

**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): City of San Mateo
3. Project Title: Irrigation Reduction
4. Person authorized to sign and submit proposal:
- | | |
|-----------------|----------------------------------|
| Name, title | <u>Bruce A. Reed-Parks &</u> |
| Mailing address | <u>Landscape Maint. Coord.</u> |
| Telephone | <u>2001 Pacific Blvd., San</u> |
| Fax. | <u>Mateo, CA 94403</u> |
| E-mail | <u>650-522-7424</u> |
| | <u>650-522-7421</u> |
| | <u>Breed@cityofsanmateo.org</u> |
5. Contact person (if different):
- | | |
|------------------|-------|
| Name, title. | _____ |
| Mailing address. | _____ |
| Telephone | _____ |
| Fax. | _____ |
| E-mail | _____ |
6. Funds requested (dollar amount): \$109,330
7. Applicant funds pledged (dollar amount): \$27,333
8. Total project costs (dollar amount): \$136,663
9. Estimated total quantifiable project benefits (dollar amount): \$28,700
- Percentage of benefit to be accrued by applicant: 72
- Percentage of benefit to be accrued by CALFED or others: 28

**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): 19
- Estimated total amount of water to be saved (acre-feet): 190+
- Over 10 years
- Estimated benefits to be realized in terms of water quality,
 instream flow, other: Savings in water costs & quantity
11. Duration of project (month/year to month/year): 11/02-2/03
12. State Assembly District where the project is to be conducted: 19
13. State Senate District where the project is to be conducted: 8
14. Congressional district(s) where the project is to be conducted: 12th
15. County where the project is to be conducted: San Mateo
16. Date most recent Urban Water Management Plan submitted
 to the Department of Water Resources: NA

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.

Project Summary

The project is located in the City of San Mateo and encompasses six (6) public sites, which currently utilize forty-seven (47) acre-feet of water annually.

The nature of this project is to correct irrigation systems that use excessive amounts of water with a system that can save approximately 40% to 50% and greatly reduce labor, fuel and equipment costs. We currently have a master controller, which will be retrofitted to accommodate the additional field stations.

The goals & objectives are to install water conserving equipment that includes field satellite controllers, flow sensors, master valves, radio equipment & communication cable.

The methods and procedures to be utilized for total irrigation system improvements and water conservation include all hardware required for a fully operational system, including but not limited to field satellite controllers, flow sensors, master valves, radio equipment & communication cable.

Key features of the system include:

- automatic daily re-programming of all field satellites based on site weather conditions
- automatic shut-down of all field satellites due to rainfall or excessive wind
- automatic shut-down of systems with unscheduled, unwanted or excessive flow
- irrigation programming & monitoring of all field satellites from the central computer
- tracking and reporting of water consumption and irrigation component failures
- access to the central computer from anywhere via computer & phone modem

Expected outcomes will be a complete electronic controlled irrigation system which will reduce water consumption from 30% to 40%. In addition, we expect to save tax payers dollars by reducing the amount of time it takes to physically monitor parks for irrigation system deficiencies, broken sprinkler heads and major breaks as they occur.

Costs for the proposed project is expected to be \$109,330 (excludes an in-kind match of approximately \$5,000). *In an effort to maximize grant funds, we are willing to break our total project costs into segments. (We could do half of the 12 Tasks for about \$60,000).*

Benefits will be the savings of approximately fourteen (14) acre-feet of water per year. We will also experience savings in manpower, transportation and equipment with the new opportunity to access the systems operation electronically. The proposed upgrade of the entire system will provide for long term costs savings to the user and supplier.

A. Scope of Work-Relevance & Importance

1. Nature, scope & objective of the project is to expand and install an electronically controlled irrigation system which will improve over-all system effectiveness, eliminate trouble shooting by the current method of traveling to the various sites and attempting to rectify the problems through visual surveillance.
2. The critical local water issue is water conservation due to water supply demands in the Bay Area. Due to the concentrated populations along the peninsula, water demand continues to increase and the issue of water conservation is critical to the publics' welfare.

The project is consistent with water conservation efforts city and countywide.

B. Scope of work-Technical/scientific merit, feasibility, monitoring & assessment

1. The methods, procedures & technical adequacy of this proposal is utilization of high tech equipment critical for water conservation. We are ready to proceed as soon as funds are awarded. Reputable firms have been contacted and are ready to proceed with the installation.
2. Task list & schedule, deliverable items, due dates, project costs for each task, quarterly expenditure, start & completion dates of each task

<u>Task & Items</u>	<u>Due Dates</u>	<u>Costs</u>	<u>Quarter</u>	<u>Start/End Date</u>
#1 Clock A	11/02		4th	10-11/02
8 Station Et & moisture driven irrigation controller with local radio communication		\$ 2,678.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		459.00		
Subtotal		\$ 5,281.00		
8.00% Sales Tax		\$ 422.00		
Installation Labor		\$ 2,850.00		
Admin./Survey/Cont. (10%)		\$ 855.00		
Total		\$ 9,408.00		
#2 Clock B	11/02		4th	10-11/02
8 Station Et & moisture driven irrigation controller with local radio communication		\$ 2,678.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		459.00		
Subtotal		\$ 5,281.00		
8.00% Sales Tax		\$ 422.00		
Installation Labor		\$ 2,650.00		
Admin./Survey/Cont. (10%)		\$ 835.00		
Total		\$ 9,188.00		

Task & Items	Due Dates	Costs	Quarter	Start/End Date
#3 Clock C	11/02		4th	10-11/02
16 Station Et & moisture driven irrigation controller with local radio communication		\$ 3,338.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		459.00		
Subtotal		\$ 5,941.00		
8.00% Sales Tax		\$ 475.00		
Installation Labor		\$ 2,650.00		
Admin./Survey/Cont. (10%)		\$ 907.00		
Total		\$ 9,973.00		
#4 Clock D	12/02		4th	11-12/02
8 Station Et & moisture driven irrigation controller with local radio communication		\$ 2,678.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		459.00		
Subtotal		\$ 5,281.00		
8.00% Sales Tax		\$ 422.00		
Installation Labor		\$ 2,650.00		
Admin./Survey/Cont. (10%)		\$ 835.00		
Total		\$ 9,188.00		
#5 Clock E	12/02		4th	11-12/02
24 Station Et & moisture driven irrigation controller with local radio communication		\$ 3,678.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		459.00		
Subtotal		\$ 6,281.00		
8.00% Sales Tax		\$ 503.00		
Installation Labor		\$ 2,650.00		
Admin./Survey/Cont. (10%)		\$ 943.00		
Total		\$10,377.00		

Task & Items	Due Dates	Costs	Quarter	Start/End Date
#6 Clock F	12/02		4th	11-12/02
24 Station Et & moisture driven irrigation controller with local radio communication		\$ 3,678.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		459.00		
Subtotal		\$ 6,281.00		
8.00% Sales Tax		\$ 503.00		
Installation Labor		\$ 2,650.00		
Admin./Survey/Cont. (10%)		\$ 943.00		
Total		\$10,377.00		
#7 Laurel Wood	12/02		4th	11-12/02
24 Station Et & moisture driven irrigation controller with phone communication		\$ 2,778.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		459.00		
Subtotal		\$ 5,381.00		
8.00% Sales Tax		\$ 431.00		
Installation Labor		\$ 2,650.00		
Admin./Survey/Cont. (10%)		\$ 946.00		
Total		\$ 9,411.00		
#8 Bayside/Joinville	12/02		4th	11-12/02
24 Station Et & moisture driven irrigation controller with phone communication		\$ 3,678.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		479.00		
Subtotal		\$ 6,301.00		
8.00% Sales Tax		\$ 504.00		
Installation Labor		\$ 3,850.00		
Admin./Survey/Cont. (10%)		\$ 1,065.00		
Total		\$11,720.00		

Task & Items	Due Dates	Costs	Quarter	Start/End Date
#9 Bridgeport Shop Cntr.	1/03		1st	12/02-1/03
8 Station Et & moisture driven irrigation controller with local radio communication		\$ 2,678.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		479.00		
Subtotal		\$ 5,301.00		
8.00% Sales Tax		\$ 424.00		
Installation Labor		\$ 1,800.00		
Admin./Survey/Cont. (10%)		\$ 753.00		
Total		\$ 8,278.00		
#10 Bridgeport Parkway	1/03		1st	12/02-1/03
16 Station Et & moisture driven irrigation controller with local radio communication		\$ 3,338.00		
Calsense integrated radio remote receiver board		145.00		
Heavy-Duty stainless-steel enclosure w/installed TP-1,TP-110 And ANT-1		1,999.00		
1-1/2" PVC tee mounted Flow Senso		479.00		
Subtotal		\$ 5,961.00		
8.00% Sales Tax		\$ 477.00		
Installation Labor		\$ 1,800.00		
Admin./Survey/Cont. (10%)		\$ 824.00		
Total		\$ 9,062.00		
#11 Bay Meadows	1/03		1st	12/02-1/03
Upgrade existing Calsense controller to model ET 2000		\$ 1,150.00		
Calsense local radio communication		1,459.00		
Calsense dome antenna local radio and remote		160.00		
Calsense integrated radio remote receiver board		435.00		
Subtotal		\$ 3,204.00		
8.00% Sales Tax		\$ 256.00		
Installation Labor		\$ 1,800.00		
Admin./Survey/Cont. (10%)		\$ 526.00		
Total		\$ 5,786.00		

Task & Items	Due Dates	Costs	Quarter	Start/End Date
#12 HUB	1/03		1st	12/02-1/03
Local radio hub requires 110vac and phone line		\$ 2,900.00		
Local radio stick antenna		250.00		
Antenna cable with end connectors		290.00		
Subtotal		\$ 3,440.00		
8.00% Sales Tax		\$ 275.00		
Installation Labor		\$ 2,250.00		
Admin./Survey/Cont. (10%)		\$ 597.00		
Total		\$ 6,562.00		
Grand Total		\$109,330.00		

- Monitoring & assessment, list of project-specific performance measures, how data will be handled & made available, list of expected products/outcomes.

City staff will provide complete overview and inspection of work performed by a qualified vendor. City engineers will review all designs and procedures to insure proper installation.

The project-specific performance measures will be timely installation of hardware necessary for each task listed in the budget.

The actual data scanned and compiled by the master computer will be processed daily and available 24 hours a day. This unique system monitors and records all facets of the systems operations and activities.

The expected outcome will be reliable data which can be used to determine total and incremental water loss, system reliability, trouble shooting and adaptability to modify the system for specific water demands.

- Preliminary plans & specs, certification that project is feasible

Technical data sheets are available from the manufacturer and some have been attached to this report for review. In addition to our current use of this equipment, the list of agencies utilizing this system is quite extensive and these agencies have had this reliable system in operation for several years.

C. Qualifications of the applicants & cooperators

- Resume of project manager (attached)
- Role of external cooperators (attached)

D. Benefits & costs

- Budget breakdown & justification

Each task and associated items are specified in item B. 2. The figures are derived from the Manufacturer, city and landscape architect. The City of San Mateo has included a 10% costs for Project administration, field surveys and contingencies.

We have been most conservative in our costs and offer a significant contribution towards the success of this project.

The figures represented in the budget are a direct estimate from the vendor and architect. Upon award of funds to proceed with this project, the city will most likely initiate a formal bid process. It is anticipated that costs could be less via the bid process.

- | | | |
|----|---------------------------|---|
| a. | Direct labor | Incl. |
| b. | Salaries | Incl. |
| c. | Benefits | Incl. |
| d. | Travel | Incl. |
| e. | Supplies & expendables | Incl. |
| f. | Services or Consultants - | \$30,252 |
| g. | Equipment | \$63,935 |
| h. | Other direct costs – | \$15,143 (project management, inspection, validation of costs, report prep., presentations, contingency, design, and survey). |
| i. | Total direct costs | \$94,187 (items a thru g) |
| j. | Indirect costs – | Incl. |
| k. | Total costs | \$109,330 (rounded) |
2. Cost-Sharing (match)

In general terms, administration, design and survey would cost out at approximately 25% of total project costs and contingency would be 10%, thus, 35%-10% = 25% match or 25% of \$109,330 = \$27,333 The city is requesting 10%.

Ancillary services within this 25% figure represent accounting, field surveys, progress reports, administration, supervision, contract administration and general staff review.

3. Benefit summary & breakdown – list expected project outcomes

Outcomes will be the successful installation of all items listed in the budget such as Upgrade existing Calsense controller, Calsense local radio communication, Calsense dome antenna local radio and remote, Calsense integrated radio remote receiver board and ancillary items pertinent to system upgrades and expanded water saving equipment.

The outcomes will be a completed system for the eleven (11) areas with:

- automatic daily re-programming of all field satellites based on site weather conditions
- automatic shut-down of all field satellites due to rainfall or excessive wind
- automatic shut-down of systems with unscheduled, unwanted or excessive flow
- irrigation programming & monitoring of all field satellites from the central computer
- tracking and reporting of water consumption and irrigation component failures
- access to the central computer from anywhere via computer & phone modem

- a. Quantify project outcomes & benefits
- b. Qualitative description if you can't quantify above

The outcome and benefits will be a savings of approximately 40% in water use and approximately 30% to 50% savings in manpower, equipment and maintenance costs. Another significant benefit is the systems ability to monitor and record all facets of the irrigation network. The actual data scanned and compiled by the master computer is

processed daily and available 24 hours a day for review and adjustment.

The expected outcome will be reliable data which can be used to determine total and incremental water loss, system reliability, trouble shooting and adaptability to modify the system for specific water demands.

4. Assessment of Costs & benefits

a. List & explain major analysis assumptions & methodologies

- Water Control – Along with the ability to provide efficient watering schedules, central systems allow the user to shut off all irrigation immediately in case of rain or other emergencies that require disconnecting irrigation.
- Reduced Labor Costs – The addition of eleven sites to our central location (HUB), eliminates the need to make schedule adjustments at each controller. Irrigation schedule changes will take minutes instead of hours and system shutdowns can take seconds.
- Gas Savings – will be realized and vehicle wear and tear may be reduced when the user can make changes from a single location instead of having to drive to or around the project site to make irrigation schedule changes both at night and during the day.
- Fertilizer and Chemical – use can be reduced through good irrigation management. Leaching will be reduced which reduces fertilizer applications. In turn, good plant health will reduce pest infestations and disease.
- Street and Road repairs – Irrigation water will degrade asphalt faster than any other source. Runoff will be eliminated and will help prolong asphalt life and reduce repairs and repaving.

b. Express benefits & costs in 2001 dollars

<u>Item</u>	<u>Cost Benefit/Year</u>
Water Control	\$ 15,000
Reduced Labor Costs	3,000
Gas & Vehicle Savings	200
Fertilizer and Chemical	500
Street and Road Repairs	10,000
Total	\$ 28,700

c. Convert all costs & benefits to present value equivalents

The costs would increase by approximately 4%/year thus a savings of approximately \$30,000 in 2002.

d. Table of present value, quantified costs & benefits for applicant & each beneficiary

Item	(Approximate Annual Calculations)		Beneficiary
	Value	Benefits	
Water	\$795/AC.FT. X	19 AC.FT.= \$15K	City of San Mateo
Water	\$15K	Water transfer	Cal-Water
Labor Costs	3,000	3,000	City of San Mateo
Gas & Vehicle Savings	230	230	City of San Mateo
Fertilizer and Chemical	500	500	City of San Mateo
*Street and Road Repairs	20,000	20,000	City of San Mateo

e. Demonstrate that it is locally cost effective

With an approximate annual savings of \$30,000 (excludes 4% annual increase), the city will greatly benefit from the proposed new system and the return on the grant investment will be realized monetarily in approximately four (4) years. This does not include the water savings of approximately nineteen (19) acre-feet per year.

*There is a four lane section of highway that receives high traffic counts and is impacted by a median of approximately ½ mile. Excessive water from this median greatly impacts the road surfaces thus the need for constant AC repairs.

E. Outreach, community involvement & acceptance

Public outreach regarding this system occurs at city council meetings and the park commission meetings. The public expects city staff to provide public service at the best cost and best management practices. The proof of public support will be noted in the lack of calls from various citizens regarding water over spray at medians.

Training and employment will impact city staff and outside consultants and contractors. Economic benefits will again be the savings of water and ancillary activities related to the new system. The savings to the city will allow the city council to improve public service in other areas of need such as traffic safety, streets & highways, police, fire and other critical needs.