A Homeowner's Guide to a WaterSmart Landscape

water smart LANDSCAPE

This guide is intended to be used for general informational purposes; the guide does not take the place of professional advice. Please consult with appropriate landscape professionals for site-specific advice prior to making changes to your landscape or irrigation systems.

Guidelines made possible by:

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RECLAMATION
Managing Water in the West

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

This guide was developed and designed by
Schmidt Design Group, Inc.

Photo previous page: Ceanothus sp./California Lilac (low water use)

A Step-by-Step Process

to a Beautiful and Water Efficient Landscape

WE'RE ALL IN THIS TOGETHER

Using water efficiently is a way of life and an important responsibility that comes along with the benefits of living in a beautiful, Mediterranean climate like San Diego County. A WaterSmart landscape is all about rethinking the way we use our limited water resources, and making smart choices to reduce outdoor water by designing beautiful and appropriate landscapes for our region. Working together, we can all help ensure a reliable water supply and keep San Diego County vibrant, prosperous and naturally beautiful ... now, and for generations to come.

As of January 1, 2010, all jurisdictions within the State of California adopted a Water Efficient Landscape Ordinance to comply with Assembly Bill 1881. This step-by-step guide is intended to assist homeowners in meeting the spirit of these ordinances. For compliance with specific requirements relative to where you live, including any relevant landscape permits, please contact your local land use agency.

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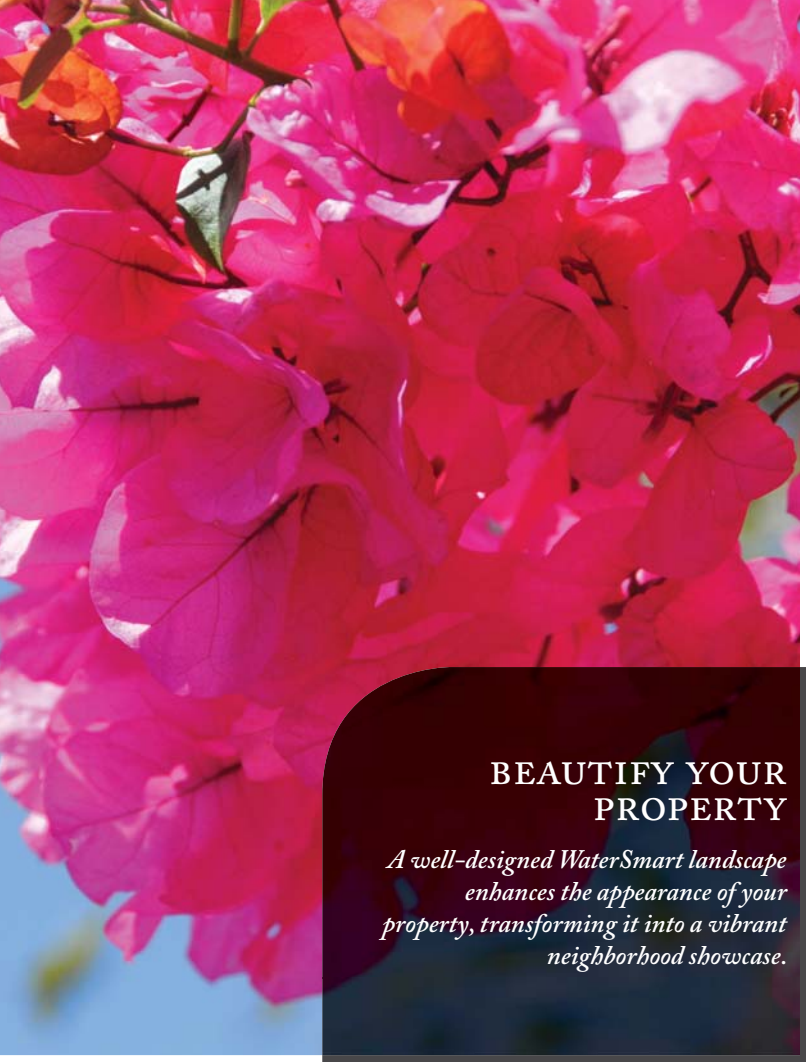
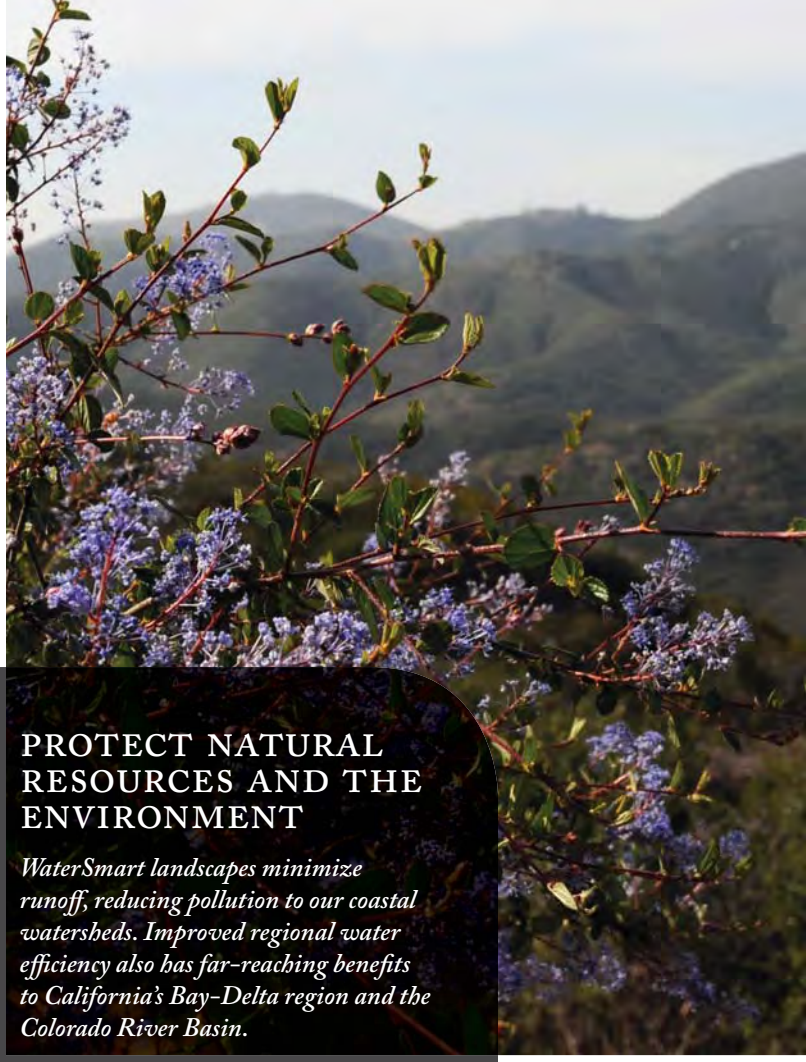


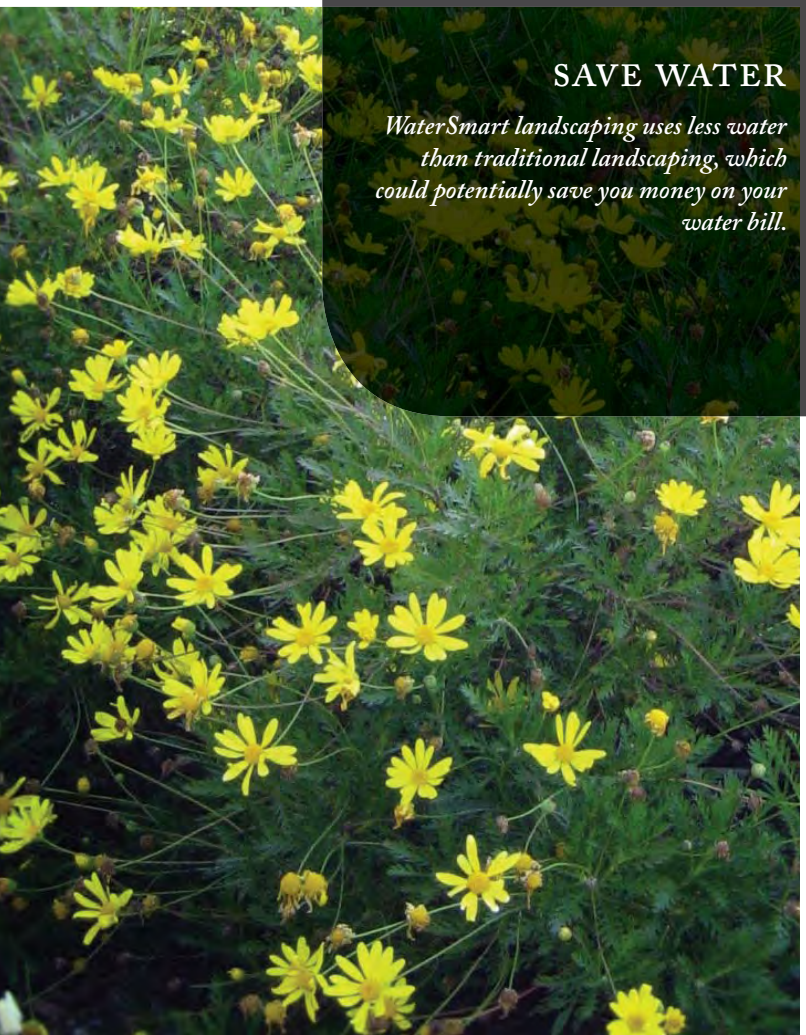
BEAUTIFY YOUR PROPERTY

A well-designed WaterSmart landscape enhances the appearance of your property, transforming it into a vibrant neighborhood showcase.



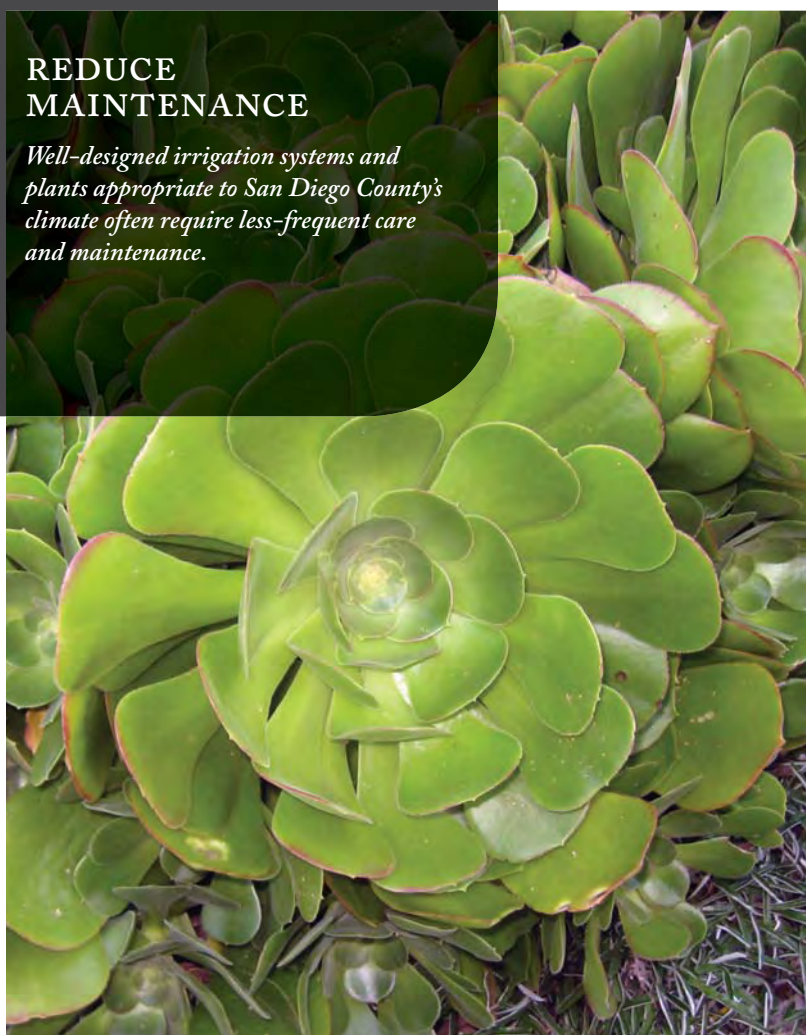
PROTECT NATURAL RESOURCES AND THE ENVIRONMENT

WaterSmart landscapes minimize runoff, reducing pollution to our coastal watersheds. Improved regional water efficiency also has far-reaching benefits to California's Bay-Delta region and the Colorado River Basin.



SAVE WATER

WaterSmart landscaping uses less water than traditional landscaping, which could potentially save you money on your water bill.



REDUCE MAINTENANCE

Well-designed irrigation systems and plants appropriate to San Diego County's climate often require less-frequent care and maintenance.

What is a WaterSmart Landscape?

A WaterSmart landscape includes:

WATER EFFICIENT DESIGN

Proper landscape design is a key element. Begin with an overall target of how much water you want to save on your project.

This guide can help you identify a WaterSmart target for your landscape.

EFFICIENT IRRIGATION

Incorporate WaterSmart irrigation components – including Smart controllers, pressure regulators, rotating nozzles and drip – into your irrigation system to maximize water use efficiency.

Drip emitters are the most efficient method of irrigation.

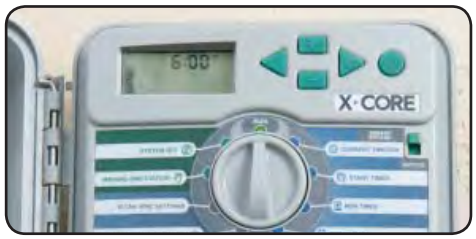
CLIMATE APPROPRIATE PLANTS

Select plants that naturally thrive in San Diego County's Mediterranean climate, and are also appropriate for your specific soil and microclimate.

Succulents are typically very low water use plants.

APPROPRIATE MAINTENANCE AND IRRIGATION MANAGEMENT

Know the needs and requirements of your water efficient landscape, and strive to manage water use within an established water budget. Monitor systems and make any repairs promptly.



Seasonal maintenance checks and controller updates can help conserve water.

Previous Page
Top Left: Bougainvillea sp./Bougainvillea (low water use)
Top Right: Ceanothus sp./California Lilac (low water use)
Bottom Left: Euryops pectinatus 'viridis'/ (low water use)
Bottom right: Aeonium sp./Canary Island Rose (low water use)

Your Path to Achieving a WaterSmart Landscape

Achieving a WaterSmart landscape requires careful planning and implementation, but the many benefits you will derive – which include improving the beauty of your property, reducing maintenance, minimizing water pollution due to runoff, and conserving water – are well worth the effort.

1 IDENTIFY YOUR LANDSCAPE TARGET

2 CREATE A BASIC PLOT PLAN

3 TEST AND CONDITION YOUR SOIL

The following pages will guide you through the steps to creating a WaterSmart landscape.

Note: If you're not ready to start the full landscape upgrade right now, you can start by upgrading just one portion of your yard at a time. Or if you're just looking for tips to maximize water savings in your existing landscape, skip to "Step 6 – Care for your WaterSmart Landscape" for recommendations on how to **save water in your landscape now!**

STEP 1

IDENTIFY YOUR LANDSCAPE TARGET

As a homeowner, you have the power to significantly improve your home's water efficiency. Cool season turf grass is one of the highest water using plants used in our region and replacing it with a WaterSmart landscape is a great way to reduce your water use. Whether you want to do a complete remodel or update only a portion of your landscape, the following section will help you identify what type of landscape will meet your needs and maximize your landscape's water savings potential.

The amount of water savings your WaterSmart landscape can offer is determined both by the water use characteristics of the plants you choose, as well as the efficiency of the irrigation system. Select your preferred plant and irrigation type from the list below and follow the simple calculations to verify that the combination of planting and irrigation you selected will meet the intent of the water conservation guidelines set forth in the State's Model Water Efficient Landscape Ordinance.

"Low" to "Moderate" Water Use: An example of a Mediterranean style garden.

"Low" Water Use: An example of a California Friendly WaterWise garden.

"Very Low" Water Use: An example of a California native garden.

PLANTING

"Low" to "moderate" water use plants

A low water use garden with some moderate water use accent plants, and up to 10% turf (or other high water use plants).

- 45% Low water use
- 45% Moderate water use
- 10% High water use

"Low" water use plants

A low water use garden with no more than 10% turf (or other high water use plants).

- 90% low water use
- 10% high water use

"Very low" water use plants

A very low water use garden with no more than 10% turf (or other high water use plants).

- 50% very low water use
- 50% low water use

See additional garden photos, pages 16 and 17.

IRRIGATION

Low efficiency irrigation

Conventional spray irrigation: Installing a low efficiency irrigation system is not recommended. But if you have an existing automatic irrigation system, a WaterSmart landscape can still be achieved with the right combination of plants.

Impact rotors: Installing a low efficiency irrigation system is not recommended.

Moderate efficiency irrigation

Rotator nozzles: Best suited for spaces 8-30 feet in size.

Gear rotors: Best suited for areas 25 feet and larger.

High efficiency irrigation

Drip emitters and in-line emitters: Best suited for tree and shrub areas of any size.

Bubblers: Best suited for trees and some small shrub areas.

Micro-spray: Best suited for tree and shrub areas of smaller size.

Note, see the definitions section in Appendix D to compare the features of each irrigation types shown underlined above.

WaterSmart matrix

Planting \ Irrigation	Low efficiency irrigation Conventional Spinklers Impact Rotors *IE = 0.55**	Moderate efficiency irrigation Rotator Nozzles Gear Rotors *IE = 0.70**	High efficiency irrigation Drip Emitters Bubblers Micro Spray *IE = 0.80**
"Low" to "moderate" water use plants 45% Low water use 45% Moderate water use 10% High water use *average PF = 0.40**	not WaterSmart	★½	★
"Low" water use plants 90% Low water use 10% High water use *average PF = 0.26**	★	★★½	★★
"Very low" water use plants 50% Very Low water use 50% Low water use *average PF = 0.15**	★★	★★★½	★★★

Note: The matrix is based on the State Model Water Efficient Landscape Ordinance water use calculations for a 1,000 to 3,000 square foot size landscape, and is provided as a simple rule of thumb for sites in San Diego County. As shown, the only combination of planting and irrigation that does not achieve the water conservation goals of a WaterSmart landscape is "low" to "moderate" water use shrubs with a conventional spray irrigation system. The conventional spray irrigation is not recommended, but it is shown to demonstrate that with the right plant selection and the use of a smart controller, you can still achieve a WaterSmart landscape.

WaterSmart Star Rating

Compliant with the water conservation ordinance.

Maximum water savings potential. Congratulations!

*See Water Use Calculation Worksheet in Appendix A for definitions and assumptions made for IE (irrigation efficiency) and PF (plant factor).

Potential Water Savings

Converting cool season turf to WaterSmart planting can have a big impact on water use in the warmer microclimates of San Diego County:

High water use cool season turf

46-50 gal/square foot/year

vs.

Low water use plants

9-12 gal/square foot /year

LANDSCAPE TARGET

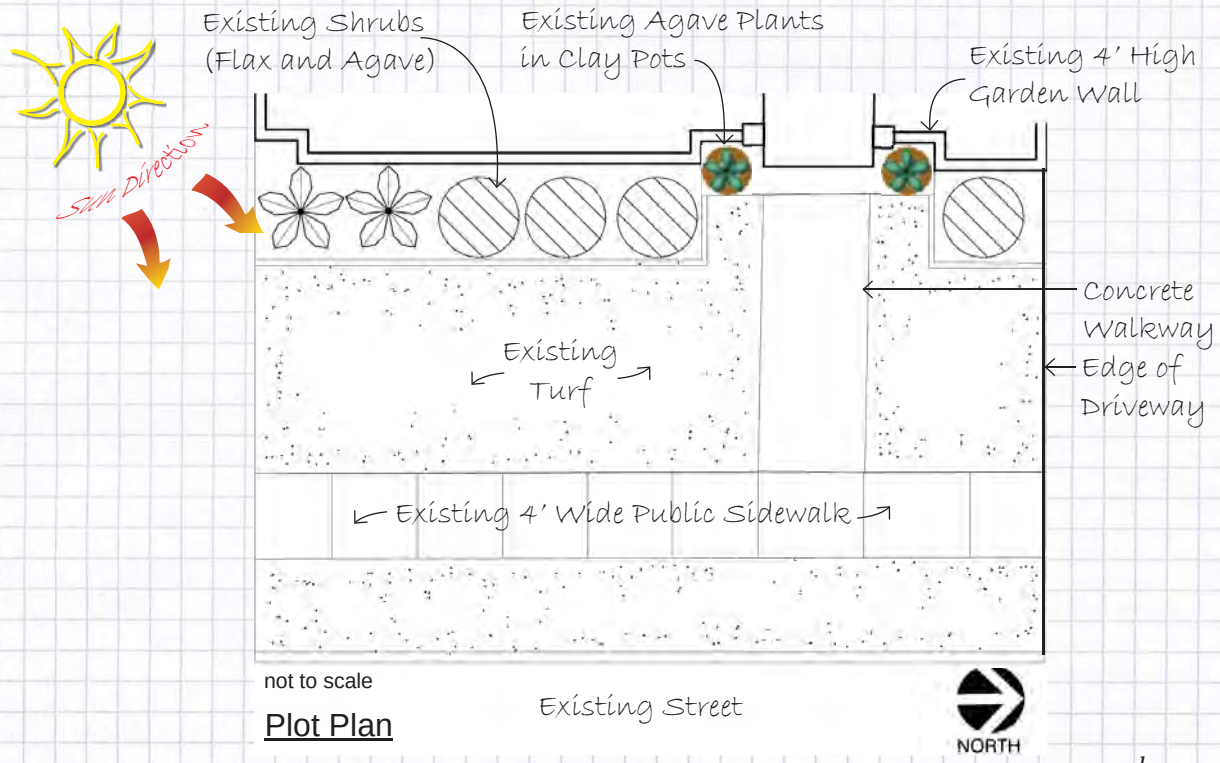
My WaterSmart landscape target is:

(Select ½★ to ★★★ WaterSmart landscape)

Now that you have identified your ideal planting style and the type of irrigation required to achieve your desired water savings, it's time to review the steps you'll need to take to make your landscape upgrade a reality.

CASE STUDY – FROM TURF TO WATERSMART

The following case study is an example of a San Diego residence that converted approximately 625 square feet of turf to a WaterSmart landscape. Follow the Case Study through the guide as it illustrates the steps to a WaterSmart landscape.



Plot Plan

Notes:

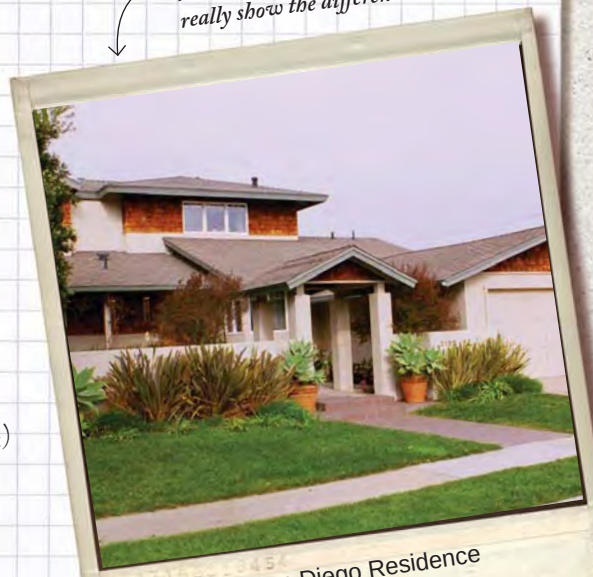
Soil Condition - Light Brown Color, Seemed to be loam soil. Will need a soil sample analysis to determine.

Total Landscape Area - 625 square feet

Target Landscape Type - ☆☆ WaterSmart landscape with "Low" water use plants and micro-spray irrigation.

Potential Water Savings - 5865 Gallons/year (per Water Use Calculation worksheet Appendix A)

Take a photo of your existing yard before renovations and one more from the same location after renovations to really show the difference.



San Diego Residence

–Before WaterSmart upgrade–

STEP 2

CREATE A BASIC PLOT PLAN

Starting with a sketch of your existing landscape will help you visualize your future WaterSmart landscape. Use graph paper with squares that are 1/8" or 1/4" in size to help you draw your plot plan so that one square equals one foot. Locate key existing elements such as property limits, walkways, trees, sun patterns, and anything else particular to your landscape. See the Case Study (Page 10) of a San Diego home where the landscape was successfully converted from turf to a WaterSmart landscape. Below are some tips to help you create your basic plot plan:

- ❑ Note any existing hardscape elements that you want to save, such as sidewalks and walls.
- ❑ Note any existing landscape that you want to save such as mature trees and shrubs.
- ❑ Note any microclimates such as any areas that are sunny, shady, or windy.
- ❑ Include private property and public right of way areas, if known.
- ❑ Locate windows that have views out to your yard.
- ❑ Take note of natural drainage features. Preserving these and limiting the use of impervious surfaces within the landscape will minimize water waste due to runoff.

Do It Yourself or Hire a Professional?

If you choose to design, implement and/or maintain your landscape yourself, this guide can help you through each step. If you're interested in hiring a professional, you can use this guide as a reference to help understand the steps that will be involved, and give you the tools you need to work through the project with your professional. Here's how a professional can help:

Landscape Architect. A professional, licensed by the State of California, who can design and develop detailed construction plans and specifications. A Landscape Architect is not licensed to provide installation/construction services. For more information, see the American Society of Landscape Architects website (www.asla-sandiego.org) and the State Licensing Board website (www.latc.ca.gov/consumers/selecting.shtml).

Landscape Designer. A person who provides landscape design and horticulture services, such as design concepts, planting plans, and selection of materials. For more information, see the California Association of Professional Landscape Designers website (www.apldca.com).

Landscape Contractor. A professional, licensed by the State of California, to install/construct and maintain landscapes. If a Landscape Contractor installs a project, they can also design it. For more information, see the California Contractors Association website (www.clcasandiego.org) and the State Licensing Board website (www.cslb.ca.gov/Consumers/HireAContractor).

Irrigation Designer. A person who provides irrigation design services. Irrigation designers may achieve certification with the Irrigation Association; see the website for more information (www.irrigation.org).

Tips on Hiring a Professional

Get referrals from friends and neighbors who have landscaping you admire or visit www.thegarden.org for upcoming "How to Hire a Contractor" classes.

STEP 3

TEST AND CONDITION YOUR SOIL

Soil is a critical component of a healthy landscape. A soil test will show you how to properly condition your soil before you plant, so you can create a healthy environment for plant material and help save water and reduce maintenance in the long run.

- ❑ **Determine your soil type.** A simple way to get a soil analysis is to contact your local nursery and have them send the soil out for testing or you can purchase a home soil testing kit for about half the price. Either way, the results will identify any necessary soil amendments and assist in determining the best plants for the site. You can also perform a squeeze test to quickly determine whether you have loam, clay, or sandy soil (see Squeeze Test insert, *right*).
- ❑ **Understand your soil analysis.** Your soil analysis should indicate at a minimum: the type of soil; the levels of nitrogen (N), phosphorus (P), and potassium (K); and the pH level. You can also request information such as salt and organic matter content to help you to better understand your soil. As a rule of thumb, your ideal soil for healthy plant growth should be loamy soil with moderate to high levels of nitrogen, phosphorous and potassium, and a pH of 6.5-7.0.
- ❑ **Design for your soil type.** If your soil analysis does not indicate healthy soil, it should recommend what can be added to the soil to properly prepare the soil. Although you will prepare the soil before planting, some of the original soil characteristics may remain so it is a good idea to select plants that can withstand the characteristics of your soil. For example, if you have high clay soil, poor drainage, high salt, low nutrient etc., you should select plants that can tolerate those conditions.

Use organic amendments and fertilizers to prepare your soil.

Soil is a critical component of a healthy landscape. Note: Landscapes in San Diego County often have a high clay content.

Squeeze Test

The squeeze test can help you determine the texture of your soil. Start by taking a handful of moistened (but not wet) ball of soil, and squeeze it firmly. Open your hand and determine which of the following it most resembles:

High Sand Content Soil

Ball of soil falls apart when you open your hand.

Sand is quick draining but has a limited ability to retain nutrients and moisture. Sandy soils often benefit from the addition of organic matter.

Loamy Soil

Ball of soil holds its shape, but crumbles when you poke it lightly.

Loam is generally considered to be ideal soil because it retains moisture and nutrients, but doesn't stay soggy.

High Clay Content Soil

Holds its shape and does not crumble when you poke it lightly.

Clay is typically nutrient rich, but has poor drainage. Drainage can sometimes be improved by deep cultivation which breaks up the hard layer of soil.

STEP 4

DESIGN YOUR WATERSMART LANDSCAPE

LAYOUT:

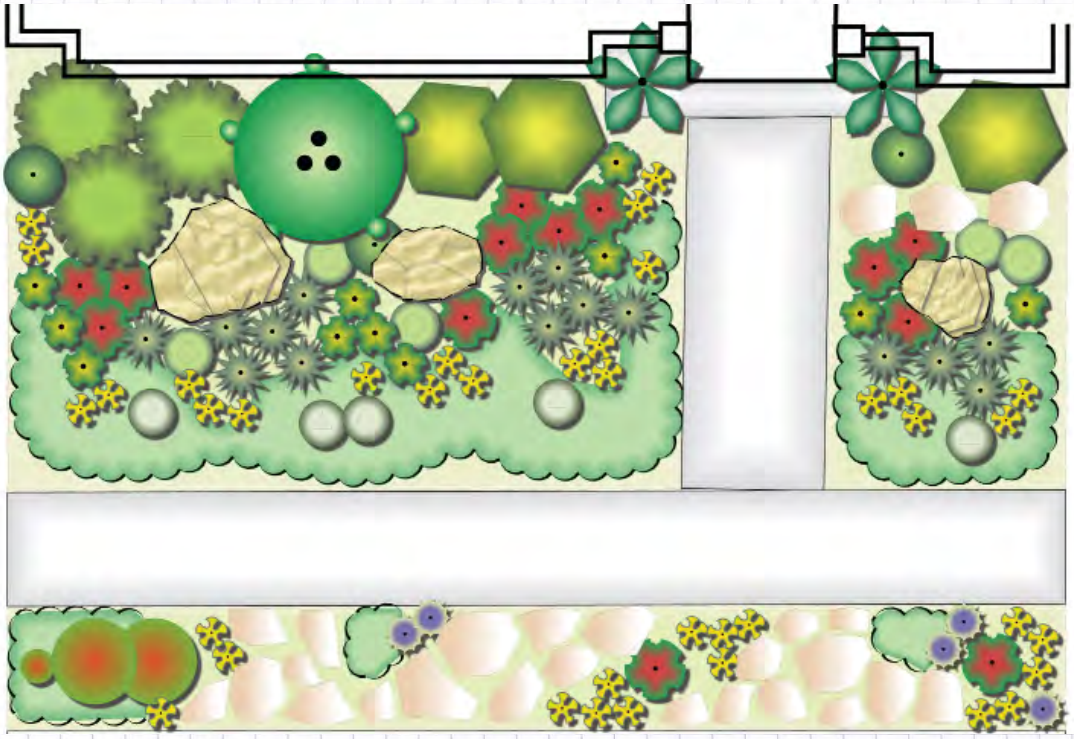
Consider creating a landscape master plan. Even if you don't plan to implement your entire landscape plan at one time, having a master plan of your overall landscape design will help you keep working toward your WaterSmart landscape target through all phases.

- ❑ **Identify different use areas.** Identify areas for kids, dogs, entertaining, vegetable gardens, etc. This will help you define the areas that can be planted gardens and other areas that need to be active turf or hardscape.
- ❑ **Consider alternatives to traditional turf grass.** Because cool season turf grass is one of the highest water use plants, it is best to incorporate alternatives to turf such as gravel or decomposed granite paving, bark mulch, or low water use groundcover, whenever possible. If an area of turf is important, especially for active play, utilize a more drought tolerant variety of grass in the warm season turf category.
- ❑ **Budget.** Keep your budget in mind when locating different elements. See the Case Study budget and tips on Page 20.

PLANTING DESIGN TIPS:

Before you start selecting actual plants for your landscape, envision the overall planting design. Determine the landscape style by thinking in terms of plant size and characteristic (i.e. large background shrub, small colorful accent shrub, etc.), before moving into actual plant selection.

- ❑ **Landscape theme.** Take some time to consider the style of landscape you find appealing the fits your house, neighborhood, and lifestyle. A heavy tropical look is often desirable, but is not appropriate for our arid region. There are dozens of themes and styles to choose from. The most common landscape style appropriate for our region is a Mediterranean landscape. This includes a variety of plants from our region or areas of the world with similar climatic conditions. Within the Mediterranean landscape there can be themed areas that might include edible plants and herbs, wildflowers, wildlife garden, native plantings, succulents, and even rose gardens. The Mediterranean landscape provides beauty through a variety of colors and textures, as well as flowers.
- ❑ **Analyzing your site.** Spend time in your landscape and make notes about the goals you would like to accomplish. Are there any blank walls or fences that would look better with a nice looking shrub in front of them? You might want to frame the view out a window but you probably don't want a large shrub in front of the window blocking the view. Is access from the side of the house needed to bring out the garbage cans to the curb? If so, make sure you accommodate that in the design.



Planting Plan
not to scale

NORTH

Planting Legend

Shrubs	Botanical/Common Name	Water Use
	Agave attenuata/Agave	Low
	Aeonium canariense/Canary Island Aeonium	Low
	Aeonium 'Mint Saucer'/Green Aeonium	Low
	Arctostaphylos densiflora 'Howard McMinn'/ Howard McMinn Manzanita	Low
	Callistemon viminalis 'Little John'/ Dwarf Weeping Bottlebrush	Moderate
	Ceanothus 'Concha'/California Lilac	Very Low
	Iris douglasiana/Douglas Iris	Moderate
	Othonna capensis/Little Pickles	Low
	Salvia greggii/Autumn Sage	Low
	Sedum barbertonicus/ Succulent Bush Senecio	Low
	Tetraneuris acaulis/Angelita Daisy	Low
	Yucca pallida/Twistleaf Yucca	Low
	Existing Shrub	Very Low
	Dymondia margeratae/Dymondia	Low

Callistemon viminalis 'Little John'

Note: As you prepare to upgrade to your WaterSmart landscape, collect photos of landscapes and plants that inspire you to help guide your design.

PLANTING DESIGN TIPS CONTINUED:

- **Plant placement.** Typically a planting design will include a tree or two for shade and to provide a canopy. Placing a deciduous tree on the south or west side of the home will shade the house during the summer to keep it cool and allow more light and sun exposure in the winter. Shrub and groundcover planting is typically designed with a variety of heights. Usually medium size (3 to 4 foot) shrubs are placed closer to the house to create a "foundation" or back drop. Lower shrubs are then placed in front of the foundation planting and low groundcovers in the area closest to the sidewalk or street. Accent shrubs that provide a special texture, color or flowers should be placed so they provide interest and focus views on a few locations in the landscape. Try to highlight your entrance walk with special accent plants. This places a higher emphasis on your entry, which is where you want visitors to be directed to. Be bold and have fun, don't be afraid to express your individual tastes.
- **Water features and higher water use plants in the garden.** Water has been a precious resource throughout history in arid regions of the world. This perspective has been integrated into Mediterranean landscapes by utilizing water only in the areas that are the most important. This is also true in our modern Mediterranean landscapes. If you have some high water use plants that you particularly want to include, they can be used. However, as a general rule of thumb, your total landscape should include no more than 10% high water use plants or water features. Don't forget that any higher water use plants should be on a separate irrigation valve so that you can water them differently than the rest of the garden. Water features were also historically used in Mediterranean landscapes as the sound of water is pleasant and calming. The water area of the fountain will lose water at about the same rate as cool season turf grass or another high water use plant. Minimize the square footage of open water, and a water feature can fit well into the WaterSmart landscape.

WaterSmart Fact

San Diego County has two exceptional resources for information about WaterSmart landscapes and outdoor water conservation: The San Diego Botanic Garden in North County and The Water Conservation Garden at Cuyamaca College in El Cajon. Both gardens offer outreach programs and educational opportunities that can help you with your WaterSmart project. For more information and a schedule of upcoming events, visit their websites at **www.sdbgarden.org** and **www.thegarden.org**

PLANT SELECTION:

From your WaterSmart landscape target identified in Step 1, select plants that fit within that plant water use category to ensure you meet your WaterSmart water conservation goals.

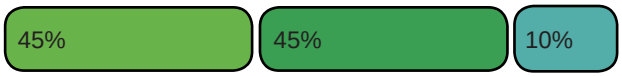
- ❑ **Select WaterSmart plants.** See Appendix E for a list of plants that have been classified as "low" and "very low" water use and resources to help you select other regionally appropriate plants.
- ❑ **Minimize Turf.** Limit the amount of turf in your design as much as possible. If you choose to incorporate turf, consider a warm season turf that uses less water than a traditional cool season turf. Warm season turf such as Hybrid Bermuda or UC Verde Buffalo Grass, thrive in the hot months of the year and naturally go dormant in winter. Another less thirsty grass to consider is *Carex praegracilis*/ California Field Sedge.
- ❑ **Group plants according to their water use.** If you choose to include plants that are not classified as "very low" or "low" water use, be sure to group these "moderate" or "high" water use plants together. Grouping plants of similar water use together, known as planting in hydrozones, makes it easier to irrigate efficiently by letting you concentrate additional water only where it is needed.
- ❑ **Provide appropriate spacing.** Select plants that will have room to grow to their full size to avoid overcrowding or the need for excessive pruning.

See the sample garden ideas (right) for examples of WaterSmart California landscapes.

Ceanothus sp./California Lilac (low water use)

"Low" to "Moderate" Water Use Planting

"Low" to "moderate" water use plants category should include a mix of low and moderate water use plants with no more than 10% turf or other high water use plants.



Low water use | *Moderate water use* | *High water use*

Sample plant palette:

MEDITERRANEAN THEME

Botanical Name/Common Name	Water Use
Trees	
Citrus japonica/Kumquat	Moderate
Citrus sp./Lemon Dwarf	Moderate
Lagerstroemia indica 'Tuscarora'/Crape Myrtle	Moderate
Olea europaea 'Swan Hill'/Fruitless Olive	Low
Shrubs	
Agave attenuata/Agave	Low
Bougainvillea 'Crimson Jewel'/Bougainvillea	Low
Diplacus puniceus/Red Bush MonkeyFlower	Low
Echium fastuosum/Pride of Madeira	Low
Feijoa sellowiana/Pineapple Guava	Low
Grevillea 'Noellii'/Grevillea	Low
Iris douglasiana/Douglas Iris	Moderate
Lavandula dentata/French Lavender	Low
Rosmarinus officinalis 'Prostratus'/ Prostrate Rosemary	Low
Rosmarinus officinalis/Upright Rosemary	Low
Salvia leucantha/Mexican Sage	Low
Trachelospermum jasminoides/Star Jasmine	Moderate
Wisteria sinensis/Wisteria	Moderate
Groundcover	
Turf	High

"Low" to "Moderate" water use plants with:

- Low efficiency irrigation — *No Stars*
- Moderate efficiency irrigation — ½ Star
- High efficiency irrigation — ★

"Low" Water Use Planting

"Low" water use plants category should include predominantly low water use plants with no more than 10% turf or other high water use plants.

90%	10%
Low water use	*High water use*

Sample plant palette:

CALIFORNIA FRIENDLY THEME

Botanical Name/Common Name	Water Use
Trees	
Arbutus unedo/Strawberry Tree	Low
Geijera parviflora/Australian Willow	Low
Shrubs	
Agave attenuata/Agave	Low
Aeonium 'Mint Saucer'/Green Aeonium	Low
Arctostaphylos densiflora 'Howard McMinn'/ Howard McMinn Manzanita	Low
Ceanothus 'Concha'/California Lilac	Very Low
Euphorbia tirucalli 'Sticks on Fire'/ Pencil Tree	Very Low
Othonna capensis/Little Pickles	Low
Salvia greggii/Autumn Sage	Low
Sedum barbertonicus/ Succulent Bush Senecio	Low
Tetraneuris acaulis/Angelita Daisy	Low
Yucca pallida/Twistleaf Yucca	Low
Groundcover	
Dymondia margaretae/Dymondia	Low
Turf	High

"Low" water use plants with:

- Low efficiency irrigation
- Moderate efficiency irrigation
- High efficiency irrigation

"Very Low" Water Use Planting

"Very low" water use plants category should include a mix of low and very low water use plants, such as California native plants or succulents.

50%	50%
Very low water use	*Low water use*

Sample plant palette:

CALIFORNIA NATIVE THEME

Botanical Name/Common Name	Water Use
Trees	
Heteromeles arbutifolia /Toyon	Low
Malosma laurina/Laurel Sumac	Very Low
Quercus agrifolia/Coast Live Oak	Low
Shrubs	
Agave parryi/Agave	Low
Arctostaphylos g. adamsii/Laguna Manzanita	Low
Arctostaphylos 'Sunset'/Sunset Manzanita	Low
Ceanothus 'Concha'/California Lilac	Very Low
Dudleya pulverulenta/Chalk Liveforever	Very Low
Encelia californica/California Encelia	Very Low
Eriogonum fasciculatum/California Buckwheat	Very Low
Muhlenbergia rigens/Deer Grass	Low
Rhus integrifolia/Lemonade Berry	Very Low
Salvia clevelandii/Cleveland Sage	Very Low
Salvia mellifera/Black Sage	Low
Low Shrubs and Groundcover	
Baccharis pilularis 'Pigeon Point'/ Dwarf Coyote Brush	Low
Ceanothus g. horizontalis/Carmel Creeper	Very Low

"Very Low" water use plants with:

- Low efficiency irrigation
- Moderate efficiency irrigation
- High efficiency irrigation

IRRIGATION DESIGN:

Start by reviewing the target irrigation type you identified in Step 1; this will help you decide which irrigation type to use. Whether you are working with a professional designer, or are doing the project yourself, the following checklist will help you keep track of the main design decisions involved in irrigation design.

- ❑ **Water pressure.** Check your available water pressure to ensure that you choose the right irrigation equipment for your home. To determine your water pressure, follow one of these two steps:
  (1) Contact your local retail water purveyor and request a pressure reading (see Appendix C-Resources for a list of the 24 water agencies);
  (2) Check your pressure with a gauge (available at your local landscape supply store) at a hose bib. If your house has a hose bib located on the water line before the line enters the house, test the pressure at that location as it will tell you the available pressure before water passes through the pressure regulator for the house. It is important to identify your available water pressure so you can select equipment that is optimized for that operating pressure. If your pressure is high (above 70 psi), a pressure regulator may be needed to avoid misting. If your pressure is low (under 30 psi), drip irrigation would be the ideal choice as it has a lower operating pressure.
- ❑ **Existing Conditions.** Evaluate your existing irrigation system and determine if it can be maintained in its current condition or if you need to upgrade the system. Some irrigation systems can be upgraded by simply changing nozzles, converting to drip emitters, or adding a smart controller, while others may need to be completely redesigned. The following is an summary of the range of irrigation options you can consider.
- ❑ **High Efficiency Irrigation.** The most efficient method to deliver water to plants is low flow irrigation which delivers water from the valve through a filter and then through a network of lateral pipes, and sometimes flexible tubing, to the individual emission devices such as drip emitters, in-line drip emitters, micro-sprays or bubblers. Pressure compensating devices are always the most efficient option. Low flow irrigation is a good choice for trees and shrub areas and should be used in any landscape areas next to hardscape and in areas less than 8 feet wide to prevent runoff from overspray. When using drip emitters reduce maintenance and ensure long term durability by selecting good quality tubing and designing for at least two emitters per shrub.
- ❑ **Moderate Efficiency Irrigation.** The next most efficient types of irrigation include rotator nozzles (typically for spaces 8 to 30 feet in size) and gear rotors (typically for spaces 25 feet and larger). These are good choices for turf areas or larger shrub areas. If you use rotator nozzles it is worth the investment to get good quality nozzles; check with your local commercial irrigation supply store to ensure you get the most efficient rotator nozzles for your project.
- ❑ **Low Efficiency Irrigation.** The least efficient types of automatic irrigation include conventional spray irrigation and impact rotors. Installing a new system with low efficiency irrigation is not recommended, but if you have an existing conventional spray system, you can retrofit with new rotator nozzles as noted above.

Note: To compare the features of each irrigation types shown underlined above, see the definitions section in Appendix D.

Drip irrigation can be installed at grade or a few inches below the surface of the soil.

Weather-based controllers often have a sensor that should be mounted outside, free of obstructions, and be connected back to the controller.

- ❑ **Smart Controller.** Upgrade to a Smart Controller (often called a weather-based controller), which is an automatic controller (also called a timer or clock) that is either weather-based or has a moisture detection system that automatically adjusts watering schedule in response to environmental changes. Smart controllers have the ability to turn off your sprinklers when it rains and increase the frequency and/or duration of watering in hotter weather. Locate the controller in a place that is easy for you to access, such as the garage.
- ❑ **Irrigation layout.** The goal of WaterSmart landscape irrigation is to apply water as efficiently as possible. This means using low flow drip or bubblers whenever possible and in areas with overhead sprays, provide even coverage to ensure maximum efficiency.

  Once you have determined what type of irrigation you would like to use, divide your yard into zones and note what type of irrigation you plan to use in each zone. Contact some of the major irrigation manufacturers to obtain an irrigation design guide which will help you with the specifics of your irrigation layout. Some irrigation manufacturers even offer free irrigation design services.

Layout Tips

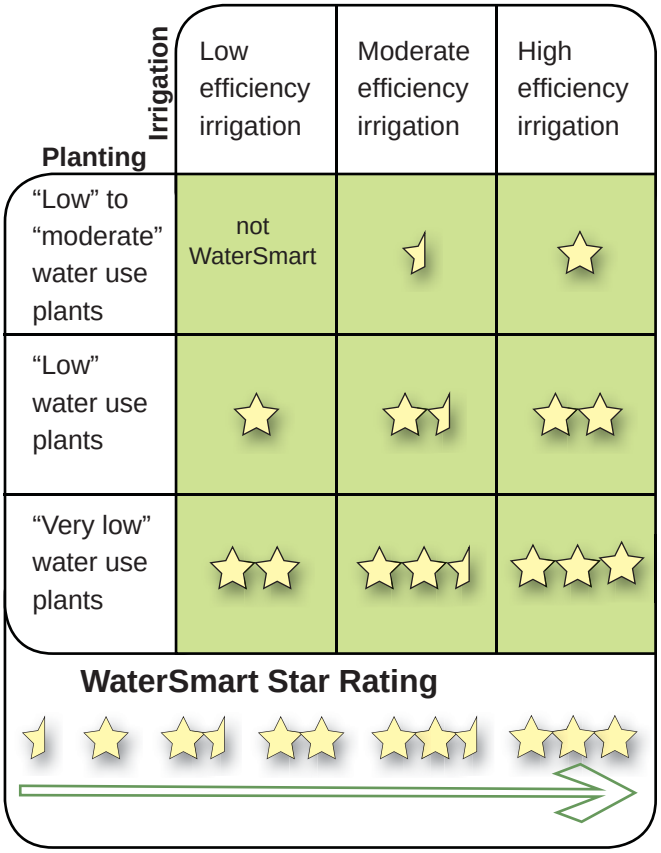
For bigger projects it can be advantageous to use more than one type of irrigation (i.e. large rotors on a back slope, and drip irrigation in all other areas). **Important:** If you use more than one type of irrigation, do not mix different sprinkler types in one zone.

Other key elements to locate on your layout plan are the locations of mainline pipes (pressurized) and lateral line pipes (non-pressurized, except when valves are open), connection to your household water supply, and backflow preventer, if required.

VERIFY YOUR NEW LANDSCAPE WATER USE:

Now that you have designed your WaterSmart landscape, it is important to double check to make sure your design meets the target landscape water use you set in Step 1, and, if necessary, adjust the design to meet the target to maximize water savings.

- ❑ **Verify your overall plant water use.** Review your planting design and determine, based on area, what percentage of shrubs are very low, low, moderate, or high water use. If the planting you selected does not fit exactly into one of the categories below, adjust the plant selection so that it does, or select the category that represents the higher water use category.
- ❑ **Verify your overall irrigation efficiency.** Review your irrigation design and note below what type of irrigation you selected. If you are using more than one type of irrigation, you can use the more detailed calculation worksheet provided in Appendix A.



Note: If you choose a planting or irrigation design that does not fit in the parameters above, it does not mean that you cannot create a WaterSmart landscape. Instead, follow the step-by-step instructions to calculate your home's water use, which can be found in Appendix A.

CASE STUDY – BUDGET

Below is an overview of the budget used for the San Diego residence WaterSmart upgrade. Note that costs will vary depending on the size of the site, type of materials, and level of craftsmanship employed.

The following example is based on 2010 unit costs and represents costs for material and labor to install each item.

Cost Estimate, 2010

Demolition/Soil Preparation	Quantity	Unit	Price	Total
Clear and Grub	630	Square Feet	$0.50	$315.00
Soil Test	1	Each	$75.00	$75.00
Soil Amendments/Fine Grading	3	Cubic Yard	$140.00	$420.00
Subtotal				$810.00

Hardscape	Quantity	Unit	Price	Total
Install Boulder Accents	3	Each	$400.00	$1,200.00
Install Flagstone Paving on Concrete Base	70	Square Feet	$30.00	$2,100.00
Subtotal				$3,300.00

Irrigation	Quantity	Unit	Price	Total
Micro-Spray Irrigation Upgrade	555	Square Feet	$2.00	$1,110.00
(includes 50 micro-spray heads, 200 linear feet of PVC pipe, 50 swing joints with fittings, 20 pipe fittings, 3 above ground atmospheric vacuum breaker valves, and 1 isolation ball valve)				
Smart Controller, Weather-based	1	Each	$300.00	$300.00
(includes 18 gauge multi-strand wiring from controller to valves, waterproof wire nuts, and rain shutoff device)				
Subtotal				$1,410.00

Landscaping	Quantity	Unit	Price	Total
1 Gallon Shrubs	94	Each	$12.00	$1,128.00
5 Gallon Shrubs	9	Each	$35.00	$315.00
Flats of Groundcover	2	Each	$30.00	$60.00
Mulch	3.5	Cubic Yards	$100.00	$350.00
Subtotal				$1,853.00
			Total	**$7,373.00**

Note: Prices include materials and labor.

STEP 5

IMPLEMENT YOUR PLAN

Now it is time to begin the physical construction work of upgrading your landscape.

DEMOLITION:

Remove existing turf or other materials from the areas that you plan to renovate. Reclaiming an area of unwanted turf requires diligence. No matter what method of turf removal used, weeding and/or herbicide application will be needed every two weeks for the first three months.

- ❑ **Natural turf removal.** A natural way to remove turf and preserve the soil's ecology is to strip the turf, and for the next two weeks, water the area to encourage grass to re-sprout, and remove all new growth.
- ❑ **Turf removal with herbicide.** If you choose to use an herbicide, consult with your local landscape supply store for best use practices. Since Bermuda grass and some other grasses are dormant in the winter, they must be treated with herbicide when they are actively growing in the remainder of the year.
- ❑ **Solarization.** If you have six to eight weeks time, a preferred alternative is to use the process of solarization which involves covering the area and using the sun to heat up the soil to levels that will kill the weed seeds without damaging the healthy soil microorganism. See the University of California Sonoma County Mater Gardeners website for more information: www.ucanr.org/sites/scmg/Sonoma_Gardener_Articles/Grass_Removal_Methods

Budget Tips

Note: In the case study cost estimate *(left)*, the homeowners designed and will maintain the landscape themselves, so the cost of design and maintenance is not included. If you plan to hire a professional for any services, be sure to budget for those costs and account for any available rebates as well. For any professional services your plan to enlist, whether it be for design, installation, or maintenance, you should get more than one estimate, compare costs and services and select the one that offers the best value.

If you can't complete the whole WaterSmart upgrade at one time, consider dividing the project into phases and working on just one section at a time. When determining how to separate the phases, consider dividing your landscape according to the irrigation valve layout.

San Diego Residence
–Plant Placement, In Containers–

San Diego Residence
–Rock Placement–

San Diego Residence
–Irrigation Installation–

San Diego Residence
–Planting Installation–

GRADING:

- ❑ **Grading.** Set the soil level so that it will direct water away from the house. To help slow down water runoff from your garden, try creating small depressions where water is allowed to pool and slowly percolate into the soil. The more you slow the water down or hold it on site, the more you improve water quality in your area, and downstream at local beaches.
- ❑ **Reduce Runoff.** Runoff carries with it soil particles and pollutants; reduce runoff by protecting storm drain inlets with sand bags or fiber rolls.

SOIL PREPARATION:

Now that you have removed unwanted vegetation, it is time to condition your soil.

- ❑ **Soil amendments.** Amendments should be selected based on your soil analysis recommendations and should be tilled into the top layer of soil. Many organic soil amendments are now available. Typical amendments include compost, gypsum, and/or fertilizer. The goal is to achieve healthy soil which will facilitate plant growth, improve drainage, and increase the natural water holding capacity of the soil.

IRRIGATION INSTALLATION:

Now that you have selected your irrigation equipment, drawn a plan showing the layout, and amended the soil, you can start to implement the design.

- ❑ Read the instructions from the manufacturer and familiarize yourself with the parts.
- ❑ Starting from the main connection to the water line, dig trenches for all the pipes according to your irrigation plan. Ideally, the main connection to the water line will be downstream of the water meter and upstream of the connection to the house. If you tie into a rear yard hose bib, be aware that the water pressure will be lower because the water for your house is regulated by a separate pressure regulator.
- ❑ Lay an extra pipe sleeve or two under any new hardscape elements just in case you need to add pipes or wires in the future. Be sure to cover the ends of the pipe with duct tape before covering and mark the location on your landscape plan.
- ❑ If you are using drip irrigation, note that often drip emitters are not installed until after planting is complete. When installing the emitters, be sure to place them at least 6 inches away from the stem of the plant to prevent rot.
- ❑ Consult your local irrigation supply store or some of the major irrigation manufacturers for more detailed installation guides.

PLANTING INSTALLATION:

With the irrigation in place, you can get started on the plant installation. Review the following tips to help you through the plant placement and installation process:

- ❑ Use a garden hose to outline turf or groundcover areas to help you visualize the design before you start installation.
- ❑ Set the plants, while still in their containers, in their approximate location per your planting design plan, stand back and review. Make any adjustments to the design at this time to avoid having to dig up and relocate any plants. Note: Many drought tolerant landscapes look sparse for the first few years, but will fill in over time so be sure to allow proper spacing to allow each plant to grow to its full size.
- ❑ Dig plant holes twice the width of the plant root ball, and just deep enough to bury the roots. Water the hole before placing the plant. When planted, the top of the root ball should be even with or slightly above soil level when planted.
- ❑ Once in the hole, the plant should be packed firmly into place with original soil from the hole and extra soil can be used to create a berm around the plant to hold water.
- ❑ Cover the planting area with a 2 or 3 inch deep layer of bark mulch. Keep a few inches clear of mulch around the plant stems to prevent rot. Mulch has many benefits. It can help suppress weeds, enrich the soils, protect plant roots from compaction, provide a finished look to your garden, and conserve water!
- ❑ Monitor your garden to ensure it receives adequate water. Even natives and drought tolerant plants need water to get established. To minimize watering needs during establishment, install your landscape in the fall before the rains.

STEP 6

CARE FOR YOUR WATERSMART LANDSCAPE

Whether you install a new WaterSmart landscape or are just looking for tips on how to conserve water in your existing landscape, the following section can help you make an immediate impact on your landscape water savings.

- ❑ **Plan ahead.** Keep a copy of the irrigation plan, legend, and runtime schedule to make it easy to buy replacement parts or find pipes to make repairs or adjustments if needed in the future.
- ❑ **Monitor and Minimize Watering.** When set up correctly, your Smart Controller will automatically adjust watering times to respond to changes in weather. To maximize water savings, you should program your controller to apply only the amount of water needed for each zone. A good rule of thumb is to water only when the top inch of soil is dry. If you see runoff before the end of the irrigation cycle, adjust the schedule to run several times with a shorter duration each time; this will allow water to infiltrate the soil in between cycles. Use the tools available on these websites to determine the optimal watering schedule for your property:
  - o City of San Diego Landscape Watering Calculator: http://apps.sandiego.gov/landcalc/
  - o Be Water Wise Watering Calculator: www.bewaterwise.com/calculator.html

Rotator nozzles throw streams of water with larger water droplets which helps to prevent misting and runoff, but each nozzle still needs to be checked periodically to ensure it is running correctly.

- ❑ **Water at Appropriate Times.** Consult your local water purveyor to determine the hours when you are allowed to water. If possible, schedule your irrigation system to run in the early morning. It is best to avoid watering at night as some plants develop fungus and mildew problems from night time watering. Avoid watering mid-day to eliminate excessive evaporation.
- ❑ **Check irrigation equipment.** Because irrigation is typically run in the early morning, you may not witness the system running. Be sure to manually turn the system on seasonally and after severe weather changes to check for potential problems. Check drip systems to ensure emitters are working and clean out filters as needed. Over time, drip emitter locations may need to be shifted to the outer edge of the plant rootballs as your plants grow. Adjust spray sprinklers to prevent overspray and runoff onto roads, sidewalks, driveways and patios and repair any problems.

- ❑ **Fertilize smart.** Use an organic fertilizer or compost. This can be store-bought or made from products from around the home. Compost can be collected from garden waste and some kitchen waste to continually enrich your soil. For more information and recipes for do-it-yourself organic fertilizers, check out www.surfrider.org/ofg_cpr.asp#fertilizers.
- ❑ **Weed smart.** Weed naturally whenever possible. The common use of herbicides can be costly and is very damaging to the environment. Designing and maintaining a healthy landscape can be the best defense against weeds. To stop the spread of weeds, hand pull any weeds that come up in your garden every few weeks. Be sure to pull them before they go to seed. You may also want to monitor and remove weeds from nearby landscapes to prevent weed seeds from blowing onto your property.

Create a maintenance calendar.

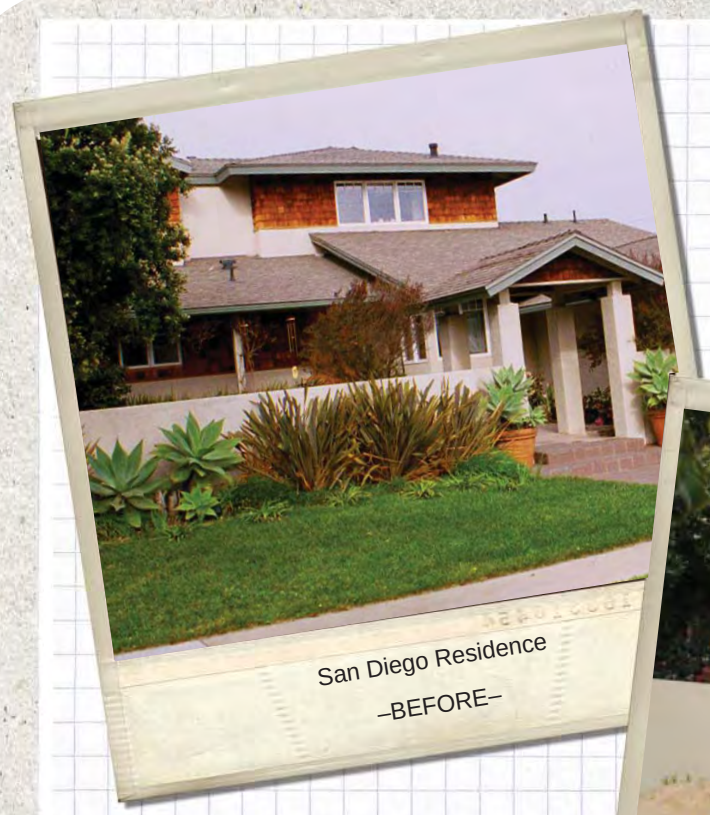
- ❑ **Manage pests.** Use integrated pest management strategies instead of harmful chemical pesticides and insecticides. See University of California Integrated Pest Management program www.ipm.ucdavis.edu/GENERAL/whatisipmurban.html.

- ❑ **Mulch.** Maintain a 2 to 3 inch layer of mulch. Replace the mulch layer in the spring, if needed.

Maintain a 2 to 3 inch layer of mulch.

- ❑ **Make a clean sweep.** Use a broom or blower instead of a hose to clean driveways and sidewalks.
- ❑ **Make a plant maintenance checklist.** Keep a copy of the plant list and make a checklist for key maintenance requirements for each plant.
- ❑ **Find incentives.** Be sure to take advantage of financial incentives offered by the San Diego County Water Authority and local water agencies.
- ❑ **Monitor.** Monitor monthly costs and water use on an ongoing basis.
- ❑ **Celebrate!** Enjoy peace of mind that comes from knowing you did your part to protect our natural resources and the environment.

CASE STUDY – FINISHED WATERSMART GARDEN



San Diego Residence
–BEFORE–

San Diego Residence
–AFTER–

Review of the steps to a WaterSmart Landscape

Your WaterSmart landscape is a key part of our region's water efficiency goals. By converting your yard to a WaterSmart landscape, you not only have the potential to beautify your property, save money, and reduce maintenance, but you also help protect, and even improve, the health of our natural environment. Below is a summary of the key steps involved in completing a WaterSmart landscape renovation:

STEP 1

- ❑ **Identify your landscape target.** Identify your target plant and irrigation types in the beginning to guide you through the design.

STEP 2

- ❑ **Create a basic plot plan.** Making a plan of your existing landscape will help you visualize your future landscape.

STEP 3

- ❑ **Test and condition your soil.** A soil test will show you how to properly condition your soil before you plant so you can create a healthy environment for plant material. This helps save water and reduce maintenance in the long run.

STEP 4

- ❑ **Design your WaterSmart landscape.** Even if you don't plan to install the whole project at one time, lay out the master plan for your landscape so you can verify that the final product will be unified. Include a WaterSmart planting and irrigation design. Verify your planned water use before you start construction, and adjust if it doesn't meet your original landscape target.

STEP 5

- ❑ **Implement your plan.** When implementing your plan: take your time; hire a professional if needed; get it right the first time.

STEP 6

- ❑ **Care for your WaterSmart Landscape.** Learn the best practices for maintaining your landscape and consider creating a maintenance schedule to help you keep on track. You can even use the maintenance techniques to help you save money in existing landscape areas that have not been upgraded.

water smart LANDSCAPE

Appendix

CONTENTS

Water Use Calculations Worksheet

The following worksheet is based on the requirements shown on the California Department of Water Resources Water Use Calculation Worksheet. The complete worksheet in digital format can be downloaded at: www.water.ca.gov/wateruseefficiency/landscapeordinance – Water Budget Calculator link.

Project Name	
ET_o (per "Definitions," next page)	
Total Area (s.f.) (Including SLA)	

Maximum Applied Water Allowance (MAWA)

Landscape Area (LA) (s.f.)	**Special Landscape Area (SLA)** (s.f.)	**MAWA** **$(Et_o)x(0.62)x[(0.7xLA)+(0.3xSLA)]$** (gallons)

Estimated Total Water Use (ETWU)

Hydrozone #	**Plant Factor (PF)**	**Irrigation Efficiency (IE)**	**Hydrozone Area (HA)** (s.f.)	**ETWU** **$(ET_o)x(0.62)x(PFxHA/IE)$** (gallons)
SLA	**1**			
		TOTAL		

MAWA		gallons
ETWU		gallons

Ensure that ETWU is less than or equal to MAWA.

Water Use Calculation Worksheet Definitions

ET_o = Reference Evapotranspiration, as indicated below (inches per year)

ETWU = Estimated total water use (gallons per year)

HA = Hydrozone Area (square feet)

IE = Irrigation Efficiency, as indicated below

LA = Landscaped Area, includes Special Landscape Area (square feet)

MAWA = Maximum Applied Water Allowance (gallons per year)

PF = Plant Factor, as indicated below

SLA = Special Landscape Area (square feet). An area of the landscape dedicated to edible plants, an area recycled with irrigated water, or an area dedicated to turf area within a park or golf course where turf provides passive or active recreational surface.

Irrigation Type	Irrigation Efficiency (per Irrigation Association BMPs 2005)	Irrigation Efficiency (per City of San Diego Land Development Code)	Irrigation Efficiency (assumed worst case for use with these guidelines)
Drip/ Micro Spray	0.80	0.70 - 0.90	0.80
Bubblers	-	0.85	0.80
Stream Rotators	-	0.70	0.70
Rotors	0.70	0.70	0.70
Traditional Spray	0.55	0.60	0.55

Plant Water Use Type	Plant Factor (per WUCOLS Rating as recommended by California state ordinance)	Plant Factor (average for use with these guidelines)
Very Low	>0.1	0.1
Low	0.1-0.3	0.2
Medium	0.4-0.6	0.5
High	0.7-0.9	0.8
SLA	1.0	1.0

Region	ETo
Chula Vista	44.2
Escondido	54.2
Miramar	47.1
Oceanside	42.9
Otay Lake	50.4
Pine Valley	54.8
Ramona	51.6
San Diego	46.5
Santee	51.1
Torrey Pines	39.8
Warner Springs	56.0

RESOURCES RELATED TO OUTDOOR WATER CONSERVATION

The San Diego County Water Authority has put together a list of additional water conservation resources, organized by topic that you may find helpful.

Water Conservation Tips and Information

- 20-Gallon Challenge
  www.20gallonchallenge.com
- Guide to a Water-Saver Home
  www.h2ouse.org
- Metropolitan Water District of Southern California
  www.bewaterwise.com
- San Diego Botanic Garden
  www.sdbgarden.org/conservation.htm
- San Diego County Water Authority
  www.sdcwa.org
- Water Conservation Garden at Cuyamaca College
  www.thegarden.org
- Water Conservation Summit
  www.waterconservationsummit.com
- Water Use it Wisely
  www.wateruseitwisely.com
- Water Sense
  www.epa.gov/watersense

Irrigation

- How to Install Efficient Irrigation
  www.h2ouse.org/tour/step-3.cfm
- WaterWiser Drip Calculator
  www.awwa.org/awwa/waterwiser/dripcalc.cfm
- Watering Schedule Calculator
  http://apps.sandiego.gov/landcalc/start.do
- Smart Controller Resource List
  www.sandiego.gov/water/pdf/conservation/smart controllerresourcelist.pdf

  and

  www.irrigation.org/swat/control_climate

Plant Selection and Tips

- Gardening With California Native Plants
  www.cnpssd.org/horticulture/index.html
- Nifty Fifty List of Plants for California-Friendly Landscapes
  www.thegarden.org/siteDocs/resources/Nifty50_2009_illustrated.pdf
- Seven Steps of Xeriscape
  http://www.sdcwa.org/sites/default/files/files/publications/xeriscape-bro.pdf
- Arboretum All-Stars
  www.arboretum.ucdavis.edu/arboretum_all_stars.aspx
- San Diego County Invasive Ornamental Plant Guide
  www.asla-sandiego.org/Download/PG_08_mod.pdf
- For assistance regarding fire-wise landscaping check out the California Center for Sustainable Energy – Advice and Technical Assistance Center for Urban Forestry, or contact Andrea Cook
  hhttps://energycenter.org/index.php/outreach-a-education/advice-and-technical-assistance-center
  or

  andrea.cook@energycenter.org

WaterSmart incentives for homeowners

Financial incentives offered by the Water Authority and your local water agency may help offset some of the costs of upgrading to WaterSmart landscaping, and we strongly encourage homeowners to take full advantage of these programs. For a complete and up-to-date listing for your area, please contact the San Diego County Water Authority or your local water agency.

San Diego County Water Authority:

- SDCWA (858) 522-6600, www.sdcwa.org

Local Water Agencies:

- Carlsbad Municipal Water District (760) 438-2722, www.carlsbadca.gov/services/departments/water
- Del Mar, City of (858) 755-3294, www.delmar.ca.us
- Escondido, City of (760) 839-4658, www.escondido.org/utilities.aspx
- Fallbrook Public Utility District (760) 728-1125, www.fpud.com
- Helix Water District (619) 466-0585, www.hwd.com
- Lakeside Water District (619) 443-3805, www.lakesidewaterdistrict.com/index.html
- Oceanside, City of (760) 435-5800, www.ci.oceanside.ca.us/datarelation.aspx?Content=10
- Olivenhain Municipal Water District (760) 753-6466, www.olivenhain.com
- Otay Water District (619) 670-2222, www.otaywater.gov
- Padre Dam Municipal Water District (619) 448-3111, www.padredam.org
- Poway, City of (858) 668-4401, www.poway.org/Index.aspx?page=326
- Rainbow Municipal Water District (760) 728-1178, www.rainbowmwd.com
- Ramona Municipal Water District (760) 789-1330, www.rmwd.org
- Rincon del Diablo Municipal Water District (760) 745-5522, www.rinconwater.org
- San Diego, City of (619) 515-3500, www.sandiego.gov/water/conservation
- San Dieguito Water District (760) 633-2650, www.ci.encinitas.ca.us
- Santa Fe Irrigation District (858) 756-2424, www.sfidwater.org
- Sweetwater Authority* (619) 409-6779, www.sweetwater.org
- Vallecitos Water District (760) 744-0460, www.vwd.org
- Valley Center Municipal Water District (760) 749-1600, www.vcmwd.org
- Vista Irrigation District (760) 597-3100, www.vid-h2o.org
- Yuima Municipal Water District (760) 742-3704, www.yuimamwd.com

*Note: Sweetwater Authority manages the City of National City and South Bay Irrigation District

DEFINITIONS

Bubblers. Bubblers are emission devices that flow from one point source and can have a full or a multi stream pattern. For typical landscape projects a low flow model should be selected; this will help water infiltrate the soil and prevent runoff.

Conventional spray irrigation. Conventional spray irrigation is one of the least efficient types of irrigation. It is a type of fixed overhead spray with a fan shaped pattern of water and a spray range of 4 to 20 feet.

Drip emitters. Drip emitters are one of the most efficient ways to deliver water to your garden. They convey water through low flow emission devices to each plant. The most efficient systems incorporate pressure compensating devices, and all drip systems should be installed with a filter.

Filters. Filters are used with drip systems to remove organic and inorganic debris from the water that could potentially clog the emission devices.

Gear rotors. Rotors are classified as moderately efficient, high flow overhead irrigation. Multiple rotating streams distribute water evenly, but rotors typically have a spray range of 25 feet and larger, so are best suited to large areas.

Hydrozone. Grouping of plants with similar water use. "Very low," "low," "moderate," and "high" hydrozones should be irrigated separately according to water need, using only one type of sprinkler of emitter.

Impact rotors. Impact rotors are one of the least efficient methods of automatic irrigation which throw rotating streams of water and have the distinct sound when it throws busts of water across the landscape. Impact rotors are quickly being replaced by gear rotors and other types of irrigation which are quieter. They have a spray range of 20 to 40 feet.

In-line emitters. In-line drip emitters are one of the most efficient ways to deliver water to your garden. They convey water through drip tubing with low flow emitters which are installed at regular intervals along the tubing. The drip tubing can be installed at grade or just beneath the surface. The most efficient systems incorporate pressure compensating devices, and all drip systems should be installed with a filter.

Micro-spray. Micro spray is a type of low flow spray irrigation. It has a spray range of up to 6 feet, so is best suited to small areas.

Pressure compensating devices. Regulate the pressure either at the valve or at the emitter and maintains constant flow regardless of incoming pressure.

Rotator nozzles. Rotator nozzles are the most water efficient type of overhead spray for areas 8 to 30 feet in size. The rotator nozzles throw water with multiple rotating streams of water similar to gear rotors, but the advantage is that the nozzles are small enough to fit on conventional spray bodies. Compared to conventional spray nozzles, rotator nozzles throw larger water droplets at a slower rate which helps to prevent misting and runoff.

Smart Controller. An automatic controller (also called a timer or clock), that is either weather-based or has a moisture detection system, that automatically adjusts watering times in response to environmental changes. Smart controllers have the ability to turn off your sprinklers when it rains and increase the frequency and/or duration of watering in hotter weather.

WaterSmart plant list

The following WaterSmart plant list is based on the WUCOLS (Water Use Characteristics of Landscape Species) rating system. The "very low" and "low" water use plants included below reflect the water use of plants in Region 3 which includes most areas in San Diego county. For landscapes in warmer microclimates of San Diego County such as Escondido, please see Region 4 ratings in the full WUCOLS plant list which is available online at:

http://ucce.ucdavis.edu/files/filelibrary/1726/15359.pdf

Note: The following plant list is by no means a complete list of plants appropriate to our region. New species become available all the time, so not all "low" and "very low" water use plants that are appropriate to our region are included in this list. Typically any of the following plant types would be classified as "low" water use and would be acceptable for use in a WaterSmart landscape:

- California natives within the Coastal Sage Scrub bioregion
- Succulents
- Cacti

"Very Low" Water Use

Botanical Name/Common Name

Trees – "Very Low" Water Use

Acacia pennatula/Pennatula Acacia, Fern-Leaf Acacia
Acacia smallii/Desert Sweet Acacia
Adenostoma sparsifolium/Red Shanks
Aesculus californica/California Buckeye
Arctostaphylos diversiloba/Summer Holly
Cercidium microphyllum/LittleLeaf Palo Verde
Cercidium praecox/Sonoran Palo Verde
Chilopsis linearis/Desert Willow
Cupressus arizonica ssp. arizonica/Arizona Cypress
Cupressus arizonica var.glabra/Smooth Arizona Cypress
Cupressus guadalupensis forbesii/Tecate Cypress
Dracaena draco/Dragon Tree
Eucalyptus macranda/Long Flowered Marlock
Lyonothamnus floribundus/Catalina Ironwood
Melia azedarach/Chinaberry
Parkinsonia florida/Blue Palo Verde
Pinus edulis/Piñun Pine
Pinus sabiniana/Foothill Pine
Prunus ilicifolia/Hollyleaf Cherry
Quercus berberidifolia/California Scrub Oak
Quercus douglasii/Blue Oak
Quercus dumosa/Nutall's Scrub Oak
Quercus wislizeni/Interior Live Oak
Schinus molle/California Pepper Tree

"Very Low" Water Use Continued

Botanical Name/Common Name

Shrubs – "Very Low" Water Use

Adenostoma fasciculatum/Chamise
Amaryllis belladona/Naked Lady
Arum italicum/Italian Arum
Baccharis sarothroides/Desert Broom
Calliandra californica/Baja Fairy Duster
Calliandra eriophylla/Fairy Duster
Carnegiea gigantea/Saguaro
Ceanothus spp./California Lilac
Cephalocereus spp./Old Man Cactus
Cercocarpus betuloides/Western Mountain Maghogany
Cercocarpus minutiflorus/San Diego Mountain Mahogany
Cleome isomeris/Bladderpod, Spiderflower
Coreopsis gigantea/Giant Coreopsis
Coreopsis maritima/Sea Dahlia
Dendromecon spp./Bush Poppy
Dudleya spp./Live Forever, Dudleya
Encelia californica/California Sunflower
Encelia farinosa/Brittlebush
Epilobium canum/California Fuchsia
Eriogonum spp./Buckwheat
Eriophyllum confertiflorum/Golden Yarrow
Euphorbia rigida/Gopher Plant
Euphorbia tirucalli/Milkbush, Pencil Tree
Fallugia paradoxa/Apache Plume

"Very Low" Water Use Continued

Botanical Name/Common Name

Shrubs – "Very Low" Water Use

Ferocactus spp./Barrel Cactus
Fouquieria splendens/Ocotillo
Fremontodendron spp./Flannel Bush
Galvezia juncea/Baja Bush Snapdragon
Galvezia speciosa/Island Bush Snapdragon
Garrya fremontii/Fremont Silktassel
Hesperaloe funifera/Coahuilan Hesperaloe
Hesperaloe parviflora/Red/Yellow Yucca
Isocoma spp. (Haplopappus)/Goldenbush
Justicia californica/Chuparosa
Larrea tridentata/Creosote Bush
Lobelia laxiflora/Mexican Bush Lobelia
Lotus scoparius/Deer Weed
Malacothamnus fasciculatus/Bush Mallow
Malosma laurina (Rhus laurina)/Laurel Sumac
Monardella villosa/Coyote Mint
Muscari macrocarpum/Grape Hyacinth
Nauplius sericeus/Canary Island Daisy
Nolina spp./Bear Grass
Oenothera fruiticosa/Golden Sundrops
Opuntia spp./Prickly Pear/Cholla
Ranunculus californicus/California Buttercup
Rhamnus californicus/Coffeeberry
Rhamnus croceus/Redberry
Rhamnus croceus ilicifolia/Hollyleaf Redberry
Rhus integrifolia/Lemonade Berry
Rhus ovata/Sugar Bush
Ribes malvaceum/Chaparral Currant
Romneya coulteri/Matilija Poppy
Ruellia californica/Rama Parda
Salvia apiana/White Sage
Salvia californica/Baja California Sage
Salvia clevelandii & hybrids/Cleveland Sage
Salvia munzii/San Miguel Mountain Sage
Shepherdia argentea/Silver Buffaloberry
Simmondsia chinensis/Jojoba
Spartium junceum/Spanish Broom

"Very Low" Water Use Continued

Botanical Name/Common Name

Shrubs – "Very Low" Water Use

Stenocereus thurberi/Organ Pipe Cactus
Stipa pulchra/Feather Grass
Trichostema lanatum/Woolly/Mountain Blue Curls
Viguiera laciniata/San Diego County Viguiera
Xylococcus bicolor/Mission Manzanita

Groundcover – "Very Low" Water Use

Atriplex spp./Saltbush
Baccharis 'Centennial'/Centennial Desert Broom
Iva hayesiana/Poverty Weed
Keckiella cordifolia/Heart-Leaved Penstemon
Rhagodia deltophylla/Rhagodia

Vines - "Very Low" Water Use

Clematis lasiantha/Pipestem Clematis, Chaparral Clematis
Clematis pauciflora/Few Flowered Clematis, Ropevine Clematis, Small Leaved Clematis
Vitis californica/California Wild Grape

"Low" Water Use

Botanical Name/ommon Name

Trees – "Low" Water Use

Abies pinsapo/Spanish Fir
Acacia baileyana/Bailey Acacia
Acacia boormanii/Snowy River Wattle
Acacia constricta/Whitethorn Acacia
Acacia cultriformis/Knife Acacia
Acacia dealbata/Silver Wattle
Acacia decurrens/Green Wattle
Acacia farnesiana/Sweet Acacia
Acacia greggii/Catclaw Acacia
Acacia longifolia/Sydney Golden wattle
Acacia melanoxylon/Blackwood Acacia
Acacia podalyriifolia/Pearl Acacia
Acacia salicina/Willow Acacia
Acacia saligna/Blue Leaf Wattle
Acacia stenophyla/Shoestring Acacia
Acacia subporosa/Subporosa Acacia
Agonis flexuosa/Peppermint Tree
Ailanthus altissima/Tree of Heaven
Albizia distachya/Plume Albizia
Allocasuarina verticillata/Coast Beefwood
Aloe spp./Aloe
Angophora cordifolia/Gum Myrtle
Arbutus unedo/Strawberry Tree
Brachychiton acerifolius/Flame Tree
Brachychiton discolor/Queensland Lacebark
Brachychiton populneus/Kurrajong, Bottle Tree
Brachychiton rupestris/Queensland Bottle Tree
Brahea armata/Blue Hesper Palm
Brahea edulis /Guadalupe Palm
Butia capitata/Pindo alm
Callistemon citrinus/Lemon Bottlebrush
Callistemon pinifolius/Pine-Leafed Bottlebrush
Callistemon subulatus/Callistemon
Casuarina cunninghamiana/River She-Oak
Cedrus atlantica/Atlas Cedar
Cedrus deodora/Deodar Cedar

"Low" Water Use Continued

Botanical Name/Common Name

Trees – "Low" Water Use

Cedrus libani/Cedar of Lebanon
Ceratonia siliqua/Carob
Cercis occidentalis/Western Redbud
Chorisia speciosa/Floss Silk Tree
Cordyline australis/Cabbage Tree
Cotinus coggygria/Smoke Tree
Cupressus sempervirens/Italian Cypress
Elaeagnus angustifolia/Russian Olive
Erythrina americana/Naked Coral Tree
Erythrina caffra/Kaffir Boom Coral Tree
Erythrina crista-galli/Cockspur Coral Tree
Erythrina falcata/Coral Tree
Erythrina humeana/Natal Coral Tree
Erythrina X sykesii/Sykes Coral Tree
Erythryna X bidwillii/Bidwills' Coral Tree
Eucalyptus camaldulensis/Red Gum
Eucalyptus cinerea/Silver Dollar Tree
Eucalyptus citriodora/Lemon Scented Gum
Eucalyptus cladocalyx/Sugar Gum
Eucalyptus formanii/Forman's Mallee
Eucalyptus globulus/Blue Gum
Eucalyptus gunnii/Cider Gum
Eucalyptus kruseana/Book-Leaf Mallee
Eucalyptus lehmannii/Bushy Yate
Eucalyptus leucoxylon/White Ironbark
Eucalyptus microtheca/Coolibah
Eucalyptus polyanthemos/Silver Dollar Gum
Eucalyptus preissiana/Bell Mallee
Eucalyptus robusta/Swamp Mahogany
Eucalyptus rudis/Flooded Gum
Eucalyptus sideroxylon/Red Ironbark
Eucalyptus spathulata/Swamp Mallee
Eucalyptus torquata/Coral Gum
Eucalyptus viminalis/Manna Gum
Eucalyptus woodwardii/Lemon Flowered Gum
Feijoa sellowiana/Pineapple Guava

"Low" Water Use Continued

Botanical Name /Common Name

Trees – "Low" Water Use

Ficus microcarpa 'Green Gem" /Green Gem Ficus
Geijera parviflora/Australian Willow
Grevillea robusta/Silk Oak
Jatropha integerrima /Spicy Jatropha
Jubaea chilensis/Chilean Wine Palm
Juglans californica/California Black Walnut
Juniperus spp./Juniper
Koelreuteria paniculata/Goldenrain Tree
Lagunaria patersonii/Primrose Tree
Laurus nobilis/Sweet Bay
Laurus 'Saratoga' /Saratoga Laurel
Leptospermum laevigatum/Australian Tea Tree
Leucadendron argenteum/Silver Tree
Lithocarpus densiflorus/Tanbark Oak
Lysiloma microphylla var. thornberi/Feather Bush
Melaleuca armillaris/Bracelet Honey Myrtle
Melaleuca decussata/Totem Poles, Lilac Melaluca
Melaleuca elliptica/Granite Honey Myrtle
Melaleuca linariifolia/Flaxleaf Paper Bark
Melaleuca nesophila/Pink Melaleuca
Melaleuca squamea/Swamp Honey Myrtle
Melaleuca styphelioides/Prickly Paperback
Nolina recurvata/Bottle Palm
Olea europaea/Olive
Pachycormus discolor/Elephant Tree
Pachypodium lamerei/Madagascar Palm
Parkinsonia aculeata/Mexican Palo Verde
Phoenix canariensis/Canary Island Date Palm
Phoenix dactylifera/Date Palm
Pinus attenuata/Knobcone Pine
Pinus brutia/Calabrian Pine
Pinus brutia ssp. eldarica/Afghan Pine
Pinus canariensis/Canary Island Pine
Pinus coulteri/Coulter Pine
Pinus flexilis/Limber Pine
Pinus halepensis/Aleppo Pine

"Low" Water Use Continued

Botanical Name/Common Name

Trees – "Low" Water Use

Pinus monophylla/Singleleaf Pinyon Pine
Pinus montezumae/Montezuma Pine
Pinus muricata/Bishop Pine
Pinus pinaster/Cluster Pine
Pinus pinea/Italian Stone Pine
Pinus torreyana/Torrey Pine
Pinus X attenuradiata/Knobcone-Monterey Pine
Pittosporum phillyraeoides/Willow Pittosporum
Prosopis alba/Argentine Mesquite
Prosopis glandulosa/Chilean Mesquite
Prosopis glandulosa 'Glandulosa' / Honey Mesquite
Prosopis juliflora/Arizona Mesquite
Prosopis pubescens/Screw Bean Mesquite
Prosopis velutina/Arizona Mesquite
Prunus ilicifolia ssp. lyonii/Catalina Cherry
Pseudobomax ellipticum/Shaving Brush
Quercus agrifolia/Coast Live Oak
Quercus chrysolepis/Canyon Live Oak
Quercus engelmannii/Mesa Oak
Quercus ilex/Holly Oak
Quercus suber/Cork Oak
Quercus tomentella/Island Oak
Quillaja saponaria/Soapbark Tree
Rhus lancea/African Sumac
Rhus typhina/Staghorn Sumac
Robinia pseudoacacia/Black Locust
Robinia X ambigua/Locust
Sambucus spp./Elderberry
Schinus polygamous/Peruvian Pepper Tree
Sophora secundiflora/Texas Mountain Laurel
Tagetes lemmonii/Mountain Marigold/Copper Canyon Daisy
Tanacetum coccineum/Painted Daisy
Tecoma stans/Yellow Bells
Toona sinensis/Chinese Toona
Vitex agnus-castus/Chaste Tree
Washingtonia filifera/California Fan Palm

"Low" Water Use Continued

Botanical Name /Common Name

Trees – "Low" Water Use

Washingtonia robusta/Mexican Fan Palm
X Chitalpa tashkentensis/Chitalpa
Yucca spp. /Yucca
Zelkova serrata / Sawleaf Zelkova
Ziziphus jujuba/Chinese Jujube

Shrubs – "Low" Water Use

Abutilon palmeri/Indian Mallow
Acacia glaucoptera/Clay Wattle
Acacia redolens/Prostrate Acacia
Acacia vestita/Hairy Wattle
Achillea clavennae/Silvery Yarrow
Achillea filipendulina/Fernleaf Yarrow
Achillea X kellerii/Kellerii Achillea
Adenanthos drummondii/Woolly Bush
Aeonium spp./Canary Island Rose
Agave spp./Agave
Aloe spp./Aloe
Aloysia triphylla/Lemon Verbena
Alyogyne hakeifolia/Hibiscus
Alyogyne huegelii/Blue Hibiscus
Anigozanthos flavidus/Kangaroo Paw
Anigozanthos viridis/Green Kangaroo Paw
Anisacanthus spp./Desert Honeysuckle
Arctostaphylos cultivars/Manzanita Cultivars
Arctostaphylos spp./Manzanita
Arctotis hybrids/African Daisy
Artemisia californica/California Sagebrush
Asclepias asclepiadaceae/Milk, Silk Weed
Asplenium scolopendrium (Phyllitis)/Hart's Tongue Fern
Asteriscus sericeus/Canary Island Daisy
Babiana stricta hybrids/Baboon Flower
Baccharis pilularis/Dwarf Coyote Brush
Berberis spp./Barberry
Bougainvillea spp./Bougainvillea

"Low" Water Use Continued

Botanical Name/Common Name

Shrubs – "Low" Water Use

Brodiaea spp./Brodiaea
Bulbine frutescens/Stalked Bulbine
Caesalpinea gilliesii/Yellow Bird of Paradise
Calocephalus brownii/Cushion Bush
Camissonia cherianthifolia/Beach Evening Primrose
Capparis spinosa/Caper
Carpenteria californica/Bush Anemone
Cassia eremophila/Desert Cassia
Cassia wizlizeni/Shrubby Cassia
Ceanothus cultivars/Ceanothus
Centranthus ruber/Red Valerian
Cereus peruvianus/Night Blooming Cereus
Chamelaucium uncinatum/Geraldton Waxflower
Chasmanthe aethiopica/Cobra Lily
Cistus spp./Rockrose
Clivia miniata/Bush Lily
Convolvulus cneorum/Bush Morning Glory
Cordia parvifolia/Little-Leaf Cordia
Coreopsis auriculata 'Nana'/Lobed Tickseed
Coreopsis lanceolata/Lanceleaf Tickseed
Coreopsis verticilata cvs./Threadleaf Tickseed
Correa spp./Australian Fuchsia
Cotyledon spp./Cotyledon
Crassula spp./Crassula
Crocrosmia hybrids/Montbretia
Dalea bicolor/Indigo Bush
Dasylirion spp./Desert Spoon
Deschampsia cespitosa/Tufted Hair Grass
Dodonaea viscosa/Hopseed Bush
Dodonaea viscosa 'Purpurea'/Purple Hopseed Bush
Doryanthes palmeri/Spear Lily
Dorycnium hirsutum/Hairy Canary-Clover
Dyckia spp./Dyckia
Echeveria spp./Hen and Chicks
Echinocactus spp./Barrel Cactus

"Low" Water Use Continued

Botanical Name/Common Name

Shrubs – "Low" Water Use

Echinopsis spp. /Hedgehog Cacti
Echium candicans/Pride of Madeira
Elaeagnus pungens/Silverberry
Elymus spp./Wild Rye
Eremophila glabra/Common Emu Bush
Eremophila maculata/Spotted Emu Bush
Eremophila racemosa/Easter Egg Bush
Erysimum hyeraciifolium/Siberian Wallflower
Erysimum 'Jubilee'/Jubilee Wallflower
Erysimum linifolium/ Apline Wallflower
Erysimum menziesii/ Menxies' Wallflower
Erysimum pulchellum/Wallflower
Erysimum 'Wenlock Beauty'/Wenlock Beauty Wallflower
Eschscholzia californica/California Poppy
Espostoa lantana/Peruvian Old Man Cactus
Euphorbia characias/Euphorbia, Mediterranean Spurge
Euphorbia milii/Crown of Thorns
Euphorbia myrsinites/Euphorbia, Creeping Spurge
Euphorbia pulcherrima/Poinsettia
Euryops pectinatus/Gray-leaved Euryops, Shrub Daisy
Fascicularia pitcairnifolia/Fasciculari
Felicia fruticosa/Shrub Aster
Forestiera neomexicana/Desert Olive
Garrya eliptica/Coast Silktassel
Garrya flavescens/Ashy Silktassel
Gasteria spp./Mother-In-Law's Tongue etc.
Gladiolus spp./Gladiolus
Goniolimon incanum /Blue Diamond, Sea Lavender
Graptopetalum spp./Graptopetalum
Grevillea spp./Grevillea
Grindelia camporum/Gum Plant
Hakea laurina/Sea Urchin Tree
Hakea suaveolens/Sweet Hakea
Halimium lasianthum/Sun Rose
Haworthia spp./Haworthia
Helianthemum nummularium/Common Rockrose

"Low" Water Use Continued

Botanical Name/Common Name

Shrubs – "Low" Water Use

Heteromeles arbutifolia/Toyon
Ilex vomitoria/Yaupon
Ipheion uniflorum (Tritelia)/Spring Star Flower
Juniperus californica/California Juniper
Justicia spicigera/Mexican Honeysuckle
Kalanchoe spp./Kalanchoe
Kniphofia triangularis (galpinii)/Coral Poker
Kniphofia uvaria/Red Hot Poker
Lantana camara/Lantana
Lavandula spp./Lavender
Lavatera assurgentiflora/Tree Mallow
Leonotis leonurus/Lion's Tail
Leucophyllum spp./Leucophyllum
Leucospermum cordifolium/Nodding Pincushion
Limonium commune var. californicum/Coastal Statice
Limonium perezii/Statice
Linaria purpurea/Toadflax
Lobostemon fruticosus/Pajama Bush
Lonicera hispidula/Pink Chaparral Honeysuckle
Lonicera subspicata/Chaparral Honeysuckle
Lupinus arboreus/Coastal Bush Lupine
Lychnis coronaria/Rose Campion, Crown Pink
Lycium fremontii/Fremont's Desert Thorn
Mahonia 'Golden Abundance'/Golden Abundance Mahonia
Mahonia lomariifolia/Chinese Holly Grape
Mahonia nevinii/Nevin Mahonia
Maireana sedifolia/Pearl Bluebush
Melaleuca fulgens /Scarlet Hoeny Myrtle
Melaleuca huegelii / Chenille Honey Myrtle
Melaleuca incana / Grey Honey Myrtle
Mimulus spp. (shrubby)/Monkey Flower
Muhlenbergia rigens/Deer Grass
Myoporum parvifolium & cvs. / Slender Myoporum
Myoporum X 'Pacificum' / Pacifica Saltbush
Myrica californica/Pacific Wax Myrtle
Myrsine africana/African Boxwood

"Low" Water Use Continued

Botanical Name /Common Name

Shrubs – "Low" Water Use

Myrtus communis/Myrtle
Nandina domestica/Heavenly Bamboo
Narcissus spp./Daffodil
Nerine spp./Nerine
Oenothera pallida/Pale Evening Primrose (Pallida)
Oenothera rosea/Pink Evening Primrose (Rosea)
Origanum spp./Oregano
Ornithogalum thyrsoides/Chincherinchee
Ozothamnus rosemarinifolius/Ozothamnus
Panicum (native spp.)/Switch Grass
Pelargonium tomentosum/Scented Geranium
Pennisetum alopecuroides/Chinese Pennisetum
Pennisetum orientale/Oriental Fountain Grass
Penstemon wild spp./Penstemon, Beard-tongue
Phlomis caballeroi/Pink Jerusalem Sage
Phlomis cashmeriana/Kashmir Sage
Phlomis cretica/Cretan Phlomis
Phlomis fruticosa/Jerusalem Sage
Phlomis italica/Italian Jerusalem Sage
Phlomis lanata /Jerusalem Sage Lantana
Phlomis purpurea/PurplePhlomis
Phlomis tuberosa/Tuberous Jerusalem Sage
Phormium tenax/New Zealand Flax
Plecostachys serpyllifolia/Straw Flower
Plumeria rubra/Nosegay Frangipani
Polyanthes tuberosa/Tuberose
Portulacaria afra/Elephant's Food
Prostanthera rotundifolia/Round Leaf Mint Bush
Psoralea pinnata/Blue Pea
Puya spp./Puya
Pyracantha spp./Firethorn
Pyrethropsis hosmariense/Moroccan Daisy
Pyrrosia spp./Felt Fern
Ranunculus cortusifolius/Azores Buttercup
Ranunculus repens pleniflorus/Double Creeping Buttercup
Ratibida columnifera / Mexican Hat

"Low" Water Use Continued

Botanical Name/Common Name

Shrubs – "Low" Water Use

Rhamnus alaternus/Italian Buckthorn
Rhodohypoxis spp./Rose Grass, Red Star
Rhus lentii/Pink-Flowering Sumac
Rhus trilobata/Squawbush
Ribes aureum/Golden Currant
Ribes indecorum/White Flowering Currant
Ribes sanguineum/Red Flowering Currant
Ribes speciosum/Fuchsia Flowering Gooseberry
Ribes viburnifolium/Evergreen Currant
Rosa californica/California Wild Rose
Rosa minutifolia/Baja California Wild Rose
Rosmarinus officinalis/Rosemary
Ruellia X brittoniana /Common Ruellia
Ruscus spp./Butcher's Broom
Salvia argentea/Silver Sage
Salvia azurea grandiflora/Prairie Sage
Salvia 'Bee's Bliss'/Bee's Bliss Sage
Salvia chamaedryoides/Germander Sage
Salvia coahuilensis/Coahuila Sage
Salvia 'Dara's Choice'/Sonoma Sage
Salvia dorrii/Desert Sage
Salvia greggii & hybrids/Autumn Sage
Salvia leucantha/Mexican Bush Sage
Salvia leucophylla/Purple Sage
Salvia mellifera/Black Sage
Salvia microphylla/Cherry Sage, Graham's Sage
Salvia muelleri/Royal Purple Sage
Salvia spathacea/Hummingbird, Pitcher Sage
Salvia thymoides/Blue Salvia
Santolina spp./Lavender Cotton
Sempervivum spp./House Leek
Senecio cineraria/Dusty Miller
Senecio flaccidus var. douglasii/Bush Groundsel
Senna artemesioides/Feathery Cassia
Senna bicapsularis/Winter Cassia
Senna didymobotrya/Cassia Didymobotrya

"Low" Water Use Continued

Botanical Name /Common Name

Shrubs – "Low" Water Use

Senna multiglandulosa/Woolly Senna
Senna odorata cassia odorta/Cassia
Senna phyllodinea cassia phyllodinea/Silver Leaf Cassia
Senna polyantha cassia goldmanii/Goldman's Cassia
Senna spectabilis cassia excelsa/Cassia
Senna splendida/Golden Wonder
Senna sturtii/Sturt's Cassia
Silene spp./Campion
Sinningia tubiflora/Velvet Slipper, White Gloxinia
Sisyrinchium bellum/Blue-Eyed Grass
Sollya heterophylla/Australian Bluebell Creeper
Sphaeralcea spp./Globe Mallow
Sprekelia formosissima/Aztec Lily
Stachys albotomentosa/Hidalgo
Styrax officinale californicum/California Storax
Sutera spp./Sutera
Symphoricarpus albus/Snowberry
Tanacetum haradjanii/Tansy
Teucrium fruticans/Bush Germander
Teucrium marum/Cat Thyme
Thalictrum fendleri var. polycarpum/Meadow Rue
Tricyrtis hirta/Toad Lily
Triteleia Iaxa/Ithuriel's Spear
Urginea maritima/Sea Squill
Verbascum bombyciferum/Mullein
Verbascum phoeniceum/Purple Mullein
Verbena bonariensis/Verbena
Watsonia spp./Watsonia
Westringia fruticosa/Coast Rosemary
Westringia glabra/Violet Westringia
Westringia longifolia/Westringia
Westringia raleighi / Raleigh Westringia
Halmiocistus wintonensis/Halmiocistus
Xanthorrhoea spp./Grass Tree
Achillea tomentosa/Woolly Yarrow

"Low" Water Use Continued

Botanical Name/Common Name

Groundcover – "Low" Water Use

Aptenia cordifolia/Baby Sun Rose, Dew Plant
Artemisia spp. (herbaceous)/Tarragon, Angel's Hair
Baccharis pilularis/Dwarf Coyote Brush
Cephalophyllum spp./Ice Plant
Convolvulus sabatius/Ground Morning Glory
Dalea greggii/Trailing Indigo Bush
Dalea orcuttii /Baja Indigo Bush
Dodonaea procumbens/Hopseed Bush, Trailing Hop-bush
Drosanthemum spp./Ice Plant
Dymondia margaretae/Silver Carpet
Keckiella antirrhinoides/Yellow Bush Penstemon
Lampranthus spp./Ice Plant
Lantana montevidensis/Trailing Lantana
Mahonia repens/Creeping Mahonia
Oenothera macrocarpa/Ozark Sundrops
Oenothera speciosa/Mexican Evening Primrose
Oenothera speciosa 'Rosea'/Pink Evening Primrose
Oenothera stubbei/Baja Evening Primrose
Osteospermum spp./African Daisy
Pelargonium sidoides/Geranium
Rosmarinus officinalis 'Prostratus'/Trailing Rosemary
Sedum spp./Stonecrop
Senecio mandraliscae/Kleinia
Teucrium chamaedrys/Germander
Teucrium cossonii/Majorcan Germander
Trifolium fragiferum O'Connor/O'Conners Legume
Verbena gooddingii/Goodding Verbena
Verbena lilacina/Lilac Verbena
Verbena peruviana/Peruvian Verbena
Verbena tenuisecta/Moss Verbena

"Low" Water Use Continued

Botanical Name/Common Name

Vines – "Low" Water Use

Antigonon leptopus/Coral Vine

Araujia sericifera/Cruel Vine, White Bladder Flower

Ipomoea indica (acuminata)/Blue Dawn Flower, Morning Glory

Lonicera japonica/Japanese Honeysuckle

Lonicera japonica 'Halliana'/Hall's Honeysuckle

Macfadyena unguis-cati/Catclawvine

Polygonum aubertii/Silver Lace Vine

Solanum xanti/Purple Nightshade

Vitis girdiana/Desert Grape

water smart
LANDSCAPE

San Diego County
Water Authority

sdcwa.org