

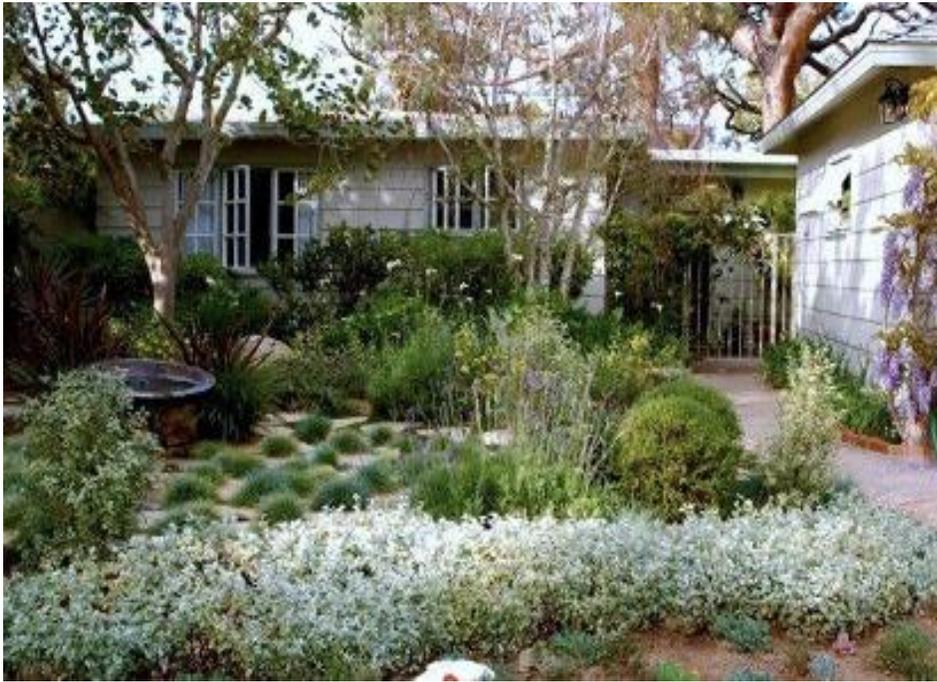
# Water

*Solutions for sustainable water use practices and water conservation*



# Landscape Design Assistance

*A free or discounted landscape analysis service can help commercial and residential customers transition to water-efficient landscaping*



## The Impact

A landscape design assistance program supports water conservation by supporting water customers' transition from turf lawns to water-efficient landscaping. Many cities offer turf conversion rebates that are often underutilized, primarily due to their cost. Supplementary design assistance programs increase participation in these programs and make attractive, user-friendly and sustainable lawns more accessible. Sacramento's program has yielded high participation, receiving about 10 applications per month in its first two years (and a total of 324 applications as of July 2020).

## Where It's Been Implemented

Many jurisdictions in California offer these programs. Menlo Park launched a landscape analysis program in 2014 for commercial and multi-family customers. In Sacramento, a similar reimbursement is available for single-family participants in its turf rebate program. Other water districts with such programs include the Contra Costa Water District, the Chino Basin Water Conservation District (for single-family customers), the Solano County Water Agency (for disabled persons and low-income seniors), Santa Clarita Valley Water and Aurora, Colo.

## Description

California's Model Water Efficient Landscape Ordinance (effective 1993, updated 2015) requires cities to regulate water conservation for new or renovated landscapes, but cities can go above and beyond this law by encouraging water customers to transition to a water-efficient landscape. Many San Mateo County water districts already participate in the Bay Area Water Supply and Conservation Agency's (BAWSCA's) Lawn Be Gone program, which offers a rebate of \$1 to \$4 per square foot of turf removed from lawns. The amount offered is determined by each jurisdiction. A free or discounted landscape analysis program can increase participation in programs like these by facilitating the process.

In Sacramento, for example, single-family home or duplex customers pay up to \$150 for a two-hour landscape design consultation from a city-approved designer, and the amount is later reimbursed by the city. Sacramento found the largest return on investment was from residences because businesses eligible for turf conversion rebates usually already have resources for landscape design, but turf is the largest form of water consumption for residences. Meanwhile, Solano County offers similar design assistance specifically to disabled or senior and low-income residents.

## Key Drivers

Nearly 9 billion gallons of water are used on residential landscaping in the United States each day, comprising as much as 30 percent of a household's water use. Water-efficient landscaping plays a crucial role in California's response to drought. Replacing turf with native, drought-resistant plants saves water, requires lower maintenance and honors the natural beauty of the region. However, landscaping can be a daunting task for property owners. Water customers often lack the time and ability to navigate resources for turf conversion or fill out required materials such as plant lists and yard sketches, leading to poor use of turf conversion rebates that are effective yet costly for cities. Design assistance is a solution to this problem.

## Key Factors for Success

Strong marketing is crucial for this program to make an impact. A city could send emails, include information about the program in its water quality report and create bill inserts to spread the word.

A list of city-approved landscape designers who are willing to participate must also be created. Your city may want to collaborate with local designers or reach out to an organization such as the Association of Professional Landscape Designers for insight on the structure of the program from a designer's point of view. It is important to point out that designers can gain publicity and new, long-term customers through this program.

## Key Obstacles

Limited funding may be an obstacle to the implementation of this program. BAWSCA's Lawn Be Gone program may be expensive for some cities, and reimbursing homeowners for the cost of landscape design introduces an extra cost. Yet helping customers transition to water-efficient landscaping could prove a crucial step in your city's water conservation. One

approach is to set a budget and offer the service to residents on a first-come, first-served basis as long as the funding lasts.

Finding willing designers with expertise in this area can also be difficult. Some designers' going rates can be up to \$300 per consultation, so some may not be willing to consult for a discounted rate. Sacramento finds \$150 for a two-hour consultation to be the sweet spot between accessibility for customers and a reasonable rate for designers. Creating a menu of options, where customers can opt for additional services for an increased price, may be another way to support designers while keeping the program accessible

Finally, ease of use and initiative for customers can be an obstacle. Customers might not understand or have the incentive to complete the application process swiftly. Sacramento has considered addressing this issue by making document submission a prerequisite to lawn pre-inspections.

### **Timeline to Implementation**

The speed with which a program is implemented will depend on each city's capacity. Sacramento discussed the project for a year before implementing it. Time-consuming factors may be discussing logistics of the program and identifying willing landscape designers.

### **References and Resources**

Roshini Das, Sustainability Manager, Utilities, City of Sacramento,  
[RDas@cityofsacramento.org](mailto:RDas@cityofsacramento.org), 916-808-6270

[California's Model Water Efficient Landscape Ordinance](#)

[Menlo Park's rebates and incentives for water conservation](#)

[Sacramento's landscape design assistance program](#)

[Sacramento's turf rebate program](#)

[Contra Costa's comprehensive Landscape Resources page](#)

[Contra Costa's landscape design assistance program](#)

[Chino Basin landscape design assistance program](#)

[Solano County landscape assistance program](#)

[Aurora, Colo., landscape design program](#)

[BAWSCA's Lawn Be Gone program](#)

[Association of Professional Landscape Designers](#)

# Rain Barrel Rebate

*Financial incentives can increase rainwater reuse*



## The Impact

Rainwater reuse is a simple, cost-effective way for water customers to engage in water sustainability. Just 1,000 square feet of roof surface can capture 625 gallons of water per inch of rainfall. Based on these numbers, depending on the size of a rain barrel and how often it is utilized, a San Mateo County (Calif.) household could save more than 11,000 gallons per year. Harvesting rainwater using a rain barrel not only saves money and water for irrigation, but also helps prevent stormwater pollution from urban runoff and moderates flooding.

A rebate on water barrels, coupled with workshops and public education, will encourage city residents to participate in this form of water sustainability. During fiscal year 2018-2019, San Mateo County residents submitted 32 applications for 42 rebates, with a total of 1,267 rain barrels installed in the county under the program since it began in 2014.

## Where It's Been Implemented

As of August 2020, only 11 cities participated in the rain barrel rebate program offered by the Bay Area Water Supply and Conservation Agency (BAWSCA), eight of which were from San Mateo County: Belmont (via the Mid-Peninsula Water District), Brisbane, Burlingame, Daly City, Millbrae, Pacifica (via the North Coast County Water District), Redwood City, and the City of San Mateo.

## Description

Rain barrels capture roof runoff to be saved and used for irrigation or other non-

potable purposes. While rain barrels capture only part of a roof's runoff, they are a cost-effective step for implementing water reuse into daily life.

BAWSCA hosts a rain barrel rebate program in which any of its member agencies can participate. Since rain barrels can be purchased locally starting at around \$80, this rebate of up to \$200 allows customers to install rain barrels at little or no net cost. Single-family residential customers can get up to two rain barrel rebates, and commercial customers can receive up to four. Participating agencies' responsibilities include agreeing to the program rules and conditions, distributing materials, processing rebates in their service area and submitting program data to BAWSCA. To participate, a water agency must sign an agreement and commit to funding the rain barrel rebates up to \$50 per rain barrel.

Cities in San Mateo County can especially benefit from BAWSCA's program due to a partnership between BAWSCA and the county's City/County Association of Governments (C/CAG) through C/CAG's Flows to Bay program. Through this partnership, all San Mateo County residents can receive rebates starting at \$50, funded by Flows to Bay. A water agency's participation in BAWSCA's program increases the rebate in its service area by an additional \$50.

Through the C/CAG collaboration, BAWSCA began offering larger rebates based on the size of the rain barrel, up to a combined \$200 from BAWSCA and Flows to Bay, rather than \$100. This new aspect incentivizes greater rainwater reuse.

### **Key Drivers**

In the face of droughts and climate change, water conservation remains a priority in California. Comprising nearly a third of residential water use, landscape irrigation takes up valuable drinking water. Using alternative water sources for landscape irrigation is an area where many water customers can take action. Rainwater may even be healthier for landscaping because it doesn't contain the additives present in sanitized water, which accumulate in the soil over time.

Meanwhile, pollution from urban runoff poses a threat to local creeks, bays and the ocean. Excessive rainwater can also contribute to land erosion, moisture in building foundations and seasonal flooding. By diverting rainwater for reuse, customers can mitigate these harmful impacts as well.

### **Key Factors for Success**

The primary factors for the success of a rain barrel rebate program are awareness and instructive resources. BAWSCA and Flows to Bay both offer free flyers for cities and workshops for customers. Immediately after free rain barrel workshops hosted by Flows to Bay in 2018, a combined 84 percent of 56 survey respondents who attended the workshops reported they were considering purchasing a rain barrel. Three months after the workshops, 84 percent of 19 respondents reported they were still considering purchasing a rain barrel, while 21 percent had already purchased one.

### **Key Obstacles**

Although the program saw high agency participation during the peak of the 2011-

2019 drought, it subsequently lost member agencies as a result of “conservation fatigue.” Previously low customer participation might discourage member agencies from putting in the effort required for staff training, publicity and rebate processing. Although BAWSCA doesn’t charge for the program’s operation, water agencies are responsible for funding rebates.

Customers may not participate because rain barrel installation requires time and commitment, or simply because they’re unaware that rain barrels are a cost-effective possibility. For these reasons, effective publicity and education can prove essential.

### **Timeline to Implementation**

Implementation of a rain barrel rebate program is straightforward. After a water agency signs a participation agreement, the main initial time demand is a few hours of staff training, as well as advertising for the program.

### **References and Resources**

Negin Ashoori, Water Resources Engineer, BAWSCA, [nashoori@bawsca.org](mailto:nashoori@bawsca.org)

[Flows to Bay’s Rain Barrels and Rebate Program webpage](#)

[BAWSCA’s Rain Barrel Rebate webpage](#)

[BAWSCA’s rebate portal](#)

[BAWSCA’s Rain Barrel Rebate Application for San Mateo County](#)

# Recycled Water Ordinance

*Requiring the use of recycled water for irrigation, landscaping and toilet flushing can result in dramatic water savings*



## Impact

Increasing the use of municipal recycled water, thus reducing the amount of freshwater that is wasted, accelerates the transition to a more sustainable water system.

## Where It's Been Implemented

Palo Alto, Mountain View, Menlo Park, Redwood City and San Francisco currently have ordinances requiring the use of recycled water for certain purposes.

## Description

Water and sanitary districts across the United States collaborate to treat and redistribute recycled water. In California alone, more than 170 billion gallons of water are recycled each year. Recycled water is treated wastewater that can be used safely for certain non-potable purposes, such as irrigating public parks, playgrounds, sports fields, golf courses, and even gardens and crops, as well as dust control or surface cleaning of roads and construction sites, and cooling water.

"Dual plumbing" systems allow municipal buildings to use recycled water indoors by distinguishing potable water for drinking and washing purposes from recycled water for

toilets and urinals. Pipes carrying recycled water to properties, such as golf courses and businesses, are often called “purple pipes” due to their lavender color, which allows people to easily distinguish them from pipes carrying potable water.

A recycled water ordinance can regulate the use of recycled water infrastructure. For example, Palo Alto’s ordinance requires “identified customers” within areas with purple pipe infrastructure to use recycled water for irrigation (excluding single-family homes). If these properties have dual plumbing, they must also use recycled water for flushing. The ordinance requires new land use or building permit applications for properties of a certain size to show plans to use recycled water and include dual plumbing. It also instructs customers to pursue a recycled water permit if recycled water is available to them. Exemptions may be made if existing landscaping could be harmed by recycled water. Failure to comply with the ordinance could lead to a surcharge on water or discontinuation of irrigation water.

### **Key Drivers**

Cities often begin recycled water projects in response to excess demand for water, excess wastewater beyond what can be treated and released into a bay or ocean, or for sustainability reasons.

Water sustainability is one of the most pressing issues in California today. There is no reason to use potable freshwater for purposes such as irrigation, flushing, cleaning, cooling systems and certain industrial processes, when water is becoming a more valuable and scarce global resource. An ordinance requiring the use of recycled water for landscaping, irrigation and flushing is a great start to conserve freshwater and help ensure your city’s water resilience.

### **Key Factors for Success**

Support from local leaders and public support is important and will likely require education on the safety, cleanliness and types of usages of treated, recycled water. Palo Alto offers an FAQs handout to assuage public fears (see Resources below). Mountain View highlights the benefits of recycled water, ensures customers a clear, easy process, establishes lower fees for recycled water and guarantees that the transition won’t impact performance in any way.

This ordinance only makes sense for cities where recycled water is already supplied in at least part of the city. A city’s decision to install or expand recycled water pipelines usually depends on a variety of factors. One of these is having enough customers who can use and afford them, such as big developments, major landscaping projects or business/industrial parks.

Collaboration with the city’s building department and resources for engineers on recycled water standards are also important factors for facilitating dual plumbing.

### **Key Obstacles**

The up-front cost of purple pipe infrastructure to a city or its water agency, as well as the cost of dual plumbing to developers, remain obstacles to an expansive recycled water

system that would make a recycled water ordinance effective. Different approaches will work for different cities. Centralized and decentralized recycled water systems may work in concert with other approaches such as potable reuse, depending on a city's needs and water customers.

Another obstacle may be concern for the safety of recycled water for humans, such as lawns where children play. While recycled water should not be directly sprayed on people, a lawn irrigated with recycled water is perfectly safe, as treatment standards should easily meet or exceed standards for uses such as irrigation.

### **Timeline to Implementation**

An ordinance can be passed quickly. For example, Palo Alto's ordinance was passed less than one month after it was introduced and went into effect 31 days after its adoption. The timeline to implementation at the facility level, however, can require time for retrofitting projects with dual plumbing and connecting to the recycled water pipeline.

### **References and Resources**

Samantha Engelage, Senior Engineer, Environmental Services, Palo Alto,  
Samantha.Engelage@CityofPaloAlto.org, 650-329-2123

Justin Chapel, Public Works Superintendent, City of Redwood City,  
jchapel@redwoodcity.org, 650-780-7469

Salman Husaini, Assistant Engineer, City of Mountain View,  
Salman.Husaini@mountainview.gov, 650-903-6238

[Palo Alto Ordinance for Recycled Water Use](#)

[Palo Alto's FAQs on Water Reuse](#)

[Mountain View Ordinance for Recycled Water Use](#)

[Redwood City Ordinance for Recycled Water Use](#)

[San Francisco Brochure on Recycled Water Ordinance](#)

["Wastewater Becomes a Resource in Silicon Valley," KQED, April 6, 2016](#)

[The WaterReuse Association](#) (trade association webpage with helpful resources)

["Expanding San Diego's Water Supply," San Diego Union-Tribune, January 11, 2015](#)

# Satellite Water Treatment Facility

*Satellite plants provide an effective way to secure access to recycled water*



## The Impact

Satellite water treatment plants are an ideal solution for businesses looking to improve water resilience when they are far away from treatment plants and centralized recycled water pipelines. In 2020 the Sharon Heights Golf and Country Club facility in Menlo Park, Calif., completed construction of a satellite treatment facility. This plant will replace up to 400,000 gallons of freshwater a day with recycled water that would otherwise be treated and released into San Francisco Bay.

Satellite plants offer a more reliable non-potable water supply to businesses while opening up freshwater supply to the rest of users' water districts. By treating water closer to its source and next to its destination, satellite plants and their pipelines also form smaller, more energy-efficient circuits. The Sharon Heights project is expected to pay for itself within seven years. As most central water treatment plants in the Bay Area are also at risk of becoming disabled due to sea level rise, inland satellite treatment facilities are sustainable options for wastewater services.

## Where It's Been Implemented

Sharon Heights Golf and Country Club (SHGCC) partnered with the West Bay Sanitary District (WBSD) to construct a satellite facility on Sand Hill Road in Palo Alto, Calif. Similar

projects exist in Southern California, but the SHGCC plant is the first satellite plant in Northern California that uses more advanced technology. It uses a small-footprint membrane bioreactor rather than a sequencing catch reactor.

### **Description**

For large water customers with high non-potable demand that are located far from centralized recycled water pipelines, satellite treatment facilities represent an investment in a practical and sustainable water supply. A business, alone or with a group of nearby businesses, can collaborate with a sanitary district on a plan to construct a nearby plant that extracts water from municipal sewage pipes to treat and redistribute through a pipeline to your property. This water would be used for landscape irrigation, toilet and urinal flushing, and other approved non-potable uses. Due to its high salinity, the business or group of businesses would want to first test recycled water on hardier plants before using it to irrigate more vulnerable plants such as redwoods or golf greens. Future phases could expand pipeline access to other customers.

Although the sanitation district would not pay for the facility, this public-private partnership may allow the project to secure federal grants and loans. The business and other users of the pipeline would cover capital payments as well as operations and maintenance (O&M). In return, the business wouldn't receive a water bill from the potable water purveyor for this water.

### **Key Drivers**

Businesses with high non-potable water demand can suffer from regional water shortages and restrictions during increasingly harsh dry seasons and droughts. Many seek alternative, more resilient water sources. Satellite treatment facilities may be the most feasible and offer the most benefits, especially if a business is far from central plants and recycled water pipelines and is located in a zone with other industries nearby, such as a business or industrial park. Compared to expanding a centralized recycled water system, constructing a satellite facility can save money and energy while ensuring a sustainable, non-potable water supply.

### **Key Factors for Success**

The location of the plant, overall demand and quality of the local wastewater will play roles in a satellite treatment facility's effectiveness. The business should make sure there are enough users and/or enough demand to sustain a satellite treatment facility. The satellite plant should be nearby, especially if the business is on a hill, to save energy associated with pumping. The SHGCC plant is particularly effective because it treats water from a primarily residential local neighborhood, circumventing the issue of high salinity from industrial wastewater collected closer to the central facility.

Additionally, a design-build product delivery can save time and money. Instead of hiring a designer and putting a separate bid out for a contractor, a designer and contractor would work together, and construction could begin before designs are finalized.

## Key Obstacles

Identifying an investor or group of investors willing to pay for a project can present a major obstacle. Only some businesses will find satellite treatment facilities worth the cost. SHGCC paid about \$17 million for construction and will continue to cover the costs of operations and maintenance.

Besides the first step of gaining interest from a sanitary district, negotiating loans and grants can be an obstacle. Attaining necessary permits presents yet another obstacle. The business may need to negotiate with the state water board and department of drinking water and transportation authority, among other agencies.

## Timeline to Implementation

Securing loans and agreements may take a few years, and construction may take a year or more. SHGCC and West Bay Sanitary District began discussing a satellite facility in earnest in 2014, announced the project in 2018 and completed construction in the spring of 2020.

## Return on Investment

WBSD predicts that SHGCC's transition to recycled water will pay for itself within the first seven years.

## Background

During the 2011-2019 drought, SHGCC realized it needed a more reliable source of non-potable water for irrigation. After learning a well wasn't feasible on its property or elsewhere in Menlo Park, it reinitiated a conversation with West Bay Sanitary District in 2014 about constructing a satellite treatment plant on Sand Hill Road. A feasibility study suggested the project would cost \$17 million (much less than expected). The project ultimately cost \$22 million, but as a public agency WBSD was able to secure a \$5 million federal grant and a 1 percent interest state loan for the rest of the project from the Clean Water State Revolving Fund. Funding came from grants from the U. S. Environmental Protection Agency and other sources. The district is now discussing the second phase of the project, which would extend the supply to the SLAC National Accelerator Laboratory and other neighbors.

## References and Resources

Sergio Ramirez, District Manager, West Bay Sanitary District,  
sramirez@westbaysanitary.org, 650-321-0384

[West Bay Sanitary District's Recycled Water page](#) (includes links)

[West Bay Sanitary District's "Recycled Water Project – Sharon Heights" Description](#)

[West Bay Sanitary District's Final Facility Plan Report](#)

# Streamlined Residential Gray Water Use

*Simplifying requirements for gray water systems can encourage residents to participate in water reuse and conservation*



## The Impact

By adopting an accessible permitting policy for gray water use and providing resources on safe practices and the installation process, cities can demonstrate support for gray water, speed up implementation of residential gray water projects, and increase public education and active participation in water sustainability.

## Where It's Been Implemented

The City and County of Santa Barbara has played a major role in California's acceptance of gray water systems. It was the first jurisdiction in the state to allow permit-exempt simple gray water systems using shower water in 2015, and it published a handbook of safe practices in 2017. Marin County has also made simple systems permit-free and provides several resources on its website. San Francisco requires permits for systems other than laundry-to-landscape connections but offers a rebate and a manual.

## Description

Gray water is lightly used water, including water from laundry, showers and bathroom sinks, but not toilets or kitchen sinks. Altogether, gray water makes up 50 to 80 percent of

residential wastewater. This water can be reused safely for purposes such as landscape irrigation.

In 2009 California updated its plumbing code to allow laundry-to-landscape systems to be installed without a permit. Other simple gray water systems (direct, isolated connections with a discharge capacity of 250 gallons per day or less) can be permit-free at the discretion of the local permitting agency in coordination with the corresponding water provider. Residential gray water systems, particularly simple systems, present little health risk, yet many cities still require permits for all projects except laundry-to-landscape ones and do not provide resources for customers to consider and navigate this process. Many cities' websites don't even mention the possibility of gray water projects or that no permit is required for laundry-to-landscape systems.

Santa Barbara and other cities have addressed this issue by not only making both laundry-to-landscape and simple systems permit-free, but also by providing information for customers interested in both simple and complex gray water systems. Through these resources, customers can determine their interest in a gray water system, whether their project needs a permit and the proper steps toward implementation.

On its Graywater and Rainwater webpage, the Santa Barbara includes links to the county's extensive handbook on safe gray water use, simple system registration, a complex system permitting guide, the state plumbing code and other resources. The city also offers classes and installation workshops for interested customers. These programs increase participation and ensure safety by discussing the long-term maintenance and attention associated with these systems. In the past, the Santa Barbara also offered rebates on three-way valves and other pieces of simple gray water systems.

### **Key Drivers**

Gray water systems offer an exciting way for water customers to participate in water sustainability, opening the door to increased awareness and reduction of water use. However, a complicated and expensive permitting process can prevent interested customers from undertaking this water-saving project.

In most cities, few customers know about the option of gray water systems. Those who do are often unsure how to initiate this process and are easily discouraged by lack of information and guidance. Meanwhile, when even the simplest gray water systems cost roughly \$800 to install, the additional permit fee can be enough to dissuade interested customers. A simplified permitting process and extensive resources and guidance can encourage widespread participation.

### **Key Factors for Success**

A city and its residents should understand that installing a simple gray water system is not a primary water saving source. For example, merely directing shower, bathroom sink and laundry water to landscaping may only result in 6 percent savings. A "systems approach" that treats gray water as the "central hub" for optimizing various water-saving strategies can save up to 10 times more water, achieving a 60 percent savings. Those additional measures include using rainwater and stormwater on plants, recycling rainwater

to toilets and laundry use, installing water-efficient fixtures and adopting water-efficient habits.

### **Key Obstacles**

Often a city hasn't made the switch to a no-permit process for simple systems simply because the topic has never demanded attention. But regulating the safety of no-permit gray water systems is important. While sickness from gray water has never been documented as a pressing health issue, especially to pets and younger children, it is essential to make sure customers don't allow gray water to run off the property and, instead, ensure it is contained by a mulch basin. To avoid potential contamination of the potable water system, city officials can collaborate with their water agency to provide information on safe practices for customers and/or gray water installers. Streamlining the process and providing resources increases safety in the implementation of these projects.

Gray water systems currently demand money, time and personal investment that prevent them from becoming widely accessible. However, streamlining the process for customers who are interested makes residential water reuse easier and engages residents in water sustainability.

### **Timeline to Implementation**

While a city's resources for gray water can be expanded over time, the timeline for expanding no-permit gray water options depends primarily on how frequently the city modifies its building code.

### **References and Resources**

Madeline Wood, Water Conservation Supervisor, City of Santa Barbara,  
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[California Plumbing Code, Chapter 16](#)

[Santa Barbara: Graywater and Rainwater](#)

[Santa Barbara: County Graywater Handbook](#)

[Santa Barbara: Free Registration of Simple Graywater Systems](#)

[Santa Barbara: Guide to Permitting a Single Family Graywater System](#)

[Marin County: Graywater Systems](#)

[San Francisco Water Power Sewer: Graywater](#)

[San Francisco: Graywater Design Manual for Outdoor Irrigation](#)

[Greywater Action: Homepage](#)

["Greywater Reuse for Irrigation Is Safe, Study Shows," Science Daily, December 16, 2015](#)

# Other Solutions to Explore

## On-Site Water Reuse for Businesses



On-site non-potable water reuse systems will makes buildings more self-sufficient in water use. These systems treat water from or surrounding a building (blackwater, gray water, stormwater or rainwater) to be reused in the same building for purposes such as toilet flushing, cooling towers, laundry and irrigation. Up to 50 percent of water demands in multifamily residential buildings and 95 percent in commercial buildings are non-potable, creating a large potential for water reuse. These systems also save money. Depending on the project, businesses tend to see returns after four or five years, making the systems financially sustainable.

The emerging startup Epic CleanTec offers an on-site solids recovery and treatment system that facilitates water treatment while converting organic solids into soil. After running trials at Stanford's Codiga Resource Recovery Center (shown above), the company successfully finished its pilot in 2020 (based in a residential tower in San Francisco, with a processing facility and garden nearby) and has begun to discuss contracts.

Due to the scale and cost of construction, operations and maintenance, on-site reuse systems primarily make sense for large development projects. These systems may become common in cities with large buildings such as San Francisco, which adopted an ordinance in 2012 requiring large development projects to incorporate on-site water reuse. For these

reasons, rather than viewing on-site or decentralized water reuse as a replacement for centralized recycled water systems, cities, agencies and businesses should pursue a patchwork of water solutions and collaborations, considering the needs and features of each municipality.

## Comprehensive City Water Conservation

Even when a city isn't experiencing a drought, it makes sense to consider creative ways to cut back on municipal water use. Here are some modeled by the California cities of South San Francisco and Menlo Park:

- Train staff involved with civic landscapes on water efficient landscaping through [Rescape's Maintenance Qualification Training](#).
- Ensure meridian landscaping is water-efficient.
- Wash city cars less often (a practice that saves Menlo Park 78,000 gallons a year).
- Use stormwater to clean sidewalks (Menlo Park saves 10,000 gallons a year).
- Use water from water main flushing to run city fountains (Menlo Park saves 2,000 gallons a year).