

USC/PUG

Upper Santa Cruz Providers and Users Group

Sustainable water for the
Sahuarita & Green Valley Area

USCPUG AREA



About USC/PUG

- Formed in 2007, Incorporated as a scientific/educational nonprofit in 2009
- Motivated by long term aquifer decline and increasing water demand
- Brings together major water companies, agriculture and mining interests
- Produced several water studies
- Partners with US Bureau of Reclamation

PARTICIPANTS

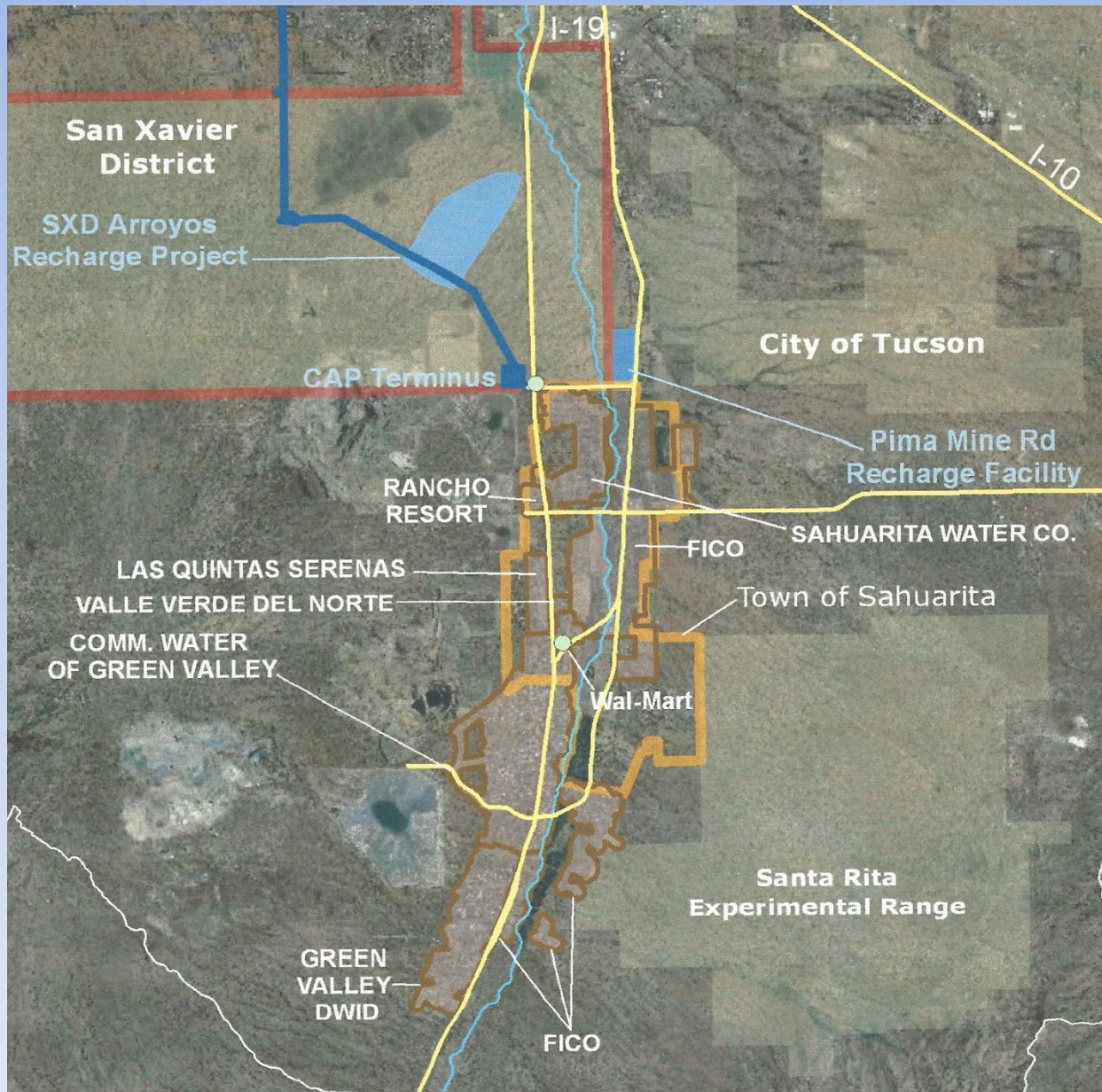
Disparate group of organizations – large versus small, profit making versus non-profit, public versus private

- Farmers Investment Company
- Sahuarita Water Company
- Green Valley Domestic Water Improvement District
- Community Water Company
- Freeport McMoRan Copper and Gold
- Town of Sahuarita

Hydrology 101

- Water flows from south to north, from mountains to river
- Aquifer flow is VERY slow
- The Aquifer is very deep ($1,000 \pm$ feet)
- Aquifer decline is slow but steady
- Water quality likely to decline with water level
- Compacted soil less likely to recharge
- Time measured in decades

Area Jurisdictions & Providers



Change in Groundwater Levels

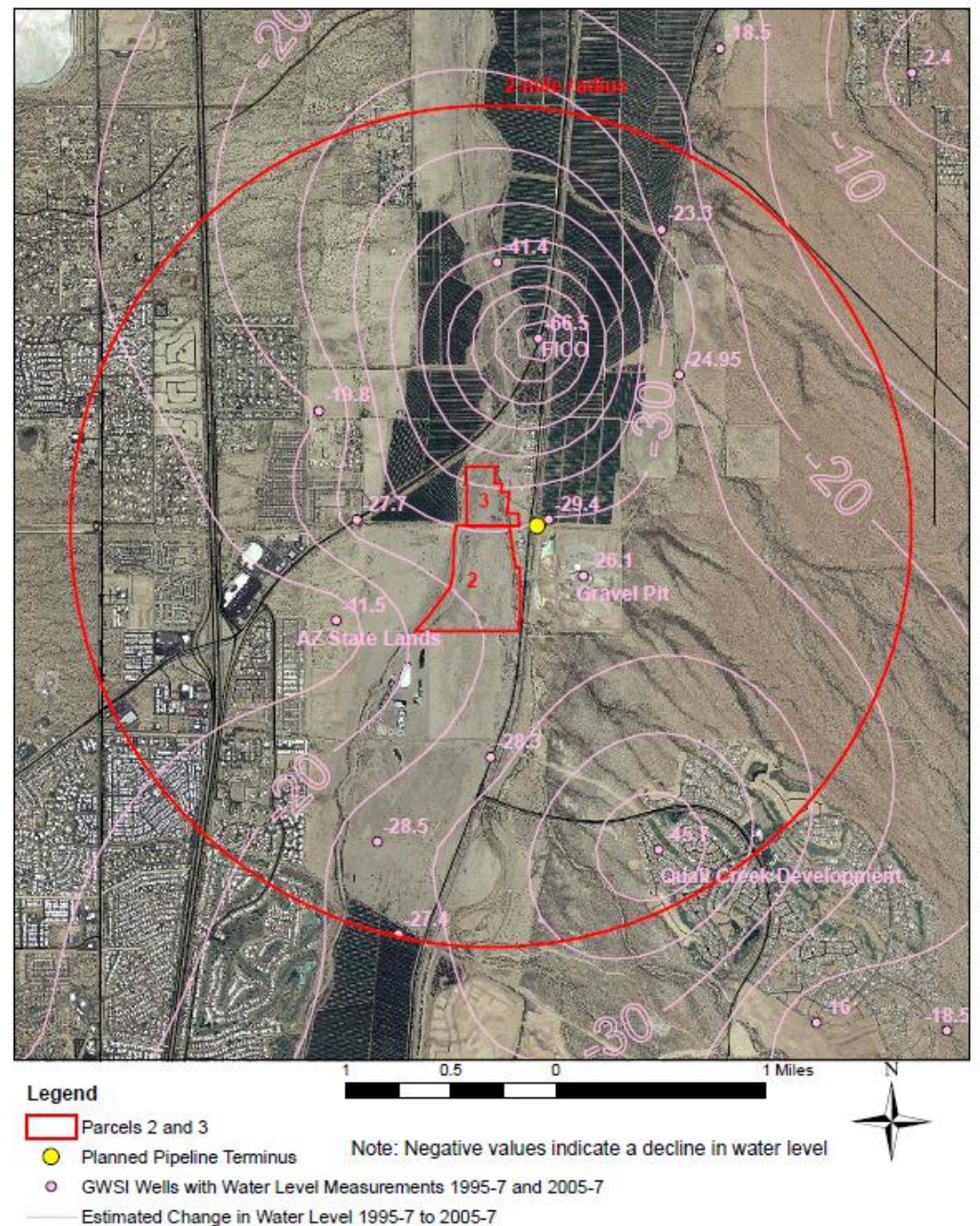


Figure 4-20. Estimated Change in Groundwater Levels 1995-7 to 2005-7

Water Quality

TDS
(hardness)
297 - 970

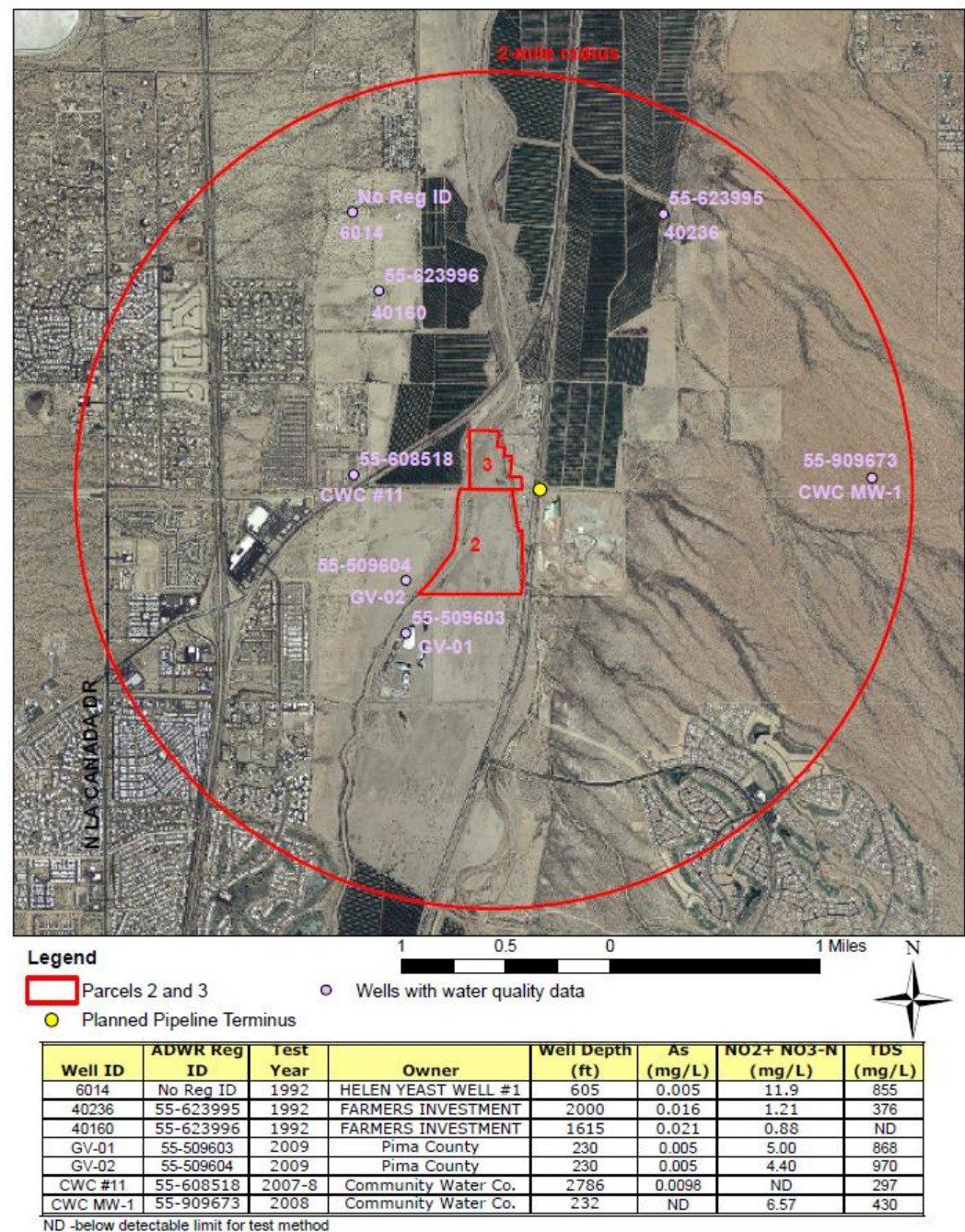
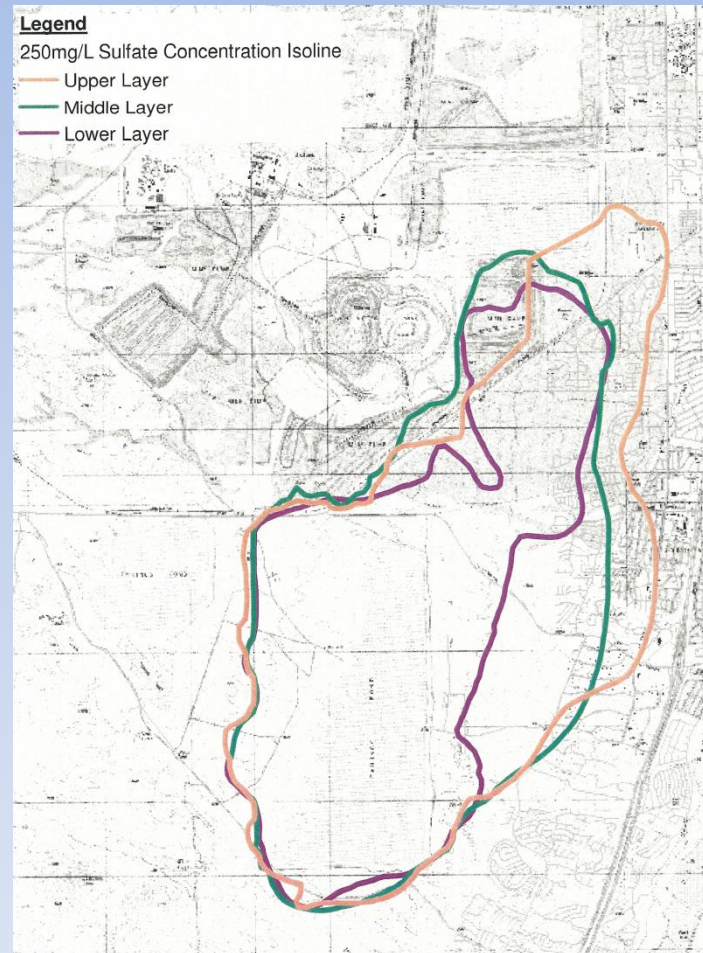


Figure 4-21. Wells with Water Quality Data

Sulfate Plume



Subsidence 1987 – 2004/5 0 – 5 Inches

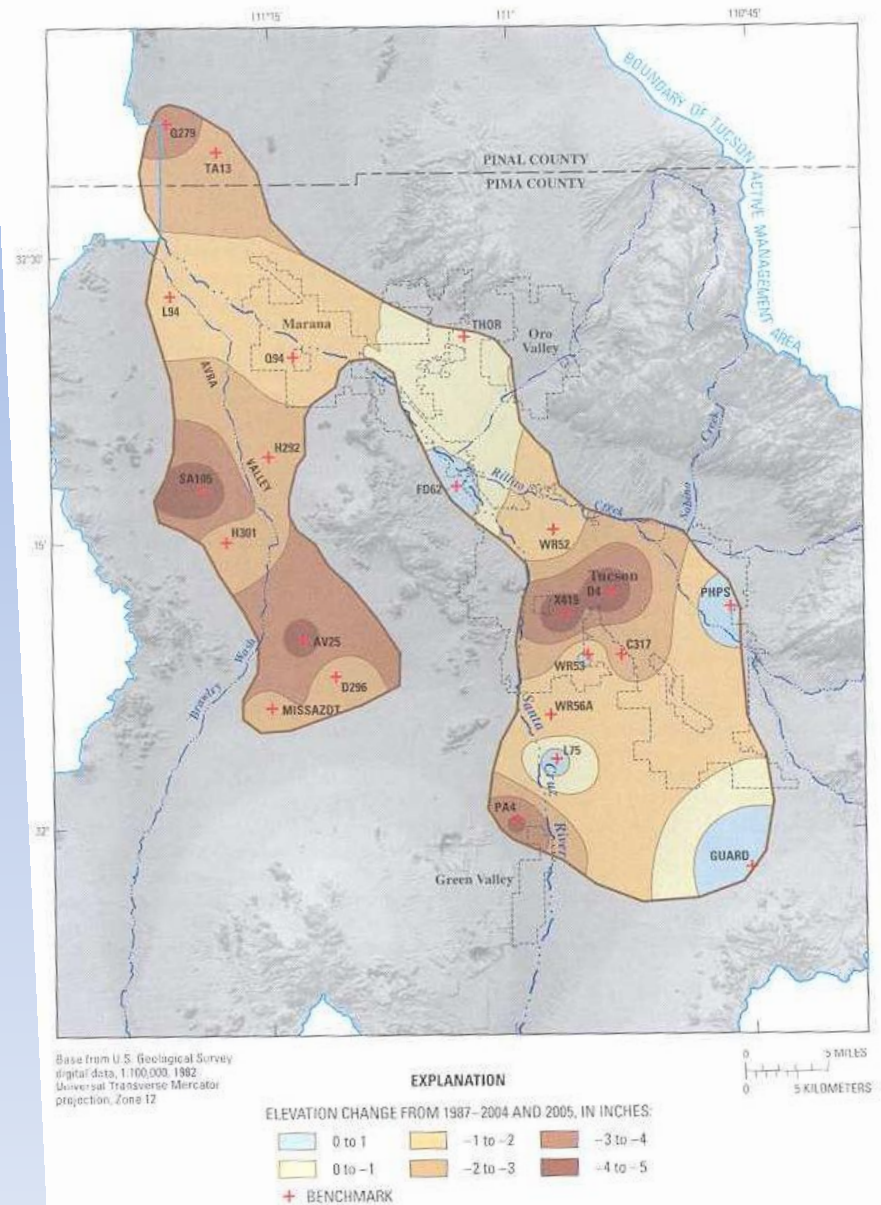
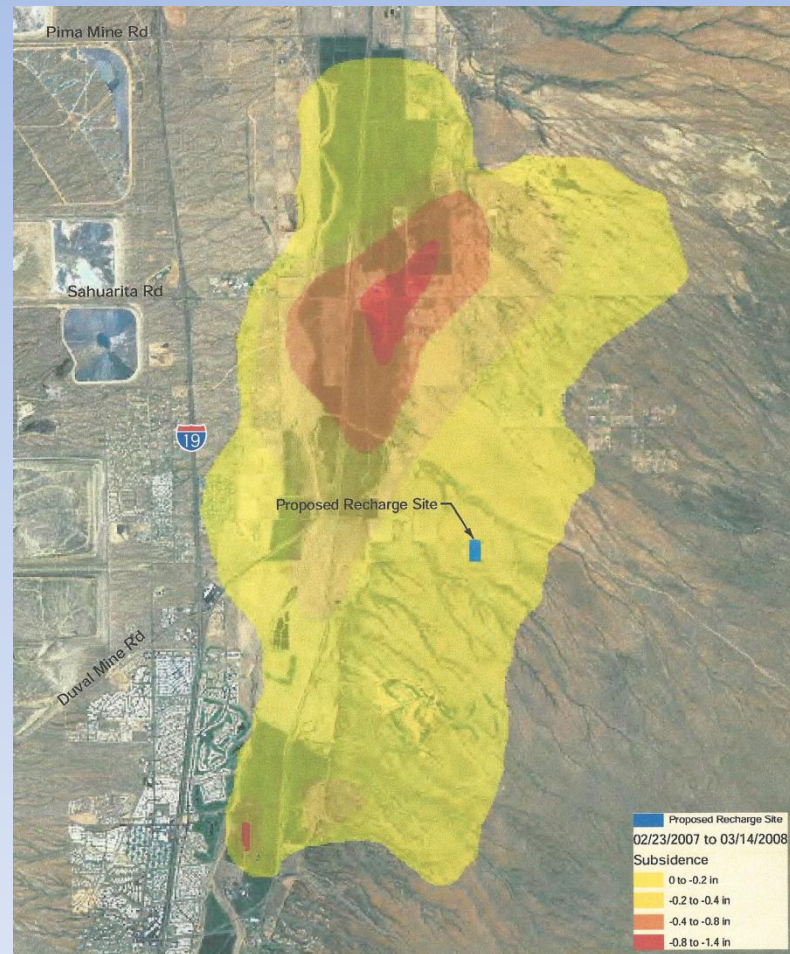


Figure 12. Land-surface elevation change in the Tucson Active Management Area from 1987 to 2004 and 2005.

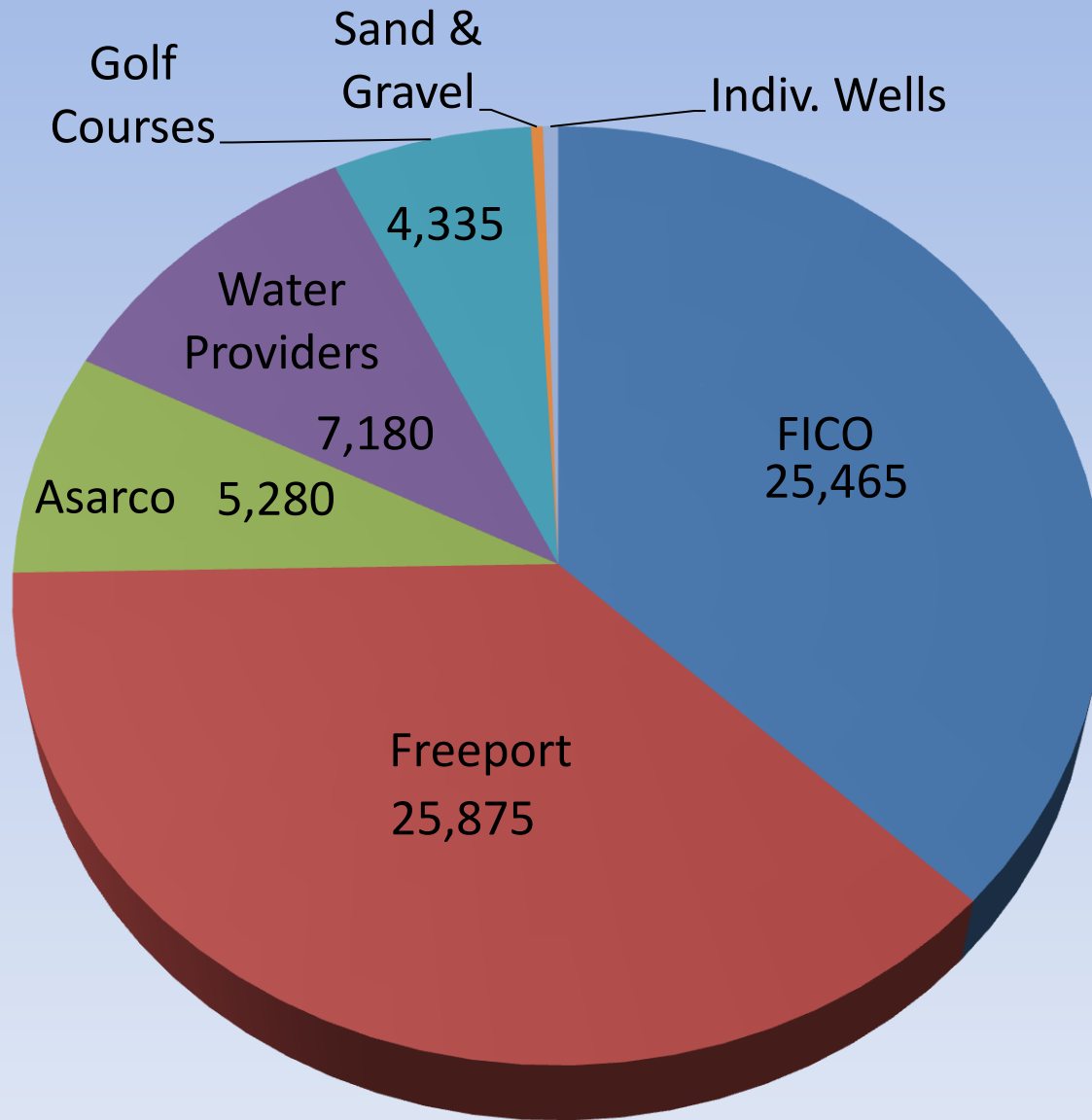
Subsidence 2007/08



Water Usage

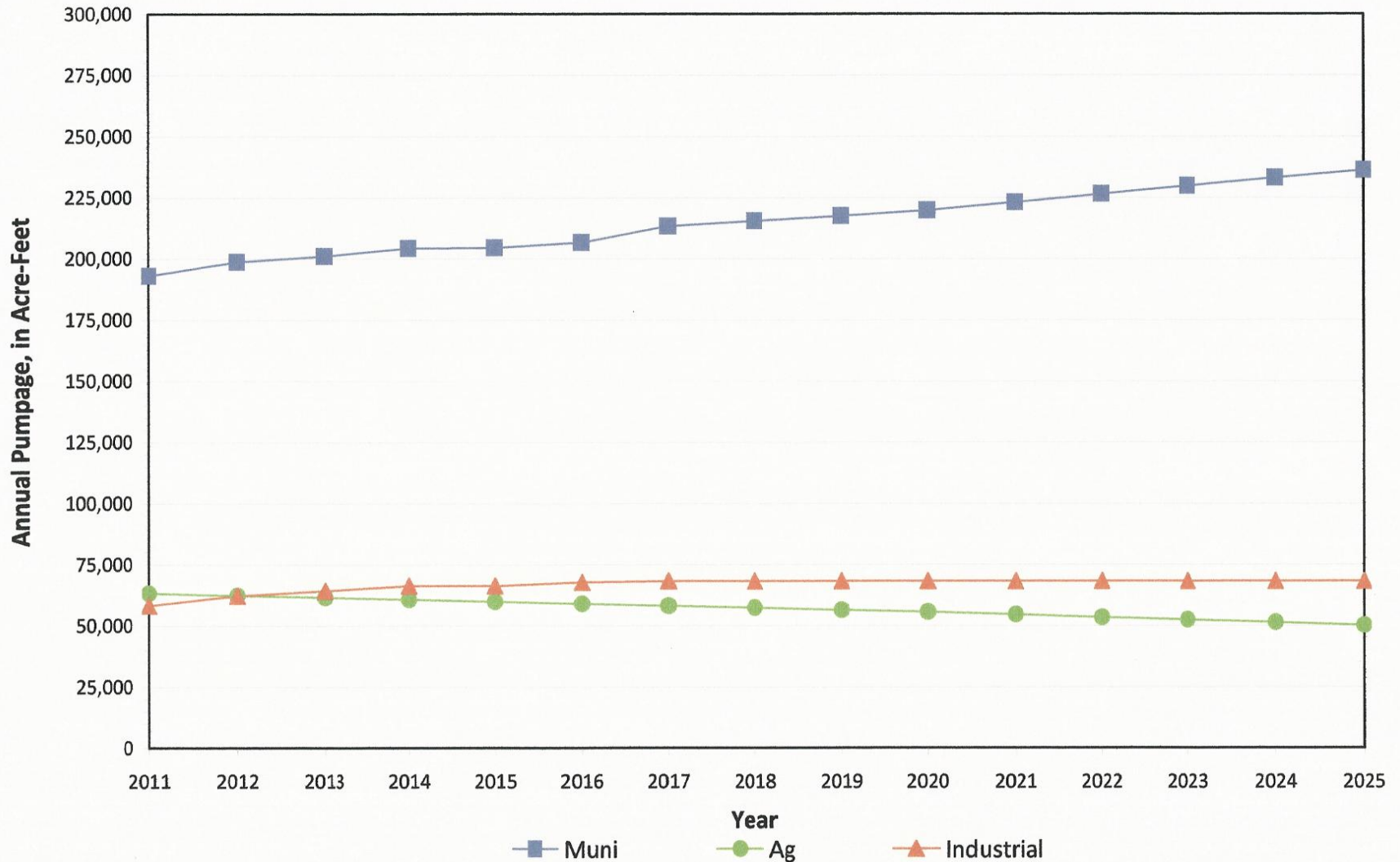
PUG ESTIMATED WATER USAGE AND RECHARGE				
<u>MAJOR PROVIDERS & USERS</u>	<u>2010</u>	<u>2015</u>	<u>2025</u>	<u>2035</u>
FICO	25,465 af	25,000 af	20,500 af	17,500 af
Freeport McMoRan	25,875 af	25,875 af	25,875 af	25.875 af
ASARCO - Aquifer	5280 af	6000 af	6000 af	6000 af
ASARCO - CAP Direct	7920 af	9000 af	9000 af	9000 af
WATER PROVIDERS	7180 af	7690 af	9430 af	10,090 af
GOLF COURSES	4335 af	4335 af	4335 af	4335 af
SAND & GRAVEL	255 af	275 af	300 af	300 af
Indiv. Homeowner Wells	330 af	400 af	480 af	560 af
<u>POTENTIAL MAJOR USERS</u>				
State Trust Land Use			135 af	300 af
FICO Residential Development			335 af	990 af
ROSEMONT MINE			6000 af	6000 af
TOTAL USAGE	76,640 af	78,575 af	82,390 af	80,950 af
TOTAL RECHARGE	40,620 af	41,980 af	47,985 af	47,905 af
OVERDRAFT	36,020 af	36,595 af	34,405 af	33,045 af

Water Usage

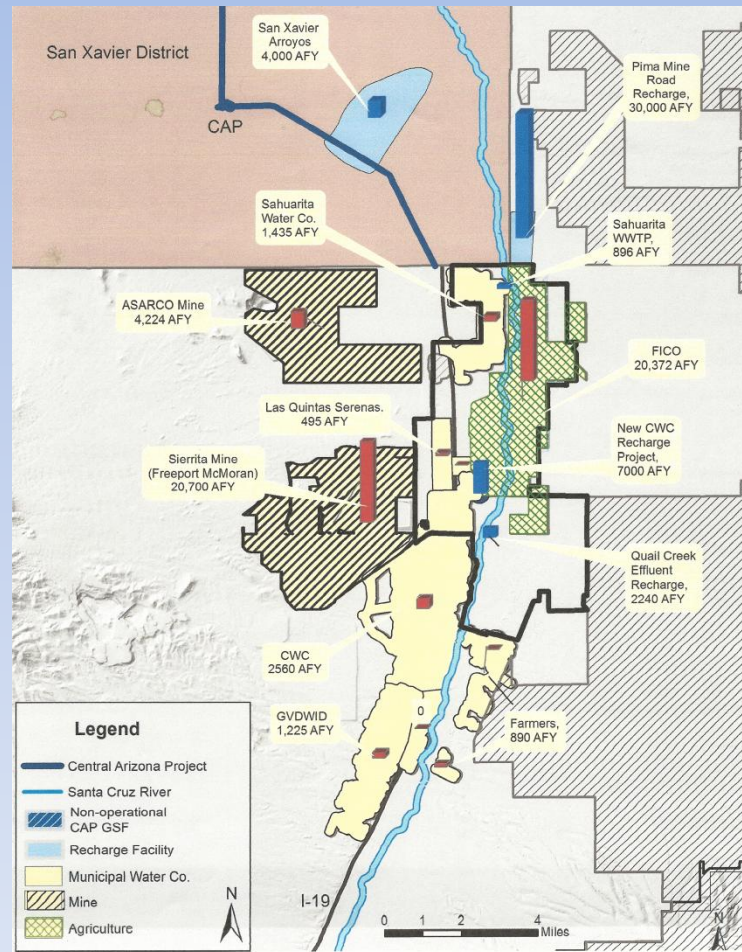


Tucson AMA Pumping

Pumpage by Sector: 2011-2025

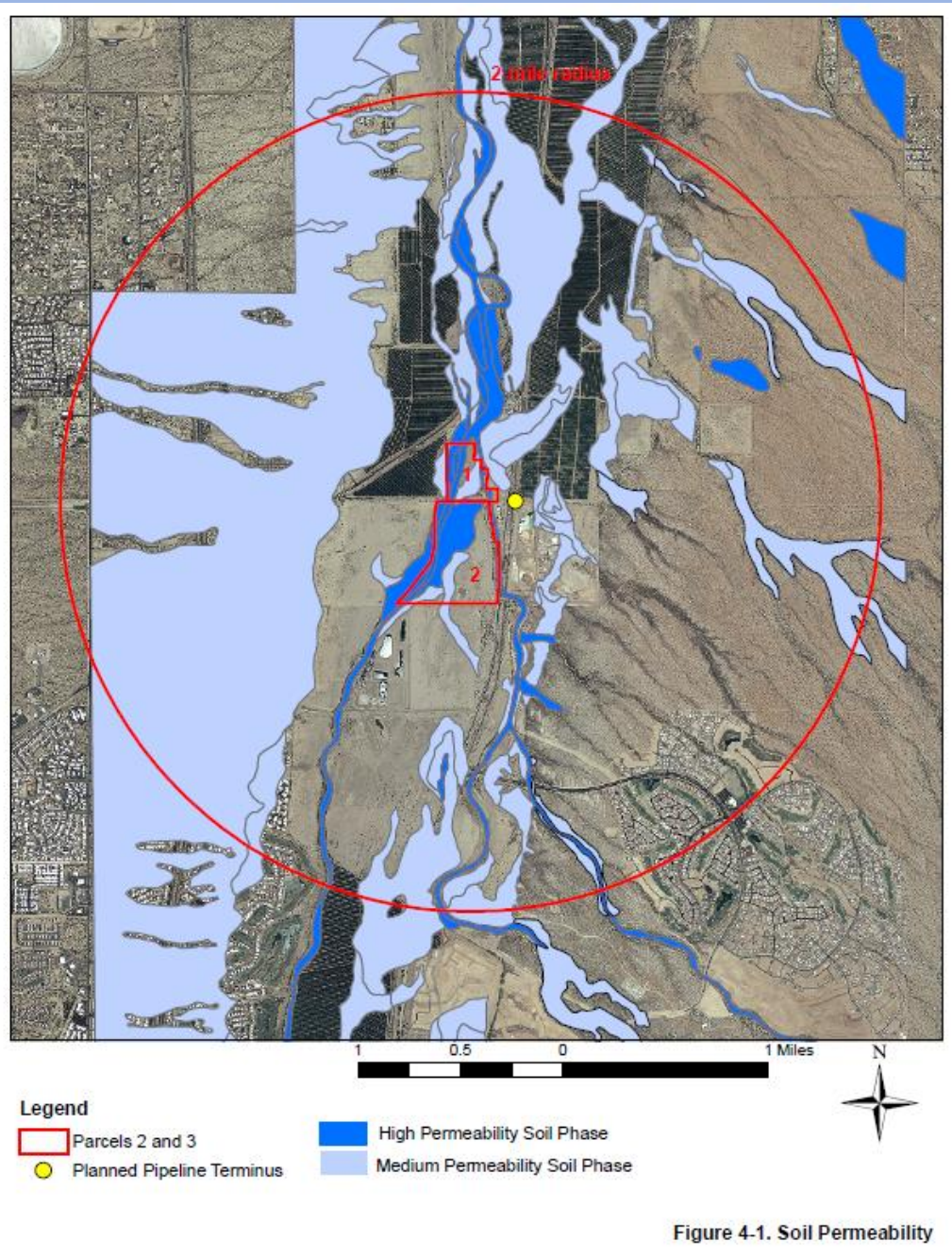


Available CAP Water

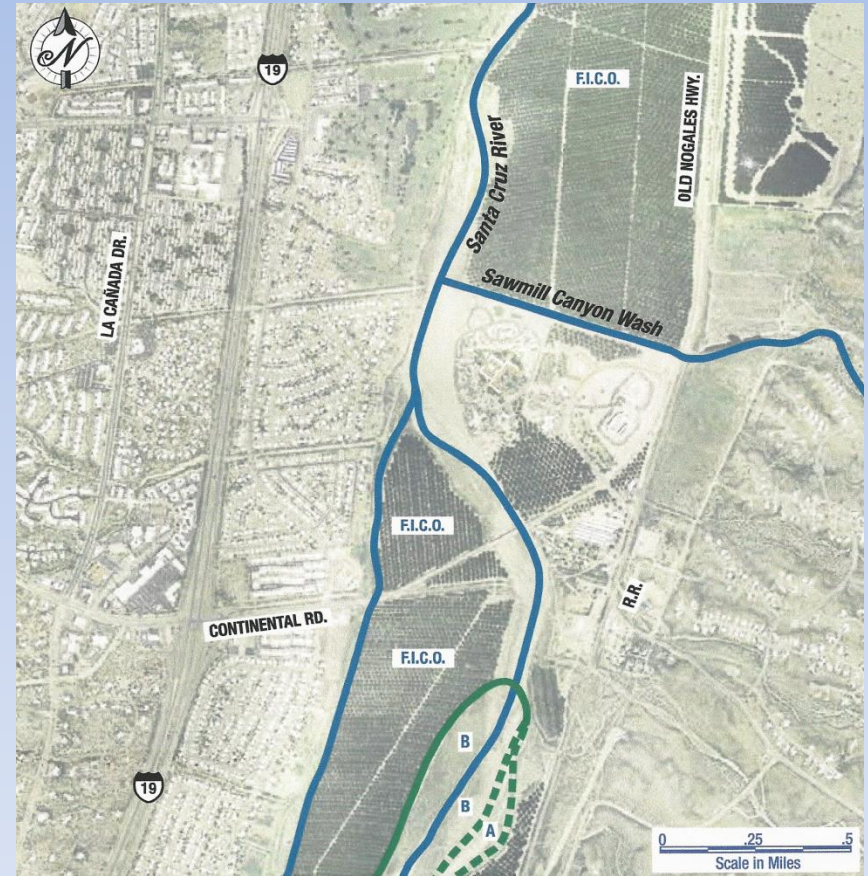
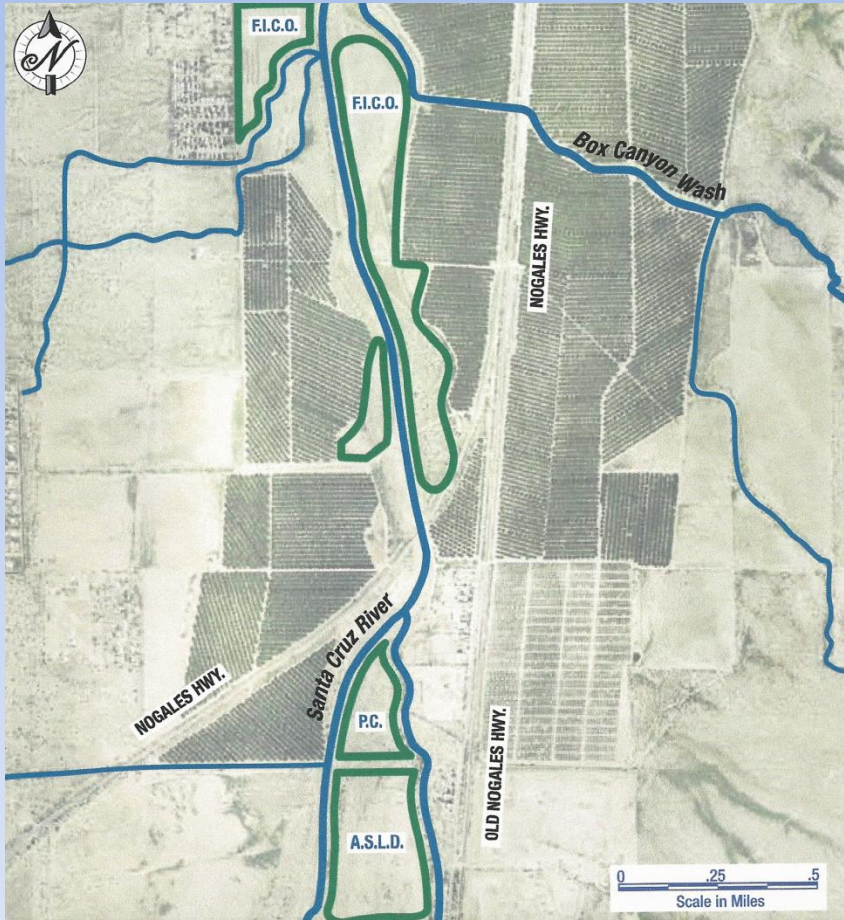


Soil Permeability

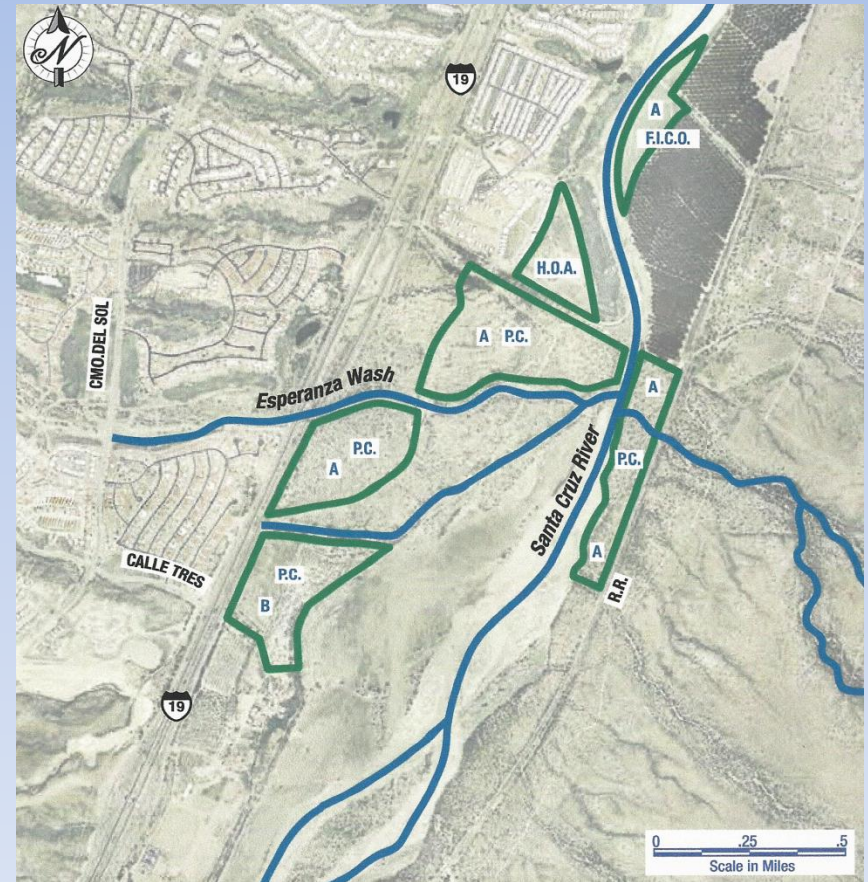
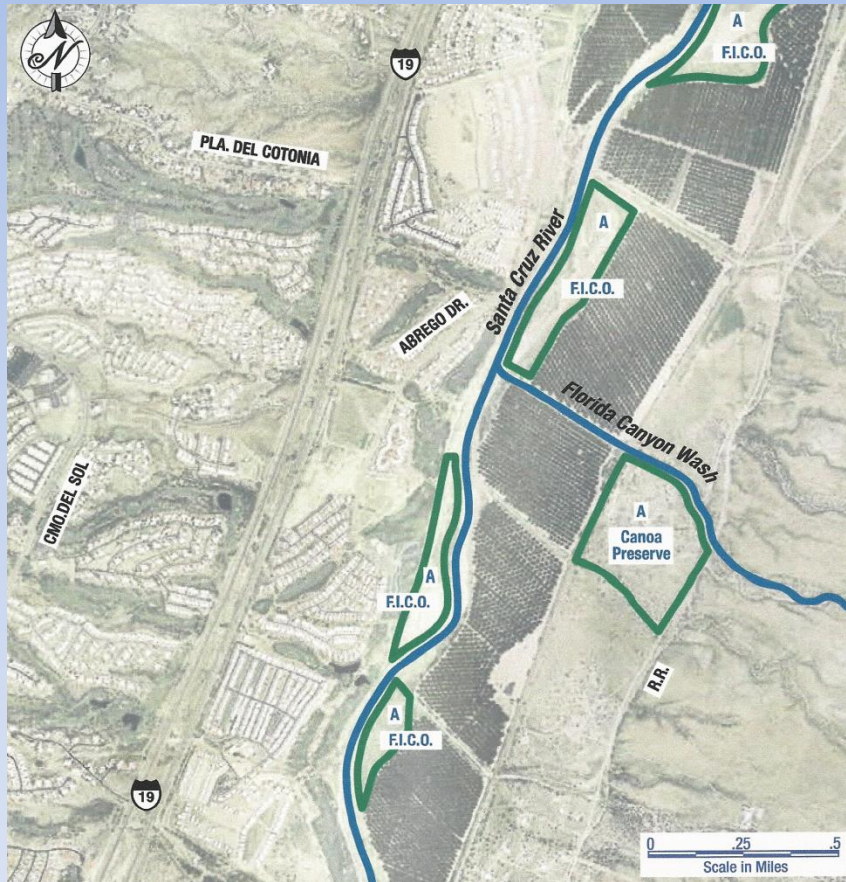
Potential Recharge



Potential CAP Recharge Sites



Potential CAP Recharge Sites



Next Steps

Bottom Line

- There is no water crisis but there is a serious water problem
- It has taken many years to develop but we can take a few years to find solutions
- Water will be available for domestic uses but will get more expensive
- Residential conservation will have small impact
- AZ has effective water laws but they will need refinement
- Citizens need to be “Water Smart”

Questions

