

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

(d) Specify other: _____

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

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

3. Principal applicant
(Organization or affiliation):

Eastern Municipal Water District

4. Project Title:

Incentives for Outdoor Conservation by Residential Customers

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

Name, title Anthony J. Pack

Mailing address General Manager

P.O. Box 8300

Perris, CA 92572

(951) 928-3777, Ext. 6109

Telephone

(951) 928-6112

Fax.

E-mail

packa@emwd.org

6. Contact person (if different):

Name, title.	Elizabeth Lovsted
Mailing address.	Facilities Planner/Engineer
	P.O. Box 8300
Telephone	Perris, CA 92572
Fax.	(951) 928-3777, Ext. 4307
E-mail	(951) 928-6120
	lovstede@emwd.org

7. Grant funds requested (dollar amount): \$75,000
(from Table C-1, column VI)

8. Applicant funds pledged (dollar amount): \$113,000

9. Total project costs (dollar amount): \$188,000
(from Table C-1, column IV, row n)

10. Percent of State share requested (%): 40%
(from Table C-1)

11. Percent of local share as match (%): 60%
(from Table C-1)

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.)

(a) yes
 (b) no

11. Is your project required by regulation, law or contract?
 If no, your project is eligible.

(a) yes
 (b) no

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

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

12. Duration of project (month/year to month/year): 12/05 to 8/06

13. State Assembly District where the project is to be conducted: 65, 63, 64, 66

14. State Senate District where the project is to be conducted: 37, 31, 36

15. Congressional district(s) where the project is to be conducted: 49, 45, 41, 44

16. County where the project is to be conducted: Riverside

17. Location of project (longitude and latitude) Latitude: 33.76
Longitude: 117.18

18. How many service connections in your service area (urban)? 103,916

19. How many acre-feet of water per year does your agency serve? 95,000 acre-feet

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, partially, \$20,607-\$60,911 median household income
- (b) no

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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

Name and title

Date

Elizabeth Lovsted

Professional civil engineer seeking to expand and build on six years of experience in project design and management in the Riverside region.

Statement of Qualifications

I have over seven years of increasing responsibility in managing planning and engineering projects. In my current position I have used to experience to help EMWD plan for the future. I supervise the preparation of studies and projects analyze information and make recommendation to The EMWD Board of Directors and executive staff.

Professional Experience

Eastern Municipal Water District – Perris, Ca August 2003 – Present

Facilities Planner Engineer

Responsible for preparation of water supply assessment.

Create and maintain database of new development projects proposed within the district.

Provide information on population growth and water supply to groups within and outside of EMWD.

Manage absorption studies prepared by consultants

Prepare grant applications and track through execution.

R.B.F. Consulting – Temecula, Ca May 2001-August 2003

Project Engineer

Responsible for design and management of projects of varying size.

Represent client interests to governing agencies.

Coordinate efforts of various consultants to complete projects efficiently.

Analyze data to determine cost efficient design and present result to client.

Projects include:

- Tract 23065-Redhawk
- 500 unit residential subdivision with school site in Southern Riverside
- Tract 25252 – Menifee Lakes
- 159 unit residential subdivision in Menifee

Clients Include:

- Centex Homes Garrett Group
- Beazer Homes
- Temecula Valley Unified School District

Rick Engineering-Riverside, Ca

August 1997-May 2001

Project Designer

Work with a team of engineers, designers and drafters to prepare improvement plans for residential development.

Prepare cost estimates and benefit analysis.

Perform hydraulic and hydrologic analysis for storm drain, water and sewer.

Padre Dam Municipal Water District – Santee, California

Engineering Intern

Used hydraulic modeling program to determine system requirements.

Prepare cost benefit analysis and present results to district's assistant director.

Registration

Registered Civil Engineering License No. 65450

Exp. 6-30-2007

Education

BS in Civil Engineering

1997

San Diego State University – San Diego, California

PARAMESHWARAN RAVISHANKER

SUMMARY OF QUALIFICATIONS

Offering nearly 26 years of progressively responsible experience in providing leadership and direction to highly qualified managers and technicians in developing cost effective strategies for water supply, wastewater collection and treatment, water reclamation, and watershed management.

PROFESSIONAL EXPERIENCE

Assistant General Manager

September 1990 - Present

Eastern Municipal Water District, Perris, California, U.S.A.

I am responsible for leading and directing the Water Resources, Information Systems, and Regulatory Compliance departments with over 72 hydrologist, planners, engineers, scientists, systems analysts, programmers, systems administrators, technicians, and extended consultants. In Water Resources, my focus is in creating cost effective and innovative strategies and business plans through the development of water resources and salinity management programs, long-range facilities planning, and relevant applied research. The Information Systems Department involves development, implementation, and maintenance of computer technology to add value to the various functions within the organization. In the Regulatory Compliance arena, responsible to ensure a thorough understanding of all regulations that govern the water, wastewater, and recycled water industries, and ensure full compliance.

This includes setting organizational goals and objectives and implementation plans consistent with the District's mission and the strategic plan; directing and managing human, financial, and physical resources; building inter-departmental and inter-disciplinary teams and promoting cooperation; performing technical and business process analysis and developing conceptual solutions; performing economic analysis and developing business plans and budgets; promoting and establishing working relationships with local, state, and federal agencies, legislative bodies, citizen groups, and the public; promoting efficiency through performance review and development and utilization of appropriate softwares; seeking grant and/or low interest financing; and day-to-day management of contracts, agreements, and staff.

Deputy General Manager

February 1986 - August 1990

Santa Ana Watershed Project Authority, Riverside, California, U.S.A.

Responsible for basin planning, project identification, financing and implementation of projects in the Santa Ana Watershed which covers about 2,200 square miles and serves over 2 million people. Primarily responsible for leading and cooperatively directing the planning effort undertaken by the five member agencies, initiating and implementing planning and research studies related to water resources management, investigating and evaluating applicable technologies for salinity, organics, and nutrient removal.

Waste Management Engineer September 1984 - January 1986
Department of Health Services, California State Government, Sacramento, CA, U.S.A.

Employed as a Project Engineer on the remedial investigation and feasibility study for the closure of the Stringfellow Hazardous Waste Disposal Site.

Post Graduate Research Engineer/TA/RA September 1980 - June 1984
Department of Agricultural, Engineering, University of California, Davis, California

Investigated the feasibility and applicability of the processes available for the isolation of methane. Continued research on treatment of dilute pesticide wastes utilizing soil pits.

United Nations Consultant January 1984 and April 1983 - May 1983
Food and Agricultural, Organization of the United, Nations, Rome, Italy

Served as a consultant for a project in Pakistan and Singapore to identify a suitable waste handling and utilization system for animal waste.

Project Environmental Engineer October 1977 - July 1980
Primary Production Department, Government of Singapore, Maxwell Road, Singapore

Employed as the Project Engineer in the agricultural waste treatment and utilization project sponsored by the Food and Agricultural Organization of the United Nations.

Assistant Resident Engineer June 1976 - September 1977
Watsons South East Asia, Singapore

Employed as an Assistant Resident Engineer in construction of a 40 MGD activated sludge sewage treatment plant in Singapore.

EDUCATION

Ph.D. Environmental Engineering and Hydrology, University of California, Davis, Completed Qualifying Examination 1980-1984, Thesis Incomplete

Master in Engineering Environmental Engineering, April 1976, Asian Institute of Technology, Bangkok, Thailand

Bachelor of Science Civil Engineering, January 1974, University of Sri Lanka, Peradeniya, Sri Lanka

State of California License No. XE 066049

**Proposal for 2004 Water Use Efficiency Grant: Section B
Incentive for Outdoor Conservation by Residential Customers:
A Feasibility Study**

January 7, 2005

Prepared By:
Eastern Municipal Water District
2270 Trumble Road
Post Office Box 8300
Perris, CA 92572

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Appendix A: Task List and Schedule

Appendix B: Resumes

Appendix C: 2000 Census Tract Economic Information

Appendix D: Tables C-1 and C-5

Introduction

Eastern Municipal Water District (EMWD) is a public water district in Western Riverside County. Its boundary stretches over approximately 555 square miles, from Moreno Valley in the North to Temecula in the South. In 2003, EMWD provided over 50,000 acre-ft (AF) to nearly 100,000 residential meters. Located in one of the most rapidly growing regions in the United States, EMWD is currently adding over 7,000 new water connections each year.

EMWD imports 80% of its potable water from Metropolitan Water District of Southern California (MWD) and supplies 20% of its demand through local groundwater resources. The water supplied by MWD is from two sources, the Colorado River and Northern California. The water from Northern California through the State Water Project (SWP) accounts for 75% of EMWD's potable water. Since groundwater production is limited by legislation and supply availability, imported water from MWD has been identified as the source of supply for new development. As EMWD's population grows so will our dependence on imported water and the Bay-Delta system.

Statement of Work, Section 1: Relevance and Importance

EMWD is proposing a feasibility study to expand our current conservation plan. The goal of this study is to investigate and recommend several different methods to increase outdoor conservation by residential customers through offering incentives. Potential projects will be recommended based on a cost benefit analysis. The conservation potential, the number of customers that may participate and the cost of the project will all be considered. This study will have several benefits to the California Bay-Delta. First, the study will allow EMWD to expand its current conservation efforts and further implement EMWD's demand management activities. A reduction of EMWD's water demand will reduce EMWD's dependence on water coming through the Bay Delta. The information in the study about exterior residential conservation incentives will also be useful to other agencies exploring incentives for conservation. Finally the method of determining the cost effectiveness of incentive using the total value of water may be used by agencies throughout California to study other conservation activities.

Reduced Dependence on Water Imported through the Bay-Delta System

EMWD receives over 80% of its imported water from the SWP. Since EMWD's only other source of potable water and groundwater is limited, new development is projected to be supplied through imported water. As EMWD's population grows so will our dependence on imported water and the Bay-Delta system. This study has the potential to help reduce EMWD's dependence on the Bay-Delta System.

EMWD is projecting nearly 26,000 new single family homes will be built within the boundaries of our district from 2005 to 2010. These new homes, in addition to the

nearly 100,000 single family residential home EMWD currently provides water to, will use an average of over 0.5 acre-ft. of water per year (AFY). Over 50% of the average water use per household is used for irrigation. If EMWD can reduce the outdoor water use for residential homes by 10%, there is a potential savings of 3,780 AFY by 2010. That would be more than 4% of EMWD's total water consumption.

This study should recommend several cost-effective methods of providing incentives to single-family residential customers to reduce outdoor water use. These methods can then be implemented to start saving water without overburdening local resources. If after examining many options, it is determined that the cost of the incentive outweighs the local benefit, then EMWD can use the information in the study to apply for financial assistance. If the conclusion of the report is that incentives for single-family exterior conservation will not produce significant water savings, then EMWD can redirect its efforts into other water saving methods. Any of these results would contribute to a stronger and more mature conservation program at EMWD, and each of them would lead to indirect benefit to the Bay-Delta by reducing EMWD's demand for imported water.

The proposed study is meant to complement and expand EMWD's current water conservation efforts. The 2000 Urban Water Management Plan for EMWD identifies the implementation of demand management measures (DMM). Below is a list of DMM's and EMWD's implementation.

DMM 1 - Residential Water Surveys are currently offered to customers upon request. The interior portion of the survey includes measuring flow rates and testing for leaks. The exterior portion of these surveys include measuring landscaped areas, testing sprinkle systems for irrigation efficiency, recommending sprinkler system repairs and educating customers about water efficient landscaping, design and plants. It was estimated that approximately 144 surveys would be completed each year. From 2000 to 2003, 536 surveys have been conducted and 45 acre-feet on water have been saved. As a result of this study, incentives may be offered to encourage participation in this program, or the program may be expanded to offer more incentives to customers who reduce water use outdoors.

DMM 2 - Plumbing Retrofits are part of the residential water surveys and part of the ultra-low flush toilet replacement program. The goal of EMWD is to implement this program at the rate of 1000 pre-1992 single- and multi-family customers a year with, estimated water savings of 10 AFY. Since the plumbing retrofits are for indoor water conservation, they would not be affected by this study.

DMM 3 – Distribution System Water Audits, Leak Detection and Repair is part of EMWD's ongoing operational and maintenance procedures.

Approximately 1,500 miles of main is inspected each year. Between 1995 and 2000 unaccounted water loss dropped from 12% to about 5% per year.

DMM 4 – Metering with Commodity Rates EMWD is fully metered for all customer sectors and all customers pay the sector rate for each billing rate consumed. Irrigation meters are required for all large landscape accounts and EMWD has separate meters for recycled water meters. As new services are added, meters are installed and read. Older meters are calibrated and replaced as needed. Metered accounts may result in a 20% reduction of water demand compared to non-metered rates. As a result of this study, landscape meters may be proposed to monitor single-family residential use.

DMM 5 – Large Landscape Water Audits and Incentives are implemented through an irrigation survey for landscape customers. During the survey, a team from EMWD or a contracted agency determines a water budget for a site. If the customer exceeds the budgeted amount of water, a monetary assessment is charged. EMWD estimates that landscapes upgraded based on survey recommendations reduce demand at the site up to 15%. By 2002, 57% of EMWD's irrigation customers had been surveyed. The study EMWD is proposing will be targeting single-family residential customers, most of which will not have large landscape areas, so the study will not affect this DMM.

DMM 6 – Landscape Water Conservation Requirements are part of a landscape ordinance established by EMWD in 1991 and modified in 1992 and 1999. All commercial dedicated landscape meters with landscaped areas of over 3,000 square feet are subject to this landscape ordinance. The costs and water savings are monitored for landscape accounts and EMWD estimated water demand at each site is reduced 10-15% due to these surveys. The study EMWD is proposing may recommend incentives for single family residences with landscape areas less than 3,000 square feet to change landscaping. It could also determine that incentives alone may not be enough to encourage landscaping changes and other alternatives should be explored.

DMM 7- Public Information is an important part of EMWD's conservation program. Information on water conservation is offered through workshops, bill inserts, EMWD's web site, brochures, and community speakers, paid advertising and special events every year. In 2003, 450 people attend residential waterwise workshops and 87 people attend public conservation courses for landscape professional EMWD offers. EMWD is developing a survey program to track the effectiveness of its public information campaign and believes it is in the public's best interest. The study EMWD is proposing will not affect our public information efforts.

DMM 8 – School Education is also part of EMWD's conservation efforts. A full time staff at EMWD provides educational material for all grade levels, posters, tours and water conservation contests. EMWD has no method to track the

effectiveness of its school education campaign but believes it is in the public's best interest. The study EMWD is proposing will not affect our school education program.

DMM 9 - Commercial and Industrial Water Conservation is encouraged through audits offered upon request to any commercial and industrial customer. EMWD staff reviews customers' water use record a year after the survey and follows up with customers who are not experiencing a water use reduction as expected. It is estimated that 10 audits are conducted each year with water savings of 152 AFY. This DMM will not be influenced by the proposed study.

DMM 10 – New Commercial and Industrial Water Use Review is done by the New Business Department at EMWD. Plans are reviewed for water use before a permit is issued to a new customer. This DMM is not affected by the proposed study.

DMM 11 - Conservation Pricing, Water Service and Sewer Service - EMWD has a uniform rate structure. Individual customers are each metered and charged according to the amount of water they use. EMWD monitors the number of violators who use water in excess of historical use. This DMM may be expanded to offer price incentives to customers that reduce their water demand from historic levels based on recommendations from the proposed study.

DMM 12 - Landscape Water Conservation for New and Existing Single Family Homes is currently addressed through voluntary water audits. The goal of the proposed study is to address incentive programs for landscape water conservation in single-family homes. At the conclusion of the study, EMWD should have several methods that may be used to increase outdoor conservation for these customers in a cost-effective manner. As the number of single-family homes within EMWD rises dramatically, we have the opportunity to multiply the effect of landscape conservation.

DMM 13 – Water Waste Prohibition is implemented through Ordinance 72.17 with information on regulations, restrictions and enforcement. The number of violations has been reduced since the implementation of the ordinance, although EMWD does not have a way to measure the water savings. This DMM is not affected by the proposed study.

DMM 14 - A Water Conservation Coordinator is a full time designated staff person at EMWD and works diligently at improving EMWD water conservation activities. The Water Conservation Coordinator is supportive of the proposed study and will use the results of the study to encourage additional conservation.

DMM 15 - Financial Incentives are only offered in terms of alternative sources of water. EMWD does not offer incentives in the form of a rate structure by sources such as recycled water cost significantly less than potable water. This

study may recommend financial incentives that can be offered to the single-family residential customers that account for approximately 97% of EMWD's meters. By exploring cost-effective ways of offering incentives, this DMM could be initiated.

DMM 16 – Ultra Low Flow Toilet Replacements has occurred in EMWD since 1993. EMWD offers rebates with funding through MWD and over 15,050 toilets were replaced from 1993 to 2003 with approximately 522.5 acre-feet of water saved. It is expected that about 1,000 toilets will continue to be replaced each year. The proposed study will not affect this DMM.

In addition to the measures listed in the UWMP, EMWD has implemented several other rebate programs. Since 2001, rebates have been offered for high efficiency clothes washers. Rebates 482 washers have been made to residential customers and 158 to commercial and industrial customers. There have also been rebates to commercial, industrial and institutional customers for 23 waterless urinals installed; 5 CT conductivity controllers installed, 13 water brooms and 337 pre-rinse spray nozzles. EMWD has also given a water broom to every school in our service area.

By expanding EMWD's existing demand management measures, this study would reduce EMWD's demand on imported water, including water from the Bay-Delta system.

Additional Benefits

In addition to the potential water savings by EMWD, this study would be useful to other agencies researching incentives for outdoor conservation by single-family residential customers. The report delivered at the conclusion will describe the incentives studied for the report, the cost of each incentive and the potential benefit. In addition, EMWD's single-family residential market will be studied to decide the causes of inefficient water use. Other water suppliers, with a similar customer base, could use this information to assist them in making conservation decisions.

The method used in this study can also benefit parties interested in water conservation. EMWD proposes to examine conservation measures from a cost-effective viewpoint. By determining if a project is locally cost-effective, decision-makers can make wise and efficient investments in conservation.

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

EMWD is proposing a study to determine the feasibility of providing incentives to encourage outdoor water conservation by single-family residential customers served by EMWD. The study would have four major components: analysis of conservation potential, quantification of potential savings, development of an

incentives palette with cost, and a recommendation for a cost-effective incentive program. Our goal is to expand our current conservation program using methods that are cost-effective and have the most potential to reduce outdoor water use by single-family homes.

The first component of the study would be to analyze the conservation potential for the single-family residential market. A review of EMWD sales market shows that over 54% of our single-family residential meters used less than 0.5 AF of water in 2003, and 46% of those used less than 0.3 AF. It is unlikely that these customers would be able to increase their conservation efforts significantly. 39% of the single-family residential meters used between 0.5 AF and 1.0 AF in 2003, and 6.7% of the meters used between 1 and 5 AF. There were less than 0.1% of meters using between 5 and 50 AF of water. This means that only 45.9% of our meters account for 69.4% of the water demand from single-family residential customers. The customers using more than 0.5 AF of water per year would be the most likely targets for conservation efforts. However, it may prove difficult and expensive to change their water use behavior.

This study would look at water use to determine what is causing the higher rates of use. It could be larger lots, landscape preference, the relative cost of water, or simply indifference. Is it an inefficient use of water or just simply a need for more water? Much of the information needed could be gathered using information EMWD could already access. Using our existing database we can look at water use compared to lot sizes and area income levels. After the cause for high water use is determined, the study would explore what incentives EMWD could provide to help single-family customers increase their water use efficiency outdoors.

Once several methods of conservation are determined, the annual quantity of water that could be saved will be calculated. The effect of conservation during peak demand periods should also be quantified. Since the single-family residential meters account for nearly three quarters of EMWD's domestic market, and peak demand is due to increased outdoor use during hot summer months, improving efficiency outdoors could potentially have a significant effect on peak demand.

The second portion of the study would quantify the economic savings to EMWD and our customers resulting from water use efficiency. There are several ways that conservation can decrease cost. The immediate benefit of water conservation would be to the consumer. Less water use means a lower water bill. Another potential saving that should be explored is supply development costs. If the conservation potential identified in the first part of the study is met, could EMWD delay the development of new supply. Another cost savings could be for capacity reservation costs. EMWD has to pay for enough capacity from MWD to meet its peak day demand. Reducing the peak could reduce this cost. Finally if the peak demand can be lowered enough, there could be savings for infrastructure costs. New facilities are not designed for average day demands

but peak day demands. Reducing peak day demand could result in smaller facilities, costing less.

After the potential conservation has been analyzed and the potential savings have been calculated, the cost of incentives that could be offered to customers must be estimated. Methods identified in the first portion, each have a price tag associated with them. The goal of this portion of the study would be to quantify that price tag.

Finally, after the costs and benefits of increasing conservation in single-family residential homes are determined, an analysis of the cost effectiveness of offering different incentives needs to be evaluated. It needs to be determined which projects can be funded locally and which projects may need financial assistance from outside entities. It would also discuss scale of incentive programs. Would some projects be cost effective on a larger scale? Will smaller projects have any significant effect on peak demands? The last portion of the study would describe a cost effective incentives program.

This study would be conducted using the talents of staff at EMWD and a consultant familiar with conservation techniques and planning. Appendix A contains a task list and schedule for the conservation study we are proposing.

Statement of Work, Section 3: Monitoring and Assessment

The purpose of this study is determining a method of conservation that is cost - effective. The net water saving may be realized within a year of completing the study, if a cost-effective method of conservation can be implemented quickly or it may not result in savings for several years. The benefit from this study may also be that outdoor water conservation by residential is not locally cost-effective and needs funding from sources outside of EMWD, or EMWD may need to look for other methods of conservation.

The completion of this study is estimated to take approximately seven months. There are several tasks and milestones that will be measured during preparation. At each milestone, EMWD staff will review the work of the consultant preparing the study for completeness and accuracy. As milestones are met, payments will be made to the consultant. At the completion of the study, a final report will be produced. A copy of the draft report will be sent to the Department of Water Resources (DWR) for comment before it is finalized. After a review period, a final draft will be prepared and distributed.

Upon completion of the study, the results will be forwarded to DWR. Copies will also be sent to sub-agencies that depend on EMWD. These agencies can use the report to assist them with their conservation efforts. The results will also be presented to the Board of Directors of EMWD with staff recommendations on implementation.

After EMWD and DWR have had a chance to review the study, EMWD will arrange to meet with DWR to discuss tracking the results of implementing recommended conservation incentives.

Qualifications of the Applicants and Cooperators

The Resource Development department of EMWD will manage this study, which is lead by Parameshwaren Ravishanker, Assistant General Manager of Resource Development. He has 26 years of experience in leadership and direction. Parameshwaren Ravishanker 's resume is included in Appendix B.

Elizabeth Lovsted will be the project manager for this project. She will be responsible for gathering the information EMWD will provide to the consultant, coordinating the transfer of information to the consultant, monitoring the consultant's progress, tracking invoices for the consultant and any other activities necessary to insure that a quality report is completed on time and within budget. Elizabeth has been a project manager for several large housing developments as a consulting engineering before joining EMWD in 2003. In her time at EMWD she has managed two studies regarding growth within EMWD, and worked with several different developers to produce Water Supply Assessments for new projects. In addition to her management experience, Elizabeth works with geographic information systems (GIS) and has spent the past year developing a database for tracking new development projects within EMWD. Elizabeth's resume is included in Appendix B.

Another EMWD employee who will work on the feasibility study is Charles Crider. Charles has over 15 years of experience with GIS data. He will be working with Elizabeth to provide information from EMWD to the consultant using our extensive GIS database.

In addition to EMWD employees, a consultant will be used to prepare the study. EMWD has already investigated the cost for the scope-of-work involved for this study and will select and contract with a consultant with significant conservation experience after the grant funding decision is made by DWR.

EMWD has not participated in any previous water use efficiency grant projects, but looks forward to working with DWR on this proposed study.

Through out EMWD's water service area there are several areas that meet the qualifications of a disadvantaged community. The 2000 census tract shows that the median household income for all of EMWD is \$39,715 about 84% of the statewide median household income. From a household perspective, about 51% of the households in EMWD's water service area are located in disadvantaged communities. Since the study we are proposing would benefit all of EMWD's service area, it would be logical to take into account that much of that area is disadvantaged. See Appendix C for a table and map of this information.

Outreach Community Involvement and Acceptance

EMWD is committed to insuring the success of the proposed feasibility study by committing the intent of the study prior to completion and the results of the study once the study is completed. Internally, it is important that this study be presented to the Board of Directors, executive staff, the conservation coordinators and members of the conservation staff. Externally, it is EMWD's desire to present key elements of this study to sub agencies and community organizations so that this study would have a regional impact beyond EMWD's boundaries.

As a consultant is selected and the study begins, Resource Development will work closely with the conservation group to receive their input on selecting a consultant and gathering information. The conservation group will be included in meetings with the consultant and apprised of progress as the study proceeds. The conservation group will be instrumental in implementing the results of the study so their cooperation will be very important to the success of the study.

In addition to the conservation group, Water Resources will brief members of the Board Planning Committee as progress is made on the study. This group of board members and executive staff will be part of making decisions about implementing the study results. At the completion of the study, a presentation on the study and the recommendations made will be given to the full Board of Directors at a public Board Meeting.

Outside of EMWD's organization, EMWD will reach out to water sub agencies that depend on EMWD and other public organizations. After selecting a consultant and beginning the conservation study, EMWD will provide a summary of the study's goal and methodology and offer to do a presentation for Rancho California Water District, Lake Hemet Municipal Water District, City of Hemet, City of San Jacinto, City of Perris, Nuevo Water Company and Elsinore Valley Municipal Water District. These are all sub agencies that may be able to use the study report for their own conservation programs.

EMWD will also send summary information to citizen groups concerned about water issues such as the board advisory committees and the San Jacinto River Watershed Council. The County of Riverside Water Task Force on Water Conservation will also receive information about this study. The task force is a group of public officials from MWD, the County of Riverside, EMWD and other organizations, building industry representatives and other interested stakeholders that are developing recommendations for conserving water in Riverside County. This task force has the potential to influence water use in Riverside County as the County experiences exponential growth. EMWD will also send a final copy of this study to these groups and any other interested groups and offer a to make a presentation of the study methods and results.

Because this study will contain information that can reduce not only EMWD's demand but increase water use efficiency throughout California, it will be our goal to distribute this study's information throughout the region.

Innovation

EMWD'S proposed feasibility study is innovative because of both its method and subject matter. The approach this study takes is to examine the cost effectiveness of conservation. The study determines the benefit of incentives by examining the full value of water. The study's focus is outdoor water conservation by residential customers.

EMWD is hoping to expand its conservation program wisely, using cost effectiveness as a different way to approach incentive programs. The feasibility study will develop a list of recommended conservation incentive programs that can be added to our current efforts and determine if any of them can be cost effective. The study will examine the total cost of water, purchase price, reservation price and capacity costs to compare with the price of conservation. The results will determine whether incentives alone can produce enough water savings to be cost effective from a local perspective or if other approaches are more efficient.

Since plumbing codes and current programs deal with much of the water waste indoors, EMWD is beginning to look at the exterior of residential homes as the next place to save water. Incentives and programs that deal with residential water use outdoors may be able to save thousands of acre-feet each year reducing EMWD's demand. A vast number of new homes that have been built and will continue to be built within EMWD's boundary make it important to address conservation as customers install new landscaping and add new pools. It is also important to address the possible water savings from conservation as EMWD builds new pipelines and infrastructure to deliver water to new homes and develop new sources of supply for new customers.

This study will help us spend the public money with which we are entrusted efficiently and effectively to benefit the District, our customers and our suppliers. It will also be useful to the water agencies we sell for, as they develop their own conservation plan. Finally, the unique approach of examining the total cost of water may be used as a blueprint for similar studies across California, as other agencies increase conservation efforts.

Benefits and Costs

There are several benefits of the feasibility study we are proposing. The first benefit is the reduction of EMWD's water demand, the second is the information about incentives for residential outdoor conservation, and the third is the method of determining the cost-effectiveness of conservation incentives. The costs

associated with the study are for EMWD staff wages and benefits and consultant time.

Reduction in EMWD's water supply will be an indirect by-product of the proposed feasibility study. Incentives for outdoor conservation by residential customers have the potential to reduce water demand in EMWD significantly. The average water use for a single-family residential meter in EMWD is 0.55 AFY. One estimate attributes an average of 0.31 AF is used for irrigation per meter. The projected number of residential water meters that EMWD will have is 132,400 in 2010. If EMWD can reduce the amount of water residential customer's use for irrigation by 10%, the resulting water savings would be 4105 AF in 2010. Since 75% of EMWD's imported water is from the SWP, the indirect benefit to the Bay-Delta would be a reduced demand of 2500 AFY. There is a great potential for water savings by residential customers outdoors. This study will determine if incentives can be used cost effectively to encourage efficient water use.

The results of the study may determine that incentives are not cost effective or that residential water demand cannot be significantly reduced with incentives. If incentives are not cost effective, then EMWD may apply for financial assistance for implementation of recommended incentives. If incentives will not produce significant water savings, EMWD can turn its attention to other methods of promoting water conservation. Any of these study outcomes will guide EMWD as it grows and strengthens its conservation program, and will lead to a reduction in water demand.

In addition to reducing EMWD's water demand, this study will be a source of information for any agency or group researching residential water conservation. It will provide an explanation of water use by residential customers, a description of several different methods of reducing extra water use and the cost of each method. Other agencies and groups can use this information in their conservation planning. EMWD will distribute the completed report to its sub agencies and any interest groups to help promote regional water savings.

Finally, the method proposed to complete this study include an examination of the cost effectiveness of conservation incentives. This study will help determine the cost effectiveness by examining the total cost of water. The total cost includes the cost of supply development, the cost of reserved capacity and the cost of infrastructure. This method can be applied to other methods of conservation and to other agencies to increase water use efficiency throughout California.

The cost of the study will be entirely administrative. Less than \$40,000 is estimated for staff to gather information, prepare the application, manage the project, review the results and prepare and make presentations. The remaining \$150,000 is for a consultant to conduct the study and prepare the results. See Appendix D for Tables C-1 and C-5.

Conclusion

EMWD is located in one of the most rapidly growing regions in the state of California. Each year thousands of new homes are adding to EMWD's demand for imported water. More than 75% of EMWD's imported water is supplied by MWD through the Bay-Delta System. EMWD is requesting funds to prepare a feasibility study about incentives for outdoor conservation by residential customers. The study will indirectly decrease demand for imported water through the SWP. The study will be an important source of information for parties interested in exterior conservation, and the study will introduce a cost-effective approach to conservation that will take into account the total cost of water. EMWD believes this is an important study that can have impact throughout the region as we tackle the challenges of water supply and population growth.

Applicant: **Eastern Municipal 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 applicants ¹				Quantitative Benefits - where data are available ²
	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	Reduction of demand on Bay-Delta System	Unknown	Unknown	Indirect	0
Local	Reduces Total Demand	Unknown	Unknown	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.

Incentives for Outdoor Conservation by Residential Customers- A Feasibility Study

Task Schedule and Project Plan

Task	Projected Cost	Time	Dates
Prepare and submit proposal for Water Use Efficiency Fund	\$3,000	1 month	Dec- 04 to Jan-05
Wait for funding decision from Department of Water Resources (DWR)		5 months	Jan-05 to May-05
Negotiate and execute contract		6 months	June-05 to Dec-05
Select consultant to prepare study and finalize scope of work		1 month	Nov-05
Study Begins			Dec-05
Part I Determine Conservation Potential	\$52,000	9 weeks	09-Dec-06 to 14-Feb-06
Gather data. EMWD provides consultant with any available data on water use compared to lot size, local income and any other information relevant to out water conservation be residential customers.		2 weeks	
Consultant will review information provided by EMWD and any other information necessary to determine the cause of higher water use and determine potential Water Savings from Conservation		4 weeks	
Research methods of conservation and determine several methods that would be applicable to promote outdoor conservation by EMWD's residential customers.		2 weeks	
Estimate water saving s potential for each conservation method. Estimate in terms of annual demand and peak demand reduction,		1 week	
Distibute study summaries to agencies and oganizations and make presentations.			
Part II Quantify Potential Economic Savings	\$50,000	6 weeks	17-Feb-06 to 31-Mar-06
Estimate average water saving for participating customers and average savings on water bill.		1 week	
Research and evaluate impact of conservation on planned supply development.		2 weeks	
Discuss project costs and benefits of delaying costs due to conservation.			
Research and evaluate impact of conservation on the price of reserve capacity.		1 week	
Discuss reservation costs and if the benefits of a reduced peak will effect the amount of capacity that will need to be reserved.			
Research and evaluate impact of conservation on infrastructure costs. Discuss new projects and possible savings if conservation programs are in place.		2 weeks	

Incentives for Outdoor Conservation by Residential Customers- A Feasibility Study Task Schedule and Project Plan

Task	Projected Cost	Time	Dates
Part III Incentives Palette	\$20,000	2 weeks	31-Mar-06 to 14-Apr-06
Evaluate and develop a palette of incentives to offer to residential customers. Estimate the cost of incentives programs.			
Part IV Cost Effective Program	\$20,000	2 weeks	14-Apr-06 to 01-May-06
Describe cost effective methods of conservation			
Prepare and delivers rough draft of study report and recommendations.	\$20,000	2 weeks	01-May-06 to 15-May-06
Present rough draft to board planning committee and route through EMWD and to DWR for comment.		1 month	15-May-06 to 12-Jun-06
Finish Study. Prepare final draft of study	\$20,000	2 weeks	12-Jun-06 to 26-Jun-06
Present Study results to EMWD Board of Directors. Send copy of study results to DWR. Send study to and offer to make presentations to EMWD water sub Agencies including Rancho California Water District, Lake Hemet Municipal Water District, City of Hemet, City of San Jacinto, City of Perris, Nuevo Water Company and Elsinore Valley Municipal Water District, San Jacinto Watershed Council, Riverside County Task force and Director Advisory Groups.	\$3,000	1 month	26-Jun-06 to 31-Jul-06
Set up meeting with DWR to discuss results			Aug-06

