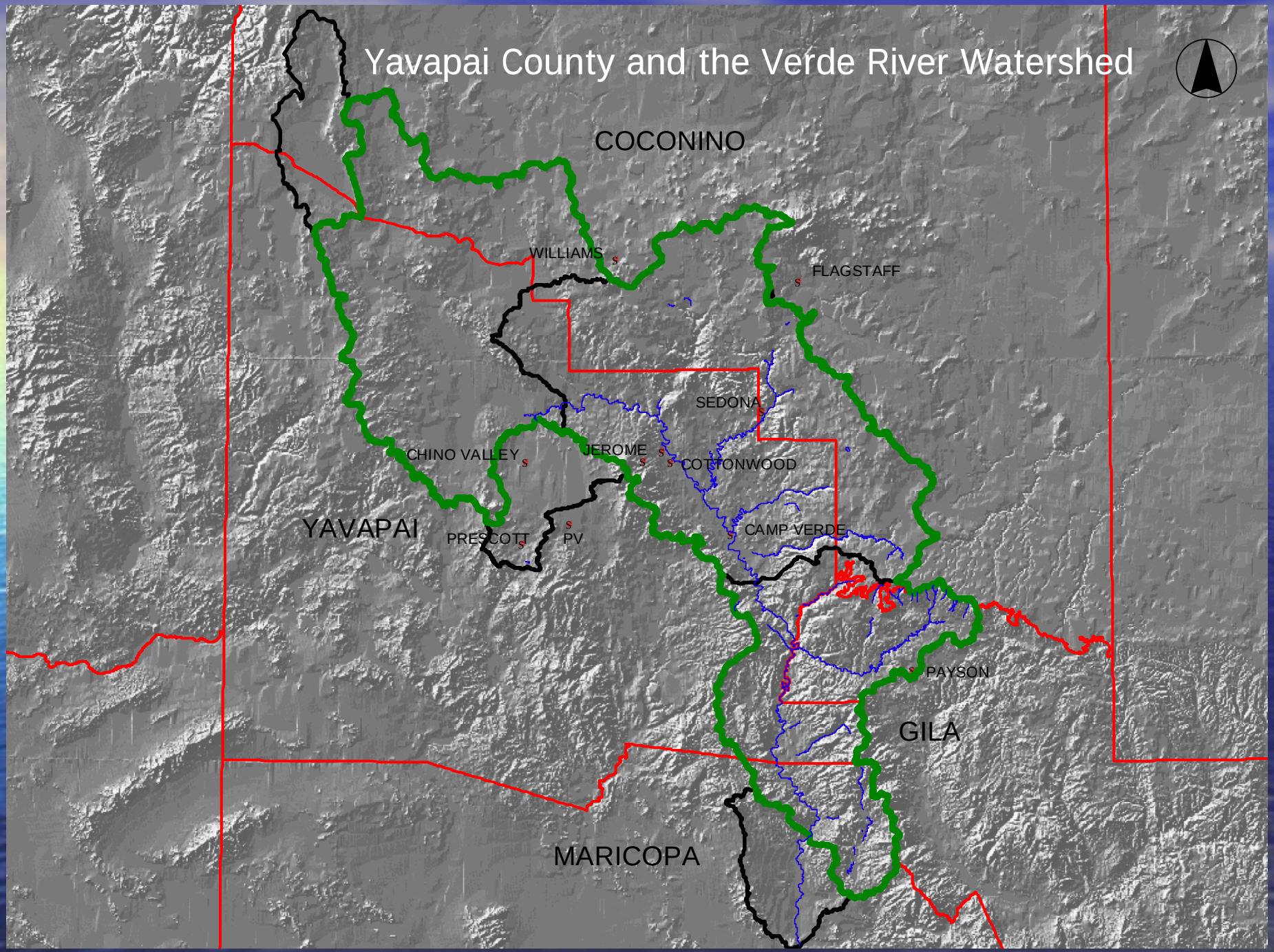
Yavapai County Water

Statewide Water Advisory Group

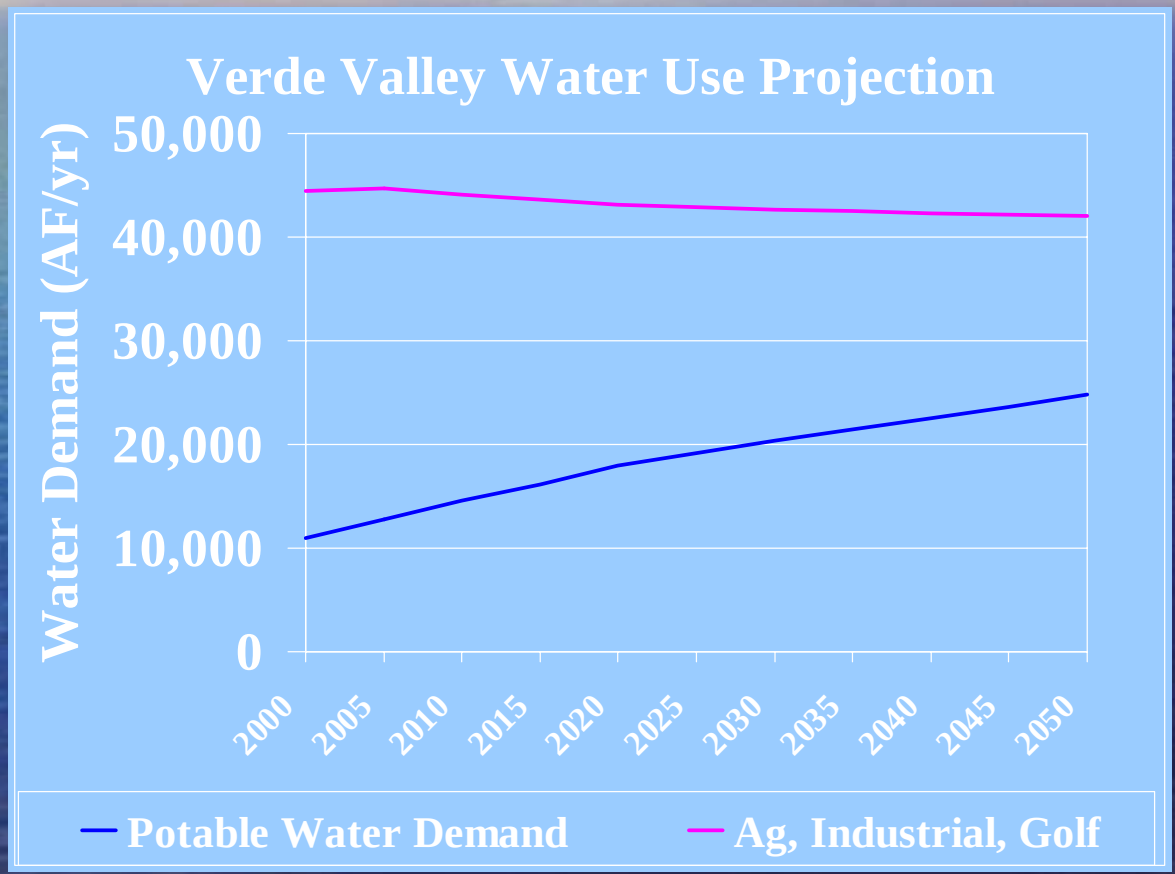
June 2, 2006

Robert B Hardy, City of Cottonwood

John Munderloh, Town of Prescott Valley


Yavapai County and the Verde River Watershed
COCONINO
WILLIAMS
FLAGSTAFF
SEDONA
CHINO VALLEY
JEROME
COTTONWOOD
YAVAPAI
PRESCOTT
PV
CAMP VERDE
PAYSON
GILA
MARICOPA

Verde Valley Water Use Projections

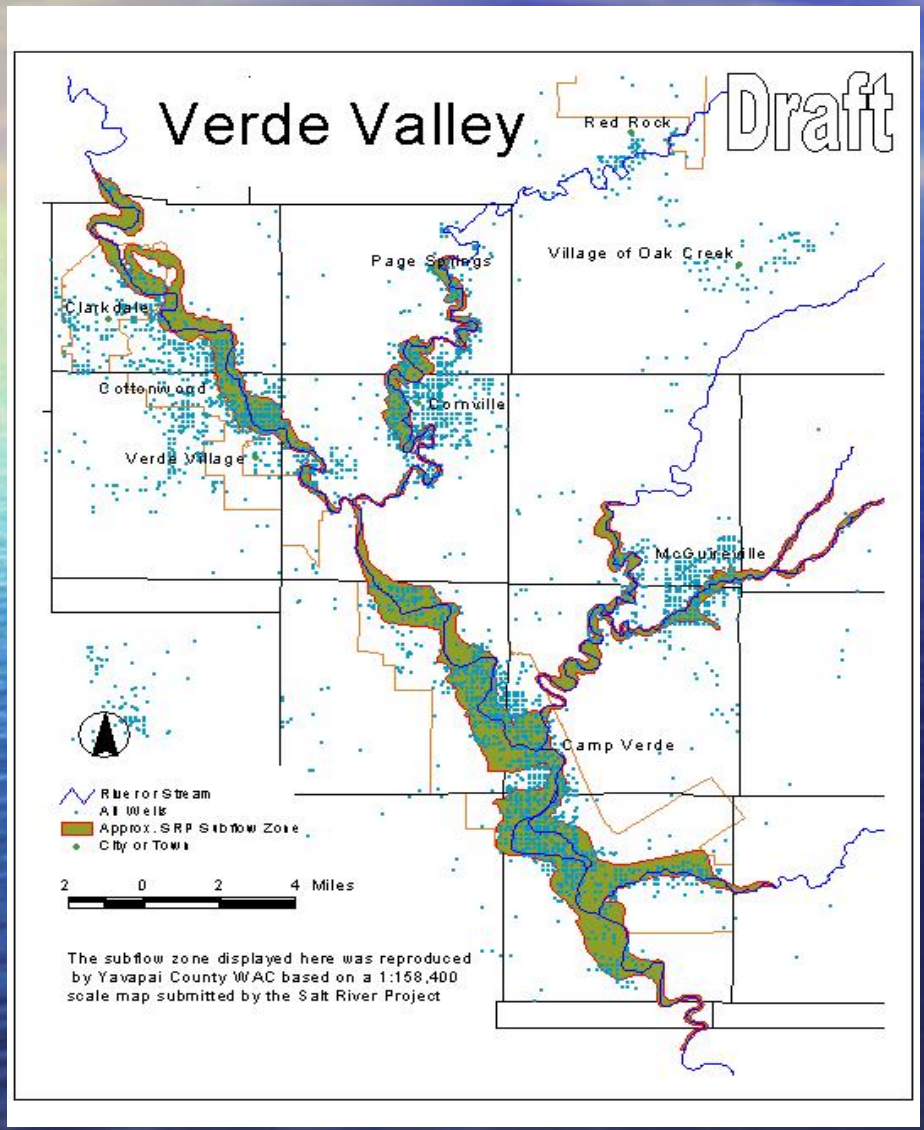


Question 1A. What are the water resources problems of your region? 1B. What types of water resources problems are related to population growth?

- ***A.*** Unknown safe aquifer storage (pumping w/o affecting Verde River)
- Impact of exempt wells (17,000)
- Water rights uncertainty (adjudication)
- Lack of consistency in current water management policy
- Lack of regional management policy
- Data gaps prohibiting completion of dynamic system model.
- Water quality (As)

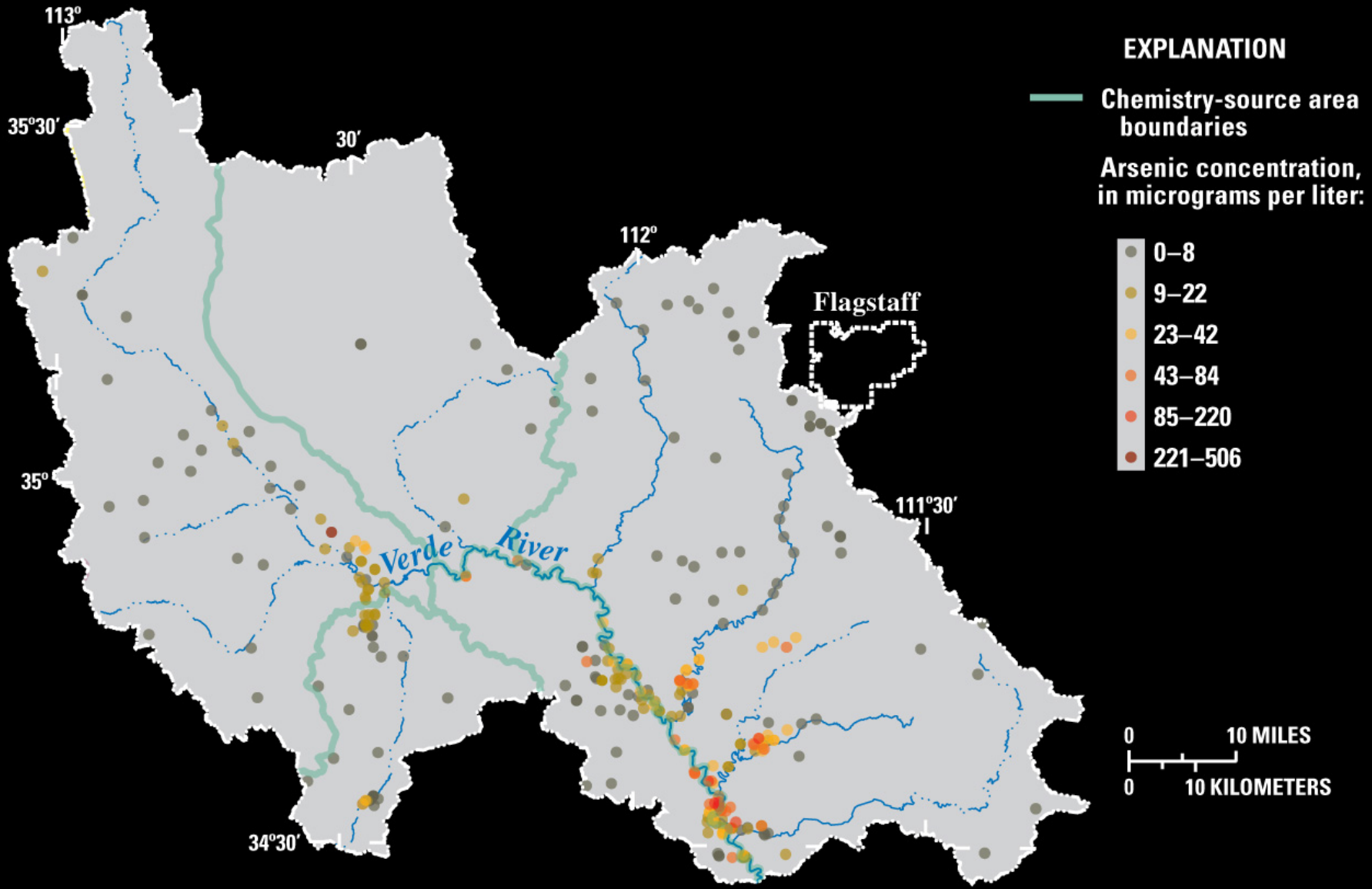
- ***B.*** Increased demand
- Pressure to acquire additional and expensive resources
- Competition for water supplies (one community vs. another)
- Expanded water conservation activities
- Protection of recharge areas.

Gila River Adjudication



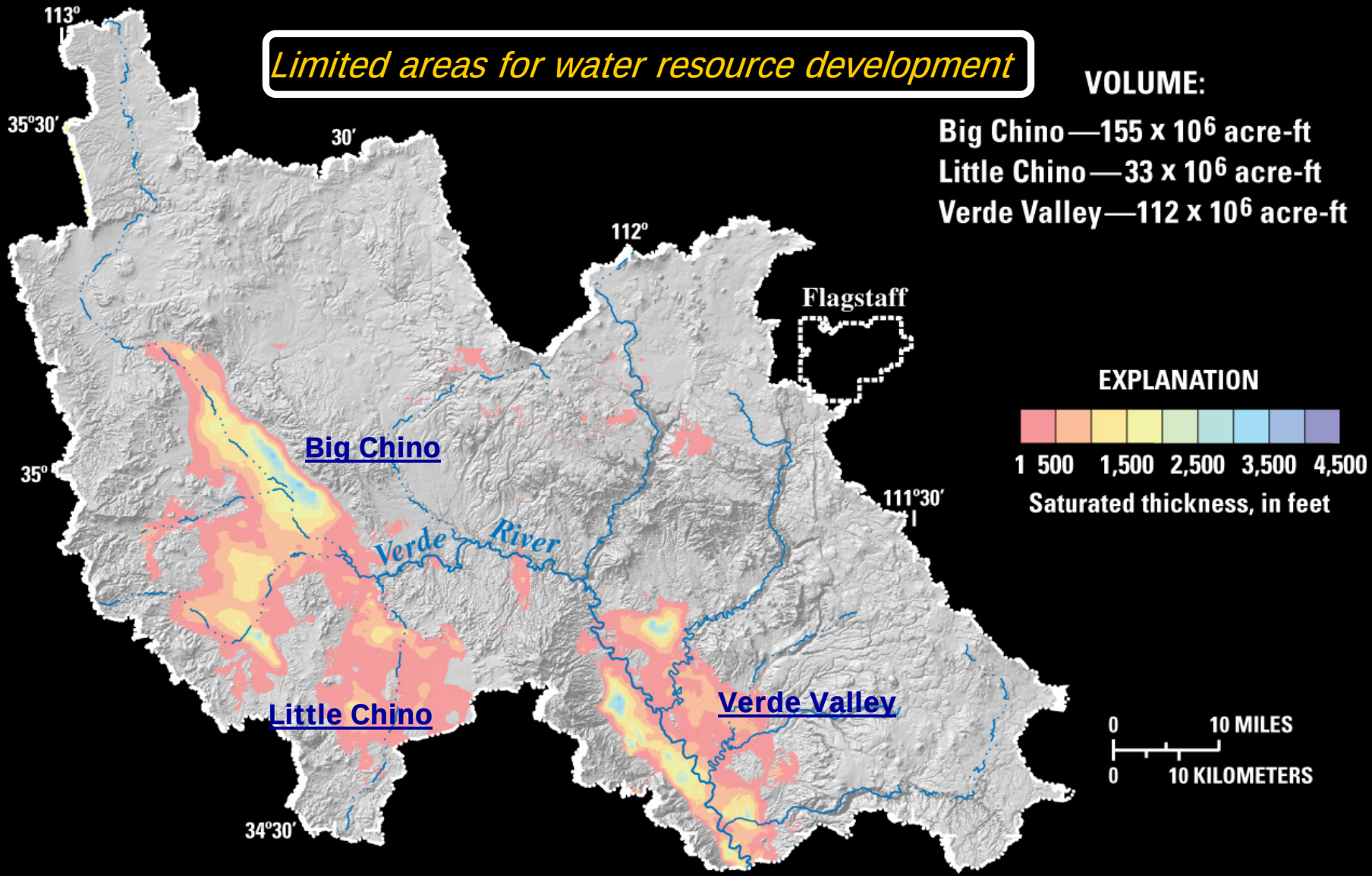
Uncertainty with potential subflow, cone of depression and de minimus rulings.

ARSENIC DISTRIBUTION IN GROUND WATER



THICKNESS AND VOLUME OF CENOZOIC SEDIMENTS AND VOLCANIC ROCKS

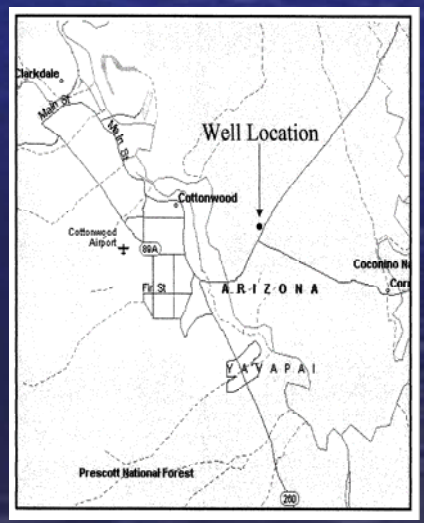
Limited areas for water resource development



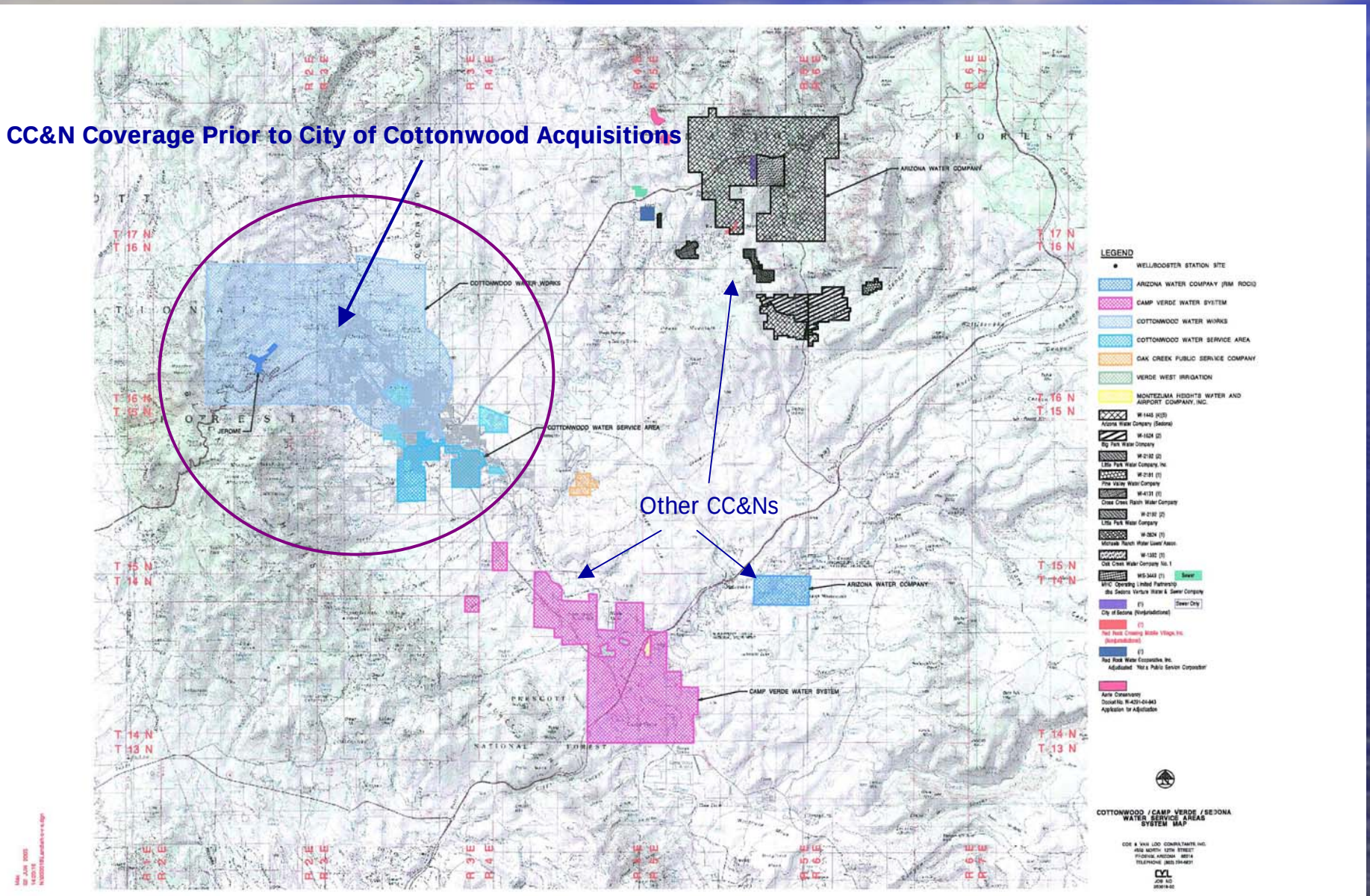
Well Interference Example

The step-test proceeded for approximately 60 minutes before an air-rotary drill rig that was drilling a new well approximately 100 yards from the site began daily drilling activities. The adjacent drilling activities started at approximately 07:10, and directly impacted the aquifer being tested. When the rig began injecting air, the water level in the Bill Grey Road Well initially rose quickly, than dropped quickly as water was being airlifted from the nearby borehole. Other substantial water-level changes were noted as the adjacent drill rig powered its air compressor on and off when making connections. Within an hour of the start of adjacent drilling activities, drilling foam that had been injected at the adjacent borehole was being pumped from the discharge line of the Bill Grey Road Well. The sand content in the discharge water of the Bill Grey Road Well had decreased considerably during the initial hour of pumping, but increased dramatically in response to drilling activities at the adjacent drill site. The sand invasion eventually clogged the flow meter, at which point the test was terminated. Sand content in the discharge water from the Bill Grey Road Well exceeded 120 milliliters per liter (ml/l) prior to test termination.

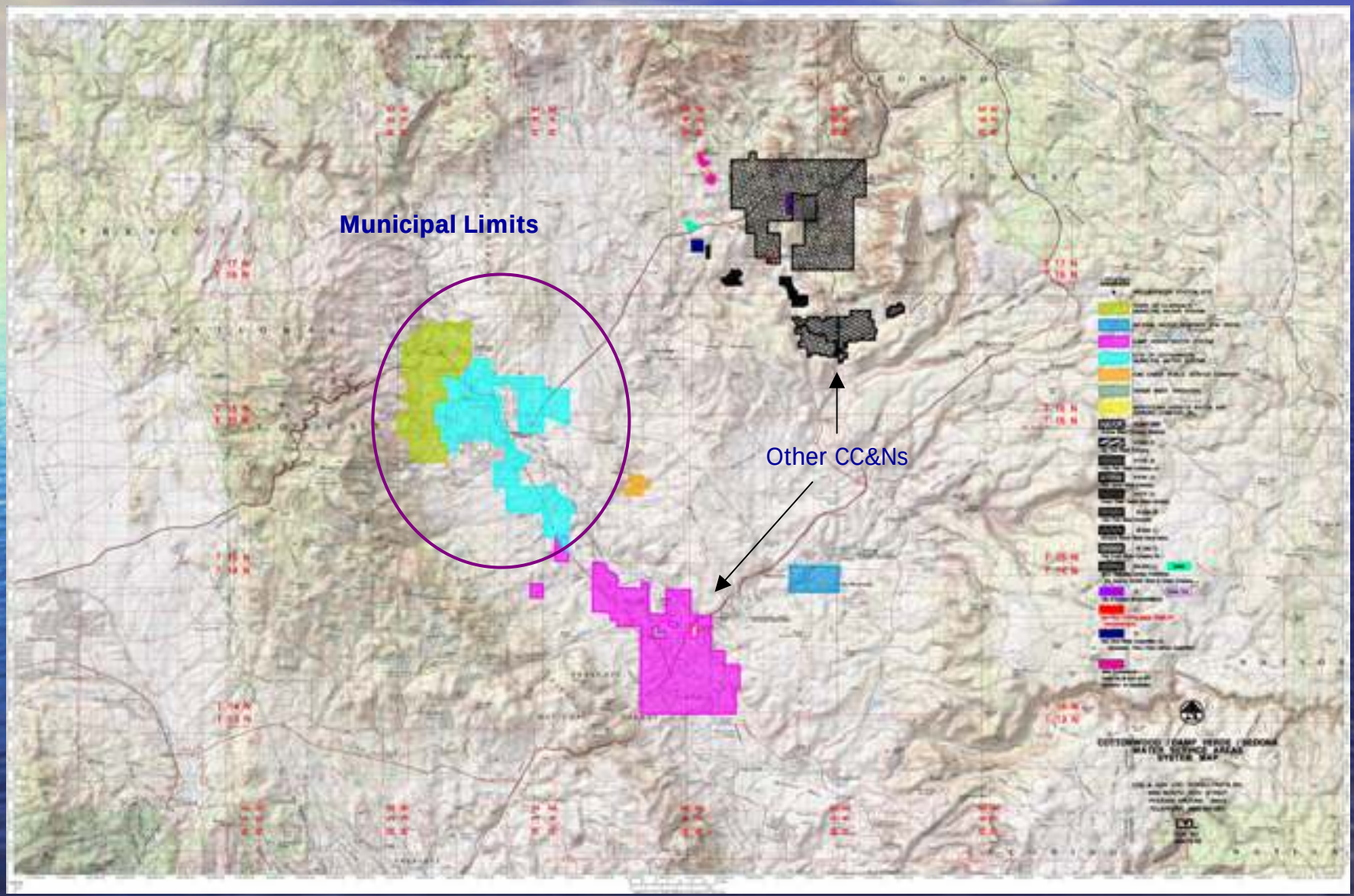
Although the majority of the drawdown data collected are not valid due to the effects of the adjacent drilling activities, data collected during the first hour of pumping indicates favorable water production



City of Cottonwood Water Resource Area Conflicts



After Acquisitions; CC&N areas dissolved



Question #2. What actions have been taken by local and county governments, districts, water providers, public partnerships or other entities to address the regional water issues?

- Acquisition of private water companies by municipalities (Cottonwood & Prescott Valley) allowing interconnections and more effective distribution management,
- Establishment of regional water advisory groups including Yavapai County WAC, NAMWUA, etc.
- Coordinated efforts by communities to track and participate in adjudication process.
- Adoption of strategic water plan, drought management and water conservation plans to guide water use and resource development policy. (Cottonwood and AMA's)
- Development of alternative water supplies (AMA communities)

Private Water Company Acquisitions – Cottonwood & Prescott Valley

Cottonwood Utility System Details:

Clemenceau, Cordes Lakes and Verde Santa Fe acquisitions completed October 20, 2004 Through Uncontested Condemnation

Cottonwood Water Works acquisition completed January 24, 2006 Through Asset Purchase

Water System Customer Base = 9,650

City of Cottonwood – Infrastructure & Project Costs

- Water System
  - Acquisition Costs $25M
  - Obtained Approximately 95 Miles of Water Line, 32 Wells and 20 Storage Tanks
  - System Modeling/Capital Study/WaterCad Model Software $200,000
  - Arsenic Study, Well Production Testing and Arsenic Remediation Plan $250,000. Arsenic Removal Costs Approximately $3M (Under Construction).
  - Valve Locator and Mapping Study $165,000
  - Exercised All Valves in System
  - Reservoir Cleaning and Inspection of All Twenty Storage Tanks $32,000
  - Acquisition of Two Wells and Modification of Two Wells
  - Highway 260 Storage, Booster and Line Improvement Study $35,000
  - 1000 Meter Replacements
  - Replaced 25 defective main line valves
  - Installed 2,000 Feet of 8” Main Line Pipe to Increase Fire Flow
  - Replaced Two Master Booster Pumps and Motors to Increase Efficiency

Examples of Cottonwood Water Reuse/Recharge

Del Monte Recharge Project -- Before and After

Cottonwood Airport Reuse

Wastewater Recharge and Reuse Facts

Nearly all effluent goes to Del Monte Recharge; approximately 0.64 MGD or 2,500 AF since project inception.

Monitor wells rose nearly 70’ during first two years and have held constant.

Cottonwood Ranch uses 25,000 GPD reuse.

Contractors average 20,000 GPD reuse for dust control.

Water Groups in Yavapai County

Arizona Department of Water Resources – Rural Watershed Initiative or GW Management

Upper Agua Fria Watershed Partnership

Prescott AMA – GUAC

Prescott AMA – GUAC Safe Yield Subcommittee

Prescott AMA – GUAC Safe Yield Subcommittee -TAC

Yavapai County Board of Supervisors

Yavapai County Water Advisory Committee

Yavapai County Technical/Administrative Committee

Cities and Towns

Verde Valley Natural Resources Committee

Upper Verde Watershed Protection Coalition (tentative)

Clarkdale Water Advisory Committee

Grass roots organizations

Verde Watershed Association

Verde Basin Partnership (ad-hoc)

Verde River Citizens Alliance

Citizens Water Advocacy Group

North Central Arizona Watershed Consortium (12 groups)

- Oak Creek Canyon Task Force
- League of Women Voters
- Sierra Club
- Stoneman Lake Property Owners
- Prescott Creeks Preservation Association
- Stewards of Public Lands
- Hyde Mtn Vista Assoc.

ADWR

Citizen's Group

Government Appointed Group

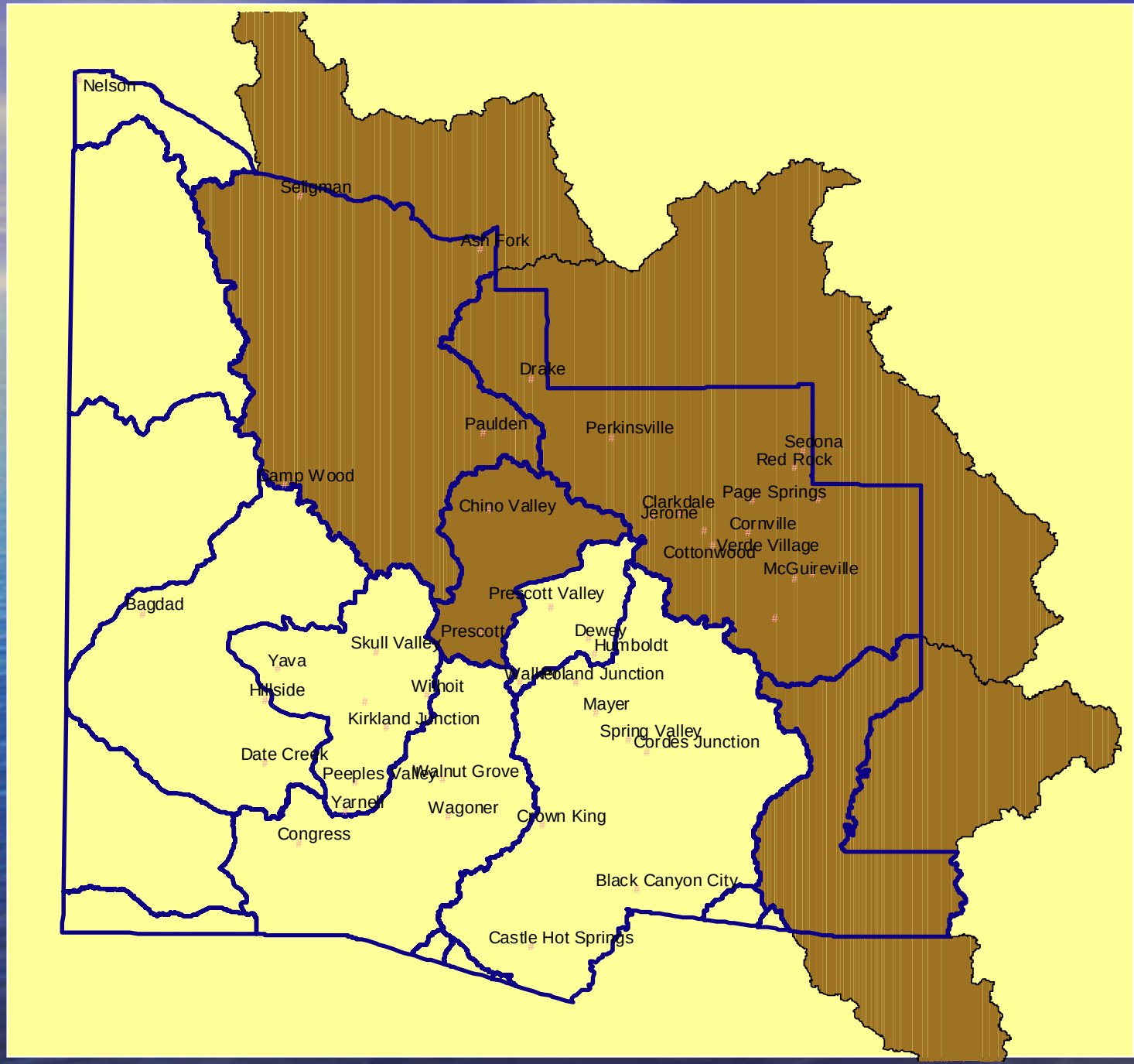
Mix of Agencies and Citizens (Stakeholders)

Question #3. What obstacles or barriers block the local and county governments, districts, water providers and other public entities from addressing the regional water issues?

- Lack of regulatory framework offering protection of resource inhibits planning.
- Lack of County authority to evaluate development on the basis of water availability.
- Inadequate funding for major studies and projects.
- Inability to proceed with interbasin transfer projects.

Question #4A. What do the water users want from local water providers? B. What do the water providers need to meet the needs of the public? C. What is needed by the local and county governments and other public organizations to address the identified water issues?

- A. Dependable supply of high quality water…
- Delivered at the lowest possible cost…
- By an efficiently operated utility…
- For an indefinite period of time
- B. Water Resource Management Plan
- Regional cooperation
- Water Conservation/Drought Management Plans/Water Budget
- Understanding of regional aquifer system
- Ability to manage water demands – require new growth to bring new water
- C. Protection of resource boundary
- Ability to transfer water
- Consistent approach to water management throughout basin

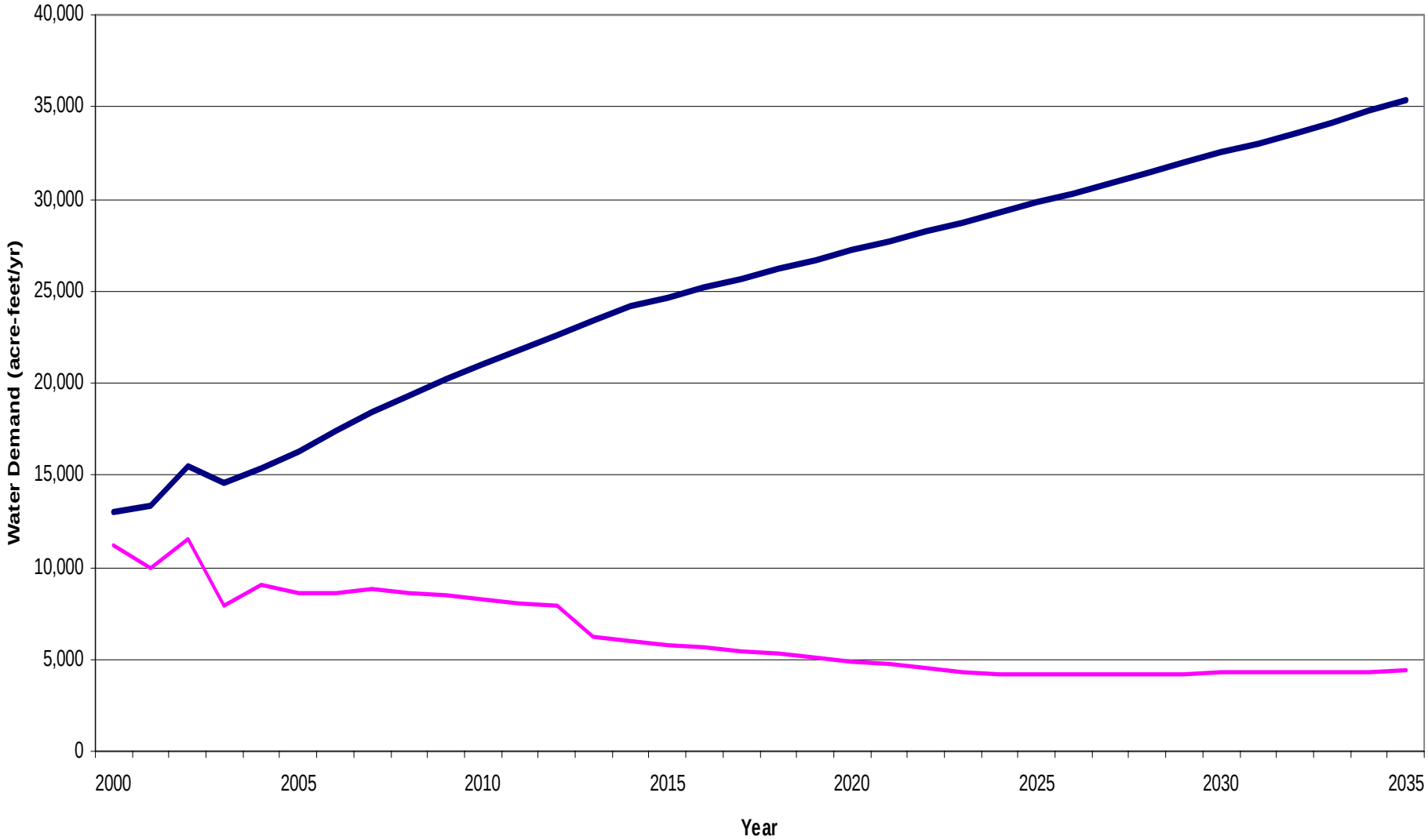

Nelson
Seligman
Ash Fork
Drake
Paulden
Perkinsville
Sedona
Red Rock
Camp Wood
Page Springs
Chino Valley
Clarkdale
Jerome
Cornville
Verde Village
Cottonwood
McGuireville
Prescott Valley
Bagdad
Prescott
Dewey
Humboldt
Skull Valley
Yava
Walnut Grove
Wilhoit
Hillside
Mayer
Kirkland Junction
Spring Valley
Cordes Junction
Date Creek
Peeples Valley
Yarnell
Wagoner
Crown King
Congress
Black Canyon City
Castle Hot Springs

Question 1. What are the water resources problems of your region? What types of water resources problems are related to population growth?

- ***A.*** Uncertain pumping impacts and mitigation requirements
- impact of exempt wells (10,000+ in AMA)
- lack of consistency in current water management policy
  - Within AMA
  - In neighboring Big Chino

- ***B.*** Increased demand
- pressure to acquire additional and expensive resources
- competition for water supplies (one community or user vs. another)
- expanded water conservation activities
- Identify, protect and enhance recharge areas ahead of growth.

Prescott AMA Water Demand



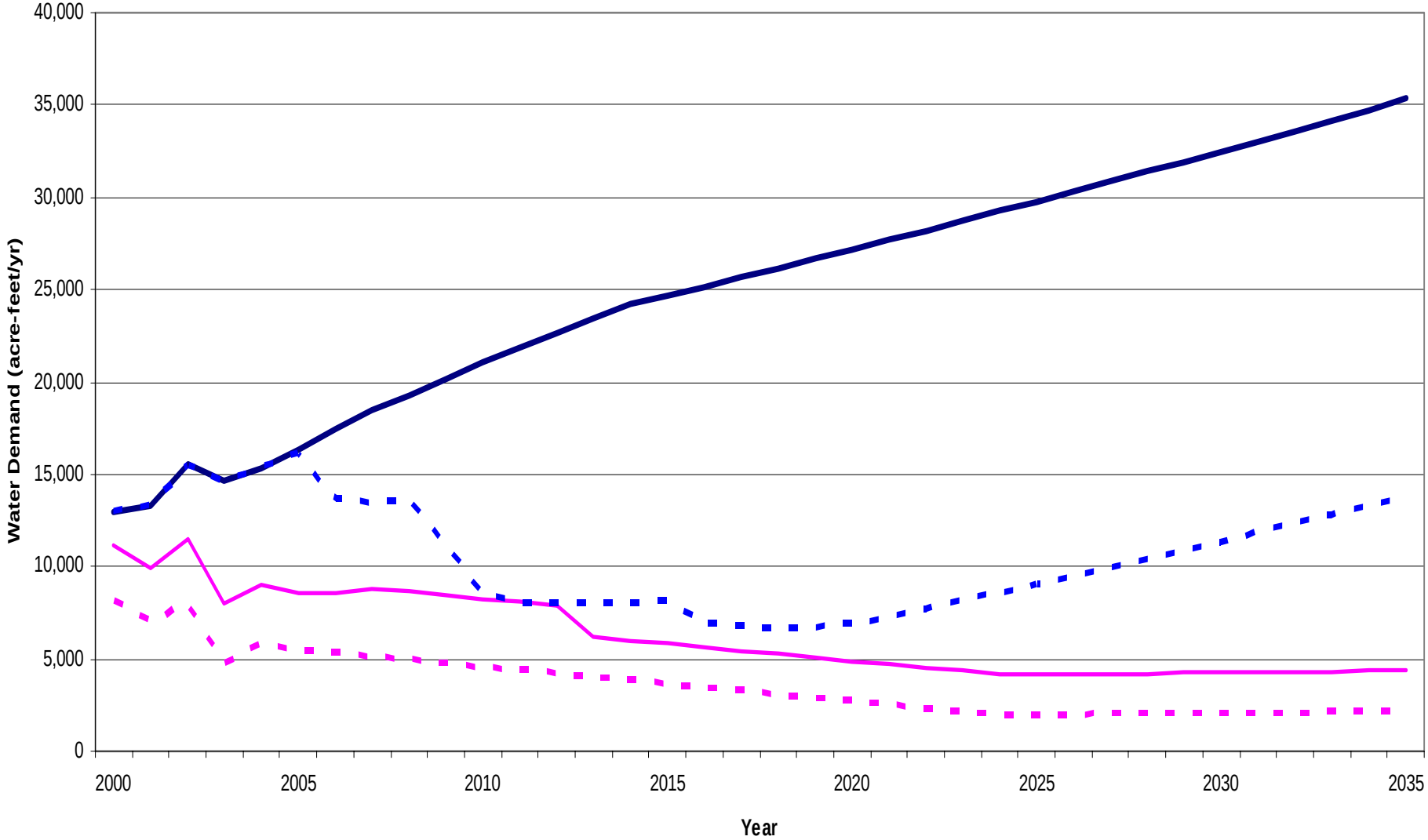
Question #2. What actions have been taken by local and county governments, districts, water providers, public partnerships or other entities to address the regional water issues?

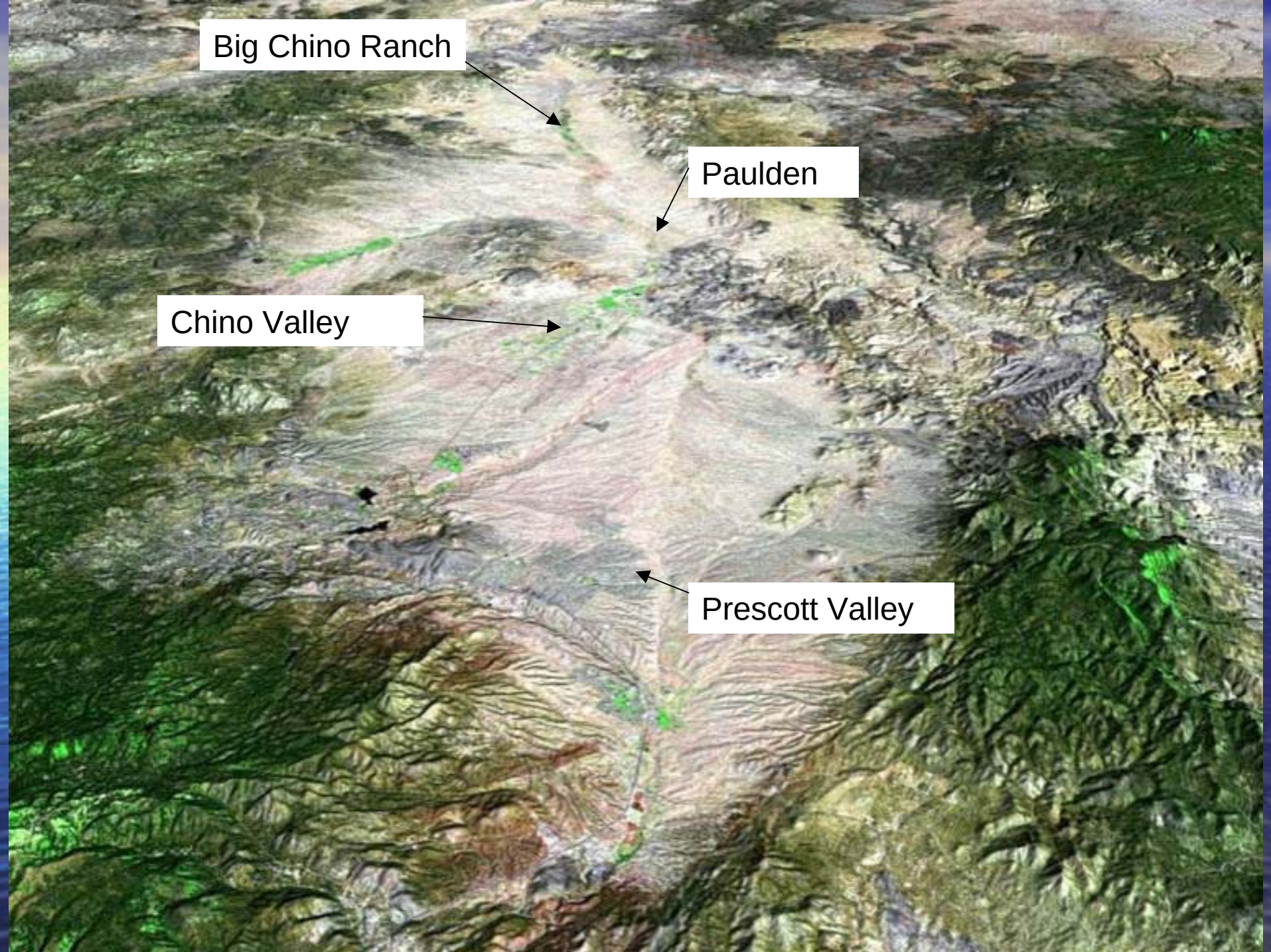
- Acquiring private water companies by municipalities (Chino Valley & Prescott Valley) allowed for better water management through more robust planning and control
- Establishment of AMA water advisory groups including GUAC Safe Yield Task Force, Upper Verde Watershed Protection Coalition (under consideration).
- Adoption of strategic water plan, drought management and water conservation plans to guide water use and resource development policy.
- Development of alternative water supplies (AMA communities)
  - Prescott, Prescott Valley, Chino Valley are all recharging effluent, and using effluent on Golf Courses
  - All three communities are exploring plans to import water from the Big Chino
  - Prescott purchased CVID surface water rights

Water Companies

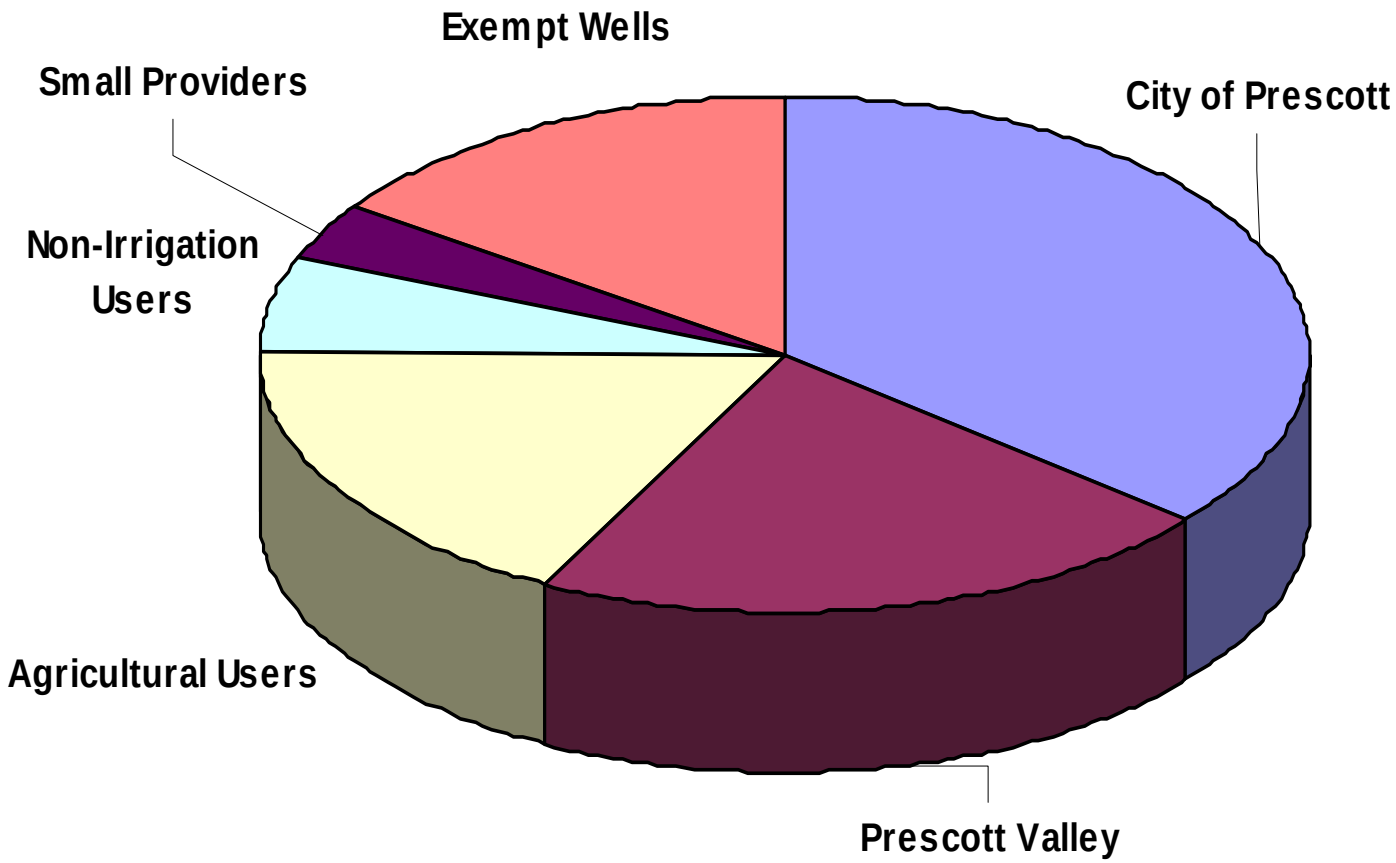
- City of Prescott – Water Service Provider since 1880's
- Town of Prescott Valley
  - 1992 - Construction of wastewater collection and treatment system – abandoned 5,000 Septics
  - 1996 – Effluent delivery system constructed
  - 1996 – Prescott Valley Municipal System
  - 1999 – Purchase of Shamrock Water Co. (now PV Water District)
- Town of Chino Valley
  - Purchased Water Service area 2003
  - Constructed WWTP 2004, Recharge Project 2005
  - Negotiating acquisition of 2 other Private Water Co's

Prescott AMA Water Demand w/ Alternative Supplies




Big Chino Ranch
Paulden
Chino Valley
Prescott Valley

Groundwater Pumping by Water Use Sector, Prescott AMA (2003)



Question #3. What obstacles or barriers block the local and county governments, districts, water providers and other public entities from addressing the regional water issues?

- Lack of regulatory framework offering protection of resource inhibits safe planning. (not all groundwater users are participating in Safe Yield goals)
- Significant AMA community investment in Big Chino is not protected under state laws
  - Importation to AMA must meet AMA requirements for Assured Water Supply, Well Spacing.
  - GW use in the Big Chino - law of the biggest pump
  - Lack of County authority to evaluate development on the basis of water availability.
- Inadequate funding for major studies and projects.

Question #4. What do the water users want from local water providers? What do the water providers need to meet the needs of the public? What is needed by the local and county governments and other public organizations to address the identified water issues?

- ***A.*** Dependable supply of high quality water…
- Delivered at the lowest possible cost…
- By an efficiently operated utility…
- For an indefinite period of time…
- Without impacting natural environments
- ***B.*** Regional cooperation
- Water Conservation/Drought Management Plans/Water Budget
- Understanding of regional aquifer system
- Require all new growth to bring alternative water
- ***C.*** Protection of resources and public investment in water resources
- Uphold ability to transfer water
- Consistent approach to water management throughout basin and in nearby basin


Questions/Comments?