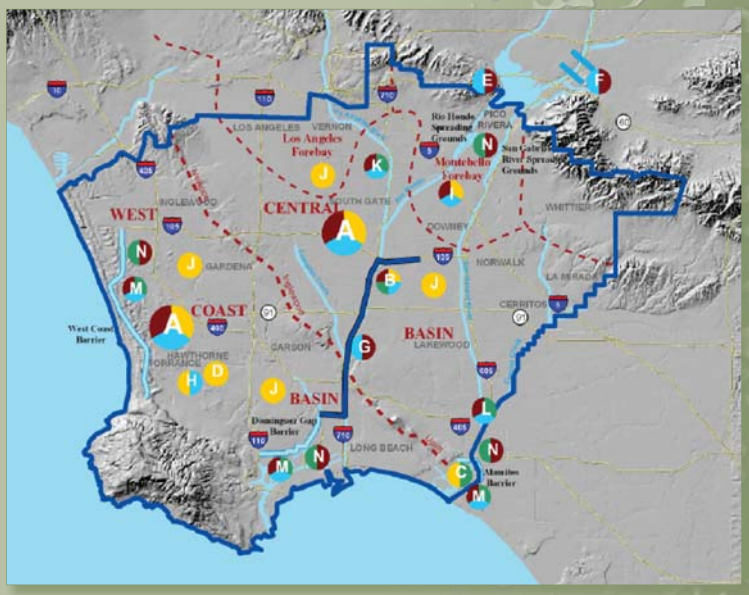
Installing a monitoring well in Montara, South of San Francisco

The LGA Program authorized the use of funds to monitor, study, and manage groundwater throughout California. The efforts of local agencies will result in additional water supply, protection of water quality from degradation, coordinated management of surface and groundwater supplies, and institutional frameworks that provide for a better response to groundwater issues. The following projects illustrate the types of projects that have been funded by the LGA Grant Program and demonstrate the variety of activities funded by this program.



Stream gauging in Squaw Valley

Los Angeles
County Flood Control District



Alamitos Seawater Barrier Project
FY 2004-05
Grant Amount: $250,000
Project Status: Ongoing

Overdraft conditions in aquifers connected to the Pacific Ocean have resulted in seawater intrusion in the Coastal Plain of Los Angeles. Seawater barriers have been constructed to maintain a minimum groundwater elevation along the coastline, known as protective elevation, to prevent seawater intrusion into areas landward of the barriers. The groundwater elevation in areas along the Alamitos Seawater Barrier varies throughout the year due to changing pumping patterns and seasonal effects. Therefore, the Los Angeles County Flood Control District (LACFCD) continuously collects groundwater elevation measurements to constantly reevaluate whether an appropriate amount of water is being injected. LACFCD must also closely monitor the injection rates and wellhead pressures at each injection well. Each well has a maximum capacity that should not be exceeded to prevent damage to the well and the aquifer. LACFCD also relies on these measurements to guide its long-term planning; groundwater data is analyzed to identify the need for new construction or improvement projects.

With LGA funds, LACFCD is constructing a telemetry system to monitor operation of the Alamitos Seawater Barrier Project. This project will eliminate time-consuming manual data collection and provide highly accurate real-time measurements of groundwater elevations, injection rates, and wellhead pressures. This system will enhance barrier operations and lead to improved groundwater management in the Central Groundwater Basin.

City of Anaheim

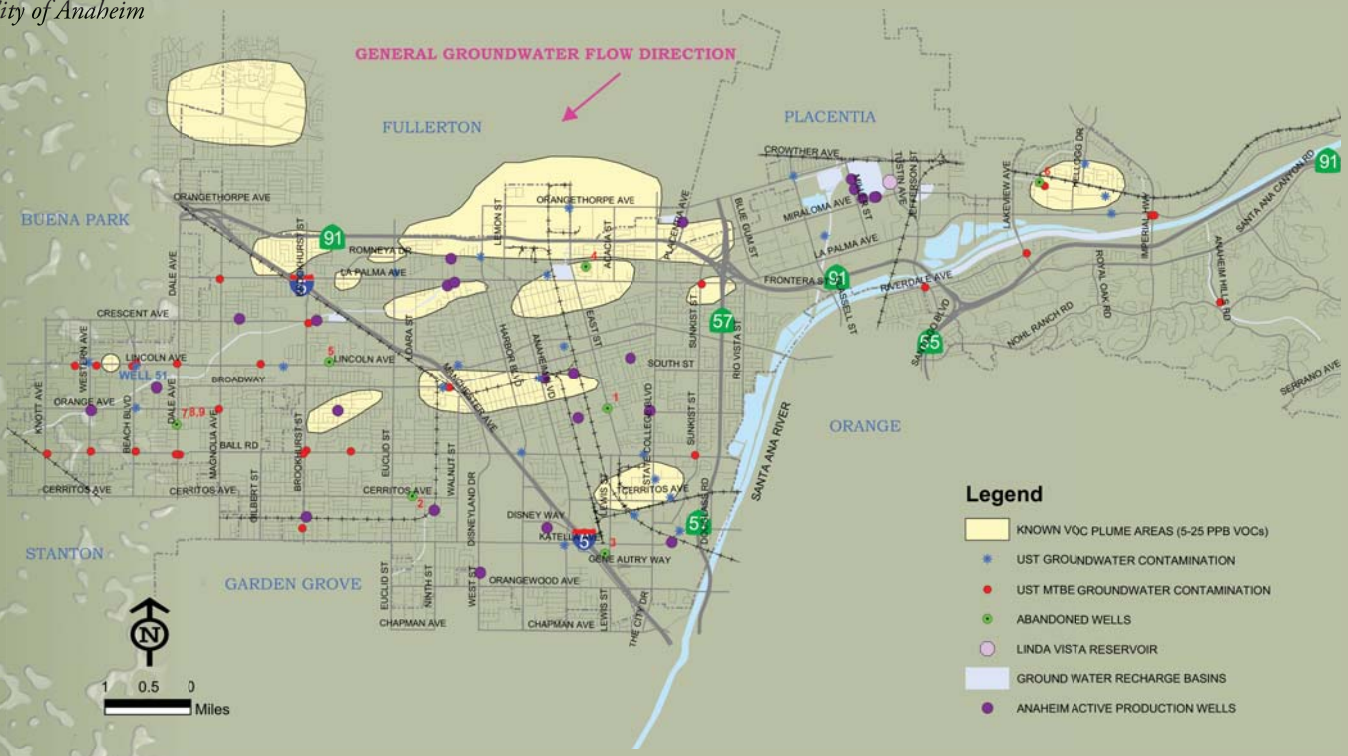
City of Anaheim Well Destruction Project
FY 2004-05
Grant Amount: $250,000
Project Status: Ongoing

The City of Anaheim owns and operates 24 production wells and receives approximately 75% of its drinking water from groundwater. Additionally, it is estimated that 60% of Orange County's basin recharge occurs within Anaheim. Since abandoned wells make it easier for shallow contaminants to seep into deeper aquifers, the destruction of abandoned wells is important to protect the quality of water in the groundwater basin.

Using LGA funds, Anaheim will, as part of its Well Destruction Program, destroy nine abandoned wells. The majority of the wells were once used for agricultural or irrigation purposes and have not been in service for many years. According to the Anaheim Municipal Code, a well that has not been in service for more than one year must be properly destroyed. The owners of the nine abandoned wells are either unknown or unable to fund proper well destruction.

The abandoned wells are located near groundwater basin recharge areas; volatile organic compounds contaminant plumes; and underground storage tank groundwater cleanup sites, involving gasoline and methyl tertiary-butyl ether contamination. This project will reduce the potential for groundwater contamination from abandoned wells.

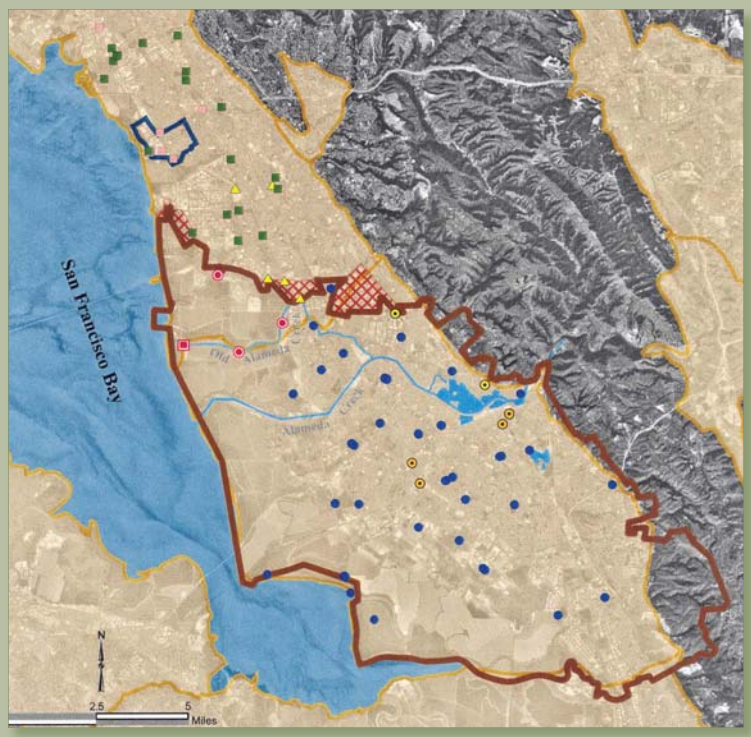
Abandoned well locations within the City of Anaheim



Alameda
County Water District

Under Alameda County Water District's (ACWD) Northwest Niles Cone Monitoring Wells Project, eight groundwater monitoring wells were installed at four sites; one site consisted of a five well cluster. Groundwater is a significant source of drinking water in the area and salt water intrusion poses a considerable threat to groundwater quality. Data obtained from the project increased the understanding of the geology and hydrogeology between the northwest region of the Niles Cone Groundwater Basin and the adjacent South East Bay Plain Groundwater Basin. The monitoring wells allow ACWD to monitor the extent of salt water intrusion into the Niles Cone Groundwater Basin and also provide the long-term monitoring points needed for tracking groundwater flow patterns and groundwater quality.

Northwest Niles Cone Monitoring Wells Project
FY 2003-04
Grant Amount: $249,900
Project Status: Complete



Humboldt
Bay Municipal Water District

Mad River Groundwater Study
FY 2003-04
Grant Amount: $247,770
Project Status: Ongoing

The Humboldt Bay Municipal Water District (HBMWD) serves the Humboldt Bay region by providing domestic and industrial water to seven municipalities and industrial water users. With LGA funds, HBMWD performed a seismic refraction study, installed five 100-foot deep monitoring wells and performed aquifer tests, developed a model of the aquifer and groundwater basin, and developed and adopted a GWMP. The seismic refraction study measured the thickness, depth, and configuration of geologic layers of the aquifer. This information was used in developing and calibrating a groundwater model.

Throughout the development and calibration of the groundwater model, stakeholder meetings were held to update the stakeholders on the status of the project. Public input was considered and included in the study. Groundwater simulation was used to quantify complex hydrologic and transport processes. The GWMP adopted as part of this project includes: 1) BMOs; 2) methods for monitoring and managing groundwater levels, water quality, and changes in surface water flow; 3) monitoring protocols; 4) a plan to involve other agencies whose service boundaries overlie the groundwater basin; 5) a summary of how stakeholders participated in the development of the GWMP; and 6) a map showing the area of the groundwater basin.

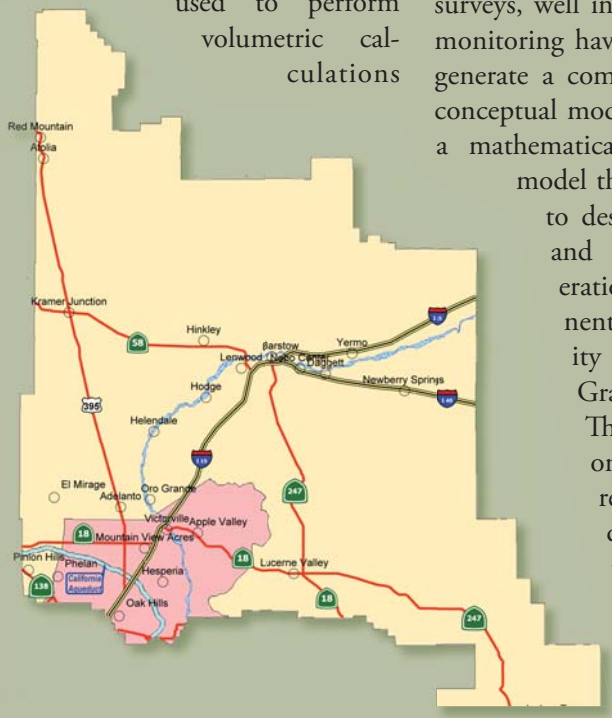
District Ranney well on Mad River

Mojave
Water Agency

Upper Basin Conjunctive Use Investigation
FY 2003-04
Grant Amount: $250,000
Project Status: Complete

The Mojave Water Agency project advanced the understanding of the hydrogeologic conditions in the Upper Alto Groundwater Subbasin, specifically the feasibility of groundwater recharge and conjunctive use. A 2003 groundwater recharge feasibility test within the Oro Grande Wash, in the Upper Mojave Desert, indicated that recharge within this area is feasible and can potentially store and recover relatively large quantities of imported water from the adjacent California Aqueduct. Specific subsurface investigations and subsequent modeling efforts were needed to confirm those test results and for use in final full-scale engineering design.

Subsurface geophysical investigations included nine electrical resistivity imaging surveys to quickly obtain large amounts of data to define the location and type of shallow (upper 300 to 400 feet) subsurface materials. The study included thirty-four time domain electromagnetic induction surveys to define subsurface hydrogeologic characteristics and basin geometry to depths of approximately 1,000 feet. The data from these surveys were used to perform volumetric calculations of the water bearing sediments within the study area and to assess and quantify the ability of the Oro Grande Wash to store imported water.



Two monitoring wells were constructed, each to a depth of 1,100 feet. These wells are monitored monthly and sampled bi-annually.

Data from the geophysical surveys, well installations, and monitoring have been used to generate a comprehensive site conceptual model and develop a mathematical groundwater model that will be used to design, construct, and optimize operation of a permanent recharge facility along the Oro Grande Wash. The model builds on the existing regional model developed and will be used to better determine the volume of water in storage, amount of available storage, mounding characteristics, area affected by different recharge scenarios, ASR scenarios, and effects of long-term water banking.

Montara
Water and Sanitary District

Drilling and Testing of Wells, Water Supply, and Planning
FY 2002-03
Grant Amount: $175,169
Project Status: Complete

The Montara Water and Sanitary District (MWSD) in San Mateo County developed a basin plan to increase reliable groundwater supplies for current and future use. With LGA funds, MWSD: 1) established a network of four monitoring wells; 2) installed stream flow gauging equipment; 3) collected data to build a groundwater model and make comparisons to similar basin models; 4) conducted public outreach efforts; and 5) continued development of a GWMP.

Monitoring well drilling in Coastal Range

Water supply in the unincorporated communities of Montara and Moss Beach is provided by MWSD, which relies on local groundwater supplies. The MWSD extracts about 60 % of its water from three wells located southwest of Highway 1, in the San Vicente, Denniston, and Half Moon Bay Airport Groundwater Subbasins. The remaining 40 % of the MWSD's water use is supplied from six wells and a surface water diversion in the Montara Creek watershed. The northernmost supply well has levels of nitrate that periodically exceed drinking water quality standards.

The MWSD installed and tested five wells in areas that were previously unexplored for groundwater production. One high-yield well location was identified. A successful five-day pumping test was conducted that yielded high quality groundwater. Measurements of yield, drawdown, water quality, and temperature indicate that this well draws upon a large volume of fracture rock within Montara Mountain. The well tests showed no evidence of hydrogeologic barriers or boundaries that might restrict the volume of yield from the well, and no potential to induce seawater intrusion. The reliability of this well will be established through its use over time.

Completed monitoring well

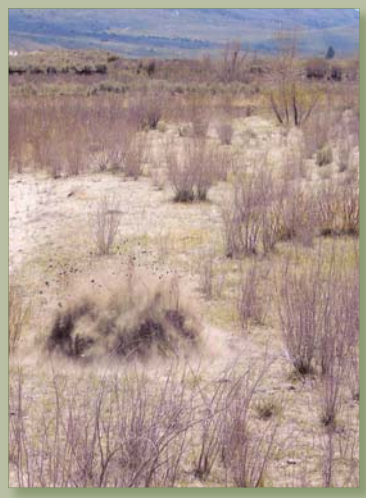
Lassen County

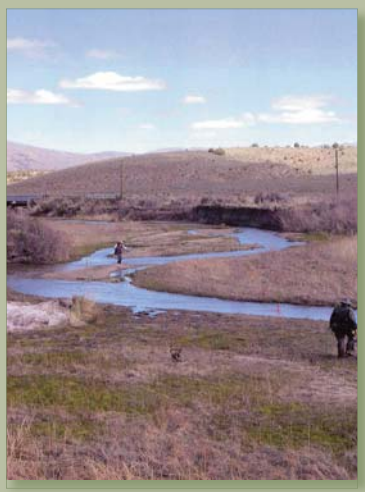
Hydrologic Inventory and Groundwater Monitoring Assessment of Long Valley and Dry Valley
FY 2001-02
Grant Amount: $200,000
Project Status: Complete

Lassen County's LGA grant was used to better define its groundwater resources, provide tools necessary to monitor these resources, and provide the groundwater management programs necessary for effective planning and resource development and protection.

The project consisted of two elements. The first project element gathered and analyzed geophysical data by conducting seismic refraction studies of Long Valley and Dry Valley. A dedicated monitoring well was also installed in the town of Milford. The second project element was the development of GIS and GPS capabilities to more accurately understand groundwater behavior in Lassen County. Lassen County obtained a dedicated GIS computer lab, GPS units, GIS software, and six data loggers. To be able to correctly use all the new hardware, county employees also attended an intensive training course.

The new data and analysis capability will allow Lassen County to examine and evaluate existing groundwater and hydrologic constraints. LGA funding provided Lassen County with the tools necessary to assemble future groundwater management strategies and groundwater management programs necessary for effective planning and resource development.





Lassen County study area

Squaw Valley Public Service District

Hydrologic Inventory and
Groundwater Management Assessment Program
FY 2001-02
Grant Amount: $202,000
Project Status: Complete

The goals of the Squaw Valley Public Service District (SVPSD), Placer County, are to develop a long-term strategy for sustainable groundwater use and to implement this strategy in a GWMP. In an effort to attain these goals, SVPSD performed several tasks using LGA funds.

Using a monitoring network of 10 inactive wells, SVPSD monitored groundwater elevations. This allowed SVPSD to record groundwater elevation trends and better understand the relationship between groundwater elevation and stream flow. This information provides an improved data for developing and calibrating the SVPSD's groundwater model, which is used to estimate the sustainable yield of the basin, and will lead to more effective groundwater management.

Stream Gauge

During the process of evaluating possible monitoring well networks, it was found that more accurate hydrogeologic cross-sections were needed. The cross-sections indicated that the bedrock base of the groundwater basin had substantial vertical offset near the eastern edge of the production well area and that this offset has significant bearing on the conceptual model of the aquifer system. The refined cross sections were used as part of the basis for updating the groundwater model.

To better determine surface water to groundwater relationships, SVPSD constructed three stream gages and purchased an automated precipitation gage. Inflows and outflows to Squaw Creek were gauged during the 2003 water year. Rating curves relating stream stage to discharge were developed.

An education and outreach program was developed in order to provide information to basin stakeholders and the public and provided opportunities for feedback from these groups. Elements of the program included public and stakeholder meetings, newsletters, and informational signs and pamphlets.

San Jacinto
Mountain Area Water Study Agency

Water Resources Management Plan
FY 2002-03
Grant Amount: $225,000
Project Status: Completed

The area is located in the Idyllwild area in southern California, approximately 85 miles east of Los Angeles in the mountains of Riverside County. Domestic water service in the community of Idyllwild is provided by three independent water purveyors: Fern Valley Water District, Idyllwild Water District, and Pine Cove Water District, who work together under a joint powers authority known as the San Jacinto Mountain Area Water Study Agency (SJMAWSA). Using LGA funds, SJMAWSA developed a water resources management plan.

To support development of the plan, SJMAWSA undertook a study to identify the available water resources, prioritize water facility improvements, and implement management practices that would ensure adequate water supply to meet the future water demand of the three water districts. Current water use in the communities and projected water supply and demand were identified. The study also identified, evaluated, and provided recommendations for supplemental water facilities and ways to reduce water demands.

Foster Lake: water source and recharge area

Water budget calculations indicate that during normal precipitation periods, there is about 2,200 acre-foot/year (AF/yr) of recharge to the study area. Approximately 558 AF/yr of that recharge water is being extracted, and the remaining 1,680 AF/yr is leaving the study area through subsurface outflow. During critical dry periods, there is approximately 1,400 AF/yr of recharge to the study area. It was assumed that the groundwater resources of the study area can sustain the water demands and therefore, SJMAWSA believes that groundwater can be managed as a potential source of new water supplies.

Carpinteria
Valley Water District

Wellhead Protection Demonstration Program and
Pilot Aquifer Storage Recovery Program
FY 2000-01
Grant Amount: $ 250,000
Project Status: Complete

The Carpinteria Valley Water District (CVWD) in Santa Barbara County used LGA funds to conduct a wellhead protection project and an ASR demonstration project.

The wellhead protection project included identification of 106 wells and verified that an additional 41 wells had either been destroyed or buried. For each well identified, well construction and logistical information was collected, including GPS and GIS data. Of the 106 wells, a total of 43 were characterized as abandoned and five wells were destroyed, based on factors such as degree of aquifer threat, well degradation, and proximity to contamination source. Additionally, CVWD developed a GIS database that can be easily updated to include any new wells constructed or destroyed within the Carpinteria Valley.

Old wells evaluated for destruction.

The ASR demonstration project was performed to assess the feasibility of conducting a recharge and recovery operation in the Carpinteria Groundwater Basin. A demonstration test program was designed to develop specific data related to injection hydraulics and well performance, water quality conditions, aquifer response, and operational parameters. Approximately 11.8 million gallons of water were injected into the basin, using a well that had been recently completed. Approximately 19.0 million gallons were recovered. Test data was analyzed to determine well plugging rates during injection, which proved to be minimal. Back flushing appeared to be effective in removing any plugging. The water quality of injected water and native groundwater appeared to be compatible based on geochemical modeling and laboratory results of the recovered water. An expansion of the ASR program appears to be feasible.

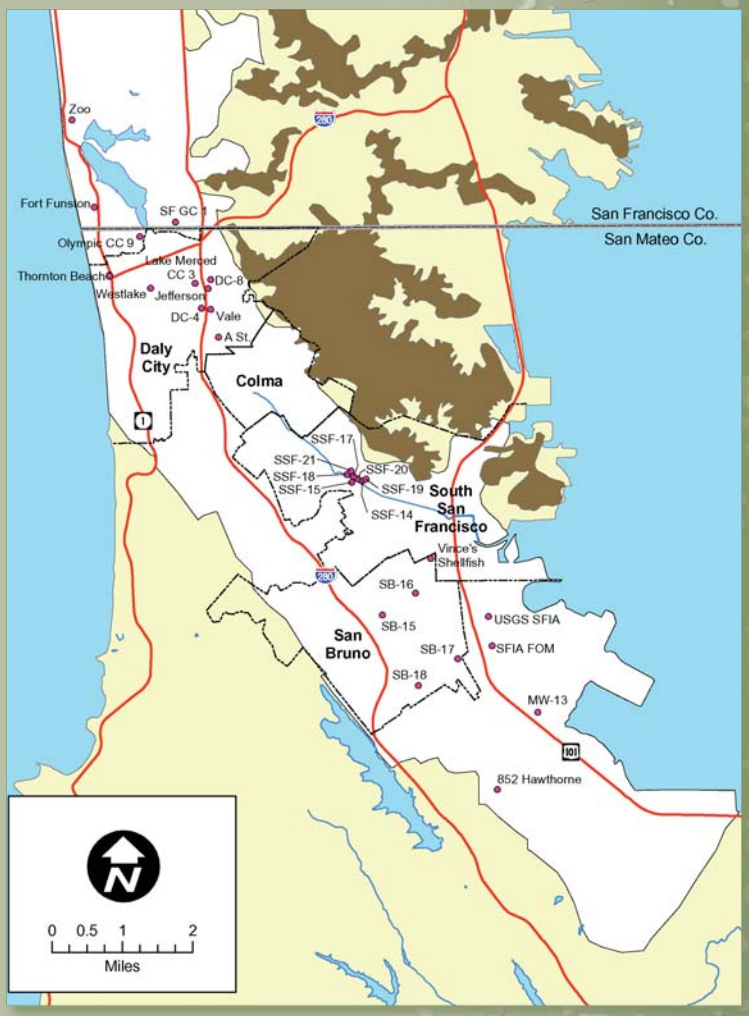
Daly City

Westside Basin Groundwater Monitoring and Modeling
FY 2001-02
Grant Amount: $ 250,000
Project Status: Complete

Daly City installed three monitoring wells at depths of 230, 360, and 660 feet at Thornton Beach and another 570 foot deep monitoring well at the San Francisco Zoo. These wells were installed to monitor potential saltwater intrusion. Samples were collected, from 26 production and monitoring wells, to determine water quality characteristics in shallow and deep aquifers and evaluate geochemistry and saltwater intrusion. The overall objective of the water sampling effort was to determine the chloride source contributing to concentration increases. Seven of the sample sites were monitoring wells located near the Pacific Ocean and San Francisco Bay and 19 sites were municipal and private supply wells located within the cities of Daly City, Coloma, South San Francisco, and San Bruno.

In the Daly City area, the analysis indicated that saltwater intrusion from the Pacific Ocean is not occurring. The data suggest that an ancient marine water source may be influencing chloride ion concentrations in the production wells. In the South San Francisco and San Bruno areas, data suggest saltwater intrusion may be occurring; but the study was inconclusive regarding the relationship between saltwater intrusion and chloride ion concentrations in water produced by inland pumping wells.

Three existing groundwater models were evaluated and compared, and new data and results were presented to stakeholders. Daly City combined the best elements of previous models into a unified and updated tool for ongoing use by various agencies and groups involved in the Westside Groundwater Basin. The model was used to support local investigation of planned pumping variations, use of surface and groundwater resources, and other water resource planning efforts. User-friendly procedures were created to import information into groundwater flow models. A written report documented the model revisions, performance, and sensitivity analysis.



Crescenta Valley Water District

Verdugo Basin Geophysical Evaluation Project
FY 2001-02 to 2004-05
Grant Amounts: $250,000, $185,000, and $250,000
Project Status: Two Complete and One Ongoing

Crescenta Valley Water District (CVWD) received grant awards in FY 2001-2002, FY 2002-2003, and FY 2004-2005 enabling them to greatly increase their knowledge of the Verdugo Groundwater Basin. CVWD, located in Los Angeles County, provides water and sewer service to 32,000 residents in La Crescenta and adjacent portions of Glendale, Montrose, and La Canada-Flintridge. The LGA grants have many far-reaching benefits for CVWD, water purveyors in the basin, and for the Upper Los Angeles River Area watershed.

2004-05
Project Description

CVWD is currently conducting several geophysical evaluations of the Verdugo Groundwater Basin to optimize the development and subsequent use of groundwater. The geophysical evaluations will increase the current understanding of the basin's water storage capacity, identify subsurface features that affect the movement of groundwater, gather hydrogeologic and aquifer information for use in locating future groundwater production wells, and provide information to enhance basin management. This will result in the optimization of the basin as a long-term water supply.

2002-03
Project Summary

CVWD evaluated the potential for developing a supplemental recharge and conjunctive use program. Declining production from the CWVD wells has increased purchases of more-expensive imported water. A cost-effective conjunctive use program will help

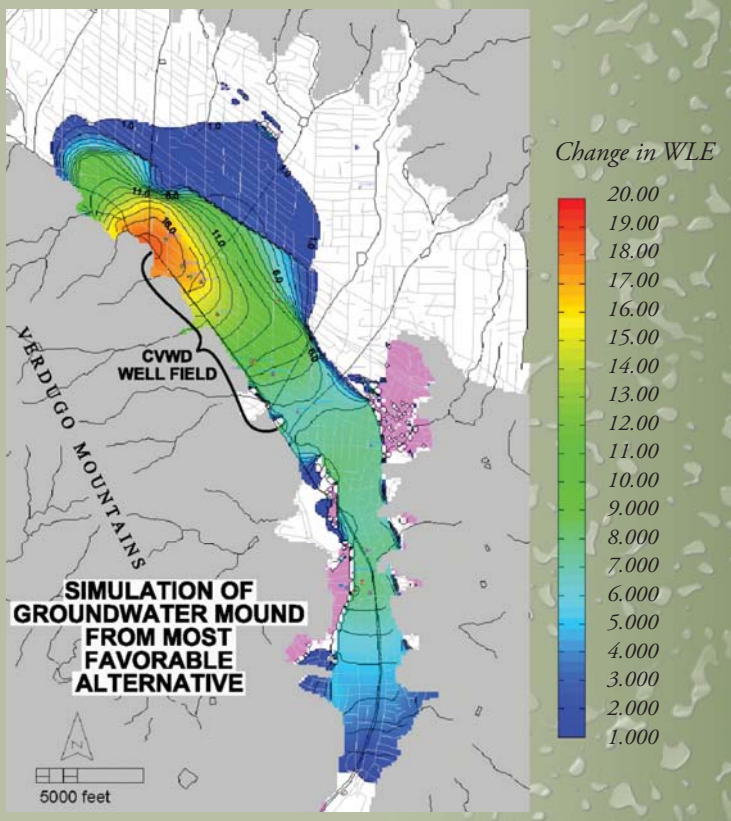
Dunsmuir Channel at Crescenta Valley Park

Continued from Page 30

CVWD increase its groundwater supply, reduce imported water purchases, and reduce costs. Key elements of the study included estimating the basin capacity for ASR; evaluating capture, retention, and percolation of storm water at parks and school yards; and assessing re-naturalization of watersheds, redesigning existing flood control facilities for storm water recharge, and recharging other sources of water. The study found potential in small neighborhood storm runoff recharge projects distributed across the basin and identified measures to optimize management and groundwater production. Recommendations included additional data collection activities and actions to develop potential recharge projects.

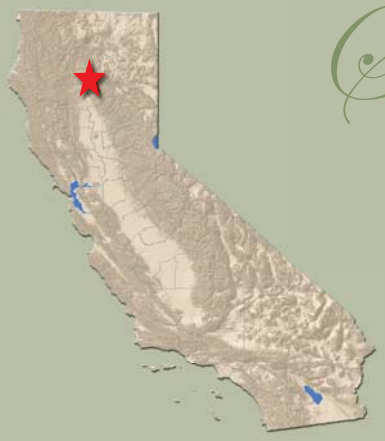
2001-02
Project Summary

CVWD installed three groundwater monitoring wells to monitor water quality and water level data resulting in useful information on the geology, hydrogeology, water levels and water quality in areas within the Verdugo Groundwater Basin that had not been previously explored. In addition, water quality data from the monitoring wells was useful to monitor existing contaminants. From this project, CVWD gained valuable data about the basin's condition and possible locations for new water production wells. ☙



Shasta
County Water Agency

Redding Basin Water Resources Management Plan
FY 2003-04
Grant Amount: $225,000
Project Status: Ongoing

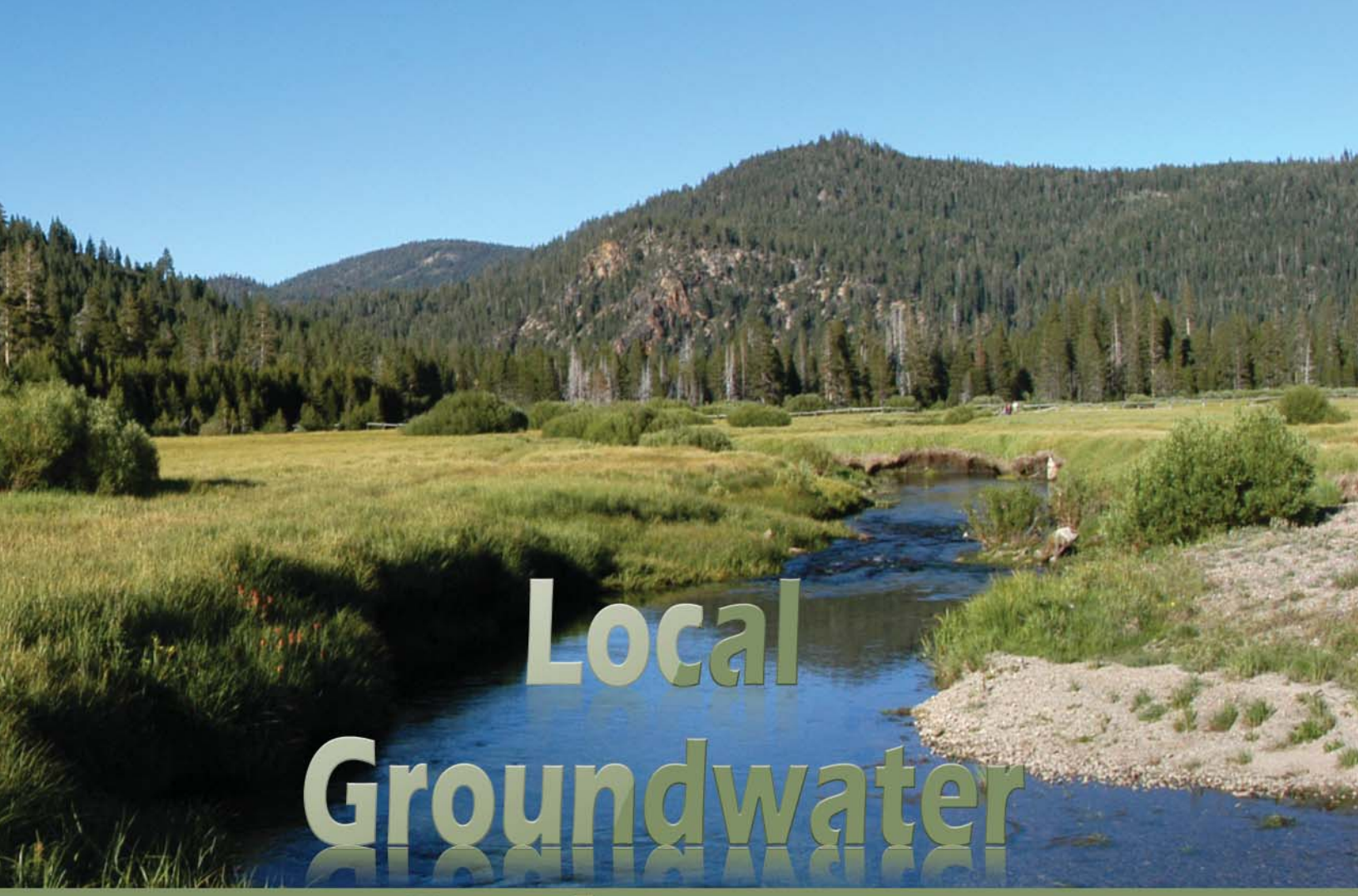


Shasta County Water Agency prepared the Redding Basin Water Resources Management Plan. Three conceptual alternatives were evaluated to help improve water supply reliability in the Redding Groundwater Basin. Modeling analyses were used to refine these alternatives. The alternatives involve differing levels of water use efficiency improvements, conjunctive use of groundwater and surface water, and conservation. Stakeholder meetings were held to gain input from the fourteen water purveyors located in the Redding Basin, and presentations have been made to the general public.

The Plan found that increased groundwater development represents the most reliable potential source of supplemental water supply, and that water use efficiency improvements could be the most readily implementable actions in the short-term. The water use efficiency improvements and conjunctive use elements would enable surface water to be transferred within the basin to areas that do not have direct access to large quantities of groundwater. ☙

If you have any question, please contact
the Division of Planning and Local Assistance
at (916) 651-9228.

Document Design: Angham Aljabiry



Local Groundwater Assistance Program

2000-2005

The Resources Agency . Department of Water Resources . Division of Planning and Local Assistance