

Sustaining Environmental Flows

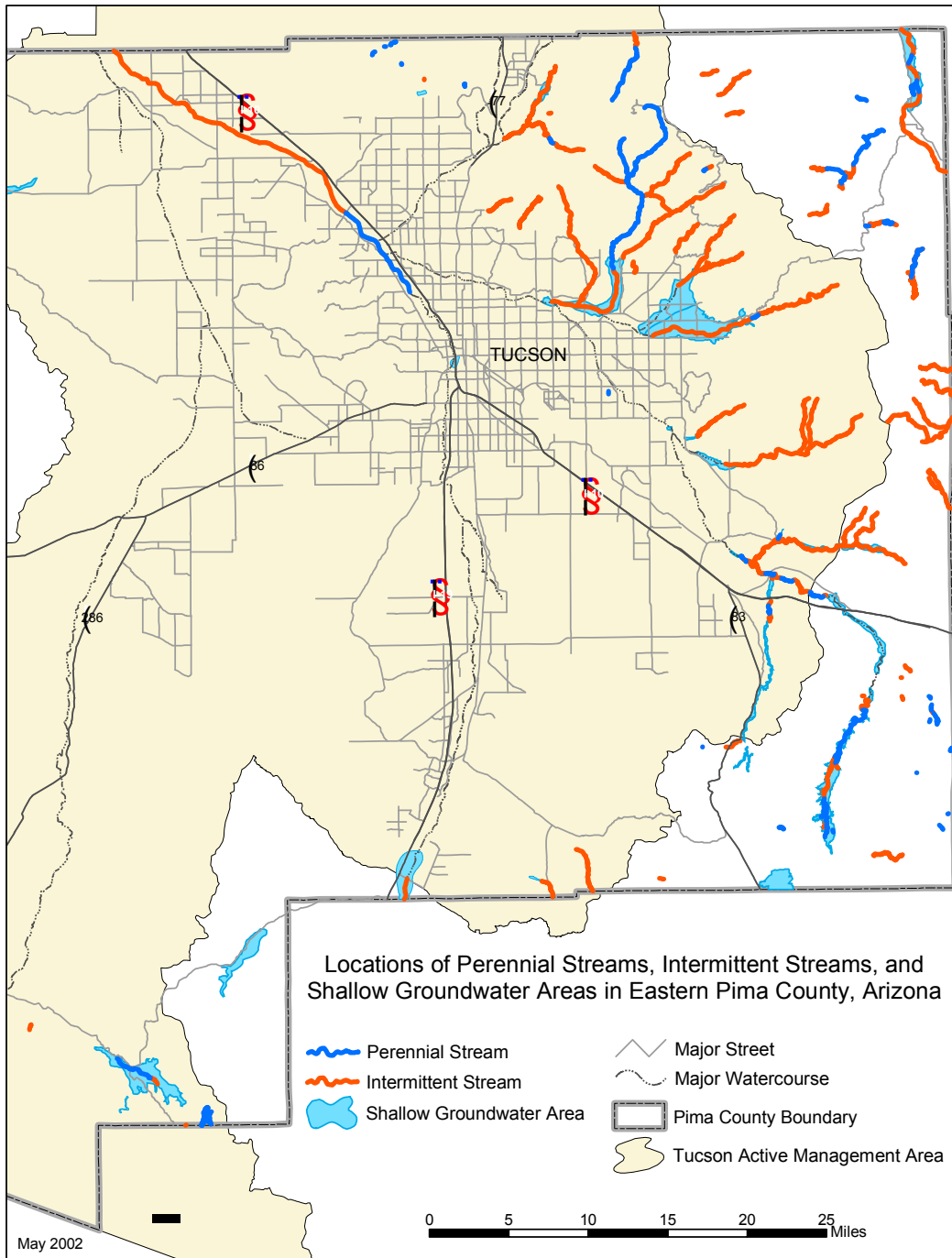


*Pima County and Pima County Regional Flood
Control District*

September 17, 2008

SDCP Riparian Goals

- Maintain floodplain functions
- Manage uplands
- Manage pollutant sources to maintain water quality
- Protect in-stream flows



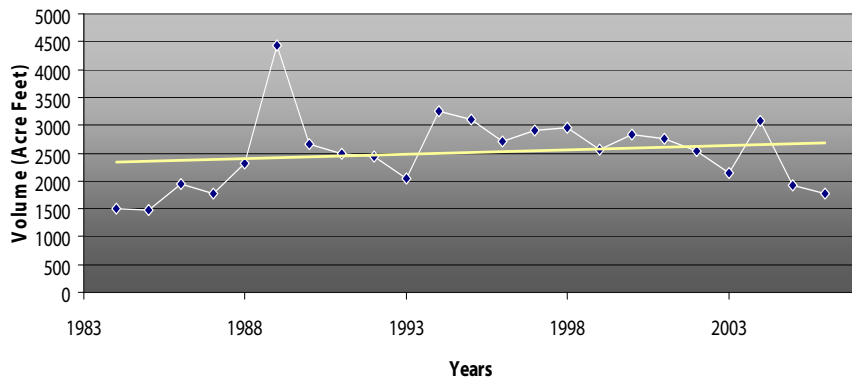
Sabino Creek
 Tanque Verde
 Agua Caliente
 Cienega Creek
 Santa Cruz River
 (effluent)
 Rincon Creek
 Agua Verde
 Ventana Wash
 Santa Cruz at
 Canoa...

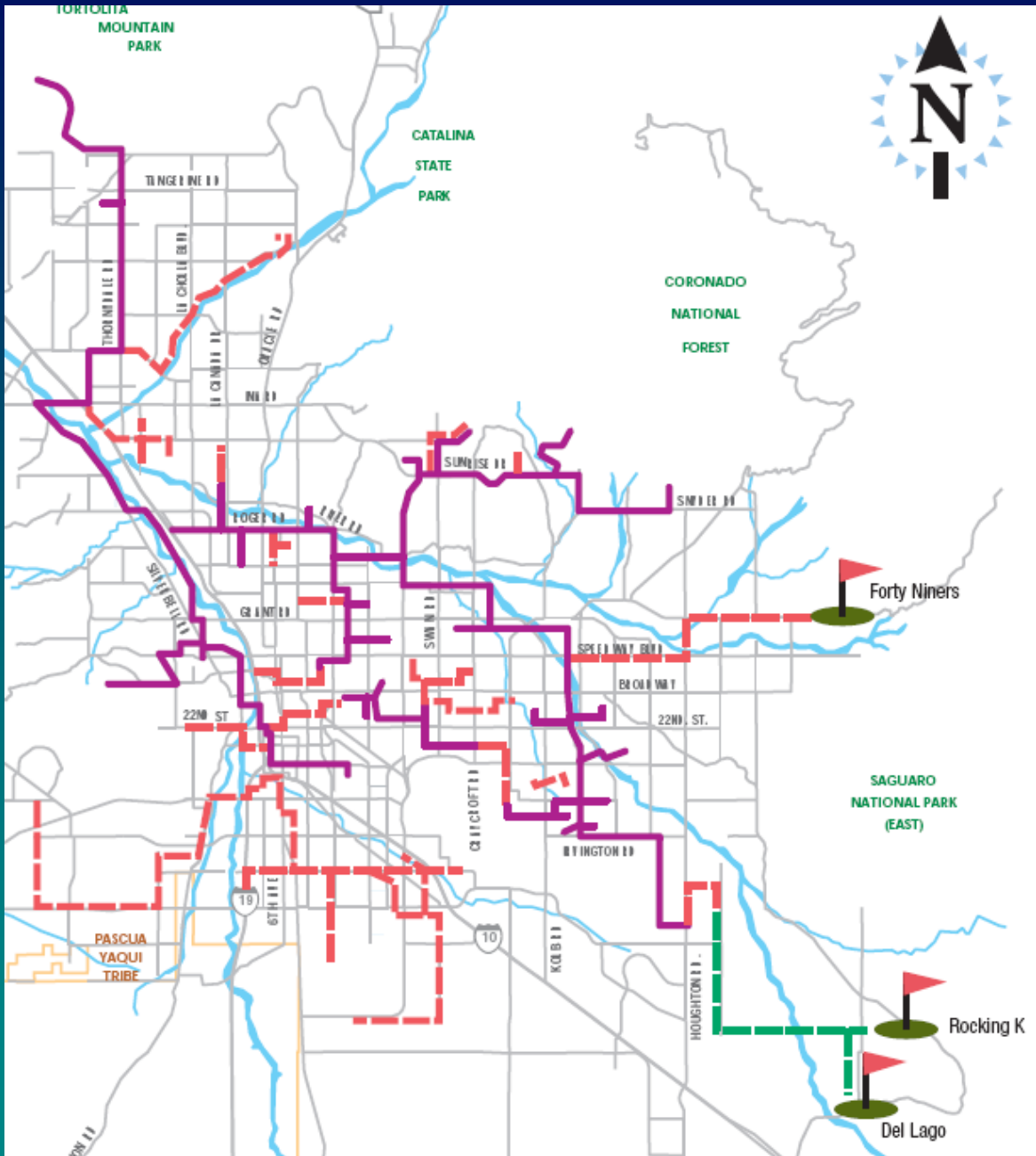
NE Tucson:
Agua Caliente
Tanque Verde
Sabino Creek
Ventana Wash



Sabino Canyon

Total Water Pumped Per Year Non-Exempt Wells
1984-2006





Projects to relieve stress on riparian areas depend on reclaimed pipelines

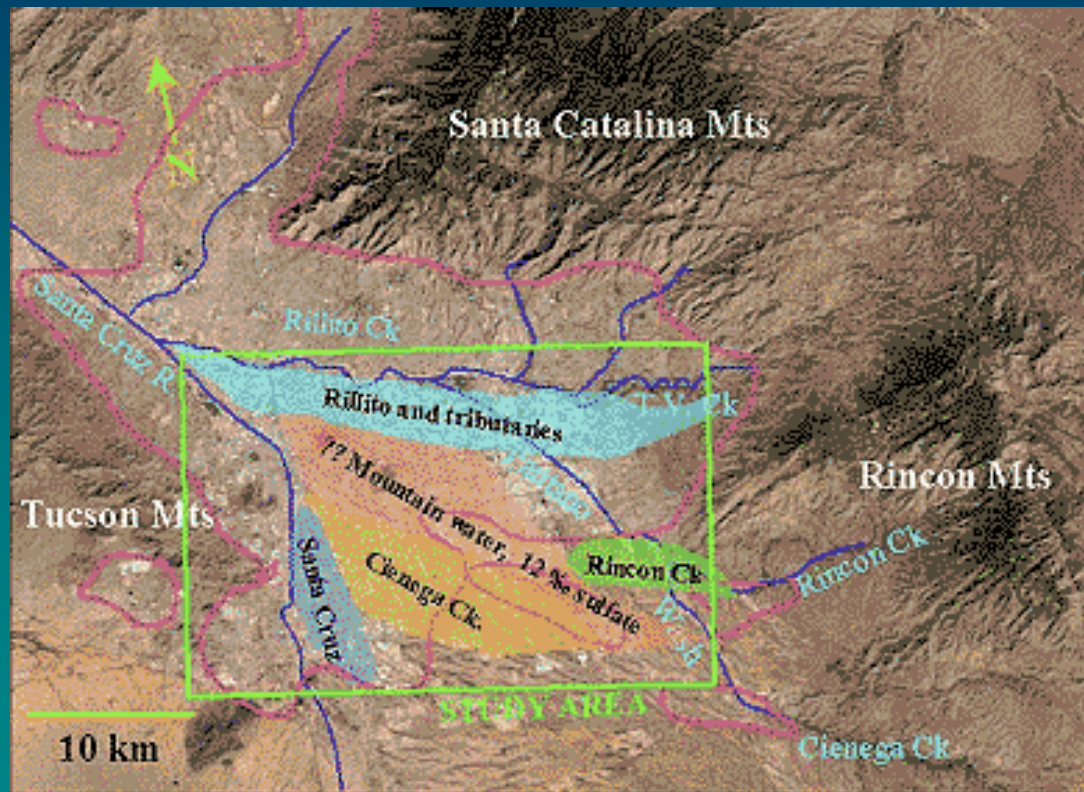
Tanque Verde 49ers (2008)



Cienega Creek



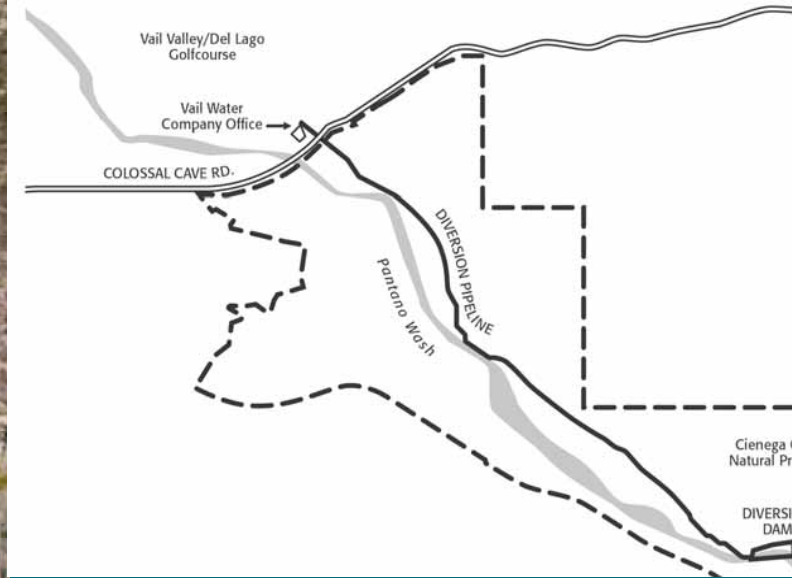
Recharge domains (Eastoe and others)



Groundwater recharge domains inferred from isotopic analysis of groundwaters.



VAIL STREAMFLOW DIVERSION



Above: looking downstream from diversion

Upper right: plan view of pipeline

Lower right: diversion



Tucson is not obligated to serve Vail

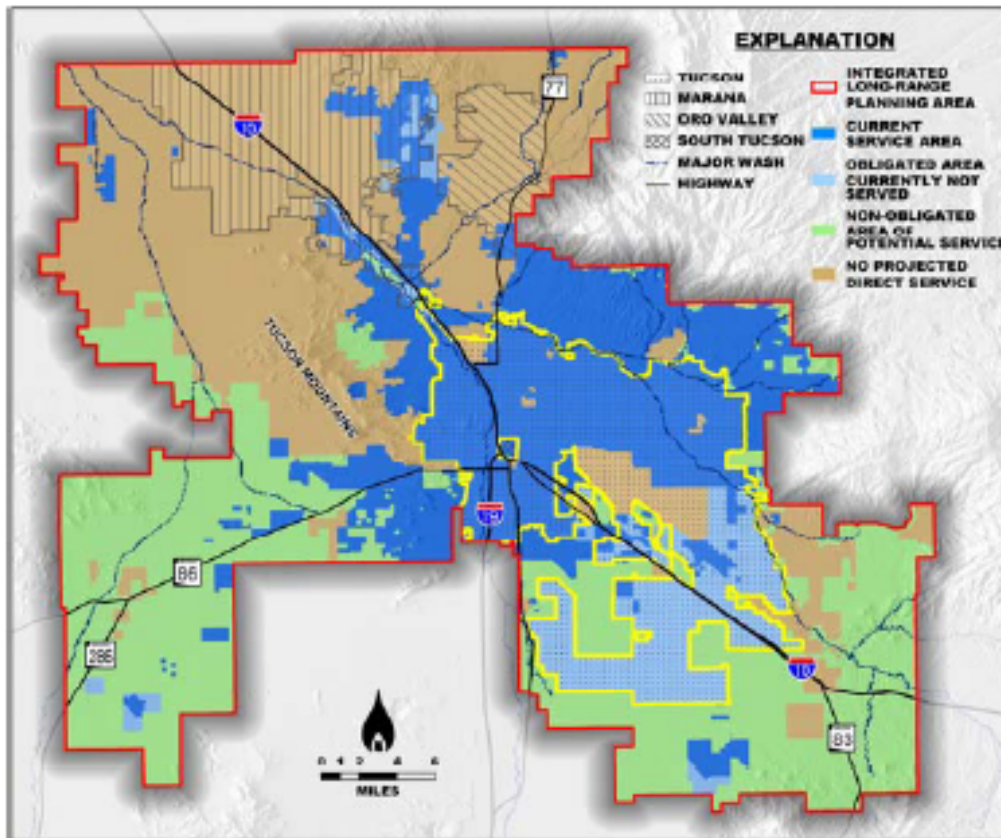


Figure ES-1: Long Range Planning Area.

These two areas are collectively referred to as the “Obligated Area”, and represent areas within the City limits or areas where the utility is currently contracted to serve. The remaining geographic areas (shown in green) are non-obligated areas of potential service. The Obligated Area and the non-obligated areas of potential service are collectively referred to as the Utility’s “Potential Service Area.” Areas shown in brown are those where Tucson Water has no plans to provide direct service.

Source: Tucson Water Update to Water Plan: 2000-2050

Santa Cruz River Today

- Largest perennial stream
- 2nd largest cottonwood-willow forest
- One of the richest bird areas
- “Drought proof”



Univ. of Arizona Research

Diversity of aquatic invertebrates was the lowest of five EDWs studied in Arizona (Walker et al., 2004)



Roger Road discharge

Santa Cruz River Future

Effluent production
will grow with time
86,000 af by 2025



Reduced flow length?

10,000 af/yr CEP is
insufficient to
maintain flows and
riparian values



Santa Cruz River, upstream of Ina (both)



Santa Cruz River downstream of Roger Road, 53,000 acre-feet in 2006

Conclusions

- Target GDEs for water conservation
- Use potable and reclaimed water infrastructure investments to reduce stress on GDEs
- Preserve and restore in-stream flows by allocating water sufficient for stream functions
- Maintain and improve water quality to streams, including effluent discharges