Nationwide, utilities are grappling with aging infrastructure and San Francisco is no exception. Many parts of the City’s combined sewer system is over 100 years old and its key facilities have outlived their useful life. It is critical that the City invests to upgrade our system today, to continue protecting public health and the environment for the future.

After eight years of master planning and gathering extensive public feedback along with expert third-party analysis, the San Francisco Public Utilities Commission (SFPUC) is forging ahead with the Sewer System Improvement Program (SSIP), a 20 year multi-billion dollar citywide investment required to upgrade the City’s aging sewer infrastructure. The SSIP team continues to work towards significant project delivery milestones across all Phase 1 projects. This annual report is a summary of the major milestones and progress the SSIP team made in 2014 and a look ahead to 2015.
In reflecting upon the third full year of the Sewer System Improvement Program, I am reminded once again that the talent of this team is only matched by its commitment. Across all 62 projects currently underway, the SSIP has brought together dedicated technical experts that have a depth of practical knowledge on how to approach the unique obstacles within the City of San Francisco with solutions designed to work. The SSIP team is working to ensure each project advances the sewer system towards reliability during an earthquake, protects public health, and is responsive to future climate change affects, with innovation and excellence - and this must be constantly balanced with the goal of maintaining ratepayer affordability. One of those advancements this year is that we issued guidance for Sea Level Rise for Capital Planning for the entire City. While the projects themselves are the final deliverables of the SSIP, the lasting impressions and viability of these projects will be equally dependent upon our ability to make them responsive to the needs of our City and the communities where we build them. In 2014, we took steps to secure State Revolving Funds for eligible SSIP Projects, which will save ratepayers hundreds of millions of dollars over the life of the Program. As we undertake the program we want to leverage the SSIP investment to also help improve the lives of San Franciscans through job creation, delivering community benefits, and increasing access to careers and job opportunities. We have achieved 40.6% Local Hire on construction to date; that translates into more than $25M earned by San Francisco residents. 2014 was a year marked by intense planning and 2015 will see that planning refined, as many projects move into Design and even preparation for Construction. As we look forward towards 2015 we will build on the progress we have made thus far and continue our commitment to delivering projects that improve our sewer system now and for generations to come.
Phase 1 Beginning to Flourish

A year focused on planning, 2014 saw great strides in all of the major projects of SSIP Phase 1. Our largest projects at the Southeast Plant, Biosolids and Headworks; both transitioned from Planning into the Design phase, where preferred alternatives will be identified and refined. To ensure these and other projects consistently assess potential challenges as well as opportunities, SSIP has established a Risk Register to identify, assess, and evaluate risks to the Program. As larger projects complete 35% design, we will institute this risk assessment for any project with a construction value greater than $5 million.

Urban Watershed Assessment completed the Bayside recommendation for long-term planning of green and grey infrastructure improvements to manage stormwater. The first green infrastructure project of SSIP broke ground on Fell and Oak Streets in partnership with the SFMTA and SFDPW.

While the major projects of SSIP Phase 1 address the most critical assets within our system; there are many other projects that address our major system vulnerabilities with urgency and provide a roadmap to addressing our long-term needs as a City.

BIOSOLIDS DIGESTER FACILITIES PROJECT

The Future Takes Shape at the Southeast Plant

2014 was marked with many technical decisions and milestones that has pushed the Biosolids Digester Facilities Project (BDFP) forward. Technology selections for key processes including screening and odor control were made. The layout for the future site of each process was selected along with energy recovery/biogas reuse facilities. Formally these decisions were all documented in the completion of the Needs Assessment Report (NAR), Alternatives Analysis Report (AAR), and approximately 75% of the Conceptual Engineering Report (CER).

Fitting into the Fabric of the Southeast

The project team welcomed architecture firm Michael Willis and Associates to help envision and design the new facilities to be a modern asset to the community. Their team brings vast knowledge and expertise in creating a common understanding between significant infrastructure facilities and neighboring communities. Several community meetings were held to better understand the vision and priorities the community has for interacting with the BDFP and the Southeast Treatment Plant (SEP) as a whole.

The project team has been busy honing the plan for building these new facilities while maintaining full plant functionality and treatment capacity throughout construction. The Plant operates 24 hours a day, 7 days a week, handling 80% of the City’s flows, and it must continue to function throughout construction.

We are looking forward to 2015 as we develop design alternatives, and begin environmental review for the Project. We will continue to work with the community to better understand how to be the best possible neighbor within the Bayview-Hunters Point community.

“At the Southeast Treatment Plant, the Biosolids team has been focused on minimizing the impacts of the new facilities and being a good neighbor.”

—Carolyn Chiu, Biosolids Project Manager
HEADWORKS
Custom Needs for a Custom City

The New Headworks Facility project will vastly improve the performance of debris and grit removal, as well as odor management of the sewer influent as it enters the Southeast Treatment Plant. In 2014, the team explored the most technologically advanced systems for removing grit from incoming sewage and the industry’s best practices for managing odors at the facility. As the year came to a close, the Alternatives Analysis Report (AAR), outlining the best approaches to a New Headworks Facility, was completed.

2014 also saw the installation of two large scale pilot facilities to test new grit removal technologies adjacent to the current Headworks Facility. The two pilot projects have begun processing small amounts of sewer flows and their performance is being evaluated. The results of these tests will inform the design of the New Headworks Facility.

Alongside the complete redesign of the Headworks Facility, significant upgrades to the outdated supporting electrical systems and the primary and secondary clarifiers were also planned. These improvements will make plant operations smoother and more efficient. They will also address odors associated with the primary clarifiers by eliminating open air exposure.

The coordinated planning of all of the Headworks related projects has been a major accomplishment requiring long-term planning to ensure that full treatment functionality is maintained throughout construction. This has been done with an understanding that the system must remain functional within the tight time and space constraints. As planning transitions into 2015, the job will turn to the detailed design of the New Headworks Facility that will remove more than 90% of the grit and reduce the liquids process odors by over 85%.

“Replacing old and outdated technology at the Headworks Facility will vastly improve performance for the Southeast Treatment Plant, saving money on maintenance and operations.” — Jignesh Desai, Headworks Project Manager

CENTRAL BAYSIDE SYSTEM IMPROVEMENT PROJECT
A Seismically Reliable Tunnel

The Central Bayside System Improvement Project (CBSIP) will address the need for a seismically reliable connection from the northern part of San Francisco (Downtown, Marina, Chinatown, etc.) to the Southeast Treatment Plant (SEP). The 66” Channel Force Main carries 60% of the Bayside flows from the Northshore and Channel watersheds to the SEP and has a history of failure since the 1989 earthquake.

Over the course of the year we analyzed many different options and have narrowed it down to two viable gravity alternatives for ensuring reliability to the connection. During this upcoming year the two alternatives will be evaluated in the Conceptual Engineering Report, to determine the best approach to improve this vital and vulnerable connection for our sewer system.

“‘We are looking at how to be more environmentally responsible as we make these once in a generation investments in our infrastructure.’” — Manfred Wong, CBSIP Senior Project Manager
EARLY IMPLEMENTATION PROJECTS
The Leading Edge of Our Green Future

SSIP’s eight early implementation green infrastructure projects made great strides this past year. Our year was focused on in depth planning and the transition to Design for many of the projects. Five of the named eight Early Implementation Projects (EIPs) completed public outreach during their Planning and preliminary Design phases in 2014. Those projects have since moved into Design as they are refined towards construction ready plans.

The biggest milestone of the year was the start of construction on the Oak and Fell Pedestrian Improvement Project (Wiggle Neighborhood Green Corridor Phase 1). This project, a partnership with SFMTA and SFDPW, includes permeable pavement and bulb-out rain gardens on Fell and Oak Streets between Baker and Scott Streets, and marks the first green infrastructure construction as part of the SSIP. With the ground broken on August 25th we are well into construction on improvements that serve both our sewer system and the pedestrian, bicycle, and vehicle experience at some of San Francisco’s high traffic multimodal intersections.

Each of the eight EIPs have made significant strides in 2014 and two interagency partnerships have also progressed with green infrastructure this past year. Next year will be one packed with more milestones and groundbreakings for green infrastructure across the City.

URBAN WATERSHED ASSESSMENT
A Stormwater Plan on the Horizon

In 2014 we made important progress as we brought into focus the long term opportunities and recommendations for upcoming collection system projects throughout the City. This comprehensive planning effort will provide the framework and guidance to prioritize and pursue the most effective projects for addressing a variety of issues, while working towards a more environmentally responsible and beneficial sewer system.

On the Bayside, we have completed our full analysis of the five urban watersheds as an integrated system to develop a recommended alternative. The recommended alternative includes a variety of green and grey projects that together will address our long term system needs in reducing combined sewer discharges and managing stormwater. The technical analysis not only evaluated the green and grey infrastructure improvements, but also considered the potential community impacts, opportunities for education, and feedback received from the public during interactive planning games. This comprehensive process resulted in a Bayside Recommended Alternative Report that represents the highest value infrastructure improvements for the long term health of our system and our community.

The Westside Urban Watershed Analysis also began by focusing on the Opportunities Report which will outline the potential system improvements to stormwater management in the City’s three westside watersheds.

In 2015 we look forward to finalizing the Westside recommendation and combining it with the Bayside to develop a Citywide approach to managing stormwater and optimizing the collection system for San Francisco.

“We implemented a truly comprehensive process analyzing all technical, social, and economic factors, which resulted in dynamic and balanced urban watershed plans.”

— Rosey Jencks, UWA Manager and Regulatory Specialist

“The overwhelming support green infrastructure projects received reminds us that it has the opportunity to effectively manage stormwater and deliver positive community impacts.” — Raphael Garcia, EIP Project Manager
OUR MULTIFACETED APPROACH EFFECTIVELY ENGAGED A WIDE RANGE OF SAN FRANCISCANS ON THE IMPORTANT ISSUES SSIP IS ADDRESSING ACROSS THE CITY.

Maureen Barry
Communications Manager, Coordinator of Citizen Involvement

Gathering public input during the Planning and Design phases of projects is essential to the long-term success of the projects and Program. We interacted with San Franciscans in their neighborhoods, at public events citywide, and through varied channels online. This multifaceted approach helped us to engage a wide range of San Franciscans on the important issues SSIP is addressing across the City. With unique online interaction opportunities and a following in excess of 14,000 and growing, the SFPUC is a leader in communicating infrastructure investment across all platforms. We place great value on quality communications because it helps us deliver the most responsive, effective, and innovative projects and policies for SSIP.

MEETINGS, EVENTS, AND TOURS
Bringing SSIP to the People

Meeting with residents in the community offered vital interactions for SSIP projects in 2014. These face-to-face interactions at project locations offer an opportunity for residents to see the planned improvements in their neighborhoods involving green and grey infrastructure, and to raise questions and/or concerns during the Planning phases of these projects.

The Urban Watershed Assessment kicked off the year with a lunchtime presentation at S.P.U.R. discussing the input gathered from workshops and open houses on the City’s Bayside. Later in the year, focus began to shift towards the Westside of the City for the award-winning planning game focused on developing infrastructure solutions to the Richmond, Sunset, and Lake Merced watersheds.

CBSIP held two open houses in Potrero Hill and Mission Creek investigating the potential to provide reliable and redundant storage and conveyance of wastewater flows from the Channel Pump Station to the Southeast Treatment Plant. The team received feedback from in-person discussions, online surveys, and social media posts and are now finalizing the two potential tunnel alignments and various tunnel shaft and pump station locations.

Activity in the Southeast was renewed with the creation of a Southeast Working Group (SEWG) in May. The group provided a forum to discuss SFPUC projects and activities with Southeast stakeholders. The SEWG includes members from community businesses, organizations, and the neighborhood. SEWG members help build understanding with the SFPUC and plan a better Southeast community. In addition to input gathered from community events, SEWG members were able to provide insight into the new Biosolids Digester Facilities project including aesthetic design of the new facilities.

There were new additions to the treatment plant tours including an educational brochure/map to help guide attendees through the Southeast Treatment Plant, fun stickers, and pollution prevention cards which included quotes from our 2013 “Learn About Me” Sower campaign. Residents were invited to ride alongside some of San Francisco’s top wastewater engineers as they biked around the City to learn about the critical facilities that work non-stop protecting public health and the environment.

“A TOTAL OF 86 TOURS WERE HOSTED AT THE OCEANSIDE AND SOUTHEAST TREATMENT PLANTS

“Bringing more attention to our ‘city under the City’ is a challenge that we gladly accept each year.”
— Jean Walsh, Communications Coordinator of Citizen Involvement

Open House for the CBSIP

Public Outreach at Sunday Streets, Ocean Beach
COMMUNITY WORKSHOPS AND OPEN HOUSES featuring interactive forums for participant engagement were hosted during Planning and Design phases of Phase 1 projects.

1,600+ IN-PERSON SURVEYS provided convenient and accessible multi-lingual face-to-face opportunities for people to learn and tell us their opinions on the sewer system and Urban Watershed Assessment plans.

PRESENTATIONS ACROSS ALL EIGHT URBAN WATERSHEDS built valuable connections with Citywide stakeholders and raised awareness around the purpose and need of SSIP.

26 PRESENTATIONS ACROSS ALL EIGHT URBAN WATERSHEDS built valuable connections with Citywide stakeholders and raised awareness around the purpose and need of SSIP.

63 “TOUR DE SF” SEWER SYSTEM ATTENDEES participated in green infrastructure bike tours to learn about the green infrastructure technologies being implemented in innovative ways throughout the City.

URBAN WATERSHED ASSESSMENT GAME PARTICIPANTS played interactive planning games for a hands-on way to work together and plan for green and grey infrastructure projects over the next 20 years.

170+ URBAN WATERSHED ASSESSMENT GAME PARTICIPANTS played interactive planning games for a hands-on way to work together and plan for green and grey infrastructure projects over the next 20 years.

“TOUR DE SF” SEWER SYSTEM ATTENDEES participated in green infrastructure bike tours to learn about the green infrastructure technologies being implemented in innovative ways throughout the City.

960+ PLANT TOUR ATTENDEES participated in 86 tours at our Oceanside and Southeast treatment plants, getting a behind the scenes look at the invisible, but vital sewer treatment process.

4,900+ ENEWSLETTER SUBSCRIBERS received the sewer eNewsletter bi-weekly to keep up-to-date on the progress of SSIP, events, community workshops, and to learn tips on pollution prevention.

In 2014 the communications team lead a robust public outreach and education program to engage stakeholders from diverse communities and neighborhoods. Engagement early in the process helps build the foundation for long lasting and constructive relationships with communities and stakeholders that will continue to benefit SSIP for the next 20 years of the program and beyond.

Traditional engagement techniques, including hosting meetings and giving plant tours, is a way to actively educate and raise awareness about the important role of the sewer system.

Innovative engagement tools, including online surveys and watershed games, helped to engage even more and diverse San Franciscans in the planning process of green and grey projects.
“THE SSIP HAS TAKEN A LEADERSHIP ROLE IN ENSURING THAT INFRASTRUCTURE IMPROVEMENTS GO BEYOND FIXING PIPES TO ACTUALLY HELPING PEOPLE BUILD A FUTURE IN OUR CITY.”

As a city agency we have a responsibility to the city and its residents to not only deliver essential services but also continue to invest in our communities and the biggest assets we have — our people. SSIP has taken a leadership role in ensuring that infrastructure improvements go beyond fixing pipes to actually helping people build a future in our city.

As we provide Community Benefits through commitments from our professional services contracts, we see four main pillars of supporting the community: Education, Youth Workforce Development, Adult Workforce Development, and support of Small Businesses. It is with great pride that we have been able to focus energy and resources in some specific programs that benefit the youth, adults, and small businesses of San Francisco. As of 2014, the SSIP has three professional services contracts that are subject to the Community Benefits Policy and as a result have committed over $140,000 and 1,300 volunteer hours.

Facebook saw a 9% increase

Instagram saw a 38% increase in followers

Twitter experienced a 21% increase in followers

®SFWater passed the 9,000 follower milestone

Open rates for the eNewsletter increased and are now averaging 29%, which is above the industry average of 24%
EDUCATION & YOUTH WORKFORCE

SSIP Cityworks

Now in its third year, the SSIP Cityworks Program strives to introduce students to potential career interests in utility related professions, such as engineering and architecture while also encouraging the increased participation of women and underrepresented minorities in these careers. At the conclusion of their internship, SSIP Cityworks partners assist high school students and graduates to enter post secondary programs and apply for college level internships. In 2014, the SFPUC and consultant partners were joined by 21 interns through the SSIP CityWorks program.

A result of the hard work put in by SSIP interns comes through in the wastewater rap song “You Can’t Live A Day Without Me.” The song was written and performed by the interns and SSIP staff. A music video is currently being developed by a local non-profit organization, BAYCAT, that trains youth for jobs in the digital technology industry, and is scheduled to be released in early 2015.

SMALL BUSINESS DEVELOPMENT

Contractors Assistance Center

As the SFPUC upgrades its aging sewer system, we look to integrate a mix of green and grey infrastructure projects to improve the system. These projects require new building and construction skills and they open the door to new opportunities for many contractors. The Contractors Assistance Center (Center) provides an opportunity for firms to connect around the diverse areas of expertise sought by City agencies.

At the Center, workshops were held throughout the year covering the new contracting opportunities in green infrastructure, the technologies our current and future projects are incorporating, and the bidding requirements for City contracts. In addition to trainings and workshops, several networking events were held providing small, local businesses an opportunity to interact with large prime contracting firms specializing in architecture, engineering, design, construction management, consulting, communications, and construction.

“The Contractors Assistance Center offers a range of services, from technical assistance and classroom training, to networking events, and one-on-one counseling to help small businesses take advantages of the billions of dollars being invested in the City’s aging infrastructure.”

— Massood Ordikhani, Workforce and Economic Program Services Bureau Director

“Our youth programs get students involved in their community while building practical and vital experience for their careers. We teach young people to be stewards of our City and the environment.”

— Leamon Abrams, Communications Coordinator
With the leadership of the SFPUC, the SSIP team has been empowered to approach the tasks with pragmatism and vision. This has been recognized across the country by similar agencies and professional associations. Our approach will continue to pay dividends as we push the envelope for a more comprehensive understanding of our roles and responsibilities as public service providers.

We took a leading role at the 2014 WEFTEC, the Water Environment Federation’s Annual Technical Exhibition and Conference, with SSIP staff presenting multiple papers and presentations during the three day conference. As the premiere wastewater conference, WEFTEC provides an invaluable resource to maintain contact with the most advanced technologies and innovators in our industry. SSIP continues to manage overall cost while providing the best value for ratepayers across the entire program. We are pursuing State Revolving Fund loans to supplement ratepayer dollars to make every dollar stretch further on forthcoming projects.

Our team strives to be on the cutting edge of wastewater infrastructure while the rest of the country watches and uses us as an example of the best way to approach a large scale capital program.

Design Build Institute of America’s Training, San Francisco

As part of the Design Build Institute of America’s (DBIA) San Francisco training we unveiled our intention to implement various Alternative Project Delivery Methods such as: Design-Build, Construction Management/General Contractor (CM/GC), and Progressive Design-Build on several major SSIP projects. DBIA promotes the value of Design-Build project delivery and teaches the effective integration of design and construction services to ensure success for Owners and design and construction practitioners. Project delivery methods like CM/GC present opportunities for cost savings because the two contract system between the Owner/Designer and Owner/CM Constructor brings in the Constructor earlier in the process and aligns the interests of the agency, designer, and the contractor through a variety of organizational mechanisms; resulting in less change for the owner. The San Francisco training brought together industry leaders to share contracting and execution best practices and learn about our interest and approach to the Design-Build process.

World Green Infrastructure Congress 2014, Australia

The World Green Infrastructure Congress 2014 conference was held in Sydney Australia and our own Green Infrastructure Project Manager, Raphael Garcia, was a keynote speaker giving four different presentations about the innovative work that the SFPUC is undertaking with our green infrastructure projects. As the leading international conference focused on green infrastructure, this was a significant opportunity to learn from a variety of academics, local governments, industry leaders, and practitioners about emerging technologies, policies, and approaches to green infrastructure. The SSIP approach to green infrastructure was appreciated for its highly proactive nature: we are unprecedented in our efforts to act without a mandate at such a large scale; our long-range planning efforts (UWA); coordination with other governmental agencies and departments; and our willingness to address future issues looming from climate change head on. There is growing recognition in the difficulty inherent in creating a new normal with the implementation of green infrastructure across the world and the need for increased awareness and leaders across disciplines to push the industry forward.

IFAT 2014, Munich

Members of the BDFP team attended IFAT, the largest trade show for environmental solutions in the world, to learn about the leading edge of technology and solutions that can be implemented for the new BDFP. In addition to IFAT, the team visited several area treatment plants. The visits provided new perspectives and approaches to operations and maintenance that will help us to develop the best custom approach to operating our new facilities.

Karen Kubick joins industry leaders to discuss design build project best practices and lessons learned at the 2014 DBIA conference
IN REVIEW

PHASE 1 METRICS | As of December 2014

SSIP Projects by Phase
There are currently 62 SSIP Phase 1 Projects underway ranging from Pre-Planning to Completion.

Phase 1 Expenditures
To-date expenditures and remaining authorized budget for SSIP Phase 1.

- Expended $0.116B
- Remaining $2.596B

Phase 1 Completion
Percentage of planned SSIP Phase 1 Projects complete.

4.3% PHASE 1 PROJECTS

Local Business Enterprise Participation
The contract participation by Local Business Enterprise (LBE) subcontractors is based on total invoiced amount to date compared to the advertised LBE Sub participation Goal established by the Contracting Monitoring Division (CMD).

- Goal
- Actual

Local Hours
San Francisco residents have worked over 40K of the total 104K craft hours on SSIP projects. This equates to 40.6% of the total hours, exceeding the Local Hire requirements of 20-30% depending on project.

40.6% Total Craft Hours Worked by San Francisco Residents

$2+MILLION Wages Earned by San Francisco Residents

“The Program has seen steady growth in the breadth and depth of work. The team’s diligence and commitment has positioned SSIP for many future successes.” — Pratima S. Joshi, Program Controls Manager
2015 will be a significant year in bringing our largest projects in Phase 1 of SSIP into clarity. We will see the completion of UWA Bayside and Westside recommendations, the EIPs will break ground on three of the eight projects, and the Environmental Impact Reports for both the Headworks and Biosolids projects will make significant strides.

Communications efforts will continue to support our projects by reaching out to communities to build understanding around how we can best serve San Francisco with planned improvements. Because of the upcoming work in the Southeast area of the City, we continue to make extra efforts to engage the community in a substantive and collaborative way.

With several projects moving into Construction, Community Benefits will be looking to engage and promote local small business and contractors to participate in SSIP projects.

2014 put us in a very balanced and positive position to make even greater progress bringing the most vital and pressing projects in the SSIP closer to fruition. We are looking forward to tackling that opportunity and making even more significant progress in the coming year.