A Letter from the General Manager of the SFPUC, Harlan L. Kelly, Jr.

When we first began formalizing the concept of OneWaterSF four years ago, we were in the midst of one of the hottest and driest periods in California’s history. In addressing the challenges that the drought posed, it became apparent that taking a holistic approach, collaborating across the organization, and embracing new technologies was more crucial than ever.

Seeing that some of our most successful projects had these approaches in common, we began to catalog our best resource management strategies. From this effort, we established the OneWaterSF Vision and Guiding Principles in 2016. Our goal with OneWaterSF was to implement a new way of doing business at the SFPUC - an approach to resource management that recognized the importance of working across the utility to identify synergies across water, wastewater and energy boundaries and put the right resource to the right use.

As we look back over the last several years of work under OneWaterSF, we’re proud of how the Vision and Guiding Principles have transformed into action and results. In reflecting on this shift, we know that implementing projects that meet our Guiding Principles requires the creativity, partnership, and participation of all our employees. The focus of this year’s brochure, Our Guiding Principles in Action, is shaped by this awareness.
One of the biggest successes of implementing OneWaterSF has been fostering a culture at the SFPUC that embraces collaboration - both internally, and externally with our partners and the community - to implement innovative projects and programs that help us manage our water and energy resources in more sustainable ways. This collaboration is evident in the work that we’re doing and we’re proud to showcase it this year.

In 2019, our goal is to continue to foster OneWaterSF throughout the SFPUC and in the communities we serve. I encourage you to look at ways that you might implement the principles of OneWaterSF in your own work environments. Our collective efforts will surely sustain the resources entrusted to our care for generations to come.

HARLAN L. KELLY, JR.

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In 2016, the San Francisco Public Utilities Commission (SFPUC) introduced OneWaterSF as a new approach to water and energy resource management. The desire to formalize OneWaterSF came about by realizing the benefits of past successful programs and projects that converged multiple resources, leveraged partnerships and collaboration, and implemented new technologies in order to provide the right resource to the right use. By formalizing OneWaterSF, our goal was to develop a framework for expanding this successful approach across the organization in order to create synergies that could transform the way we do our work and to identify new opportunities for better managing our resources.

Over the past several years, the SFPUC’s OneWaterSF efforts have focused on identifying and implementing initiatives and programs that further the OneWaterSF Vision. In 2017, our work focused on testing various projects and programs through a OneWaterSF lens to encourage new ways of thinking, create pathways for innovation, and build upon the OneWaterSF vision and framework. In 2018, we continued implementing OneWaterSF initiatives with a focus on three key areas: promoting the use of technology and changing business practices, matching the right resources to the right use, and expanding OneWaterSF Vision within the SFPUC and the community.

With the success of these efforts, we are now seeing OneWaterSF shift from a new way of doing business to how we do business. OneWaterSF has become a framework for how we approach challenges and for the projects and programs we implement to address those challenges. By taking a more holistic view of our work, we are able to optimize resources and maximize benefits across the organization, create more opportunities for technology and innovation, and identify more projects that will help us adapt to future changes. Ultimately, this shift to integrating OneWaterSF in everything we do allows us to ensure that the SFPUC provides a long-term reliable and resilient water and energy supply for current and future generations.

Our Vision

With our OneWaterSF approach, San Francisco will optimize the use of our finite water and energy resources to balance community and ecosystem needs, creating a more resilient and reliable future.
Our Approach

OneWaterSF allows us to think more holistically about water and energy management. Traditional resource management has been separated into water, wastewater, and energy silos without looking holistically at our systems. The result has been that water and energy resources are looked at independently from one another and a linear “resources in/waste out” approach is taken. This approach has resulted in missed opportunities for capturing waste as a resource, and to advance our operations and business practices.

OneWaterSF encourages us to collaborate across traditional boundaries so that we can identify opportunities to better utilize our resources. Through our collaboration, we are now better able to utilize technology and innovation to optimize finite resources and make our water and energy systems more resilient and sustainable.
With OneWaterSF, we have focused on internal and external partnerships that encourage collaboration to develop and implement projects and initiatives that help advance the OneWaterSF Vision. These projects have allowed us to identify opportunities to implement new technologies and develop new business practices, work across traditional boundaries to identify more efficient use of our resources and continue to match the right resources to the best use. In the three years since OneWaterSF was launched, we have identified many unique accomplishments that should be recognized for advancing the OneWaterSF Vision. Documenting the accomplishments has highlighted the breadth of OneWaterSF across the organization and has also reinforced the importance of collaboration and working across traditional silos in creating successes. Ongoing documentation of our accomplishments will help us track how OneWaterSF is transforming our work and affecting successful outcomes.

Our Accomplishments

- To date, the PureWaterSF research project has produced 200,000 gallons of water.
- Increased water use efficiency across 60 acres of San Francisco Parks.
- Chaired the Blue Ribbon Commission to develop national water quality standards for non-potable water systems that protect public health.
- Secured $1 million in external funding from the Mayor’s Office to provide water & sewer bill discounts for low income households.
- Sold $1.4 billion in Green Bonds making SFPUC the second largest issuer of municipal green bonds in the country.
- 800,000 gallons of drinking water offset through the SFPUC Living Machine™ in 2018.
Our 2018 Energy Efficiency projects have reduced the City’s annual electric use by 7%

As of 2018, the Non-potable Water Program has projects that will offset 95 million gallons of drinking water per year in San Francisco.

SFPUC staff participated in 120 hours of hands-on training to support advancements in water purification.

In Fiscal Year 2017-18 we spent over $5 million on conservation programs for our customers.

Deployed new automated water meter technology to reduce customer leak notification time from 60 days to 4 days.

Our 2018 Energy Efficiency projects have reduced the City’s annual electric use by 1.1 million kilowatt hours enough to power 220 homes for a year.

Platinum level certification achieved for our biosolids management system for the 3rd consecutive year.

Completed 272 green infrastructure projects that remove 63 million gallons of stormwater from our sewer system each year.

Linking our education programs with our career programs to develop the next generation of environmental stewards and our workforce.
Our Guiding Principles in Action

The OneWaterSF Guiding Principles provide a foundation for developing and implementing projects and programs that embody OneWaterSF. By considering the Guiding Principles during the development and implementation of our work, we are able to integrate the OneWaterSF approach in our problem solving and resource management.

Since the inception of OneWaterSF, we have seen the program shift from being a new way of doing business to how we do business. But making pervasive, long-lasting cultural change is hard work, and OneWaterSF would not be where it is today without the commitment and innovation of our staff. OneWaterSF has, from the beginning, been an organic, ground-up effort. It was staff who recognized the benefits of formalizing OneWaterSF and it is still staff today who continue in the OneWaterSF grassroots spirit by developing and implementing projects and programs that embody the Guiding Principles of OneWaterSF. Looking throughout the SFPUC, we can see examples of OneWaterSF Guiding Principles in action. By highlighting these efforts, we hope to inspire additional opportunities to embrace and implement the OneWaterSF Guiding Principles and contribute the advancement of the OneWaterSF Vision.

OneWaterSF Guiding Principles

1. Match the right resource to the right use.
2. Look holistically at our water, wastewater, and power systems to develop programs, policies, and projects that provide multiple benefits.
3. Plan for variable outcomes and build in flexibility to adapt to future changes.
4. Develop projects and programs that conserve resources and promote ecosystem health, including the health and quality of our watersheds, San Francisco Bay, and the Pacific Ocean.
5. Work across traditional boundaries within our organization to foster collaboration that results in the efficient use of our water, wastewater, energy, and financial resources.
6. Engage our communities to foster awareness and collaboration around OneWaterSF.
7. Pursue partnerships with other agencies, the private sector, and other stakeholders to generate new and creative ideas.
8. Pilot state-of-the-art technologies, and test new approaches to develop new business practices.
Our Guiding Principles in Action

Match the Right Resource to the Right Use

**SFPUC Living Machine™ and PureWaterSF**

The SFPUC has been matching the right resource to the right use for many years. SFPUC headquarters was one of the first buildings in the nation – and the first in California – with onsite treatment of blackwater and graywater to be recycled for toilet flushing. Reducing water use from 12 gallons per person per day to 5 gallons per person per day, the SFPUC’s Living Machine system recycles about 5,000 gallons of water each weekday. This system helps avoid using high-quality drinking water for non-drinking purposes such as toilet and urinal flushing. By matching the water quality to an appropriate use, we can save drinking water for drinking.

The SFPUC is continuing in this tradition of matching the right resource to the right use by implementing PureWaterSF. This research project explores how we can treat and reliably produce purified water on a building scale using wastewater generated onsite. By adding treatment onto the existing Living Machine system, the SFPUC is purifying the water to a level that is expected to meet or exceed drinking water standards. While San Francisco is fortunate to have an excellent and reliable supply, there are few other opportunities to diversify our drinking water resources locally to meet future needs and emergencies. Research into how reliably recycled water can be treated, monitored, and reused will help us explore how we can continue to match the right resource to the right use in the future.
“PureWaterSF gives me a chance to use technologies that take Living Machine™ effluent to drinking water standards. That’s exciting, it’s innovative and we’re doing it to a building scale.”

Darrell Andrews  
Chief Stationary Engineer,  
SFPUC Headquarters
Our Guiding Principles in Action

Develop Programs and Projects that Provide Multiple Benefits

Electric Vehicle Charging Stations

While the SFPUC has always worked to implement projects and programs that provide a range of benefits, OneWaterSF encourages us to look beyond traditional ways of capturing multiple benefits. By looking across our systems, agency, and City, we can identify and secure benefits previously unknown to us. The SFPUC is currently in the process of evaluating how to maximize the use of city-owned property by identifying sites for electric vehicle charging stations. In looking holistically at SFPUC operations, we can provide additional benefits to our ratepayers, the public, and our City.

In 2018, the SFPUC joined with the San Francisco Department of the Environment (SF Environment) and the San Francisco Municipal Transportation Agency (SFMTA) to develop a citywide Electric Vehicle Roadmap for the electrification of the City’s transportation sector. This Roadmap recognized opportunities for City departments to prioritize electric vehicle charging infrastructure on City-owned property.
The SFPUC, SF Environment, and the SFMTA are now evaluating various locations to deploy electric vehicle charging infrastructure. Ideal sites will maximize utilization, convenience, and consider infrastructure build-out. Efforts are currently underway to install electric vehicle charging stations at the Transbay Transit Center, the 5th and Mission Garage, Civic Center, Fort Mason, and the outer Sunset. In the coming year, the SFPUC will continue to work with the San Francisco Port Authority, SFMTA, Fleet Services, and the Department of Real Estate to identify more sites suitable for electric vehicle charging stations. This work has allowed us to power City transportation fleets with a more sustainable fuel, all the while utilizing existing space. Not only are we helping reduce carbon emissions in the City, we are also better utilizing the limited space available to us in San Francisco.

“EV charging is a critical component to transforming the transportation sector and helping the City meet its climate goals. It is exciting to partner with SFMTA, SF Environment, and other city departments on EV charging projects to advance comprehensive strategies for siting charging stations in city parking assets.”

Manuel Ramirez
Redevelopment Projects Manager,
SFPUC Power Enterprise
When designing projects and programs, OneWaterSF encourages us to think about how we can build in flexibility that will help us adapt to future changes, both known and unknown. By planning for a variety of outcomes, we can better prepare ourselves for whatever the future may hold. The San Francisco Public Utilities Commission is working together with other Bay Area water agencies to do exactly this.

The Bar Area Regional Reliability (BARR) partnership is working to leverage existing assets and resources and strengthen water supply reliability for over 7 million residents and thousands of businesses and industries in the region. As underscored by the recent drought, the Bay Area is more resilient when the region’s water agencies work collaboratively, rather than individually. Inspired by opportunities to better leverage existing resources and assets, the SFPUC has joined together with seven of the region’s largest water agencies to form the BARR partnership. BARR will help the SFPUC and other Bay Area water agencies adapt more effectively to future changes by facilitating improved integrated regional water management and drought mitigation. By pursuing measures and actions that will use existing infrastructure and water resources more fully, BARR will help produce greater efficiencies and improve reliability for the entire region.
“BARR provides a forum that allows us to leverage existing interconnections with neighboring water providers while exploring options for additional synergies – all with the ultimate goal of increasing resiliency not only for SFPUC customers, but for the entire Bay Area.”

Steve Ritchie
Assistant General Manager,
SFPUC Water Enterprise
Our Guiding Principles in Action

Develop Projects that Conserve Resources and Promote Ecosystem Health

Green Infrastructure Program

San Francisco is uniquely positioned between the Pacific Ocean and the San Francisco Bay, with eight local urban watersheds; areas that support diverse ecosystems and contribute to the quality of life of our local residents and our region’s economy. OneWaterSF encourages us to consider projects and programs that help support the health of our surrounding ecosystems, while simultaneously conserving resources. The SFPUC’s Green Infrastructure Program is a prime example of how a program can incentivize ecosystem health through resource conservation.

Green infrastructure is a set of engineered, sustainable stormwater management tools that slow down, clean, and route stormwater to keep it from overwhelming our sewer system. Additionally, green infrastructure projects provide native habitat, beautify neighborhoods, recharge groundwater, and reuse water for non-potable uses. Through the Stormwater Management Ordinance (SMO) and capital projects, the SFPUC is implementing green infrastructure projects in our neighborhoods to support our goal of capturing one billion gallons of stormwater using green infrastructure by 2050.
In addition to the SMO and capital projects, the SFPUC has just launched its Green Infrastructure Grant Program, designed to encourage owners of large, impervious parcels in San Francisco to implement green infrastructure projects. The grant program will provide funding to eligible applicants to cover the costs of design and construction of green infrastructure facilities, such as rain gardens, permeable pavement, cisterns, and vegetated roofs. The grant program’s pilot project, the Stormwater Schoolyard Project at Robert Louis Stevenson Elementary School, reroutes stormwater into a series of dry creek beds and a sunken amphitheater with permeable pavers. In addition to naturally filtering and slowing down stormwater, this project also created nature play areas and opportunities for students to learn about watershed health and green infrastructure by “following the drops” around their schoolyard.

“We are so excited that our schoolyard can contribute to the health of San Francisco watersheds while creating an interactive play space that encourages our students to learn about the water cycle.”

Diane Lau-Yee
Principal,
Robert Louis Stevenson Elementary School
Our Guiding Principles in Action

Work Across Boundaries to Promote Efficient Use of Water, Energy, and Financial Resources

Green Bonds

OneWaterSF recognizes that increasing collaboration by working across traditional boundaries promotes the development and implementation of projects and initiatives that result in a wider variety of benefits, including the more efficient use of financial resources. The SFPUC has realized the advantages of internal collaboration not just in the projects we implement, but also in how we finance them, and we have become a national leader in “Green Bonds” as a direct result.

Issuing Green Bonds fosters working across the traditional boundaries within the SFPUC so we can identify and report on project impacts that matter most to investors. In addition to reporting on the climate-related benefits of the projects, investors increasingly value the many positive social impacts associated with our capital programs that are led by Community Benefits and Infrastructure, such as workforce development, local hire requirements, and investments in the arts and education.

A growing subset of investors are aligning investment strategies with the United Nations Sustainable Development Goals (SDGs). As we work to tie our project impacts to these Goals, and highlight the important work underway, we will have additional opportunities to create demand for SFPUC bonds, thereby continuing to increase value for our customers.
“Green and impact investors value not only our great work to reduce climate risk, but also the many positive social impacts created by our projects. Sharing these important co-benefits with investors can lead to increased demand for our bonds and ultimately result in lower costs for our ratepayers.”

Eric Sandler
SFPUC Chief Financial Officer / Assistant General Manager for Business Services
Kinder to Career Strategy

OneWaterSF’s vision focuses on optimizing the use of our finite resources in a manner that balances community and ecosystem needs to create a more resilient future. The SFPUC engages our communities so that the next generation understands sustainable resource use, advances the SFPUC’s OneWater approach, and helps us build a culture of inclusion and innovation within our future workforce. We implement this through the Kinder to Career Strategy, a transformative approach that links environmental education with career awareness for our youngest learners to young adults seeking careers at the SFPUC and in the utility sector. The SFPUC partners with local schools, educators, and non-profits serving youth to provide science, technology, engineering, and math (STEM) education and exposure to real-world careers in the water, power, and sewer industries.
One partnership that furthers this transformative approach is the SFPUC’s ground-breaking collaboration with John O’Connell High School in San Francisco, a technical high school in the Mission District. As a part of this program, teachers work with SFPUC staff during paid summer externships to integrate water, power, and sewer operations into the project-based learning curriculum for 9th through 12th grade students. Students have studied the accumulation of microbeads and plastics in the San Francisco Bay and analyzed renewable energy usage in CleanPowerSF, furthering their understanding of impacts on their urban environment.

Another successful initiative supporting the Kinder to Career Strategy is SSIP CityWorks, established by the SFPUC in 2012 to increase the number of women and people of color in architecture, engineering, environmental management, and related fields. The program provides young adults with paid summer jobs at private engineering firms working on SFPUC’s $6.9 billion Sewer System Improvement Program (SSIP). Since its inception, nine CityWorks interns have completed college, 44 are currently attending college, and eight recently graduated from high school.

“SSIP CityWorks has sparked my interest in engineering even more. I want to major in Civil Engineering and go to grad school to study urban planning.”

Sonia Davis
2018 Intern,
SSIP CityWorks Program
Oftentimes, partnerships are critical to the success of a project; without them, the project may miss achieving key objectives or fail altogether. OneWaterSF recognizes that projects and programs can be more successful if they leverage partnerships with other entities. The Ocean Beach Climate Change Adaptation Project is a perfect example of how leveraging partnerships can provide multiple benefits, including increased resiliency and protection of public infrastructure.

Ocean Beach is a 3.5-mile stretch of sand along San Francisco’s rugged Pacific Coast. It draws a diverse population of more than 300,000 visitors each year and is an important piece of the Golden Gate National Recreation Area. At the southern end of Ocean Beach, climate-induced sea level rise and severe erosion are threatening a portion of the national park, popular urban open space, and the site of major infrastructure including the Great Highway. The Oceanside Treatment Plant, which treats 20 percent of the City’s wastewater, is also located in this area, just adjacent to the Great Highway.

The SFPUC, in partnership with other city, state, and federal agencies, participated in the development of the 2012 Ocean Beach Master Plan. The development of the plan involved an extensive interagency and public process to develop a comprehensive vision to address sea level rise, protect infrastructure, restore coastal ecosystems and improve public access. The SFPUC is continuing to work together with beach users and community members to implement key components of the Plan at the southern end of Ocean Beach.

While still in the planning stages, the SFPUC is leveraging the power of partnerships to develop a sustainable and resilient long-term vision to adapt to climate change at the southern end of Ocean Beach.
“Climate change is having real and immediate impacts on the coast of San Francisco. Collaboration, innovation, and leveraging the power of partnerships is the best way for San Francisco to develop truly sustainable, resilient, and cost-effective solutions.”

Anna M. Roche
SFPUC Project Manager,
Climate Change Projects
Central to OneWaterSF is creating pathways for partnerships and innovation. Partnerships that connect people with new ideas will accelerate the development and implementation of cutting edge technologies that will help us to solve our most pressing water and energy challenges. Through OneWaterSF, the SFPUC has already promoted several innovative projects and programs that contribute to water supply diversification and local water supply reliability such as PureWaterSF, the On-site Non-potable Water Use Program, and our Leak Detection Program. We are adding to this list under our Innovations Program.

The goal of the Innovations Program is to promote exploration of new ways in which we can conserve and reuse water, recover resources, and diversify our water supply. The Program is intended to encourage piloting forward-thinking ideas that can help the City meet our resource challenges, including meeting long-term potable and non-potable water needs. It is also an opportunity to develop partnerships among the SFPUC, the community, industry, developers, technology vendors, and other stakeholders who play key roles in ensuring the long-term sustainability of our City.

The Innovations Program will provide technical and financial support for different projects that are promoting new ideas and technologies, particularly those that contain a water-energy nexus component. The types of projects that will be eligible for funding under the program include integrating heat exchangers that can reduce building energy consumption into onsite water reuse treatment systems, and piloting atmospheric water generation systems, such as fog catchers, for their potential to produce irrigation water for community gardens and drinking water supplies.
“By partnering and collaborating across the private, academic, and nonprofit sectors, we hope to identify innovations and technologies that will help us solve some of the most pressing water and energy resource challenges.”

Anson B. Moran,
SFPUC Commissioner
At the core of OneWaterSF is embracing change. We’ve changed how we think: we are now thinking differently about our water, wastewater, and energy systems so that we can recognize the connections in these systems and better value and utilize our resources. We’ve changed how we work: we are moving away from working within silos to better collaborating across our organization so that we can solve problems in a way that provides multiple benefits. We’ve also changed how we look at the world: we understand that our world is not static, but constantly changing, and that OneWaterSF helps strengthen our resilience to these changes by encouraging innovation, flexibility, and technology.

Central to implementing OneWaterSF has been the belief that ideas can start from anywhere. We’ve taken a bottom up, organic approach to implementing OneWaterSF which has enabled us to identify new approaches and technologies, work with a diverse group of participants, and explore connections. The success of this approach has allowed us to develop and implement projects that look holistically at our resources and systems to plan for variable outcomes and adapt to future changes, all the while engaging our communities and pursuing partnerships.

We know the world is constantly changing. The uncertain results of climate change, population growth, regulatory changes, and natural disasters all create pressing water and energy resource challenges. We will continue to shine a light on examples of groundbreaking projects and programs that address these challenges in holistic and ingenious ways. By doing so, we hope to inspire more innovation, encourage broader collaboration, and accelerate the adoption of OneWaterSF practices throughout our organization and community. Doing so will allow us to meet our vision of optimizing the use of our resources, balancing community and ecosystem needs, and creating a more resilient and reliable future.