

Engineering & Natural Resources Flood Control District

Board of Supervisors

Work Session

June 10, 2025

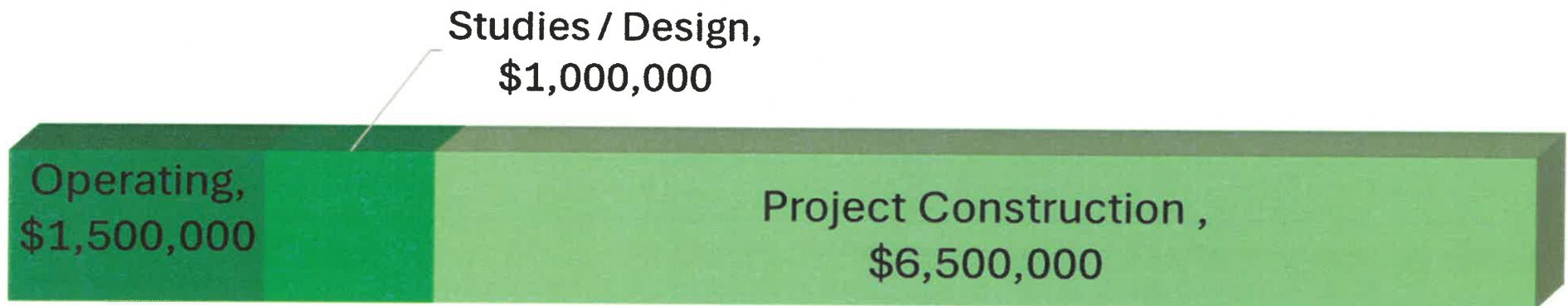
Jackie Watkins, P.E., CFM
Director / County Engineer

Current Understanding of Board FCD Strategy

- Prioritization of flood control projects that help minimize flooding.
- Reduce flooding impact to roads.
- Regulate Development in Flood Prone Areas.
- Spread projects throughout Cochise County.
- Cost effective and data driven.



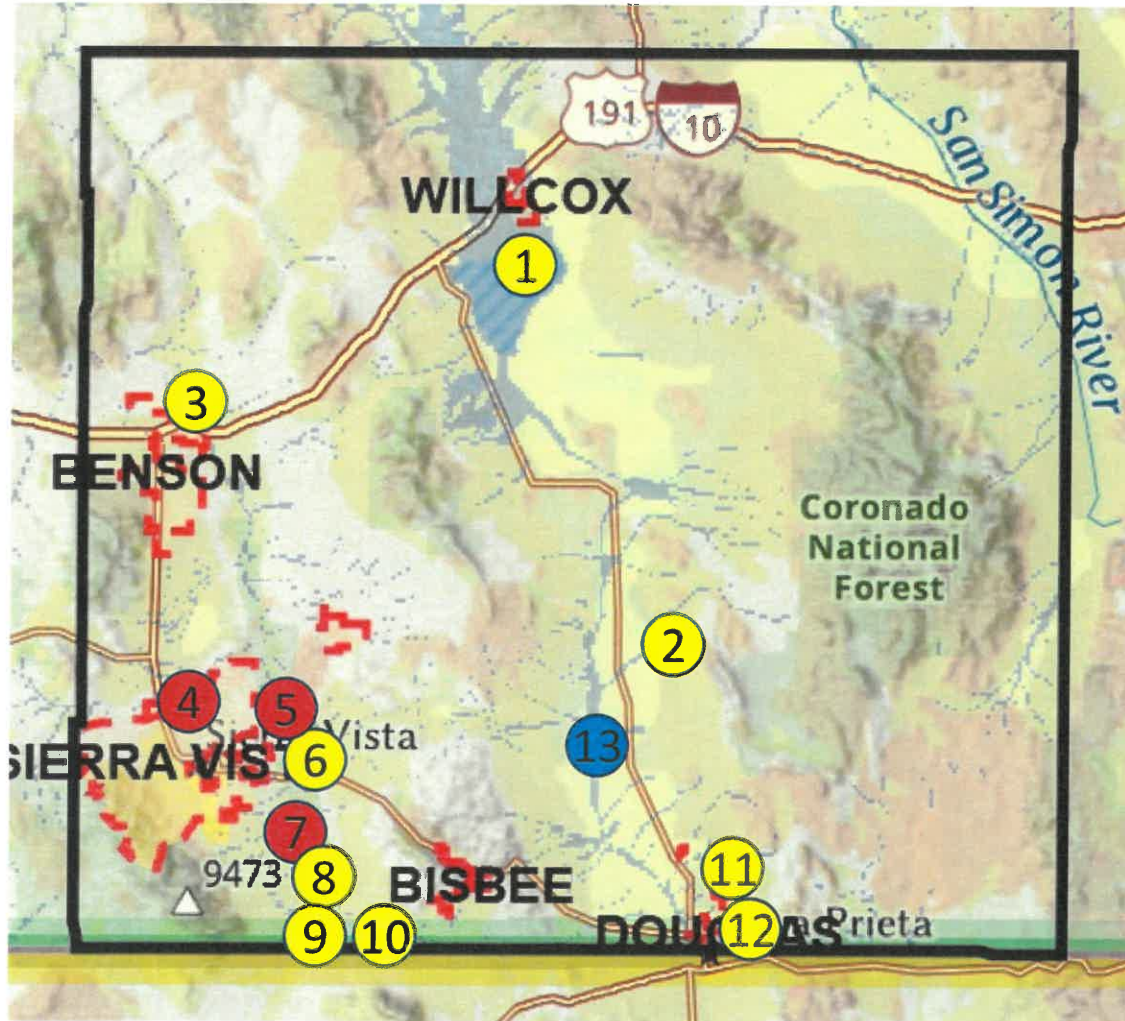
FCD Expenses



- **Operating Expenses**
 - National Flood Insurance Program (NFIP)
 - Municipal Separate Stormwater Sewer System (MS4)
 - Drainage Channel Maintenance
 - ALERT Gauges & Monitoring
 - Agencies
 - Cities
 - Natural Resource Conservation Districts (NRCD)

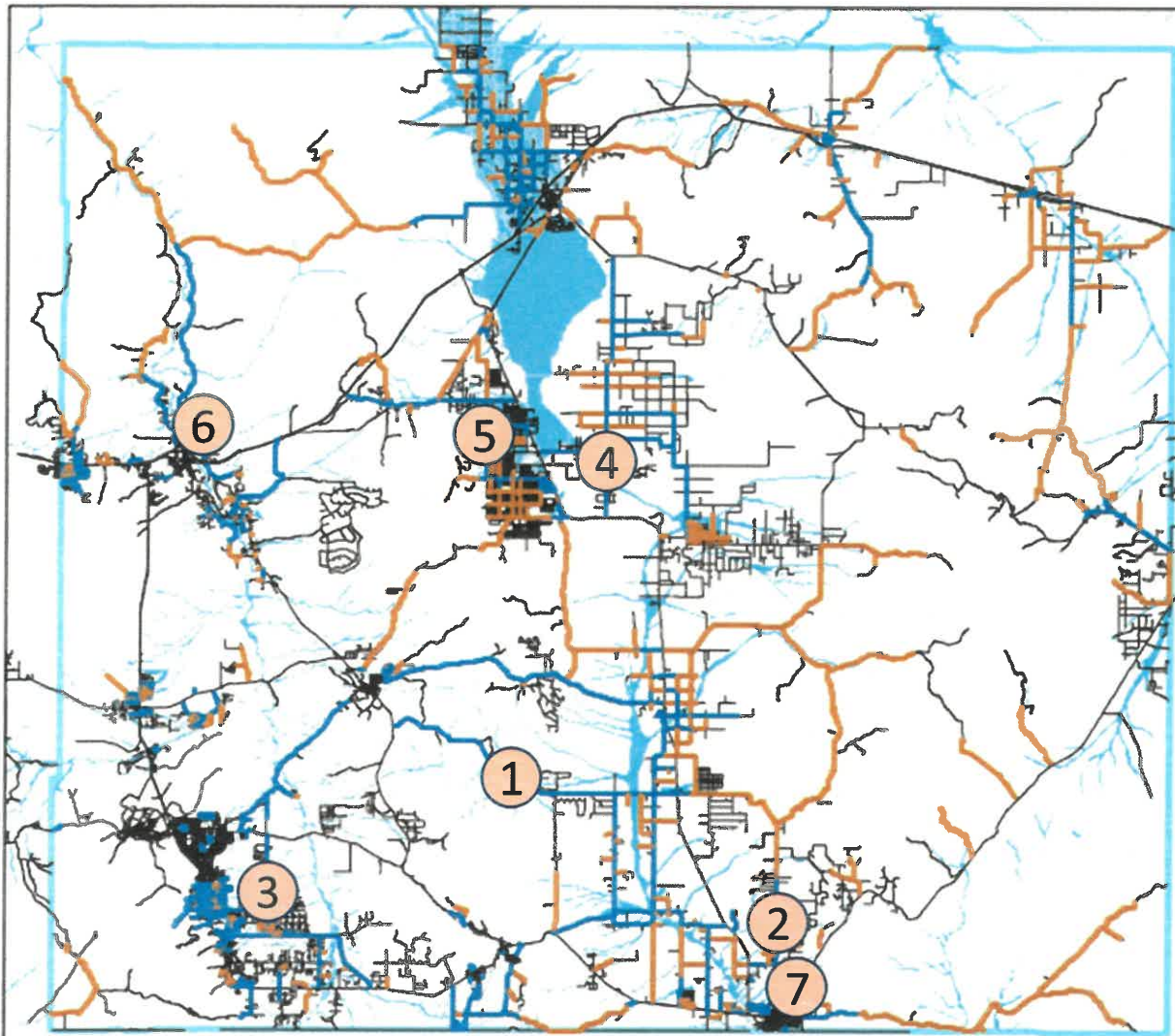
Project Locations

- Existing/ Planned Project
- *Potential Project*
- Removed Project



1. Willcox Basin Study
2. Rucker Creek Study
3. Pomerene Study
4. ~~Babocomari (removed)~~
5. ~~Riverstone (removed)~~
6. Coyote Wash
7. ~~Three Canyons (removed)~~
8. Palominas (maintenance only)
9. Horseshoe Draw (maintenance only)
10. Bisbee Effluent
11. Leslie Canyon Ponds
12. Bay Acres
13. *Douglas Basin Study (potential)*

Road ADT (Average Daily Traffic) and Flooding

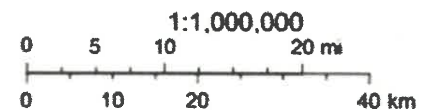


Potential FCD Projects Reduce Flooding of Road

1. Davis Road (1808)
2. Leslie Canyon Road (498)
3. Moson Road (4032)
4. Kansas Settlement Road (1941)
5. Cochise Stronghold Road (394)
6. Pomerene Road (1082)
7. Washington Ave (2121)

6/6/2025

County Maintained Road — Unpaved Flood Hazard Areas
— Paved — Road



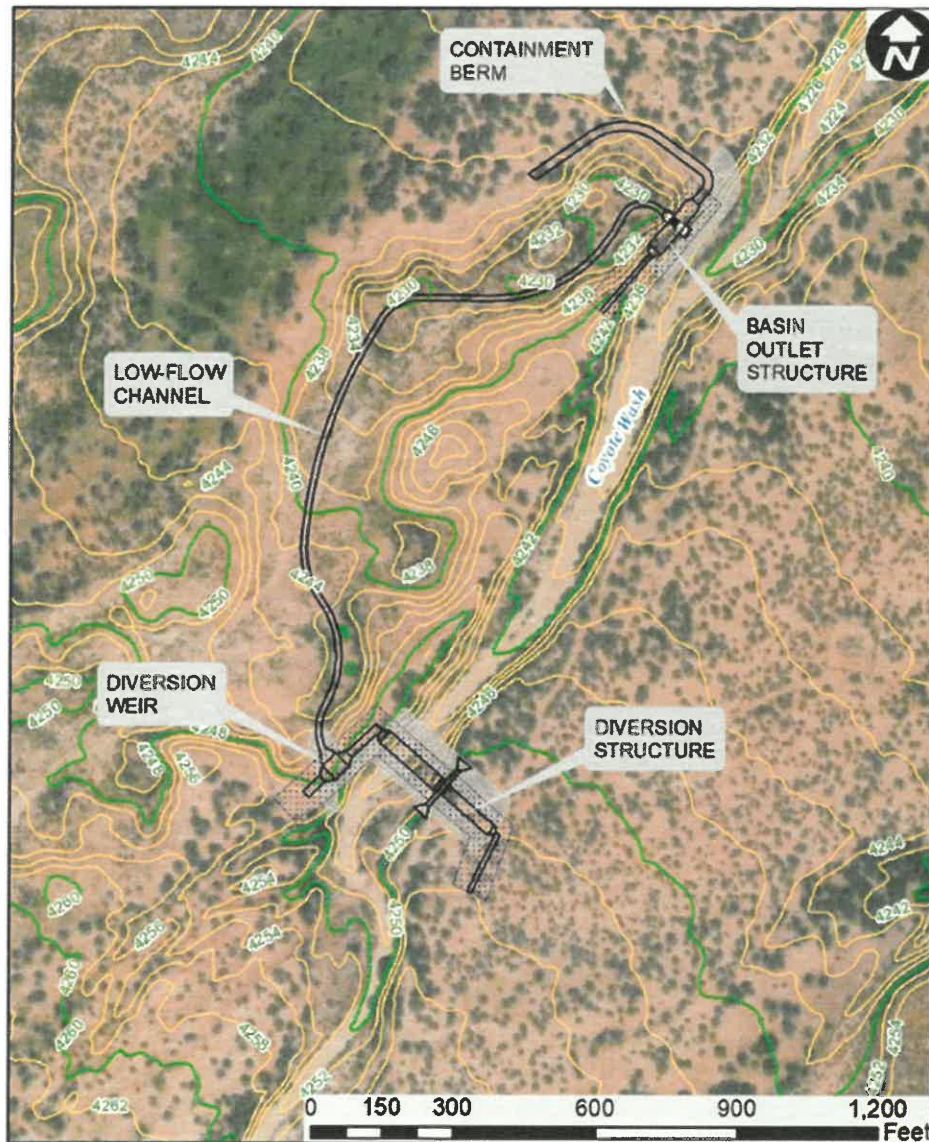
Coyote Wash



Citizen Benefits

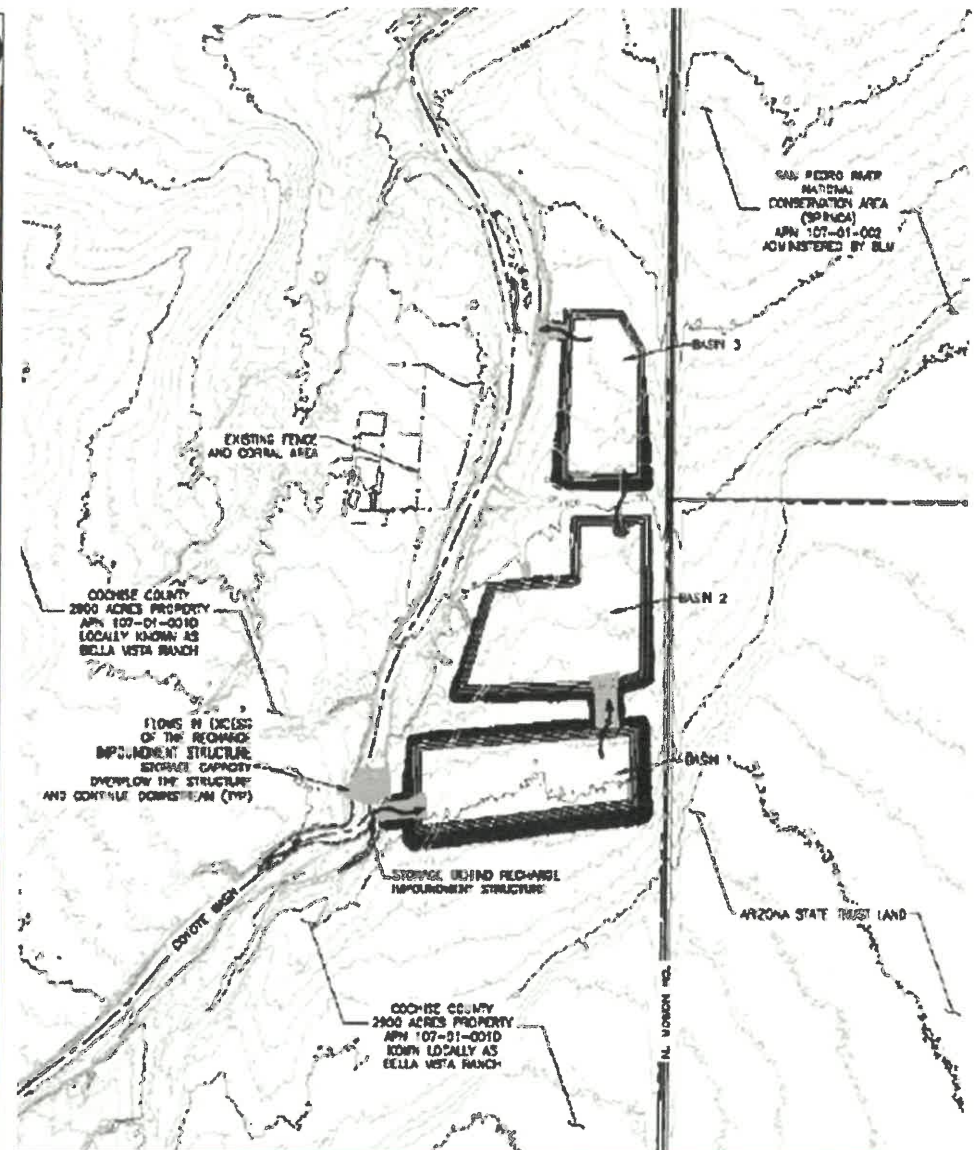
- Reduces flooding on Moson Road
- Reduce erosion
- Captures Urban Enhanced Runoff
- Restores stream hydrograph to pre-development flows
- Increase recharge to the aquifer.
- Supports Fort Huachuca's water management and conservation goals.

Coyote Wash



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Design



Plan Alternatives

Coyote Wash Geotechnical Evaluation

Figure 10. High Resistivity Zone (Plan-View).

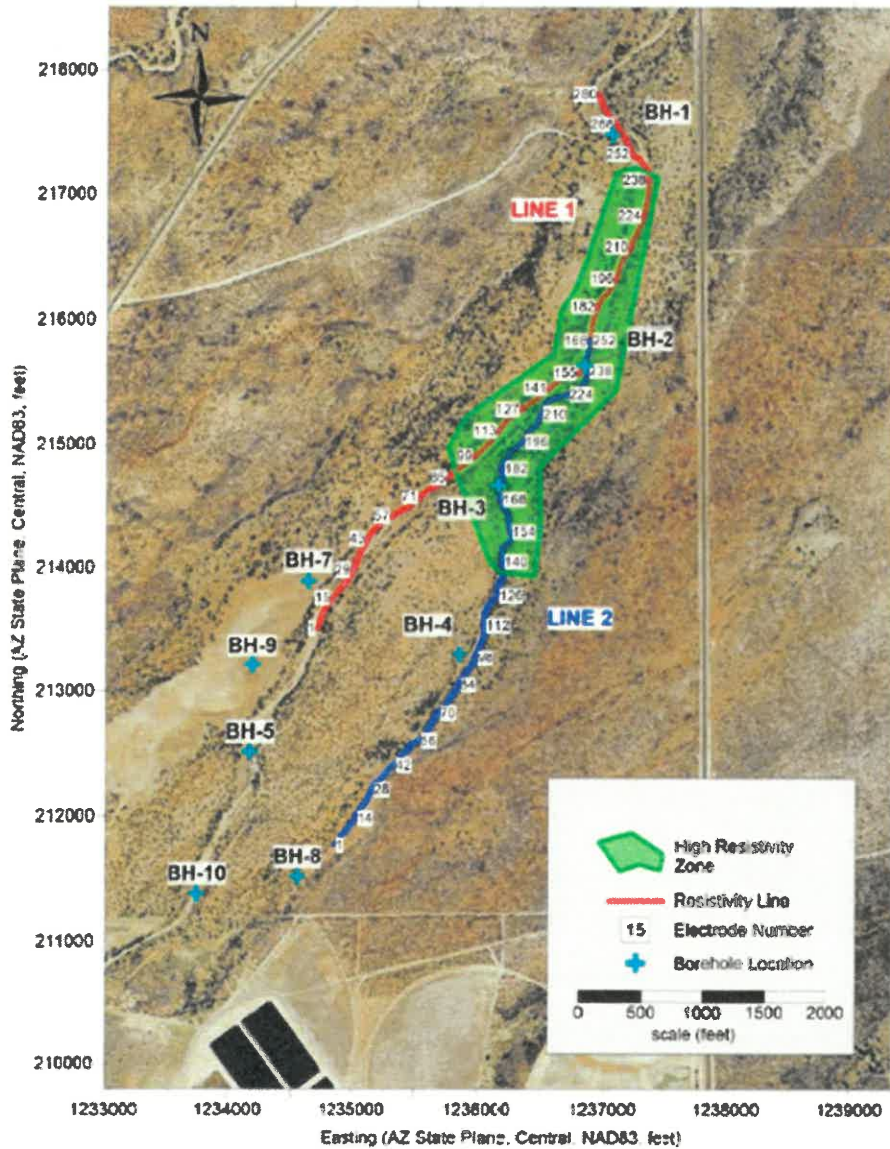
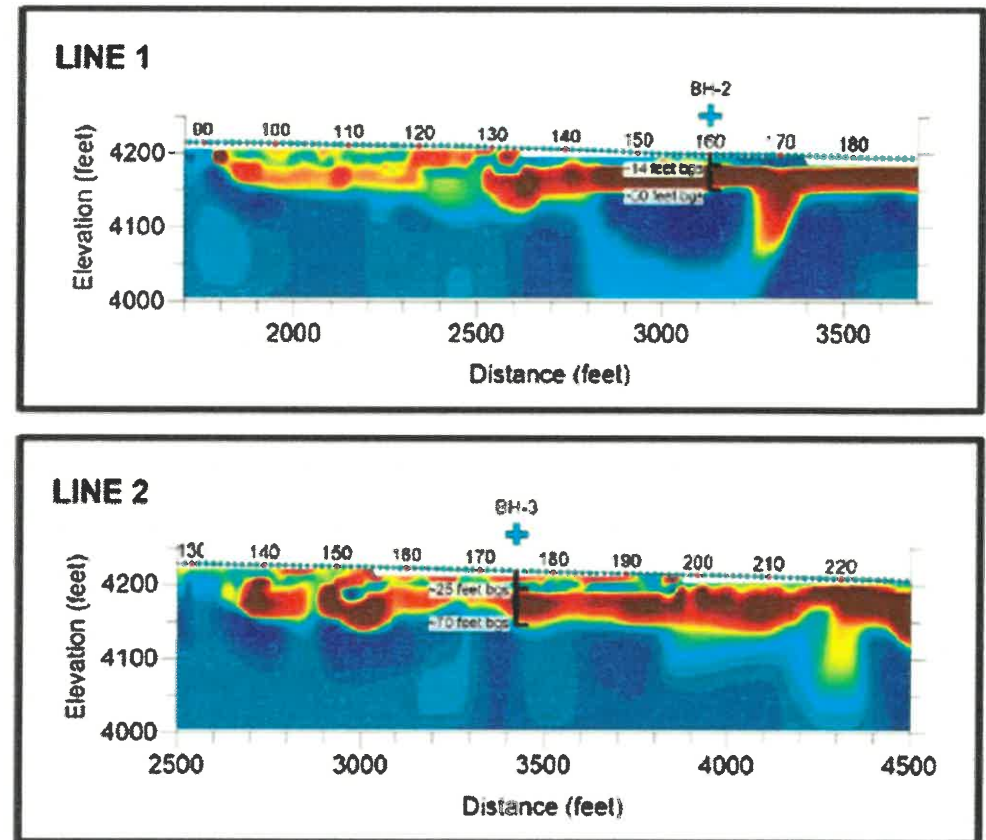
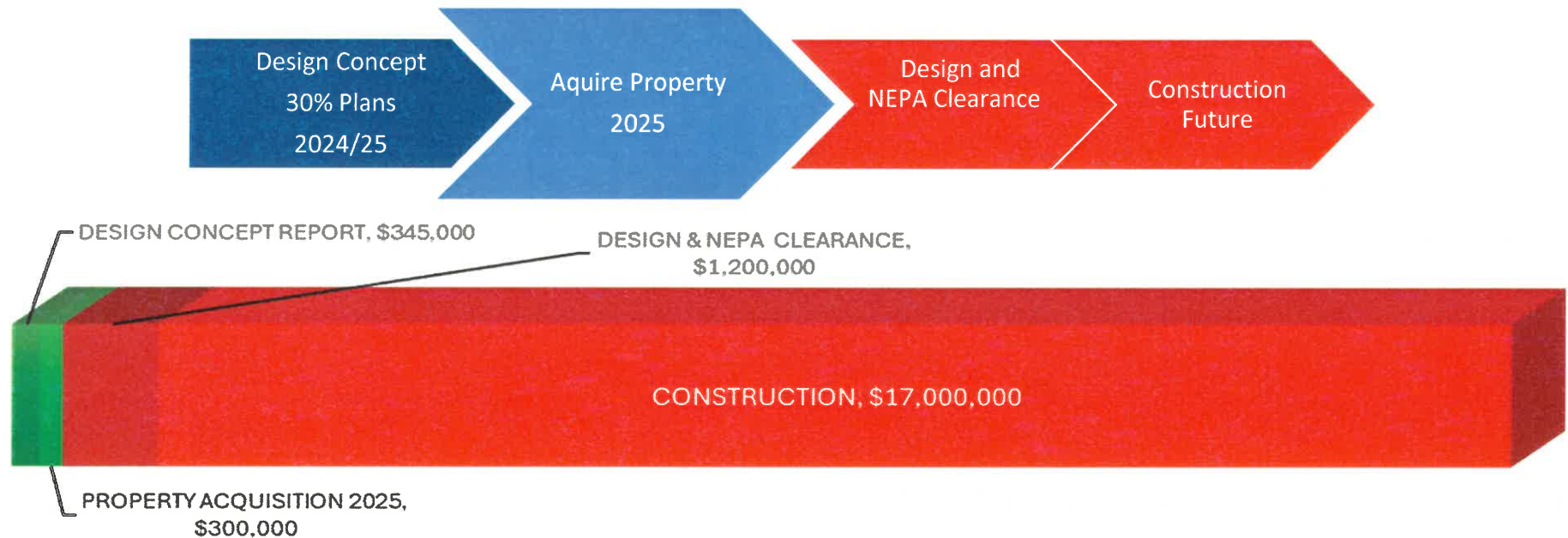


Figure 13. Zoomed View of Portions of Near-surface High Resistivity Zone.

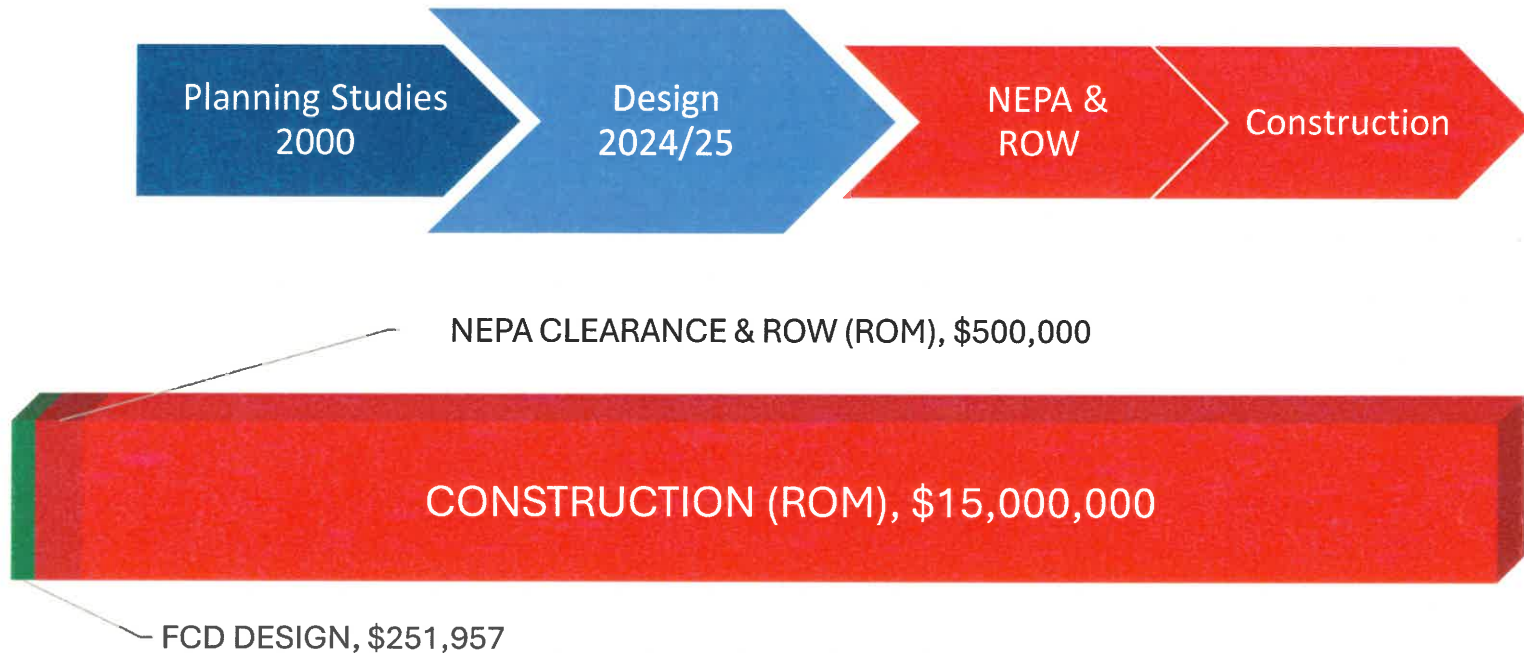


Bisbee Effluent



- **\$1.8M REPI Challenge Grant**
- Seed funds for Endowment
- Purchase of effluent
- Maintenance.
- Citizen Benefits
- Potential Grant will reimburse FCD
- Supports Fort Huachuca's water management and conservation goals.
- Recharge to the Regional Aquifer

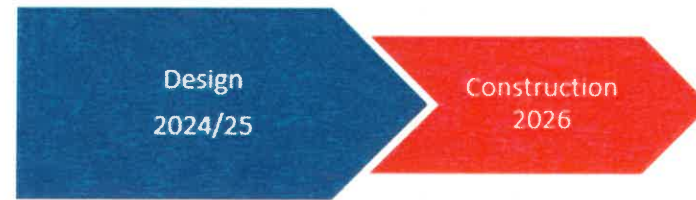
Bay Acres



Citizen Benefits

- Reduce flooding issues in Bay Acres Colonia
- Reduce flooding on Washington Avenue
- Reduce flooding to City of Douglas
- Increase Recharge to Whitewater Draw Aquifer.

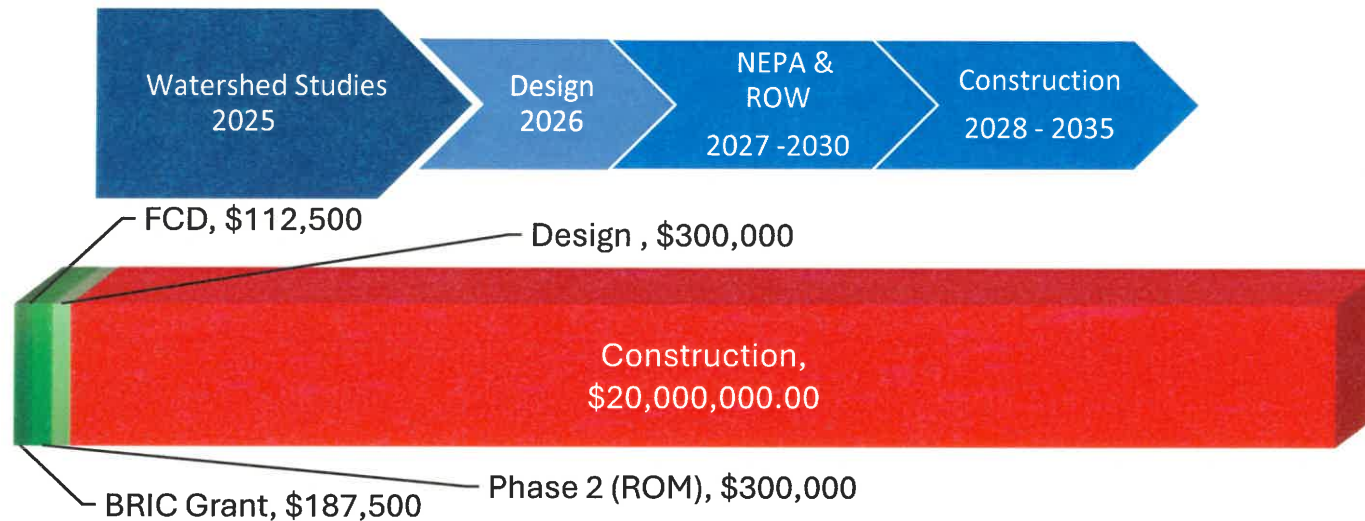
Leslie Canyon Pond



Citizen Benefits

- Remove from ADWR Jurisdictional Dam Designation
- Repair to berm
- Reduce downstream flooding to Leslie Canyon Road
- Reduce flooding to downstream residents
- Increase recharge to Whitewater Draw Aquifer

Willcox Regional Flood Mitigation and Groundwater Recharge Project

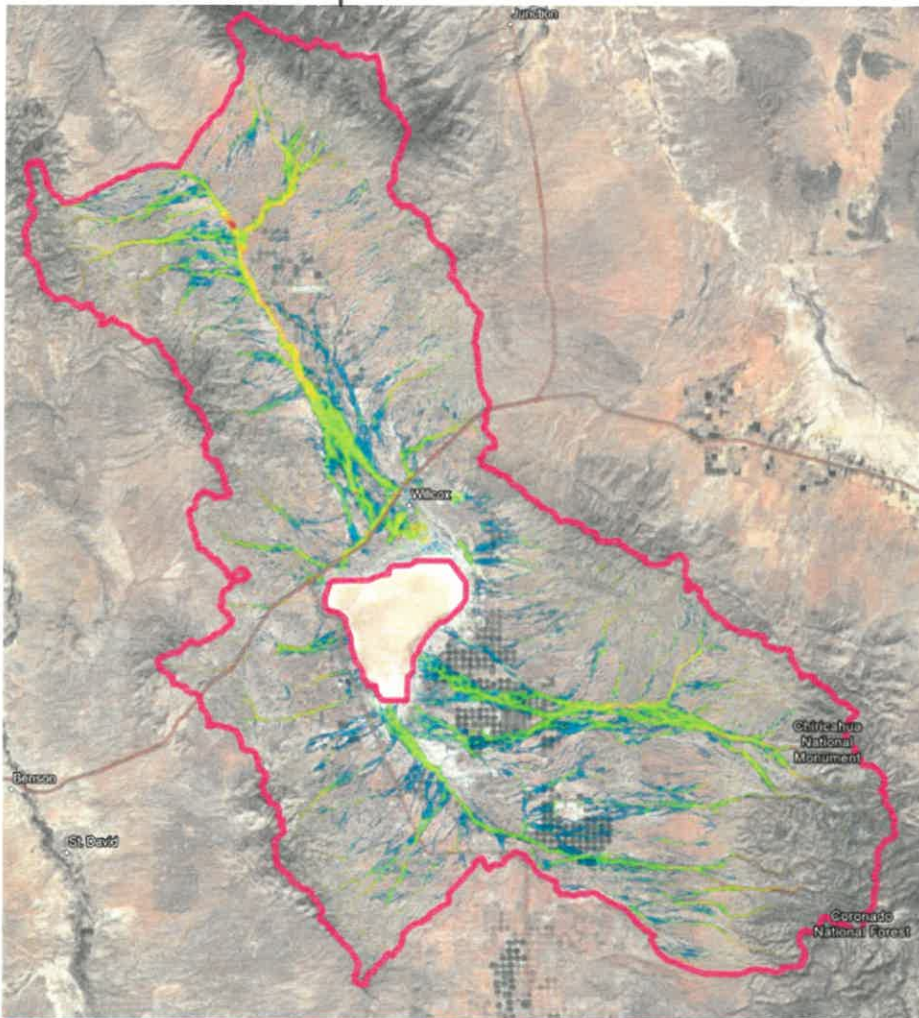


Citizen Benefits

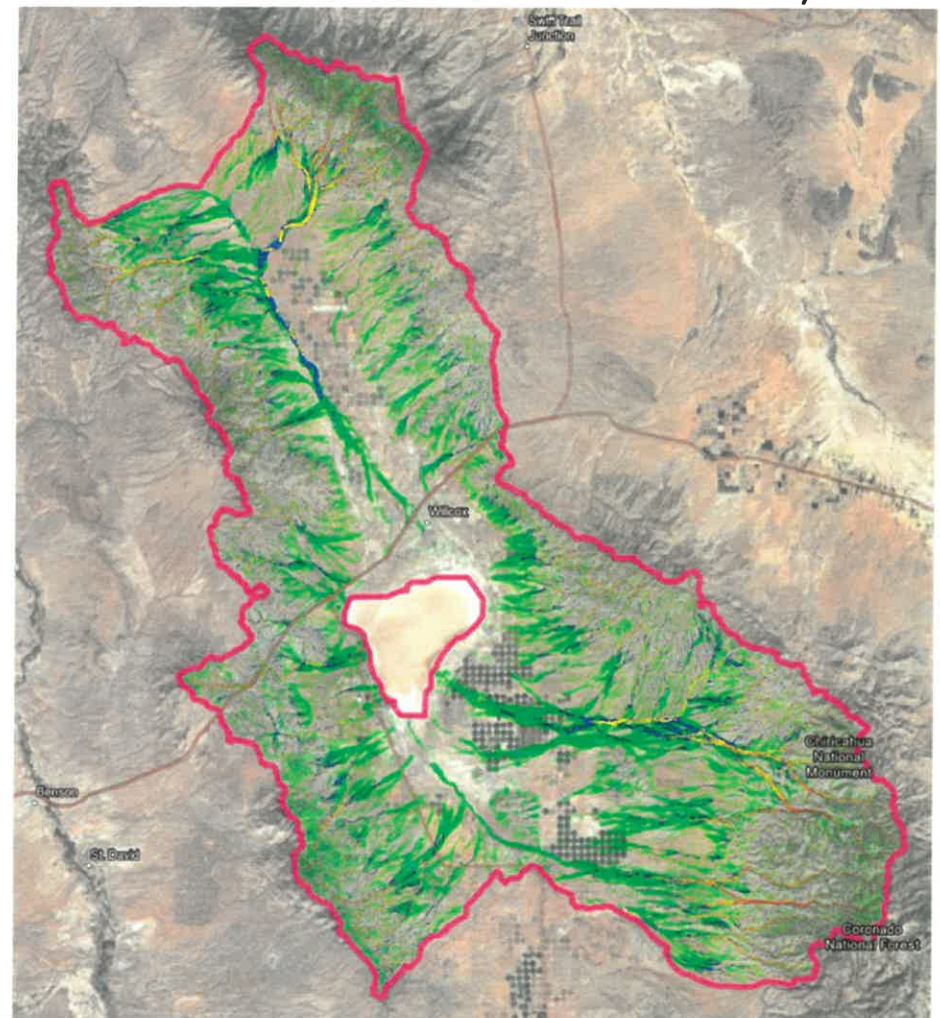
- Assess flood hazards of the 1,694 square-mile drainage basin
- Guide the design and implementation of multi-benefit infrastructure to decrease flooding
- Identify viable sources of stormwater for groundwater recharge
- Cost Effectiveness by identify effective locations for flood control structures with detention and infiltration basins

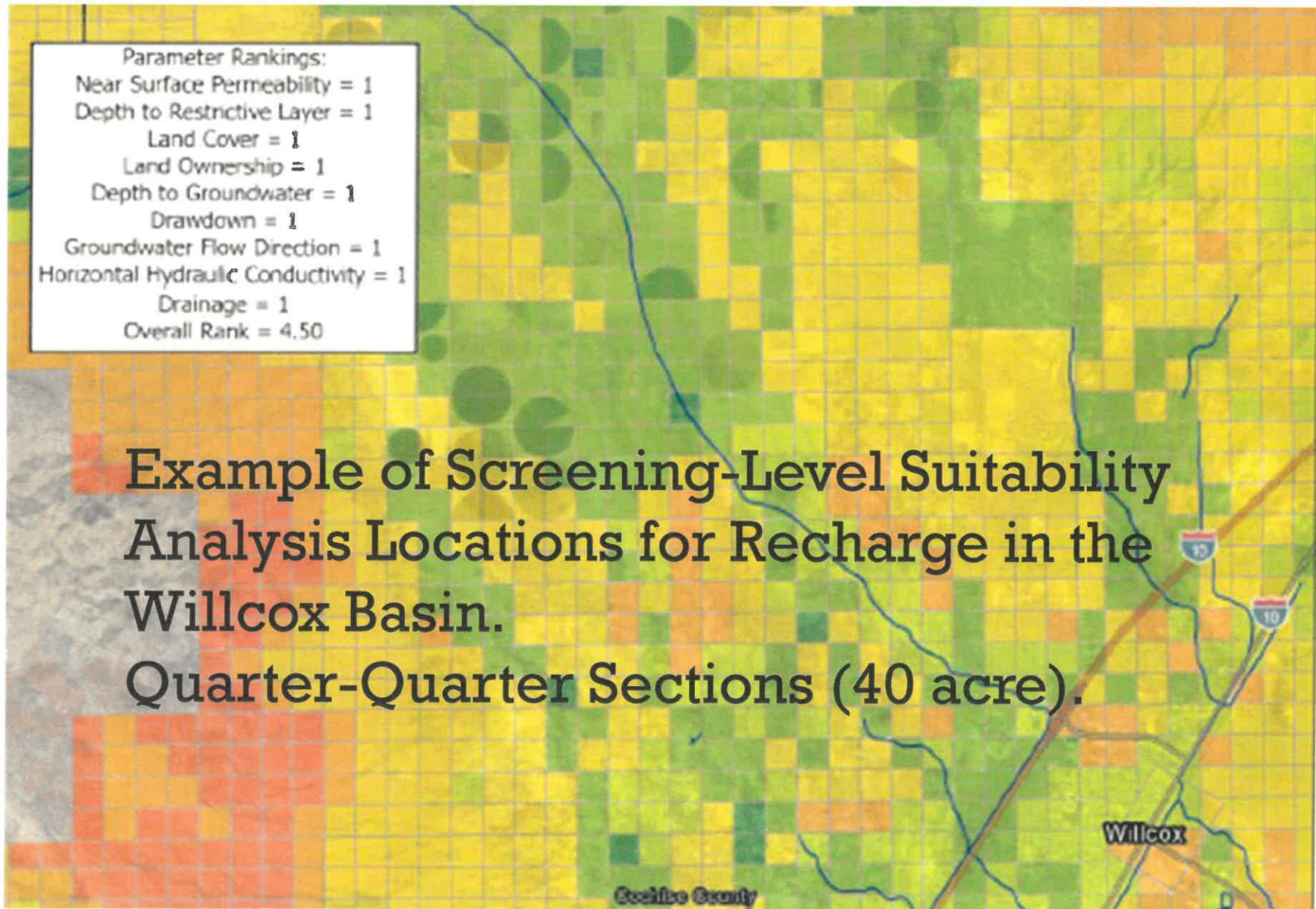
Willcox Watershed Basin Hydrology and Hydraulic Modeling

Flow Depth

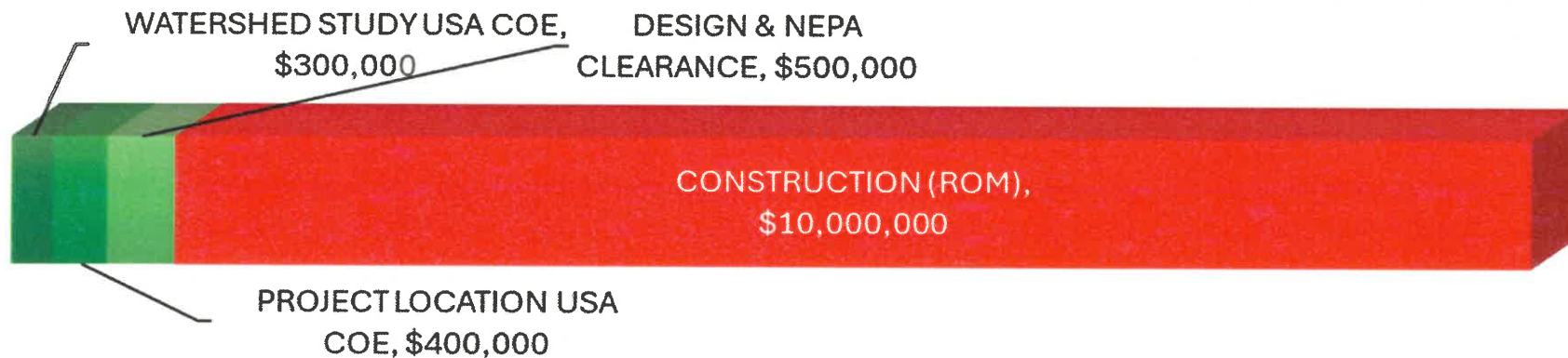


Flow Velocity





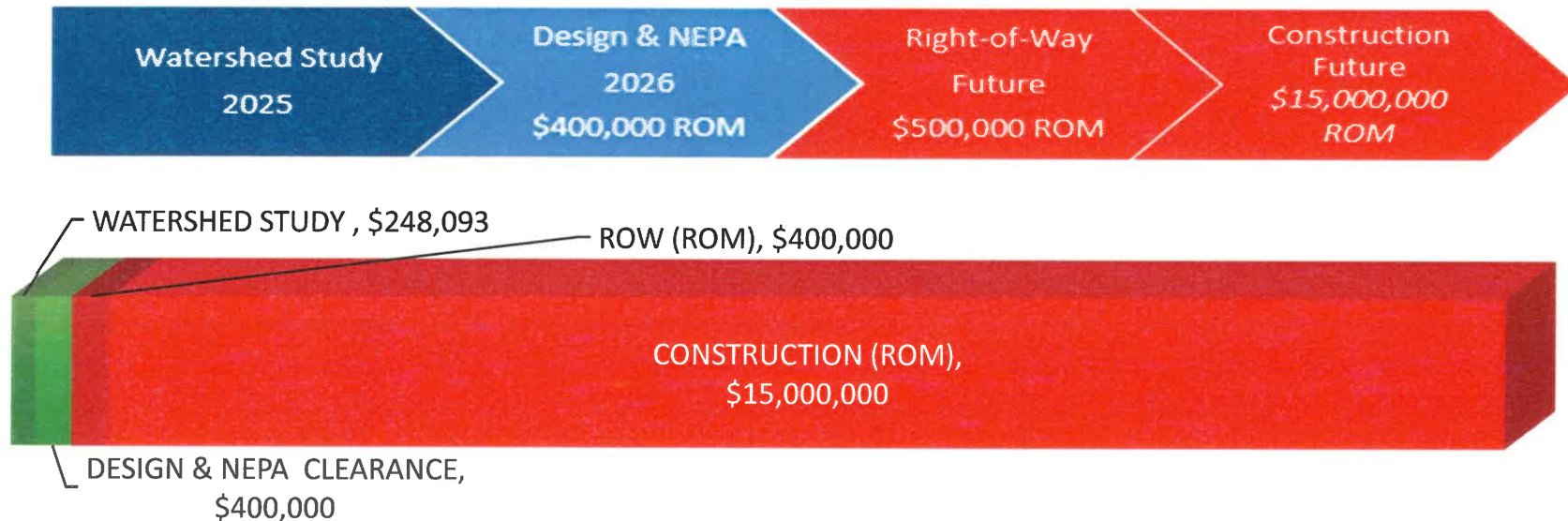
Rucker Creek Watershed Study



Citizen Benefits

- Decrease Flooding to Elfrida
- Decrease Flooding and Sediment of County Maintained Roads
- Increase Groundwater Recharge
- Cost Effectiveness

Pomerene Road Watershed Study



Citizen Benefits

- Decrease Flooding of S. Pomerene Road.
- Study to identify most effective locations for flood control structure.
- Eliminate ponding.
- Increase recharge.

Flood Control District Partnerships

- Upper San Pedro Partnership
 - Cochise Conservation Recharge Network
 - MOU BLM, Army, Sierra Vista
 - Fort Huachuca Sentinel Landscape
 - Sulphur Springs Water Alliance
 - Arizona Department of Water Resources
 - National Flood Insurance Program
 - Active Management Areas
 - Douglas Basin
 - Willcox Basin
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Upper San Pedro Partnership

A partnership of Federal, State, and Local Agencies and Organizations whose stated purpose is to “coordinate and cooperate in the identification, development, and utilization of science and technical information to assist in meeting the water needs in the Sierra Vista sub-watershed of the Upper San Pedro River Basin”.

Focus:

1. Shares the scientific information of its member agencies to support members’ projects, policies, and public outreach.
 2. Oversees USGS groundwater model updates for the Upper San Pedro Basin.
 3. Annually reviews and reports hydrological indicators.
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Cochise Conservation Recharge Network

A partnership of Hereford Natural Resource Conservation District, City of Bisbee, City of Sierra Vista, Ft. Huachuca, Bureau of Land Management, whose mission is: “to implement a regional network of land and water management projects that result in a healthy watershed, flowing San Pedro River, conservation of water resources, and a vibrant local economy.”

Focus:

1. Designs and builds groundwater recharge projects.
 2. Conduct hydrologic modeling, monitoring, and engineering studies.
 3. Find Grant Funding
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Memorandum of Understanding

- Bureau of Land Management
- U.S. Department of the Army
- City of Sierra Vista
- Cochise County

A Memorandum of Understanding between Cochise County, the City of Sierra Vista, Fort Huachuca, and the Bureau of Land Management of cooperative monitoring and management of the SPRNCA and surrounding areas of Cochise County.

Focus:

1. Create an Adaptive Management Plan that aids the continued economic growth and development of Cochise County and conserves the San Pedro Riparian Area.
2. Implement monitoring and management actions that ensure the economic prosperity and conservation of natural resources in the area.

Fort Huachuca Sentinel Landscape

A joint effort of the Department of Defense, Department of Agriculture, and Department of Interior to use collaborative strategies to protect the military installation (i.e. ensure low levels of electromagnetic interference), restore habitat, monitor agricultural viability, and conserve water.

Focus:

1. Tracks and reports on grant funding opportunities for member agencies.
 2. Preserves lands that buffer Fort Huachuca to maintain needed environmental conditions for its electromagnetic testing operations.
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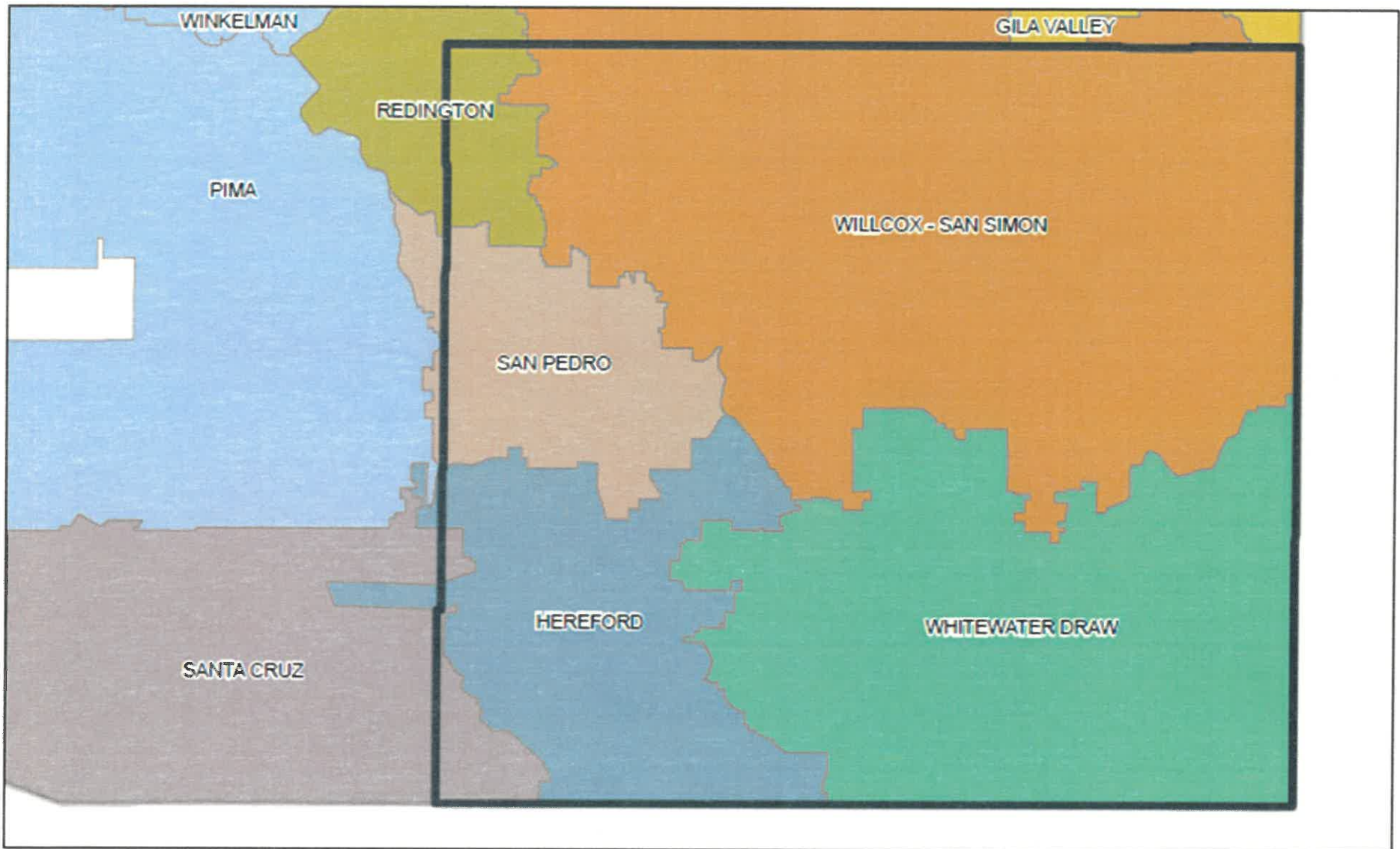
Sulphur Springs Water Alliance

A stakeholder group of farmers, ranchers, homeowners, utilities, and local government whose mission is to “foster effective management and conservation of water resources through planning and collaboration”.

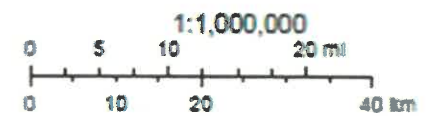
Focus:

1. Implement water strategies to manage water
 2. Enhance economic development
 3. Enhance community resilience.
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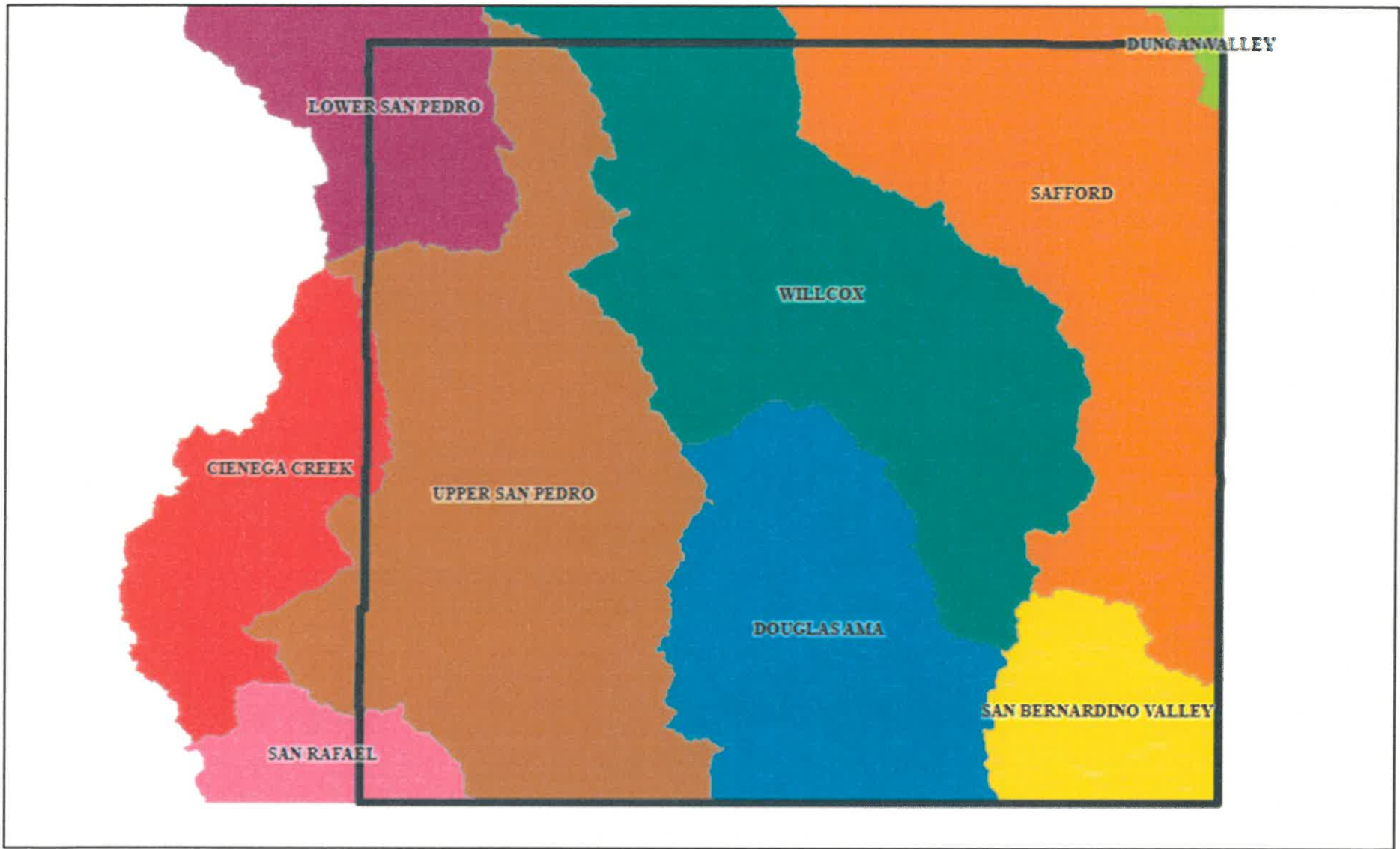
NRCD Districts



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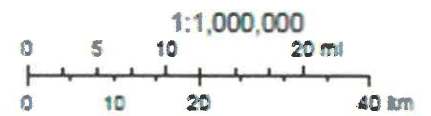


ADWR Groundwater Basins

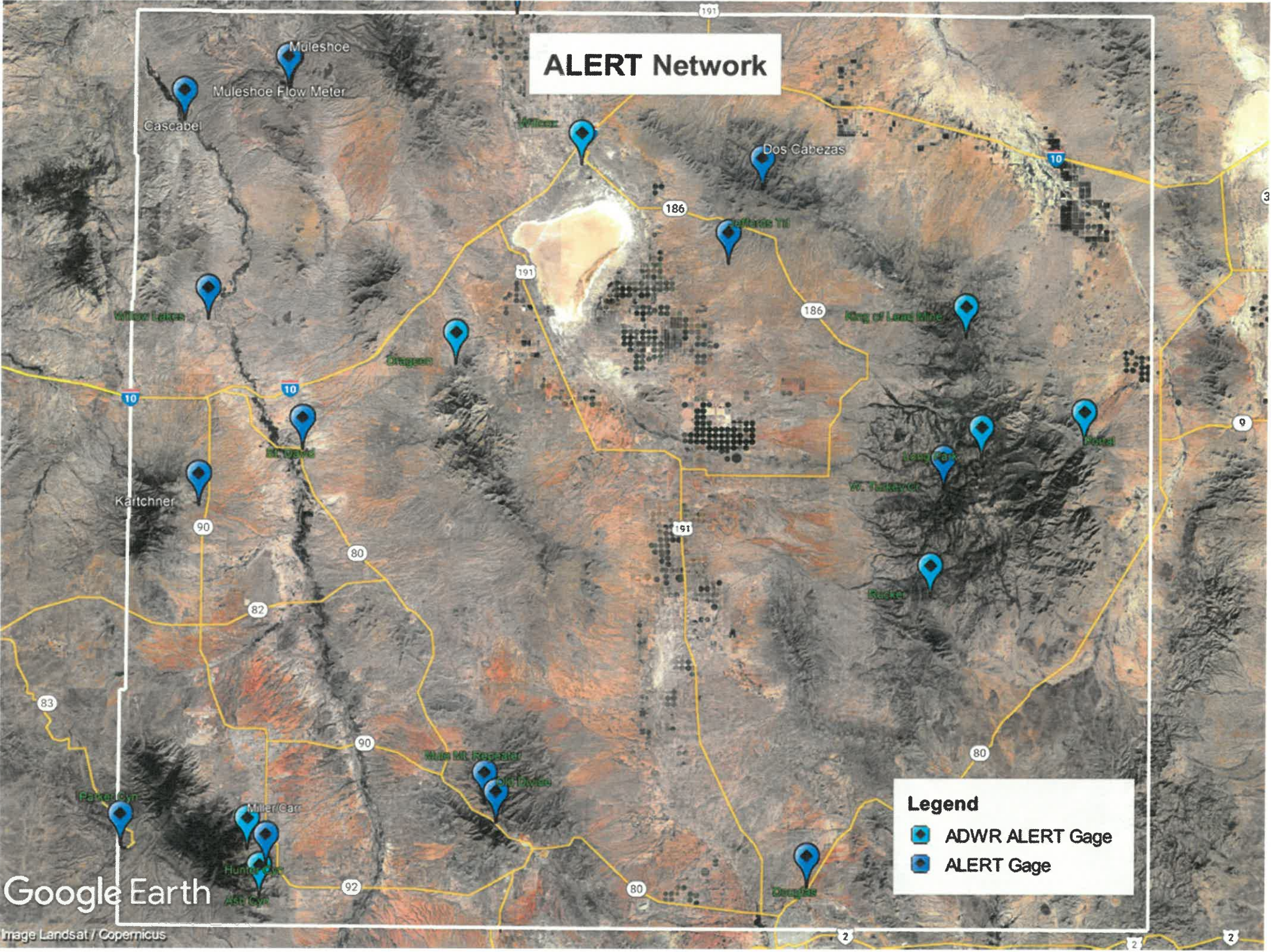


6/5/2025



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|--|---|---|---|
|  Cochise County |  DOUGLAS AMA |  SAFFORD |  UPPER SAN PEDRO |
| Groundwater Basin 2024 |  DUNCAN VALLEY |  SAN BERNARDINO VALLEY |  WILLCOX |
|  CIENEGA CREEK |  LOWER SAN PEDRO |  SAN RAFAEL | |



ALERT Network



Legend

-  ADWR ALERT Gage
-  ALERT Gage

Google Earth

Image Landsat / Copernicus