AGENDA ITEM #: _____
DATE: August 22, 2016
COAC #: 16-5871

CITY OF GOODYEAR
CITY COUNCIL ACTION FORM

SUBJECT: Cooperative Agreement between the United States Bureau of Reclamation and the city of Goodyear	**STAFF PRESENTER:** Mark Holmes, Water Resources Manager **CASE NUMBER:** N/A **OTHER PRESENTER:** Deborah Tosline – Program Manager, United State Bureau of Reclamation

RECOMMENDATION:

Authorize the City Manager or designee to execute any and all documents necessary to enter into a cooperative agreement between the United States Bureau of Reclamation and the city to continue the concentrate management wetlands pilot study and to execute FY17 budget transfers of up to $100,000 needed to expend the first of the three years of funding for the program.

PURPOSE:

The purpose of this three-year cooperative agreement is to provide enhanced testing and analysis of the existing pilot scale brine wetland located at the Bullard Water Campus. These enhanced tests and analysis are designed to provide the city staff, its engineering consultants and the United States Bureau of Reclamation (USBR) additional information that will be used to further refine and enhance the current Brine Demonstration Project which is currently in the 30% design concept report phase of work and enhancements to future potential wetland construction, operations, and maintenance.

BACKGROUND AND PREVIOUS ACTIONS:

The West Salt River Valley sub-basin aquifer is high in metals, fluoride, nitrates, and total dissolved solids (TDS). Due to this fact, the city has implemented a reverse osmosis (R/O) facility that converts poor quality groundwater into safe drinking water. However, this treatment process produces a waste stream of brine water that cannot be discharged by itself into rivers, washes, or streams. Therefore, the brine stream is currently discharged into the Goodyear Water Reclamation Facility (GWRF) where it is blended with influent from the sewer collection system. The brine uses considerable plant capacity and negatively affects the plant operations. Currently, the volume of brine is 0.5 million gallons per day (MGD) or 560 acre-feet (AF) per year and uses 12% of the total reclamation plant capacity and accounts for 40% of the total salts received at the plant. As the volume of brine increases with time, the consumption of reclamation plant capacity will also increase and affect the operations of the plant.

There are various methods of brine disposal that include 1) drying or evaporation beds which are the most expensive; 2) enhanced technology upgrades at the plant which are also very expensive; and 3) engineered wetlands which are the cheapest types of disposal systems. Engineered wetlands can also provide additional functionality if realized as a recreational and educational amenity.

The city of Goodyear will always have a need to pump poor quality groundwater or recover long term storage credits stored underground in the future and therefore will constantly utilize R/O and have a brine disposal condition. As the city explores water resource solutions within Rainbow Valley as part of the "Southern Solution," this feasibility study could be used to assist in better brine disposal methods that cost the least to construct and operate, and manage this disposal issue while also potentially providing recreational and educational amenity opportunities.

The United States Bureau of Reclamation and the city have worked together on the pilot project to study the concentrate discharge from the reverse osmosis facility. A Pilot Project using an engineered wetland has been operated at the reverse osmosis facility since 2010 to evaluate the successfulness of removing regulated contaminants of concern, from the concentrate. The pilot wetland project was completed in 2013 succeeding in the removal of regulated contaminants of concern. The United States Bureau of Reclamation is currently part of a feasibility study phase for a 25% (125,000 gallons per day) scale-size demonstration project. The deliverable from this feasibility work will be a detailed report showing all aspects of implementing a demonstration sized brine wetland including a 30% engineering design concept report.

STAFF ANALYSIS:

1. The Continuation of the Pilot Brine Wetland Project will help the city better understand the greatest volume of brine that can be put through a wetland system in the shortest amount of time and still perform the required water quality treatment. This will better define the sizing requirements for the demonstration sized wetlands.
2. The Pilot Continuation Project will also help determine the operational life expectancy for the wetlands themselves in developing an operational and replacement schedule. A more enhanced water quality, soil, and plant analysis will be performed to understand when a wetland becomes fully saturated with the constituents and needs replacing. Also, if the materials from the wetlands can be disposed at a traditional sanitary landfill or will require a special landfill for disposal.
3. Because the plants within these wetlands will potentially become new habitats for wildlife, it will be important to understand the potential toxicity of certain plants as they uptake certain constituents of concern. This will better define plant rotation and replacing cycles.

FISCAL ANALYSIS:

1. The total project costs are $300,000 over three (3) years ($100,000 per year) with a 50% cost share between the USBR and the city.
2. The city's portion of the project costs are $50,000 per year for three (3) years and could include: 1) direct funding; and/or 2) in-kind services both of which are subject to annual appropriations by the city and/or availability of city staff or contracting for each of the three fiscal years proposed within this study.
    - The city currently has an approved on-going Water Resources operational line-item budget for water quality analysis specifically for the pilot wetland for the amount of $26,000 per year.

- The difference of $24,000 per year is proposed to be funded through in-kind administration, management, operations, maintenance, and repairs to the pilot by city staff.

ATTACHMENTS:

1. Proposed Cooperative Agreement between the USBR and the city
2. United States Bureau of Reclamation final report on the pilot brine wetland at the city of Goodyear.