

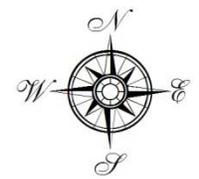
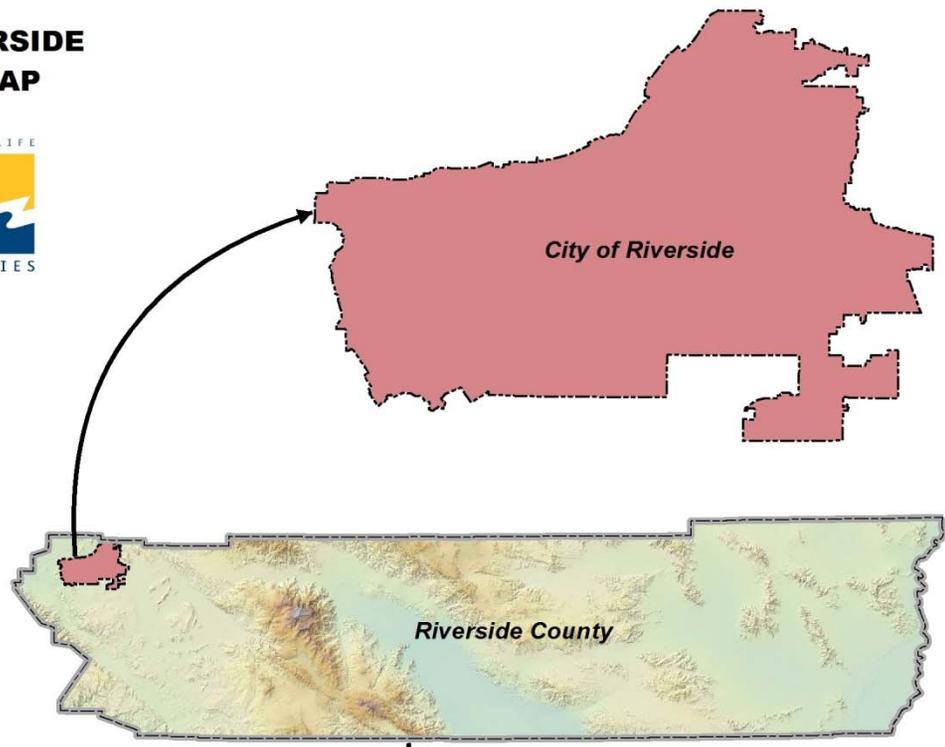
Arts & Innovation

SWRCB's 2015 Mandatory Emergency Drought Regulations

*Rationale for the Petition for Writ of Mandate and Complaint
for Relief*

June 18, 2015

CITY OF RIVERSIDE VICINITY MAP



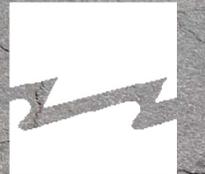
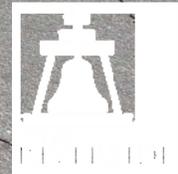
NOT TO SCALE



WATER | ENERGY
PUBLIC UTILITIES



WATER | ENERGY | LIFE



PUBLIC UTILITIES

San Bernardino's PaceSetters (Photo Credit John Coleman)



WATER | ENERGY | LIFE



PUBLIC UTILITIES

City of Riverside



2010 Western Waterwise Landscape Contest 1st Place

Before



After



WATER | ENERGY | LIFE



RiversidePublicUtilities.com

City of Riverside Public Utilities History

- Water Department
Established 1913
- Acquired following
Companies:
 - Riverside Water Company
(founded 1885)
 - Gage Canal Co.
(founded 1885)
 - Numerous smaller Companies



Services Provided

- RPU Service Area population is approximately 300,000
- 64,000 metered RPU customers
- Delivers potable water to retail and wholesale customers
- Delivers non-potable water to irrigation customers
- Delivers recycled water

Riverside's Water System

- 49 active domestic wells
- 11 treatment plants and chlorination stations
- 3 imported water connections
- 8 emergency inter-ties
- 16 storage reservoirs (109 MG)
- 41 booster stations
- 46 Hydraulic Zones (925–1750)
- 954 miles pipeline (4–72 inch)

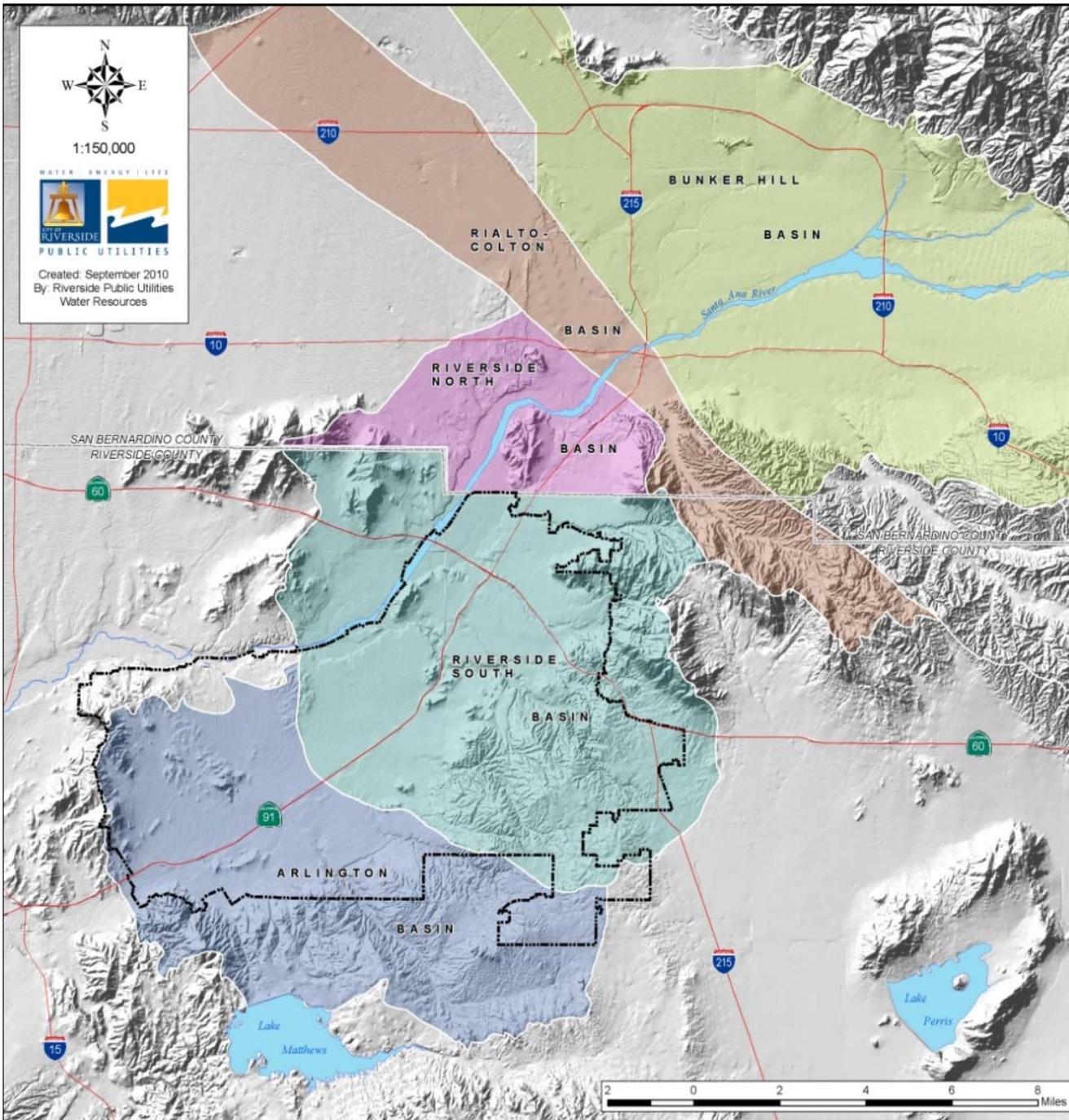
Sources of Water Supply

- 100% imported water independent
- Produce water from multiple groundwater basins
 - Bunker Hill (64% of 2014 supplies)
 - Rialto-Colton (0% of 2014 supplies)
 - Riverside North (12% of 2014 supplies)
 - Riverside South (24% of 2014 supplies)

Imported Water Independent

- Riverside has been independent of Imported water since 2008, and has groundwater infrastructure in place to remain independent for the foreseeable future.
- In 2008 Riverside began operating its John W North Treatment Plant, capable of production 10MGD





- Bunker Hill Basin
- Rialto-Colton Basin
- Riverside North
- Riverside South
- Arlington Basin

Basin Characteristics

Groundwater Basin	Surface Area (acres)	Storage Capacity (acre-ft)	Depth to Bedrock (ft)	Estimated Safe Yield (acre-ft/yr)	Safe Yield % of Storage Capacity
Bunker Hill	89,600 ^C	5,976,000 ^C	> 1,200 ^B	232,100 ^A	4%
Rialto-Colton	30,000 ^C	2,517,000 ^C	> 1,000	17,675	1%
Riverside	39,680	1,646,000	400 to 700	62,300 ^D	4%
Total	159,280	10,139,000	---	---	---

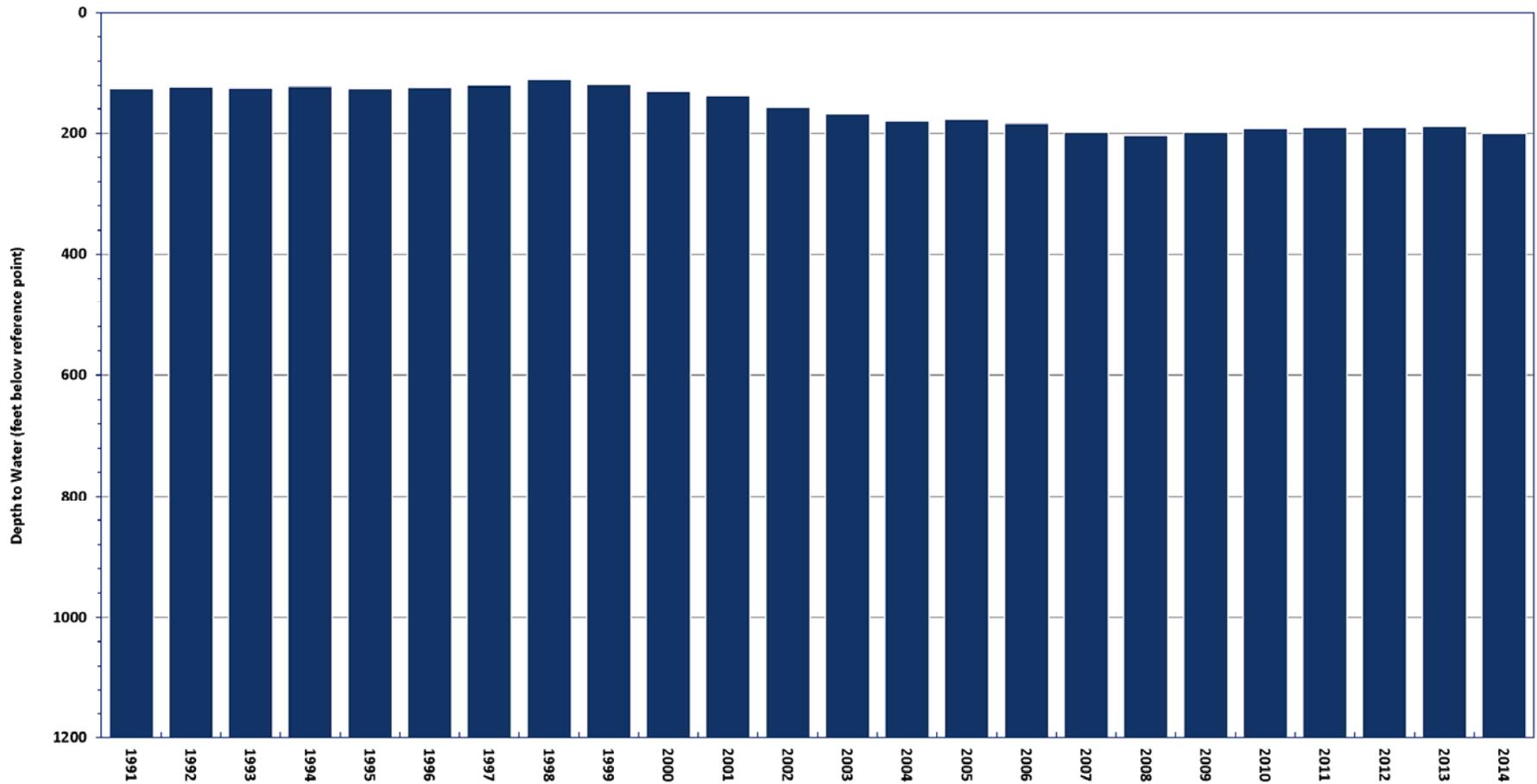
A) Western-San Bernardino Judgment

B) USGS Open-File Report 2005-1278

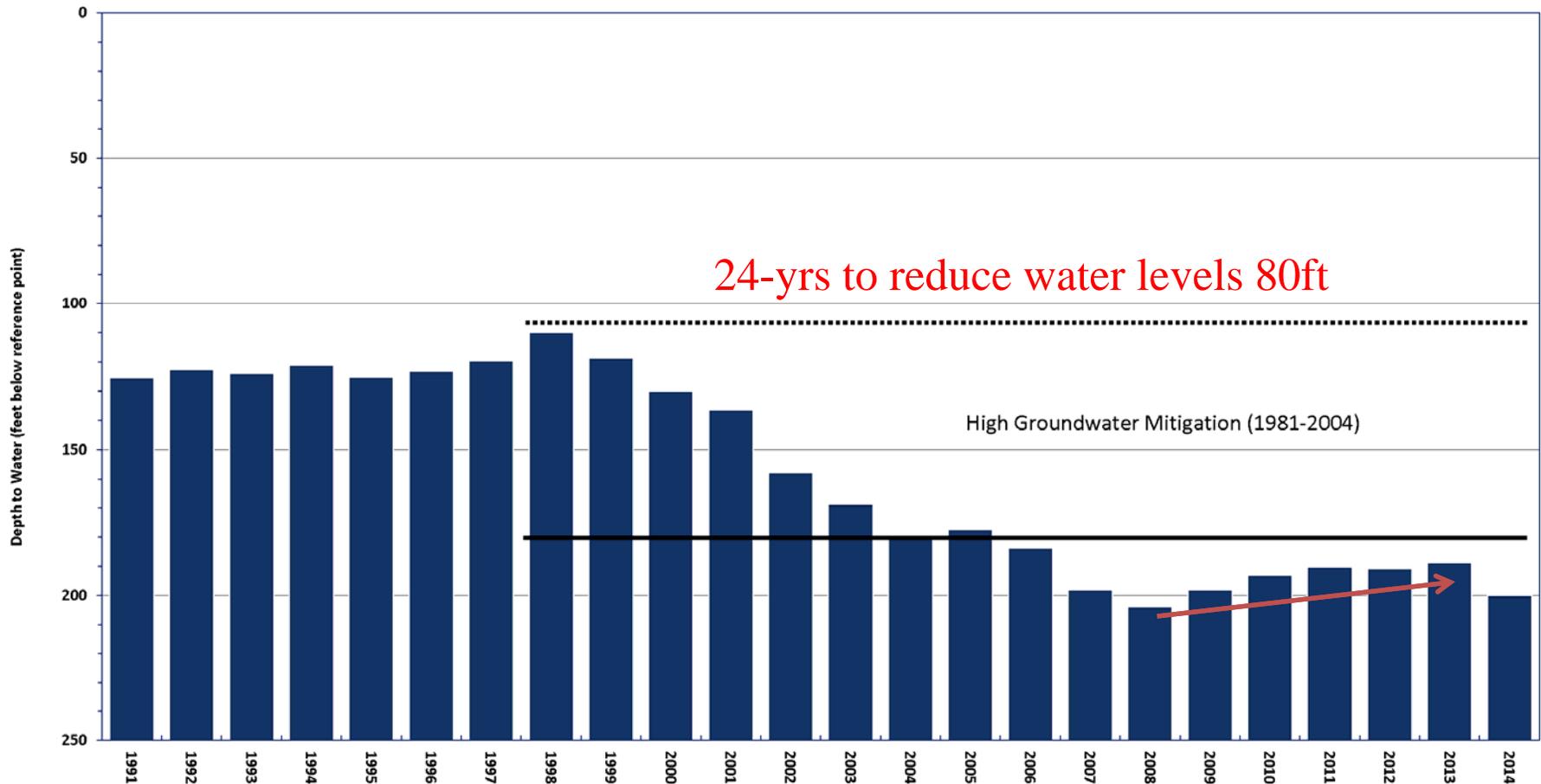
C) DWR bulletin 118

D) Riverside-Arlington Groundwater Flow Model

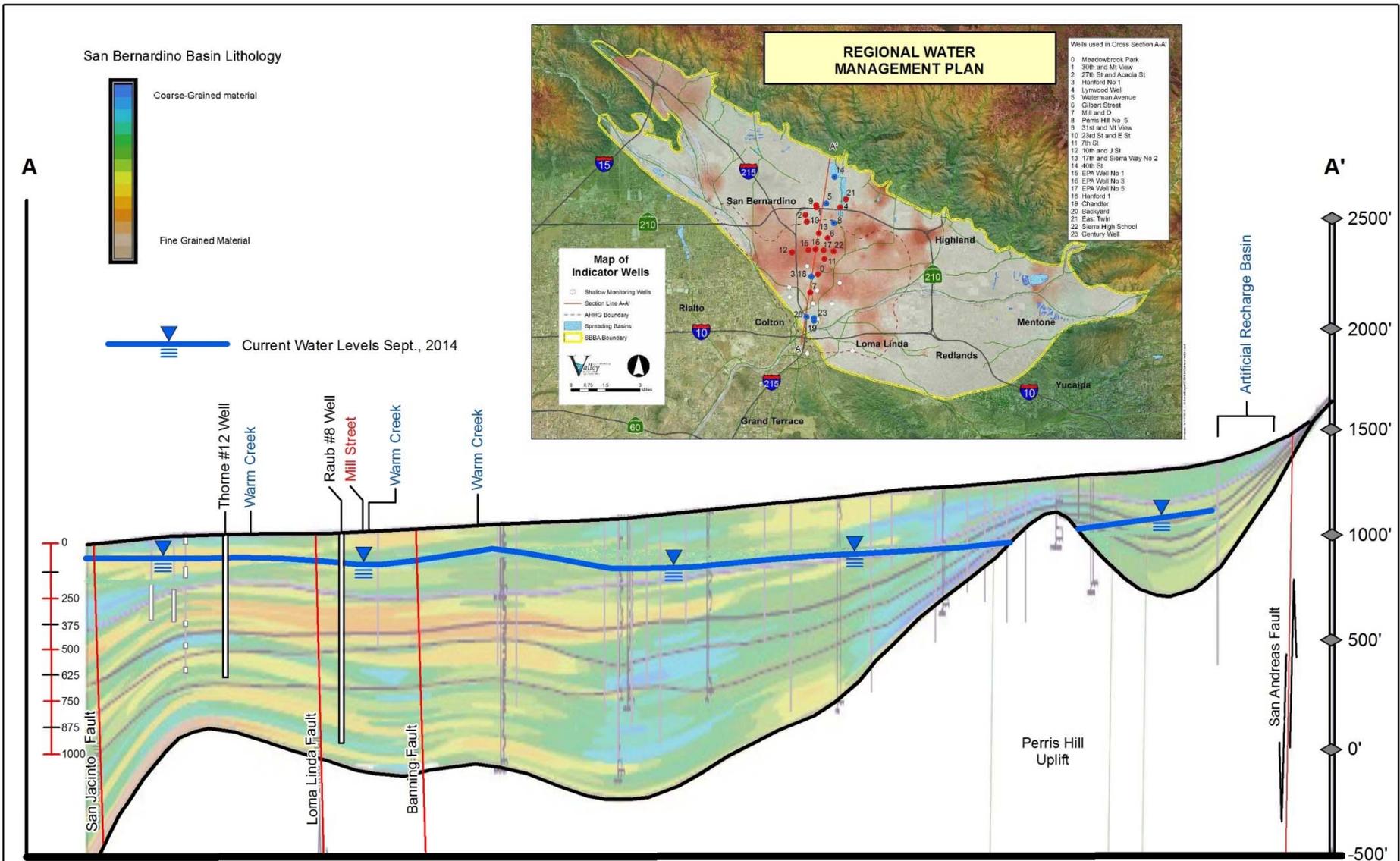
Bunker Hill Basin Annual Groundwater Levels



Bunker Hill Basin Annual Groundwater Levels



Levels trended upward from 2008 to 2013, during a time of below average hydrology

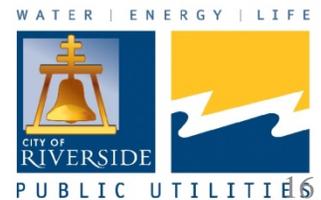


Section A-A' and stratigraphic base from Numeric Solutions, LLC.

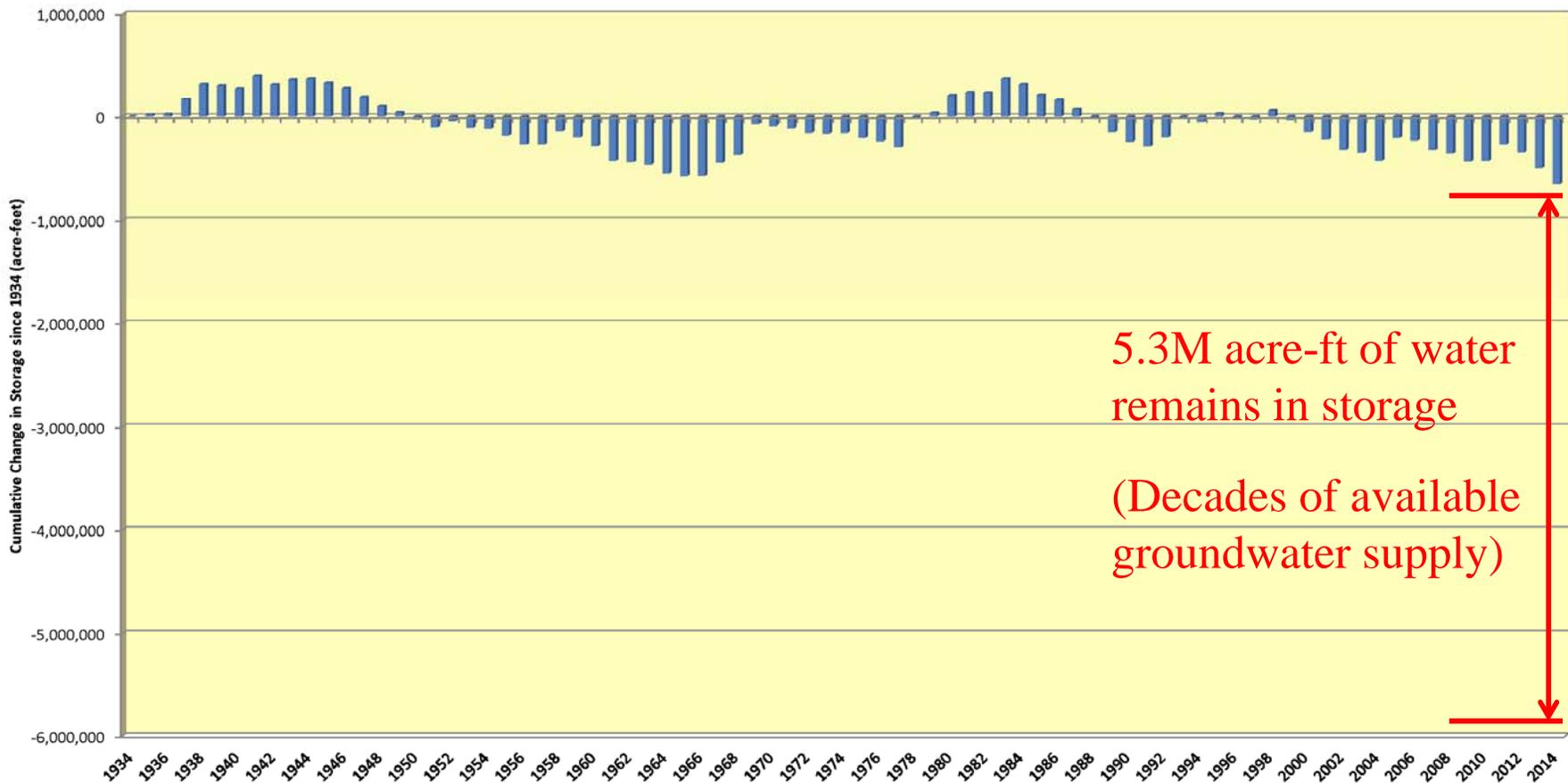
Well construction and water level data from the SBVMWD Water Resources Database

Created by: Riverside Public Utilities
On: June, 2015

Water Resources



Change in Storage Relative to Actual Basin Capacity



Bunker Hill Supplies in Storage

- Total Storage Capacity: 5,976,000 acre-ft
- Estimated water stored in the basin: 5,300,000 acre-ft
- Average depth to bedrock: 1,200 ft
- Current water level: 210 ft below surface (depth varies across basin)
- Riverside's wells range in depth from 300 to 1,200 ft, with 80% of its wells greater than 500 ft
- No subsidence risk (2015 Engineering Investigation of the Bunker Hill Basin, San Bernardino Valley Water Conservation District)



Robust Basin Management

- 1969 Western-San Bernardino Judgment
 - Court appointed a Watermaster to oversee the physical solution
 - Annual reports filed with the Court
- Metered water production
- Daily water level monitoring
- Daily surface flow monitoring
- Monthly water quality monitoring

Robust Basin Management (continued)

- Annual Change in Storage Report prepared by Valley District (SBVMWD)
- Annual Basin Engineering Investigation Report prepared by Conservation District (SBVWCD)
- Basin Technical Advisory Committee (BTAC)
 - Formed to collaboratively develop and evaluate projects that contribute to sustainable basin management
 - Meets monthly and is comprised of producers from the Bunker Hill Basin
- 3 Integrated Water Management Plans
- Started the Groundwater Sustainability Agency (GSA) process 7 years ahead of schedule

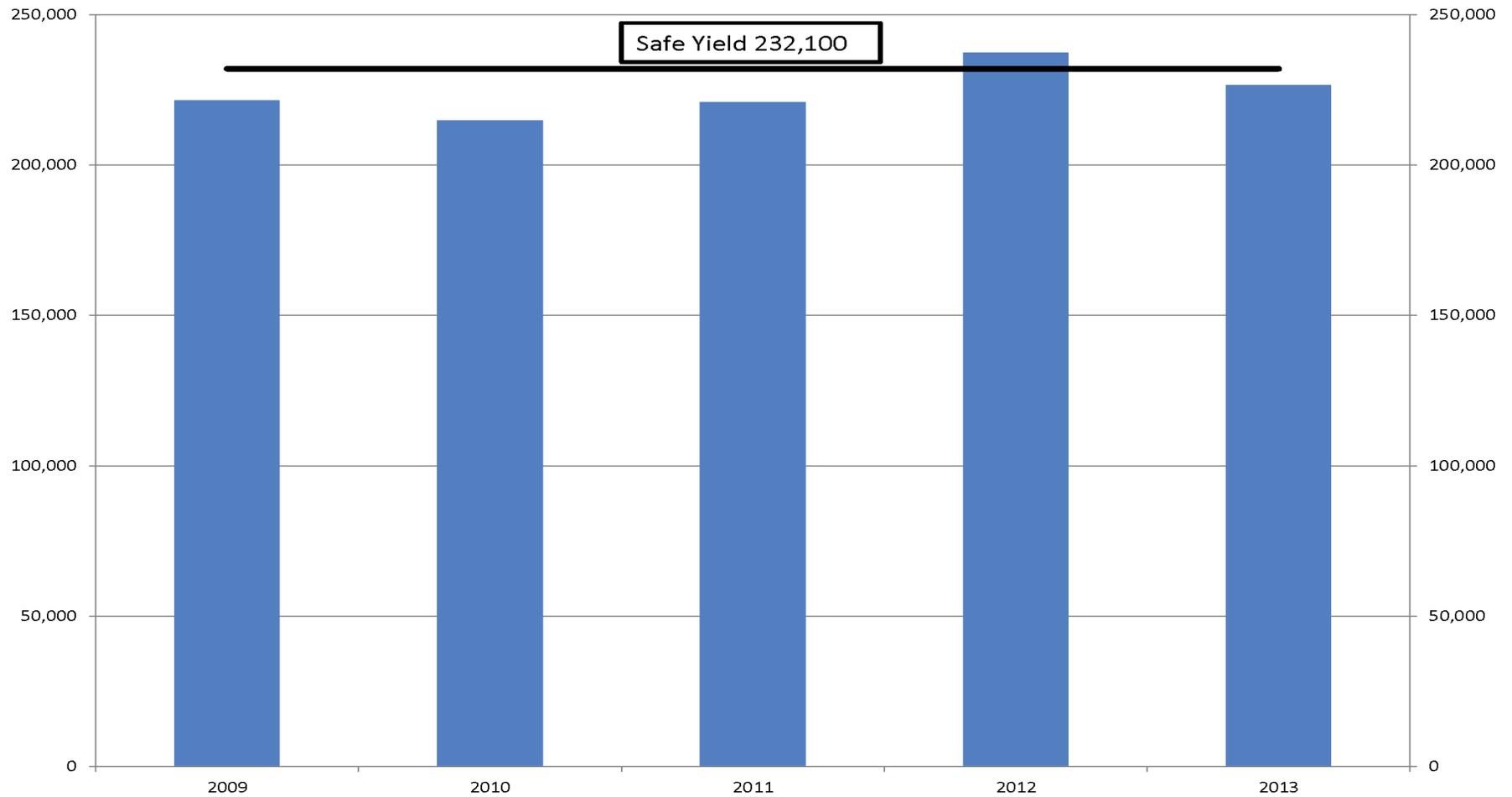
1969 Judgment

- The Western-San Bernardino Judgment and Orange County Judgment settled water right disputes within the Santa Ana River Watershed between some 4,000 parties.
- Groundwork for the Judgment begun in the 1950's, during a time of drought.
- The Judgment established a physical solution to resolve the water problems within the Santa Ana River Watershed and became the foundation to assure every entity received its fair share of water, in both wet and dry years.

1969 Judgment (continued)

- Western-San Bernardino Judgment
 - Established a Safe Yield for the Basin of 232,100 acre-ft/yr (about 4% of the basin's storage capacity)
 - Fixed export rights from Bunker Hill Basin for Riverside (use it or loss it)
 - Established certain obligations to maintain the integrity of the Bunker Hill, Rialto-Colton, Riverside North, and Riverside South basins
 - Court appointed Watermaster to enforce the Judgment
 - Collects & analyzes data, and conducts field inspections
 - Tracks groundwater extractions and distribution of extractions
 - Monitors stream flow, water quality & water levels
 - Prepares an annual report

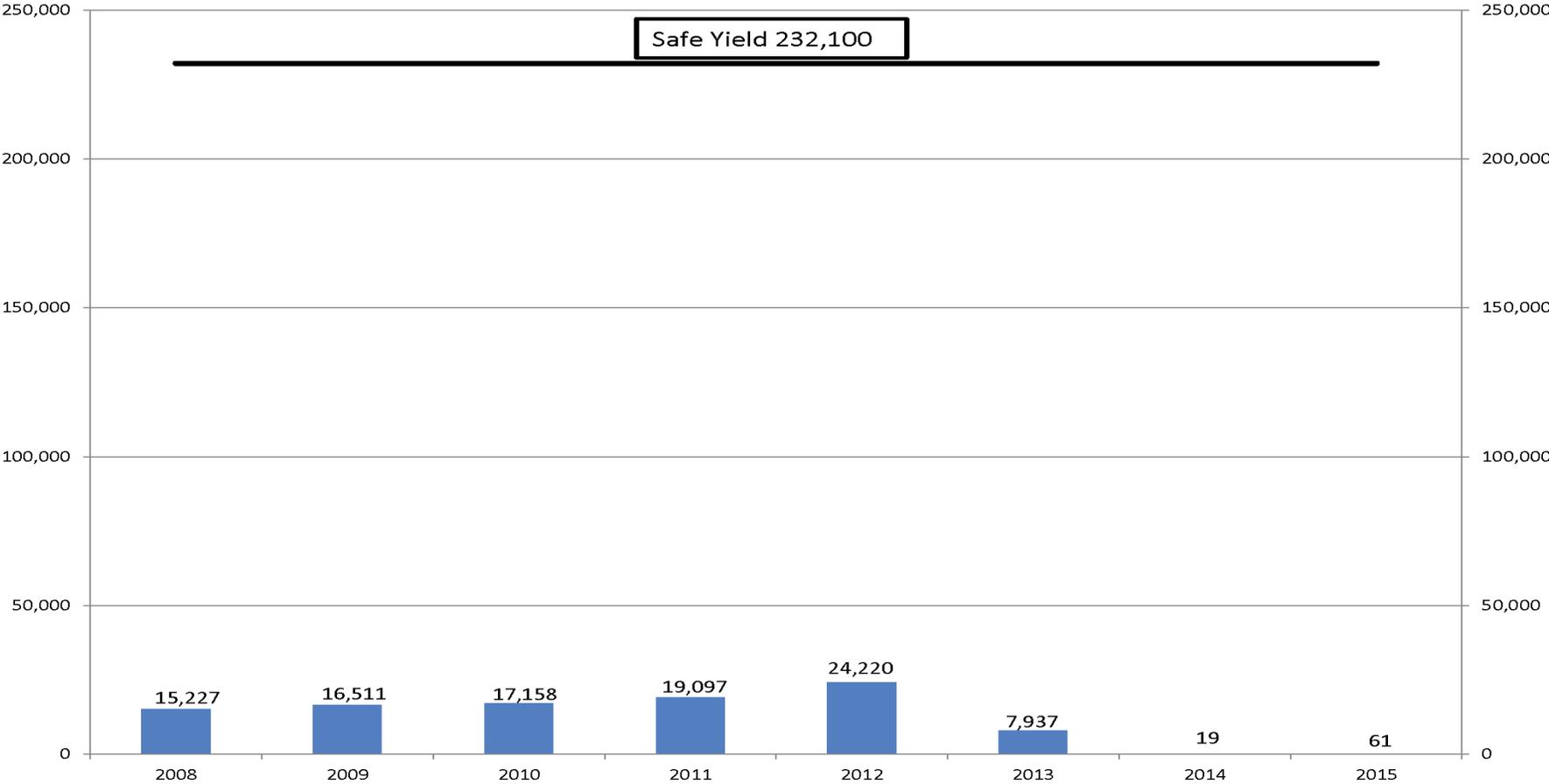
Bunker Hill Aggregate Extractions



Other Bunker Hill Basin Users

- City of Colton
- City of Loma Linda
- City of Redlands
- City of Rialto
- City of San Bernardino Municipal Water District
- East Valley Water District
- Riverside Highland Water Company
- West Valley Water District

Imported Water Recharged in Bunker Hill



State's Groundwater Basin Priorities

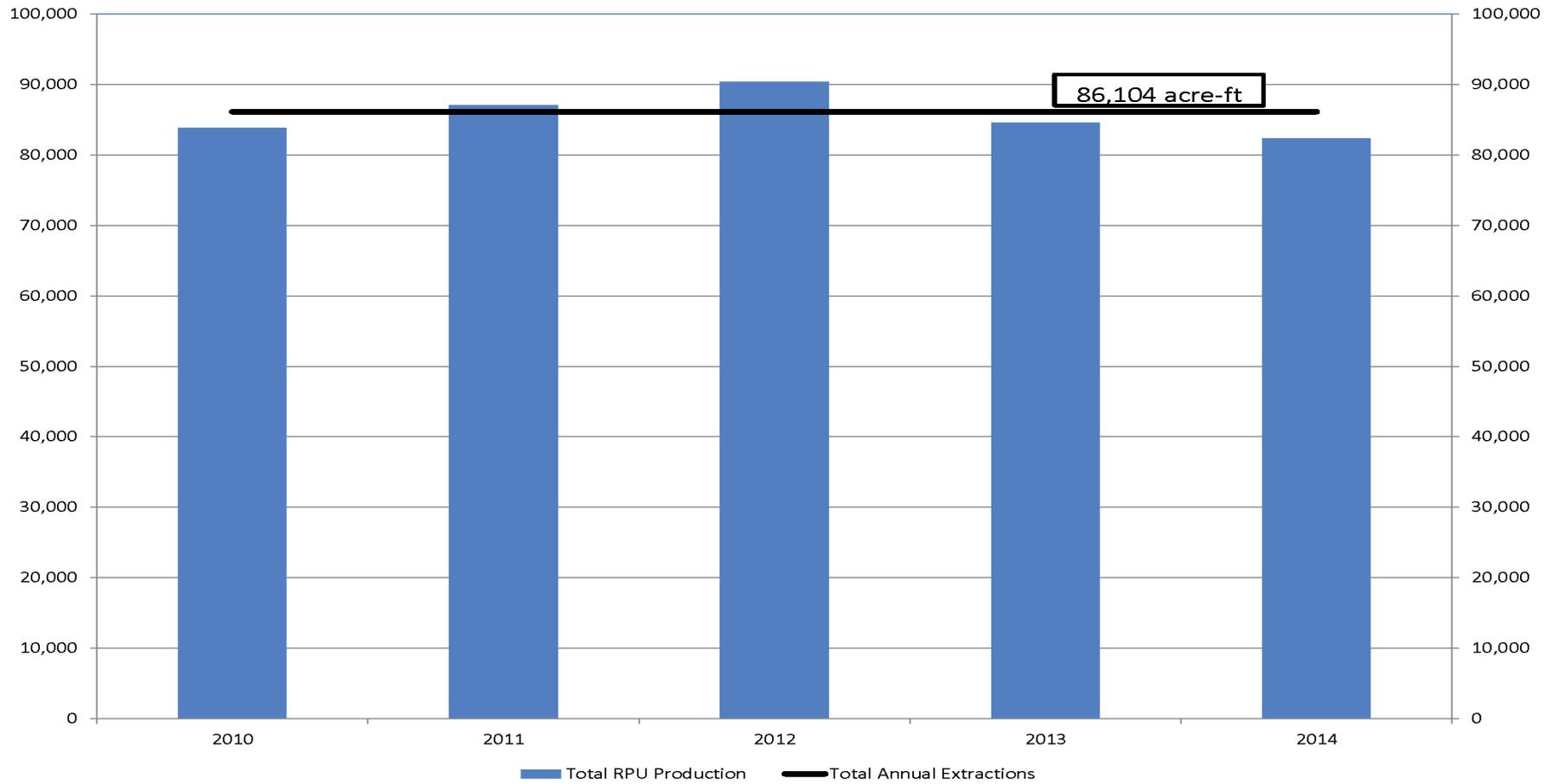
- CASGEM Basin Rankings
 - Bunker Hill & Riverside-Arlington: High Priority
 - Rialto-Colton: Medium Priority
- All basins have water quality impacts, declining water levels, and large populations.
- Response to Rankings
 - Riverside measures 16 wells seasonally
 - All contaminant plumes have/are being remediated with treatment
 - 1969 Judgment assists to manages the basins by requiring specific obligations and assurances.
 - Water levels relatively stable over last 10 years

Riverside's Water Rights Summary

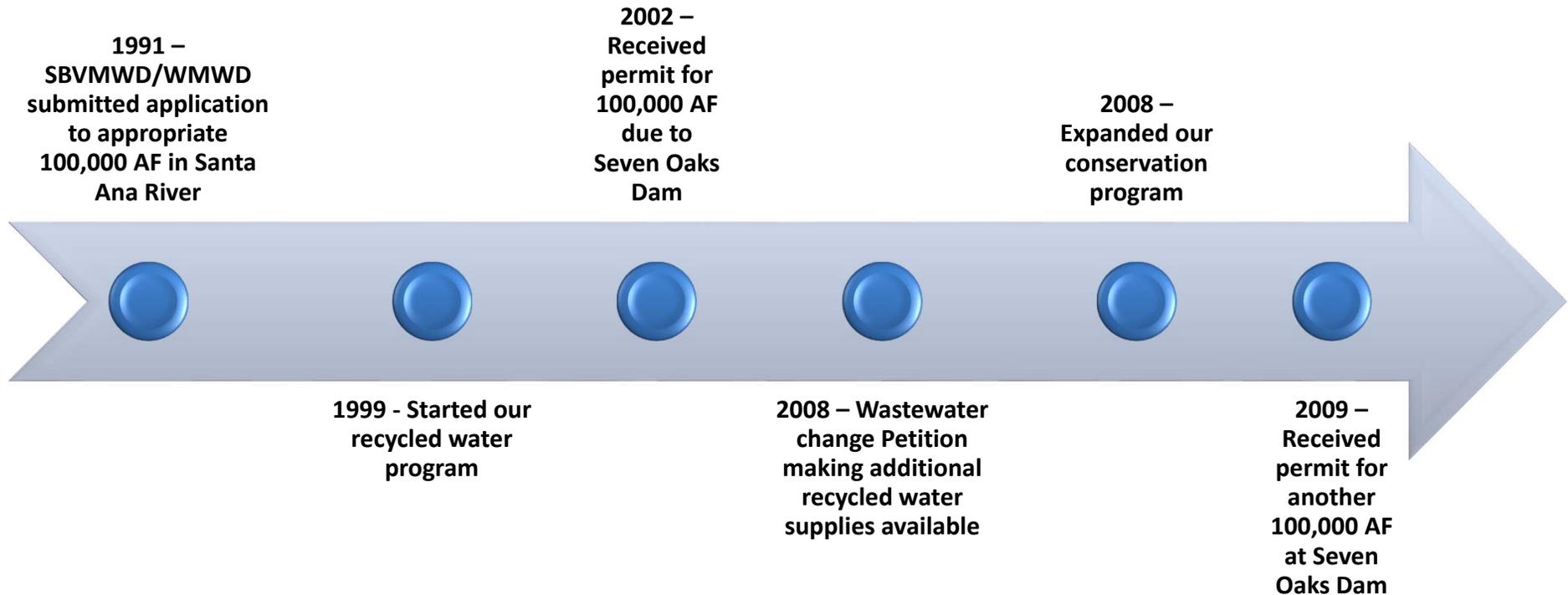
Available Extraction and Export Rights		
Basin	Annual Extraction (acre-feet)	
San Bernardino Basin Area ¹	55,145	*0.9% of basin storage
Rialto-Colton	2,728	
Riverside North	11,351	
Riverside South	16,880	
Total	86,104	

1) Includes New Conservation from Seven Oaks Dam

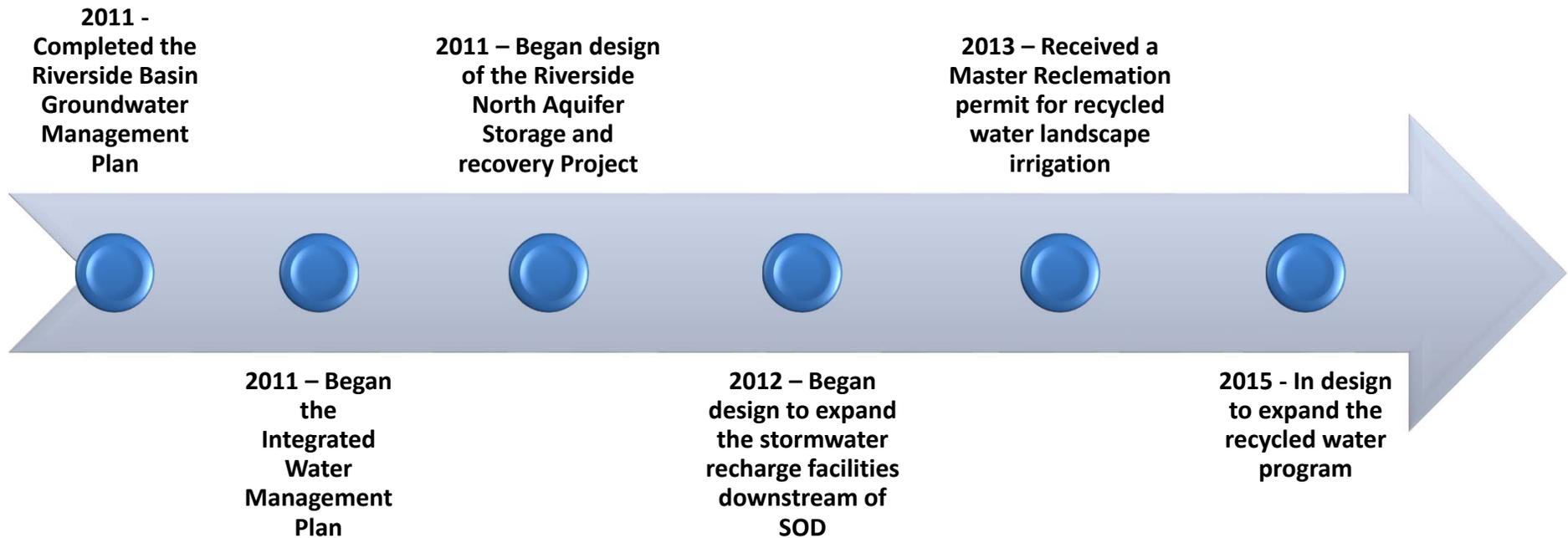
Riverside Annual Total Production



Riverside's Investment in Local Supplies



Riverside's Investment in Local Supplies



Riverside has invested \$100M in its capital investment campaign

Riverside intends to invest an additional \$30M in expanded conservation, recycled water & stormwater capture to remain imported water independent

RiversidePublicUtilities.com



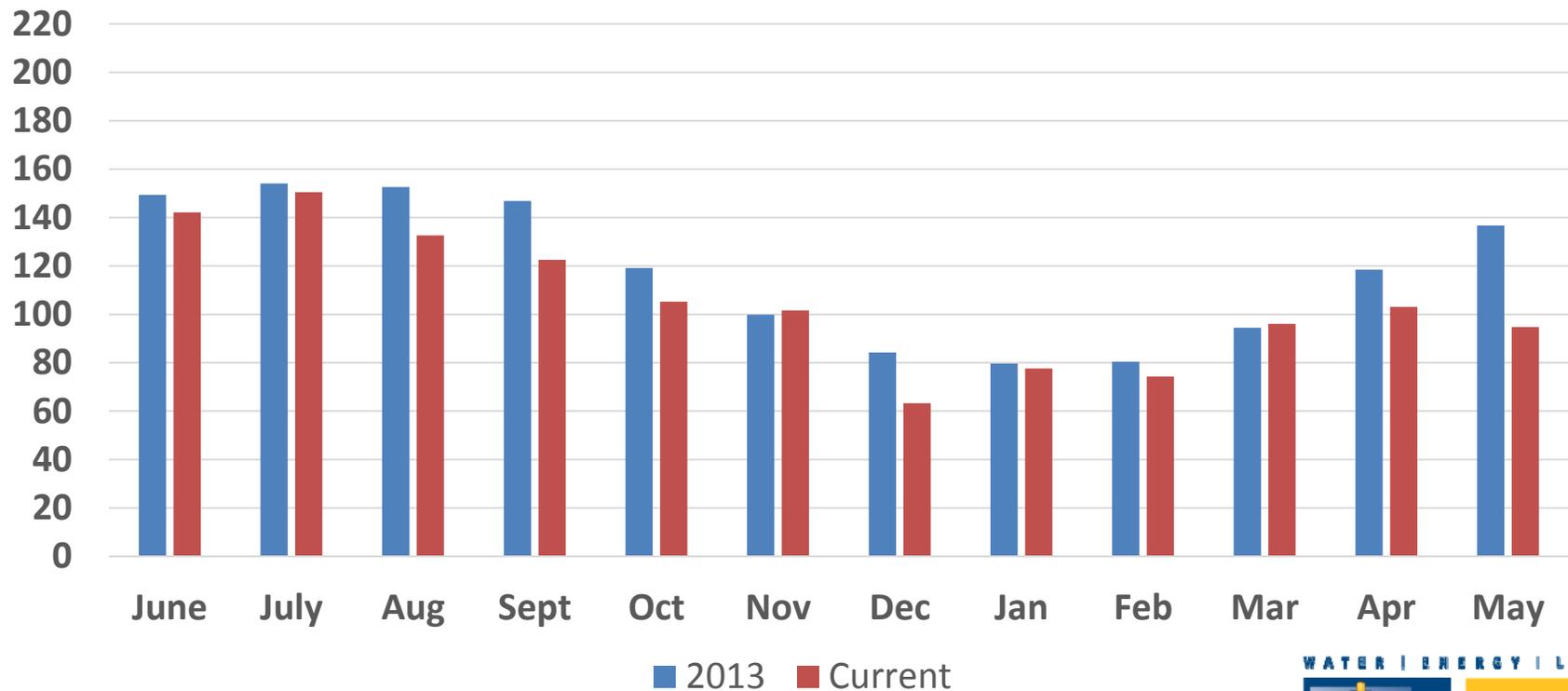
Future Water Supply

- Enhanced Recharge at Seven Oaks Dam
- Active Recharge in the San Bernardino Basin Area
- Riverside North Aquifer Storage and Recovery Project
- Riverside Basin Storm Water Capture
- Recycled Water
- Upper Santa Ana River Habitat Conservation Plan



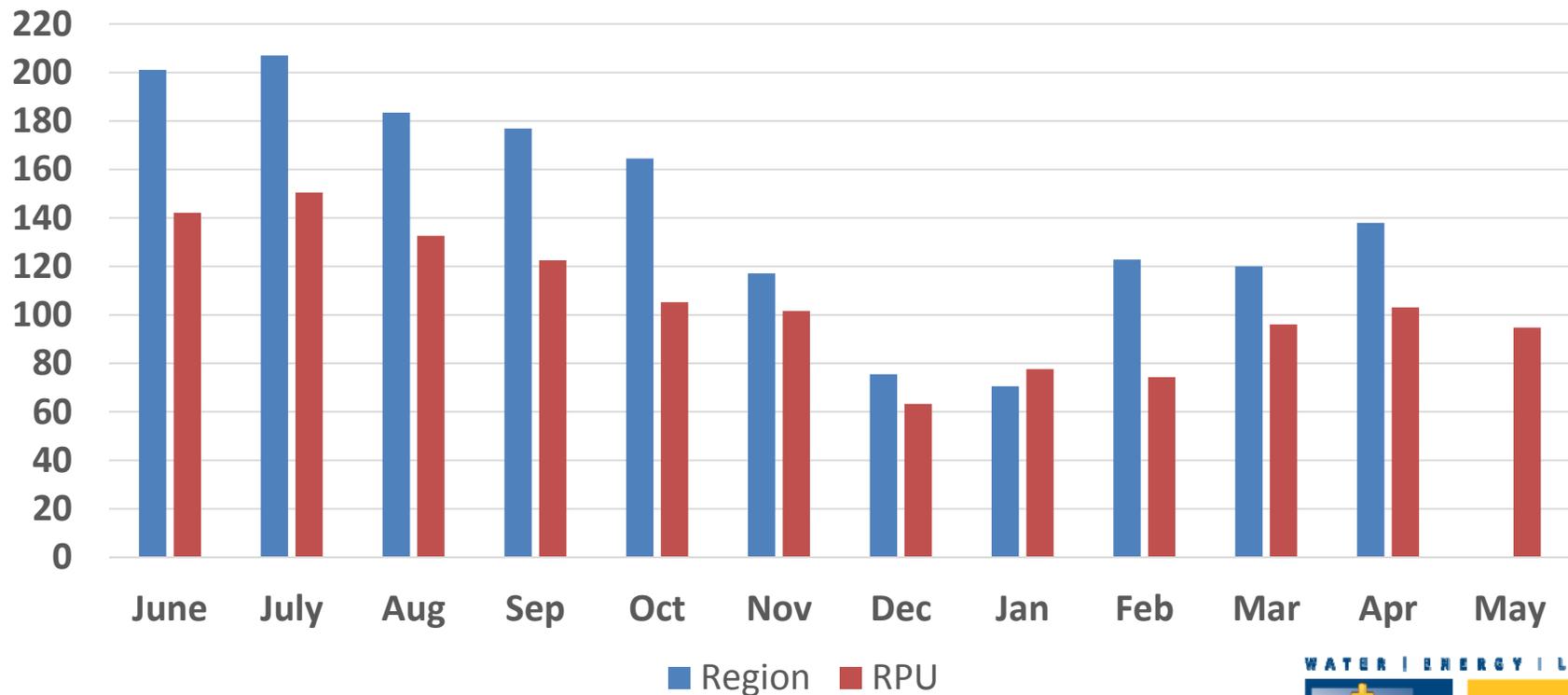
Riverside Water Conservation Results

Residential per capita water use 2013 v. Current



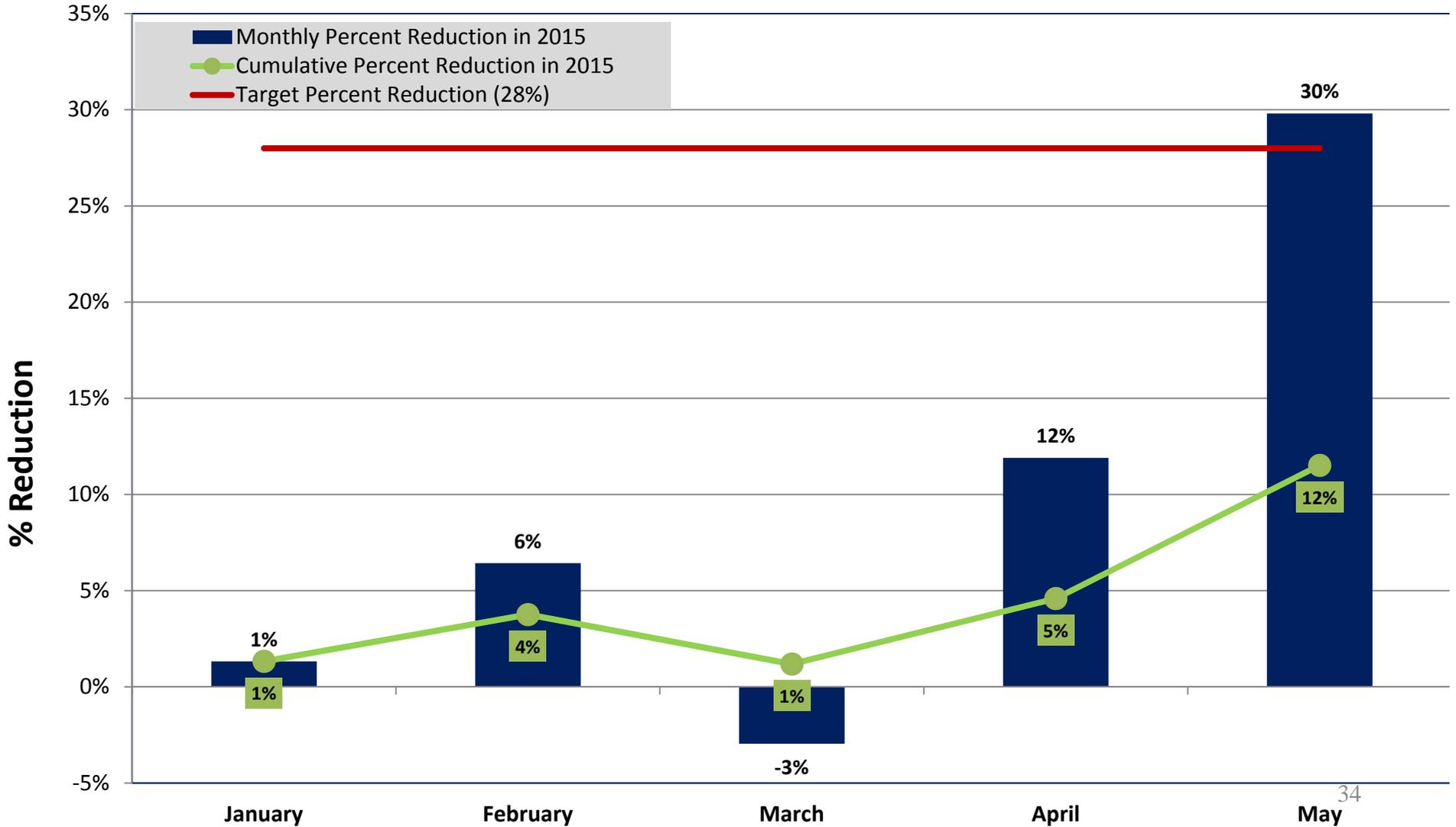
R-GPCD Tracking Comparison

Riverside residential per capita water use v. Region

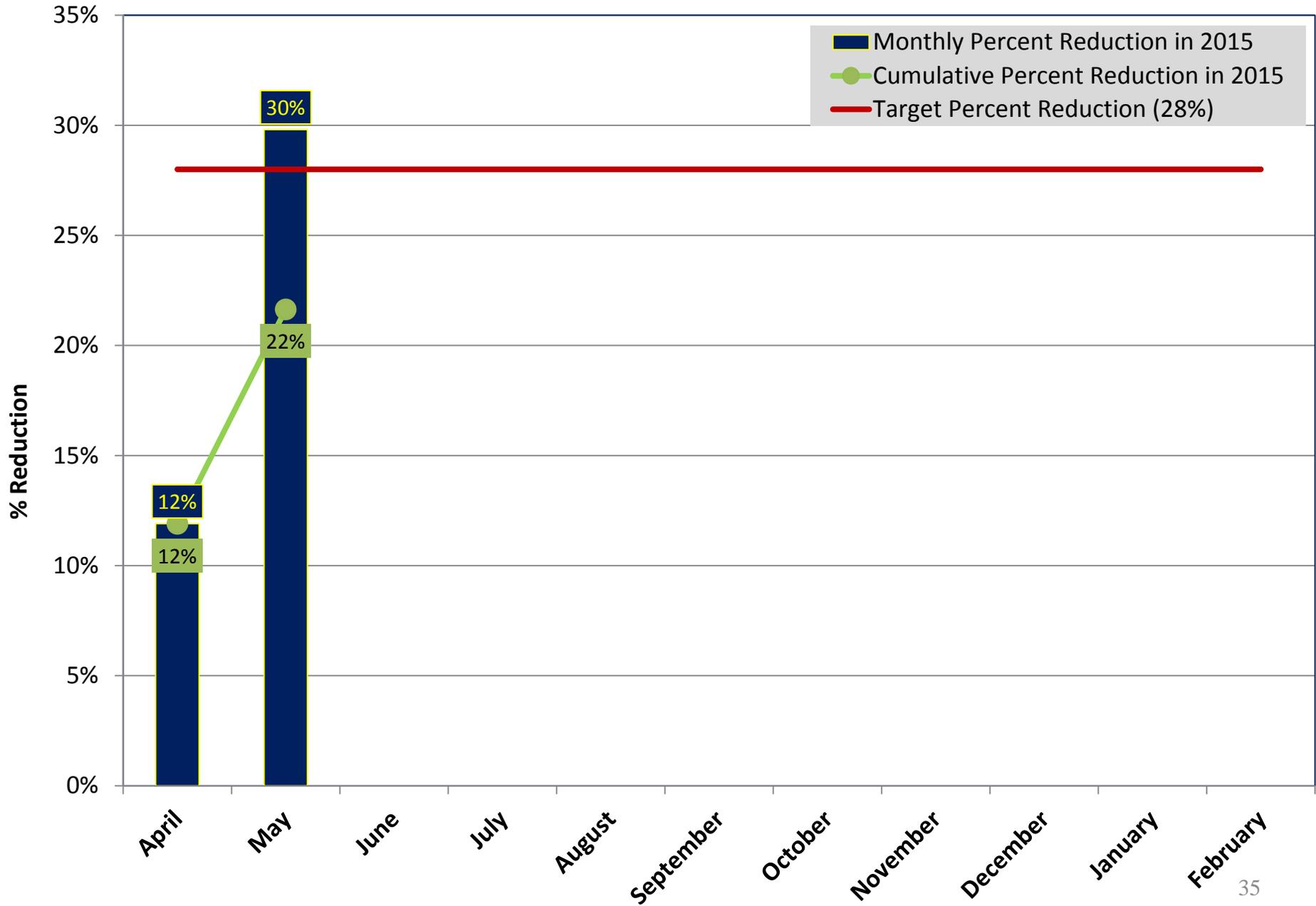


2015 Water Conservation Tracking

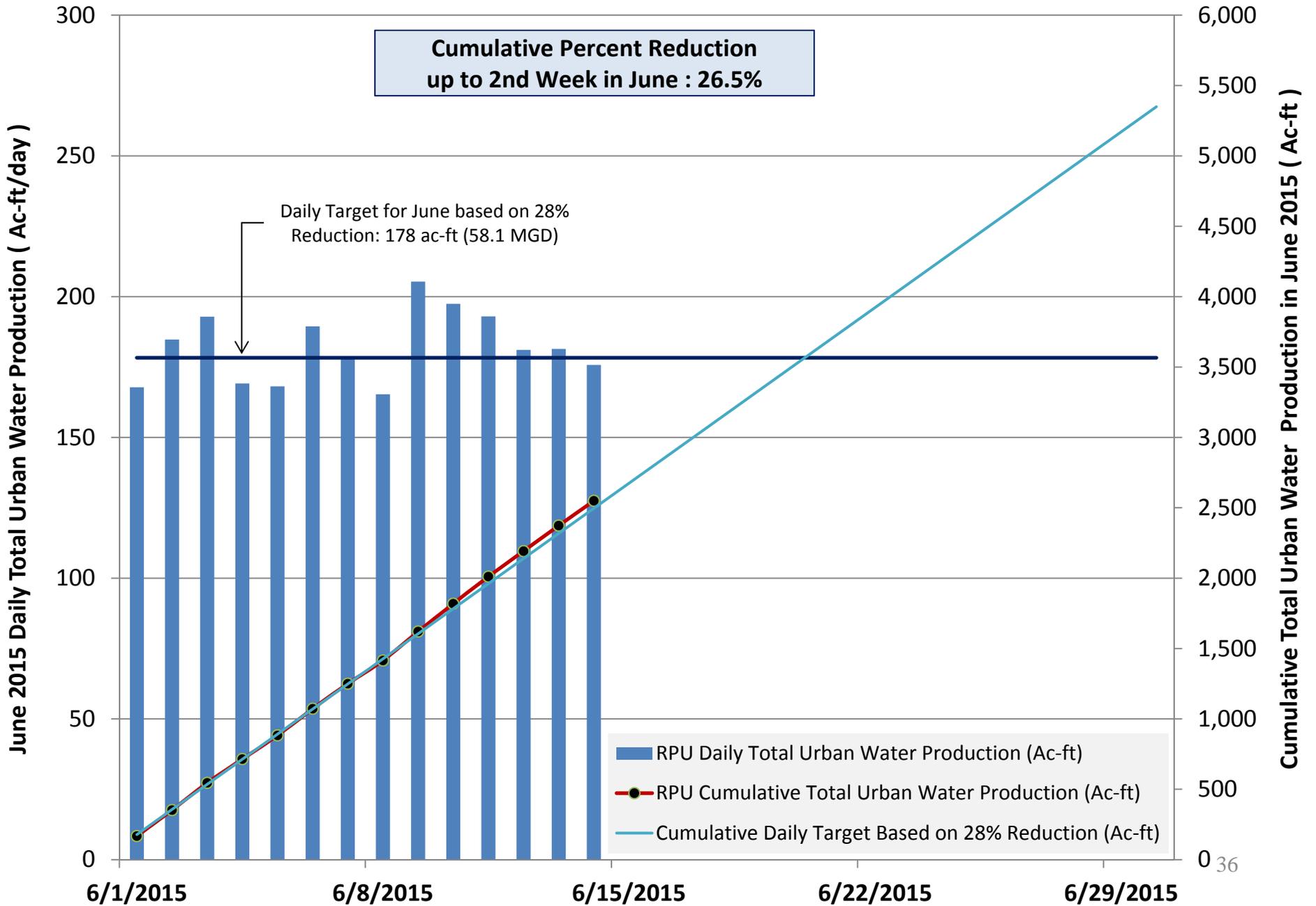
RPU Total Urban Water Production Saving for 2015 Compared to 2013 Benchmark



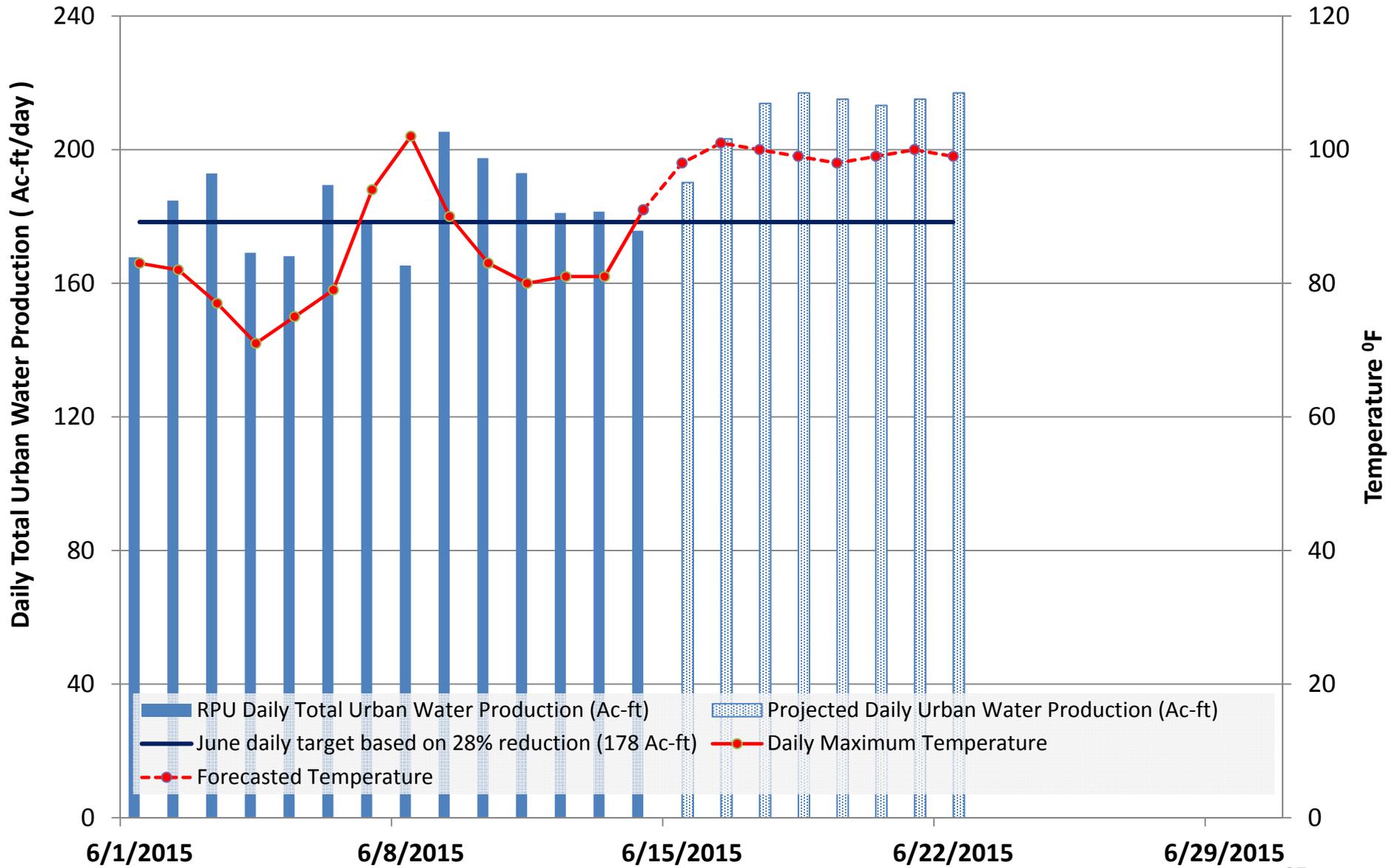
RPU Total Urban Water Production Saving for 2015 Compared to 2013 Benchmark



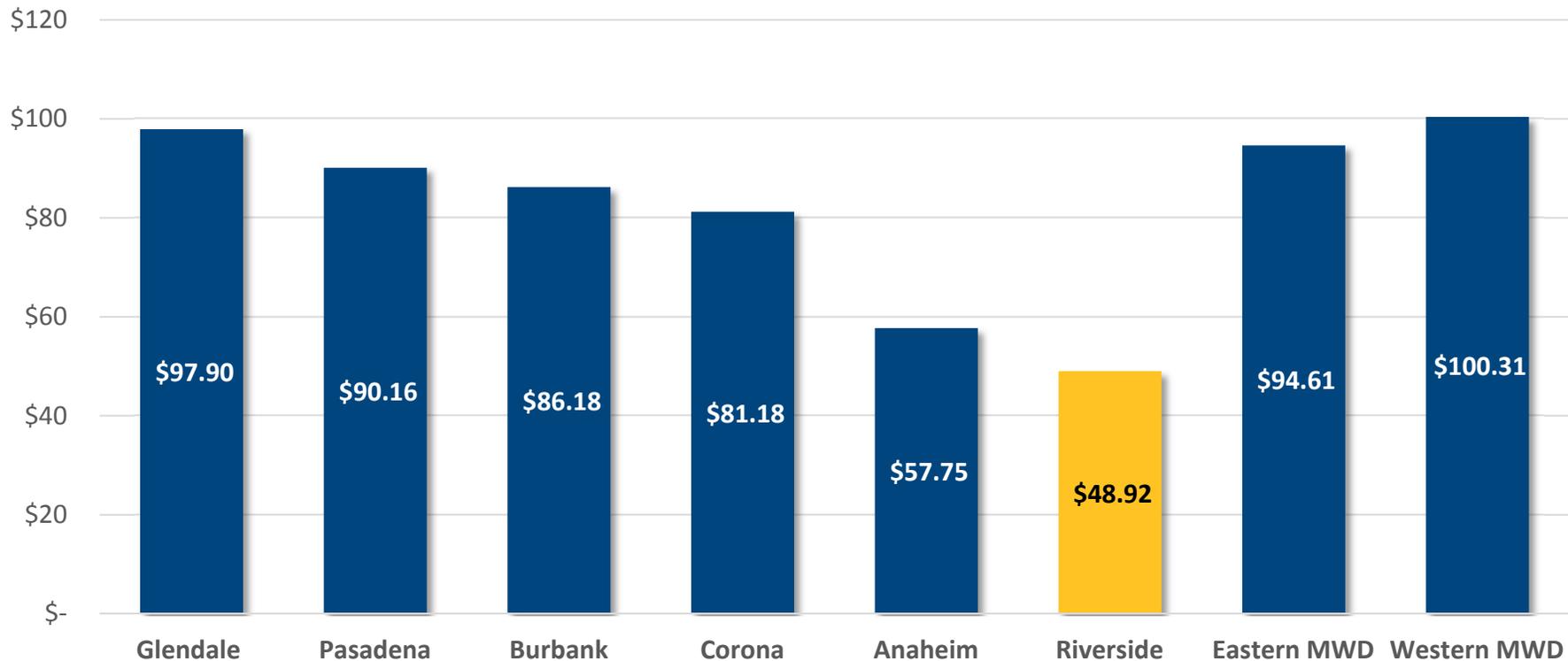
RPU Daily Total Urban Water Production Tracking in June 2015



Predicted RPU Daily Total Urban Water Production



Riverside's - Water Rate Comparison



**AVERAGE RESIDENTIAL RATE FOR 25 CCF PER MONTH
(AS OF SEPT. 30, 2014)**

RiversidePublicUtilities.com



Rationale for 4% Tier

- Minimum of 4 years of supply
 - The Bunker Hill Basin has decades of groundwater in storage, approximately 5,300,000 acre-feet
- Do not rely on imported water
 - Independent of Imported water since 2008
- Groundwater supplies recharge naturally
 - Western-San Bernardino Judgment established a safe yield of 232,100 acre-feet. Riverside's export rights were based on the Natural Safe Yield of the basin.
 - Natural Safe Yield is defined as that portion of the safe yield which could be derived from natural precipitation in the absence of imported water and the return flows therefrom.

Rationale for 4% Tier (continued)

In Addition:

- Riverside has Fixed Water Rights per the 1969 Western - San Bernardino Judgment
- Bunker Hill Basin has stable groundwater conditions
- 80% of our wells in Bunker Hill are constructed deeper than 500 ft
- Watermaster and Riverside have been sustainably managing the basins for more nearly 50 years (through varying hydrologic conditions)