




THE CITY OF SAN DIEGO

M E M O R A N D U M

DATE: March 11, 2019

TO: Independent Rates Oversight Committee

FROM: Matt Vespi, Interim Director, Public Utilities Department
via Johnnie Perkins, Deputy COO, Infrastructure/Public Works 

SUBJECT: Department Response to the Fiscal Year 2018 IROC Annual Report

On January 22, 2019, the Independent Rates Oversight Committee (IROC) and its subcommittees issued their Fiscal Year 2018 Annual Report with thirteen recommendations.

The Public Utilities Department (Department) has reviewed and provided responses to IROC's recommendations in Attachment 1. The 2018 Pure Water Annual Progress Report is provided in Attachment 2. The Department agrees with eleven recommendations and is neutral on recommendations #2 and #13. We will update IROC periodically to keep you informed of our progress towards implementation.

I would like to express my gratitude on behalf of the Department for your insightful and wide-ranging recommendations. If you have any questions or require additional information, please contact IROC Coordinator, Wilson Kennedy at (858) 654-4211 or via email at wkennedy@sandiego.gov.


Matt Vespi
Interim Director, Public Utilities Department

WK/wk

Attachments: 1. Department Response to the IROC Fiscal Year 2018 Annual Report
2. 2018 Pure Water Program Annual Progress Report

cc: Honorable Mayor Kevin L. Faulconer
Honorable Council President Georgette Gomez and Members of the City Council
Aimee Faucett, Chief of Staff, Office of the Mayor
Kris Michell, Chief Operating Officer
Stacey LoMedico, Assistant Chief Operating Officer
Andrea Tevlin, Independent Budget Analyst
Almis Udrys, Deputy Chief of Staff, Office of the Mayor
Thomas Zeleny, Chief Deputy City Attorney, Office of the City Attorney

**Public Utilities Department
Response to the Fiscal Year 2018 IROC Annual Report
Issued: January 22, 2019**

IROC's 2018 Key Recommendations

1. Audit Reports and Tracking

The Department was under increased scrutiny, in large part due to multiple audits revealing a lack of management controls and organizational culture issues within the Department. Most notably the performance audit of PUD Water Billing Operations, and West Monroe Partners Meter to Cash Operational Assessment and immediately followed by the Water Meter Cover Replacement Program Audit. IROC recommends the Department develop and track a public-facing Key Performance Indicators (KPIs) Dashboard that is relevant to water billing operations, tracks improvements being made within the Department and can be easily understood by the public, reported out monthly to IROC, and displayed on the City's website. IROC recommends the Department do a thorough review of its management structure, internal controls, processes and protocols, employee training programs, oversight, and accountability controls to determine where improvements can be made. IROC recommends the Department audit their written policies and procedures to identify any deficiencies, and implement proper standard operating procedures. IROC recommends the Department identify and implement appropriate changes by end of Fiscal Year 2019. IROC also recommends that the Department follow through and report out to IROC monthly on the progress on the implementation of the recommendations asserted by the Office of the City Auditor for both the Water Billing Operations Audit and the Water Meter Cover Replacement Program Audit as well as the Meter to Cash Operational Assessment.

Department Response: The Department agrees with these recommendations. The Department will continue to report out to IROC on the progress of these audit and tracking related recommendations at IROC meetings.

2. Audit Recommendation

IROC recommends that an audit of the City's personnel policies be performed for the PUD. It should include assessing compensation, retirement benefits, other benefits, recruitment, responses to position offers, retention, advancement, turnover, unfilled positions, and employees that transition to other entities. The analysis should include data for PUD employees compared to data from other similar utilities. The focus should be to determine if the relatively low employee compensation for PUD employees saves the ratepayers money, or if the resulting additional recruitment, hiring, training, overtime, and experience levels, cost the ratepayers more than they save.

Department Response: The Department is neutral on this recommendation. IROC could recommend this audit in coordination with the Audit Committee as stated in §26.2004 of the San Diego Municipal Code.

3. San Diego Pure Water Program

Last year, IROC noted its support for the Pure Water Program and belief that continued aggressive implementation of the program will provide both local and regional benefits in terms of reliability and local control of the City's water resources. As recommended, updated Pure Water costs and the schedule was presented to IROC and to those who contract with the City for wastewater services (i.e. JPA members). However, IROC reiterates its recommendation that PUD track and show all Pure Water expenditures separately in its budget document along with how the costs are split between Water and Wastewater, and include Pure Water as one of its key objectives in the departmental strategic plan (see Strategic Plan, below).

Department Response: The Department agrees with this recommendation. The Department will continue to track and show all Pure Water expenditures separately in its budget document along with how the costs are split between Water and Wastewater. Pure Water will continue to be a key objective in the Departmental Strategic Plan.

4. AMI

IROC recommends the Department provide a comprehensive project plan to complete the installation of the remaining meters for the Phase II citywide deployment of AMI. The Committee was asked to provide support for the funding request for the Phase II deployment and was not able to provide support to their request as it came to light the Department had no official implementation plan to install the remaining meters. The Department is struggling to keep current with work order backlogs in the same division that is expected to complete the AMI installation. IROC firmly recommends the Department retain an outside contractor to complete the AMI Project so to enable the Department to focus on the remaining boxes and lids backlogs as well as focus on operational improvements needed within the same division.

Department Response: The Department agrees with these recommendations. The Department will provide IROC with a comprehensive project plan to complete the installation of remaining meters for the Phase II citywide deployment of AMI. In the process of developing a comprehensive AMI deployment plan for Phase II, part of the plan will include the evaluation of different delivery methods for efficiency and productivity.

5. Five-Year Financial Outlook

IROC recommends that the Department provide IROC a five-year financial outlook yearly in advance of their standard budget cycle whereas IROC can review and provide feedback regarding the financial assumptions and projections for the Departments funding and financial goals.

Department Response: The Department agrees with this recommendation. The Department will continue to provide IROC with a five-year financial outlook in conjunction with development of the standard budget process to ensure there is sufficient time for the review and feedback process.

6. Strategic Plan

Broad goals, objectives, and KPIs are stated for PUD in its portion of the City's budget document. Additionally, PUD has a 2017-21 "Strategic Plan" dated January 11, 2016, and a progress report on the status of the plan's strategic initiatives was prepared in 2017. The Strategic Plan includes four goals dealing with water supply, organizational excellence, community engagement, and infrastructure management. IROC finds that the plan's goals and initiatives are overly broad and thus lacking in detail to measure progress. For FY 2017, the goals were supported by 19 Strategic Initiatives, of which 15 of the 19 were reported completed. However, many of the initiatives reported completed in 2017 should be on-going efforts or expanded in order to meet the Plan's (broadly) stated goals. No efforts for last year (2018) or beyond are reported in the Plan. IROC recommends that PUD develop a Strategic Plan and/or Business Plan with more detailed goals and objectives for each major departmental program, including KPIs to provide PUD with clear objectives and timelines to measure success. This Strategic Plan and its goals, objectives, and indicators should be made available to IROC and the public in order to provide more visibility of PUD operations and help to regain public trust in the Department and ensure that Standard Operating Procedures (SOPs) are being adhered to.

Department Response: The Department agrees with this recommendation. The Department will evaluate and update, on an annual basis, the Strategic Plan and report out to IROC on its status.

7. IROC Inspection Tours of Facilities

IROC recommends that staff continue to organize inspection tours for members of IROC of City facilities in order to increase awareness of department operations, successes, and challenges. Past tours have included the Metropolitan Operations Complex (MOC), Point Loma Wastewater Treatment Plant and the Billing and Call Center. Suggested tours could include water treatment plants, San Vicente Reservoir, and Chollas Operations Center.

Department Response: The Department agrees with this recommendation. The Department will continue to organize and facilitate educational tours of City facilities to increase awareness of Department operations, successes, and challenges. In addition, the Department requests for IROC to commit to tour dates in advance to maximize educational benefits to Committee Members.

8. Review of Funds

The Department performed a formal Review of Funds in FY 2017-2018. The purpose of the review was to compare assumptions made in the 2015 Cost of Service Study (COSS) with actual financial performance to date. This review was performed one year later than promised when the current five-year rate plan was adopted by City Council in 2015. The Review of Funds resulted in a nearly 3 percent roll-back of the scheduled 5 percent overall water rate (i.e. from 5 percent to 2.16 percent) increase planned for July 2018. IROC recommends that the Department undertake an annual informal Review of Funds through 2021 to assess and compare assumptions made in the COSS versus actual financial performance to date.

Department Response: The Department agrees with this recommendation. The Department will undertake a Review of Funds to assess and compare assumptions made in the COSS versus actual financial performance to date.

9. Alternative Rate Structure

PUD began its review of alternative water rate structures during the past fiscal year. Staff provided IROC with an overview of the various rate structures it was considering and received input from the IROC Members. Several public outreach meetings were held, along with two workshops sponsored by the Water Reliability Coalition and Regional Chamber of Commerce. These workshops provided valuable feedback to assist PUD as it brings forth rate alternatives. IROC recommends that in order to ensure the general public and interested stakeholders' input were duly considered, that PUD make public the mechanism that it uses to track comments received at each meeting and produce a short response as to how each comment or suggestion was (or was not) incorporated into the rate alternatives that will ultimately be presented and recommended.

Department Response: The Department agrees with this recommendation. The Department will hold future public forums, track comments received, and develop responses to public comments.

10. Water Sales and Purchases

The Department should provide regular (minimum bi-monthly) updates to the full IROC as it does at the subcommittee level on Water Sales and Purchases. Updates to the full IROC can be information items only, discussed upon request.

Department Response: The Department agrees with this recommendation. The Department will continue to provide IROC with financial information related to Water Sales and Purchases. In addition, the Department will continue to present key drivers of revenues and expenses at IROC meetings.

11. Pipeline and Facility Condition Assessments and Aging Infrastructure

PUD performs regular condition assessments of pipelines and facilities in order to prioritize replacement of aging infrastructure. IROC recommends that funding for the replacement of the aging portions of the water distribution system continue to be a priority as guided by the condition assessments.

Department Response: The Department agrees with this recommendation. The Department will continue to request funding as warranted, based on the condition assessment risk and priority. Projects will be prioritized based on operational needs, criticality analysis and financial capacity.

12. IROC Meeting Structure

IROC recommends that the Department work with the Committee to align its monthly meeting agendas around IROC's Annual Work Plan and the Department's annual recurring commitments. A standardized schedule of topics will provide the Department adequate time to prepare while ensuring that IROC maintains comprehensive coverage of its Charter and commitments to the ratepayers and City.

Department Response: The Department agrees with this recommendation. The Department will continue to work with the Committee to align its monthly meeting agendas around IROC's Work Plan and PUD's annual recurring commitments.

13. Independent Consultant

IROC has requested multiple times that an independent third-party consultant be retained in an effort to assist in reviewing upcoming rate designs and for the upcoming COSS. Under the direction of the Department, IROC worked to include language in a Resolution of the Council of the City of San Diego directing the Independent Budget Analyst to include as a City Council budget priority, the hiring of a consultant to advise the City Council and IROC on water and wastewater COSS and rate designs. In 2018, IROC requested to utilize a consultant in the upcoming rate designs that will be used in the FY 2020 COSS. It was communicated by the Office of the Independent Budget Analyst that this was not available for IROC in this capacity. IROC Members are frustrated with the continuous miscommunication from the Department on this topic and recommends that an independent consultant be provided on an as-needed contract basis for IROC Members to assist with an independent review of alternative rate structures, rate designs, and (but not limited to) the COSS.

Department Response: The Department is neutral on this recommendation. Per the City Council's direction, the Department will reimburse the IBA's expenses for a consultant to review the next COSS and Rate Case. However, that consultant will ultimately be under the direction of the IBA, and the timing and precise scope of work for that consultant will be determined by the IBA. The Department does intend to make its current rate consultant Raftelis available to IROC to provide information, receive input, and respond to question on the review of rate designs, cost of service study, and rate case anticipated in FY 2020.



Pure Water Program Annual Progress Report

2018



City of San Diego
Public Utilities Department

Table of Contents

1. Introduction	1
2. Pure Water Accomplishments	1
3. Phase 1 – North City Implementation Update	4
Phase 1 – North City Projects	4
NC01 Morena Pump Station and Pipelines Project	6
NC02 North City Water Reclamation Plant Expansion Project	7
NC03 North City Pure Water Facility Project	7
NC04 North City Pure Water Pump Station and Pipeline Project	8
NC05 North City Renewable Energy Project	9
NC06 Metropolitan Biosolids Center Improvements Project	10
NC07 Miramar Reservoir Pump Station Improvements Project	10
Phase 1 – North City Construction	11
Phase 1 - North City Commissioning Plan	13
Operator Readiness	15
Engineering and Process Optimization Supporting Studies	16
4. Regulatory and Environmental Progress	18
Regulatory Progress	18
Environmental Review	21
5. Phase 1 – North City Schedule and Cost Update	22
Schedule	22
Cost	23
Grants/Loans	24
6. Program and Project-Specific Outreach	25
7. Pure Water Phases 2 and 3 Planning	29
8. Summary of 2018 Accomplishments	30



City of San Diego: America's Finest City

1. Introduction

The Pure Water San Diego Program (Pure Water) made historic progress over the last year, with efforts focused on design completion and construction planning for Phase 1 – North City projects.


This Pure Water Program Annual Progress Report (Progress Report) highlights achievements over the last year, provides a status update on Phase 1 – North City status and discusses critical initiatives that are in progress.

No changes have been made to the Central Area and South Bay projects (Phases 2 and 3) since the distribution of the Pure Water Preliminary Capital Improvement Plan (CIP), in July 2015; however, high-level planning for the next phase(s) of Pure Water has officially begun.





2. Pure Water Accomplishments

It has been a year of forward progress, decision-making and major accomplishments! The table below provides an overview of this year's accomplishments; more details are provided on the following pages.

Table 1: At A Glance Accomplishments

Area of Achievement	What Was Accomplished
 Phase 1 – North City Projects	Completed 100% designs for key Phase 1 – North City Projects: <ul style="list-style-type: none">• Morena Pump Station and Pipelines Project• North City Water Reclamation Plant Expansion• North City Pure Water Facility• North City Pure Water Pipeline, Pump Station and Dechlorination Facility• Metropolitan Biosolids Center Improvements Project
	Completed the 30% Design for the Miramar Reservoir Pump Station Improvements Project
	Prepared the Draft 10% Design and shortlisted Design-Build-Finance-Operate-Maintain (DBFOM) teams for the North City Renewable Energy Project

Area of Achievement	What Was Accomplished
 Phase 1 – North City Construction	<p>On November 15, 2018, received Council approval to authorize the Mayor to execute Phase 1 – North City construction contracts with the lowest responsible and reliable bidders</p> <p>Issued Notice to Proceed (NTP) to the Conveyance and Treatment Construction Management (CM) consultants</p> <p>Advertised the first Phase 1 construction package for early site work at the North City Water Reclamation Plant and North City Pure Water Facility</p> <p>Completed majority of constructability and commissioning reviews for key Phase 1 – North City Projects</p> <p>Selected a broker for the City's Owner-Controlled Insurance Program (OCIP), which will promote cost savings, provide consistent broad coverage, and minimize cross litigation</p> <p>Continued development of PMWeb, the selected Construction Management Information System (CMIS) software, in collaboration with the Public Works Department leadership and field staff. User training will begin early in 2019</p> <p>Closed Escrow on Morena Pump Station Property (Former Humane Society Site) and initiated other required easement and property acquisitions</p>
 Engineering and Process Optimization Accomplishments	<p>Successfully completed testing tertiary filters at an increased hydraulic loading rate of 8.7 gallons per minute per square foot (gpm/sf). Received approval from the California Division of Drinking Water (DDW) to increase maximum filtration to this rate</p> <p>Completed all test conditions for the No Chloramine Study in August 2018. Discontinuing the addition of chloramine reduces the potential for forming disinfection by-products in the treated water</p> <p>Concluded the Miramar Water Treatment Plant Pilot Study to evaluate the impact of purified water on Miramar Water Treatment Plant operations</p>
 Regulatory Progress	<p>Made significant progress on the Title 22 Engineering Report effort:</p> <ul style="list-style-type: none"> • Addressed DDW comments and submitted the Draft Final Title 22 Engineering Report to DDW in June 2018 • Held three public hearings August 14th and 15th, 2018 • Conditional Approval Letter from DDW is anticipated by early 2019 <p>Submitted National Pollutant Discharge Elimination System (NPDES) Draft Permit Application to the Regional Water Quality Control Board (RWQCB) on May 31, 2018</p> <ul style="list-style-type: none"> • The RWQCB responded that the submission was complete and is in the process of drafting the permit • Targeting RWQCB hearing for NPDES permit approval in spring 2019 <p>Submitted a Draft Monitoring and Reporting Plan to DDW and the RWQCB on August 16, 2018</p>

Area of Achievement	What Was Accomplished
 Environmental Review	<p>Phase 1 North City Environmental Impact Report (EIR) was certified by the San Diego City Council on April 10, 2018 and a Site Development Permit was issued</p> <p>Completed federal agency consultations and received the National Environmental Policy Act (NEPA) Record of Decision (ROD) November 1, 2018</p> <p>Submitted environmental construction permit applications to the California Department of Fish and Wildlife (CDFW), RWQCB and Army Corps of Engineers; received the CDFW permit and expecting receipt of the other permits in early 2019</p> <p>Prepared permit applications and began receiving preconstruction permits, including receipt of the Caltrans permits for the pipeline projects</p>
 Grants and Loans	<p>U.S. Environmental Protection Agency (EPA) awarded the City a Water Infrastructure Finance and Innovation Act (WIFIA) loan, which will provide \$614 million in low-interest loans to help finance the Pure Water Program. The loan was signed by the City on November 14, 2018</p> <p>Prepared applications and provided technical information for State Revolving Fund (SRF) loan</p> <p>Local state leaders included a \$30 million allocation for Pure Water in the Fiscal Year 2019 State Budget</p>
 Pure Water Public Outreach	<p>Held 16 Community Working Group Meetings to obtain informed input and feedback regarding opportunities to avoid or minimize potential construction impacts</p> <p>Provided more than 90 tours of the North City Pure Water Demonstration Facility to over 1,500 participants</p> <p>Engaged over 3,300 community members at more than 25 community events and more than 900 people through over 34 speakers bureau presentations</p> <p>Partnered with Ryan Bros Coffee to brew coffee using purified water from the Demonstration Facility for the Pure Water Bike to Work Day pit stop that was covered by local KUSI and FOX 5 San Diego news shows</p> <p>Received recognition for community outreach efforts with awards from the Public Relations Society of America, Public Relations Society San Diego/Imperial County Chapters and California Association of Public Information Officers</p>
 Phases 2 and 3 Planning	<p>Began planning activities for Phases 2 and 3 of Pure Water in collaboration with the Metro Wastewater Joint Powers Authority (JPA), including a high-level alternatives analysis</p>

3. Phase 1 – North City Implementation Update

Pure Water is the City of San Diego's (City) program that will provide 1/3 of San Diego's water supply locally by 2035. The Pure Water Program will include a system of treatment facilities, pump stations and pipelines that will be constructed in phases.

The Pure Water Team developed the Phase 1 – North City plan to achieve 30 million gallons per day (mgd) of purified water production. Figure 1 provides an overview of the Phase 1 facilities.

The Pure Water Team is being led by the Public Utilities Department. The Public Works Department and consultant staff have been integrated into the Pure Water Team to manage the design and construction of all Pure Water projects. This partnership leverages design, construction and project management expertise that will benefit Phase 1 – North City delivery.



Phase 1 – North City Projects

The Pure Water Team has advanced design of Phase 1 – North City projects. The scope of Phase 1 projects has been refined through the completion of preliminary design and detailed design submittals. Project details are highlighted below and detailed on the following pages.

Phase 1 – North City Project Overview

- NC01 – Morena Pump Station and Pipelines: 100% Design Completed
- NC02 – North City Water Reclamation Plant Expansion: 100% Design Completed
- NC03 – North City Pure Water Facility: 100% Design Completed
- NC04 – North City Pure Water Pump Station and Pipeline: 100% Design Completed
- NC05 – North City Renewable Energy Project: 10% Preliminary Design Ongoing; firms shortlisted to propose on a DBFOM solicitation
- NC06 – Metropolitan Biosolids Center Improvements: 100% Design Completed
- NC07 – Miramar Reservoir Pump Station Improvements: 30% Design Completed, 60% Electrical and Instrumentation and Controls (I&C) Technical Memorandum Completed

Figure 1: North City Project Map



NC01 Morena Pump Station and Pipelines Project

The Morena Pump Station and Pipelines Project (Morena Project) is designed to increase wastewater flows to the North City Water Reclamation Plant, which will require 52 mgd of wastewater to meet both Pure Water and recycled water needs.

The Morena Project will transport an annual average of 32.2 mgd of wastewater from four existing sanitary sewers near the intersection of Friars Road and Morena Boulevard and will use a pump station to send the wastewater north to the North City Water Reclamation Plant. This will enable the North City Water Reclamation Plant to operate consistently at 52 mgd and the new North City Pure Water Facility to produce 30 mgd of purified water to add to the drinking water supply system.

A wastewater pump station will be built at the southwest corner of the intersection of Sherman and Custer Streets, near Morena Boulevard (see Figure 2). Two 10.5-mile wastewater pipelines will also be constructed: one pipeline will transport wastewater from the pump station to the North City Water Reclamation Plant and one will transport salts and contaminants (brine) from the North City Pure Water Facility and centrate from the Metropolitan Biosolids Center to the Point Loma Wastewater Treatment Plant. The wastewater pipelines will start at Sherman Street, follow West Morena Boulevard to Clairemont Drive, continue to Genesee Avenue and go through University City to the North City Water Reclamation Plant on Eastgate Mall.

This project will also include construction of two approximately 3.5-mile water pipelines (a 16-inch water distribution pipeline and a 36-inch transmission main), which will run parallel to the wastewater pipelines along West Morena Boulevard and Morena Boulevard.

The Pure Water Team recently closed escrow on the Morena Pump Station property (former Humane Society site) and has initiated the other required easement and property acquisitions.

Status: Recently completed 100% Design and acquired pump station site

Figure 2: Draft Design Rendering for Morena Pump Station



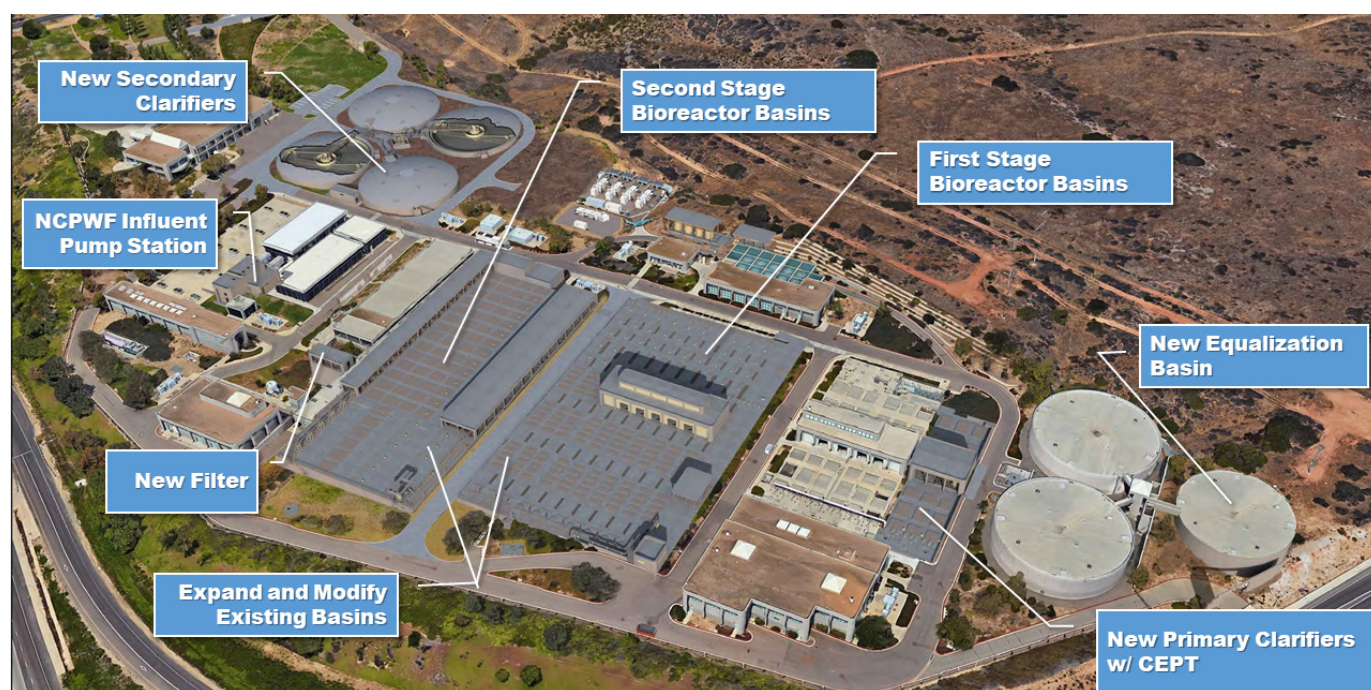
NC02 North City Water Reclamation Plant Expansion Project

The North City Water Reclamation Plant treats wastewater from several San Diego communities and distributes recycled water for irrigation and industrial purposes in the northern San Diego region. As part of the Pure Water Program, the North City Water Reclamation Plant will be expanded from producing 30 mgd to 52 mgd so the facility can continue to serve recycled water customers as well as provide recycled water to the future North City Pure Water Facility.

Major design elements for the North City Water Reclamation Plant expansion are illustrated in Figure 3 and include addition of chemically-enhanced primary treatment (CEPT), new equalization basin, new secondary clarifiers, expansion of the aeration basins, a new tertiary filter and equipment replacements. This project also includes design of a 42.5-mgd pump station and pipeline that will convey recycled water produced at the North City Water Reclamation Plant to the future North City Pure Water Facility.

Status: Recently completed 100% Design

Figure 3: Draft Design Rendering for North City Water Reclamation Plant Expansion



NC03 North City Pure Water Facility Project

The North City Pure Water Facility will treat recycled water produced at the North City Water Reclamation Plant to purified water standards. The new facility will be constructed north of Eastgate Mall across the street from the existing North City Water Reclamation Plant.

The North City Pure Water Facility will feature a state-of-the-art five-step treatment process that includes: 1) ozonation, 2) biological activated carbon filters, 3) membrane filtration, 4) reverse osmosis and 5) ultraviolet light disinfection with advanced oxidation.

Other North City Pure Water Facility design elements include chemical feed systems, site work, yard piping and electrical installations. The facility will also include an operations building, illustrated in Figure 4, which will house North City Pure Water Facility operations, maintenance and laboratory staff as well as the Pure Water San Diego Discovery Center (Discovery Center).

The Discovery Center will educate visitors about the benefits of the Pure Water Program, the water purification process, the history of the City of San Diego's water system, and ways to conserve water through its exhibits, tours and programming. The Discovery Center will also be a science education resource and field trip destination for local schools.

Once operational, the new plant will have a production capacity of up to 34 mgd. The purified water from the North City Pure Water Facility will be conveyed to Miramar Reservoir, and a small volume will be used to reduce the total dissolved solids concentration in non-potable reuse water produced at the North City Water Reclamation Plant. The North City Pure Water Facility will include a public art component, which is currently in the planning stages.

Status: Recently completed 100% Design

Figure 4: North City Pure Water Facility Draft Design Rendering



NC04 North City Pure Water Pump Station and Pipeline Project

The North City Pure Water Pump Station and Pipeline Project is needed to convey purified water produced by the new North City Pure Water Facility to Miramar Reservoir.

The purified water will be pumped from the North City Pure Water Facility by a new 30-mgd pump station, which will be located on the southeast portion of the North City Pure Water Facility on Eastgate Mall. Next, the purified water will be conveyed via a pipeline that will start at Eastgate Mall, follow Miramar Road, tunnel under the Interstate 15 (I-15) Highway, and continue through the Scripps Ranch community up to Miramar Reservoir. There, the purified water will be dispersed throughout the reservoir via an underwater pipeline that will be constructed on site and installed along the base of the reservoir.

The North City Pure Water Pump Station and Pipeline Project includes the following:

- 30-mgd purified water pump station
- Over 7.5 miles of 48-inch diameter pipeline
- 0.9 miles of 8-inch to 54-inch diameter underwater pipeline at Miramar Reservoir
- Dechlorination facility (illustrated in Figure 5)

The purified water will blend with the City's imported and local water supplies and be treated again at the adjacent Miramar Water Treatment Plant and distributed to customers.

Status: 100% Design completed

Figure 5: Draft Design Rendering of the North City Pure Water Dechlorination Facility



NC05 North City Renewable Energy Project

The North City Renewable Energy Project will capture Miramar Landfill gas to and methane produced by the anaerobic digesters at the Metropolitan Biosolids Center to generate energy and help meet Climate Action Plan targets to reduce greenhouse gas emissions. The project will produce the majority of power needed for the Phase 1 - North City facilities, including the expanded North City Water Reclamation Plant, North City Pure Water Facility and North City Pure Water Pump Station. The City will install a new approximate 15.4-megawatt (MW) generation facility at North City Water Reclamation Plant, 1.6-MW generation facility at Metropolitan Biosolids Center, landfill gas cleaning and compressor station and pipeline.

The Pure Water Team issued Request for Statement of Qualifications in February 2018, received four Statements of Qualifications and interviewed all teams. Three teams were shortlisted to be invited to respond to the formal Request for Proposals, anticipated in spring 2019.

Status: Completed Draft Preliminary Design (10%) and preparing Request for Proposal documents

NC06 Metropolitan Biosolids Center Improvements Project

The Metropolitan Biosolids Center is the City's regional biosolids facility that receives and processes solids from both the North City Water Reclamation Plant and the Point Loma Wastewater Treatment Plant. Upgrades and improvements to the existing process systems are necessary. The major project scope elements at the Metropolitan Biosolids Center are illustrated on Figure 6 and entail improvements to the following process areas: grit removal, biosolids thickening, anaerobic digestion, biogas handling and centrate pump station.

Status: Recently completed 100% Design

Figure 6: Metropolitan Biosolids Center Improvements Draft Site Plan



NC07 Miramar Reservoir Pump Station Improvements Project

Miramar Reservoir Pump Station pumps raw water from Miramar Reservoir to the Miramar Water Treatment Plant. The pump station currently consists of six 200-horsepower pumps with a reported maximum flow rate of approximately 100 mgd. Currently, the majority of the raw water supplied to the Miramar Water Treatment Plant is fed directly through connections from the San Diego County Water Authority aqueducts. Miramar Reservoir is used primarily for balancing flows and for emergency storage and supply.

Miramar Reservoir is scheduled to receive new, continuous inflow from the Pure Water Program. As a result, operation of the Miramar Reservoir Pump Station will change from intermittent daily pump operation to continuous pump operation. To accommodate continuous pump operation, mechanical, electrical, instrumentation and civil upgrades to the pump station are required.

Status: Completed 30% Design and 60% Design Electrical and I&C Submittal



Phase 1 – North City Construction

A major construction planning milestone was reached in 2018 – the Pure Water Team received Council approval on November 15, 2018 to authorize the Mayor to execute Phase 1 – North City construction contracts with the lowest responsible and reliable bidders. In addition, the Pure Water Team onboarded the CM consultants, performed constructability and project schedule reviews and made progress with the implementation of OCIP and PMWeb.

Constructability and Project Schedule Reviews

The Pure Water Team procured two CM consultants to assist with the oversight of Phase 1 – North City construction, one for treatment projects and one for conveyance projects. The Pure Water Team conducted onboarding of the CM consultants and City Field Services Division CM staff, and presented project briefings to provide project design information, planned construction sequencing, physical and control interfaces between projects and testing and commissioning plans. The CM teams have been tasked to perform independent constructability reviews of the Pure Water projects, with their first major focus being to vet project construction and commissioning schedules. Based on the schedule reviews, the Pure Water Team updated project schedule milestones, which are included in Section 5 Phase 1 – North City Schedule and Budget Update.

Construction Schedule Review

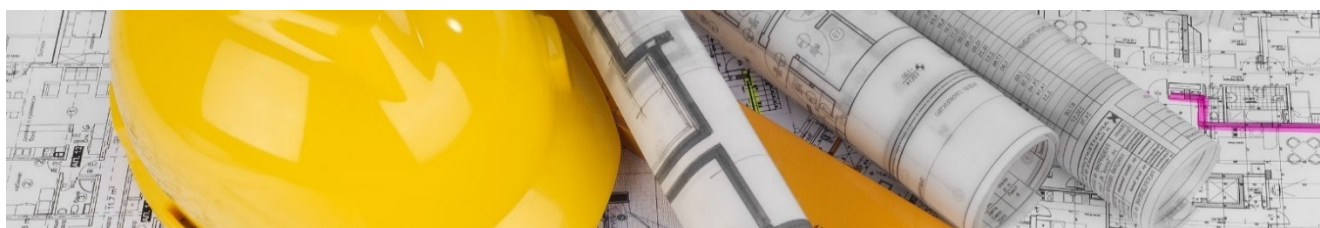
The objectives of the construction schedule reviews were to assess construction durations, identify potential schedule risks and evaluate construction sequence, commissioning timeline and project interdependencies. Site constraints, access restrictions, site preparation, adjacent excavations, concrete placements and equipment lead times were considered. The schedule review team estimated the minimum, most likely and maximum construction activity durations and updated the project schedules to evaluate sequence and logic.

Outcome: Based on the schedule reviews, durations of key construction activities were extended where deemed appropriate, allowing for site access restrictions, constrained work areas, site preparation, excavations and concrete placements. As a result, pre-commissioning construction schedules were extended approximately 6 months for the Morena Pump Station, North City Water Reclamation Plant Expansion and North City Pure Water Facility projects, with inter-project dependencies affecting multiple project schedules.

Project-Level Commissioning Schedule Review

Testing and commissioning planning sessions were held to refine facility testing requirements, test water and disposal needs, gradual process flow increases, inter-project construction dependencies, control interfaces and integrated system-wide testing. Efforts were focused on refining testing, startup and commissioning schedules and inter-project dependencies.

Outcome: Intermediate Substantial Completion milestones were added, defining when each individual project is sufficiently complete and operable to perform an integrated startup with the other North City facilities. A 4-month period was added to allow for a gradual flow increase through the expanded North City Water Reclamation Plant to accommodate biological treatment acclimation.



System-Wide Commissioning Schedule Review

The Pure Water projects are a linear system with each project dependent on the others for numerous interconnections, process water, disposal and operations. Testing, startup and commissioning of each project is integrated with the other projects. These interdependences were studied as part of the schedule review.

Outcome: Construction commissioning schedules were extended to allow an integrated system-wide facilities acceptance test at full flow capacity, after all construction packages are completed and ready for system-wide operation. The integrated facilities acceptance test will allow operation and testing of inter-project functions and the Distributed Control System while the primary contractors are still under contract. A 1-month test duration was included to allow for trouble-shooting and testing re-starts.

Commissioning planning is discussed further on pages 13 and 14.

Miramar Reservoir Delivery Ramp-Up Schedule

Following successful completion of commissioning and integrated system-wide testing, DDW approval will be needed before delivery of purified water to Miramar Reservoir. The City is working closely with the regulators and anticipates a phased ramp-up of flow to Miramar Reservoir.

Outcome: A schedule of purified water delivery was developed with an operational ramp-up comprising an initial 7.5 mgd delivery, 15 mgd delivery, and ultimately 30 mgd full design production flowrate. Each phase would operate for approximately 3 months to validate operation before increasing flowrate for the next phase of operation. Therefore, testing, startup and commissioning schedules were extended for all projects and a 6-month phased ramp-up of purified water delivery to Miramar Reservoir was added. Section 5 Phase 1 – North City Schedule and Budget Update includes the Miramar Reservoir Ramp-Up Schedule milestones.

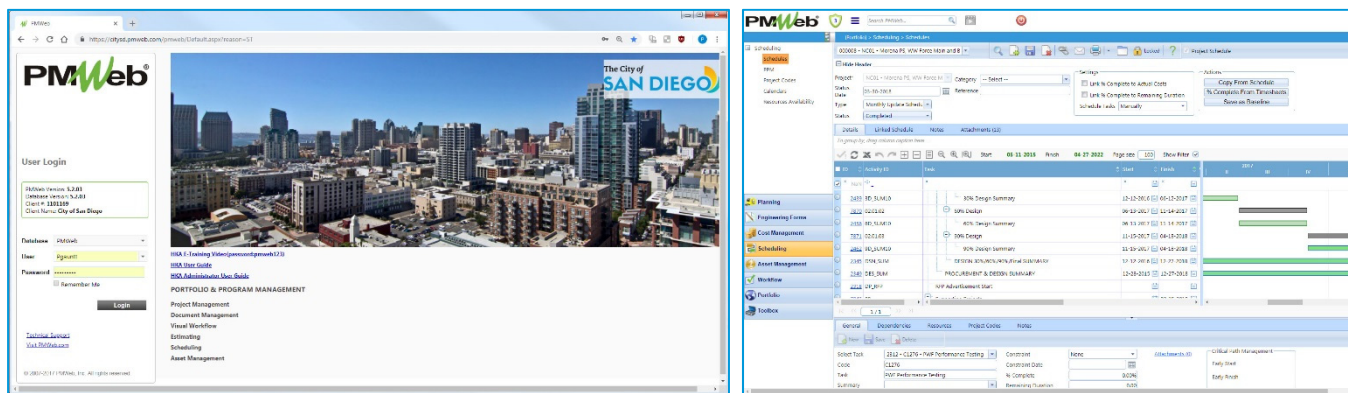
Owner-Controlled Insurance Program

The City is in the process of procuring and implementing an OCIP for Phase 1 – North City construction. With an OCIP, the City purchases certain lines of insurance (such as general liability, excess liability, builders risk and workers compensation) to cover the City as well as the contractors and sub-contractors of all tiers on a job site. Alternately, in the absence of an OCIP, each contractor would provide its own insurance and pass the cost to the City through the construction contract.

Implementation of an OCIP allows for:

- Cost savings – purchase on an economy of scale
- Higher, dedicated insurance limits
- Consistent, broad insurance coverage
- Improved, program-wide project safety procedures
- Reduced frequency of claims
- Enhanced small contractor participation
- Centralized management of risk/loss prevention

The City has procured the services of a Broker of Record to place the insurance coverage with various insurance providers. It is anticipated that the OCIP will be purchased by early 2019 and fully implemented for all Phase 1 – North City projects.



PMWeb Draft Interface: PMWeb is the CMIS that will be used to support construction of Phase 1 – North City

PMWeb Implementation for Program Controls and Reporting

Last year, the City selected PMWeb as the CMIS controls and reporting platform that will be used during construction. The PMWeb tool is currently configured to be utilized for the Pure Water Program, but with the flexibility to be used on other City infrastructure projects and programs. The Pure Water Team is defining the specific CM business processes that will be managed and various reports that will be generated using PMWeb and is working with the PMWeb integration consultant to establish the required workflows, document management and reporting functions to support the construction of Phase 1 – North City projects. In addition, the PMWeb team integrated the PMWeb tool directly with the City's accounting system, which allows for accurate and timely project financial reporting. All construction contractors, the CM consultants as well as the Pure Water Team will use the CMIS for all data management, CM procedures and information management during the construction phase.

Phase 1 - North City Commissioning Plan

The Phase 1 – North City facilities are interconnected and part of a linear system that functions sequentially to produce purified water. Therefore, commissioning, startup and testing of these facilities require careful planning to assure the system functions as a whole to meet objectives, regulatory requirements and the overall Program schedule.

Construction of all Phase 1 – North City projects will consist of 11 separate prime construction contracts as well as the DBFOM contract for the North City Renewable Energy Project. The final commissioning, startup and testing activities to be completed as part of all these contracts is being coordinated carefully to address schedule and operational inter-dependencies. Therefore, as previously mentioned, the Pure Water Team's commissioning planning efforts are being further developed as part of Final Design and constructability reviews.

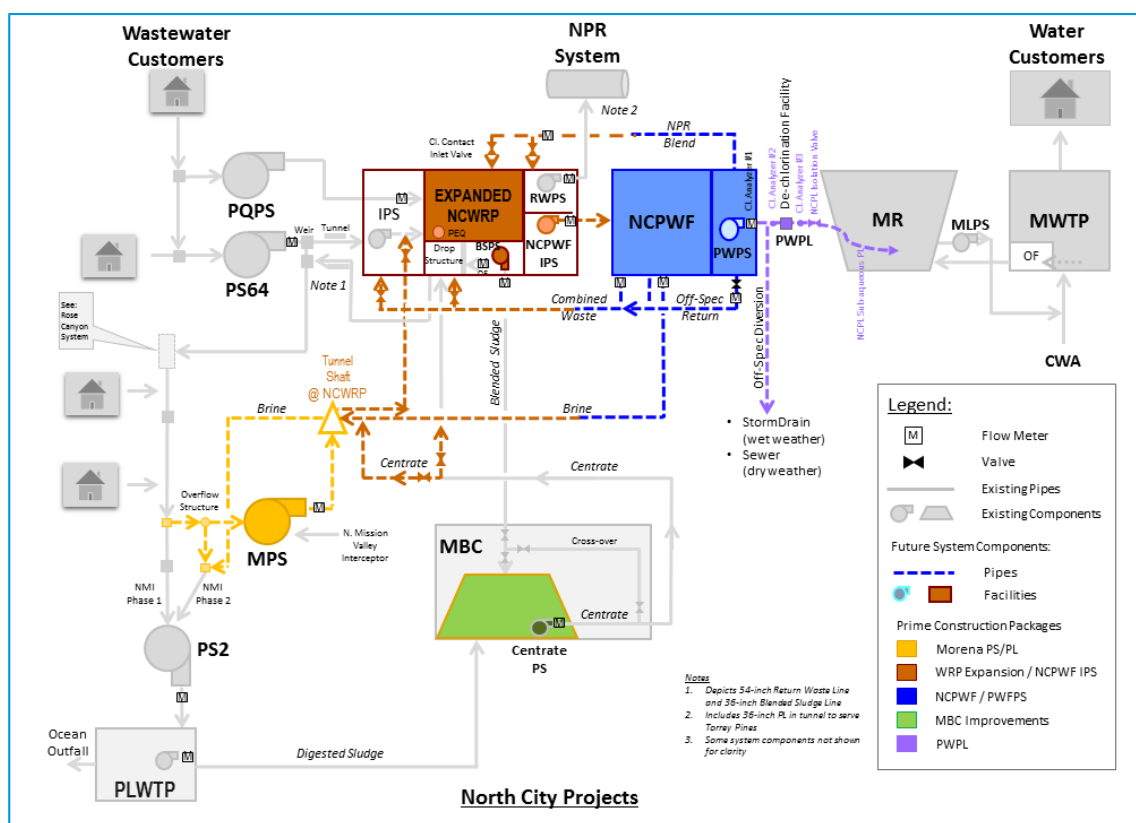
Based on the outcome of the two commissioning workshops held in 2017, the Pure Water Team focused this year's efforts on resolving inter-project coordination items, finalizing project interfaces, and completing specifications for construction sequencing, milestones and commissioning. The Pure Water Team created project coordination specifications that include provisions for coordination with other contractors and schedule milestones needed for sequencing with other projects. A master specification was prepared for the commissioning requirements and distributed to each final design team to edit as appropriate for each project.

The testing, startup and commissioning specifications include consistent definitions and requirements for contractor submittals, Joint Test Group roles and responsibilities as applicable, startup phasing, contractor roles and responsibilities, startup and test plans, factory acceptance testing, instrumentation programming integration, manufacturer installation inspections, operational readiness testing, functional and performance testing, commissioning, training, integration period services, and acceptance testing. Testing and commissioning schedules were refined during the constructability reviews and extended to allow a gradual flow ramp-up through the expanded North City Water Reclamation Plant for biological treatment processes and an integrated system-wide facilities acceptance test.

As discussed in the Phase 1 – North City Construction Section, project schedules were updated to include more detail on key interdependencies with other project schedules. Subsequently, schedule completion milestones for major facilities needed for other Phase 1 - North City projects were incorporated into the project specifications. Some of these schedule milestones include:

- North City Water Reclamation Plant piping relocations needed before start of the Morena Pipeline tunnel shaft and piping
- Morena Pipeline tunnel shaft and piping completion needed before North City Water Reclamation Plant Second Stage Bioreactors construction
- North City Pure Water Facility Influent Pump Station and Pipeline completion needed before testing and commissioning of North City Pure Water Facility

Where possible, designs have incorporated means for testing to avoid one Contractor from being delayed by another contractor.



Phase 1 – North City: Draft Commissioning Schematic



North City Water Reclamation Plant: The plant will be nearly doubled in size as part of Phase 1 – North City

Operator Readiness

The Pure Water Team is working to ensure the correct operations and maintenance (O&M) staff are in place and have the qualifications and training required to operate the new Pure Water facilities in a safe and reliable manner.

O&M Readiness Plan

Last year, the Pure Water Team developed a comprehensive O&M Readiness Master Plan for Phase 1 – North City. The City is currently using the O&M Readiness Plan as a guide to budget, hire and onboard staff, as identified in the hiring plan. The content of the Pure Water North City O&M Readiness Master Plan was used to develop the O&M-related sections of the Title 22 Engineering Report and will support creation of the North City Pure Water Operations Plan, which will be finalized prior to the commissioning of all Phase 1 – North City facilities.

In 2018, O&M staff were added to assist with the North City Pure Water Demonstration Facility and prepare for Phase 1 construction and commissioning activities for both the North City Water Reclamation Plant Expansion and the North City Pure Water Facility: one Senior Plant Technician Supervisor position, two Senior Wastewater Plant Operators, and a Plant Process Control Supervisor. Concurrently, documentation was submitted through the City's administrative process to create five new job classifications for Pure Water Operations.

In addition, City staff have been involved in planning a new Advanced Water Treatment Operator Certification Program through participation in the California-Nevada Section of the American Water Works Association (CA-NV AWWA) and the California Water Environment Association (CWEA) Advanced Water Treatment Operator Certification Committee, the State Water Resources Control Board (SWRCB) Advisory Group on Feasibility of Developing Criteria for Direct Potable Reuse, and a collaborative effort led by the California Urban Water Agencies. Through this involvement, the City is participating in developing certification requirements, exam and exam preparation materials that will be applicable to the North City Pure Water Facility operations staff. City staff are also involved in providing Advanced Water Treatment Operations training at multiple venues: CWEA Annual Conference 2019 and the City of San Diego's Fall Classic in 2018. The first exams are planned to start in spring 2019.



Reverse Osmosis pressure vessels located at the North City Pure Water Demonstration Facility



North City Demonstration Pure Water Facility: The City began operation of the 1-mgd North City Pure Water Demonstration Facility to prove that the treatment processes proposed for advanced water treatment meets regulatory requirements and are protective of public health



Engineering and Process Optimization Supporting Studies

The Pure Water Team has been conducting important studies to confirm program and project scope, including a full evaluation to assess the potential impacts of integrating purified water into the existing water and wastewater system.

Advanced Water Treatment Prequalification

The Pure Water Team has undertaken a testing program to preselect membrane filtration and ultraviolet equipment, prequalify reverse osmosis (RO) equipment and prequalify anti-scalant suppliers to ensure reliable performance of RO membranes at the North City Pure Water Facility. A RO pilot skid was installed to test the three anti-scalant products. The optimization phase was conducted from April 23, 2018 to July 9, 2018 and followed by the testing phase from July 17, 2018 to October 25, 2018. Based on the preliminary results, all three anti-scalant products passed the testing. After receiving the Final Report, a Request for Proposal will be issued to the qualifying anti-scalant suppliers. The anti-scalant supplier will be selected based on the received Proposals, prior to commissioning of the North City Pure Water Facility.

Miramar Water Treatment Plant and Distribution System Impacts

In 2016, bench-scale testing was conducted to assess the impact the Pure Water Program will have, if any, on the drinking water system. The study evaluated the impact of blending purified with other raw water supplies in the reservoirs, treatment plants, and drinking water distribution system to ensure public health protection following a change in the source water.

In 2017, additional pilot-scale testing was initiated on the Miramar Water Treatment Plant to validate the findings from the bench-scale work. The pilot-scale testing at the Miramar Water Treatment Plant was completed in 2018. The testing covered a range of operating conditions and purified water blends to test the treatability of the purified water source. The findings show that under a range of potential operating conditions, the Miramar Water Treatment Plant treatment processes continue to be effective and to produce

high-quality treated water. Additionally, there are no significant changes in the ability to meet the Miramar Water Treatment Plant's performance and current permit requirements. In June 2018, the Final Pilot Plant Report was submitted to DDW.

In addition, a pilot-scale Pipe Loop Study is being performed to investigate the effect of purified water blends on metal mobilization and corrosion in the existing distribution system as well as confirming the post-conditioning steps and chemical ranges for the North City Pure Water Facility design. Three out of four phases for the Pipe Loop Study have been completed. Phase 4 began in October 2018 and focuses on potential corrosion of existing premise plumbing. The Pipe Loop Study is scheduled to be completed in early 2019.

North City Pure Water Facility Research

The City continues to operate and maintain the North City Pure Water Demonstration Facility, a 1-mgd plant that comprises the advanced treatment processes that will be used in the full-scale North City Pure Water Facility. The Pure Water Team conducted additional research and improvements to the Demonstration Facility to increase efficiency and answer specific design questions related to life-cycle cost savings and assuring stable operation of future full-scale facilities.

No Chloramine Study

The Pure Water Team continues to manage a U. S. Bureau of Reclamation grant-funded research project titled "Demonstrating Innovative Control of Biological Fouling of Microfiltration/Ultrafiltration and Reverse Osmosis Membranes and Enhanced Chemical and Energy Efficiency in Water Reuse" (No Chloramine Study).

The objective of the No Chloramine Study is to demonstrate two efficiencies: 1) the ozone and biological activated carbon pretreatment, and 2) full advanced treatment technology to eliminate the need for chloramine. This would result in chemicals and energy savings, extend life of the membranes, and reduce the potential for forming disinfection by-products in the treated water. Testing will conclude in 2018, with final report findings in early 2019.



Lab Technician Performing Water Quality Testing: More than 30,000 water quality tests have confirmed the purified water meets federal and state drinking water standards

Tertiary Filter Loading Rate Evaluation

The Pure Water Team recently completed a tertiary filter loading rate evaluation at the North City Water Reclamation Plant to determine if an equal degree of treatment could be achieved for higher filtration rates of 7.5 gpm/sf and 8.7 gpm/sf. The evaluation was based upon the Filter Loading Evaluation for Water Reuse (FLEWR) study. It has been successfully demonstrated that the North City Water Reclamation Plant can operate at filtration rates of 7.5 gpm/sf. In January 2018, DDW issued a letter of approval to operate tertiary filters at 7.5 gpm/sf loading rate.

The City of San Diego recently concluded their 8.7 gpm/sf tertiary filter loading rate evaluation at North City Water Reclamation Plant. The evaluation showed that DDW's equivalency criteria for approval to operate at higher loading rates were met at the 8.7 gpm/sf filter loading rate. Based on the evaluation, in November 2018, DDW approved the City's request to operate the North City Water Reclamation Plant at the 8.7 gpm/sf tertiary filtration rate as desired.

4. Regulatory and Environmental Progress



Regulatory Progress

The City is committed to close collaboration with SWRCB, DDW and RWQCB staff in the development of a project that protects public health as well as meets water quality objectives for release to Miramar Reservoir. The staff from the City, DDW and RWQCB have maintained close collaboration as the City awaits final approval of the Title 22 Engineering Report and issuance of the NPDES permit for release to Miramar Reservoir.

California Potable Reuse Regulations Update

The California Water Code requires DDW, a division of the SWRCB, to adopt regulations for surface water augmentation, which is a form of indirect potable reuse. The Code also requires DDW to investigate and report to the Legislature on the feasibility of developing uniform regulations for direct potable reuse.

[Surface Water Augmentation Regulations](#)

DDW released a draft of the surface water augmentation regulations for public comment on July 21, 2017. The comment period closed on September 12, 2017. DDW completed their response to comments in early 2018, and the SWRCB adopted the surface water augmentation regulations in March 2018. The regulations became effective on August 2018 when they were approved by the California Office of Administrative Law.

The approval of the Surface Water Augmentation regulations marks a major milestone for the City's Pure Water Program. The City has been working closely with DDW and SWRCB since 2016 to provide data in support of meaningful and implementable regulations that reflect the benefits of reservoir retention and protect public health. The City's approach has been consistent with the intent of the regulations. The final regulations pave the way for approval of the Title 22 Engineering Report and issuance of the NPDES permit for release to Miramar Reservoir.

[Direct Potable Reuse Feasibility](#)

DDW was required to convene two independent groups to assess direct potable reuse feasibility:

- 1) Expert Panel of scientists and engineers
- 2) Advisory Group of stakeholders to assist with the feasibility assessment

The City participated in the Advisory Group, helping to ensure that the Pure Water Program was aware of and had representation in the formulation of the feasibility assessment. The Pure Water Program provided technical information and made presentations to the Expert Panel. DDW released its draft report on the feasibility of developing direct potable reuse regulations to the California Legislature on September 2, 2016. The draft report concludes that it is feasible to begin the process of developing direct potable reuse regulations and that the regulations can be adopted, provided certain research and key knowledge gaps are addressed. The City supports the draft report's overall conclusion that it is feasible to develop uniform criteria for direct potable reuse in California.



Miramar Reservoir: During Phase 1 – North City, 30 mgd of purified water will be sent to Miramar Reservoir

Since that time, Assembly Bill 574 was passed in the California Legislature that provides specific definitions for various types of direct potable reuse and for the SWRCB to adopt uniform recycling criteria for direct potable reuse through raw water augmentation (excluding an environmental buffer) by December 31, 2023. The SWRCB released *A Proposed Framework for Regulating Direct Potable Reuse in California* in April 2018 and must convene an expert panel to review proposed criteria to ensure that they are protective of public health. The Pure Water Program is engaging with DDW on the regulatory development process and will provide data and insights that can assist the SWRCB in the regulatory process.

Title 22 Engineering Report

The purpose of the Title 22 Engineering Report is to request approval from DDW for the North City Pure Water Project and form the basis for the NPDES permit to be issued by the RWQCB. The Title 22 Engineering Report describes all aspects of the Phase 1 – North City Pure Water Project and the framework for compliance with the California Code of Regulations Title 22 Water Recycling Criteria (CCR, 2014), including the newly adopted Surface Water Augmentation regulations.

The North City Pure Water Project Title 22 Engineering Report covers a variety of topics, including:

- Regulatory Requirements
- Wastewater Source Control
- Detailed Project Facilities Description
- Recycled and Purified Water Quality
- Drinking Water Supply System
- Treatment Safety Features
- Response & Notification Plan and Contingency Plan
- Monitoring and Reporting Program
- O&M Readiness Plan
- Technical, Managerial and Financial Capacity

Preparation of this comprehensive and detailed report began in early 2016; the first draft was submitted to DDW in May 2017 and the City received comments from DDW in October 2017. The City responded to DDW's comments in late January 2018. Following further clarifications, DDW approved the City to proceed with three public hearings, as required by the Surface Water Augmentation regulations. Responses to all comments have been reviewed and approved by DDW and were uploaded as public information in mid-October 2018. DDW will provide the City a Conditional Acceptance Letter for the Project, with a draft anticipated by early 2019. This letter will have specific conditions that the RWQCB will include in the NPDES permit for release of purified water to Miramar Reservoir.

NPDES Permit

During the past year, the City accelerated discussions with RWQCB staff, which is part of the SWRCB. On May 31, 2018, the City submitted a Report of Waste Discharge in Application for NPDES Requirements for the purified water discharge to Miramar Reservoir. The RWQCB issued a letter to the City on June 28, 2018 that the application was complete for the purposes of preparing NPDES requirements. Since that time, the RWQCB has been preparing a draft NPDES permit, which the City expects in early 2019.

In July, the City presented a draft Monitoring and Reporting Plan to staff of the RWQCB and DDW to assist in the preparation of monitoring requirements for the NPDES permit. The RWQCB has been reviewing that Plan as they prepare the NPDES permit.

The City has continued to meet with the CDFW in 2018 to balance beneficial use designations for Miramar Reservoir while ensuring water quality meets all applicable receiving water and drinking water requirements established by the SWRCB and DDW. The City has studied the ecosystem in Miramar Reservoir based on vetted, well-accepted modeling and on thoroughly researched assessments of nutrient. The results were included in the North City Project joint EIR/Environmental Impact Statement (EIS) document and indicate that:

- There will be no loss or impairment of beneficial uses in Miramar Reservoir
- A functioning aquatic community will continue to exist
- Impacts to warm water habitats are less than significant

Water Supply Permit

DDW has elected to update and re-issue the City's Water Supply Permit, which covers all of the City's water sources, its three drinking water treatment plants and the entire drinking water distribution system. Purified water must be added to the Water Supply Permit as an allowable source and DDW has decided to take that opportunity to update the entire permit as it has been amended many times over several decades. The City is working with DDW to provide necessary information and inspections of its drinking source waters, treatment plants and distribution facilities and is expecting a new Water Supply Permit in late 2020.





Point Loma Area: Treated wastewater is released into the ocean via an outfall at the Point Loma Wastewater Treatment Plant – Pure Water will reduce the amount of ocean discharges



Environmental Review

Significant progress has been made on the project-level environmental document for Phase 1 – North City, with receipt of the EIR certification and EIS Record of Decision.

Phase 1 – North City Projects EIR and EIS

A Final North City Project joint EIR/EIS (SCH No. 2016081016) has been prepared in compliance with the California Environmental Quality Act (CEQA) and NEPA. The project-level analysis includes all projects necessary to produce 30 mgd of purified water for the first phase of the Pure Water Program.

- Final North City Project EIR published in February 2018
- Completed Consultation with the State Historic Preservation Office on March 28, 2018
- Final EIS published by the EPA on May 4, 2018
- The San Diego City Council approved Resolution no. R-311671 on April 10, 2018, which certified the EIR under CEQA
 - The resolution adopted findings and a Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program, and approved the Miramar Reservoir Alternative
 - A Notice of Determination was filed with the San Diego County Clerk and the California State Clearinghouse in the Governor's Office of Planning and Research
 - During the EIR certification, the City agreed to implement Community Working Groups to help minimize the impacts of Phase 1 construction on affected communities
- Endangered Species Act consultation completed with the U.S. Fish and Wildlife Office on September 6, 2018
- NEPA Record of Decision by the U.S. Bureau of Reclamation was received for the Final EIS on November 1, 2018

Phase 1 – North City Projects Environmental Regulatory Permitting Accomplishments

The Site Development Permit was approved on April 10, 2018 after certification of the Final EIR. Permit applications for impacts to jurisdictional waterways and wetlands were submitted to the CDFW, RWQCB and the U.S. Army Corps of Engineers. The CDFW issued the final Streambed Alteration Agreement in November 2018. The remaining permits are expected in early 2019. In addition, the Pure Water Team began receiving preconstruction permits, including the receipt of the Caltrans permits for the pipeline projects.

5. Phase 1 – North City Schedule and Cost Update

Schedule

The table below shows draft milestone dates for the Phase 1 - North City projects, which have been updated based on the construction and commissioning schedule reviews. Project schedules are currently being assessed to optimize timing of construction contract advertisement dates to help maximize the number of firms bidding on each project.

Table 2: Draft Phase 1 – North City Schedule

Project Name	Design Finish	Construction Contract Advertisement*	Construction Start*	Intermediate Substantial Completion	Project Completion*
NC01 Morena Pump Station and Pipelines	Nov-2018	Jan-2019	Jul-2019	Aug-2022	Aug-2023
NC02 North City Water Reclamation Plant Expansion	Oct-2018	Mar-2019	Oct-2019	Nov-2022	May-2023
NC03 North City Pure Water Facility	Nov-2018	Feb-2019	Aug-2019	Dec-2022	Sep-2023
NC04 North City Pure Water Pump Station and Pipeline	Apr-2018	Jan-2019	Oct-2019	Mar-2023	Sep-2023
NC05 North City Renewable Energy Project**	Jan-2021	N/A	Jan-2021	Jan-2023	Mar-2023
NC06 Metropolitan Biosolids Center Improvements	Oct-2018	Mar-2019	Sep-2019	Apr-2022	Jun-2023
NC07 Miramar Reservoir Pump Station Improvements	Jul-2019	Jan-2020	Aug-20	Oct-2022	Dec-2022

*Projects are broken into multiple construction contracts; dates are representative of the primary construction contract.

**North City Renewable Energy Project is anticipated to be procured via a DBFOM contract method. Request for Statement of Qualifications (RFSQ) was released in early 2018 with a follow-on Request for Proposals planned in 2019.

As discussed in the Phase 1 – North City Construction Planning Section, Miramar Reservoir Ramp-Up completion dates (detailed in Table 3) were added to the Phase 1 schedule as part of the constructability schedule review.

Table 3: Draft Testing and Miramar Reservoir Ramp-Up Schedule

Activity	Completion
7.5 mgd Delivery to Miramar Reservoir	Aug-2023
15 mgd Delivery to Miramar Reservoir	Nov-2023
30 mgd Delivery to Miramar Reservoir	Feb-2024

Cost

The draft Phase 1 – North City cost estimate was updated in the fall of 2018 to reflect the projects’ Design estimates and the updated completion schedule. The cost estimates will continue to be updated as the projects progress through final design and construction.

Table 4: Draft Phase 1 – North City Cost Estimate ⁽¹⁾

Project Name	Project Cost Estimate
Total	\$1,273,800,000
NC01 Morena Pump Station and Pipeline	\$353,700,000
NC02 North City Water Reclamation Plant Expansion	\$243,700,000
NC03 North City Pure Water Facility	\$493,100,000
NC04 North City Pure Water Pump Station and Pipeline	\$124,100,000
NC05 North City Renewable Energy Project ⁽²⁾	\$38,100,000
NC06 Metropolitan Biosolids Center Improvements	\$3,700,000
NC07 Miramar Reservoir Pump Station Improvements	\$17,400,000

⁽¹⁾ Costs are Pure Water only, un-escalated, and include design/soft costs, construction costs and field order contingency costs. Costs do not include San Diego Gas & Electric (SDG&E) utility relocations, OCIP costs.

⁽²⁾ North City Renewable Energy Project will be delivered by a private entity; cost is associated with electrical relocations at the North City Water Reclamation Plant and City administrative, construction management and pre-design costs.



Point Loma Wastewater Treatment Plant: Pure Water reduces the City’s ocean discharges, which is a vital part of maintaining the City’s Point Loma Wastewater Treatment Plant waiver. Without the waiver, the City would need to spend an estimated \$1.8 billion to convert Point Loma to a secondary treatment plant, which would produce no new water and would not provide measurable improvement to the ocean environment.



Grants/Loans

The City has successfully submitted multiple applications for grants and initiated several applications for additional grants and loans.

In 2017, the City submitted a Letter of Interest to the EPA to obtain a WIFIA loan for the Pure Water Program. The Pure Water Program was selected from a group of projects to move forward in the WIFIA loan process. In 2018, the City submitted the application for and was awarded a WIFIA loan, which will provide \$614 million in low-interest loans to help finance the Pure Water Program. The WIFIA loan was signed by the City on November 14, 2018.

The City is concurrently applying for Clean Water State Revolving Fund loans from the SWRCB. If awarded these loans, the City will use the funds to construct Phase 1 – North City. Thus far, the City has procured or plans to procure the grants/loans that are detailed in Table 5. In addition, local state leaders included a \$30 million allocation for Pure Water in the Fiscal Year 2019 State Budget.

Table 5: Grant/Loans Procured or Being Procured by City

Title	Agency	Project Title	Amount Awarded	Award Date
Grants/Loans Awarded				
WIFIA Loan Program	EPA	Pure Water North City	\$614,000,000	11/14/2018
Watersmart: Title XVI Water Reclamation and Reuse Program FY16	Bureau of Reclamation	Pure Water North City Planning and Design	\$4,940,000	9/13/2016
Watersmart: Title XVI Water Reclamation and Reuse Program FY17	Bureau of Reclamation	Pure Water North City Planning and Design	\$4,200,000	8/7/2017
Title XVI Feasibility Studies	Bureau of Reclamation	Biological Fouling Grant	\$300,000	8/21/2017
Title XVI Feasibility Studies	Bureau of Reclamation	Analytical Testing of Reverse Osmosis Brine Impacts	\$48,526	8/21/2017
Grant Application Submitted - Under Review by Agency				
Watersmart: Title XVI Water Reclamation and Reuse Program FY18 Grant	Bureau of Reclamation	Pure Water North City Planning and Design	\$44,567,750* (Amount Requested)	TBD
Grant and Loan Applications In Process				
Proposition 1 Regional Water Reliability - Integrated Regional Water Management Program Grant	Department of Water Resources	Pure Water San Diego	TBD	TBD
Clean Water State Revolving Fund Loans	SWRCB	Pure Water San Diego	\$464,150,000 (Amount to be Requested)	TBD

* It is anticipated funding in the amount of approximately \$5 million may be awarded, based on prior awards.

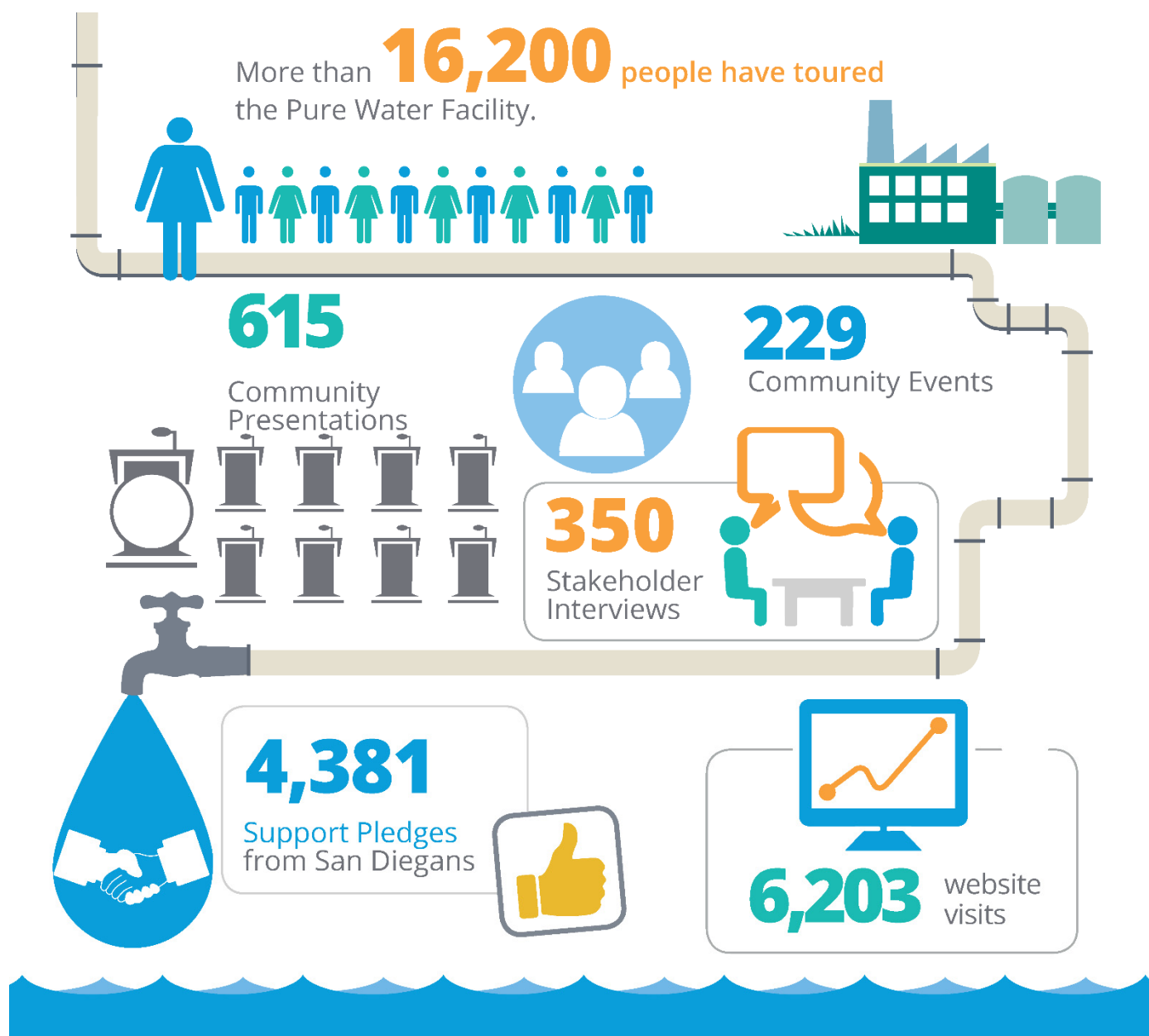


6. Program and Project-Specific Outreach

The Pure Water Team has continued to implement a comprehensive program outreach plan, including tours of the North City Pure Water Demonstration Facility. This year, the Demonstration Facility welcomed its 16,000th tour participant. During tours, participants from San Diego and across the globe come to view the treatment processes that will be used to produce purified water during Phase 1 – North City. In addition, the City of San Diego partnered with Ryan Bros Coffee to brew coffee using purified water from the Demonstration Facility for the Pure Water Bike to Work Day pit stop that was covered by local KUSI and FOX 5 San Diego morning news shows.

The outreach component of the program achieved many accomplishments in 2018, as illustrated in Figure 7 below.

Figure 7: Public Outreach Accomplishments



Bike to Work Day Partnership

In May 2018, the Pure Water Program partnered with Ryan Bros Coffee to brew coffee using purified water from the Demonstration Facility to offer bikers at the Pure Water Bike to Work Day pit stop.

The Pure Water Bike to Work Day pit stop held on May 17, 2018 marked the first time a coffee roaster brewed coffee with advanced treated recycled water.

The pit stop was located at Ryan Bros' flagship store in San Diego's Barrio Logan neighborhood and attracted more than 60 bikers. Riders enjoyed samples of the purified water, giveaways, participated in media interviews and took photos with the Pure Water selfie frame. The Pure Water team posted live tweets and Instagram stories throughout the event.

KUSI News and Fox 5 San Diego covered the partnership during their morning shows. A news clip posted on KUSI anchor Ginger Jeffries' Facebook page received more than 860 views. Ryan Bros told KUSI News, "We love innovation and we love local. Those two things are married together in the [Pure Water] Program."



Bike to Work Day: Bikers enjoyed coffee brewed with purified water

Phase 1 Community Working Groups

In preparation for the start of Phase 1 construction, the Pure Water Team created project area Working Groups whose members provided informed input and feedback regarding opportunities to avoid or minimize potential construction impacts. Four Working Groups were convened based on the Phase 1 – North City construction areas: 1) Bay Park/Morena, 2) Clairemont, 3) University City, and 4) Scripps Ranch/Miramar.

Each Working Group met four times between June and August 2018, for a total of 16 Working Group meetings. The meetings were held locally in each community and each group included 8 to 15 members. Members were solicited by representatives from the Council offices and/or with an open call for interested participants. In addition to informational discussions about the operational safety of the Phase 1 pipelines, the Pure Water Team presented and asked for feedback on 11 construction topics to help identify opportunities to manage construction impacts: multiple disruptions/project coordination; street restoration; air quality/noise; staging areas/parking; environmental monitoring; traffic control/signage; special stakeholder access needs; outreach, communication and notifications; work restrictions/construction phasing; working days and hours; and construction monitoring.

In total, over 100 recommendations were made by the Working Groups. A matrix of the recommendations and the City's responses was prepared and distributed to the Working Groups for discussion. Of all the recommendations, 69% were adopted into the construction bid specifications or will be used to inform the construction outreach plan, and 24% are under evaluation. Only 8% of the recommendations were not adopted based on a variety of reasons. The Working Groups will meet again in early 2019.



Working Groups: The Pure Water Team asked for feedback on 11 construction topics



North City Pure Water Demonstration Facility: Tour Participants drink purified water and learn about Phase 1 – North City projects

Phase 1 Project Outreach

Pure Water Working Group

The Pure Water Working Group was established in 2014 and consists of representatives from San Diego community planning groups, businesses, City Council District offices, environmental organizations and community leaders. The Pure Water Working Group reconvened on March 29, 2018 to receive an update on the Phase 1 – North City projects, regulatory approval process, Pure Water North City EIR/EIS, funding opportunities, outreach activities and upcoming major milestones.

Contractor EXPO

The Pure Water Team participated in the Contractor Forum, held on October 17, 2018. The purpose of the Contractor Forum was to provide the construction industry with the timing and scope of Phase 1 – North City construction contracts, as well as to provide a general update on construction for the rest of Public Works CIP. The event outlined how projects will be implemented and how contractors can partner together to bid on these upcoming projects. City staff were available to answer questions related to the Phase 1 – North City projects.

Youth Outreach

The next generation of San Diegans will be the main beneficiaries of the Pure Water Program, which is why the City continues to place emphasis on engaging youth. Throughout the past year, more than 2,700 San Diego youth were engaged through tours, events and presentations. In November 2018, the City partnered with Carollo Engineers and the Fleet Science Center Better Education for Women in Sciences and Engineering (BE WiSE) Program to hold a workshop for aspiring female scientists and engineers. Middle and high school students attended the workshop and toured the North City Pure Water Demonstration Facility. Female engineers discussed their careers in water and answered questions from workshop attendees.



Pure Water Demonstration Facility Tours: Tours were held for Phase 1 Communities, with information booths for Phase 1 – North City projects

Awards and Recognition

The City of San Diego received the 2018 Public Relations Society of America Award of Excellence for the Pure Stone event held in 2017, which helped increase awareness of the safety and reliability of potable reuse by brewing Stone Full Circle Pale Ale beer with purified water produced from the North City Pure Water Demonstration Facility.

The Pure Water Program received two Excellence in Public Information and Communications awards from the California Association of Public Information Officers (CAPIO) for the Pure Stone event and second annual Pure Water Day Open House held in 2017. Additionally, the Program received two Awards of Excellence from the Public Relations Society of America San Diego/Imperial Counties Chapter in the Annual Reports and Creative Tactics categories, for the 2017 Year-in-Review Report and the Pure Water Bike to Work Day partnership with Ryan Bros Coffee.



Pure Water Awards: 2018 Excellence in Public Information and Communications Awards from CAPIO (top left), Award of Excellence from the Public Relations Society of America (top right), 2018 Award of Excellences for Creative Tactics and Annual Reports from the Public Relations Society of America San Diego/Imperial Counties Chapter (bottom left)



Phases 2 and 3 Planning: In 2035, after the implementation on Phases 2 and 3, the Pure Water Program will produce 1/3 of the City of San Diego's water supply



7. Pure Water Phases 2 and 3 Planning

Planning for the next phases of Pure Water is officially underway!

The Pure Water Team is in the process of implementing Phase 1 – North City of the Pure Water Program, which will produce an annual average of 30 mgd of purified water that will be stored in Miramar Reservoir for subsequent treatment at the Miramar Water Treatment Plant.

Phases 2 and 3 of the Pure Water Program will provide an additional 53 mgd of purified water, for a Program total of 83 mgd. The facilities to produce this additional quantity of purified water are envisioned to be located in the City's Central Area and South Bay Area.

The Pure Water Team, in collaboration with the Metro JPA, is conducting a high-level screening of alternatives for the next phases of the Pure Water Program. Through the alternative evaluation, the Pure Water Team and Metro JPA will select a subset of preferred alternatives that merit further investigation, validation and preliminary design. The analyses are being based upon design criteria established, work previously conducted, estimated planning-level conceptual facilities costs, and qualitative evaluation criteria that was established jointly by the City and the Metro JPA.



8. Summary of 2018 Accomplishments

Our efforts in 2018 have focused on getting key Phase 1 – North City projects ready for construction in 2019. This includes 100% design completion, initiating final City reviews, construction planning and regulatory and environmental approvals. We are pleased to report that we've made substantial progress on all elements:

- 100% design has been completed for five key projects, which are going through the final internal review process with the City's Development Services Department, Public Works and constructability reviews by CM consultants
- On November 15, 2018, the Pure Water Team received Council approval to authorize the Mayor to execute the Phase 1 – North City construction contracts with the lowest responsible and reliable bidders
- Consultant CMs were procured, onboarded and are preparing for construction to begin in 2019
- The Pure Water Team has made significant progress on the environmental and regulatory front:
 - Received certification of the North City Projects EIR and Record of Decision for the EIS
 - Completed the final draft of the Title 22 Engineering Report, held public hearings and anticipates receiving the Letter of Approval with Conditions by early 2019
 - Submitted a draft report of discharge that allows the RWQCB to prepare the NPDES permit

The Pure Water Team has continued our engineering and optimization studies, completing the filter loading rate study, No Chloramine Study and Miramar Water Treatment Plant Pilot Study, and nearing completion of the Pipe Loop Study. At the same time, we have made significant progress with the submittal of funding requests, including grant and low-interest loan applications at both the State and Federal level, including the \$614 million WIFIA loan, which was signed on November 14, 2018. Finally, we have maintained our award-winning Public Outreach Program, rallying support for Pure Water across a wide range of stakeholders.

The Pure Water Team advertised the first construction package for early site work at the North City Water Reclamation Plant and North City Pure Water Facility. As we move into 2019, the Pure Water Team will continue to advertise and procure construction contracts and begin construction of Phase 1 – North City projects. We will continue to focus on O&M readiness to build capacity for project start-up in 2023 and beyond. 2019 will be an exciting year – we will celebrate the major milestone of construction groundbreaking – stay tuned!

The Pure Water Team continues to move ahead with Phase 1 – North City implementation and looks forward to another successful year of progress towards meeting the Phase 1 goal - producing 30 mgd of purified water in 2023.