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How California Plans to Make Conservation a Way of Life

Five state agencies in California have collaborated to come up with a draft plan aimed at improving California's long-term water conservation efforts beyond emergency regulations as California's drought is now in its sixth year.

WRITTEN BY

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A water conservation sign remains in what was once a grass-covered traffic divider in Monterey Park, California. AFP/FREDERIC J. BROWN

CALIFORNIA IS WORKING to put into place a framework that will help the state deal with its current water shortage, as well as future droughts that are likely to be more severe with a changing climate. “Making Water Conservation a Way of Life,” a draft report released last week, is the collective effort of five state agencies to fulfill Gov. Jerry Brown’s Executive Order B-37-16, signed in May 2016.

Following the 1976-77 drought in California, the state has taken a series of progressive steps to increase drought resilience, as well as conservation and efficiency measures. More recently, the state passed SB X7-7 in 2009, which mandates that, by 2020, California achieve a 20 percent reduction in per capita urban water use. And in the spring of 2015, Gov. Brown took the unprecedented step of issuing a statewide mandate on water conservation



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for the more than 400 urban water suppliers to reduce water use by 25 percent. Between June 2015 and March 2016 water consumption fell 23.9 percent, nearly hitting the governor's ambitious goal.

After pressure from many water agencies, the State Water Resources Control Board halted the mandatory reductions and instead enacted a "stress test" for water agencies to certify that they have a three-year supply of water under drought conditions.

But with California's drought extending beyond five years and climate change likely to alter the timing and amount of runoff from the Sierra Nevada, the state's primary "reservoir," state agencies are calling for more changes from urban and agricultural water suppliers.

"Californians rose to the challenge during this historic drought and recognized that conservation is critical in the face of an uncertain future. This plan is about harnessing the creativity and innovation that Californians have shown during the driest years in state history and making water conservation a way of life in the years ahead," said California Department of Water Resources director Mark Cowin. "This plan will help make permanent changes to water use so California is better prepared for whatever the future brings."



Water in the preliminary stages of recycling at the West Basin Municipal Water District water recycling facility in El Segundo, California. As drought-stricken California struggles with water conservation, West Basin employs a three-part water purification system to transform waste water into potable water. (AFP/ROBYN BECK)

Some of the provisions included in the plan would:

- Make permanent the ban on wasteful water practices such as watering down driveways and other hardscapes;
- Provide technical help and incentives to aid water suppliers in finding and fixing leaks;
- Develop new water use standards for urban water suppliers based on local conditions;
- Require water suppliers to be compliant with new water use targets by 2025;
- Require water suppliers to submit a five-year drought risk assessment;
- Improve drought resiliency for small, rural water agencies;

- Require agricultural water districts to create an annual water budget, a drought plan and measures for increasing efficiency.

While the plan is widely hailed as a necessary step, there will likely be pushback over individual aspects from various stakeholders.

The Association of California Water Agencies (ACWA), which advocates on behalf of 430 public water agencies in the state, said it was still analyzing the draft plan and would be submitting comments to state agencies.

“We appreciate the acknowledgement in the draft plan that water management works best at the local level,” said Lisa Lien-Mager, the organization’s director of communications. But added, “Flexibility is a key issue. The state’s long-term conservation framework must allow for local flexibility to meet the objectives of the framework. While an allocation or budget-based approach will work for many of the larger water agencies, we know that smaller, more rural communities will need a simpler approach to meet the goals. They will need alternative approaches.”

While the governor’s conservation mandate from 2015, focused on urban water suppliers, the current plan also includes agricultural suppliers. Ben Chou, a policy analyst for the water program of the Natural Resources of Defense Council, said the state should

start by enforcing reporting rules that already exist for agriculture instead of making new ones that are going to be even more difficult to follow, such as water budgets that require information some water suppliers may not have the resources to acquire or analyze.

“Roughly half of agricultural water suppliers are not following these existing reporting requirements and the Department of Water Resources (DWR) has not done much to increase compliance,” said Chou.

“We’ve also asked that the agricultural water suppliers be required to standardize how they are reporting data. Right now, they are not required now to submit water management plans in a standard format or to file that report electronically, which makes it difficult for the public and DWR to review plans and reports.”

Chou said that agricultural efficiency efforts should also focus on modernizing water delivery systems, since 12 percent of irrigated farms still receive water on a fixed schedule and not when it’s most needed. And that other efforts should focus on the role of healthy soils in conserving water.

“Practices that improve soil health, such as conservation till and cover cropping, can reduce the need for irrigation by increasing the water infiltration and storage capabilities of soil,” stated a letter of public comment submitted by NRDC, the

Pacific Institute, California Climate and Agriculture Network and the Community Alliance With Family Farmers. “On average, conservation-till farmers use 30 percent less irrigation water than their conventional tilling peers.”

Public comments on the conservation draft plan are being accepted until December 19. ■

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The Race to Turn Stormwater From Gray to Green

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Newly passed bills in California are helping turn attention to green infrastructure projects that can help cities take advantage of stormwater to replenish groundwater, increase water supply and decrease water pollution.

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[Robin Meadows](#)

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Cars drive on Woodman Avenue in Panorama City, Calif., Thursday, Jan. 7, 2016, beside a culvert where rainwater runoff is directed to bioswale on the side of the street. Cities in California are getting more support to use stormwater as a resource. Michael Owen Baker, AP

CALIFORNIA'S FIVE-YEAR DROUGHT is changing our take on rainfall in cities, recasting it from a threat to a resource. “For so long, stormwater was simply a nuisance,” said Keith Lichten of the San Francisco Bay Regional Water Quality Control Board. “We needed to get it out of the way as quickly as possible to protect structures.” But stormwater can also be an asset. Instead of directing it into gutters and straight down storm drains, we can capture and clean it in rain gardens and other planted areas.

This green infrastructure mimics the natural water cycle, replenishing groundwater while enhancing our communities and ecosystems. “Green infrastructure is important to the quality of life in

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the Bay Area, not just to the water supply,” Lichten said.

A trio of recent laws will nudge us closer to making this vision a reality. The latest, Assembly Bill 2594 (Gordon), confirms that whoever captures stormwater also has the right to use it, while 2014’s Assembly Bill 2403 (Rendon) lets water agencies collect money for stormwater capture. And 2014’s Senate Bill 985 (Pavley) established a key funding eligibility requirement for that year’s Proposition 1; to receive stormwater project grants from the voter-approved water bond, jurisdictions must develop stormwater resource plans. These plans are underway in the Bay Area, with the final versions due in 2019. “We want cities to figure out what they need to do, and where they need to do it, to shift stormwater from gray to green,” Lichten said.

Stormwater could be a significant addition to California’s water supply. While the potential is still unknown in the Bay Area, Los Angeles estimates that rainfall could provide nearly half a million acre-feet (620 million cubic meters) per year, said Steven Moore, a member of the State Water Resources Control Board. This may sound trivial compared to the 33 million acre-feet people use statewide each year, but it’s not. “Stormwater could make a difference,” Moore said. “It could see us through seven years of drought instead of five.”

Ways of capturing stormwater include low-impact development, which minimizes hardscaping in favor of permeable surfaces. These let runoff percolate into the soil and recharge groundwater, essentially storing rain from wet years for use during dry ones. Another approach is bioswales, planted areas along curbs that are engineered to collect rainwater that sheets off sidewalks and streets. Besides boosting the water supply, permeable surfaces and bioswales help filter out the oil, pesticides and other pollutants that rain picks up from the moment it hits a hard surface. “Green infrastructure provides a double-sided benefit, improving water quality and supply,” said Newsha Ajami, director of urban water policy at Stanford University’s [Water in the West program](#).

A third benefit is that green infrastructure slows the stormwater that flows into stormdrains. In conventional gutters and stormdrains, stormwater builds up speed and “packs an erosive punch of energy into creeks,” Lichten said. In contrast, slowing stormwater helps protect our waterways, renewing creeks and wetlands.

Moreover, rain gardens and bioswales are assets to urban communities. “You can see the benefit with your own eyes every day as you walk down the street,” Moore said, citing green areas that provide hummingbird and butterfly habitats in the middle of cities.

The Bay Area already has a bit of green infrastructure. San Francisco has eight demonstration projects underway, including rain gardens – which are like bioswales but are less precisely engineered – and partial daylighting of Yosemite Creek to manage runoff from McLaren Park. In the East Bay, examples include the [El Cerrito Green Streets Pilot Project](#), which retrofitted 750ft (230m) of San Pablo Avenue with rain gardens, as well as the [San Pablo Avenue Green Stormwater Spine](#), which retrofitted a 12.5-mile (20-km) stretch with a variety of green infrastructure.

But given that the technology is so well established, not to mention so beneficial, why isn't green infrastructure more widespread? The main reason is that funding is scarce. "One of the biggest challenges of changing our approach to stormwater is the cost," said Water in the West's Ajami.

Proposition 84 – the 2006 water bond – provides some funding for green infrastructure, including half of a new \$3.4 million initiative called [Urban Greening Bay Area](#); the other half is from the Environmental Protection Agency. The initiative will include the Chynoweth Avenue Green Street Project in San Jose, which will install rain gardens and tree-planted medians, as well as projects in San Mateo and Sunnyvale.



Center, Fresno Metropolitan Flood Control District Engineer Jarrod Takemoto with left, John Kirk and Chris Montoya of the SCRO Groundwater and Regional Planning Section inspect new pump station constructed from Proposition 1E storm water grant to improve urban flooding issues in southeast Fresno in December 2012. (John Chacon, DWR)

Additional green infrastructure funding will come from Proposition 1, which allocated \$200 million for stormwater projects with multiple benefits. “We want the biggest bang for your buck,” explained Sean Maguire, who manages the state Water Board’s Storm Water Grant Program. So far, the program has allocated \$9.5 million for stormwater planning around the state. Three of the 22 projects are in the Bay Area, with planning grants of nearly half a million dollars each going to the Contra Costa County Flood Control and Water Conservation District, the Santa Clara Valley Water District and the Sonoma County Water Agency.

By the end of this year, the next round of Proposition 1 funding will provide \$100 million to

build stormwater projects, and a number of Bay Area proposals are in the running. The balance of the bond money will go toward a second round of stormwater implementation projects in 2018.

But the available funding is not nearly enough to meet all of California's green infrastructure needs. Street-by-street retrofitting will cost an estimated \$20 billion in Los Angeles alone, Maguire said, and "statewide the price tag will be astronomical."

Even California's existing old-style stormwater systems are underfunded. According to the Public Policy Institute of California, the shortfall is \$500 million to \$800 million per year. Stormwater funding is pinched by Proposition 218, which passed in 1996 and mandates a two-thirds vote for raising local property-related fees. While rates for water utilities and wastewater treatment were exempted from the supermajority requirement, rates for stormwater systems were not. "It's an unintended consequence – the people who were working on it just didn't know," Moore said. "We're sitting on an impending disaster."

That said, he also thinks California's lag in maintaining stormwater infrastructure may have a silver lining: "It gives us the opportunity to do it in an integrated way that incorporates green infrastructure, rather than just rebuilding the system."

And Lichten thinks this new vision for using stormwater to benefit us may also hold a solution to the funding problem. “There’s lots of transportation funding in the Bay Area and it can support ‘complete streets’, which have bike lanes and walking paths,” he said. “Maybe it can support green streets, too.”

[This story](#) first appeared on the [Bay Area Monitor](#). ■



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Robin Meadows is a freelance science writer based in the San Francisco Bay Area who covers water, energy and the environment in the western U.S. Reach her via Twitter at [@noka_oj](#).

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