

# Water Conservation

“Every time water is wasted, money and a precious resource go down the drain.”

California Water Plan  
Update 2005



## The Need for Water Conservation in California

Our population is growing rapidly – with 12 million more residents coming to California by 2030 – but our water supplies are fixed and limited. If the current per-capita water use of 230 gallons per day remains constant, we will need to increase our water supply by 40% in the next 25 years.

However, there is no “new source of water,” and California is threatened with a loss of the water we already have. Water from the Colorado River for use by Southern California communities is being reduced. Concerns about groundwater contamination are limiting existing water supplies throughout the state.

Future growth might require even more water. Half of the new growth in the state will occur in inland regions where drier climates increase water needs for landscaping.



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# Water Conservation as a New Source of Water

Recent reports by the Pacific Institute find that water conservation is the largest, least expensive and most environmentally sound source of water for meeting future needs.

The California Department of Water Resources estimates an additional 1.5 to 2.5 million acre feet of urban water conservation is achievable. Two to 2.5 million acre feet should be adequate to meet the annual water needs of population growth over the next 25 years.

Urban areas – particularly residential uses – provide the greatest opportunity for cost-effective water savings through conservation.

More than half of urban (non-agricultural) water demand is for residential use; and much of that, often greater than 50%, goes to outdoor landscaping. Outdoor water use can be reduced by 20% to 75% with improved landscape techniques.

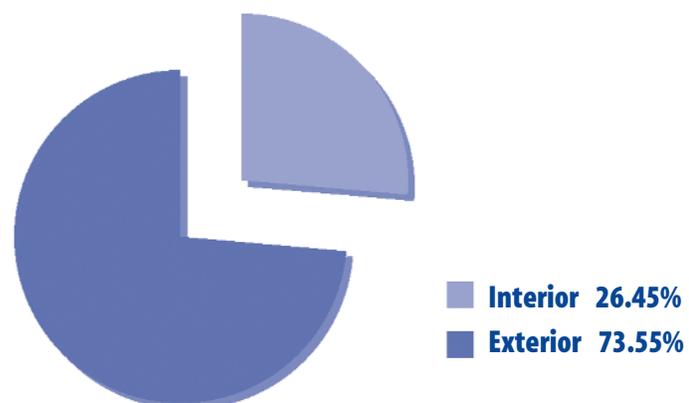
Without adding new technologies, currently available conservation measures – replacing inefficient toilets, washing machines, showerheads and dishwashers, and reducing leaks – could save enough water to supply more than 800,000 new homes.

## ■ Drought Conditions Exacerbate the Problem

**D**rought is a fact of life in California. During the state's last drought:

- Reservoirs dropped by 40%.
- Central Valley Project water supplies fell by 60%.
- Municipal supplies were cut 45%, requiring severe watering restrictions.
- Hydro-electric power generation was cut in half.
- Forest fires and pine beetles devastated forests.
- Private and domestic wells went dry.
- The value of agricultural land dropped precipitously.
- Populations of sport and commercial fish species declined.
- Rivers and streams ran dry.
- Water-based tourism fell, with small communities hit hardest by drought.

## Single-Family Residential Water Use California, 2001



## ■ **Marin County Finds Water Savings in Residential Landscaping**

**A** study of condominiums and townhouse complexes in Marin County found that traditional landscaping used 126 to 216 gallons per dwelling unit daily. Water-conserving landscapes at similar complexes reduced water use by greater than 50%.

The North Marin Water District offers residential customers a cash rebate for reducing the amount of lawn area in their landscapes. The District offers \$25 per 100 square feet of regularly irrigated lawn area removed. The rebate is limited to \$200 for

single-family dwellings, \$100 for townhouses or condos, and \$100 for apartments. The removed turf must be replaced with water-conserving plants, vegetable gardens or other low water-using plants. Water-efficient irrigation systems must also be installed.

The District offers participants an additional rebate of up to \$100 to pay for either 25% of the cost of mulch or 50% of the cost of approved irrigation supplies. For more info: [www.nmwd.com/c4g.html](http://www.nmwd.com/c4g.html)

## **State Laws Give Conservation a Boost**

**Article X of the California Constitution** prohibits the waste and unreasonable use of water.

**California's Water Code Section 375** allows any public entity that supplies water to adopt and enforce a water-conservation program that requires the installation of water-saving devices.

**The Water Conservation in Landscaping Act** (Government Code Sections 65591-65600) requires cities and counties to adopt a water-efficient landscape ordinance. The California Department of Water Resources developed a model ordinance that they can adopt or use to guide the drafting of their own requirements.

**The Urban Water Management Planning Act** (Water Code Sections 10620-10621, 10644) requires urban water suppliers with over 3,000 customers to adopt water management and conservation plans in five-year increments. These plans, which must be filed with local land-use planning agencies, are a key resource for water planning and coordination between water agencies and local government.

***“There is the potential for a 20% reduction in urban water use over the next 25 years – despite a substantial increase in population. Significantly, these water savings are made without investing in new technology.”***

– The Pacific Institute

**California's Water Code Section 13550-13556** requires the use of recycled water instead of potable water for landscape irrigation when recycled water is available. Use of potable water in such cases is deemed wasteful and an unreasonable use.

**SB 221 (Government Code Section 66473.7) and SB 610 (Water Code Section 10910-10915)**

Enacted in 2001, these measures require that adequate water supplies be identified prior to the approval by local land use agencies of new developments consisting of 500 or more houses. Under these laws, water conservation is one way to meet the needs of new development.



## ■ Landscaping Reduces Demand in Palm Desert

**P**alm Desert's Water-Efficient Landscaping Ordinance promotes water conservation by the use of climate-appropriate landscaping and efficient irrigation, and enhances the built and natural landscape of Palm Desert.

The ordinance requires development projects to submit landscape construction plans, grading plans, irrigation design plans and landscape-maintenance schedules for review and approval by the public works department.

Palm Desert replaced lawns in street medians with drought tolerant species. The City now pays one-third less to maintain the medians and uses only one-seventh as much water.

Also, the City's Parking Lot Tree Ordinance sets specific landscaping requirements for parking lots that reduce water demand.

# Economic Implications

Approximately 33% of the energy purchases by city governments in California is used for pumping water, and 23% of local energy costs are for treating wastewater.

The State Water Project is the largest single user of energy in California, consuming an average of 5 billion kilowatt-hours of electricity each year. Assuming a relatively low rate of 8¢/kWh, that's \$400 million per year.

Investing in improved water efficiency creates local jobs and economic benefits. Investment in distant supplies sends money out of the local economy.

## ■ How Conservation Saves Money

- Water conservation reduces operations and maintenance costs for water treatment and pumping.
- It reduces capital costs for water supply projects – such as dams, conveyance structures or treatment facilities – by deferring, reducing or eliminating their need.
- It reduces the amount of new water supplies that must be purchased.
- It reduces wastewater flows (when conservation measures affect indoor water use), thus reducing the operating and maintenance cost of wastewater collection, treatment and disposal, and deferring capital costs for new wastewater system capacity.
- Drought-tolerant landscaping dramatically reduces water bills and is far cheaper to maintain.

# Environmental Benefits

Conventional methods of increasing supplies – building more or larger dams, transporting water long distances, and excessive pumping – have harmed the state's aquatic resources. Water conservation reduces demand, allowing more water to remain in our rivers and streams for recreation, fisheries and natural habitats. Through conservation practices, we can supply enough water to meet our needs without further damaging the natural heritage of California.

Water-efficient landscaping with native and Mediterranean species and efficient irrigation can reduce the amount of green waste for disposal and emissions from landscaping equipment. Also, this type of landscaping often requires fewer pesticides, herbicides and fertilizers.

# What Local Government Can Do

## ■ Planning for Conservation

Integrate water conservation policies into specific plans, zoning ordinances and design guidelines, as well as in the General Plan.

Adopt a Water Element as recommended by the Governor's Office of Planning and Research's General Plan Guidelines, and recently implemented by Sonoma County.

Audit municipal water systems to detect and repair leaks.

Count water saved as a source of water to meet the requirements of new state "show me the water" laws that require developers and planning agencies to prove that enough water is available to serve proposed new housing.

## ■ Residential Indoor Water Conservation

Require or encourage – through incentives or fees – all new development to incorporate water conservation technologies.

Require the installation of water-efficient toilets and showerheads in existing homes before re-sale.

Implement interior and exterior water audits for existing development. Create incentive programs for residents and businesses that encourage the installation of new high-efficiency toilets or retrofit water-saving devices on existing ones, faucet aerators and low-flow

showerheads, and high-efficiency clothes washers and dishwashers.

## ■ Saving Water Outdoors

Adopt and/or strengthen a water-efficient landscape ordinance as required by state law, and work with local water agencies to strictly enforce it. Water-efficient landscaping includes appropriate plants, limited turf area, efficient irrigation equipment, proper grading and soil preparation, mulch and composting, grouping plants with similar water needs, and good long-term water management and landscaping maintenance practices.

Require all new municipal landscaping to minimize water use. Develop and implement a program to retrofit existing landscaping on municipal property to minimize water use.

Work with schools to improve the efficiency of their large landscaped areas.

Consider square-footage limits on turf that is not drought-tolerant, or in arid areas, consider a ban.

## ■ LA Goes Low-Flow

**T**he City of Los Angeles is using the same amount of water as was consumed nearly 30 years ago, despite an increase in its population of over one million people. Credit for this surprising accomplishment is given to an extensive, citywide campaign to retrofit homes with low-flow toilets.

Zone for smaller residential lots that require less water to maintain landscaping.

Encourage the selection of drought-tolerant, native and Mediterranean plants.

Discourage or ban daytime lawn watering.

Encourage the use of rain collection systems and cisterns to store water for landscape irrigation.

Encourage the use of graywater systems in new construction. Graywater systems reuse water from bathroom sinks, bathtubs and showers to irrigate landscaping.

## ■ Irvine Ranch Uses Technology to Conserve Water

**E**T irrigation controllers use various technologies, including on-site sensors that read weather conditions and receivers for actual data on evapotranspiration (ET – water used by plants and lost to evaporation) to determine when watering is needed. The Irvine Ranch Water District's experimental use of ET controllers in 40 homes has shown a 17% water use reduction and cut runoff in half. These findings suggest that significant cost savings can be achieved.

# Work with Watershed Stakeholders

Because water resources span political boundaries and are shared by communities, collaboration is a reality of modern water management. Working collaboratively to increase efficiency is more effective than acting alone because many parties are involved in the different aspects of water management and planning.

Water utilities are major participants in local and regional water policy and planning. Municipalities that work with water utilities are more likely to realize the benefits of conservation and to implement water efficiencies in local planning.

An Urban Water Management Plan (UWMP) is a requirement for all urban water purveyors with 3,000 or more customers. This plan must address supply and demand, and specify programs for ensuring water supply. They have taken on renewed importance under new water supply legislation (SB 221 and SB 610). Cities and counties, in coordination with water purveyors, are responsible for implementing this legislation. UWMPs provide an important resource. Conservation needs to be part of the UWMP and is best implemented in concert with cities and counties.

## ■ Information about Using Water Wisely

**The California Urban Water Conservation Council** ([cuwcc.org](http://cuwcc.org)) was created to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations and private entities. Its goal is to integrate urban water conservation Best Management Practices into the planning and management of California's water resources.

**Bewaterwise.com** is a web site developed by the Family of Southern California Water Agencies – including the Metropolitan Water District of Southern California and Orange, Riverside, San Bernardino, San Diego, Santa Barbara and Ventura Counties – as an educational resource about using water more efficiently in that region. It provides a range of information for businesses, homeowners, developers and property managers.

**StopWaste.Org** has a good example of a guide that cities and counties can develop with local water suppliers to educate the public about water-efficient landscaping called "Bay Friendly Landscape Guidelines."

→ For a guide on plant selection and irrigation that considers water needs: [www.owue.water.ca.gov/landscape/faq/faq.cfm](http://www.owue.water.ca.gov/landscape/faq/faq.cfm).

→ Take a virtual tour of a water-saving home at [h2ouse.org](http://h2ouse.org).

## Suggested Language for General Plans

→ All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater.

–Ahwahnee Water Principle #4

Urban water conservation technologies such as low-flow toilets, efficient clothes washers, and more efficient water-using industrial equipment should be incorporated in all new construction and retrofitted in remodeled buildings.

–Ahwahnee Water Principle #8

## RESOURCES

### ■ Local Government Commission

[water.lgc.org](http://water.lgc.org)

### ■ Ahwahnee Water Principles

[lgc.org/ahwahnee/h2o\\_principles.html](http://lgc.org/ahwahnee/h2o_principles.html)

### ■ State Water Resources Control Board

[www.swrcb.ca.gov](http://www.swrcb.ca.gov)

### ■ Department of Water Resources

[www.dwr.water.ca.gov](http://www.dwr.water.ca.gov)

### ■ California Bay-Delta Authority

[calwater.ca.gov](http://calwater.ca.gov)

### ■ EPA Smart Growth and Water

[epa.gov/watertrain/smartgrowth](http://epa.gov/watertrain/smartgrowth)



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