



# City of Petaluma

# Recycled Water Program

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BACWA RECYCLED WATER COMMITTEE MEETING – JULY 18, 2023

CHELSEA THOMPSON, DEPUTY DIRECTOR OF ENVIRONMENTAL SERVICES



# Program Overview

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Ellis Creek Water Recycling Facility (Ellis Creek WRF) opened in July 2009

Provides tertiary treatment via filtration and UV disinfection

Allows for landscape irrigation of golf courses, schools, parks, businesses, agriculture, and for in-plant uses at WWTP

ADWF design capacity of 6.7 mgd

ADWF 4.0 MGD (3.7 MGD during drought)

Annual recycled water production 800 MG (2021)



# Program Goals

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Expand recycled water service to urban and agricultural customers to:

- Reduce demands on potable water supplies
- Generate revenue to support recycled water system operations
- Reduce effluent discharges to the Petaluma River
- Improve regional water supply reliability by reducing reliance on groundwater and surface water
- Provide local supply to meet water demand



# Program History

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First recycled water customer - agricultural (ag) irrigation in 1976

Expansion beginning 1984 to meet May 1-October 20 discharge prohibition

- Ag, vineyard, golf course, and landscape irrigation

North Bay Water Reuse Authority (NBWRA) – Phase 2 Program Feasibility Study (2017)

- Tertiary Treatment Expansion (4.68 mgd – 6.8 mgd)
- Urban Expansion – parks, schools, business, and public landscape irrigation
- Ag Expansion – vineyards, agricultural irrigation

# Existing Program (2022)

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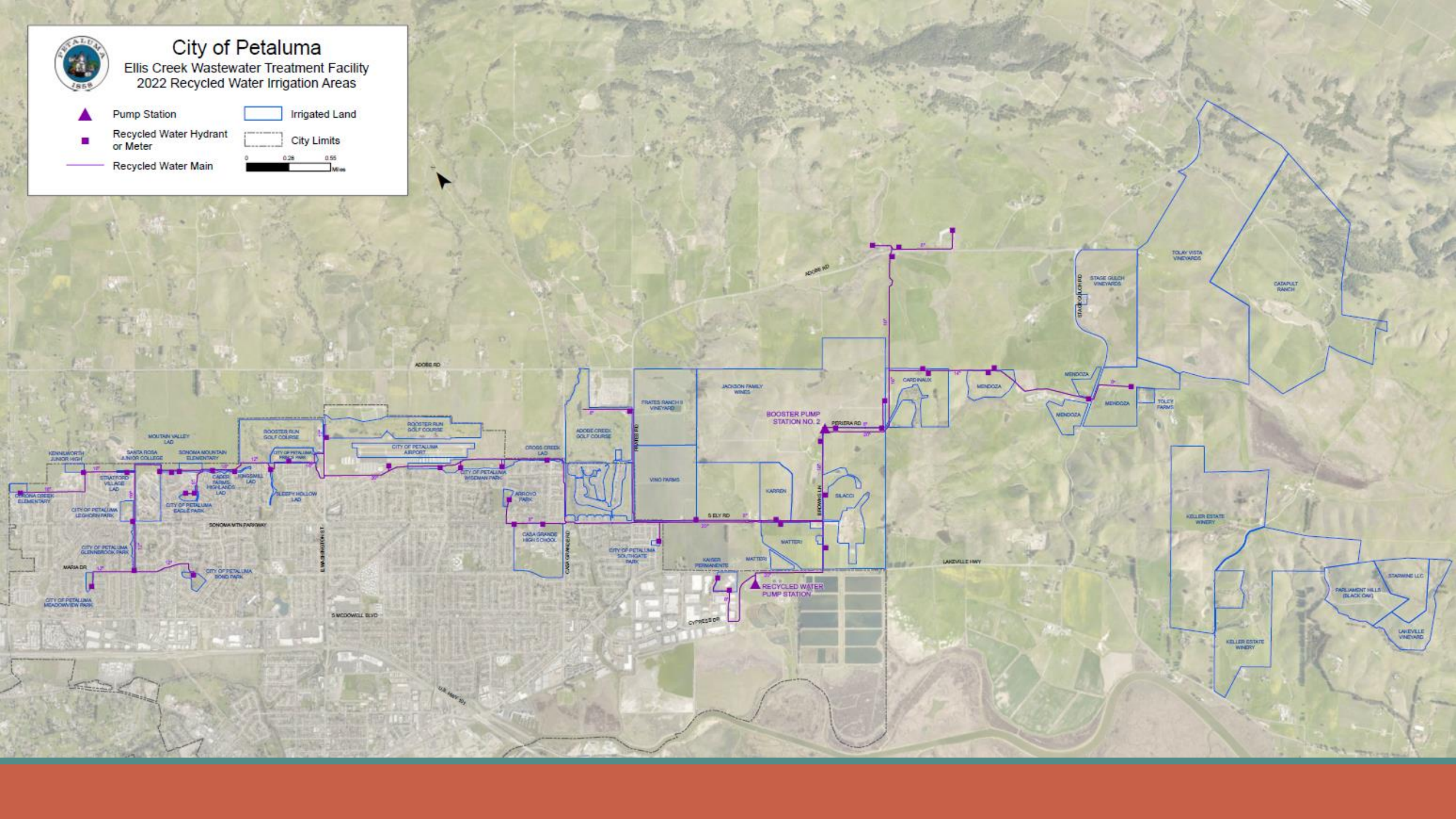
Reuse Application	Category	No. of Properties	Area Applied (Acres)	Amount Distributed (MG)	% of Total Reuse
Landscape Irrigation	Parks/Green Belts	15	47	29.5	4.4%
	Airport/Commercial (Kaiser Permanente)	3	22	4.6	0.7%
	Schools	7	108	30.9	4.6%
Golf Courses		2	264	154.0	22.9%
Agriculture	Pastures, Vineyard, Crops	13	1565	302.4	45.1%
Other	Construction/Hauled (temporary permits)	(17)	-	3.5	0.5%
	WWTP Onsite Uses	(1)	-	119	17.7%
<b>TOTAL</b>		<b>23 (41 total)</b>	<b>2006</b>	<b>671.1</b>	



# City of Petaluma

## Ellis Creek Wastewater Treatment Facility 2022 Recycled Water Irrigation Areas

- Pump Station
  - Recycled Water Hydrant or Meter
  - Recycled Water Main
  - Irrigated Land
  - City Limits
- 0 0.25 0.55 Miles



# Current System

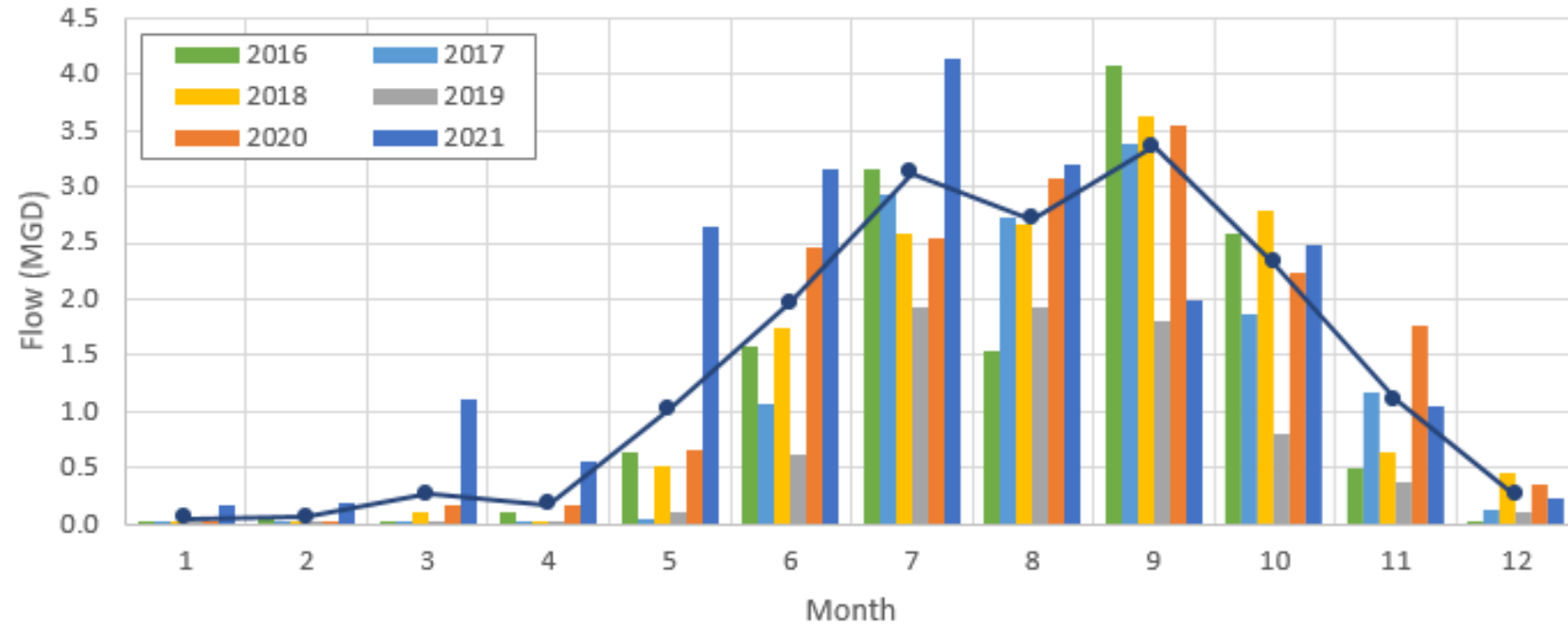
Typical peak in August

All demand is from irrigation; no non-irrigation demand currently served

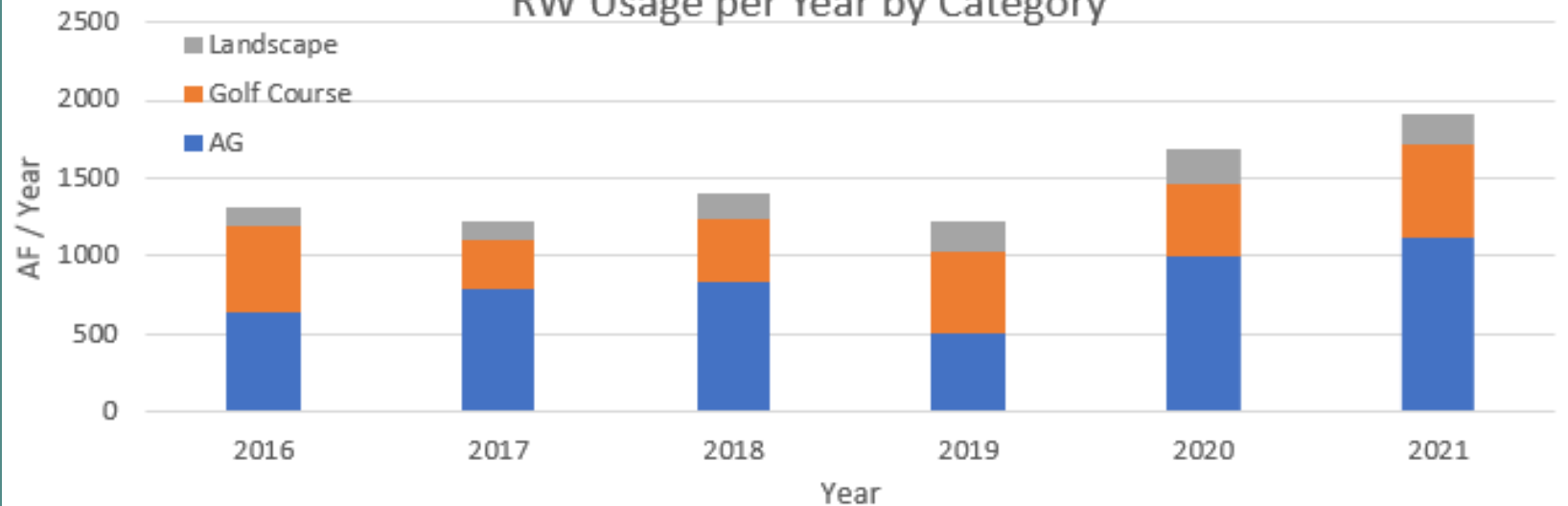
Majority of demand served is outside of City boundary

Potable offset is currently about 65 MG/year or 9.7% of total recycled water demand (3% of total potable demand)

### Average Daily Demand (by Month)



### RW Usage per Year by Category



# Planned Recycled Water Program Expansion

Additional  
system capacity  
712 AFY

Additional  
distribution  
378+ AFY

Project	Project Description	Target Completion Date	Project Yield
Urban Expansion	Add 3 sections (6,700 LF total) of pipeline to an existing pipeline to serve additional parks, schools, businesses and landscape areas.	2026	78 AFY
Ag Expansion	Extend ag pipeline (14,000 LF) for vineyard irrigation	2026	300 AFY
Tertiary Treatment Capacity Upgrade	Upgrade to existing WWTP to increase tertiary filtration and disinfection capacity by 2.12 mgd (2,375 AFY)	2026	712 AFY (Based on additional peak production capacity of 2.2 mgd)





# Urban Expansion

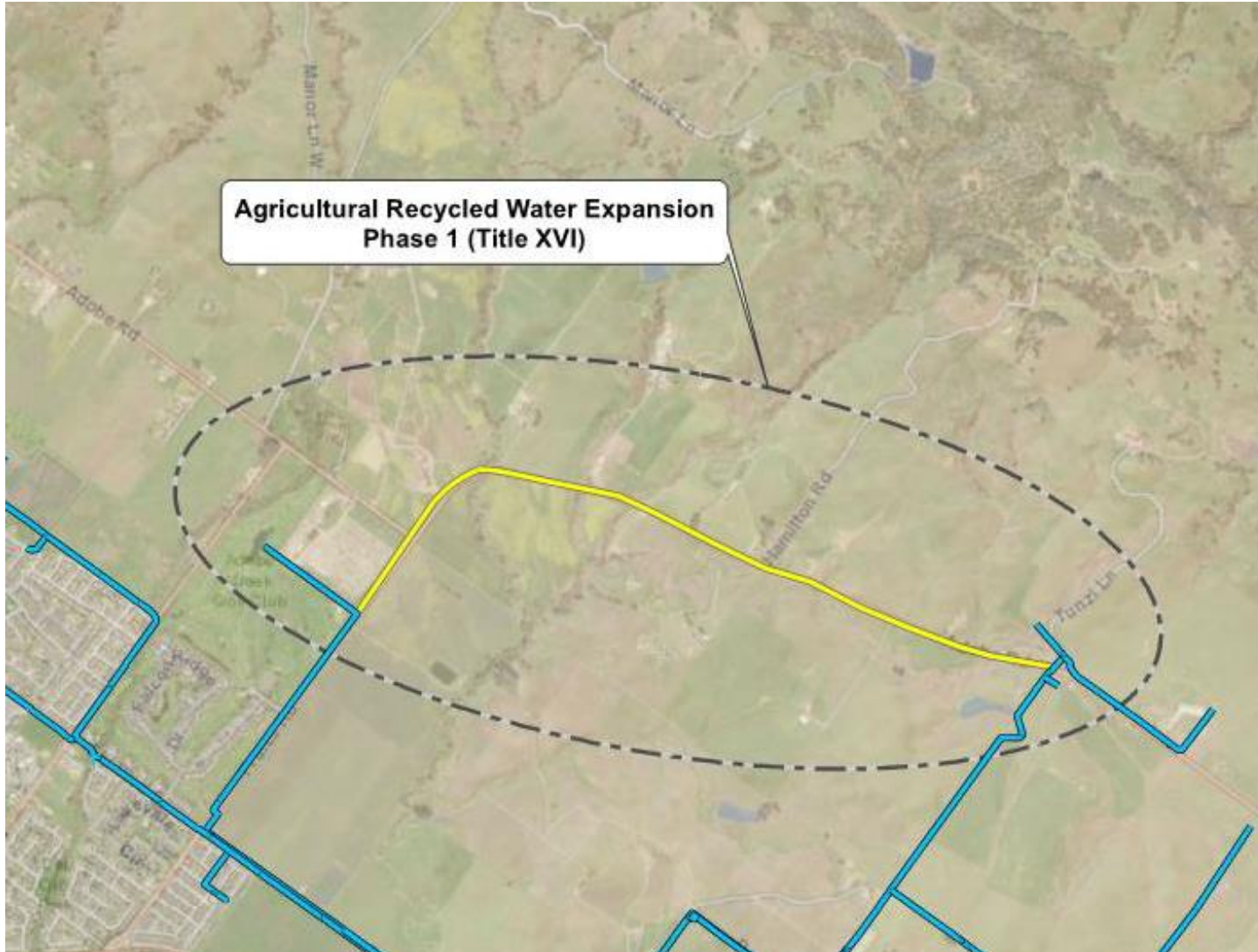
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Major facilities: 3 sections of pipeline off existing Maria Drive pipeline (6,700 LF total)

Project Yield: 78+ AFY

Customers: 8 parks, 2 schools, 2 business parks, 6 public landscape areas

Potable offset



# Ag Expansion

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Major facilities: Ag pipeline (14,000 LF) out Adobe Road to create looped system

Project Yield: 300 AFY

Customers: Vineyards

No potable offset



# Tertiary Treatment Upgrades

Major facilities: 2.12 mgd capacity tertiary filters with UV disinfection

Project Yield: 712 AFY of additional tertiary recycled water available for reuse based on peak production of 2.12 mgd

Customers: All



# Grant Funding

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Project	Project Cost	Grant Funding Source	Grant Amount
Urban Expansion	\$3.218 M	2021 Reclamation Title XVI (NBWRA)	\$804,427
		DWR SGMA Implementation (2023)	\$2.6 M
Ag Expansion	\$5.608 M	2021 Reclamation Title XVI (NBWRA)	\$1.4 M
		2021 DWR UMBDR	\$3.2 M
Tertiary Treatment Capacity Upgrade	\$18.865 M	2021 Reclamation Title XVI (NBWRA)	\$4.716
		2019 DWR Prop 1 (NBWRA)	\$3.6 M
Urban Recycled Water System Expansion (Completed)	\$2.64 M	2017 SWRCB Prop 1	\$870,030
Recycled Water Facilities Planning (IWMP)	\$452,623	SWRCB WRFPP (2022)	\$226,311
<b>TOTAL</b>			<b>\$16.42 M</b>

# Program Future: Integrated Water Master Planning

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In response to anticipated water supply challenges, the City is exploring:

Recycled Water:

- Additional non-potable reuse: urban and ag irrigation, dual-plumbing, industrial process water
- Recycled water storage for additional reuse
- Potable reuse options (IPR/DPR)

Groundwater:

- Groundwater banking (local & regional)

Brackish Groundwater Desalination (regional)

Stormwater:

- Stormwater capture, storage, and treatment

# Expansion Challenges & Considerations

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## Challenges:

- Recycled Water Rates
  - Current rate is \$2.40/HCF – all users
  - Cost effectiveness
  - Historic ag customers – highest demand with lowest cost of service, no potable offset
- Pipeline Expansion
  - Expand across Petaluma River to serve additional customers

## Considerations:

- Review Recycled Water Rates
  - Urban rate
  - Ag rate
  - Seasonal ag rate to encourage off-season storage
- Integrated Water Master Planning
  - Review all water supply development opportunities and cost effectiveness, including NPR expansion



# Questions?

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