

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form**

1. Applying for (select one): (a) Prop 13 Urban Water Conservation Capital Outlay Grant
 (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
 (c) DWR Water Use Efficiency Project
2. Principal applicant (Organization or affiliation): Regional Water Authority, Sacramento, California
3. Project Title: Ultra Low Flow Toilet Retrofit Program
4. Person authorized to sign and submit proposal:
- | | |
|-----------------|---|
| Name, title | <u>Edward Winkler, Executive Director</u> |
| Mailing address | <u>5620 Birdcage Street, Suite 180
Citrus Heights, CA 95610</u> |
| Telephone | <u>(916) 967-7692</u> |
| Fax. | <u>(916) 967-7322</u> |
| E-mail | <u>edwinkler@concourse.net</u> |
5. Contact person (if different):
- | | |
|------------------|---|
| Name, title. | <u>Charlie Pike, Regional Water Efficiency Manager</u> |
| Mailing address. | <u>5620 Birdcage Street, Suite 180
Citrus Heights, CA 95610</u> |
| Telephone | <u>(916) 967-7692</u> |
| Fax. | <u>(916) 967-7322</u> |
| E-mail | <u>cpike@concourse.net</u> |
6. Funds requested (dollar amount): 894,815 (Table D-1)
7. Applicant funds pledged (dollar amount): 1,090,804 (Table D-1)
8. Total project costs (dollar amount): 1,985,619 (Table D-1)
9. Estimated total quantifiable project benefits (discounted dollar amount): 623,112 (Table D-4)
- Percentage of benefit to be accrued by applicant: 100% of avoided cost benefit
- Percentage of benefit to be accrued by CALFED or others: 100% of avoided cost benefit

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)**

10. Estimated annual amount of water to be saved (acre-feet): 391 acre-feet
- Estimated total amount of water to be saved (acre-feet): 817 acre-feet for 3 years
- Over 20 years 7,700 acre-feet
- Estimated benefits to be realized in terms of water quality, instream flow, other: Dry year increase, instream flows, system reliability
11. Duration of project (month/year to month/year): November 2002 through June 2005
12. State Assembly District where the project is to be conducted: 4, 5, 9 and 10
13. State Senate District where the project is to be conducted: 1, 4, 5 and 6
14. Congressional district(s) where the project is to be conducted: 3, 4, 5 and 11
15. County where the project is to be conducted: Sacramento County and Placer County
16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: See attached list for cooperating water suppliers in Table A-1
17. Type of applicant (select one):
- Prop 13 Urban Grants and Prop 13 Agricultural Feasibility Study Grants:
- (a) city
- (b) county
- (c) city and county
- (d) joint power authority
- (e) other political subdivision of the State, including public water district
- (f) incorporated mutual water company
- DWR WUE Projects: the above entities (a) through (f) or:
- (g) investor-owned utility
- (h) non-profit organization
- (i) tribe
- (j) university
- (k) state agency
- (l) federal agency
18. Project focus:
- (a) agricultural
- (b) urban

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)**

19. Project type (select one):
Prop 13 Urban Grant or Prop 13
Agricultural Feasibility Study Grant
capital outlay project related to:

- (a) implementation of Urban Best Management Practices
- (b) implementation of Agricultural Efficient Water Management Practices
- (c) implementation of Quantifiable Objectives (include QO number(s))
-
- (d) other (specify)
-

DWR WUE Project related to:

- (e) implementation of Urban Best Management Practices
- (f) implementation of Agricultural Efficient Water Management Practices
- (g) implementation of Quantifiable Objectives (include QO number(s))
- (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
- (i) research or pilot projects
- (j) education or public information programs
- (k) other (specify)
-

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

- (a) yes
- (b) no

If yes, the applicant must complete the CALFED PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.html and submit it with the proposal.

Table A-1. List of Cooperating Water Suppliers and UWMP Submittals

Regional Water Efficiency Participants	Urban Water Management Plan Date	Listed by DWR as Received by Nov. 2001
Citrus Heights Water District	Dec-00	yes
City of Folsom	May-01	yes
Rio Linda Water District	Feb-02	
City of Sacramento/Dept. of Utilities	Dec-01	
County of Sacramento	Dec-00	yes
Fair Oaks Water District	Jun-01	yes
Placer County Water Agency	Dec-00	yes
San Juan Water District	Dec-00	yes

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One
B. Signature Page**

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

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.


Signature

Edward D. Winkler
Executive Director
Name and title

2/2/02
Date

PROPOSAL PART TWO

PROJECT SUMMARY

The project provides a financial incentive program to customers in the vicinity of Sacramento, California to retrofit high water use toilets. High water use toilets installed before 1992 will be replaced with ultra low flow toilets (ULFT) using 1.6 gallons per flush or less. The incentives will be provided in several forms, including but not limited to direct replacement, rebates, vouchers, and direct purchase and presentation to customers. The requested grant amount is \$25 per toilet for up to 12,550 toilets during the grant contract period. The grant money will be added to existing or planned incentives (e.g. rebates) from water suppliers and the Sacramento Regional County Sanitation District (SRCSD). This project will be regionally administered through the Regional Water Authority (RWA) in Sacramento, California to enable various retail agencies to participate. Eight (8) retail agencies will participate in this program as external cooperators.

External cooperating water agencies for this project are:

Citrus Heights Water District	Fair Oaks Water District
City of Folsom	Placer County Water Agency
Rio Linda Water District	Sacramento County
City of Sacramento	San Juan Water District

The efficient use of California's limited water supplies is a critical local, regional, and statewide water issue. The Regional Water Authority assists 18 member water suppliers serving more than 726,000 acre-feet per year to more than 1.2 million people. These retail water suppliers utilize both groundwater and surface water, mostly from the Sacramento and American Rivers, for their water supply. Figure 1 depicts the location of service areas of the participating Regional Water Authority member agencies.

The objective of this project is to provide incentives for replacement of older toilets with new, more water efficient models. The goal is to supply, rebate or install a total of 12,550 toilets over the next three years.

The project cost is \$1,985,620. The total grant amount is \$894,820. It is expected that between 25 and 30 gallons will be saved per toilet per day (gal/unit/day) resulting in total possible water savings of 391 ac-ft/year, or 817 ac-ft over the three year period, and 7,855 ac-ft over a 20 year period.

A. SCOPE OF WORK: RELEVANCE AND IMPORTANCE

This section describes the nature, scope, and objectives of the project. It also includes a statement of critical local, regional, Bay-Delta, State and federal water issues and a description of how this project is consistent with local and regional water management plans and other resource management plans.

Figure 1. Location Map

A.1 Nature, Scope, and Objectives of the Project

This project is a regional approach to provide financial incentives towards the purchase and installation of ultra low flow toilets. The costs of the project primarily include the rebates or incentives and agency costs to implement the program, including installation and inspection costs in some cases. Approximately 12,550 toilets will be retrofitted over the three-year program.

Currently, retail water agencies within the Sacramento area are undergoing the conversion to residential water meters. The conversion of these newly metered customers to a water billing rate structure based on their individual metered use from a flat-rate structure is causing them to take note of their water use and be more receptive to programs aimed at water efficiency. In the Sacramento area the cost of upgrading interior plumbing is estimated at \$142 per toilet. For a typical customer this cost would outweigh any resulting savings on their water bill. The incentive programs are aimed at reducing the cost to the customer, thereby encouraging retrofits that would not otherwise occur. Current plumbing rebate programs at these agencies and others in northern California, such as the East Bay Municipal Water District, have successfully shown that with assistance through an incentive from the water utility, customers are sufficiently motivated to upgrade their toilets and other interior plumbing fixtures.

More details on the existing toilet rebate programs for the cooperating agencies, targeted customers and proposed cost sharing arrangements are provided in Section D of this application. As an overview, retail agencies included in this project that have ongoing ultra low flow toilet rebate programs include the San Juan Water District, the City of Folsom and the Fair Oaks Water District. Agencies that will be starting new programs with assistance from the funding provided by the Department of Water Resources (DWR) through this grant include the Rio Linda Water District, the City of Sacramento, and the County of Sacramento.

The objective of this project is to provide incentive funding to homeowners and owners of commercial, industrial and institutional (CII) facilities that qualify for replacement of their toilets at the given site. The incentive program will be regionally administered through the Regional Water Authority providing all administrative duties associated with the grant from DWR and the retail agencies covering the administrative costs of providing the rebate to the customer. Work for this project will be conducted in-house by water agency staff as much as possible and will focus on administration costs associated with providing rebate credits or checks to customers, and inspections to verify installation. This project does not include contracting out the regional administration of the grant unless retail agencies specifically request the RWA to issue rebate checks; this function would be contracted out.

A.2 Statement of Issues, Project Need, and Project Consistency

The efficient use of California's limited water supplies is a critical local, regional, and statewide water issue. The water supply for the retail agencies participating in this project comes partially or wholly from the Sacramento River and/or American River in addition to local groundwater supplies. The purpose of this project is to significantly increase water use efficiency by reducing water demands which is particularly critical in dry-years. This project will provide benefit to the Bay-Delta by ensuring that water diverted upstream is used efficiently.

This project has the potential to positively impact the Bay-Delta systems by increasing instream flows and reducing the overall reliance on the surface water supplies from the American and Sacramento Rivers upstream from the Bay-Delta. RWA's and member agencies' conservation efforts are an important part of a long-term, comprehensive effort to reduce pressure on the Bay-Delta system to meet regional and statewide water needs. One of the fundamental objectives of the CALFED Bay-Delta program is to reduce the mismatch between Bay-Delta water supplies and the current and projected beneficial uses dependent on the Bay-Delta system. Water use efficiency projects are one of the cornerstone strategies the CALFED Bay-Delta program is deploying to achieve this objective. Actual incentives for the purchase of water efficient toilets will reduce the demand for a significant urban end-use of Bay-Delta water supplies. It is anticipated that the 12,550 toilet purchase incentives issued under this project will result in water savings of approximately 391 acre-feet per year and a total of 7,855 by 2023.

By reducing the amount of water use by customers in the agencies' water supply areas, other beneficial uses will be realized during the critical dry-years, such as providing flow to improve aquatic ecosystems and the habitat of many Federally listed endangered species including: Delta Smelt, Splittail, Steelhead, Chinook salmon, fresh water shrimp, Coho salmon, and Steelhead along the American River and Sacramento River watersheds. Increasing the amount of water available will also enhance groundwater recharge efforts, thus effectively increasing the system reliability and flexibility of operations in dry years by the Regional Water Authority and its member agencies.

The Regional Water Authority is a joint powers agency of 18 water suppliers serving more than 1 million people in the greater Sacramento Region. The mission is to serve and represent regional water supply interests and assist RWA members with protecting and enhancing the reliability, availability, affordability and quality of water resources.

A major component of RWA, the Regional Water Efficiency Program is designed to expand measures to help area water providers fulfill Water Forum best management practices (BMPs). The Regional Water Efficiency Program offers two tiers of services: Core activities serve as the fundamental building blocks necessary for implementing the BMPs and includes public information, school education, program marketing coordination, grant applications and technical assistance.

In addition, agencies can choose from subscription activities according to organizational and customer needs. These can include landscape irrigation surveys, marketing partnerships with landscape retailers, training for staff and customers, pilot projects, leak detection surveys and report preparation.

Regional Water Authority and its member agencies are stakeholders in three major water management teams: Sacramento Area Water Forum (Water Forum), the American River Basin Cooperating Agencies (ARBCA), and the Sacramento Groundwater Authority (SGA). The project is consistent with the local water management plans including the SGA, and with regional water management plans such as the ARBCA Regional Water Master Plan (RWMP) and Water Forum Agreement. This project is also consistent with statewide water management plans such as the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding (MOU) regarding Urban Water Conservation in California.

All of the member retail agencies are members of the Sacramento Water Forum. In the year 2000, the Water Forum finalized the *Water Forum Agreement* (Agreement) which contains seven major

elements to meet its objectives. Water conservation is the fifth major element in the Agreement. The water conservation portion of the Agreement describes each water purveyor's commitments to implement BMPs. These BMPs were derived from the original MOU developed by the CUWCC, and then customized for the Water Forum conservation agreements prepared for the individual purveyors.

This project involves the implementation of urban water conservation best management practice (BMP) number 9, *Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts*, and 14 *Residential ULFT Replacement* as defined by the California Urban Water Conservation Council (CUWCC). The unpredictable water supply and ever increasing demand on California's complex water resources have resulted in a coordinated effort by the California Department of Water Resources (DWR), water utilities, environmental organizations, and other interested groups to develop a list of urban BMPs for conserving water. This consensus-building effort resulted in the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), which formalizes an agreement to implement these BMPs and makes a cooperative effort to reduce the consumption of California's water resources.

One of the Water Forum Agreement BMPs, Ultra-Low Flow Toilet Replacement Program For Residential and Non-Residential Customers, further defines the goals for offering rebates to customers for toilet replacements beyond the definition within the CUWCC MOU. These goals are completely voluntary and therefore, do not overlap with any aspects of this proposed project to provide direct financial incentives to CII or residential customers for toilet replacements. This project does not include implementing work considered a part of the requirements under the Water Forum Agreement BMP 16.

This project is compatible with each of the agencies' 2000 Urban Water Management Plans (UWMPs) for each of the cooperating agencies for this project and RWA's ongoing efforts to achieve greater water use efficiency. RWA's Board of Directors recognizes the importance of water management and conservation programs. RWA has the general policy that states in part that the RWA will support its member agencies in operating and maintaining each individual purveyor's water system in an efficient and economical manner and distribute and supply water as fairly and equitably as possible.

This project is cost effective relative to savings in production and operating costs as shown in Section D of this application. Even though this project proves to be locally cost effective, agencies need grants for seemingly cost effective projects. The substantiation that a project is cost effective is not enough to get project approval since project managers and engineers must compete for available utility dollars. There is seldom enough money to serve all of the agencies' needs. Regulatory issues often take priority, such as: monitoring water quality for an ever-broadening list and lowering detectable levels of constituents of concern; meter installation commitments (in the Sacramento region); and keeping up with new building development. In the private sector, the competition might use return-on-investment analysis where paybacks of 1-2 years receive budget allocations, but paybacks of more than 5 years seldom are considered for funding. Water efficiency measures, while meaningful investments, often have much longer paybacks.

B. SCOPE OF WORK: TECHNICAL/SCIENTIFIC MERIT, FEASIBILITY, MONITORING AND ASSESSMENT

This section describes the methods, procedures and facilities associated with the project. A task list and schedule and quarterly expenditure of the capital outlay project are also included in this section.

B.1 Methods, Procedures, and Facilities

The RWA will use standard administrative methods to implement this regional incentive program. Although not explicitly called for in this project, given all work will be performed by in-house agency staff, standard purchasing and contracting procedures will be used to purchase any items or installation of any systems. This project does not require the purchase of land or easements, design, engineering, or encroachment permits.

This project will be bound by a formal agreement between the participating agencies. RWA will have one designated project manager and each member agency will assign one designated toilet retrofit program contact for the administration of the project within their service area. The RWA project manager is responsible for the overall conduct of the project.

The RWA project manager will be responsible for ensuring that each member agency fulfills its commitment to provide incentives. The retail water agency staff may elect to inspect rebate recipients to ensure that toilets are upgraded properly.

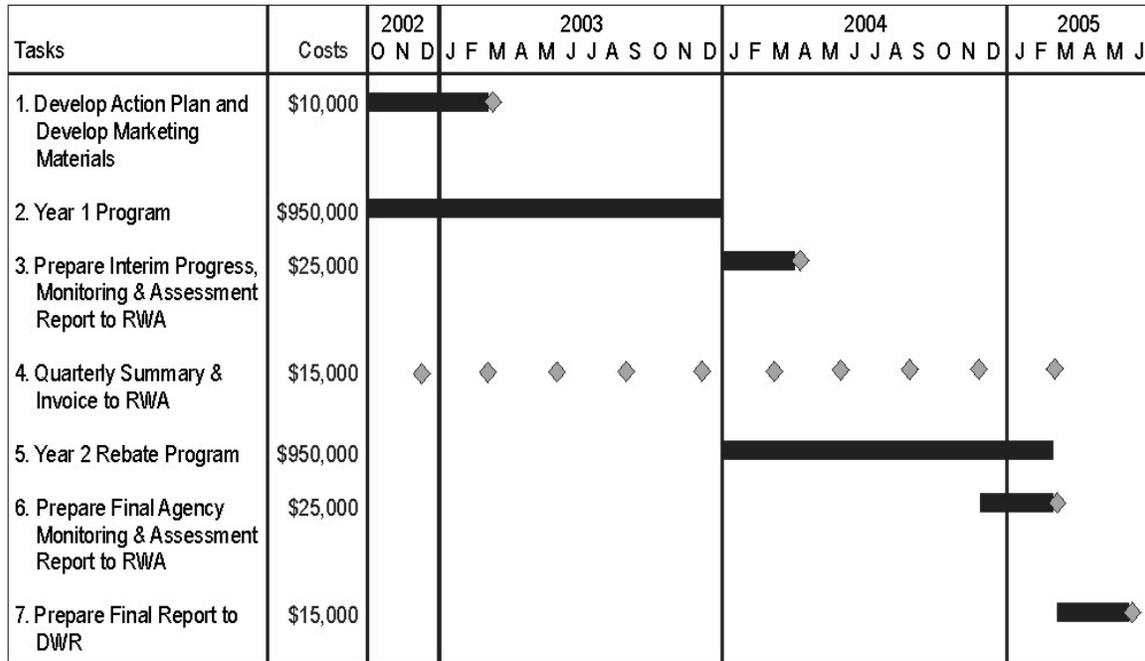
B.2 Task List and Schedule

The tasks for implementation of this project and the project schedule are described below and presented on Figure 2. The schedule includes deliverable items, due dates, and projected costs for each task. The tasks are inseparable if only a portion of the project is funded. The project may be considered scalable down to the minimum number of 7,000 toilet retrofits (approximately 50 percent of the project) before it would be considered too administratively costly for implementation. Table B-1 presents a quarterly expenditure projection.

Tasks

1. Water agencies will continue existing programs and/or implement new incentive programs. Implementation includes program marketing, processing customer applications for rebates, providing rebates, inspecting toilet replacements, and assisting with old toilet disposal or recycling.
2. Prepare Interim Progress Report. This report will be a status report summarizing toilet retrofits to date and will provide data on before and after water use. This interim report will be used to document the progress of the project and determine if the project is on schedule and aid in project control.
3. Prepare Monitoring and Assessment Report. This report will be written following the end of the project. It will include totals by participating water agency of the rebate amounts paid, installations performed and other retrofit incentives received.

Figure 2. Project Timeline



◆ Deliverable items

Table B-1. Quarterly Expenditure Projection

Quarter	Months	Prop 13 Expenditure	Total Expenditure
<u>2002</u>			
4	October-December	86,982	196,062
<u>2003</u>			
1	January-March	86,982	196,062
2	April-June	81,982	191,062
3	July-September	81,982	191,062
4	October-December	81,982	191,062
<u>2004</u>			
1	January-March*	106,982	216,062
2	April-June	81,982	191,062
3	July-September	81,982	191,062
4	October-December	81,982	191,062
<u>2005</u>			
1	January-March*	121,982	231,062
Total		894,815	1,985,619

*Note: Additional expenditure based on report preparation

B.3 Monitoring and Assessment

A list of project-specific performance measures that will be used to assess project success in relation to its goals is as follows:

- The primary performance measure for this project is water savings, and will be quantified based on number of rebates multiplied by estimated water savings for each type of toilet (CII or residential).

- One Interim Progress Report will be prepared. This report will be a status report summarizing toilet retrofits to date and will provide data on before and after water use. This interim report will be used to document the progress of the project and determine if the project is on schedule and aid in project control. The progress report will be prepared at the midpoint of the project. Agencies will provide a short summary of progress to the RWA with each quarterly invoice.
- A Monitoring and Assessment Report will be prepared following project completion. This report will be written following the end of the project. It will include totals by participating water agency of the rebate amounts paid, installations performed and other retrofit incentives received.

The Interim Progress Report and the Monitoring and Assessment Report will be made available to the public at the RWA office. The information will be made available to the public through various outreach methods.

B.4 Preliminary Plans, Specifications, and Certification Statements

Due to the nature of this project (rebates), there are no preliminary plans or specifications for this project.

C. QUALIFICATIONS OF THE APPLICANTS AND COOPERATORS

The qualifications of the project manager, cooperators, and partners to be involved in the ultra low flow toilet retrofit project for the RWA are discussed in this section. A description of the RWA is included in section A.2.

C.1 Resumes

The project manager responsible for the ULFT retrofit program will be Charlie Pike, Regional Water Efficiency Manager, Regional Water Authority. Mr. Pike's resume is included in Appendix A.

C.2 External Cooperators

The letters of commitment for the cooperating agencies are provided in Appendix B.

External cooperating water agencies for this project are:

Citrus Heights Water District	Placer County Water Agency
City of Folsom	Rio Linda Water District
City of Sacramento	Sacramento County
Fair Oaks Water District	San Juan Water District

D. BENEFITS AND COSTS

This section includes a breakdown and justification of the project budget and cost sharing information. Also described and analyzed are the benefits and costs of this project.

D.1 Budget Breakdown and Justification

Table D-1 presents a detailed estimated budget that includes relevant line items for the capital outlay project proposal and justification of each line item as requested in the DWR Solicitation Package. This table also indicates the amount of cost sharing for both the RWA and participating agencies and DWR Prop. 13.

Table D-1. Detailed Budget – Capital Outlay Project Proposal

Item	Justification	Labor		Other direct costs, dollars	Total, dollars	Agency & RWA Portion	Prop 13 portion	
		Hours	Dollars					
Land Purchase /Easement		0	0	0	0			
Planning/Design/Engineering		0	0	0	0			
Materials/Installation	See Section D-2	0	0	1,262,275	1,262,275	948,525	313,750	
Structures		0	0	0	0			
Equipment Purchases/Rentals		0	0	0	0			
Environmental		0	0	0	0			
Mitigation/Enhancement								
Construction/Administration/Overhead	See Section D-4	0	0	464,350	464,350	0	464,350	
Project/Legal/License Fees		0	0	0	0			
Contingency (15%)				258,994	258,994	142,279	116,715	
Other				0	0	0	0	
Project Total				0	1,985,619	1,985,619	1,090,804	894,815

D.2 Cost Sharing

The requested grant money would be applied to incentive programs in addition to existing or planned incentives funded by participating agencies. There is an additional funding contribution from the wastewater utility (SRCSD) for \$25 per toilet. This contribution is *not* included in the project budget (Table D-1) or the economic benefit-cost analysis (Table D-4 below). Table D-2 presents a summary of planned cost share amounts by agency. There are no additional funding commitments or cost sharing agreements for this project. The table also presents an average total incentive value and average agency incentive contribution, weighted by the number of retrofits each agency plans to assist. The average incentive of \$76 per toilet is used for all cost and benefit calculations presented in Section D.

Table D-2. Cost Share Amounts

Toilet program participant	Planned retrofits		Planned incentive (\$/toilet)	SRCSD contribution (\$/toilet)	Prop 13 contribution		Total incentive (\$/toilet)
	CII	SF			(\$/toilet)	% of total	
Citrus Heights Water District	0	300	75	25	25	20%	125
City of Folsom	0	550	75	25	25	20%	125
Rio Linda Water District	0	225	50	25	25	33%	75
City of Sacramento	6,300	3,000	78	25	25	20%	128
County of Sacramento	575	700	75	25	25	20%	125
Fair Oaks Water District	0	300	75	25	25	20%	125
Placer County Water Agency	300	0	25		25	50%	50
San Juan Water District	0	300	75		25	25%	100
Total Retrofits	7,175	5,375					
	Weighted Average		75.5				126

D.3 Benefit Summary and Breakdown

There are multiple expected beneficial outcomes of this project and physical changes will occur as a result. The value of those outcomes and physical changes are both quantifiable and non-quantifiable. The quantifiable values of physical changes that will occur as a result of this project and the beneficiary of each benefit are listed in Table D-3. Project outcomes and benefits will be shared among the project's beneficiaries and will directly or indirectly contribute to CALFED goals.

Table D-3. Quantifiable Physical Changes, Expected Benefits, and Beneficiaries

Physical change	Expected benefit	Beneficiary
Reduce water use	391 ac-ft/year	CALFED Goal - upstream water used more efficiently
Money saved on avoided costs of a new water supply, including cost of expanded treatment plant and regional distributions systems	\$160/acre-foot of water saved	Water agencies/customer

Non-quantifiable project outcomes and benefits are listed and described in Table D-4. It is indicated how each non-quantified outcome or benefit will be shared among the project beneficiaries. The non-quantified benefits expected to directly or indirectly contribute to CALFED goals are also identified and delineated.

Table D-4. Non-Quantifiable Benefits

Physical change	Expected benefit	Beneficiary
Decreased water use within the service areas affected by this project will allow Agencies to delay the date of need to used their full water right entitlements.	Improved Bay-Delta ecosystem	CALFED Goal
Less water pumped into the system	Energy savings	Energy provider/Agencies

D-4. Assessments of Costs and Benefits

This section includes an assessment that summarizes the costs and benefits of the proposed project to the RWA and its member agencies. The major analysis assumptions are listed and explained below. This section also shows the present value of the quantified costs and benefits to the applicant, CALFED, and other parties affected by the project. This section also summarizes non-quantified costs and benefits to the applicant, CALFED, and other parties affected by the project in Table D-7.

This project is locally cost effective to water agencies in the RWA. Based on the benefit-cost ratio assessment in Table D-5, using project benefits and costs, the project has a benefit to cost ratio of 1.002. Since this number is greater than one, it indicates an economically justifiable project.

Below is a list and explanation of all major analysis quantifiable benefits/costs assumptions and methodologies.

1. A total of 12,550 rebates projected to be issued. Of these rebates, 7,175 will be commercial retrofits and the remainder will be single family residential retrofits. The expected breakdown of commercial and residential incentives for each year is shown in Table D-5.
2. This project will reduce average residential water usage by 27.3 gallons per toilet per day. This assumption is based on the Memorandum of Understanding regarding Urban Water Conservation in California, as amended March 14, 2001. Exhibit 6, Table 1. This water savings is based on an average single family household size of 2.8 people and one toilet replaced per household.
3. The project will reduce average commercial water use by 28.2 gallons per toilet per day. This assumption is based on the CUWCC ULFT Savings Study, Second Edition, 2001 with an estimated even application to the following sectors: retail, restaurants, offices, health care and hotels.
4. Average amount of rebate costs provided by local water agencies is \$75.60 per rebate, see Table D-2.
5. The weighted value of conserved water for the water agencies under RWA in this project is \$160/ac-ft. This cost is based on estimated costs purchased surface water and groundwater supply costs for the Sacramento region presented in the *Economic Evaluation of Water Management Alternatives, Screening Analysis and Scenario Development*, for the CALFED Bay-Delta Program, October 1999.
6. The life span of the new ULFTs is assumed to be 20 years. This is based on the Memorandum of Understanding regarding Urban Water Conservation in California, as amended March 14, 2001, Page 70.
7. All quantified benefits and costs are expressed in year 2001 dollars using a 6 percent discount rate, as required in DWR Proposal Solicitation Package.

An economic analysis of this project based on the assumptions listed above is shown in Table D-5. The present values of the quantified costs and benefits for the applicant, each project beneficiary, and CALFED are quantified in Table D-6. CALFED may see some quantifiable benefit from the reduced surface water diversions that may occur as a result of this project. The dollar value per acre-ft benefit to CALFED is not precisely known at this time. A summary of the non-quantified costs and benefits to the applicant, each project beneficiary, and CALFED are summarized in Table D-7.

This economic analysis evaluates the economics of the project from just the perspective of the agencies receiving the grant.

Table D-5. Economic Analysis of Applicant Cost Effectiveness

No.	Assumption	Assumption		Annual ^b Water Savings (AF/Yr)	Avoided Capital Costs	Avoided Variable Costs	Avoided Purchase Costs	Total Undiscounted Benefits	Total Discounted Benefits	Capital Costs	Agency Financial Incentives	Admin Expenses	Assumption	
		No.	Assumption										No.	Assumption
1	Value of conserved water (\$/AF) =	6	CII toilets replaced in 2002=	160	0	0	0	12,677	11,282	0	153,420	0	153,420	0
2	Discount rate (real) =	7	CII toilets replaced in 2003=	6.00%	0	0	0	30,601	25,693	0	213,700	0	213,700	1,531
3	Water savings due to toilet replacement at single family homes (gal/toilet/day) =	8	CII toilets replaced in 2004=	27.3	0	0	0	62,564	49,557	0	383,880	0	383,880	1,525
4	Water savings due to toilet replacement at commercial establishments (gal/toilet/day) =	9	CII toilets replaced in 2005=	28.2	0	0	0	62,564	46,752	0	0	0	0	2,319
5	Average agency contribution to rebate=	76												
Assumption	No. of SF Toilets to be Replaced	No. of Commercial Toilets to be Replaced	Incremental ^a Water Savings (AF/Yr)	Annual ^b Water Savings (AF/Yr)	Avoided Capital Costs	Avoided Variable Costs	Avoided Purchase Costs	Total Undiscounted Benefits	Total Discounted Benefits	Capital Costs	Agency Financial Incentives	Admin Expenses	Total Undiscounted Costs	Total Discounted Costs
2002	0	0	33	0	0	1	0	0	1	0	5	0	0	1
2003	1,531	1,026	98	79	0	0	0	12,677	11,282	0	153,420	0	153,420	136,543
2004	1,525	2,070	131	191	0	0	0	30,601	25,693	0	213,700	0	213,700	181,106
2005	2,319	4,079	129	391	0	0	0	62,564	49,557	0	383,880	0	383,880	304,069
2006			0	391	0	0	0	62,564	46,752	0	0	0	0	0
2007			0	391	0	0	0	62,564	44,105	0	0	0	0	0
2008			0	391	0	0	0	62,564	41,609	0	0	0	0	0
2009			0	391	0	0	0	62,564	39,254	0	0	0	0	0
2010			0	391	0	0	0	62,564	37,032	0	0	0	0	0
2011			0	391	0	0	0	62,564	34,935	0	0	0	0	0
2012			0	391	0	0	0	62,564	32,938	0	0	0	0	0
2013			0	391	0	0	0	62,564	31,092	0	0	0	0	0
2014			0	391	0	0	0	62,564	29,333	0	0	0	0	0
2015			0	391	0	0	0	62,564	27,672	0	0	0	0	0
2016			0	391	0	0	0	62,564	26,106	0	0	0	0	0
2017			0	391	0	0	0	62,564	24,628	0	0	0	0	0
2018			0	391	0	0	0	62,564	23,234	0	0	0	0	0
2019			0	391	0	0	0	62,564	21,919	0	0	0	0	0
2020			0	391	0	0	0	62,564	20,678	0	0	0	0	0
2021			0	391	0	0	0	62,564	19,508	0	0	0	0	0
2022			0	391	0	0	0	62,564	18,404	0	0	0	0	0
2023			0	391	0	0	0	62,564	17,362	0	0	0	0	0
TOTAL	5,375	7,175	391	7,700	0	1,231,996	0	1,231,996	623,112	0	753,000	0	753,000	621,718

Note: These costs do not include contingency

Benefit cost ratio: **1.0022**

Table D-6. Summary of Quantifiable Present Value Costs and Benefits

	Costs, dollars	Benefits	
		Water, dollars	Water, ac-ft
Water Agencies	621,798	623,112	7,700
CALFED	None	See text	7,700

Note: These costs do not include contingency.

Table D-7. Summary of Non-Quantifiable Costs and Benefits

	Non-quantified costs	Non-quantified benefits
Water Agencies	Less revenue due to declined customer water use	<ul style="list-style-type: none"> • Increased water supply reliability • Reduction in groundwater extraction will assist with reducing subsidence and mitigating overdraft
CALFED	None	<ul style="list-style-type: none"> • Increased water supply reliability to water users while at the same time assuring the availability of sufficient water to meet fishery protection and restoration recovery needs • Reduction in groundwater extraction will assist with reducing subsidence and mitigating overdraft • Reliability of supply increase from groundwater recharge • More water for Bay-Delta use
Customer	None	<ul style="list-style-type: none"> • Incremental cost savings based on decreased water use • Increased water supply reliability
Energy provider	None	<ul style="list-style-type: none"> • Energy savings as a result of less water pumped into the system.
Sacramento Regional County Sanitation District	None	<ul style="list-style-type: none"> • Decreased wastewater production
American and Sacramento River Ecosystem	None	<ul style="list-style-type: none"> • Improved aquatic and terrestrial habitat in American and Sacramento Rivers • More water available to meet fishery protection and restoration recovery needs
Sacramento Area Groundwater Basin		<ul style="list-style-type: none"> • Reduction in groundwater extraction will assist with reducing subsidence and mitigating overdraft

E. OUTREACH, COMMUNITY INVOLVEMENT AND ACCEPTANCE

This project is consistent with the California Urban Water Conservation Council’s Memorandum of Understanding regarding water conservation. It is also consistent with the Water Forum Agreement. A letter of support from the Water Forum is included in Appendix C.

An effective public outreach effort is essential to this project’s success. Contact will be made through various means with thousands of customers, including disadvantaged community members, to promote and reinforce water use efficiency by providing a financial incentive to purchase ultra low flow toilets. The partnership developed between the various agencies ensures that a large and

economically diverse customer base will be reached. There are no tribal entities particularly impacted by this project.

Many agencies have ongoing programs for rebating or providing other incentives for ultra low flow toilet retrofits. Outreach activities between all the agencies may include some or all of the following:

Educational materials – Fact sheets about the ULFT incentive program – written in easy to understand language – will be critical to the successful public education campaign. District activities, programs and accomplishments will be highlighted in regular customer newsletters. Customers will receive direct information through agency bill inserts, door hangers, and information kits.

Media relations – This may include public service announcements and editorial commentary, both in print and on electronic media, in order to effectively reach a large, diverse agency customer base. The rebate program will be highlighted as well as the agencies' other conservation accomplishments and services.

Web site – The agencies' respective web sites will keep the community updated on the rebate program. A customer will be able to find information on where to purchase qualifying ultra flow toilets, how to apply for the rebate, water savings statistics, and contact phone numbers to answer customer questions.

Community event participation – Participation in community events such as fairs and festivals are highly visible opportunities to reach local residents. A simple exhibit with display boards, water-related props, promotional items, information pamphlets, and an interactive component will be an attractive educational tool for the agencies.

Customer information by telephone – The public will have access to established water agencies and RWA direct phone lines to insure availability of public information. Therefore agencies will publicize and encourage customers to use phone communication to provide immediate response to customer questions. An agency staff member knowledgeable about the incentive program will be available to answer customer concerns.

Point of sale – Participating plumbing equipment suppliers will have rebate applications and information pamphlets available on site with the qualifying washing machines clearly marked. Point of sale publicity will inform customers of program availability when purchasing a product outside of their service area. Consumers may choose to participate in the program by purchasing a qualifying machine and completing the necessary rebate form in one convenient step.

Program evaluation – It is important to evaluate the public relations efforts throughout the project. This will ensure the information dissemination program plan specified as part of the overall program Action Plan is on track and meeting the plan goals and objectives. An informal focus group session of RWA and member agency staff may be held at the end of the first six months to determine which tactics have been effective and which areas may need to be revised to be more effective, if deemed necessary. At the end of the project, customers will be contacted to determine their level of satisfaction. The concerns of any unsatisfied customers will be addressed and resolved as quickly as possible by the agencies. Summaries of the results and benefits of this project will be developed and made available to customers. Inserts will be included in billing mailer inserts, newsletters, and agency Web sites.

APPENDIX A

Resume

CHARLES W. PIKE
Regional Water Efficiency Manager
Regional Water Authority

5620 Birdcage Street, Suite 180
Citrus Heights, CA 95610

916-967-7692
e-mail: cpike@concourse.net

Summary: Water Use Efficiency Professional with 15 years in the California Department of Water Resources. Now guiding the 18 water suppliers of the Regional Water Authority to implement the water efficiency plans of the Water Forum Agreement.

Experience:

Regional Water Authority, Regional Water Efficiency Manager

Represent 18 water suppliers in the Water Forum Successor Effort negotiating team. Established the Regional Water Efficiency Program with a budget of \$400,000 to satisfy BMPs of the Water Forum Agreement and the USBR CVPIA contractors.

San Juan Water District, Water Efficiency Manager

Coordinate the water efficiency programs of four water suppliers served by the San Juan Wholesale Agency. Provided major support to the spring 2001 DWR Water and Energy Efficiency workshops for water suppliers throughout California.

California Department of Water Resources, Water Use Efficiency Office

Created the Water Conservation Practitioner Certification standards and examination with the American Water Works Association (AWWA) Conservation Certification committee. Developed and taught Water Conservation Training classes presented to prepare water utility operators, planners and consultants for the certification exams. Class topics included: landscape irrigation, California hydrology, residential water uses; distribution system water loss reduction; and water efficiency programs for businesses.

Administered a \$1.9 million leak detection grant program to 57 local agencies. Highly successful, the program found 3,300 leaks worth \$4,300,000. Analyzed water supply savings from meter calibration, leak detection, and repairs

BMP 9 Project Advisory Committee Chairperson developing the new California Urban Water Conservation Council guidebook for utilities implementing the Best Management Practices for Commercial, Industrial, and Institutional water users.

Developed training seminars presented to more than 500 California utilities to reduce their distribution system losses. Taught Water Audit and Leak Detection Workshops for DWR & Cal-Nevada Section AWWA.

Created and managed the Industrial Water Conservation Program to reduce loads of water and wastewater utilities in California. Leverage resources with other agencies to finance projects.

As a Resource Agency Fellow with U. C. Davis, surveyed the California food processing industry to identify market transformation techniques most acceptable to improve energy efficiency, water efficiency, and pollution prevention. The results guided the California Energy Commission study *Energy Management in the Food Processing Industry*.

Secured a \$100,000 U.S. EPA grant to identify the types of businesses with the greatest potential for water efficiency improvements and quantify the potential savings in five California metropolitan areas and five other U.S. cities.

Leveraged resources to established the “Government, Utilities, Private Industry Partnership Project” with the City of Ventura. This partnership with Southern California Edison, SoCAL Gas, the City of Ventura and four businesses identified cost effective, site-specific energy and water efficiency improvements. This project was so well accepted by local businesses that the city funded the project to serve additional businesses for two more years without state money.

Acquired a \$65,000 US EPA grant to create two books now distributed nationally. *Helping Businesses Manage Water Use - A Guide for Water Utilities* and *Water Efficiency Guide for Business Managers and Facility Engineers*.

Presented workshops, classes and technical talks to such audiences as: World Energy Engineering Congress, American Institute of Plant Engineers, California Institute of Food and Agricultural Research, Pajaro Basin Food Processors, AWWA, WEF, the Texas Special Committee on the Edwards Aquifer, Cooling Tower Institute, and University of Houston.

Evaluated the impacts on land use, water quality, and the timber related economy of including 1,200 miles of California rivers in the National Wild and Scenic Rivers System. Prepared the associated environmental impact statement and environmental impact reports.

Bechtel Corporation Electrical Engineer

Design electrical circuits for nuclear power generating plant. Monitor installation of electrical circuits at a coal fired power-generating plant in Missouri.

Niagara Mohawk Power Corporation Electrical Engineer 1966-1969

Forecast load growth for urban distribution circuits and substations. Design high voltage transmission lines and distribution structures.

AWARDS AND COMMENDATIONS

Selected as Resource Agency Fellow with U. C. Davis	July 1996
U. S. Dept. of Energy, Performance Award	May 1994
City of Ventura, Commendation	October 1993
Outstanding Professional Accomplishment and State Sustained Superior Accomplishment Award	November 1990 & December 2000
Cal-Nevada Section AWWA Chairman's Award	October 1987
DWR Unit Citation	May 1984
Governor of California, Commendation	February 1981

PROFESSIONAL ASSOCIATIONS

American Water Works Association
Water Environmental Federation
California Urban Water Conservation Council
Co-chair the Commercial, Industrial, and Institutional Technical Committee

EDUCATION

University of California at Berkeley,	B.S. Forestry
Worcester Polytechnic Institute,	B.S. Electrical Engineering

APPENDIX B

Letters of Commitment

Insert letters of commitment.

APPENDIX C

Letter of Support

Insert letter of support.