

Section 1: Statement of Work Relevance and Importance

Goals & Objectives:

The Palmdale Water District (PWD) is proposing a pilot program to use weather data (ET) to control irrigation for 14 large landscape users in the City of Palmdale. The goals are 1) to reduce landscape water use from 14 large landscape water users by 30%. 2) Develop a future program for large landscape water audits and incentives (BMP #5) and water use reduction in commercial, industrial and residential landscape areas. 3) Explore new technologies and water management practices to improve water use efficiency. 4) Develop a program that will produce effective net water savings and environmental benefits to the Bay-Delta and locally

Need for the project:

The Palmdale Water District is one of 29 contracting agencies having entitlement to water supplies from the State Water Project (SWP). Under the terms of the agreement, PWD is entitled to annual deliveries of 21,300 acre-feet/year of SWP water. PWD has been able to take delivery of SWP water since 1985 from the East Branch of the California Aqueduct (East Branch), which passes through its service area. PWD receives its entitlement from a 30-cfs connection on the East Branch near Lake Palmdale. SWP water is conveyed to Lake Palmdale via a 30-inch diameter pipeline. Lake Palmdale acts as a fore bay to the PWD's 30-mgd water treatment plant and stores approximately 4,130 acre/ft of SWP water and Littlerock Creek water. The District has 24,412 connections using approximately 24,000 acre ft. per year. The District's average yearly supply of water from SWP is 12,434 acre ft., groundwater pumping supplies approximately 9,600 acre ft. and Littlerock Reservoir supplies approximately 5,500 acre ft. per year which totals 27,534 acre ft. per year is it essential we conserve water use. Palmdale is dry and arid with temperatures ranging from 72 degrees to 112 degrees in the summer. It is estimated that with ET based irrigation control systems city parks and other large landscape customers could save approximately 30% of their water use.

Reliability of State Water

As stated in PWD's 2000 Urban Water Management Plan, the reliability of SWP water is affected by many factors including hydrologic conditions, state and federal water quality standards, protection of endangered species, and water delivery requirements. In 1995 two actions had a significant impact on SWP reliability: the Monterey Agreement and the Water Quality Control Plan for the Bay-Delta Estuary. Since 1996, however, the CALFED Bay Delta Program was established and will have a marked impact on SWP

reliability. In 2003 the Monterey agreement was restructured which alters the way available SWP supplies are allocated.

The District has developed water management accomplishments (Urban Management Plan 2000) which include; leak detection, water rate structures, water meters, school education programs, public information programs and increased system efficiency. The pilot program for ET controller based irrigation for large landscape areas will satisfy another best management practice that has been identified by the CALFED program and will be the start for BMP # 5, large landscape water audits & incentives and for residential, commercial and industrial landscape programs in the future. Palmdale Water District is partnering with the City of Palmdale to install two (2) Campbell Scientific type weather stations on city parks to provide local ET data. The City has agreed to maintain each weather station and use the parks as demonstration sites for future ET controller interested customers.

There are numerous “ET” based controllers or smart controllers on the market. Local real-time ET using hourly data comprised of air temperature, wind speed, relative humidity and solar energy measurements to calculate ET are more efficient than historical ET based controllers. The Palmdale Water District chose the Weather Reach system for the pilot program to monitor water savings based on a customer’s average three year water use, and a water budget designed to target the prospective site and to measure actual water savings.

Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is an indicator of how much water your crops, lawn, garden, and trees need for healthy growth and productivity (www.cimic.water.ca.gov).

Section 2: Statement of Work Technical/ Scientific Merit, Feasibility

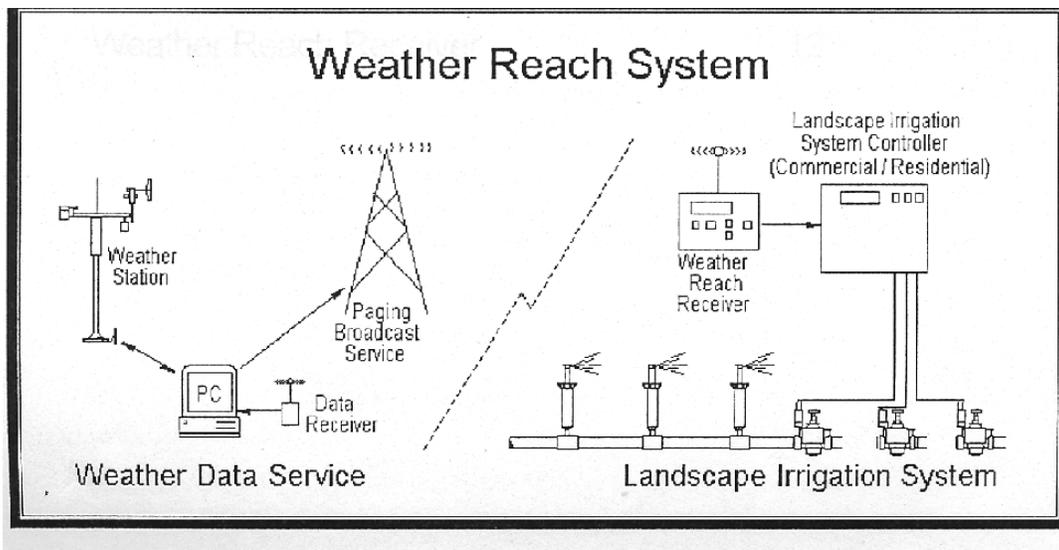
The Palmdale Water District decided to develop a pilot program using the Irrisoft Weather Reach system. The Irrisoft Weather Reach system uses a windows based software program to access weather stations, collect data and store it. The software standardizes the data from a variety of weather station configurations to a standard format. The District will install a weather reach receiver which is an accessory to irrigation controllers at each target facility. To provide local real-time ET, the Palmdale Water District and

the City of Palmdale have agreed to place two (2) Campbell-Scientific weather stations on City property. The two (2) new weather stations will be maintained by the City of Palmdale. This will produce an accurate ET for micro climates in this location. Other Cimis weather stations that are within 60 miles are located in Victorville, Barstow, Monrovia, Glendale, Bakersfield, and Palm Desert areas. Using two of these weather stations plus the two new local weather stations will produce a greater ET efficiency.

The weather reach system has three major elements:

1. Automated Weather Stations (two(2) Campbell Scientific type weather stations installed on City of Palmdale park locations)
2. Weather Reach Server (New computer & software program)
3. Weather Reach Receivers (14- sites approximately 100 weather reach receivers installed)

Diagram "A"



Pilot Program Components

1. Initial planning
2. Purchasing equipment
3. Direct mailing & pre-screening
4. Workshop on ET controller with continued irrigation system maintenance
5. Install weather stations on City property for local real-time / demonstration purposes
6. Set up installation training sessions
7. Conduct site visits and water budgets
8. Install and program ET receivers to controllers

9. Confirm installation and issue payment to installers
10. Track water savings
11. Resolve customer issues
12. Revise and improve ET receiver/ control program

Task & Work Schedule					
	Tasks	Deliverables	Start	End Dates	Cost
1.1	Administration/ Initial Planning/ travel	Recpts/ pmt	8/5/05	9/15/05	\$ 7,850.00
2.1	Contact weather station contactor to order equipment	Recpts/ pmt	8/5/05	9/15/05	\$ 16,306.00
2.2	Contact Weather-Reach contractor for ET receivers, software & set up fees	Recpts/ pmt	8/5/05	9/15/05	\$ 42,750.00
2.3	Order computer, monitor and printer	Recpts/ pmt	8/5/05	9/15/05	\$ 5,400.00
3.1	Apply direct marketing for customers	mailer/letter	8/5/05	9/5/05	\$ 250.00
3.2	Select customers through pre-screening survey (35PHR/8HRS)	customer list	9/5/05	9/15/05	\$ 280.00
4.1	Provide ET and Maintenance workshop for customers & installers	Flyer	9/25/05	9/25/05	\$ 450.00
5.1	Install weather stations on City property	Recpts/ pmt	10/1/05	12/30/05	\$ 8,000.00
6.1	Contact landscape contractors to train ET program	letter	9/5/05	9/20/05	\$ 100.00
6.2	First training session/ landscape contactors to install controllers	comments	10/1/05	10/1/05	\$ 350.00
6.3	Second training session landscape contactors to install	comments	10/15/05	10/15/05	\$ 350.00
7.1	Conduct site visit and water budgets (2-staff, 2/HRS@35PHR, 14 sites)	Recpts/ pmt	9/15/05	12/15/05	\$ 1,960.00
8.1	Install ET Receiver to controllers on City Parks (6 parks)(25 receivers @ 150.00)	Recpts/ pmt	9/20/05	12/15/05	\$ 3,750.00
8.2	Install ET Receivers to Controllers on Large landscape customers (8 cus/ 75 recs.)	Recpts/ pmt	1/15/06	6/15/06	\$ 11,250.00
9.1	Confirm installation issue payment to contractor (2-staff/16PHR/14 sites)	Recpts/ pmt	6/30/06	8/30/06	\$ 448.00
10.1	Track water savings (16PHR/16HRS/12mos)	w tr Use reports	9/25/05	9/25/06	\$ 3,072.00
10.2	Evaluate water savings (35PHR/40HRS)	w tr Use reports	10/25/05	10/25/06	\$ 1,400.00
11.1	Resolve customers issues (1-staff/ 2 HRS/30 days/ 35PHR.)	Comp. Report	9/25/05	10/25/06	\$ 2,100.00
12.1	Revise & Improve ET program, write reports (35PHR/40HRS)	Update report	6/15/06	12/15/06	\$ 1,400.00
	Total				\$ 107,466.00

Environmental Documentation:

This is not a project as defined by CEQA. The District will be installing an ET based receiver to existing irrigation controllers. The City of Palmdale will not need environmental documents to install the weather stations on the two park sites. The City of Palmdale will provide all permits and inspection needed for installation of weather stations.

Section 3: Monitoring and Assessment

Site plan activities include; customer briefing and paperwork completion, irrigation system checking and precipitation rate determination. PWD staff will meet with each customer to answer and review the customer’s water use history and the program description and begin the process of completing the necessary paperwork for program participation. A number of contractual documents are required to ensure that the

customer understands who is responsible for each portion of the ET controller program and what the limitations of the service are. Paper work includes; contract with Metrocall paging service for ET signal, customer service & support, hold harmless agreement between program partners and the customers.

Irrigation Check:

The irrigation check will include collecting information needed for ET Receiver/Controller programming, evaluating the irrigation system, trouble shooting problems, and determining precipitation rates. After the irrigation system audit staff will set up an installation date for the new weather receiver to controller and give the customer a to-do list along with site information forms. The customer will be provided with a complete repair list prior to calling the installer for the installation of the weather receiver to controller. The customer is given information on who to call for installation set up or complaints.

Pre-project Conditions and Data baselines:

Pre-project conditions will be analyzed by audit staff at each project site and a water budget will be prepared. Customers will be asked to fix irrigation repairs before the ET receiver is installed. An average of three years of historical data for each customer will be used as a baseline for water saving. After the installation of a customer's weather receiver to controller and the precipitation rate is programmed water savings data will be monitored and recorded each month. . The water use for each customer will be recorded on a spreadsheet data base and evaluated every year for five full years.

Project Monitoring/ Meeting Goals and Objectives:

The goals of the pilot program are 1) to reduce landscape water use from 14 large landscape water users by 30%. 2) Develop a future program for large landscape water audits and incentives (BMP #5) and water use reduction in commercial, industrial and residential landscape areas. 3) Explore new technologies and water management practices to improve water use efficiency. 4) Develop a program that will produce effective net water savings locally and for the Bay-Delta.

To evaluate the success of these goals the District will track and record water use for each customer on a spread sheet data base. Irrisoft /Weather Reach is a real-time weather based control system which provides information (solar radiation, temperature, humidity, and wind) to calculate the evapotranspiration (ET) or water needs of plant material. The weather reach system collects hourly weather data from Campbell

Scientific weather stations; provides data in a format for web site viewing; via internet and paging, and broadcasts the weather data to Weather Reach receivers that are connected at each project site to the customer's irrigation controller. The Weather Reach receiver will work with any standard controller. Palmdale Water District will provide the computer with both telephone modem and on-line high speed internet connection thus giving the District the ability to interrupt irrigation by selecting set points for 1) low temperature, 2) high average wind speeds and) rainfall amounts.

A benefit to the customer is the ability to view the weather data (temperature, high, low and current; wind, high, low and current; humidity, high, low and current; rainfall, last 24 hours and seven day total; ET current and balance) at anytime. This fosters the awareness of how weather affects and controls the plant/water needs. If the customer decides to change their irrigation controller, the weather reach receiver can be hooked up to the new controller, thus continuing weather related irrigation control.

The customer data will be stored at the District office. Analysis of the data will be available on the District's web site and accessible to all interested parties.

Cost of Monitoring and Evaluation

The monthly cost for the District will be about \$165.00 for the broadcast (via paging) of hourly data from (4) Campbell Scientific weather stations regardless of how many receivers are in the field (1-10,000+). Monitoring will consist of monthly water use data input for 14 customers approximately two (2) days per month. At a rate of \$16.00 per hour/ 8 hours per day/ 12 months per year/ for five years equals \$15,360.00. Evaluation would be approximately two (2) days per year at \$35.00 per hour/for five years equals \$3,500.00.

Qualifications of the Applicants and Cooperators

The Palmdale Water District (PWD) is uniquely qualified to serve as the applicant, it is an irrigation district established under the California Water Code serving 24,412 water hook-ups serving 93,000 residents of the greater Palmdale area. PWD operates 25 wells, Littlerock Dam, and distributes water from the state water project. As a public water provider, the District is very experienced at managing the implementation of complex capital improvements projects. There are 74 full time personnel and an annual budget of over

\$17,200,000. The District has appropriate management and fiscal controls in place and follows generally accepted accounting practices. An annual independent audit is prepared by Hurley and Company.

The Water Conservation Manager, Claudette Roberts will be responsible for managing the project implementation on a day-to-day basis. Ms. Roberts is a seasoned manager with over 25 years of relevant experience, including 13 years with the District. Ms. Roberts has extensive experience in managing the planning and implementation of various complex projects, including the Littlerock Recreation facility and the 15,000 sq ft District office building. She holds a BA degree in Business Management from the University of Phoenix. In her current position Ms. Roberts has responsibilities for budgeting, program design and planning, supervision of administrative staff, contract management and negotiations. Her qualifications include knowledge and skills in financial and personnel management, grant writing, employment and training intervention strategies, program development, program design, policy analysis and contract negotiations. The project manager's (conservation manager) resume is at the end of the proposal.

The Palmdale Water District and the City of Palmdale are working in conjunction to reduce water use on 6 of the cities parks that are not on an ET irrigation control system. The new weather stations will be placed on City property and the City of Palmdale will maintain the weather stations. The Palmdale Water District will provide and install ET based receivers and cover the cost for the local weather reach service provider paging system.

PWD will also be working with local landscape contractors to install the receivers. The Irrisoft Co has agreed to train installers on how to install and program the equipment.

Water Use Efficiency Grant Use Projects

PWD has not completed any previous water use efficiency grant projects. The District has successfully completed grants for the Littlerock Dam and Recreation Reconstruction project which included Davis Grunsky and Boating & Water Ways grant programs.

Household Income and Unemployment Rate

The District service area within Palmdale is not considered a disadvantaged community. The population of Palmdale is approximately 123,700. The median family income is \$68,757 (Greater Antelope Valley Economic Alliance Report 2003). The population in a mile radius of the Palmdale Water District office at 2029 East Ave Q is 32,063. Within this service area the unemployment rate is 11.3% almost three times higher than statewide rate of 4.3%. (2000 Census tracts: 0502, 0503, 0601, 0602, 0604, 0603)

Outreach, Community Involvement and Acceptance

The Palmdale Water District is working with the City of Palmdale to use the pilot landscape ET receiver to controller program for demonstration purposes for other large landscape customers. The installation of the new weather stations and the ET based receiver to controllers will be placed on city property first. PWD has developed a plan to market the project through direct mailings to large landscape customers. Multifamily units and schools within the District's service area will be contacted by direct mail. Phone conversations with several multifamily unit managers have declared an interest in the proposed pilot program. The District will also hold a landscape workshop on the ET based receiver to controller for managers and customers of the pilot program. This workshop will reinforce management practices of irrigation systems for continued water savings combined with new technology equipment.

A direct mailing to landscape contractors for training on the installation of the receiver to controller will also be a part of the outreach program. Two training sessions will be available for landscape contractors to learn the installation of the receivers.

The District's quarterly newsletter ("Water News") will include reports of water savings from the pilot program to reach future customers that would like to be included in future programs.

Innovation

The Palmdale California desert area is a good testing area for ET based controller systems. The weather is hot and dry and the majority of customers tend to over water their landscape due to local annual

rainfall of only 4-8 inches per year. Approximately 70% of the west is still experiencing drought conditions targeting urban landscape is the next step in ensuring our quality of life and the protection of environment. To achieve reductions in water demand new controller technologies are coming on the market every day. Urban, commercial, and industrial landscapes need to be upgraded to new irrigation systems. The Irvine Ranch Water District reduced commercial landscape use by 55% since 1991 by installing ET based irrigation controllers.

With the use of new technology, education and water budgeting PWD plans to save approximately 30% of water use at each project location in the pilot program. A water budget and an irrigation check for leaks, struck values, water run off, dead plants, and a good distribution system for each site is a key part of the success of the pilot program. Water will be saved only if water is being wasted. The water budgets will be used to; target prospective sites for successful ET controller and landscape conservation, measure actual water savings after the installation of the controller, and report program impacts for future conservation programs.

The landscape workshop for managers and customers included in the ET based controller program will enhance the importance of new technology and the landscape maintenance and will be an important part of efficient water management. Setting a controller and forgetting it is highly unlikely. Irrigation leaks and system malfunctions will happen regardless of the irrigation controller used so education is also a key element in the success of the program.

Benefits and Costs

Benefits

The information gained after the analysis of the ET based controller pilot program will be of beneficial use to the District for future large landscape, residential, commercial and industrial landscape programs that have been identified by the CALFED program. The District will benefit from capital costs for water production, transport, storage, treatment and distribution. There will be decreased operation and maintenance costs, energy, chemical and labor costs. Another benefit would be the estimated reduced runoff from landscape areas that can carry pesticides and fertilizers into storm drains and eventually into the ocean.

The customers will benefit from reduced water bills, improved landscape quality and be educated on new irrigation technology.

The landscape contractors will benefit by the installation training of the ET based controller technology.

To calculate benefits and potential water saved the District averaged three (3) years of actual water use for 14 large landscape existing customers. Studies show that local real-time ET based controllers are more accurate and from product information the potential savings could be as much as 30% water saved and in some cases as much as 55% to 95%. (Please see Exhibit #1, Exhibit #2)

The number of acre feet of water for 14 large landscape users within the District's service is 804.5 ac-ft (3 year average). A saving of 30% would be a savings of 241.43 ac-ft of water per year or approximately \$78,455 per year of (state water project) water cost to the District. The District pays approximately \$325.00 per ac-ft of state water.

The Equipment consists of two (2); Campbell Scientific weather stations located on two sites for local real-time based ET, computer, monitor, printer, and software for collection data, ET receivers to interface with controllers the total cost is \$64,455.99. The labor consists of installing the weather stations, installing the receivers and conducting site visits and water budgets for each site location at a total cost of \$16,960.00. The weather stations will be installed by a contractor hired by the District with inspection by the City of Palmdale. The weather reach receiver installers will be paid \$150.00 per installation of each receiver. Prescreening for customers will take approximately 8 hours @ 35.00 per hour. Site visits and water budgets will take approximately two (2) hours per site two (2) staff @ 35.00 per hour, 14 sites. Other staff labor includes tracking water savings, evaluating water savings, resolving customer's issues, improving the ET program and writing reports. Tracking water savings is estimated at 16 hours per month, @ 16.00 per hour for 12 months totaling \$3,072.00. Evaluating water savings is estimated at 40 hours per year @ 35 dollars per hour totaling \$1400.00. Resolving customer issues is estimated at two (2) hours a day for 30 days @ 35.00 per hour totaling \$2,100.00. And revising and improving the ET program and writing reports are estimated at 40 hours per year @ 35.00 per hour totaling \$1,400.00.

Table C-1 Projects Costs (budget)

Applicant: Palmdale Water District								
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	Project Costs	Contingency % (ex. 5 or 10)	Project Cost + Contingency	Applicant Share	State Share Grant	Life of investment (years)	Capital Recovery Factor	Annualized Costs
(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)
Administration ¹								
Salaries, wages	\$4,500	0.05	\$4,502	\$4,502	\$0	0	0.0000	\$0
Fringe benefits	\$878	0.05	\$878	\$878	\$0	0	0.0000	\$0
Supplies	\$0	0.05	\$0	\$0	\$0	0	0.0000	\$0
Equipment	\$0	0.05	\$0	\$0	\$0	0	0.0000	\$0
Consulting services	\$0	0.05	\$0	\$0	\$0	0	0.0000	\$0
Travel	\$222	0.05	\$222	\$222	\$0	0	0.0000	\$0
Other Marketing/workshop/training	\$1,780	0.05	\$1,781	\$1,781	\$0	0	0.0000	\$0
(a) Total Administration Costs	\$7,380		\$7,384	\$7,383	\$0			\$0
(b) Planning/Design/Engineering	\$2,250	0.05	\$2,251	\$2,251	\$0	0	0.0000	\$0
Equipment								
(c) Purchases/Rentals/Rebates/Vouchers	\$64,456	0.1	\$64,520	\$0	\$64,520	10	0.0000	\$0
(d) Materials/Installation/Implementation	\$16,960	0.1	\$16,977	\$0	\$16,977	0	0.0000	\$0
(e) Implementation Verification	\$448	0.05	\$448	\$448	\$0	0	0.0000	\$0
(f) Project Legal/License Fees	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(g) Structures	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(h) Land Purchase/Easement	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
Environmental								
(i) Compliance/Mitigation/Enhancement	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(j) Construction installation of weather stations	\$8,000	0.1	\$8,008	\$0	\$8,008	0	0.0000	\$0
(k) Other (Specify)Resolve customer issues	\$2,100	0.05	\$2,101	\$2,101	\$0	0	0.0000	\$0
(l) Monitoring and Assessment	\$4,472	0.1	\$4,476	\$0	\$4,476	0	0.0000	\$0
(m) Report Preparation	\$1,400	0.05	\$1,401	\$1,401	\$0	0	0.0000	\$0
(n) TOTAL	\$107,466		\$107,567	\$13,584	\$93,983			\$0
(o) Cost Share -Percentage				13	87			
1- excludes administration O&M.								

Costs

Administration, staff time to identify large landscape customers, traveling time, contacting them, audit irrigation systems and providing water budgets are all identifiable costs to the District. Equipment, installation, training and outside contractors are other program costs. If the District pays administration and staff labor at a cost of \$13,584.00 and the state share cost is \$93,983.00 the District would pay approximately 13% of the project cost. Customer costs may include equipment up-grades and other maintenance staff.

The cost of \$107,567.00 for the pilot program is a benefit when compared to the avoided cost of \$78,455.00 of state water per year for 10 years. The life span of electronic controllers is between 10-15 years and an acre-foot of state water costs \$325.00 per AF. In future years the cost of new water rises and the cost of benefits per ac/ft will rise. There are also external environmental costs associated with large landscape programs.

Table C-5

Applicant: Palmdale Water District					
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 applicants¹				Quantitative Benefits - where data are available²
	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 ³ Indirect ⁴ or Both	Quantified Benefits (in-stream flow and timing, water quantity and water quality)
Bay Delta	1) Reduction of state water used.	After the first year of installation/Delta	10--15 years plus	Direct	
	2) External environmental benefits	After the first year of installation/Delta	10--15 years plus	Indirect	
Local	1) Reliability of state water	After the first year of installation/District	10--15 years plus	Not applicable.	241.4 ac-ft per year reduced
	2) External benefits to other agencies & customers		10--15 years plus	Not applicable.	
	3) Avoided increase cost of water			Not applicable.	
¹ The qualitative benefits should be provided in a narrative description. Use additional sheet.					
² Direct benefits are project outcomes that contribute to a CALFED objective within the Bay-Delta system during the life of the project.					
³ Indirect benefits are project outcomes that help to reduce dependency on the Bay-Delta system. Indirect benefits may be realized over time.					
⁴ The project benefits that can be quantified (i.e. volume of water saved or mass of constituents reduced) should be provided.					

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

Bay Delta- the benefits to the Delta from the ET based program will be; 1) reduction of state water used which will ease burden on Delta estuaries. ET based landscape controls last 10-15 years and the reduction of water used is approximately 30% to 50% per controller. The number of acre feet of water for 14 large landscape users within the District's service is 804.5 ac-ft (3 year average). A savings of 30% would be a savings of 241.4 ac-ft of water per year, which would be a direct benefit to the Bay Delta program. The ET based landscape controller program will be a direct and indirect benefit to the Bay Delta for at least 10-15 years plus because; 1) the District is paying for the paging system and 2) because the ET based receiver is hooked up to the irrigation controller so if the customer changes controllers the receiver is still in place. Benefit #2) is external environmental benefits such as; restoration of fish populations, wildlife and riparian re-vegetation, and reduced salt water intrusion these benefits are indirect and not easily quantifiable.

Local- The benefits to the local area are 1) Reliability of state water. Landscape takes up to 50-70% of urban water used especially in this dry arid area. The reduction of water used will contribute to the District's water demands directly and should be 10-15 years plus. Benefit #2) are external benefits to other agencies and customers the District's landscape workshops and training of landscape contractors will be widespread and will cover Palmdale, Lancaster, Littlerock, Victorville, Rosamond, Tehachapi, and Canyon County. The number of acre feet of water for 14 large landscape users within the District's service is 804.5 ac-ft (3 year average). A savings of 30% would be a savings of 241.4 ac-ft of water per year, which would be a benefit to the District of approximately \$78,455.00 per year of (state water project) water cost to the District. Benefit #3) is the avoided cost of future water cost. If the cost per ac-ft of water today is 325.00 per ac-ft at a rate of 1.6% per year the avoided cost per ac-ft in 10 years would be approximately \$592.00 per ac-ft which would be a savings of \$142,909.00.

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)	241	278	\$67,109
(b) Avoided Energy Costs	241	3	\$724
(c) Avoided Waste Water Treatment Costs	0	0	\$0
(d) Avoided Labor Costs	241	44	\$10,622
(e) Other (describe)	0	0	\$0
(f) Total [(a) + (b) + (c) + (d) + (e)]			\$78,455

Resume

Claudette Roberts

Claudette Roberts
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Palmdale Water District
Water Conservation Manager

As Water Conservation Manager to the General Manager of the Palmdale Water District I have over 13 years of experience in project management. I have extensive experience in managing the planning and implementation of various complex projects, including the Littlerock Recreation facility and the 15,000 sq ft District office building. I hold a BA degree in Business Management from the University of Phoenix. In my current position I have responsibilities for budgeting, program design and planning, supervision of administrative staff, contract management and negotiations and experience approval. My qualifications include knowledge and skills in financial and personnel management, grant writing, employment and training intervention strategies, program development, program design, policy analysis and contract negotiations. I have prepared the District's Urban Water Management Plan and in the process of coordinating permits with the U. S. Forest Service, U. S. Army Corps of Engineers and the U. S. Fish & Wildlife Service for sediment removal at Littlerock Reservoir.

Water education programs are also developed not only for the public but annually for the elementary schools in Palmdale School District. The program includes presentations on water conservation, contests for the schools and producing water conservation materials such as hand-outs, brochures and videos.

Over the last eight years, I initiated and developed the District's "Water Fair & Festival." The fair has gained in popularity and has become a fun and entertaining way to educate our children and the public on

conserving water and protecting the environment. The conservation department is involved in other community events, including the Home & Garden Show at the A. V. Fair Grounds and the Fall Festival sponsored by the City of Palmdale and Water Awareness night at jet hawks stadium in Lancaster.

The project that I am most proud of is the “Water Conservation Garden Park.” The garden park is a concept of recreation and resource protection. The District is waiting for start-up funds from grant proposals.

In 2001, I became a Director for the Palmdale Chamber of Commerce. I was a board member for the Regional Water Quality Control Board-Lahontan in 2002-2003.

Relevant Work Experience:

1. 4 years experience as co-owner of self operated, 55 employee restaurant.
2. 12 years experience as supervisor for Banner Air Conditioning and Air Calc Mechanical
3. 13 years (Palmdale Water District) experience in construction project management, water conservation programming.

Experience includes: Estimating, planning, designing, scheduling, coordinating and facilitating; water conservation programs and construction projects.

Relevant Education and Training:

1. High school graduate-Phoenix Camelback
2. BA degree in Business Management-University of Phoenix
Classes: Drafting, Title 24 compliance, Electrical, Mechanical design, Business Management
3. Water Conservation Certification I
3. Irrigation Auditor Certification
4. Grade 2- Water Distribution
5. Inactive Electrical & Mechanical contractor licenses

Statement of Personal Interest:

The construction process gives me personal satisfaction. I enjoy the challenges of problem solving and completing projects. I also enjoy oil painting and riding horses.