Integrated planning: Is it worth the trouble?

Antelope Valley
Integrated Regional Water
Management Plan Group

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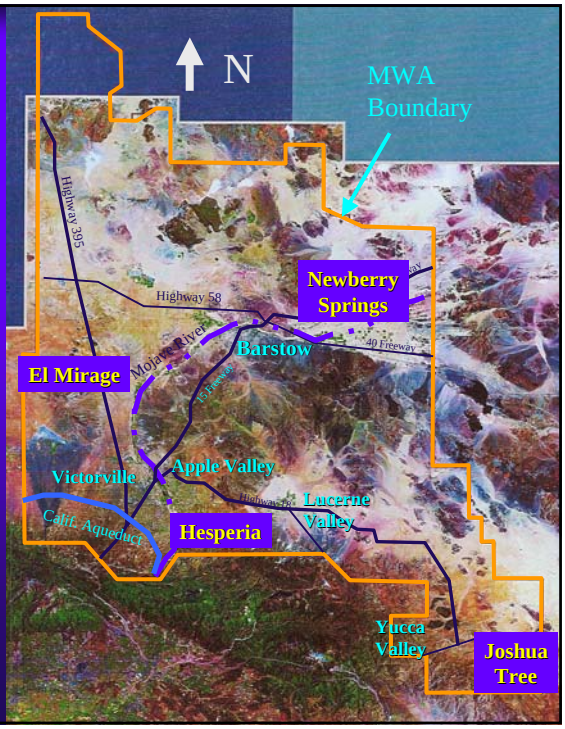
Overview

- Region
- Challenges
- Process
- Lessons Learned

What is our "Region"

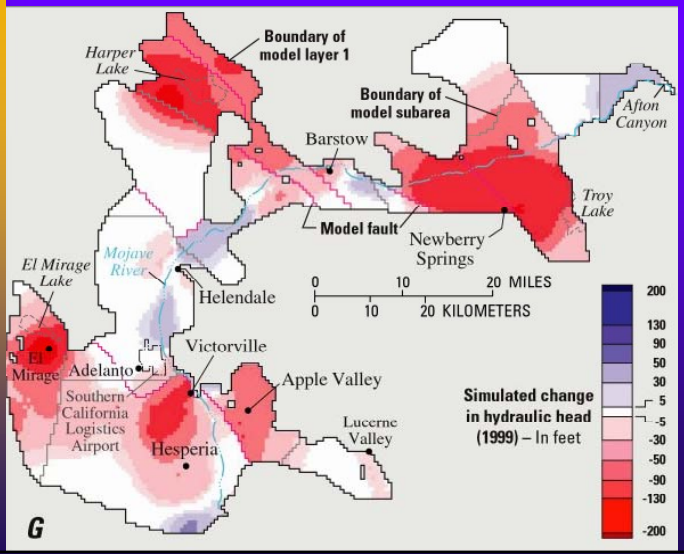
Our "Region", our Mission

Manage the region's water resources for the common benefit to assure stability in the sustained use by the citizens we serve

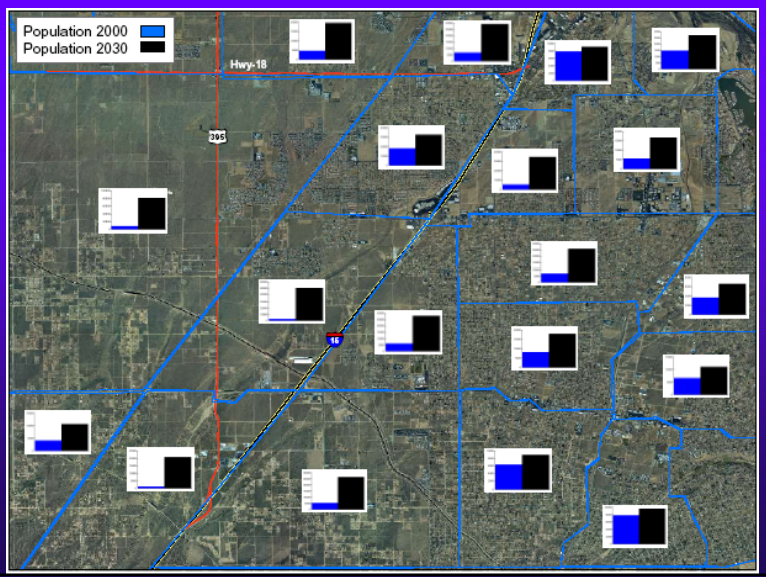


What are the Challenges?

Historic reliance solely on groundwater has caused water levels to drop in places…similar issues have existed elsewhere within MWA



Rapid growth is adding to the pressure to provide adequate resources



SB 221 and SB added a new dimension

- SB 610 and SB 221 strengthen ties between water and development
  - "intent of the legislature is to strengthen the process…to determine the adequacy of existing and planned water supplies to meet future demands"
  - Requires **"proof"** of water for significant development
- Both require assessment from cities or counties
- Challenges to new growth using SB221/610 and other water planning mechanisms are emerging

What can we do to prepare?
Develop and **execute** a regional plan

- MWA has developed a Regional (integrated) Water Management Plan
  - Population & water demand projections
  - Stakeholder needs and issues
  - Facilities needed to replenish ground water supplies
  - Revenue alternatives to support plan
- Regional water management plan is a long-term **roadmap** for managing water resources throughout the MWA service area
- Plan to serve as a benchmark for SB 221/610
- Community backed common "Vision"

How did we pull it all together?

We started with a strong community base using a Technical Advisory Committee

- Apple Valley Ranchos
- Baldy Mesa Water District
- Bar-H Mutual Water Company
- Bighorn Desert View Water Agency
- California Department of Fish & Game
- Citizens for a Better Community
- City of Barstow
- City of Hesperia
- City of Victorville
- County of San Bernardino Special Districts
- Department of Water Resources
- Hi-Desert Water District
- Jess Ranch
- Joshua Basin Water District
- Jubilee Mutual Water Company
- Lahontan Regional Water Quality Control Board
- Mariana Ranchos County Water District
- Spring Valley Lakes Association
- Town of Apple Valley
- Victor Valley Wastewater Reclamation Authority
- Victor Valley Water District
- *In addition, approximately 20 individual participants

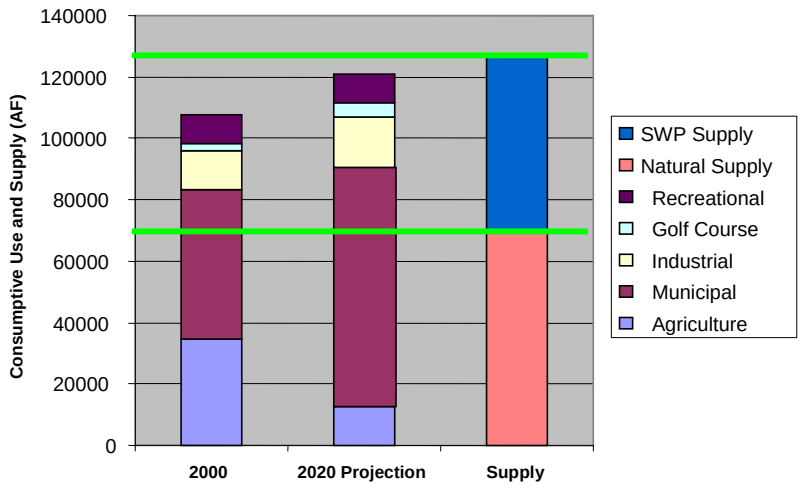
The community (TAC) set overarching Basin Management Objectives

- Balance future water demands with available supplies
- Maximize the overall beneficial use of water throughout the Mojave Water Agency

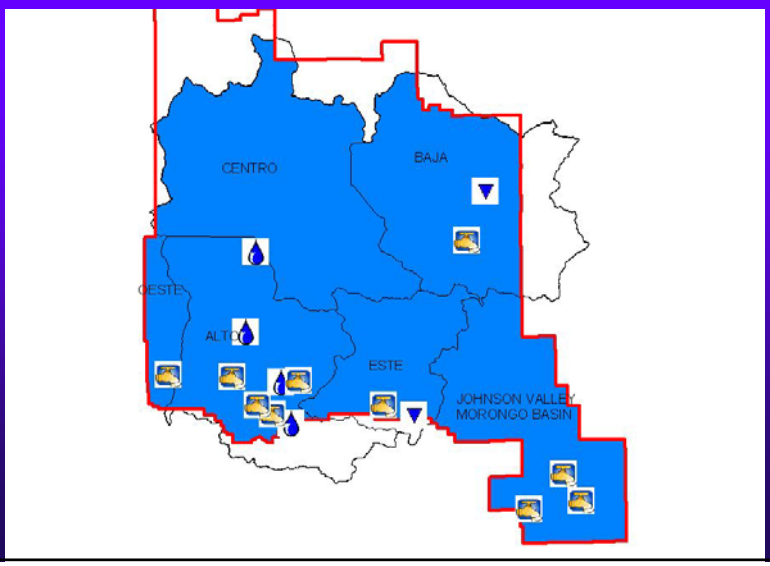
The Plan was developed in a Phased Approach

- Phase 1
  - Review issues in light of new information
  - Update physical data
  - Inventory possible solutions
- Phase 2
  - Refine objectives and performance measures
  - Evaluate alternatives
  - Screen and select alternatives
- Phase 3
  - Detailed feasibility (as needed)
  - Environmental compliance
  - Finance plan
  - Adopt Plan

The first phase focused on Supply and Demand

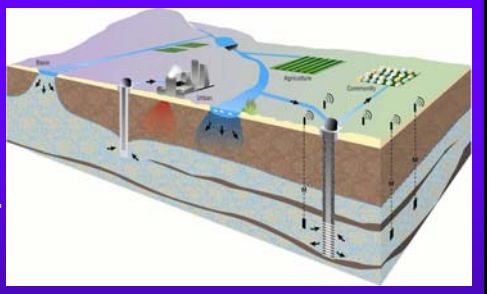


The second phase mined for alternatives and evaluated promising ones

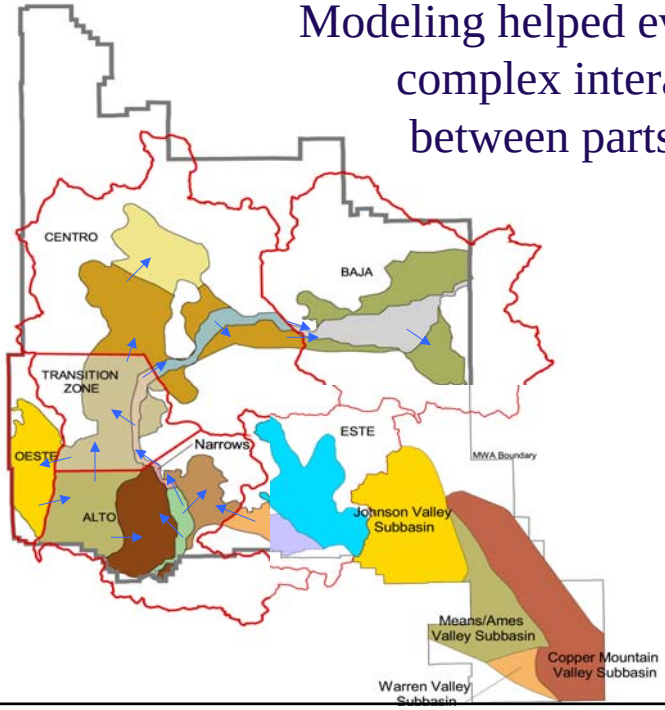


We used a "Systems Approach" to Screening

- Formal process
  - Big-picture view of issues and solutions
  - Focus on interactions between parts of water related system
  - All in the context of specific objectives



Modeling helped evaluate complex interactions between parts of the system



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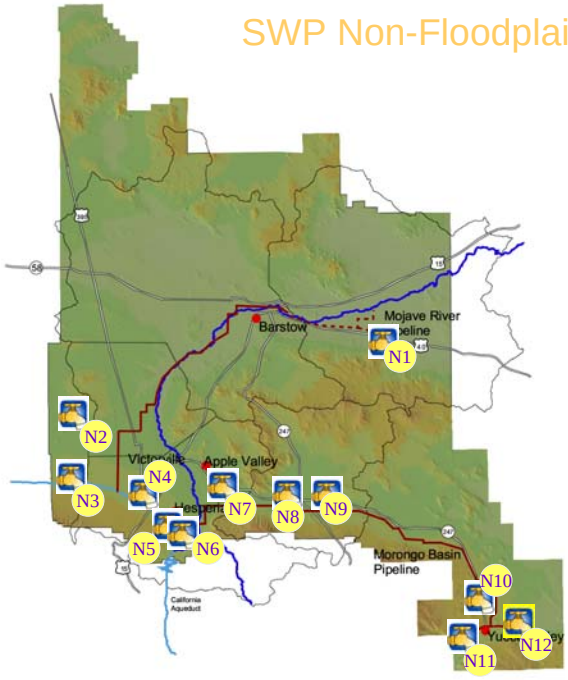
The TAC Developed many possible alternatives to meet the Fundamental Objectives

Such as…..

SWP Non-Floodplain Aquifer Recharge



N1. Kane Wash/ Newberry Springs Recharge Ponds

N2. El Mirage Dry Lake Recharge Ponds

N3. Sheep Creek Recharge Ponds

N4. Oro Grande Wash Recharge Ponds

N5. Cedar Street Detention Basin Recharge

N6. Antelope Valley Wash Recharge Ponds

N7. Recharge Ponds South of Apple Valley

N8. Recharge Ponds West of Helendale Fault

N9. Lucerne Valley Recharge Ponds

N10. Means/Ames Valley Recharge Ponds

N11. Hi-Desert Water District Recharge Basin #3

N12. Joshua Basin District Recharge & Pipeline

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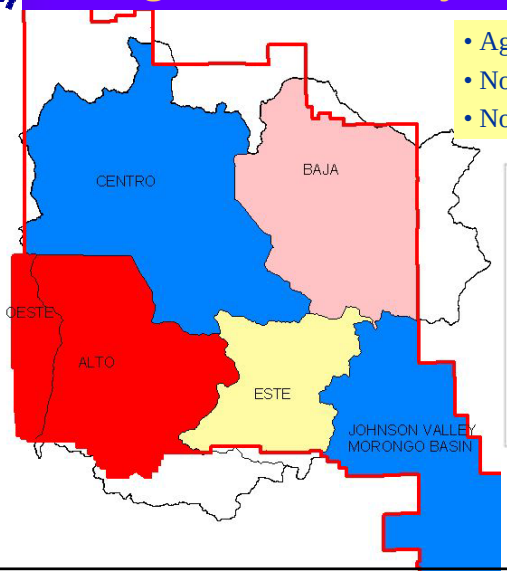
After brainstorming, we modeled combinations of management actions and projects

		Alternative									
Project/Management Action	Subarea	C0	D0	C3	D2	D3	D5	D5r	D6	D6r	D7
Additional Recharge Facilities South of Rock Springs Outlet	Alto				X	X	X		X		
Alto wellhead treatment	Alto			X	X	X	X	X	X	X	X
Antelope Valley Wash Recharge Ponds	Alto			X	X	X	X	X	X	X	X
Cedar Street Detention Basin Recharge	Alto			X	X	X		X	X	X	
Hesperia Lakes Recharge	Alto					X		X		X	
Mojave River Pipeline Extension - Transition Zone	Alto			X							X
Oro Grande Wash Recharge Ponds	Alto			X	X	X	X	X	X	X	X
Recharge Ponds South of Apple Valley	Alto			X		X	X	X	X	X	
Regional Surface Water Treatment Plant	Alto				X		X	X			
Silver Lakes In-Lieu Recharge	Alto								X	X	X
Rock Springs Release	Alto			X		X	X	X	X	X	X
Baja Stormflow Retention	Baja			X		X	X	X	X	X	X
Daggett/Newberry Springs Recharge Ponds	Baja			X							
Kane Wash Recharge Ponds	Baja				X	X	X	X	X	X	X
Alto Makeup (to Hodge and Lenwood)	Centro	X	X	X	X	X	X	X	X	X	
AVEK	Centro	X	X	X	X	X	X	X	X	X	X
Hinkley water supply	Centro	X	X	X	X	X	X	X	X	X	X
Cushenbury Wash Stormflow retention	Este			X				X	X	X	X
Lucerne Valley Recharge Ponds	Este			X							
Recharge Ponds West of Hellendale Fault	Este			X	X	X	X	X	X	X	X
Hi-Desert WD: Warren Valley	MBJV	X	X	X	X	X	X	X	X	X	X
Joshua Basin District Recharge and Pipeline	MBJV			X	X	X	X	X	X	X	X
Means/Ames Recharge Ponds	MBJV						X	X	X	X	X
Pioneertown water supply	MBJV			X	X	X	X	X	X	X	X
Sheep Creek Recharge Ponds	Oeste			X	X	X	X	X	X	X	X
Urban Conservation					X	X	X	X	X	X	X
VVWRA Reclamation				X	X	X	X	X	X	X	X

Modeling showed how alternatives might or might not meet objectives

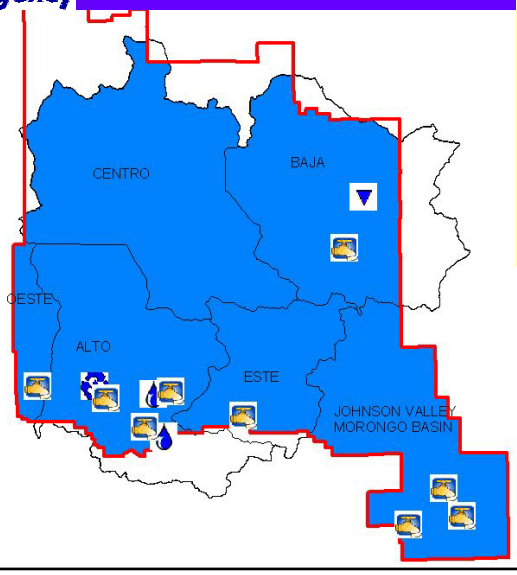
- Agricultural Demand Scenario 2
- No new SWP project imports
- No municipal conservation



Percentage of Demands Met
- Below 50%
- 50% - 70%
- 71% - 81%
- 81% - 90%
- 91% - 100%

Some alternatives fully met objectives

- Agricultural Demand Scenario 2
- 10% municipal conservation in the Mojave River Basin;
- 5% municipal conservation in the Morongo Basin/Johnson Valley Area
- 13 projects including:
  - –Regional Treatment Plant in Alto (12,000 AF/yr capacity)



Percentage of Demands Met
- Below 50%
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Principal Aquifer	Subarea	Sub-Aquifer	Included in Final Alts.	Projects
Mojave Regional Aquifer	Baja		X	Kane Wash / Newberry Springs Recharge Ponds
	Oeste			El Mirage Recharge Ponds
			X	AVEK
			X	Sheep Creek Recharge Ponds
	Alto	West Regional	X	Oro Grande Wash Recharge Ponds
		Mid Regional	X	Cedar Street Detention Basin
			X	Antelope Valley Wash Recharge Ponds
		East Regional	X	Recharge Facilities South of Apple Valley
	Este		X	Recharge Ponds West of Helendale Fault
Morongo Basin/ Johnson Valley	Este	Lucerne Valley	X	Lucerne Valley Recharge Ponds
	Means/ Ames		X	Means/Ames Valley Recharge Ponds
	Warren Valley		X	Hi-Desert Water District: Warren Valley
			X	Hi-Desert Water District Recharge Basin #3
	Copper Mountain		X	Joshua Basin District Recharge & Pipeline
Mojave Floodplain	Centro		X	Lenwood Recharge Ponds
			X	Hodge Recharge Ponds
	Transition Zone			Recharge Ponds North of Helendale Fault
			X	In-Lieu Supply to Silver Lakes
			X	Mojave River Pipeline Extension - Transition Zone
	Alto		X	Rock Springs Release
			X	Hesperia Lakes Recharge
				Recharge Facilities South of Rock Springs Turnout
				Release SWP from Silverwood Lake
	Baja			Minneola Recharge Ponds
			X	Daggett Recharge Ponds
			X	Baja Storm Flow Retention - 2 locations
	Alto			Gates for Mojave River Dam
Este			X	Cushenbury Flood Detention Basin

Recommended Alternatives were developed…

Reclaimed Water 8,500 AF/yr

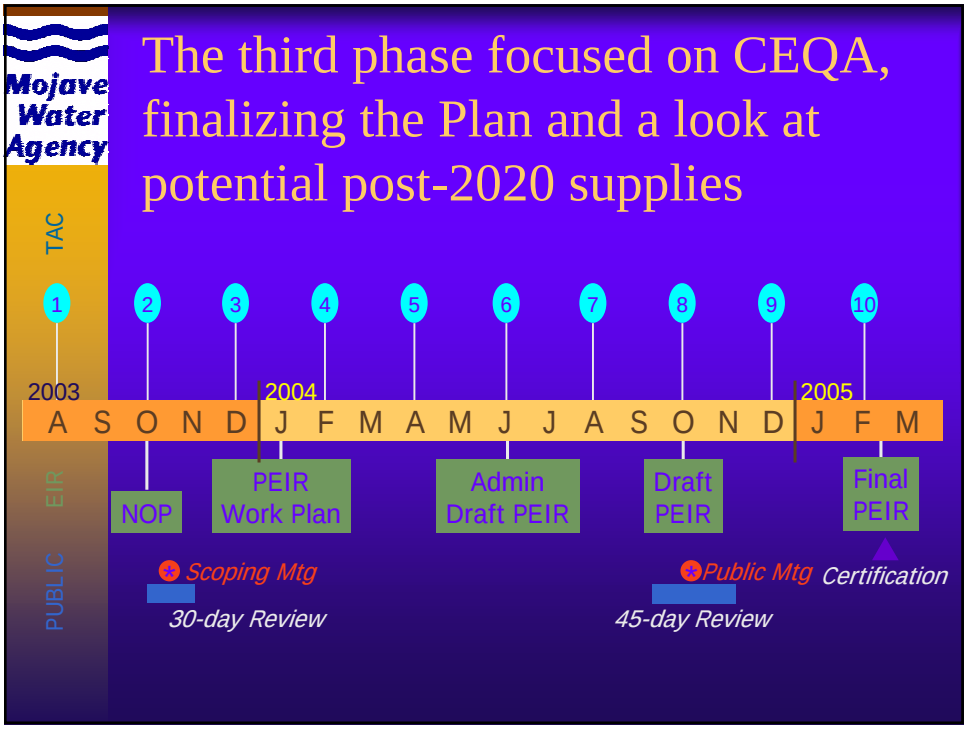
Municipal Conservation 16,000 AF/yr

***12,000 from Treatment Plant in D5r**

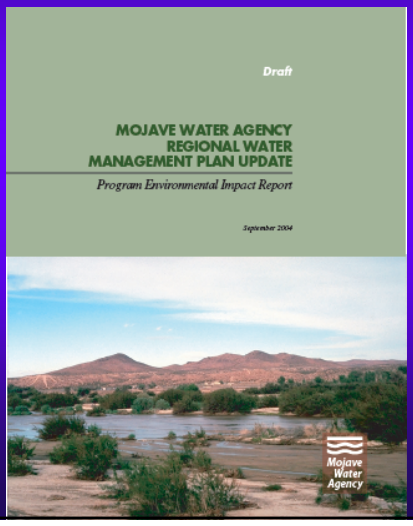
…and ultimately prioritized

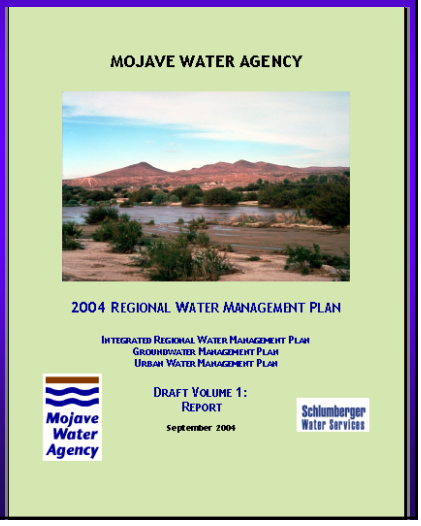
Project or Action	Aquifer	Existing / Pursued?	Amount of Current Overdraft in Aquifer?	Expected Growth	Comments	Priority
10% Municipal Conservation	All	No	High	High	5% in Morongo/Johhson ;Needs to start immediately	High
Wastewater Reclamation	All of Alto	Yes	High	High	VVWRA is actively pursuing	High
Alto Regional Treatment Plant	All of Alto	No	High	High	High expected cost	Moderate
Alto Wellhead Treatment	All of Alto	Yes	N/A	N/A	Addresses localized water quality problems; Arsenic standard by 2006	High
Recharge	Alto Floodplain	Yes	High	High	Rock Springs existing; feasibilty studies needed	High
Recharge	Alto Mid-Regional	Yes	High	High	Feasibility studies needed	High
Recharge	Alto West Regional	Yes	High	High	Feasibility studies needed; Oro Grande tests proceeding	High
Recharge	Alto East Regional	No	Moderate	High	Feasibility studies needed	Moderate
Recharge/ In-lieu Recharge	Transition Zone Floodplain	No	Low	High	Recharge not needed; assumes continued VVWRA recharge; limited drought buffer	Moderate
Recharge or Stormflow Retention	Baja Floodplain	No	High	Low	Feasibility studies needed	Moderate
Recharge	Baja Regional	Yes	High	Low	Feasibility studies needed	Moderate
Hinkley Water Supply	Centro Regional	No	N/A	N/A	Addresses water quality and quantity problems	Moderate
Recharge or Stormflow Retention	Este Regional	No	Moderate	Moderate	Feasibility uncertain; Judgment limitations for stormflow retention; listed County flood control project	Moderate
Recharge	Lucerne Valley	No	Low	Moderate	Feasibility studies needed; no current demand	Low
Recharge	Oeste Regional	No	Moderate	Moderate	Feasibility studies needed	Moderate
Recharge	Copper Mtn Valley	Yes	Moderate	Moderate	Feasibility studies in progress	Moderate
Pioneertown Water Supply	Means/Ames Valley	No	High	N/A	Addresses water quality and quantity problems; no potable water available	High
Recharge	Means/Ames Valley	No	Moderate	Moderate	Feasibility studies needed	Moderate

The third phase focused on CEQA, finalizing the Plan and a look at potential post-2020 supplies



In February 2005, the MWA Board certified the EIR and adopted the Plan





We configured the RWMP will serve as 3 types of planning documents…

- Integrated Water Resource Plan (IWRP)
  - Conservation/Reclamation
  - Riparian and wetland areas – habitat protection
  - Floodwater management
- Groundwater Management Plan (GMP)
  - Basin management objectives
  - Public involvement
  - Monitoring protocols
- Urban Water Management Plan (UWMP)
  - Supply:Demand balance and forecasts
  - Multiple dry year shortage contingency plan
  - Water conservation measures
  - Wastewater recycling

Lessons Learned

- Go ahead and take the plunge: intimately involve your community
  - Its costly
  - Its time consuming
  - It requires dedication and perseverance
- Don't be afraid of losing control
- Think "systems" and "interactions"
- A strong foundation makes a strong structure

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Integrated Planning IS worth the investment (trouble)

By working together we CAN meet the challenges ahead

EVERYONE has a role to play