



CITY OF NORMAN, OK STAFF REPORT

MEETING DATE: 02/28/2023

REQUESTER: Ken Giannone, PE

PRESENTER: Ken Giannone, PE, Capital Projects Engineer

ITEM TITLE: CONSIDERATION OF APPROVAL, ACCEPTANCE, REJECTION, AMENDMENT, AND/OR POSTPONEMENT OF CONTRACT K-2223-75: A CONTRACT BY AND BETWEEN NORMAN UTILITIES AUTHORITY AND GARVER, L.L.C., IN THE AMOUNT OF \$196,190 TO PROVIDE PROFESSIONAL ENGINEERING MODELING SERVICES FOR THE LAKE THUNDERBIRD PREDICTIVE LAKE OPTIMIZATION TOOL (PLOT) PROJECT AND BUDGET TRANSFER FROM WATER RECLAMATION FUND BALANCE TO PROJECT ACCOUNT.

BACKGROUND:

In March 2012, the Norman Utilities Authority (NUA) approved Contract K-1112-114 for Carollo Engineers to prepare the 2060 Strategic Water Supply Plan (the 2060 SWSP). The goal of the 2060 SWSP was to strengthen our knowledge of potential short and long-term water supply source(s) for our community and begin implementation of a robust, water supply solution acceptable to the citizens of Norman.

In 2013, the 2060 SWSP Ad-Hoc Committee was created in order to ensure open and two-way dialogue with the community, to ensure the suggestions of the public were addressed, and to ensure that objectives and conclusions of the 2060 SWSP were clearly communicated to the public. Eight meetings were held with the 2060 SWSP Ad-hoc Committee and six public meetings were held for public participation and input in order to determine the portfolio of recommendations identified in the report that would be implemented. Ultimately, Resolution R-1314-146 was approved by the NUA on June 24, 2014. The approved portfolio had six (6) recommendations including the following:

“Implementation of indirect potable reuse (IPR) over time by adding additional treatment at the Water Reclamation Facility (WRF) and discharging the highly treated effluent into Lake Thunderbird; raw water conveyance and water treatment expansions would be required.”

Since that time, NUA has made continuing efforts to confirm the technical and economic viability of IPR. Most recently from June 2021 through June 2022, NUA completed pilot testing of various advanced treatment technologies at WRF, and compilation of data and writing of the final report are ongoing. The intent of this pilot study was to obtain the following data:

1. Confirm that reliable technologies existed that could economically treat effluent at the WRF to the quality necessary for IPR.
2. If one or more technologies are found that could economically meet the necessary water quality requirements, make recommendations for the best technology to be implemented at the WRF for IPR.

No. 2 above is relevant to this report because a critical step before concrete action is undertaken toward implementation of an IPR program will be to complete a financial analysis of IPR and compare its cost to other available options for meeting the City of Norman's long term water supply needs to determine if it is, indeed, the best solution for the City of Norman. This will be accomplished by preparing detailed estimates of the capital costs and long term operating costs of each viable alternative and comparing the net present values of each. If IPR remains the most economic option, NUA will commence further steps to implement it.

The above-discussed pilot study will furnish part of the information needed to complete this analysis as it will identify the best technology for advanced treatment at the WRF. This will allow for a detailed cost estimate of the capital cost and the operating cost for upgraded treatment technology at the WRF. However, there is a second piece to an IPR program that must be part of any economic analysis. Some combination of pump stations, force mains, and existing surface waterways must be used to transport highly treated effluent from the WRF to Lake Thunderbird. The capital cost and operating cost of these facilities must also be part of the net present worth analysis. In order to obtain these numbers, we must first quantify the size, capacity and level of resiliency necessary for these facilities, and, in order to come up with reasonable estimates for these parameters, it will be necessary to determine when, how often, and at what rate highly treated effluent would be pumped from the WRF to Lake Thunderbird as part of an IPR program.

It should also be noted that Oklahoma Department of Environmental Quality (ODEQ) has jurisdiction over water and wastewater treatment in the State of Oklahoma and that explicitly includes approval authority over any proposed IPR program. ODEQ has promulgated guidelines for such an approval, and one critical required step is the submission and approval of an Engineering Report that will detail all aspects of the proposed IPR program for ODEQ consideration. One key part of the Engineering Report must be a discussion of potential impacts of an IPR program on the public and the environment and how those impacts will be mitigated.

DISCUSSION:

NUA staff and NUA Consultant, Garver Engineering (Garver), have identified the creation of a Predictive Lake Optimization Tool (PLOT) for Lake Thunderbird as the best means both for confirming detailed specifications for pumping and conveyance infrastructure that would in turn allow for reasonable capital and operating cost estimates to be prepared as well as for reviewing and minimizing environmental impact to Lake Thunderbird of a proposed IPR program as required by ODEQ Guidelines. A PLOT uses precipitation, climatological and lake-specific data and trends to create a model that identifies the best times of year and best times of each day along with recommended pumping rates for IPR augmentation flows to a particular lake (which,

in the NUA's case, of course, is Lake Thunderbird) that will, in turn, optimize lake yield and conjunctive groundwater use as well as mitigate drought risks and their potential impact on the lake, its stakeholders and the environment.

After identifying the creation of a PLOT for Lake Thunderbird as a critical step in affirming the viability of IPR as means of helping NUA meet the City of Norman's future water supply needs, it was discovered that the United States Bureau of Reclamation (BOR) was offering WaterSMART (Sustain and Manage America's Resources for Tomorrow) Applied Science Grants to organizations like the NUA to assist them "to develop hydrologic information and water management tools and improve modeling and forecasting capabilities". Based on information regarding NUA's proposed PLOT project for Lake Thunderbird that was provided to BOR by NUA and NUA's consultant, Garver, BOR has approved an Applied Science Grant for NUA to complete a PLOT for Lake Thunderbird in collaboration with the National Water Research Institute. This grant will cover 50% of NUA's costs for creating the Lake Thunderbird PLOT to a maximum of \$148,339.00. On September 13, 2022, NUA approved Resolution R-2223-23, which accepted the Grant, as outlined in BOR Assistance Agreement R22AP00241 and authorized NUA staff to commence work on the PLOT including negotiating a Contract for Engineering Services with Garver to serve as the lead engineer on the PLOT project.

Since then, a Contract in the amount of \$196,190 for Engineering Services has been negotiated with Garver to create the PLOT. If approved, the net cost of this Contract to NUA, after factoring in the BOR Grant reimbursement of 50% of the cost of both the Garver Contract and in-kind services performed by NUA, is projected to be \$47,851.00 ($\$196,190 - \$148,339 = \$47,851$).

Funds for this project would be obtained by transferring \$196,190.00 from the Water Reclamation Fund Balance to the WRF Reuse Pilot Study Project (WW0317, 32990048-46201). Reimbursements from the BOR Grant would be deposited back into the Water Reclamation Fund as they are received so the net impact on the fund after final reimbursement would be \$47,851.

RECOMMENDATION:

Approval of Contract K-2223-75 with Garver Engineering in the amount of \$196,190 for the Lake Thunderbird PLOT project and approval to appropriate funds from the Water Reclamation Fund Balance (32-29000) in the amount of \$196,190 into the WRF Reuse Pilot Study Project (WW0317-32990048-46201 Design).