MEMORANDUM

DATE: August 12, 2016

TO: Honorable Mayor and Council Members

FROM: Timothy Thomure, P.E.
       Director
       Tucson Water

SUBJECT: 2015 Annual Report - City/County Water and Wastewater Study Action Plan

I am pleased to report to you on progress that has been made in the fifth and final year of the City/County Water and Wastewater Study Action Plan for Water Sustainability. Mayor and Council adopted the five-year Action Plan in November 2010, and since then it has helped guide the City’s efforts toward water reliability and sustainability. A copy of the Plan and all background materials on the Study are available on-line at http://tinyurl.com/WISP-Plan. Below is a summary of progress made during the five-year Action Plan, through 2015:

• Plan Tucson – The November 2013 voter ratification of a new General Plan for the City of Tucson provided for the incorporation of goals and policies from the City/County Water Study into the City’s primary long-range planning guidance document. The Study and the Action Plan were foundational pieces in the preparation of Plan Tucson. Additionally, Plan Tucson furthers specific action items from the City/County Water Study such as the Future Growth Scenario Map, which directs growth to suitable growth areas and areas with existing infrastructure. The City/County Water Study recognized that achieving a sustainable water future requires a rational plan for growth that addresses the form, location, and cost of growth, as well as the efficient and sustainable allocation of water to serve growth.

• Water 2050 Plan - An update of the Tucson Water Plan 2050 was completed in 2012. All aspects of the revised Plan deal with contingencies for drought both locally and on the Colorado River, the primary source of Tucson’s potable water supply, via the Central Arizona Project canal. The updated Plan included consideration of CAP supply shortages after 2040, a date that was considered conservative based on information then available from the Central Arizona Water Conservation District and the Bureau of Reclamation. Probabilities of shortage were presented to the water community at the end of 2012 with the “Colorado River Basin Water Supply and Demand Study.” Recent BOR projections indicate an increasing likelihood of CAP supply shortages as early as the 2020s. However, actions taken by Tucson Water have prepared the community for eventual shortage conditions, as detailed by the response strategies presented in the updated Plan 2050.

• Water Conservation – Tucson Water potable demand continues to trend downward with a residential average of 81 gallons per capita per day (GPCD), and 117 GPCD for average total demand in 2015. Through the end of FY 2015, the conservation fee collected for every ccf (hundred cubic feet) of water sold has resulted in over 889 million gallons of savings, more than $6 million invested in community incentives, over 38,000 high-efficiency toilet and urinal
installations, and over 900 irrigation efficiency, rainwater harvesting, and graywater applications received. Tucson Water continues to provide funding for three education partners: Arizona Project WET, SmartScape, and the Environmental Education Exchange. In FY 2015, these partners educated over 43,000 students, provided training for over 580 teachers and 2,500 local professionals, and reached over 4,700 adults, resulting in a projected water savings of 1.5 million gallons. The conservation division continues to have a strong water-waste enforcement team, with two conservation inspectors visiting nearly 800 commercial water customers in FY 2015. The division also collaborates with the Zanjeros water audit team to provide information for residential customers.

- **Rainwater Harvesting** – Through the end of FY 2015, the rainwater harvesting incentives program processed over 800 applications with more than $1 million invested in community incentives. The program promotes passive and active rainwater harvesting systems with a projected water offset of over 12.2 million gallons, representing the estimated cumulative storage capacity of installed systems since the start of the program.

- **Recycled Water Program** – Introduced in December 2013 as the Recycled Water Master Plan, the Recycled Water Program is now being implemented by Tucson Water. This critical step in the creation of a sustainable water future identifies best practices and makes recommendations for maximizing the use of Tucson’s local renewable water supplies. The purpose of Tucson Water’s Recycled Water Program is to use the City’s effluent resources to maximize wet-water supply benefits and overall water resource reliability for Tucson Water customers. Early stages of the Program’s implementation have included community outreach through staff presentations, surveys, and focus group discussions, while preliminary technical activities have included treatment train and conveyance route studies. Full implementation of the Program will take place over the next 10-15 years.

- **City Water Service Area Policy** – The continued implementation of the City’s Water Service Area Policy is a critical element in creating a sustainable water future by defining where water resources and infrastructure will be directed based on social, economic, and environmental considerations. The Water Service Area Policy is aligned with the City’s annexation goals which help bring additional state shared revenue to the region.

- **Wheeling Agreements** – Tucson Water continues to facilitate the delivery of renewable supplies to areas previously reliant on groundwater by entering into wheeling agreements with other water providers. Wheeling agreements also help to ensure property owners outside the Tucson Water Service Area have water service options. Wheeling agreements are now in place with Oro Valley, the Pasqua Yaqui Tribe, Vail Water Company, and Metro Water District. These entities are able to utilize their CAP allocations to serve their customers, rather than relying solely on groundwater.

- **Mixed Use Development and Infill** – The Mayor and Council have taken several actions toward the goal of a more sustainable urban form, with positive impacts on future water use, water infrastructure, and energy costs. Construction of the Modern Streetcar is the most significant effort the City has made toward encouraging infill and investment within the downtown and university areas. Other related initiatives include the Streetcar Land Use Planning process, the various economic incentives in place to encourage investment, the redevelopment of the Ronstadt Transit Center as a mixed use transit center, the Urban Land Institute Advisory Service Panel, and amendments to the Infill Incentive District.

- **Water Quality** – Tucson Water continues to be vigilant in the monitoring of and reporting on water quality. The Advanced Oxidation Process Treatment Facility to treat 1,4 Dioxane was
built during the five-year Action Plan period and has been operating continuously since March 3, 2014. Water samples taken at the designated Point-of-Entry (POE) into the distribution system reflect less than detection levels of both 1,4-dioxane and TCE.

- **New Water Supplies** - Tucson Water continues to work with regional partners to develop procedures for acquisition and finance of new water supplies. The U.S. Bureau of Reclamation and the CAWCD Board are developing a standard wheeling agreement that would make it possible to purchase additional supplies and have them delivered to Tucson. In the meantime, Tucson and Phoenix have entered into an Inter-AMA self-firming agreement, which will be a wet-water benefit to both cities during any potential shortage of our CAP allocations. After a successful pilot period that began in late 2014, Tucson Water staff is working with Phoenix and CAP staff to expand and extend the agreement.

- **Reclaimed System Modifications** – During the five-year Action Plan period, Tucson Water completed construction of three new recharge basins at its Reclaimed Water Treatment Plant. The additional basins allow more consistent capture of effluent from the new Agua Nueva Wastewater Reclamation Facility, ensuring that customers' reclaimed water demands can be accommodated. Necessary modifications to the Reclaimed Treatment Plant's disinfection facilities were also made, ensuring that the reclaimed system remains in compliance with its permit limitations while also utilizing effluent from Agua Nueva WRF. In the southeast area of the City, the Southeast Houghton Area Recharge Project (SHARP), a joint project of Tucson Water and Pima County Regional Wastewater Reclamation Department, is progressing.

- **Habitat Conservation Plan** - In consultation with the U.S. Fish and Wildlife Service (F&W) and a Technical Advisory Committee, Tucson Water and the Office of Conservation and Sustainable Development completed development of a Habitat Conservation Plan (HCP) for Tucson Water's retired farm properties in Avra Valley. The HCP will help balance the community’s long-term water supply needs with the needs of plants and wildlife on Tucson Water’s Avra Valley lands. With the establishment of a land-management contract with BKW, Tucson Water is confident it is ready to successfully execute the HCP. The final draft has been reviewed by F&W, and Tucson Water has submitted its application for an Incidental Take Permit on its HCP lands.

- **Conserve2Enhance** – The C2E program funded two Enhancement Projects in 2015, one neighborhood project in the Feldman’s neighborhood and one project at Sky Islands High School (formerly TUSD School, Anne E. Rogers Elementary). To date, a total of nine projects have been funded by C2E with a total investment of $56,000 from community donations through www.conserve2enhance.org and through the Utility Services bill checkbox for “Open Space and Riparian Enhancement.” The Feldman’s Neighborhood Association received $7,000 to create a series of street-side water harvesting basins in the right-of-way to capture stormwater from First Ave. These basins were excavated and built in the fall and have already received stormwater from several rain events and are working as designed. This impressive neighborhood continues to hold trainings to educate neighbors and inspire action. Sky Islands High School received $5,000 to implement the first phase of their site master plan, which involves creating basins along their school entry drive to mitigate flooding, create new native habitat, and enhance the appearance of the school entrance. The C2E program also had a formal groundbreaking celebration at the Palo Verde Neighborhood Park, complete with a sign unveiling, plant watering and speeches by Mayor Rothschild, Tucson Clean & Beautiful Director Joan Lionetti and Tucson Water representatives. To date, 192 C2E participants have saved 8.7 million gallons of water and, in 2015, over 800 checkbox donors contributed nearly $11,000. As a result of all C2E projects, over 300 plants and trees have been planted more than 40 water harvesting features have been installed throughout Tucson.
• Conservation Effluent Pool – The CEP Task Force developed a list of potential candidate projects that could be supported by the 10,000 acre-feet of effluent/reclaimed water available through the CEP. The Task Force developed evaluation criteria for assessing the environmental, social, and economic benefits associated with projects. A draft report describing these potential projects and their benefits is under development.

**Background on the City/County Water Study and Action Plan**

In February 2008, the Mayor and Council and Pima County Board of Supervisors approved a scope of work for a joint *Water Infrastructure, Supply and Planning Study*. The purpose of the Study was to improve City/County collaboration on water and wastewater issues and to define and plan for a sustainable water future for the region. The scope set forth a five-phase scope of work, with a City/County effort initiating the process. To provide independent review and oversight of staff work, the Council and Board appointed a Joint City/County Oversight Committee (Committee), consisting of four members each from the Citizens Water Advisory Committee and the Regional Wastewater Reclamation Oversight Committee and two members each from the jurisdictions’ Planning and Zoning Commissions, for a total of 12 members. At the explicit direction of the Council and the Board, staff and the Committee implemented a broad-based public process for engaging the community in Phases I and II.

Phase I was completed in April 2009 with both governing bodies endorsing the Phase I Report. The goal of Phase I was to assemble basic information on City and County water and wastewater systems and resources and to identify the elements that must be addressed as part of water sustainability. A key outcome from Phase I was improved cooperation and fact sharing between the two largest water utilities in the region, a necessary basic foundation in moving toward a sustainable water future.

Key findings from Phase I included:

- Our water and wastewater systems are generally reliable, well maintained and newer than those found in many other cities. However, these systems are aging, and both water and wastewater rates will need to increase in the future to fund the rehabilitation of our systems and to meet increasingly stringent water and wastewater quality standards.
- Due to past investments in acquiring and delivering Central Arizona Water Project (CAP) water, Tucson Water has a reliable and renewable water supply that can meet the needs of current residents and provide for a significant amount of growth (approximately 360,000 additional customers).
- Faced with a variety of uncertainties, we need to be prudent with our water resources. Global warming, climate change, and long-term drought could affect local water demand, rainfall amounts and future flows of the Colorado River.
- Any expansion of the Tucson Water service area must be done thoughtfully and with deliberation. The recent past shows that demand-based service expansion is not sustainable or prudent. Planning for and directing growth to areas where it is most appropriate should guide future water service decisions.
- Additional water resources will likely be needed in the future and the time to plan for this is now. Obtaining new water resources, which will be more expensive than what we are familiar with today, will require regional cooperation.
- Sustainability requires that we think more broadly about water resource management, beyond just clean, safe water for people, to considering environmental and economic needs for water and allocating water for these purposes.

Phase II began immediately following Phase I in the spring of 2009. The scope of work for Phase II called for the City and County to reach agreement on a set of water resource development and conservation goals, including:
Agreement on population growth, water, urban form, land use planning and infrastructure.
Integration of land use planning with water resources and infrastructure.
Increasing the use of reclaimed or recycled water on turf irrigation to substitute for groundwater use.
Develop renewable water sources for the City/County area.
Develop a consolidated drought management plan.
Implement consistent water conservation standards.
Respect for the environment.

Fourteen technical papers were prepared by staff and outside parties during Phase II on these topics. The technical papers were presented at Committee meetings for review and comment by Committee members and the public. The Phase II Report included perspectives from both City and County staff and the Oversight Committee. The Phase II Report set forth 19 City/County shared goals and 56 recommendations organized around four critical aspects of water sustainability:
- Comprehensive, integrated planning
- Respect for the environment
- Water supply
- Demand management

On February 17, 2010, the Mayor and Council approved Resolution No. 21478 adopting the City/County Water and Wastewater Study Phase II Report. One of the follow up items called for in the Resolution was the development of an Action Plan to implement the Phase II goals and recommendations.

The Action Plan was developed by a joint City/County staff team working together over a 6 month period with the input of stakeholders and citizen oversight committee members. The Plan described specific steps the City and County would take toward water sustainability over a 5 year period (2011-2015).

The Plan included a set of 87 specific actions grouped within 14 programs, with a goal of implementation over 5 years to achieve the following outcomes:
- Water, wastewater, and stormwater resources would be planned in an integrated fashion.
- More renewable water resources including effluent, reclaimed, stormwater and rainwater and greywater would be put to beneficial use in an efficient manner.
- Water resource policies would be aligned with economic goals.
- Collaborative efforts would be undertaken to acquire new water, to achieve greater flexibility in use of existing supplies, and to align and enhance standards for water use efficiency.
- Improved water quality resulting from regional wastewater treatment facility upgrades (i.e. the Regional Optimization Master Plan or ROMP) would be matched to needs for recharge, environmental restoration and public amenities such as parks, golf courses and ball fields.
- Land use, infrastructure and water resources planning would be linked to foster optimal use of renewable water resources in future growth areas and to increase water and energy efficiency outcomes in new development.
- Water would be dedicated and allocated to environmental needs, sensitive riparian ecosystems would be preserved and maintained, and cost-effective and collaborative environmental restoration projects would be advanced.
- Public values would be considered in water resources planning and public awareness of the environmental and human benefits of increased water use efficiency would be increased.

In these challenging economic times, the financial constraints facing the City and County loomed large over the action planning process. Staff did not feel it was prudent to make this plan contingent on the securing of new resources. Rather, staff focused on how to best move water sustainability efforts forward in light of the current economic times. The Action Plan did not rely on new resources to move forward,
but was intended to be integrated into existing programs and organizational structures of the City and County.

**Water Policy Decision Making Framework** – As part of the February 17, 2010, Resolution adopting the City/County Water and Wastewater Study Phase II Report, the Mayor and Council approved a Water Policy Decision Making Framework in response to concerns raised by SAHBA and the Tucson Regional Water Coalition related to the economic and cost impacts of the Study recommendations. The framework served as a filter, providing staff a set of factors that were analyzed prior to coming forward with any proposed IGAs, regulations, or policies related to water policy:

<table>
<thead>
<tr>
<th>Water Policy Decision Making Framework</th>
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<tbody>
<tr>
<td>1. Financial costs (to the City, to Tucson Water ratepayers, to private parties, and on Tucson Water's bond coverage ratio)</td>
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<td>2. Economic impacts (jobs, housing, tax base)</td>
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<td>3. Environmental impacts</td>
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<td>4. Impact on Tucson Water's resources, per capita water demand, and water quality</td>
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<td>5. Effect on drought/climate change preparedness</td>
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<td>6. Impact on public infrastructure, services, and fiscal sustainability</td>
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<td>7. Impact on location of growth, urban form, and land use</td>
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<tr>
<td>8. Energy costs</td>
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<td>9. Opportunity costs (does this foreclose other opportunities)</td>
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<td>10. Social equity considerations/community’s ability to pay</td>
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Feel free to contact me if you have any questions.