

# Water-Wise Gardening

for San Francisco



San Francisco  
**Water Power Sewer**

Services of the San Francisco Public Utilities Commission



The San Francisco Public Utilities Commission (SFPUC), provider of San Francisco's water, sewer, and municipal power services, has been implementing indoor and outdoor conservation programs for over 20 years to help ensure that future water demands can be met. Our regional water system is a public asset that plays a key role in delivering high-quality drinking water to 2.6 million residents and businesses in the Bay Area. The system collects water from the Tuolumne River in the Sierra Nevada and from protected local watersheds in the East Bay and Peninsula. We provide water to the businesses, homes and landscapes that make San Francisco a unique and beautiful place to live.

As with many other cities in California and across the country, drought is a cyclical part of our climate. However, a garden that is carefully planned and maintained can be a beautiful, functional space with little or no watering required during the driest times of the year. Creating a water-wise garden helps conserve our precious drinking water, ensuring there will be enough for everyone in the future.

**Look over this guide before you begin your next garden project or to find out how to make changes to your maintenance and irrigation practices that can save water and money. You'll find lots of helpful tips and resources on each page.**

Special thanks to Santa Clara Valley Water District and Garden for the Environment for photos and technical assistance in creating this guide.





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# Designing or Updating Your Water-Wise Garden

Water-wise gardens can take a bit more planning than ordinary landscapes, but over time they can offer significant savings in maintenance and water costs. If you have a well-established garden, small changes to your watering practices can move you toward a more water-wise landscape.

## GET TO KNOW YOUR SITE

Paying attention to your garden's unique characteristics will help you put the right plants in the right place and create functional outdoor spaces. **Look around your garden and use the following table to help you determine the best uses for maximizing your outdoor space.**

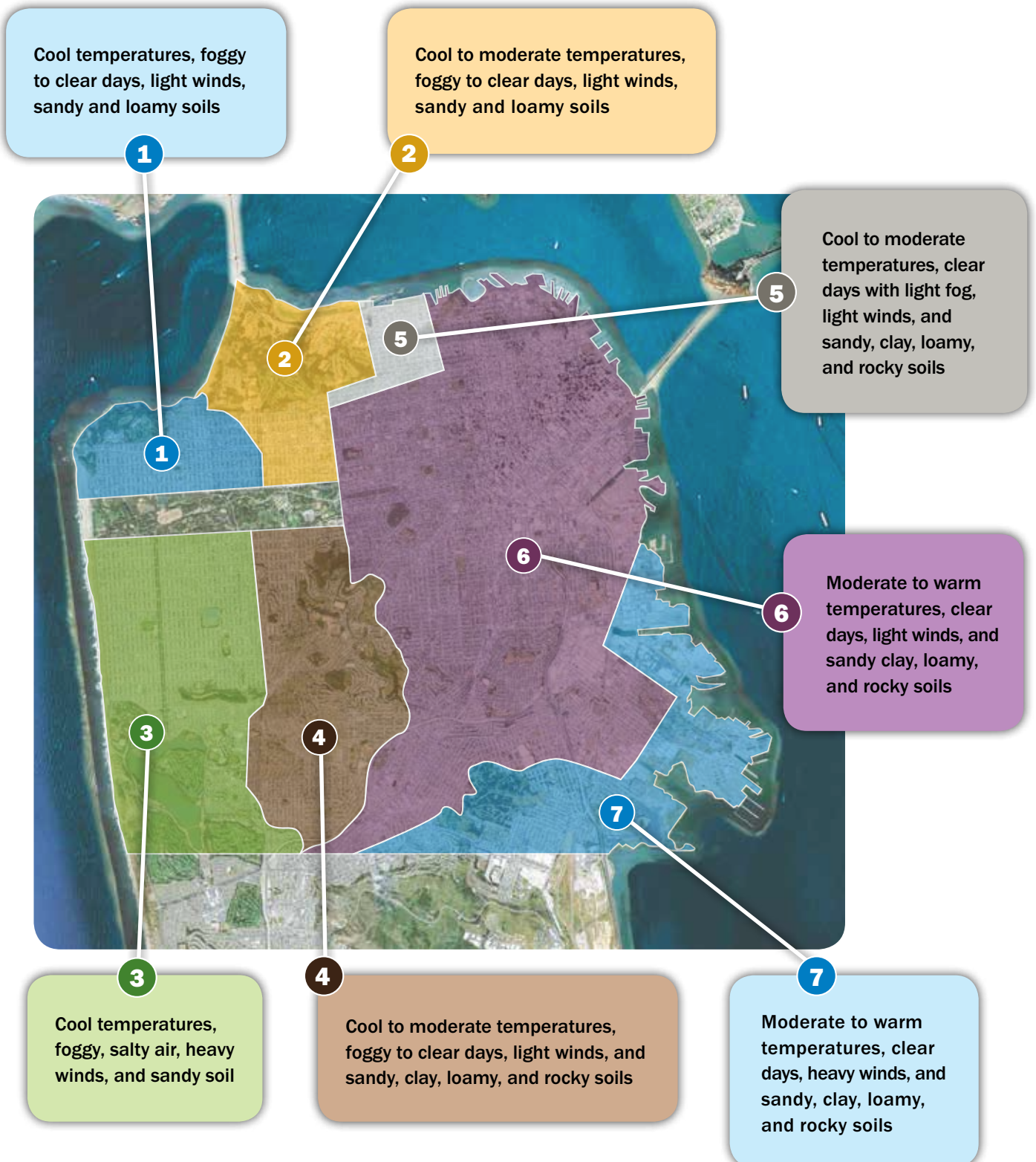
Things to Consider	Water-Wise Gardening Tip	Learn More
How do you want to use your garden - is it meant for entertaining, children's play, or growing edibles?	After determining the desired use of your garden, group plants together with similar water, soil and exposure needs.	Page 4
Are there particular views you would like to screen or enhance?	Select plants that at their mature size are appropriate for the location.	Page 5
If you have a lawn, is it being fully utilized?	If not, consider replacing with climate-appropriate flowering plants that can use one third of the water.	Page 6
What type of soil do you have - does it retain water well, or does water puddle and runoff?	Adding a layer of compost and mulch increases soil nutrients, retains water, and helps suppress weeds.	Page 8
Are you gardening on a slope?	Consider an irrigation controller with multiple start times to allow soil to absorb water at a manageable rate.	Page 10
Are you interested in alternative ways to water your garden?	Consider installing a rain barrel, cistern, or graywater system to safely reuse water for irrigation.	Page 11
Does water runoff onto sidewalks or hardscapes when you irrigate?	Adjust watering methods based on the type of plants and zones of your garden.	Page 12



## SAN FRANCISCO'S UNIQUE MICROCLIMATES

San Francisco is well-known for its diverse microclimates. Weather can vary dramatically from the coast to the Bay. Sometimes just walking from one side of a hill to the other can bring you from a damp fog to sunny skies.

Find your region on the map and look for the climatic, wind and soil conditions that play a role in shaping your unique landscape. Varying amounts of sun, heat, moisture and wind will influence which plants survive and thrive in your garden.



## DESIGNATE WATER ZONES

When designing a water-wise garden, organize your landscape into “hydrozones” – a group of plants with similar water, soil and exposure needs. By doing so, you can apply water very efficiently and allocate more water to thirsty plants and less to unthirsty ones. As much as possible, maximize the amount of garden space dedicated to “low” or “no” water using plants. High water-use plants generally do better in shady areas where there is less evaporation and the soil stays damp longer.

For an already-established garden, think about relocating a few key plants to better group them by water needs. If you’re adding new plants to your garden, place them in areas with similar water and exposure requirements. Once you have decided on a general layout, draw a map of your garden.

Before you purchase or relocate plants, look at the following categories, and note the different types of zones you have.

<b>NO WATER-USE ZONE</b>
<ul style="list-style-type: none"><li>• Permeable hardscapes such as brick or flagstone set in sand</li><li>• Established trees and plants that can survive on rainfall only</li></ul>
<b>LOW WATER-USE ZONE</b>
<ul style="list-style-type: none"><li>• Established trees and shrubs, many California natives, and plants from Mediterranean climate regions like South Africa or southwestern Australia</li><li>• Requires little, if any, additional water during summer months</li></ul>
<b>MODERATE WATER-USE ZONE</b>
<ul style="list-style-type: none"><li>• Roses, deciduous trees, annuals</li><li>• Requires more frequent watering and may take advantage of runoff from downspouts or patios</li></ul>
<b>HIGH WATER-USE ZONE</b>
<ul style="list-style-type: none"><li>• Lawns, fruit trees, edibles, container plants</li><li>• Requires continued watering throughout the year</li></ul>



This low water-use zone can be watered efficiently since plants have similar water needs.



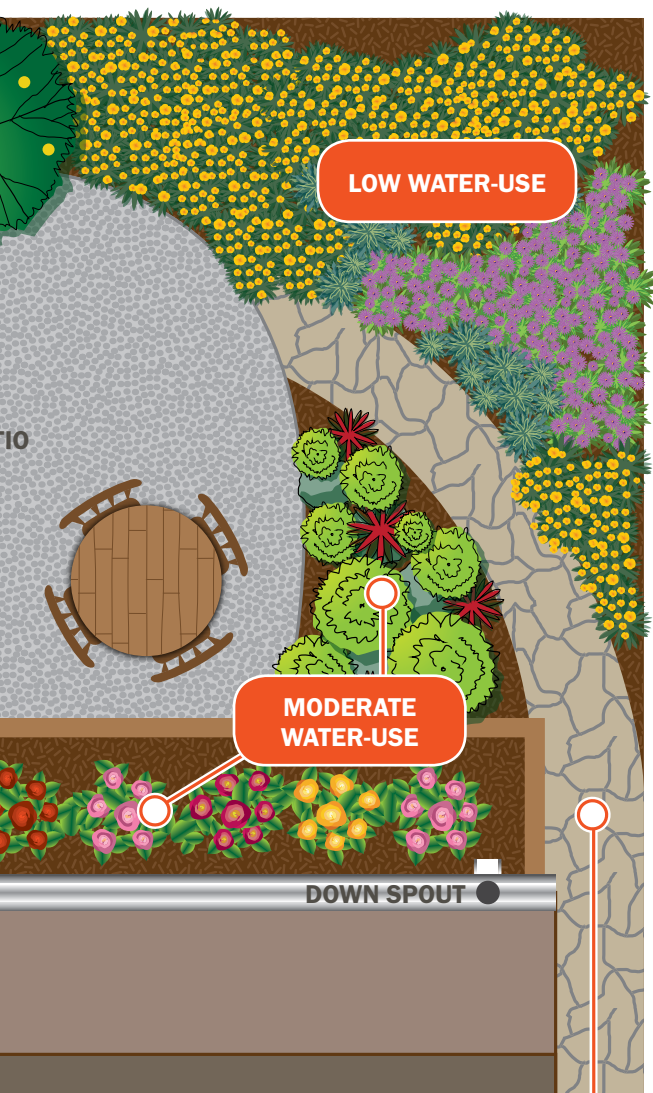
For more examples of hydrozones, visit the Water-Wise Demonstration Garden at Garden for the Environment. Visit [gardenfortheenvironment.org](http://gardenfortheenvironment.org) for more information.





Moderate water-use plants like this Alstroemeria are appropriate for areas of your garden that receive water on a regular basis.

### LOW WATER-USE PLANTS



LOW WATER-USE

MODERATE WATER-USE

DOWN SPOUT

NO WATER-USE

## CHOOSE THE RIGHT PLANTS

Using your zone diagram, choose plants that correspond to appropriate zones in your garden. Also remember – plants grow! The one-gallon plant you buy today could grow into a 20 foot tree, so be sure to select plants that will grow to an appropriate size for their location.

Check projected growth and height of any tree or shrub you plant, and choose its location accordingly. For example, now that it has reached maturity, this evergreen tree has outgrown the home's entryway.



Water-wise gardens focus on plant varieties that thrive with little water. However, no plant is “wrong” in a water-wise garden; it just needs to be in the right zone to use water most efficiently. Lush plants, such as ferns and mosses, can play a part provided they're in the right water-use zone. Include a lawn if you'd like, but consider limiting it to play or entertainment areas. Use the list on page 6 to begin your search for low water-use plants that thrive in San Francisco.

## PERMEABLE SURFACES

For high-traffic areas, entertainment areas or to reduce landscape maintenance, consider replacing impervious surfaces such as concrete with a permeable hardscape. Permeable hardscape allows water to percolate through the soil for filtration and prevents water from running off. By minimizing runoff from impervious surfaces, you help keep the Pacific Ocean and our Bay clean and reduce urban flooding. You can use decorative stepping stones such as flagstone, natural rock pavers, decomposed granite or bricks set in sand.





# Low Water-Use Plants

Designing gardens with low water-use plants not only conserves water, but can also save you money and decrease maintenance needs. Many beautiful low water-use natives, perennials, ornamental grasses, shrubs or succulents thrive in San Francisco. Below are some varieties which have proven success in our climate.



**Ed Carman's Rosemary**  
*Rosmarinus officinalis*

Shrub with dark-green leaves that are rich in aromatic oils and prized for cooking. This herb blooms from winter through spring and often again in fall and attracts beneficial insects.



**African Daisy**  
*Osteospermum fruticosum*

Annual flower with 2-4 inch blooms in radiant shades of white, purple, orange and yellow. This hardy flower spreads rapidly under conditions of full sun and well-drained soils.



**Feverfew**  
*Chrysanthemum parthenium*

Small perennial bush with white flowers. This medicinal herb requires little attention and will do well in traditional garden soil with full or partial sun. Feverfew has a very strong odor which may deter insects.



**Blue Fescue**  
*Festuca glauca*

The large blue fescue forms 6-18 inch mounds of blue-gray foliage. These semi-evergreen perennials make an excellent foreground accent plant that thrives in well-drained soil.



**Mirror Plant**  
*Coprosma 'Rainbow Surprise'*

This dwarf evergreen shrub displays unique variegated foliage with red, green, yellow, and purple tones. It grows approximately 4-5 feet tall and 4-5 feet wide and thrives in full coastal sun.



**Mexican Bush Sage**  
*Salvia Leucantha*

A bushy evergreen shrub that grows 3-4 feet tall and wide. Has hairy white stems, grayish-green leaves and velvet like purple flowers that bloom summer through fall. Likes well drained soil and sun to light shade.



**Spring Star Flower**  
*Iphieion uniflorum*

A stunning spring flower with beautiful pastel blues and purples. This hardy plant grows well in both sun and shade and is very drought tolerant. The flower does best when soil is well-drained.



**Thyme-Leafed Fuchsia**  
*Fuchsia thymifoli*

An upright shrub with small evergreen leaves. Produces miniature, dark pink, single fuchsia flowers that dangle from the branches in mid-summer. Does well in partial shade areas.



**Wallflower**  
*Erysimum linifolium*

A bushy lilac flower with attractive green leaves and cream-colored margins. This plant reaches approximately 12-16 inches and does well in full to partial sun. This plant is resistant to deer.



**Red Flowering Currant**  
*Ribes sanguineum*

This shrub will add a pop of color to your winter and early spring garden. Its deep pink to red tubular blossoms attract bees, butterflies and hummingbirds. Easy to grow with little water and likes well-drained soil.



**Pinnata Lavender**  
*Lavandula pinnata*

A marvelous lavender with unique leaf structure and whorled flower heads. This plant grows approximately 3 feet tall and does well when planted in pots or in the soil. It is sensitive to freezing temperatures.

For hundreds of other plant ideas, check out the San Francisco Low Water-Use and Climate Appropriate Plant List available at [sfwater.org/landscape](http://sfwater.org/landscape).

Or visit the Water-Wise Demonstration Garden at 7th Avenue and Lawton Street in San Francisco to see these and other plant varieties thriving in the City.



# Where Do High Water-Use Plants Belong?

Limit high water-use plants to spaces where they will be appreciated. Flowers that are high water-use should be in spaces where they can be easily seen up close for high visual impact. Water loving plants should be placed in shadier areas if they can tolerate it. Shady, cooler spaces decrease the amount of water that evaporates from a plant.

Plants that use a significant amount of water can also be used in raingardens or areas designed for control of stormwater flows, which prevent flooding and the concentration of pollutants in our waterways. Check out the *San Francisco Stormwater Design Guidelines* for more information on how to create your own low impact design garden.



## TURF TIPS

When planning your garden, think about how much lawn you actually need and where it will be enjoyed most. Lawns are great for play and entertaining, but they can also use lots of water and require continual upkeep. Remember that lawns are also in your high water-use hydrozone, so the less of it you have, the more water-efficient your garden will be. If you currently have a large lawn, consider eliminating or reducing your lawn to areas where you need it most.

- Place grass near the house and in areas of heavy use.
- Avoid using grass on steep slopes, next to fences and along narrow walkways.
- Plant grass only where it will be used and enjoyed, such as in your backyard.
- Plant grass in areas that have enough space to accommodate your irrigation system.
- Sprinklers can rarely accommodate lawn in narrow strips less than 8-feet wide without overspray and runoff.
- Try water-conserving grass varieties. Hybrid tall fescue grasses need less water than bluegrass.

## Consider Turf Alternatives

Try a groundcover like Ceanothus ‘Yankee Point’ or Salvia ‘Bee’s Bliss’ or a grouping of grasses such as Festuca californica, Festuca rubra or Carex pansa. Varieties of thyme, yarrow, verbena, chamomile and other herbs also make great perennial lawn alternatives. If you plan to use the space for entertaining, consider a permeable hardscape instead to allow for high traffic and for water to filter back into the ground. After you zone your landscape, ask your nursery professional for the best groundcover or permeable hardscape suggestions for your unique space.



# Getting Soil Savvy

Healthy soil is a key component to creating a successful water-wise garden. San Francisco soils range from sandy near the ocean to clay towards the Bay. Check the microclimate map on page 3 to find your region's soil type.



**Sandy soil** is gritty and does not stick together when wetted and squeezed in your hand. It has good drainage, but is low in nutrients and needs to be watered and fertilized more often than other soils.



**Clay soil and silt** stick together when wet and are rock-hard when dry. They contain and store many important plant nutrients and retain water well but are difficult for roots and water to penetrate.



**Loam** is a combination of sand, silt and clay. When wetted and squeezed in your hand it is crumbly and sticky. It can contain and store many plant nutrients and is easy for roots and water to penetrate.

## IMPROVING YOUR SOIL

It's a good idea to check your garden's soil and, if necessary, add organic materials to help improve the quality so your plants can thrive. If you suspect a problem with your soil, have it tested using a test kit, pH meter or laboratory analysis.

One simple way to keep most soil healthy is to add good compost at least once or twice each year. Compost can be made right at home from yard clippings and fruit and vegetable trimmings. Compost should be mature before application (dark brown, crumbly and with no recognizable plant pieces in it). Apply compost 1-3 inches thick.

Through a partnership with **Garden for the Environment**, the SFPUC sponsors free do-it-yourself composting classes to help you establish your own composting bin at home. Visit [gardenfortheenvironment.org](http://gardenfortheenvironment.org) for upcoming classes.

Healthy soil gives plant roots room to reach out and acquire water and nutrients so less water is needed for plants to grow. Watering too frequently can create shallow roots, undermining plant growth.





# Mulch

Mulch is one of the quickest, easiest and most cost-effective ways to save water in your garden. It provides an attractive surface as well as many other landscape benefits such as:

- Conserves water by reducing evaporation
- Suppresses weed growth
- Reduces erosion by allowing water to penetrate the soil
- Encourages better root growth by insulating soil from temperature extremes
- Balances soil temperature, keeping soils cooler in summer and warmer in winter
- Adds nutrients to your soil as it decomposes



## APPLYING MULCH

Mulch should be layered three to four inches deep over the soil. Keep mulch about six inches away from the base of plants to prevent fungal diseases. Avoid using mulched material from diseased plants.

Not sure which type of mulch to use? Consider the table below before purchasing a large quantity of mulch for your garden:

ORGANIC MULCHES	
Mulch Type	Facts
<b>Bark</b>	Bark is available ground, shredded or in chips. Ground fir, pine, hemlock or redwood are attractive and long-lasting. Fine-textured sawdust and wood shavings require nitrogen to decompose. Check the label and, if not present, add a nitrogen supplement before applying.
<b>Straw</b>	Although short-lived, straw is inexpensive and virtually free of weed seeds.
<b>Aged or composted animal manures</b>	Animal manures are effective for about a year. Fresh manure can burn plant roots.
<b>Agricultural by-products</b>	Agricultural by-products such as mushroom compost, ground corncobs and apple or grape pomace vary by region; check your garden center for resources.
<b>Tree leaves</b>	Tree leaves with thicker textures, like most oaks, make good mulch. Thin-textured leaves (maple leaves, for example) will compact into a water-repellent mat and are not recommended.
<b>Grass clippings</b>	Grass clippings should be spread in a thin layer and allowed to dry before adding another thin layer.
INORGANIC MULCHES	
Mulch Type	Facts
<b>Polypropylene plastic</b>	Polypropylene plastic (landscape fabric) allows air and water to pass through, but suppresses weed growth. Use it on steep slopes to limit runoff and erosion. For a more attractive appearance, cover the fabric with organic mulch. It helps conserve water; however, it does not build up the soil.
<b>Rocks</b>	Rocks are available in varying sizes, shapes and colors and make a permeable and permanent mulch. They help conserve water; however, they also do not build up the soil.

# San Francisco Gardens

San Francisco's dense urban setting can sometimes make landscaping a challenge. Steep slopes, unique microclimates, and narrow lots with minimal space for outdoor areas can be limiting, but these challenges can also lead to more unique design ideas. Throughout San Francisco, you will find landscapes that are creative, beautiful and water-efficient.

## GARDENING ON A SLOPE

Many homes throughout the City are located on the steep slopes of San Francisco's topography. Designing your garden right from the start can prevent water from running off. Here's a few tips for gardening on a slope:

- Terrace the slope and create basins around plants to hold in water.
- Plant shrubs or groundcover on the slope instead of a lawn. Lawn should not be used on slopes greater than 25%.
- Use drip or multi-stream rotating nozzle sprinklers on slopes. Using an irrigation method that delivers water slowly to a plant allows water to be applied in a more efficient way - allowing the soil to absorb water rather than runoff.
- Set your irrigation controller for multiple start times. If you need to water for 10 minutes on a sloped station, program your controller to water for 5 minutes per cycle with an hour in between to let the water soak in. Multiple start times allow for an area with steep slopes or clay soil to absorb water at a manageable rate. Watering with multiple start times also minimizes water loss from sandy soils that drain quickly.



## VERTICAL GARDENING

If your landscape space is limited, consider gardening up. Today, many landscaping companies and garden centers can help you create a vertical garden - usually by planting in pockets or on frames which can be installed on walls. Some vertical gardens include automatic irrigation systems, some can be watered efficiently top-down, and others require no water. Vertical gardening can add a unique art piece to your indoor space or create visual interest in a small outdoor area.

**Tip:** With San Francisco's mild winter and semi-arid climate, fall is one of the best times to plant new species in your landscape.



# Don't Let Good Water Go to Waste

Water is too precious to use just once. Throughout San Francisco, many homes, businesses, municipal buildings, and schools are looking to alternate water sources to provide water for irrigation. The reuse of rainwater and graywater are two alternatives that can help conserve potable water, prevent pollution, and keep your garden looking great all year round.

## RAINWATER HARVESTING

Rainwater harvesting is the practice of collecting rainwater from hard surfaces such as roofs and using it later for outdoor irrigation. By using rainwater instead of potable water you not only help San Francisco conserve water, but you also reduce the need to treat stormwater at the City's wastewater treatment facilities. Visit [sfwater.org/rainwater](http://sfwater.org/rainwater) for available rain barrel and cistern programs.



### Rain Barrels

Rain barrels are containers designed to capture rainwater runoff from your roof so that you can use it for irrigation in your landscape. Rain barrels are inexpensive, easy to install and maintain, are well suited for small-scale residential sites, and typically range from 50 to 100 gallons.

You don't need a permit to install a rain barrel if your downspout is disconnected from the combined sewer system. If it's connected, you'll need a permit from the San Francisco Department of Building Inspection, visit [sfdbi.org](http://sfdbi.org) for more information.



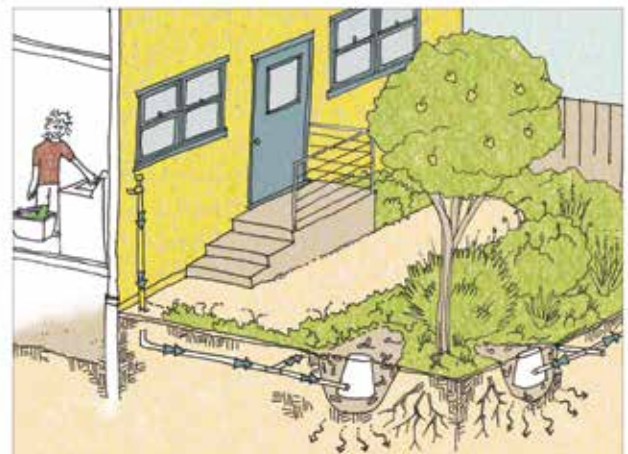
### Cisterns

Cisterns are larger than rain barrels, ranging from 100 gallons on a small residential site to millions of gallons beneath buildings and parks. They can be installed above or below ground, or even on the roof, depending upon site conditions. Water from cisterns can be stored until needed and used for irrigation and toilet flushing. To check permit requirements, visit [sfdbi.org](http://sfdbi.org).

## GRAYWATER

Graywater is water from showers, bath tubs, washing machines and bathroom sinks. It is water that contains some soap but is clean enough to water plants. Graywater systems can range from relatively simple to very complicated – some even include low-level treatment and filtration systems. In San Francisco, you can install a simple “laundry-to-landscape” graywater system without a permit. This type of system takes clothes washer water and diverts it to your landscape for irrigation. For more information on available graywater programs, visit [sfwater.org/graywater](http://sfwater.org/graywater).

Our agency has developed a technical resource for homeowners and professionals who want to install graywater systems for irrigation in San Francisco. The *San Francisco Graywater Design Manual for Outdoor Irrigation* provides a detailed step-by-step process for designing, installing, and maintaining a laundry-to-landscape system. The manual provides an overview of the benefits of graywater systems, what products to use, and operation and maintenance requirements.



SAN FRANCISCO  
**graywaterdesignmanual**  
for OUTDOOR IRRIGATION

# Designing an Efficient Irrigation System

Design your irrigation system after planning all your planting zones and hardscape areas. An efficient irrigation system applies the right amount of water to the right place at the right time. Consider these tips when selecting your irrigation methods:

- Design your irrigation system to match your plant's water-use zones.
- Choose equipment appropriate for your design, layout and type of landscape.
- Use separate irrigation valves for each water-use zone so individual scheduling is possible.
- Make sure that drip emitters or overhead sprinklers do not apply water faster than the soil can absorb.
- When designing irrigation for sloped areas, install sprinkler heads with built-in check valves at the lowest point of each station to eliminate water draining from the system.
- Check your home's water pressure. If it is greater than 80 psi, consider installing a pressure-reducing valve.



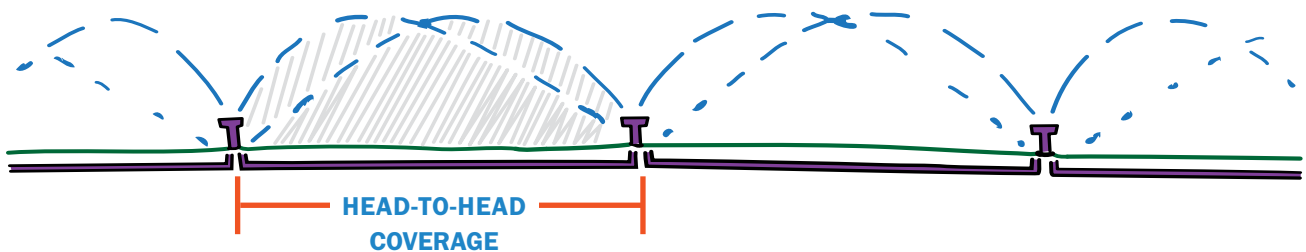
**Drip systems** apply water slowly and directly to the root zone to efficiently water trees, shrubs, groundcovers and containers. Filters and pressure reducing valves are often required.



**Soaker hoses** are inexpensive, easy to install off of a hose bib, and do well in narrow planting beds.



**Overhead sprinklers** are best used for lawns and larger, high water-use areas. They should apply water slowly and with uniform coverage. Heads should be placed so that the water from one sprinkler reaches the adjacent heads, called head-to-head coverage.





## CHOOSING THE RIGHT CONTROLLER

When connected to a well-designed irrigation system, a properly set automatic controller can do an efficient job of watering your landscape. Keep in mind that controllers only water efficiently when programmed correctly. If you have an irrigation controller but haven't thought about it in a while, it's time to reacquaint yourself with its settings and capabilities. When selecting a controller, look for these features:

- **Multiple program controllers:** allows you to set varying watering times for different areas controlled by separate irrigation valves, called stations. A drip station may need to run for one hour a week, whereas a lawn may need to be watered twice a week for 10 minutes each.
- **Multiple start times:** delivers water to your landscape in multiple short run times. For example, the controller can water a shrub bed for 5 minutes, turn off for an hour, and then water again for another 5 minutes. This allows for the soil to absorb the water while minimizing runoff. Multiple start times is also good for steep slopes, heavy clay soils, and sandy soils.
- **Battery back-up or “non-volatile” memory:** after a power outage, some controllers water every day for 10 minutes as a default. Controllers with non-volatile memory will retain their programmed schedule in the event of a power outage.
- **Water-budgeting features:** quickly lets you adjust your watering times depending on the season or weather.
- **Rain shut-off device or soil moisture sensing capability:** in the case of a rain sensor, it's a device that will automatically override the controller if significant rainfall occurs. A soil moisture sensor monitors the amount of water in the soil to determine if the landscape needs watering.



When used properly, a controller with the right features can be one of the most effective water- and money-saving tools you can buy.



## SMART CONTROLLERS

A smart controller, also known as a “weather-based irrigation controller” or an “ET controller” can automatically adjust the irrigation schedule based on your landscape needs and weather conditions. By utilizing real-time or historic weather data, smart controllers identify when the landscape needs to be irrigated, helping minimize excess water use.

A properly programmed smart controller requires initial site specific information and will make irrigation schedule adjustments, including run times and required cycles, throughout the irrigation season without human intervention. Monitoring the landscape is necessary to confirm the accuracy of the irrigation schedule once the controller is programmed.

**Tip:** Installing a properly programmed smart controller can save up to 20% on your irrigation water use.

## HOW MUCH WATER AND HOW OFTEN?

It pays to know when, how much, and how often to water your plants. A regularly adjusted watering schedule - preferably adjusted each season - can be one of your greatest water-saving practices. Efficient scheduling can help prevent runoff, encourage deep root growth and better meet plants' changing water needs.

When the weather and seasons change, adjust how much and how often you water (and adjust your irrigation controller if you have one). On warm or windy days, plants and soils dry out quicker. During cooler and wetter months, you won't need to water as often, or at all.

The amount of water needed for your garden varies depending on the season. Start at the low end of the ranges in this table, check your soil and plants regularly and make adjustments if necessary. Recommendations are for established plants.

Plant Type	Irrigation Method	Spring and Fall		Summer		Winter
		How Often	How Long	How Often	How Long	
Lawn	Sprinkler	1x / week	12-20 mins.	2-3x / week	10-15 mins.	turn off
Perennials, shrubs and groundcovers	Sprinkler	1-2x / 2 weeks	15-20 mins.	1x / week	12-20 mins.	turn off
	Drip	1-2x / 2 weeks	varies	1-2x / week	varies	turn off
Trees	Sprinkler	0-1x / month	20-30 mins.	0-1x / 2 weeks	15-25 mins.	turn off
	Drip	0-2x / 2 weeks	varies	0-2x / week	varies	turn off

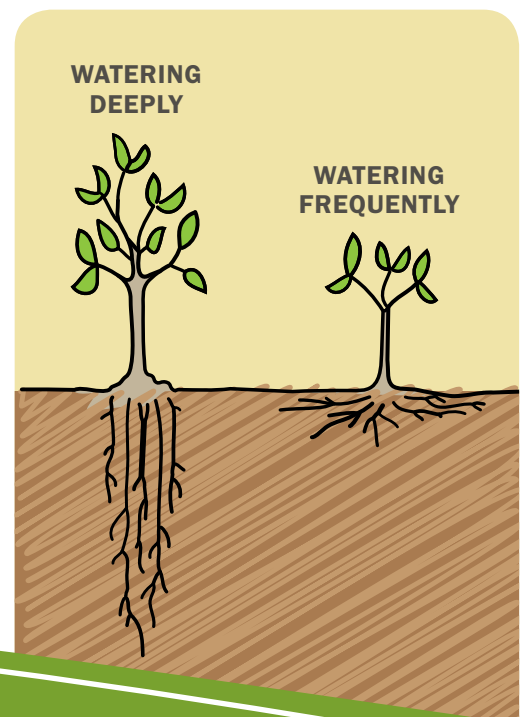
• Sprinkler run times are based on a 1-1/2" per hour precipitation rate (common for spray-type nozzles). Rotating nozzles often have lower precipitation rates, at about 1/2" per hour. Increase watering times as appropriate.

Vegetables and bedding flowers generally require less water than lawns but more than shrubs or groundcovers. California natives and plants from Mediterranean regions often require less water than the average shrubs and groundcovers. To find the water use of your plants, visit [sfwater.org/landscape](http://sfwater.org/landscape) and check out the San Francisco Plant Water Use List. The list contains over 2,000 plant species and their water use classification.

## WATER DEEPLY BUT INFREQUENTLY

Deep soakings encourage roots to utilize moisture deep in the ground, enabling plants to thrive between waterings. Not sure how much to water? Use your soil type as a watering guide ("Getting Soil Savvy" on page 8).

Soil Type	Watering Consideration
Sand	Apply water faster and more often.
Loam	Apply water at a moderate rate but less often than for sandy soil.
Clay	Apply water slowly and infrequently. If you have heavy clay soil, consider adding compost to improve drainage and aeration.







## WATERING YOUR LAWN (IF YOU HAVE ONE!)

Did you know that in California at least 50% of summer water use is attributed to landscape irrigation and most of that is for watering lawns? Even in San Francisco's urban setting with smaller than average lot sizes, there are many residential neighborhoods with lawns.

On average, lawns need to be watered about once every three days to remain healthy and green. You may need to water more frequently if your lawn soil is compacted, if the lawn has a thick layer of thatch, or if it is on a slope. Ideally, you should aerate or dethatch so water can percolate through the soil. If that is not possible, you may need to water every other day during the warm summer to fall months, but use shorter watering times.

To look their best, lawns need constant upkeep, including regular mowing and aeration.



Raise the mowing height of your lawn mower to encourage a more extensive root system. For bluegrass and tall fescue lawns, set your lawn mower to cut two to three inches high.

Aeration allows water to penetrate and percolate downwards to grass roots. It promotes efficient use of water and also reduces soil compaction. To aerate, invest in a hand aerifier or a pair of aerating shoes. You can also rent an aerifier or pay a service to aerate your lawn. You may need to aerate more frequently depending on the amount of foot traffic on your lawn.



Dethatching, or removing undecomposed grass stems, leaves and roots, is important because this layer prevents air and water from entering the soil, leading to plant disease and water waste due to runoff. Dethatch a small lawn with an iron rake or for larger lawns, rent, purchase or pay a service to use a vertical mower, which cuts through the thatch with a series of revolving blades. Remove thatch during the growing season so the grass has an opportunity to recover.

## Tips for More Effective Watering

- Apply only the amount of water the soil can absorb at any one time. Stop watering before runoff or puddling occurs. You may need to divide the irrigation time into several shorter periods or cycles.
- Before watering again, allow the top several inches of soil to dry and then water again for the same amount of time. A handy tool to check root depth and soil moisture levels is a soil probe. You can pick one up at a local hardware or irrigation supply store.
- Get to know your plants' signals for water. If moisture is low, grass tends to lie flat under footprints. Some plants lose their luster and begin to droop before wilting. It's best to water before the onset of such stress.



# Maintaining Your Water-Wise Garden

A small amount of regular maintenance throughout the year is all your garden needs to look great. Follow the tips below for an effective maintenance plan.

## CHECKING YOUR IRRIGATION SYSTEM

Clogged, leaking or misaligned drip emitters and sprinkler heads can waste a lot of water – and money. Be a water-wise home gardener throughout the year with these simple tips:

- Since you're irrigating in the late evening or early morning, it's hard to know if there are malfunctioning components to your system. At least once a season, check sprinklers and drip emitters for clogs, leaks and faulty heads that may be broken or misdirected. Repair or replace as needed.
- Clean drip emitter filters twice a year.
- Look for wilting trees, shrubs and groundcovers and for dry or brown spots in the lawn. These signs could point to inadequate water coverage by your irrigation system.



## ADJUSTING YOUR CONTROLLER

Adjust your controller schedule seasonally and remember to turn your controller off for the winter months. It's a good idea to replace your controller battery every six months.

## PRUNING

Pruning can be a regular part of your gardening routine rather than a yearly ordeal. Periodically prune portions of your plants that are dead, diseased or damaged.

To direct growth, lightly prune during the winter months before spring begins.

## WEEDING TIPS

- Pull weeds when shoots first appear, before they set seed.
- It's easiest to pull stubborn weeds when the soil is damp.
- To keep weeds down, use mulch consistently.







Start your own backyard compost pile with kitchen scraps (no meat), garden and lawn clippings, strips of newspaper and a little soil. Check your local library, garden center, or the internet for a how-to composting guide, or attend a class at Garden for the Environment.

## FERTILIZING

Fertilizers, especially organic-based ones, can work wonders for your garden. But too much fertilizer can damage plants and result in environmental degradation and water pollution in our Bay and Ocean. Consider the following tips if you are going to fertilize:

- Fertilize only as needed, when growth is less than normal or if color appears pale.
- Apply fertilizer near the plant roots to reduce impact to our environment.
- Opt for organic fertilizers, such as aged and dried manure, cottonseed meal and dried blood meal.
- Try a low-nitrogen, slow release fertilizer.
- Use compost! One of the best, easiest and cheapest forms of fertilizer is compost – it improves soil quality over time, reducing the need for outside fertilizer and keeps soil moisture at an optimum level year around.

## PEST CONTROL

Insects, snails and other critters – some beneficial, some harmful – are an integral part of any garden. Sometimes the most effective methods of controlling pests are also the simplest. As with other maintenance, pest control should be part of your gardening routine.

Begin by using simple physical control measures, such as handpicking and setting traps and barriers. Try biological control measures by introducing predatory insects, such as aphid-eating green lacewings or ladybugs, understanding that beneficial bugs will remove more undesirable bugs than any pesticide. Check with your local garden center as they may have others to recommend.

As a last resort, control with chemicals. Choose the least toxic products available (such as insecticidal soaps, horticultural oils, silica gel and diatomaceous earth), but follow directions and use sparingly.

If you have questions on how to control pests in the least harmful way, please visit the Our Water, Our World (OWOW) website at [ourwaterourworld.org](http://ourwaterourworld.org). Our agency sponsors the San Francisco OWOW Program at a variety of local gardening and hardware stores. Check the OWOW website for a list of participating stores.



# Putting It All Together

**CLIMATE APPROPRIATE PLANTS** are used throughout this landscape in hydrozoned areas to reduce water needs

**LAUNDRY-TO-LANDSCAPE GRAYWATER SYSTEM** is installed on the clothes washer in the garage to irrigate the moderate water-use plants along the walkway

**PERMEABLE PAVING** captures rainwater runoff and allows water to percolate back into the ground

**RAISED FRUIT & VEGETABLE BEDS** are irrigated with drip irrigation

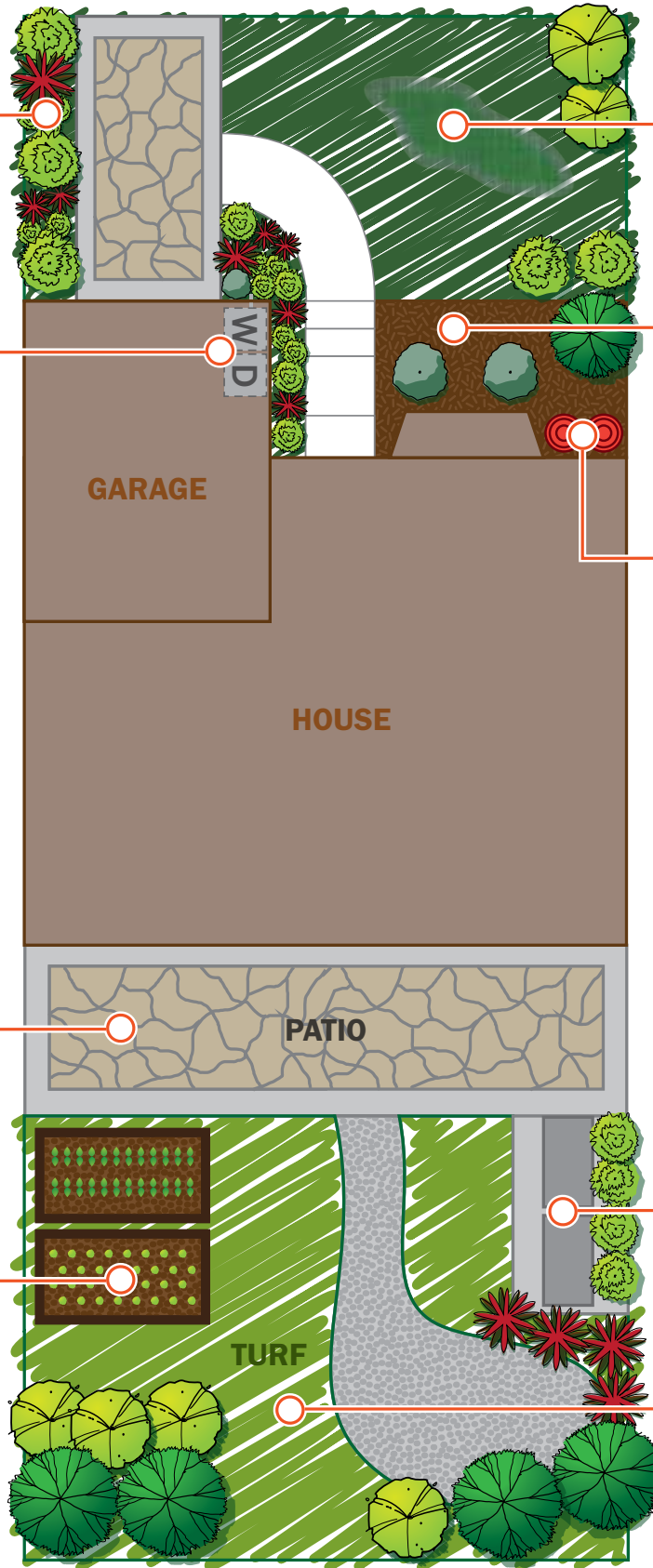
**LOW WATER-USE GROUNDCOVER** is durable for a front yard that doesn't get high foot traffic and requires less maintenance and water than a traditional lawn

**MULCH** extends the water applied to your plants and helps suppress weed growth

**RAINWATER HARVESTING** is used to irrigate the front yard shrubs

**COMPOST BINS** collect green waste like plant and grass clippings as well as indoor compost like food scraps or soiled paper

**TURF** containing a fescue mix can withstand moderate foot traffic while reducing watering requirements





# Landscape Requirements for San Francisco

## WATER EFFICIENT IRRIGATION ORDINANCE

Landscape and irrigation requirements have been developed under the San Francisco Water Efficient Irrigation Ordinance for all new or modified landscape projects over 1,000 square feet. The ordinance helps property owners design, implement and maintain efficient irrigation systems, utilize low water-use and climate-appropriate plants, and establish a water budget to keep landscapes healthy. Compliance with the ordinance is based on the square footage of your project's landscape area:



### Tier 1

New or modified landscape projects with the following design elements must submit a Tier 1 self-certification application to the SFPUC:

- Landscape project area of 1,000 to 2,500 square feet;
- Lawn area not exceeding 25% of total landscape area; and
- 75% of landscape area consists of low water-use or climate-appropriate plantings.

The Tier 1 landscape application includes the selection of low water-use or climate-appropriate plants and confirms the project's use of efficient irrigation components.



### Tier 2

New or modified landscape projects with following design elements must submit a Tier 2 application and supplemental documentation to the SFPUC:

- Landscape project area of 2,500 square feet or more;
- Tier 1 landscapes exceeding the 25% lawn requirement; and
- Tier 1 landscapes with less than 75% low water-use or climate-appropriate plantings.

The Tier 2 application includes the submittal of a planting plan, irrigation plan, grading plan, soil report and a worksheet for calculating the project's annual water budget.

For more information on San Francisco's landscape requirements, visit [sfwater.org/landscape](https://sfwater.org/landscape)



# Resources for Your Water-Wise Garden

## FREE GARDENING CLASSES

The SFPUC sponsors free gardening workshops to help San Francisco residents create and maintain beautiful and water-efficient gardens. Classes are held at Garden for the Environment, a half-acre organic community garden located at the corner of 7th Avenue and Lawton Street. Workshop topics include:

- Rainwater Harvesting
- Organic Garden Design
- Water-Wise Gardening
- Natural Pest Management
- Lawn Alternatives
- Growing Your Own Food
- Permeable Hardscape
- Irrigating with Graywater
- Urban Composting

To view upcoming workshop dates and pre-register for a class, visit [gardenfortheenvironment.org](http://gardenfortheenvironment.org)

## WATER-WISE EVALUATIONS

The SFPUC provides free indoor and outdoor water use evaluations for your home or business. A water conservation professional will analyze how you use water, check for common household leaks, provide tips, tools, and free devices for saving water and let you know about current rebate and incentive opportunities. To schedule your free evaluation, contact the SFPUC Water Conservation Section at **(415) 551-4730**.



This beautiful water-wise garden located at Garden for the Environment requires very little water to thrive by using water-efficient landscape design and irrigation practices.







## MY ACCOUNT

Automated water meters installed throughout San Francisco can now provide customers access to their daily water use, helping monitor and detect leaks faster than with manually-read meters. By registering with the SFPUC's new online tool, My Account, you can download daily and monthly water use reports, compare your consumption to other San Francisco households of similar size, and track your conservation progress. To register for My Account, visit [myaccount.sfwater.org](http://myaccount.sfwater.org)



## CONTACT US

Visit [sfwater.org/landscape](http://sfwater.org/landscape) for more tips and ideas on establishing your water-wise garden. Here, you can:

- Search over 2,000 plant species on the San Francisco Low Water Use Plant List including shrubs, groundcovers, trees, and vine species that need little to no water once established.
- Learn about the latest programs and incentives for water-wise gardening such as discounts on rain barrels, cisterns, and graywater kits.
- Find out which pest and weed control products are safe to use in the garden without sending harmful pollutants to our combined sewer and stormwater system.

For more information on our landscape programs and other water conservation services, contact the SFPUC Water Conservation Section:

[waterconservation@sfwater.org](mailto:waterconservation@sfwater.org)

[sfwater.org/conservation](http://sfwater.org/conservation)

(415) 551-4730





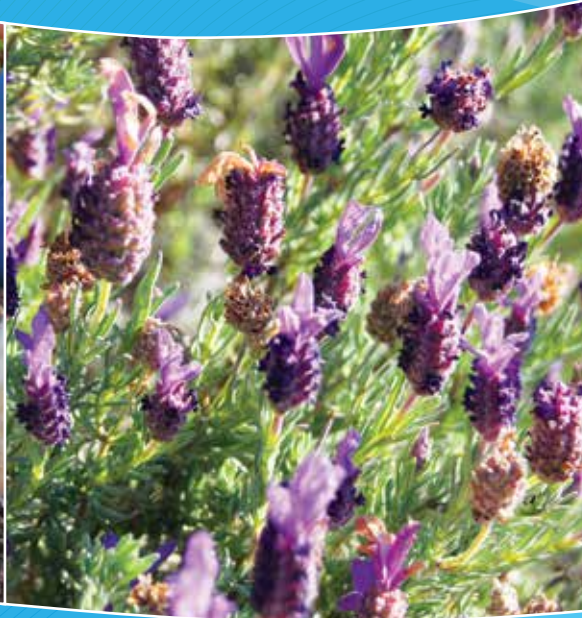
# San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

San Francisco Public Utilities Commission  
Water Resources Division  
525 Golden Gate Avenue  
San Francisco, CA 94102

[sfwater.org/conservation](http://sfwater.org/conservation)

## Water-Wise Gardening for San Francisco



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