CITY OF
CHULA VISTA

WATER STEWARDSHIP PLAN

Draft for City Council Review
October 2016

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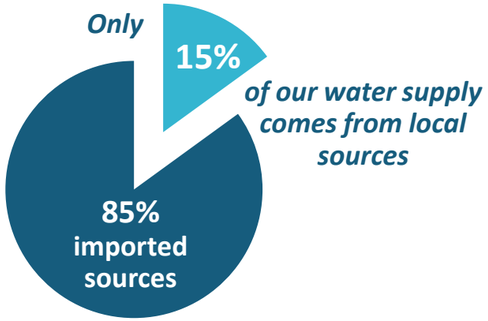
Introduction

The City of Chula Vista (the City) is located at the center of one of the richest cultural, economic, and environmentally diverse zones in the United States. As the second-largest municipality in San Diego County with a population of 250,000, it boasts more than 50 square miles of coastal landscape, canyons, rolling hills, mountains, quality parks, and miles of trails. It is nestled between the cities of Tijuana and San Diego.

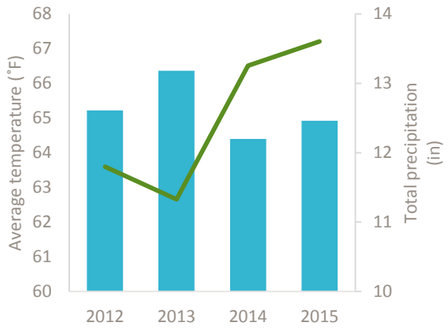


At both a local and regional level, maintaining reliable, clean water supplies to serve the growing region has long been a top priority for residents. A concern heightened with California's ongoing and severe drought. Cities, public agencies, and water districts throughout San Diego County recognize the urgency to meet regional water demands through new local supply development such as water reuse, water recycling, desalinization, and stretching available supplies through efficient water use practices. And while significant progress has been made regionally in diversification of water supplies, approximately 85 percent of the San Diego region's water is still imported annually from the Colorado River and rivers of Northern California.

Looking ahead, challenges to the community's water supplies will only grow more extreme. According to the *San Diego, 2050 is Calling: How Will We Answer?* report released by the San Diego Foundation and Climate Education Partners in 2014, regional water demand from San Diego County is expected to increase 46 percent by 2035 due to its growing population, rising temperatures, longer intervals without rain, and increased evaporation from the soil and water reservoirs. Local water supplies will be under stress from more intense and frequent drought and from more evaporation and increasing water demand due to rising temperatures. Water availability from both the Sierra Nevada (via the State Water Project) and the Colorado River will also be additionally stressed from warming temperatures and extended droughts that reduce the amount of snowpack and river flow. But, there is a lot we can do today to manage these changes and prepare for a "new normal".

The City of Chula Vista has already established itself as a leader in issues around climate change and sustainability. Preparing for water scarcity is an extension of these efforts, and it recognizes the inextricable links between climate change, energy and water management. Given that 18% of California's energy is expended on moving water around the state, its water stewardship efforts will also advance its progress towards its greenhouse gas reduction goals while producing benefits in energy conservation.

The City of Chula Vista Water Stewardship Plan assesses near and long-term opportunities and applicable implementation strategies to enhance water efficiency and reuse graywater, stormwater, and wastewater for community and municipal use. The Plan provides a framework for engaging residents, businesses, and City government alike in managing increased water demand and protecting its precious water resources. The Plan was created by City staff, key stakeholders, and the Chula Vista community, in partnership with the San Diego Foundation and Bloomberg Philanthropies.



Chula Vista's climate is becoming hotter and drier.

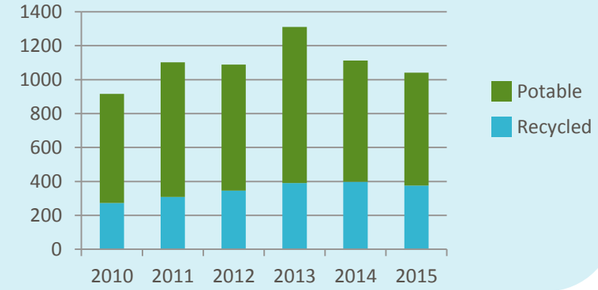
Source: National Centers for Environmental Information

Setting The Context for Water Stewardship in Chula Vista

City Operations: Working to Reduce The City's Dependence on Potable Water

From 2010 to 2015, water use for City operations increased by 14 percent. Climatic factors contributed in large part to this increase (see Community-Wide Water Consumption, below). Recycled water comprised the vast majority of this increase; its use of recycled water increased by 37 percent during that period, while demand for potable sources increased by only 4 percent.

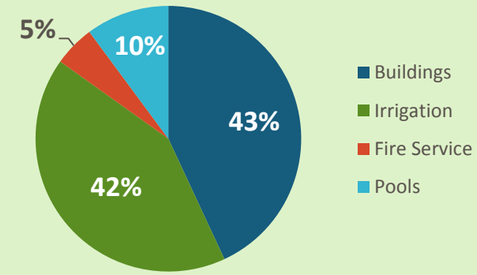
City Operations
2010-2015 Water Use
(million gallons)



Focusing The City's Opportunities: Understanding Municipal Water Use

Buildings and irrigation account for 85 percent of municipal use of potable water, with public pools and fire service uses comprising the balance. While landscaping and irrigation account for a large majority of its total water use, 68 percent of its irrigation activities utilize recycled water. Taking this into consideration, building and irrigation demand for potable water is roughly equivalent, and present the greatest opportunity for expanded water efficiency and reuse measures.

City Operations
2015 Total Consumption
Potable Water Only



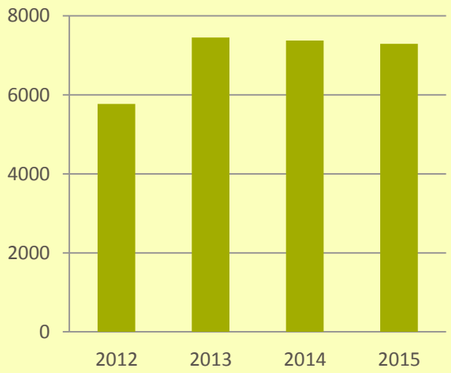
Community-Wide Water Consumption

Following a spike between 2012 to 2013, water use by the overall Chula Vista community has remained relatively flat from 2013 to 2015. During this timeframe:

- The city's population grew by more than 15,000 people, or by nearly 6 percent
- The annual average temperature increased by 3 degrees Fahrenheit
- California experienced one of the worst, multi-year droughts in the state's history

These factors impeded the community's ability to substantially cut water use, while demonstrating the importance of advancing water stewardship during a time of population growth and a changing climate.

Community-Wide
2012-2015 Water Use
(million gallons)



Leading By Example:

Past & Current Water Stewardship Initiatives

Since the 1990s, Chula Vista's sustainability efforts have been tightly aligned with broader municipal goals designed to improve community quality of life and to deliver effective government services. As part of its General Plan, which was updated in 2005, the City intentionally incorporated a variety of sustainable development objectives to reduce greenhouse gas emissions by requiring more efficient buildings, encouraging mixed-use development, facilitating transit system improvements, maximizing the use of low-and zero-emissions equipment and vehicles, and meeting water demand through conservation and efficient use. The City is recognized nationally as a leader in local government sustainability, and is actively engaged in advancing quality of life and protecting the climate for Chula Vista and beyond.

The Water Stewardship Plan is an extension of these previous efforts, and bolsters the numerous water stewardship activities already implemented or underway in Chula Vista, including the following policies and initiatives implemented by the City and its partners.

Administration & Funding

- **Water Conservation Ordinance**
- **City-wide water use data management**
- **Incentives & rebates for water efficient fixtures**
- **Water conservation workshops & classes**
- **Green business verification program**
- **PACE financing**

Water Supply & Infrastructure

- **Integrated Water Resource Management Plan**
- **Irrigation system leak detection program**
- **Water Conservation Plan Guidelines for major developments**
- **Local water supply development (desalination/Pure Water San Diego Program, groundwater development)**
- **BMP Design Manual and Stormwater Ordinance**
- **Reclaimed water ("purple pipe") for irrigation**
- **Subdivision Manual promotes onsite stormwater retention**

Built Environment

- **Reuse of water from dewatering activities**
- **Laundry-to-landscape graywater pre-plumbing requirement and educational display**
- **NPDES (stormwater quality permit) outreach program**

Landscaping & Irrigation

- **Landscape Water Conservation Ordinance**
- **Urban Forest Management Plan**
- **Turf & water intensive plant species removal**
- **Irrigation head & nozzle conversion**
- **Cash-for-plants rebates**

The City's Vision for Water Stewardship

Through the development of the Water Stewardship Plan, the City worked with staff, its utility providers, and the community to establish a unified vision for water stewardship in Chula Vista, as follows:

The community of Chula Vista is a proven steward of water resources, where local residents, businesses, utility providers, and municipal staff are proactive, accountable and engaged in protecting water supplies, eliminating water waste, and embracing the region's natural landscape.

This vision was formed by community members, utility providers, and City staff who provided thoughtful feedback to the following question:

When you think about its collective relationship with water, what do you believe is the most important consideration that should shape its vision and goals for water stewardship?

While their responses were varied, several key themes emerged that helped formulate this vision, including:

- Accountability
- Engagement
- Elimination of waste
- Equity
- Community
- Cultural change
- Local landscape character
- Integrated approach

The specific actions that comprise the Water Stewardship Plan will directly support the realization of this vision, which will serve as the guiding principle for future decisions that impact water use and reuse.

Plan Overview

The Water Stewardship Plan encompasses five overarching actions that address the key themes of its vision. For each action, the City has identified numerous supporting strategies that the City will implement within City operations and in partnership with the residents and businesses of Chula Vista.

1. Raise the Profile of Water Use & Reuse Performance
2. Promote & Expand Water Capture & Reuse
3. Improve Water Efficiency & Reuse Capacity in the Built Environment
4. Encourage Water Efficient Landscape Decisions
5. Promote Green Infrastructure & Low-Impact Development

Each of these actions is comprised of supporting strategies that delineate how the City will implement its overall plan. To facilitate in this implementation, the City has assigned responsibility and a timeline for achieving each of the strategies, and described what resources will be required to achieve them as well as which stakeholders will need to be involved.

Each strategy relates to activities that are within the purview of City operations, to its open spaces and park facilities, to its residents' activities, or to businesses. Many strategies apply to some or all of these, and are denoted by the following icons:

Finally, the City has assigned timeframes for implementation for each strategy, which are categorized as follows:

- **Short-term** = 0-2 Years
- **Medium-term** = 3-5 Years
- **Long-term** = 6-10 Years

Action #1

Raise the Profile of Water Use & Reuse Performance

Action Overview

Living in a Mediterranean climate requires a different attitude about water. From lawn signs reading "Gold is the New Green," to "drought shaming" on social media platforms, most Californians have come to accept water scarcity as a fact of life. But understanding current performance is the first step in improving it and water use tracking systems have not caught up to today's needs. Beyond revealing expenditures and cost savings, performance data on water use and reuse can be a powerful means to motivate and engage people and create a connection to the Water Stewardship Plan. Through this Action, the City will make water performance visible through clear, simple, and visible metrics which become a part of daily life for its leadership, its staff, and the broader community.

Through Action #1, the City will:

- **1.1** Initiate a citywide challenge for water stewardship
- **1.2** Make City Departmental water use visible to the public
- **1.3** Optimize existing leak and water waste notification and reporting systems
- **1.4** Expand engagement and education opportunities around water stewardship initiatives in Chula Vista

1.1 Initiate a citywide challenge for water stewardship

CITY OPERATIONS | OPEN SPACE & PARKS | RESIDENTS | BUSINESSES

Background	Key Activities
Nothing serves as greater motivation than a little friendly competition. Chula Vista has a proven track record of rallying around conservation opportunities, such as through the Cool California Challenge as well as the *Georgetown University Energy Prize,* a national energy use reduction competition which challenges communities across the U.S. to dramatically reduce their energy use by 2016. The City will leverage these successes and expand such opportunities to address water stewardship.	A. Provide recognition for innovations and drive results in water use and reuse performance by local residents, businesses, and municipal staff through a similar challenge or competition. B. Explore partnerships with Sweetwater Authority and Otay Water District, San Diego Gas & Electric, and local organizations to develop this opportunity. C. Engage with other communities and consider potential synergies with existing energy conservation incentive programs.
Required Resources	**Responsible:**
Incentives or prizes; staff time; marketing resources; IT; funding sources	Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
Sweetwater Authority; Otay Water District; local community groups; SDG&E	Medium-term

1.2 Make City Departmental water use visible

CITY OPERATIONS | OPEN SPACE & PARKS

Background	Key Activities
While the City has achieved significant results in transitioning its water source for municipal operations towards recycled water, we recognize the ongoing need to better manage water use for these activities. One of the most important steps in driving accountability in water stewardship among City staff is to make performance more visible. In the current state, assessing water use requires assembly of information provided by water providers, which has proven to be an onerous task and does not result in a clear understanding of water use by individual City departments. In keeping with the adage "you can't manage what you can't measure," this lack of visibility does not promote accountability among water users.	A. Establish a user friendly water use performance tracking system or dashboard that provides visibility into water use for departmental activities on a regular or real-time basis. B. Leverage available technologies, such as ENERGY STAR Portfolio Manager or other no- or low-cost dashboard systems. C. Work with water district partners to better manage water use data in order to promote greater awareness among leadership and staff about water use trends and opportunities for improvement.
Required Resources	**Responsible:**
Staff time; technology expertise	Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
Sweetwater Authority; Otay Water District	Short-term

1.3 Optimize existing leak and water waste notification and reporting systems

CITY OPERATIONS | OPEN SPACE & PARKS | RESIDENTS | BUSINESSES

Background	Key Activities
Leaks from water supply pipes and fixtures are a significant source of water waste. According to the Alliance for Water Efficiency, a typical home loses 2,000 to 20,000 gallons of water per year due to leaks. Some leaks are easily visible, such as dripping faucets, while many can go undetected for years, such as cracked water supply lines. The City is pursuing the use of flow meters to address leaks in its irrigation and other water distribution systems in City facilities, and will explore the use of this and other leak detection and notification technologies to ensure that water is not wasted through leaks. In addition, raising awareness through case studies and outreach about the impact of leaks – and about the resources available to prevent and manage them, such as those provided by Sweetwater Authority during the Environmental Protection Agency (EPA) " Fix A Leak Week" – will go a long way to engaging residential and commercial users about the potential water and cost savings that they can achieve by addressing water leaks. Finally, the City will promote other existing water waste notification systems that allow residents and business to report water waste in the community via the phone and internet, including those that are handled by the Police Department and water district partners.	A. Evaluate and select a leak detection technology for city facilities (i.e. flow meters). B. Educate the community about the importance of detecting leaks through case studies and public outreach events, including EPA's "Fix A Leak Week." C. Promote the use of existing waste notification systems as a means to report water wastes throughout the community, and ensure that data collected by Police Department and other reporting systems is managed appropriately.
Required Resources	**Responsible:**
Funding for leak detection and notification technology; staff time; irrigation updates	Public Works (Custodial / Construction Repair / Operations); Police Department
Key Support/Stakeholders:	**Implementation Timeframe:**
Office of Sustainability; Sweetwater Authority; Otay Water District; local community members	Short-term (City Operations); Medium-term (Residents & Businesses)

1.4 Expand engagement and education opportunities around water stewardship initiatives in Chula Vista

OPEN SPACE & PARKS | RESIDENTS | BUSINESSES

Background	Key Activities
Chula Vista boasts a robust history of community engagement around issues of environmental conservation and climate change. The Water Stewardship Plan is an extension of this history, and many of the strategies included in the plan will be complemented by public engagement and education. The City's Conservation Section already provides water efficiency information and giveaways at farmers markets and other events, hosts NatureScape workshops on water efficient landscaping, and promotes rebates and incentives for water efficiency and reuse. The Conservation Section will be highly instrumental in expanding the impact of community education and outreach on water stewardship and in advancing the strategies in this Plan. The City will apply for a Water Efficiency Education Program (WEEP) grant administered by Sweetwater Authority to fund educational displays, programs, projects and instructional media that we can use to advance its mission of educating the community about the importance of using water efficiently. The existing CLEAN Business Program, which provides participating businesses with no-cost resources and informational workshops, can serve as a platform for engaging the local business community in the water conservation and reuse opportunities discussed in this plan. Similarly, volunteer events in Chula Vista parks can facilitate community education on xeriscaping and native plants. Finally, the installation of interpretive signage about green infrastructure and water efficiency initiatives throughout the community can enhance the visibility of its commitment to water stewardship.	A. Apply for a WEEP grant to fund educational displays, programs, projects and instructional media that we can use to advance its of mission of educating the community about the importance of using water efficiently. B. Hold community volunteer events that focus on profiling water efficiency best management practices. C. Create educational signage for water efficiency points-of-interest throughout the city.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
CLEAN Business Program participants; Residents; Sweetwater Authority; Otay Water District; local community groups; SDG&E	Short-term

Action #2

Promote & Expand Water Capture & Reuse

Action Overview

Chula Vista's desirable Mediterranean climate comes with trade-offs; we receive an average yearly rainfall of approximately 10 inches. This is why diversification of Chula Vista's water supplies and resources is imperative in order to sustain our community and the lifestyle for which the City has become accustomed. Given our reliance on an imported water supply, it is crucial that we work closely with the community to develop water reuse opportunities wherever possible. We believe we can successfully accomplish this through governance, inspiration, awareness and incentives.

Through Action #2, the City will:

- **2.1** Incorporate rainwater harvesting infrastructure into new and existing development projects
- **2.2** Promote the reuse of graywater for indoor applications
- **2.3** Enable the synergistic reuse of water across property lines
- **2.4** Maximize the use of incentives and rebates for graywater and rainwater harvesting

2.1 Incorporate rainwater harvesting infrastructure into new and existing development projects

CITY OPERATIONS · RESIDENTS · BUSINESSES

Background	Key Activities
Harvesting rainwater is a smart way to augment on-site water supply. Rainwater can be used to fill toilets, launder clothes, and irrigate landscaping. There are many publically available resources on this topic, including San Diego County's flip-book Water Smart guide and website. The City is pleased to see many of its community partners are already following those published best practices and have installed rainwater collection barrels on site for their irrigation needs. The City will facilitate the incorporation of rainwater harvesting infrastructure into all "qualifying" new developments and retrofit projects. The City will do this by enacting a new rainwater harvesting ordinance for municipal facilities that requires an amendment to existing building codes. This ordinance will reference existing state and local policy, along with reputable guidance and best practices, so that reliable infrastructure is installed to function properly.	A. Enact a new rainwater harvesting ordinance for municipal facilities. B. Continue public outreach to promote rainwater harvesting best management practices throughout the residential community (i.e. rain water collection barrels for home landscaping). C. Define and establish project "qualifying" criteria to include in ordinance. D. Conduct outreach efforts to educate public about the new ordinance. E. Develop a list of do's and don't that are easy for community partners to follow and comply with.
Required Resources	**Responsible:**
Staff time; funding	Office of Sustainability (Conservation Section); Public Works (Stormwater Section); Development Services (Building and Land Development Department)
Key Support/Stakeholders:	**Implementation Timeframe:**
Private developers	Medium-term

2.2 Promote the reuse of graywater for indoor applications

CITY OPERATIONS · RESIDENTS · BUSINESSES

Strategy Overview	Key Activities
Graywater is "gently used" water from sinks, showers, baths, or laundry. Public health studies have shown that graywater systems, if installed and operated correctly, can provide an alternative, safe and reliable water supply for some approved uses. The City believes it is important to leverage all fit-for-purpose water, including graywater, in order to promote water independence. The City's knowledgeable staff will be available to answer questions about safe and legal graywater uses, as well as compliance with existing public health and building codes. This effort extends beyond the successful permit-less laundry to lawn program. City staff will be available to guide community members through this process, discuss specific graywater projects, and guide residents and business owners along the right path towards implementing and operating a safe graywater system onsite.	A. Leverage all fit-for-purpose water, including graywater, in order to promote water independence. B. Develop a fact sheet about safe and legal graywater uses. C. Develop guidelines for residential and business community partners that outline how install, implement and operate graywater systems safely.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services; Sweetwater Authority; Otay Water District	Short-term

2.3 Enable the synergistic reuse of water across property lines

CITY OPERATIONS | OPEN SPACE & PARKS | RESIDENTS | BUSINESSES

Background	Key Activities
The City is committed to strengthening its partnership with and support for the Otay Water District, with the goal of maximizing the use of existing recycled water capacity and eventually expanding the reach of their recycled water. Recycled water within the community plays an important role in diversifying the region's water supply. This sub-action is intended to address circumstances in which on-site water reuse sources do not meet their demand. While Otay's existing purple pipe network only covers the eastern portion of the community, the City wishes to maximize the use of that network. The City's goal is to support Otay in expanding their network of recycled water in order to transition to a water supply system that includes recycled water delivery as an integrated part of their offerings to its community.	A. Expand Otay Water District's purple pipe network. B. Promote the attributes and beneficial reuse of recycled water.
Required Resources	**Responsible:**
Staff time	Otay Water District; Office of Sustainability (Conservation Section); Development Services (Building & Land Development Department)
Key Support/Stakeholders:	**Implementation Timeframe:**
San Diego County Health Department	Medium-term

2.4 Maximize the use of incentives and rebates for graywater and rainwater harvesting

CITY OPERATIONS | RESIDENTS | BUSINESSES

Background	Key Activities
The City wishes to make water reuse opportunities as attractive to the community as possible. There are many existing rebate and incentive programs that are offered by its water utilities and other sources which are not always used to their potential. For example, Sweetwater Authority offers rebates for single-source graywater system retrofits, and grant opportunities of up to $5,000 to encourage the efficient use of water by offsetting potable water uses for non-potable water needs. San Diego County's WaterSmart program offers links to rain barrel rebates. Other opportunities specific to water efficient landscapes and irrigation practices are summarized in sub-action 4.5. Through the City's website and its various outreach activities, City staff will promote available state, local, regional and national rebates, incentives, grants, and financing options, such as those mentioned above, which can be leveraged by community members in order to make water reuse a cost-effective alternative for its businesses and homes.	A. Develop a consolidated list of incentives, rebates, grants, and financing options available for graywater and rainwater harvesting projects. B. Promote rebates, incentives, and grant programs for graywater and rainwater harvesting projects on its website.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services; Otay Water District; Sweetwater Authority; local community groups; San Diego County	Short-term

Action #3

Improve Water Efficiency & Reuse Capacity In the Built Environment

Action Overview

Buildings and facilities, including water fixtures, faucets, toilets, account for a significant portion of water use. Forty-three percent of water used for City operations is consumed by its facilities. Inadequate facility water management can lead to significant water waste in the form of leaks and out-of-date fixtures, plumbing and appliances. Improving water efficiency and reuse capacity within the built environment is a key action for the Water Stewardship plan and ultimately results in cost savings, not to mention conserving precious water supplies for the community.

Through Action #3, the City will:

- **3.1** Modernize City facilities to meet water conservation standards
- **3.2** Streamline and develop guidance for graywater permitting for advanced water reuse systems
- **3.3** Require "point-in-time" water audits and retrofits in existing homes
- **3.4** Capture and reuse condensate runoff from cooling equipment
- **3.5** Promote the use of hot water recirculation pumps
- **3.6** Promote optimization of cooling towers through operational and inspection schedule adjustments
- **3.7** Maximize the use of incentives and rebates for water efficient fixtures and building technologies

3.1 Modernize City facilities to meet water conservation standards

CITY OPERATIONS | OPEN SPACE & PARKS

Background	Key Activities
Water is the City's most expensive utility. Given that City facilities represent 43 percent of its annual water consumption, and in order to lead by example, the City made a commitment to modernize municipal facilities to meet water conservation standards in alignment with Senate Bill 407, and with best practices promoted by EPA's WaterSense Program. As an extension of the retrofits the City has already accomplished, the City will establish a process for identifying which facilities require upgrades, develop a standard for retrofit projects, and establish an upgrade schedule, with the goal of completing all upgrades by 2020.	A. Establish a process for identifying which facilities require upgrades. B. Develop a standard for retrofit projects. C. Establish an upgrade schedule with the goal of completing all upgrades by 2020.
Required Resources	**Responsible:**
Minor capital improvement costs and smart technology; staff time	Office of Sustainability (Conservation Section); Public Works
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services; Otay Water District; Sweetwater Authority; San Diego County Health Department	Medium-term

3.2 Streamline and develop guidance for graywater permitting for advanced water reuse systems

RESIDENTS | BUSINESSES

Background	Key Activities
In order to leverage new sources of water, the City recognizes the need to make it easier for the community to implement water reuse systems in their homes and businesses. One key way the City can add value and advance the reach of sub-action 2.2 is by developing practical guidance and streamlining the permitting process for advanced water reuse system projects. This will provide a dual benefit of helping community members see their water efficiency upgrades happen, while continuing to augment local water supplies with new sources of water.	A. Develop a step-by-step process for community members, developers, and others seeking to take the mystery out of the water reuse permitting process, by utilizing lessons learned from the permit streamlining of energy efficiency upgrades and Title 24.
Required Resources	**Responsible:**
Staff time; funding sources; technical assistance	Office of Sustainability (Conservation Section); Development Services (Building Department)
Key Support/Stakeholders:	**Implementation Timeframe:**
Otay Water District; Sweetwater Authority; San Diego County Health Department	Short-term

3.3 Require "point-in-time" water audits to encourage retrofits in existing buildings

BUSINESSES | RESIDENTS

Background	Key Activities
Water audits assess how water is used in a particular facility or site and take into account the quantity and quality of that water. A water audit is the first step in identifying leaks, assessing the efficiency of the current water system, and identifying opportunities for improvements, upgrades and retrofits. The outcome of a water audit can be used to identify cost-effective water efficiency upgrades. The City currently performs free home energy & water check-ups. In alignment with the Chula Vista Climate Action Plan, the City will require water-savings retrofits in existing buildings at a specific point-in-time (not point-of-sale), beginning with water audits.	A. Require point-in-time water audit for existing buildings in partnership with the real estate community. B. Utilize home energy & water check-up program as basis for point-in-time water audits.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services; Otay Water District; Sweetwater Authority; Association of Realtors; San Diego County Water Authority; San Diego County	Short-term

3.4 Capture and reuse condensate runoff from cooling equipment

CITY OPERATIONS | BUSINESSES

Background	Key Activities
One relatively simple way to reduce water use is by collecting condensate water, which is produced by air conditioning systems as they remove moisture from air during the cooling process. The amount of water collected varies based on amount of cooling required and climactic factors such as ambient humidity. Collection may be through direct drainage or require a separate pumping station, and buildings may be retrofitted or a dedicated system can be installed on new construction. Because it is formed from moisture in the air, condensate water is relatively high quality and can be re-used onsite with relatively little treatment. Additionally, installing a condensate capture system has a favorable payback period (generally less than 5 years). The City's strategy will initially involve retrofits for municipal buildings and then scale up to promote this practice in industrial and commercial facilities.	A. Retrofit City-owned buildings with condensate water capture systems. B. Promote installation of condensate collection systems in industrial and commercial facilities.
Required Resources	**Responsible:**
Secure funding for retrofits; staff time	Office of Sustainability (Conservation); Public Works
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services	Medium-term

3.5 Promote the use of on-demand hot water recirculation pumps

CITY OPERATIONS | RESIDENTS | BUSINESSES

Background	Key Activities
Homeowners and business owners alike often get frustrated with the time it takes for water to reach the right temperature at the fixture; hot water recirculation pumps (or on-demand hot water recirculating systems) have the potential to solve this problem while simultaneously saving energy and water. There is no need to send cold water down the drain with installation of a recirculation system – pumps rapidly pull hot water from a water heater while sending cold water back to the water heater to be reheated and reused. This process is similar to turning on the hot water at a faucet and letting the water run until it gets hot, but instead of the water going down the drain, it is simply returned back to the water heater — saving water. Additionally, a recirculating pump may be installed as a retrofit for certain hot water circulation systems.	A. Promote the benefits of using recirculating pumps for City operations, businesses, and residences. B. Develop a list of incentives for this technology.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section), Development Services (Building Department)
Key Support/Stakeholders:	**Implementation Timeframe:**
Public Works; private developers	Short-term

3.6 Promote optimization of cooling towers through operational and inspection schedule adjustments

CITY OPERATIONS | BUSINESSES

Background	Key Activities
Cooling towers are used in a variety of commercial applications to cool down warm, circulated process water from systems such has HVAC through evaporative cooling. The process of evaporative cooling produces water loss, and fresh water is introduced to the cooling tower as a result. According to the US EPA, cooling tower systems use significant amounts of water and often represent the largest use of water in commercial applications, around 20 to 50 percent. These systems may be optimized through chiller performance improvements and cooling tower efficiency, in addition to implementing water saving strategies. The City currently performs audits regarding cooling towers within City operations and industrial entities related to health code requirements.	A. Optimize municipal cooling tower performance through a combination of guidance development and audits. B. Engage cooling tower operators in commercial, retail, and industrial facilities to optimize cooling tower operations.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section Audit Program)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services; Commercial property owners; San Diego County Health Department; Otay Water District; Sweetwater Authority	Medium-term

3.7 Maximize the use of incentives and rebates for water efficient fixtures and building technologies

CITY OPERATIONS | RESIDENTS | BUSINESSES

Background	Key Activities
There are a lot of ways a community can economically incorporate water efficiency into their land uses. There are many existing rebate and incentive programs that are offered which are not used to their full potential. There are rebates available for water efficiency products such as high-efficiency toilets, urinals, plumbing fixtures and high-efficiency washers. There are financing options, such as the Home Energy Renovation Opportunity (HERO), part of the Property Assessed Clean Energy (PACE) programs, for water efficient upgrade projects for the built environment. The Water Agencies offer cost saving incentives, with their Water Savings Incentive Program, when water saving projects generate a measureable reduction in water consumptions (i.e. $0.46 - $0.60 for every 1,000 gallons of water saved per year.	A. Utilize the City's website and perform outreach activities to promote available local, state, and national rebates, incentives, and financing options, which can be leveraged by community members in order to make water reuse a cost-effective alternative for its businesses and homes.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services; Otay Water District; Sweetwater Authority; Local community groups; San Diego County	Short-term

Action #4

Encourage Water Efficient Landscape Decisions

Action Overview

It is estimated that outdoor irrigation for landscaping needs accounts for approximately 60 percent of overall water use in homes. This means outdoor irrigation is a key target area for water stewardship. We currently collaborate with the two local water providers, Otay Water District and Sweetwater Authority, on water conservation strategies throughout the community in addition to implementing a City-wide landscape water conservation ordinance. The City's Water Stewardship Plan provides guidance for the community to help reduce water waste through monitoring and water efficient landscaping.

Through Action #4, the City will:

4.1 Employ advanced irrigation management and monitoring technologies

4.2 Encourage water audits of landscaped areas

4.3 Continue to promote drought tolerant landscaping and turf removal throughout the community

4.4 Align water stewardship and urban forestry objectives

4.5 Maximize the use of incentives and rebates for water-efficient landscaping and irrigation

4.1 Employ advanced irrigation management and monitoring technologies

CITY OPERATIONS · OPEN SPACE & PARKS · RESIDENTS · BUSINESSES

Background	Key Activities
Current wireless irrigation technology provides the opportunity to more closely monitor water needs based on factors such as soil moisture and presence of rain. Many of the older areas of the City have older or less efficient irrigation control equipment, which results in water waste, often at an unknown rate due to lack of data monitoring. In addition, traditional water meters installed in these areas need to be read manually and may lose efficiency over time if not maintained properly. The good news is that more efficient irrigation systems are being installed at new or upgraded parks across the City. These upgrades include smart irrigation controllers, which customize watering based on parameters such as soil moisture and weather. Tracking this type of water data across the City will enable better advanced water planning, especially during drought conditions.	A. Improve water management across City operations, parks, residences, and businesses. B. Continue to install smart irrigation controllers and smart meters on City property during new construction or upgrades. C. Promote weather-based irrigation control systems and smart meters for homeowners and business owners.
Required Resources	**Responsible:**
Staff time related to outreach efforts	Public Works (Operations)
Key Support/Stakeholders:	**Implementation Timeframe:**
Office of Sustainability; City Council	Medium-term

4.2 Encourage water audits of landscaped areas

CITY OPERATIONS · OPEN SPACE & PARKS · RESIDENTS · BUSINESSES

Background	Key Activities
Water audits of landscaped areas have been found to help save up to 20 percent on water use. Otay Water District has a partnership with WaterSmart to offer free irrigation checkups. A certified landscape irrigation auditor will survey and provide written site-specific water-saving recommendations for qualifying non-residential properties at no cost. On the residential side, single-family property owners in the Otay Water District may apply with WaterSmart for a free outdoor assessment by a certified irrigation professional. Customers within the Sweetwater Authority territory may schedule a free home or business water audit from a conservation specialist to evaluate the water efficiency of the property.	A. Conduct regular water audits at City facilities and properties. B. Communicate existing auditing opportunities for the Chula Vista community.
Required Resources	**Responsible:**
Staff time	Otay Water District; Sweetwater Authority; Office of Sustainability (Conservation Section)
Key Support/Stakeholders:	**Implementation Timeframe:**
Public Works; San Diego County	Short-term

4.3 Continue to promote drought tolerant landscaping and turf removal throughout the community

CITY OPERATIONS · OPEN SPACE & PARKS · RESIDENTS · BUSINESSES

Background	Key Activities
The term "xeriscaping" is becoming more prevalent as our region sustains drought conditions and is a key tenet of our water stewardship program. Xeriscaping refers to landscaping and gardening that may greatly reduce the need for supplemental irrigation water, and is another term for being water-smart. It is more important than ever to emphasize converting high water use landscape areas such as grass and turf to drought-tolerant and water-conserving landscaping in the City. Residents and business owners can reduce their water consumption and utility bills through xeriscaping and installing high efficiency irrigation systems. We realize turf may be appropriate in certain situations – if it is essential to install turf, we encourage limiting the size to appropriate needs and installing a highly efficient irrigation system. The City publishes the WaterSmart Landscaping & Water Reuse Guide, and Otay Water District and Sweetwater Authority are great resources for plant lists, water-saving tips, and free water efficient landscape plans. Irrigation supply stores and local nurseries are also good resources for information on water efficient products and plants. Through the NatureScape Program, the City promotes nature-friendly yards and landscaping that provide wildlife habitat while conserving water. The program provides technical assistance, hands-on workshops, and certification of yards and gardens as NatureScapes through the National Wildlife Federation. The City's NatureScape workshops include free presentations and trainings on water conservation and nature-friendly gardening and landscaping. In addition to promoting water conservation strategies, NatureScape certifications help us toward our goal of becoming the largest city in California to be certified as a Community Wildlife Habitat Area through the National Wildlife Federation.	A. Promote the NatureScape Program and partner with gardening associations to encourage xeriscaping. B. Continue to showcase xeriscape gardens throughout the City. C. Continue turf removal/conversion programs on City property.
Required Resources	**Responsible:**
Staff time and marketing	Office of Sustainability (Conservation Section); Public Works (Operations)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services	Short term

4.4 Align water stewardship and urban forestry objectives

CITY OPERATIONS · OPEN SPACE & PARKS

Background	Key Activities
The City's Urban Forestry Program provides services related to tree trimming and removal in public right-of-way. This program also dictates tree planting on City property and provides an opportunity to incorporate water conservation into tree selection. Drought conditions make installing and growing healthy trees more challenging, and non-native or drought intolerant trees require more irrigation. Aligning water stewardship objectives with those of the Urban Forestry Program will ensure proper tree selection and prevent unnecessary irrigation of non-native plant species, while ensuring that the City continues to meet its goals for providing enhanced tree canopy, bird habitat, carbon sequestration and beautification.	A. Assess the Tree Ordinance and approved Urban Forest tree list and update in alignment with water use objectives.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section); Public Works (Operations)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services	Short-term

4.5 Maximize the use of incentives and rebates for water-efficient landscaping and irrigation

CITY OPERATIONS · OPEN SPACE & PARKS · RESIDENTS · BUSINESSES

Background	Key Activities
Sweetwater Authority and Otay Water District offer rebates for water-efficient landscaping and irrigation. Sweetwater Authority also offers grant opportunities up to $5,000 to encourage the efficient use of potable water. Regional grant opportunities are also available, such as the Metropolitan Water District's Water Saving Incentive Program. WaterSmart San Diego County's website offers links to incentives for both residential and business. Types of incentives include artificial turf discounts, rotating nozzle rebates, soil moisture sensor system rebates, weather-based irrigation controller rebates, and other select rebates for older and inefficient equipment. The City will work with its water district partners to maximize exposure for incentives and rebates promoting water efficient landscaping and irrigation.	A. Create a webpage on the City's website that consolidates and promotes available state, local, regional, and national rebates, incentives, grants, and financing options, for community members in order to advance water-efficient landscaping and irrigation practices throughout Chula Vista.
Required Resources	**Responsible:**
Staff time	Office of Sustainability (Conservation Section); Sweetwater Authority; Otay Water District
Key Support/Stakeholders:	**Implementation Timeframe:**
San Diego County	Short-term

Action #5

Promote Green Infrastructure & Low-Impact Development

Action Overview

The concept of green infrastructure is central to the Water Stewardship Plan, and will help facilitate the City's ability to expand rainwater reuse and groundwater use opportunities throughout the community. Green infrastructure utilizes natural processes to enhance water quality and manage stormwater quantity, restoring the hydrologic function of the urban landscape and reducing water pollutant loads. It can be designed to intercept and absorb rainwater and provide water capture and reuse opportunities, while reducing stormwater runoff and promoting infiltration and groundwater recharge.

Green infrastructure can be integrated throughout the built environment, including parking lots, streets, and landscaped areas. It will provides additional benefits such as streetscape beautification, increased shade, calmer traffic, walkable streets and greener public spaces. Green infrastructure has been shown to be more cost-effective when compared with traditional infrastructure, particularly when operations, maintenance, and replacement costs are considered. By promoting the use of green infrastructure and low-impact development in municipal, residential and commercial developments, Chula Vista can realize many of these benefits while advancing its vision for water stewardship.

Through Action #5, the City will:

- **5.1** Leverage green infrastructure and water retention opportunities at City facilities and open spaces
- **5.2** Update Water Conservation Plan Guidelines
- **5.3** Maximize the use of low-impact development standards

5.1 Leverage green infrastructure and water retention opportunities at City facilities and open spaces

CITY OPERATIONS | OPEN SPACE & PARKS

Background	Key Activities
As part of its effort to lead by example, the City is exploring opportunities to integrate green infrastructure measures throughout its own facilities as a visible means to achieve enhanced stormwater retention and reduced runoff while demonstrating these concepts in publically accessible locations. The City has identified numerous opportunities to pursue low impact development solutions on public sites as well as expand water retention facilities in its parks in order to maximize the infiltration of water into landscaping while minimizing stormwater runoff. For instance, Chula Vista's newest parks facilities feature bioswales and other low-impact development concepts, which the City can leverage as educational opportunities for the community through signage and outreach. In addition, working with private sector partners and residents, the continued conversion of vacant and blighted properties to community gardens presents an opportunity to actively engage residents in green infrastructure concepts.	A. Utilize low impact development solutions on public sites. B. Expand water retention facilities in parks. C. Install educational signage and perform community outreach activities. D. Continue the conversion of vacant and blighted properties to community gardens utilizing green infrastructure solutions.
Required Resources	**Responsible:**
Capital funding; staff time; support from local organizations; community involvement	Public Works (Operations, Engineering)
Key Support/Stakeholders:	**Implementation Timeframe:**
Development Services; Office of Sustainability (Conservation Section); Economic Development; local community groups	Medium-term

5.2 Update Water Conservation Plan Guidelines for new major developments

RESIDENTS | BUSINESSES

Background	Key Activities
The City has required the creation of Water Conservation Plans for all new major development projects since 2003. Water Conservation Plans must provide an analysis of water usage requirements of the proposed project, as well as a detailed plan for water conservation, use of reclaimed water, and other water stewardship measures. In addition, a program to monitor compliance with the plan is required. The guidance for these requirements outlines a number of water conservation measures that must be provided in residential and non-residential construction, including water- efficient fixtures and landscaping, and provisions for the use of reclaimed water where practicable. Since the guidelines were adopted, water conservation and reuse technologies and associated policies have evolved considerably. For instance, local governments in California have begun requiring graywater reuse in new developments.	A. Update to its Water Conservation Plan Guidelines to leverage these emerging opportunities to advance its water stewardship vision.
Required Resources	**Responsible:**
Staff time	Development Services (Planning), Public Works (Stormwater)
Key Support/Stakeholders:	**Implementation Timeframe:**
Office of Sustainability; Development Services; Public Works; private developers	Short-term

5.3 Maximize the use of low impact development standards

Background	Key Activities
Just as the City has committed to integrate green infrastructure into public projects, it recognizes the importance of advancing such solutions in private development projects. The City already promotes low impact development through a range of publically-available design guidelines and development standards; the City will work to elevate the use of these standards through education and promotion, and by creating incentives for low impact solutions, and disincentives for traditional approaches by elimination of loopholes. The City will establish a toolbox of low impact development solutions that provide options most appropriate for a particular site, such as permeable pavement, bioswales, and other design solutions that aid in stormwater retention.	A. Educate the community on low impact development. B. Promote low impact development solutions in residences and business. C. Eliminate loopholes in development standards and create incentives for low impact solutions. D. Create a toolbox of low impact development solutions.
Required Resources	**Responsible:**
Staff time	Development Services (Land Development)
Key Support/Stakeholders:	**Implementation Timeframe:**
Public Works; Office of Sustainability; Private developers	Short-term

This plan was made possible through a grant from The San Diego Foundation and the Bloomberg Award for Local Sustainability Matching Fund, a project of the Funders' Network for Smart Growth and Livable Communities. Visit www.sdfoundation.org and www.bloomberg.org for more information.

This plan was created by the following departments and partners of the City of Chula Vista:

- Development Services
- Office of Sustainability
- Parks
- Public Works
- Otay Water District
- Sweetwater Authority

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Plan development by Haley & Aldrich, Inc.