

Summer 2015



## NORTH BAY WATER REUSE PROGRAM

*Water Supply Reliability through Regional Reuse*



### Established Alliance Creates New Water Supply for Agencies

The NBWRP is a coordinated, regional effort to address water supply shortages by developing recycled water for agriculture, urban use and environmental uses.

#### Members:

- Las Gallinas Valley Sanitary District
- Marin Municipal Water District
- Novato Sanitary District
- North Marin Water District
- County of Marin
- City of Petaluma
- Sonoma County Water Agency
- Sonoma Valley County Sanitation District
- Napa Sanitation District
- County of Napa

The NBWRP is overseen by the North Bay Water Reuse Authority, whose Directors are appointed by their representative agencies.

## Regional Collaboration Addresses Water Supply Shortages, Promotes Beneficial Reuse

The North Bay counties of Napa, Sonoma and Marin face long-term water supply challenges. Existing surface and groundwater supplies are stretched to their limits; groundwater basins are over-pumped and threatened by seawater intrusion. By working together the region's water and sanitation agencies are providing a reliable supply of recycled water to offset limited potable water demands, serve the region's diverse urban, agricultural and environmental needs and maintain the area's high quality of life.

From its inception, the North Bay Water Reuse Program (NBWRP/Program) has used a multiple-benefit approach to recycled water supply planning and approached projects from both a watershed and sub-regional perspective. The Program includes treatment, storage,

distribution, and environmental restoration projects that are yielding significant value for the infrastructure investment.

Phase 1 of the Program has been under construction for six years and its \$104 million in projects are 75% complete. They deliver high-quality

water for traditional urban uses, premium wine grape production and restoration of tidal wetlands and wildlife habitat. Phase 2 is in the planning stage and its estimated

\$150 million in projects will build upon Phase 1 infrastructure with increased storage and distribution, groundwater management, environmental and community benefit projects. When fully implemented, Phase 1 and 2 will yield 30,800 AFY of recycled water, maximizing regional-scale reuse and building long-term resiliency into the region's water supply.



*Bringing recycled water to restoration and irrigation projects helps to offset water demand.*

# Phase 1 Water Supply Projects by the Numbers

The NBWRP incrementally builds resiliency into the region's water supply as member agencies' projects are brought online. As projects are completed, local communities begin to realize the benefits of recycled water as part of their reliable water supply.

Here are the numbers for all of the Phase 1 projects:

Value of Phase 1 program:	\$104 million
Percent of completion:	75%
Water for irrigation:	3,800 AFY
Water for habitat restoration:	1,700 AFY
Miles of pipeline:	46
Storage capacity:	100 AF
New treatment capacity:	6.5 mgd
Authorized Federal Funding:	\$25 million
State Proposition Funding to date:	\$4.8 million
Estimated Local Contributions	\$74.2 million



Recycled water treatment, storage and distribution are key components of NBWRP's Phase 1 projects.

# Phase 1 Produces Tangible Results; Builds Infrastructure, Delivers Water



Phase 1 projects included construction of this 100 acre-foot storage facility in the Sonoma Valley County Sanitation District for agricultural and environmental end-users.

Phase 1 of the NBWRP is now 75% complete and consists of a variety of recycled water treatment, distribution, storage and environmental restoration projects with a total value of \$104 million. When Phase 1 projects are complete, they will deliver 5,500 AFY of tertiary treated recycled water for agriculture, urban uses, and salt marsh restoration.

Even before all of Phase 1 has been completed, tangible project results are benefitting multiple water users. Projects are delivering high-quality recycled water for restoration of a 300-acre Napa Salt Marsh that provides critical wildlife habitat; premium wine grapes are receiving a reliable source of water for irrigation; and recycled water has allowed urban water districts to decrease their reliance on imported surface water for irrigation.

The Program has successfully obtained both state and federal support for its projects. Phase 1 of the Program was authorized to receive \$25 million in federal construction assistance under the U.S. Bureau of Reclamation's Title XVI

program. To date, the NBWRP has received more than \$18.3 million through a combination of American Recovery and Reinvestment Act and Bureau of Reclamation WaterSMART and Title XVI grants. In addition to receiving federal funding, Phase 1 projects have been awarded \$4.8 million in funding through the California Department of Water Resources' Integrated Regional Water Management grant program.

The NBWRP is a model that has successfully demonstrated regional-scale recycled water planning can deliver quantities that provide significant benefits and augment limited water resources in the West.

Phase 1 demonstrates that local agencies can deliver a long-term sustainable supply of water by partnering with the U.S. Bureau of Reclamation and the State of California for planning and construction costs. Therefore, allowing local agency partners to plan and implement projects that would be out of their reach without the multi-agency, regional collaboration.



## Phase 2: Maximizing the Infrastructure Investments Made in Phase 1

The NBWRP was developed as a two-phased, integrated regional effort to address critical water supply shortages in the North Bay. With the \$104 million Phase 1 program now 75% complete, planning for Phase 2 is under way with an estimated \$150 million in projects under consideration. The Phase 2 program will build on the infrastructure investments of Phase 1 by increasing storage, distribution, groundwater management and environmental projects all using recycled water.

Phase 2 has a strong storage component and will help significantly with drought mitigation. These

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In addition to storage, a broad range of water management projects are included in the Phase 2 planning process. Potential projects reflect the priorities and community needs of each NBWRP member agency. The list at right summarizes each agency's project component by treatment, storage, distribution, groundwater management and other opportunities.



Scoping Studies for Phase 2 explored options for expanding the NBWRP water reuse projects. Existing wastewater treatment facilities are indicated by white squares. New member agencies include the City of Petaluma, Marin Municipal Water District and Marin County.

## Summary of Phase 2 Projects

### Marin Municipal Water District

- Primarily distribution of recycled water for urban uses

### Novato Sanitary District

- Construct integrated, multi-purpose projects for storage, recycled water management, and environmental restoration, including:
  - 248-acre recycled water storage wetland
  - Creation of transitional brackish marsh to restore tidal prism and provide habitat enhancement
- Increase wastewater treatment to meet demands as they are defined
- Expand recycled water distribution system for urban uses

### City of Petaluma

- Increase capacity of tertiary treatment to 6.8 mgd
- Build additional storage
- Expand capacity of oxidation ponds for storage
- Expand recycled water distribution for agricultural/urban uses
- Offset agricultural well pumping by serving recycled water for agricultural irrigation

### Sonoma County Water Agency

- Develop aquifer storage recovery projects for surface and stormwater to address groundwater salinity intrusion and improve groundwater recharge.
- Explore locations for private recycled water storage in Sonoma Valley

### Sonoma Valley Co. San. District

- Explore locations for recycled water storage in Sonoma Valley through potential partnerships
- Expand recycled water distribution system for landscaping and agriculture uses

### Napa Sanitation District

- Expand recycled water distribution system for urban uses
- Increase treatment capacity by 1.7 mgd
- Build additional storage including tanks, covered storage, and/or seasonal storage (i.e., new and/or expanded ponds)



# Storage is Key to NBWRP Regional-scale Reuse Program

Year-round carryover storage is critical to regional-scale reuse programs like the North Bay Water Reuse Program (NBWRP), where summer irrigation demands consistently exceed the available recycled water supply. Significant amounts of highly treated recycled water are available during winter periods which, when captured and stored, would greatly expand the distribution and use of this valuable resource for urban, agricultural and environmental uses.

Phase 2 of the Program has a strong storage component and will help build resiliency into the region's water supply and assist with drought mitigation. These storage projects will capture highly-treated recycled water that is currently lost through discharge into the Bay. A foundational aspect of Phase 2 is the ability to capture and store 25,300 AFY of available recycled water which will require construction of 6,100 AF of new storage capacity. Phase 1 projects delivered a total of 5,500 AFY and with the completion of Phase 2, the NBWRP will deliver a permanent, reliable supply of 30,800 AFY to the North Bay region.



*Phase 2 of the North Bay Water Reuse Program would utilize storage to expand distribution of recycled water.*

While recycled water storage does not replace large surface water projects being contemplated in other parts of California (such as the expansion of Lake Shasta and Los Vaqueros Reservoir), it does provide an additional alternative that demonstrates how recycled water can play a key role in quickly providing efficient and cost-effective storage to meet water supply needs in an environmentally friendly manner.

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*Phase 2 has a strong storage component and will help significantly by building resiliency into the water supply and assisting drought mitigation. These storage projects will capture highly-treated recycled water that is currently lost through discharge into the Bay.*

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*With completion of Phase 2, the NBWRP will deliver 30,800 AFY of recycled water to the North Bay region for urban, agricultural and environmental uses.*



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