



Pure Water
San Diego

2022 Annual Report



Phase 1 construction continues for the City of San Diego's Pure Water Program, the largest infrastructure project in the City's history.



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Program Overview

What is Pure Water San Diego?

Pure Water San Diego is a phased, multi-year program. Based on water use projections developed in 2020, the Pure Water Program will provide nearly one-half of San Diego's water supply locally.

The Pure Water Program:

- Uses proven technology to clean recycled water to produce safe, *high-quality* drinking water
- Provides a *reliable, sustainable*, water supply
- Offers a *cost-effective* investment for San Diego's water needs

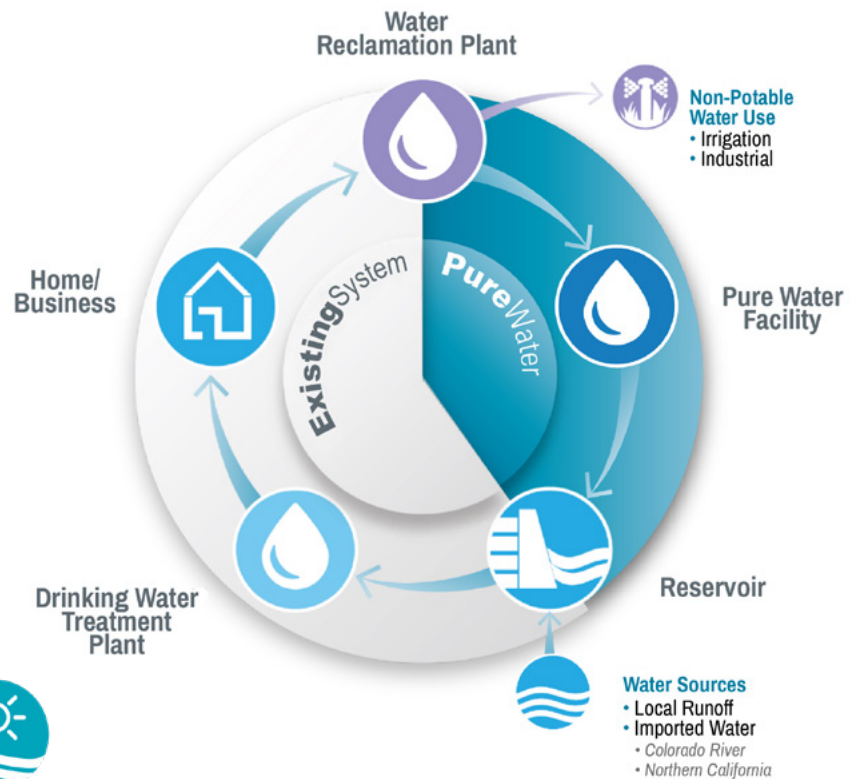


Why is Pure Water San Diego being implemented?

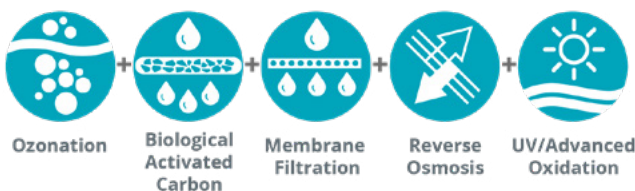
San Diego relies on importing 85% of its water supply from the Colorado River and Northern California Bay Delta. The cost of this imported water has tripled in the last 15 years and continues to rise. With limited local control over its water supply, the City of San Diego is more vulnerable to droughts, climate change and natural disasters.

How does the Pure Water Program Work?

With San Diego's existing water system, only 8% of the wastewater leaving homes and businesses is recycled; the rest is treated and discharged into the ocean. The Pure Water Program transforms the City's water system into a complete water cycle that maximizes our use of the world's most precious resource—water.



What are the Steps of the Water Purification Process?



Since June 2011, the City has produced 1 million gallons of purified water every day at its Pure Water Demonstration Facility.

More than 50,000 water quality tests have confirmed the water is safe and meets all federal and state drinking water standards.

Did you Know?



The Pure Water Program is the largest integrated infrastructure program the City of San Diego has undertaken and will be the first reservoir augmentation project in California.

Executive Summary

2022 has been an exciting year for the Pure Water Program! With one of the Phase 1 construction projects completed, the remaining nine major projects that are required to produce and deliver purified water to Miramar Reservoir are all under construction. Significant progress has been made at the North City Pure Water Facility on the north side of Eastgate Mall. The above-grade construction on both the Pure Water Facility and the North City Water Reclamation Plant across the street is visually apparent from Eastgate Mall and the business park across I-805 to the west. We are also coordinating closely with our community groups as pipeline construction is fully underway in the Scripps Ranch area, along Miramar Road, on Executive Drive and on Genesee Avenue. Near Friars Road and Morena Boulevard, the Morena Pump Station excavation and construction is taking shape.



The Project Labor Agreement has focused efforts on hiring City residents and historically under-represented workers in construction. There are many success stories with apprenticeships and bringing new workers into the workforce.

We are proud to report that April saw the State Water Board issue a total of \$664 million in State Revolving Loan Funds to four construction projects at an extremely low-interest rate of 0.8 to 1.1%. This financing, coupled with our \$733.5 million of Federal financing at 1.29 to 1.82% and \$81.5 million in grant funding (which does not have to be repaid), is providing incredible value to our ratepayers for Phase 1 of Pure Water, which is the the City's largest infrastructure project in history.

We are also busy preparing plans and submittals required under our permit to release purified water to Miramar Reservoir, the first such permit ever issued in the State of California. We continue to work closely with the Division of Drinking Water and the Regional Water Quality Control Board to ensure that we meet all their requirements for this safe, reliable, and cost-effective new water supply for the City. Our Independent Advisory Panel of industry-leading engineering and scientific experts provides ongoing guidance for a variety of important program elements. And as we have for a decade, we are conducting research and studies at our 1 million gallons per day demonstration facility to find ways to make our future operation more efficient.

High level planning continues for Phase 2 of the Pure Water Program, which will construct facilities in the Central Area of the City. We anticipate that efforts for Phase 2 will begin to ramp up next year. The following pages provide more detail on the progress of both Phase 1 and Phase 2 of the program.

Thanks to the City's customers for continuing to provide strong support for the Pure Water Program. Given the drought and climate change, having a safe, reliable, and cost-effective water source that will provide about half of the City's water supply, which will be critical to ensuring a strong quality of life for all of us.

Juan Guerreiro, Director
City of San Diego Public Utilities Department

2022 Milestones

MARCH

Pipeline installation begins for the North City Pure Water Pipeline project

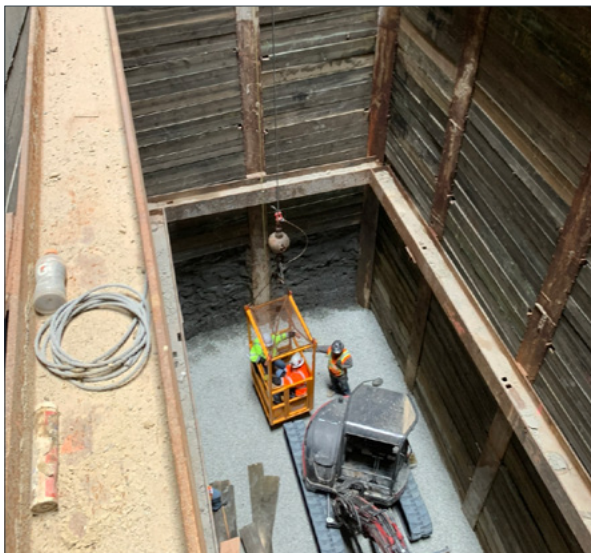


APRIL

A total of \$664 million in low-interest State Revolving Loan Funds obtained from the State Water Board

JULY

Pipeline installation and excavation of the tunnel shafts under Interstate 805 begins for the Morena Northern Pipelines & Tunnels project; US EPA representatives tour construction sites with Mayor Todd Gloria



OCTOBER

Last two of ten major construction packages for Phase 1 begin construction: Miramar Reservoir Pump Station and the Morena Pipelines Southern/Middle Alignment

JUNE

North City Pure Water Facility begins construction of the superstructure for the major treatment buildings and the operations and maintenance building



AUGUST/SEPTEMBER

The Pure Water outreach team engages in five different community events for the first time since the COVID-19 pandemic pause; the team participated in seven total events in 2022



NOVEMBER

California Natural Resources Secretary, Wade Crowfoot, tours construction sites with Mayor Todd Gloria in recognition of the Governor's Water Strategy; bids are advertised to construct a small-scale facility for Phase 2 of the program



Phase 1 North City Construction



A total of **10 construction contracts** encompass Pure Water Phase 1 North City construction, one of which is completed. The table below shows each project and the anticipated completion dates, starting with the Morena Pump Station and moving north. In total, the budget for the work currently underway for Phase 1 North City is \$1.5 billion.

Two projects, the Morena Pipelines Southern/Middle Alignment and the Miramar Reservoir Pump Station, began in 2022.

Phase 1 North City Pure Water Project	Start Date	Expected Completion Date
Early Works at the North City Water Reclamation Plant	2019	Completed
Morena Pump Station	Jun 2021	2025
Morena Pipelines Southern/Middle Alignment	Oct 2022	2025
Morena Pipelines Northern Alignment and Tunnels	Jun 2021	2024
North City Water Reclamation Plant Expansion	Aug 2021	2025
North City Water Reclamation Plant Flow Equalization Basin	Dec 2021	2024
Metropolitan Biosolids Center Improvements	Sep 2021	2025
North City Pure Water Facility and Pump Station	Apr 2021	2025
North City Pure Water Pipelines, Dechlorination Facility and Subaqueous Pipeline	Jun 2021	2025
Miramar Reservoir Pump Station	Oct 2022	2024

Phase 1 North City Construction

There were nine active construction contracts that were under construction in 2022 (starting with the Morena Pump Station and moving north):

Morena Pump Station

(Construction began in June 2021)

The Morena Pump Station will divert an average of 32 million gallons per day (mgd) of wastewater through the Morena Pipeline to the North City Water Reclamation Plant (NCWRP) for treatment and the Pure Water Facility for purification. In 2022, excavation was completed for the junction chamber that collects flow from four sewers to feed to the pump station. Rebar and formwork have been installed and concrete began to be poured. Excavation is ongoing for other major structures including the pump station and diversion structures. The contractor has begun constructing a new dewatering scheme – a secant wall – to prevent unwanted groundwater from entering the pump station excavation.



Morena Conveyance South & Middle and Bike Lanes

(Construction began in October 2022)

The Morena Pipelines Southern/Middle Alignment will connect the Morena Pump Station to the Morena Northern Alignment and Tunnels. The Contractor received a Notice-to-Proceed in October 2022. Initial construction is underway, starting with initial underground utility location work along the full alignment.



Morena Pipelines Northern Alignment and Tunnels

(Construction began in June 2021)

The Morena Pipelines Northern Alignment and Tunnels will connect to the Morena Pipelines Middle Alignment to the south and the NCWRP to the north. In 2022, over 1,300 feet of 48-inch diameter wastewater force main and 30-inch diameter residuals line along Executive Drive and Genesee Avenue were installed. The 100-foot-deep shaft that will launch the tunnel boring machine for the tunnel under I-805 to the NCWRP was excavated. The receiving shaft will be completed in early 2023. Additionally, pipeline work started along Genesee Avenue from Appleton Street to State Route 52.



North City Water Reclamation Plant Expansion

(Construction began in August 2021)

The North City Water Reclamation Plant (NCWRP) is being expanded to increase production capacity from 30 mgd to 52 mgd. In 2022, all elements of the expansion were under construction, including the primary sedimentation tanks, the bioreactor basins and the secondary clarifiers. Excavation, installation, and backfill of, interconnecting piping is ongoing.



North City Water Reclamation Plant Flow Equalization Basin

(Construction began in December 2021)

A new 2.35 million gallon Flow Equalization Basin is being built on the NCWRP project site and will regulate the peak wastewater flow rates to allow for a more constant flow through the plant's treatment processes. This volume is equivalent to almost 4 Olympic swimming pools. Excavation is complete and the contractor is awaiting interconnecting pipe delivery.



Phase 1 North City Construction

Metropolitan Biosolids Center Improvements

(Construction began in September 2021)

To accommodate increased biosolids to the Metropolitan Biosolids Center (MBC) due to the expansion at the NCWRP, upgrades at MBC are necessary. Most of the construction activity will take place on City-owned property, and work to rehabilitate and install new equipment is underway. Two new dewatering centrifuges were factory tested in November and are pending delivery for installation.



North City Pure Water Facility and Pump Station

(Construction began in April 2021)

The North City Pure Water Facility and Pump Station (NCPWF) will produce an annual average of 30 mgd of purified water, which will be conveyed by the pump station to Miramar Reservoir for storage. In 2022, most of the foundation, underground piping, electrical duct banks and other subsurface work was completed. Vertical walls above grade for the ozone contactors, biological activated carbon system, main process building and operations and maintenance building are being constructed.

Equipment for the pump station is being delivered and installed. In addition, the “mega trench” that contains four critical pipelines ranging in diameter from 24 inches to 54 inches that will convey treated water from the NCWRP to the NCPWF as well as process wastes from the NCPWF to the NCWRP and the Point Loma Wastewater Treatment Plant, is almost complete. The section across Eastgate Mall has been backfilled. The construction progress can be easily seen from Eastgate Mall and in the business park on the west side of Interstate 805.

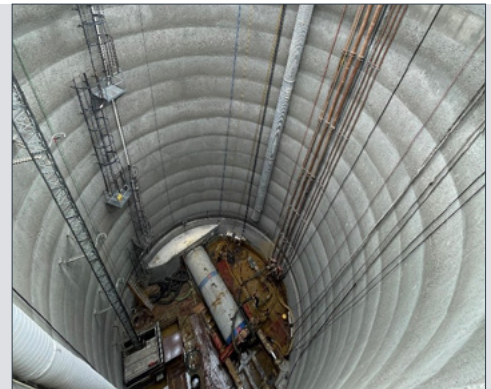


North City Pure Water Pipeline, Dechlorination Facility and Subaqueous Pipeline

(Construction began in June 2021)

The North City Pure Water Pipeline (NCPWP) will convey an annual average of 30 mgd of purified water to Miramar Reservoir for storage. The dechlorination facility will remove chlorine necessary for disinfection in the pipe from the purified water before it is delivered into the reservoir.

In 2022, over 4,200 feet of pipe was installed east and west of Interstate 15, as well as along Miramar Road. Shafts were constructed for tunnels under Scripps Lake Drive and into Miramar Reservoir to connect to the subaqueous pipeline that will lie along the bottom of Miramar Reservoir and diffuse purified water. The tunnel under Scripps Lake Drive was completed.



Miramar Reservoir Pump Station Improvements

(Construction began in October 2022)

The existing Miramar Reservoir Pump Station pumps the water from Miramar Reservoir to the Miramar Drinking Water Treatment Plant. This pump station is being rehabilitated to ensure that it can continually pump 30 mgd on an annual average basis. The contractor received notice to proceed in October 2022 and is beginning construction.



Finally, over 16,400 cubic yards of reinforced concrete have been poured at the various treatment facilities required to produce purified water. That’s enough concrete to build 3.5 miles of a standard two-lane road that’s 1 foot thick! Almost 2 miles of yard piping at treatment facilities have been installed as well.

Construction Workforce & Funding

CONSTRUCTION WORKFORCE

The Project Labor Coordination Team has provided monthly updates regarding progress toward the Pure Water Program’s hiring goals of City residents¹ and targeted workers² for the construction workforce. These reports have kept the Pure Water team apprised as to the Project Labor Agreement goals and enhanced connectivity and communication. In total, more than 420,000 labor hours have been invested in Phase 1 construction through October 2022.

Differentiated by project, the table below demonstrates the current hiring percentages of City residents and targeted workers by construction site, through October 2022. There are nine active construction contracts in total; two of them (Morena Pipelines Southern/Middle Alignment and Miramar Reservoir Pump Station) started in October of 2022 and are not depicted in the table.

The North City Pure Water Facility and the Morena Pump Station and North City Pure Water Pipeline have a workforce that is comprised of at least one-quarter City Residents. Six of seven are exceeding the 10% goal of targeted worker representation with one project – the North City Water Reclamation Plant Flow Equalization Basin – having a workforce comprised of 46% targeted workers.

Hiring percentages by project, cumulative through October 2022

Project Name	Contractor	City Resident % (Goal = 35%)	Targeted Worker % (Goal = 10%)
North City Pure Water Facility and Pump Station	Shimmick Construction Inc.	27%	19%
Morena Pump Station	Flatiron West Inc.	26%	7%
North City Pure Water Pipeline, Dechlorination Facility and Subaqueous Pipeline	W.A. Rasic Construction	25%	23%
North City Water Reclamation Plant Expansion	Kiewit Infrastructure West Co.	23%	15%
North City Metro Biosolids Center Improvements	PCL Construction Inc.	21%	15%
North City Water Reclamation Plant Flow Equalization Basin	Kiewit Infrastructure West Co.	20%	46%
Morena Pipelines Northern Alignment and Tunnels	OHL USA Inc.	13%	22%
Pure Water Program Phase 1 Projects Total:		25%	17%

Table 1: Hiring percentages by project, cumulative through October 2022.

Note: The Morena Pipelines Southern/Middle Alignment and Miramar Reservoir Pump Station are two additional Pure Water Projects but are not yet depicted in this table as they have just started.

1 “City Residents” is defined as a City of San Diego permanent resident at the time of initial employment on a Covered Project or a Veteran residing anywhere.

2 “Targeted Worker” means any individual qualifying for one (1) or more of the following Targeted Worker categories: (a) Is a Veteran, or is the eligible spouse of a Veteran of the United States Armed Forces, under Section 2(a) of the Jobs for Veterans Act (38 United States Code [U.S.C.] 4215 [a]); (b) At initial time of employment on a Covered Project, is an Apprentice with less than ten (10) percent of the work hours required for graduation to become a Journey person; (c) Has no high school diploma or general education diploma (GED); (d) Is homeless or has been homeless within the last year; (e) Is a former foster youth; (f) Is a custodial single parent; (g) Is experiencing protracted unemployment (receiving unemployment benefits for at least three [3] months); (h) Is a current recipient of government cash or food assistance benefits; (i) Has a documented income at or below 100 percent of the Federal Poverty Level; and/or (j) Is formerly incarcerated with a history of involvement with the criminal justice system.”

Construction Workforce & Funding

The percentage of City residents employed continues to increase; currently, there are 312 City residents employed on Pure Water projects. City residents constructing Pure Water projects have earned \$6,650,000 in wages and benefits through September of 2022. It is critical that the City's largest infrastructure undertaking supports local San Diegans with jobs.

Veterans and apprentices make up a significant proportion of the targeted workers. Three project sites sponsor Helmets to Hardhats, a career program for veterans: the North City Pure Water Facility and Pump Station, the North City Water Reclamation Plant Expansion and the North City Pure Water Pipeline, Dechlorination Facility and Subaqueous Pipeline.

In total, more than 21,820 hours have been worked by veterans on the Pure Water projects through September 2022. In September, the 2022 class of apprentices graduated from the High Roads Construction Apprenticeship Readiness Program, an initiative of the California Workforce Development Board. On their way to becoming journeypersons, apprentices support the construction on Pure Water projects while completing their final hours to certification.

SANDY COOK



Meet San Diego County resident, Sandy Cook. She's a Teamster truck driver and a journeyperson! She has been working for Kiewit Infrastructure West on the North City Water Reclamation Plant and Influent Pump Station since May 2022.

"I am really enjoying working for Kiewit on this project. They are treating me very well." – Cook

OSCAR STEWART



City of San Diego resident and veteran Oscar Stewart is currently an IBEW Local 569 journeymen electrician. He has been working for Mass Electric since August 2021 on the Pure Water Program's Phase 1 North City Water Reclamation Plant Expansion project.

Before working with Mass Electric, he served his country working in the Navy as a bomb technician and enlisted with the Army serving in Iraq from March 2003 to April 2004.

PROGRAM FUNDING

The City has received and continues to apply for grants and loans from both the federal and state governments. Grants do not have to be repaid, and loans must be repaid over time.

Water Infrastructure Finance and Innovation Act (WIFIA) loans from the U.S. Environmental Protection Agency are currently providing \$733.5 million for Phase 1 construction. The larger loan – \$614 million – has an interest rate of only 1.29% and the second loan – \$119.5 million – has a low-interest rate of 1.82%. In April, the State Water Board signed four separate loans for a total of \$664 million to also support Phase 1 construction. The State Water Board loans have very favorable interest rates between 0.8 and 1.1%.

In addition to these loans, the City has received \$81.5 million in grants from funding agencies, which do not have to be repaid and accrue a direct savings to ratepayers.



Phase 2 Lookahead

The Pure Water team continues high-level planning activities for a Phase 2 Central Area Project of the Pure Water Program, as described below.

RESERVOIR SELECTION

A critical decision related to a Phase 2 Central Area Project is whether to deliver the purified water to Murray Reservoir and/or San Vicente Reservoir. In 2022, the Pure Water team completed technical studies comparing three reservoir options: delivering all the purified water to Murray, all to San Vicente, or delivery to both reservoirs. As they consider the decision, Public Utility Department leadership is evaluating the information and the possible need for additional studies of the options.



Murray Reservoir, photo courtesy of SDFish.com



San Vicente Reservoir, photo courtesy of SDFish.com

REGULATORY PLANNING

The City is in regular discussions with the state regulators to review project concepts for a Central Area Project. Depending on the receiving reservoir, the Central Area Project would either be implemented under the existing Indirect Potable Reuse regulations [as in Phase 1 North City Project], or under the Direct Potable Reuse regulations currently being finalized by the State Water Resources Control Board.

In addition, the City continues to engage an Independent Advisory Panel comprised of industry-leading experts in scientific, engineering and public health fields to assist in the review of the Phase 2 project concepts. Depending on the direction for the reservoir selection that will be taken for Phase 2, the Panel will continue to provide important insights into how the City might implement a Direct Potable Reuse project that is fully protective of public health. The Panel's input is helpful in discussions with regulators.

CENTRAL AREA DEMONSTRATION FACILITY

A new small-scale demonstration treatment facility is a regulatory requirement for Phase 2 Central Area Project because it will treat water from a different area than the Phase 1 North City Project. Each area has its own unique water quality characteristics. In 2022, the Pure Water team completed the design of the small-scale facility and it was advertised for bid in November. Construction is expected to begin in 2023 with operations expected to start in 2024.

Operations and Maintenance Readiness

OPERATIONS AND MAINTENANCE UPDATES

The City of San Diego (City) is continuing to implement its Operations and Maintenance (O&M) Readiness Plan and prepare for the commissioning and operation of the Pure Water Program's North City facilities.

Throughout 2022, the City moved forward with the hiring, onboarding and training for the O&M positions approved for 2022. Positions added this year include the Pure Water Operations Supervisor: Process Control and Associate Management Analyst. O&M staff hiring will continue as planned over the next couple of years, with all NCPWF O&M staff hired and onboarded in time for the 120-day integration period, which is when all facilities will be tested together to demonstrate performance and full production of purified water.



Rendering of the North City Pure Water Facility

CERTIFICATION AND TRAINING

The City has developed a North City Pure Water Facility (NCPWF) training program for staff. The training program will assist in developing the proficiency of new operators by providing a roadmap of the necessary knowledge, skills and abilities needed to ensure all advanced water treatment processes are operated, maintained and managed in an optimal manner to meet the objectives of all stakeholders. It highlights what on-the-job, self-directed, skills-based, instructor-led and construction/contractor training is required for NCPWF O&M staff.

Advanced Water Treatment (AWT) certification training materials have been finalized and will help enable and support the City's operations staff to achieve AWT certification in the future. In addition to AWT classroom training, newly hired NCPWF O&M staff are being onboarded and trained through the NCPWF classroom training; and hands-on training at the North City Pure Water Demonstration Facility.



An instructor speaks to a class as part of the Advanced Water Treatment (AWT) certification training course, photo courtesy of Trussell Tech

Regulatory and Environmental Progress

POINT LOMA WASTEWATER TREATMENT PLANT PERMIT

The Point Loma Wastewater Treatment Plant continues to provide enhanced primary treatment and operate under a modified permit. The existing modified permit expired on September 30, 2022, and as required by law, the City submitted a renewal application 180 days in advance. The renewal application is under review by appropriate regulatory agencies and in the meantime, the permit has been administratively continued pending review and final action by the regulatory agencies.



The Point Loma Wastewater Treatment Plant

The modified permit includes dates that certain Phase 1 activities will be completed, which were originally provided to the regulatory agencies in January 2017 during the renewal process for the existing modified permit. Since that time, there have been unforeseen and unavoidable impacts to the schedule associated with legal action and economic factors. The City met with the Regional Water Quality Control Board and submitted a letter on February 7, 2022, requesting that the dates associated with construction completion and commissioning be updated. The new dates were approved by official action in August 2022.

On June 15, 2021, the U.S. House of Representatives passed the Ocean Pollution Reduction Act II (H.R. 587), which proposes modifying the permitting requirements for the discharge of pollutants from the Point Loma Wastewater Treatment Plant. The bill contains required milestones in line with projected reductions in both the treated discharges from the Point Loma Wastewater Treatment Plant and the production of potable water expected with Phase 1 and Phase 2 of the Pure Water Program. The legislation now awaits action by the U.S. Senate.

MIRAMAR RESERVOIR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT AND WATER SUPPLY PERMIT

The National Pollutant Discharge Elimination System (NPDES) permit that allows purified water at Miramar Reservoir was formally adopted by the Regional Water Quality Control Board in May 2020. That master permit established a schedule for several conditions that must be satisfied before water can be released to Miramar Reservoir. In 2022, a draft of the Pure Water Facility Operations Plan, one of the important permit conditions that must be met, was completed and is being reviewed prior to submitting to the state regulators.



Miramar Reservoir, photo by MrGALL

Regulatory and Environmental Progress

In addition, the first part of a two-stage program to establish any additional limits on discharges to the collection system to protect the Pure Water facilities and reservoir water quality was completed and reviewed by regulators. Planning for the second stage is underway.

The City continues to work with the State Division of Drinking Water on updating and reissuing the City's Water Supply Permit, which encompasses all the City's water sources, its three drinking water treatment plants, and the entire drinking water distribution system. For purified water to be used as a water source, it must be approved in the Water Supply Permit. In 2022, several inspections of drinking water facilities were conducted by the State Division of Drinking Water and the City continues to support its efforts to prepare the new permit prior to purified water being released to Miramar Reservoir.

CALIFORNIA POTABLE REUSE REGULATIONS UPDATE

Indirect Potable Reuse (IPR) regulations that govern Phase 1 efforts by providing credit for the surface water reservoir that serves as an environmental buffer. Direct Potable Reuse (DPR) governs projects that do not have an approved buffer. The City is considering discharging purified water to Murray Reservoir in the Phase 2 Central Area. Although this represents a discharge to a surface water reservoir prior to additional treatment (like Phase 1), the volume in Murray Reservoir is too small to meet the IPR buffer requirements. Therefore, it would likely be subject to the forthcoming DPR regulations.

In 2022, an independent expert panel commissioned by the State Water Board to review the feasibility of DPR regulations released their report. The City and other water agencies worked together to provide a response to the State Water Board regarding the recommendations in the expert panel report and the State Water Board is reviewing the panel's recommendations as well. There are several expert panel recommendations that would favorably impact the City's implementation of DPR under Phase 2 if accepted by the regulators. Additionally, this project is helping the State Water Board better understand how various criteria could be implemented. These DPR criteria must be adopted by December 31, 2023.

The Pure Water team continues to hold meetings with the State Division of Drinking Water and the Regional Water Resources Control Board staff every two months to review deliverables that satisfy permit conditions for Pure Water and to review concepts prepared by the Pure Water team for Phase 2 Central Area. As with North City, the City is working closely with the regulators to provide a practical example of the implications of the potential DPR regulations on project implementation.

PHASE 1 NORTH CITY PROJECTS ENVIRONMENTAL COMPLIANCE

Biological, archaeological and paleontological monitoring is conducted for active North City construction packages in accordance with the Mitigation, Monitoring and Reporting Program adopted as part of the Final Environmental Impact Report/Environmental Impact Statement for Phase 1 North City.

The SANDER Vernal Pool and Upland Mitigation Site, which offsets impacts to sensitive biological resources at the North City Pure Water Facility, completed year two of a seven-year maintenance and monitoring program. In 2022, ongoing maintenance included fence repair, weed and debris removal, irrigation and supplemental planting and seeding.

The Pueblo South Native Grassland Mitigation Creation Site completed year three of a five-year maintenance and monitoring program. Work included watering approximately 4,200 native grass liner plants installed during year two, controlling weeds, controlling gophers, repairing the irrigation system and removing relatively minor amounts of anthropogenic trash. The site is currently exceeding the annual performance standards.

Engineering and Process Optimization Support Studies

NORTH CITY PURE WATER FACILITY RESEARCH

The City continues to operate and maintain the Pure Water Demonstration Facility, a 1 mgd plant that comprises the advanced treatment processes that will be used in the North City Pure Water Facility. The Pure Water team is managing a U.S. Bureau of Reclamation grant-funded research project that is evaluating the impact of bromide on reverse osmosis membrane oxidation and compliance with water quality regulations. In 2022, testing was largely completed to evaluate effectiveness of selected control measures to minimize disinfection by-products and bromate formation, as well as determine reverse osmosis membrane performance under different operating conditions. Report preparation is now underway.



Demonstration Facility: A City team member and Pure Water consultant working together at the Demonstration Plant taking a sample of Pure Water for testing purposes

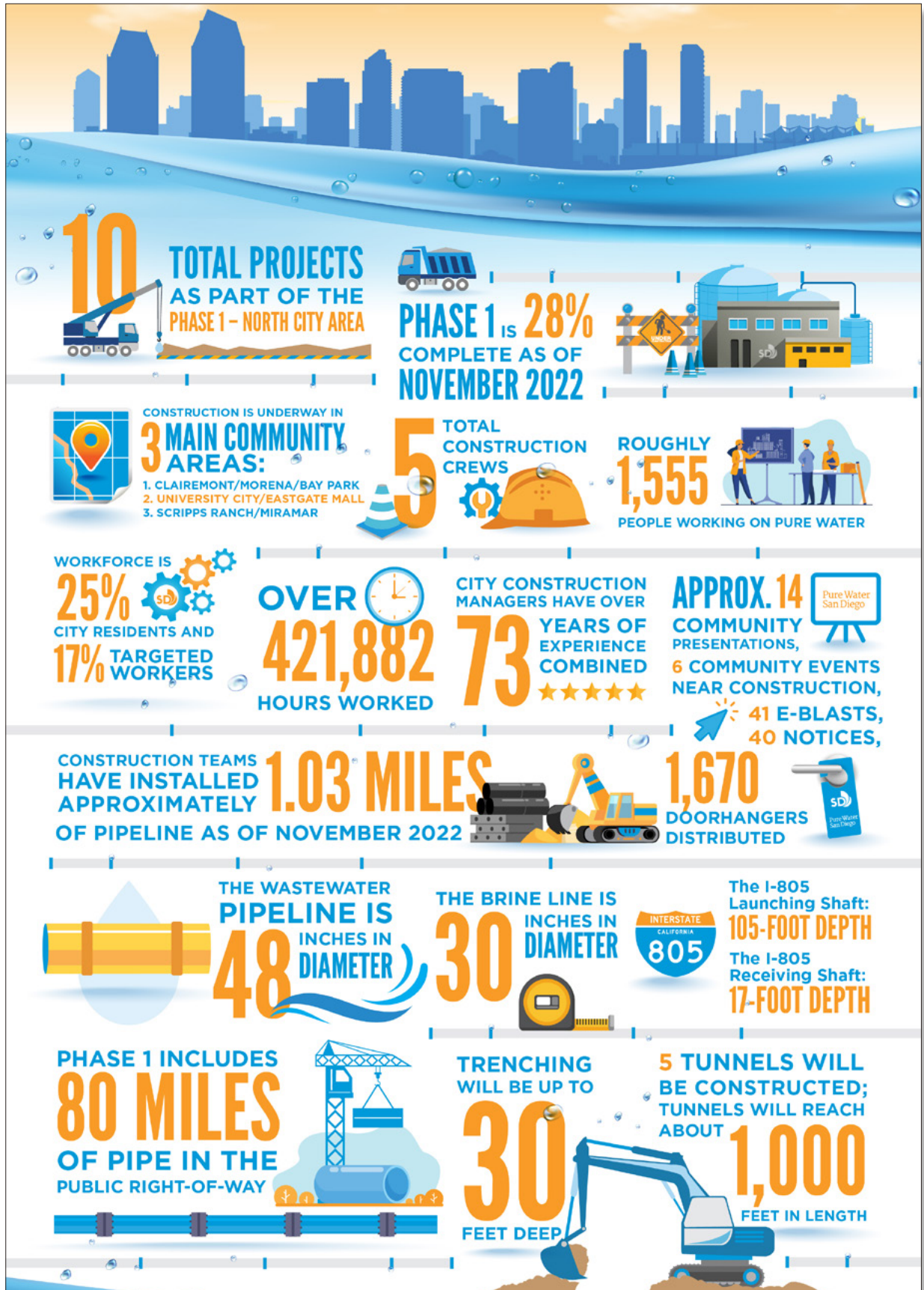
In addition, the team has been modifying the demonstration facility to perform high-recovery testing for the reverse osmosis membranes. In 2023, the City will be evaluating the impact on water quality when reverse osmosis recoveries are increased from 85% to between 90% and 95%. Higher recovery increases the amount of purified water produced for a given influent flow. It also reduces the reject water that is lost and must be disposed.

A tracer test through the NCWRP treatment recovery to between processes was performed in 2022 to provide additional information on hydraulic performance that will aid the Independent Advisory Panel's assessment of additional treatment credit at the plant. The City had performed additional pathogen monitoring data in 2020 to show higher levels of performance than the regulators had granted based on previous data. The tracer study work will complete the picture. Additional credit would recognize the added levels of protection provided during treatment and would provide flexibility for treatment operations for the Phase 1 North City facilities.

Outreach Program Metrics



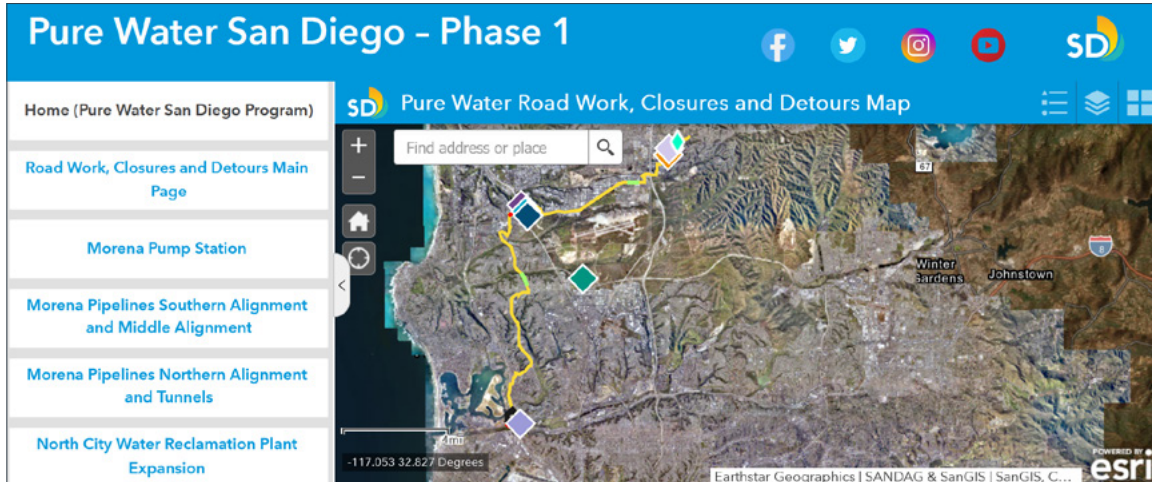
2022 Construction Outreach Metrics



Informational Materials

INTERACTIVE CLOSURE MAP

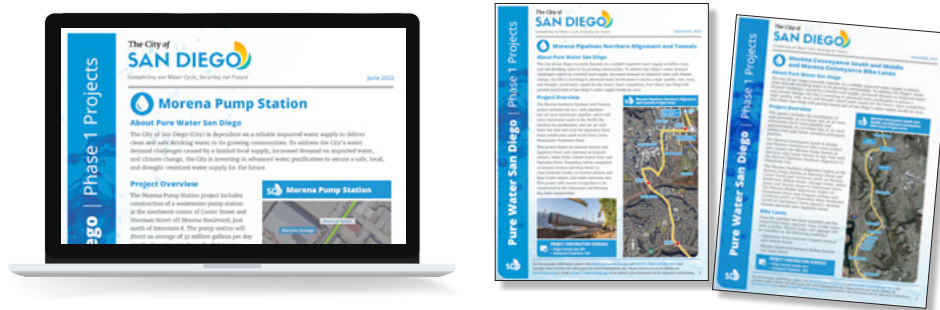
A new Phase 1 North City [interactive closure map](#) was developed in 2022. Users can quickly find information on road closures, detours and impact-related information by project.



Interactive Graphic Systems (GIS) [map of Phase 1 projects](#)

CONSTRUCTION INFORMATIONAL MATERIALS

Additionally, the full suite of project fact sheets was updated as construction ramped up across several community areas. These fact sheets are available in English and Spanish by visiting the various project pages at phase1.purewatersd.org.



Examples of project fact sheets (available in English and Spanish)

Want to Learn More About the Program?

View the [Informational Materials](#) page for the latest Pure Water materials including youth activity pages, the refreshed Speaker's Bureau presentation, Pure News newsletters and more.



Phase 1 Projects fact sheet (available in English and Spanish)

PURE WATER TOURS WITH MAYOR TODD GLORIA

On July 15, 2022, San Diego Mayor Todd Gloria and City of San Diego and U.S. Environmental Protection Agency leaders toured the progress of the North City Water Reclamation Plant Expansion (NCWRP) and the North City Pure Water Facility and Pump Station. Mayor Gloria emphasized how the Pure Water San Diego project will solve the regional wastewater issue and provide a new water resource for San Diego. [Read more: CBS 8 - 'Pure Water San Diego' tour with EPA leaders and Mayor Gloria](#)



On November 1, 2022, Mayor Gloria welcomed California’s Natural Resources Secretary Wade Crowfoot to San Diego to tour the NCWRP.

CONSTRUCTION OUTREACH

Community outreach remains an important part of the Pure Water Program. In 2022, as construction progressed, the Pure Water outreach team continued to focus heavily on construction outreach. Through online channels, the team sent email construction notices. Residents and businesses near construction areas also received information on upcoming construction via direct mail campaigns.



To help ensure that residents and businesses who are impacted by construction are aware of the nearby work and have the necessary information about what to expect, the Pure Water outreach team also dropped off door hangers and performed in-person field visits. Additionally, the outreach team incorporated new ways to inquire and learn more about the Pure Water projects with dedicated phone lines by project. In 2022, the outreach team received 96 construction-related inquiries through these dedicated channels.

Pure Water Project Contact Information purewatersd@sandiego.gov	
Community	Phone
Morena, Bay Park and Clairemont	833-MOR-PWSD (833-667-7973)
University City and Eastgate Mall	833-UTC-PWSD (833-882-7973)
Scripps Ranch and Miramar	833-MIR-PWSD (833-647-7973)

Working Group Meetings

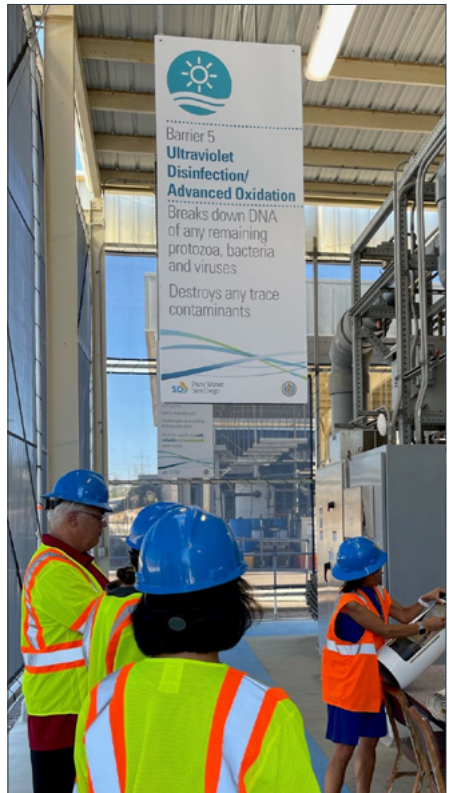
The Pure Water team provided an update to University City Working Group members in November 2022 to share information on construction plans along Genesee Avenue. In 2023, the working groups will be kept informed throughout construction with additional meetings taking place as needed.

Community Outreach

INDUSTRY TOURS

While public tours of the Demonstration Facility are on hold due to construction at the NCWRP, the City of San Diego and Pure Water Program team organized special tours to give industry members in specialty fields an idea of the work underway.

In September 2022, the Pure Water team hosted representatives from the State Water Quality Control Board and San Diego Regional Water Quality Control Board. Attendees received a presentation on the Pure Water program and Phase 1 construction progress before touring the Demonstration Facility to see the process in action and taste the water.



Amy Dorman, Assistant Director for Pure Water San Diego provides a tour to the San Diego Regional Water Quality Control Board

In October 2022, the Construction Management Association of America (CMAA) toured the NCWRP project site to learn more about the construction currently underway at the facility. The expansion requires larger equipment and infrastructure at the facility. The Pure Water team appreciated the opportunity to demonstrate San Diego's cutting-edge water recycling program and necessary infrastructure to industry leaders from around the country.



CMAA at the North City Water Reclamation Plant

Community Outreach

COMMUNITY EVENTS

In-person community events returned this year after they were paused due to the COVID-19 pandemic. The Pure Water team participated in seven total events this year, including Earth Fair, the 4th of July Scripps Ranch Run & Ride, Miramar Air Show, UC Oktoberfest, the Mira Mesa Street Fair, Walter Munk Day and Clairemont Family Day.

The Pure Water team truly enjoyed connecting with residents and stakeholders face-to-face to answer questions and discuss how Pure Water will help to solve San Diego's water supply challenges.



The Pure Water team attended multiple community events in 2022 and were joined by several city officials, including Councilmembers Joe LaCava, Jennifer Campbell and Marni von Wilpert.

SPEAKER'S BUREAU PROGRAM

As construction increased in 2022, the Speaker's Bureau program expanded to include new speakers, a refreshed presentation with engaging, interactive maps and timely construction content.

Pure Water held informational meetings for a variety of organizations, community groups and planning groups like the University City Community Association, Marston Middle School, League of Women Voters, Institute of the Americas, San Diego State University, San Diego River Conservancy, National University, UC San Diego and more.

During these presentations a wide range of topics was covered, including program regulations, project maps, wastewater treatment process, history of recycling drinking water, project updates and engineering.



An audience receives a presentation as part of the Speaker's Bureau Program.

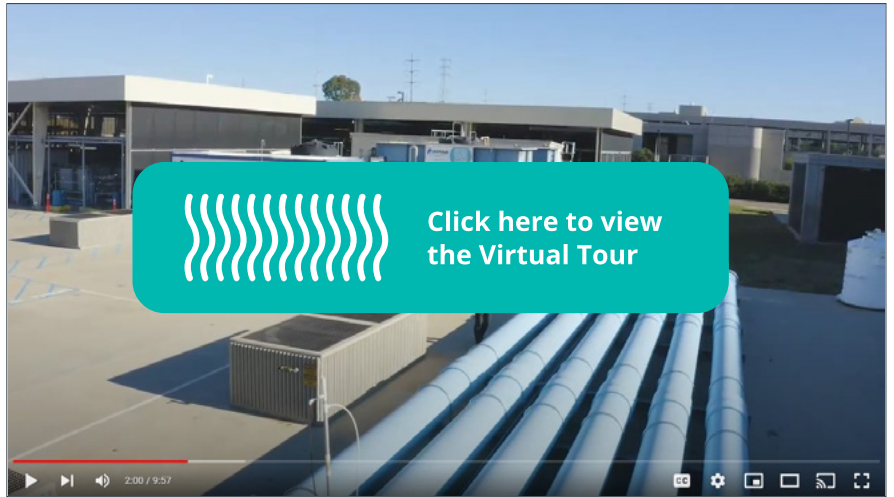


The Speaker's Bureau presentation is available on the [Informational Materials](#) page of the Pure Water website.

DEMONSTRATION FACILITY VIRTUAL TOUR

The Pure Water Program updated the Pure Water Demonstration Facility Virtual Tour. The video provides an inside look of the proven water purification technology that cleans recycled water to produce safe, high-quality drinking water.

While the **public tour program is on hold** due to extensive construction near the Phase 1 Demonstration Facility at the NCWRP, the virtual tour provides an accessible and informative overview of the technology and processes that ultimately produce Pure Water.



CONFERENCE PARTICIPATION

The Pure Water team regularly identifies water industry conferences and trade shows where the program can be profiled. Participating in conferences raises public awareness of the program and shares lessons learned with other water agencies and industry groups. In 2022, members of the Pure Water team presented at conferences including the WaterReuse National Symposium, the Pacific Climate Forum of the Institute of Americas, California WaterReuse and the California/Nevada section of the American Water Works Association.



Pure Water experts are available to present to schools, community associations, universities, businesses, cultural groups, and more. To date, the Pure Water Program has given over 950 community presentations! Request a Pure Water presentation by emailing purewatersd@sandiego.gov!



Pure Water
San Diego

Pure Water San Diego Program

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The City of San Diego continues to provide safe, high quality drinking water for its customers each and every



@PureWaterSD

Visit purewatersd.org
to learn more about the
Pure Water Program.