

Flowing water video FS



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Water IS Critical



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- All life is linked by one element – WATER
- All life in a watershed is drawn to its river and tributaries
- These truths drove exploration, settlement and development in the Santa Ana River Watershed past and present and are critical to our future.



The Santa Ana River



Water's Story in the Santa Ana Watershed

Daniel Cozad,
General Manager



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water

The Santa Ana Watershed



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water



- Over 2,650 square miles
- 6 million residents
- Portions of 4 Counties
 - Orange County
 - Riverside County
 - San Bernardino County
 - Los Angeles County
- All Linked by one River



The Santa Ana River Watershed

Mojave Desert

San
Gabriel
Mtns.

San
Bernardino
Mtns.

Chino
Basin

Los
Angeles

Orange
County

Santa
Ana
Mtns

Lake Elsinore/
San Jacinto Watershed

San
Jacinto
Mtns.

*Pacific
Ocean*

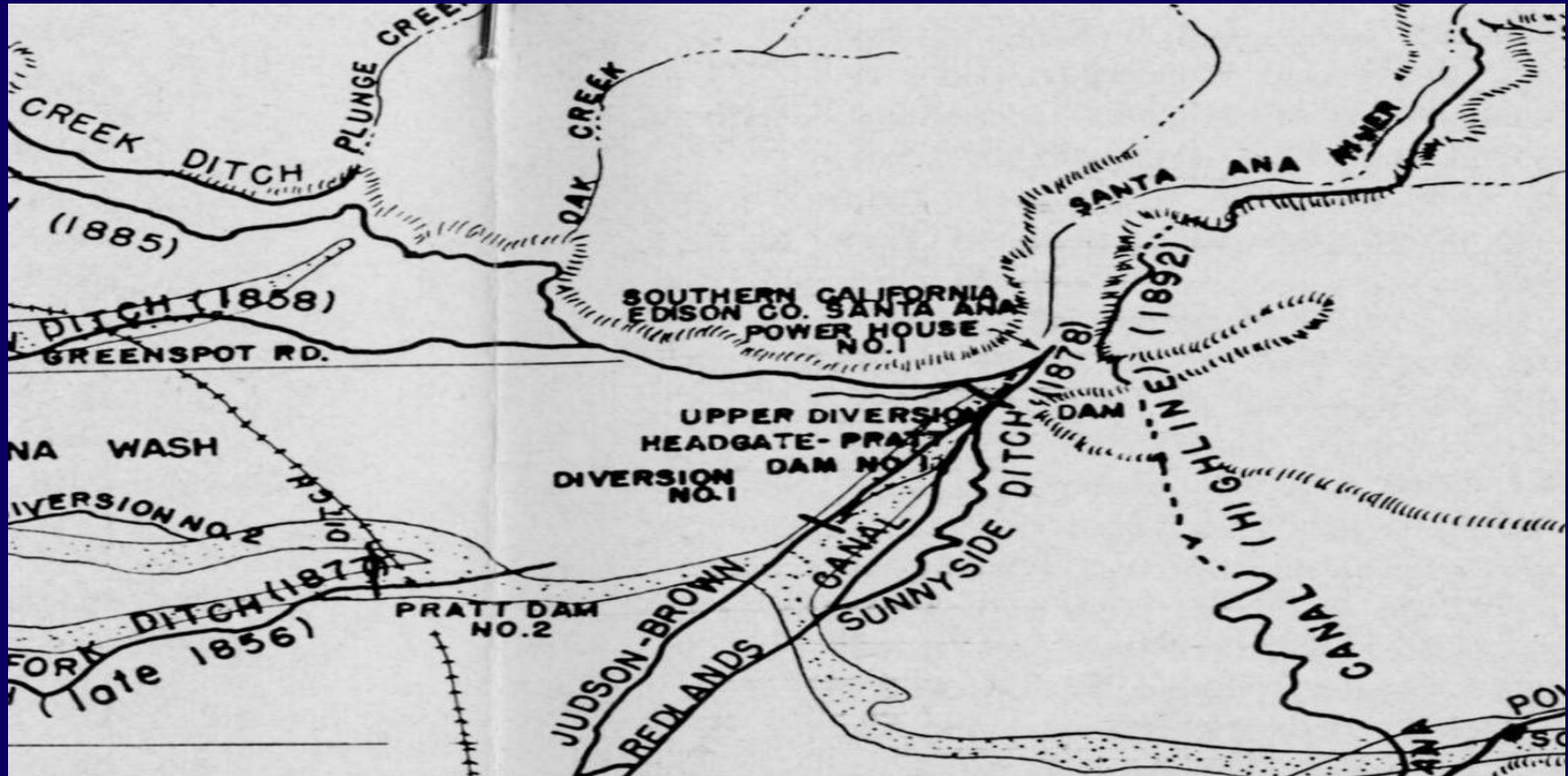


Location Map 1900's



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water



Watershed Video



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Mission Period



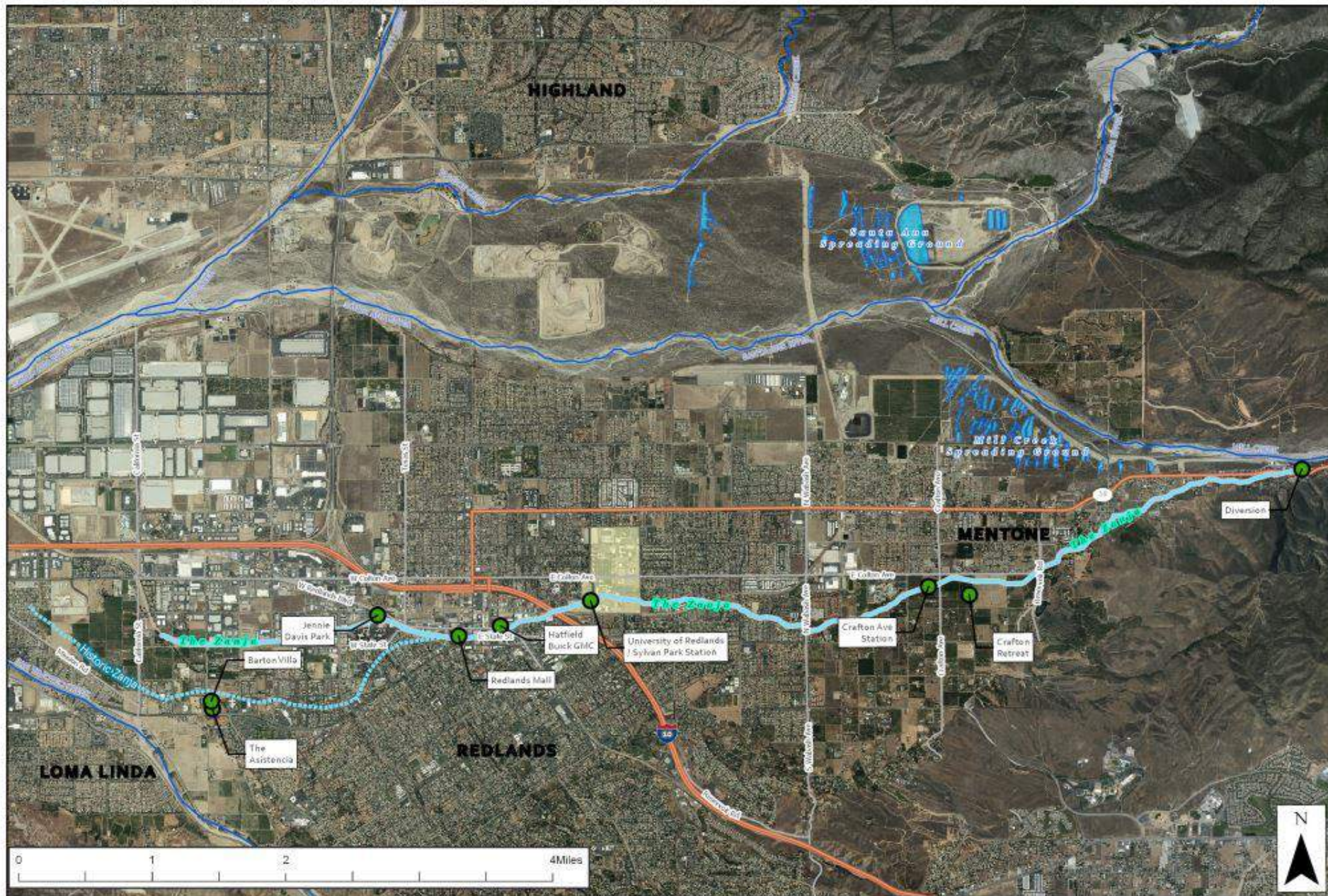
**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water

- Written history initiated around 1810
- Mill Creek Zanja 1819 – 12 miles long
- Served Mission San Gabriel Rancho in current Loma Linda
- Native American Guachama Village labor
- provided ample water for farming and grinding of wheat - Father Payeras



MILL CREEK ZANJA



Mexican-Mormon Period



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Rancho San Bernardino 35,500 acres granted to Lugos by Gov. Alvarado
- Ranched the area of San Bernardino, Fontana, Rialto, and Redlands
- 1848 Mexican American War
- 1851 Lugos sold to Mormon settlers including Capt. Lytle \$77,500 15% MHP
- 1853 SBC was formed
- 1854 Water Commissioners formed for water rights in 8 Ag counties



Statehood & Settlement



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- 1853 SBC was formed
- 1854 Water Commissioners formed for water rights in 8 Ag counties
- 1856 First water rights challenges
- 1857 Mormons recalled and lands sold and water was divided by verbal agreement until 1859



Early Water Sharing



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water

“It took several hours for the water to run from Crafton to the lower reaches. East end users could refrain from taking water until 3:00 pm allowing irrigation until bedtime in the west end. The water turned into the ditch at 9:00 pm would refill the channel before west end farmers awoke and cattle needed watering. Water would reach the Barton Ranch by 4:00 am and thereby all have daylight for irrigation. Currently, Bear Valley, Crafton, SBVWCD, and others coordinate and share water facilities in similar ways.



Water Litigation Timeline



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- 1861- 64 Barton/Crafton litigation on Zanja
- 1870 litigation among .et al groups, waste water and local use
- 1880 movement up the fan to water
- 1885 development of facilities to capture water wasted to the ground and 1890 Bear Valley facilities bring SAR water
- Drought 1898-1904 began movement to wells for water



Settlement timeline



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- San Bernardino 1854 Rancho and Mormon period
- Redlands - 1888 between Zanja and Crafton
- Riverside – 1893 San Bernardino County
- Highland and Redlands expand with Big Bear water 1902
- 1932 James Irvine litigation v. SBVWCD



Early River Efforts



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water





SAR Settlement



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- 1942 Irvine/OC Water District settlement
 - Limits spreading in the Wash Basins
- 1951 OCWD v Redlands, San Bernardino, Colton and Riverside
- 1963 Western Municipal files against 240 defendants
- 1963 OCWD files against all water producers above Prado Dam
- 1969 SAR and Western/SB adjudications



100 Years of Management



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Water supply critical agriculture
- Agriculture critical to homesteading
- Homesteading led to settlement
- Settlement allowed development
- Development provided economic value, jobs and raised the quality of life
- Recharge critical to these historic activities



Flood, Fire & Drought



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Severe Drought from 1889-1903
- 4 sections of Homestead Land dedicated
- Tri-Counties Reforestation Committee 1907
- Water Conservation Association Inc. 1909
- Funded by Orange Exports
- First works built in October 1911
- Transferred to SBVWCD 1932



Agricultural Origins



- 1880's
 - Over ½ million citrus trees in California
 - Well over half of these in Upper Santa Ana River Watershed
- By 1895
 - Farm centers in Riverside and Redlands traded positions as the wealthiest city (per capita) in America
- All due to robust surface and groundwater availability & irrigation



Gage Canal

Agricultural Origins



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- 1850
 - California's largest wineries
 - Barton - Redlands
 - Cucamonga Appellation
- Destroyed by flooding
- Converted for Development



Domenico in vineyards with crew



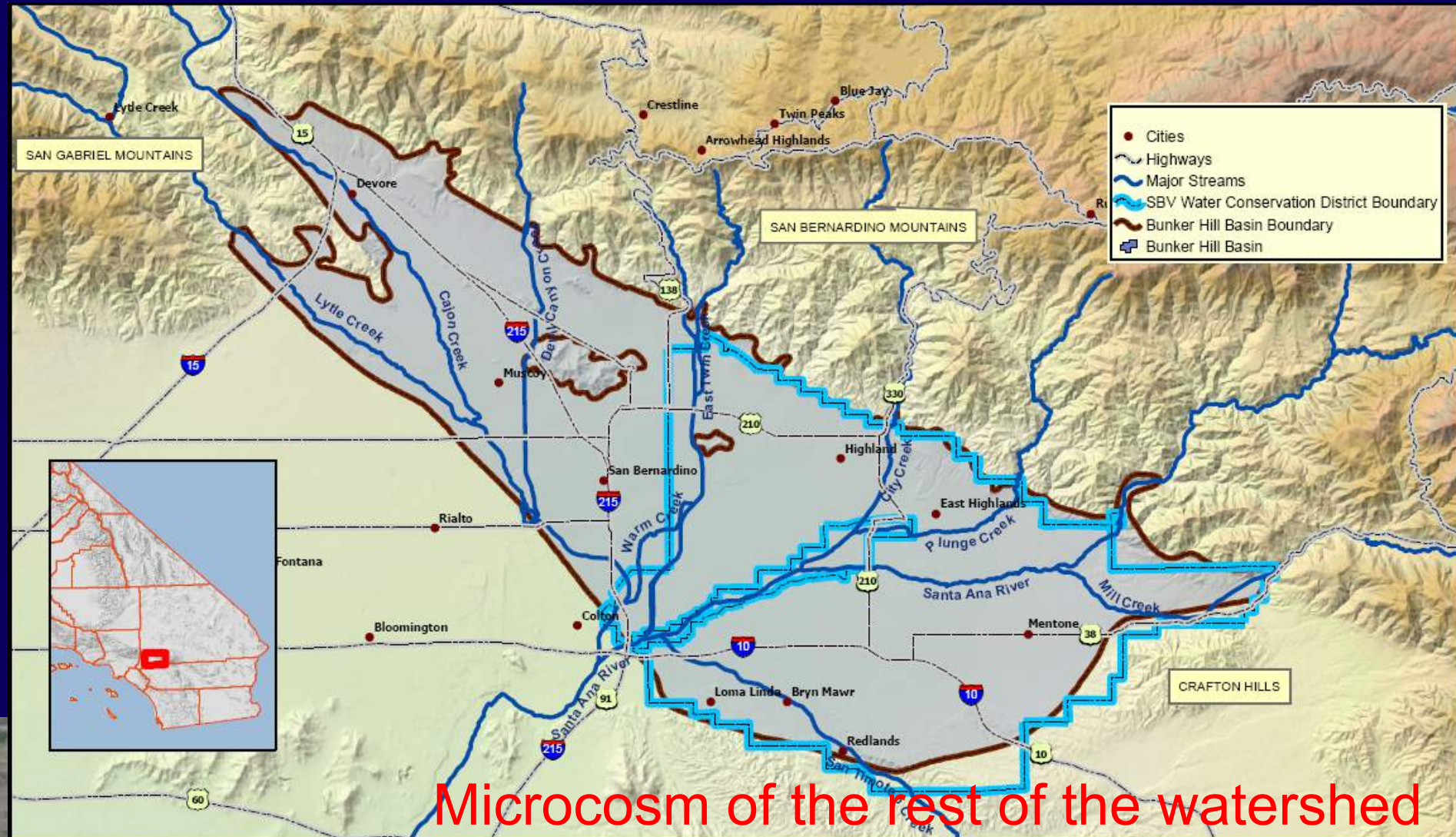
Thomas Winery

Upper Urban Watershed



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water



First Headgates 1918



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Open Ditches Carry Diverted Water To Spreading Grounds



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Early Spreading Grounds



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Example of a Pedley Dam



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Permanent Weir/Gates

November 21, 1930



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water



Later Named Cuttle Weir 1933



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Still Working Today



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Digging Spreading Laterals F and G - 1933



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Spreading Grounds, Santa Ana River - 1930



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Spreading Grounds, Santa Ana River - 1930



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Santa Ana Basins



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Mill Creek Basins



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Helping Nature Store Our Water



Flood Damaged Road



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Flood Damage 1934



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water





Seven Oaks Dam



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Improved the flood condition of the river
- Significantly changes recharge and river habitat and impacted water quality
- Enabled Enhanced Recharge



Endangered Species



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water



SBWWCD

SANTA ANA SUCKER



Wash Plan Land Use



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Improve land use and habitat of Wash Area
- Wash Plan Task Force
- Changes in ownership with BLM and others
- Improves habitat and ensures future recharge operations
- Benefits Cities, District and Mining Partners



Water Pipeline to OC



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- The river is a primary conduit for water from the upper watershed to OC
- 232,000 Acre Feet required by the judgement in 1969
- Water must be able to be used
- TDS is the limiting constituent for use
- OC now reuses much of its wastewater



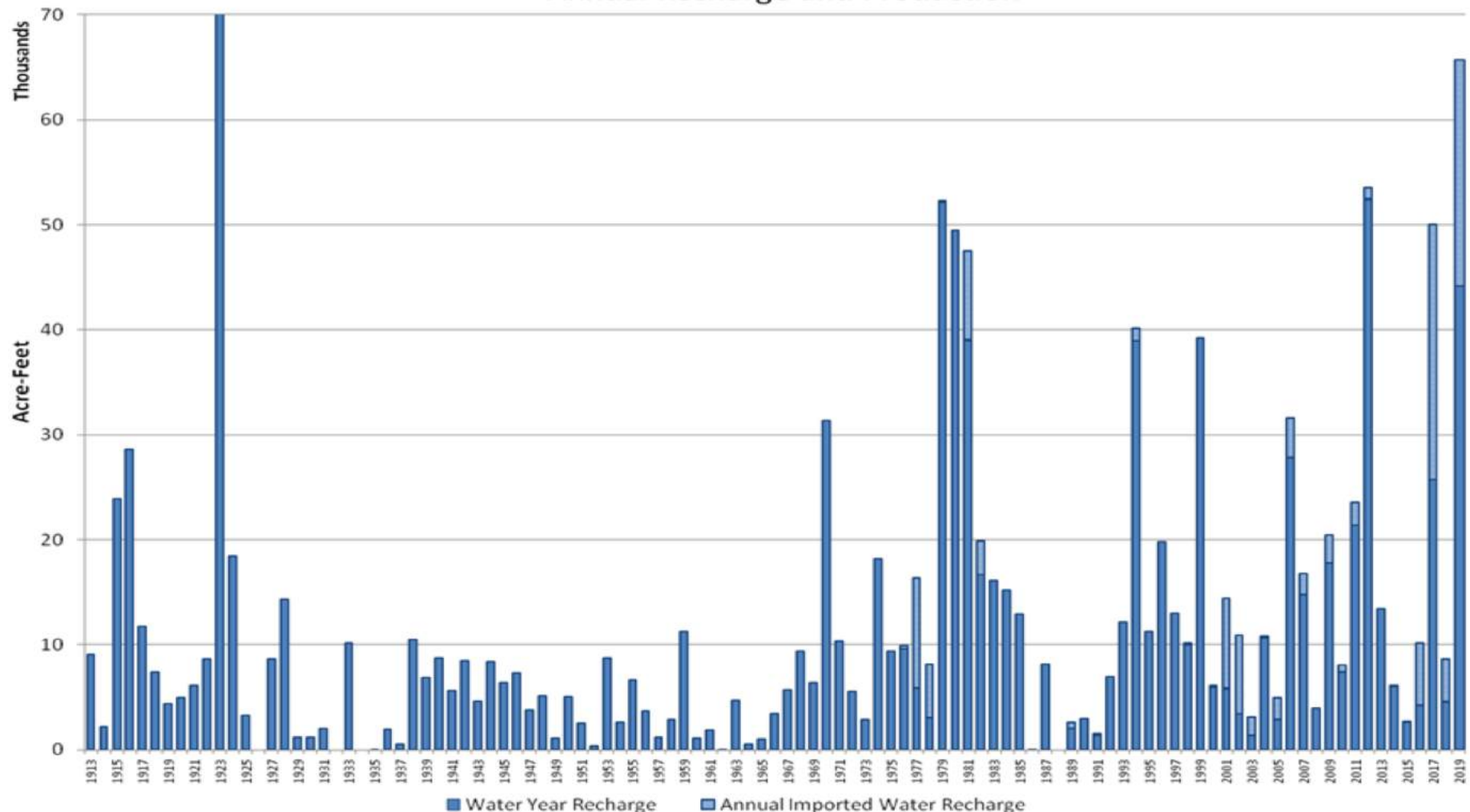
Acre Feet of Conserved Water in the Bunker Hill Basin



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water

San Bernardino Valley Water Conservation District
Annual Recharge and Production



Santa Ana River Trail and Parks



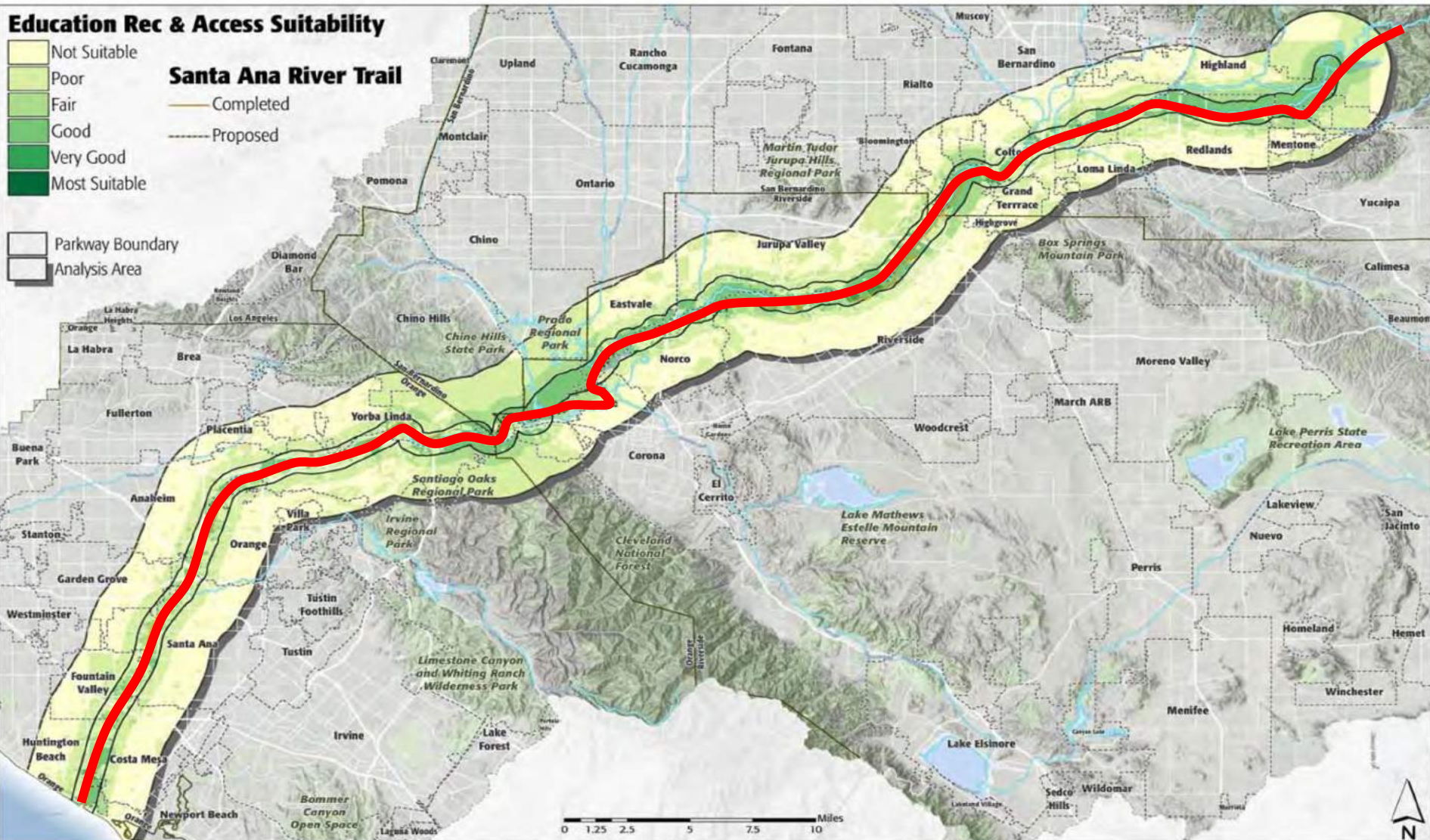
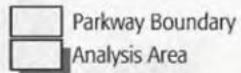
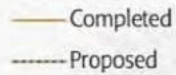
San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

Education Rec & Access Suitability



Santa Ana River Trail

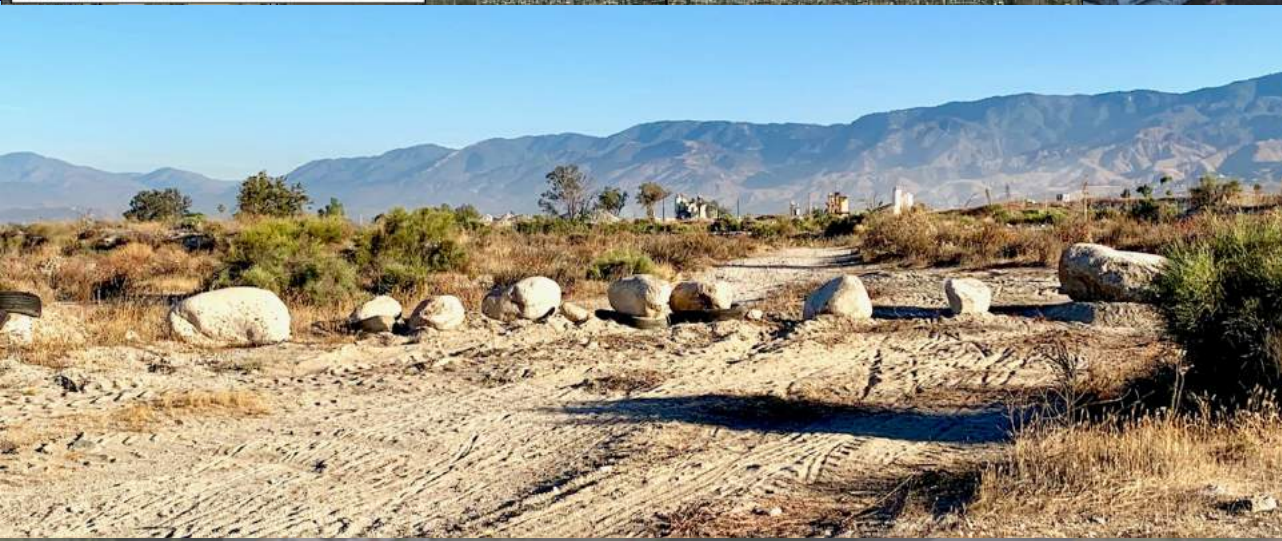


Homeless in River Floodway



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water



Watershed Challenges

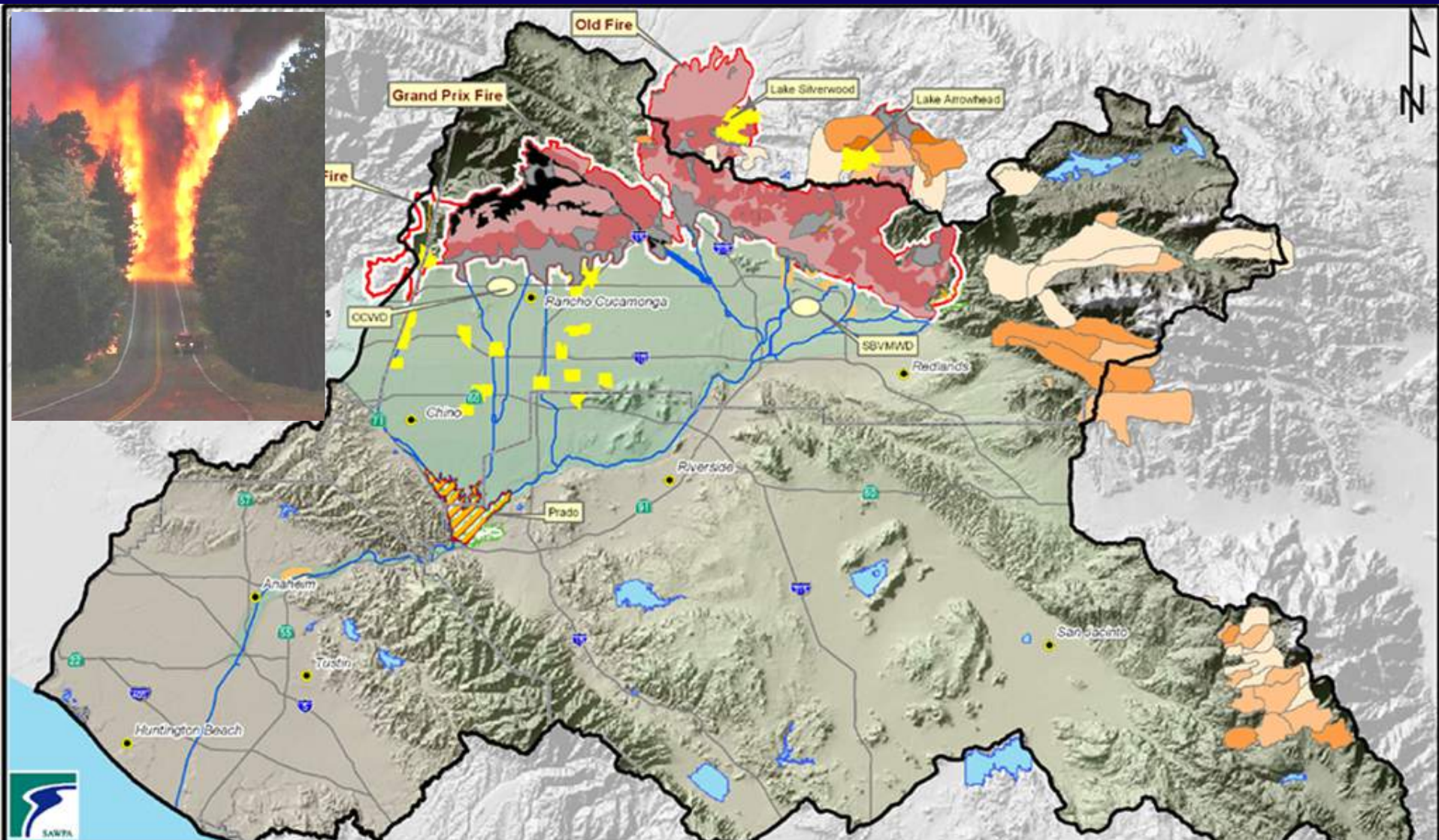


San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Fire
- Flood
- Water Quality
- Discord





Legend

Burn Severity		Tree Mortality (Percent Affected)	
High		5 - 20	
Moderate		21 - 40	
Low		41 - 70	
Rock		71 - 100	

- Impacted Lakes/Recharge Basins
- Impacted Flood, Recharge, Habitat
- Downstream Impacted Area
- Fire Boundary
- Heavily Impacted Stream
- Impacted Stream

Burn Severity and Impacted Areas in Santa Ana Watershed October 2003 Wildfires



Clean-up in Day Creek





Lost Water Resources

32,000 TSS Flow at Imperial Dam



100 Years Later



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Three Counties still working together
- Still plagued by Fire, Flood and Drought
- Need water conservation more than ever
- Water is still a major determinant in the economy and environment of the Valley
- Requiring Leadership, thoughtfulness, problem-solving and partnerships



Sustainability & Diversity



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Geographic
- Habitats
- Development
- Density
- Economics
- Ethnic
- QOL
- Sustainability
- Desert to coastal
- Alpine, desert, ocean
- Irvine/Anaheim to Devore
- Forest Rural to inner city
- Chino Hills to San Bernardino/Santa Ana
- #2 to Fresno County
- Highest to lowest
- High to low



Integrated Planning



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- SC Integrated Plan and IRMW Planning
- How big should a region be?
- Individual agencies cannot reach their highest aspirations without help in a complicated regulated California
- Integration and partnerships take time
- Builds relationships and resilience for difficult and complex discussions and issues



Collaborative Future



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Groundwater Council – 2017
 - Voluntary agreement of all producers
 - No courts required
 - Ensures sustainable groundwater is affordable to all agencies by funding imported water needed to balance the basin
 - New era of cooperation and mutual trust and interdependence



Recharge Future



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Enhanced Recharge
 - Increase recharge of SAR water in the SBVWCD basins and new basins
 - Constructed by SBVMWD and Operated by SBVWCD
- Active Recharge
 - New cooperative recharge of native tributary creek flows
 - Construction by SBVMWD and SBVWCD



Bright Future



San Bernardino Valley
Water Conservation District

Helping Nature Store Our Water

- Progressive Leadership over 100 years
- One of the most collaborative areas of CA
- When we work together – We Can
- Harness value provided by the River
- Highly regulated – opportunity for incentive
- Best use of layers is to craft fair agreements that reduce the need for future litigation – Peace Dividend