

Statement of Work

Section One: Relevance and Importance

The objective of this project is to demonstrate low water use landscaping to homeowners and commercial landscapers, businesses and government agencies in the San Joaquin Valley. The potential to reduce water used in landscape irrigation is large because urban landscaping consumes 50% or more of municipal water, and because simple changes in plant choice and irrigation methods can greatly reduce the water required for an aesthetically pleasing landscape. This demonstration garden will improve the water supply reliability to Clovis, Fresno, outlying areas and the California Central Valley.

This project primarily addresses the indirect California Bay Delta goal of protecting local water supplies. The Clovis Utilities Department estimates, based on differential between summer and winter water use, that around 50% of water used in Clovis, is for landscape purposes. Others estimate that the percentage of per capita water usage going to landscape purposes is as high as 70% in arid regions like California's Central Valley.¹ Based on comparisons between water used in different households with similar demographics but different landscapes, landscape water usage can be significantly reduced. The practice of landscaping with low-water use plants can result in up to 60% reduction in outdoor water usage.² In addition to water use savings realized from appropriate plant choice, the use of drip irrigation can contribute to water conservation.

Clovis summer water use is three to five times that of winter. Since indoor use will vary little with seasons, this increase in water consumption is due to landscape uses. The city currently pumps approximately 19,249 acre-feet of water per year from wells. The city intentionally recharged an average of 9,343 acre feet per year from 1995 to 2000.³ Although the total water that will be saved is very difficult to estimate, the potential savings are very large, perhaps large enough to balance acre feet of water pumped from the aquifer with acre feet of intentional recharge.

The City of Fresno was unable to provide an Urban Water Management Plan to the Committee. They are not a cooperator in this project. The demonstration garden will increase awareness of low water use landscapes among Fresno residents.

To a lesser extent this project addresses the goals of in-stream flow and timing of flow in the San Joaquin River. Water used in Fresno County comes from ground water and the Kings and San Joaquin Rivers. The cities of Fresno and Clovis recharge ground water with surface water from the San Joaquin and the Kings River. In some areas, for example the Dry Creek Rural Residential area, wells have gone dry and residents are planning to purchase water from irrigation districts in an attempt to recharge the ground water or to have the water treated by a municipality and piped to their homes. This water will come from the San Joaquin River, via Friant canal. Various municipalities and irrigation agencies exchange water through the Fresno Irrigation District, which in turn receives water from both the Kings and the San Joaquin Rivers. Therefore water

¹Sovocool, K. A., and Rosales, J. L. A five-year investigation into the potential water and monetary savings of residential xeriscape in the Mohave desert, available from Southern Nevada Water Authority at www.snwa.com/assets/pdf/xeri_study.pdf. Accessed 9 January 2004

²Postel, S. 1997. *Last Oasis: Facing Water Scarcity*, New York, W.W. Norton & Company, Inc., 1997.

³City of Clovis, 2000 Urban Water Management Plan

conservation achieved in the Fresno/Clovis area will benefit in-stream flow. Reduction of water used for landscape irrigation in the entire region reduces demand on water in the San Joaquin, particularly in the crucial summer months.

Additionally, this project will inform water users throughout the regional. The size of the demonstration garden, quality of landscape design, educational activities and visitor center will serve to interest visitors from throughout the region. The garden is located 1.5 miles from highway 168, and is conveniently located for visitors. Additionally, the Committee will work with other gardens in the state to exchange expertise in the culture of drought tolerant plants. We will also collaborate with other organizations on creation of effective interpretive exhibits. For example, the UC Davis Arboretum recently donated 140 plants and the Huntington Botanical garden donated 120 plants to the garden. The Committee is a member of the American Association of Botanical Gardens and Arboreta, an organization that facilitates such collaborations and provides information on exhibit preparation. Due to these and other collaborations, and visits to the garden by people from out of the immediate area, the educational reach of the project and reduction in landscape water usage will be widespread.

The vast majority of homeowners do not have the horticultural knowledge to select plants that will thrive in their landscapes with minimal water. Retail plant purchases are generally based on the aesthetic appearance of the plant in a plastic growing container, rather than on knowledge of the plant's horticultural characteristics or water requirements. For example, a plant may be dormant and unattractive in the nursery pot, but will thrive when transplanted to the garden. On the other hand, a plant that is in bloom, with lush growth and color, will appeal to the consumer at the retail nursery, but may fail in the Central Valley climate without frequent heavy watering. Often, water requirements are not noted on plant labels. The relevance of this project is to fill that gap in knowledge, and to interest the homeowner in low water use landscape.

Public interest in water saving landscape is growing, in part because of recent private well failures in the area. Visitors to the garden are receptive to water wise plants for several reasons. In addition to environmental benefits, homeowners will have long term savings of time and money and have more aesthetic, authentic and successful landscapes that are characteristic of the locale.

The aesthetic and recreational appeal of the garden attracts the public to the site. Since the garden is located adjacent to the Dry Creek pedestrian and bike trail, visitors drop in to relax and spend time outdoors with family or friends. Once visitors are in the garden, they learn about the low water use plants, and become aware of the water conservation message. Some visitors come specifically to learn about different plants, and to see how the plants look after becoming established in the ground. It is essential to the success of the mission that the garden be attractive to the general public and aesthetically pleasing to the visitor.

In addition to plant choice, drip irrigation uses less than 50% of the water used by impact sprinklers. Drip irrigation has been installed on the 1.1 acre pilot project. This garden demonstrates the success of drip irrigation in maintaining healthy plant growth and an attractive landscape. Garden educational programs will include volunteer training and workshops open to the public on installation of drip irrigation, including conversion of existing impact sprinkler systems to drip irrigation with timer controls, rain shut off, and grouping of plants with similar water requirements.

Section Two: Technical/Scientific Merit, Feasibility

This project involves the expansion of the existing 1-acre Clovis Botanical Garden to an approximate 6-acre Botanical Garden including Visitor Center, Workshop, Greenhouse, Nursery, plant material, utilities, parking area and other related improvements. The initial 1-acre Botanical Garden provided the framework to understand how to create a larger garden and utilize the appropriate resources to achieve this goal. The Conceptual Site Plan included in this proposal shows existing and proposed improvements within and around the Clovis Botanical Garden. These improvements are necessary to support this use as well as the surrounding Dry Creek Park, a City of Clovis park yet to be developed. This proposal contains functional elements required to support the Botanical Garden.

The expansion of this garden will involve similar methods, procedures, and equipment as was utilized during the construction of the 1-acre garden. On-site grading will be necessary to accommodate garden design themes as well as storm runoff. Irrigation-Water lines and fixtures will be extended to the future garden areas. Electric lines, risers and low level garden lighting will also be part of this expansion. The source of electric for this facility will be via a local provider or on-site photo-voltaic/battery system to be evaluated for adequacy. Sanitary sewer, telephone and domestic water services will serve the Visitors Center and Nursery area. Pedestrian and vehicular access/parking is provided from Clovis Avenue, which will accommodate 48 vehicles, loading areas including Accessible parking spaces. On-street parking is allowed along Clovis Avenue and a Transit stop is adjacent to the parking entrance.

Construction of the garden expansion will be done with conventional methods and equipment such as front-end loader-grader, bobcat, trencher, tractor, compactor, roller, forklift and utility truck. Construction surveying will control the horizontal and vertical placement of proposed elements. Equipment will be utilized to install utilities, paving, sidewalk, curb/gutter, trails and other improvements as indicated on the Conceptual Site Plan. Garden members whom are experts in the fields of Botany and Horticulture will provide guidance as to the placement and type of plant or tree materials required.

Construction will be governed by the City of Clovis specifications for public improvements to be done by a licensed bonded contractor in the State of California. Construction documents for the expansion will be prepared by a California licensed Civil Engineer. Construction documents will be reviewed and approved by the City of Clovis prior to issuance of a construction permit.

Based on the Conceptual Site Plan, the expansion of this Garden is feasible given the scope and extent of construction. Construction cost estimates and schedule are included to support the feasibility of this project.

The success of the first acre pilot project establishes the feasibility of creating a low-water-use landscape that is aesthetically pleasing. The plants are thriving. One half of this garden was watered only once every two weeks the summer of 2004, when the plants were in their second summer.

The plants that will be used in the garden are carefully selected for suitability to the climate of the Central Valley of California. Water requirements, frost tolerance, and ability to withstand the valley summer heat are all considered when choosing plants for the garden. The plant list includes natives of the region, Australian desert and

Mediterranean plants. Plants that grow on winter water; that is, natural rainfall alone, with a summer dormant period are included as well.

Additionally, aesthetic value, and suitability for residential and commercial landscaping are considered. Horticultural characteristics such as bloom period, plant size and type of maintenance required, are considered as well. For example, Ceasalpinia sp. bloom in late summer when few other plants are in flower. It is easily kept to a suitable size with winter pruning that requires a few minutes, once a year. This plant is available at retail nurseries but is not yet widely used. Homeowners can use this plant for summer color, and use fewer high- water-use annuals. This shift is feasible because it will save the homeowner time and money, and their landscape will still be attractive.

Birches, magnolias, redwood, flowering pear and sweet gum are trees commonly used in the Fresno and Clovis area. Replacement of these high water use trees with acacias, native oaks, crape myrtle, desert willow and other well adapted trees will save water, and the water savings will increase over time. The public is receptive to these changes in plant choice because the plants are appealing, have local character, and are ultimately easier to maintain.

Other educational programs will include new installation and retrofit of sprinklers with low pressure drip irrigation. Home irrigation systems with impact sprinklers can be converted to drip irrigation by installing a pressure reducer and replacing the sprinkler heads with tubing and drip emitters. While a homeowner can obtain some of this knowledge at retail stores, a garden workshop can provide additional objective information critical to the success of converting a home system. More importantly, the success of the demonstration garden encourages and increases interest in converting a home irrigation system to drip by providing a successful model.

The visitor center building will be critical to the mission of the garden. Interpretive exhibits and a small resource library will be available to visitors to view on their own. Classes on installing drip irrigation, water wise plant choices and appropriate horticulture will be conducted in the visitor center classroom. Classes for children will instill early knowledge of the local environment in our future citizens and homeowners and will further influence their parents. Administrative offices will be located in the visitor center building as well.

A negative declaration for project status as defined by CEQA is anticipated based on the CEQA checklist. Final declaration will be sought by September 2005. The garden site is consistent with the City of Clovis General Plan, is designated as park and is zoned R-A single family residential/ agricultural. The site is bordered by recharge basin to the east, planned park site to the south, residential area to the west, a small parcel of undeveloped ground immediately to the north, with residential areas surrounding the park, recharge basin, and undeveloped parcel.

This project is consistent with, and expands upon the City of Clovis 2000 Urban Water Management Plan.

Garden Design. Garden segments include, Australian, conifer woodland with clearing, oak woodland, Southwest garden, blind/fragrance and sound garden, and utility area. The Visitor center is planned for outside the fenced portion of the garden and will be surrounded by palms and a continuation of the Southwest garden. In this description,

segments are named by the type of trees they will emphasize; however, all segments will include shrubs and perennials as well.

Primary paths will be 8 feet wide, and winding. The primary path entrance will be near the parking lot, and be landscaped or have an architectural element that clearly indicates the location of the entrance to the casual visitor. The primary paths will link all the garden segments, and will lead the visitor to the visitor center when they have completed their tour of the garden. Paths on the east side of the existing acre will be softened to more curving. Secondary paths will be 4 feet wide, even more meandering, will provide visual access to more plants, link garden segments, and feel more engaging than the primary paths.

Topography is planned in all but the blind segment. The elevations, or berms, will be 2 to 3 feet high, and placed to separate segments and to add interest. The paths will angle across low spots in the berms.

The oak woodland will be about 1 A, in the south west corner of the site. That segment will be planted with approximately 20 individual trees and include 4 species of California native oaks. These trees will eventually be quite large. Under plantings will be changed over the years as shade increases. This segment is adjacent to the oaks in the preview garden, increasing the effective size of the segment. This segment will evoke the Sierra foothills, and should alert the visitor that they are entering a natural area, as opposed to a commercial or residential development.

The acres to be developed will include a utility area of about 0.22 A at the north corner of the site. The utility area will contain a workshop, greenhouse and nursery, and truck access from the trail entrance. This section will be closed to the casual visitor.

An acre of Australian plants is planned for the 1A area just to the south of the utility area and north of the preview acre. These plants generally look very different from plants with which the public is familiar. The visitor will likely experience this segment as unexpected and intriguing.

A section of dwarf conifers and native plants is planned for the narrow area between the preview garden and the trail. This will be similar to the existing rock garden. This area will invite close inspection, encouraging the visitor to slow down.

The largest segment of the garden will be 1.5 A of conifer woodland surrounding a clearing or meadow. The meadow portion will be 1 to 2 feet below grade, with the entire area slightly “dished”. The secondary path will circle the meadow just under the trees. On this path the visitor will be in the shade of the woods, looking across the meadow. The meadow portion will contain native grasses and wildflowers, with larger bunch grasses and manzanita grading into the wooded area. This segment is meant to evoke a setting in the Sierras, and should be very relaxing for the visitor. Seating here could be carefully placed boulders.

The Southwest or “hacienda” garden will be located at the southeast corner of the garden and will continue around the visitor center building. This section will include Palo verde, mesquite, desert willow, agaves, Mexican bird of paradise and a limited number of cacti. An arbor or pergola area suitable for weddings will be located in this section, and will likely be a semicircle of arches. This area will have dappled shade, and evoke the American Southwest. The trail in this section will deliver the visitor to the main building.

The blind or fragrance and sound garden will be flat, contain herbs and flowers with scents and interesting feel. For example, the sage brush is very soft to touch. This section will include Braille labels for plants. Grasses with rustling stems and seed stalks will be planted in this section. There will also be a chime or bell, for example high quality wind chimes, or chimes that are rung by dropping gravel through a vertical maze. This area will be roughly 0.25 A, and will not include any elevation changes.

The Visitor Center will be two stories and contain offices, gift shop, classroom and interpretive exhibit space, exterior patios, restrooms for park and trail users, and an interior patio for special events.

The Garden committee is working with ESRP (Endangered Species recovery program) on plans for landscaping the trail adjacent to the entire park site. Features will include California native plants with landscape potential, bee boxes, owl boxes, songbird nesting boxes, butterfly food plants and shrubs that support songbirds.

Plant List

Scientific name common name

TREES

Acacia baileyana Golden mimosa
A. cyclopsis
A. delbata Silver wattle
A. longifolia
A. melanoxylon Blackwood acacia
A. stenophylla Shoestring acacia
Aesculus californica
Arbutus unedo Strawberry tree
Brachychiton populneus
Catalpa speciosa
C. bignonioides
Cedrus atlantica Atlantic cedar
C. deodora
C. libani Cedar of Lebanon
Celtis sinenses
C. occidentalis
Ceratonia siliqua Carob
Cercidium floridum Blue palo verde
Cercis occidentalis Western redbud
Chamaerops humilis Mediterranean fan palm
Chilopsis linearis Desert willow
Chionanthus retusus Fringe tree
Chitalpa tashkentensis
Cinnamomum camphora Camphor tree
Cordia boissieri Mexican olive
Cordyline australis Giant Dracaena
Cordyline baueri
Cotinus coggygia Smoke tree

Cupressus arizonica Arizona Cypress
Eriobotrya japonica Loquat
Geijera parviflora Australian willow
Ginkgo biloba Maidenhair tree
Gleditsia triacanthos Honey locust
Grevillea robusta Silk oak
Juglans californica California black walnut
Juniperus californica California juniper
J. scopulorum Blue weeping juniper
J. virginiana Eastern red cedar
Koelreuteria paniculata Golden rain tree
Lagerstroemia Crape myrtle
Laurus nobilis Sweet bay
Leptospermum scoparium New Zealand Tea Tree
Melaleuca armillaris Drooping melaleuca
M. linariifolia Flaxleaf paperbark
M. nesophila Pink melaleuca
M. quinquenervia Cajeput tree
Melia azedarach Chinaberry
Olea europaea Olive
Parkinsonia aculeata Mexican palo verde
Pinus coulteri Coulter pine
P. eldarica
P. halepensis Aleppo pine
P. pinea Italian stone pine
P. sabiniana Digger pine
Pistacia chinensis Chinese pistache
Prosopis alba. Mesquite
P. chilensis
P. glandulosa
P. juliflora
P. pubescens
Quercus agrifolia Coast live oak
Q. douglasii Blue oak
Q. engelmannii Engelman oak
Q. garryana Oregon white oak
Q. ilex Holly oak
Q. lobata Valley oak
Q. suber Cork oak
Rhus lancea African sumac
Robinia ambigua Idaho locust
R. pseudoacacia Black locust
Sabal texana Texas sabal
S. uresana
Schinus molle California pepper tree
Sophora japonica Texas mountain laurel

Thuja plicata Western red cedar
Umbellularia californica California bay
Vitex agnus-castus Chaste tree
Yucca elata
Y. rostrata

SHRUBS

Acacia sp. shrub forms
Anisacanthus thurberi Desert honeysuckle
Arctostaphylos sp. Manzanita
Artemisia sp.
Baccharis pilularis Coyote brush
Buddleia marrubifolia Woolly butterfly bush
Caesalpinia gilliesii Bird of paradise bush
C. mexicana Mexican bird of paradise
C. pulcherrima Dwarf poinciana
Callistemon citrinus Bottle brush
C. viminalis Weeping bottle brush
Calocedrus decurrens Incense cedar
Calothamnus quadrifidus Net bush
C. rupestris
Capraris spinosa Caper
Carpenteria californica Bush anemone
Cassia artemisoides Feathery cassia
Ceanothus arboreus
C. gloriosus
C. griseus
Chaenomeles japonica Japanese quince
C. speciosa Flowering quince
Chamaelucium uncinatum Geraldton waxflower
Cistus ladanifer Rock rose
C. purpureus Rock rose
C. salviifolius Sage leaf rock rose
C. skanbergii Rock rose
Comarostaphylis diversifolia Summer holly
Convolvulus cneorum Bush morning glory
Coprosma kirkii
Dendromecon rigida Bush poppy
Dodonaea viscosa Hopseed bush
Echium fastuosum 'Pride of Madera'
Elaeagnus multiflora
E. pungens Silverberry
Erysimum 'Bowles Mauve' wallflower
Euonymus alatus 'Compactus' Burning bush
Fallugia paradoxa Apache plume
Fouquieria splendens Ocotillo

Fremontodendron californicum Flannel bush
Garrya elliptica Silk tassel
Grevillea juniperima 'Pink pearl'
G. rosmarinifolia
G. thelemanniana Humming bird bush
Hakea suaveolens Sweet hakea
Halimium lasianthum Yellow rock rose
Helianthemum nummularium Sunrose
Heteromeles arbutifolia Toyon
Hypericum beanii St. Johnswort
Juniperus spp.
Larrea tridentata Creosote bush
Lavandula officinalis English lavender
Lavandula sp.
Leonotis leonurus Lion's tail
Leptospermum laevigatum Australian Tea Tree
Leucophyllum frutescens Texas silverleaf
Lupinus albifrons Silver lupine
Mahonia aquifolium Oregon grape holly
M. pinnata California grape holly
M. repens
Melianthus major (honey bush)
Myoporum laetum
M. parvifolium
Myrtus communis Myrtle
Nolina bigelovii
N. longifolia Mexican grass tree
N. parryi
Prunus caroliniana Carolina laurel cherry
Prunus ilicifolia holly leaf cherry
Prunus lyonii Catalina cherry
Rhamnus alaternus Italian buckthorn
R. californica California coffee berry
R. crocea Red berry
Rhaphiolepis indica Indian hawthorn
Rhus ovata Sugar bush sumac
Robinia hispida Moss locust
Rosa rugosa Sea tomato
Rosmarinus officinalis Rosemary
Salvia apiana
S. azure
S. chamaedryoides
S. clevelandii
S. forskahlei
S. greggii
S. greggii 'Flame'

S. leucantha
S. leucophylla
S. mellifera
S. microphylla
S. munzunii
S. officinalis
S. sonomensis
S. spathacea
Salvia sp.
Sambucus caerulea Blue elderberry
Teucrium fruticans Germander
Westringia fruticosa
Yucca whipplei
Yucca sp.

BULBS, GRASSES and PERENNIALS

Achillea filipendulina
A. tomentosa
Aethionema sp. Stonecress
Alteranthera bettzichiana
Amsonia tomentosa
Anagallis arvensis pimpernel
Anigozanthos sp. Kangaroo paw
Anisacanthus thurberi Desert honeysuckle
Antennaria doica Pussytoes
Arctotheca calendula Capeweed
Asclepias californica Milkweed
Asteriscus maritimus Gold chip
Baileya multiradiata Desert marigold
Calochortus albus
C. amabilis
C. macrocarpus
C. superbus
C. venustus
C. vestae
Centranthus ruber Jupiter's beard
Cymbopogon citratus Lemon grass
Cynoglossum grande Western hounds tongue
Dasyilirion wheeleri Desert spoon
Echeveria agavoides wax agave
E. crenulata
E. imbricata
Epilobium californica California fuschia
E. cana California fuschia
Erigeron glaucus
Eriogonum sp.

Eschscholzia californica
Fragaria chiloensis Beach strawberry
Gaillardia grandiflora
Geum macrophyllum Big leaf avens
Guara lindheimeri
Helianthemum nummularium
Helichrysum bractiatum Straw flower
Hesperaloe parviflora Red yucca
Hesperaloe sp.
Hunnemannia fumariifolia Mexican tulip poppy
Iris danfordiae
I. germanica
Kniphofia uvaria Torch lily
Linaria genistifolia subsp. *dalmatica* Dalmation toadflax
Maianthemum dilatatum False lily of the valley
Marrubium vulgare Horehound
Mentzelia affinis blazing star
Muhlenbergia montana
M. rigens Deer grass
Nasella tenuissima Mexican feather grass
Nepeta siberica Catmint
Origanum sp. Oregano
Papaver sp. Poppy
Penstemon sp.
Perovskia atriplicifolia
Phlomis fruticosa Jerusalem sage
Phlox diffusa
Phormium tenax New Zealand flax
Plecostachys serphyllifolia
Romneya coulteri Matilija poppy
Santolino chanaecyparissus lavender cotton
Satureja chandleri San Miguel savory
S. douglasii Yerba Buena
Sedum brevifolium Gold coin
Senecio cineraria Dusty miller
Silene californica Indian pink
Sphaeralcea ambigua
Thymus vulgaris
Thymus sp.
Verbascum Mullein-biennial
Verbena sp.
Yucca sp.

VINES

Aristolochia californica Pipevine
Hardenbergia violacea

Macfadyena unguis-cati Yellow Trumpet vine
Tecomaria capensis Cape honeysuckle
Vitis californica grape 'Roger's red'

Section 3. Monitoring and Assessment

Project monitoring will be based on construction progress according to the schedule, with allowances for contingencies and based on actual funding. Progress will be readily apparent based on completion of the tasks and visible site preparation and built structures.

Assessment of the effectiveness of the project will include measures of public acceptance, such as increase in membership, hours of volunteer involvement and attendance at events and water conservation workshops. Active involvement with the demonstration garden is an indication of public commitment and acceptance. Records of membership, volunteer hours donated, and participation in special events and workshops will be kept, charted and reported for the required period.

Water use is measured once every 2 months in Clovis. The differential between water used in the rainy season months November, December, January and February and the water used in June, July, August and September is a strong indicator of all water used in landscaping. That data is available from the City of Clovis Utilities Department for past years.

The City has agreed to provide that data and future water use data to the Committee. This seasonal differential will be charted, on a per capita basis, using an average of 1995 to 2005 as a baseline. Conversion to low water use landscape is expected to be gradual in developed areas. Data will be collected and charted until 2013, allowing time for changes. Other factors that may result in water conservation will be noted when interpreting the data. For example, if cost of water to the consumer increases, the date of that price increase will be considered. However, since we are considering the seasonal differential in water use, rather than total water use, the confounding effect of other factors will be minimized.

To further assess the effectiveness of this project, participants in workshops and seminars will be requested to fill out an evaluation form at the completion of the workshop, and a questionnaire 3 months and 12 months later to determine if they have utilized the information and if they have reduced their water consumption.

Qualifications of the Applicants and Cooperators

1. The stated mission of the Clovis Botanical Garden Committee is to demonstrate low water use plants to the public. The First Acre pilot project establishes the Committees qualifications and commitment to this endeavor. Resumes of the Executive Director, Founder and President, and design committee members are included at the end of the proposal. All have been closely involved in the development of the first acre pilot project. John Pape, Howard Latimer, and Cynthia Eayre have extensive knowledge of the plant material appropriate to this project, and extensive knowledge of horticultural practices.

The Committee is supported by the community, with over 400 volunteer hours donated in 2004. The Committee has 180 members. Also indicating of public support are the small grants from Fresno Regional Foundation (\$2,000) and Clovis Community Foundation (\$13,000) received in 2004.

2. The City of Clovis is the most important cooperator to this project. The City is providing the land for the garden, valued at \$600,000. Additionally, city staff in the Planning and Parks Departments are working closely with the committee on design

concept, and landscaping the adjacent trail to integrate with the garden. The Garden Committee is responsible for garden operations, planting, landscape design, fundraising, volunteer supervision, construction, publicity, and maintenance. The City will provide the land, and will have approval of final overall design and location of street and utility connections.

Other collaborators are the Endangered Species Recovery Program, the California Native Plant Society and its local Chapter. These collaborations are predominately involved sharing expertise and plant material.

3. The Committee has no previous water use efficiency grants.

Innovation

The most innovative aspect of this project is that the demonstration garden itself is an attraction to the visiting public and the success of the garden is the message. Visitors are drawn to this demonstration garden for recreation and because of its aesthetic appeal. Since the garden is located adjacent to the Dry Creek pedestrian and bike trail, visitors drop in to relax and spend time outdoors with family or friends. Once visitors are in the garden, they learn about the low water use plants, and become motivated to change their own landscape. Some visitors come specifically to learn about different plants, and to see how the plants look after becoming established in the ground. It is essential to the success of the mission that the garden be attractive to the general public and aesthetically pleasing to the visitor.

It is essential to this project that the project is well designed, attractive, welcoming, and with enough points of interest to warrant a drive from other towns. Other activities such as weddings, special events, school field trips, weekend gardening workshops, and club meetings will also bring the public to the demonstration garden. These activities require adequate facilities. The Visitor Center will provide excellent facilities and much of that interest with interpretive exhibits, classroom space, and gift shop.

In addition to plant choice, drip irrigation conserves water compared to irrigation by impact sprinklers. Drip irrigation has been installed on the 1.1 acre pilot project. This garden demonstrates the success of drip irrigation in maintaining healthy plant growth and an attractive landscape. Garden programs will include volunteer training and workshops open to the public on installation of drip irrigation.

The landscape we are demonstrating is strikingly different from the landscapes typical of residential and commercial landscapes in the area. Plant choices and groupings are innovative and successful. The goal of the project is to change the local landscape. It is innovative in encouraging a shift from a conventional landscaping approach to a more thoughtful and involved approach to residential landscaping.

Another aspect of innovation in this project will be testing California native plants for suitability in the residential and commercial landscapes. ESRP and the California Native Plant Society will collaborate on this. Characteristics to be considered are bloom, maintenance required, ease of propagation and transplant, disease and insect resistance, and overall aesthetics.

Outreach, Community Involvement and Acceptance

The most important piece of information that this project can present is that water wise landscapes can be very appealing and aesthetically pleasing. The best way to share that information is for the public to visit and see the demonstration garden. The attractiveness of the landscape design, health of the plants, and quality of the visitor experience emphasize this information to the visitor.

The Dry Creek pedestrian and bike trail adjacent to the garden is an excellent source of receptive visitors. The trail is part of a network of trails, and visitors may travel to the garden by foot or bicycle. School field trips, meetings of garden clubs and plant societies, and special events will occur at the garden, also bringing visitors and increasing public awareness of the demonstration garden. The City of Clovis plans to develop the area to the south of the garden as passive park. This will also increase visitors to the site.

To increase the number of visitors, public awareness of the garden will be spread by increased use of news media including TV, radio, newspaper, and internet website. Expansion of the demonstration garden will result in additional news coverage. The Committee has cooperative relationships with the Clovis Independent Newspaper and local radio and Public TV, and will continue to develop similar cooperative liaisons. The garden has already received favorable coverage in newspapers, and publicity on TV and radio.

Information about successful low water use landscapes will be disseminated to the public by several methods. Casual visitors to the garden learn plant material from signs with plant information and in conversation with garden volunteers. Volunteers will receive training in plant material and irrigation practices. The volunteers will direct visitors to seminars and workshops for more detailed information. Printed copies of the plant list will be available to visitors for reference when planning their own landscapes and obtaining plants for their own use. Seminars and workshops will be presented to the public in the garden and in the visitor center on plant choice, design of landscapes with plants grouped by water requirements, installation of drip irrigation, and other horticultural topics. Written material will be prepared for these workshops, further increasing dissemination of the information. Written material and power point presentations will also be made available to those that do not attend the workshops. By collaborating and communicating with other gardens through professional channels such as America Association of Botanical Gardens and Arboreta, and by influence on the nursery trade through collaboration, the outcome will be transferable to other parts of the state.

Applicant: Clovis Botanical Garden Committee

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)		Annualized Costs \$ (IX)
	Administration ¹							
	Salaries, wages	\$455,500	5%	\$455,728	\$80,000	\$375,728		\$0
	Fringe benefits	\$90,367	5	\$94,885	\$10,000	\$84,885		\$0
	Supplies	\$5,160	3	\$5,315	\$0	\$5,315		\$0
	Equipment	\$15,000	5	\$15,750	\$2,000	\$13,750		\$0
	Travel	\$6,000	0	\$6,000	\$2,000	\$4,000		\$0
(a)	Total Administration Costs	\$572,027		\$577,678	\$94,000	\$483,678		\$0
(b)	Visitor Center Design	\$40,000	5	\$42,000	\$42,000	\$0		\$0
(c)	Plants	\$18,000	2	\$18,360	\$9,000	\$9,360		\$0
(d)	Flood Control Fee	\$20,000	0	\$20,000	\$0	\$20,000		\$0
(d)	Interpretive Exhibits	\$13,000	2	\$13,260	\$0	\$13,260		\$0
(e)	Visitor Center	\$810,000	10	\$891,000	\$50,000	\$841,000		\$0
(f)	Workshop	\$25,000	5	\$26,250	\$26,250	\$0		\$0
(g)	Pergola	\$6,000	2	\$6,120	\$6,120	\$0		\$0
(h)	Greenhouse	\$25,000	5	\$26,250	\$0	\$26,250		\$0
(i)	Land Purchase/Easement	\$600,000	0	\$600,000	\$600,000	\$0		\$0
(j)	Sitework, Parking lot	\$143,325	5	\$150,491	\$0	\$150,491		\$0
(k)	Site work, grading	\$18,740	5	\$19,677	\$19,677	\$0		\$0
(l)	Sitework, utilities to Structures	\$87,750	10	\$96,525	\$0	\$96,525		\$0
(m)	Sitework, pathways	\$6,500	5	\$6,825	\$0	\$6,825		\$0
(n)	Sitework, electrical system in garden	\$25,000	5	\$26,250	\$0	\$26,250		\$0
(o)	Boulder delivery	\$2,000	5	\$2,100	\$2,100	\$0		\$0
(p)	landscape lighting	\$30,000	10	\$33,000	\$0	\$33,000		\$0
(q)	Perimeter Security Fence, gates, locks	\$84,000	5	\$88,200	\$45,000	\$43,200		\$0
(r)	Irrigation System	\$32,000	2	\$32,640	\$10,000	\$22,640		\$0
(s)	Monitoring and Assessment	\$600	0	\$600	\$0	\$600		\$0
	TOTAL	\$2,558,942		\$2,677,226	\$904,147	\$1,773,079		\$0
	Cost Share -Percentage				34	66		

1- excludes administration O&M.

Applicant:

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)
\$0	\$0	\$0	\$0

(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)
\$0	\$0	\$0

(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:

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					0
Local				Not applicable.	

¹ The qualitative benefits should be provided in a narrative description. Use additional sheet.

² Direct benefits are project outcomes that contribute to a CALFED objective within the Bay-Delta system during the life of the project.

³ Indirect benefits are project outcomes that help to reduce dependency on the Bay-Delta system. Indirect benefits may be realized over time.

⁴ The project benefits that can be quantified (i.e. volume of water saved or mass of constituents reduced) should be provided.