

Submitted to
California Department of Water Resources
Office of Water Use Efficiency

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Sacramento, CA 95814
Attention: Debra Gonzalez

Proposition 50 Water
Use Efficiency Proposal
Section B – Demonstration Project

Marina Vista Coastal-Friendly Gardens

To inspire and facilitate
Protection of the upstream environment by reducing demand for imported water;
and
Protection of the downstream environment
by reducing the amount and toxicity of urban runoff

Submitted by
Long Beach Water Department

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B-15. PROPOSAL CONTENTS

The Long Beach Water Department is grateful for the opportunity to submit this proposal to the Department of Water Resources for Proposition 50 Water Use Efficiency funding, under Section B – Demonstration Project category. The proposal is to construct the Marina Vista Ocean-Friendly Gardens, a demonstration garden designed to inspire and facilitate the conversion of residential landscape to water-conserving coastal-friendly landscape. This unique approach is particularly coastal-friendly, focusing on water-conserving plant material that does especially well in coastal areas while protecting the marine environment by reducing landscape runoff and the toxicity of the runoff. This approach likewise protects the upstream environment by reducing the demand for imported water for landscape irrigation.

Likewise, we are pleased to present to the DWR two letters of support for this project, one each from the Aquarium of the Pacific and the Surfrider Foundation. Copies of these letters are attached.

A-15a. Project Information Form

Please see *Appendix A – Project Information Form*.

A-15-b. Signature Page

Please see *Appendix B – Signature Page*.

A-15c. Statement of Work, Section 1: Relevance and Importance

Multiple benefits across CALFED program elements consistent with the ROD

Conservation inspired by this project represents true water conservation in the sense that water used for landscape irrigation in the Long Beach area is essentially 'lost' into the ocean; that is, water used for landscape irrigation in Long Beach does not enter the groundwater table nor does its runoff enter a river system for use by down-stream users.

Conservation inspired by this project will decrease the demand for imported water, on a one-to-one ratio. This project will have a particularly beneficial impact by lowering demand for imported drinking water during the months of peak demand: the hot summer months (i.e., greatest demand for irrigation water).

Conservation inspired by this project will have a positive impact on the environment by reducing runoff, and its toxicity, into marine habitat.

This project will benefit the Bay-Delta system because imported water represents the City's "marginal supply" of water; that is, when the City of Long Beach needs an additional acre-foot of water, it purchases imported water from the Metropolitan Water District of Southern California (MWD); when it reduces its overall demand for water by one acre-foot, it decreases demand for MWD's imported water by one acre foot.

Approximately $\frac{1}{2}$ of the City's potable water supply is from the local groundwater rights it owns and $\frac{1}{2}$ is surface water imported into Southern California by the MWD. Long Beach's groundwater rights are fixed by a court adjudication, and cannot be exceeded by law. Therefore, any reduction in the use of potable water necessarily means a reduction in the demand for MWD's imported water supplies. Likewise, MWD's "marginal" supply is from the CALFED Bay-Delta system, as they normally baseload their Colorado River supplies and take additional, more expensive additional water from the Bay-Delta system.

Project Goals

There are two over-arching goals of this project. The first goal is to *inspire* people in the greater Long Beach area to:

- ❑ Protect our up-stream water resources and increase the region's water reliability by decreasing the demand for imported drinking water used for landscape irrigation; and
- ❑ Protect our coastal water resources by reducing the amount of polluted urban runoff from residential landscape making its way to the storm drain systems and into our coastal waterways.

The inspiration will come from education regarding the importance of environmental protection and water reliability coupled with examples of water conserving landscape that are beautiful and desirable, and knowledge that water conserving gardens lower the average home-owner's ongoing cost of maintenance.

The second goal is to help *facilitate* this inspired conversion to environmentally-friendly landscape by:

- ❑ Designing samples of gardens constructed with *readily available* plant and non-plant materials, and
- ❑ Providing detailed information about the sample gardens, including plot plans, information on the plants and non-plant material, costs and installation

instructions. This information will be communicated through signage, and available as handouts at the site and on the internet.

- Focusing, to the extent possible, on making conversions to water-conserving landscape affordable. Transforming turf landscape into beautiful environmentally-friendly landscape can cost many tens of thousands of dollars – which is beyond the reach of many, if not most, homeowners. A focus of this project will be the use of low-cost, readily available materials that can be installed by the average homeowner. The project will provide simple instructions on installation and provide estimates of material and installation costs.

In addition to the above elements, the Gardens will include information on irrigation options such as plantings that require no irrigation, on efficient irrigation systems, and on alternative irrigation methods such as hand-watering vs. weather-based irrigation controllers.

Unique Elements of Project

This project is unique in many important ways. As stated, the Project will have a strong emphasis on facilitating conversions to environmentally-friendly landscape.

The project will fill the need for large conservation gardens in the urbanized coastal region. There are several high quality demonstration gardens in southern California, but none in the coastal area of greater Los Angeles and northern Orange County. This region is home to many millions of people. It is likely that most of these people are not aware of the conservation gardens located outside this region and, for those that are aware, the long commute is an impediment.

This site is easily accessible. The Project is centrally located and just minutes from the 405 freeway – this coastal region’s major north/south freeway.

The Project will focus on water-conserving plants of the coastal zone. Many water conserving plants that do well in the coastal zone do not do well in the inland areas and foothills of the southern California; and vis versa, many of the plants growing in these other areas do not do well in the cooler coastal climates.

The Project will emphasize non-plant material. A major theme of these demonstration gardens will be the use of non-plant material, such as porous hardscapes. Most beautiful non-plant materials require no maintenance and no water. Many of these materials are also very effective in controlling runoff; for example, patios and walkways made of porous brick, placed on top of a bed of sand, are beautiful, are not difficult to install, require no maintenance, require no water, and are very effective at absorbing and controlling rainfall.

The Project will emphasize the importance of eliminating toxic runoff. One of the major themes of this garden will be the link between the toxicity and amount of runoff from landscape and that runoff's impact on the marine environment. The project will show homeowners how to reduce the toxicity of runoff from their landscape and examples of how to greatly reduce or even eliminate runoff. Long Beach has a special interest in urban runoff: it is the only city through which both the Los Angeles River and the San Gabriel River flow. The Long Beach coastal zone is where these rivers also discharge into the ocean. The Project itself is only about 400 feet from the marine environment and very close to the confluence of the San Gabriel River and the Pacific Ocean.

This proposal is consistent with plans of the Surfrider Foundation to launch a regional outreach program identifying "down stream" water quality benefits of drought-tolerant landscaping, and LBWD will continue to pursue this partnership (please find the attached letter of support from the Surfrider Foundation).

Finally, the Project creates great synergy with the important Aquarium of the Pacific. The Long Beach Water Department (LBWD) has a very close community outreach and educational relationship with the Aquarium of the Pacific, the only major aquarium in southern California. A significant part of the Aquarium's education program is the impact of urban activities on marine habitat. Given the Long Beach Water Department's close working relationship with the Aquarium and the close proximity of the Project to the Aquarium, the link between the problem (urban activities) and part of the solution (environmentally-friendly landscape) is easily made. Please see the enclosed letter of support from the Aquarium of the Pacific.

Relation to Important Water Issues

This project is related in important ways to critical local, regional, bay-delta, state, or federal water issues.

Critical local, regional, and state water issue of surface and coastal water quality:

this project is important because of the focus on facilitating a reduction on the amount and toxicity of urban runoff into surface water systems and the coastal zone. The toxicity of the urban rivers in this region, i.e., the Los Angeles and San Gabriel Rivers, has been a major concern and controversy for years, with no immediate resolution in sight. While this project will not solve the problems of these river systems, it is necessarily part of the solution.

Critical local and regional water issue of water reliability: this project is important because of its focus on reducing residential demand for imported drinking water. In this coastal region, local water supplies generally cost less than imported water; so when demand on a retail water agency decreases, the agency tends to decrease imports rather than local supplies. Estimates of the percent of residential water supplies used for landscape irrigation generally range from between a low of 50% and a high of 70%.

By providing the inspiration to reduce landscape irrigation and facilitating the process of converting to water conserving landscape, this project expects homeowners to reduce their total water use by as much as 50% or more. This reduction, in most cases, will translate into a reduction in demand for imported water.

Critical Bay-Delta, State, and Federal water issue of pressure on Bay-Delta exports from southern California's population growth and loss of Colorado River supplies. Any reduction in demand for water in urban southern California helps address the problem of pressure on the Bay-Delta and Colorado River systems. Like southern California in general, Long Beach relies on imports to meet about 50% of its drinking water needs. Reducing retail demand reduces demand for imports. This project expects to play a major role in reducing demand for landscape irrigation in the region's coastal area.

Consistency with Water Management Plans and Integrated Resource Management Plans

This Project is consistent with local or regional water management plans and other integrated resource management plans. Past and current LBWD Urban Water Management Plans relied upon increased water conservation to meet future projected water demands.

Past and current regional (i.e., Metropolitan Water District of Southern California, or MWD) Regional Urban Water Management Plans and the MWD Integrated Resources Plans all relied upon projections of increased water conservation to meet future projected water demands. Water conservation has taken on an increasingly important role in the MWD draft 2005 RUWMP. In recognition of the importance MWD has placed on reductions in residential landscape irrigation to reach its water conservation goals, MWD provides financial incentives for several programs aimed at reducing residential landscape.

This project is a water conservation project. Because its focus is reducing landscape irrigation, it is focused on the area of residential use with the greatest opportunities for demand reduction.

Furthermore, this project is consistent with regional plans to reduce toxic urban runoff that flows into surface water and marine environments. One of the main goals of this project is to reduce the amount and toxicity of residential runoff flowing into these habitats.

This project is consistent with the direction the water industry is moving. Most residential conservation has come from reduction in indoor water use, such as through the installation of devices like the ultra low flush toilet. There is general agreement

within the urban water industry that reducing water use on landscape is now the area of greatest opportunity for residential water conservation

This project is also consistent with the direction the State of California is headed with respect to water conservation. The California Urban Water Conservation Council is now considering creating special water conservation Best Management Practices (or BMPs) just for landscape irrigation. The CUWCC is also in the process of forming a taskforce to consider landscape ordinances, as encouraged by the legislature and the governor with the passage of AB 2717.

Water Demand Management Activities

Full documentation of the implementation of the Long Beach Water Department water demand management practices can be found on the web site of the California Urban Water Conservation Council (CUWCC).

As can be seen on the Long Beach Water Department web site, www.lbwater.org, LBWD has many active conservation programs. These include a very active presence in the elementary, middle, and high schools. LBWD has an active presence at the Aquarium of the Pacific. Each year LBWD actively promotes water conservation through numerous adds purchased in the local media, multiple direct mailings to all customers, and an active presence at most community events. The net result of these activities is that *Long Beach currently uses no more potable water than it did in 1980*, despite a 35% increase in population.

LBWD, working with the Metropolitan Water District of Southern California (MWD), provides rebates for many water conserving devices, including rebates for high efficiency cloths washers, ultra low-flush toilets, weather-based irrigation controllers, high efficiency spray rinse nozzles, and other devices.

LBWD has an active program for placing irrigation accounts on a water budget and reporting actual water use against the budget on a regular basis.

LBWD is also working with California State University at Long Beach on the potential conversion to waterless urinals.

Synergy with Existing Conservation Programs

The Project will further the implementation of existing water management activities.

Reducing the amount of water used for landscape irrigation will be the most important water conservation effort going into the future, because of its potential to save the most

water and because so much work has already been done on reducing indoor water use. The project will play a critical role in the success of these landscape conservation efforts.

Long Beach has conducted many educational workshops on residential landscape water conservation. Our workshops focus on the principle elements of landscape design, plant choice, irrigation system design and installation and maintenance, and long-term maintenance of the plant material. Very few people attending our classes have experience in any of these fields, and none that we know of are experts in landscape design, plant material, hardscapes, etc.

Yet before people make significant financial and life-style commitments, they need confidence that they can afford and can accomplish the work and will be happy with the results.

The Project will be used in concert with the educational workshops, exposing people to beautiful landscapes they can see and touch, and whose construction materials, process, and costs they can easily understand and incorporate into their own projects.

Additionally, the Project will further the implementation of our existing water management activities, *and* those of other local and regional water agencies, in that it will be open to the public, will have plenty of interpretive and instructional signs and information, all of which will be available at no cost over the internet.

Furthermore, the Project will further the efforts of organizations whose goal it is to reduce toxic runoff into the marine environment.

A-15d. Statement of Work, Section 2: Technical/Scientific Merit, Feasibility

Methods, Procedures, Equipment, and Facilities

This proposal is to construct an education garden in an existing City park. Visitors will park in an existing parking lot close to the site. The 0.94-acre garden will be fenced to protect the garden and to help focus the public's attention while there. When first entering the garden, visitors will enter a small plaza containing signage and other materials describing the garden and providing educational materials related to creating environmental-friendly landscape. Please see page 3 of *Attachment I – Site View* for a schematic of the project.

The Project will comprise about 20 options for residential landscape which are beautiful, require very little water, use readily accessible plant and non-plant materials, and reduce the amount and toxicity of runoff. Individual examples of residential landscape

will be approximately 40 feet by 40 feet each; please see *Attachment I – Site View* a rough layout of these examples.

LOCATION:

Attachment I – Site View, shows the proposed location of the project, near the point where the Pacific Ocean, and Los Angeles and Orange Counties come together, in the southeast corner of the City of Long Beach. The site is just northeast of the saline water body Marine Stadium, which was created to host the 1932 Olympic rowing competition. With Eliot Street to the south and Colorado Street to the north, the project is in the eastern portion of Marina Vista Park.

The project size is approximately 40,895 square feet. It is to be located on a small bluff near the Colorado Lagoon and overlooking Marine Stadium.

The site is in a public park. The site was created decades ago from dredge material from the Marine Stadium. The dredge material has a very high salt content. Additionally, due to the site's proximity to the ocean and its low elevations, the root zone is very close to the saline water table. Consequently, the City uses tremendous amounts of water to keep the turf grass alive; but even with all the applied water the turf grass is poor condition.

To mitigate impact of salts on plant material, the Project costs include some excavation and the installation of an under-drain leaching system. The specific details of the salt mitigation will be developed by a California licensed landscape architect working with experienced LBWD licensed civil engineers. LBWD has experience working in this type of soil, having successfully completed a conservation landscape project in an island median in the coastal zone. The median has salty soils and is close to the saline water table. The median had been covered with asphalt for decades so little to no leaching of the salts had taken place. The salt mitigation in this case included construction of large leaching pits prior to landscaping the site, and smaller leaching devices near large plantings (such as palm trees).

Task List and Schedule

Attachment II – Task List and Schedule provides a project plan and work schedule with tasks, deliverable items, start and end dates, and project costs for each task. This plan will form the basis of the required quarterly and annual project fiscal and programmatic reports.

Preliminary Plans and Specifications and Certification Statements

Over the last few years the Long Beach Water Department has developed broad conceptual parameters for the type of water conservation demonstration garden needed in this area; the garden which is the subject of this application. This work has not included hiring a landscape architect to develop final plans and specification or formal preliminary plans and specifications. The cost of developing these plans and specifications is included in the work covered under this application. However, *Attachment VI – Preliminary Plans* includes the preliminary project plan covering types and quantities of materials, dimensions, and location.

Please see *Attachment VII – Certification Statement* for a copy of the California registered civil engineer’s signed Certification Statement.

Environmental Documentation

Please see *Attachment II – Task List and Schedule* for a copy of the plan for compliance with all applicable environmental laws and schedule for completion.

It is not anticipated that NEPA will apply to this project. However, if it becomes the case that NEPA requirements do apply, then the Project will comply with NEPA.

It will likely be the case that this project will require a permit from the California Coastal Commission and from the Long Beach Planning Commission. LBWD will pursue these permits once preliminary plans are developed (the plans will be necessary for applying for the permits).

This Project is not expected to have environmental, social, or economic impacts. The site is to be located in land created from dredge material, so the project will actually improve the quality of the site. All materials excavated during the construction of this project shall be disposed of in an adequate and lawful manner.

Please see *Attachment VIII - CEQA Environmental Checklist Form*.

A-15e. Statement of Work, Section 3: Monitoring and Assessment

Monitoring and Evaluation

The Project will be monitored and evaluated to document water savings and other Bay-

Delta system benefits, to mark progress and to determine the success of the project.

As described above, this project will inspire residential customers to convert to water conserving landscape and facilitate that conversion. If this project is a success we would expect to see more conversions to water conserving landscape and we would expect the conversion to be more effective (from a water-savings perspective) than in the absence of the project. These additional and more effective conversions will translate into a net reduction in the use of imported drinking water for landscape irrigation.

It would not be possible to document the actual water savings from this project, because it would not be possible to document everyone influenced by the project and the degree to which they took actions as a result of the project and the water savings from those actions. People will learn from the Garden by visiting the web site, by reading about it in local media, by seeing it used as examples in the residential landscape classes provided by LBWD, and by visiting the garden. Tracking these people and the actions they take and the impact of their actions on water use will not be possible. Likewise, it would be just as difficult to document the beneficial impact on the coastal marine environment from a reduction in the runoff and its toxicity resulting from the Project.

We cannot simply track the total water used in Long Beach as an indicator of the success of the project. Water use is influenced by too many variables, most of which cannot be controlled for in a study of water use. For example, while studies can control for weather, it would be nearly impossible to control for variables such as changes in household size, implementation of indoor water conserving devices and actions, changes in size of outdoor landscape resulting from causes other than the Project, such as home remodeling, inspiration from other conservation programs, changes in household income, and the like. This process would also fail to capture the benefits to the coastal marine environment from a reduction in the runoff and its toxicity as a result of this Project.

It would be possible to make rough estimates in the changes in amount of water used for outdoor irrigation, but it would not be possible to know the extent to which the Project influenced those changes. For example, it is possible to estimate the amount of outdoor water use by comparing water use in the winter against that of the summer. This estimate could be made before project implementation and be compared against a similar estimate after project implementation. The difficulty in this approach is controlling for other factors influencing outdoor water use. The margin of error in this type of study could be expected to be quite high rendering the findings meaningless.

Monitoring Methodologies To Assess Results

The following monitoring methodologies will be used and data collected to assess the Project results.

Given the above qualifications, the following will be measured and used as an indicator of the impact of the Project on residential water use and runoff reduction and toxicity.

Three monitoring methodologies will be used at the Project site to assess its results. The first is visitor counts. Because there are no water conservation gardens in this coastal region, it would be reasonable to assume that the vast majority of the people visiting the garden would not have otherwise enjoyed the benefits of having been exposed to a water conservation demonstration garden had they not come to the Project. Therefore, a count of the visitors is a very good indication of the success of the project. Because the Garden will be open during normal business hours and on weekends, but will only be staffed on weekends, the total number of visitors cannot be known. However, random surveys of usage during non-staff hours will be made and actual usage during hours the Garden is staffed will be recorded. Attendance will be tracked over time to determine changes in attendance over time.

A second monitoring methodology used at the Gardens to assess its results will be a survey of visitors. Visitors will be asked to complete a survey while on-site and be asked for their address for follow-up surveys. The on-site survey will ask a range of questions including what was most useful about the Garden and whether they believe the garden will influence their water use and runoff. Two follow-up surveys, one year apart, will be sent to those providing us with their address; the follow-up surveys will attempt to determine whether the participants changed their landscape or their maintenance practices as a result of the Garden. Responding to the surveys would, of course, be voluntary and somewhat subjective and, therefore, the confidence level of the survey finding, with respect to actual water savings, may not be very high.

A third monitoring methodology used at the Gardens will be a count of visitor participation in organized tours of the site.

A fourth monitoring methodology will be a count of the attendance at the free, LBWD residential landscape classes. An attempt will be made to determine the increase in number of people attending the LBWD residential landscape classes as a result of hearing about the Gardens being included in the class curriculum. Currently, students are asked to complete a questionnaire at the end of each class. Questions about the impact of the Gardens on their attendance and on the value of the class would be added to the questionnaire. Students willing to provide their addresses will be sent two follow-up surveys similar to the ones discussed above.

A fifth monitoring methodology will count the number of hits on the web site dedicated to the Garden and its water conserving landscape information. The landscape conservation information developed for the Garden will be posted on the internet, making it available to anyone in the world with internet access, potentially resulting in benefits beyond this coastal region. This information will be tracked over time to see how interest in or knowledge of the Garden changes with time.

A sixth monitoring methodology will be documenting 'free' advertising. Free advertising includes publicity such as newspaper articles and local cable stories. This kind of advertising is important for increasing the momentum towards changing society's attitude about and knowledge of water-wise residential landscape.

The seventh monitoring methodology will be an annual survey of all residential customer accounts of the LBWD regarding their knowledge of the Gardens and its key elements (i.e., water conserving landscape and reductions in runoff and its toxicity). Because responding to the survey will be voluntary, respondents will be self-selecting with the concomitant large margin of error in this type of survey. However, because all residential accounts will receive the surveys, increases or decreases in the response rate and the types of responses over time, would be a valuable indicator of the effectiveness of the Gardens.

There are no pre-project conditions and data baselines to be determined, as they would play no role in the monitoring methodology outlined above.

Using the Data to Evaluate Success

The goals of the Project are to inspire people to convert to water conserving landscape and to facilitate that conversion. Measuring the actual attainment of these goals would be very difficult, for the reasons given above. However, the data collection described above will provide a good indicator of the success of the Project in attaining its goals.

LBWD will benefit from the long-term success of the Garden if the quantity of imported water used for landscape irrigation is reduced – the purchase of imported water being the largest line-item in the LBWD budget. Additionally, Long Beach has a very real interest in inspiring and facilitating a reduction in runoff and its toxicity because the City's shoreline is where the urban runoff from 36 up-stream cities is discharged into the ocean, through the Los Angeles and San Gabriel Rivers. For these reasons, LBWD has a strategic interest in using the data to evaluate the effectiveness of the project, for the purpose of evaluating the effectiveness of the then-current program and for continuous improvement.

The project will be considered successful if an evaluation of the data show that:

- ❑ Attendance at the Gardens improves over time;
- ❑ Visitors to the Gardens state they are more likely to convert to water-conserving landscape as a result of the visit;
- ❑ Attendance at the free landscape classes given by LBWD improves over time and the classes are deemed more effective, as a result of the Garden;
- ❑ Number of hits at the Gardens' web site increases over time; and

- Attitudes and knowledge of, and actions taken by, the residents of Long Beach increase over time, as measured by the annual survey.

Influence of External Factors

External factors such as changes in weather, or social conditions are not expected to impact the results of these findings. We recognize that the Gardens will not be the only reason people's attitude towards water-conserving and coastal friendly landscape are likely to change over time. Other factors include an increased awareness, over time, of the general public about the issues of limited water supplies, environmental cost of water supply and runoff, and increased growth in the State. People will become more aware of some of the concepts imbedded in the Gardens from exposure to articles in Sunset Magazine, advertising by the MWD, and other publications and public awareness campaigns.

Yet most of the data to be collected specifically addresses the Gardens and people's knowledge of and stated impact from them. Therefore, controlling for these other causes is accounted for.

That being said, the Gardens will provide an important link between these 'external' factors and the average person's ability to do something about it – creating a synergy between increased awareness and the resources to act on the awareness. That is, one of the two primary objectives of the Gardens is to facilitate the conversion to intelligent coastal-friendly landscapes. So, for example, as people become more aware of the impacts on the environment from the excessive use of water and of toxic runoff from landscape, the Gardens will provide them with the tools to turn their concerns into effective action.

Storage and Handling of Information

The data and information will be stored and reported electronically. All the information will be made available to the DWR. Because LBWD is a public agency, all this material is considered public information and available to anyone who requests it. The only information not shared by LBWD will be personal information such as survey respondents' names and addresses.

Cost of Monitoring and Evaluation

The estimated costs associated with the implementation of the monitoring and evaluation plan is shown on *Attachment V – Table C1. Project Cost Table*.

A-15f. Qualifications of the Applicants and Cooperators

Resume of Project Manager

The Project Manager is Matthew P. Lyons.

Matthew P. Lyons is Manager of Planning & Conservation for the Long Beach Water Department, where he began his career in 1994. He reports to the Department's General Manager.

Mr. Lyons is responsible for the development of the Department's strategic plan and management of its water conservation program.

Mr. Lyons began his career with the City in 1993 as an intern in the City Manager's nationally recognized Management Assistant Program. After spending one year rotating through several City departments, Mr. Lyons was hired by the Long Beach Water Department. He began work with the Department as an Administrative Analyst, moving up the organization through several positions including Manager of Water Resources, Special Assistant to the General Manager, Manager of Planning and his current position of Manager of Planning & Conservation.

Mr. Lyons received his B.A. in Political Science from the University of California at Los Angeles and a Master of Public Policy from Harvard University's John F. Kennedy School of Government.

The Applicant (i.e., the Long Beach Water Department), has a long history of successful completion of capital projects. LBWD provides potable water, reclaimed water, and sewer collection for the roughly 480,000 residents and the businesses of Long Beach. This requires upkeep and replacement of over 900 miles of water mains and 300 miles of sewer mains, and their associated equipment.

In a typical year, LBWD will have about 40 or so major capital projects, potable water project cost equaling about \$18 million, reclaimed water about \$3 million, and sewer projects about \$3 million; or a rough average of about \$24 million per year. LBWD successfully completed construction of the largest groundwater treatment plant in the state several years ago, a \$50 million project. LBWD is also the lead agency constructing an \$8 million seawater desalination research facility, built and financed in partnership with the U.S. Bureau of Reclamation and expected to come on-line in 2005.

LBWD is able to accomplish this work because it has a very experienced staff of California licensed engineers, project managers and construction inspectors, and has the necessary accounting expertise and systems in place.

External Cooperators

There are no primary external cooperators. However, LBWD anticipates working with several community-based organizations in the development and operation of the project. One CBO in particular which will be approached to assist with the project is the Long Beach Conservation Corps, which is located only a few blocks from the site.

Previous Water Use Efficiency Grants

LBWD received a Proposition 13 grant from DWR for the replacement of urinals that require water with ones requiring no water (Contract Number: 4600003124). The grant was to be used in schools located within Long Beach. The vast majority of the schools belong to the Long Beach Unified School District. After LBWD received the grant, the school district conducted a pilot study using one kind of waterless urinal, and because the results of the study were very unsatisfactory, the school district made the decision not to proceed with the project.

However, California State College at Long Beach has just completed a pilot study using a different type of waterless urinal. Early indications are the results of this study are positive and that staff of the University are very supportive. We expect a decision from the University about whether to retrofit nearly 400 urinals in the next few weeks.

Long Beach is a Disadvantaged Community

The City of Long Beach is a disadvantaged community according to the 2000 census. The census estimates the annual household income to be less than \$38,000. A copy of the 2000 census is attached as Attachment IV. This information is also located on the City's web site, at

<http://www.longbeach.gov/civica/filebank/blobdload.asp?BlobID=1890>.

A-15g. Outreach, Community Involvement, and Acceptance

LBWD has discussed this proposed project with local government and a community-based environmental organizations. The response has been very positive. However, because a formal relationship has not been established, these agencies are not identified in this Proposal.

LBWD anticipates conducting more outreach during project development. There are several community organizations and watershed groups with a special interest in urban runoff as it applies to the San Gabriel and the Los Angeles Rivers. There are many environmental organizations interested in water conservation in general and, we are confident, in coastal-friendly landscape in particular.

Because this is basically an educational project, effective public outreach will be central to its success. As discussed previously,

- The project will be advertised in local media (LBWD has experience with the local media. For example, at the present time, LBWD takes out at least two full-page adds in the Long Beach Press Telegram per year, and we have just contracted with the Chamber of Commerce to place water conservation adds in the next nine issues of the newsletter sent to over 1,000 businesses).
- The project will be advertised directly to our customers through bill inserts and/ or other direct mailings (presently, LBWD includes water conservation and other important messages in the newsletter, the WAVE, that reaches every ratepayer 10 times per year).
- The project will be actively promoted on local cable television programs broadcast in the greater Long Beach area. LBWD staff regularly appear on several local television programs each year.
- The project will be promoted by the LBWD “Water Ambassadors”, senior citizens that staff LBWD informational tables at community events several times each month.
- The project will be promoted on the LBWD web site, with its own attractive and informative pages.
- The project will become a central element of LBWD’s successful residential landscape classes. Last year approximately 120 people were trained in three classes. This year LBWD is expanding to 10 classes; an increase of over 200%. Advertising for the classes will be through direct mailings to all 80,000 residential accounts and advertised in the local media.

LBWD anticipates no opposition to the proposed project.

A-15h. Innovation

To reiterate points made earlier, this project is unique and innovative in many ways; many of these characteristics can be replicated by other projects in other parts of California. The unique elements of this Project include:

- ❑ Strong emphasis on facilitating conversions to coastal-friendly landscape. This not only includes providing interested parties with plot plans and diagrams, but material lists, how-to installation information, and other information. Just as important, these gardens will focus on the use of readily available plant and non-plant materials. In other words, the Gardens will present very useful and practical examples of beautiful coastal-friendly landscapes.
- ❑ Fill the need for education gardens in this urbanized region: There are several high quality demonstration gardens in southern California, but none in the coastal area in greater Los Angeles and northern Orange County. This region is home to many millions of people. It is likely that most of these people are not aware of the conservation gardens located outside the coastal region and, for those that are aware, the long commute is an impediment.
- ❑ Easy access to the site: the project is centrally located and just minutes from the 405 freeway – this coastal region’s major north/south freeway.
- ❑ Focus on water-conserving plants of the coastal zone. Many water conserving plants that do well in the coastal zone do not do well in the inland areas and foothills of the southern California; and vis versa, many of the plants growing in these other areas do not do well in the cooler coastal climates. This garden will focus on the kinds of water conserving plants that do best in the coastal areas of southern California.
- ❑ Emphasis on non-plant material: a major theme of these demonstration gardens will be the use of non-plant material, such as porous hardscapes. Most of these beautiful non-plant materials require no maintenance and no water, and many of these materials are also very effective in controlling runoff and fairly easy to install. For example, patios and walkways made of porous brick, placed on top of a bed of sand, are beautiful, require no maintenance, require no water, are very effective at absorbing and controlling rainfall, and are not complicated to install.
- ❑ Theme of elimination of toxic runoff: One of the major themes of this garden will be the link between the toxicity and amount of runoff from landscape and that runoff’s impacts on the marine environment. The project will show homeowners how to reduce the toxicity of runoff from their landscape and examples of how to

greatly reduce or even eliminate runoff. Long Beach has a special interest in urban runoff: it is the only city that both the Los Angeles River and the San Gabriel River flow through; the Long Beach coastal zone is where these rivers discharge. The project itself is only about 400 feet from the marine environment and very close to the confluence of the San Gabriel River and the Pacific Ocean.

- Relation with Aquarium of the Pacific: the Long Beach Water Department has a very close community outreach and educational relationship with the Aquarium of the Pacific, the only major aquarium in southern California. A significant part of the Aquarium's education program is the impact of urban activities on marine habitats. Given the Long Beach Water Department's close working relationship with the Aquarium and the close proximity of the Project to the Aquarium, the link between the problem (urban activities) and part of the solution (environmentally-friendly landscape) is easily made.

A-15i. Benefits and Costs

Two versions of Table C-1 are shown in *Attachment V – Table C-1*. The first version includes the value of the land required for the Gardens, land owned by the City of Long Beach. The logic for including the value of the land is the opportunity cost of not using the land for other purposes. For the sake of this analysis, the land is valued at \$30 per square foot, or about 1/3 of the value on the open market.

While LBWD believes this first version more accurately reflects the cost of the Project, a second version of Table C-1 is included showing the Project's costs exclusive of the value of the land.

LBWD, in addition to using Proposition 50 funds, will invest a great deal of its own money in the development of the Gardens and will continue to invest in the on-going support of and effectiveness of the Gardens over the Gardens' 20-year life.

A comparison of the potential benefits to the anticipated costs, over a 20-year life of the project, shows capital cost of approximately \$827,000, excluding the cost of land, and an operating budget of about \$40,000 per year. If an acre-foot of water is valued at \$154 (the value MWD places on an acre-foot), the project will have to result in a savings of approximately 528 acre-feet of water per year in order to break even. The average Long Beach household uses about 0.41 acre-feet of water per year, about 60% of which is outdoor use. To breakeven,

- Reduce outdoor water use by 50% in just 5% the City's 80,000 residential accounts; or
- Reduce outdoor water use by 2.7% in all the City's 80,000 residential accounts.

This appears readily achievable.

This is, admittedly, a simplified estimate of the impact the project will need in order for the benefits to exceed costs. Keeping the analysis simple is reasonable because the true impacts of the Project can never be known, as discussed above. For example, unlike an ULFT rebate program, LBWD will never be able to document many of the households within Long Beach *and outside of Long Beach* making the conversion to water conserving landscape as a result of this project.

Explanation of Costs

Labor Costs: Labor costs are imbedded in Table C-1. Essentially all the Administrative costs are labor. These costs are essentially the cost of managing the program, from working with the DWR and manage the LBWD internal processes to get the funding agreement executed, to working with the City of Long Beach Planning Commission and Parks Commission, to do most of the environmental permitting work, to developing and managing the relation with the community organizations we will partner with, to managing the process of contracting with a landscape architect and managing and guiding the architect, to managing the development of the interpretive elements and their production and deployment (such as the web-based material, signage, etc.), to manage the implementation verification and report preparation and monitoring and assessment activities; and to spearhead and manage the process of bidding the construction contract and overseeing the successful construction and development of the sites.

The labor costs listed above will be internal to the Long Beach Water Department. Other LBWD labor costs will include construction management and construction inspection.

Non-LBWD labor will be that of the landscape architect and work done for the contractor building the project. LBWD may contract with expert consultants to develop the interpretive element of the project, including the identifying graphics and signage.

Equipment and Supplies: LBWD does not anticipate equipment and supply costs outside of those covered under contracts, such as with a landscape architect and the construction contractor. Equipment owned and supplies used by LBWD and used on behalf of the project, such as paper copiers and computers, will not be charged to the project.

Travel: No travel charge will be billed to this project.

Cost sharing: The breakdown of the costs, between DWR and LBWD are basically as follows. LBWD absorbs the cost of its staff and equipment (such as Administrative Costs, Implementation Verification, Environmental Permitting, construction management

and construction inspection, Monitoring and Assessment, and Report Preparation). The largest remaining costs are design and construction. These costs are then allocated between DWR and LBWD.

Direct and Indirect Costs: None of LBWD's indirect costs will not be charged to this project.

Letters Of Support

- Aquarium of the Pacific
- Surfrider Foundation

Appendices

Appendix A. Project Information Form

2004 Water Use Efficiency Proposal Solicitation Package

Appendix A: Project Information Form

Applying for:

Urban

Agricultural

Section B: Urban or Agricultural Research and Development; Feasibility Studies, Pilot, or Demonstration Projects; Training, Education or Public Information; Technical Assistance

(a) implementation of Urban Best Management Practice, #1 and #5

(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: _____

(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):

Long Beach Water Department

4. Project Title:

Marina Vista Coastal-Friendly Gardens

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

Name, title Kevin L. Wattier, General Manager

Mailing address 1800 E. Wardlow Road

Long Beach, CA 90807

Telephone 562/570-2318

Fax. 562/570-2305

E-mail Kevin_Wattier@lbwater.org

6. Contact person (if different):	Name, title.	Matthew Lyons, Manager of Planning/Conservation
	Mailing address.	1800 E. Wardlow Road Long Beach, CA 90807
	Telephone	562/570-2315
	Fax.	562/570-2306
	E-mail	Matt_Lyons@lbwater.org

7. Grant funds requested (dollar amount): <i>(from Table C-1, column VI)</i>	\$529,976
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8. Applicant funds pledged (dollar amount):	\$302,738
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9. Total project costs (dollar amount): <i>(from Table C-1, column IV, row n)</i>	With value of land: \$1,855,088
	Without land value: \$ 832,713

10. Percent of State share requested (%) <i>(from Table C-1)</i>	With land value: 29%
	Without land value: 64%

11. Percent of local share as match (%) <i>(from Table C-1)</i>	With land value: 71%
	Without land value: 36%

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.
 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.

(a) yes
 (b) no

12. Duration of project (month/year to month/year):	Design/ construct: 2 years Operation: 20 years
13. State Assembly District where the project is to be conducted:	54 th
14. State Senate District where the project is to be conducted:	27 th
15. Congressional district(s) where the project is to be conducted:	46 th
16. County where the project is to be conducted:	Los Angeles
17. Location of project (longitude and latitude)	33 deg 46 min 9 sec no.; by
18. How many service connections in your service area (urban)?	118 deg 7 min 44 sec west
19. How many acre-feet of water per year does your agency serve?	89,381
19. How many acre-feet of water per year does your agency serve?	83,086 (potable and reclaimed)
20. Type of applicant (select one):	<input checked="" type="checkbox"/> (a) City <input type="checkbox"/> (b) County <input type="checkbox"/> (c) City and County <input type="checkbox"/> (d) Joint Powers Authority <input type="checkbox"/> (e) Public Water District <input type="checkbox"/> (f) Tribe <input type="checkbox"/> (g) Non Profit Organization <input type="checkbox"/> (h) University, College <input type="checkbox"/> (i) State Agency <input type="checkbox"/> (j) Federal Agency <input type="checkbox"/> (k) Other <input type="checkbox"/> (i) Investor-Owned Utility <input type="checkbox"/> (ii) Incorporated Mutual Water Co. <input type="checkbox"/> (iii) Specify _____

21. Is applicant a disadvantaged community? If 'yes' include annual median household income.
(Provide supporting documentation.)

(a) yes, \$37,270 median household income
(see Attachment IV for copy census information)

Appendix B – Signature Page

Attachments

Attachment I – Site View

The following are aerial photographs of the site. The first photograph is from very high up, showing the general location of the Project. The second photograph zooms in to show the immediate location of the Project. The third photograph focuses on the Project site, showing a conceptual rendering of the entry into the Project, potential layout of individual gardens and the walking path linking the gardens together.

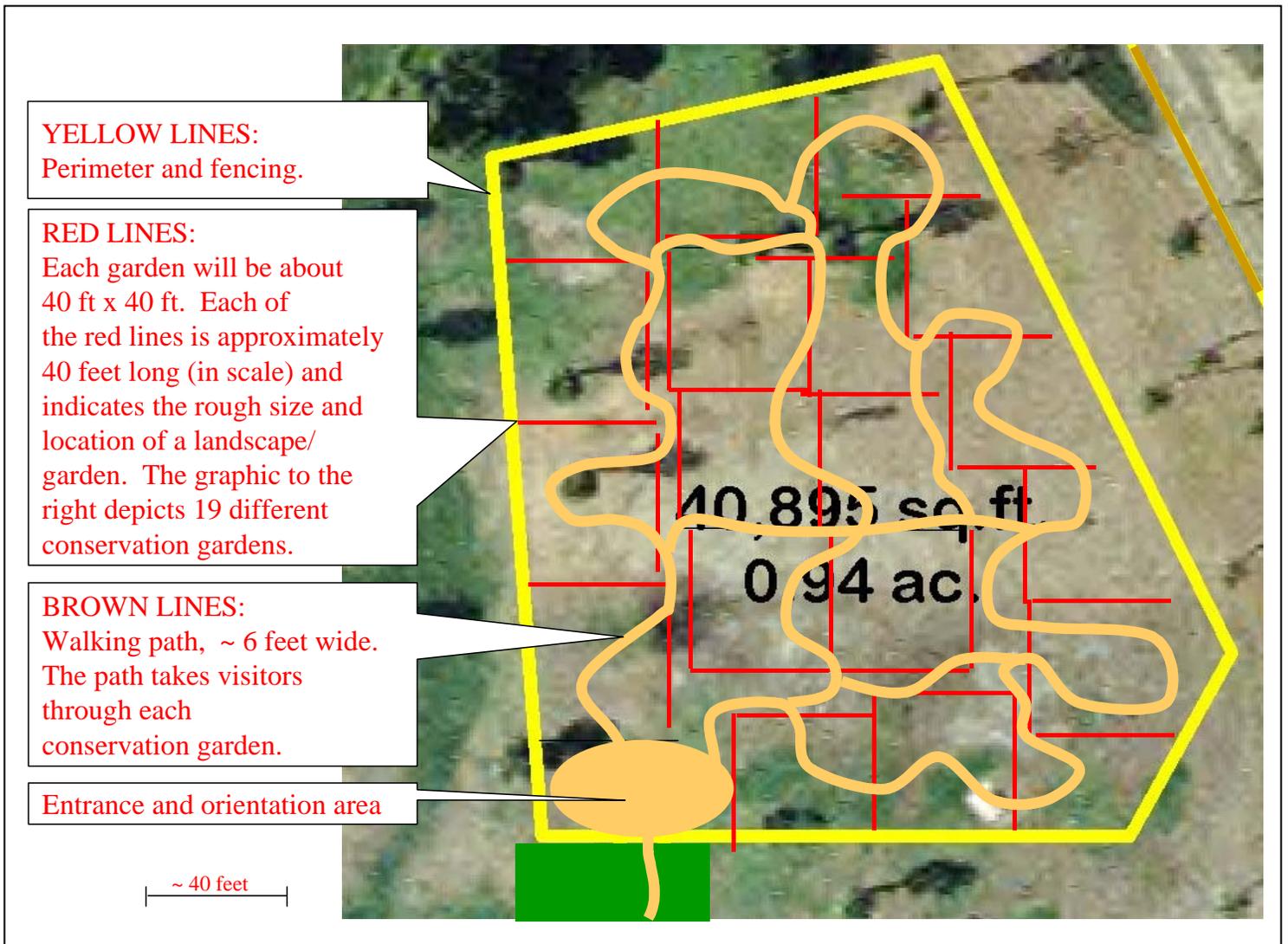
Aerial View of Marina Vista Coastal-Friendly Gardens



Aerial View of Marina Vista Coastal-Friendly Gardens



Aerial View of Marina Vista Coastal-Friendly Gardens



Attachment II – Task List and Schedule

Attachment III – Table 1 - Monitoring and Assessment

Monitoring and Assessment	Annual Cost
Count visitors on weekdays, random survey: conducted once per week on a quarterly basis, 40 hours per week; to be done in conjunction with on-going maintenance	\$ 1,920
Count visitors on weekends, done in conjunction with tours and other events; much of work done by volunteers	\$ 4,160
Analysis of surveys completed by visitors to the Gardens; performed on monthly basis	\$ 1,440
Follow-up surveys of Gardens' visitors, annually, including cost of preparing surveys and postage:	\$ 700
Attendance at landscape classes provided by LBWD No additional cost re: surveys and analysis of classes already takes place.	\$ -
Annual survey of LBWD residential customers*	\$ 480
Total Cost of Monitoring and Assessment	\$ 8,700

* Survey to be incorporated into annual direct mailing to customers; so essentially no additional cost of printing and mailing.

Attachment IV – U.S. Census Estimate of Median Household Income

Attachment V – Table C1. Project Cost Table

Attachment VI – Preliminary Plans

Preliminary Plans

for the January 2005 Long Beach Water Department
Marina Vista Ocean-friendly Gardens
Proposition 50 Proposal
to the
California Department of Water Resources

The Long Beach Water Department (LBWD) is submitting a Proposition 50 Proposal to the California Department of Water Resources (DWR). The Proposal is for the design and construction of the water conservation education garden, highlighting 20 or so different landscape plans for coastal residential properties. This garden will be used extensively to promote water-conserving landscape in the southern California coastal area, particularly in the densely populated regions of southern Los Angeles County and northern Orange County.

Specific types and quantities of material cannot be known at this time because the project has not been designed. The Proposal to the DWR includes the design phase of the project. However, the Proposal does call for a diversity of “readily available” plant and non-plant material normally used for residential water conservation gardens in coastal regions. The Proposal states the project will emphasize hardscape options as well, with a special emphasis on porous materials. The project also includes a meandering pathway escorting visitors throughout the project. The specific quantity of plant and non-plant material, in combination, would equal, as determined by the landscape design, the amount necessary for the 0.94 acre site.

The dimensions of the project, as shown in *Attachment I – Site view*, are roughly 210 feet by 172 feet. This area equals approximately 40,895 square feet, or about 0.94 acres.

The site location is near the point where the Pacific Ocean, and Los Angeles and Orange Counties come together, in the southeast corner of the City of Long Beach. The site is just northeast of the saline water body “Marine Stadium.” With Eliot Street to the south and Colorado Street to the north, the project is in the eastern portion of Marina Vista Park. The proposal includes the longitude and latitude of the site.

Additionally, the site will require both electrical and water utility connections. Both these utilities are available in the vicinity of the project site.

Parking will be required because the site will draw visitors to it. Adequate parking is located about 200 feet southwest of the site.

Although the high salt content of the soil and the site's proximity to a saline water table are a problem for the current use of the site (turf grass), this problem can be mitigated with the tasks outlined in the Proposal, including soil samples and excavation and, perhaps, an underdrain leaching system.

Although plans and specifications for this project have not been developed, as noted, we have enclosed the material in Attachment IX as an example of the kind of Contract Documents and Specifications LBWD would be using for a project like the Gardens. These photocopied pages are from a project released for bid in March 2004. The project was for the installation of water conserving landscape in an island median. These photocopies show the cover page and the table of contents. As shown on the table of contents, Part I through Part II are standard, comprehensive conditions. LBWD uses roughly the same standard conditions for each of the 20 to 30 capital projects it bids each year. Also attached (Attachment IX) are the 27 pages from the section of the document related to landscape (02900 Landscape).

The standard process at LBWD for developing a project like the Gardens is as follows. LBWD develops requests for proposals for landscape design and development of the plans and specification for the construction. This RFP will be sent to a minimum of 10 landscape architect firms. A panel of LBWD staff and outside area-experts recommend a small group of respondents to be interviewed. Based on the interviews, the candidates will be priorities and LBWD staff shall make a recommend to the Board of Water Commissioners, who will authorize executing an agreement with the chosen firm.

Once the final plans and specifications are complete, LBWD releases the bid for construction, choosing the lowest responsible bidder.

During construction, an expert is assigned as the construction manager and an experienced LBWD construction inspector is assigned to the job. The landscape architect remains under contract until the construction is complete.

The island median project, mentioned above, took place at one of the major arteries into the City of Long Beach. The project has been successfully completed and now creates a beautiful entry into the City.

Attachment VII – Certification Statement

Attachment VIII - CEQA Environmental Checklist Form

Attachment IX – Example of Contract Document Specifications