



ABSTRACT & POWERPOINT PRESENTATION

***Semitropic-Rosamond Water Bank Authority –
Antelope Valley Water Bank***

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Managed Aquifer Recharge Symposium
January 25-26, 2011
Irvine, California

Symposium Organizers:

- National Water Research Institute
- Orange County Water District
- Water Research Foundation

www.nwri-usa.org/rechargesymposium2011.htm

**SEMITROPIC-ROSAMOND WATER BANK AUTHORITY
ANTELOPE VALLEY WATER BANK**

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ABSTRACT

This paper provides an overview of the Antelope Valley Water Bank (AVWB) portion of the Semitropic-Rosamond Water Bank Authority (SRWBA) Program. The Semitropic-Rosamond Water Bank Authority (SRWBA) was formed by Semitropic Water Storage District (Semitropic), Rosamond Community Services District (RCSD), and Valley Mutual Water Company (Valley Mutual) as a Joint Powers Authority (JPA), as defined under California Government Code Section 6500, et. seq. The SRWBA provides water bank participants (Customers) a diversity of assets, operational flexibility, and water supply reliability.

The SRWBA owns and operates two distinct facilities in Kern County, the AVWB near Rosamond and a portion of the Stored Water Recovery Unit (SWRU) within the Semitropic Water Storage District (Semitropic). The SRWBA merges facilities and operations in the SWRU and the AVWB to provide the following combined water bank capacities:

- **Storage-** 800,000 acre-feet (AF) Firm; plus, up to 350,000 AF on a when available basis
- **Recharge-** 133,000 AF/Yr Firm; plus, up to 430,000 AF/Yr on a when available basis
- **Recovery-** 200,000 AF/Yr Firm; plus, up to 287,000 AF/Yr on a when available basis

The AVWB, located in the west end of the Antelope Valley, South-Central California, has been in development since 2001. In September 2006, Kern County certified the Final Environmental Impact Report. The project recharges water into storage using recharge basins and will use new and existing wells to recover water for delivery into local and regional conveyances. The project is modular by design and is being constructed in phases. The first phase was constructed in 2008. Work is now proceeding on the next phases, Phases 1B and 1C, to increase recharge capacity and add recovery wells. When fully developed, the facilities will consist of recharge basins, recovery wells, collection/distribution pipelines, pumping stations and storage tanks. When completed the AVWB component of the combined water bank will have the following capacities:

- **Storage-** 500,000 acre-feet (AF) ;
- **Recharge-** Up to 100,000 AF/Yr (350 cfs);
- **Recovery-** Up to 100,000 AF/Yr Firm (250 cfs).

Water for recharge and storage in the AVWB will be delivered via the East Branch of the California Aqueduct, which is part of the CA State Water Project (SWP).

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When needed, stored water will be recovered for delivery via a series of recovery wells and collection piping that will connect to local and regional conveyances, such as returning recovered water back to the California Aqueduct. The project currently has up to 11,000 AF/yr of recharge capacity with an additional 11,000 AF/yr under design. Direct recharge will be accomplished by up to 1,500 acres of recharge basins. A recovery yield of up to 100,000 AF/yr will be provided by approximately 43 existing and new wells that will deliver supplies to the Antelope Valley East Kern Water Agency (AVEK) West Feeder (for exchange), and the California Aqueduct. The first phase of recovery facilities are scheduled to come online by February 28, 2011, with capacity ramping up from 25,000 AF/yr to 100,000 AF/yr as needed there-after.

Recharge Symposium Conference
Irvine, California
January 25, 2011

**Semitropic-Rosamond Water Bank Authority
Antelope Valley Water Bank**

Presented by:
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Overview

- Semitropic-Rosamond Water Bank Authority (SRWBA)
- Project Location
- Description of Facilities
- Banking Partners
- Funding
- ARRA Project Status

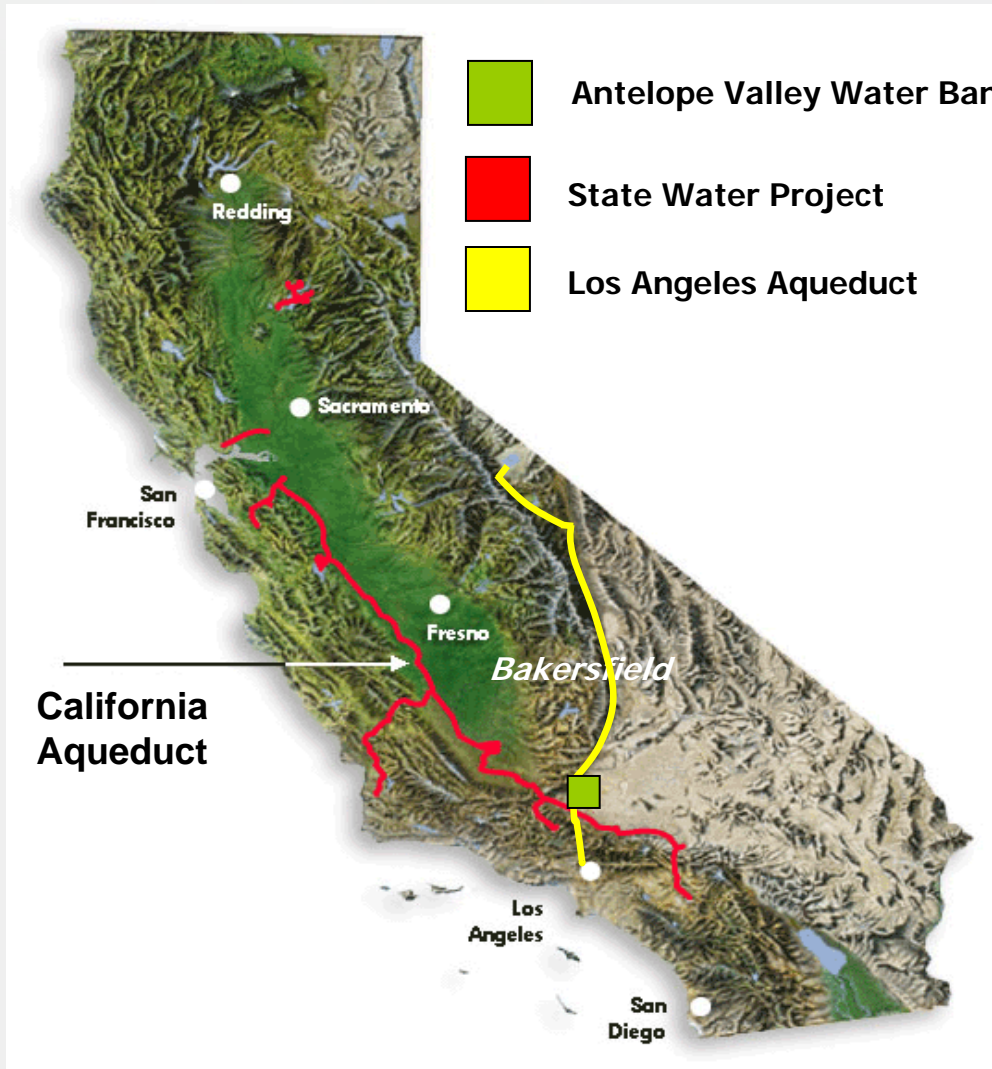
Semitropic-Rosamond Water Bank Authority

- SRWBA is a Joint Powers Authority (JPA), as defined under *California Government Code Section 6500, et. seq.*, and aims to provide water bank participants (Banking Partners) a diversity of assets, operational flexibility, and water supply reliability.

- Members of JPA include:
 - Rosamond Community Services District;
 - Semitropic Water Storage District; and
 - Valley Mutual Water Company.

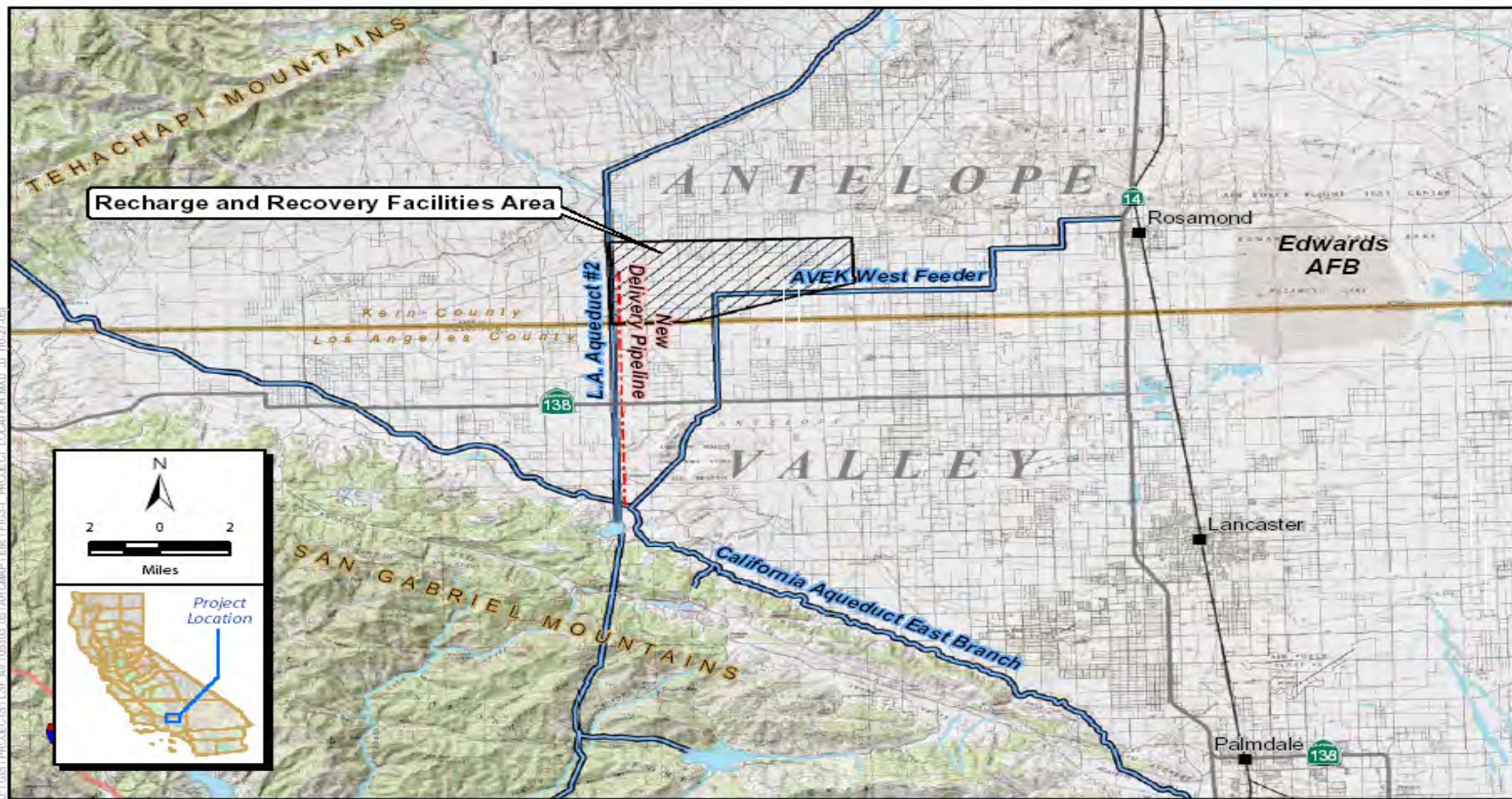
- Antelope Valley Water Bank is owned and operated by the JPA;

Location of Antelope Valley Water Bank

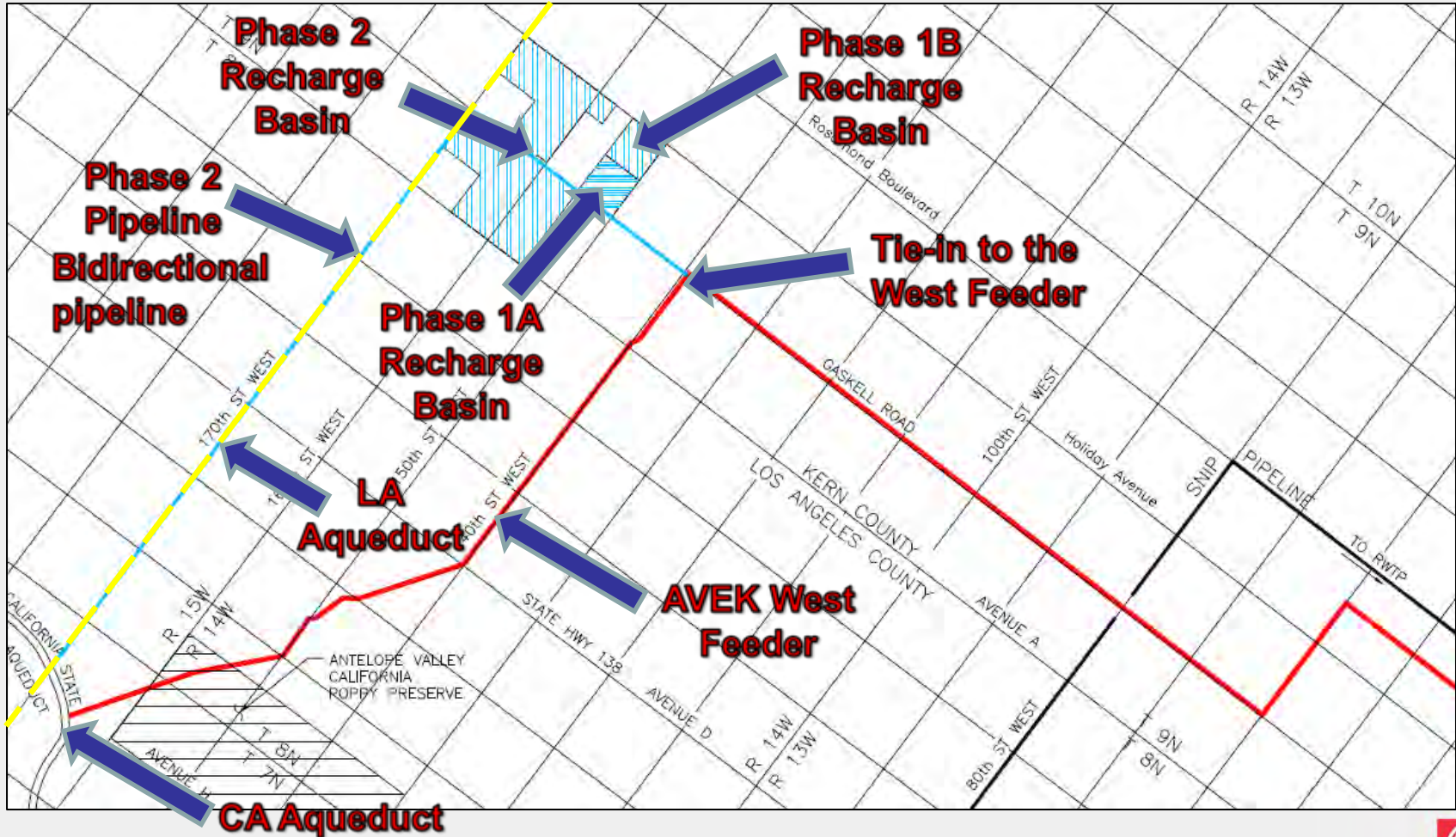


- Unique location of the AVWB allow multiple sources of surface water to be conveyed to the Project.
- Increases operational flexibility.
- Project configuration provides increased potential to serve any SWP contractor either directly or through exchange.

AVWB Project Location



AVWB Facilities – Full Build-out



AVWB Project Development –Final Project EIR

Phase & Construction Timing	Capacity	Facilities
1A Spring 08	Recharge: 20 cfs Recovery: 0 cfs	Recharge ponds tied to existing piping
1B Winter 08-09	Recharge: 150 cfs Recovery: 0 cfs	Recharge ponds West Feeder turnout enlarged for 60" piping
1C Winter 08-Spring 09	Recharge: 150 cfs Recovery: 50 cfs	Recovery wells and pump-in piping to West Feeder
2 As required after 09	Recharge: 350 cfs Recovery: 250 cfs	New 2-way pipeline to East Branch, wells and booster station



Complete



**ON-LINE IN
2011**



Future Phase

AVWB Water Banking Elements

- ❖ SWP,
- ❖ Owens Valley Water
- ❖ Pre-1914



Supply

- ❖ Total 1,500 Acres of Recharge Basins (126 acres of existing facilities, to be 280 acres by the end of 2010)

Recharge

Up to 100,000 AF/yr



Phase 1A Recharge Basin



- Completed in June 2008;
- 126 acres of recharge area;
- Receives water from AVEK West Feeder;

AVWB Phase 1A Recharge Basin

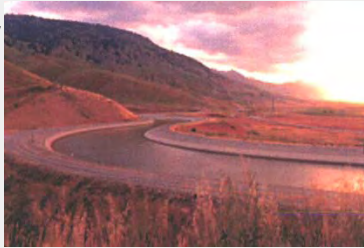


Antelope Valley Water Bank Key Plan Phase 1B Recharge Elements (On-Line in 2011)



AVWB Water Banking Elements

- ❖ SWP
- ❖ Owens Valley Water
- ❖ Pre-1914



Supply

❖ Total 1,500 Acres of Recharge Basins (126 acres of existing facilities, 280 acres in 2010)

Recharge

Recovery

❖ Up to 100,000 AF/yr



Storage

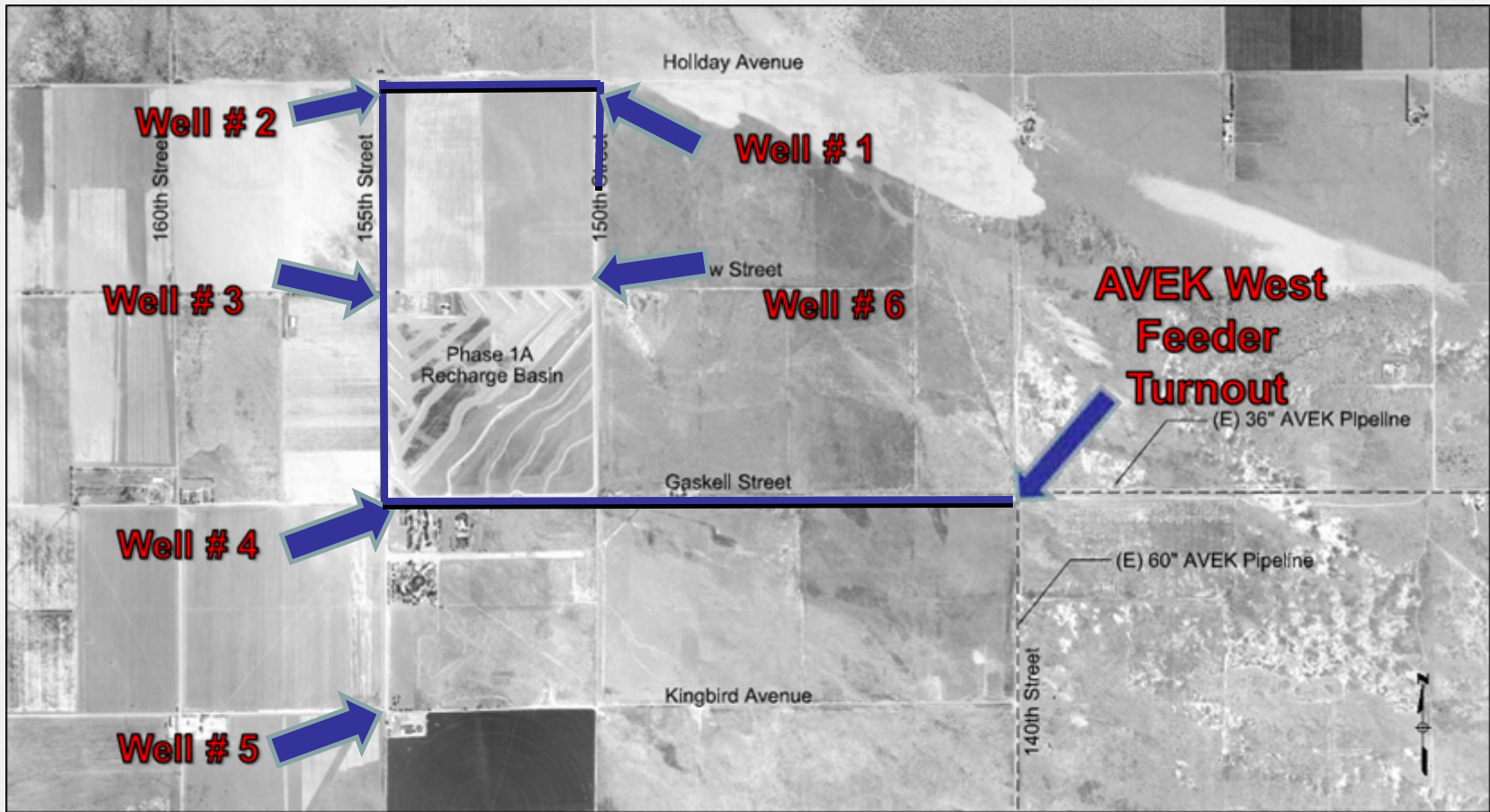
❖ Total Storage Capacity 500,000 AF

AVWB Recovery Facilities

- **Recovery Facilities at full build-out**
Total 100,000 AF/yr;
- **10 existing and up to 43 new wells**
(24-inch diameter) ;
- **Future wells constructed in phases;**
- **Coordination with Southern California Edison on short and long term power requirements.**



Antelope Valley Water Bank Key Plan- Phase 1C Recovery Elements



AVWB Water Banking Elements

- ❖ SWP,
- ❖ Owens Valley Water
- ❖ Pre-1914



Supply

- ❖ Banking Partners

Return

- ❖ Total 1,500 Acres of Recharge Basins (126 acres of existing facilities)

Recharge

- ❖ Up to 100,000 AF/yr Recovery Wells

Recovery

Up to 100,000 AF/yr



Storage

- ❖ Total Storage Capacity 500,000 AF

Conveyance



- ❖ California Aqueduct
- ❖ AVEK West Feeder
- ❖ LA Aqueduct (potential future option)

AVWB Project Regional Collaboration

Project Letters of Support

- Kern County Board of Supervisors;
- Edwards Air Force Base;
- San Diego County Water Authority;
- City of Lancaster;
- City of Palmdale, and
- Antelope Valley United Water Purveyors



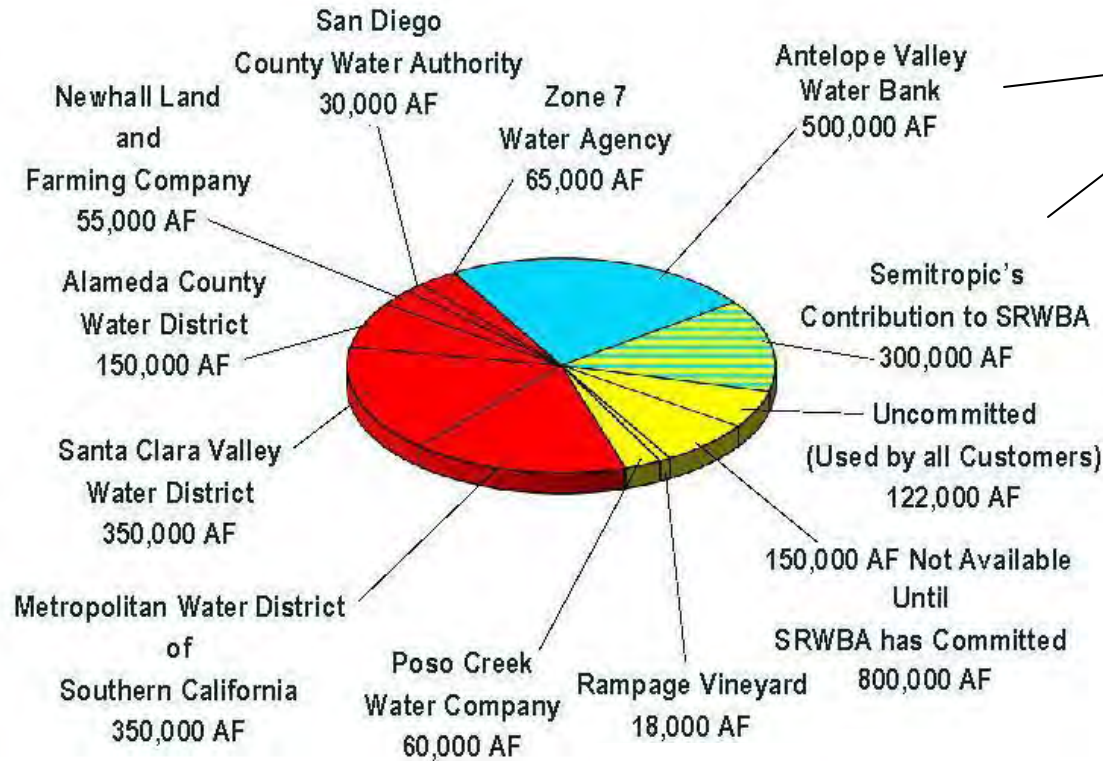
Current Project Banking Partners

- San Diego County Water Authority;
- Rosamond Community Services District;

Potential Partners:

- LADWP;
- Metropolitan Water District of Southern California;
- Other SWP contractors;
- Southern California Real Estate Developers;
- CA DWR
- JPA is currently seeking additional partners

Other Water Banking Programs with SWSD Involvement



❖ 800,000 AF Managed by SRWBA

Funding Mechanism for AVWB Project

➤ **Rate structure Cost per unit/share: - Negotiable (For 1 – 6,999) – Adopted 1/19/2011**

- \$2,078 per share (For 7,000 to 19,999 shares)
- \$1,870 per share (For 20,000 to 49,999 shares)
- \$1,662 per share (For 50,000 to 200,000 shares)
- Lower for certain participants that provide opportunities to share facilities

➤ **Definition of One Unit/Share of firm service:**

- Recovery - 1 AF/Yr
- Storage - 5 AF
- Recharge - 1 AF/Yr

➤ **TOTAL SHARES AVAILABLE = 184,000 shares**

89,000 in AVWB and 95,000 SWRU as of January 19, 2011

AVWB Initial Recharge and Recovery Facility Improvement Project

2009 American Recovery and Reinvestment Act (ARRA) Funded Project

Funding Opportunity Background

- ❖ **January 2009:** *Water Marketing and Efficiency Challenge Grants* Funding Opportunity Announcement (FOA) released.
- ❖ **May 22, 2009:** SRWBA submitted an application for ARRA Funds for Phase 1B and part of Phase 1C of the AVWB.
- ❖ **August 20, 2009:** AVWB Initial Recharge & Recovery Facility Improvement Project was selected to receive ARRA Federal Funds (\$5 Million). The total Project costs are \$12.5 Million Dollars.



AVWB Initial Recharge and Recovery Facility Improvement Project

2009 American Recovery and Reinvestment Act (ARRA) Funded Project

❖ Environmental Documentation

- ❑ Completed EA/FONSI approved by BOR on February 26, 2010.

❖ Design

- ❑ Design 100 percent complete, currently in bid process;
- ❑ Construction began September 2010; and.
- ❑ Construction to be completed by June 30, 2011.



AVWB Project Statewide Benefits

- Helps to meet California State Plan Objectives;
 - Conjunctive Management and Groundwater Storage
- Helps to meet California Drought Contingency Plan Objectives (November 2010)
 - Conjunctive Management and Groundwater Storage
 - Recharge Area Protection and Enhancement
- Helps to meet Federal Bureau of Reclamation Program Objectives
 - **WaterSMART (*Sustain and Manage America's Resources for Tomorrow Program Objectives*)**
 - Water shortage and water-use conflicts
- Reduces dependence on imported water supplies and reduces impacts on the Delta;
- Provides Water Managers Operational Flexibility –"guaranteed dry year supply"
- Reduces Groundwater Pumping Lifts for local pumpers
- Potential for Private Sector Partnerships
- Creates potential for "true" water marketing



AVWB Project Regional Benefits

➤ **AVWB Project Will Help to support current/future growth demands;**

- ❖ Provides additional storage capacity to alleviate future water needs, and
- ❖ Banked water supplies would support long-term reliability.

➤ **Helps to reduce the rate of aquifer overdraft;**

- ❖ 10% of all imported supplies contributed to improving overall basin balance and reduce historical declines.

➤ **Encourages Conjunctive Use;**

- ❖ Provides a mechanism for partners to buy, sell, lease and exchange water to avoid and reduce water supply shortage conflicts.

➤ **Multi-County Benefits**

- ❖ Los Angeles, Kern, Orange and San Diego Counties in Southern California.
- ❖ Identified in AV IRWMP as having significant regional benefits.

Questions???



The End

