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DISCUSSION OF STATUS OF GLENDALE'S COLORADO RIVER SUPPLY AND EFFORTS TO HELP MITIGATE THE RAPID WATER LEVEL DECLINE IN LAKE MEAD THROUGH THE DROUGHT CONTINGENCY PLAN

Staff Contact: Craig Johnson, P.E., Director, Water Services

Staff Presenter: Doug Kupel, PhD, Deputy Director, Water Services

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Purpose and Policy Guidance

The purpose of this item is to provide City Council with information on the City's Colorado River supply including proposals to reduce the rapid water level declines in Lake Mead. A future Glendale contribution of \$100,000 per year for three years may be necessary to support proposed programs needed to protect our Colorado River supply.

Background

Glendale's Water Supply- Glendale has a diverse and robust water supply. The City receives 40 percent of its total water supply from the Colorado River, delivered through the Central Arizona Project (CAP) canal. Another 40 percent comes from the Salt River Project (SRP) from the Salt and Verde Rivers and SRP's six reservoirs. The City pumps about 13 percent of its water from groundwater wells, and the other 7 percent of our water portfolio comes from reclaimed water. Colorado River water is stored in Lake Mead and Lake Powell. It is delivered from the CAP canal to the City's Pyramid Peak water treatment plant where it is treated and readied for use.

Glendale has a 100-year Designation of Assured Water Supply (DAWS) by the Arizona Department of Water Resources (ADWR). This designation assures our citizens and those looking to build and invest in Glendale that we have adequate current and future water resources. The DAWS takes into consideration all of our water supplies and volumes and weighs this against our current and future demands. Our current DAWS was re-issued in 2010 and must be renewed again in 2025. Having a resilient and reliable Colorado River water supply will benefit this re-designation process.

Glendale's Commitment to Conserve- The City has taken previous measures to help stabilize water levels in Lake Mead. In 2016, Council approved storing 1,000 acre-feet of our Colorado River supply in Lake Mead. In total, four municipalities (including Glendale) stored about 16,000 acre-feet of water in Lake Mead. This program allowed Glendale and the other municipalities to take alternative delivery of a portion of their CAP water and resulted in an "Intentionally Created Surplus" of water in Lake Mead to help slow water level declines.

Water Services is also actively involved with a broad range of water conservation programs to ensure that the City is doing its part to reduce total water demand throughout our boundaries. The City also recharges some of our Colorado River supply underground so that it is available for use in the future.

The Colorado River- Watersheds in Colorado, Wyoming, Utah, and New Mexico feed the Colorado River. The Colorado River Compact of 1922 divided Colorado River users into Upper and Lower Basin States. The Upper Basin States include Colorado, Wyoming, Utah and New Mexico. The Lower Basin States include Arizona, California and Nevada. Both the Upper and Lower Basin States were each allocated 7.5 million acre-feet of Colorado River water per year.

The 7.5 million acre-foot Lower Basin states allocation is divided such that Arizona receives 2.8 million acre-feet per year, California receives 4.4 million acre-feet per year and Nevada receives 300,000 acre-feet per year. Mexico also receives 1.5 million acre-feet per year in accordance with a Treaty signed in 1944.

Central Arizona Project and Glendale- The Central Arizona Project (CAP) is entitled to about 1.5 million acre-feet per year of Arizona's 2.8 million acre-feet allocation. The water that is delivered through the CAP carries different priority levels which are used to determine which water would be cut first in any shortage declaration. Glendale has a high priority municipal and industrial contract with the CAP for 17,236 acre-feet per year. We also have other Colorado River water supply and entitlements that are a mix of high and lower priority water. These entitlements total an additional 7,859 acre-feet per year that are also delivered through the CAP canal. The City's total Colorado River water supply available for delivery through the CAP canal is 25,095 acre-feet per year.

The Drought and Lake Mead- The western United States has been in a 17 year drought which has reduced Colorado River flows into both Lake Powell and Lake Mead. Lake Mead has experienced severe water level declines of more than 130 feet since the year 2000. The cause of this decline is that more water is leaving Lake Mead than is entering into it. This deficit is estimated to be about 1.2 million acre-feet annually, resulting in a lake elevation decline of 10 to 12 feet each year. To address the decline in Lake Mead, guidelines were put in place early on in the drought to help safeguard Lake Mead from reaching extreme low water levels.

The 2007 Interim Guidelines- The 2007 Guidelines contain three shortage triggers in Lake Mead each

associated with a specific lake elevation level. The Lake Mead elevation levels are set at 1075 feet, 1050 feet, and 1025 feet. As the water level drops and reach each of these trigger points, Arizona, Nevada, and Mexico will lose a portion of their Colorado River water supply. California does not have a reduction of their Colorado River Allocation within the 2007 Guidelines. If the third shortage trigger of 1025 feet is reached, the total reduction will be 625,000 acre-feet and the U.S. Secretary of Interior would have to make a determination of what to do next to prevent lake levels from dropping below 1000 feet.

Colorado River Water Shortage Priorities- Colorado River water supplies delivered through the CAP canal have different priority levels that help determine which water will be cut first during a shortage. The lowest priority levels are cut first and include the Excess Pool water and the Non-Indian Agriculture (NIA) water. The highest priority levels are the Municipal and Industrial supply and the Indian pool water supplies. Glendale's Colorado River supplies currently contain 90% of the higher priority water.

The Drought Contingency Plan- While the 2007 Guidelines helped manage the decline in Lake Mead water levels, the drought has continued. Current projections show that if no action is taken to address the gap between supply and demand, Lake Mead water levels could progressively worsen. To prevent Lake Mead water levels from reaching the three shortage tiers and specifically to absolutely protect Lake Mead from falling below elevation 1020 feet, a Drought Contingency Plan (DCP) is being discussed by the three Lower Basin States. The Bureau of Reclamation and the Republic of Mexico have joined in the discussions as well.

The DCP overlays the 2007 guidelines and would require deeper reductions to Arizona's and Nevada's Colorado River supply. The DCP adds an additional shortage tier at elevation 1090 feet. Since the water level in Lake Mead is already below this level, Arizona, Nevada and the Bureau of Reclamation would immediately reduce use by a total of 192,000 acre-feet if DCP is approved. The DCP also calls for California to give up a portion of its supply. Mexico would also share in the shortage.

When shortage tier three is reached in the DCP, a total of over 1.3 million acre-feet would be reduced for all entities. This is an increased overall reduction of 700,000 acre-feet when compared to the 2007 Guideline reductions. Under the DCP, Arizona's total reductions increase to 720,000 acre-feet from a total of 480,000 acre-feet under the 2007 Guidelines.

ADWR has been leading the process and has asked that all water sectors (municipal/industrial, agriculture and Indian communities) show their support of DCP. ADWR would like to have preliminary pledges of support while seeking approval from the Arizona State Legislature.

The Drought Contingency Plan Plus- During the review process in Arizona, concerns were raised by the agricultural and Indian community water sectors. To meet these concerns, an additional overlay to the DCP plan has been proposed by ADWR. This plan is being called DCP Plus and helps further protect Lake Mead from entering into the first shortage tier at 1075 feet through 2020.

DCP Plus calls for additional voluntary storage of 1.2 million acre-feet of water in Lake Mead for a period of three years. Modeling has shown that this additional storage of water will help keep the water level elevation in Lake Mead above the first shortage tier. This will reduce the risk of reductions of Colorado River water to agriculture and Indian communities during the three years of the program. DCP Plus would also help reduce the risk of the City losing a small portion of its lower priority Non-Indian Agricultural Colorado River supply.

Funding for Drought Contingency Plan Plus- The additional Colorado River water that will be stored in Lake Mead to help avoid reaching the first shortage tier is the key part of DCP Plus. The water to be stored (called compensated water) is planned to be purchased at \$150/acre-foot and will total \$62 million over the three-year program. The key funding sources that have been identified are the Federal Government, State of Arizona, City of Phoenix, and the Arizona Municipal Water Users Association (AMWUA) member cities (which includes Glendale).

The total requested funding for the AMWUA cities is \$3 million based on each city's share of Colorado River supply allocation. Glendale's prorated contribution is estimated to be \$100,000 per year over a three-year period.

Analysis

The City's Colorado River supply is an integral part of the City's water supply portfolio. To help ensure the long-term stability of this supply it must be protected with programs enacted to slow the ongoing water level declines in Lake Mead. Water Services staff has recommended to management that Glendale pledge its support of the DCP Plus program and the financial contribution of \$100,000 per year over a three-year period. The DCP Plus program provides both short and long-term benefits to Glendale by protecting Lake Mead elevations from reaching the shortage triggers prescribed in the 2007 Guidelines.

Funding is available from Water Services CIP funds set aside for recharge and storage of Colorado River water. This would still leave \$400,000 per year to be used for recharge activities while the other \$100,000 would go towards funding DCP Plus.

Community Benefit/Public Involvement

A Framework Group has been assembled to oversee the implementation of the Drought Contingency Plan in Arizona. The group contains members from all water sectors in Arizona, including the Arizona Municipal Water Users Association (AMWUA). This Framework Group is advancing the goal of regional collaboration between all Arizona water sectors.

It is important that the City maintain its current 100-year Assured Water Supply Designation from the ADWR. The City's Colorado River supply is an important part of that designation. The DCP Plus program will aid in protecting the City's Colorado River supply, our ADWR Assured Water Supply Designation, and will enhance the City's future growth and economic stability.