



CITY OF BEVERLY HILLS

PUBLIC WORKS SERVICES DEPARTMENT

MEMORANDUM

TO: PUBLIC WORKS COMMISSION

FROM: Trish Rhay, Assistant Director of Public Works Services, Infrastructure & Field Operations
Caitlin Sims, Senior Management Analyst CS

DATE: November 12, 2015

SUBJECT: UPDATE ON SIGNAL HILL NANO-FILTRATION TREATMENT PLANT

ATTACHMENTS: 1. Signal Hill Staff Report – 2014 Integrated Regional Water Management (IRWM) Drought Grant

In October 2015, staff reached out to the City of Signal Hill regarding the construction of a Nano-Filtration Treatment Plan at the site of one of its wells. In 2008, the City of Signal Hill drilled a new well in the City's Public Works Yard, just south of the I-405 Freeway, to provide a more reliable source of potable water to serve the southern portion of the City in the case of a natural disaster. All of the City's water supply is located north of the I-405 Freeway.

The City received its Summary of Construction Operations in 2009, including a water quality analysis that showed the presence of organic color that would require additional treatment to improve the aesthetic of the water. The City completed a preliminary design report that identified the technology – nano-filtration membranes – that would be the best system for groundwater treatment to reduce organic color levels to comply with state regulatory limits. However, at that time, the City did not have the resources to complete that project.

In June 2014, the State Department of Water Resources (DWR) issued a Proposal Solicitation Package for an expedited and streamlined grant application process for projects that provided immediate relief for regional drought preparedness and helped to increase the water supply reliability and delivery of safe drinking water. A project stipulation is that all grant-funded projects must be completed within a year of award of the grant.

The City of Signal Hill submitted its application for funding to construct the Advanced Wellhead Treatment System to the Gateway Water Management Authority (GWMA) for inclusion as a part of the GWMA's regional grant submittal to DWR. Applications were due in July 2014, and, in November 2014, the City of Signal Hill was notified that its project was approved for \$2.86 million in grant funding. Work is currently underway on this project.

Staff has been in contact with staff from the City of Signal Hill and has scheduled a site visit for November 2015. A staff report for the City Council from Signal Hill regarding the City's project has also been attached. Staff will be available to answer any questions at the November 12, 2015, Public Works Commission Meeting.



CITY OF SIGNAL HILL

2175 Cherry Avenue ♦ Signal Hill, CA 90755-3799

November 18, 2014

AGENDA ITEM

TO HONORABLE MAYOR
AND MEMBERS OF THE CITY COUNCIL

FROM: STEVE MYRTER, P.E.
DIRECTOR OF PUBLIC WORKS

SUBJECT: 2014 INTEGRATED REGIONAL WATER MANAGEMENT
(IRWM) DROUGHT GRANT

Summary:

Staff is seeking authorization to enter into an agreement with the Gateway Water Management Authority to receive a grant in the amount of \$2.86 million for the construction of an Advanced Wellhead Treatment Facility at Well No. 9.

Recommendation:

Authorize the City Manager to execute an agreement with the Gateway Water Management Authority to receive a grant in the amount of \$2.86 million for the construction of an Advanced Wellhead Treatment Facility at Well No. 9.

Fiscal Impact:

The estimated cost for project management, design, engineering, environmental documentation, and construction of the Advanced Wellhead Treatment Facility is \$8 million. Funding for the project is proposed from three sources: \$2.86 million grant funding, \$1.90 million in water impact fees, and a \$3.24 million loan from the General Fund Reserve.

Background and Analysis:

The City owns and operates two ground water production wells located in north Long Beach near the 91 Freeway. The water produced from these wells is pumped through approximately five miles of pipelines to the Gundry Reservoir and Treatment Plant located at Reservoir Park. Treated water is then pumped over a freeway overpass to the Hilltop and Temple Reservoirs, which deliver water to a majority of the City south of the I-405 Freeway. In the event of a natural disaster, such as a major earthquake, the water lines from the well sites and lines passing through the freeway overpass could rupture and disrupt water delivery to the areas of the city south of the freeway.

In 2008, the City drilled a new well in the Public Works Yard situated south of the freeway. The intent of Well 9 was to provide a more reliable source of potable water that could serve the southern portion of the City if pipelines from the Gundry Reservoir crossing the I-405 freeway were damaged. It was anticipated that a wellhead treatment plant capable of removing naturally occurring minerals within the groundwater would be required as part of overall outfitting of the well including construction of the Pump House at a cost of approximately \$4.5 million.

Upon completion of the well shaft the City conducted a series of tests on groundwater samples taken from the well. The groundwater was determined to be of high quality with the exception of organic color, which is an aesthetic issue, but not harmful if consumed. The detected colored water concentrations of the pre-treated water ranged from 50 to 60 color units (CU). The California Department of Public Health limits color to 15 CU after treatment. Therefore, a more advanced treatment process to reduce the color level of the groundwater was required.

Staff has evaluated various wellhead treatment alternatives including partnering with the Long Beach Water Department, which treats organic colored water produced by their wells. Long Beach Water Department considered the partnership, but could not accommodate Signal Hill at this time. A preliminary design report was prepared that identified technologies that could provide standard disinfectant treatment as well as reduce the level of color from the water produced by Well No. 9.

The Study determined that an advanced wellhead water treatment facility using nanofiltration membranes (similar to reverse osmosis) as the best system for groundwater treatment and reducing organic color levels to comply with State regulatory limits. Staff estimates the incremental cost to construct an advance water treatment cost capable of removing organic color, as compared to a more standard mineral removal treatment plan, at approximately \$3.50 million. The \$2.86 million State IRWM Drought Grant awarded to the City will offset 82% of this

incremental cost associated with constructing this advance treatment process to remove organic color.

A Water System Master Plan Update study is currently underway and when complete is to serve as a roadmap for the City's future water system operation and capital improvements as required to achieve reliable and cost-effective water service. The Master Plan study efforts include a focus evaluation City's current and future water supplies and critical water supply infrastructure facilities. The Signal Hill Advanced Groundwater Wellhead Treatment Plant (Well No. 9) is an integral component of this analysis. Based on the analysis completed to date, the anticipated annual incremental operations and maintenance (O&M) cost to operate an Advanced Groundwater Wellhead Treatment Plant is approximately 10% higher or \$150,000 more as compared to the City's existing water treatment facility O&M costs.

The Signal Hill Advanced Groundwater Wellhead Treatment Plant, together with the City's two existing water supply wells, will enable the City to reliably pump its full annual groundwater allocation (water rights) of 2,022 acre-feet, as well as to lease and pump additional unused central basin groundwater rights from other water purveyors to meet the City's total projected annual water demand. By gaining this additional operational flexibility the City would no longer be reliant on expensive and increasingly scarce important water supplies to supplement its groundwater allocation to meet total citywide demands. In summary, the Signal Hill Advanced Groundwater Wellhead Treatment Plant will allow the City to turn an unusable groundwater source into a new potable water source, create an opportunity to meet existing water demand with local water supplies, and greatly reduce the City's reliance on purchasing imported water.

Conceptual Project Financing

Conceptually, a loan from General Fund Reserves to fund the Water Capital Improvements, would fund any difference between the total project costs of building the Advanced Wellhead Treatment Facility for the only well that is within city boundaries. This approach would provide two major benefits to the community: greater stability in providing clean running water - even if a region wide disaster occurred - and a good investment return to the General Fund, providing additional services to the community. By using a self-funding loan option, the City would realize a guaranteed rate of return for the life of the loan to itself.

In the past five years, the City's returns on legally held investments has plummeted due to the Great Recession. The State of California's Local Agency Investment Fund (LAIF), where the majority of the City's portfolio is being kept at this time, has only provided an average effective yield for the last five years of 0.42%. The effective yield for October 2014 was 0.261%.

If financing the difference, between the costs of the project and the amount being received from the grant, the current potential interest costs of issuing a Water bond would be approximately 3.32% for a 20 year bond, and 3.57% for a 25 year bond.

Staff estimates that the total amortized capital cost of a \$3.2 million loan with a 25-year term and the cost of a 3.5% interest rate would annually be \$210,000. The approximate costs of funding the interest expense would be smoothed over a 30 year timeframe.

Emergency Drought Grant

On January 17, 2014, Governor Edmund G. Brown proclaimed a Drought State of Emergency and on March 1, 2014, Governor Brown signed legislation to assist drought-affected communities and provide funding to better use local water supplies. The Governor and Legislature directed the Department of Water Resources (DWR) to expedite the solicitation and award of \$200 million in Integrated Regional Water Management (IRWM) funding to support projects and programs that provide immediate regional drought preparedness, increase local water supply reliability and delivery of safe drinking water, assist water suppliers and regions to implement conservation programs and measures that are not locally cost-effective, and/or reduce water quality conflicts or ecosystem conflicts created by the drought.

In June 2014, DWR issued a Proposal Solicitation Package for grants under an expedited and streamlined grant application process. The grant application period was accordingly truncated and grant applications were due on July 21, 2014. DWR received 39 grant applications requesting \$339 million for projects totaling over \$970 million. On November 4, 2014, DWR announced the award of \$200 million in grants to 23 IRWM regions. Signal Hill's Advanced Wellhead Treatment System for Well No. 9 was approved for \$2.86 million in grant funding through the Gateway Water Management Authority regional grant submittal.

To meet the State's goal of decreasing the need and use of imported water supplies and increasing the development and use of local water supplies the State requires that all grant funded projects be completed within a year of award of the grant. To satisfy this grant requirement it will be necessary to fast track the construction which will be accomplished using a design build bid process.

DWR will soon issue formal grant agreements that must be executed within 30 days of issuance. The Integrated Regional Water Management Program (IRWM) Grant Agreement will be between DWR and the GWMA. The GWMA will approve the agreement with DWR at its December 11, 2014 Board meeting. Therefore, the

City of Signal Hill will need to have authority to enter into an agreement with GWMA prior to December 11, 2014.

Reviewed:

Terri Marsh

Approved:

Kenneth C. Farfsing