



MEMORANDUM

Date: July 20, 2017

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: **Water and Energy Sustainable Technology Center Membership**

Background

June 30, 2017 concluded the first full year of the Water & Energy Sustainable Technology Center (WEST) occupancy by The University of Arizona (UA). The annual rent reconciliation will occur in the near future and the base rent will be adjusted accordingly to ensure all costs associated with the operation and maintenance of the WEST Center are fully recovered.

I believe our WEST Center membership significantly benefits Pima County and our ratepayers. As shown in the table below, our first full year of paid research membership of \$50,000 has yielded over \$1 million worth of research projects and grants that directly and positively impact our state, the local community and the environment; and it will ultimately significantly benefit our wastewater ratepayers in the future.

Project	Sponsor Agency	Cash Contribution	In-kind Contribution
CO ₂ Sequestration for Struvite Control at Tres Rios Water Reclamation Facility (WRF)	Water Environment & Research Foundation and the City of Chicago	\$100,000	\$99,000 UA and Greeley and Hansen
Water Innovation Challenge	Arizona Community Foundation	\$302,500	\$152,000 from various sponsors, including Dow, Trojan UV, Grundfos, Calgon, HACH, Garver, CH2M, Sensorex, GE, and Carollo Engineers
HydroFlow evaluation for struvite control at Tres Rios WRF	Hydroflow, Inc.	N/A	\$60,000 equipment donation for evaluation
Anammox Pilot at WEST Center	National Science Foundation	\$250,000	\$100,000 professional services for GPSX modeling
Totals		\$652,500	\$411,000

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Today, we are less driven by regulation (post-Regional Optimization Master Plan; ROMP) and more driven toward environmental stewardship, sustainable operations and minimizing operational costs. This was the basis of our *Utility of the Future Today* award. Additionally, our WEST Center membership and Leadership Innovation Forum for Technology (LIFT) participation have placed the Regional Wastewater Reclamation Department (RWRD) in an excellent position for evaluating and leading research that will help reduce the cost of operating our wastewater utility.

The \$50,000 membership is comprised of \$30,000 for the National Science Foundation WET Center and \$20,000 for the WEST Center membership. Dr. Jeff Prevatt is currently the Chair of the WEST Center Industrial Advisory Board. The WEST Center membership continues to benefit not only the citizens of Pima County but also the water industry as a whole. As active participants in many industry research programs, RWRD is a recognized leader in research efforts targeted at improving operation efficiencies at treatment facilities while reducing operation costs. The WEST Center complements RWRD's ability to implement new technologies that will make a lasting impact within the industry while reducing operating costs for all utilities.

Current Projects at the WEST Center

Below is a discussion of the current projects and studies in which the WEST Center is involved.

AirPrex Project. The successful completion of the AirPrex pilot demonstration resulted in the substantial elimination of struvite formation at the Tres Rios WRF. As a result, RWRD is moving forward in Fiscal Year 2017/18 with the competitive bidding of this type of technology for implementation at the Tres Rios WRF, which may save RWRD more than \$500,000 annually in struvite mitigation efforts and chemical reductions for both polymer and ferric salt additions.

Anammox Pilot. RWRD collaborated with the UA on a National Science Foundation (NSF) research project to evaluate a novel nutrient removal technique for use at the Tres Rios WRF. The basis for the project involves the piloting of anaerobic ammonia oxidation, or Anammox, as an innovative process for treating side stream ammonia flows for improved performance and reducing energy costs. The NSF grant is \$250,000, with initial pilot work being conducted at the WEST Center. Implementation of Anammox at the Tres Rios WRF could result in energy cost savings of up to \$400,000 annually for RWRD.

In addition to the NSF award, Hydromantis Environmental Software Solutions Inc. has offered to collaborate in our research efforts and offered up to \$150,000 of in-kind services for use of our data from the Anammox pilot to calibrate the modeling software used in the

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industry for process control improvements. The design of a pilot system is being conducted to emulate the Tres Rios WRF operational parameters to facilitate model calibration and future implementation at the facility.

Hydroflow Project. Through our membership in WERF and the LIFT program, RWRD and the utilities of Denver Metro, DC Water and Clean Water Systems are evaluating a novel product for additional struvite control and mitigation. The Hydroflow system is currently installed at two locations at the Tres Rios WRF. As stated previously, any mitigation of struvite formation could result in operational savings.

Economic Benefits

The WEST Center and our UA partnership continues to contribute to economic benefit gains as the current 16-member partnership continues to grow. Since the last Industrial Advisory Board meeting, four new members have joined the WEST Center: 1) Metawater (Japan), 2) PWNT (Netherlands), 3) General Electric and 4) PepsiCo. Existing members include Pima County, Tucson Water, SC Johnson, DOW, Calgon Carbon, IXOM, Garver, Agilent, Bio Detection Systems, Xylem, APE Research Council and Consumer Health Products Association. Many of these private organizations participate at the WEST Center, where they deploy research staff for lengthy stays in Pima County, spending money on materials and supplies to conduct their research, as well as visitor dollars for hotels and restaurants. The 12 private corporate members of the WEST Center, many of which are Fortune 500 companies, now have direct ties to our community, furthering the potential for additional economic development.

Conclusion

The WEST Center and UA partnership continues to be a key strategic relationship that benefits our community tremendously. I will keep the Board of Supervisors apprised of progress and new projects as they occur at the WEST Center.

CHH/anc

c: Carmine DeBonis, Jr., Deputy County Administrator for Public Works
Nanette Slusser, Assistant County Administrator for Public Works
Jackson Jenkins, Director, Regional Wastewater Reclamation