



## RIVERSIDE'S WATER STORY

### Public Utilities Department

City Council

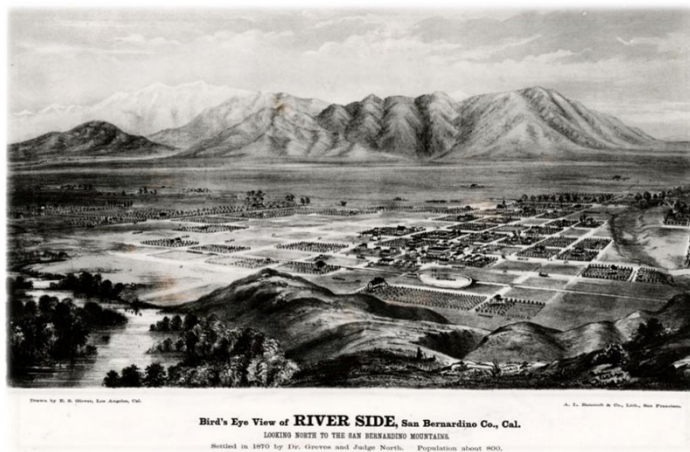
May 23, 2023

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## HISTORY-RIVERSIDE'S DOMESTIC WATER SYSTEM

1. In **1887**, Riverside Water Company (RWC) began development of the domestic water system
2. In **1913**, Riverside issued a bond to establish the water department
3. In **1959**, Riverside acquires the Riverside Water Company
4. In **1964**, State of California Board of Public Health issues Riverside a potable drinking water system operation permit



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## HISTORY-EARLY RPU

1. In **1965**, the City acquires the Gage Canal Company
2. In **1969**, after 7 years of litigation, Court Judgments and settlements for water rights between San Bernardino, Riverside, Orange Counties and over 4,000 individual parties adjudicates water rights for all parties throughout the watershed
3. Riverside still operates under these court judgments today to supply water to its domestic and agricultural customers



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## RPU WATER SYSTEM



Established  
**1913**



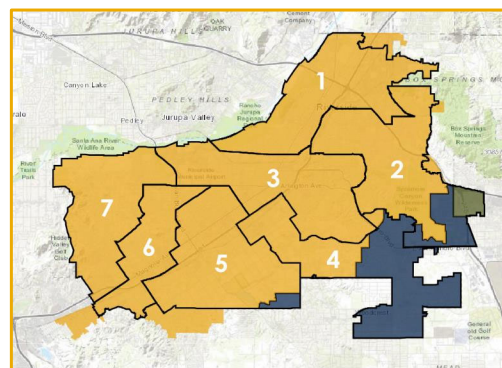
**66K**  
Service  
Connections



**100%**  
of the City's  
potable (drinking)  
water has been  
supplied from local  
groundwater  
sources since 2009



**Highest State  
operational  
classification  
rating** due to  
size and  
complexity



**Riverside  
Public Utilities**

**Western  
Municipal  
Water District**

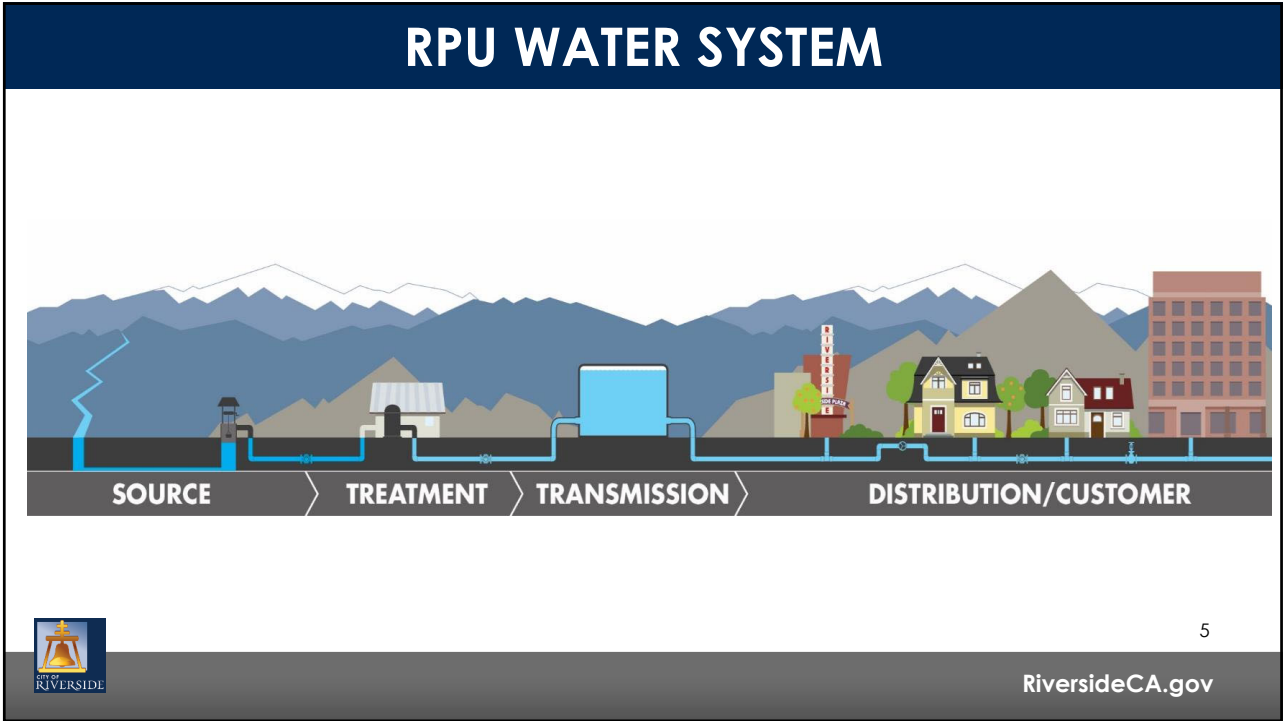
**Eastern  
Municipal  
Water District**

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# RPU WATER SYSTEM FACILITIES

 <p><b>50</b> Domestic Wells</p>	 <p><b>60</b> Pressure Stations</p>	 <p><b>6</b> Water Treatment Facilities</p>	 <p><b>16</b> Reservoirs</p>
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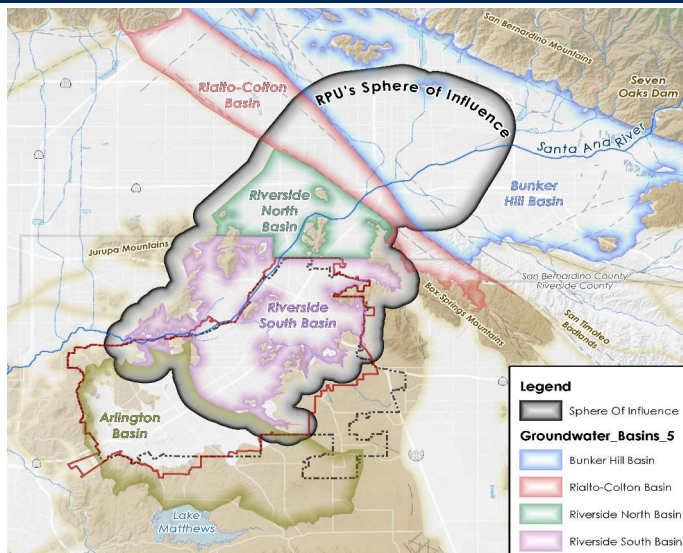
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## SOURCE-GROUNDWATER BASINS

- San Bernardino (Bunker Hill)
- Rialto-Colton
- Riverside North
- Riverside South Basins

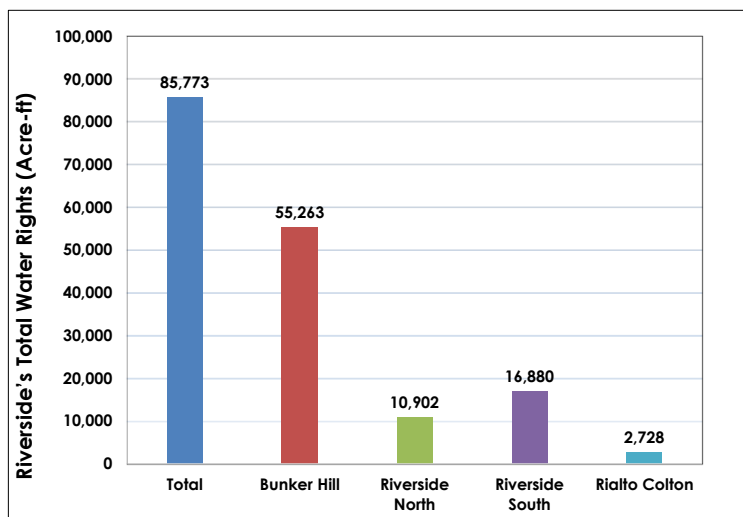


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## SOURCE- WATER SOURCES

Riverside's Total Water Rights by Groundwater Basin

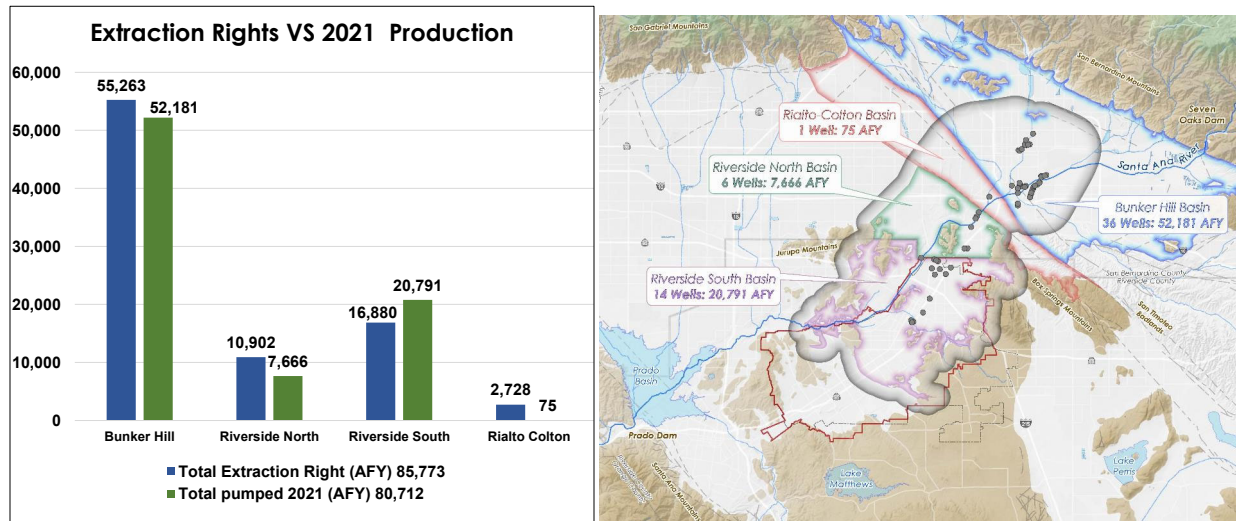


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# SOURCE-GROUNDWATER PRODUCTION

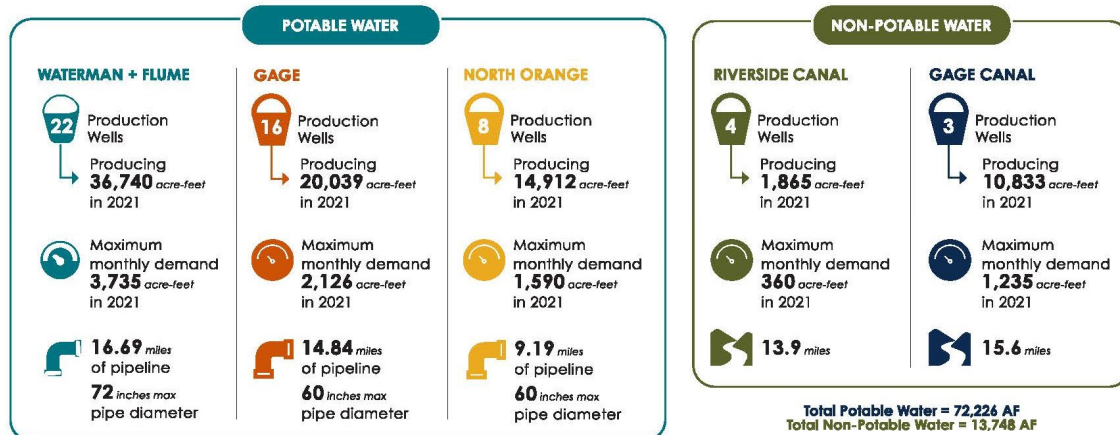


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# SOURCE-GROUNDWATER PRODUCTION

## Groundwater Well Production and Pipes



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## SOURCE-RECYCLED WATER SYSTEM

- Drought-proof water supply for non-potable uses
- City required Santa Ana River discharge = 25,000 acre-feet (AF) of water per year
- Estimated annual available recycled water supply = 3,000 AF



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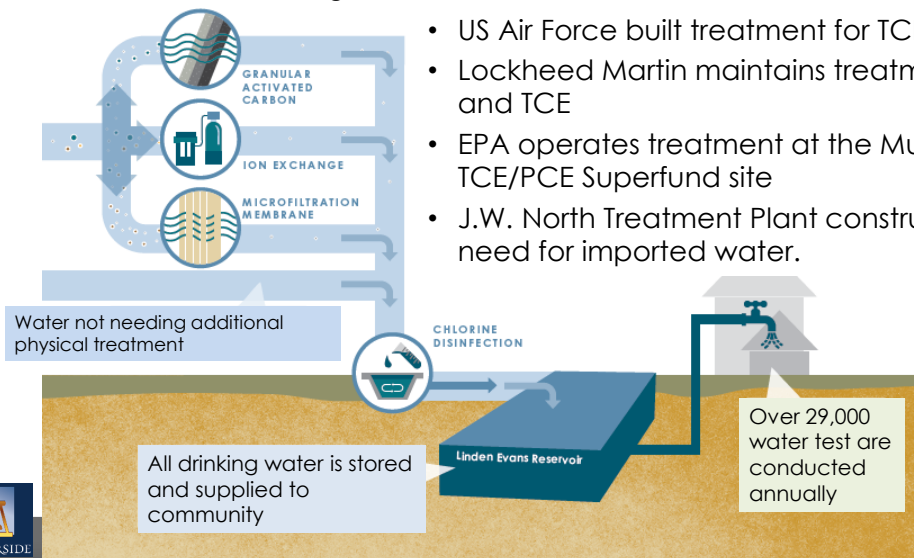


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## TREATMENT

### Treatment Technologies



- Shell Oil and Dow Chemical built treatment for DBCP
- US Air Force built treatment for TCE
- Lockheed Martin maintains treatment for Perchlorate and TCE
- EPA operates treatment at the Muscoy-Newmark TCE/PCE Superfund site
- J.W. North Treatment Plant constructed eliminating need for imported water.

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## TRANSMISSION



System "Arteries"  
(16-72 inches)

**28 Miles**  
of Supply  
Pipeline

**97 Miles**  
of Transmission  
Pipeline

**820 Miles**  
of Distribution  
Pipeline



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## CHALLENGES

Sustainability Challenges to Riverside Requiring Vital Solutions



**Water Rights  
& Supply**



**Climate  
Change**



**Water Quality  
Compliance**



**Aging  
Infrastructure**



**City of  
Riverside  
Growth**



**2040 Potable &  
Recycled Water  
Demand**



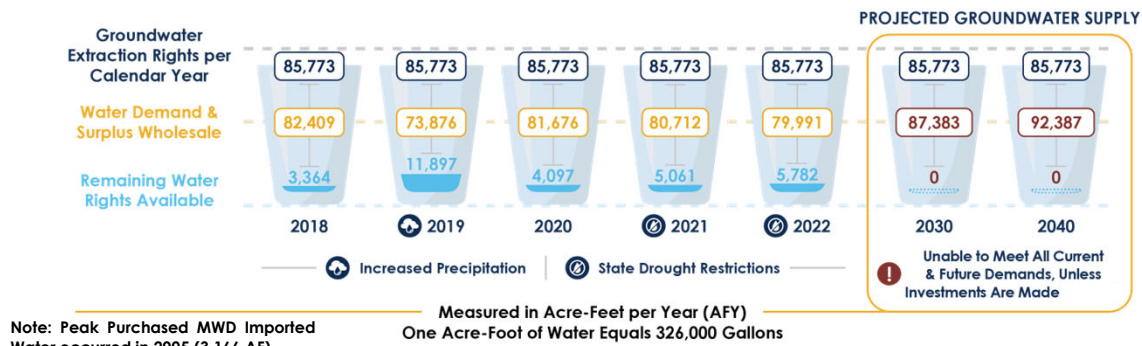
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# CHALLENGES-WATER RIGHTS & SUPPLY/GROWTH

A 1969 Legal Judgment sets surface water and groundwater rights for the region, including the City of Riverside's annual "use it or lose it" groundwater extraction rights.



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## CHALLENGES

### Sustainability Challenges to Riverside Requiring Vital Solutions



**Water Rights & Supply**



**City of Riverside Growth**



**2040 Potable & Recycled Water Demand**

- Prepare annual water demand vs supply assessments
- Advocate for development of regional plan for basin water production
- Oppose all proposals to consider a recalculation of groundwater basin Safe Yields
- Set targets for Per Capita Per Day water use
- Questions/Feedback/Additional Options?

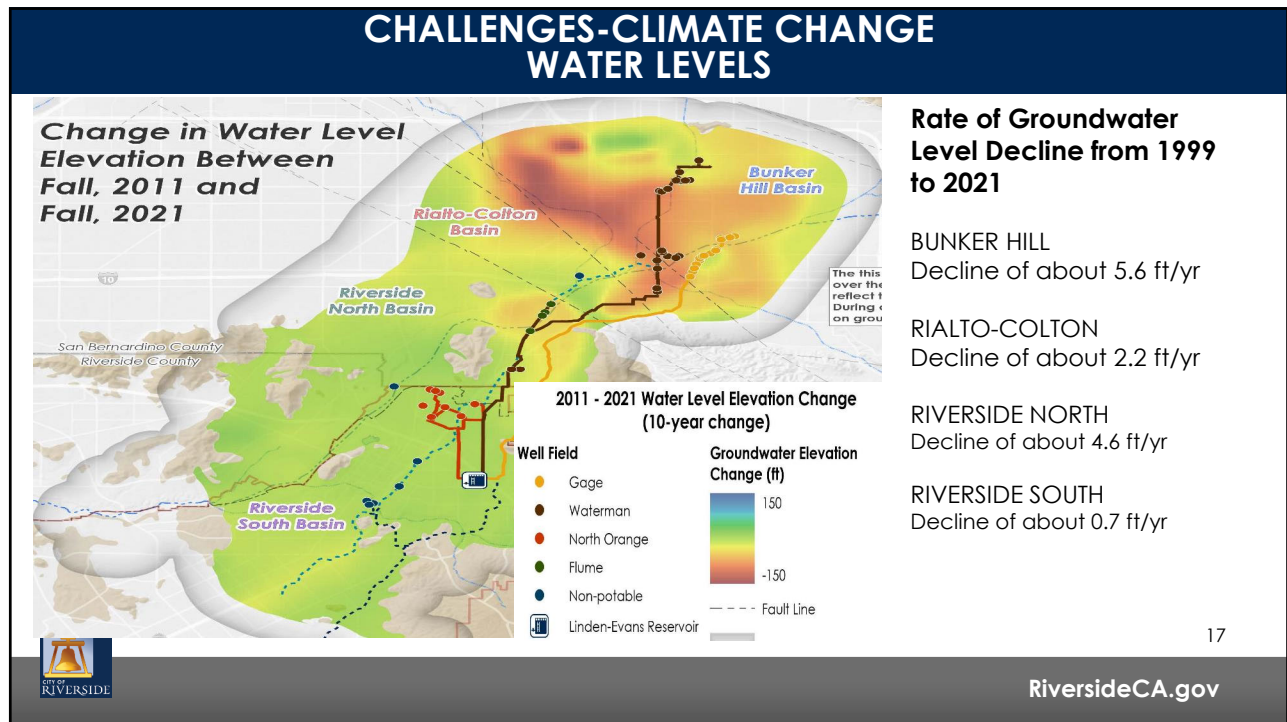


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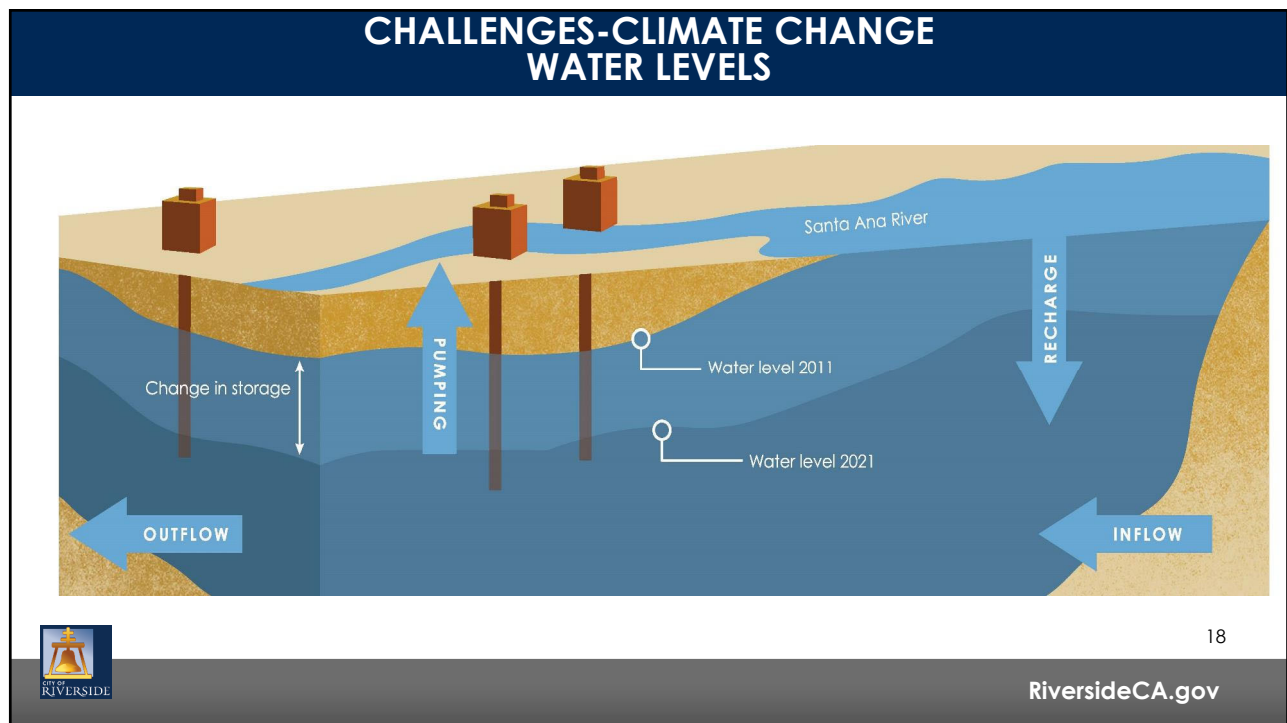
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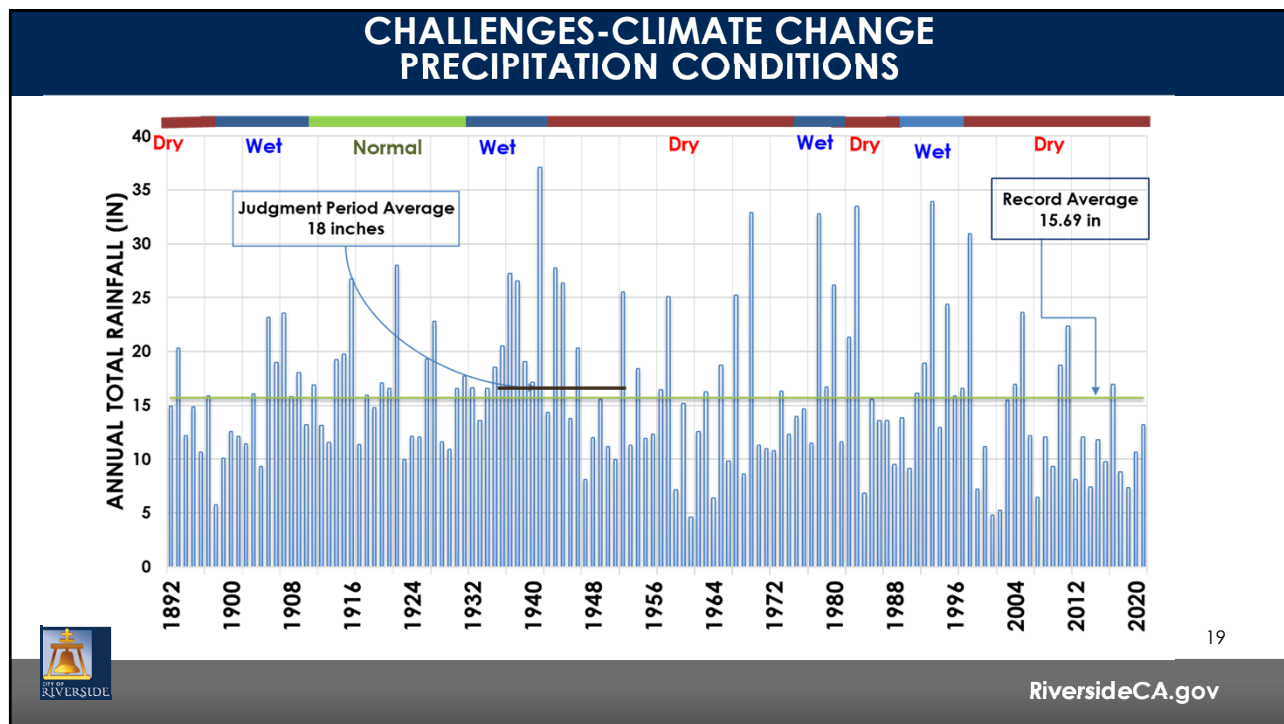




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## CHALLENGES

### Sustainability Challenges to Riverside Requiring Vital Solutions



**Climate Change**

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- Protect facilities in high fire risk and flood areas
- Develop new landscape strategies for more purposeful use of water to enhance shade, local food production, soil health and natural habitats
- Develop a transition plan to decarbonize the water production operations of the utility
- Consider sustainability in all procurement decisions
- Questions/Feedback/Additional Options?

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# CHALLENGES-WATER QUALITY COMPLIANCE

## Perchlorate-Source

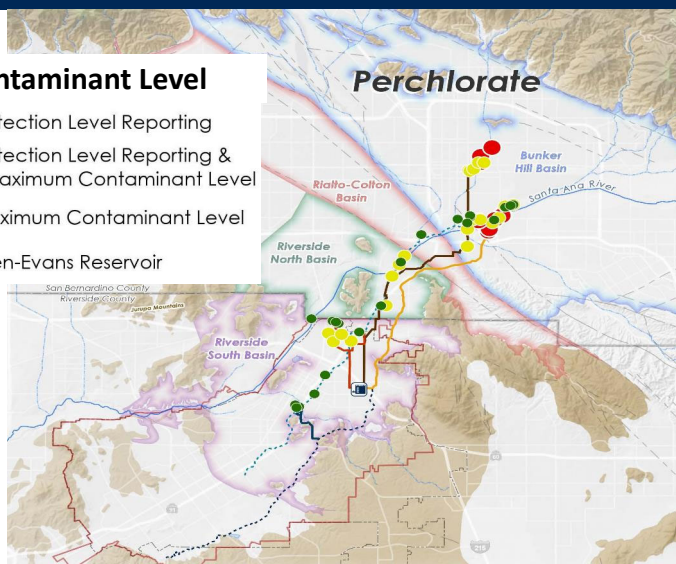
Solid rocket propellant, aerospace operations, fireworks, explosives, and matches.

- 50 wells sampled
- 46 potable water
- 4 non-potable water



### Well Contaminant Level

- < Detection Level Reporting
- > Detection Level Reporting & ≤ Maximum Contaminant Level
- > Maximum Contaminant Level
- Linden-Evans Reservoir

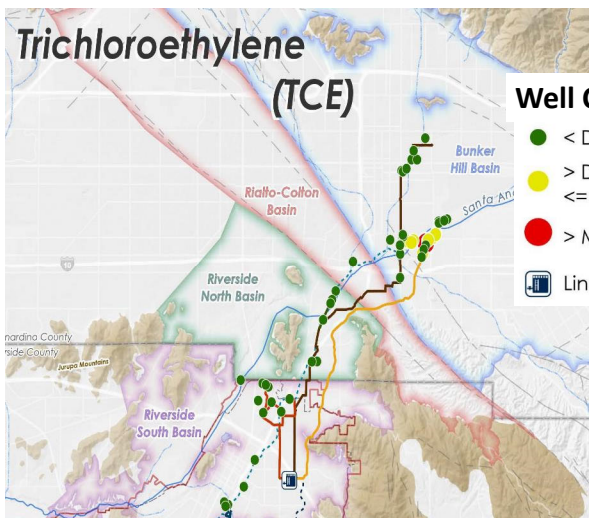


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# CHALLENGES-WATER QUALITY COMPLIANCE

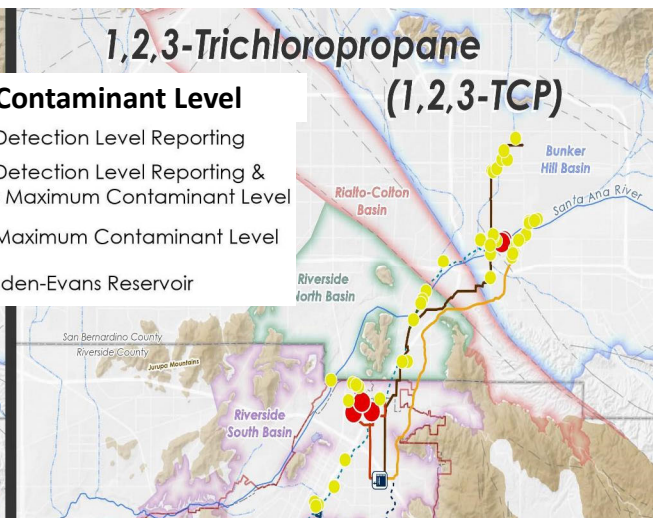
## Trichloroethylene (TCE)



## 1,2,3-Trichloropropane (1,2,3-TCP)

### Well Contaminant Level

- < Detection Level Reporting
- > Detection Level Reporting & ≤ Maximum Contaminant Level
- > Maximum Contaminant Level
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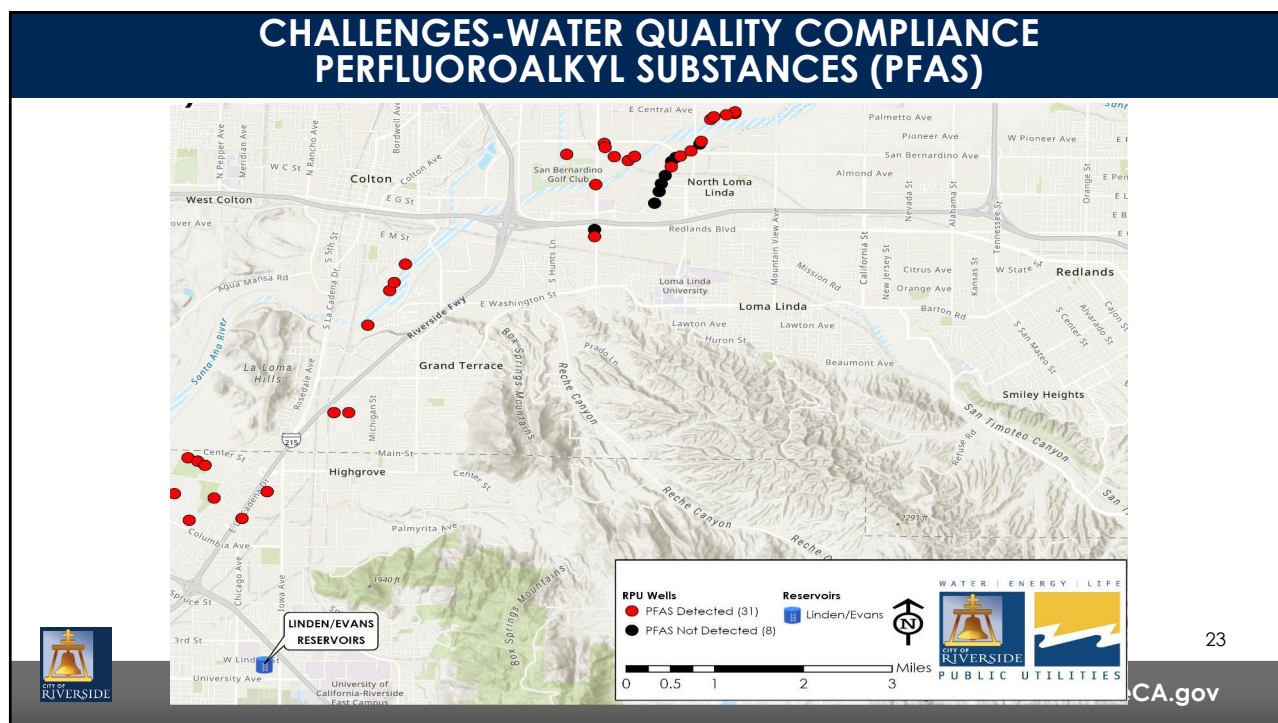


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## CHALLENGES-WATER QUALITY COMPLIANCE PERFLUOROALKYL SUBSTANCES (PFAS)



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## CHALLENGES

### Sustainability Challenges to Riverside Requiring Vital Solutions

#### Water Quality Compliance

- Follow the City Council's adopted Water Quality Principles
- Develop treatment strategies for contaminants of concern
- Identify and pursue responsible parties for treatment and cleanup
- Seek funding for new water treatment works
- Questions/Feedback/Additional Options?



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## CHALLENGES-AGING INFRASTRUCTURE



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## CHALLENGES-AGING INFRASTRUCTURE



### Maintain & Replace

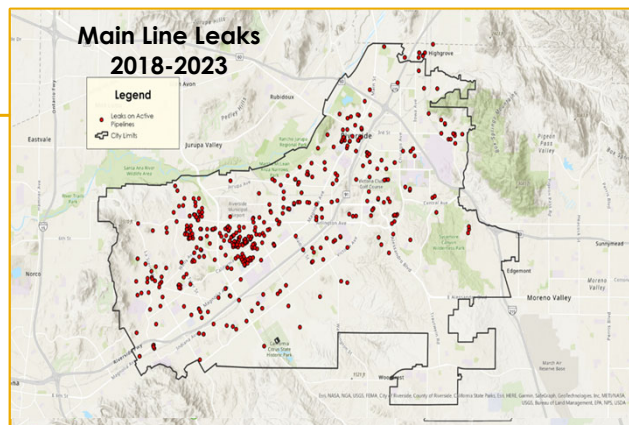
Reservoirs (16): **12-87 years**

Boosters (38): **2-89 years**

Wells (50): **2-95 years**

Pipeline (945 miles): **1-130 years**

Average replacement rate= 2.8 miles per year  
(300 year life cycle)



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# CHALLENGES

## Sustainability Challenges to Riverside Requiring Vital Solutions

### Aging Infrastructure

- Conduct continuous condition assessments of facilities
- Complete infrastructure Master Plan for facilities replacement
- Maintain facilities through preventative maintenance programs
- Construct facilities with high quality and long lasting materials
- Questions/Feedback/Additional Options?



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# STRATEGIC PLAN ALIGNMENT

This items contributes to all 2025 Envision Strategic Plan Priorities and Cross-Cutting Threads.



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## RECOMMENDATION

That the City Council receive and file an update on the status of the City's water systems.



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