



Sustainability, Conservation  
& Historic Preservation

## MEMORANDUM

**Date:** April 12, 2019

**To:** Carmine DeBonis, Jr., Deputy County Administrator - Public Works

**From:** Linda Mayro, Director, Office of Sustainability, Conservation and Historic Preservation  
Jackson Jenkins, Director, Regional Wastewater Reclamation Department

**RE: Water and Wastewater Infrastructure, Supply and Planning Study (WISP)  
Post Action Report 2018**

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The WISP Report, completed in 2010, was followed by a five-year post-action plan period ending in 2015. Although the City of Tucson ended WISP reporting, Pima County chose to continue reporting on the status of WISP action items. Accordingly, attached is the 2018 WISP Post-Action Report.

Pima County and the City of Tucson have made notable progress toward several WISP goals and some goals remain unresolved. Below is a list of key deficiencies and progress:

- Tucson Water Service Area Policy – The city policy continues to limit development in sustainable growth areas in unincorporated Pima County. In the period 2015 through 2017, Tucson Water has denied water service to 147 unincorporated parcels. In 2018, the City of Tucson's Water Service Area Review Board heard four appeals; three from the Southwest area and one within Tucson Water's isolated service area in the Houghton corridor. Only the Houghton appeal was granted.
- Conservation Effluent Pool (CEP) – The City of Tucson submitted three applications to use 1,538 acre-feet of CEP water for the Santa Cruz River Heritage Project, Santa Cruz River Managed Underground Storage Facility and the Lower Santa Cruz River Managed Recharge Project. The City proposes to use CEP for the evapotranspiration volume supporting riparian vegetation for these projects. Although the City and County CEP Administrators have agreed the applications are incomplete, we expect the City to submit revised applications in the near future.
- Managed Recharge Long Term Storage Credits – As part of Arizona's Drought Contingency Plan, the 54<sup>th</sup> State Legislature passed and the Governor signed Senate Bill 1227 decreasing the cut to the aquifer from 50% to 95% and increasing long term credits accrued in existing managed recharge projects, including the Lower Santa Cruz River Managed Recharge Project. With the effective date of the legislation, these credits can also be used toward demonstration of an assured water supply.
- State and Federal Water Quality - The Arizona Department of Water Quality (ADEQ) initiated a stakeholder process of its triennial review surface water quality standards. Pima County staff was active in the stakeholder process and remains involved as the rulemaking process advances. Staff is also participating in ADEQ's efforts for primacy of the Clean Water Act Section 404 permitting process. EPA's proposal to redefine Waters of the US will leave water quality protection discontinuous in several stream segments within Pima County.

To: Carmine DeBonis, Jr., Deputy County Administrator  
Subject: Water and Wastewater Infrastructure, Supply and Planning Study (WISP) Post Action Report 2018  
Date: April 12, 2019  
Page 2

- Drought Preparedness - Pima County continues to monitor the status of drought and is collaborating with water providers regarding drought response actions through the Local Drought Impact Group.
- 2018-2015 Sustainable Action Plan for County Operations - Pima County updated its Sustainable Action Plan integrating its goals in alignment with climate mitigation and adaptation. The plan also includes a Green Infrastructure Action Plan to identify candidate sites on county land where green infrastructure can provide tangible benefits.

It is notable that the City and County initiated the WISP report in 2008 and adopted in 2010 and, yet, many of its goals are still relevant. Unlike the City, Pima County may wish to continue monitoring progress of the WISP goals approved by the City and County in 2010. We look to you for direction regarding whether staff should continue annual WISP reporting,

Should you have any questions, please feel free to contact us.

Attachment

## **Water & Wastewater Infrastructure, Supply and Planning Study Post Action Plan Report 2018**

The Water & Wastewater Infrastructure, Supply and Planning Study (WISP), or City/County Water Study, was initiated in 2008 and produced a two-phase report assessing existing water resources, infrastructure capacity and demand scenarios. Based upon the first phase framework, to include an extensive stakeholder process, agreement was reached on a range of topics central to sustainable water planning. An action plan was developed to implement the 19 shared goals and 56 recommendations over a five-year period. The WISP Action Plan for Water Sustainability 2011-2015 (Action Plan) was adopted by both Mayor and Council and the Board of Supervisors in 2010. The City and County have submitted a year-end progress report for each year of the plan period. Despite the closing of the plan period, County staff will continue reporting on the progress of WISP goals.

The Action Plan contains four elements, each with programs, goals, recommendations and action items to implement the recommendations.

### COMPREHENSIVE INTEGRATED PLANNING

#### WISP Goals

1. Encourage sustainable urban forms
  2. Direct growth to suitable growth areas
  3. Integrate land use and water resources planning
  4. Growth should pay for itself over time and be financially sustainable
- Pima Prospers Implementation Update

Pima Prospers, the County's Comprehensive Plan, was adopted in 2015 and incorporated the WISP Action Plan, Water Resources Element (4.2), into its implementation and work plan. The Pima Prospers Steering Committee monitors progress and guides project priorities.

Pima Prospers Comprehensive Plan Water Resources Element (4.2) cites the Action Plan, directing the Plan Update to "comply with all applicable goals and recommendations in the 2011-2015 Action Plan for Water Sustainability, approved by the Board of Supervisors and the City of Tucson Mayor and Council."

- Tucson Water Service Area Policy and Service Denials

Pima County contests the current Tucson Water service area policy as inconsistent with WISP goals and recommendations to "direct growth to suitable growth areas" and to "take steps to encourage growth and new development in areas that are within or adjacent to the existing built environment, are outside of the conservation land system, and are identified as most suitable for development".

Unincorporated parcels have been denied service in WISP designated "suitable growth areas". Uncertainty regarding the provision of water service is limiting to appropriate development and infrastructure planning. The current service area policy is not comprehensive in addressing appropriate land use and economic development goals of benefit to the entire region.

## WISP Post Action Plan 2018 Report

Staff has obtained service denial records from Tucson Water for previous years (2015-2017). During this period Tucson Water denied service to 147 unincorporated parcels and approved 319 properties for service. Of the total 466 requests for service, 32 percent were denied.

- City Water Service Area Review Board

The City of Tucson's Water Service Area Review Board reviews service denials brought by appellants and considers appeals either upholding Tucson Water's denial of service or overturning the denial and directing Tucson Water to provide service.

In 2018, the Board heard four appeals, three from the Southwest area that included two residential and one retail request for service and one residential request within Tucson Water's isolated service area in the Houghton corridor. Only the Houghton appeal was granted.

- Pima County Economic Development Plan

Progress continues on the Pima Prospers and Economic Development Work Plan. Important economic development areas such as the Aerospace Research Campus, Sunset Road corporate park and the Kino Sports complex and infrastructure projects such as the Sonoran Corridor are advancing.

The Southeast Employment and Logistics Center is moving forward after an approved comprehensive plan amendment. The County will be able to provide reliable water service to this area by formation of a water district.

Staff is incorporating the anticipated reclaimed demand for the Kino Sports complex expansion into the revised Strategic Plan for Use of Reclaimed Water.

### RESPECT FOR ENVIRONMENT

#### WISP Goals

1. Preserve existing riparian areas through coordinated regulation, policy and outreach
2. Identify needs and opportunities for future restoration
3. Ensure that public projects are multi-benefit including restoration, stormwater management, recharge and public amenity
4. Ensure the future of riparian and aquatic habitat along the effluent-dependent reach of the Santa Cruz River
5. Develop water supply for the environment

- Lower Santa Cruz River Management Plan

The Lower Santa Cruz River Management Plan is being developed by Pima County Regional Flood Control District (RFCD) to manage the effluent dependent river while balancing flood risk and infrastructure protection with aquifer recharge and riparian habitat preservation. RFCD is contracting with consultant and engineering services to survey the project area and assess flood and drainage hazards and provide multi-benefit solutions that maintain the wetland ecosystem and allow for public recreation. RFCD, cooperating with the Sonoran Institute, has been actively engaging the community and other stakeholders through workshops and online surveys to gather feedback on the public's priorities and concerns.

- Living River Report WY2017

This report documents the improved water quality released into the Lower Santa Cruz River and resultant benefits. Water quality in the river improved following significant upgrades of the County's wastewater

treatment plants, reducing ammonia concentrations more than ten-fold. Fish and aquatic diversity have increased and notably, the endangered Gila topminnow has returned to the river. The length of flow has slightly decreased (~7%) but this is due to the improved water quality and increased infiltration into the aquifer.

- Conservation Effluent Pool Applications

Tucson Water has submitted three applications for Conservation Effluent Pool (CEP) water. The proposed CEP water projects are the two existing recharge projects, the Lower Santa Cruz Managed Recharge Project and the Santa Cruz River Managed Underground Storage Facility, and the pending Santa Cruz River Heritage Project. CEP water would be allocated to the average evapotranspiration (ET) volume calculated at each project, ET being the evaporation and transpiration from the soil and plant surfaces of the riparian habitat. This CEP water allocation of approximately 1,500 acre-feet would remain within the river helping sustain existing habitat.

These applications are under review by both City and County CEP Administrators and will need final approval by the Board of Supervisors and Mayor and Council. If approved, the CEP water projects will be overseen by the Administrators and annual reports must be submitted to the Board and Council in accordance with the CEP intergovernmental agreement.

- Managed Recharge Update

The Arizona 54<sup>th</sup> State Legislature passed and the Governor signed Senate Bill 1227 and Senate Joint Resolution 1001 implementing the Drought Contingency Plan. As part of the intra-state plan, existing managed effluent recharge projects now receive 95 percent credit for effluent volumes recharged at these projects. New projects will only receive 50 percent credit. The Lower Santa Cruz Managed Recharge Project, the Santa Cruz River Managed Underground Storage Facility and the pending Santa Cruz River Heritage Project are defined as existing projects and will receive 95 percent credit.

This provision only applies to existing water storage permits and volumes at the projects. Any new or amended storage permit would be subject to a 50 percent credit. Additionally, long-term storage credits generated after enactment may be used to demonstrate an assured water supply.

- ADEQ Triennial Review and 404 Program

The federal Clean Water Act (CWA) Section 303(c) requires states to review and revise water quality standards at least every three years in a public process, or Triennial Review. As directed by the County Administrator, staff participated in the Arizona Department of Environmental Quality's review process. Pima County supports maintaining protections for water quality and the existing and designated uses of waters, especially for the threatened areas of Cienega Creek and Davidson Canyon.

The federal Clean Water Act (CWA) Section 404 regulates the discharge of dredged or fill material into waters of the United States and requires a permit before said material may be discharged into waters. The Arizona 53<sup>rd</sup> State Legislature passed and the Governor signed Senate Bill 1493 granting the state the authority to develop rules to assume the program consistent with the Clean Water Act. The Arizona Department of Environmental Quality has held stakeholder and technical work group meetings. An Executive Committee began meeting in January 2019 and a formal rule process will begin next year with anticipated submittal to the EPA in October 2020.

## WATER SUPPLY

### WISP Goals

1. Work collaboratively to acquire new water supplies for reliability
  2. Maximize and make efficient use of effluent and other locally renewable water supplies
  3. Address regulatory barriers to maximizing local supplies
  4. Foster increased use of reclaimed water
  5. Be prepared for climate change and drought
- Effluent Generation & Strategic Plan for Use of Reclaimed Water

Pima County Regional Wastewater Reclamation Department (RWRD) produces approximately 60,000 acre-feet (20 billion gallons) of effluent annually at eight water reclamation facilities (WRF). The effluent is highly treated to reclaimed water standards and put to beneficial use by either direct reuse in Tucson Water's reclaimed system, aquifer replenishment in underground recharge projects or environmental restoration projects. This represents a significant renewable water supply contributing to the future reliability of the region's water resources. Since 2005,

- RWRD has produced more than 883,000 acre-feet (af) of effluent, with 835,000 af, or 95%, originating from the metropolitan WRF's.
- Over 600,000 af of high-quality reclaimed water has been released into the Lower Santa Cruz River.
- 185,000 af has been permanently dedicated to the aquifer.
- Approximately 1,500 af/year is accounted towards riparian evapotranspiration, benefiting the river habitat.
- Over 2,500 af has been directed towards County environmental purposes.
- RWRD metropolitan facilities upgrades have reduced outflow from the management area by 77%, a result of improved water quality and infiltration - keeping more water within the local aquifer.
- RWRD has delivered over 195,000 af to the Tucson Water reclaimed system, which water providers have used to replace potable use. The County has wheeled 13,500 af to its parks and turf areas.
- Recharge efforts have led to the development of a flexible, renewable water supply of over 179,000 af.

As part of the County's Water Resources Asset Management Plan (WRAMP), a strategic plan for the use of reclaimed water was submitted in 2014. Operational changes and other developments require a revised strategic plan. Staff is reviewing existing and projected effluent production and reclaimed demand based on the 2016 RWRD Facility Plan in order to maximize and prioritize use to meet current and long term needs and goals of the County.

- Drought Contingency Plan and Shortage – Pima County CAP Water Supply

In 2007, Lower and Upper Basin states agreed to federal guidelines for coordinated operation of Lakes Mead and Powell to provide additional certainty of the Colorado River water supply and improve coordination during drought and increasingly variable flow volumes. The 2007 Guidelines included shortage triggers at certain lake elevations which would reduce Colorado River water allocations to the junior rights states of Arizona and Nevada.

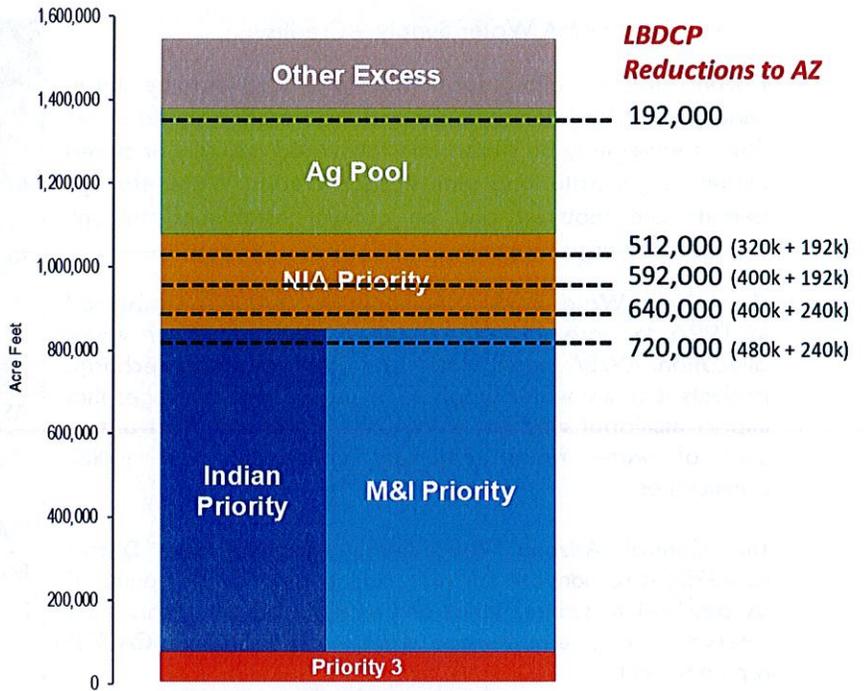
Persistent drought and declining Colorado River reservoirs required further action. Arizona has passed legislation ratifying a Drought Contingency Plan (DCP) allowing it to join the other Basin states and Mexico in an inter-state water agreement to conserve more water in the Colorado River system. The DCP will require

more significant reductions for Arizona at different Lake Mead elevations. An intra-state DCP balances water reductions among the state's water use sectors within the existing priority system.

It is expected that Lake Mead will be below elevation 1,075' in 2020, reducing Arizona's Colorado River allocation 512,000 acre-feet. Arizona's reductions are borne entirely by Central Arizona Project (CAP) water users. Pima County CAP Agricultural Pool and Non-Indian Agriculture water will be subject to these cuts at Tier 1 and 2 elevations while municipal and Indian priority users will be minimally impacted at Tier 3 elevation.

Pima County CAP Municipal and Industrial (M&I) contracts total 182,798 acre feet a year or 29% of all CAP M&I contracts. With tribal allocations, Non-Indian Agriculture (NIA) water and the Agriculture Pool, Pima County could take delivery of 279,802 acre feet a year of CAP water.

CAP Agriculture Pool	
Cortaro Marana Irrigation Dist.	4,313
Farmers Investment Co.	2,323
Kai-Avra Farm	1,575
BKW Farms	1,226
Kai-Red Rock Farm	750
<i>Total</i>	10,187
CAP NIA Water	
Freeport	5,678
Rosemont Copper	1,124
Town of Marana	515
<i>Total</i>	7,317
CAP Tribal Allocations	
Tohono O'odham	74,000
Pascua Yaqui	500
<i>Total</i>	74,500
CAP M&I Contracts	
City of Tucson	144,191
Metro DWID	13,460
Town of Oro Valley	10,305
Spanish Trail Water Co.	3,037
Community Water Co-Green Valley	2,858
Flowing Wells Irrigation Dist.	2,854
Town of Marana	2,336
Green Valley DWID	1,900
Vail Water Co.	1,857
<i>Total</i>	182,798



Shortage Trigger	Lake Mead Elevation	Arizona Reduction
Tier 0	1,090' – 1,075'	192,000
Tier 1	1,075' – 1,050'	512,000
Tier 2A	1,050' – 1,045'	592,000
Tier 2B	1,045' – 1,025'	640,000
Tier 3	1,025' –	720,000

- LDIG Drought and Climate Update

The Pima County Local Drought Impact Group (LDIG) held six meetings in 2018. An advisory board to the County Administrator and Board of Supervisors, federal, state and local agencies and departments participate in monitoring the extent and severity of drought and resultant impacts in Pima County. The National Weather Service and Central Arizona Project routinely present on winter and monsoon weather data and Colorado River and Lake Mead conditions respectively.

LDIG submits an annual drought report of drought conditions in Pima County to the Arizona Department of Water Resources (ADWR) for inclusion in the state’s Arizona Drought Preparedness Annual Report. The 2018 Pima County LDIG Drought Report can be found on [LDIG’s website](#).

LDIG’s Drought and Climate Change in Pima County Report can be found on the [Drought Management website](#).

- Tucson AMA Water Supply – Credits

Arizona state law allows for surplus water supplies to be stored underground for later recovery and the storer’s beneficial use. Stored water may be stored and recovered annually or stored longer to generate long term storage credits. Water storage permits are required and an account established through ADWR’s Recharge Program.

The Arizona Water Banking Authority (AWBA) was established in 1996 to store the state’s unused Colorado River water allocation. AWBA stores water at ADWR permitted recharge projects to firm a water supply to be used during shortages that impact municipal supplies. AWBA also stores water for use as part of water rights settlement agreements with Indian communities.

The Central Arizona Groundwater Replenishment District (CAGR) is responsible for replenishing groundwater pumped by subdivision member lands and establishing a replenishment reserve of long term storage credits to meet future CAGR replenishment.

ADWR, CAP and AWBA are collaborating on a recovery plan with stakeholders through the Recovery Planning Advisory Group (RPAG).

The accompanying table summarizes the long term storage credits generated in Pima County and represents a recoverable water supply (where each credit represents an acre foot).

Long Term Storage Credits (as of 2017)	
AWBA	658,931.77
AWBA Indian Firming	34,101.86
CAGR	199,353.97
CAGR Replenishment	34,616.28
<i>subtotal</i>	927,003.88
US BOR	56,976.65
ASLD	2,033.40
<i>subtotal</i>	59,010.05
Tucson Water	361,098.55
Municipal Providers	97,325.25
Developers	20,025.30
<i>subtotal</i>	478,449.10
Tribal	146,472.28
Mining	45,314.42
Pima County RWRD	17,344.89
<i>total</i>	1,673,594.62

- Recovery Planning Advisory Group

The Arizona Water Banking Authority (AWBA) stores water for recovery during shortage in the three Active Management Areas served by the Central Arizona Project. ADWR, CAP and AWBA issued a joint recovery plan in 2014 that projected the timing and magnitude of recovery and established a framework for distribution to CAP M&I and firmed NIA users.

AWBA, ADWR, and CAP convened the Recovery Planning Advisory Group (RPAG) in 2018 to review the recovery plan as stakeholder discussion during the Drought Contingency Plan indicated an enhanced need for recovery during expected shortages. RPAG held seven meetings in 2018 and will continue to meet in 2019 to refine implementation of AWBA recovery and evaluate updated modeling, options for recovery program participation, and projected recovery costs. A significant volume of AWBA water has been stored in Pima County for distribution to municipal providers during shortage. Municipal allocations have been fully firm for seven years but it is uncertain if that supply will be available after 2027. Staff will continue to monitor water supply and quality implications for County users.

- CAP Water Quality Standards Task Force

The Central Arizona Project and the US Bureau of Reclamation completed a System Use Agreement in 2017 that would allow the wheeling of Non-Project water within the CAP canal. Water supplies other than Colorado River water, such as stored water recovered from underground water storage facilities, can now be pumped into the canal as an additional supply to be wheeled or exchanged.

The water quality of Non-Project water that is introduced into the CAP system could present legal and operational problems for CAP and its users so a uniform water quality standard for Non-Project water is required in implementing the System Use Agreement. This task force recommended and CAP approved a Consensus Proposal for Water Quality Standards that would monitor, model and evaluate water quality and enforce numeric standards that apply to Non-Project water at its point source. This is of particular interest to Tucson Active Management Area users, since Pima County is at the terminus end of the CAP canal.

- ADEQ Reuse Rules

The Arizona Department of Environmental Quality revised A.A.C. Title 18, Chapter 9, Article 7 Direct Reuse of Reclaimed Water, now titled "Use of Recycled Water," which took effect in January 2018. The final rulemaking reorganizes reclaimed uses into Recycled Water General Permits by reclaimed class. More importantly for water supply, ADEQ modified the prohibition against providing reclaimed water for direct potable use by allowing a new individual permit type for an Advanced Reclaimed Water Treatment Facility, which treats A+ or B+ reclaimed water to produce potable water suitable for distribution for human consumption.

## DEMAND MANAGEMENT

### WISP Goals

1. Increase the effectiveness of conservation programming through coordinated planning and evaluation
  2. Establish common water conservation goals and targeted methods
  3. Manage demand through the design of the built environment
  4. Manage demand through changing behaviors
  5. Increase the use of rainwater and stormwater
- Tucson Emerging 2030 District

Pima County joined the Tucson Emerging 2030 District as a community partner and will share energy and water consumption data with Tucson and the University of Arizona to benchmark the district's conservation performance among all partners. The County has been monitoring energy and water consumption as well as benchmarks with EnergyCAP software. The Tucson 2030 District will expand conservation efforts by collaborating with Tucson and the UA and working collectively to reduce consumption.

- 2018-2025 Sustainable Action Plan for County Operations

Pima County adopted the Sustainable Action Plan for County Operations in 2008, integrating sustainability goals with County operations such as facility and fleet maintenance, purchasing and land and water conservation. SAPCO was updated and a new action plan adopted in 2014. The 2018 SAPCO update builds upon previous success in increasing the use of renewables, decreasing waste and emissions while saving \$14 million in avoided costs.

The 2018 Sustainable Action Plan for County Operations was developed in alignment with County climate mitigation and adaption goals, a collaboration of County Department Directors and University of Arizona climate scientists. The Board of Supervisors passed two resolutions, 2017-39 and 2017-51, affirming Pima County's commitment to the national carbon emission reduction goal stated in the Paris Agreement. The 2018 SAPCO is instrumental in achieving the County's emission reduction goal. County departments will measure progress and assess target indicators for carbon and waste reduction, water and land conservation and workforce health.

- LID/GI Update

The Pima County Regional Flood Control District (RFCD) continued to add case studies to evaluate design solutions reflecting regional efforts to integrate sustainable design practices of Low Impact Development (LID) and Green Infrastructure (GI) into development. RFCD's case study inventory was updated in 2018. The studies include local commercial, industrial, residential and transportation projects that have LID/GI features. RFCD has also produced an interactive case study map.

The County's Green Infrastructure (GI) Action Plan identifies additional candidate sites on County lands for GI and tree planting, evaluates the full range of costs and benefits of such work, and demonstrates climate readiness to credit rating agencies. The plan catalogs 43 sites ranked by surface temperature and tree canopy and models the costs and benefits under future drought and climate scenarios for pilot projects. The pilot sites indicated climate adaptation benefits associated with urban cooling, pollution and flood risk reduction and recreational value.

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