

(on Grants and Research letterhead)

January 10, 2005

Debra Gonzalez
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

Dear Ms. Gonzales:

California State University, Fresno Foundation, on behalf of The Center for Irrigation Technology (CIT) is submitting this application to the California Department of Water Resources. The Foundation is serving as fiscal agent on behalf of the Center for Irrigation Technology. Funds need to go through the Foundation because the Center for Irrigation Technology lacks a separate accounting system and status as a separate legal entity.

The Center for Irrigation Technology was formally established at California State University, Fresno in 1980. The International Center for Water Technology was established later at California State University, Fresno in 2002. Both of these institutions are dedicated to improving water use efficiency for agricultural, environmental and urban purposes.

We believe this application is consistent with the California Bay-Delta Program Goals set by the Department of Water Resources. Should you have any questions regarding this proposal, please contact Lisa Basinal at the Center for Irrigation Technology, (559) 278-2066 or via e-mail at lbasinal@csufresno.edu.

Please find enclosed one original, eight photocopies, and an electronic version of the proposal entitled "Irrigation system audits by students."

Sincerely,

Thomas McClanahan
Associate Vice President

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Project Information Form

Applying for:

- Urban Agricultural

1. (Section A) **Urban or Agricultural Water Use Efficiency Implementation Project**

- (a) implementation of Urban Best Management Practice, # _____
- (b) implementation of Agricultural Efficient Water Management Practice, # _____
- (c) implementation of other projects to meet California Bay-Delta Program objectives, Targeted Benefit # or Quantifiable Objective #, if applicable _____
- (d) Specify other: _____

2. (Section B) **Urban or Agricultural Research and Development; Feasibility Studies, Pilot, or Demonstration Projects; Training, Education or Public Information; Technical Assistance**

- (e) research and development, feasibility studies, pilot, or demonstration projects
- (f) training, education or public information programs with statewide application
- (g) technical assistance
- (h) other

3. Principal applicant (Organization or affiliation):

California State University, Fresno Foundation

4. Project Title:

Irrigation system audits by students

5. Person authorized to sign and submit proposal and contract:

Name, title	Tom McClanahan, Director, University Grants & Research
Mailing address	4910 N. Chestnut Ave. M/S OF 123 Fresno, CA 93726
Telephone	(559) 278-0850
Fax.	(559) 278-0992
E-mail	tommcc@csufresno.edu

6. Contact person (if different):

Name, title.	Lisa Basinal Education Specialist
Mailing address.	5370 N. Chestnut Ave M/S OF 18 Fresno, CA 93740
Telephone	(559) 278-2066

Fax.

(559) 278-6033

E-mail

lbasinal@csufresno.edu

7. Grant funds requested (dollar amount):

\$318,783

(from Table C-1, column VI)

8. Applicant funds pledged (dollar amount):

0

9. Total project costs (dollar amount):

\$318,783

(from Table C-1, column IV, row n)

1. Percent of State share requested (%)

100%

(from Table C-1)

2. Percent of local share as match (%)

0

(from Table C-1)

3. Is your project locally cost effective?

Locally cost effective means that the benefits to an entity (in dollar terms) of implementing a program exceed the costs of that program within the boundaries of that entity.

(a) yes

(If yes, provide information that the project in addition to Bay-Delta benefit meets one of the following conditions: broad transferable benefits, overcome implementation barriers, or accelerate implementation.)

(b) no

11. Is your project required by regulation, law or contract?

(a) yes

If no, your project is eligible.

(b) no

If yes, your project may be eligible only if there will be accelerated implementation to fulfill a future requirement and is not currently required.

Provide a description of the regulation, law or contract and an explanation of why the project is not currently required.

1/2006-12/2009

12. Duration of project (month/year to month/year):

13. State Assembly District where the project is to be conducted:

17, 25, 26, 29, 30, 31, 32,
34 and 36

14. State Senate District where the project is to be conducted:

12, 14, 16 and 18

15. Congressional district(s) where the project is to be conducted:

18, 19, 20, 21 and 22

16. County where the project is to be conducted:

Stanislaus, Merced,
Madera, Fresno, Kings,
Tulare and Kern

17. Location of project (longitude and latitude)

N36 44.414 W119 47.167

18. How many service connections in your service area (urban)?

N/A

19. How many acre-feet of water per year does your agency serve?

N/A

20. Type of applicant (select one):

- (a) City
- (b) County
- (c) City and County
- (d) Joint Powers Authority
- (e) Public Water District
- (f) Tribe
- (g) Non Profit Organization
- (h) University, College
- (i) State Agency
- (j) Federal Agency
- (k) Other
 - (i) Investor-Owned Utility
 - (ii) Incorporated Mutual Water Co.
 - (iii) Specify _____

21. Is applicant a disadvantaged community?
If 'yes' include annual median household
income.

- (a) yes, _____ median household income
- (b) no

(Provide supporting documentation.)

Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form has the legal authority to submit the proposal on behalf of the applicant;

There is no pending litigation that may impact the financial condition of the applicant or its ability to complete the proposed project;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant;

The applicant will comply with all terms and conditions identified in this PSP if selected for funding; and

The applicant has legal authority to enter into a contract with the State.

Signature

Name and title

Date

A. SUMMARY

There are millions of homes and apartment complexes in California with landscape/turf irrigation systems. How many people know if their systems operate properly, or how much water their landscapes need, or how to schedule an irrigation? Lack of awareness about efficient landscape water use, coupled with the absence of guidelines and recommendations that can be easily accessed by homeowners, results in wasted water, energy and money.

The goal of this program is to improve water use efficiency on residential lawns by increasing awareness and educating upper elementary students about proper irrigation practices.

The project will be conducted over three years through The Center for Irrigation Technology located at California State University, Fresno. We propose to develop a turfgrass irrigation education program for upper elementary students in the San Joaquin Valley (Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern counties). The program will promote science- and math-based, hands-on activities related to irrigation system audits and scheduling.

Students and teachers will be provided with materials and instruction on the project, will conduct audits and will then report the data collected from their school and residences, to determine the performance of the irrigation system. Guidelines for proper irrigation scheduling will be provided to assist in making changes that could result in water savings. A pre- and post-project survey will be completed by students to measure learning (determine program success). A follow-up survey will be sent to audit participants (parents, friends, neighbors, or apartment managers) after the water audit has been conducted at their sites to determine if the information has changed their irrigation practices.

This program will help fulfill the objectives of the Department of Water Resource Office of Water Use Efficiency landscape program by collecting and maintaining data related to landscape water use; promoting water budget irrigation scheduling for landscapes; and developing water efficient landscape projects.¹

B. STATEMENT OF WORK

B.1. Relevance and Importance

There are millions of homes and apartment complexes in California with landscape/turf irrigation systems. How many people know if their systems operate properly, or how much water their landscapes need, or how to schedule an irrigation? Lack of awareness about efficient landscape water use, coupled with the absence of guidelines and recommendations that can be easily accessed by homeowners, results in wasted water, energy and money.

Water is used for a multitude of purposes, and must be shared by a wide variety of users. According to the state Department of Water Resources, managed wetlands, wild-and-scenic

¹ Office of Water Use Efficiency. Jan. 10, 2005. <<http://www.owue.water.ca.gov/landscape/index.cfm>>

rivers and other environmental uses account for 46 percent of California’s applied water use, agriculture accounts for 43 percent and urban uses for 11 percent². Residential water users are the largest group of urban water users. In 1994, the California DWR reported that, since 1980, there was a 4 percent increase in residential water use, in relation to total urban use; and that in 1990, residential water use comprised 58 percent of the statewide urban water use³.

Residential water is used for many purposes, but in arid climates, such as California, the majority of it is used outdoors. Up to 75% of a home’s total water use during the growing season is for outdoor purposes, primarily landscape irrigation.⁴ DWR reports that urban water use varies, depending on a variety of factors. The largest users are single-family dwellings that customarily have individual front and rear landscaped areas requiring irrigation during the growing season. Apartments share the water used for common gardens and turf and as a result, per capita water use is smaller. Other multi-family group dwellings such as condominiums, duplexes, halfplexes, and mobile homes in parks have a wide range in water use depending on climate, lot size, and the extent of landscaping.

The following table (Table 2-7 from DWR Bulletin 166-4) shows the percentage of residential use and total applied water for residential use in California's hydrologic regions.⁵

Region	Percentage of Total Urban Use	Applied Water Use (1,000 AF)
North Coast	52	88
San Francisco	54	643
Central Coast	60	162
South Coast	59	2,240
Sacramento River	56	414
San Joaquin River	70	343
Tulare Lake	67	348
North Lahontan	35	14
South Lahontan	63	120
Colorado River	59	177
Statewide	58	Total 4,549

* Average of 1980-87 data used as the normalized 1990 base value for Bulletin 160-93

Many landscapes in California, including residences, schools and businesses, consist of turfgrass areas and a large percentage of these have automatic irrigation systems with irrigations scheduled by controllers. While turfgrass tends to require more water than other types of plants, it is very often over-watered-which is a major reason for its high water consumption.”⁶ Proper

² 2002 California Farm Bureau Federation’s Communications/News Division Facts & Stats About California Agriculture. Jan. 10, 2005.

<http://www.cfbf.com/info/agfacts.cfm>

³ DWR Bulletin 166-4 Ch 2 Urban Water Use In California August 1994. Jan. 10, 2005. <http://rubicon.water.ca.gov/b166.fdr/ch2.html#res>

⁴ USEPA Office of Water (4202) Using Water Efficiently: Ideas for Residences EPA832-F-99-082, April 2000. Jan. 10, 2005

www.epa.gov/owm/genwave.htm

⁵ DWR Bulletin 166-4 Ch 2 Urban Water Use In California August 1994. Jan. 10, 2005. <http://rubicon.water.ca.gov/b166.fdr/ch2.html#res>

⁶ Rain Bird Corporation, Irrigation for a Growing World: The Intelligent Use of Water™, 2003. Jan. 10, 2005.

http://rainbird.com/pdf/iuow/iuow_whitepaper.pdf

plant selection and management of irrigation can result in healthier plants and an overall reduction of water use.

The Department of Water Resources Landscape Water Use Program has identified that landscapes are important to the state of California and that efficient water use in landscapes is key to meeting the needs of all water users.

The California State Legislature recognizes the importance of landscaping for recreation, fire protection, erosion control, enhancing environmental conditions and replacing ecosystems in areas of development. However, California faces a real challenge to meet the needs of a growing population with a limited supply of water. To meet this challenge, water use in landscapes must become more efficient. There are ways to accomplish this goal and even modest improvements can have a cumulative effect in saving a great deal of water.⁷

Education that leads to action is an important solution to this problem. “While many of the public awareness efforts are aimed at the major users of water-the adults-many groups also recognize that these same principles and values must also be instilled in future generations.”⁸

The goal of this project is to start a pilot program for upper elementary school students to learn about irrigation system audits, perform an audit together at their school, and then perform an audit at a residence, while sharing the information with others. Curriculum specialists will provide teacher training workshops and one-on-one assistance to help teachers integrate the materials into their classrooms.

The program will aid in water supply reliability and water quality within the Bay-Delta system, by reducing the consumptive demand and the pollution of water in the urban landscape in the San Joaquin Valley, by educating the students to perform irrigation system audits at school and apply it at home to help their families reduce water use. This goal has direct and indirect benefits to the Bay-Delta System in two ways. The first is that upstream consumptive demand will decrease leading to water supply reliability and water quality will improve on the Sacramento and San Joaquin Rivers, therefore, the Bay-Delta will receive additional and better quality water from its sources. The second is that downstream water from the Bay-Delta will have less consumptive demand and pollution in the service area of this program that receives water from the Bay-Delta or exchange partners.

The goals of the Water Use Efficiency Program as defined by the California Bay-Delta Program include “water quantity, water quality, and in-stream flow and timing improvements that directly or indirectly provide benefits to the Bay-Delta.”⁹ The proposal is designed to meet the following CALFED Bay-Delta following Bay-Delta objectives for Sub-regions 10 – 21.

⁷ DWR Landscape Water Use Program. Jan. 10, 2005. <<http://www.owue.water.ca.gov/landscape/index.cfm>>

⁸ DWR Landscape Water Use Program. Jan. 10, 2005. <<http://www.owue.water.ca.gov/landscape/index.cfm>>

⁹ DWR Water Use Efficiency Jan. 10, 2005.

<<http://calwater.ca.gov/Archives/WaterUseEfficiency/WaterUseEfficiencyQuantifiableObjectives.shtml>>

Water Quantity:

- Decrease nonproductive ET to increase water supply for beneficial uses
- Provide long-term diversion flexibility to increase the water supply for beneficial uses.

Water Quality:

- Provide long-term diversion flexibility to increase the water supply for beneficial uses.

In addition to meeting Bay-Delta objectives, this proposed program will help fulfill the objectives of the Department of Water Resource Office of Water Use Efficiency landscape program by collecting and maintaining data related to landscape water use; promoting water budget irrigation scheduling for landscapes; and developing water efficient landscape projects.

B.2. Technical/Scientific Merit, Feasibility

The project will be conducted over three years by the Center for Irrigation Technology at California State University, Fresno. We propose to develop a pilot program for irrigation system audits by students in the San Joaquin Valley. The program will promote science and math based, hands-on activities related to irrigation system audits and scheduling. The students and teachers will be provided with materials and instruction on the project, and will report the data collected from their school and residences, to determine the performance of the irrigation system and receive guidelines for proper irrigation scheduling.

Task list, deliverables, schedules, and projected costs

Phase I

Phase consists of implementing the program which involves the developing curriculum, a letter for student's parents, a pre- and post-survey, a follow-up survey, a website, a database, and brochures.

Task 1 – Curriculum Development

Curriculum will be developed to teach upper elementary students (and their teachers and parents) about efficient turf irrigation practices. The curriculum will meet the state of California content standards. The curriculum will include written materials, models, activities, and resources. Written materials on topics, such as plant water use, irrigation systems, and CIMIS, will be distributed to schools and teachers at the meetings and event schedules will be available on the website.

Task 2 – Letter development

A letter for participating students' parents and or audit participants (friends, neighbors, or apartment managers) that describes the project and project goals, and benefits of efficient irrigation will be developed. A letter will be sent home with students before their classroom is visited by a project trainer. The program introduction letter will be written in English, Spanish, and Hmong.

Task 3 – Survey Development

Pre and post project surveys will be developed to determine students' level of knowledge before and after participating in the program. The survey results will be used to assess program success.

A follow-up survey will be developed by a professional evaluation specialist. The survey will be sent to parents of participating students after students have conducted water audits at their homes and apartments. The purpose of the survey is to find out if the project and information resulted in changes in irrigation practices. The follow-up letter will be written in English, Spanish and Hmong.

Task 4 – Website Development

A website containing background information about the program goals and objectives, instructions on how to participate in the program, educational material, and data reported by the students will be developed. The website will be useful for people who are interested in learning about the program and for those who are enrolled in the program. The material on the website will be available in English, Spanish and Hmong.

An existing irrigation scheduling software program, developed by The Center for Irrigation Technology will be simplified and modified, and will be available on the program website and CDs.

Task 5 – Database development

A database will be developed to track project planning and progress, and report the data and information collected from water audits, student pre and post project surveys, and student/parent follow-up surveys.

Task 6 – Informational Brochure Development

An informational brochure designed to introduce the education program to students, teachers, and parents will be written and printed. A minimum of 2,500 informational brochures will be distributed. The brochure will be in English, Spanish and Hmong.

Phase II

Once the materials have been developed, the next phase of implementation involves dissemination and program participation.

Task 1 – Participating school identification

Appropriate schools and teachers in the San Joaquin Valley will be identified in collaboration with California Foundation for Agriculture In The Classroom, the Central Valley Ag Literacy Program, and Farm Bureaus. Additionally, teachers and schools that have participated in related programs developed and implemented by the Center for Irrigation Technology, such as the Agricultural Pumping Efficiency Program will be contacted and invited to participate in the program. We will work with interested teachers to use the curriculum in their classrooms.

Task 2 – Classroom visits

Education specialists will visit classrooms to teach students and teachers about efficient irrigation practices and conduct their own water audits on their school's grounds. During the

visit, the teacher will be asked to fill out a form that will provide the program with information about the teacher, school, and their students. Results from the water audits performed on the school's grounds will also be recorded on the form that the teacher fills out, and all the collected information will be entered in the database.

Task 3 – Data collection

Once the students have some background knowledge about efficient lawn irrigation, and have experience performing a water audit on their school's irrigation system in groups, they will have an opportunity to apply and share with others what they have learned. The students will be assigned to conduct water audits at their homes and apartments and enter their data into a simplified irrigation scheduling program available on the website. They will then receive an evaluation of the efficiency of their current lawn watering system and practices and recommendations on how to water their lawns more efficiently.

Task 4 – Follow-up survey

The final step for students, parents and audit participants (friends, neighbors, or apartment managers) is the completion of follow-up surveys. The surveys will be sent home with students and returned to their teacher who will send the surveys to the program. The survey results will be entered into the database.

Although this program will be concentrated in the San Joaquin Valley, it is applicable and may be implemented on a statewide basis. At statewide meetings and events, and by visiting the website, teachers from across the state will learn about the program and how to begin implementation.

Weather will be taken into consideration. Visits to schools will be scheduled during the times of year when irrigation takes place. It is anticipated that there will be a break in the winter months, due to the weather. Summer vacations will also be taken into consideration when planning and scheduling school visits. Visits to year round schools will be scheduled during the summer.

This is not a CEQA project as defined by the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15378.

B.3. Monitoring and Assessment

The goal of this program is to improve water use efficiency on residential lawns by educating and increasing awareness in upper elementary students about proper irrigation practices.

Summative and formative evaluations will be performed in this program. The summative evaluation will be the results of the pre- and post-project surveys completed by students. Program success will be determined by how much students learned. The formative evaluation will be the results of project monitoring data. The project monitoring data that will be collected to assess project results includes tracking the number of schools, students, teachers, principals, counties, communities visited, the number of students that submitted residential water audit data,

the number of brochures distributed, and the number of completed follow-up surveys submitted. The data from the water audits and results from the follow-up surveys will also be collected.

One social condition that will be taken into account is that many students live in a variety of residences – from single-family homes, to apartments and condominiums, which may or may not have lawns or irrigation systems. Because one objective of the program is the assignment of a residential water audit performed by students, students will be given various options and suggestions for completion of their assignment. The students may perform their water audit at their home/apartment/condominium, or the home/apartment/ condominium of a friend or relative. The letters and follow-up surveys that will be sent home with students and will be applicable for whomever owns/operates the lawn irrigation system that the students audit parents, friend, neighbor, or apartment manager.

All data and information will be entered in the program database and reported to DWR on a quarterly basis. The database will be used for planning, monitoring and reporting purposes, but will not be accessible to the public in order to protect the privacy of personal contact information. Data that does not contain personal contact information will be posted on the web site.

It is estimate that 25% of the program manager's salary will be associated with the implementation of the monitoring and evaluation plan.

C. QUALIFICATION OF APPLICANTS AND COOPERATORS

C. 1. Applicant

California State University, Fresno role in water technology development can be travel back over 50 years. In 1982 Fresno State formally established the Center for Irrigation Technology (CIT) an independent water technology testing laboratory, applied research facility, and educational resource center. Fresno State conducts irrigation and water technology equipment testing and evaluation for both public agencies and private businesses and offers seminars, workshops, study tours and customized training programs for domestic and international clients.

The **Agricultural Pumping Efficiency Program** is an educational and incentive rebate program developed to improve overall pumping plant efficiency and to encourage water and energy conservation. The program is funded by the California Public Utilities Commission and has three main components: educational seminars-to teach how to reduce energy use and save money, incentive rebates-money available for repair and retrofit of inefficient pumps, and pump efficiency testing-knowing pump efficiency and economics of repair. Educational seminars have been held all over the state, and the program has worked with many cooperators for various events. The majority of the educational seminars are for agricultural water pumpers, but seminars and events have also been held for 3rd grade students (Farm Bureau Farm Days), teachers (Farm Bureau Ag. In The Classroom Conference, Central Valley Ag Literacy event), high school students (FFA field days), and junior college students (College of the Sequoias, Merced College and Reedley College).

The **Integrated On-Farm Drainage Management (IFDM) Education and Outreach Program** is a 319h grant developed and implemented by the Westside Resource Conservation District and the Center for Irrigation Technology. The program targets the needs of farm owners, water/drainage district managers, engineers and technical professionals. The program involves the development and distribution of Landowner and Technical Handbooks, organization and implementation of educational workshops and field tours, and the production of GIS maps detailing selenium, salinity, drainage impacted areas, and locations of IFDM sites in the San Joaquin Valley.

The **ground water mitigation research project on citrus**, entitled “Demonstration of the Effectiveness of Pre-emergence Herbicides applied through Low-Volume Irrigation Systems” was conducted by the Center for Irrigation Technology and Department of Pesticide Regulation last year. Chemigation is a potential mitigation measure for both leaching and runoff, however, most of the pre-emergence herbicide residues detected in ground water are not labeled in California for application through low-volume irrigation systems. The objective of the first-year study was to develop data on the adoption of chemigation as a management practice for mitigation of pesticide movement to ground water. Data were collected on the effectiveness of the practice to mitigate ground water contamination, on the effectiveness of the pesticide under the new management practice, and on potential economic impacts. Year two of the study is currently underway.

The **Backflow prevention/Chemigation program** is implemented by the Center for Irrigation Technology and funded by the Department of Pesticide Regulation. The objectives of the program are to conduct Backflow prevention/Chemigation educational seminars, field days, and field inspections, hold task force meetings, and develop a Field Administrative Manual. The backflow prevention/chemigation educational seminars are held statewide for growers, irrigators, irrigation dealers, and regulatory staff. Material covered includes design, management, maintenance and operation, rules and regulations, and safety for chemigation through use of PowerPoint presentations, visual aides, handouts, and a trailer with displays.

C.2. Staff

Lisa Basinal, Education Specialist

Ms. Basinal is water resources education specialist at The Center for Irrigation Technology (CIT) at Fresno State. She has been involved in many educational and outreach projects related to water and irrigation, including the Agricultural Pumping Efficiency Program, Integrated On-Farm Drainage Management (IFDM) Education and Outreach Program, ground water mitigation research project on citrus, and Backflow prevention/Chemigation program, since joining the Center in 2002.

Ms. Basinal has held positions with educational and research institutions, including University of California, Kearney in Parlier California, and the United States Department of Agriculture-Agricultural Research Service in Fresno, California. She has a Master of Science Degree in Plant Science from Fresno State.

Tim Jacobsen, Irrigation Specialist, Agronomist and Education Specialist

Mr. Jacobsen serves as an agronomist and irrigation specialist at The Center for Irrigation Technology (CIT) at Fresno State. He has more than 20 years of experience working on field-level demonstration projects and research efforts in the San Joaquin Valley. He serves also as a water resources education specialist at CIT and he has been involved in many educational and outreach projects related to water and irrigation, including the Agricultural Pumping Efficiency Program, Integrated On-Farm Drainage Management (IFDM) Education and Outreach Program, ground water mitigation research project on citrus, and Backflow prevention/Chemigation program, since joining the Center in 2000.

Mr. Jacobsen has held several positions with agricultural production and engineering firms, including Crop Care Services Inc. and Boyle Engineering Corporation in Fresno and the West Side Pump Company in San Joaquin, California. He has a Master of Science Degree in Plant Science from Fresno State. He has been certified as an Irrigation Designer by the Irrigation Association and he is a California Certified Agronomist and Pest Control Advisor.

C. 3. External cooperators

County Farm Bureaus

The California Farm Bureau is California's largest farm organization with more than 89,000 member families in 53 county Farm Bureaus. It is a voluntary, nongovernmental, nonpartisan organization of farm and ranch families seeking solutions to the problems that affect their lives, both socially and economically. We will partner with Madera County Farm Bureau.

Central Valley's Ag-Literacy Program – California State University, Fresno

The Central Valley Agricultural Literacy Project is a network to support agricultural literacy efforts in the Central San Joaquin Valley of California. This project's goal is to make available to educators, educational and other institutions involved with agricultural literacy efforts an array of educational activities designed to enhance society's appreciation and understanding of the processes that provide it with food, fiber, and resources stewardship.

City of Fresno, Department of Public Utilities, Water Division Community Educational Outreach

The Water Division is active in the community through its water education program, which includes Water Conservation Program classroom presentations, outreach educational information, and speaker's bureau for presentations. Community educational outreach events allow an opportunity to keep customers in the Fresno city service area up-to-date on water use information, and provide the customer a forum to discuss concerns or to offer recommendations. The Water Division provides educational services to schools in the Fresno water service area that include classroom presentations (grades K-16), teacher professional development through in-services, workshops and institutes, and information related to water issues at school and

environmental events.

D. OUTREACH, COMMUNITY INVOLVEMENT AND DISSEMINATION

The program will educate students, teachers and parents in the San Joaquin Valley and increase awareness about water use and efficiency.

Project data and information collected and entered in the program database will be disseminated to DWR. All non-confidential data will also be disseminated to participating schools, principals and teachers, and accessible/viewable/posted on the website.

Outreach and dissemination will be achieved through

1. Distribution of brochures
2. Partnering with other successful ag and water education programs Central Valley’s Ag-Literacy Program, California State University, Fresno, County Farm Bureaus, California Foundation for Ag In The Classroom, and the Agricultural Pumping Efficiency Program
3. Participation in appropriate statewide conferences for teachers (such as AITC) and the general public (Tulare Farm Show)

E. INNOVATION

This program will reach out to a wide variety of California residential water users in several unique ways. First, the program is geared towards upper elementary school levels. Second, the program brings a hands-on message directly into the schools in multiple languages. Third, the program will encourage/require students to apply this knowledge to real world situations. Fourth, based on the information collected and processed by the students, recommendations will be made on how to improve water management. Lastly, training elementary age students may foster a lifelong awareness of the importance of water management that they in turn may pass on to others.

F. BENEFITS AND COSTS

Complete Attachment 2, Table C-1: Project Costs (Budget)

The state funding request is \$318,783.

F.1. Cost Explanations

Administrative costs

Provide a brief explanation for the labor costs (including consultants), equipment, supplies, and travel included in the budget. Provide information about the amount of cost sharing for each element as well as direct and indirect costs.

Category: Salaries

	State Share
First Year	\$49,137
Second Year	\$50,611
Third Year	\$52,130
Total	\$151,878

Salaries include Principal Investigator, Program Manager, Database and Web Programmer, and Program Educators. The Principal Investigator will provide administrative oversight, develop curriculum and participate in school visits. The Program Manager will oversee program management, implement the monitoring and evaluation plan, submit reports, develop curriculum and participate in school visits. The Database and Web Programmer will design and maintain the program database and website. The trainer(s) TBN will either be an Education Specialist or minority California State University, Fresno ag students from successful ag related programs funded by the USDA.

Category: Fringe	
	Federal Share
First Year	\$19,655
Second Year	\$20,245
Third Year	\$20,852
Total	\$60,751

Fringe was calculated as an average of 40% of salaries. Actual costs at times of expenditures will be in accordance with Foundation rates.

Category: Supplies	
	Federal Share
First Year	\$4,000
Second Year	\$2,000
Third Year	\$2,000
Total	\$8,000

Office materials and supplies and computer equipment will be purchased. The computer equipment will consist of a laptop computer and projector, which will be used for school presentations.

Category: Consulting Services	
	Federal Share
First Year	\$7,500
Second Year	\$1,500
Third Year	\$1,500
Total	\$10,500

Various specialists with different areas of expertise will be contracted for consulting services (i.e. evaluation specialist, curriculum specialist, software development specialist and foreign language translation specialist).

Category: Travel	
	Federal Share
First Year	\$7,000
Second Year	\$7,000
Third Year	\$7,000
Total	\$21,000

Travel shall consist of transportation (rental car), fuel, and lodging and per diem for conferences and travel to school sites out of the area.

Explanation of Other Costs

Category: Other	
	Federal Share
First Year	\$2,829
Second Year	\$2,591
Third Year	\$2,654
Total	\$8,074

Other costs include University Indirect Cost.

Category: Materials/Installation/Implementation	
	Federal Share
First Year	\$7,000
Second Year	\$5,000
Third Year	\$5,000
Total	\$17,000

Materials/Installation/Implementation costs will include teaching materials, such as handouts, models, promotional materials, and water audit materials (i.e. catch cans and rulers).

Category: Indirect	
	Federal Share
First Year	\$14,568
Second Year	\$13,342
Third Year	\$13,670

Total	\$41,581
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This category covers the California State University, Fresno Foundation indirect costs at a rate of 15%.

F. 2. Potential benefits

The benefits of knowledge far outweigh ignorance. With the application of knowledge gained through this program the change in any person's behavior towards landscape practices will have a positive effect on the quality and quantity of water in the Bay-Delta although individual action may not be measurable. However, because of the number of people in the program area there will be a significant cumulative effect.

The program will provide important information to students, teachers, parents and audit participants. The benefits to be gained in terms of water use efficiency will be related to improvements in water quality and quantity. The program will offer immediate benefits as well as future benefits by educating students (future residential irrigation water users).

G. REFERENCES

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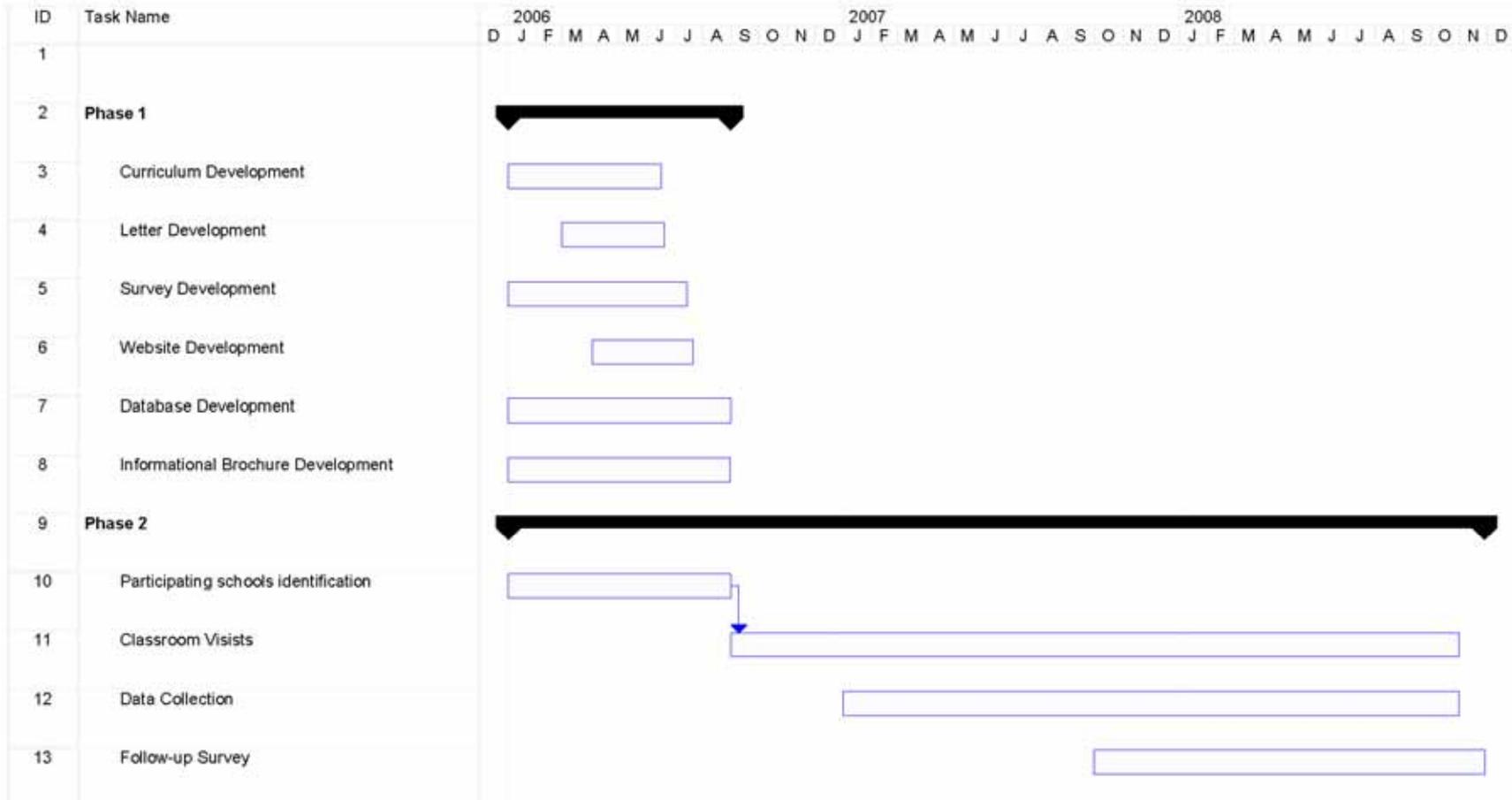
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Attachment 1 - Task Schedule



Attachment 2. Project budget (in dollars)

Table C-1: Project Costs (Budget) in Dollars)

	Category	Project Costs	Contingency % (ex. 5 or 10)	Project Cost + Contingency	Applicant Share	State Share Grant
	(I)	\$ (II)	(III)	\$ (IV)	\$ (V)	\$ (VI)
	Administration ¹					
	Salaries, wages	\$151,878	0	\$151,878	\$0	\$151,878
	Fringe benefits	\$60,751	0	\$60,751	\$0	\$60,751
	Supplies	\$8,000	0	\$8,000	\$0	\$8,000
	Equipment		0	\$0	\$0	\$0
	Consulting services	\$10,500	0	\$10,500	\$0	\$10,500
	Travel	\$21,000	0	\$21,000	\$0	\$21,000
	Other	\$8,074	0	\$8,074	\$0	\$8,074
(a)	Total Administration Costs	\$260,203		\$260,203	\$0	\$260,203
(b)	Planning/Design/Engineering	\$0	0	\$0	\$0	\$0
(c)	Equipment Purchases/Rentals/Rebates/Vouchers	\$0	0	\$0	\$0	\$0
(d)	Materials/Installation/Implementation	\$17,000	0	\$17,000	\$0	\$17,000
(e)	Implementation Verification	\$0	0	\$0	\$0	\$0
(f)	Project Legal/License Fees	\$0	0	\$0	\$0	\$0
(g)	Structures	\$0	0	\$0	\$0	\$0
(h)	Land Purchase/Easement	\$0	0	\$0	\$0	\$0
(i)	Environmental Compliance/Mitigation/Enhancement	\$0	0	\$0	\$0	\$0
(j)	Construction	\$0	0	\$0	\$0	\$0
(k)	Other (Indirect Cost)	\$41,580	0	\$41,580	\$0	\$41,580
(l)	Monitoring and Assessment	\$0	0	\$0	\$0	\$0
(m)	Report Preparation	\$0	5	\$0	\$0	\$0
(n)	TOTAL	\$318,783		\$318,783	\$0	\$318,783
(o)	Cost Share -Percentage				0	100