

2016 Report to Governor Kate Brown



Implementation of Executive Order No. 15-09
*Directing State Agencies to Plan for
Resiliency to Drought, to Meet the Challenge That a
Changing Climate Brings*

2016 Annual Report to Governor Kate Brown Implementation of Executive Order No. 15-09

Directing State Agencies to Plan for Resiliency to Drought



June 15, 2017

The Oregon Water Resources Department prepared this report regarding water conservation and drought resiliency efforts on behalf of Oregon's State Agencies.

Copies of individual agency reports are available from OWRD.

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I. Introduction



*Wallowa Lake by Gary Halvorson
Oregon State Archives*

In 2015, Oregon experienced intense drought conditions throughout much of the state, making it one of the most severe droughts on record. During that year, winter precipitation was relatively average, but warm winter temperatures resulted in historically low snowpack conditions. This factor, combined with a record warm and dry summer, made drought and water scarcity an issue for many Oregonians.

Drought conditions are not unusual in Oregon. However, climate projections predict warmer and wetter winters, and warmer summers, suggesting drought may occur more frequently and at greater magnitude in the future.

Drought conditions can have significant economic, social and environmental consequences for Oregon. Droughts can affect the productivity of irrigated agriculture, create shortages for community water supplies, limit outdoor recreational opportunities, and effect habitat needed for fish and wildlife.

In response to this challenging situation, Governor Kate Brown issued [Executive Order 15-09 in July 2015](#), directing Oregon’s state agencies to prepare for a changing climate and plan for long-term resilience to drought.

As stated in the Executive Order, the warm winter may repeat again in the coming years and “in the long-term, if climate predictions are correct, these conditions will become the new normal. Oregon, along with other western states, must plan for and address how a changing climate challenges our current systems and policies, and threatens our economy and quality of life.”

The report that follows is the second progress report to Governor Kate Brown and lists work accomplished, challenges encountered, and plans for 2017 to reach the 2020 goal of reducing state agency non-essential water use by 15 percent.

Additionally, the Executive Order directed an update to the emergency response document known as the Drought Annex to the State of Oregon Emergency Operations Plan. A summary of that update is included in this report.

In the Executive Order, Governor Brown also asked that the 2017 update to the Integrated Water Resources Strategy (IWRS) include drought response and long-term resiliency planning. The end of this document lists highlights from the 2016 work on the IWRS.

II. Executive Order Water Conservation Goals

Executive Order 15-09 requires state agencies that own or manage land or facilities to take the following actions:

- Work with the Oregon Water Resources Department (OWRD) and Department of Administrative Services (DAS) to establish a baseline use of water.
- Identify and carry out short-term actions that curtail non-essential water use for landscaping and other exterior features of buildings and grounds.
- Place a moratorium on installing new non-essential landscape projects that require irrigation at state-owned buildings.
- Develop and place signs and other messaging within state-owned buildings to encourage state employees to reduce non-essential inside water use.
- Determine if state-owned buildings and facilities have current leak detection systems or procedures to address leaks that are being carried out on a timely basis.
- Consider any social and disproportionate effects of actions on underserved communities before making final decisions on water-saving measures.
- Report to the Governor by November 1, 2015, and annually thereafter, on progress in implementing these actions, barriers encountered and future steps to reduce non-essential use of water.

The goal of the actions outlined in the Executive Order is to reduce non-essential water use in all state-owned facilities by an average 15 percent or more by December 31, 2020, and to work with private building owners who lease facilities to state agencies to reduce non-essential water consumption at their buildings.

To implement the Executive Order actions, OWRD and DAS are working with the state agencies listed below, the ones that own land and/or facilities and hold water rights. Together, the departments make up the State Agency Water Users Group.

- Oregon Parks and Recreation Department (OPRD)
- Oregon Department of State Lands (DSL)
- Oregon Department of Fish and Wildlife (ODFW)
- Oregon Department of Forestry (ODF)
- Oregon Military Department (OMD)
- Oregon Department of Transportation (ODOT)
- Oregon Department of Corrections (DOC)
- Oregon Health Authority—State Hospital (OHA)
- Oregon Department of Public Safety Standards and Training (DPSST)
- Oregon Youth Authority (OYA)

A. Summary of Activities

The agencies in the State Agency Water Users Group hold water rights issued by the Oregon Water Resources Department, for which they are required to report usage annually. The agencies obtain their water from a variety of sources including city water systems, wells and streams, and use it for a variety of functions including:

- Fire protection
- Recreation
- Geothermal heating
- Road construction
- Fish and wildlife management

The State Agency Water Users Group met seven times in 2016. The following summarizes efforts to carry out the Executive Order actions during 2016:



Executive Building by Gary Halvorson, Oregon State Archives

- **Work with the Oregon Water Resources Department and Department of Administrative Services to establish a baseline use of water**

The agencies considered options for a water savings baseline, including a three-year average or a single year. Since 2015 was such an unusually hot and dry year, the group decided not to include that year in the baseline. Instead, the group established the 2014 water year, October 1, 2013 to September 30, 2014, as the baseline use from which agencies will measure progress toward the 15 percent non-essential water reduction goal. Agencies will report on their progress in the reports for 2017-2020. In the meantime, agencies have already taken actions to reduce water use as documented in the 2015 report and this report.

- **Identify and carry out short-term actions that curtail non-essential exterior water use**

Agencies continued to identify and carry out actions to curtail non-essential exterior water use such as reducing irrigation on flowerbeds and turf, and replacing landscaping with more drought-tolerant plants. Additional examples of agency actions include stopping or reducing sidewalk and road washing and less frequent washing of vehicles.

- **Place a moratorium on installing new non-essential landscape projects that require irrigation at state-owned buildings**

In 2015, the agencies suspended activity on new non-essential landscape projects that require irrigation at state-owned buildings, and that moratorium continued through 2016.

- **Develop and place signs and other messaging within state-owned buildings to encourage state employees to reduce non-essential inside water use**

During 2016, agencies used posters, newsletters, websites and other means to increase awareness of opportunities to conserve water at the workplace and for public users of their facilities.

- **Determine if state-owned buildings and facilities have current leak detection systems or procedures to address leaks that are being carried out on a timely basis**

Most agencies do not have existing leak detection systems. Instead, agencies perform periodic inspections to assess water delivery systems and identify leaks. In 2016, agencies continued to check for water leaks in irrigation systems, restrooms, shower facilities, breakrooms, and kitchens. Indoor leaks are the easiest to find and repair. Since outdoor leaks are more difficult to locate, agencies are conducting preventive maintenance before irrigation season.

During 2016, the group also discussed how to best define essential and non-essential water use and how to effectively measure and report water use.

Essential and non-essential water use. Reducing all water use, essential and non-essential, is important. Non-essential water use includes leaks, waste and wasteful behavior, and inefficient fixtures. There are numerous other water uses by state agencies that are difficult to uniformly define as essential or non-essential by each agency. For example, lawn features at some agency facilities may be considered non-essential and allowed to turn brown. However, another agency may consider green lawns an essential use of water to provide recreational opportunities. While every agency has different customers, clients, visitors or residents, all agencies will look for opportunities to reduce water use and still deliver services to the public.

Measuring and reporting. Not all agency buildings and facilities have existing water meters. Where facilities or water sources do not have individual meters, the group explored reliable methods to estimate water use. By reviewing tools and best management practices developed by other states and federal agencies, the group decided to use the U.S. Department of Energy's *Guidelines for Estimating Unmetered Landscaping Water*. This publication will help the agencies estimate the amount of outdoor water use where no meter is available. In addition, the State of California has also developed the *Water Use Reduction Guidelines and Criteria* to help its state agencies report annual usage for facilities without meters. These tools will be used to ensure consistent water use estimates among the agencies as they report in years 2017-2020 on their progress to reach the 15 percent water use reduction goal.

Executive Order 15-09 directs agencies to report annually on **progress** toward the 15 percent goal of reducing non-essential water use, **challenges** encountered, and **future steps** planned to reduce water use.

B. Progress in 2016

As shown in the table below, agencies have continued to work on many of the items addressed in the Executive Order. Highlights of 2016 agency actions undertaken are set out in more detail in the next section.

Agency	Outreach and Information	Conducted Leak Detection	Reduced Outdoor Watering	Installed Efficient Fixtures	Purchased New Meters
DAS	X	X	X	X	X
ODOT	X	X	X	X	
OHA	X	X	X	X	
OYA	X	X	X	X	
OPRD	X	X	X	X	
DPSST	X	X	X	X	
ODF	X	X	X	X	
DSL	X	X	X	X	
DOC	X	X	X	X	
ODFW	X	X	X	X	
OMD	X	X	X	X	

Agency Progress Highlights

The following section provides examples of agency efforts to carry out the objectives of the Executive Order during 2016.

Oregon Military Department and its Net Zero Camp Rilea

The Oregon Military Department (OMD) consists of the Oregon Air National Guard, the Oregon Army National Guard and the Office of Emergency Management. In 2016, OMD set a target goal to reduce facility potable water use by 36 percent. This goal will help OMD meet both its state non-essential water reduction and its federal sustainability obligations through the National Guard. OMD’s Camp Rilea already has a net zero water system. Camp Rilea pumps water from onsite groundwater, treats the water to potable water standards at its water treatment plant, delivers the water throughout the installation for use, discharges wastewater to a wastewater treatment plant, and then pumps the treated effluent and captured storm water to rapid infiltration basins to recharge the groundwater.



Camp Rilea is located in Warrenton.

Oregon Youth Authority's Three-Pronged Approach

For water conservation, the Oregon Youth Authority (OYA) has: (1) Facility Services, which deals with the youth, directing water usage and implementing operational conservation measures; (2) the Communications Office, sharing information and raising awareness about the drought and conservation measures; and (3) Physical Plant Operations, which is responsible for the buildings, irrigation systems and infrastructure.

Facility Services is reaching out to education partners to create experiential learning and leadership experiences for youth around this topic. OYA staff are coordinating to have the schools, as part of their normal earth science units, engage in projects about the water cycle, climate, and drought. OYA is asking that these projects include youth councils, which serve as youth leadership groups within each facility. The goal is to reduce water use and increase overall environmental awareness while earning much-needed high school credits.

Oregon Department of Transportation Creates Water Action Teams

ODOT is seeking overall reductions in water use from reductions in non-essential use as well as developing and implementing Best Management Practices for operational (essential) use. Water Action Teams are key to ODOT's implementation of the Executive Order and establishing a culture of conservation. To promote local ownership, buy-in and control, each ODOT division has established a Water Action Team to plan and implement local conservation efforts in support of ODOT's Water Conservation and Efficiency Plan. Some divisions may establish more than one Water Action Team. Water Action Teams will track and report conservation efforts, note best management practices, facilitate data requests, and act as local points of contact for water conservation.

Oregon Department of Fish and Wildlife Surveys Facilities

ODFW did a comprehensive survey of its facilities and staff to identify water sources and gauge water conservation efforts. ODFW facilities fall into three main categories:

- 23 wildlife areas/viewing areas where water is used mainly to irrigate the landscape, improving habitat and forage for wildlife
- 33 hatcheries, which utilize water to rear and release fish, support visitor facilities and provide for staff/volunteers living on-site
- Offices in most counties that also serve as research facilities, equipment storage, and customer service locations

As part of the survey, ODFW staff have identified several areas where water conservation is most promising--fixing leaks, installing low-flow toilet and shower fixtures, reducing lawn watering, and restricting washing of equipment. Going forward, rainwater harvest will begin at a few locations as part of a pilot project to determine the cost, feasibility, and potential for real reductions in non-essential water use.

Department of Corrections Joins the Battle of the Buildings

In 2016, the Department of Corrections joined EPA's Battle of the Buildings Bootcamp challenge. The Department's Sustainability Office selected five facilities that had the best chance to succeed based on their energy and water savings compared to the previous year. The challenge was September 1 through November 30, 2016. The Department competed against 800 buildings in the nationwide Battle of the Buildings, involving agencies from other states, colleges, schools, and businesses in an effort to cut water and energy waste. The Powder River Correctional Facility in Baker City placed 6th overall in water bill savings of \$16,727 and the Eastern Oregon Correctional Institution in Pendleton placed 26th with water bill savings of \$10,703.

Turn off the tap!

WATER EXERCISE OF THE WEEK

*UNLESS YOU PLAN ON SWIMMING LAPS
DON'T FORGET TO TURN OFF THE TAP!*

Did you know?

- ✓ Commercial buildings used an estimated 10% of all water use in the United States.
- ✓ Domestic needs/restrooms are the largest water end uses in offices and schools.
- ✓ A leaking toilet can waste more than 21,000 gallons per month, at a cost of about \$2,100 per year!

Actions you can take:

- ✓ Turn off the faucet while you lather your hands.
- ✓ Turn off the faucet when you finish using the water.
- ✓ Notify your facility manager if you see or hear any leaks.

BATTLE OF THE BUILDINGS BOOTCAMP 2016

ENERGY STAR WaterSense
EPA'S NATIONAL BUILDING COMPETITION

ABOUT THE BOOTCAMP: We're participating in the U.S. Environmental Protection Agency's (EPA) ENERGY STAR® National Building Competition: BOOTCAMP! For three months, we're focused on reducing our energy and water use and doing our part to protect the environment.

LEARN MORE: www.energystar.gov/battleofthebuildings

C. Challenges



The State Agency Water Users Group identified several challenges as they responded to the Executive Order charge. Agency buildings and facilities vary widely in terms of age, purpose and use. In addition, the agencies each have unique responsibilities, customers and clients. These factors can influence decisions on how to reduce water use and monitor results over time.

Another challenge is measuring non-essential water use, which includes leaks, wasteful behavior and inefficient fixtures. These non-essential uses are not metered and therefore must be estimated. As described below, measuring and estimating water use can be a challenge.

- **Developing a definition of non-essential water use.** As described earlier in this report, the group decided that each agency should define its essential and non-essential uses of water consistent with its mission and the people it serves. The agencies will then use their definition to guide the actions needed to achieve water conservation goals. Agencies will complete this assessment and provide their results in the 2017 progress report.
- **Determining water use when an agency is billed at a flat-rate utility charge.** Many non-essential uses are leaks, waste and wasteful behaviors, or inefficient fixtures. These can be difficult to identify and measure and are typically not separately accounted for in water utility bills. Agencies plan to work with their utilities to try to get better data on water use where that information is not provided on the bill.
- **Assessing agency water use when buildings do not have an individual meter for accurate measurements.** For agencies with large compounds and more than 1,000 buildings across the state, such as ODOT, identifying all existing meters will take time. For those buildings without meters, the agencies will purchase meters as budgets allow. Over time, this will increase the accuracy of water use data for the agencies.

Examples of Agency Challenges

Department of Corrections: As part of its efforts to conserve water, the Department of Corrections is limiting the time inmates spend showering. Restricting shower-lengths is a challenge in a correctional environment. If not handled carefully, such measures could cause unrest within the inmate population. Each prison is tasked with changing operations, including water usage, to address this challenge for its population needs. To carry this out, aging infrastructure, custody levels, gender and special needs, and inmate outreach and education have to be planned for and addressed by each prison. To date, a majority of facilities have implemented shower restrictions.

Oregon Department of Transportation: ODOT has found it difficult to distinguish essential operational use and efficient office building sanitation and hydration use, from non-essential use. The agency also determined that quantifying a baseline is difficult because the accounting systems were designed to pay bills, not track water usage.

Oregon Department of Fish and Wildlife: Most facilities have multiple water sources and many are not measured by a meter. With the complexity of facilities, multiple water sources and types of water uses, it is a challenge to define and compare essential and non-essential water use for the Department.

Department of Public Safety Standards and Training: The campus has 12 buildings with water, but only three main water meters (Domestic, Irrigation, and Fire), making it hard to identify any issues down to the building level.

D. Future Steps

For 2017, the State Agency Water Users Group will take a number of actions, some of which are a continuation of the future actions outlined in the 2015 report to the Governor. These include:

- Revisit and revise, as necessary, the drought/water conservation information and outreach materials
- Complete agency-specific definitions of non-essential and essential water use, while striving to reduce all consumption
- Gather data on actual and estimated water use in preparation for the 2017 report
- Ensure consistent reporting and estimating metrics
- Determine the facilities and properties to which the 2014 water year baseline applies
- The 2017 Report to the Governor, due in early 2018, which will detail overall progress to 15 percent goal of reducing non-essential water use

III. Drought Annex—Updated in 2016

Drought conditions are not uncommon in Oregon. The droughts of 1976-1977, 1992, 2001-2002 and 2015 were felt statewide. The drought of 2015 was especially challenging because of its geographic scale and severity, but also because some areas of the state had experienced the compounding effect of multiple years of drought conditions.

As part of Executive Order 15-09, the Oregon Water Resources Department and the Oregon Office of Emergency Management were directed to update Oregon's Drought Annex to the State of Oregon Emergency Operations Plan to reflect emerging information on the risk of drought and the need to assure that Oregon is appropriately prepared for future droughts.

Prior to 2016, Oregon’s Drought Annex had not been updated since September 2002. For the 2016 update, the Water Resources Department worked with the Office of Emergency Management and other agencies to outline the roles and responsibilities of state agencies during a drought, and describe the legal authorities and processes for requesting a drought declaration. Finalized in early 2016, the drought annex is available on the Department’s and the Office of Emergency Management’s website.

Under the updated process, Oregon uses a two-part system to evaluate, quantify and respond to a drought. First, the Water Supply Availability Committee (WSAC), consisting of state and federal agencies with expertise in drought-related matters, meets regularly to track potential water supply conditions. Drought indicators include snowpack, precipitation, temperature, streamflows, reservoir storage, soil and fuel moisture, and ocean surface temperature anomalies.

The WSAC provides updates to the Drought Readiness Council (DRC), which consists of state agencies involved in natural resource management, public health and emergency services. The DRC reviews local requests for state assistance and makes recommendations to the Governor on the need for a state drought declaration.

Communication and coordination between governments—federal, state, local and tribal— is a key piece of drought response. The Water Supply Availability Committee continues to meet, developing regular water supply condition reports that are available to the public, emergency response professionals, and others online and through a list serve. These meetings facilitate increased awareness about water supply conditions, and serve as an early warning tool if drought conditions begin to develop.

IV. Integrated Water Resources Strategy— 2017 Update

The 2009 legislature (House Bill 3369) directed the Oregon Water Resources Department to create a statewide strategy to address Oregon’s current and future instream and out-of-stream water needs. Developed after three years of public outreach, the Oregon Water Resources Commission adopted the first Integrated Water Resources Strategy (IWRS) in 2012. Currently, OWRD is leading a public process to update the IWRS before the end of 2017. The update process has included seven open houses around the state and an online survey, along with meetings by a stakeholder Policy Advisory Group (PAG) and an Agency Advisory Group.

In Executive Order 15-09, Governor Brown asked that the IWRS update include drought response and long-term resiliency planning. The following sets out how the update process has considered these elements of the Executive Order.

To date, the public comments related to drought and resiliency planning fall into several categories including:

- The importance of instream flows for fish and recreation
- Declining groundwater and the need to better understand the impacts of drought
- Improving water use measurement and drought monitoring
- Increasing public education about water issues
- Water conservation and how it can reduce drought impacts
- Expansion of Place-based Planning so communities can work on resiliency to drought issues

In 2016, the Department convened the PAG, consisting of stakeholders from a variety of backgrounds. The PAG used a consensus approach to prepare a set of new recommended actions and supporting statements to share with the Water Resources Commission and to recommend for inclusion in the 2017 IWRS.

The PAG acknowledged the work of the 2016 Drought Task Force (House Bill 4113 from 2015) and incorporated many aspects of the Task Force's report. The PAG supported several Task Force recommendations, including enriching water-related data, providing resources for risk assessment, outreach and communication, funding for additional Department watermasters, and additional programs for streamflow restoration.

The PAG also offered six new recommended actions: preparing for extreme events, ensuring that necessary data and assessments are in place to prepare for and respond to water scarcity, ensuring public safety, providing adequate field presence and permitting staff within IWRS agencies, and developing a plan for sustainable groundwater management.

The Oregon Water Resources Department is considering public, Drought Task Force and PAG feedback in its update of the IWRS, which is available for public comment through early summer 2017.

V. Resources

- Governor Kate Brown's—[Executive Order 15-09](#)
- State of Oregon Emergency Operations Plan—[Drought Annex](#)
- Oregon Water Resources Department—[Integrated Water Resources Strategy](#)
- U.S. Department of Energy's—[Guidelines for Estimating Unmetered Landscaping Water Use](#)
- EPA's WaterSense at Work—[Best Management Practices](#)
- State of California's—[Water Use Reduction Guidelines and Criteria](#)