

# NON-POTABLE/RECYCLED WATER OVERVIEW

## Public Utilities Department

### MOBILITY & INFRASTRUCTURE COMMITTEE

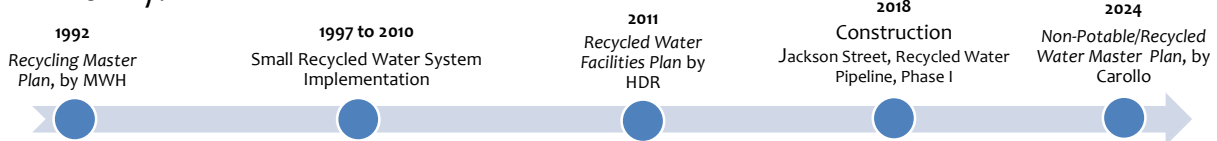
MARCH 13, 2025

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## BACKGROUND

1. Non-potable and recycled water studied over 30 years (1992 - 2024).



2. Phased and demand approach to implementation.
3. High cost to implement projects compared with other water resources projects.
4. Non-potable uses focused to canal systems (Gage/Riverside).
5. Recycled water limited due to discharge obligations.



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## DISCUSSION – RPU WATER SUPPLY SOURCES

1. Primary source of supply is local groundwater for both its potable and non-potable water.
2. Riverside has a contract with WMWD to access imported water when needed (up to 21,700 AFY, 25% of current water supply).
3. Limited recycled water from the City's Regional Water Quality Control Plant for non-potable uses.
4. Since 2009, Riverside has been imported-water independent by relying solely on local water supplies to meet water demands.

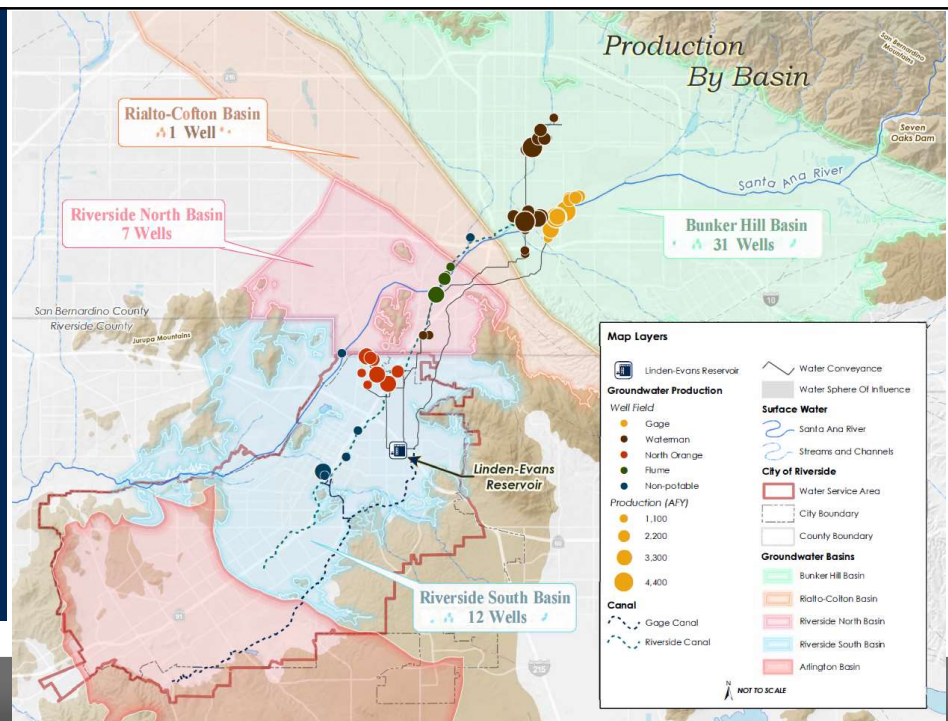


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## RPU WATER SUPPLY SOURCES



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## RIVERSIDE CANAL

1. 1871 – Constructed by the Riverside Water Co. for Citrus irrigation and domestic needs.
2. 1961 – City acquired Riverside Canal Co.
3. 1980's – Riverside Canal Abandonment Task Force established.
  - Incidental uses should be removed wherever possible and canal abandoned.
  - Water carrying obligations.
  - Abandonment south of Jefferson St.
  - Riverside Canal continues to remain in use.
    - Irrigation water to WMWD.
    - Conveying stormwater run-off.



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## GAGE CANAL

1. 1885 – Constructed by Matthew Gage to facilitate citrus irrigation.
2. 1959 – City files "friendly" condemnation action.
3. 1965 – City acquired Gage facilities.
4. 1973 – City converts the Upper Gage Canal from an open channel to an enclosed pressurized pipeline for domestic use.



Matthew Gage



Flume #9 over Tequesquite Arroyo (c. 1888) 6

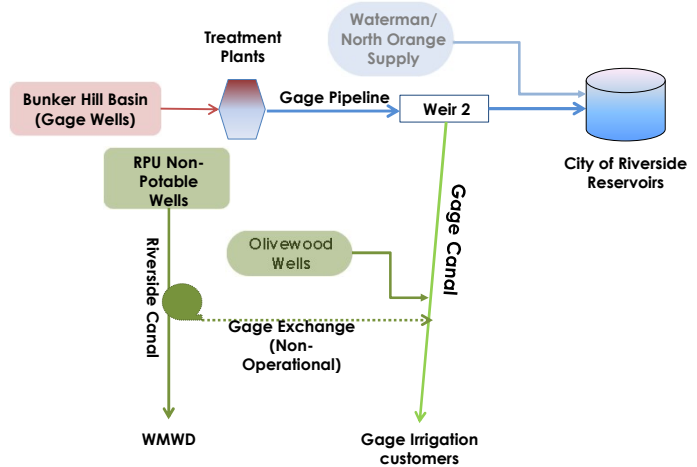


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## GAGE CANAL (Cont'd)

5. 1991 – Gage Exchange Agreement
  - City to receive up to 6,400 AFY of potable water in exchange for up to 8,000 AFY of non potable water from the Riverside Canal
6. 2000's - Groundwater treatment plants constructed to treat for contaminants
7. 2021 – Agreement terminated by Gage Canal Co.

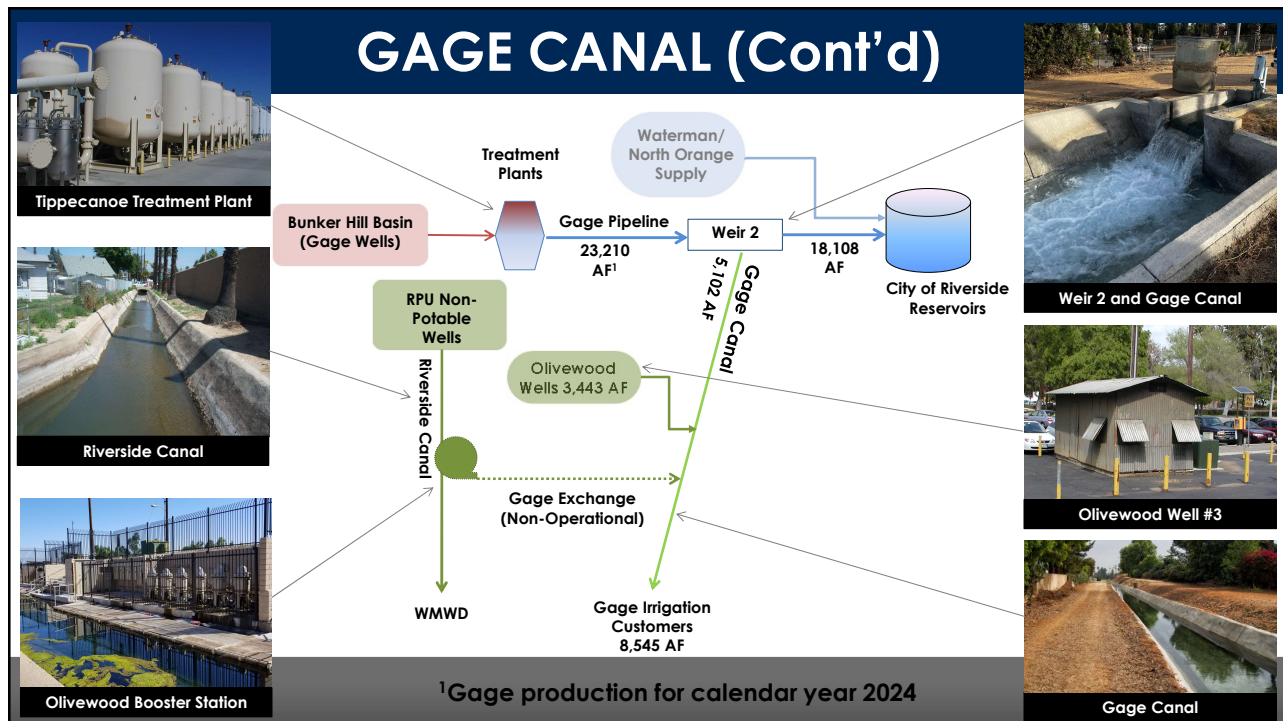


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## GAGE CANAL (Cont'd)



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## RECYCLED WATER

1. Recycled water use evaluated since 1992.
  - 1992 *Recycling Master Plan*, by MWH.
  - 1997 – 2010 Small Recycled Water System Implementations (Van Buren Golf Center, Van Buren Urban Forest, Toro Manufacturing Company).
2. In 2008 the State approved use of wastewater with discharge commitments to the Santa Ana River.
3. Reduced wastewater availability at the RWQCP.
  - The Great Recession.
  - State Drought Declaration.
  - Permanent water conservation measures.

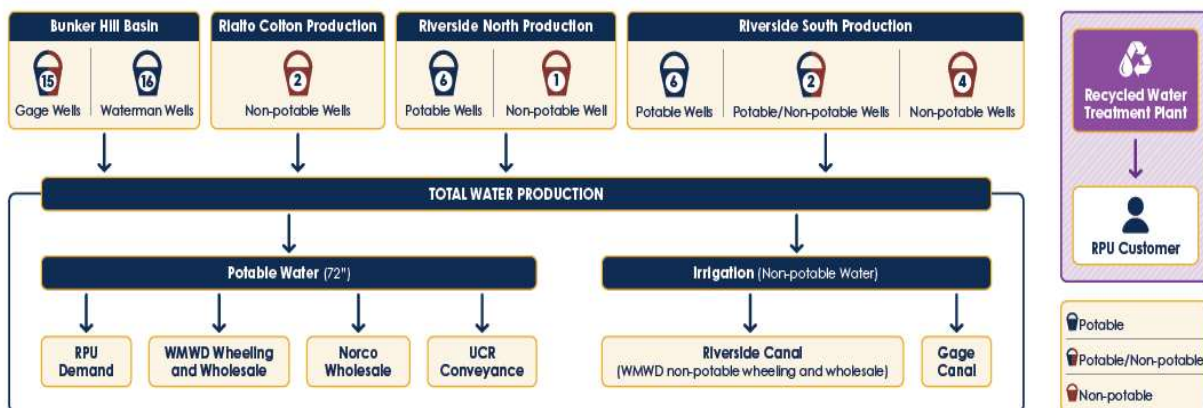


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## RPU WATER PRODUCTION SCHEMATIC



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## RPU's POTABLE WATER SYSTEM

1. 44 Active Potable Wells.
2. 6 Groundwater Treatment Plants.
3. 16 Reservoirs.
4. 993 miles of pipeline.
5. 31 Pump Stations.
6. 25 Pressure Reducing Stations.
7. Over 69,000 service connections.
8. High Level of Service.



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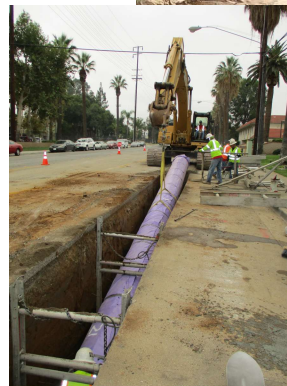
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## RPU's NON-POTABLE/RW WATER SYSTEM

### NON-POTABLE WATER SYSTEM:

1. 6 non-potable wells.
2. 6 miles of pipeline.
3. 14 miles of canal.  
(Riverside Canal).
4. 15.6 miles of canal  
(Gage Canal).



### RECYCLED WATER SYSTEM:

1. 8 miles of pipeline.



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## RPU's NON-POTABLE/RW WATER SYSTEM

### FY2023-24:

1. 9% or 7,981 AFY of Riverside groundwater used as non-potable.
  - 544 AFY from Riverside Basin delivered to WMWD.
  - 7,437 AFY from Bunker Hill Basin delivered to Gage customers.
2. 170 AFY of recycled water (wastewater).
3. Decline in non-potable production (termination of Gage Exchange Agreement).

### Current Use:

1. Riverside Canal used to convey water to WMWD.
2. WMWD intends to use segment of Riverside Canal (Hoover to Jefferson) to wheel non-potable water from WMWD's Well 7.
3. Additional investment in non-potable infrastructure to be evaluated on a project-by-project basis.
4. Issues: ageing infrastructure; water quality; planned/un-planned maintenance.



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## RPU's NON-POTABLE/RW WATER SYSTEM

### 2024 Carollo NP/RW Master Plan Findings:

1. Potential project to utilize Riverside Canal to provide non-potable water to the Central Ave. RW.
2. Needs further study to analyze feasibility of this option.
3. Incorporated on-going work between RPU and San Bernardino Municipal Valley Water District on RHPWP-West and East Branch Projects.
4. Projects grouped into 3 phases.



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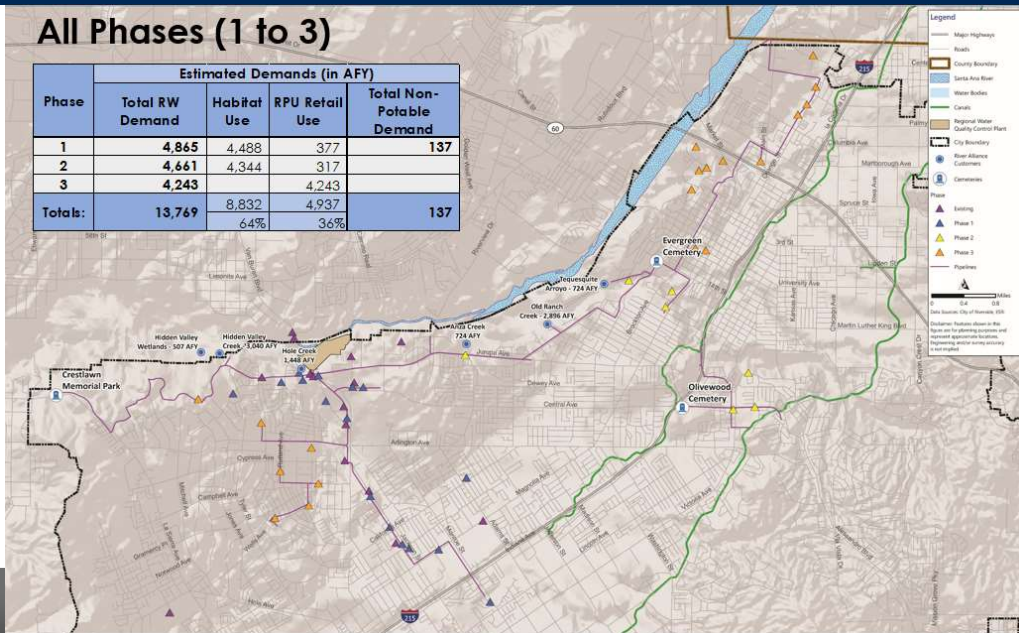
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# NON-POTABLE/RW WATER PLAN

## All Phases (1 to 3)

Phase	Estimated Demands (in AFY)			
	Total RW Demand	Habitat Use	RPU Retail Use	Total Non-Potable Demand
1	4,865	4,488	377	137
2	4,661	4,344	317	
3	4,243		4,243	
<b>Totals:</b>	<b>13,769</b>	<b>8,832</b> 64%	<b>4,937</b> 36%	<b>137</b>



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# NON-POTABLE/RW WATER PLAN

## Challenges:

1. Potential future reduction of available recycled water due to State's water use efficiency standards for indoor use.
2. Wastewater change petition needed to secure additional recycled water rights for future system expansion.
3. Lack of cost differential between potable and recycled water rates to incentive recycled water use.
4. Continued non-potable system O&M costs and ageing infrastructure.
5. Groundwater rights.



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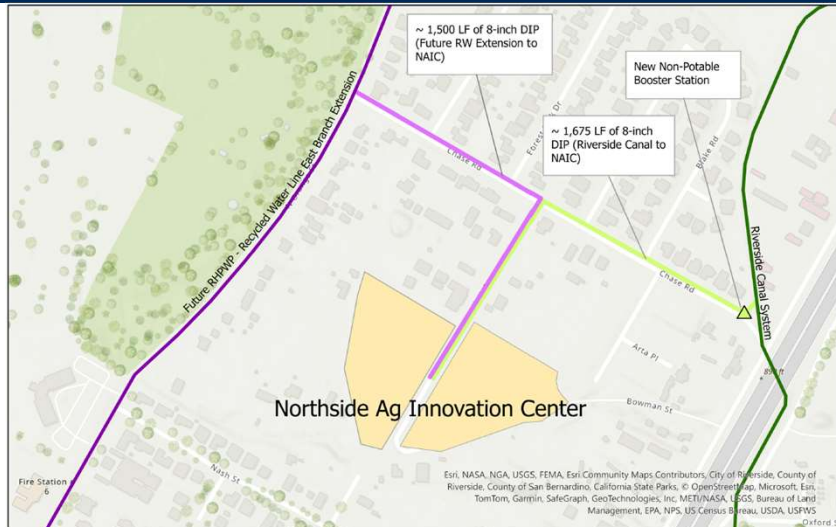
# NORTHSIDE AG INNOVATION CENTER

## Non-Potable Summary:

1. Water quality evaluation;
2. Non-potable infrastructure needs
3. Non-potable reliability
4. Est. Cost: \$1.4M to \$8.1M

## Recycled Water Summary:

1. RW Phase 3 completion
2. RW infrastructure need
3. (Est. Cost: \$1M)



**Figure 1 - Northside Ag Innovation Center**  
Recycled Water & Non-Potable Water Alternatives



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# CENTRAL AVENUE RECYCLED WATERLINE

SITE_ID	Site Type	Recycled Water Demand (AFY) <sup>1</sup>	Recycled Water Demand (GPM)	Peak RW Demand (GPM)
1	Cemetery	51.3	31.80	218.1
2	School	30.6	18.96	130.1
3	School	5.9	3.68	25.3
4	Church/School	8.8	5.46	37.4
5	Church/School	10.0	6.20	42.5
6	Street Median Landscaping	22.2	13.76	94.4
7	Street Median Landscaping	8.7	5.36	36.8
<b>Totals</b>		<b>137.5</b>	<b>85</b>	<b>585</b>

## Note:

1. Landscape Meter/Service or Recycled Water Meter/Service - Recycled Water Demand was determined from Enquesta.

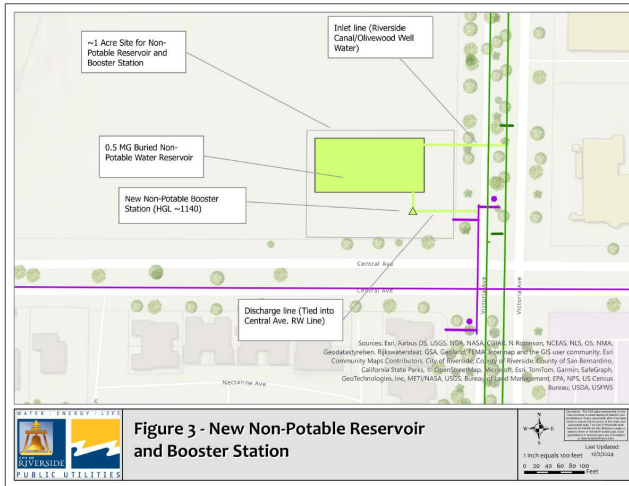


**Figure 2 - Central Ave. RW Line**  
Utilizing Non-Potable Water Sources  
(Riverside Canal & Olivewood Wells)



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## CENTRAL AVENUE RECYCLED WATERLINE (Cont'd)



### Non-Potable Summary:

1. Re-purposed the existing Olivewood Booster Station.
2. Property needed for reservoir and pump station.
3. Water quality evaluation.
4. Est. Cost: \$4.9M (not including property costs).

### Recycled Water Summary:

1. RW Phase 2 completion (RHPWP-East Branch).
2. RW infrastructure need (pipeline and customer site conversions).
3. Est. Cost: \$8.8M.

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## NEXT STEPS

1. Continue phased approach to RW/non-potable water projects.
2. Evaluate project opportunities on a case-by-case basis.
3. Continue to wheel/wholesale non-potable water to WMWD to monetize asset.
4. Pursue opportunities for outside funding/partnerships.
5. Example: RHPWP project benefits
  - a. Environmental credits for future water supply projects.
  - b. Additional recycled water supply.
  - c. Potential to exchange potable water resources.

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## STRATEGIC PLAN ALIGNMENT

### **Priority No. 4 Environmental Stewardship**

Goal No. 4.2 – Sustainably manage local water resources to maximize reliability and advance water reuse to ensure safe, reliable, and affordable water to our community.

#### Cross-Cutting Threads



Community Trust



Equity



Fiscal Responsibility



Innovation



Sustainability & Resiliency



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## RECOMMENDATIONS

That the Mobility & Infrastructure Committee receive and file this item.



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