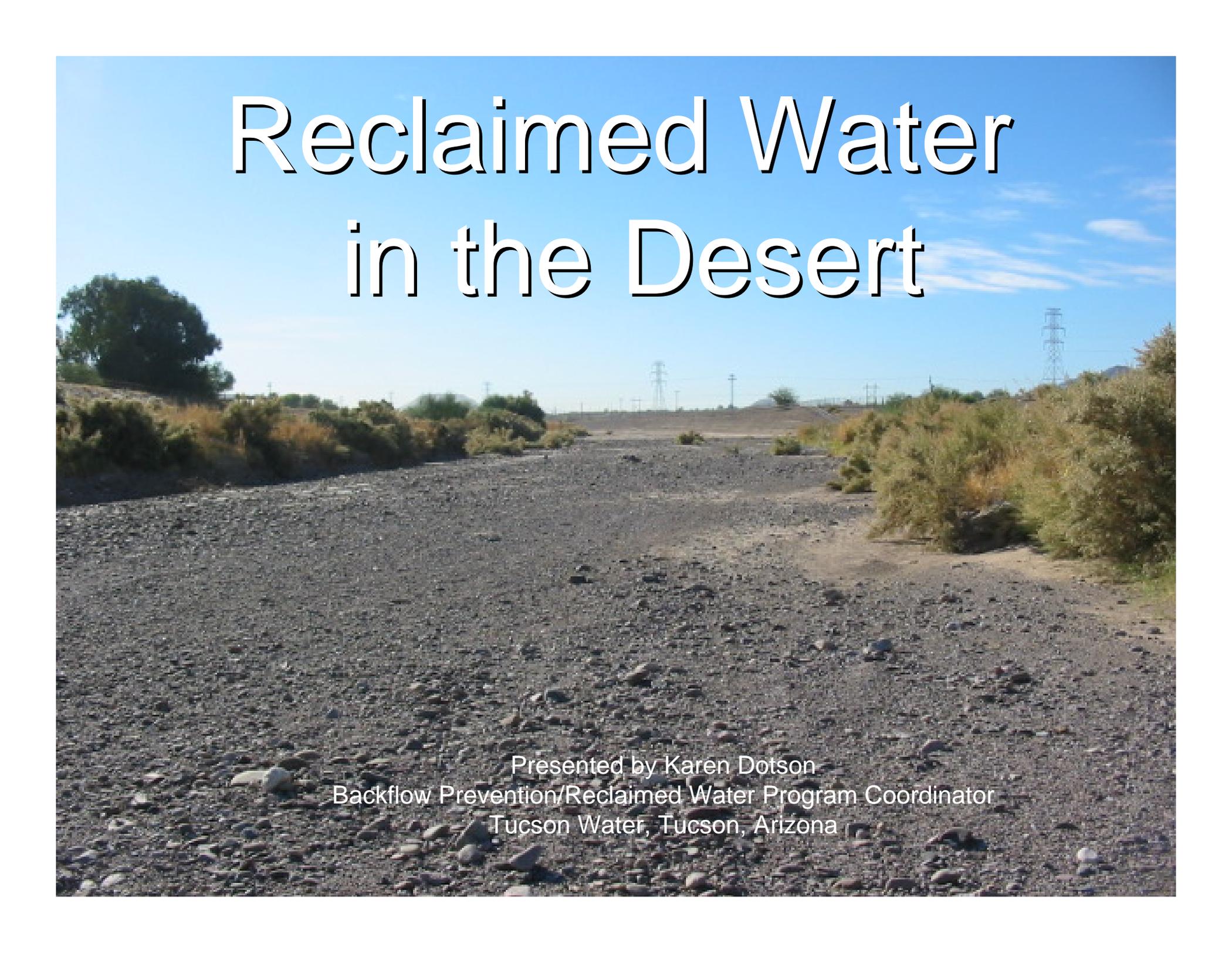


Reclaimed Water in the Desert



Presented by Karen Dotson
Backflow Prevention/Reclaimed Water Program Coordinator
Tucson Water, Tucson, Arizona

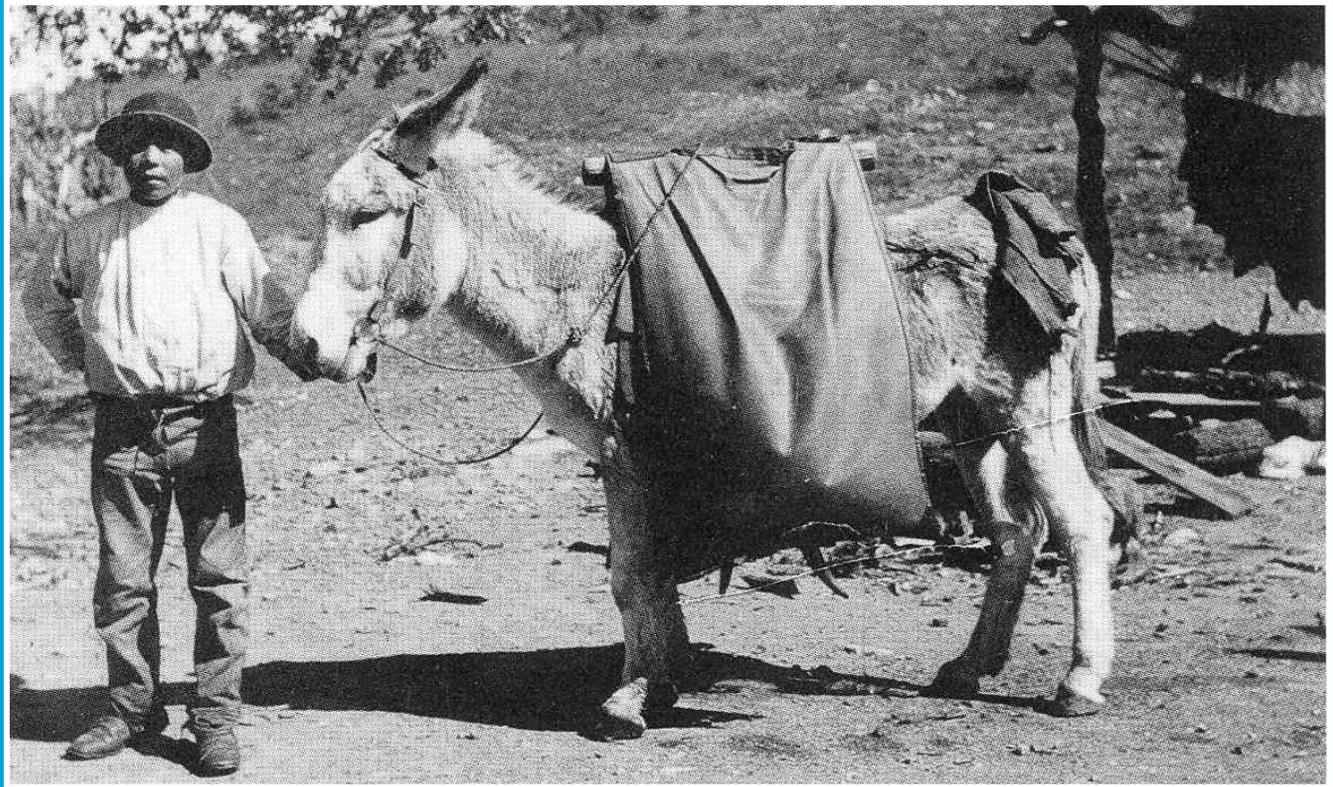
Tucson, Arizona, USA



TUCSON WATER DEPARTMENT, TUCSON, ARIZONA



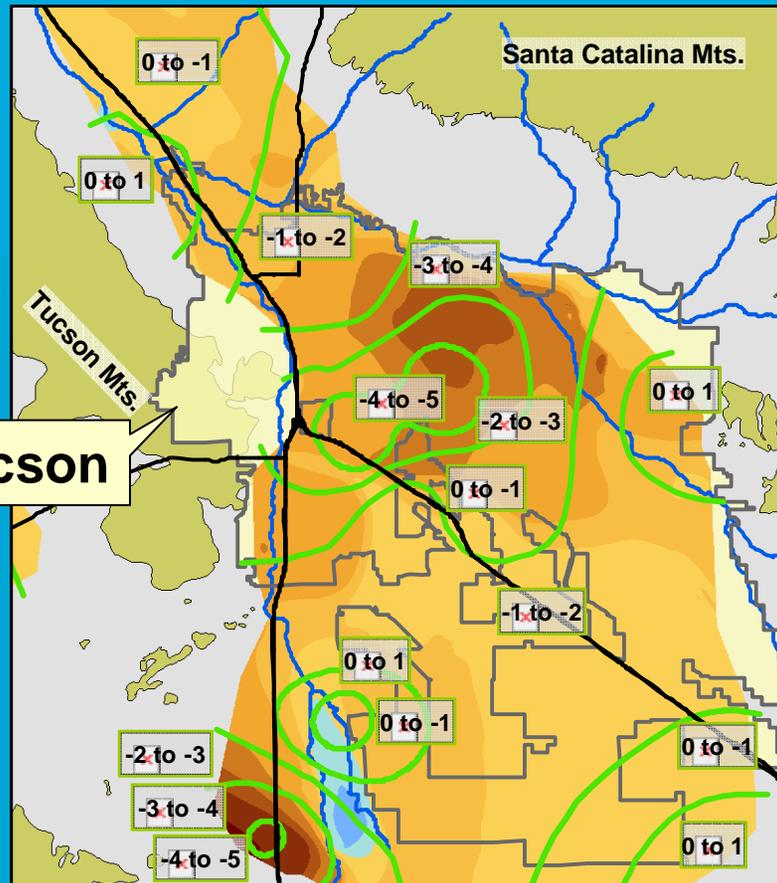
A Long History of Water Awareness



TUCSON WATER DEPARTMENT, TUCSON, ARIZONA



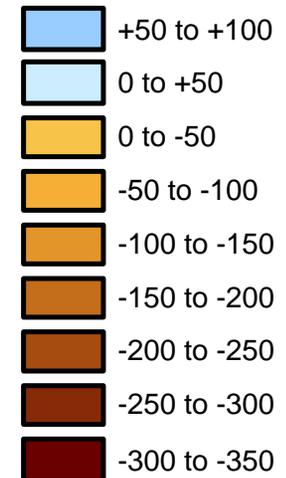
Water Level Decline & Subsidence



Legend

 Subsidence
in inches
USGS 1987-2005

Water Level Change 1950 - 2008



Effluent – Yesterday & Today

- Yesterday - Disposal challenge
- Today - Resource opportunity



Resource Alternatives for Wastewater



Booster Pumps at Tucson Water Reclaimed Water Production Facility

- Reclaimed water system
- Aquifer augmentation
- Environmental restoration & habitat creation

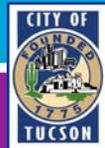


Secondary Effluent Recharge Basins



Water Management

	Tucson Water	Pima County Wastewater
Regional Water Agency	*	
Regional Wastewater Agency		*
Regional Reclaimed Water Agency	*	



Tucson Water

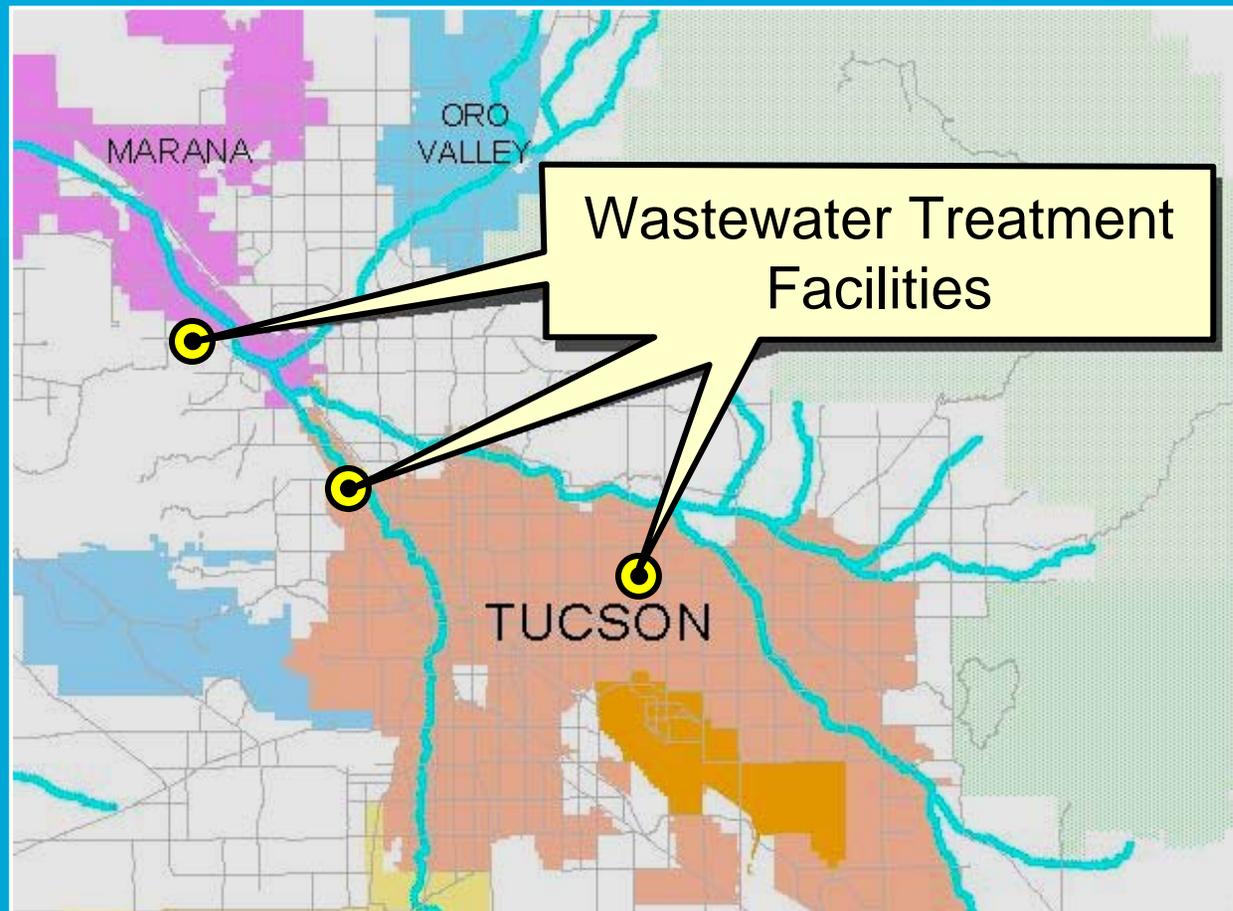
- Owned & operated by City of Tucson
- Mayor and Council adopt policies & establish rates
- Self-supporting enterprise
- Operates on a cost of service basis



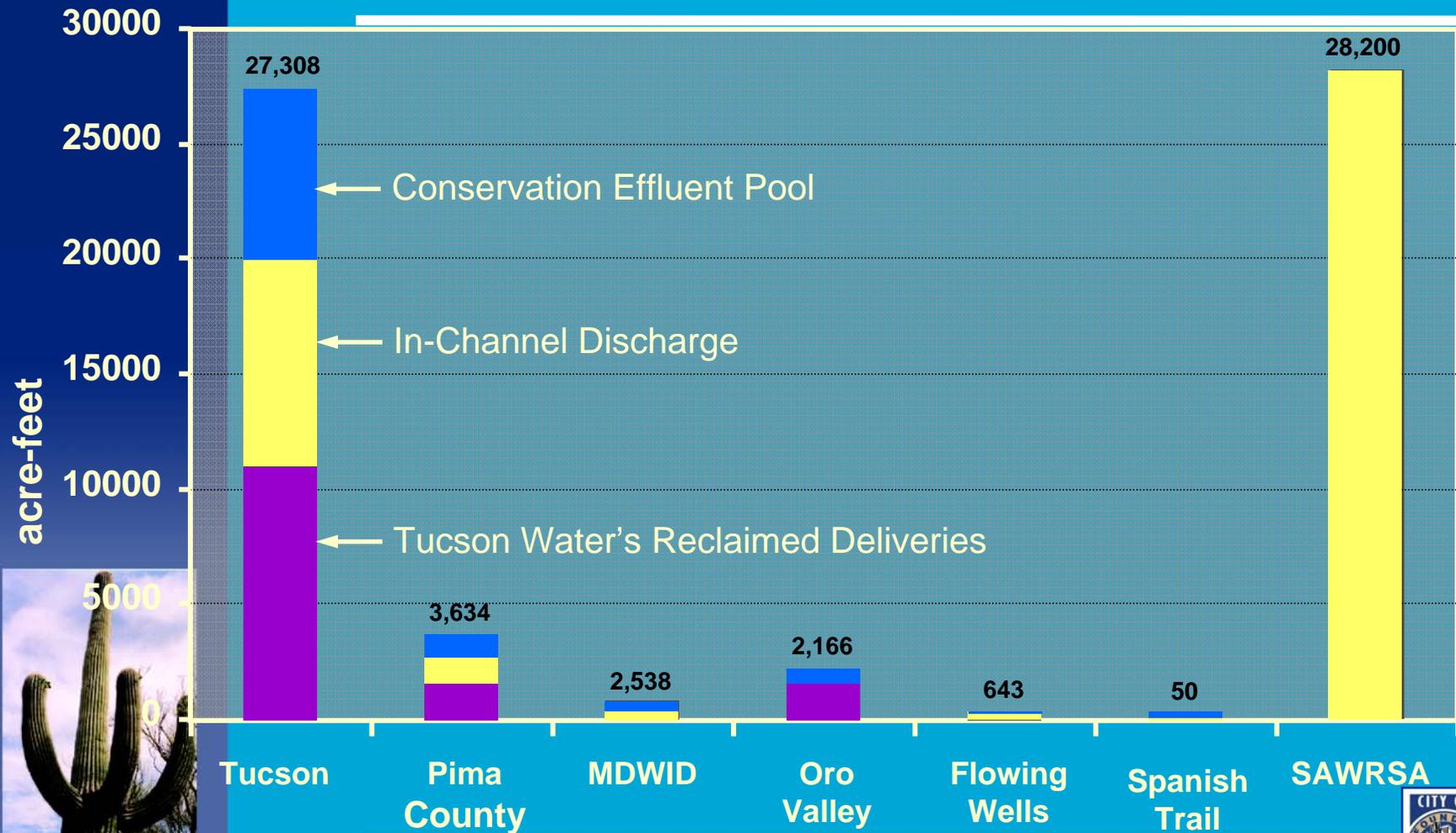
TUCSON WATER DEPARTMENT, TUCSON, ARIZONA



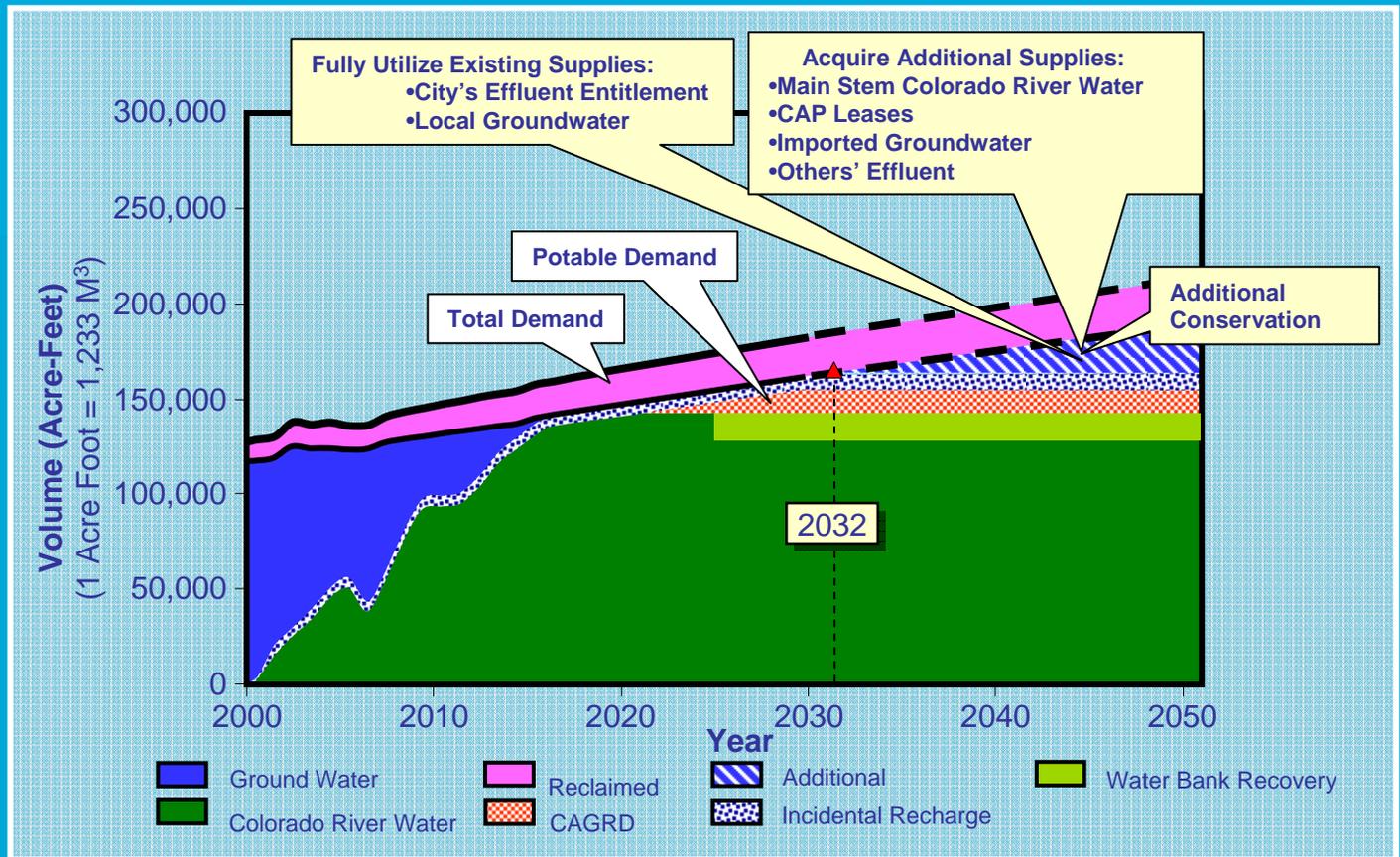
Wastewater Treatment Facilities



Metropolitan Effluent Entitlements (2010)



Reclaimed Water as Part of the Long-range Water Supply Plan



Arizona Classes of Reclaimed Water

Class A+

Process
Nitrogen Removal

Uses
School Yards, Residential, Golf Course, Open Access Area Irrigation, Fire Protection, Vineyard

C

Class A

Process
Substantial BOD and TSS Removal (Secondary Treatment), Filtration & Disinfection

Uses
School Yards, Residential, Golf Course, Open Access Area Irrigation, Fire Protection, Vineyard

Class B+

Process
Nitrogen Removal

Uses
Golf Course, Restricted Area Irrigation, Livestock, Dust Control

Class B

Process
BOD and TSS Removal (Secondary Treatment), Disinfection

Uses
Golf Course, Restricted Area Irrigation, Livestock, Dust Control

Class C

Process
Stabilization Ponds

Uses
Livestock (non dairy), Sod Farm, Forage Irrigation

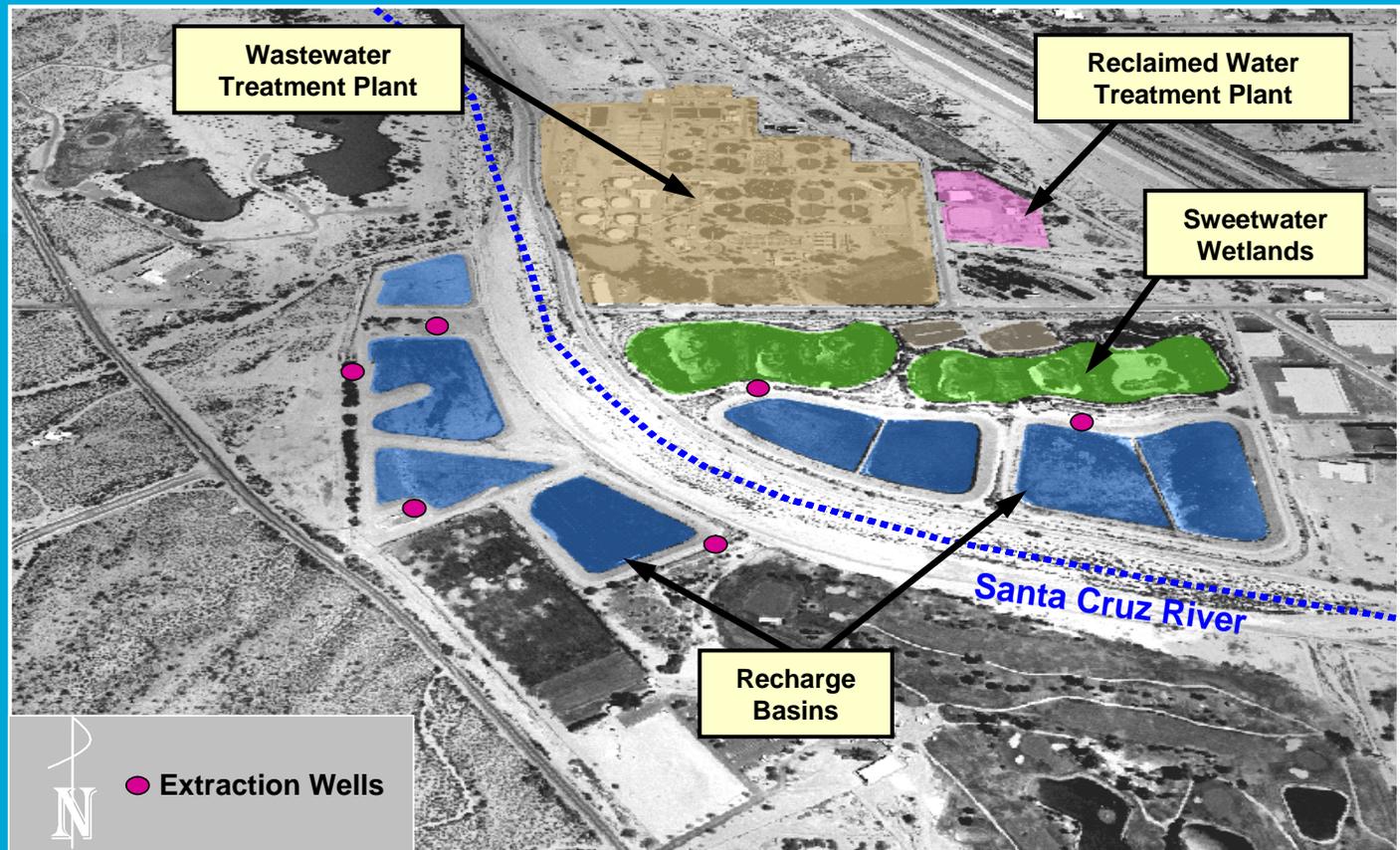


Tucson Water Reclaimed Water Quality

	Potable	Reclaimed		Potable	Reclaimed
Inorganic Constituents			Nitrogen Forms		
Alkalinity (as CaCO ₃)	109 mg/l	202 mg/l	Ammonia Nitrogen	--	8 mg/l
Calcium	54 mg/l	76 mg/l	Nitrate (as N)	1.5 mg/l	4.9 mg/l
Chloride	42 mg/l	127 mg/l	Nitrite (as N)	0.1 mg/l	0.87 mg/l
Hardness (as CaCO ₃)	165 mg/l	246 mg/l	Organic Nitrogen (calculated)	--	1.01 mg/l
Magnesium	7.24 mg/l	14 mg/l	Total (calculated)	<10.0 mg/l	14.73 mg/l
Phosphate (as P)	< 0.2 mg/l	1.58 mg/l			
Sodium	50 mg/l	142 mg/l	Other		
Sulfate	98 mg/l	132 mg/l	Turbidity	0.28 NTU	2.09 NTU
			Fecal Coliform	0	<2.0 cfu
			pH	7.82 SU	7.37 SU
			Total Dissolved Solids	285 mg/l	500 mg/l



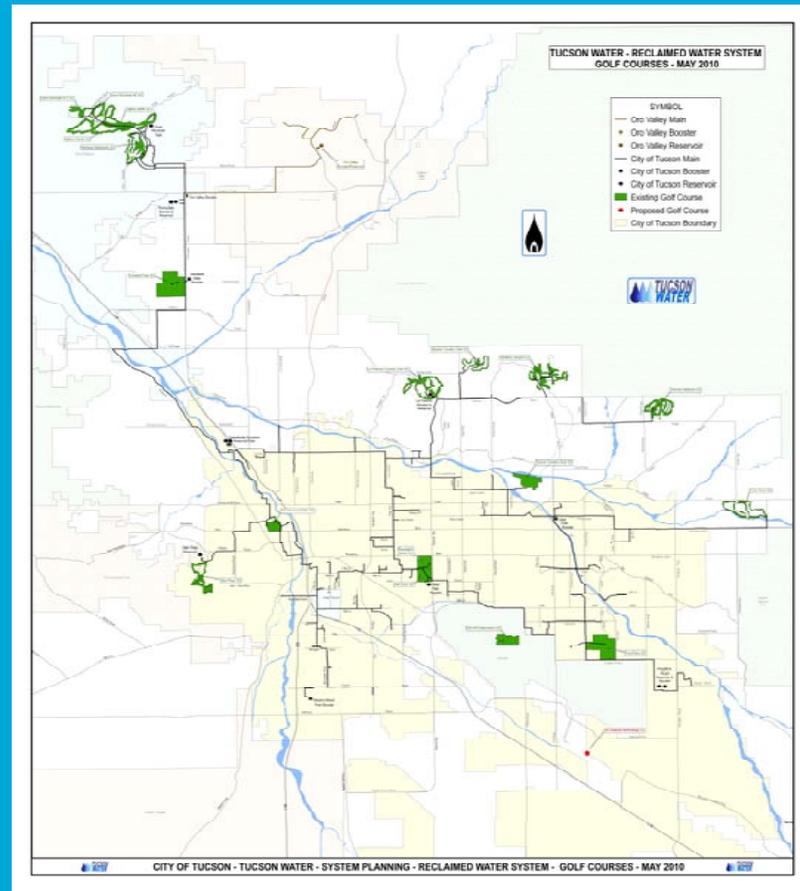
Reclaimed Water Production



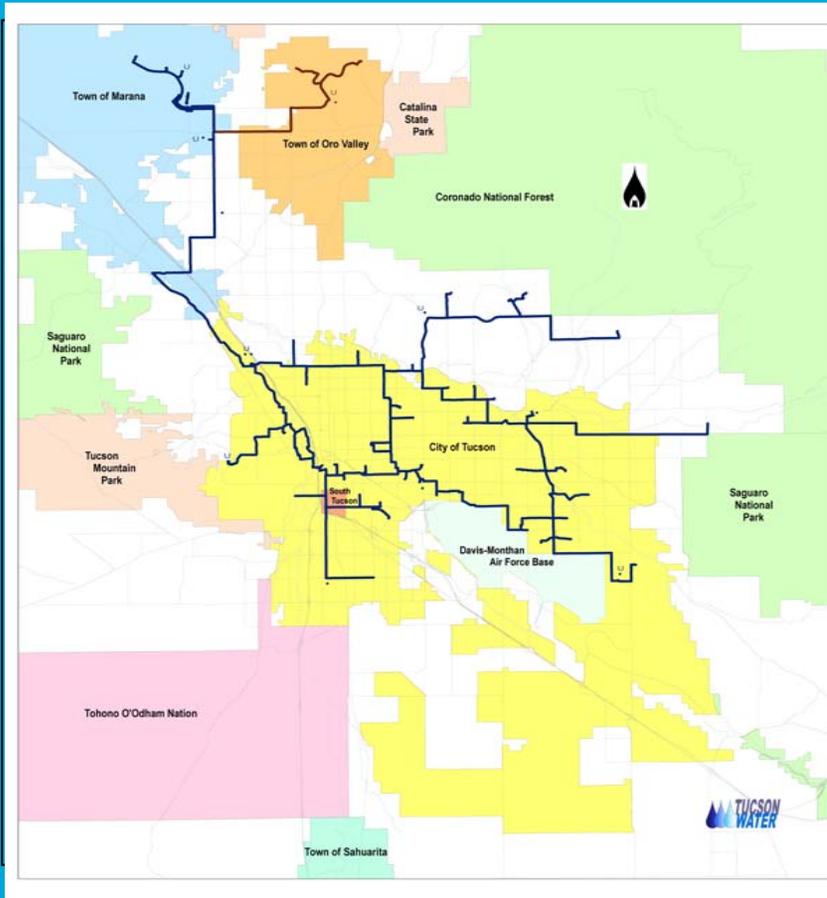
Sweetwater Wetlands



Golf Course Anchors



Reclaimed Water Distribution System



Pipelines

- 160 miles

Peak Day

- 29 MGD

System Pressure

- 200+ - 10 psi

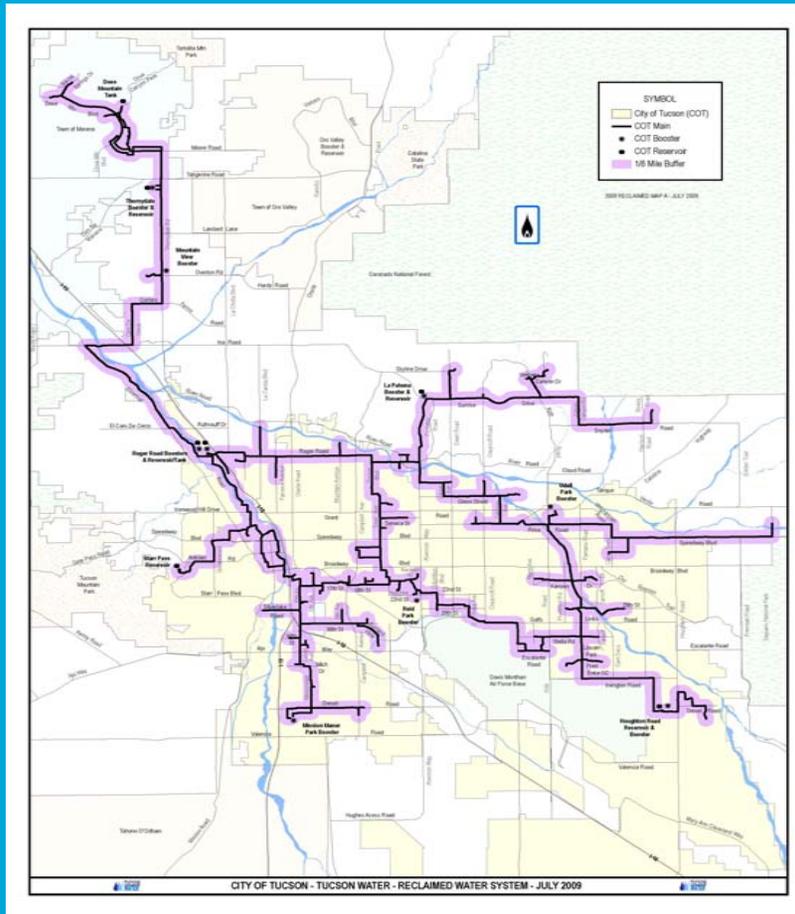
2009 Deliveries

- 17,000+ acre-feet

(enough water for 106,000 people for one year)



1/4 Mile Customer Expansion Area



Proximity of Parks to Reclaimed Water Mains

