

CALFED Bay-Delta Program Project Information Form
Watershed Program - Full Proposal Cover Sheet

Attach to the cover of full proposal. All applicants must fill out this Information Form for their proposal. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Full Proposal Title: Los Vaqueros Watershed Monitoring Education Program
 Concept Proposal Title/Number: Los Vaqueros Watershed Monitoring Education Program WSP01-0026

Applicant: Contra Costa Water District (CCWD)

Applicant Name: Contra Costa Water District (CCWD)

Applicant Mailing Address: P.O.Box H20, 1331 Concord Ave., Concord, CA 94520

Applicant Telephone: 925-688-8041 Applicant Fax: 925-688-8122

Applicant Email: karntzen@ccwater.com

Fiscal Agent Name (if different from above): _____

Fiscal Agent Mailing

Address: _____

Fiscal Agent Telephone: _____ Fiscal Agent Fax: _____ Fiscal Agent Email: _____

2. Type of Project: Indicate the primary topic for which you are applying (check only one)

____ Assessment

____ Monitoring

____ Capacity Building

____ Outreach

X Education

____ Planning

____ Implementation

____ Research

3. Type of Applicant:

____ Academic Institution/University

____ Non-Profit

____ Federal Agency

____ Private party

____ Joint Venture

____ State Agency

X Local Government

____ Tribe or Tribal Government

4. Location (including County):

What major watershed is the project primarily located in:

____ Klamath River (Coast and Cascade Ranges)

____ Sacramento River (Coast, Cascade and Sierra Ranges)

____ San Joaquin River (Coast and Sierra Ranges)

X Bay-Delta (Coast and Sierra Ranges)

____ Southern CA (Coast and Sierra Ranges)

____ Tulare Basin (Coast, Sierra and Tehachapi Ranges)

5. Amount of funding requested: \$567,200

Cost share/in-kind partners? X Yes _____ No

Identify partners and amount contributed by each:

- California State University, Hayward (in-kind support with stakeholder participation, curriculum development, environmental justice participation)
- Wildlife Project (in-kind support with stakeholder participation, curriculum development, environmental justice participation)
- Lindsay Wildlife Museum (in-kind support with stakeholder participation, curriculum development, environmental justice participation)
- Educators in Contra Costa Water District Service Area (in-kind support with stakeholder participation, curriculum development, environmental justice participation)

6. Have you received funding from CALFED before? Yes No
If yes, identify project title and source of funds:

- CALFED Old River Rock Slough Water Quality Action Project (\$151,000).
- Los Vaqueros Reservoir Expansion Project (\$600,000 reimbursable grant FY2001).
- Raw Water Facilities Improvement Plan: CALFED/DWR Water Use Efficiency Program (Prop. 13)

By signing below, the applicant declares the following:

1. The truthfulness of all representations in their proposal
2. The individual signing this form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or an organization)
3. The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the Watershed Program Proposal Solicitation Package and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent provided in the Proposal Solicitation Package.

Printed name of applicant

Signature of applicant

**CALFED BAY-DELTA PROGRAM
WATERSHED PROGRAM
Los Vaqueros Watershed Monitoring Education Program (LVWMEP)**

1. *Describe your project, its underlying assumptions, expected outcomes, timetable for completion, and general methodology or process.*

PROJECT: Los Vaqueros Watershed Monitoring Education Program (LVWMEP)

The 18,000-acre Los Vaqueros (LV) Reservoir Watershed, owned and operated by the Contra Costa Water District (CCWD), operates to improve water quality for CCWD's 460,000 customers. This is accomplished by storing higher-quality water from wet seasons for blending with the Delta supply during summer months or times of drought, when the Delta water typically becomes saltier. This will keep chloride levels at the tap at or below 65 mg/l nearly all of the time, a vast improvement over water quality conditions before Los Vaqueros was built. Other benefits include a one-to-three month supply of emergency water storage, flood control, recreation, and protection of rare natural and historic resources within the watershed.

Four years ago CCWD implemented a Watershed Education Program that focuses on the ecology and natural history of the watershed. The program currently offers third through sixth grade students the opportunity to observe the flora and fauna of the Los Vaqueros Watershed up close, and to engage in hands-on activities conducted by CCWD teachers and Lindsay Wildlife Museum staff. Other CCWD Water Education programs include tours of water treatment plants, classroom presentations, school assemblies, canal safety, and boat field trip aboard the Research Vessel Crago floating laboratory program.

The primary objective of this three-year proposal is to implement a two-week Summer Science Institute targeting middle and high school students, including disabled students and students from low performance and/or low income (often minority students) areas of the County. Students will participate in a water quality, wildlife and wetlands monitoring education program in the LV watershed. Monitoring and assessment are an essential elements for understanding how watershed program actions affect watershed resource conditions over time. The LVWMEP is of great interest to the faculty and students in the Environmental Science Program at California State University, Hayward (CSUH). The program will encourage students to engage in internships with educators, researchers, project managers, and/or others involved in environmental action, science and education. The intention is to establish an internship program for CSUH undergraduate students. CCWD's program will provide opportunities for CSUH students to work with teachers and students from Contra Costa County while actively engaging in habitat and water monitoring projects. The LVWMEP will include contracting for a wildlife

biologist to act as Watershed Monitoring Coordinator to train CCWD water education personnel, students, and teachers in a variety of monitoring techniques and protocols.

In support of the LVWMEP, a computerized public exhibit featuring the CALFED story will be developed for the LV Interpretive Center. A Web cam station will be constructed to provide monitoring activities via the Internet. Outdoor interpretive panels will educate students and the public about specific elements of the natural and cultural history of the watershed, as well as about how Los Vaqueros is related to CALFED's goals and objectives for water quality and supply. The retrofitting of an existing barn and construction of a new ADA accessible observation deck are essential for the success of the LVWMEP. These structures will allow field work to take place throughout the year, and provide accessibility to disabled students. All improvements will be credited to CALFED grant funding.

According to the California Department of Education, comprehensive efforts must be made to bolster recognition with understanding and appreciation. More must be done to teach the basic ecological principles that underpin all natural systems and sustain the resources they can provide to enlighten society, in perpetuity. There is no better place than our schools nor a more critical time than the present to embark on a new course toward these essential objectives. These goals are best reached through a restructuring of and more vigorous commitment to environmental education. The CCWD Watershed Education Program strives to meet this commitment through its current and proposed education programs.

UNDERLYING ASSUMPTIONS:

- The program will not interfere with mandated monitoring programs required by permits and/or contracts.
- The program will target students in a difficult-to-reach age group both logistically and academically, specifically middle to high school students including those from low income and/or low performing schools and disabled students.
- Students need problem solving skills to help them cope with an era marked by the explosive growth of new information.
- Students learn and retain more through hands-on experience with environmental issues than from classroom-only experiences.
- Students involved in such processes learn leadership skills such as advocacy, facilitation, and organization and how to use a diversity of experiences and approaches.
- Partnering with the educational community will result in a more holistic scientifically valid program. Partnering is critical for problem solving and also leads to long-term financial support of programs.
- Local organizations can benefit by sharing in the information produced by this program. Five municipalities purchase raw water from CCWD.
- Once established, the LVWMEP will be turned over to the CCWD water education personnel. They will continue to expand monitoring and educational projects within the Watershed Education Program.

- The information will be shared with the following CCWD partners: CSUH BEST (Bay Area Environmental Science and Teaching); CSUH Environmental Science Bachelor of Science program; Lindsay Wildlife Museum; high school environmental clubs; the Wildlife Project, a for-profit business that engages in wildlife research and environmental document preparation; other appropriate agencies; educators and the general public through reports, exhibits, community outreach, school outreach, newsletters and brochures.
- The program will achieve the CALFED Watershed mission by emphasizing the importance of locally based environmental protection by achieving adaptive management and monitoring, which are important program elements necessary to understand watershed resource conditions and the effects of Watershed Program actions on these conditions.
- The LVWMEP will enhance community watershed awareness.

EXPECTED OUTCOMES & GOALS:

- The program will establish student watershed stewardship projects for middle and high school students and teachers, as well as for CSUH undergraduate students.
- Students will gain knowledge of careers associated with the watershed environment field.
- The project will promote information exchange by establishing a Stakeholders Advisory Group to develop the project and evaluate its outcome.
- The program will provide paid student internship opportunities for CSUH Environmental Science undergraduates.
- The LVWMEP will communicate to the CCWD voting public and educational community the goals and objectives of the CALFED Watershed Plan, specifically, its water supply objective as it relates to studying the possibility of enlarging Los Vaqueros Reservoir.
- The retrofitting of the barn for public safety will provide an outdoor staging area for habitat construction workshops, presentations, a research work station, and storage of monitoring equipment. The barn is an essential element for providing year round education programs in the LV watershed.
- The monitoring process will establish a monitoring protocol for Kellogg Creek area. This is an important adaptive management and monitoring activity necessary to understand the LV watershed resource conditions and the effects of watershed program actions.
- The observation deck, ramp and railing are necessary for implementing the monitoring process, which will focus on raw water quality and non-special status species. The deck will keep the tulles, grasses and other flora from being trodden and crushed during monitoring. The deck will be ADA accessible to allow disabled students to participate.
- The Web cam station is an educational tool that will expand, via the Internet, the audience able to view the LV watershed environment. It is a community-building extension of the monitoring program. This will allow access via the Internet at home and in the classroom.
- The program will create opportunities for students to participate in community planning and decision making.

- The program will encourage an individual commitment to resource protection.
- The LVWMEP will use community as an extension to the classroom.
- The program will create partnerships among schools, community businesses and local agencies.
- The program will involve the community in solicitation and donation of funds for future programs.
- The program will foster development of students as presenters to other students.
- The program will encourage multi-ethnic and students with disabilities to participate.
- The program will develop protocols for wildlife, wetland, and water quality monitoring.
- The program will support long term scientific research and monitoring of a significant and highly productive ecosystem.
- The program will establish a community of youthful watershed stewards.

TIMETABLE FOR COMPLETION:

This proposal is for a three-year pilot program with the objective of incorporating it into CCWD's existing Watershed Education Program at its completion. The two-week summer program is expected to begin in the summer of 2002.

METHODOLOGY:

- A. Develop a job description for the Watershed Monitoring Coordinator (WMC). Hire a contract biologist through a Request for Proposal (RFP) process to act as the WMC for three years.
- B. The WMC will implement the program by establishing and networking with stakeholder groups, and training CCWD personnel and CSUH Environmental Science undergraduate students in monitoring protocols. An extensive part of the job description will be collaborating with partners on the curriculum and preparing reports and presentations for the community.
- C. The WMC will establish the stakeholder advisory group using partners such as, the unified school districts in the CCWD service area, the junior colleges and high schools in the CCWD service area, and other environmental educators.
- D. Contract out and oversee the retrofit of the existing historical barn.
- E. Purchase and/or build monitoring equipment.
- F. Contract out and oversee the building of the wetland observation deck on pond to be designed for access to wetland monitoring sites, and ADA accessibility.
- G. Design and construct 20 interpretive signs to be placed at the wetlands and along the 55 miles of trails, depicting historical, cultural, and environmental interpretations and explaining CALFED connections.
- H. Design, fabricate, and install a computer-programmed exhibit telling the CALFED story. Exhibit will be located in the new LV Interpretive Center.
- I. Contract for the design and installation of a Web cam station to be strategically located in the watershed for access via the Internet for student monitoring from classrooms and home.

2. Describe your qualifications and readiness to implement the proposed project.

The Contra Costa Water District (CCWD) serves over 460,000 customers. The 18,000-acre Los Vaqueros (LV) Reservoir Watershed is owned and operated by the CCWD to improve water quality for its customers. Resting in the Los Vaqueros valley east of San Francisco, the newly constructed Los Vaqueros Dam was the first major water project to be built in northern California meeting strict environmental permitting requirements. The key reason for this success has been the District's commitment to mitigate all environmental impacts to negligible levels. One of the major challenges was a continually shifting regulatory environment. Each change in Delta requirements called for new analyses of project operations. CCWD addressed these challenges through a dedicated use of resources.

The CCWD staff includes experts in Delta water issues and computer modeling, a method being relied on more and more heavily in planning California's water future. More than 200 studies were conducted to describe alternatives for operation of the Los Vaqueros Project during long-term hydrologic cycles. The LV project represents a major successful water project. The project includes maintaining high environmental standards, open communication with agencies and the public and thorough and complete environmental permitting documentation.

CCWD has a comprehensive Water Education Program in place that reaches approximately 40,000 students a year. This program has established partnerships in place, including one with the Lindsay Wildlife Museum, whose staff has extensive training and experience in EPA water quality monitoring protocols. Partnerships with all 112 schools in the CCWD service area also already exist. CCWD has a budding partnership with professors in the CSUH Biological Sciences department, who can provide technical expertise in wildlife and ecological monitoring. CCWD has an existing relationship with the Wildlife Project headed by Jeff Alvarez, who worked on the LV mitigation program.

CCWD's "Just for Kids" Web site education and research program and "Teacher's Page" have been an excellent success in the classroom. However, because kids love to be stimulated and challenged with outside experiences CCWD provides a variety of field trips and assembly experiences, all free of charge. Whether through visiting the LV Watershed to learn about plants, wildlife, and California history, getting a look at the technology that protects our drinking water supply, or going aboard a research vessel to conduct water quality experiments in the Delta, CCWD provides a variety of stimulating experiences that students will long remember.

Describe technical support available.

The CCWD Water Education Program consists of an educational staff which will be on site and responsible for operations once trained by a Biologist, who will be hired to oversee the monitoring and education project. Once trained, CCWD educational staff will continue the program, training teachers and students. The Lindsay Wildlife Museum currently uses high school students for water quality monitoring in Walnut

Creek, Concord, and Pleasant Hill. The Museum is a wildlife rehabilitation hospital and educational museum dedicated to connecting people to the natural world. Since 1998 the Museum has been an active partner with CCWD, helping to develop and implement environmental education programs for the LV Watershed. CCWD engineers will be responsible for designing the observation deck and managing the restoration of the barn. District staff will maintain all permanent structures for future use. CCWD is authorized to own, construct, operate, and maintain a Water District under the State Water Code. This authority includes ownership, protection and management of watershed lands and natural resources.

In addition, CCWD has adopted and codified land water and resource regulations for the protection of the valuable environmental and cultural resources that are present within its ownership. CCWD not only acquired over 100 permits during the building of the LV Project, but also negotiated with regulators to comply with the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), Endangered Species Act (six federal biological opinions were required), Clean Water Act (the coveted 404 Wetlands Filling Permit was obtained), Fish and Wildlife Coordination Act, National Historic Preservation Act, California State Water Resources Control Board (which included a 19 action water rights decision), California State Water Quality Control Board (NPDES permit), and many other state, county, and local permits and agreements.

CCWD has a comprehensive Watershed Resource Management Plan for the LV watershed. There are resources in place to support the LVWMEP such as a historical barn that, with some structural and ADA retrofitting, can be accessed by students and the public for a sheltered staging area (to use year-round and in inclement weather), a workshop, and/or storage facility. There are existing wetlands created as mitigation for the building of the reservoir that, with construction of an ADA-accessible observation deck can be accessed easily from the road for data collecting and observation. There is an LV Interpretive Center, which will be completed by July 2001 that can house displays and exhibits depicting the CALFED story. The facilities and the Watershed Education Program are in place to support this program. This grant would enable CCWD to extend its existing Watershed Education Program further into the community, develop a hands-on monitoring and assessment program targeting middle and high school students, as well as an internship opportunity for CSUH Environmental Science students.

List any previous projects of this type.

Previous projects include:

- •\$450,000 grant through EPA (Environmental Protection Agency) to be used to quantify local sources of water quality degradation at the District's two Delta intakes.
- \$152,850 to construct three sections of trails to ADA standards, including paving a trail more than a mile long at the marina on the LV Reservoir and \$75,000 to assist in development of the East County Habitat Conservation Plan (HCP). The

HCP development will provide a blueprint for protection of threatened and endangered species habitat in the East County.

- CALFED Old River Rock Slough Water Quality Action Project (\$151,000 reimbursable grant for FY2001).
- Los Vaqueros Reservoir Expansion Project (\$600,000 reimbursable grant FY2001).

3. *Describe how the approach to achieving the stated goals of the project demonstrates an effective cost relative to its anticipated benefits.*

(See Budget Summary Attached)

- The partnering approach to the LVWMEP is a cost-effective way to involve the community in the stewardship of the LV watershed in terms of in-kind services and potential educational program funding.
- Collaboration with CSUH allows for high quality technical support at a very modest cost. It allows for CALFED program objectives to be incorporated in university programs. It also allows for a scientifically valid academic approach to the program.
- The Web cam station allows for a greater audience of students to access information about the program via the Internet.
- The retrofitting of the barn will allow the education program to continue through the winter months during inclement weather.
- The program will be developed to reach students from low performing and low-income (often minority) schools by providing free transportation (buses).
- The observation deck and ramp will make monitoring possible while protecting the wetland habitat. It also allows disabled students to participate in the program more readily.

4. *Describe the technical feasibility of the proposed project. Describe any similarity to previously implemented successful projects in this community or elsewhere.*

The program will be modeled after the GREEN (Global Rivers Environmental Educational Network) watershed education program. The key to the GREEN process is its emphasis on creating a learning community that includes all sectors—students, families, community groups, citizens, governments, non- government organizations, and businesses that possess the skills and knowledge to understand the issues, and the shared vision and motivation necessary for change. Another project is CAPS (Community Action and Problem Solving), which teaches middle school students local environmental education, civic engagement and service learning. Both of these programs involve innovative educational techniques, which enhance community involvement, the development of critical thinking, research skills, analytical problem solving, citizen monitoring, verbal and written communication skills, and awareness and knowledge of environmental problems. Educators guide youth through a balanced investigative process of identifying environmental concerns in their community, exploring possible changes in local policy or practice related to their

selected problem, and implementing a project plan aimed at sustainable community improvement. This is an ongoing feedback process. Polls consistently indicate that youth have a passion for the environment and wish to improve it. Other surveys show that despite declining interest in political affairs, young people are increasingly involved in their communities.

If the project proposes a new approach or new method with a high likelihood of adding new knowledge and or techniques, or with the potential to fill identified gaps in existing knowledge, describe how it will do so, and what monitoring components will provide substantiation of results.

This monitoring program is being implemented as an educational program as well as to develop a site-specific monitoring and assessment protocol for the Kellogg Creek area. The program will focus on techniques being used to measure water quality, wetlands, and wildlife monitoring. Assessments will focus on: 1) what students learned, 2) what was accomplished, 3) what skills were gained, 4) problems were encountered, and 5) suggestions for future projects. Participating students will take part in pre- and post-testing to evaluate the success of the program. Teachers and program administrators will also be given evaluation forms. The program will be adjusted each year according to the results of the tests and evaluations.

Explain how the finished project will be maintained as necessary, and to what degree it may require continued funding from outside the community.

The project will continue as part of the CCWD Watershed Education Program. CCWD staff will have been trained to take over management of the program. The network of educators will be in place to maintain and support the program. CCWD watershed staff will be responsible for maintaining the barn, the observation deck, and the Web station. As the program progresses it is hoped that the participants develop life-long habits of active citizenship and environmental stewardship. Messages about the CALFED Bay Delta Program will be in place in the form of signage, an exhibit in the LV Interpretive Center, brochures, credits, the CCWD Web site and other outreach media.

5. ***Describe how the monitoring component of the project will help determine the effectiveness of project implemented and assist the project proponent and CALFED with adaptive management processes.***

Identify performance measures appropriate for the stated goals and objectives of the project.

1. Pre- and post student tests.
2. Program evaluation sheets for students, teachers, and program administrators.
3. Comparison of monitoring results and protocols with those being performed by CCWD watershed staff.
4. Stakeholder involvement reports.
5. Hold focus groups of local educators to test for the level of awareness of the program.

6. Completion of barn retrofit, observation deck construction, interpretive panels and Web cam installation.
7. Measure success of marketing by numbers of students signing up for the program.
8. Compare evaluation results of each of the three years.
9. Measure success of efforts toward environmental justice by numbers of students participating from low income and/or low performing schools and the numbers of disabled students.

Describe how this project will coordinate with and support other local and regional monitoring efforts.

Monitoring results will be shared with current monitoring programs conducted under the on-going Los Vaqueros Water Quality and Resource Management Plan. Lead agencies for this project include: the U.S. Department of the Interior Bureau of Reclamation, Mid-Pacific region. CCWD operates both raw water distribution facilities and water treatment and treated water distribution facilities. CCWD presently supplies raw water to Antioch, Diablo Water District (Oakley), Pittsburg, Southern California Water Company (Bay Point), Martinez, 10 major industries, 36 smaller industries and businesses, and approximately 35 agricultural users. Approximately 460,000 residents receive water from CCWD, including wholesale and retail customers throughout north-central east Contra Costa County. All monitoring projects will deliver important information for the above customers. The CSUH Biology Department will have access to wildlife monitoring data for their use.

Provide a description of any citizen monitoring programs that will be part of this project.

The Lindsay Wildlife Museum will be a partner in the LVWMEP. Lindsay is currently using high school students for water quality monitoring for the cities of Walnut Creek, Concord and Pleasant Hill. Their highly qualified staff, trained by EPA, uses students to perform monitoring tests. These tests satisfy the state water quality requirements for the city of Walnut Creek. After evaluating the use of the state EPA protocols, and checking the results for accuracy, the city now contracts with the museum's student monitoring programs for its water quality monitoring program needs.

Protocols from the North American Amphibian Monitoring Program may be used for frog and terrestrial salamander species.

What monitoring protocols will be used, and are they widely accepted as standard protocols?

- Environmental Protection Agency (EPA) water quality monitoring protocols
- Invertebrate monitoring protocols from *The Wildlife Management Techniques Manual*
- Study design protocols from GREEN (Global Rivers Environmental Education Network)
- The study will be designed to answer the following questions:
 - Why are you creating a watershed education program?

- What specific watershed issues are you trying to address?
- What educational and environmental goals are you trying to accomplish?
- How does your watershed change from source to mouth, and what questions might be addressed as a result?
- What will you study and monitor?
- Students will monitor the following:
 - Depth, flow, temperature, color, clarity, habitat, pH, dissolved oxygen, nutrients, biochemical oxygen demand, presence and types of bacteria, plankton, algae, macroinvertebrates, plants and fish.

Describe how the type and manner of data collection and analysis will be useful for informing local decision-making.

As trends from monitoring results are analyzed, important management decisions will be made as to what methods will be implemented to control or treat contaminants. CCWD sells raw (untreated) water to five water agencies: the cities of Pittsburg, Antioch, Martinez, and Diablo Water District and Southern CA Water Service. These jurisdictions will be notified regarding the quality of the water stored in the LV Watershed as well as other significant monitoring results related to water quality.

6. If this project is to develop specific watershed conservation, maintenance or restoration actions, describe the scientific basis for the actions(s) described in the proposal. Include the following:

Any assessment of watershed conditions that has already been developed by you or others.

For nearly a century, saltwater intrusion from San Francisco Bay into the Sacramento-San Joaquin Delta has been a problem for Contra Costa residents, who draw their drinking water from the Delta. At times, Delta salinity has measured as high as 259 mg/l. Because of this problem an Environmental Impact Report (EIR) and an Environmental Impact Statement (EIS) were prepared in compliance with the California Environmental Quality Act, the National Environmental Policy Act, and Contra Costa Water District and U.S. Bureau of Reclamation procedures. Over 200 studies were performed prior to the implementation of the LV Reservoir Project. Because of these studies and the construction of Los Vaqueros Reservoir, CCWD will provide better water quality and reliability for 460,000 people. CCWD also has a Los Vaqueros Water Quality and Resource Management Plan (RMP). The primary goal of the LV Project and the RMP is to improve water quality by minimizing seasonal quality changes and to increase the reliability of the water supply by providing emergency and drought storage. The district pumps water from a new intake located farther upstream from the Bay during months when Delta salinity is lowest. The water is then stored in the new reservoir and blended with Delta water when salinity rises.

Previous assessments used to establish your project goals and objectives, or to inform the basic assumptions of your proposal.

The Los Vaqueros Project, a 100,000 acre-foot reservoir on Kellogg Creek in southeastern Contra Costa County, required not only construction of a dam and various water conveyance pipelines and pumping facilities, it also required realignment of existing natural gas and petroleum pipelines, power lines, and a road from the reservoir inundation area. An extensive analysis of current watershed conditions was performed in 1998 in support of the Los Vaqueros Resource Management Plan, and more than 200 studies were conducted to describe alternatives for operation of the Los Vaqueros Project during long-term hydrologic cycles. Environmental studies included: California Tiger Salamander, Wetlands, San Joaquin Kit Fox, California Red Legged Frog, Valley Oak, and fisheries. The project's success was due to maintaining high environmental standards and developing complete environmental permitting documentation. CCWD developed a Los Vaqueros Watershed Management Plan to mitigate all of the projected environmental impacts. The LVWMEP will be a significant element of an extensive habitat restoration and enhancement program for the LV watershed region. It will teach individuals about the importance of watershed management and how it effects their everyday life and also provide outreach opportunities to the communities, middle and high school students and college students.

A description of the scientific assumptions used to develop the project goals, objectives and proposed actions, and the degree to which those assumptions are widely accepted (both in the science community as a whole, and in the watershed community).

The project is an educational program, designed to teach students and teachers reasons and methods for studying the LV Watershed ecosystem. Education will include how to conserve, restore, enhance and maintain healthy watersheds. Emphasis will be on monitoring projects that can be maintained and replicated within the local communities of the LV watershed. CCWD is responsible for implementing monitoring programs, implementing remedial measures, and submitting monitoring reports to designated agencies. The purpose of the monitoring is to document success in achieving performance standards, identify the need for remedial actions, evaluate the adequacy of the restoration maintenance program, and collect baseline information for use in long-term monitoring of habitat conditions. This program will facilitate monitoring efforts that are consistent with the Comprehensive Monitoring, Assessment, and Research Program (CMARP) protocols. The goal is to provide opportunities to educate local citizens, and particularly students, about their local watershed and its relationship to the bioregion. This program is not only an enhancement to the current educational program, but will provide additional resources for the LV Interpretive Center. The center provides valuable environmental educational opportunities and information for local and regional audiences, helping people to better understand watersheds, resource values, and the benefits realized from sound watershed management activities.

A discussion of how the proposed actions are (are not) consistent with the scientific assumptions and previous assessments completed in the watershed.

CCWD, under NEPA/CEQA and biological opinion guidelines currently monitors special-status plant and animal species in the watershed. The proposed LVWMEP could potentially augment these mandatory requirements. The LVWMEP will be an extension of the current Watershed Education Program that began four years ago and which focuses on the ecology and natural history of the watershed. The program is modeled to enhance learning and awareness, and to encourage public involvement. It will target middle and high school students, including disabled and low income/low performing, and CSUH undergraduate students.

A description of what baseline knowledge was used to support the management actions described in the proposal, or the likelihood that the management actions will generate more robust baseline knowledge.

The LVWMEP will be part of an adaptive management process of refining or redefining management actions as a process unfolds and results are obtained. Adaptive management begins with a clearly defined set of goals and objectives; includes the development of actions meant to achieve those goals and objectives; and incorporates an evaluation of actions implemented to determine whether goals and objectives are being met. Adaptive management and monitoring are important program elements necessary to understand watershed resources conditions and the effects of Watershed Program actions on these conditions. To understand how LVWMEP actions affect watershed resources conditions over time, an initial inventory and assessment of existing (baseline) conditions is required. This program will not only attempt to provide baseline information for the LV watershed, which will be useful for future programs, but in doing so, will be training and educating students, a key objective of the program. CCWD has acquired, through mandated CEQA/NEPA and biological opinions, a baseline of monitoring data for special-status species and water quality in the watershed. The LVWMEP data obtained can be compared to, and may augment, this baseline data.

7. How will the proposal address multiple CALFED objectives (see Section I) in an integrated fashion, with emphasis on water supply reliability, water quality, ecosystem quality, and levee stability objectives CALFED has established for Stage 1 of the program?

- **Ecosystem Quality:** The educational program will provide wildlife and water quality-monitoring programs to collect data about specific regions of the watershed. The data will be used to improve and increase aquatic and terrestrial habitats and improve ecological functions in the LV Watershed to support sustainable populations of diverse and valuable plant and animal species.
- **Water Quality:** Water quality monitoring will be taught to a specific group of teachers and students. The program is designed to provide training in a variety of monitoring techniques and protocol. The focus will be on raw water quality and a variety of non-special-status species. The LV Reservoir is a source of drinking

water for 460,000 people. Good water quality is required to maintain the high quality habitat needed in the LV watershed system to support a variety of fish and wildlife populations. CCWD takes its water directly from the Delta and is highly sensitive to variations in Delta water quality. CALFED has adopted a general target of continually improving Delta water quality for all uses, including in-Delta environmental and agricultural uses. For its drinking water quality program, CALFED has developed a specific goal based upon extensive stakeholder and agency involvement. CALFED will pursue aggressively a mix of strategies in order to improve in-Delta water quality. These actions will enable users to capture more drinking water during periods of high Delta water quality, reduce contaminants and salinity that impair Delta water quality, evaluate alternative approaches to drinking water treatment to address growing concerns over disinfection byproducts and salinity, and enable voluntary exchanges or purchases of high quality source waters for drinking water uses. The LVWMEP will educate students and teachers about the drinking water quality goals of CALFED and how Los Vaqueros is related to those goals. Another major element of the CALFED Water Quality program is the Bay Area Blending/Exchange project that enables Bay Area water districts to work cooperatively to address water quality and supply reliability concerns on a consensual basis. This includes possibly building “interconnects” between agency supply aqueducts used in conjunction with Los Vaqueros Reservoir. The LVWMEP would also educate students and teachers about this program.

- **Surface Storage:** Expanding water storage capacity is critical to the successful implementation of all aspects of the CALFED program. Not only is additional storage needed to meet the needs of a growing population but, strategically located, it will provide much needed flexibility in the system to improve water quality and support fish restoration efforts. CALFED identified 12 potential surface storage projects that are in varying stages of the environmental review or feasibility process. Los Vaqueros Reservoir was identified as one of these 12. Expansion of Los Vaqueros Reservoir by up to and additional 400 acre-feet is possible with local partners as part of a Bay Area water quality and water supply reliability initiative. As part of a Bay Area initiative, an expanded LV Reservoir would provide water quality and water supply reliability benefits to Bay Area water users. As an existing reservoir operated by CCWD, the LV Reservoir is subject to a number of mandates and agreements, including a requirement for voter approval. The LVWMEP would provide a vehicle to educate the voting public about CALFED’s requirements for surface storage and their relationship to LV Reservoir.

Explain how the proposal will help define and illustrate relationships between watershed processes (including human elements), watershed management, and the primary goals and objectives of the CALFED (see Section I).

This project will introduce and teach the importance of watershed management as it relates to watershed processes. The proposed exhibit in the LV Interpretive Center will tell the story of the primary goals and objectives of the CALFED Bay-Delta

Watershed Program and why Los Vaqueros is an integral part of CALFED's water quality and supply objectives. This educational project will focus on teaching multi-cultural students and teachers monitoring techniques and strategies to restore ecological health and improve water management in the LV watershed. The program will achieve the education and outreach component of the CALFED Watershed Program Plan as well as the watershed monitoring and assessment protocols. The education and outreach program plan is designed to facilitate information exchange and provide opportunities to build local involvement in LV Watershed activities. The information exchange goal is to better inform the public and create dialogue to improve watershed management decisions at all levels. The monitoring and assessment program will provide a useful feedback loop to assess assumptions, decisions and projects based on their outcomes. Effective monitoring programs that are based on sound science and include a wide range of participants will help improve decision-making processes for enhancing watershed health.

Identify a lead agency for environmental compliance, such as CEQA or NEPA. Describe the program's strategy and timetable on environmental compliance.

CCWD is the lead agency for this educational program. There are no compliance standards that need to be met to implement the proposed educational activities. The only compliance needed for this project will be fire code and construction permits for the observation deck and restoration of the barn.

8. Describe any other important aspects of your program that you could not address in the above items, and that you feel are critical to fully describing your project.

CCWD believes that environmental education programs that are creatively crafted and fairly applied will encourage future generations of voting citizens to take responsibility for their actions and choices, moving them to act rather than react. Innovative environmental education programs such as the LVWMEP will position students to effect a more responsible stewardship over their inherited natural resources and create a more sustainable existence for all species. Investigating real problems helps young people take formative steps toward critical thinking by learning how to ask, think, and act for themselves. Quality environmental education programs enhance this form of reflective thinking, creating enlightened and empowered citizens capable of evaluating, reasoning, and acting to protect natural resources both locally and globally.

CALFED WATERSHED PROGRAM BUDGET ESTIMATE AND PROJECT SUMMARY II
 LOS VAQUEROS WATERSHED
 MONITORING EDUCATION PROGRAM (3 YEAR PROGRAM)

Task Date	Completion	Match	Grant	Total (3YEARS)
<u>1. Administration</u>				
a) Project Manager		\$6,000	\$44,640	\$ 50,640
b) Water Education Coordinator		\$111,815	\$23,700	\$135,515
c) Accounting & Distribution		\$0	\$23,400	\$23,400
d) Wildlife Biologist		\$0	\$60,000	\$60,000
e) CSUH Interns (3)		\$0	\$ 7,200	\$ 7,200
f) Reports & Presentations		\$3,000	-0-	\$3,000
g) Professional services		\$52,500	-0-	\$52,500
Sub Total		\$173,315	\$158,940	\$332,255
<u>2. Los Vaqueros Interpretive Center</u>				
a) Building,(design, construct, permits)		2.18 million	-0-	\$2.18 million
b) CALFED exhibit		-0-	\$15,000	\$15,000
Sub Total		\$2.18 million	15,000\$	\$2,195,000
<u>3. Barn Retrofit</u>				
a) Existing barn		\$60,000	-0-	\$60,000
b) Materials/construction		-0-	\$200,000	\$200,000
Sub Total		\$60,000	\$200,000	\$260,000
<u>4. Observation Deck</u>				
a) Materials/Construction		-0-	\$100,000	\$100,000
Sub Total		-0-	\$100,000	\$100,000
<u>5. Signs for Trails</u>				

a)	Design 20 signs	-0-	\$10,000	\$10,000
b)	Materials/construction	-0-	\$60,000	\$60,000
Sub Total		-0-	\$70,000	\$70,000
6. <u>Web Cam Station</u>				
a)	Purchase equipment	-0-	\$5,000	\$ 5,000
b)	Publications	\$16,000	-0-	\$16,000
Sub Total		\$16,000	\$5,000	\$21,000
7. <u>Equipment/Miscellaneous</u>				
a)	Equipment	\$13,000	-0-	\$13,000
b)	Supplies/monitoring	\$ 9,000	\$10,000	\$19,000
c)	Transportation buses	-0-	\$ 8,260	\$8,260
Sub Total		\$22,000	\$18,260	\$40,260
TOTAL		\$2,451,315	\$567,200	\$3,018,515

Note: The original requested funding was for \$558,000. An additional \$7,200 is being requested to pay California State University, Hayward interns and an additional \$2,000 is being requested for monitoring equipment and supplies.

Task 1 Products - Success / Administration

a) Project Manager

This entailed complete research and coordination of all elements required for planning and implementing the LVWMEP, including the retrofitting of the barn, building of the observation deck, installation of the web cam, staffing, CSUH interns and developing the monitoring and assessment protocol. The coordination will be under the direction of the CCWD Water Education Program in conjunction with a Wildlife Biologist.

b) Water Education Coordinator

This will entail complete coordination and supervision of all elements required for implementing the LVWMEP. This includes: outlining the curriculum for the program, hiring interns from CSUH, hiring a Biologist to train educators on monitoring techniques,

contacting teachers and students from middle and high schools giving them the curriculum for the program, arranging transportation for the teachers/students, ordering all supplies/equipment for monitoring procedures. The coordination will be under the direction of the CCWD Water Education Coordinator in conjunction with a Wildlife Biologist. Items d) through f) as listed in the above budget will be overseen by the project manager and water education coordinator.

Success will be measured by timely completion of reports, general supervision, effectiveness of meetings and their required frequency. ***The ultimate aim will be for the coordinators to connect all facets of this project to the primary program goals and objectives as outlined in the CALFED Watershed Program Plan.*** To ensure that our project tasks are successful, we will require that the coordinators read and review this plan and specifically the Watershed Program Elements.

c) Wildlife Biologist

The wildlife biologist will be responsible developing and implementing the LVWMEP. Specifically he/she will establish a community stakeholders group, develop curriculum for the two-week summer program coordinating with partners and stakeholders, train all other educators/interns on monitoring procedures, use of equipment, data collection and reports, and evaluate the program. CCWD's Water Education Coordinator will oversee the biologist's work.

Success will be measured by general supervision, organization skills, knowledge regarding monitoring techniques and training skills, participation from students and teachers, timely completion of reports as well as, overall ability to teach/demonstrate the importance and dynamics of the program relating to LV watershed ecosystem and how it benefits the surrounding communities in which these individuals live.

d) Interns

There will be a number of CSUH Environmental Science student interns participating, not only as teachers, but as counselors/mentors for the younger students. This program is an opportunity for the interns to learn why monitoring is an important element/objective of the CALFED watershed plan. Because LV watershed is in its formative stages, it is necessary to provide an inventory and assessment of its existing conditions. During this monitoring procedure, efforts will be focused on existing conditions of water quality, wetlands, and wildlife in the LV watershed.

Success will be measured by general supervision and their overall ability to teach, demonstrate and learn the importance and dynamics of the program relating to LV watershed ecosystem and how it benefits their surrounding communities. They will assist the Wildlife Biologist in conducting the monitoring curriculum. The aim is to develop activities needed to inform, organize and assist local communities in addressing watershed management issues.

e) Reports and presentations

The intent of the program is to educate middle and high school students on the watershed and the importance of maintaining its ecological integrity. Reports will be a critical factor throughout this three-year program. The results of the monitoring will be assessed in the reports. The report is part of the education process, its intention is to identify what has been learned, what was accomplished, suggestions for future projects, what skills were gained and what were the problems. The evaluations written by the participants/educators will contain key information for future programs. At least one presentation is required if funding is awarded. When notified by CALFED staff, a presentation will be prepared and delivered by the Water Education Coordinator.

Success will be measured by completion of reports and feedback from the teachers and students. CCWD has demonstrated aptitude to complete reports already by the completion of the EIR/EIS, the LV Management Plan and previous environmental documents required for other projects in the area.

f) Professional services

This existing budget, to be used as a match, funds services for the current Watershed Education Program, including the Lindsay Wildlife Museum's services, stipends for Native Americans/historians to do story telling, and Circuit Riders Organization for providing mitigation planting of trees and student education.

Success will be measured through the usual CCWD budget process.

Task 2 Products - Success / . Los Vaqueros Interpretive Center

a) The LV Interpretive Center is currently in the construction phase and is slated to be completed by July 2001.

Success will be measured by completion of the LV Interpretive Center.

c) CALFED exhibit

CCWD will design, fabricate and install a computer program exhibit on the CALFED story. The exhibit will be located in the LV Interpretive Center.

Success will be determined by voluntary Interpretive Center survey forms.

Task 3 Products – Success/Barn Retrofit

a) Existing barn

In February of 2001 an engineering field visit and a preliminary scoping summary was prepared to convert the barn into a multi-use facility for occasional, temporary educational purposes. The modifications do not include improvements to the facility as a normal occupancy facility. The modifications are intended only to bring the structure into a use consistent with occasional staging area, weather protection, and presentations. There is no cost effective way to bring the barn into compliance as a normally occupied public facility. On this basis, scoping was developed assuming the current barn an Occupancy Group U, Division 3, Agricultural Facility with conversion towards Occupancy Group A, Division 2.1 Facility. The suggested improvements assume the governing building and fire authorities will accept this conversion, but such approval would likely be contingent on further details related to use and design objectives.

Success will be based on approval by the governing building and fire authorities of the conversion.

b) Materials and construction

- Provide steel or wood framing as necessary to provide a lateral force resisting system. Improvements were based on an assumed perimeter steel frame (braced or moment), with steel posts set to drilled pier foundations. The perimeter frame would be intended only to prevent collapse, and likely could consist of some interior framing necessary to brace and tie high roof system into the lateral system.
- Electrical compliance. The current structure has out of code compliance electrical wiring. The wiring would need to be upgraded to current code requirements, including new wiring, conduits, switches, receptacles and lighting. Additionally, it may be necessary to provide the barn with a new prime feed electrical service.
- A small percentage of the existing structural framing is currently rotting or degraded. Several of these damaged members require replacement to ensure continued strength under gravity loading.

- The existing barn does provide a significant amount of lateral load bracing for the high roof system. Such bracing is obviously required for the high wind loading conditions of the site, but without strapped connections, provides only compression resistance. Under seismic loading conditions, it is likely the existing framing would need additional framing support. Simpson type strapping should be added as necessary to tie the existing framing together.
- Several livestock partitions exist throughout the barn, and would likely be desired to be removed for public use.
- To provide a more all-weather use facility, the existing barn should have a concrete slab poured within the wall perimeter. Additionally, minor waterproofing improvements are required as the existing barn appears to have some rain leakage.
- The rear of the barn currently has no safe egress. Such an egress (two doors) should be added.
- Several exterior corals limit safe egress from the barn; these would need to be removed, and minor modifications to the site grading made to endure safe egress. Additionally, sidewalks around the building perimeter are required by code.
- The existing barn is far from 1-hour fire rated as likely will be required for use as a public facility. Additionally, there is no feasible way to provide this level of fire protection without the use of a fire sprinkler system. Such requirements will require the fire district's approval. For this scope, we have assumed the fire district would consider an overhead fire sprinkler system as adequate to provide the code intended fire protection for this facility.
- Miscellaneous improvements such as signage, seating, storage space, may be desired for this facility. A minor allowance for such items should be included.

Success will be determined by the actual finished restoration of the barn.

Task 4. Products - Success / Observation Deck

a) Materials and construction

The observation deck will be approximately 440 sq. ft and will be built overlooking mitigation pond N2. It will be built for ADA accessibility, including a ramp, deck and railing. It will be built above the ground in the wetland so that it does not compromise integrity of the existing habitat. The deck will be used for monitoring amphibians, plankton, water quality, birds and other species. The cost of the deck is based on a similar observation deck built last year at Pardee Dam located in Calaveras County.

The criteria for success will be the finished construction of the deck. Monitoring programs will begin upon completion.

Task 5. Products - Success / Signs for Trails

a) Design/build 20 interpretive signs

Design 20 outdoor interpretive signs at wetlands and along 55 miles of trails throughout the 18,000-acre watershed, depicting historical, cultural, and environmental interpretations of the species and their habitat, as well as references to CALFED. Signs will include 4 color graphics and text on imbedded fiber glass.

b) Materials/construction

Construction of the signs will include color art work of natural and historical interpretations, and stationary structures for each sign.

Success will be determined by the quality of the work performed by the professional services hired to complete the project.

Task 6. Products - Success / Web Cam Station

a) Purchase equipment

The Web Cam Station will be strategically placed in the watershed to capture wildlife and/or weather conditions. The marina is equipped with more than 25 phone lines, so it would not be difficult to find a way to send the information to the ISP. Allegedly, this type of equipment is virtually maintenance-free. The cost is approximately \$3,000 for a complete unit, including weather station, mounting hardware and a dedicated computer with all the software installed. It is designed specifically for use on the web. It is estimated installation would be another \$600. The web site technician would need to modify the software, this will be another \$500. Aside from occasional cleaning of the camera lens, this should not need much attention once it's installed and running.

b) Publications

The Watershed Education Program has an existing budget for publications. These would be used to market the LVWMEP.

Success will be measured by awareness and sign-ups for the program.

Task 7. Products – Success/ Equipment/Miscellaneous

a) Equipment rental

The existing Watershed Education Program has a budget for bus rentals and other equipment needed to conduct the program.

b) Supplies

Supplies necessary for the LVWMEP include: Plankton nets (3), culture dishes (20), insect siphons (3), large trays (3x4 feet) (2), portable plastic aquariums and lids (3), 20 gallon aquarium and lids (2), water quality test kits (4), dissolved oxygen meter (1), salinity meter (1), pH meter (1), measuring tapes (10), scales (30), hand lenses (20), fish Iseine (1), soil color charts (2), topo maps, compasses (10), plant press (1), kestrel boxes, songbird boxes, bat houses, snake traps, fish traps, binoculars(20), spotting scopes (2), field guides on birds, herps, trees, insects, etc. (15) clipboards (20), and anything else we realize we need as we develop the program.

c) Transportation

This is additional funding for buses needed to transport the students to and from the LV watershed specifically for the LVWMEP, and any additional equipment for the proposed educational program.

Equipment will be purchased during the first year of the program. Buses will be rented for the two-week program during each of the three summers. Success will be determined as we use the equipment and supplies for the program. Evaluation of the equipment will be done at the end of the first year.

As described in the CALFED Bay-Delta Program – Watershed Program Plan we will:

- Facilitate and improve coordination among governmental agencies, other organizations and local watershed groups by involving their efforts in our project. This has occurred in the past with such groups as the Department of Fish and Game, Wildlife Conservation Board and State Parks Local Assistance Programs.
- Develop watershed monitoring and assessment protocols
- Support education and outreach. Public awareness and local school involvement with monitoring, education and interpretive displays will go far in achieving our educational efforts for the watershed.
- Integrate and collaborate with other CALFED common programs. As a partner with CALFED we will actively communicate with them to insure cohesiveness and compatibility with their programs.
- Identify the relationships between watershed processes and the goals and objectives of CALFED

**CALFED Watershed Program Budget Summary I
Los Vaqueros Watershed Monitoring Education Program
(Three Year Program)**

Task Description	Labor Rate*	Hours	Total Labor	Supplies	Materials	Subcontract**	Match	CALFED	Total (3yr)
Task 1: Administration									
a) Project Coordinator	Salary						\$ 6,000.00	\$ 44,640.00	\$ 50,640.00
b) Water Education Coordinator	Salary						\$ 111,815.00	\$ 23,700.00	\$ 135,515.00
c) Accounting & Distribution								\$ 23,400.00	\$ 23,400.00
d) Wildlife Biologist	Salary							\$ 60,000.00	\$ 60,000.00
e) CSUH Interns (2)	\$600.00 per wk per student							\$ 7,200.00	\$ 7,200.00
f) Reports & Presentations							\$ 3,000.00		\$ 3,000.00
g) Professional Services							\$ 52,500.00		\$ 52,500.00
Task 2: LV Interpretive Center									
a) Building, design, construct, & permits							\$2.18million		\$2.18million
b) Education exhibits								\$ 15,000.00	\$ 15,000.00
Task 3: Barn Retrofit									
a) Existing Barn							\$ 60,000.00		\$ 60,000.00
b) Materials/Construction				\$ 17,688.00	\$ 87,650.00	\$94,662.00		\$ 200,000.00	\$ 200,000.00
Task 4: Observation Deck									
a) Materials/Construction					\$ 100,000.00			\$ 100,000.00	\$ 100,000.00
Task 5: Signs for Trails									
a) Design 20 signs					\$ 10,000.00			\$ 10,000.00	\$ 10,000.00
b) Materials/construction					\$ 60,000.00			\$ 60,000.00	\$ 60,000.00
Task 6: Web Cam & Weather Station									
a) Purchase equipment				\$ 5,000.00				\$ 5,000.00	\$ 5,000.00
b) Publications					\$ 16,000.00		\$ 16,000.00		\$ 16,000.00
Task 7: Equipment/Miscellaneous									
a) Equipment				\$ 13,000.00			\$ 13,000.00		\$ 13,000.00
b) Supplies/monitoring				\$ 9,000.00			\$ 9,000.00	\$ 10,000.00	\$ 19,000.00
c) Transportation, buses, supplies								\$ 8,260.00	\$ 8,260.00
TOTALS				\$ 35,000.00	\$ 273,650.00	\$94,662.00	\$ 2,451,315.00	\$ 567,200.00	\$ 3,018,515.00

10% of Water Education Coordinator's Salary/benefits or \$7,900 per year, or \$23,700