Sustainability Roadmap: Water Efficiency and Conservation

Progress Report and Plan for Meeting the Governor's Sustainability Goals for California State Agencies

California State Lottery
Edmund G. Brown Jr., Governor

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California State Lottery

Sustainability Road Map: Water Efficiency and Conservation

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Acronyms

BMP	Best Management Practices
CALGREEN	California Green Building Code (Title 24, Part 11)
DGS	Department of General Services
EO	Executive Order
DO	District Office
DWR	Department of Water Resources
ESPM	Energy Star Portfolio Manager
GHGe	Greenhouse Gas Emissions
GSP	Groundwater Sustainability Plan
HQ	Headquarters
LCM	The Landscape Coefficient
LEED	Leadership in Energy and Environmental Design
MM	Management Memo
MAWA	Maximum Applied Water Allowance
MWELO	Model Water Efficient Landscape Ordinance
NDC	Northern Distribution Center
SAM	State Administrative Manual
SGA	Sustainable Groundwater Agency
SDC	Southern Distribution Center
SGMA	Sustainable Groundwater Management Act
WMC	Water Management Coordinator
WUCOLS	Water Use Classifications of Landscape Species

Glossary

Backflow - is the undesirable reversal of the flow of water or mixtures of water and other undesirable substances from any source (such as used water, industrial fluids, gasses, or any substance other than the intended potable water) into the distribution pipes of the potable water system.

Back flow prevention device – a device that prevents contaminants from entering the potable water system in the event of back pressure or back siphonage.

Blowdown - is the periodic or continuous removal of water from a boiler to remove accumulated dissolved solids and/or sludge. Proper control of blowdown is critical to boiler operation. Insufficient blowdown may lead to deposits or carryover. Excessive blowdown wastes water, energy, and chemicals.

Compost – Compost is the product resulting from the controlled biological decomposition of organic material from a feedstock into a stable, humus-like product that has many environmental benefits. Composting is a natural process that is managed to optimize the conditions for decomposing microbes to thrive. This generally involves providing air and moisture, and achieving sufficient temperatures to ensure weed seeds, invasive pests, and pathogens are destroyed. A wide range of material (feedstock) may be composted, such as yard trimmings, wood chips, vegetable scraps, paper products, manures and biosolids. Compost may be applied to the top of the soil or incorporated into the soil (tilling).

Critical overdraft - a condition in which significantly more water has been taken out of a groundwater basin than has been put in, either by natural recharge or by recharging basins. Critical overdraft leads to various undesirable conditions such as ground subsidence and saltwater intrusion.

Ecosystem services - are the direct and indirect contributions of ecosystems to human well-being. They support directly or indirectly our survival and quality of life. Ecosystem services can be categorized in four main types:

- Provisioning services are the products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines.

- Regulating services are the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.

- Habitat services provide living places for all species and maintain the viability of gene-pools.

- Cultural services include non-material benefits such as spiritual enrichment, intellectual development, recreation and aesthetic values.

Grasscycling -refers to an aerobic (requires air) method of handling grass clippings by leaving them on the lawn when mowing. Because grass consists largely of water (80% or more), contains little lignin and has high nitrogen content, grass clippings easily break down during an aerobic process. Grasscycling returns the decomposed clippings to the soil within one to two weeks acting primarily as a fertilizer supplement and, to a much smaller degree, mulch. Grasscycling can provide 15 to 20% or more of a lawn's yearly nitrogen requirements

Hydrozone – is a portion of a landscaped area having plants with similar water needs that are served by one irrigation valve or set of valves with the same schedule.

Landscape Coefficient Method (LCM) describes a method of estimating irrigation needs of landscape plantings in California. It is intended as a guide for landscape professionals.

Landscape water budget - is the calculated irrigation requirement of a landscape based on landscape area, local climate factors, specific plant requirements and the irrigation system performance.

Model Water Efficient Landscape Ordinance (MWELO) - The Water Conservation in Landscaping Act was signed into law on September 29, 1990. The premise was that landscape design, installation, and maintenance can and should be water efficient. Some of the provisions specified in the statute included plant selection and groupings of plants based on water needs and climatic, geological or topographical conditions, efficient irrigation systems, practices that foster long term water conservation and routine repair and maintenance of irrigation systems. DWR adopted the Model Ordinance in June of 1992. One element of the Model Ordinance was a landscape water budget. In the water budget approach, a Maximum Applied Water Allowance (MAWA) was established based on the landscape area and the climate where the landscape is located. The latest update to MWELO was in 2015. MWELO applies to all state agencies' landscaping.

Mulch – Mulch is a layer of material applied on top of soil. Examples of material that can be used as mulch include wood chips, grass clippings, leaves, straw, cardboard, newspaper, rocks, and even shredded tires. Benefits of applying mulch include reducing erosion and weeds and increasing water retention and soil vitality. Whenever possible, look for mulch that has been through a sanitization process to kill weed seeds and pests.

Trickle flow – A device that allows users to reduce flow to a trickle while using soap and shampoo. When the device is switched off, the flow is reinstated with the temperature and pressure resumes to previous settings.

Sprinkler system backflow prevention devices – are devices to prevent contaminants from entering water supplies. These devices connect to the sprinkler system and are an important safety feature. They are required by the California Plumbing Code.

Submeter- a metering device installed to measure water use in a specific area or for a specific purpose. Also, known as dedicated meters, landscape submeters are effective for separating landscape water use from interior water use, evaluating the landscape water budget and for leak detection within the irrigation system.

Water Budget - A landscape water budget is the calculated irrigation requirement of a landscape based on landscape area, local climate factors, specific plant requirements and the irrigation system performance.

Water-energy nexus - Water and energy are often managed separately despite the important links between the two. 12 percent of California's energy use is related to water use with nearly 10 percent being used at the end water use. Water is used in the production of nearly every major energy source. Likewise, energy is used in multiple ways and at multiple steps in water delivery and treatment systems as well as wastewater collection and treatment.

Water Shortage Contingency Plans - each urban water purveyor serving more than 3,000 connections or 3,000 acre-feet of water annually must have an Urban Water Shortage Contingency Plan (Water Shortage Plan) which details how a community would react to a reduction in water supply of up to 50% for droughts lasting up to three years.

EXECUTIVE SUMMARY

In 1984, Proposition 37 amended the California Constitution to authorize the establishment of a statewide lottery. As an initiative statute, the California State Lottery Act of 1984 (Lottery Act) created the California State Lottery Commission (Commission) and gave it broad powers to oversee the operations of a statewide lottery. The purpose of the Lottery Act was to provide supplemental monies to benefit public education without the imposition of additional or increased taxes. The California State Lottery (Lottery) is administered by a five-person commission appointed by the Governor and confirmed by the California Senate. In the 32 years since sales began in October 1985 through June 30, 2017, the Lottery has raised more than $32.5 billion for California public education, including more than $1.5 billion in Fiscal Year 2016-17. We're proud of the contributions we make to California's schools, and we work hard to increase our funding through efficient business practices.

The Lottery operates a portfolio of 12 facilities to support its ongoing statewide operations. Its owned properties include Sacramento headquarters (HQ), the Northern Distribution Center (NDC), the Southern Distribution Center (SDC), the Sacramento District Office (DO), the Santa Fe Springs DO, Fresno DO and the San Diego DO. The Lottery is currently executing its Facilities Master Plan thereby converting the remaining leased facilities to owned facilities over the next few years. The Lottery also recently closed escrow on buildings that will become the new Rancho Cucamonga, Costa Mesa, Milpitas, and Chatsworth DOs. Design work has begun on these buildings. The Lottery's current leased facilities consist of 4 DOs. All future buildings are being designed to include high performance water features in the restrooms to reduce water usage. Also, all future Lottery-owned buildings will include low maintenance/low water usage landscaping where applicable. The Lottery will continue reducing the gallons per minute and updating fixtures along with monthly monitoring of water usage for its owned facilities. Executive Order B-18-12 (EO) signed by the Governor requires state agencies to reduce by 20% their water usage by the year 2020. Additionally, in January 2014, the Governor signed into effect EO B-29-15, directing state agencies to further reduce their water usage by 25% between 2013 and February 28, 2016. With the Lottery's expansion in staffing and converting leased properties to Lottery-owned facilities, water usage continues to increase; thus, making it a challenge to meet the EO requirements.

The contents of this plan reflect the Lottery's objectives, understanding and commitment to the goals of Executive Orders B-18-12 and B-29-12.

Sincerely,

Hugo López
Executive Director

SUSTAINABILITY GOALS

The Governor has directed California State Agencies to demonstrate sustainable operations and to lead the way by implementing sustainability policies set by the state. Sustainability includes the following general initiatives:

- Greenhouse Gas Emissions Reductions
- Building Energy Efficiency and Conservation
- Indoor Environmental Quality (IEQ)
- Water Efficiency and Conservation
- Monitoring Based Building Commissioning (MBCx)
- Environmentally Preferable Purchasing (EPP)
- Financing for Sustainability
- Zero Emission Vehicle (ZEV) Fleet Purchases
- Electric Vehicle Charging Infrastructure
- Monitoring and Executive Oversight

The Governor has issued numerous executive orders directing sustainable state operations. The orders relevant to water are:

Executive Order B-18-12

EO B-18-12 and the companion *Green Building Action Plan* require state agencies to reduce the environmental impacts of state operations by reducing greenhouse gas emissions, managing energy and water use, improving indoor air quality, generating onsite renewable energy when feasible, implementing environmentally preferable purchasing, and developing the infrastructure for electric vehicle charging stations at state facilities. The Green Building Action Plan also established two oversight groups; the staffs level Sustainability Working Group and the executive level Sustainability Task Force, to ensure these measures are met.

Executive Order B-18-12 requires State agencies to reduce agency-wide water use 10% by 2015 and 20% by 2020 as measured against a 2010 baseline. The 2015 and 2020 targets reinforce the SB X7-7 requirement that State agencies reduce water use at facilities they operate to support local water suppliers in meeting their targets.

On February 28, 2013, the California Department of Water Resources issued its Water Use Reduction Guidelines and Criteria, pursuant to Executive Order B-18-12. Each applicable agency was required to take actions to reduce water use in facilities and landscapes that are operated by the state, including facilities owned, funded or leased. State operated facilities are defined as facilities where the agency has direct control of the buildings' function, maintenance and repair. For leased facilities, the Green Building Action Plan directed at that time that new and renegotiated leases include provisions for water conservation, reporting water use and installation of sub-meters to the extent possible and economically feasible.

All the following sections in this water plan and the accompanying worksheet only repeat the initial criteria and guidelines issued at that time. Only the MWELO requirements have been updated since that time. Additionally, other Executive Orders have followed, strengthening and elaborating on the issues contained in EO B-18-12.

EO B-18-12 requires that beginning January 2013, agencies shall regularly report current water use into the water tracking database. Since January 2014, annual water use reports have documented progress towards the 2015 and 2020 targets using the ESPM http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_benchmarking to track energy and water use and to submit annual reports to DGS. (Sustainability Manager, Department of General Services, 707 Third Street, 8th Floor, West Sacramento, CA 95798-9052). Additionally, for facilities with landscape areas over 20,000 sq. ft. the landscape water use must be tracked with a water budget program.

Executive Order B-29-15

EO B-29-15 directs state agencies to take actions in response to the ongoing drought and to the State of Emergency due to severe drought conditions proclaimed on January 17, 2014. The Governor directed numerous state agencies to develop new programs and regulations to mitigate the effects of the drought, and required increased enforcement of water waste state wide. Agencies were instructed to reduce potable urban water use by 25% between 2013 and February 28, 2016.

State Administrative Manual & Management Memos

The following sections of the State Administrative Manual (SAM), and associated Management Memos (MM), currently impose sustainability requirements for water on the department under the Governor's executive authority:

SAM Sections

- Landscaping practices 1821.5
- Drought moratorium 1821.4

Relevant Management Memos

- MM 15-06 State Buildings And Grounds Maintenance And Operation
- MM 15-04: Energy Use Reduction for New, Existing, and Leased Buildings
- MM 14-02 Water Efficiency and Conservation
- MM 14-07: Standard Operating Procedures For Energy Management In State Buildings
- MM 14-09: Energy Efficiency in Data Centers and Server Rooms

Relevant Legislation

Sustainable Groundwater Management Act of 2014 - The Sustainable Groundwater Management Act (SGMA) directs the Department of Water Resources (DWR) to identify groundwater basins and subbasins in conditions of critical overdraft. Conditions of critical overdraft result from undesirable impacts, which can include seawater intrusion, land subsidence, groundwater depletion, and/or chronic lowering of groundwater levels. As defined in the SGMA, "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts."

As required in the SGMA, basins designated as high or medium priority *and* critically overdrafted shall be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020. All other high and medium priority basins shall be managed under a groundwater sustainability plan by January 31, 2022.

WATER EFFICIENCY AND CONSERVATION REPORT

This Water Efficiency and Conservation Report demonstrates to the Governor and the public the progress the Department has made toward meeting the Governor's goals. This report identifies successful accomplishments, ongoing efforts, and outstanding challenges.

Introduction

California experiences the most extreme variability in yearly precipitation in the nation. In 2015, California had record low statewide mountain snowpack of only 5 percent of average while 2012-14 were the 4 driest consecutive years of statewide precipitation in the historical record. Now, the 2017 water year (October 1, 2016-September 30, 2017) is surpassing the wettest year of record (1982-83) in the Sacramento River and San Joaquin River watersheds and close to becoming the wettest year in the Tulare Basin (set in 1968-69). These potential wide swings in precipitation from one year to the next show why California must be prepared for either flood or drought in any year.

Therefore, using water wisely is critical. The E.O.s and SAM sections listed in the previous section help demonstrate the connection between water and energy use, (the water-energy nexus), water and climate change, and water and landscaping. Further, the impact of water uses by state agencies goes beyond the scope of these E.O.s and SAM sections and DGS management memos as these documents do not address such related issues as water runoff from landscaping and various work processes and the potential for water pollution or the benefits of water infiltration, soil health and nutrient recycling. However, by using holistic water planning, a well-crafted water plan can not only meet all state requirements but add considerable value and benefits to the organization and surrounding communities.

Department Mission and Built Infrastructure

The Lottery's mission is to reduce water use at its facilities to adhere to the Governor's EO B-18-12 & MM 14-02 and EO B-29-15. Due to the growth of square footage the Lottery has had since 2010 (the baseline year), it has been a challenge to meet the goals of a 10% reduction by 2015 and 20% by 2020. The 2010 Benchmarking of the water usage does not provide accurate baseline water use for the HQ building since the Lottery did not occupy it until July 11, 2011. The Lottery only tracks water usage of Lottery-owned buildings. The Lottery currently owns 8 of its 12 facilities; however, for 2 of the most recently purchased facilities the Lottery has not yet received bills for services. Therefore, the data in this plan will be based off 7 Lottery-owned facilities: HQ, Sacramento DO, NDC, San Diego DO, Santa Fe Springs DO, Fresno DO, and SDC.

The Lottery moved into its HQ building on July 11, 2011 which was built with the following water-saving features:

- High performance water features to reduce water usage in the restrooms by 35%.
- Water quality basins that act as planter boxes surround the building and are watered by storm water runoff.
- Irrigation controls at HQ are equipped with weather-related sensors and will not activate if it is raining outside.

The Sacramento DO was built using high performance water features. The Sacramento DO and NDC are in shared complexes where the Lottery cannot control irrigation water usage or landscaping at this time.

All future Lottery-owned buildings will include high performance water features in the restroom to reduce water usage. Also, all future Lottery-owned buildings will include low maintenance/low water usage landscaping and alternative watering systems where applicable. The Lottery will continue reducing the gallons per minute and updating fixtures along with monthly monitoring of water usage for its owned facilities.

In Table 1: Total Purchased Water is based on the Lottery 2016 usage numbers. The table includes all the Lottery's owned facilities where the Lottery paid a water bill and that are subject to the Governor's EOs.

Table 1: Total Purchased Water

Purchased Water	Quantity	Cost ($/yr)
Potable	3,748,794	$ 20,490
Recycled Water	0	$ 0
	3,748,794 Gallons	$ 20,490

Based on the Lottery's 2016 water use, Table 2 lists the five facilities with the highest water consumption per capita, with the irrigation water subtracted for the HQ facility.

Table 2: Properties with Largest Water Use Per Capita

Building Name	Area (ft^2)	Total Gallons	Total Irrigation in Gallons (if known)	Gallons per Capita
HQ	165,077	1,657,818	1,290,390	10
Sacramento DO	9,150	73,509	0	7
Santa Fe Springs DO	12,840	331,387	0	21
SDC*	60,580	6,732	0	1
NDC	63,827	178,784	0	20
Total for Buildings in This Table	311,474 ft^2	2,248,230	---	---
Total for All Department Buildings	326,194 ft^2	3,538,619	---	---
% of Totals	95 %	64 %	---	---

*In 2016 SDC was only occupied in the last quarter of the year (October - December 2016).

Table 2a: Properties with Largest Landscape Area

Building Name	Area (ft^2)
Headquarters	78,930
Santa Fe Springs DO	4,136
Total for Buildings in This Table	83,066 ft^2
Total for All Department Buildings	UKN ft^2
% of Totals	UNK %

Due to growth within the agency, the Lottery has faced challenges working toward meeting the Governor's water efficiency goal. The landscaping and irrigation is handled by the property managers for most of the Lottery's facilities. For two facilities where the Lottery has control over landscaping and irrigation, the Lottery has installed water basins, drip irrigation, weather sensors for the irrigation control, and used decomposed granite in efforts to conserve water.

Table 3: Department Wide Water Use Trends

Year	Total Occupancy /year	Total Amount Used (Gallons/year)	Per capita Gallons per peson per day
Baseline Year 2010	380	3,764,180	27
Baseline Year 2013	385	5,209,617	28
2016	581	3,538,619	17
2020 Goal			

With all the Lottery's growth, processes have been put in place to help with the reduction of water usage. For example, the Lottery has discontinued hosing off the roofs of its facilities, reduced landscape irrigation to once a week when weather permits, and cleaned the solar panels once a year unless there is a negative effect to the power generation. The Lottery also posted water-saving ideas on elevator lobby bulletin boards and changed them periodically to keep staff engaged. Water-saving information was provided to all Lottery supervisors and managers statewide to share during staff meetings, and fun water-saving facts are periodically placed on the Lottery's internal blog. The Lottery's website (calottery.com) lists the water efficiency efforts the Lottery has taken to reduce its water consumption.

Table 4: Total Water Reductions Achieved

Total Water Use Compared to A: 2010 Baseline	Reduction Achieved	Total Amount Used (gallons per year)	Annual Gallons Per capita
2010 baseline: 20% Reduction Achieved	☐Yes ☒ No	3,764,180 - 2010	27 - 2010
2013 baseline: 25% Reduction Achieved	☒Yes ☐No	5,209,617 - 2013	28 - 2013

The Lottery has not completed any major water efficiency projects over the last five years. The Lottery did, however, replace aerators in faucets at the Sacramento DO and NDC for water savings. The Lottery also adjusted the water flow in all urinals, toilets and restroom sinks at HQ. However, the Lottery did not track the gallons saved or cost savings due to the flow reductions and fixture changes. The Lottery installed low-flow toilets during construction of the Sacramento DO, Santa Fe Springs DO, Fresno DO, SDC and HQ. The Lottery has developed criteria to be used for future renovations and the Lottery's architectural firm will include design specifications that require water-sense fixtures be used in all buildings which will ensure a 35% reduction in water usage compared to regular fixtures.

Table 5: Summary of Indoor Water Efficiency Projects Completed or In Progress

Year Started	Water Saved (Gallons/yr)	Cost Savings per Year
2012	N/A	
2013	"	
2014	"	
2015	"	
2016	"	

The Lottery has not completed any boilers and cooling systems water efficiency projects since 2012.

Table 6: Summary of Boilers and Cooling Systems Projects Completed or In Progress

Year Funded	Water Saved (Gallons/yr)	Number of Systems with Water Efficiency Projects	Percent of Department Heating and Cooling systems
2012	N/A		
2013	"		
2014	"		
2015	"		
2016	"		

The Lottery has not completed any Landscaping Hardware Water Efficiency projects since 2012. However, all Lottery-owned facilities where the Lottery has control over the landscaping, they are designed with drought resistant plants and drip system irrigation to reduce water use.

Table 7: Summary of Landscaping Hardware Water Efficiency Projects Completed or In Progress

Year Funded	Water Saved (Gallons/yr)	Estimated Annual Cost Savings	Total Number of Projects per Year
2012	N/A		
2013	"		
2014	"		
2015	"		
2016	"		

Table 8: Summary of Living Landscaping Water Efficiency Projects Completed or In Progress

Year Funded	Water Saved (Gallons/yr)	Landscape Area MWELO (ft2)	Climate Appropriate Landscape Area (ft2)
2012	N/A		
2013	"		
2014	"		
2015	"		
2016	"		

Water Shortage Contingency Plans and Critical Groundwater Basins

Urban water suppliers are required to maintain Water Shortage Contingency Plans that are customized to local conditions. These plans include a staged response to water shortages and droughts lasting up to three years. When implementing the stages of the Water Shortage Contingency Plan, the water supplier will require increasingly stringent reductions in water use.

State agencies are to be aware of their water suppliers' Water Shortage Contingency Plan and the potential impact each stage may have on their water use. State agencies are to have their own contingency plans in place for their building and landscaping water use to respond to any stage implemented by the water supplier.

The Sustainable Groundwater Management Act (SGMA) established a new structure for managing California's groundwater resources at a local level by local agencies. SGMA requires, by June 30, 2017, the formation of locally-controlled groundwater sustainability agencies (GSAs) in the State's high- and medium-priority groundwater basins and sub basins (basins). A GSA is responsible for developing and implementing a groundwater sustainability plan (GSP) to meet the sustainability goal of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results. For those facilities located in critical groundwater basins, state agencies are to work with the local GSA plan.

Per the SGMA, none of the Lottery's facilities are in a critical groundwater basin, therefore, there is no Water Shortage Contingency plan in place.

Table 9: Number of Buildings with Urban Water Shortage Contingency Plans and in Critical Groundwater Basins

Number of Buildings with urban water shortage contingency plans.	Number of buildings in critical groundwater basins	Total Amount of water used by buildings in critical groundwater basins (Gallons)
N/A	0	0

Building Inventories Summary

The Building Inventory is a quantitative inventory that required a facility walk-through to assess the types, numbers and condition of all water-using fixtures, appliances and irrigation equipment. After completing this assessment, the Lottery found that there was one toilet at its NDC that needed to be replaced. In response to the drought action requirements, the Lottery has replaced all toilets, faucets and faucet aerators to low-flow products to help reduce water usage. All new Lottery facilities are equipped with all low-flow and low-water products. The walk-through inspection found no unreported safety issues, and did not discover any new opportunities for further water savings. Simple, inexpensive actions such as installing aerators on faucets, tightening loose connections, adjusting how often the Lottery irrigates and monitoring water usage monthly over the past three years has led to immediate water savings.

Table 10: Summary of Building Inventory Needs

Number of toilets to be replaced with 1.25 gallon per flush	Number of urinals to be replaced	Number of faucet aerators to be replaced	Number of showerheads to be replaced @ 2.0 gpm and trickle flow control	Number of clothes washers to be replaced with Energy Star washers	Number of garbage disposals to be replaced.	Number of pre-rinse valves to be purchased and replaced
1	0	0	0	0	0	0

Heating and Cooling Systems Inventories Summary

The Lottery monitors the heating and cooling systems for all Lottery-owned facilities. The Lottery's HQ building is the only facility with boilers and they were built with the maximum efficiency standards. Therefore, when the heating and cooling system inventories were done the Lottery found there were no items that needed to be replaced.

Table 11: Summary of Boilers and Cooling Systems Inventory

Amount of Water Used for make up (Gallons)	Number of flash tanks to purchase and install	Number of meters to purchase and install	Amount currently reused? (Gallons)	Remaining additional water suitable for other purposes such as irrigation (Gallons)
0	0	0	0	0

Irrigation Hardware Inventories Summary

Landscaping typically uses 50 percent or more of an agency's total water use. While landscaping serves critical functions, the accompanying irrigation hardware, if not properly installed and maintained, can contribute to water waste. By reviewing and inventorying all irrigation hardware, it is possible to achieve significant water savings.

Most of the Lottery's facilities are part of a property management group that handle the irrigation for the sites and they are complying with city water restrictions. For the facilities where the Lottery handles its irrigation, the Lottery has backflow prevention devices on all its irrigation systems. After completing the irrigation hardware survey, the Lottery found no downspouts or drainage issues. Therefore, there is no need for any new replacements or installations.

Table 12: Summary of Irrigation Hardware Inventory

Number of separate meters or sub-meters to purchase and install.	Number of irrigation controllers required with weather or soil moisture adjustment and flow sensing capabilities to purchase and install.	Number of backflow prevention devices to purchase and install.	Number of flow sensors to be purchased and installed	Number of automatic rain shut-off devices needed	Number of new pressure regulators to purchase and install.	Number of new hydrozones needed.	Number of new valves to purchase and install.	Number of filter assemblies to purchase and install.	Amount of drip irrigation to purchase and install (area covered)	Number of booster pumps to purchase and install	Number of rotary nozzles or other high efficiency nozzles to purchase and install
3	2	0	0	0	0	0	0	0	0	0	0

Living Landscape Inventory

Far from being just an aesthetic or ornamental feature, landscaping plays a critical role around public buildings and facilities. From providing safety and security, to reducing local heat islands, suppressing dust, reducing water runoff, maintaining soil health, aiding in water filtration and nutrient recycling, landscaping around public buildings is essential. Further, landscaping in public places frequently surrounds historic places and public memorials as well as provides pleasant public gathering spaces. The health and proper maintenance of these landscapes is vital to the physical wellbeing of California's people as well as to its social, cultural, political and historical life.

Additionally, the many vital ecosystem functions carried out by living public landscaping are critical in helping California meet its goals for greenhouse gas reduction, climate adaptation, and water and energy efficiency and water conservation.

Urban forests are vital to improve site conditions for occupants and visitors to buildings and the surrounding community.

The Lottery's living landscapes greater than 500sqft have been a part of the construction cost, therefore the Lottery does not have total cost for the living landscapes has it was part of the new construction.

Table 13: Summary of Living Landscape Inventory

Landscape >500Sq. ft.)	Turf (Sq.ft.)	Number of historical sites Or memorials	MWELO landscape area (Sq.ft.)	Climate appropriate landscape area (Sq.ft.)
83,066	2508	0	UNK	UNK

Large landscape water use

Large landscape water use often represents a significant percentage of a facility's water use and significant water savings can often be achieved through better irrigation scheduling or inexpensive improvements in irrigation hardware. As part of the Water Use Guidelines and Criteria, the water use for landscape areas over 20,000 sq. ft. shall be tracked through a water budget program.

The Lottery's HQ facility has landscape totaling 78,930 sq. ft.; it is the only Lottery facility with landscape over 20,000 sq. ft. The Lottery's contracted landscapers are certified in EPA WaterSense or Irrigation Association.

The Lottery's water budget is included in the utilities for all buildings where the Lottery pays the bill. When the bill is paid by the property management, they are in compliance with the city water restrictions.

Table 14. Summary of Large Landscape Inventory and Water Budget

Number of Facility Sites/Locations with > 20,000 sq.ft. of Landscaping	Total Landscape Area per facility	Total Water Budget per facility	Total EPA WaterSense or Irrigation Association Certified Staff
1	78,930	UNK	The Lottery's contracted landscapers are all certified

BMPs

Building Best Management Practices (BMPs) are ongoing actions that establish and maintain building water use efficiency. State agencies are required by DGS Management Memo 14-02 to implement the building BMPs outlined below.

Building Water Management BMPS

General Water Management

- Monthly water use is tracked through the Lottery's water bills and weekly meter readings.
- Building walk-throughs are done on a quarterly basis by the Lottery's facilities staff.
- Facility occupants and staff can report leaks and water waste by submitting a facilities services request, by calling the facilities hotline, or by email.
- Facility occupants and staff are notified of water conservation methods and practices through signage and Lottery-wide email.

Leak Detection and Repair

The Lottery has established monthly preventative maintenance work orders for its maintenance staff to perform monthly visual leak detection surveys on all water use fixtures:

- Toilets
- Urinals
- Faucets
- Showers

Staff performs monthly preventative maintenance checks on faucets for proper aerators and install aerators or laminar flow devices when necessary. Also, showerhead flow rates are checked and showerheads using no more than 2.0 gpm have been installed.

Kitchens

The Lottery has established monthly preventative maintenance work orders for its maintenance staff to perform monthly inspections of kitchen equipment and appliances.

The following actions are performed when necessary:

- Replace any broken or damaged dishwasher racks.

- Check all equipment water temperatures and flow rates against the manufacturer's recommendations. Use the recommended minimum temperature and flow to maximize savings.
- Replace any broken or damaged dishwasher racks, and run dishwasher only when full to maximize capacity.

The following actions are requested of kitchen users:

- Presoak utensils and dishes in basins of water, rather than in running water.
- Do not use running water to melt ice in bar sink strainers.
- Do not use running water to defrost food.
- Do not allow water to flow unnecessarily.

Laundry Facilities

The Lottery owns one washer and one dryer, which is located at its HQ facility.

The following actions are taking when using the washing machine:

- Only run washer when full to maximize capacity.
- Set washer to appropriate water level and water temperature according to the load.

Building Heating and Cooling Systems BMPs

The Lottery has established monthly, quarterly and annual preventative maintenance work orders for its stationary engineer to perform required maintenance and inspections.

Required maintenance and inspection duties:

- Check steam traps and steam lines for leaks.
- Repair leaks and replace faulty steam traps as soon as possible.
- Perform boiler tuning a minimum of once per operating year.
- Provide proper insulation on steam and condensate return piping, as well as on the central storage tank.
- For both cooling towers and boilers, obtain the services of a water treatment specialist to prevent system scale and corrosion and to optimize cycles of concentration. Treatment programs include routine checks of boiler water chemistry.
- Perform routine inspections and maintenance on condensate pumps.
- Inspect both the water side and fire side of the boiler. If needed, clean the tube surfaces to ensure optimal heat transfer thereby maximizing system energy efficiency.
- Adjust boiler and cooling tower blowdown rate to maintain TDS at levels recommended by manufacturer's specifications.
- Shut off water-cooled air conditioning units when not needed, or replace water-cooled equipment with air-cooled systems.

Landscaping Hardware Maintenance BMPS

The Lottery has established monthly preventative maintenance work orders for its facilities staff and contracted landscapers to perform required maintenance and inspections.

Monthly maintenance and inspections for the irrigation systems include the following:

- Clean filters
- Inspect sprinkler heads for paint or any materials with 18 inches
- Install check valves, swing joints and replace nozzles as needed
- Install faucet timers for hose or hand irrigation
- Install shut-off nozzles or quick-couplers for all hoses

Living Landscape BMPs

- Adjust irrigation schedules for seasonal changes.
- Give trees and large shrubs highest priority for survival during drought or other water shortages.
- Test irrigation system monthly to check for leaks and misalignment, and other malfunctions. Repair immediately with the correct parts.
- Adjust irrigation systems as needed to prevent runoff. Make sure sprinklers are directing water to only landscape areas, avoiding hardscapes such as parking lots, sidewalks, or other paved areas.
- Check and locate leaks and fix immediately.
- Use drought tolerant materials whenever possible.

Monitoring, Reporting and Compliance

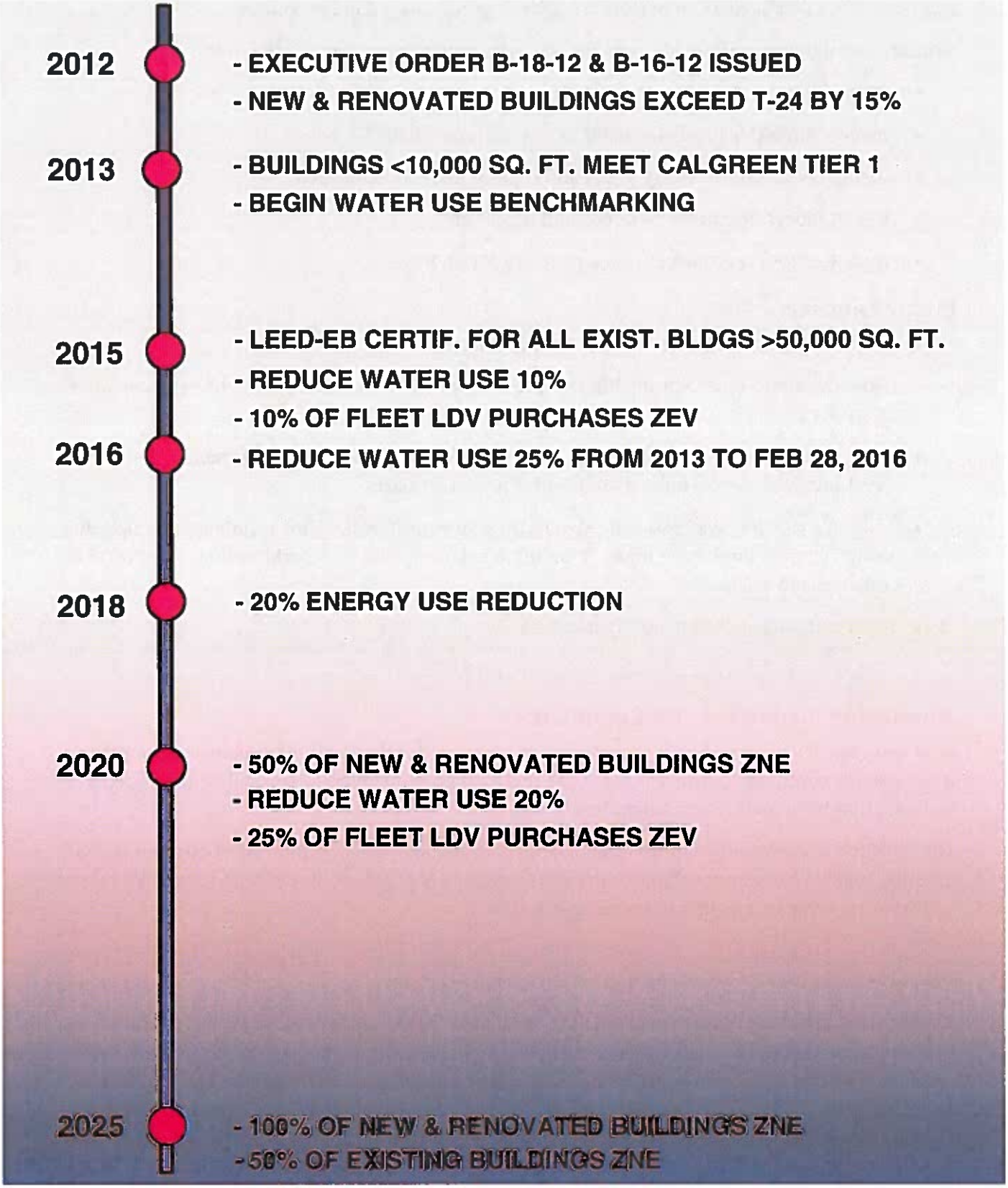
Each state agency is responsible for monitoring water use and reporting baseline and annual water use for compliance with the water use reduction targets. Water use shall be measured at facilities that have meters and submeters.

The Lottery's water use is captured and monitored through Energy Star. The Lottery monitors monthly bills and compares them to the 2010 baseline established in EO B-18-12 to ensure the Lottery is on track to meeting the reduction goals.

EO B-18-12 states: reduce water usage by 10% against 2010 baseline benchmark. The Lottery met the water usage goal of 10% reduction by December 31, 2015.

EO B-18-12 states: 25% reduction in potable urban water usage (indoor water usage) against 2013 baseline benchmark. The Lottery was able to reach this goal and exceed it by 17% by previously replacing existing fixtures with WaterSense or equivalent fixtures, changing the flushing sensors on toilets, reducing water flow levels at sinks and continuing to monitor usage and look for water-saving ideas.

SUSTAINABILITY MILESTONES & TIMELINE



RESPONSIBLE DEPARTMENT, PROGRAMS AND EMPLOYEES

The **"responsible party"** is the individual or entity that controls, manages, or directs the entity and the disposition of the entity's funds and assets

Indoor Water Efficiency Projects In Progress First initiative	
Lottery, Operations Division	Mike Lilly, Stationary Engineer
Lottery, Operations Division	Colleen Uhlenhop, Facilities Services Manager

Boilers and Cooling Systems Projects In Progress	
Lottery, Operations Division	Mike Lilly, Stationary Engineer
Lottery, Operations Division	Colleen Uhlenhop, Facilities Services Manager
Landscaping Hardware Water Efficiency Projects In Progress	
Lottery, Operations Division	Mike Lilly, Stationary Engineer
Lottery, Operations Division	Colleen Uhlenhop, Facilities Services Manager

Living Landscaping Water Efficiency Projects In Progress	
Lottery, Operations Division	Veronica Rahn, Sustainability Analyst

Lottery, Operations Division	Colleen Uhlenhop, Facilities Services Manager

Buildings with Urban Water Shortage Contingency Plans In Progress	
Lottery, Operations Division	Ryan George, Facilities Analyst
Lottery, Operations Division	Colleen Uhlenhop, Facilities Services Manager