



Agenda Item No. _____

File Code No.

CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

ITEM 9

AGENDA DATE: May 5, 2015

TO: Mayor and Councilmembers

FROM: Public Works Department, Water Resources Division

SUBJECT: Contract To Provide A Work Plan For Desalination Subsurface Intake And Potable Reuse Feasibility Studies

RECOMMENDATION: That Council:

- A. Authorize the Public Works Director to execute a Professional Services contract with Carollo Engineers, Inc., in the amount of \$312,659 to provide a Work Plan for Desalination Subsurface Intake and Potable Reuse Feasibility Studies, and approve expenditures of up to \$31,266 for extra services of Carollo Engineers, Inc., that may result from necessary changes in the scope of work, for a total contract phase amount of \$343,925; and
- B. Increase estimated revenues and appropriations in the Drought Fund in the amount of \$343,925 for a Desalination Subsurface Intake Work Plan and Potable Reuse Feasibility Studies funded from the transfer of Water Fund Reserves.

EXECUTIVE SUMMARY:

On September 23, 2014, Council directed staff to return to Council with a plan to consider the feasibility, cost, and timeline associated with converting the existing offshore intake to a subsurface intake for the desalination plant, and evaluate opportunities, feasibility and costs for potable reuse. On January 30, 2015, the Regional Water Quality Control Board (RWQCB) adopted an amendment to the City's El Estero Wastewater Treatment Plant National Pollutant Discharge Elimination Permit (NPDES Permit) that incorporated Council's direction to staff and added two milestones: submittal of a feasibility studies Work Plan to the RWQCB by August 31, 2015; and reporting the findings of the feasibility study to the RWQCB at a public meeting, no later than June 30, 2017. The contract being presented to Council for consideration is for development of the Work Plan in compliance with the RWQCB requirements.

DISCUSSION:

It is anticipated that the study effort needed to meet Council's and the RWQCB's directives will be best approached through three separate contract phases. Phase 1 is the creation of a Work Plan for Subsurface Intakes (SSI) and Potable Reuse Feasibility

Studies. Phase 2 would be an SSI basis of design and fatal flaw analysis and Potable Reuse Feasibility Study. Phase 3 would be a feasibility study of the SSI alternatives that successfully passed through the fatal flaw analysis. At this time, staff is requesting approval of a contract with Carollo Engineers, Inc., (Carollo), to develop a Work Plan (Phase 1) for submittal to the RWQCB by August 31, 2015.

Once the Work Plan has been approved by the RWQCB, staff will return to Council to amend Carollo's contract to include the above-described Phase 2 work. The contract for this scope of work is anticipated to cost approximately \$700,000. Upon completion of the Phase 2 work, staff will return to Council with a contract amendment for Carollo to perform the above-described Phase 3 work. The preliminary cost estimate for the Phase 3 work is approximately \$1,100,000.

Considering the highly technical nature of this work, staff is recommending the use of an Independent Technical Advisory Panel to ensure process transparency, keep the studies on schedule, and accommodate public input. It is proposed that the National Water Research Institute (NWRI) be retained to establish a panel of approximately four experts. Similar panels have been used and found to be successful in developing a comprehensive, systematic procedure to evaluate the technical feasibility of potable reuse and/or SSI technologies. The NWRI is a 501c(3) nonprofit organization, founded in 1991 by a group of California water agencies in partnership with the Joan Irvine Smith and Athalie R. Clarke Foundation, to promote the protection, maintenance, and restoration of water supplies and to protect public health and improve the environment.

Phase 1 – Work Plan for SSI and Potable Reuse Feasibility Studies:

Work Plan for SSI:

- Establish project schedule, role of outside agencies, methods for establishing design basis, fatal flaw definition, criteria and application of feasibility screening, and sequencing of analyses; and perform literature review;
- Develop an SSI study that identifies intake sites and raw water conveyance piping;
- Create procedures to determine subsurface properties, model SSI influence on the City's water aquifers;
- Estimate subsurface water quality and treatment needs; and
- Establish and define metrics to compare SSI to current open ocean intakes.

The Work Plan will include SSI panel workshops to review and advise on technical studies and conclusions. The workshops will accept public comments, which will be considered for incorporation into the feasibility screening analysis as appropriate.

Potable Reuse:

- Develop a potable reuse feasibility study that includes a procedure to identify the capacity of the available potable reuse supply;
- Identify possible sites for potable reuse treatment, storage and distribution facilities;

- Consider potable reuse options; and
- Establish and define metrics to compare potable reuse alternatives to the City's current drought water supply plan.

The Work Plan will include potable reuse panel workshops to review and advise on technical studies and conclusions. The workshops will accept public comments, which will be considered for incorporation into the feasibility screening analysis as appropriate.

Phase 1 will include one public panel workshop for input on the Work Plan for both SSI and potable reuse feasibility studies before it is finalized. Subsequent phases will also have public panel workshops. Carollo has submitted an acceptable proposal to perform the work activities associated with Phase 1 for an amount of \$312,659. Staff recommends an additional \$31,266 for extra services of Carollo that may result from necessary changes in the scope of work, for a total contract amount of \$343,925.

CONTRACTOR SELECTION:

Carollo is the nation's largest engineering firm that focuses exclusively on water, wastewater, and water reuse. A City selection process found them to be the most responsive to the City's needs in providing preliminary design services for the recommissioning of the City's desalination facility. They have performed well on that project. Key qualifications that Carollo brings to the SSI and potable reuse feasibility studies include:

- Carollo's proposed project manager recently completed the development of a decision tool for the Water Research Foundation that can be used to assess desalination intake feasibility. This tool is directly applicable to the City's project.
- Carollo's sub-consultant Dudek is providing permitting, environmental review, and/or regulatory services for a number of active desalination projects in California cities, including: Carlsbad, Huntington Beach, Santa Cruz, and Redondo Beach. Dudek will provide institutional knowledge of these projects and a California Environmental Quality Act perspective for evaluating desalination intake and potable reuse alternatives.
- Carollo's sub-consultant Fugro has provided geotechnical and engineering services for a number of SSI studies, including the Long Beach Subsurface Infiltration Gallery (SIG), which is the only SIG project that has been constructed in California. Fugro will provide geotechnical engineering services.
- Carollo's sub-consultant GSI has local knowledge of the City's aquifers and is well suited to evaluate how the City's groundwater supply would be affected by SSI operations, or by the addition of recycled water via injection wells. GSI has direct experience in the design, construction, and permitting of injection wells that can be used for indirect potable reuse. GSI was responsible for the permitting, design, and construction of injection wells (i.e., aquifer storage wells) for the

Goleta Water District and is currently working with Carollo on an aquifer storage well project for the City of Woodlands, California.

- Carollo continues to be at the forefront of indirect and direct potable reuse regulatory development, research, planning, and design. Carollo has assisted several California water agencies with planning and implementing indirect potable use projects, including the Santa Clara Valley Water WD, West Basin, Los Angeles BOS, Ventura, and Oxnard. California Legislature has directed the Department of Public Health to develop direct potable reuse guidelines by 2016. Key to this directive is over \$2 million worth of research and development work that Carollo has been leading in the areas of risk mitigation, treatment technology and monitoring. Carollo is also assisting in a national effort to develop potable reuse guidelines that include direct potable reuse. California regulators responsible for delivering these guidelines are participating in this national effort.

Based on the extensive qualifications of Carollo to perform the contract work, staff recommends that Council authorize the Public Works Director to execute a Professional Services contract with Carollo to perform the work described under Phase 1. Carollo has provided the City with excellent service on the preliminary design of the City's Desalination Facility Re-Commissioning Project, and they are best suited to create and submit a feasibility studies Work Plan to the RWQCB by the August 31, 2015 deadline.

BUDGET/FINANCIAL INFORMATION:

Staff is currently working to secure a State Revolving Fund loan for the desalination project and related work. Because the studies are requirements of the NPDES permit, they will be included as part of the project cost and funded through the loan. Since the loan has yet to be secured and executed, staff recommends that Council authorize a transfer of reserves from the Water Fund and increase estimated revenues and appropriations in the Drought Fund by \$343,925 to cover the cost of the contract with Carollo to provide a Work Plan for SSI and Potable Reuse Feasibility Studies. Upon execution of the loan, staff will apply to have the loan reimburse Water Fund Reserves for these proposed expenditures. At its special meeting on May 4, 2015, the Water Commission reviewed this item.

PREPARED BY: Joshua Haggmark, Water Resources Manager/CT/RLR/mh

SUBMITTED BY: Rebecca J. Bjork, Public Works Director

APPROVED BY: City Administrator's Office