



# **Proposition 50**

## **2004 WATER USE EFFICIENCY**

### **SECTION A:**

## **AGRICULTURAL AND URBAN USE EFFICIENCY IMPLEMENTATION PROJECT**

# **Park Irrigation Infrastructure Improvements**

City of Sacramento  
Department of Parks and Recreation  
1231 "T" Street  
Sacramento, CA 95814



*Optimize the Experience of Living!*



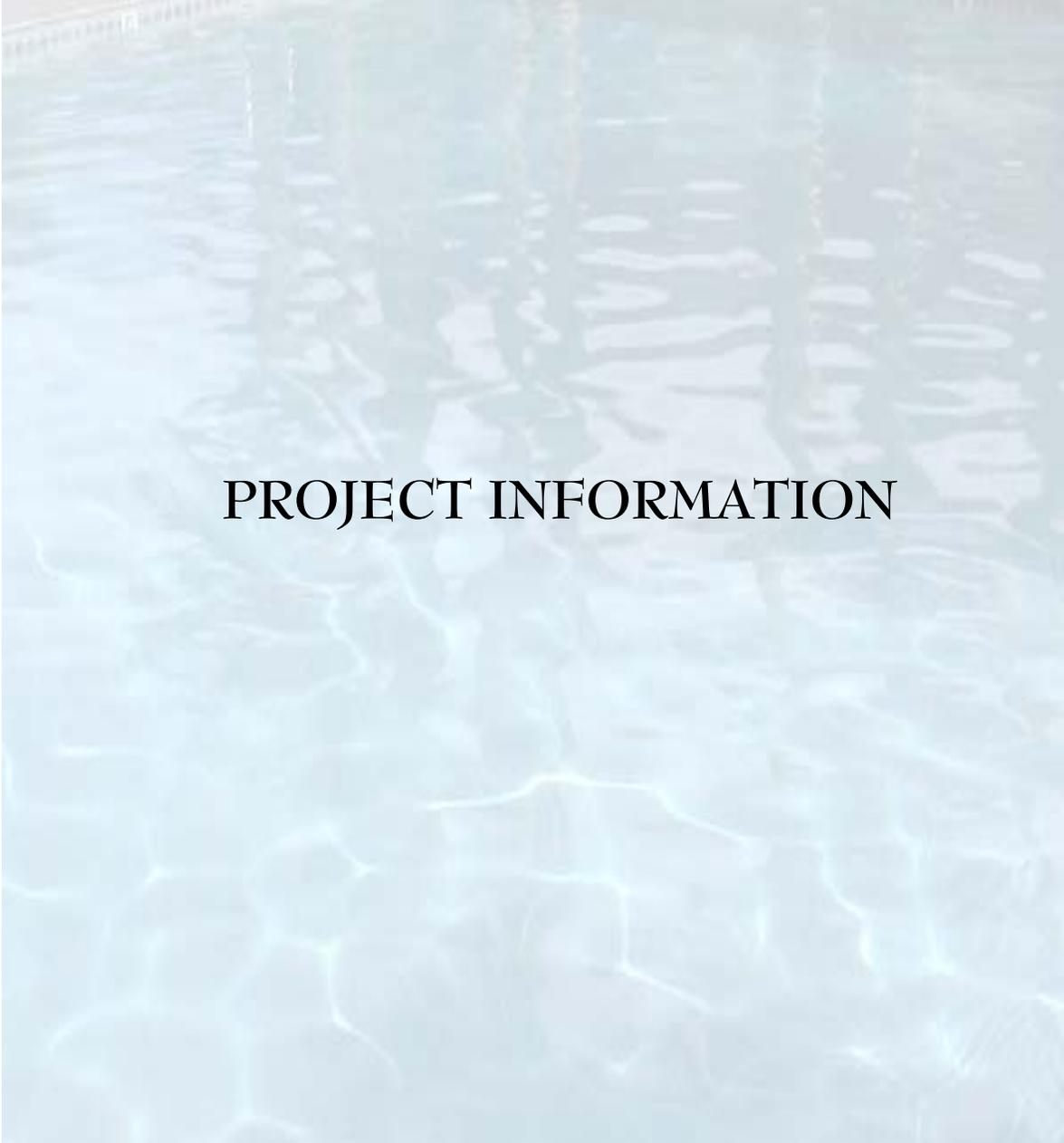
CITY OF SACRAMENTO  
DEPARTMENT OF PARKS AND RECREATION

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Proposition 50  
2004 Water Use Efficiency  
Section A: Agricultural and Urban Water Use Efficiency Implementation Project

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# PROJECT INFORMATION

## 2004 Water Use Efficiency Proposal Solicitation Package

### APPENDIX A: 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, # 5

(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 \_\_\_\_\_

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

(d) Specify other: \_\_\_\_\_

(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):

City of Sacramento, Department of Parks and Recreation

4. Project Title:

Park Irrigation Infrastructure Improvements

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

Name, title

Richard Ramirez, Assistant City Manager

Mailing address

730 I Street

Sacramento, CA 95814

Telephone

(916) 808-5704

Fax.

E-mail

(916) 808-7618

rramirez@cityofsacramento.org

6. Contact person (if different):	Name, title.	Denise Curl, Administrative Analyst
	Mailing address.	5730 24 <sup>th</sup> Street, Bldg 12
	Telephone	Sacramento, CA 95822
	Fax.	(916) 808-6204
	E-mail	(916) 433-6303
		dcurl@cityofsacramento.org

7. Grant funds requested (dollar amount): (from Table C-1, column VI)	\$1,053,661
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8. Applicant funds pledged (dollar amount):	\$200,000
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9. Total project costs (dollar amount): (from Table C-1, column IV, row n)	\$1,253,661
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10. Percent of State share requested (%) (from Table C-1)	84%
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11. Percent of local share as match (%) (from Table C-1)	16%
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12. 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. (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.)	<input type="checkbox"/> (a) yes <input checked="" type="checkbox"/> (b) no
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11. Is your project required by regulation, law or contract? If no, your project is eligible. 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.	<input type="checkbox"/> (a) yes <input checked="" type="checkbox"/> (b) no
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12. Duration of project (month/year to month/year):	Jan 2006 – Jun 2008
13. State Assembly District where the project is to be conducted:	6
14. State Senate District where the project is to be conducted:	9, 5
15. Congressional district(s) where the project is to be conducted:	5
16. County where the project is to be conducted:	Sacramento
17. Location of project (longitude and latitude)	LAT 38.52, Long 121.50
18. How many service connections in your service area (urban)?	125,000 – 130,000
19. How many acre-feet of water per year does your agency serve?	145,000

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. (Provide supporting documentation.)

(a) yes, \$37,049 median household income

(b) no

\*See Section A-15f



**SIGNATURE PAGE**

**2004 Water Use Efficiency Proposal Solicitation Package  
APPENDIX B: 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

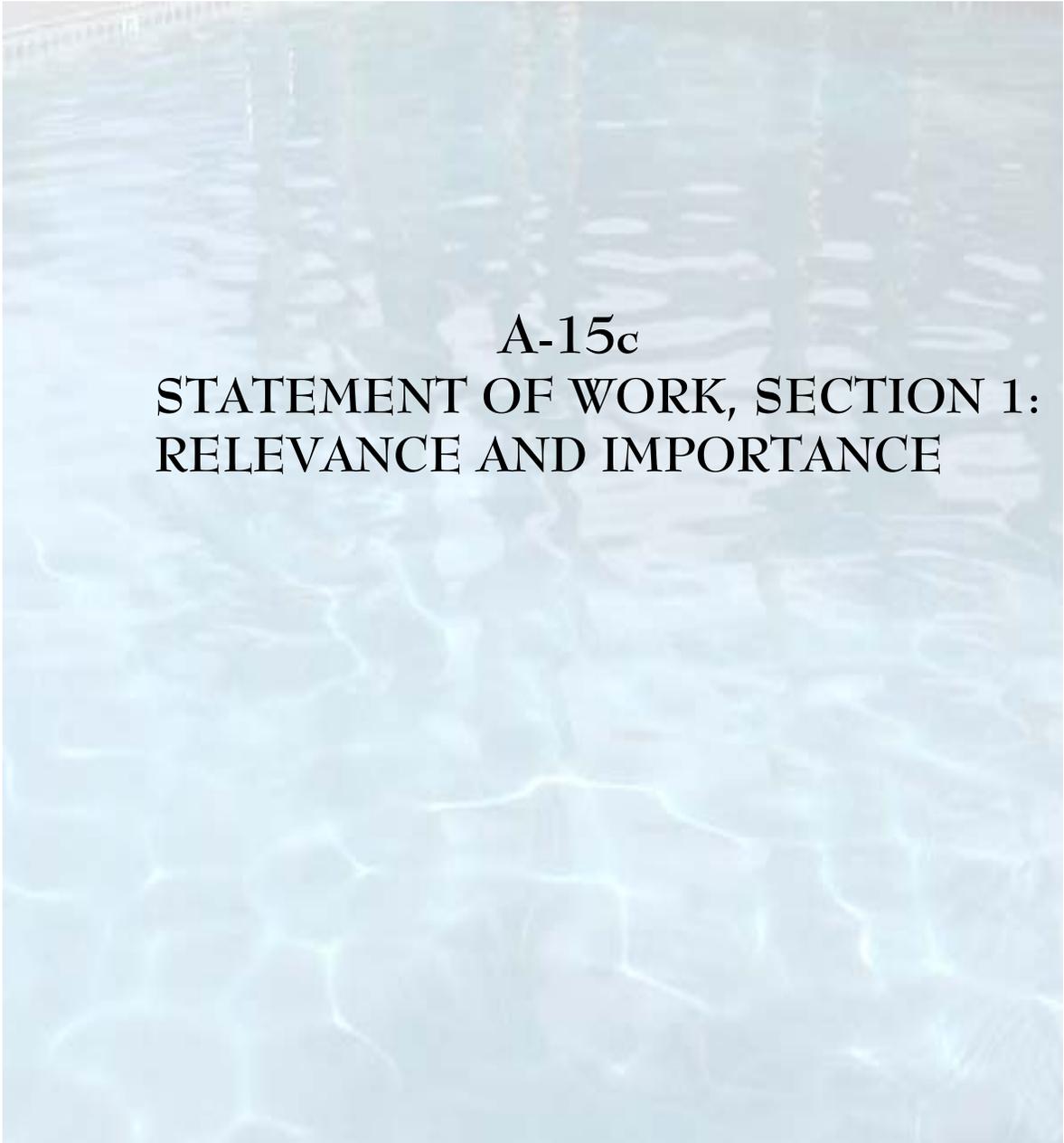
The applicant has legal authority to enter into a contract with the State.



Signature

11/4/05  
Date

Richard J. Ramirez  
Assistant City Manager  
City of Sacramento



**A-15c**  
**STATEMENT OF WORK, SECTION 1:**  
**RELEVANCE AND IMPORTANCE**



### Introduction

The City of Sacramento supports and is an active participant in the Water Use Efficiency (WUE) program to encourage water conservation by saving water, improving water quality and benefiting the environment. **The proposed project achieves direct in-stream flow and timing, water quantity and water quality benefits to the Bay-Delta System and state of California.**

The City of Sacramento receives approximately 85 percent of its water from the American and Sacramento Rivers and 15 percent from local groundwater (see *Map and river intakes on page 14*). The state, Bay-Delta and community will benefit by cost savings resulting from using less water from the Sacramento and American Rivers.

The Department of Parks and Recreation, in partnership with the Department of Utilities, is proposing a water conservation project for large landscape areas. The City has identified 16 City parks where irrigation infrastructure is in the greatest need of upgrading, replacement and repair, and would have the highest potential for water savings to an existing system. The goals of this project are to provide in each park location: a booster pump, backflow preventor, a fully tuned irrigation system, a central control system, a water meter and if necessary, a new isolated water tap where there may be multiple points of connection.

The purpose of this program is to increase water efficiency at 16 public parks in the City of Sacramento saving an estimated 282 acre-feet of water annually by reducing applied water, overspray and runoff and improving turf/plant quality, savings an estimated \$108,960 per year and returning it to the Bay Delta increasing the amount of water available to the state. Each of the selected park sites in the project will have a fully metered water supply and properly operating irrigation system under automated control, which will provide the tools needed to achieve this level of conservation.

In addition to the \$108,960 savings, the proposed project will result in:

- Decreased runoff pollution into urban stream channels to the Sacramento River and Bay-Delta
- Reduced percolation water losses and ground contamination

Additional benefits include:

- Improved turf, plant quality in City Parks

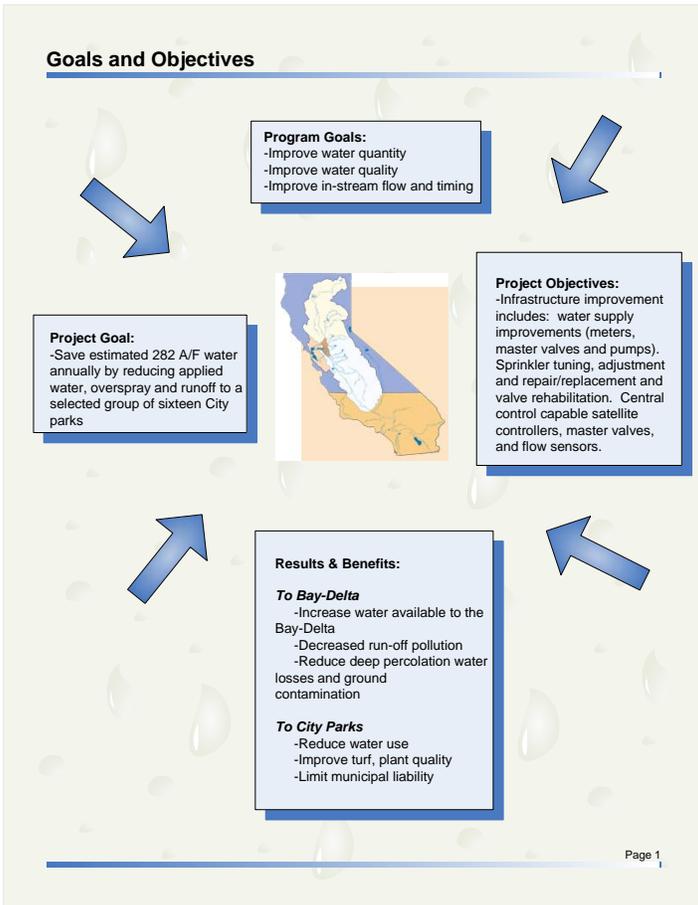
- Limited municipal liability by decreasing pavement and building damage

Public parks in Sacramento are a vital element of urban and suburban living for one half million people. The City’s goal is to maintain its parks at an acceptable level of quality while using the minimum water necessary.

Efficient and effective irrigation water use is dependent on three elements:

- Consumption accountability through metering
- Uniform sprinkler application and measurement
- Accurate irrigation scheduling

The City of Sacramento, Department of Parks and Recreation is requesting \$1,053,661 in funding from the Department of Water Resources for this proposed irrigation infrastructure project. The City of Sacramento, Department of Utilities is providing \$200,000 in-kind contributions for water meters, backflow devices and taps. This project will result in significant savings and direct benefits for the Bay-Delta.



### Project Goals and Objectives

The primary **project goal** is to save an estimated 282 A/F water annually by reducing applied water, overspray and runoff to a selected group of 16 City parks.

The **project objectives** include improvement to the irrigation infrastructure of these parks such as:

- Water supply improvements (meters, master valves and pumps)
- Sprinkler tuning, adjustment and repair/replacement and valve rehabilitation
- Central control capable satellite controllers, master valves, and flow sensors



The project will result in benefits to the Bay-Delta in increased water available, decreased run-off pollution, reduced deep percolation water losses and ground contamination. Benefits to City Parks: reduced water use, improved turf, plant quality, and limit municipal liability.

Long term, the proposed project should reduce overall operational costs and results in additional resources being available for the Bay-Delta; in addition, these funds will make Sacramento's City parks more maintainable through a comprehensive water conservation program.

### **Need for Project as it Relates to Local, Regional, Bay-Delta, State and Federal Water Issues**

#### *Local*

For the greater Sacramento area, average rainfall is only about 17 inches per year. This low rainfall is characteristic of a semi-arid Mediterranean climate with sunny, dry weather for most of the year. During the summer months, water use can increase by as much as 250 percent. Parks are one of the largest consumers of water and it is the City's responsibility to maintain and keep them green by using irrigation as efficiently as possible. By 2020, California population is projected to grow by 15 million people. However, no new major water projects have been developed or designed to meet this new growth. As a result, the state is projecting annual water shortages.

On a more positive note, The City of Sacramento isn't in the same predicament as the other water purveyors in California as the City has some of the best water rights in the state being situated at the confluence of the Sacramento and American Rivers.

Outdoor water use, such as what is applied to parks, is not returned to the river, and therefore, should be used more efficiently. Water efficiency plays an important role in protecting water sources and improving water quality. By using water wisely, the City can save water and help other jurisdictions that are less fortunate. Efficient water use in landscaping will lower water usage, conserve natural resources, preserve natural habitats, and decrease energy use.

In California, the largest use of all urban water is watering landscapes. When a landscape or irrigation system is poorly designed or poorly maintained or the landscape consists of plants not suited to the dry and hot California climate, water demand increases as a result of excessive evaporation, leaks, and runoff. Water consumption can be greatly reduced with careful planning, good

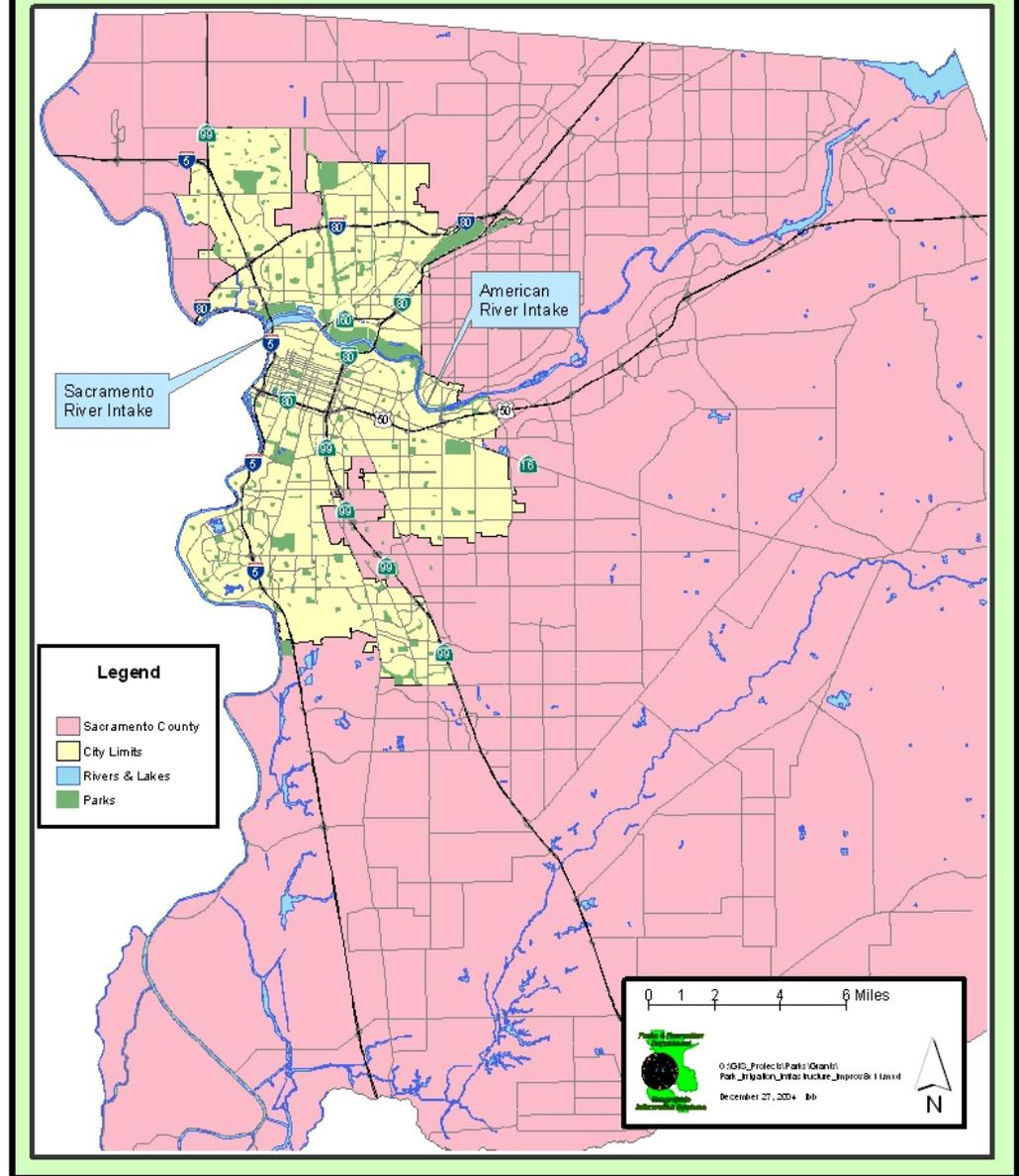
plant selection, efficient irrigation systems and good water management and maintenance practices.

To deal with the problem of park maintenance operational costs, increased park development and a growing population, it has been the policy of the Department as well as the City Council to have a two-fold strategy. First, the City needs to develop new partnerships and fund sources for park maintenance to partially deal with the expense of new parks and a partnership with the Department of Utilities with regard to the maintenance of joint-use park sites. The second part of the strategy is through infrastructure improvements to reduce the cost of maintaining new and existing parks. This will be accomplished by the development of new "sustainable" park design standards and investment in the existing park system. This will be achieved by the proposed water management and conservation project.

The Department of Parks and Recreation has made it a high priority to make our existing park system more "sustainable." With our continued growth of the City park system, it is no longer possible to stretch resources and take on the maintenance of these new facilities without lowering park maintenance standards citywide.

The proposed project is for park irrigation infrastructure improvements to address municipal landscape water use and efficiency issues. Under the project the City proposes to implement a comprehensive water conservation program at 16 City parks as part of the "sustainable" park concept. Through this project, modifications of the infrastructure of these older parks are necessary due to multiple points of connection, multiple water meters and taps where irrigation use cannot be isolated. When complete, staff will be able to accurately measure, manage and be accountable for irrigation water applications. This project supports the City's Strategic Plan goals of establishing and strengthening regional partnerships to enhance the quality of life, and preserving neighborhood, urban forest, parks and recreation.





### Regional

There has been a persistent drought in the west for a number of years. Tree ring records and other data suggest the West may be in for a longer, drier period in the coming decades. Recreational tourism, a large part of the west's economy, may suffer if the drought continues. Rivers without rapids and shriveled streams are no lure to fish. Docked boats already have been ordered out of Folsom Lake. Conservation must become a way of life.



In the west, water is as precious as gold. Seasonal droughts, ground water pollution and population growth has stressed this valuable resource. The efficient use of California's limited water supplies is a statewide issue. By

reducing its water consumption will provide real benefits for the state, regional and local purveyors.



The City of Sacramento is located in the Sacramento Valley Region of the Bay Delta. The region:

- Provides 60%, or 22 million acre-feet of water to the Delta
- Provides water supply for much of California from Sacramento Valley runoff
- Offers major habitats/spawning ground for several threatened and endangered fish species
- Contributes to the state's farmlands and agriculture output
- Provides major resting areas for the Pacific flyway waterfowl
- Provides a dynamic hydrologic interaction between rivers and aquifers which benefits fisheries, habitat and wildlife

The Sacramento Valley directly benefits other regions:

- Creating new surface storage improving water quality and flexibility for water supply reliability
- Improve diversions with fish-friendly screens and barrier removal allowing for better water supply reliability throughout the state
- Upper watershed management

#### *Bay-Delta*



The California Bay-Delta Authority is an agency established to oversee implementation of the CALFED Bay-Delta Program. The Program is a collaborative state-federal effort to implement a long-term, comprehensive plan to restore the ecological health of the Bay-Delta system and improve water quality and water supply reliability.

The Bay-Delta is important because it provides drinking water for 22 million people. It supports California's trillion-dollar economy. The Bay-Delta levees protect farms, homes and infrastructure. It is the largest estuary on the West Coast and is home to 750 plant and animal species.

#### *Federal*

These objectives together support the Cal Fed Bay Delta program by becoming part of their long-term comprehensive plan to restore ecological health and improve water management for the Bay Delta System.

## Consistent with Local and Regional Water Management Plans



This project is consistent with state, regional and local conservation planning activities. The City of Sacramento has adopted an **Urban Water Management Plan (UWMP)** (See *Resolution 2001-833 dated December 18, 2001 in 'Attachments'*) The UWMP was developed in response to the Urban Water Management Planning Act that became part of the California legislation with the passage of Assembly Bill 797 during 1983-84. AB 797 requires every urban water supplier providing water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 acre-feet annually to adopt and submit an UWMP every five years to the California Department of Water Resources.

The proposed project is consistent with Chapter 6, Current Water Conservation Program, and Best Management Practices (BMP) 5. This policy has been accepted and adopted to result in more efficient use or conservation of water. The BMP (5) provides for landscape water-use audits for large landscaped areas such as public parks.

An analysis of irrigation efficiency at eight City parks was conducted in March 1999. The purpose of the report was to provide the Parks Maintenance Services Division of Department of Parks and Recreation, the results of the audit and recommended water budget. The applied irrigation water was compared to the recommended turf water requirements. This analysis was based on a review of metered water use and a limited site inspection. Conclusions were drawn concerning the relative water efficiency of the parks studied, and the possible annual water savings that would result from monitoring a monthly water budget.

## Water Demand Activities in Urban Water Management Plans

*Large Landscape Water Audit and Incentives for Commercial, Industrial, Institutional (CII) and Irrigation Accounts*

The Water Forum Agreement suggests the City identify all irrigators of large (at least one acre or larger) landscapes. These agencies were offered landscape water audits using methodology adopted by the California Department of Water Resources. Cost-effective incentives were offered to achieve customer participation. Follow-ups to the audit will be provided once every five years.

The City's large landscape program will:

- Provide audits conducted by certified landscape water auditors.  
**Completed.**

- Provide audits that consist of a system review to identify necessary irrigation system repairs and once repairs have been completed, a water-use review. **Completed.**
- Provide program participants with seasonal irrigation schedules by station. **Completed.**
- Provide program participants with regular reminders to adjust irrigation timer settings. **In progress.**
- Provide audits to 12 percent of metered accounts greater than one acre of landscaping. Spend \$30,000 on irrigation system improvements at each of five City parks annually for 20 years. **Completed.**

*Large Landscape Water Audit and Incentives for Commercial, Industrial, Institutional (CII) and Irrigation Accounts*

Within three years of agreement signing, The City of Sacramento will:

- Identify all Irrigation accounts and CII accounts with landscapes of one acre and larger and record that information in the customer database. **In progress.**
- Have certified and/or trained landscape water auditors on staff or available through agreements. **Completed.**
- Prepare and distribute multi-lingual irrigation system materials, seasonal climate-appropriate information on irrigation scheduling and offer training for customers/landscape workers. **Completed.**
- Develop seasonal climate-appropriate information to determine irrigation schedules, for the three basic hydro zones identified in the DWR Landscape Water Management Handbook and provide that information to the customers with one acre or larger landscape. **In progress.**
- Begin installation of climate appropriate water efficient landscaping at landscaped City facilities, phase in over five years following agreement signing. **In progress.**



The City of Sacramento will annually:

- Directly contact metered Irrigation accounts and CII accounts with one acre and larger landscapes, not previously audited, and offer them landscape water audits. **In progress.**
- Provide landscape audits to all CII and Irrigation accounts at time of metering. **In progress.**
- Survey past program participants to determine if audit recommendations were implemented. **In progress.**

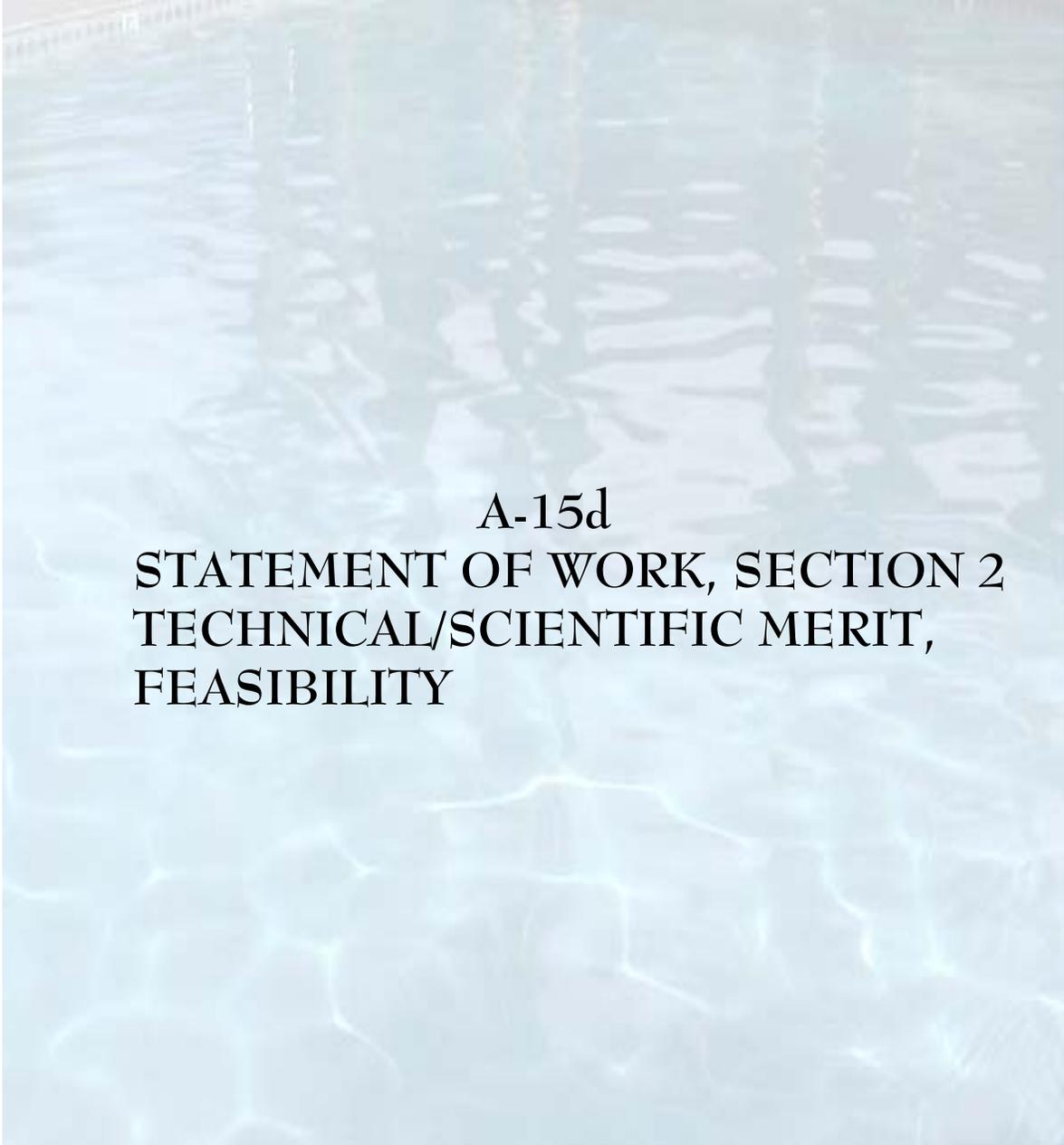
- Offer program participants with separate irrigation meters information showing the relationship between actual consumption and their ET-base water demand. **In progress.**

### **Further Implementation of Existing Water Management Activities**

The City of Sacramento's Water Conservation Ordinance is found under City Code, Title 15 Landscaping Requirements for Water Conservation. The purpose of this chapter is to define the standards and procedures for the design, installation and management of landscapes in order to utilize available plant, water, land and human resources to the greatest benefit to the people of the City of Sacramento. This ordinance covers plan submittals, system design criteria, water allowance estimates including turf and plant selection.

In addition, Park Planning and Design Division (PPDD) of Parks and Recreation is working to achieve, through skillful planting and irrigation design, appropriate use of plant materials and management to assure future landscape development that avoids excessive demands and is less vulnerable to periods of severe drought to further implement existing water management activities. Parks are being designed to minimize water use and enhance and preserve the natural site characteristics pursuant to the City's Water Conservation Ordinance.

Title 13 states all municipal purveyors of water should encourage water conservation. This ordinance prohibits water runoff, sets the provisions for water conservation, time for irrigation and evokes violation and penalties in the event they are violated.



A-15d  
STATEMENT OF WORK, SECTION 2  
TECHNICAL/SCIENTIFIC MERIT,  
FEASIBILITY

A-15d  
STATEMENT OF WORK, SECTION TWO: TECHNICAL/SCIENTIFIC MERIT,  
FEASIBILITY

Methods

Through extensive surveys and field-testing under BMP (5), the City identified three primary impediments to improving water use efficiency in its parks:

- Lack of metering
- Decreased uniformity
- Antiquated controllers

Secondary impediments:

- Lack of isolated taps
- Central control irrigation

In 2003, the City of Sacramento, Department of Parks and Recreation received \$1,000,000 in City general fund money to implement a water conservation program. This program identified the 16 parks in need of irrigation upgrades. This project will commence in the Spring of 2005.

This proposal seeks assistance in upgrading irrigation systems in a second set of 16 major parks as a continuing effort towards these water conservation and Bay-Delta goals.

Rehabilitation and upgrades to the park sites include:

- Water supply improvements including installation of meters, master valves and pumps
- Central control satellite controllers and flow sensors
- Sprinkler tuning, adjustment and repair/replacement and valve rehabilitation

Water budgets, properly monitored, are a primary instrument for controlling water use. Meters create a mechanism of accountability and allow the Park Maintenance Services Division's management to place responsibility on specific personnel.

Field equipment performance is another key element in improving water use efficiency. Catch cup testing has shown an average of 48% distribution



uniformity in City parks tested thus far. This is approximately 2/3 of levels achievable on large turf park sites. Low pressure along with obsolete, damaged and incorrectly installed sprinkler heads were the principal reason for the poor results. All sprinklers in subject parks will be inspected; if incorrectly installed they will be reset to grade and level. All damaged and non-operational sprinklers will be replaced.

Due to Sacramento's flat terrain (and relatively low mains pressures), nominal nozzle pressures averaged 48 pounds per square inch (psi). Pumps are required to raise nozzle pressure to 65 psi.

Currently control for most park irrigation systems is through stand-alone controllers with no connectivity or intelligence. The City has purchased and installed a central irrigation control computer (Rain Master Evolution) and the selected parks will be connected to this system.

Evapotranspiration (ET) is a system that calculates evapotranspiration. Evapotranspiration is the total amount of water that is transferred from the earth's surface to the atmosphere. It is made up of the evaporation of liquid or solid water plus the transpiration from plants. Some of the systems integrate ET and actual rainfall amounts into irrigation controllers to adjust irrigation schedules. This ET-based irrigation technology is a viable means of reducing water consumption for park irrigation purposes. In addition, once the City becomes more familiar with the technology, we intend to convert more City parks using this technology. In other words, the parks will use the right amount of water, evenly distributed at the right place and time.

Central control brings five major benefits:

- Real-time evapotranspiration
- Updated irrigation scheduling
- Automated rain shutdown
- System fault reporting and correction
- Water use reporting (with flow sensors)

### Procedures

Park selection for the program is intended to ensure choice of those with cost-effective water savings. Criteria included potential water savings, visible water loss and cost-effectiveness of achieving identified water savings. After site selection, reviews of the irrigation systems by City staff produced a punch list of deficiencies by park. Competitively chosen contractors will then address the list



of problems under supervision of City personnel. Rigorous specifications and inspection will ensure correct installation of equipment. The 16 sites will be divided into three groups; three initial sites, a second group of five and a third group of eight spaced over three years of implementation. (See *Task List and Schedule on page 23*)

Specialty equipment such as water meters, flow sensors, master valves and controllers will be installed by appropriate City personnel or contractors.

The project will save water because it provides a unique and effective combination of conservation measures. Water meters, renovated irrigation systems, central control and improved management will produce consistent water savings by providing the tools for implementing better scheduling and monitoring. Improved control and management reduce water use only when sprinkler system has been renovated because with poor systems, cutting back on water only leads to poor turf quality. Better coverage, edge control, less overspray and reduced runoff, will result in other avoided costs including damage to paving and buildings. Central control also provides substantial savings in personnel hours when schedules are changed or with a rain shutoff. Data from the City's weather stations will provide real-time evapotranspiration corrections to irrigation schedules. Eventually the City will address all of the sites in its inventory with the same treatment; survey the sprinkler equipment, system retrofits where needed and installation of a central capable satellite controller.



This project will rectify one of the most neglected aspects of controller upgrade programs; they do not address sprinkler equipment condition or status. Extensive foot traffic, game play, mowing and other horticultural operations make parks a very tough environment for sprinkler heads. Damaged, misaligned or poorly installed sprinklers contribute to decreased uniformity and can drive water use higher. Each park in the project will be inspected sprinkler-by-sprinkler and any problems identified, and corrected. Precise specifications for sprinkler installation will provide for improved quality assurance. After a thorough renovation, new management mechanisms will ensure frequent documented re-inspections and prompt action in addressing problems. This process could provide a “best management” model for park districts in the rest of California, many of which suffer from antiquated parks and equipment in poor condition.

Task list and schedule.

Contracts Executed	December 2005
Upgrade Contractor Selections	January – March 2006
Park Irrigation System Upgrades	April 2006 – June 2008
Group 1 (3 Parks)	April 2006-June 2006
Group 2 (5 Parks)	April 2007 – June 2007
Group 3 (8 Parks)	April 2008 – June 2008
Post Installation, Operation, Maintenance and Monitoring	April 2006 – December 2013

Project Plan and Work Schedule

**IRRIGATION INFRASTRUCTURE IMPROVEMENTS**  
**Project Plan and Work Schedule**

	TASK LIST				Start Date	End Date
	Qty	Materials	Cost	Total		
<b>ADMINISTRATION</b>				\$40,143	Dec 05	Dec 08
<b>PRE-IMPLEMENTATION</b>						
Contracts Executed					Dec 05	Dec 05
Contractor Selected					Jan 06	Mar 06
<b>IMPLEMENTATION</b>						
Park Irrigation System Upgrades						
Group 1 - 3 Parks	3	Booster Pump	\$40,000	\$120,000	Apr 06	Jun 06
	3	Backflow Preventor	\$20,000	\$60,000	Apr 06	Jun 06
	3	Irrigation Tune-Up	\$18,724	\$56,172	Apr 06	Jun 06
	3	Central Control	\$14,000	\$42,000	Apr 06	Jun 06
	3	Water Meters	\$12,500	\$37,500	Apr 06	Jun 06
		Sub-Total Group 1		\$315,672		
Group 2 - 5 Parks	5	Booster Pump	\$40,000	\$200,000	Apr 07	Jun 07
	2	Backflow Preventor	\$20,000	\$40,000	Apr 07	Jun 07
	5	Irrigation Tune-Up	\$18,724	\$93,620	Apr 07	Jun 07
	5	Central Control	\$14,000	\$70,000	Apr 07	Jun 07
	1	Water Meter	\$12,500	\$12,500	Apr 07	Jun 07
	1	Water Tap	\$12,500	\$12,500	Apr 07	Jun 07
		Sub-Total Group 2		\$428,620 #		
Group 3 - 8 Parks	4	Booster Pump	\$40,000	\$160,000	Apr 08	Jun 08
	8	Irrigation Tune-Up	\$18,724	\$149,792	Apr 08	Jun 08
	2	Central Control	\$14,000	\$28,000	Apr 08	Jun 08
		Sub-Total Group 3		\$337,792		
		TOTAL IMPLEMENTATION		\$1,082,084		
<b>POST IMPLEMENTATION</b>						
Monitoring and Assessment				\$15,600	Apr 06	Dec 08
Report Preparation				\$4,608	Apr 06	Dec 08
		TOTAL POST IMPLEMENTATION		\$20,208		
		<b>TOTAL PROJECT COST</b>		<b>\$1,142,435</b>		

### Preliminary Plans and Specs

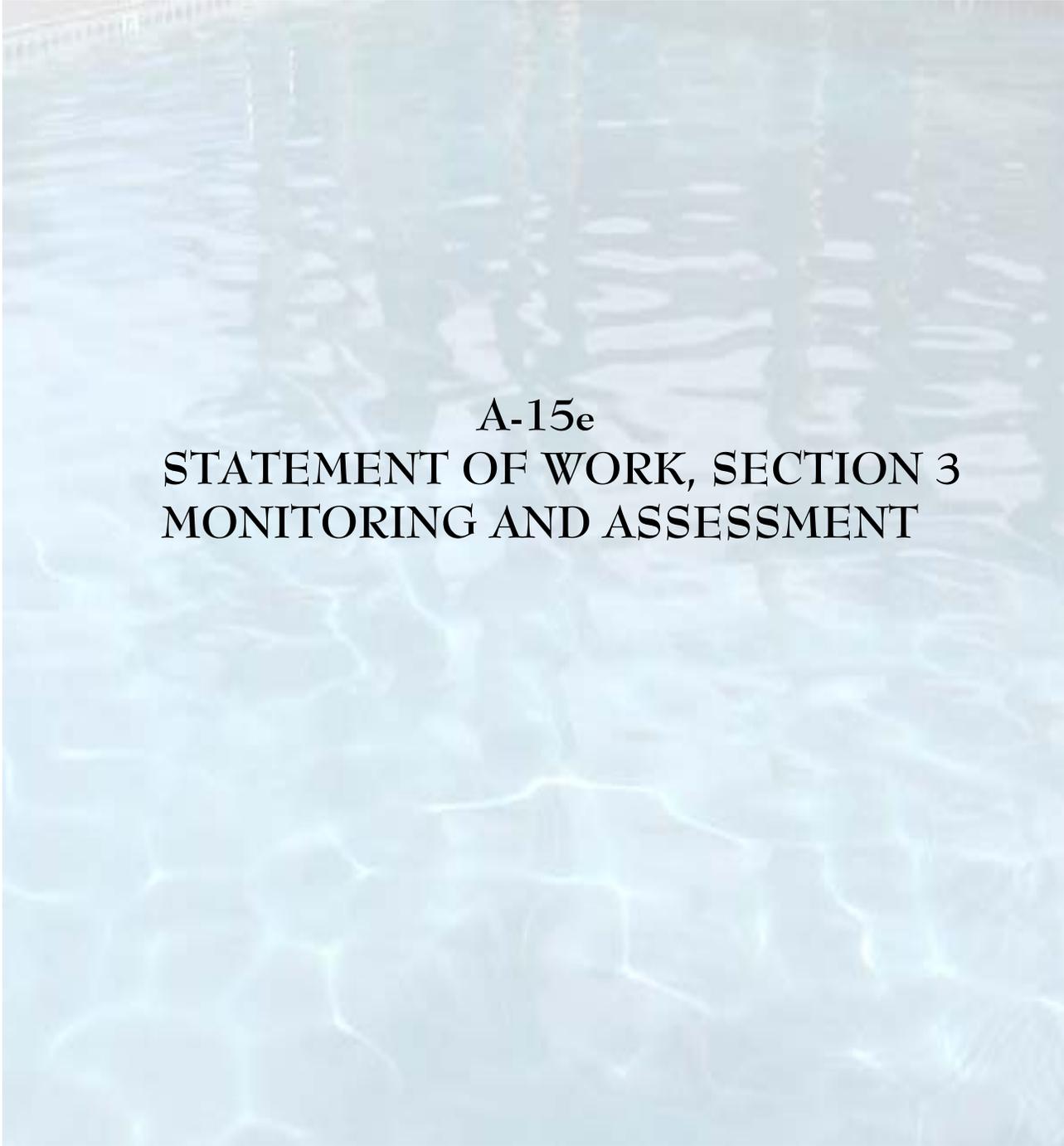
Not applicable. This is not considered a construction project according to the California Environmental Quality Act (CEQA). This project is categorically exempt under State Class 1 & 2 Sections: 15301(b), Repair of existing public facilities or structures; 15302(c) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

### Environmental Documentation

A 'Notice of Exemption' was received from the City of Sacramento County Clerks office for this project (See copy in 'Attachments').

No negative environmental impact is anticipated. To the contrary, many positive effects on the environment are expected including:

- Reduced water use through increased accountability brought about by metering
- Elimination of runoff by improving irrigation systems, more sophisticated irrigation scheduling and better leak detection, and
- Lower electrical consumption through reduced pumping requirements



A-15e  
STATEMENT OF WORK, SECTION 3  
MONITORING AND ASSESSMENT

A-15e

STATEMENT OF WORK, SECTION THREE: MONITORING AND ASSESSMENT

Monitoring

*Pre-project baseline conditions.*

Parks in the Sacramento area average application rates range from 2.4 to 4.6 feet of water. This is based on a small sample of the 200 properties surveyed under the City's BMP (5) Program.

*Monitoring Methodologies*

Careful monitoring of water consumption will ensure achievement of stated goals. A vital component of this project is the installation of water meters at all sites. As part of the central control system, flow sensors and master valves will provide both monitoring and control in case of significant line or sprinkler failures. The flow sensors will allow water consumption data availability for any interval necessary daily, weekly, or monthly. Because 33% of the irrigation demand occurs in the peak two months of the year, bimonthly billing is inadequate to monitor water use for problems. Park Supervisors will enter park water consumption into an intranet site on a weekly basis as part of their expanded responsibilities. All water use data will be weather normalized in the calculation of achieved savings.

Evaluation

*Project goals and objectives*

The primary objective of the project is to save approximately 282 acre-feet of water per year by applying an average of 2.6 feet per year to a selected group of 16 parks. These are high value savings because they are concentrated in the peak water use season, late Spring through early Fall. Studies for the Parks Maintenance Services Division indicate this level of irrigation will provide reasonable turf quality in the Sacramento area and several parks are already achieving this level of performance. A trial group of parks show potential savings of approximately 49% from seven of sixteen parks or 1.3 acre-feet per acre. Extensive baseline information on the condition of the irrigation system will be collected and maintained by rigorous documented inspections. Contractors will be maintained on stand-by to address problems promptly.

Additional benefits include:

- Decreased runoff into urban stream channels and the Sacramento River
- Restricted deep percolation

- Reduced liability

*External factors*

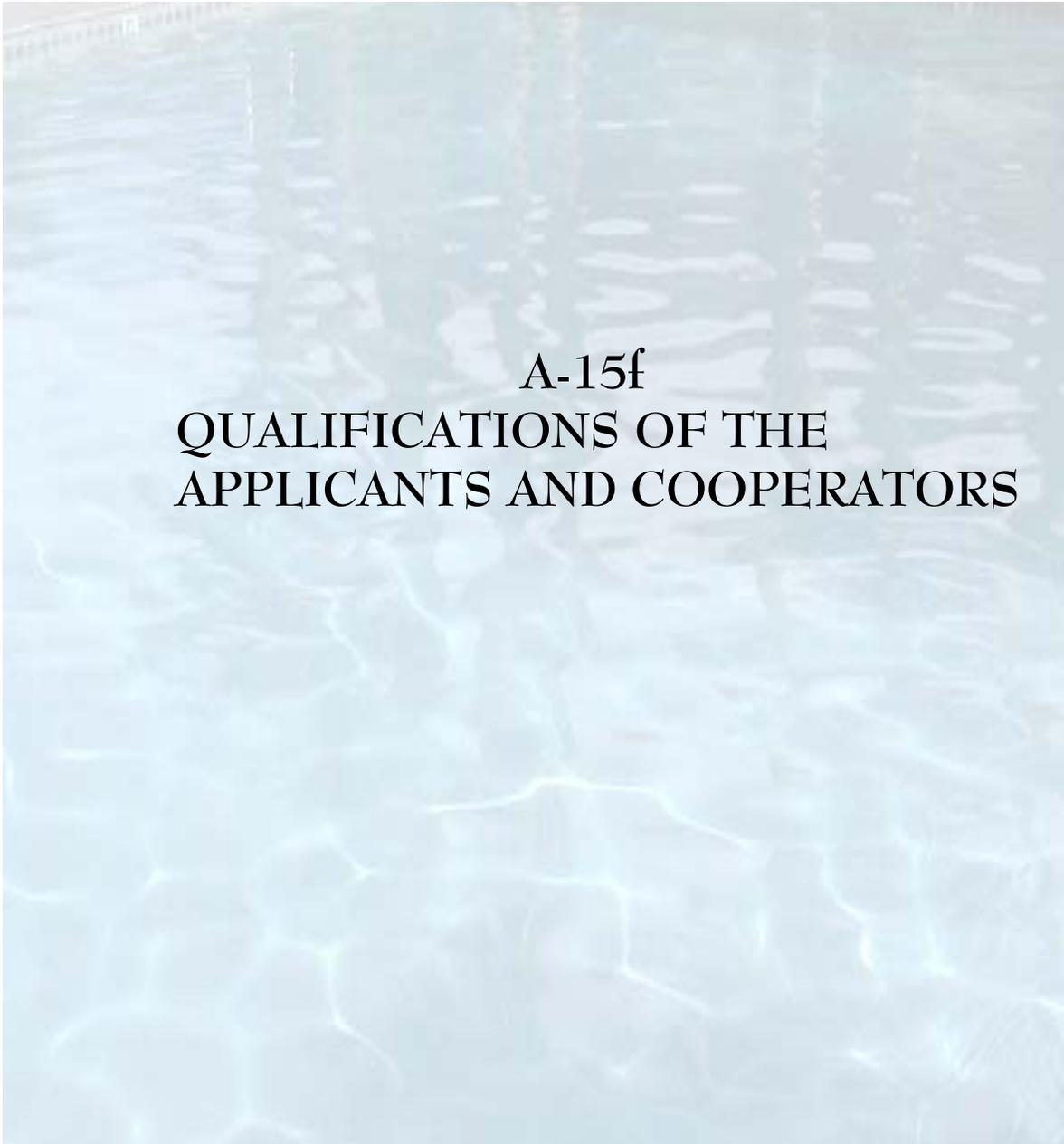
Parks are large consumers of water in the City. This program will substantially reduce demand while maintaining consistent quality. Reducing water use in the Sacramento area makes more water available to the Bay Delta and ultimately the state of California.

*Information access*

Consumption data and inspection information will be available for review by Park Supervisors and DWR as needed via the Internet. The City will supply reports on a contractually mandated basis.

*Monitoring and evaluation plan costs*

The Park Maintenance Services Division will submit a quarterly report detailing project status and analyzing water use patterns, achieved savings and continuing system performance measures.



A-15f  
QUALIFICATIONS OF THE  
APPLICANTS AND COOPERATORS

A-15f

## QUALIFICATION OF THE APPLICANTS AND COOPERATORS

### Resumes

*(See 'Attachment' Section at end of proposal for copies of resumes)*

#### *Project Managers:*

Wally Cole, City of Sacramento, Parks and Recreation Administrative Officer, will have overall responsibility for project completion. Wally is project manager for the current water conservation project (LW81) for the first 16 selected parks.

Chris Willig, Principal of Environmental Water Management. Chris has participated in over 50 projects worth \$4,000,000 concerning emergency drought water allocations, water demand and rate structure analyses, irrigation scheduling, irrigation system evaluation, horticultural and landscape construction problems since 1987.

Gary Kah, Manager of Water Management Services (Aquametrics LLC), developed a Landscape Area Measurement System (LAMS) using multi-spectral imaging to provide irrigated area data for BMP (5) programs. Gary has managed landscape water audits for over 1,500 acres of golf course, and commercial and public facilities.

### External Cooperators

External cooperators are those individuals outside of the City of Sacramento that will be assisting the City in obtaining its project goals.

Two external cooperators will be our team of consultants Chris Willig (Environmental Water Management) and Gary Kah (AquaMetrics). Both bring significant expertise to their role in the project and have been involved in previous water conservation efforts with the City and other municipalities within California.

### Previous Water Use Efficiency Project Experience

The City of Sacramento has no current water use efficiency projects funded by the Department of Water Resources.

However, The City of Sacramento, Parks and Recreation Department was appropriated \$1,000,000 of City general fund money for a water conservation program in 2003. The purpose of the project is similar to this grant proposal and used for irrigation infrastructure improvements.

### *Pilot Park*

The Department of Utilities working in partnership with the Department of Parks and Recreation, installed a new state-of-the-art “water manager” at Mangan Park. The new water manager is a very sophisticated moisture driven system that communicates with the soil surrounding the plant material. The Base\*Line system monitors the moisture and temperature in the root zone and creates and maintains a unique watering schedule based on the actual needs of the landscape’s different hydrozones. The sensors record the data and begin designing the upper and lower thresholds for the landscape. The City has received encouraging results with the system in performance and overall appearance as well as decreased the parks demand for water.

### **Disadvantaged Community**

According to the Final 2004 Water Efficiency Proposal Solicitation Package, “Cost share is not required of projects that serve communities with an annual median household income that is less than 80 percent of the statewide annual median household income or \$38,000.”

### *Geographic Scope*

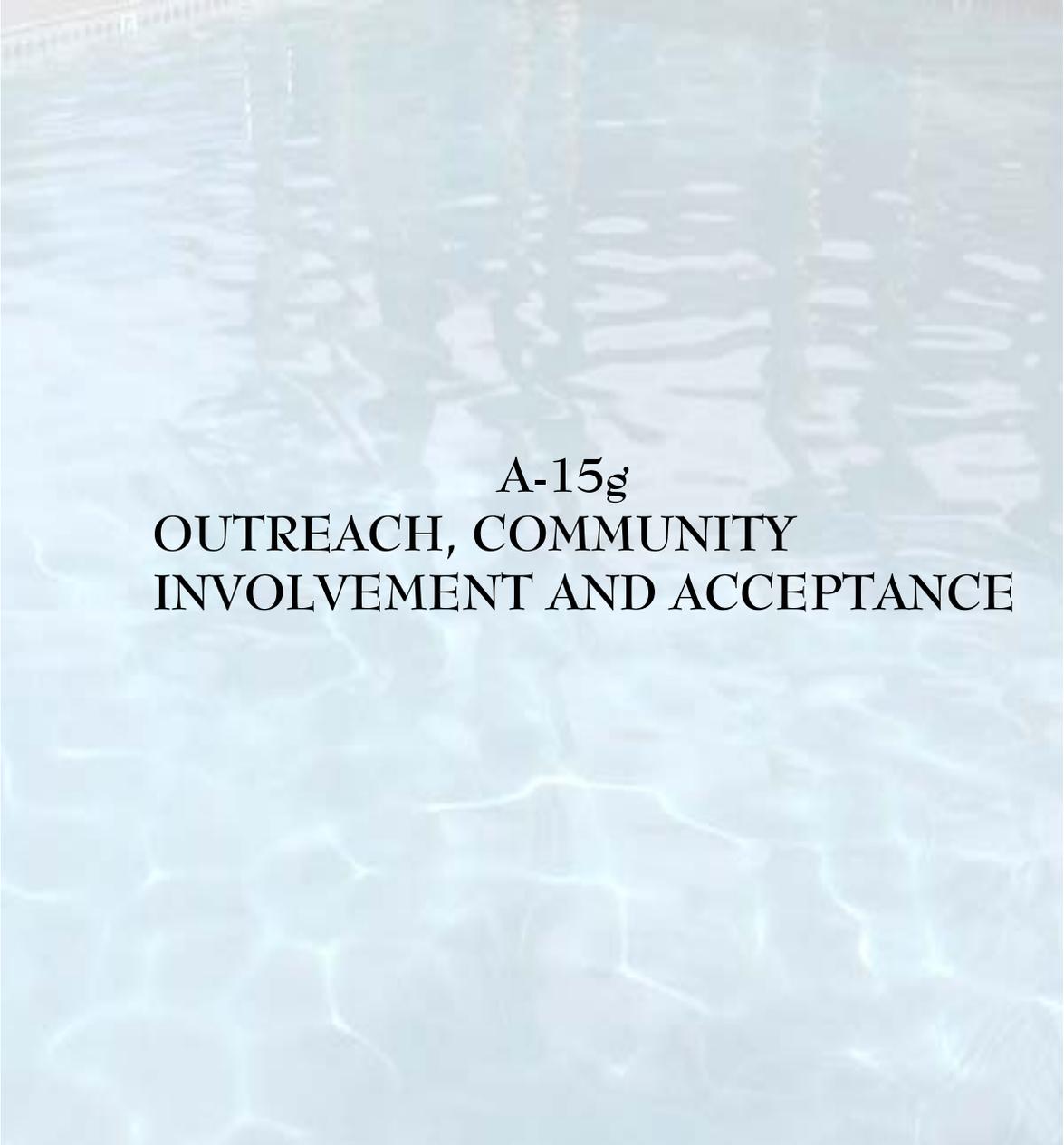
City of Sacramento

### *Annual Median Household Income*

The median household income for the City of Sacramento is \$37,049.

### *Source*

U.S. Census Bureau, Census 2000, Table DP-3 Profile of Selected Economic Characteristics, Geographic area: Sacramento City, California, pg 3. (See ‘Attachments’)



**A-15g**  
**OUTREACH, COMMUNITY**  
**INVOLVEMENT AND ACCEPTANCE**

A-15g  
OUTREACH, COMMUNITY INVOLVEMENT, AND ACCEPTANCE



Local Support

The Department of Parks and Recreation, in partnership with the Department of Utilities, will be providing in-kind services to supply water meters, backflow devices and taps for this project. The Department of Utilities is responsible for control services for residents and businesses in the City of Sacramento. In addition, the Department of Utilities promotes water quality protection and water conservation through various citywide programs that include park irrigation. (See 'Letter of Commitment' in Attachment Section)

On February 19, 2004 the Citizen's Advisory Committee (CAC) Resource Development Subcommittee for Parks and Recreation voted to support a grant proposal for the Department of Water Resources Water Use Efficiency Project for irrigation improvements to 16 City parks and forwarded their action to the full CAC for support.

The CAC for Parks and Recreation is an advisory body to the City of Sacramento's Department of Parks and Recreation. The Committee serves as a bridge between the community and the Department on issues related to Parks and Recreation. The Committee works with staff to review and develop policies to improve and enhance facilities and programs throughout the City. The Committee is comprised of 14 volunteer members who each represent one of the City's 11 Planning Areas and three members who serve "at large".

On February 24, 2004, the CAC supported the application of this Prop 50 Urban Water Use Efficiency grant for irrigation infrastructure improvements. The Sacramento City Council supported this grant proposal and approved matching funds for this project at it's June 15, 2004 meeting. (See 'Resolution' in Attachment Section)

Regional Support

A local watershed group that supports this endeavor is the Water Forum. (See 'Letters of Support' in Attachment Section)



The Water Forum is a community collaboration process involving stakeholder organizations and commitment to the objectives of providing a reliable and safe water supply for the region's economic health and planning development preserving the fishery, wildlife, recreational, and aesthetic value of the lower American River. This diverse group consists of business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments in the Sacramento.

Regional Water Authority is a joint powers authority that serves and represents the interest of over 20 water providers and associated agencies in the greater Sacramento area. (See 'Letters of Support' in Attachment Section)

Third party impacts will be those residents that use the parks. Through irrigation improvements, there will be a more efficient use of the water. This will be accomplished through isolating and monitoring the water used for irrigation only. By auditing the amount of water used for irrigation, the City will be able to manage water budgets to ensure water savings.

### Economic Benefit

The Park Maintenance and Urban Forest Services Division, with a fiscal year 2005 operating budget of \$13,419,999 and 190.54 Full Time Equivalent (FTE) employees, is responsible for maintaining more than 160 developed park and open space facilities. This includes: recreational trails, wetland and natural areas, playgrounds and play equipment, sports fields, basketball courts, boat launch ramps, restrooms, community centers and other special facilities. The budget is funded by both citywide and area specific assessments.

### *Training*

The Park Irrigation Supervisor, Irrigation Specialist and Irrigation Technician will receive and administer training to appropriate park maintenance personnel. Emphasis will be placed on maintenance.

### *Public Education*

The Department of Utilities maintains a website, [www.cityofsacramento.org/utilities](http://www.cityofsacramento.org/utilities) with a multitude of information on water conservation that can be accessed by the public and/or interested persons. Online brochures include:

- Overwatering?
- Rules of Thumbs for Water-wise gardening
- Outdoor Conservation





Other water conservation literature available:

- Water Efficient Landscapes
- California Water Facts
- How to Be Water Efficient
- City of Sacramento Water Regulations
- Water Conservation and You!
- Water Spots. A Water Conservation newsletter from the City of Sacramento, Department of Utilities.

Social and economic benefits include increased customer satisfaction in the way of water savings and improved landscape appearance.

### Opposition

There is no opposition to the proposed project at this time.



A-15h  
INNOVATION

A-15h  
INNOVATION

Technology & Methodologies

The City of Sacramento provides a unique and effective combination of conservation measures that will save water. Water meters, renovated irrigation systems, central control, and improved management will produce consistent water savings by providing the tools for implementing better scheduling and monitoring. Improved control and management reduce water use only with a renovated sprinkler system because with poor systems, cutting back on water only leads to poor turf quality. Better coverage, edge control, less over spray and reduced runoff, will result on other avoided costs including damage to pavement and buildings. Central control also provides substantial savings in personnel hours when schedules are changed or with a rain shutoff. Data from the City's weather stations will provide real-time evapotranspiration corrections to irrigation schedules. Eventually the City will address all of the sites in its inventory with the same treatment; survey the sprinkler equipment, provide targeted system retrofits where needed and installation of a central capable satellite controller.

This program will rectify one of the most neglected aspects of controller upgrade programs; they do not address sprinkler equipment condition or status. Extensive foot traffic, game play, mowing and other horticultural operations make parks a very tough environment for sprinkler heads. Damaged, misaligned or poorly installed sprinklers contribute to decreased uniformity and can drive water use higher. Each park in the program will be evaluated sprinkler-by-sprinkler and any problems corrected. Precise specifications for sprinkler installation will provide for improved quality assurance. After a thorough renovation, new management mechanisms will ensure frequent documented re-inspections and prompt action in addressing problems. Training of field staff, which emphasizes the importance of maintaining field sprinklers and other field equipment, is a vital part of the project. The process of renovation, improved management and intensive training could provide a "best management" model for park districts in the rest California, many of which suffer from antiquated parks and equipment in poor condition.



A-15i  
BENEFITS AND COSTS

**Applicant: CITY OF SACRAMENTO**

THE TABLES ARE FORMATTED WITH FORMULAS: **FILL IN THE SHADED AREAS ONLY**

Section A projects must complete Life of investment, column VII and Capital Recovery Factor Column VIII. Do not use 0.

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

	Category (I)	Project Costs \$ (II)	Contingency % (ex. 5 or 10) (III)	Project Cost + Contingency \$ (IV)	Applicant Share \$ (V)	State Share Grant \$ (VI)	Life of Investment (years) (VII)	Capital Recovery Factor (VIII)	Annualized Costs \$ (IX)
	Administration <sup>1</sup>								
	Salaries, wages	\$24,114	5	\$25,320	\$0	\$25,320	20	0.0872	\$2,208
	Fringe benefits	\$6,029	5	\$6,330	\$0	\$6,330	20	0.0872	\$562
	Supplies	\$0	5	\$0	\$0	\$0	20	0.0872	\$0
	Equipment	\$0	5	\$0	\$0	\$0	20	0.0872	\$0
	Consulting services	\$10,000	5	\$10,500	\$0	\$10,500	20	0.0872	\$916
	Travel	\$0	5	\$0	\$0	\$0	20	0.0872	\$0
	Other	\$0	5	\$0	\$0	\$0	20	0.0872	\$0
(a)	Total Administration Costs	\$40,143		\$42,150	\$0	\$42,150	20		\$3,675
(b)	Planning/Design/Engineering	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
	Equipment								
(c)	Purchases/Rentals/Rebates/Vouchers	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
(d)	Materials/Installation/Implementation	\$1,082,084	10	\$1,190,292	\$200,000	\$990,292	20	0.0872	\$103,793
(e)	Implementation Verification	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
(f)	Project Legal/License Fees	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
(g)	Structures	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
(h)	Land Purchase/Easement	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
	Environmental								
(i)	Compliance/Mitigation/Enhancement	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
(j)	Construction	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
(k)	Other (Specify)	\$0	0	\$0	\$0	\$0	20	0.0872	\$0
(l)	Monitoring and Assessment	\$15,600	5	\$16,380	\$0	\$16,380	20	0.0872	\$1,428
(m)	Report Preparation	\$4,608	5	\$4,838	\$0	\$4,838	20	0.0872	\$422
(n)	<b>TOTAL</b>	\$1,142,435		\$1,253,661	\$200,000	\$1,053,661			\$109,319
(o)	Cost Share -Percentage				16	84			

1- excludes administration O&M.

**MAJOR ASSUMPTIONS**

- a. Administration:
  - Salaries, wages                      Project Manager (\$31/hr x 4 hrs/wk x 3 years = 208 hrs) + Administrative Analyst (\$24/hr x 4 hrs/wk x 3 yrs= 200 hr) + 2 Irr Techs (\$20/hr x 5 hrs/wk x 3 yrs x 2 = 260 hrs) = \$24,114
  - Fringe Benefits                        25% of salary/wages = \$6,029
  - Consulting services                    Services rendered through Aquametrics = \$10,000
  
- d. Materials/Installation/Implementation
 

Irrigation Tuning Equipment @ 17,904/park x 16	\$286,464
Irrigation Tuning - Labor @ \$820 /park x 16	\$13,120
Booster Pumps - 40,000/ea x 12 parks	\$480,000
Back Flow Preventors - \$20,000/ea x 5 parks	\$100,000
Central System @ \$14,000/ea x 10 parks	\$140,000
Water Meters @ \$12,500/ea x 4 parks	\$50,000
Water Tap @ \$12,500 ea x 1 park	\$12,500
Total	\$1,082,084
Utility In-Kind Contributions	(\$200,000)
	\$882,084
  
- l. Monitoring & Assessment                      1 Park Supervisor @ \$25/hr x 4 hrs/wk x 3 years = \$15, 600
  
- m. Report Preparation                            1 Administrative Analyst @ \$24/hr x 4 hrs/qr x 3 yrs = \$4,608

**Applicant:**

**THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY**

**Table C-2: Annual Operations and Maintenance Costs**

Operations (1) (I)	Maintenance (II)	Other (III)	Total (IV) (I + II + III)
\$27,428	\$11,057	\$0	\$38,485

(1) Include annual O & M administration costs here.

**Table C-3: Total Annual Project Costs**

Annual Project Costs (1) (I)	Annual O&M Costs (2) (II)	Total Annual Project Costs (III) (I + II)
\$109,319	\$38,485	\$147,804

(1) From Table C-1, row ( n ) column (IX)

(2) From Table C-2, column ( IV )

**MAJOR ASSUMPTIONS**

I Operations includes time for Irr Tech, Park Maintenance Superintendent and Administrative Support  
Irr Tech @ \$20/hr x 5 hrs wk x 3 years = **\$15,600**

Park Maint Superintendent @ 83,375/yr + Project Manager @ \$64,480/hr / 200 total parks x 16 parks = **\$11,828**

**Total = \$27,428**

II Maintenance Includes 1 Irrigation Supervisor, 2 Irrigation Technicians

Irrigation Supervisor @ \$53,164/yr + \$43,030 x 2 = \$138,224 /200 total parks x 16 parks = **\$11,057**

Applicant:

**CITY OF SACRAMENTO**

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Table C-5 Project Annual Physical Benefits (Quantitative and Qualitative Description of Benefits)

	Qualitative Description - Required of all applicants <sup>1</sup>			Quantitative Benefits - where data are available <sup>2</sup>	
	Description of physical benefits (in-stream flow and timing, water quantity and water quality) for:	Time pattern and Location of Benefit	Project Life: Duration of Benefits	State Why Project Bay Delta benefit is Direct <sup>3</sup> Indirect <sup>4</sup> or Both	Quantified Benefits (in-stream flow and timing, water quantity and water quality)
<b>Bay Delta</b>	Control runoff, overspray and deep percolation which in turn reduces water losses (water quantity) to local streams and the Sacramento and American Rivers. Also, slows progression of percolated water to the water table limiting fertilizer contamination (water quality).	Water Savings are greatest in the peak demand season from mid-Summer to Fall when streams and river flows are lowest. Location of water savings in the Bay-Delta on the Sacramento and American Rivers in the City of Sacramento.	20 years	The City of Sacramento takes 85% of its water from the Bay-Delta system (Sacramento & American Rivers). Conserved water in the City of Sacramento allows additional flows and direct benefits to the Bay-Delta.	240 AF water saved.
<b>Local</b>	Control runoff, overspray and deep percolation which in turn reduces local ground water use (water quantity). Also, slows progression of percolated water to the water table limiting fertilizer contamination (water quality).	SAME	SAME	Not applicable.	42 AF water saved.

<sup>1</sup> The qualitative benefits should be provided in a narrative description. Use additional sheet.

<sup>2</sup> Direct benefits are project outcomes that contribute to a CALFED objective within the Bay-Delta system during the life of the project.

<sup>3</sup> Indirect benefits are project outcomes that help to reduce dependency on the Bay-Delta system. Indirect benefits may be realized over time.

<sup>4</sup> The project benefits that can be quantified (i.e. volume of water saved or mass of constituents reduced) should be provided.

Applicant:

**CITY OF SACRAMENTO**

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

**Table C-6 Project Annual Local Monetary Benefits**

ANNUAL LOCAL BENEFITS	ANNUAL QUANTITY	UNIT OF MEASUREMENT	ANNUAL MONETARY BENEFITS
(a) Avoided Water Supply Costs (Current or Future Source)	282	AF	\$98,982
(b) Avoided Energy Costs	4027	kwh	\$8,054
(c) Avoided Waste Water Treatment Costs	0		\$0
(d) Avoided Labor Costs	0		\$1,924
(e) Other (describe)	0		\$0
(f) Total [(a) + (b) + (c) + (d) + (e)]			\$108,960

**Table C-7 Project Local Monetary Benefits and Project Costs**

(a) Total Annual Monetary Benefits [(Table C-6, row (f))	\$108,960
(b) Total Annual Project Costs (Table C-3, column III)	\$147,804

**Table C-8 Applicant's Cost Share and Description**

Applicant's cost share %: (from Table C-1, row o, column V)	16
Describe how the cost share (based on relative balance between Bay-Delta and Local Benefits) is derived. (See Section A-7 for description.)	
Provide Description in a narrative form.	

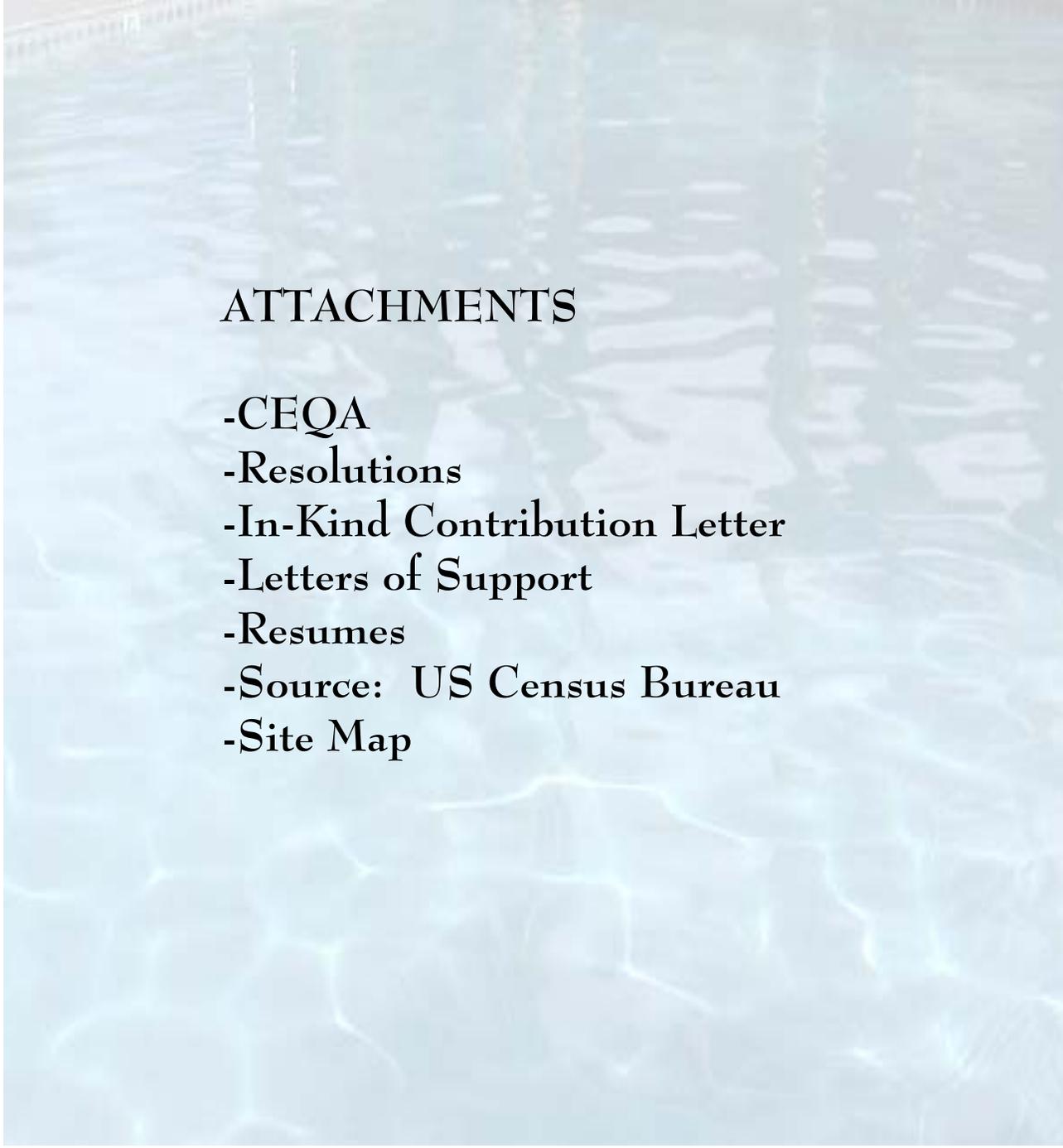
**MAJOR ASSUMPTIONS:**

**Table C6**

- a. Avoided Water Supply Costs: Based on average 2.6 AF/year at a cost of \$352 AF = \$98,982
- b. Avoided Energy Costs: Based on 1 acre = \$2 kwh, 264.5 acres x 304.5 kwh/acre = 80,540 x \$2 = \$161,080 @.5% savings = \$8,054
- d. Avoided Labor Costs: 5% of O&M Total = \$1,924

**Table C-8**

The City of Sacramento is a disadvantaged community, therefore is not required to show any cost share. Despite not being required, the City of Sacramento Department of Utilities will provide \$200,000/or 16% of the total project cost. The Department of Utilities will provide booster pumps, water meters and tap



## ATTACHMENTS

- CEQA
- Resolutions
- In-Kind Contribution Letter
- Letters of Support
- Resumes
- Source: US Census Bureau
- Site Map



ENDORSED

SEP 24 2004

MARK NORRIS CLERK-RECORDER  
*[Signature]*

**NOTICE OF EXEMPTION**

TO: X County Clerk  
County of Sacramento

FROM: City of Sacramento  
Environmental Planning Services  
1231 I Street, Room 300  
Sacramento, CA 95814

— Office of Planning and Research  
1400 10th Street, Room 121  
Sacramento, CA 95814

**ACTIVITY/PROJECT TITLE:** Park Irrigation Infrastructure Improvements (LW81)

**ACTIVITY/PROJECT LOCATION:** Various Parks within the City of Sacramento

**CITY:** Sacramento

**COUNTY:** Sacramento

**DESCRIPTION OF ACTIVITY/PROJECT:** This project consists of repairing, rehabilitating and enhancing the irrigation systems at 16 parks and recreation sites throughout the City of Sacramento. Each park will receive a booster pump, backflow preventer, a fully tuned irrigation system, a central control system, a water meter and if necessary a new isolated water tap for park irrigation purposes. The goal is to make these irrigation systems more efficient in water and power use.

**NAME OF PUBLIC AGENCY APPROVING ACTIVITY/PROJECT:** City of Sacramento

**NAME OF PERSON/AGENCY CARRYING OUT ACTIVITY/PROJECT:** City of Sacramento Dept. of Parks & Recreation 1231 I Street, Room 400, Sacramento, CA 95814; Contact: Denise Curl/Jonathan Rewers (916) 264-0150.

**THE CITY OF SACRAMENTO FINDS THAT THE ACTIVITY/PROJECT IS EXEMPT.**

Exempt Status: (Check One)

- Activity is not a project as defined in Section 15378 [Section 15061(b)(1)]
- Activity has no potential for causing a significant effect on the environment [Section 15061(b)(3)]
- Statutory Exemption [Section 21080(b)(8)]
- Ministerial Exemption [Section 15268]
- Declared Emergency Exemption [Section 15269(a)]
- Emergency Project [Section 15269(b) and (c)]
- Categorical Exemption-State Class 1&2 and Section Number(s) 15301(b)15302(c)

**REASONS WHY ACTIVITY/PROJECT IS EXEMPT:** 15301(b) Repair of existing public facilities or structures; 15302(c) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

**CONTACT PERSON:** Ronnie Bess, Planning Technician

**TELEPHONE:** (916) 808-1909

**SIGNED:** *[Signature]*

**DATED:** 9/23/04

RESOLUTION NO. 2004-459  
ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON THE DATE OF JUN 15 2004

A RESOLUTION APPROVING APPLICATION FOR A  
PROPOSITION 50 URBAN WATER USE EFFICIENCY GRANT  
FOR IRRIGATION INFRASTRUCTURE IMPROVEMENTS

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

The City Council hereby:

1. Supports an application for a Proposition 50 Urban Water Use Efficiency Grant for park irrigation infrastructure improvements;
2. Appoints the City Manager, Deputy City Manager, or Director of Parks and Recreation as agent of the City of Sacramento to conduct all negotiations and execute and submit all documents, including, but not limited to, applications, contracts, amendments, payment requests, and so on which may be necessary for the completion of the aforementioned Project.
3. Accepts the grant if awarded to the City of Sacramento.

HEATHER FARGO

\_\_\_\_\_  
MAYOR

ATTEST:

SHIRLEY CONCOLINO

\_\_\_\_\_  
CITY CLERK

\_\_\_\_\_  
FOR CITY CLERK USE ONLY

Resolution No.: 2004-459

Date Adopted: JUN 15 2004

**RESOLUTION NO. 2001-833**

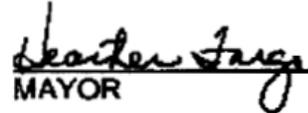
ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF DEC 18 2001

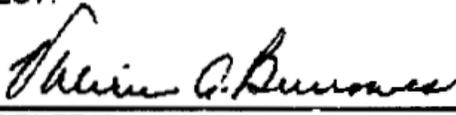
**RESOLUTION APPROVING THE ADOPTION OF THE URBAN WATER  
MANAGEMENT PLAN 2000 FOR THE CITY OF SACRAMENTO**

**BE IT RESOLVED BY THE SACRAMENTO CITY COUNCIL THAT:**

The Urban Water Management Plan 2000 be adopted. The Urban Water Management Plan 2000 is a status report of the City of Sacramento's policies and procedures addressing water conservation required by the State of California, Department of Water Resources.

  
MAYOR

ATTEST:

  
CITY CLERK

---

**FOR CITY CLERK USE ONLY**

RESOLUTION NO: 2001-833  
DATE ADOPTED: DEC 18 2001



Department of Utilities  
Office of the Director

CITY OF SACRAMENTO  
CALIFORNIA

1395 35<sup>th</sup> Avenue  
Sacramento, CA 95822-2911  
phone (916) 808-1400  
fax (916) 808-1497/1498

December 10, 2004

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

**RE: AGREEMENT REQUIREMENTS (A-9c)  
MATCHING FUNDS COMMITMENT LETTER IN-KIND CONTRIBUTIONS**

Dear Ms. Gonzalez,

This letter will serve as the official 'Matching Funds Commitment Letter' as required in the Final 2004 Water Use Efficiency Proposal Solicitation Package under 'Agreement Requirements'. This cost-sharing agreement commits the City of Sacramento, Department of Utilities to provide \$200,000 in-kind contributions for water meters, backflow devices, and taps for the Proposition 50 Urban Water Use Efficiency Grant for park irrigation infrastructure improvements.

This partnership is supported by both Departments' goals to "maximize and leverage the use of resources through positive collaboration for a common purpose". The priority and joint vision of water conservation for the City is shared. With the implementation of these efforts in urban areas, such as public parks, will help establish appropriate assumptions for use in calculating estimates of reliable future water conservation savings to result in both a reduction in water consumption and a more efficient application of the park's irrigation systems.

This project continues the collaboration between the Department of Parks and Recreation and Department of Utilities to conserve water as a valuable resource.

Sincerely,

  
Gary A. Reents  
Director of Utilities

cc: Bob Fleming, Park & Urban Forest Maintenance Services Manager  
Dave Brent, Engineering Manager



CITY OF SACRAMENTO  
DEPARTMENT  
OF UTILITIES

*Making a Difference in Your Neighborhood*



January 3, 2005

Debra Gonzalez  
California Department of Water Resources  
1416 Ninth Street, Room 338  
Sacramento, CA 95814

Dear Ms. Gonzalez,

The Regional Water Authority (RWA) supports the City of Sacramento's Proposition 50 grant application for its Park Infrastructure Improvement Project. RWA is a joint powers authority that represents the interests of more than 20 water providers in the greater Sacramento, Placer, and El Dorado County region.

RWA is supportive of the project because it is consistent with RWA's overall regional water efficiency program. The City of Sacramento has been an active participant in this program. RWA believes that potential conserved water from the project will provide regional as well as greater statewide benefits.

RWA looks forward to continued coordination with the City of Sacramento as it implements this important project.

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Winkler', is written over a horizontal line.

Edward D. Winkler  
Executive Director

cc: Gary Reents, City of Sacramento  
Jennifer Ragsdale, City of Sacramento



660 J STREET, SUITE 260  
SACRAMENTO, CA 95814

PHONE 916/264-1999  
FAX 916/264-5286

April 26, 2004

California Department of Water Resources  
1416 Ninth Street, Room 338  
Sacramento CA 95814

Ladies and Gentlemen:

On behalf of the Sacramento region Water Forum, I would like to express my strong support for the City of Sacramento's application for funds under Proposition 50, the 2004 Water Use Efficiency Proposal for Local Urban Water Use Efficiency Implementation Projects.

The Water Forum is a stakeholder organization representing over 40 business, environmental, public and water interests in the region. In April 2000, the stakeholder organizations signed a Memorandum of Understanding to implement the Water Forum Agreement. The stakeholders agreed to a series of actions to achieve the Water Forum's two co-equal objectives: to provide a reliable and safe water supply for the region's economic health and planned development to the year 2030, and to preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

Water use efficiency is an integral element of the Water Forum Agreement. Each water supplier in the region committed to implementing a comprehensive water conservation plan. Through their water conservation programs, water purveyors in the region help us meet the Agreement's objectives. Programs and projects such as large landscape irrigation system improvements, leak detection programs and toilet retrofits are all part of the Water Forum Agreement conservation plans.

The City of Sacramento's proposal, to fund an irrigation infrastructure improvement project for 16 of Sacramento's oldest parks to improve overall irrigation efficiency, will help the City meet its Water Forum Agreement commitments along with CALFED water quality, water supply and environmental restoration objectives. It is an example of a feasible, cost effective water conservation capital outlay project as described under the Proposition.

The Water Forum encourages the Department of Water Resources to support the City of Sacramento's grant proposal.

Sincerely,

Sarah Foley  
Program Manager

Walden L. Cole III  
2511 P Street  
Sacramento, CA 95816  
(916) 454-0624

### **HIGHLIGHTS OF QUALIFICATIONS**

- Strong interpersonal and communication skills.
- Innovative, quick, analytical thinker.
- Experience in organizational management and operational analysis.
- Ability to work independently as well as cooperatively.

### **EXPERIENCE AND SKILLS**

#### **Fiscal Management**

- Prepared and monitored over \$9 million in operational and capital budgets.
- Developed budget projections, strategies, and reports.
- Managed and monitored a \$3 million park irrigation Capital Improvement Program.

#### **Analysis and Evaluation**

- Compiled and analyzed statistical data, and wrote reports recommending policy options for: improving program operations, work force efficiency and efficacy, neighborhood-based service delivery, blight eradication, and citizen participation models.
- Assessed all programmatic and operational aspects of a 200-employee youth employment program and made recommendations for improvement.
- Developed park maintenance standards to make a 5-year projection of resources needed to maintain a 350-acre expansion of Sacramento's park system.

#### **Administration and Management:**

- Developed, bid and managed contracts.
- Supervised and directed a centralized fiscal and administrative support team.
- Facilitated and led multidisciplinary, cross-organizational project teams.

#### **Written and Oral Communication:**

- Made presentations to community, public and private groups and organizations.
- Wrote City Council reports.
- Developed park maintenance specifications for contracts.

#### **Community Relations:**

- Collaborated with local agencies to design and expand neighborhood-based service delivery systems.
- Developed neighborhood action plans with measurable goals.
- Collaborated with neighborhood residents to develop neighborhood associations.

### **WORK HISTORY**

11/99 - Present	<b><u>Administrative Analyst</u></b> , City of Sacramento
11/97 - 11/99	<b><u>Neighborhood Resources Coordinator</u></b> , City of Sacramento
9/96 - 11/97	<b><u>Operations Director</u></b> , Sacramento START, City Of Sacramento

### **EDUCATION**

Bachelor of Arts, Social Sciences - California State University, Sacramento  
Enrolled in CSUS Public Policy and Administration Graduate Program

As Principal of Environmental Water Management, Warren "Chris" Willig has participated in over fifty projects worth \$ 4,000,000 concerning emergency drought water allocations, water demand and rate structure analyses, irrigation scheduling, irrigation system evaluation, horticultural and landscape construction problems since 1987. He is or has been consultant for water, irrigation and plant material issues to: the cities of Agoura Hills, Calabasas, San Jose, Santa Monica, Palo Alto, Pasadena, Pico Rivera, Redwood City and Richmond, California, Austin, Texas — the water districts of Camrosa, Las Virgenes, Pleasant Valley, Rainbow, San Diego County, Santa Clara Valley and the Ventura Public Works Department — Metropolitan Water District of Southern California — the Arizona Department of Water Resources, the Southern Nevada Water Authority, the Kuwait Institute for Scientific Research, the Veterans Administration and a number of private clients. Mr. Willig was selected by the Metropolitan Water District as a consultant in eight areas of landscape water management, one of only two in California so selected.

Mr. Willig has extensive computer software experience with both spreadsheet and database design in the IBM and Macintosh environments. He developed Landscape Plants for Kuwait a CD-ROM database package and printed guide for the Kuwait Institute for Scientific Research. He has been responsible for the development of the Water Allocation Program (WAP) used by Rainbow Municipal Water District and the City of Redwood City and Design Evaluator for Landscape and Irrigation (DELI) for the Las Virgenes Municipal Water District. He is familiar with central irrigation computer software and operations.

Mr. Willig is a Master Landscape Water Auditor in the State of California and is Certified as a Landscape Irrigation Auditor by the Irrigation Association. He has personally tested and developed irrigation schedules for 6 square miles of landscaping. In response to irrigation scheduling problems encountered on several large projects, he developed several software applications.

Commendations include citation for "...extraordinary conservation performance..." by motion of the Board of Directors of Las Virgenes Municipal Water District as their Landscape and Irrigation Consultant and for "...invaluable professionalism and skill..." by Camrosa Water District while performing studies of agricultural and residential water use. Mr. Willig's software products have won awards (California Water Policy III Conference, October 1993) for innovation in water resource management. He is a resource for media articles on water and landscaping (Los Angeles Times, Thousand Oaks Star). Presenter before the Los Angeles Department of Water and Power, Blue Ribbon Rate Committee "Landscape Water Uses and Their Rate Implications". Served on the Landscape Subcommittee of the California Urban Water Conservation Council (1995 to present).

## Experience

1987 - present Environmental Water Management (formerly ETo Limited), Agoura Hills, California

### **Principal...**

in firm assisting water, park and school districts and other organizations in improving their water conservation practices through on-site testing, computer based models, improved specifications and appropriate plant selection. Authored or co-authored extensive reports (300 pages or more) for these organizations detailing irrigation system and management modifications. Developed operations and maintenance manuals under contract to government entities including the United States Veterans Administration and the Kuwait Institute for Scientific Research. Acted as an interim public works superintendent -parks and landscaping section for a municipality in their effort to upgrade their operations and maintenance program. Implemented reduced irrigation water use programs. Performed extensive analysis of irrigation systems including both hardware and programming. Designed low water use high efficiency nurseries for overseas clients. Trained personnel in audit procedures for irrigation systems. Active in organizations to promote efficient water use.

1986 - 1987 Palms Agro-Production Company of Safat, Kuwait

### **Superintendent/Horticulturist...**

for \$3,500,000 farm and nursery. Increased productivity of personnel and equipment through scheduling improvements. Generated operating budgets of \$650,000 and controlled expenditures. Developed computerized cost estimating models, correspondence, financial record and billing systems. Primary consultant for landscape and horticultural problems at all company locations. Supervised the work force of 85 and handled all personnel matters including disciplinary action, accommodations and recreational activities. Generated work regulations and rules for all personnel. Acted as safety officer. Streamlined crop production support activities. Prepared and implemented schedules to begin production of a variety of new floral crops and products including expanding the range of drought tolerant plant material in which the nursery specialized.

1985 - 1986 Palms Agro-Production Company of Safat, Kuwait

### **Site Manager/Horticulturist...**

for installation of 1/2 million plants on 100 acre in the landscaping project for the Kuwait Conference Centre. Supervised site staff of 150 including recruitment, generating work rules, employee performance and recreation activities. Provided liaison with contract supervision personnel, including inspection procedures and schedules. Developed interpretations on technical matters arising from the contract and reviewed equipment specifications. Authored the project operations and maintenance manual. Wrote all technical correspondence regarding horticultural matters. Developed computerized tracking systems for many aspects of the project including irrigation models, punch lists and extensive documentation of work interruptions. Procured materials. Established and operated personnel accommodations, nursery, shop facilities and corporation yards on 10 acre site. Prepared claims in matters arising from the work to the value of \$200,000 . Client: Ministry of Public Works, State of Kuwait Contract Value: \$15,000,000



Gary F. Kah  
1114 Chesterton Avenue  
Redwood City, CA 94061  
(650) 366-8076

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**OBJECTIVE Resource Management Through Applied Technology**

**EXPERIENCE**

1984-present **AQUAMETRICS LLC, Manager** (*formerly Agtech Associates*)

Water Management Services - Developed a **Landscape Area Measurement System (LAMS)** using multi-spectral imaging to provide irrigated area data for BMP5 Irrigation Management Programs. Managed **Landscape Water Audits** for over 1,500 acres of golf course, commercial and public facilities, for clients such as the Santa Clara Valley Water District and the San Diego County Water Authority. Helped develop the **Landscape Water Management Program** for the California Office of Water Conservation, including the **Landscape Water Manager** software package and the training of over 1,000 **Auditors**.

Data Acquisition Equipment - Developed a modem-accessible **Soil Moisture Sensing System** to track irrigation needs. Developed a computerized **Automatic Pump Test System** to permit rapid and accurate pump curve and system curve data collection in the field; pressure test system used at San Francisco Water Department for transient pressure pulse testing. Developed a portable **Pump Test Kit** employing state of the art multimeter technology for use in testing Diesel and Electric irrigation pumps and a prototype **Tractor Test Kit** for measuring fuel and tractive efficiency in Pakistan (USAID).

1981-1984

**PACIFIC GAS AND ELECTRIC COMPANY**

Program Manager and Senior Energy Services Engineer

Profit Center Management - Responsible for \$2.0 million, 27 person Energy Management team serving 115,000 customer accounts; expanded budget and staff by 62% from 1981-84. Developed strategies and policies which raised labor productivity and improved profitability from close to zero to over 100% return on investment.

Marketing and Product Development - Performed detailed market analysis for agriculture, created individual service products and support systems for key target markets. Cited by management for "outstanding contributions."

Software Development - Designed and managed development of a fieldwork database system that produced a 20% increase in staff productivity.

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email: Gary\_Kah@AquaMetrics.com

web: <http://www.AquaMetrics.com>

- 1980-1981     **HONEYWELL, INCORPORATED**  
Assistant Director, Washington Energy Office; Control Systems Group
- Market Analysis - Conducted technology assessments and briefed Division Managers throughout the country for development of corporate plans and investment decisions. Devised an issues classification system that improved division staff awareness of federal regulatory developments. Cited by management for "exceptional performance in providing timely, solid, well-organized assessments and recommendations."
- Sales Development - Assisted Honeywell's Technology Strategy Center in identifying and obtaining key research contracts.
- 1976-1980     **DHR, INCORPORATED**  
Senior project engineer; Member, Corporate Planning Committee
- Contract Management - Managed contracts totaling \$450,000 for clients including NASA, US-AID and the Department of Energy. Completed all contracts within budget; consistently authored winning proposals.
- Policy Analysis - Directed studies including "Market Assessment of Photovoltaic Power Systems in World-wide Agriculture" and "Review of Load Management Technology Options." Provided technical support to members of the National Academy of Science's Committee on Nuclear and Alternative Energy Systems.

### **EDUCATION**

- 1979           **CORNELL UNIVERSITY**  
MS, Agricultural Engineering  
Full Scholarship for Graduate Tuition and Stipend
- 1974           **CORNELL UNIVERSITY**  
BS, Civil Engineering  
Regents Merit Scholarship





# City of Sacramento Department of Parks and Recreation Park Irrigation Infrastructure Improvements

