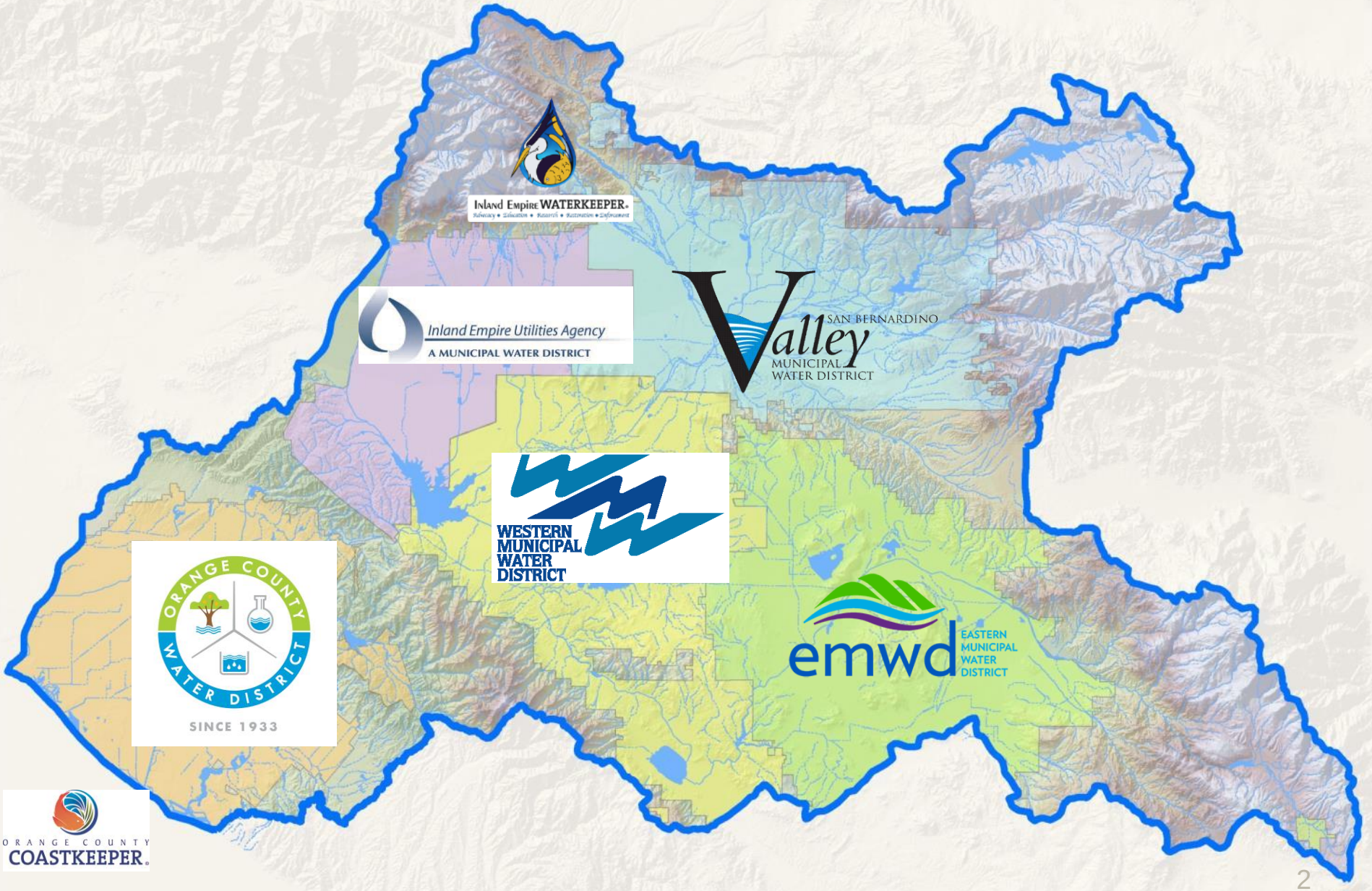
SANTA ANA RIVER CONSERVATION & CONJUNCTIVE USE PROGRAM PHASE 1

SARCCUP Agency representatives and SAWPA staff

WATERSHED-SCALE COLLABORATION

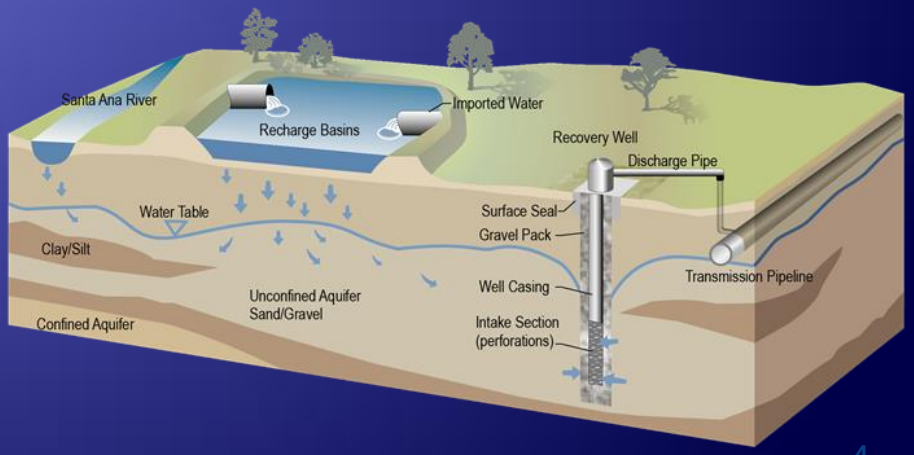


Key Goals of OWOW Accomplished by Project Proposal

- **Provides watershed-wide regional collaboration**
- **Creates new water supply/demand management:**
  - 2,400 AFY from *Arundo Donax* Removal
  - 60,000 AFY dry-year yield capacity
  - 7,236 AFY of demand reduction
- **Increases resiliency of water supply**
- **Improves natural environment**
- **Implements "One Water One Watershed" (OWOW) Santa Ana River Watershed IRWMP**
  - Exceeds IRWMP 2035 Target: 58,000 afy Conjunctive Use

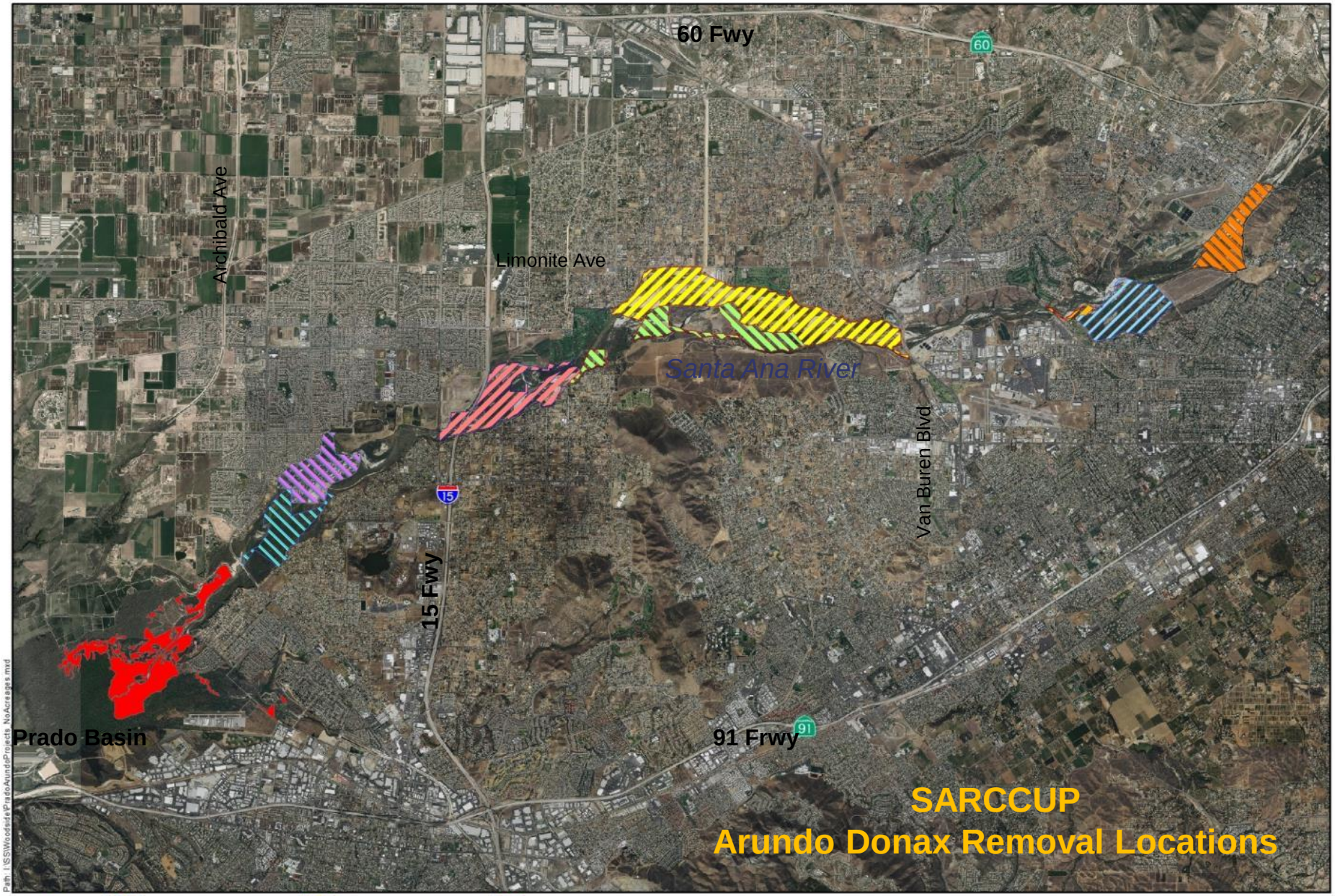
SARCCUP Elements

- Habitat Improvement: Arundo Removal & Santa Ana Sucker fish habitat restoration
- Water Use Efficiency: Conservation-Based Rates Support, Water-use Efficient Landscaping Design
- Groundwater Banking: "Put and Take" Conjunctive Use Facilities



Habitat Improvement

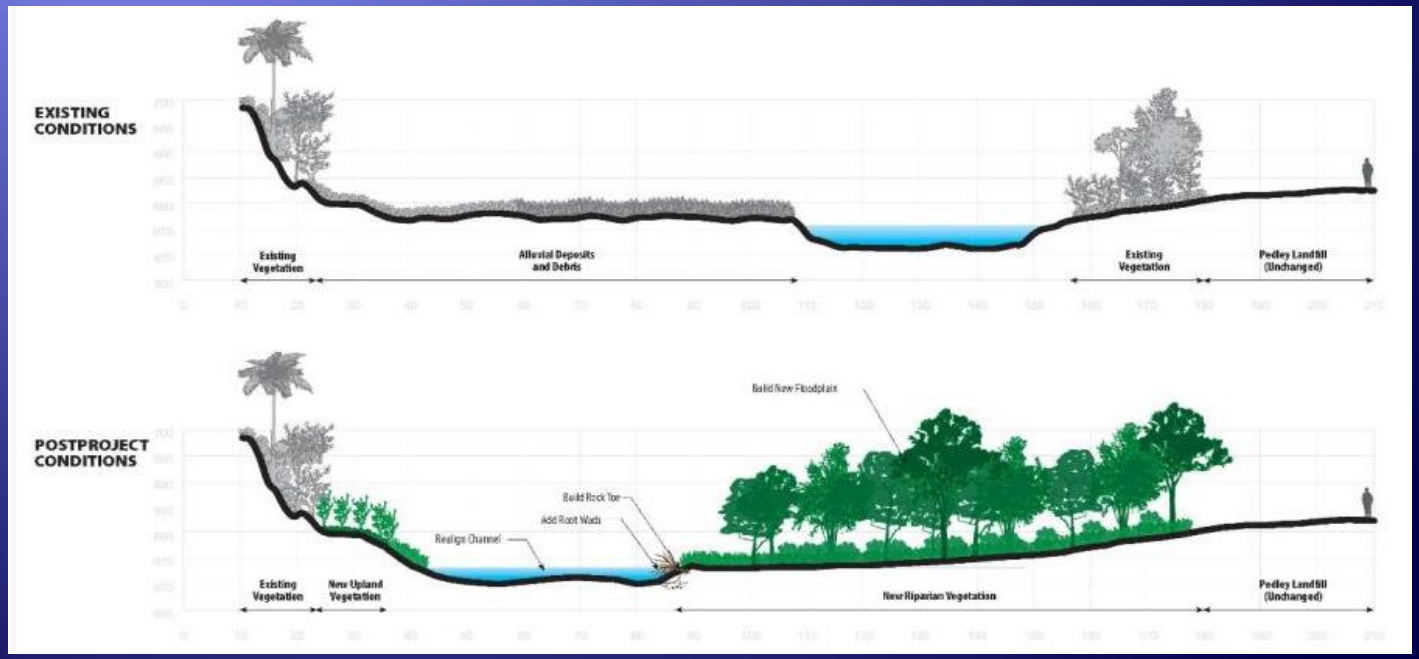
- **640 acres of Arundo removal**
  - 1 acre uses 3.75+ acre-feet of water per year more water than native habitat
  - 2,400 afy of water conserved
  - Removal to be completed within 5 years



Prado Basin and Upstream
Arundo Removal Project Areas

Habitat Improvement (cont.)

- Santa Ana Sucker Habitat Restoration
  - Create 3.5 miles of stream habitat for Santa Ana sucker spawning, foraging, and refugia
  - Restore 41 acres of native riparian habitat
  - Restore hydrology to maintain exposed gravel/cobble and flow conditions adverse to non-native fishes
  - Restore connection to Santa Ana River at the floodplain for access to tributary habitat



Habitat Improvement (cont.)

- ✓ Excavation of sediment and debris plug at confluence
- ✓ Realign channel and construct new bank at floodplain
- ✓ Remove non-native and replant with natives
- ✓ Augment substrate and add woody debris habitat features
- ✓ Supplemental water supply to maintain functional hydrology

Water Use Efficiency – SmartScape Program Partnership

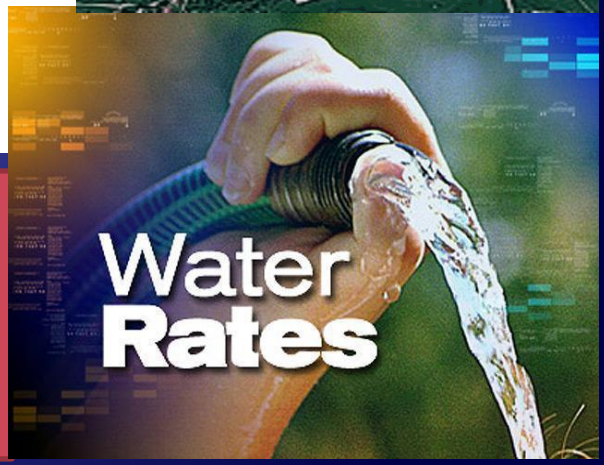
- **Resource Efficient Landscaping - "Learn, Save, Grow"**
- **Water-efficient landscape design and installation**
- **Sustainable landscaping and irrigation maintenance practices**
- **Education and training for Residents – businesses – landscape professionals**

Inland Empire WATERKEEPER
Advocacy • Education • Research • Restoration • Enforcement

ORANGE COUNTY
COASTKEEPER

Water Use Efficiency - Technical Support for Conservation-based Rates

- Provide support for five agencies to implement conservation-based rates
- Includes consultant support for rate design, public outreach, allocation development.
- Builds on existing regional program providing GIS/digital Aerial Infrared imagery for outdoor allocations.



Estimated Water Savings from Conservation-based Rate Program Implementation is 7,236 afy

SARCCUP Groundwater Banking

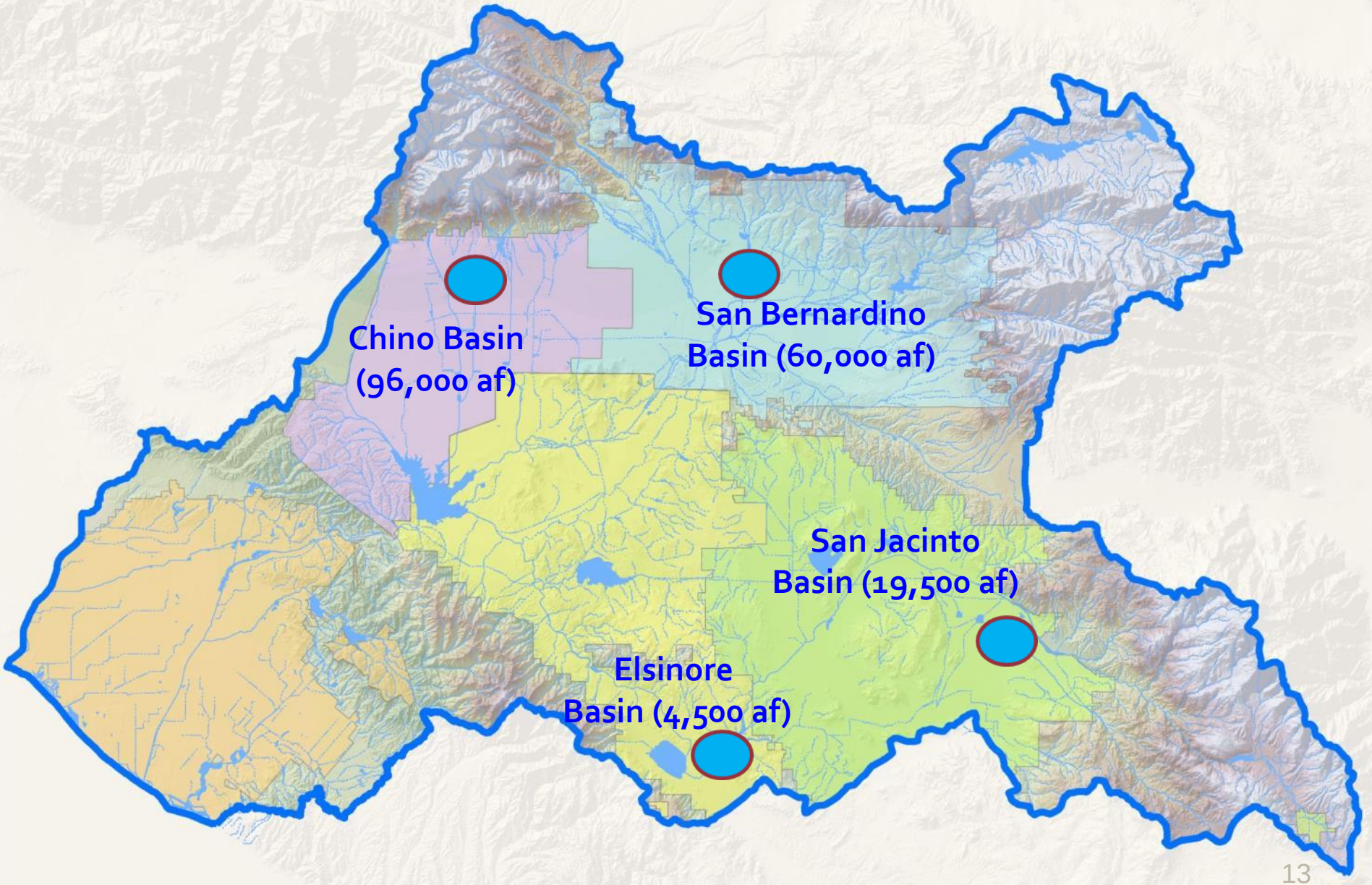
- 1,000,000 AF potential storage capacity in SAR GW Basins
- Phase 1 of SARCCUP Water Bank: 180,000 af
- Build recharge and extraction infrastructure to take advantage of wet year extraordinary supply
- Storage on "use-side" of major earthquake faults
- All five agencies share equally in dry year yield

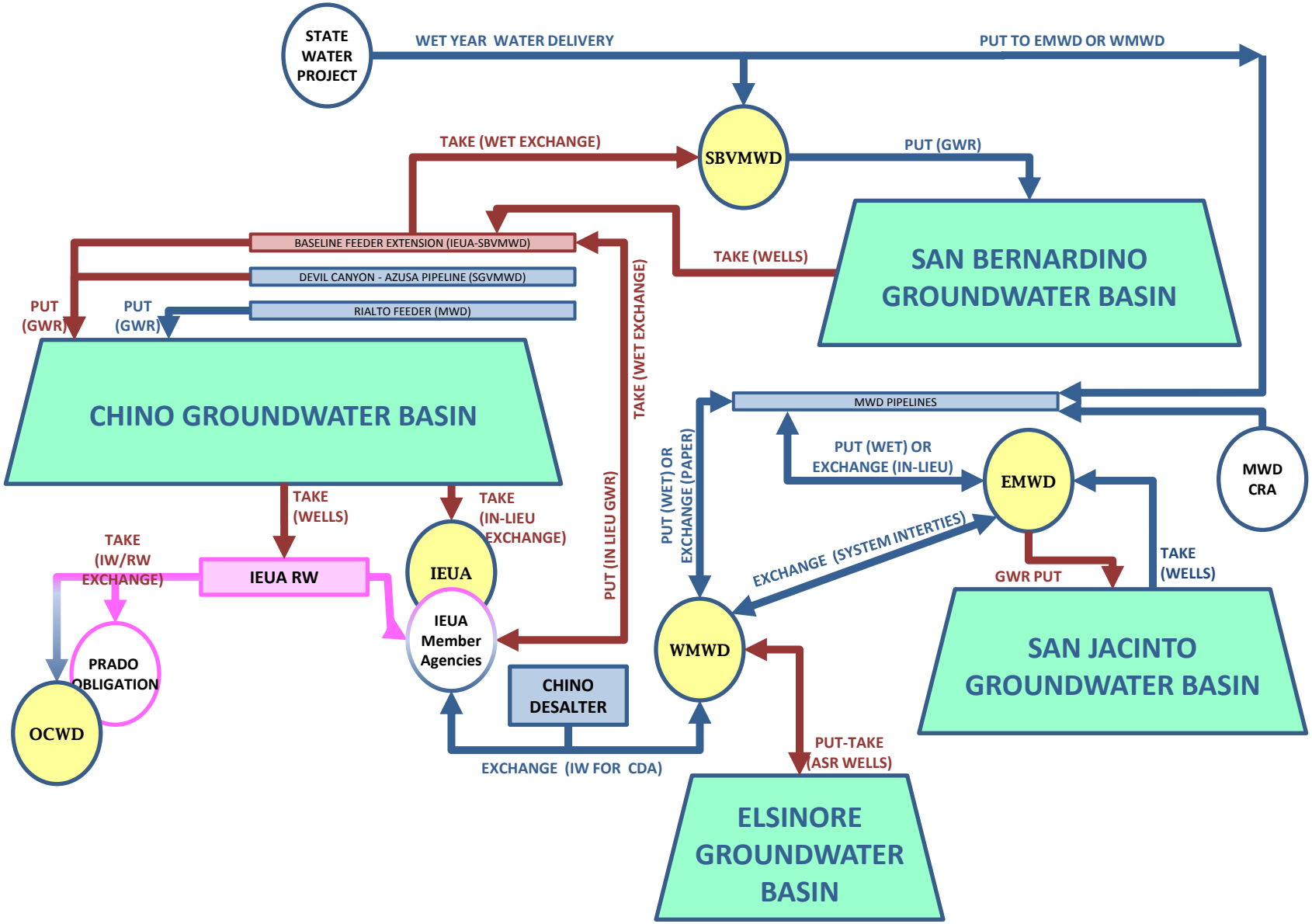
Groundwater Bank – Phase 1

Groundwater Basin	Storage (AF)	DYY (AFY)
San Bernardino Basin	60,000	20,000
Chino Basin	96,000	32,000
San Jacinto	19,500	6,500
Elsinore Basin	4,500	1,500
Orange County	0	0
Totals	**180,000**	**60,000**

(Equiv Storage Volume to both Lake Mathews and Pyramid Lake)

Water Bank Storage Volumes – Phase 1




STATE WATER PROJECT
WET YEAR WATER DELIVERY
PUT TO EMWD OR WMWD
TAKE (WET EXCHANGE)
SBVMWD
PUT (GWR)
BASELINE FEEDER EXTENSION (IEUA-SBVMWD)
DEVIL CANYON - AZUSA PIPELINE (SGVMWD)
RIALTO FEEDER (MWD)
TAKE (WELLS)
SAN BERNARDINO GROUNDWATER BASIN
PUT (GWR)
PUT (GWR)
CHINO GROUNDWATER BASIN
TAKE (WET EXCHANGE)
MWD PIPELINES
PUT (WET) OR EXCHANGE (IN-LIEU)
EMWD
MWD CRA
PUT (WET) OR EXCHANGE (PAPER)
TAKE (WELLS)
TAKE (IN-LIEU EXCHANGE)
TAKE (IW/RW EXCHANGE)
IEUA RW
IEUA
PUT (IN LIEU GWR)
EXCHANGE (SYSTEM INTERTIES)
GWR PUT
TAKE (WELLS)
IEUA Member Agencies
WMWD
SAN JACINTO GROUNDWATER BASIN
PRADO OBLIGATION
OCWD
CHINO DESALTER
PUT-TAKE (ASR WELLS)
EXCHANGE (IW FOR CDA)
ELSINORE GROUNDWATER BASIN

Chino Basin Bank

Features

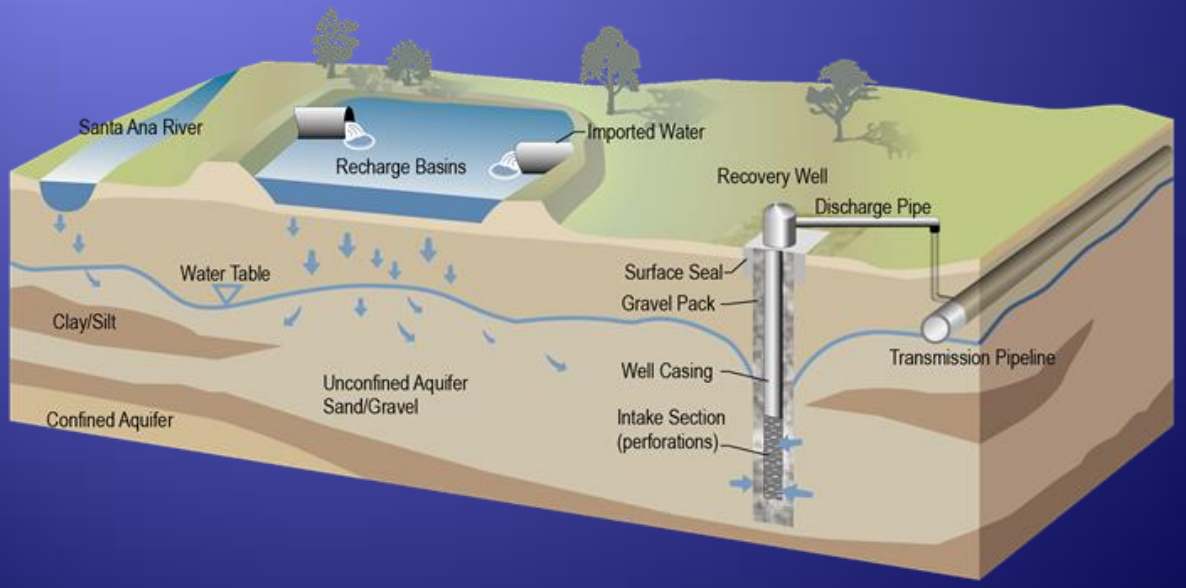
- 96,000 AF Storage Capacity
- 32,000 AFY New Dry-Year Yield Production and exchanges

Construct

- 48-in. Baseline Feeder Extension
- Turnout & Interties at San Sevaine Crk
- Devil Canyon-Azusa PL dual use turnout near San Antonio Crk
- Extraction wells – into South Pressure Zone of RW system (for OCWD take)

Chino Basin
Proposed Phase 1

- Chino Basin exchanges can be in-lieu State Water Project exchanges, wet water put and takes, or exchanges through Chino Desalting Authority.
- Institutional agreements will be required for puts & takes.



San Bernardino Basin Bank

Features

- 60,000 AF Storage Capacity
- 20,000 AFY New Dry-Year Yield

Construct

- 5 Extraction Wells
- Transmission pipeline
- Expand Redlands Pump Station(add 20 cfs pump)

San Bernardino Basin Facilities

Construct 5 wells and Pipeline Extension

Expand Redlands PS

San Jacinto Basin Bank

Features

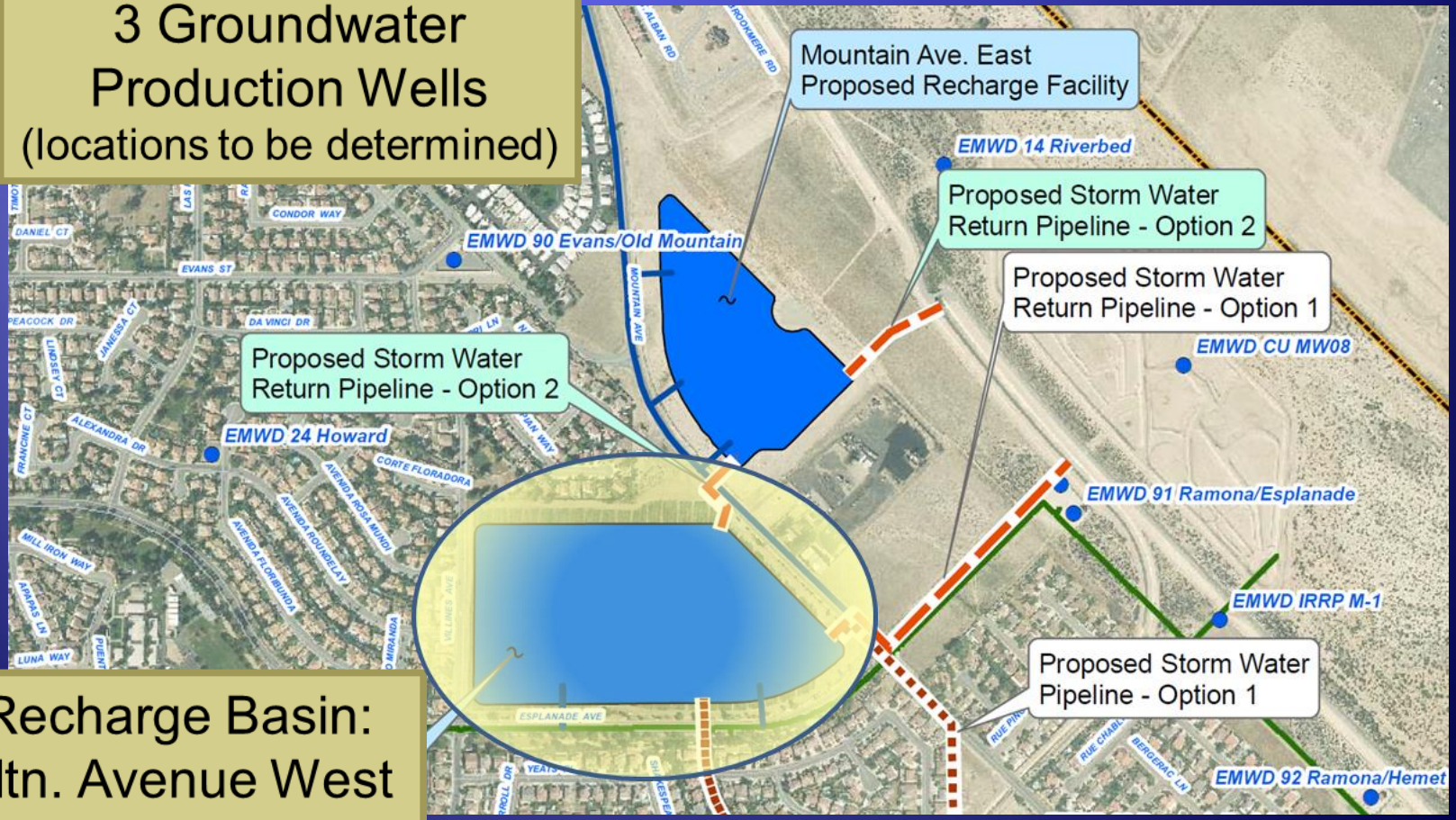
- 19,500 AF Storage Capacity
- 6,500 AFY New Dry-Year Yield

Construct

- Mountain Ave. West Recharge Basin
- 3 Extraction Wells

San Jacinto Basin Facilities

3 Groundwater Production Wells (locations to be determined)



Recharge Basin: Mtn. Avenue West with Amenities

Elsinore Basin Bank

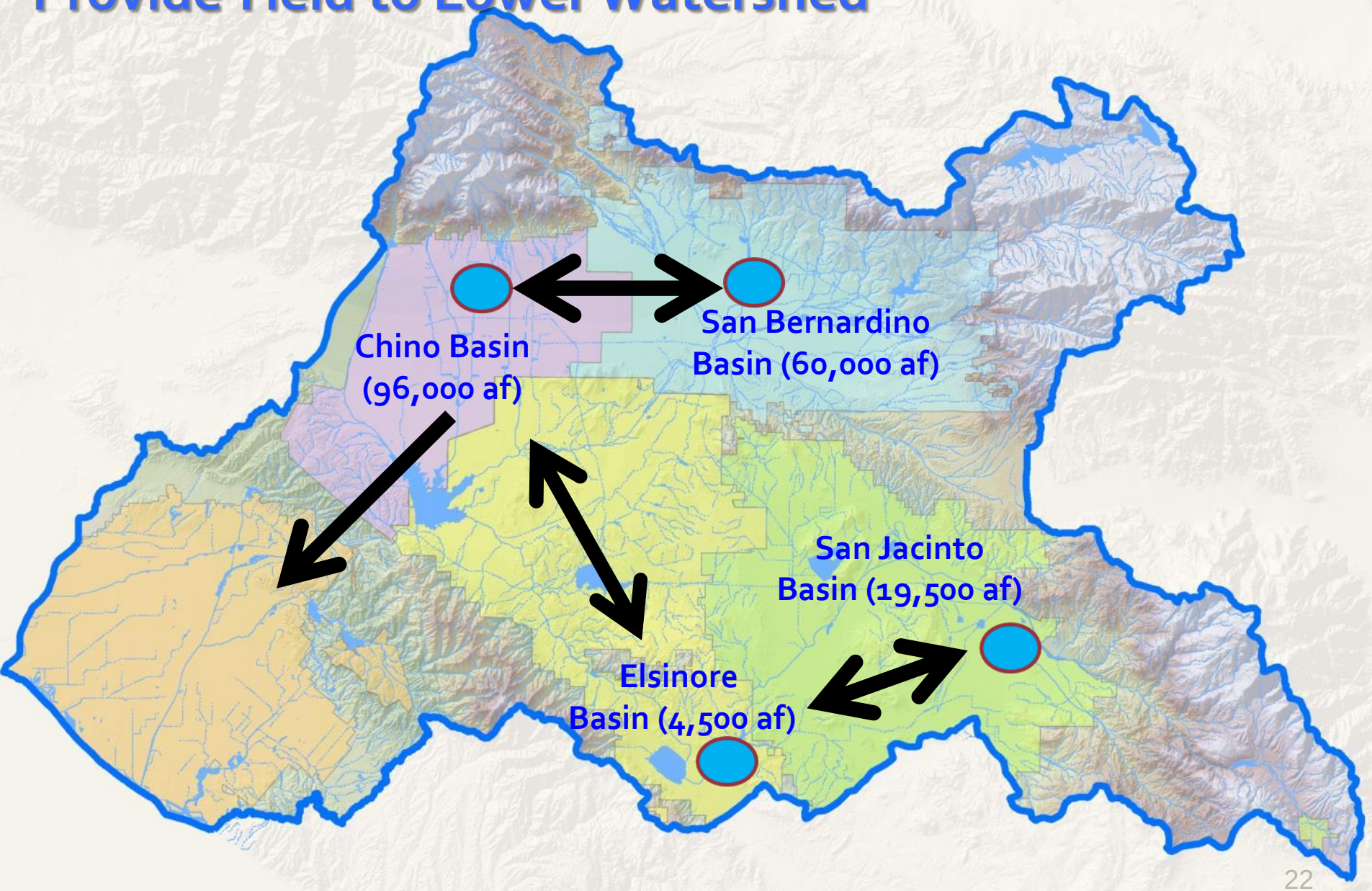
Features

- 4,500 AF Storage
- 1,500 AFY New Dry-Year Yield

Construct

- 2 Dual Use Wells (Injection and Extraction)

Banks are Physically Connected & Provide Yield to Lower Watershed



Supply Cost Comparison

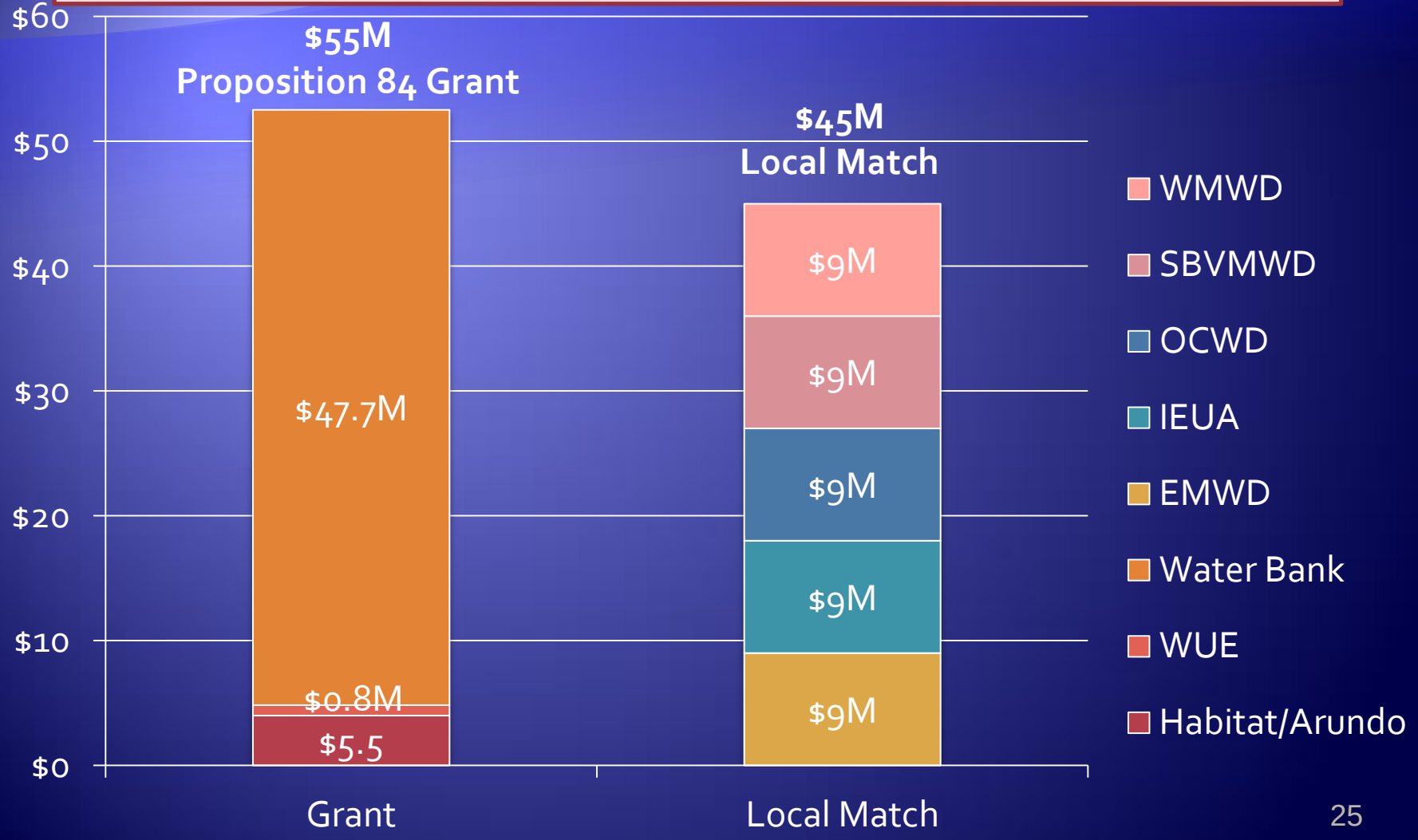
- SARCCUP Phase 1 Dry-Year Yield: $940/af
- 2015 Spot Market: $1,500/af
- MWD with allocation surcharge: $2,500/af

Cost Effectiveness/Cost Comparisons

- SARCCUP Storage = $84M for 180,000 AF
- Proposed Sites Reservoir
  - $2.3B to $3.2B/1.8 MAF → Equivalent: 180,000 AF would cost $230M-$320M (3-4 times greater)
- Diamond Valley Reservoir
  - $1.9B / 800,000 AF → Equivalent: 180,000 AF would cost $430M (5 times greater)

Cost Sharing

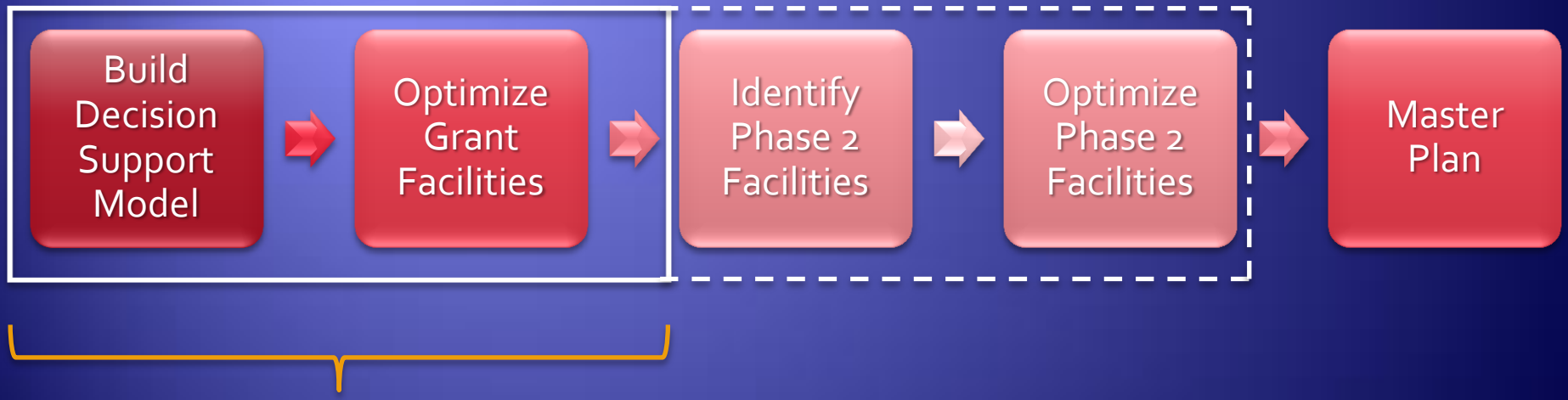
Total SARCCUP Project Cost = $100 million



Collaboration Provides Multiple Benefits and a New Level of Watershed Integration

- Takes regional cooperation to the next level – 2,464 square mile watershed-wide multi-benefit project
- Improves environmental resources and creates endangered species habitat
- Reduces water demands
- Creates additional new dry year water supply
- Supported by five agencies as equal partnership

SARCCUP Master Plan



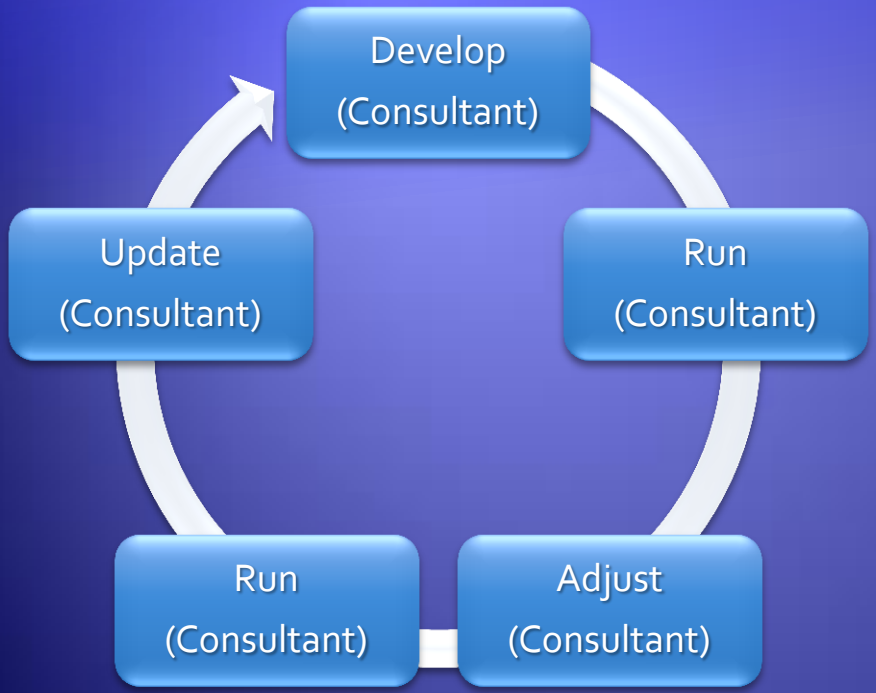
Santa Ana River Conservation and Conjunctive Use Program Optimization Using a Decision-Support Model Project (start early 2016)

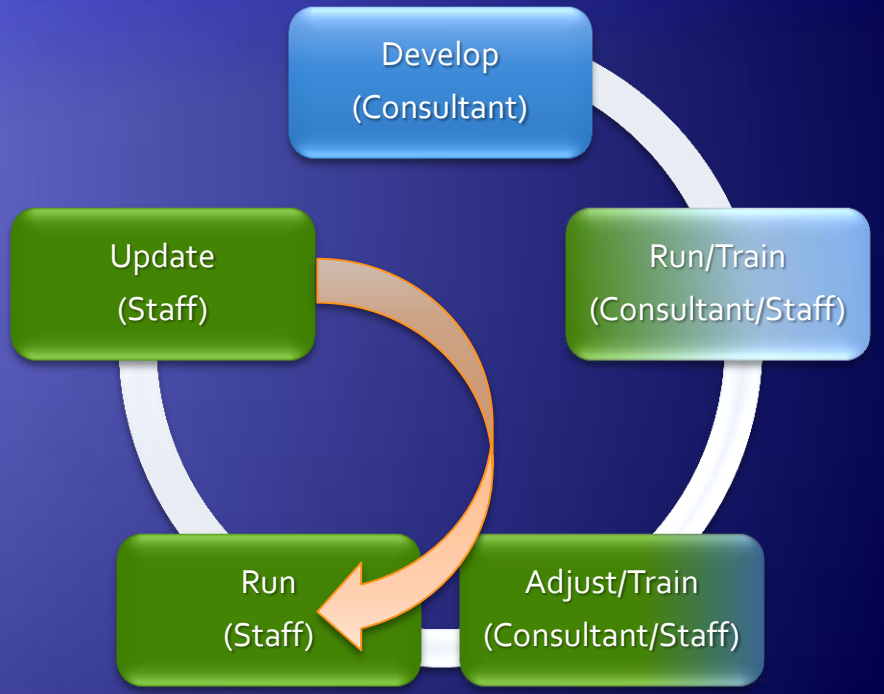
Decision Support (DS) Model Goals

- Simulate SARCCUP Operations:
  - Recharge of wet year water
  - Dry year pumping
  - How water moves throughout the watershed and the SARCCUP facilities
- Adaptable:
  - Easily add facilities
  - Can be upgraded by staff
- Fast (schematic)

Schematic Requires Good System Knowledge

Specialized → Schematic



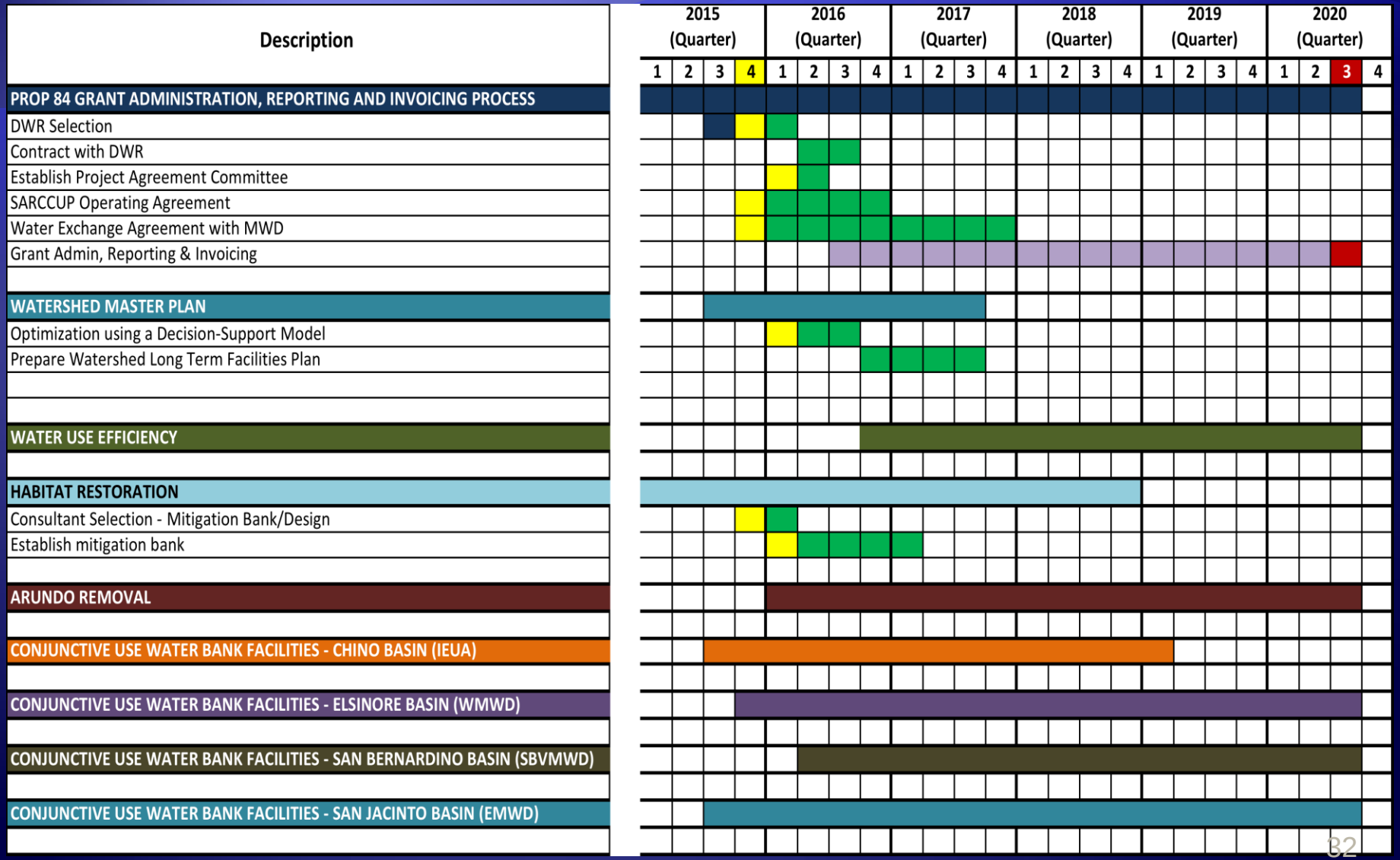


(MODFLOW, etc.)

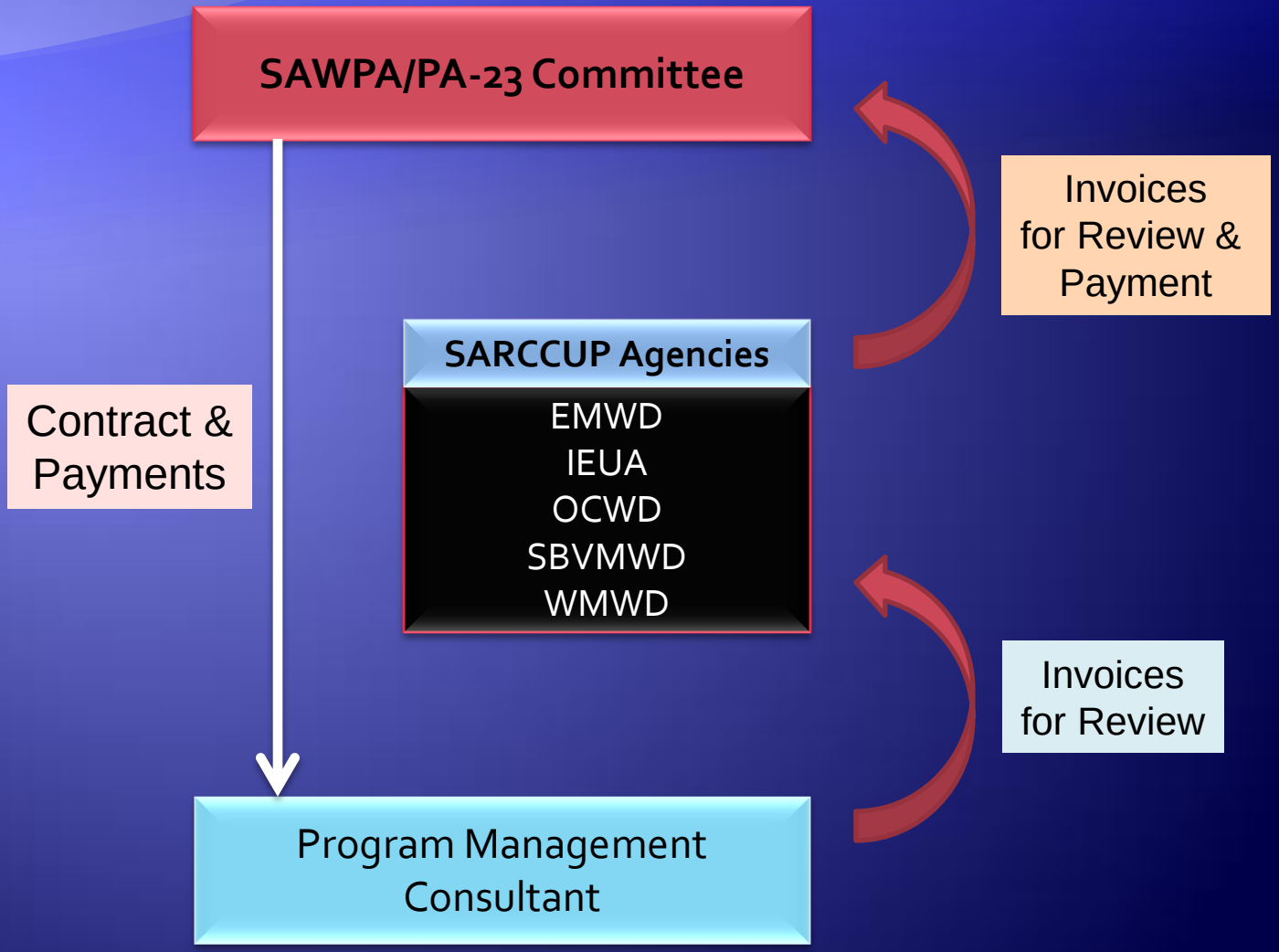
SARCCUP CEQA

- Tom Dodson & Associates with ESA
- Programmatic EIR
- Lead Agency: IEUA
- Responsible Agencies
  - SBVMWD, WMWD, OCWD & EMWD
- To be complete by June 2017
- Cost $340,397

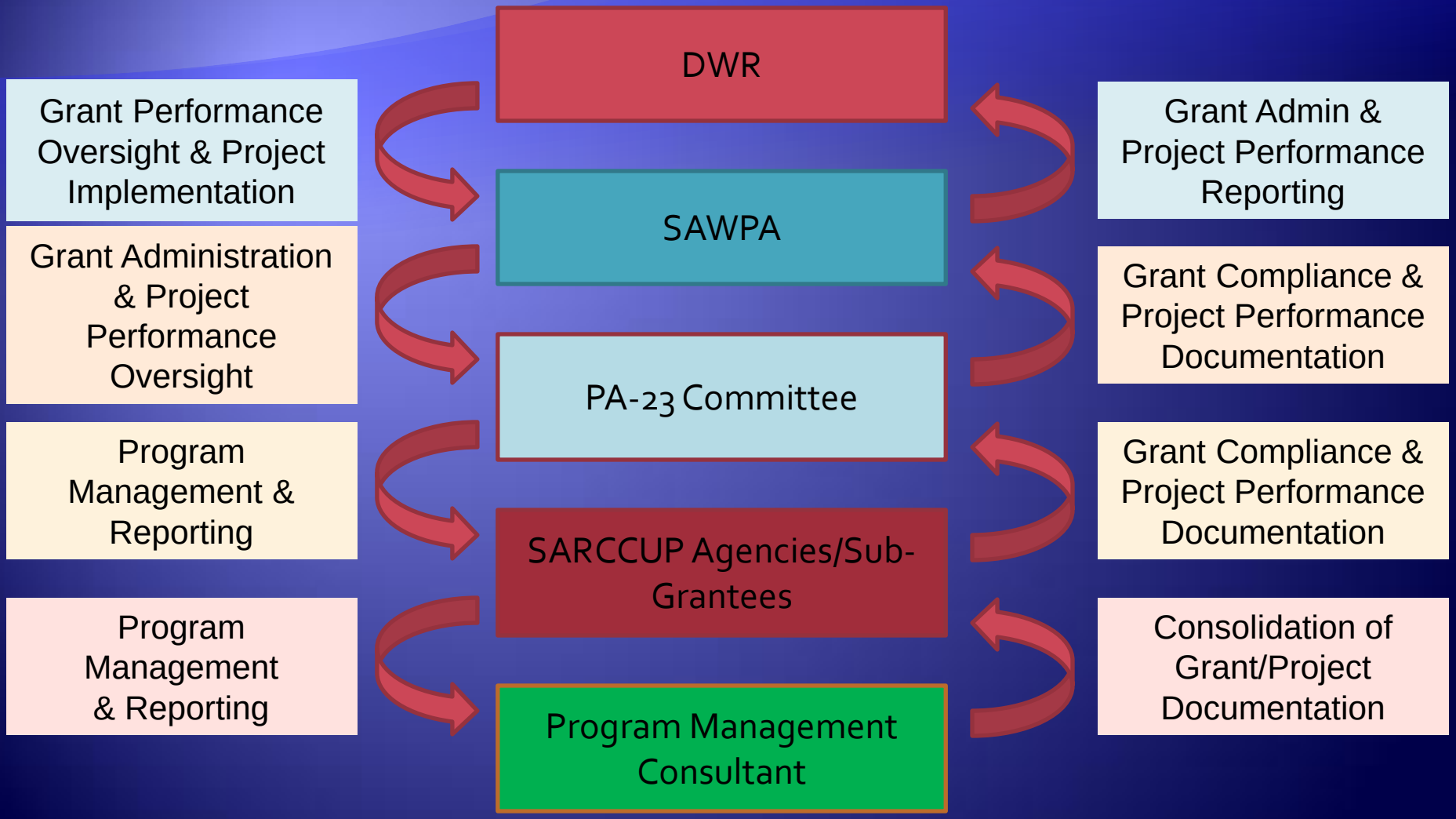
SARCCUP Schedule

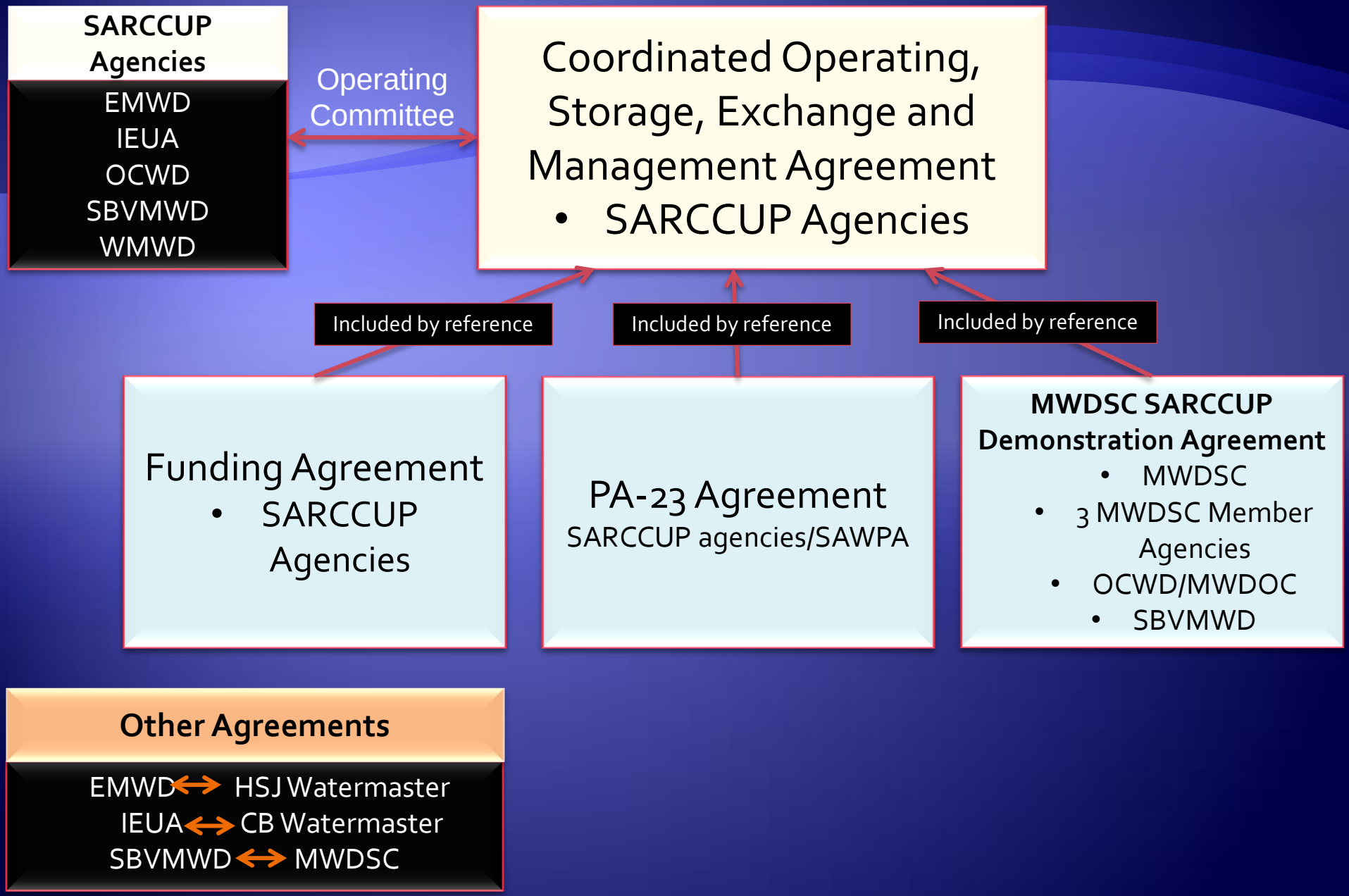


Program Management Contract Administration



Grant Management Flow Chart




SARCCUP Agencies
EMWD
IEUA
OCWD
SBVMWD
WMWD
Operating Committee
Coordinated Operating, Storage, Exchange and Management Agreement
• SARCCUP Agencies
Included by reference
Included by reference
Included by reference
Funding Agreement
• SARCCUP Agencies
PA-23 Agreement
SARCCUP agencies/SAWPA
MWDSC SARCCUP Demonstration Agreement
• MWDSC
• 3 MWDSC Member Agencies
• OCWD/MWDOC
• SBVMWD
Other Agreements
EMWD ↔ HSJ Watermaster
IEUA ↔ CB Watermaster
SBVMWD ↔ MWDSC

Department of Water Resources (DWR) (granting agency)
DWR provides oversight on grant performance and project implementation
Santa Ana Watershed Project Authority (SAWPA)
Grant administration and oversight of project performance
Planning Agreement 23 (PA23)
Responsible for management of the SARCCUP program and will provide necessary documentation to SAWPA
Agency 1
Responsible for project component construction/ implementation of Facilities #1
Agency 2
Responsible for project component construction/ implementation of Facilities #2
Agency 3
Responsible for project component construction/ implementation of Facilities #3
Agency 4
Responsible for project component construction/ implementation of Facilities #4
Agency 5
Responsible for project component construction/ implementation of Facilities #5

Questions?