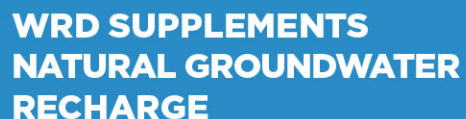


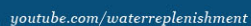
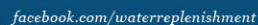


# ***Water Independence Now – The Road to Locally Sustainable Water Resources in a Growing Urban Region***

***GRA Symposium on Managed Aquifer Recharge  
March 7, 2018***



4040 Paramount Boulevard | Lakewood, California 90712



## HOW WRD MANAGES THE BASINS

### REPLENISHMENT OF GROUNDWATER



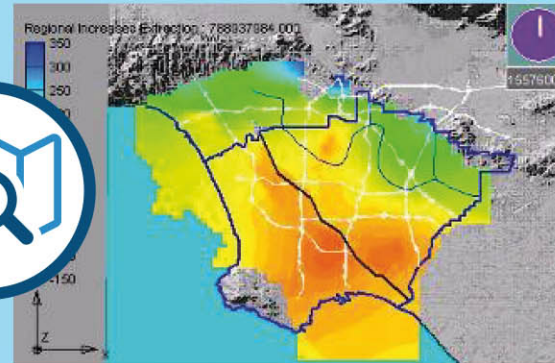
### GROUNDWATER CLEAN UP



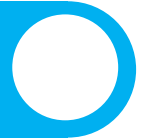
### BASIN MONITORING



### BASIN MODELING

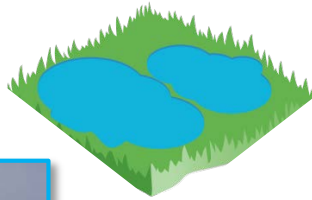


# Managed Aquifer Recharge

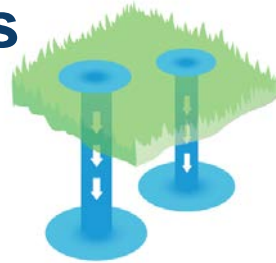


Since WRD Formation (1959):

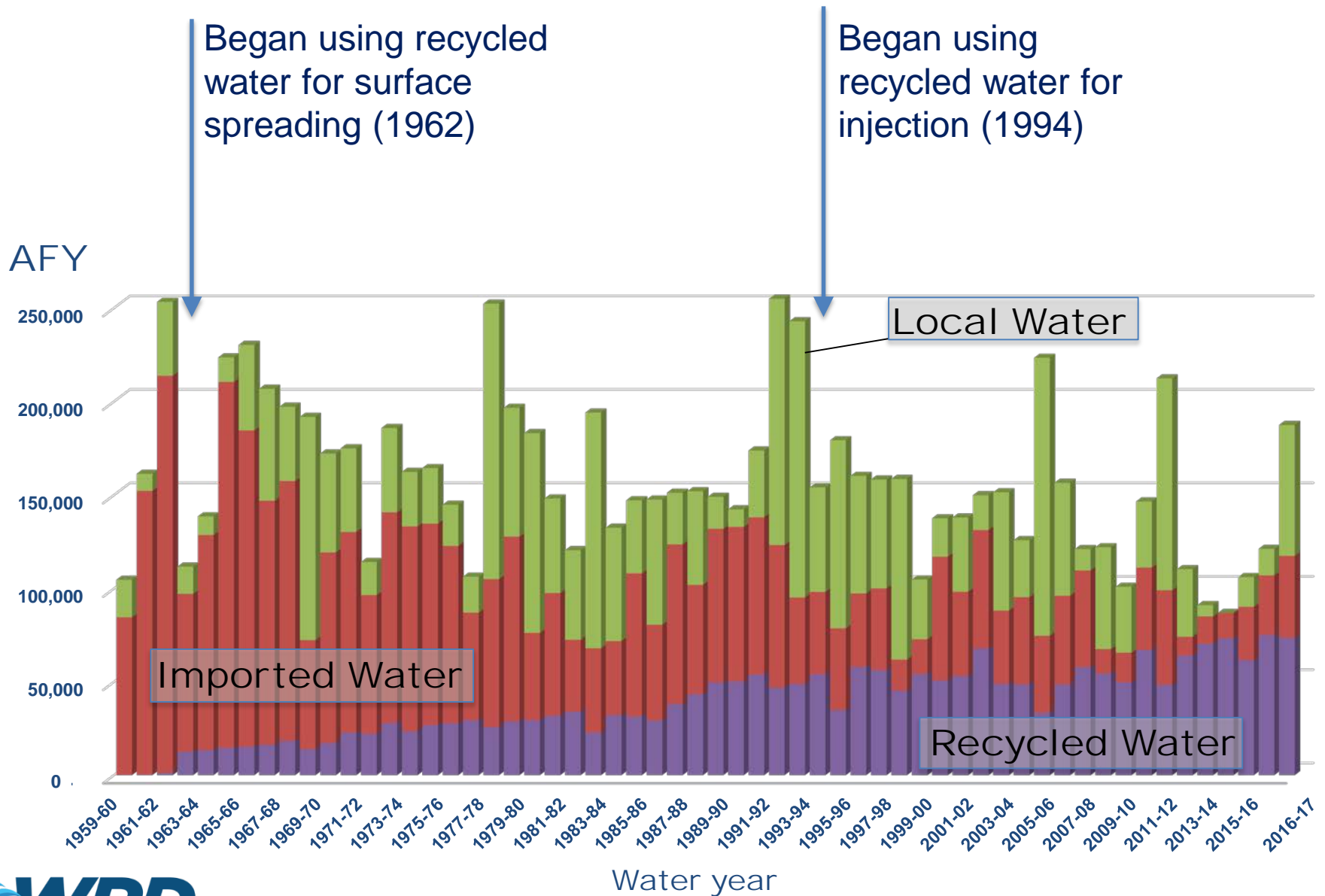
**7.7 Million AF at the  
spreading grounds**



**1.7 million AF at the seawater  
barrier injection wells**



# Replenishment Water Sources



**COLLECTION OF PROJECTS  
TO ELIMINATE REMAINING  
DEMAND FOR IMPORTED WATER**

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



**WATER INDEPENDENCE NOW**

**PROJECTS TO:**



**CAPTURE AND CONSERVE  
ADDITIONAL STORMWATER**



**INCREASE USE OF RECYCLED  
WATER FOR GROUNDWATER  
REPLENISHMENT**

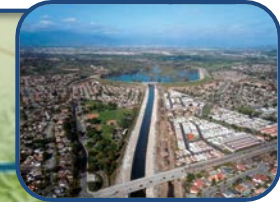
# Key WIN Projects



West Basin MWD  
Edward C. Little  
Water Recycling  
Facility



Increased  
Stormwater Capture



WRD  
Leo J. Vander Lans  
Advanced Water  
Treatment Facility



City of LA  
Terminal Island  
Water Reclamation  
Plant





# Groundwater Reliability Improvement Project Advanced Water Treatment Facility





# Groundwater Reliability Improvement Project Advanced Water Treatment Facility

## FULLY ADVANCED TREATMENT (FAT) PROCESS

### MICROFILTRATION



*Water is filtered through a fine membrane to remove bacteria and other organisms.*

### REVERSE OSMOSIS



*Water is directed through high pressure membranes to eliminate salts, viruses, pesticides and most organic compounds.*

### ULTRAVIOLET LIGHT AND SODIUM HYPOCHLORITE



*The combination accelerates the breakdown of organic compounds.*



## PROCESS FACILITY

MICROFILTRATION REVERSE OSMOSIS UV/AOP



# Groundwater Reliability Improvement Project Advanced Water Treatment Facility

## OPERATIONS AND LEARNING CENTER



**INTERACTIVE  
LEARNING  
CENTER  
EXHIBITS**



**DEMONSTRATION  
GARDEN**

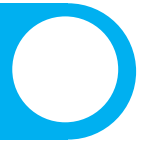


**LARGE AND  
SMALL MEETING  
SPACES**



**LEED'S  
CERTIFIED**

# Educational Exhibits: Demonstration Gardens



Plantings from San Gabriel River  
Master Plan

Native Plants

Drought-tolerant Plants

Butterfly Garden

Shadow Garden

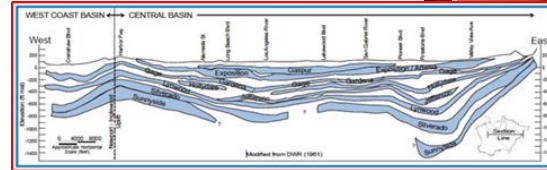
Bioswale Plantings



# Educational Exhibits: Learning Center

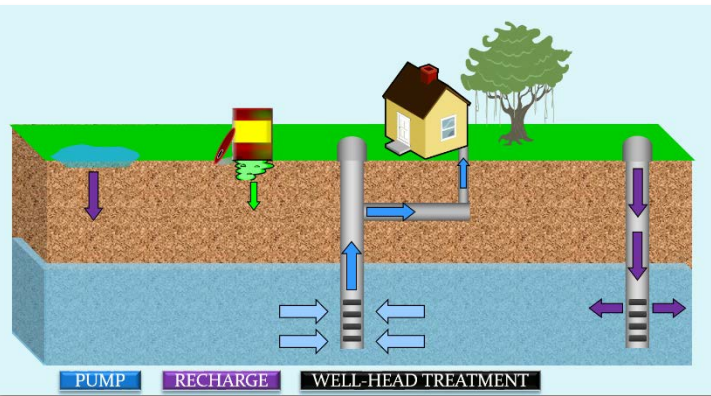
## LARGE CROSS-SECTIONAL URBAN WATER CYCLE MODEL

- Introduces Natural Water Cycle
- Water & Wastewater Conveyance
- Basin Geology & Groundwater
- Stormwater Capture



## INTERACTIVE DIGITAL "BASIN MANAGEMENT" GAME

- Players balance groundwater pumping and recharge
- Contamination spills can trigger and players have to remediate



## OTHER EXHIBITS

Hands-on Household Water Efficiency Station

Interactive Service Area Map

Practice Monitoring Wells

*Aquigator* with real basin sediment videos



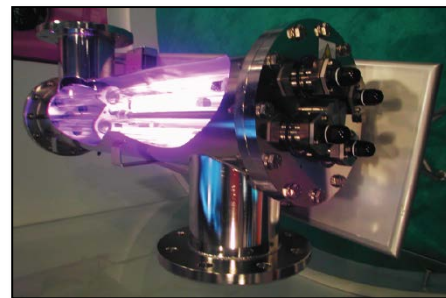
# Educational Exhibits: Process Treatment Building



Viewing / Informational Exhibits in Laboratory & Testing Room

Final Product Water Tasting "Experience"

Hands-on Exhibits on Balconies Overlooking Treatment System



# Engaging Local Residents



**COMING IN 2018**



## CONSTRUCTION NOTICE

The Water Replenishment District of Southern California (WRD) will begin deconstruction of the site at 4320 San Gabriel River Parkway to make way for the new Groundwater Reliability Improvement Project's (GRIP) Advanced Water Treatment Facility.

**TIMELINE:** This project should be completed within 90 days from the start date.

**WORKING HOURS:** 7:00 am to 5:00 pm, Monday through Friday, weather permitting. Weekend work may be allowed depending on scheduling delays.

For more information, questions, or concerns, please call:  
**1-888-WRD-5-WRD**



**COMING IN 2018**



## NOTIFICACIÓN DE CONSTRUCCIÓN

El Distrito de Reabastecimiento de Agua del Sur de California (WRD) comenzará la deconstrucción del sitio localizado en el 4320 San Gabriel River Parkway para dar paso a la nueva planta de tratamiento de agua avanzada, llamado GRIP (Groundwater Reliability Improvement Project).

**DURACION:** Este proyecto debe ser terminado dentro de los 90 días a partir de la fecha de inicio.

**HORAS DE TRABAJO:** De 7 am a 5 pm de Lunes a Viernes. Trabajo de fin de semana puede ser permitido pero dependerá de los retrasos de programación.

Para mas informacion, preguntas o comentarios, favor de llamar:

**1-888-WRD-5-WRD**



## PLEASE JOIN US FOR A COMMUNITY UPDATE MEETING

Come learn about the future benefits of the GRIP Advanced Water Treatment Facility in Pico Rivera



### WHEN:

Thursday  
August 24, 2017  
6:30 pm to 8:00 pm



### WHERE:

Pico Rivera Senior Center  
9200 Mines Ave.  
Pico Rivera, CA 90660

For more information, or to RSVP, please contact:

Monica Sijder at 562-275-4234  
or at msijder@wrdd.org

Kimberly Badescu at 562-275-4264  
or at kbadescu@wrdd.org

(Light appetizers and soft drinks)

### BOARD OF DIRECTORS



[www.wrd.org](http://www.wrd.org)

4040 Paramount Blvd., Lakewood, CA 90712



[www.wrd.org](http://www.wrd.org)  
4040 Paramount Boulevard  
Lakewood, California 90712

[facebook.com/waterreplenishment](https://www.facebook.com/waterreplenishment)  
[youtube.com/waterreplenishment](https://www.youtube.com/waterreplenishment)

## MEET YOUR NEIGHBOR! *¡Conozca a su Nuevo Vecino!*



**FOR MORE INFORMATION, PLEASE CALL 1-888-WRD-5-WRD**

*Para más información, por favor de llamar al 1-888-WRD-5-WRD*

Please stop by the future site of the Groundwater Reliability Improvement Project (GRIP) on Saturday, April 2, 2016, to meet and chat with the Water Replenishment District of Southern California (WRD).

This is your chance to meet the WRD staff as we answer your questions about the construction of the GRIP Advanced Water Treatment Facility.

Por favor pasen a conocer el futuro emplazamiento de el Groundwater Reliability Improvement Project (GRIP) el Sábado, Abril 2, 2016, para conocer y chatear con el Distrito de Reabastecimiento de Agua del Sur de California (WRD).

Esta es su oportunidad de conocer el personal de (WRD). Contestaremos sus preguntas sobre la construcción de el GRIP Advanced Water Treatment Facility.

**WHEN / CUANDO**  
**SATURDAY**  
**APRIL 2, 2016**  
**9:00 AM TO 12:00 PM**

**WHERE / DONDE**  
**FUTURE GRIP SITE**  
**4320 SAN GABRIEL RIVER PARKWAY**  
**PICO RIVERA, CA 90660**

## THE LA COUNTY FIRE DEPARTMENT WILL BE CONDUCTING FIREFIGHTER TRAINING ONSITE FROM 03/28/16 TO 04/10/16

*Departamento de Incendios del Condado de Los Angeles conducirá entrenamiento de Bomberos entre 3/28/16 a 4/10/16.*

### BOARD OF DIRECTORS



**Robb Whitaker**  
General Manager



WATER REPLENISHMENT DISTRICT  
OF SOUTHERN CALIFORNIA

# Engaging Elected Officials & The Media

**YOU'RE INVITED**

Wednesday,  
August 16, 2017



## WATER 101 WORKSHOP



### BOARD OF DIRECTORS



facebook.com/WRDsocial  
@wrdsocial  
instagram.com/wrdsocial

WRD  
4040 Paramount Blvd.  
Lakewood, CA 90712  
[WWW.WRD.ORG](http://WWW.WRD.ORG)

### EXCLUSIVE WORKSHOP FOR LEGISLATIVE STAFF

The Water Replenishment District of Southern California is pleased to invite you to our Water 101 Workshop for Legislative Staff. This workshop will focus on Groundwater Storage and reducing the demand for costly imported water for our region by expanding locally sustainable projects.

WRD is the largest groundwater agency in the State of California, managing and protecting local groundwater resources for four million residents. WRD's service area covers a 420-square-mile region of southern Los Angeles County, the most populated county in the United States. The 43 cities in the service area, including a portion of the City of Los Angeles, use about 250,000 acre-feet (82 billion gallons) of groundwater annually which accounts for approximately half of the region's water supply.

**WHEN:** Wednesday, August 16, 2017, 10 am to 1 pm  
**WHERE:** WRD Office, 4040 Paramount Blvd., Lakewood, CA 90712

**RSVP:** RSVP by Wednesday, August 9, 2017 to Angie Mancillas via email at [amancillas@wrd.org](mailto:amancillas@wrd.org).

Lunch Will Be Provided



YOU ARE CORDIALLY INVITED TO THE



## GRIP VIP HARDHAT TOUR

Please join the Water Replenishment District of Southern California (WRD) for a special VIP Hardhat tour of the Groundwater Reliability Improvement Project (GRIP) Advanced Water Treatment Facility.

This is a rare behind-the-scenes opportunity to see the up-close construction of a landmark water treatment facility that will eliminate the need for imported water for groundwater replenishment in this region of southern Los Angeles County. Groundwater makes up half the water supply in WRD's service area, which includes 43 cities and four million residents (over 10% of California's population). When this project is completed, our groundwater resources will be completely locally sustainable and drought-proof.

In addition to a tour of the site, there will be an interactive VR (Virtual Reality) experience of the future GRIP site.

**WHEN:** Friday, May 5, 2017, 10:30 am to 11:00 am  
**WHERE:** GRIP Site, 4320 San Gabriel River Parkway, Pico Rivera, CA 90660  
**RSVP:** RSVP to Angie Mancillas at [amancillas@wrd.org](mailto:amancillas@wrd.org) or call (562) 275-4231

\*\*\* Please wear close-fitted, flat shoes and comfortable clothing for this tour. Hardhats will be provided. \*\*\*

### BOARD OF DIRECTORS



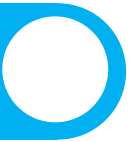
[www.wrd.org](http://www.wrd.org)

4040 Paramount Blvd., Lakewood, CA 90712

GRIP Construction coverage by KTLA (May 5th, 2017)



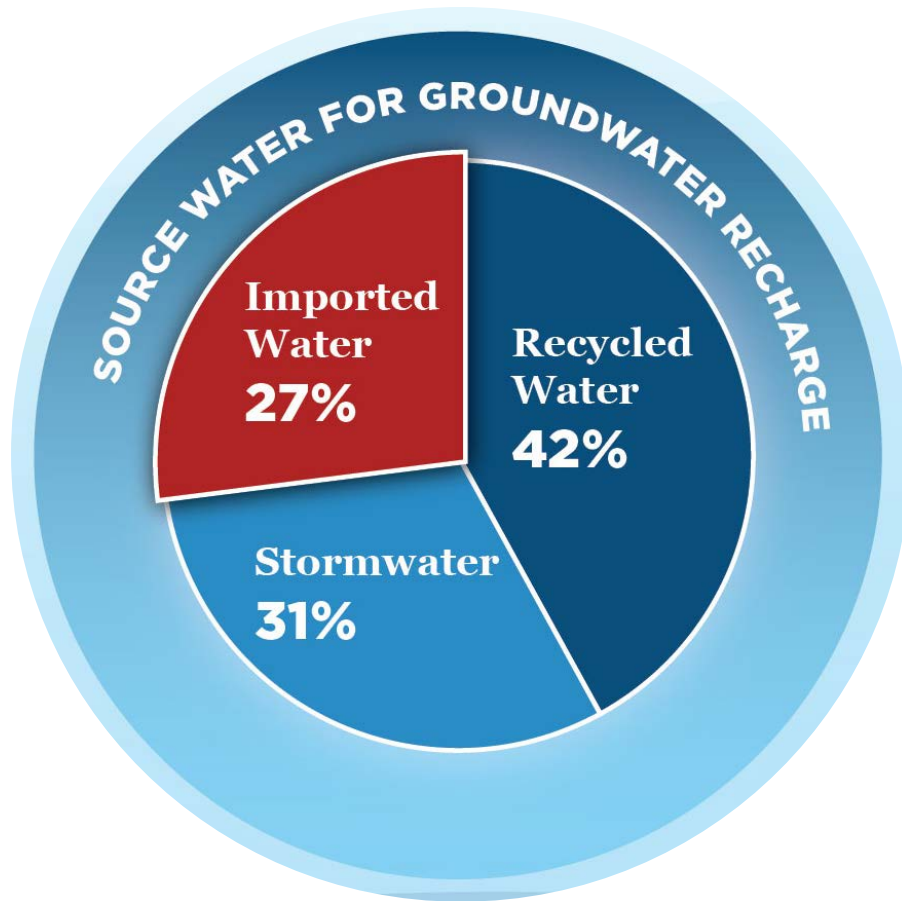
# Construction Progress (2/27/18)



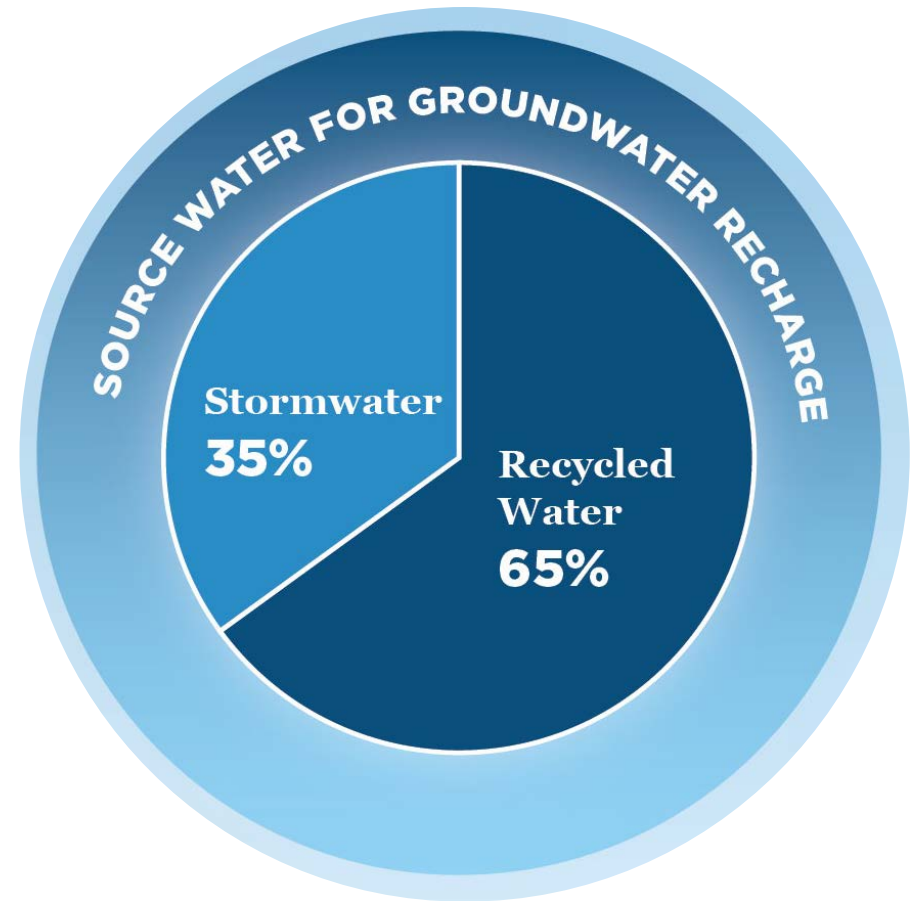
Water Replenishment District of Southern California - GRIP - Advanced Water Treatment Facility  
UAS Aerial Progression - Site - January 26, 2018 - Photo V - 5

# WIN – Before & After

## BEFORE



## AFTER



# Expanded WIN Program

- After WRD has reached 100% independence from imported water in 2018, WIN will expand
  - Assist pumpers in achieving independence through utilization of available storage in the basins
  - As Watermaster, WRD can coordinate storage activities and provide technical and analytical support to the pumping community
  - WRD will continue to work with regulators to protect the basins

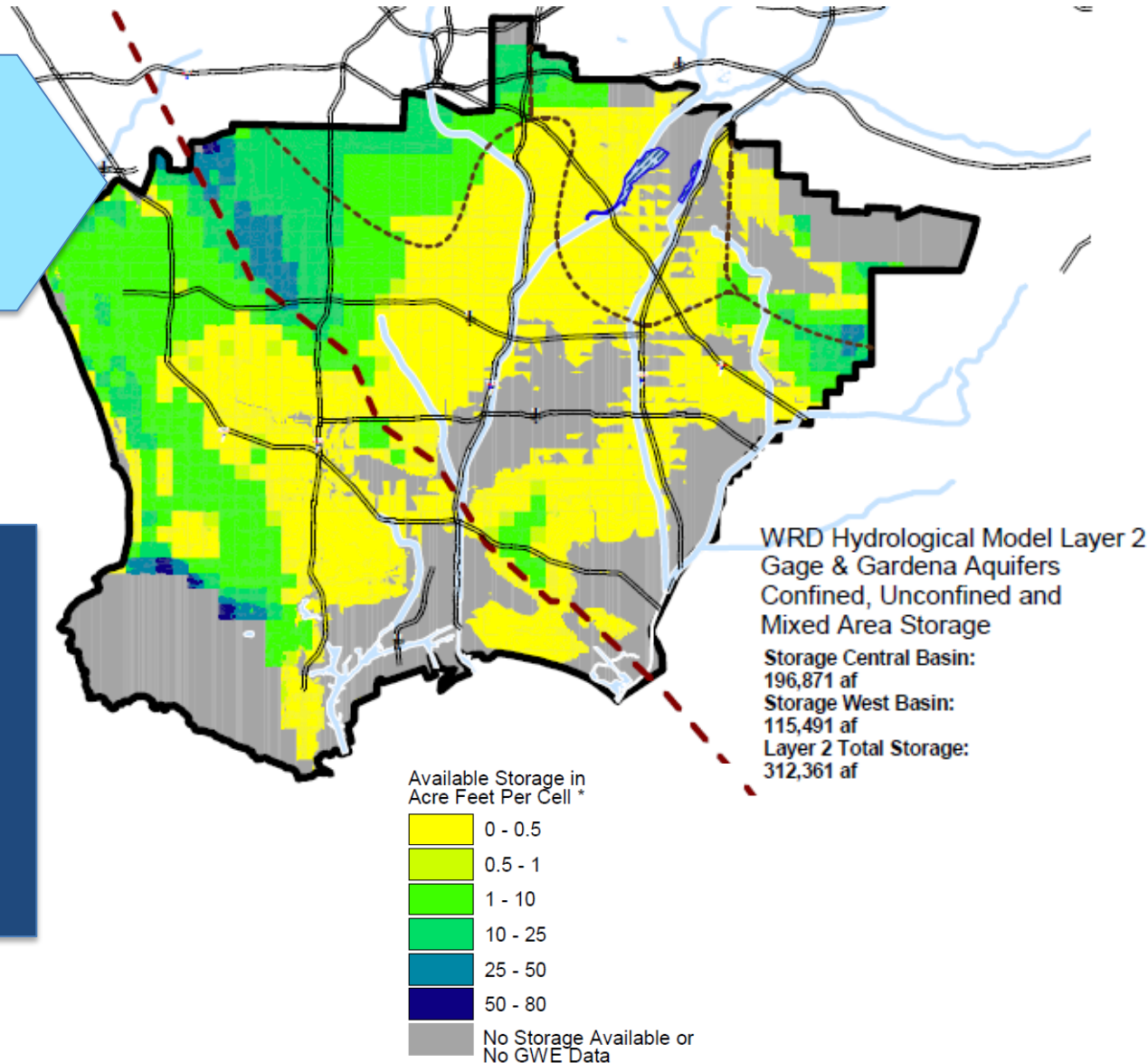


# Groundwater Storage Calculations

Available storage was calculated using WRD's GIS and MODFLOW groundwater model

## Results

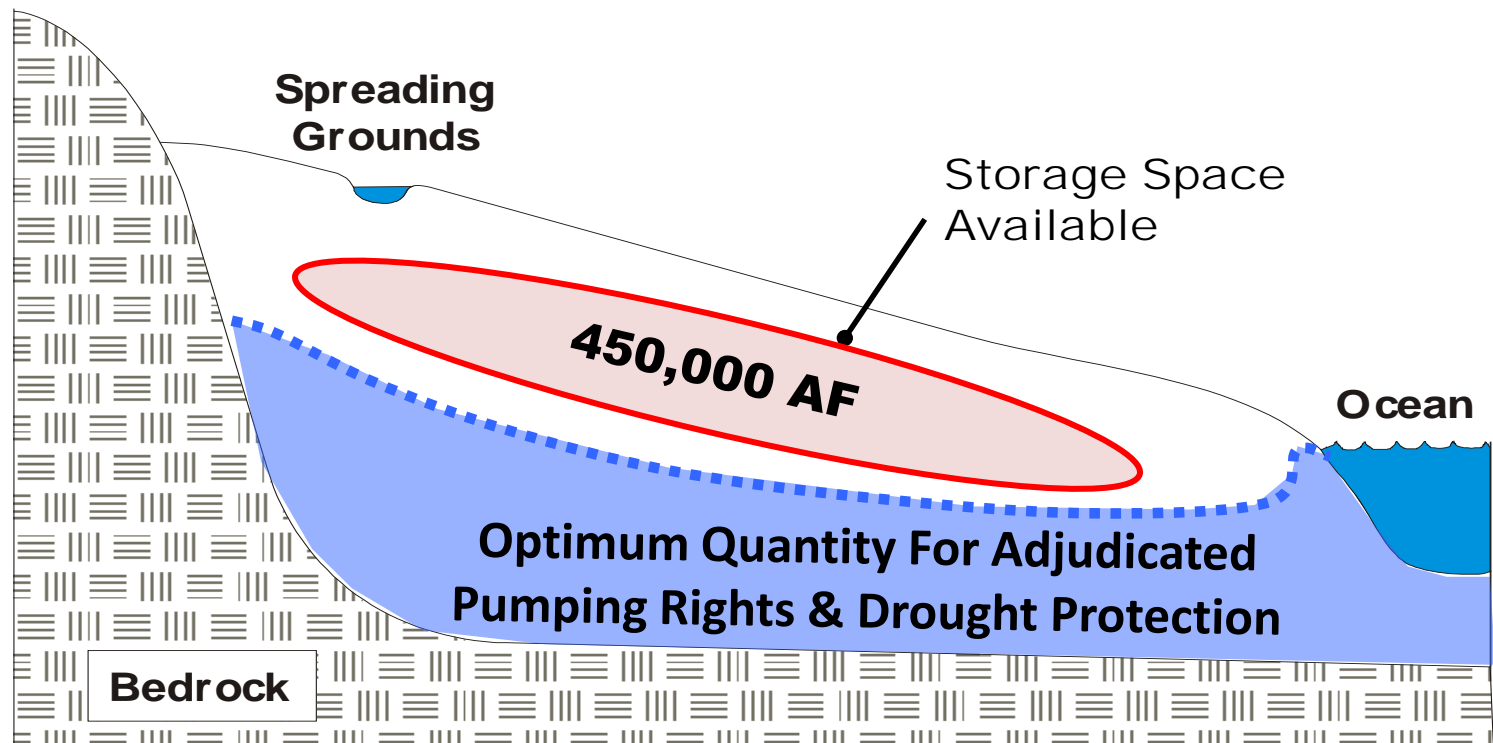
- 620,169 AF (water levels within 50 ft of land surface)
- 290,000 AF (water levels within 100 ft of land surface)



(Johnson, T.A. and Njiuguna, W.M. 2002)

# Groundwater Storage

- Agreement was reached during the facilitated processes that there was 450,000 acre-feet of “Available Dewatered Space” in the basins
  - 330,000 acre-feet in the Central Basin
  - 120,000 acre-feet in the West Coast Basin





 **Recent adjudication  
amendments pave the way for  
utilization of available storage**

Increased local independence  
from imported water!

