

Agua Dulce Update



Water **Reliability**



Tucson's Current Water Resources

Colorado River Water



Groundwater



Reclaimed Water



Rainwater & Stormwater



Commitments to Ensure a Reliable Water Supply...

1. Continue and expand water conservation efforts.
2. Investing in water storage, recharge and recovery.
3. Creating regional collaborations and water sharing agreements.
4. Storing CAP water for the future.
5. Working to maximize use of stormwater and rainwater.



... And Protect Lake Mead



- Reduced CAP Water purchase by 26,500 AF in 2017.
- Doing our part to delay a Bureau of Reclamation declaration of shortage on the Colorado River.
- Helps ensure future Colorado River Water availability.



Tucson's Water Future is Secure



Our City has sufficient water resources for the future – water to provide for our children, our grandchildren, and for our anticipated growth.



Rethinking the Future of Recycled Water

- Reclaimed water use is maximized.
- Tucson's conservation ethic is strong and includes more use of rainwater and stormwater.
- In fact, our total water use is at 1985 levels.

which creates...



Extraordinary Possibilities for 2017

Opportunities to...

- Investigate multiple benefits and leverage partnerships.
- Capture reclaimed water that now flows out of the city.
- Preserve future flexibility of water system and supply.

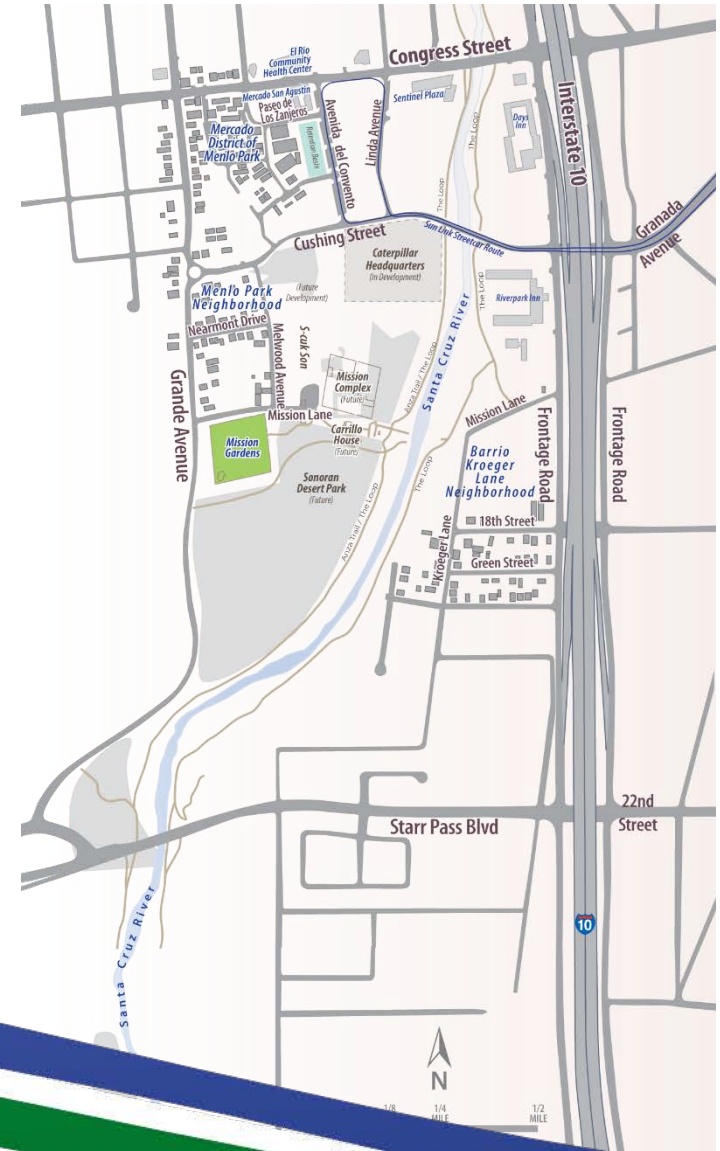


A Vision for the Santa Cruz River

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THE SANTA CRUZ RIVER HERITAGE PROJECT

Revitalizing a River with Reclaimed Water



Creating Managed Riparian Areas *In the Santa Cruz*

- Reclaimed water north of 29th Street and north of Cushing Street
- Adding approximately 2,500 AFY in each location
- Cultivating native vegetation
- Berms as appropriate

After



Leveraging the Conservation Effluent Pool

*Allows City to Maximize In-Channel Recharge Credits
& Keep Reclaimed Water in the River permanently*

Uses of City CEP (~7,000 AFY)

- ET to riparian habitats (500 – 1,000 AFY)
- Administrative ‘cut to the aquifer’

City working to reduce ‘aquifer cut’ and this use of CEP



Infrastructure to Create a Flowing Channel

New investment is relatively minimal

- Existing Reclaimed Mains
- Proposed Outflow Locations (@2500 AFY)
- Anticipated Flow



Official Approvals Required

Permits	Issuing Agency
Arizona Pollutant Discharge Elimination System (AzPDES)	ADEQ
Aquifer Protection (APP)	ADEQ
Underground Storage Facility (USF)	ADWR
Water Storage (WS)	ADWR



Collaborators and Partners

City of Tucson Mayor and Council

City of Tucson Manager's Office

Pima County

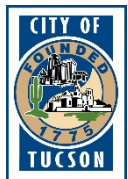
- **Flood Control District**
- **Wastewater Reclamation**

U.S. Bureau of Reclamation

Rio Nuevo Multipurpose Facilities District

Other City of Tucson Departments

Neighborhoods, developers, business owners, environmental organizations and many others...



Water Quality

- Reclaimed water is safe for irrigation and recharge
- Research on-going into...
 - Historic landfill influence
 - Emerging contaminants
- Continued monitoring of area groundwater wells



What About....?

1. Smell

Good quality water from Agua Nueva, low nitrate levels, little or no smell

2. Mosquitos

Flowing water, so no breeding opportunities

3. Riparian area north of Tres Rios

Continued discharges from regionally-owned effluent



Benefits of...

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HERITAGE PROJECT

- Virtually all of the City's reclaimed water put to beneficial use.
- Increased river flows and riparian habitat in the City.
- Potential economic development driver.
- Lower cost than potable reuse. Maximizes use of existing infrastructure.
- Supports historical and cultural community projects.
- Improves water management efficiency.



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HERITAGE PROJECT

Discussion

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Water **Reliability**

Plan for Potable Reuse

- **Complete** –a master plan for future implementation.
- **Ongoing** – will continue to research and discuss with customers.
- **Current** – Tucson has water sustainability without a new water resource.
- **Future** – Emerging technologies will reduce cost and complications.



Current Status of City Effluent

Entitlement (post-SAWRSA and IGA's)		28000 AF	<i>City Beneficial Uses</i>	
Reclaimed to City Customers (100% Use)		12000 AF	12000	AF
Flow to SCRMUSF (50% Use)		2700 AF	1350	AF
ET Loss in SCRMUSF (0% Use)		400 AF	0	AF
Flow to LSCMRP (50% Use - Outside City)		5300 AF	2650	AF
ET and DD Loss in LSCMRP (0% Use)		1600 AF	0	AF
Outflow at Trico (0% Use)		6000 AF	0	AF
Totals		28000	16000	AF
Typical Beneficial Use:			57%	
Typical Beneficial Use, Less CEP:			76%	
Challenges and Opportunities				
Conservation Effluent Pool not yet in use - will draw 7,000 AF from Tucson's entitlement				
About 45% of City effluent is not benefiting Tucson				
Sweetwater Recharge Facilities have some capacity for long-term storage (thru 2022)				

Prior Master Plan(s)

Entitlement (post-SAWRSA and IGA's)		28000 AF	City Beneficial Uses
Reclaimed to City Customers (100% Use)		12000 AF	12000 AF
Flow to SCRMUSF (50% Use)		2700 AF	1350 AF
ET Loss in SCRMUSF (0% Use)		400 AF	0 AF
SHARP (100% Use)		4000 AF	4000 AF
Conservation Effluent Pool (0% Use)		7000 AF	0 AF
Potable Reuse (90% Use)		1900 AF	1710 AF
Outflow at Trico (0% Use)		0 AF	0 AF
Totals		28000	19060 AF
Typical Beneficial Use:			68%
Typical Beneficial Use, Less CEP:			91%
Challenges and Opportunities			
Increase in City effluent put to beneficial use			
Conservation Effluent Pool in use - 7,000 AF from Tucson's entitlement - locations TBD			
Potable reuse capacity can grow with increasing effluent availability			
Probable objections to City removal of effluent from the Santa Cruz River			
High cost of potable reuse demonstration and ongoing treatment			
Need to overcome regulatory and public acceptance barriers to potable reuse			

Proposed Refinements

Entitlement (post-SAWRSA and IGA's)	28000	AF	City Beneficial Uses
Reclaimed to City Customers (100% Use)	12000	AF	12000 AF
Flow to SCRMUSF (100% CREDITS)	2700	AF	2700 AF
ET Losses in Santa Cruz River (ASSIGN TO CEP)	0	AF	0 AF
SHARP (100% Use)	4000	AF	4000 AF
Agua Dulce* ET Loss (0% Use)	100	AF	0 AF
Agua Dulce* (100% CREDITS)	2200	AF	2200 AF
Conservation Effluent Pool (0% Use)	7000	AF	0 AF
Outflow at Trico (0% Use)	0	AF	0 AF
Totals	28000		20900 AF
		Typical Beneficial Use:	75%
		Typical Beneficial Use, Less CEP:	100%
Challenges and Opportunities			
*Agua Dulce is the proposed use of effluent in the Downtown Tucson area			
Virtually all City effluent put to beneficial use, and faster than under current plan			
Conservation Effluent Pool in use - 7,000 AF from Tucson - increased amount used in City			
Increased in-channel flows and riparian habitat - inside the City			
Provision of economic development driver in downtown - Channel Walk			
Potable reuse can still be developed with increasing effluent availability			
Much lower costs - maximizes use of existing infrastructure			
Defers need to overcome regulatory and public acceptance barriers to potable reuse			
Enhances wet-water management of reliability groundwater pumping (up to 10,000 AF/YR)			