

2004 Water Use Efficiency Proposal Solicitation
Package

for the

Upper San Gabriel Valley Municipal Water District

Landscape and Irrigation Project

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):

Upper San Gabriel Valley Municipal Water District

4. Project Title:

USGVMWD Landscape and Irrigation Project

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

Name, title

Timothy Jochem, General Manager

Mailing address

**11310 Valley Blvd. El Monte,
CA 91731**

Telephone

(626) 443-2297

Fax.

(626) 443-0617

E-mail

Christy@usgvmwd.org

6. Contact person (if different):	Name, title.	Elena Layugan, Conservation Coordinator
	Mailing address.	11310 Valley Blvd. El Monte, CA 91731
	Telephone	(626) 443-2298
	Fax.	(626) 443-0617
	E-mail	Elena@usgvmwd.org

7. Grant funds requested (dollar amount): **\$137,470**

(from Table C-1, column VI)

8. Applicant funds pledged (dollar amount): **\$141,350**

9. Total project costs (dollar amount): **\$278,820**

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

10. Percent of State share requested (%): **49%**
(from Table C-1)

11. Percent of local share as match (%): **51%**
(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.

(a) yes

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

(b) no

11. Is your project required by regulation, law or contract? (a) yes
If no, your project is eligible. (b) no

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

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

12. Duration of project (month/year to month/year): **(9/05 to 3/06)**

13. State Assembly District where the project is to be conducted: **49**

14. State Senate District where the project is to be conducted: **24**

15. Congressional district(s) where the project is to be conducted: **32**

16. County where the project is to be conducted: **Los Angeles County**

17. Location of project (longitude and latitude) **Longitude 118° 1' 54"**

Latitude 34° 3' 40"

18. How many service connections in your service area (urban)? **10**

19. How many acre-feet of water per year does your agency serve? **51,700 AFY – Average for fiscal years '00-'04**

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, _____ median household income

(b) no

2004 Water Use Efficiency Proposal Solicitation Package
APPENDIX B: Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

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

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

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

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

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

Signature

Name and title

Date

Statement of Work

Section 1: Relevance and Importance

The main goals of the Upper San Gabriel Valley Municipal Water District (USGVMWD) Landscape and Irrigation Project (Project) are to: 1) Provide a model water efficient commercial landscape and irrigation system which local businesses can replicate, 2) Provide a model water efficient residential landscape and irrigation system which local homeowners can replicate, 3) Provide educational opportunities for the public, 4) Increase the irrigation efficiency of the USGVMWD irrigation system, thereby reducing water consumed and allowing for conserved water to be used elsewhere within USGVMWD boundaries.

The main objective of the Project is to introduce local businesses, USGVMWD urban water suppliers, and the public to readily available commercial and residential irrigation system water conservation methods, equipment, and water efficient plants, shrubs, grasses, and practices. The Project will also conserve water consistent with the USGVMWD December 2000 Urban Water Management Plan (UWMP) Best Management Practices (BMP's). BMP No. 9 Commercial and Industrial Water Conservation is listed as a water conservation measure that will help USGVMWD meet the main objective of conserving water. Implementation of the Project will help USGVMWD meet its water conservation objective.

The Project will reduce the amount of local water groundwater used at the USGVMWD headquarters. Conserved water can be used elsewhere within the USGVMWD boundaries. Additional reduction of Bay Delta water may be achieved through local businesses, USGVMWD urban water suppliers, and the public adopting these conservation techniques.

The Project helps fulfill the USGVMWD UWMP water conservation goal of conserving water. The Project also helps USGVMWD meet BMP No. 9 Commercial and Industrial Water Conservation, which is consistent with both the USGVMWD UWMP as well as Metropolitan Water District of Southern California's (MWD) Integrated Resource Plan.

USGVMWD has implemented the following water demand management strategies using various methodologies, programs, and activities:

Water Supply & Reuse

BMP 03: System Water Audits, Leak Detection, and Repair

BMP 07: Public Information Programs

BMP 08: School Education Programs

BMP 10: Wholesale Agency Assistance Programs

BMP 11: Conservation Pricing

BMP 12: Conservation Coordinator

USGVMWD reports implementation of the programs to the California Urban Water Conservation Council (CUWCC) on a biennial basis.

The Project will be a new water management activity for USGVMWD. Local water purveyors, businesses, community groups, and residents can be exposed to the Project and possibly implement ideas found in the Project at their own establishments/homes.

Section 2: Technical/Scientific Merit, Feasibility

The Project will provide water savings using state of the art irrigation equipment and materials. The Project was designed by a professional Landscape Architect licensed in the State of California. A California registered Civil Engineer performed oversight of the design and has certified the Project as feasible. The Project consists of the following components: 1) Fully automated irrigation controller, 2) Irrigation system piping and connections, 3) Multi-outlet emission devices and distribution tubing, 4) Micro-spray devices, 5) Backflow prevention devices, 6) Quick couplers, and 7) Various varieties and species of native trees, shrubs, and ground covers (including grass) and identification plaques. Each of the Project components will be discussed below.

The 12-station state of the art irrigation controller will be used to operate the irrigation system and provide for startup and shutdown of the irrigation drip- and micro-spray- sprinklers. Multi-outlet emission devices and distribution tubing (drip irrigation) and micro-spray irrigation devices will be used to maximize the use of irrigation water, thus delivering just enough water to maintain a healthy and thriving landscape. Backflow prevention devices will help keep the system pressurized when not in use, help maintain the integrity of the irrigation system, and prevent water delivered to the distribution system from flowing back into the supply system. Quick couplers can be used to connect a hose to the irrigation system. The licensed landscape architect designed the planting plan so that the front portion of the USGVMWD property, facing Valley Blvd, would be representative of a commercial landscape, and the sides and back portions of the property would be representative of local business and residential landscapes. The Landscape Architect designed the Project with as many native trees, shrubs, and ground covers as possible so that local commercial and public visitors could get ideas to implement at their establishments/homes. The Project will also be used to teach the public about water conservation.

Table 1 contains a project plan, work schedule with tasks and deliverable items, start and end dates, and projected costs for each task of the Project. The total estimated cost of the Project is \$278,820, with work commencing in mid-September 2005 and ending in late March 2006. Construction is expected to commence in mid-September 2005 and conclude by the end of 2005. A 90 day establishment period has been specified for the maintenance of healthy plants during the early planting stage of the Project.

Project plans and specifications are attached to this proposal and are generally discussed in the flowing paragraphs.

Plans, Specifications, and Certification Statement

A copy of the plans and specifications for the proposed USGVMWD Project are included in this package. The plans and specifications provide all necessary documentation for constructing the Project. Attached is a certification statement that verifies that the project is feasible. A California registered civil engineer has reviewed the Plans and Specifications attached hereto.

Environmental Documentation

The Project is not defined as a "project" as stated in California Environmental Quality Act (CEQA) and is exempt from CEQA documentation and does not require National Environmental Policy Act (NEPA) documentation.

All permitting requirements, including local, county, State, and federal shall be provided for. It is anticipated that only local (City of El Monte) construction permits will be required for the Project.

Section 3: Monitoring and Assessment

An integral part of the Project is reporting water usage and savings. The Project monitoring and evaluation plan will provide detailed information showing the quantity of water saved on a quarterly and annual basis. Items to be included in the Project monitoring and evaluation plan are listed below.

Project monitoring and evaluation plan

USGVMWD staff will monitor the Project from beginning to final construction and provide evaluation of the water savings and benefits for a period of five (5) calendar years after Project completion. Quarterly and annual water savings and benefits will be reported, as well as general effectiveness of the Project. The information obtained using the methodologies listed below will yield water savings data that is accurate to about one (1) cubic foot of water, however, without a separate water meter for the new irrigation system, only a comparative analysis to previous estimated water usage can be made. Anticipated annual water savings will be about 0.76 AF.

Pre-project conditions

USGVMWD water usage records (water bills) for the twelve (12) month period (December 2001 through December 2002) before irrigation system shutdown will be compiled. Monthly water usage records will be reviewed and the amount of irrigation water used on a monthly basis will be determined (Baseline Usage). A database (Microsoft Access, Excel, or comparable format) will be created to store and retrieve

information on water usage. Monthly information will be entered into the database and monthly, quarterly, and annual water use will be determined.

Post-Project monitoring and reporting

After construction of the Project is complete, USGVMWD monthly water usage records will be compiled and entered into the database. The amount of irrigation water used will be determined on a monthly, quarterly, and annual basis. The amount of water actually conserved will be determined by subtracting the monthly water used with the new irrigation system from the monthly water usage before the new irrigation system was installed. Table 2 shows a template for determining the monthly, quarterly, and annual quantity of water conserved.

Monthly data, such as the example format from Table 2, will be analyzed to determine the amount of irrigation system water conserved, monthly, quarterly, and annually, and compared to the estimated amount of water conserved (listed in Table C-5 Project Annual Physical Benefits). Quarterly and annual fiscal reports will be filed with the Department of Water Resources (DWR) (January 15, April 15, July 15, and October 15) showing the actual quantity of water conserved, quarterly, and annually, and a comparative analysis performed to evaluate success of the Project in relation to Project goals and objectives. The report will also show Project benefits.

The quarterly and annual reports will discuss impacts that changes in weather could have affected the amount of water conserved. Years of extremely high or low precipitation could affect the amount of water conserved.

All information collected, database(s), quarterly, and annual reports, will be stored on USGVMWD personal computers and archived on a routine basis. The information will also be stored on CD-ROM media for easy distribution. Quarterly and annual reports will be transmitted to DWR through electronic mail (Email) and/or via the U. S. Postal Service on CD-ROM. Access to the information will be made available to others upon request. The cost to implement and maintain the monitoring and evaluation plan, quarterly and annual reporting, will be borne by USGVMWD as overhead.

As stated previously, quarterly and annual reports will be filed with DWR for a period of five (5) years. The final annual report, after five (5) years of Project operation, will contain a reevaluation of the cost/benefit analysis.

Qualifications of the Applicants and Cooperators

A resume for the project manager is attached to the end of the proposal. No external cooperators will be used for this project.

USGVMWD has implemented the following water use efficiency grant projects:

1. Olive Sports Park

The Olive Sports Park improvements were successfully completed and water savings are being analyzed.

USGVMWD does not qualify as a disadvantaged community.

Outreach, Community Involvement, and Acceptance

The USGVMWD employs a full time Conservation Coordinator, who routinely advises the public about various water conservation programs USGVMWD participates in. The conservation coordinator maintains a network of contacts with various local governments, community based organizations (CBO's), watershed groups, and public educators. Through these contacts and regularly produced informational items, newsletters and the USGVMWD web site, the conservation coordinator will disseminate information about the Project.

Currently, local governments, CBO's, watershed groups, and public educators have not been formally informed of the Project. Information about the Project will be made available to the various groups as commencement of construction draws near.

It is anticipated that local organizations will be supportive of the Project, with no Project detractors. The Project will provide informational and educational benefits to all of the various groups mentioned previously. Third party impacts will be minimal and the Project is not expected to adversely affect the surrounding community. Over the lifetime of the Project, about 20 years for physical facilities and up to about 40 years for tree's and shrubs, thousands of individuals will have the opportunity to visit the Project and receive as yet quantified social benefits.

Opposition to the proposed project is not anticipated at this time.

Innovation

The Project will use a state of the art irrigation controller and the most technologically advanced drip- and micro- irrigation components. While not necessarily considered innovative technologies by themselves, the Project uses the most technologically advanced equipment and materials available off the shelf. Installation of similar equipment and materials has proven useful in other areas of the State.

Benefits and Costs

Anticipated water conserved, about 0.76 AF per year, through implementation of the Project will be made available to use in other portions of the service area. This water can be used for other purposes, especially during drought conditions. Water

conserved through implementation of the Project will reduce demand for Bay-Delta water.

Costs and Benefits Tables

The Project will conserve approximately 0.76 AF of water per year at a cost of almost \$13,696 per AF (cost per AF saved with agency contribution). Calculation of the quantity and cost of water conserved is described below.

Table 3 shows estimated existing annual water use (EEAWU) of 0.92 AF and Table 4 shows estimated future annual water use (EFAWU) of 0.16 AF. EEAWU AND EFAWU was calculated using the following formula:

$$\text{EEAWU or EFAWU} = [\text{Et} \times \text{Kc} \times \text{HA}] / [\text{DE} \times \text{AE} \times 1200]$$

Where: Et = reference evaporation rate,
Kc = crop coefficient,
HA = total irrigated area in square feet,
DE = distribution efficiency of irrigation system,
AE = application efficiency of the irrigation system, and
1200 = conversion factor to billing units.

Over the five-year reporting period, the Project is expected to conserve about 3.8 AF and over the expected life of the Project (30 years), conserved water will amount to almost 23 AF.

Table C-1 shows a total Project cost of almost \$278,820, with USGVMWD paying \$141,350 including a ten (10) percent contingency and California Bay Delta Program share of almost \$137,470. Annual Project costs are almost \$20,242 using a capital recovery period of thirty (30) years (factor of 0.0726). A capital recovery period of thirty (30) years was used based on useful life of concrete, plants and trees of forty (40) years and a useful life of irrigation system components of twenty (20) years ($30 = [40 + 20] / 2$). A capital recovery factor of 0.0726 was determined from Table C-4. It is understood that Table C-1 will be used as the basis for the contract budget, if the Project is selected for funding.

Total annual operation and maintenance (O&M) costs are estimated as \$1,000 as shown in Table C-2. Annual operation costs were calculated as labor rate (\$8.33/hour) times hours worked per month (5 hours) times months in a year (12) ($\$500 = \$8.33 \times 5 \times 12$). During any month operation activities may include visual inspection for adequate watering of tree's, shrub's and ground covers (including grass), adjustment of the irrigation controller to account for irregular weather conditions, and verification that the irrigation system is operating properly. Annual maintenance costs were calculated as labor rate (\$8.33/hour) times hours worked per month (5 hours) times months in a year (12) ($\$500 = \$8.33 \times 5 \times 12$). During any month maintenance activities may include general maintenance of tree's, shrubs, and ground covers (including grasses) – application of fertilizer, weed and feed, and other general care, visual

inspection of irrigation system, adjustment of irrigation system drip- and micro- spray heads, and irrigation system flushing.

Table C-3 shows total annual Project costs of almost \$21,242. Total annual Project costs include annual costs of about \$20,242 and annual O&M costs of \$1,000 (each described above).

Table C-5 provides the quantitative and qualitative description of benefits to the Bay Delta. The annual water-use efficiency benefits within USGVMWD's service area are estimated to be about 0.76 AF, which will directly reduce the requirement for Bay-Delta water. As mentioned previously USGVMWD's Conservation Coordinator routinely advises the public about various water conservation programs through a network of contacts and regularly produced informational items, newsletters and the USGVMWD web site. Information about the Project will be made available to the various groups as commencement of construction draws near. It is anticipated that local organizations will be supportive of the Project and that the Project will provide informational and educational benefits, as it is considered a demonstration landscape open to members of the public. Implementation of the Project will allow the public to gain awareness of alternatives to high-water use landscaping practices. Additional reduction of Bay Delta water may be achieved through local businesses, USGVMWD urban water suppliers, and the public adopting these conservation techniques.

Table C-6 provides the annual cost savings based on a reduction of Bay Delta water purchase of approximately 0.76 AF per year, which is approximately \$400 per year in savings. The cost savings from additional reduction of Bay-Delta water purchases through local businesses and the public adopting these conservation techniques has not been quantified and is not included.

Table C-7 provides annual cost savings and Project costs as provided in Tables C-6 and C-3.

Table C-8 provides the applicant's cost sharing proportion of almost forty (40) percent. The Project is not economically feasible based on local economic benefit. While the Project is feasible to implement, based on engineering certification, USGVMWD cannot allocate the funds needed to construct the Project.

APPENDIX C: Project Costs and Benefits Tables

Table C- 1: Project Implementation Costs (Budget)

Table C- 2: Annual Operations and Maintenance Costs

Table C- 3: Total Annual Project Costs

Table C-4: Capital Recovery Factor

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

Table C- 6: Project Annual Local Monetary Benefits

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

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

Applicant: Upper San Gabriel Valley Municipal Water District

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

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

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

	Category (I)	Project Costs \$ (II)	Contingency % (ex. 5 or 10) (III)	Project Cost + Contingency \$ (IV)	Applicant Share \$ (V)	State Share Grant \$ (VI)	Life of investment (years) (VII)	Capital Recovery Factor (VIII)	Annualized Costs \$ (IX)
	Administration ¹								
	Salaries, wages	\$5,000	0	\$5,000	\$5,000	\$0	0	0.0726	\$363
	Fringe benefits	\$1,500	0	\$1,500	\$1,500	\$0	0	0.0726	\$109
	Supplies	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Equipment	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Consulting services	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Travel	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Other	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(a)	Total Administration Costs	\$6,500		\$6,500	\$6,500	\$0			\$472
(b)	Planning/Design/Engineering	\$48,350	0	\$48,350	\$48,350	\$0	0	0.0726	\$3,510
	Equipment								
(c)	Purchases/Rentals/Rebates/Vouchers	\$0	0	\$0	\$0	\$0	10	0.0000	\$0
(d)	Materials/Installation/Implementation	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(e)	Implementation Verification	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(f)	Project Legal/License Fees	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(g)	Structures	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(h)	Land Purchase/Easement	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Environmental								
(i)	Compliance/Mitigation/Enhancement	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(j)	Construction	\$197,700	10	\$217,470	\$80,000	\$137,470	30	0.0726	\$15,788
(k)	Other (Specify)	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(l)	Monitoring and Assessment	\$1,500	0	\$1,500	\$1,500	\$0	0	0.0726	\$109
(m)	Report Preparation	\$5,000	0	\$5,000	\$5,000	\$0	0	0.0726	\$363
(n)	TOTAL	\$259,050		\$278,820	\$141,350	\$137,470			\$20,242
(o)	Cost Share -Percentage				51	49			

1- excludes administration O&M.

Applicant:

Upper San Gabriel Valley Municipal Water District

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

Table C-2: Annual Operations and Maintenance Costs

Operations (1) (I)	Maintenance (II)	Other (III)	Total (IV) (I + II + III)
\$500	\$500	\$0	\$1,000

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

Table C-3: Total Annual Project Costs

Annual Project Costs (1) (I)	Annual O&M Costs (2) (II)	Total Annual Project Costs (III) (I + II)
\$20,242	\$1,000	\$21,242

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

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

Table C- 4: Capital Recovery Table (1)

Life of Project (in years)	Capital Recovery Factor
1	1.0600
2	0.5454
3	0.3741
4	0.2886
5	0.2374
6	0.2034
7	0.1791
8	0.1610
9	0.1470
10	0.1359
11	0.1268
12	0.1193
13	0.1130
14	0.1076
15	0.1030
16	0.0990
17	0.0954
18	0.0924
19	0.0896
20	0.0872
21	0.0850
22	0.0830
23	0.0813
24	0.0797
25	0.0782
26	0.0769
27	0.0757
28	0.0746
29	0.0736
30	0.0726
31	0.0718
32	0.0710
33	0.0703
34	0.0696
35	0.0690
36	0.0684
37	0.0679
38	0.0674
39	0.0669
40	0.0665
41	0.0661
42	0.0657
43	0.0653
44	0.0650
45	0.0647
46	0.0644
47	0.0641
48	0.0639
49	0.0637
50	0.0634

(1) Based on 6% discount rate.

Applicant:

Upper San Gabriel Valley 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	The Project will provide physical benefits to water quantity by reducing demand for Bay-Delta Water through conservation techniques (See Page 13)	The Project will provide water conservation benefits over the 30-year lifetime of the project (See Page 12). The amount of water conservation will be quantified on a monthly, quarterly, and annual basis over the lifetime of the Project (See Page 9)	The Project will provide water conservation benefits over the 30-year lifetime of the project (See Page 12).	The Project will provide direct and indirect physical benefits to water quantity by reducing demand for Bay-Delta Water. The project is needed at the local and regional levels to introduce local businesses, USGVWMD urban water suppliers, and the public to readily available commercial and residential irrigation system water conservation methods, equipment, plants, shrubs, grasses, and practices	The Project will reduce the demand for Bay Delta water by approximately 0.76 Acre-Feet per year through conservation techniques. Additional reduction of Bay Delta water may be achieved through local businesses, USGVWMD urban water suppliers, and the public adopting these conservation techniques.
Local	Not Applicable	Not Applicable	Not Applicable	Not Applicable	The Project will provide a cost savings of approximately \$400 per year and drought protection. Drought protection for individual water users is based on reduced demand. Additional cost savings for businesses and public adopting these measures is a result of the Project demonstration and corresponding public education effort.

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.

Applicant:

Upper San Gabriel Valley Municipal Water District

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Table C-6 Project Annual Local Monetary Benefits

ANNUAL LOCAL BENEFITS	ANNUAL QUANTITY	UNIT OF MEASUREMENT	ANNUAL MONETARY BENEFITS
(a) Avoided Water Supply Costs (Current or Future Source)	0.76	Acre Feet	\$400
(b) Avoided Energy Costs	0		\$0
(c) Avoided Waste Water Treatment Costs	0		\$0
(d) Avoided Labor Costs	0		\$0
(e) Other (describe)	0		\$0
(f) Total [(a) + (b) + (c) + (d) + (e)]			\$400

Table C-7 Project Local Monetary Benefits and Project Costs

(a) Total Annual Monetary Benefits [(Table C-6, row (f))	\$400
(b) Total Annual Project Costs (Table C-3, column III)	\$21,242

Table C-8 Applicant's Cost Share and Description

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

Supplemental Documents

Table 1: Project Plan, Work Schedule, and Estimated Costs

Table 2: Quarterly and Annual Water Savings Calculation

Table 3: Estimated Current Water Use Calculations

Table 4: Estimated Future Water Use Calculations

Engineering Certification Statement

Resume

Technical Specifications

**Table 1 USGVMMWD LANDSCAPE AND IRRIGATION PROJECT
PROJECT PLAN, WORK SCHEDULE, and ESTIMATED COSTS**

Task No.	Task Name	Deliverable Items	Start Date	End Date	Projected Cost
1	Site Mobilization	All equipment for construction	9/12/2005	9/16/2005	\$ 18,499.29
2	Site Demobilization	Removal of all equipment	3/6/2006	3/10/2006	\$ 18,499.29
3	Site Demolition	Removal all items listed in Demolition Plans	9/19/2005	10/21/2005	\$ 26,144.29
4	Site Planting	Install all items listed on Planting Plans	11/28/2005	12/30/2005	\$ 58,264.29
5	Site Construction	Install all items listed on Construction Plans	10/3/2005	12/16/2005	\$ 81,804.29
6	Irrigation Installation	Install all items listed on Irrigation Plans	10/24/2005	11/18/2005	\$ 62,664.29
7	90-Day Est./Maint.	Established growth and health of all planted materials	1/2/2006	3/31/2006	\$ 12,944.29
TOTAL					\$ 278,820.00

Table 3 Estimated Current Water Use Calculations

Upper San Gabriel Valley Municipal Water District Landscape and Irrigation Project

ESTIMATED EXISTING ANNUAL WATER USE (EEAWU)

$$EAWU = \frac{52.2 \times Kc \times HA}{DE \times AE \times 1200}$$

EEAWU : Estimated Existing Annual Water Use in Gallons

52.20 : Reference Evapotranspiration Rate (Et) for the Pasadena area

Kc : Crop Coefficient of Plants in selected Hydrozone

0 to 0.25 : Category 1* - Low water use plants

0.25 to 0.35 : Category 2* - Low water use plants

0.40 to 0.60 : Category 3* - Medium water use plants

0.60 to 0.80 : Category 4* - High water use plants

0.80 or greater : Category 5* - High water use plants

* refer to "Water Needs of Plants in the City of Riverside" chart

HA : Total Square Footage of Landscape Area in selected Hydrozone

DE : Distribution Efficiency of irrigation system

0.70 : spray heads

0.85 : gear driven, impact or ball driven rotors

0.85 : bubbler heads

0.90 : drip irrigation

AE : Application Efficiency of the irrigation system

0.85 : irrigation systems with a centralized control system or a series of controllers that are designed to use evapotranspiration rates or systems that use moisture sensors

0.65 : irrigation systems that do not use any of the above soil or weather driven controls

1200 : Conversion Factor to Billing Units

(To convert answer to gallons, multiply the formula by 748)

EEAWU for USGVMWD

Square Footages

Shrubs & Ground Covers by Category:

Category 1: 5,875 s.f.

Hydrozone - Shrub & Ground Cover Areas (Category 1)

$$EEAWU = \frac{52.2 \times 0.7 \times 5,875}{0.7 \times 0.65 \times 1200}$$

EEAWU =	399 billing units/year
	298,295 gallons/year
	0.92 Acre-Feet/year

Table 4 Estimated Future Water Use Calculations

Upper San Gabriel Valley Muncipal Water District Landscape and Irrigation Project

ESTIMATED FUTURE ANNUAL WATER USE (EFAWU)

$$\text{EAWU} = \frac{52.2 \times Kc \times HA}{DE \times AE \times 1200}$$

EFAWU : Estimated Annual Water Use in Gallons

52.20 : Reference Evapotranspiration Rate (Et) for the Pasadena area

Kc : Crop Coefficient of Plants in selected Hydrozone

0 to 0.25 : Category 1* - Low water use plants

0.25 to 0.35 : Category 2* - Low water use plants

0.40 to 0.60 : Category 3* - Medium water use plants

0.60 to 0.80 : Category 4* - High water use plants

0.80 or greater : Category 5* - High water use plants

* refer to "Water Needs of Plants in the City of Riverside" chart

HA : Total Square Footage of Landscape Area in selected Hydrozone

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0.65 : irrigation systems that do not use any of the above soil or weather driven controls

1200 : Conversion Factor to Billing Units

(To convert answer to gallons, multiply the formula by 748)

EFAWU for USGVMWD

Square Footages

Shrubs & Ground Covers by Category:

Category 1:

6,225 s.f.

Hydrozone - Shrub & Ground Cover Areas (Category 1)

$$\text{EFAWU} = \frac{52.2 \times 0.2 \times 6,225}{0.9 \times 0.85 \times 1200}$$

EFAWU =	71 billing units/year
	52,954 gallons/year
	0.16 Acre-Feet/year



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FAX: (480) 839-6560



Project Feasibility Certification

This hereby certifies Upper San Gabriel Valley Municipal Water District's Landscape and Irrigation Project (Project) as feasible.

Jeff Helsley, P.E., Project Manager
Engineering Manager,
Stetson Engineers Inc.

Date

JEFFREY D. HELSLEY, P.E.

Supervising Engineer

Mr. Helsley joined Stetson Engineers, Inc. in 1999 as project manager for water rights quantification and valuation studies, alternative water supply studies, water resource management studies, and groundwater recharge feasibility studies.

His experience includes employment with the Los Angeles County Department of Public Works in the Hydraulic/Water Conservation Division. As a Supervising Civil Engineer I in the Planning Unit, he was responsible for studies to develop improvements to the County's injection barriers to prevent seawater intrusion, and studies of groundwater recharge optimization.

Mr. Helsley was also formerly the District Engineer and Assistant General Manager of the Water Replenishment District of Southern California, where he was responsible for the development and implementation of programs to enhance groundwater recharge, improve groundwater basin management, and protect groundwater quality.

EDUCATION: M.S. Environmental Engineering
University of Southern California, Los Angeles (USC), 1982
B.S. Civil Engineering
California State University, Los Angeles (CSULA), 1981

CREDENTIALS: Civil Engineer No. 039599, California, 1985

**PROFESSIONAL
EXPERIENCE:** 20 years

SELECTED PROJECTS:
Chino Pipeline and Facilities Improvements Project

- Well-site review, permitting and design
- Well construction oversight
- Pump testing and station design
- Nitrate Removal Treatment Plant Design
- Design for three separate pipelines
- Assistance in pipeline permitting
- Preparation of specifications and bid documents

*Los Angeles County Department of Public Works (LACDPW) Alamitos Barrier Project -
Seawater Barrier*

- Deficiency/Feasibility Study

JEFFREY D. HELSLEY, P.E.

Supervising Engineer

- Injection Well Design

- Injection Well Construction

LACDPW Dominguez Gap Barrier - Seawater Barrier, Deficiency/Feasibility Study

LACDPW West Coast Barrier Project - Seawater Barrier

- Geophysical Exploration

- Deficiency/Feasibility Study

Landfill Gas Mitigation measures

County Solid Waste Management Plan

Antelope Valley Groundwater Recharge Study

Montebello Forebay Groundwater Recharge Study

National Pollution Discharge Elimination System (NPDES) Permit Modifications

Injection Well Maintenance Study

Adjudication of the Mojave River Groundwater Basins

Identification of available water supplies for land development in San Bernardino County

Quantification and Valuation of Water Rights at various locations in Los Angeles, San Bernardino and Sacramento Counties

PROFESSIONAL AFFILIATIONS:

Member - American Society of Civil Engineers, ASCE

Member - Central Basin Water Association

J:\Jobs\GA\Qualifications\JEFFREY HELSLEY Traditional.doc