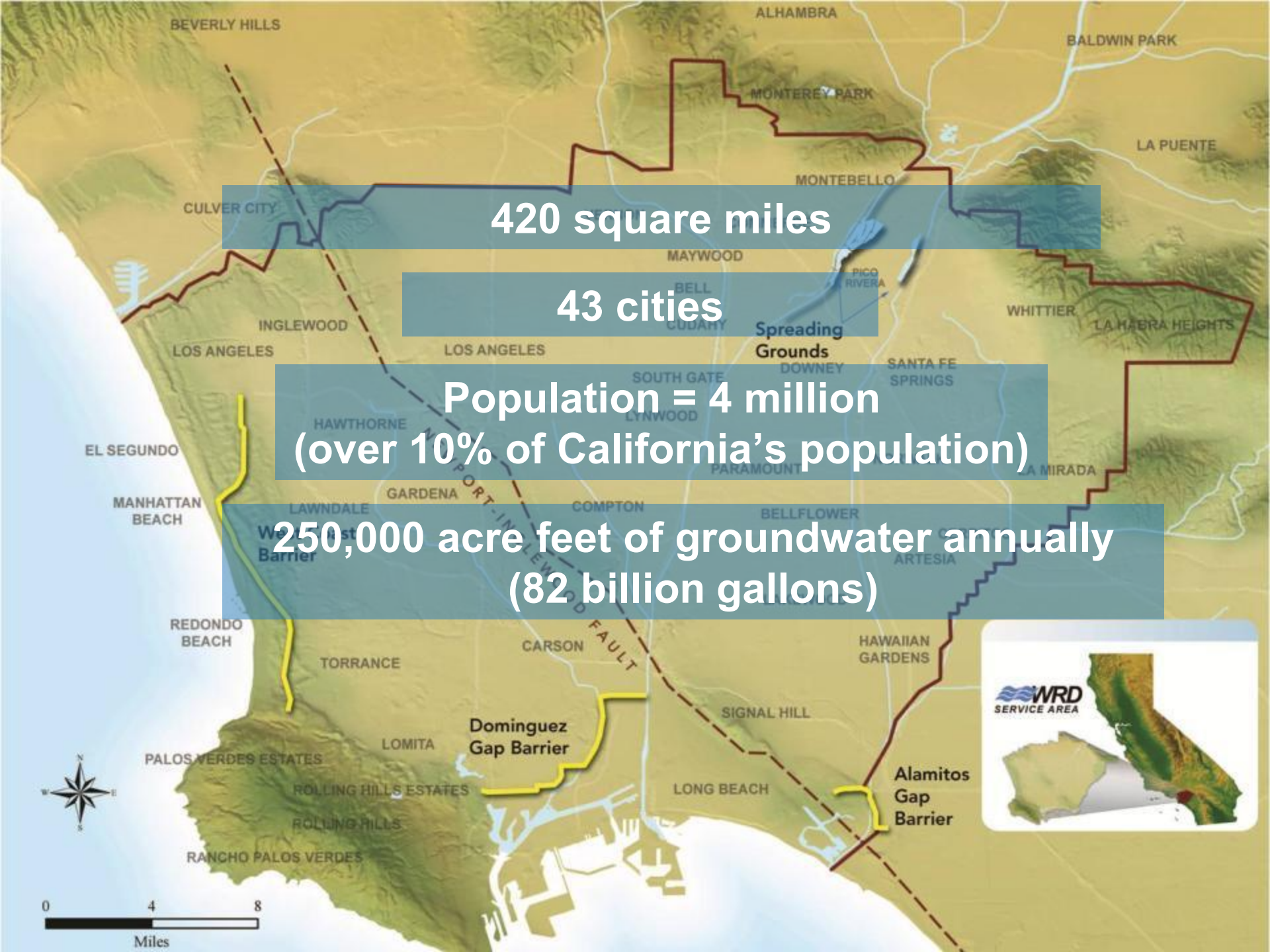
WATER REPLENISHMENT DISTRICT
OF SOUTHERN CALIFORNIA

Attaining a Sustainable Wet Infrastructure for Southern California

AMERICAN ACADEMY
OF ENVIRONMENTAL ENGINEERS & SCIENTISTS®

October 22, 2015


420 square miles
43 cities
Population = 4 million
(over 10% of California's population)
250,000 acre feet of groundwater annually
(82 billion gallons)
BEVERLY HILLS
ALHAMBRA
BALDWIN PARK
MONTEREY PARK
LA PUENTE
MONTEBELLO
CULVER CITY
MAYWOOD
BELL
PICO RIVERA
WHITTIER
LA HABRA HEIGHTS
INGLEWOOD
LOS ANGELES
LOS ANGELES
CUDAHY
Spreading Grounds
DOWNEY
SANTA FE SPRINGS
SOUTH GATE
LYNWOOD
HAWTHORNE
EL SEGUNDO
PARAMOUNT
LA MIRADA
MANHATTAN BEACH
GARDENA
LAWNDALE
COMPTON
BELLFLOWER
Barrier
ARTESIA
NEWPORT-INGLEWOOD FAULT
REDONDO BEACH
CARSON
HAWAIIAN GARDENS
TORRANCE
SIGNAL HILL
Dominguez Gap Barrier
LOMITA
PALOS VERDES ESTATES
ROLLING HILLS ESTATES
LONG BEACH
Alamitos Gap Barrier
ROLLING HILLS
RANCHO PALOS VERDES
WRD SERVICE AREA
0
4
8
Miles


BEVERLY HILLS
ALHAMBRA
BALDWIN PARK
MONTEREY PARK
LA PUENTE
CULVER CITY
MONTEBELLO
VERNON
COMMERCE
MAYWOOD
BELL
PICO RIVERA
CUDAHY
WHITTIER
LA HABRA HEIGHTS
INGLEWOOD
LOS ANGELES
LOS ANGELES
Spreading Grounds
SANTA FE
Central Basin
LYNWOOD
HAWTHORNE
EL SEGUNDO
NEWPORT-INGLEWOOD FAULT
PARAMOUNT
NORWALK
LA MIRADA
MANHATTAN BEACH
GARDENA
COMPTON
BELLFLOWER
CERRITOS
West Coast Barrier
West Coast Basin
ARTESIA
LAKEWOOD
REDONDO BEACH
CARSON
HAWAIIAN GARDENS
TORRANCE
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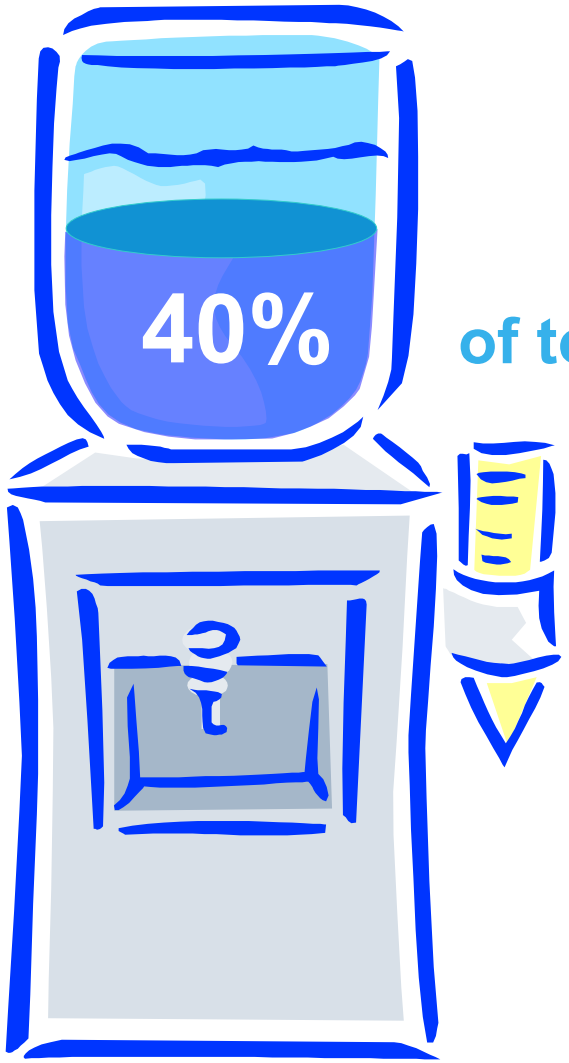
In our region…

Groundwater provides



of total water demand

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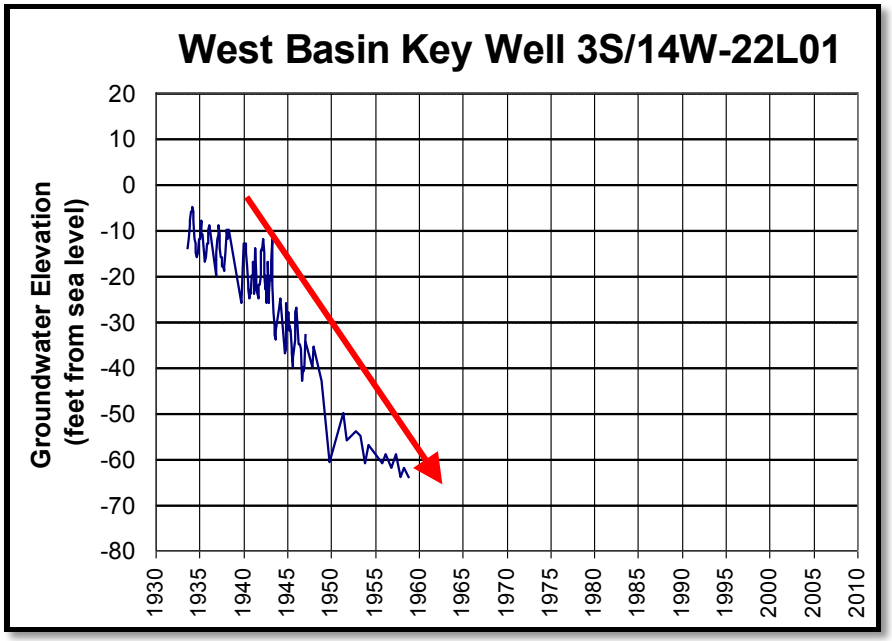
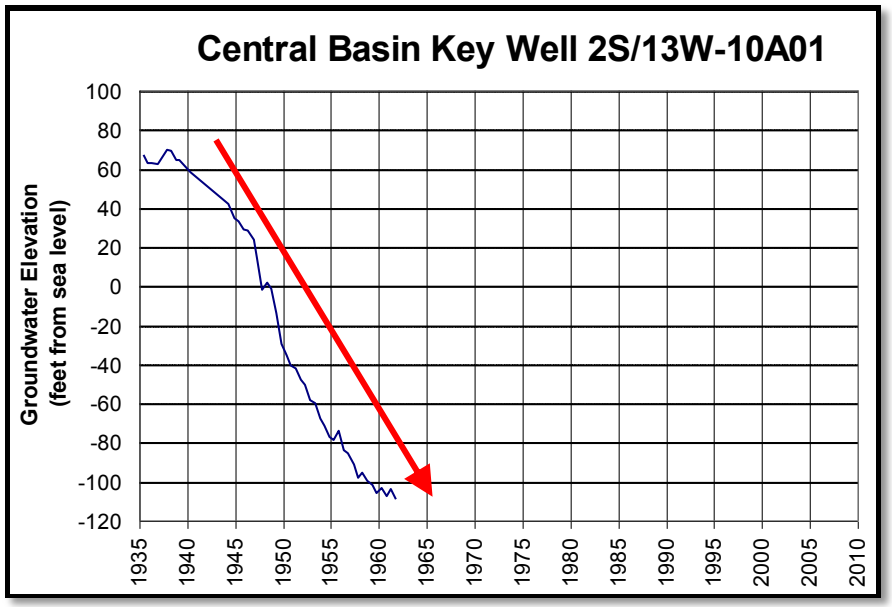
Overdraft of Basins

1900s-1950s





- Plunging water levels
- Loss of groundwater supply
- Wells going dry
- Seawater intrusion

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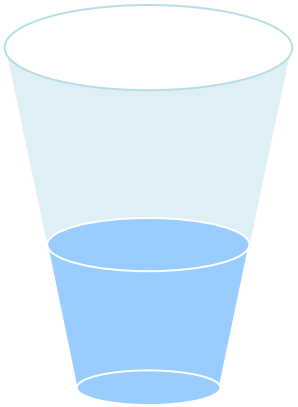
Solution

1. Court adjudicated (capped) groundwater pumping to 281,835 acre feet per year (92 billion gallons per year).
2. LA County Flood Control District installed 16 miles of injection wells along the coast to pump in freshwater and repel seawater intrusion.
3. WRD formed in 1959 to replenish aquifers and protect groundwater quality.



Natural groundwater wasn't enough to meet demand

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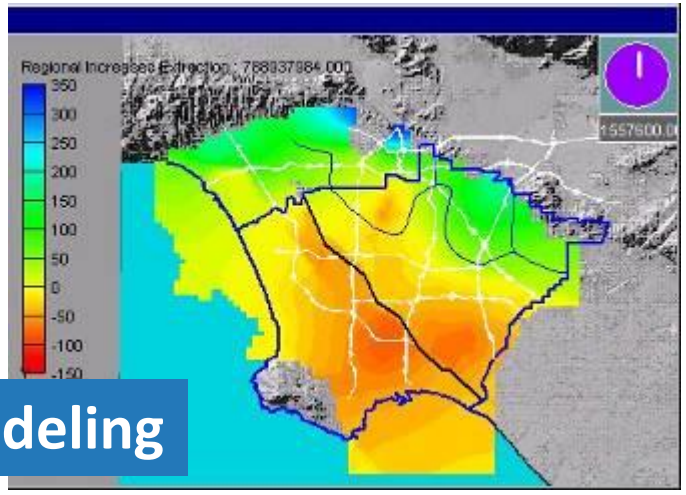
How WRD Manages the Basins

Replenishment of groundwater

Groundwater clean Up

Basin monitoring



Basin modeling

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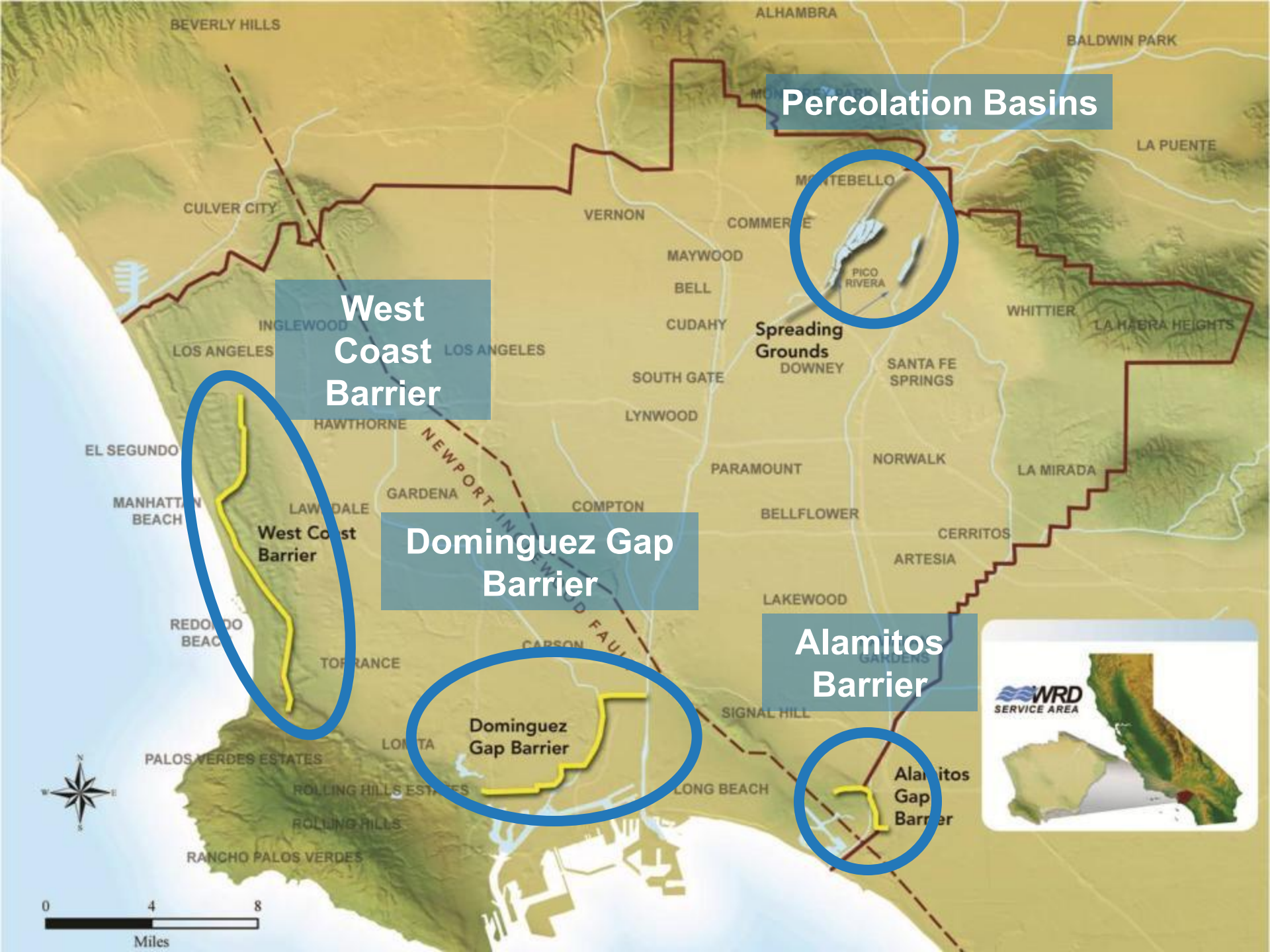
Percolation Basins
West Coast Barrier
Dominguez Gap Barrier
Alamitos Barrier
Spreading Grounds
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L.A. County Replenishment Facilities

Rio Hondo spreading basins

San Gabriel River spreading basins

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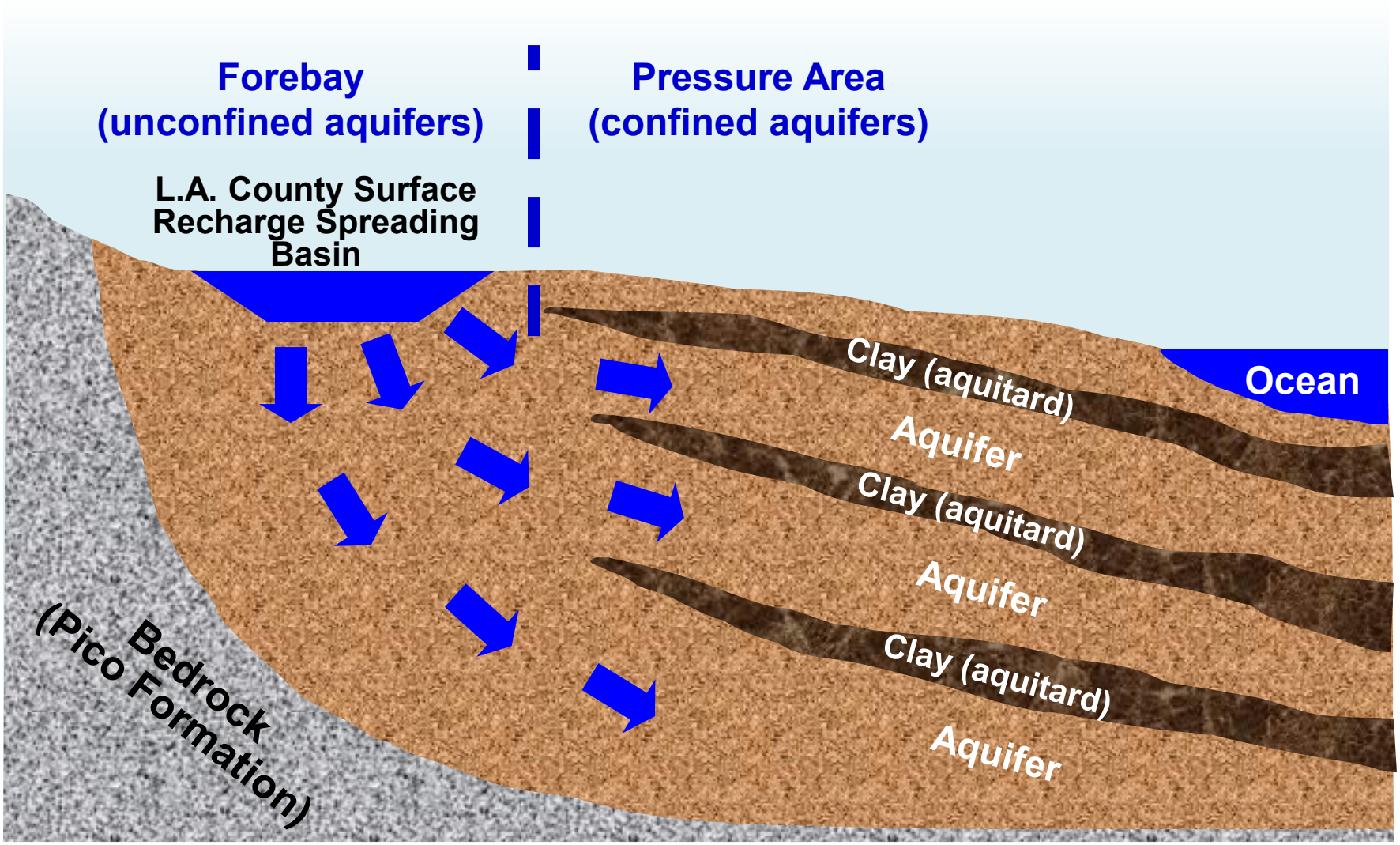
Surface Recharge of Groundwater



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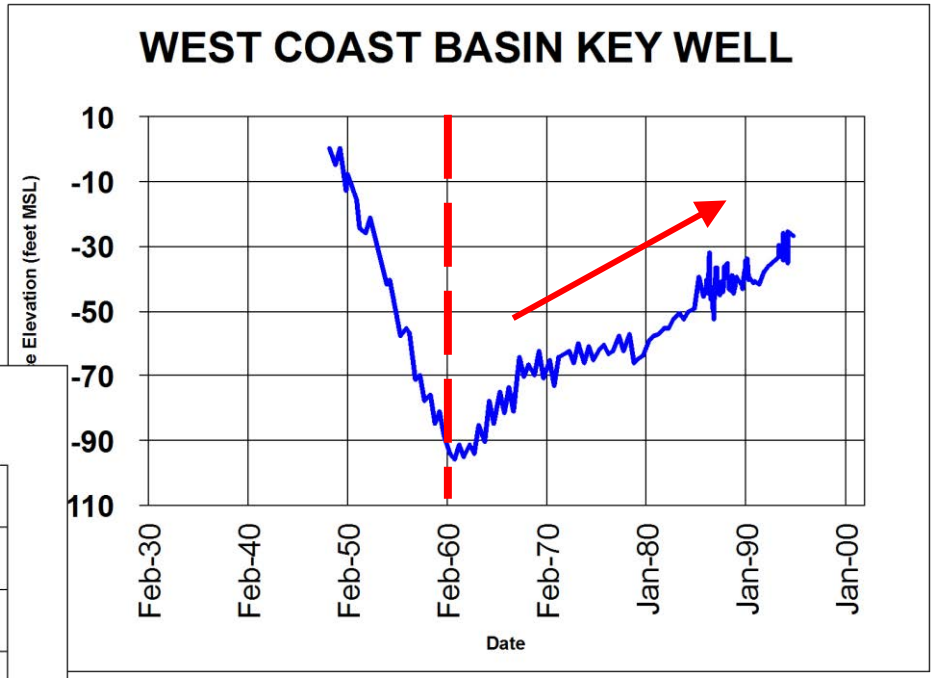
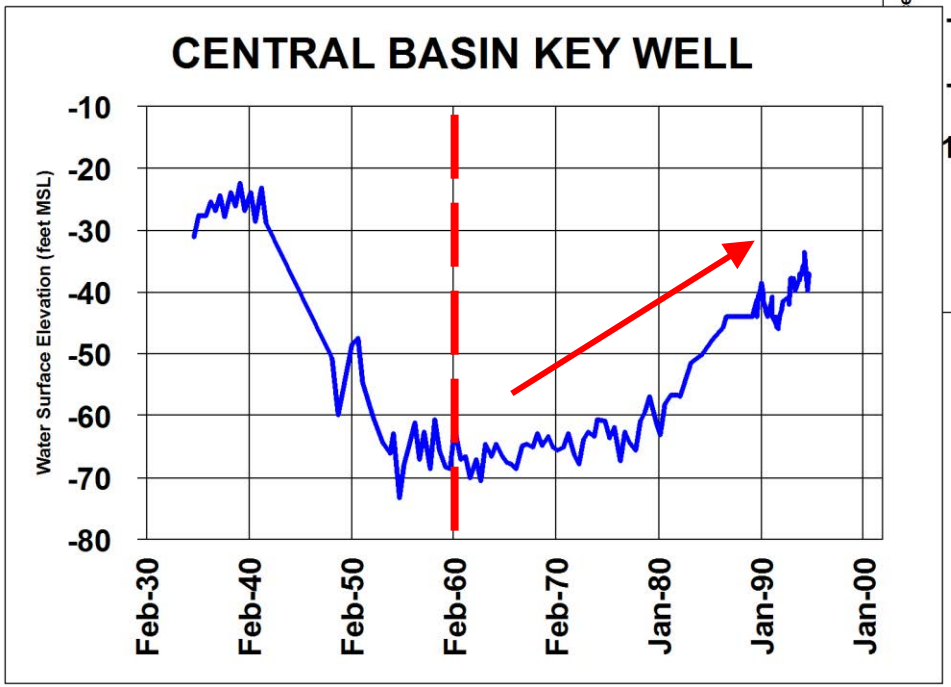
Results of WRD Basin Management





Rising water levels & drought protection

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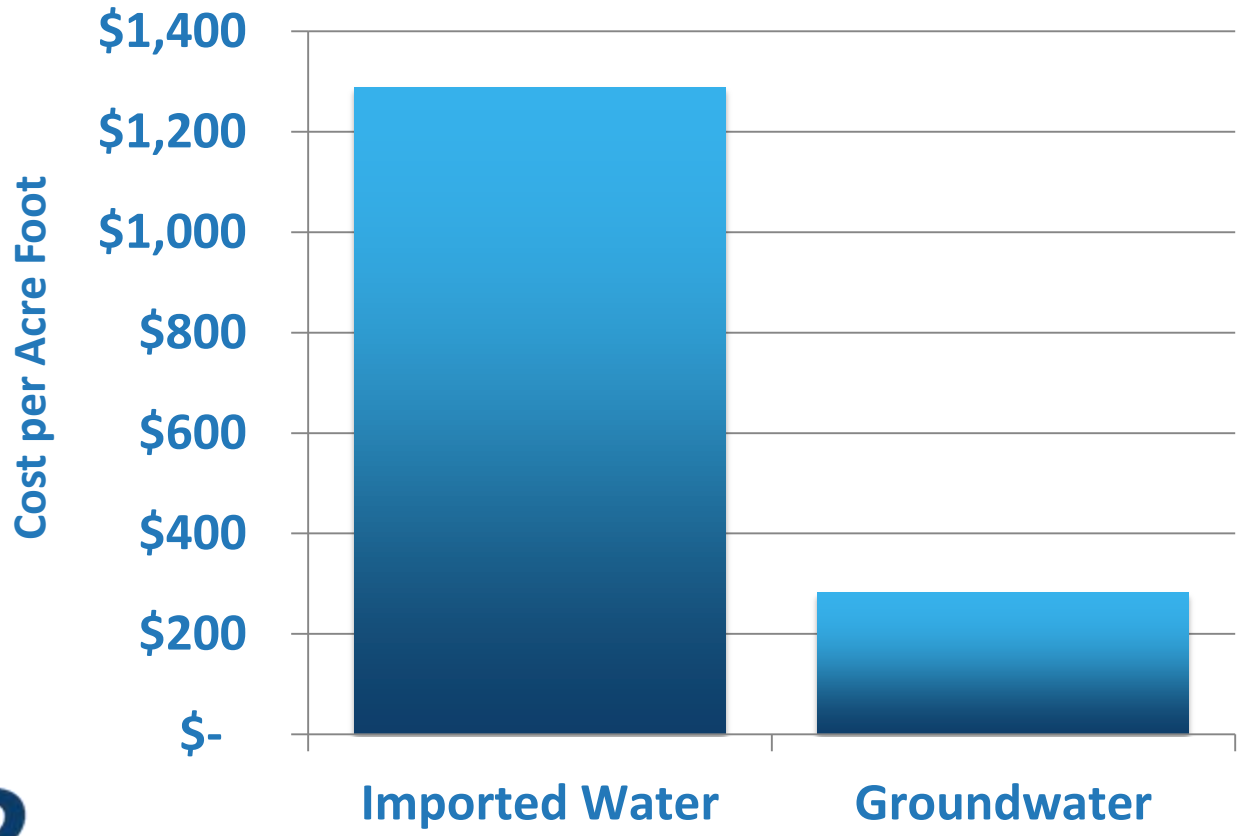
Benefits of Groundwater

- Local reliable supply
- Drought protection
- Cost effective



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- **Collection of projects to eliminate WRD demand for imported water**
- **Projects to:**
  - Capture and conserve additional stormwater
  - Increase use of recycled water for groundwater replenishment
- **Creates locally sustainable groundwater supply for 10% of population of California (4 million residents in the Central and West Coast basins)**

Water Independence

- A key to developing independence from imported water is the development of local recycled water sources

- WRD has safely used recycled water for more than 50 years for replenishment of groundwater

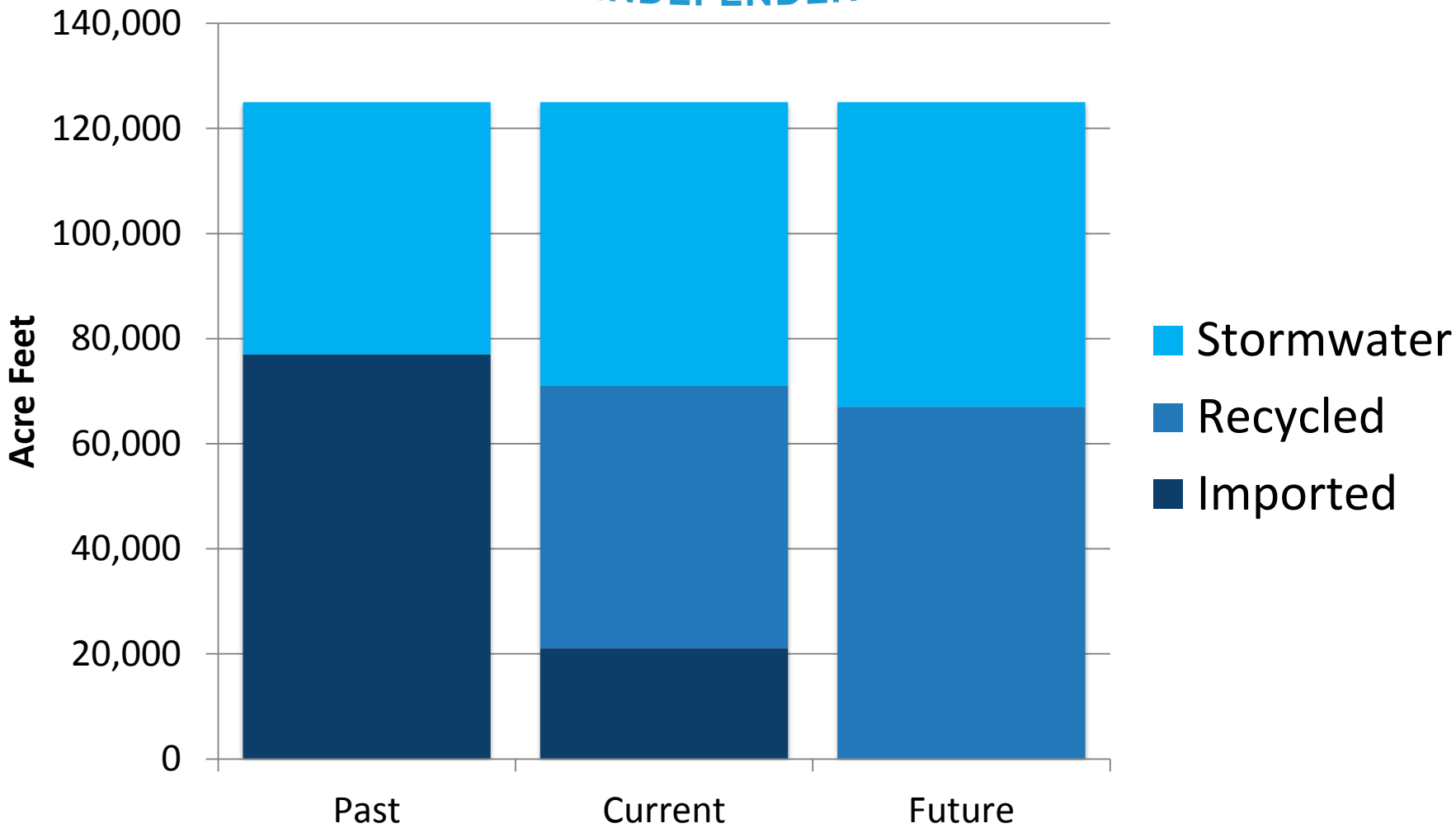
There is no new water on our planet

The New York Times

"All water on earth is recycled: the same drops that misted Devonian ferns and dripped from the fur of woolly mammoths are watering us today. From evaporation to condensation and precipitation, the cycle goes on and on. But in the planet's drier regions, where the population continues to rise, we can expect the time between use and reuse to grow ever shorter, with purification, pipes and pumps standing in for natural processes. Instead of sand and gravel filtering our drinking water, microfibers and membranes will do the job; instead of sunlight knocking out parasites, we'll plug in the UV lamps."

By ELIZABETH ROYTE, August 8, 2008

WATER INDEPENDENCE NOW



- **GRIP is the cornerstone of WRD's WIN Program.**
- **GRIP will provide 21,000 acre-feet per year of recycled water in place of expensive imported water.**
- **Upon completion, groundwater basins will be completely locally sustainable**

WRD

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For more information visit www.wrd.org