

Water Supply Enhancement Project for the Poso Creek Integrated Regional Water Management Plan Region in the Southern San Joaquin Valley, Tulare Lake Basin, California, USA

Presented by

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To

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- ❖ Water Supply Assessment
- ❖ Groundwater Banking
- ❖ Integrated Planning
- ❖ Implementation for Survival of Livelihood

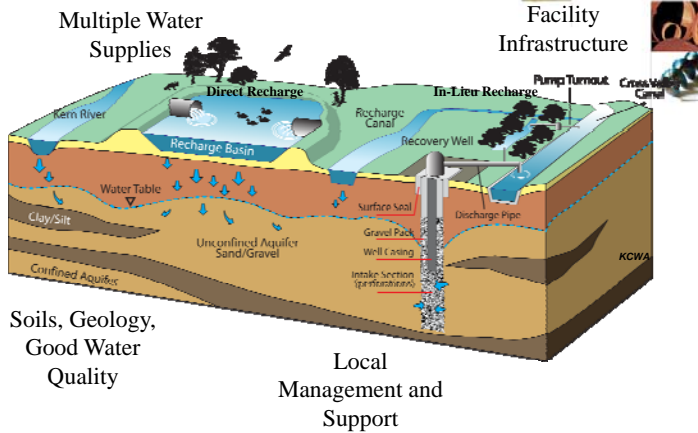


Location and Surface Water Sources



Poso IRWM Plan Region is in Northwestern Kern County

Four Keys to Success With Groundwater Banking



2009 Estimated Drought Impacts

Valley-wide Impacts for 2009

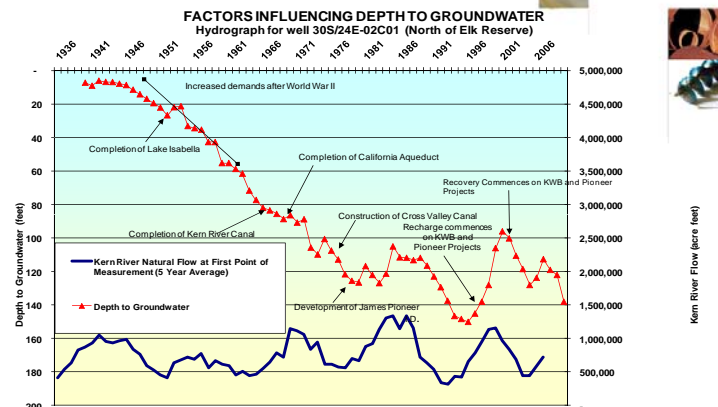
- Economic study by the University of California, Giannini Foundation of Agricultural Economics¹
- Income loss: \$1.6 to \$2.2 Billion (direct and indirect)
- Job loss: 60,000 to 80,000
- Reduction in cropped acreage: 20% to 55%
- Most impacts concentrated among low-wage earners.
- Long-term farm production costs expected to rise by 30%.

¹ Howitt, MacEwan, and Medellin-Azuara. Agricultural and Resources Economics Update, V. 12 no. 3 Jan/Feb 2009. Giannini Foundation of Agricultural Economics, University of California

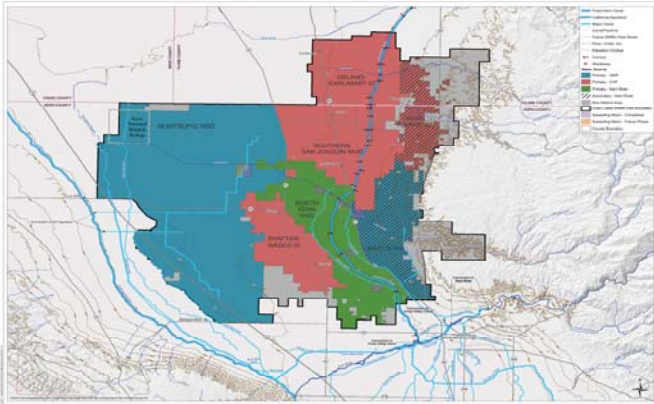
2009 Estimated Drought Impacts

- Kern County Livelihood Impacts for 2009
 - Economy: \$300 Million
 - Under-irrigated acreage: 48,000 acres
 - Unplanted acreage: 40,000 acres
 - Loss of On Farm Jobs and Support Services
 - Deterioration of Small Communities

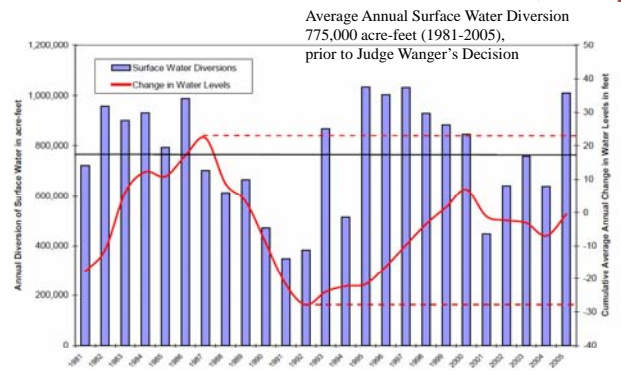
Changes in Groundwater Levels



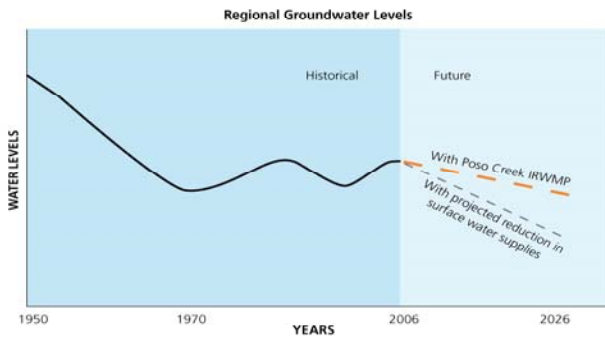
Regional Management Group and Sources of Surface Water Supply for Poso Creek Region



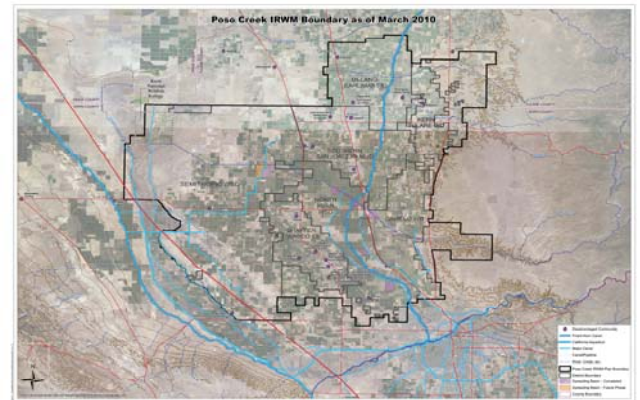
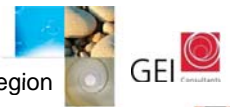
Operating Range of the Groundwater Basin over 25-year period



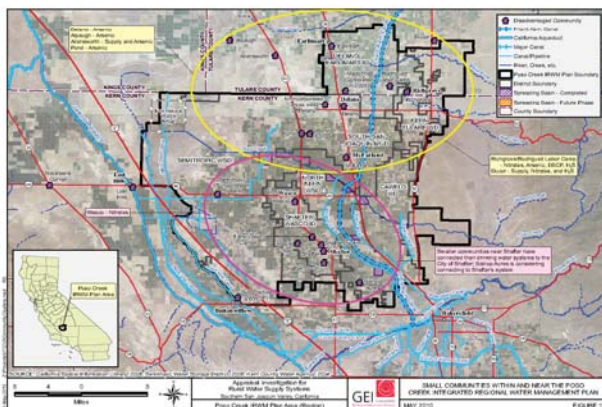
Need for Water Supply Enhancement Project



Predominantly Agricultural Water Use in Region



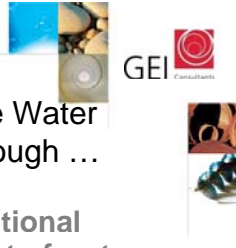
Many Rural Communities Depend On Agricultural Water Use in Region for Livelihood



Unused Absorptive Capacity Under Present Conditions ...



- There is unused irrigation absorptive capacity in Semitropic and Cawelo at times when there are unused regulated supplies (primarily CVP-Friant Class 1 and Class 2 water).
- There is unused spreading absorptive capacity in North Kern, Semitropic and/or Cawelo at times when there are unused unregulated supplies (primarily CVP-Friant Other water).
- There is not enough undelivered water to offset more than about one-third of the indicated reduction in deliveries in the best case.



Absorption of Available Surface Water Supplies can be Increased Through ...

- ✓ local agreements and institutional approvals respecting movement of water between districts within the Region,
 - ✓ conveyance improvements to link the source of supply to the location of the unused absorptive capacity, and
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- ✓ development of new absorptive capacity.



Operations Study Results

1. Environmental documents and agreements in place for regulatory approvals could increase supplies by up to 16,000 Acre-feet annually.
2. Adding interconnections between existing conveyance facilities could increase supplies by over 40,000 Acre-feet annually.



Project Implementation

- **Non-structural Measures**
 - CEQA/NEPA for Timely Regulatory Agency Approvals of Banking and Exchange Agreements
 - Monthly Meetings among RMG Allowing for Increased Communications on Water Availability and Needs
 - System Optimization Review
 - Rural Water Supply Planning



Project Implementation Continued

- **Structural Measures**
 - Conveyance Improvements
 - North Kern and Shafter-Wasco
 - Calloway Canal to Lerdo Canal Interconnections
 - Added Turnout capacity from the Friant-Kern Canal to North Kern
 - Enhancements of Poso Creek Channel
 - Absorptive Capacity Improvements
 - Direct Recharge by Constructing New Recharge Ponds
 - In-lieu Recharge by Constructing New Surface Water Distribution



Project Implementation Continued

- **Structural Measures Continued**
 - Interconnection Improvements
 - Cross Valley Canal to Calloway Canal for SWP and non-Friant CVP
 - Bi-Directional West to East Conveyance Through Semitropic for SWP, San Joaquin River Settlement, non-Friant CVP and Banking Partner Water
 - Improved Semitropic to Shafter-Wasco Connections
 - New Semitropic to North Kern Connections
 - Multi-District, Bi-Directional Conveyance between California Aqueduct and Friant-Kern Canal for 300 cfs



Project Implementation

STRUCTURAL PROJECTS (LOCATIONS SHOWN ON MAP)
Updated January 2010

● = In Progress ● = Construction Complete
● = Planning/Preliminary Design ● = Shovel-Ready for Construction
 = Federal funded (\$) = Potential State or Federal funding

<ul style="list-style-type: none"> 1 Connect Friant-Kern Canal Turnout to Cawelo's North System North Avenue Pipeline 2 Stored Water Recovery Unit (\$917K) In-Lieu Service Area Facilities Well Field Recovery Facilities & HCP 3a Expand P-1030 In-Lieu Service Area 3c New P-965 In-Lieu Service Area Expand Direct Recharge 4 G-W Banking North of DEID with Pailey ID 5 G-W Banking Conveyance Improvements to North Kern WSD Recharge and Recovery Facilities; Additional Friant-Kern Canal Turnout and Groundwater Recovery Wells 6 Pond Poso Spreading Grounds (\$2.2M) 7 Rag Gulch G-W Banking Project 8 Turnspeed GW Banking Project Enhancement along White River in DEID (\$1.55M) 9 White River G-W Banking in Rag-Gulch Modify Conveyance Systems 10 Calloway Canal Improvements 11 Calloway Canal to Cross Valley Canal Interconnection 12 Calloway Canal to Lerdo Canal Interconnection (\$5M) 13 Multi-District Conveyance Facility 14 North Interconnection between North Kern WSD/Shafter-Wasco (\$300K) 15 Pilot Arsenic Treatment Plant 	<ul style="list-style-type: none"> 16 Reverse Flow in the Friant-Kern Canal 17 Shafter-Wasco/Semitropic Interconnection on Kimberlina Road 18 Shafter-Wasco/Semitropic Interconnection on Madera Avenue 19 South Interconnection between North Kern WSD/Shafter-Wasco NON-STRUCTURAL PROJECTS (SOME LOCATIONS NOT SHOWN ON MAP) 20 Energy Usage 21 Joint Powers Authority 22 Institutional Agreements and Governance for IRWMP Implementation (\$300K) 23 GW Banking for Parties Outside of Poso Creek IRWMP Region (\$5M) 24 Optimizing Region's Pumping Lifts 25 Enhance Groundwater Monitoring and/or Modeling ENHANCE ENVIRONMENTAL RESOURCES 26 Wildlife Improvement Projects in IRWMP Region 27 Environmental Water Management in Support of Wildlife Settlements Outside of IRWMP Region ENHANCE FLOOD CONTROL 28 The Poso Creek Flood Control and Water Conservation Reservoir Project ASSIST ECONOMICALLY DISADVANTAGED COMMUNITIES 29 Enhance Water Supply, address Drinking Water Treatment Needs, and upgrade Waste Water Treatment Facilities (-\$7M)
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Findings and Conclusion



GEI
Consultants



- **Goal:** Mitigate loss of water supply reliability
 - **Assets:** Multiple sources of supply; conveyance between SWP and CVP; absorptive capability; available groundwater storage capacity; IRWMP; and a “**workable**” management group.
 - **Needs:** Institutional approvals to move water around; funding assistance; recoup loss of and develop additional SWP/CVP yield.
 - **Limitation:** Local Implementation is limited without a Sacramento-Bay Delta Solution
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Questions?