Welcome
The meeting will begin at 5:00 p.m.

OUR WATER FUTURE
Water Supply Alternatives Plan
srcity.org/OurWaterFuture

Community Workshop #3
June 26, 2023
OUR WATER FUTURE
Water Supply Alternatives Plan

Welcome

AGENDA
• Background Information
• Project Update
• Study Results
• Potential Water Supply Portfolios
• Questions & Answers
• Next Steps
Our Water Future: Background

Colin Close
Senior Water Resources Planner
Santa Rosa Water
Santa Rosa

- 176,000 residents
- 6.3 billion gallons of water/year for urban uses (not agriculture)
- 3 water sources
- 23 Reservoirs
- 600 miles of drinking water pipe
- 600 miles of sanitary sewer pipe
- 7 billion gallons of water recycled and used regionally/year
Santa Rosa’s Water Sources
Normal Water Years (average rainfall)

9.48 billion gallons - Sonoma Water
0.75 billion gallons - City Wells
0.05 billion gallons - City Recycled Water
10.28 billion gallons (31,540 acre-feet)
2020 Water Use in Santa Rosa
6.3 billion gallons (19,387 acre-feet)

**WATER USE**
- Residential: 68%
- Commercial, Institutional, Industrial, and CII Irrig: 24%
- Non-revenue: 8%

**WATER SOURCES**
- Sonoma Water: 93%
- City wells: 6%
- Recycled: 1%
Santa Rosa’s total water consumption has decreased. 2020 water use was 14% less than 1990 and 20% less than 2004.

Water consumption has decreased even as population increased.
In average rainfall years, water supply meets the needs of our growing community through 2045 and beyond.

What about years when there is a drought?
Lake Sonoma Water Supply Storage

- 30-yr avg (1992-2021)
- Lowest 1992-2020
- 100,000 AF
- Recent Actual

Acre-Feet

Water Year 2019-20 | Water Year 2020-21 | Water Year 2021-22
Severe shortages (30% or greater) would occur if there was approximately one year or less of water supply in Lake Sonoma.

Projected Demand vs. Stage 5 Supply

Billion Gallons

2025 2030 2035 2040 2045

30% shortage
Water Supply Alternatives Plan

Purpose

Improve water supply reliability to address severe droughts and emergencies and prepare for climate change impacts.

Approach

Evaluate possible new water supply options and develop a plan for increasing resiliency.
Questions the Project Will Address

• How much new water supply is optimal to mitigate the risk of shortages?
• Which supply options should be studied?
• What criteria should be used to assess each supply option?
• Which mix(es) of options will best help us meet our supply resiliency goal?
• What is the most reasonable and adaptive path forward?
Project Overview

ENGAGE STAKEHOLDERS

✓ Get input from a wide range of stakeholders, including our community.

SET OBJECTIVES

✓ Set water supply goals, identify potential supply options, establish criteria and study methods.

STUDY SUPPLY OPTIONS

✓ Study feasibility of potential water supply options.
    ➢ Develop and assess portfolios of feasible options.

DEVELOP A PLAN

 ➢ Develop long-term plan for achieving supply goals.
Project Update

Katie Cole
Project Manager
Woodard & Curran
We are here! Completed analyzing the suite of supply options; combining into portfolios is next.
Project Work Update

**Water Team**
- 3 working sessions.
- Input on goals, supply options, criteria, and supply options.

**Community**
- 2 community webinars (10/25 & 1/25).
- Input through poll questions and Q&A during meetings

**Stakeholder Group**
- 3 working sessions.
- Input through interactive exercises and homework.

**Board of Public Utilities**
- 1st study session in January 2023.
- Input on study proposal.

**Consultant Team**
- Supported Water Team and Stakeholder Group meetings
- Developed supply options concepts & costs.
- Screened supply options.
- Prepared draft feasibility analysis
Water Supply Options

Katie Cole
Project Manager
Woodard & Curran
Preliminary Water Supply Options

Where might new water supplies come from?

- Groundwater
- Purified recycled water
- Nonpotable recycled
- Desalination
- Surface/stormwater
- Conservation & efficiency
Groundwater

What is groundwater?

• Water held underground in the soil or in pores and crevices in and between rocks.

What types of projects might this entail?

• Construct new wells to extract groundwater
• Construct new wells that can both extract groundwater and store excess water (when available) for later use. This is referred to as “ASR,” or aquifer storage and recovery.
Purified Recycled Water

What is purified recycled water?
• Recycled water that is purified through advanced treatment.

What types of projects might this entail?
• Build facility to purify recycled water that is first added to groundwater or surface water before being used. This is referred to as “indirect” use.
• Build facility to purify recycled water that is added directly to the drinking water system. This is referred to as “direct” use.
Desalination

What is desalination?

• Removing salt and impurities from seawater or other brackish (less salty) sources for drinking water.

What types of projects might this entail?

• Build facility to produce drinking water from ocean water.
• Build facility to produce drinking water from brackish (less salty) water (for example, groundwater impacted by saltwater intrusion).
Surface/Stormwater

• What is surface water?
  • Water from rivers, streams, lakes, ponds, or other above ground reservoirs

• What types of projects might this entail?
  • New above ground storage of surface water and/or stormwater using new or existing reservoirs for later use (may require treatment to meet drinking water standards)
Conservation & Efficiency

• What is conservation & efficiency?
  • Short-term efforts to use less water and long-term improvements in water use efficiency.

• What types of projects might this entail?
  • Water conservation and efficiency programs, such as rebates, incentives, workshops, site visits, and technical assistance.
  • Already included in Santa Rosa’s existing strategies for water supply.
Rationale for Supply Options

- Diverse options
- City *and* Regional projects
- Includes expanded efficiency incentives
- Integrates input from Water Team, Community, BPU, & Stakeholder Group
### 18 Options for Initial Assessment

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<tr>
<th><strong>Groundwater</strong></th>
<th><strong>Nonpotable Recycled</strong></th>
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<tr>
<td>GW-1 Additional groundwater extraction wells</td>
<td>RW-1 Expand Nonpotable Recycled Water Service</td>
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<tr>
<td>GW-2 Conversion of emergency wells to supply wells</td>
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<tr>
<td>GW-3 Aquifer Storage and Recovery</td>
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<tr>
<td>GW-4 Regional groundwater extraction wells</td>
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<tr>
<td>GW-5 Regional Aquifer Storage and Recovery</td>
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<tr>
<th><strong>Purified Recycled Water</strong></th>
<th><strong>Desalination</strong></th>
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<tbody>
<tr>
<td>PR-1 Produce at Laguna Treatment Plant (direct use)</td>
<td>DE-1 Brackish desalination (likely Regional)</td>
</tr>
<tr>
<td>PR-2 Produce at a satellite location (direct use)</td>
<td>DE-2 Ocean desalination (Santa Rosa or Regional)</td>
</tr>
<tr>
<td>PR-3a Produce at Laguna Treatment Plant and inject into groundwater via aquifer storage &amp; recovery wells (indirect use)</td>
<td></td>
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<tr>
<td>PR-3b Produce at Laguna Treatment Plant and add to Lake Ralphine before use (indirect use)</td>
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<tr>
<td>PR-3c Produce at Laguna Treatment Plant and add to Lake Sonoma (or alternate) before (indirect) use</td>
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<tr>
<td>PR-4 Regional purified recycled water</td>
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<tr>
<th><strong>Surface/Stormwater</strong></th>
<th><strong>Efficiency Programs to Reduce Demand</strong></th>
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<tbody>
<tr>
<td>SW-1 Capture excess winter flows from Santa Rosa Creek/ Laguna de Santa Rosa, store in aquifer for later withdrawal</td>
<td>E-1 Aggressive incentives for efficiency programs (turf removal, direct install toilets) to reduce demand</td>
</tr>
<tr>
<td>SW-2 Store excess winter flows from Santa Rosa Creek/Laguna de Santa Rosa, store in enlarged Lake Ralphine, construct water treatment plant to withdraw from Lake Ralphine</td>
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<tr>
<td>SW-3 Regional Stormwater</td>
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</table>
Questions & Comments

• Zoom participants – click “Raise Hand”

• Phone participants – Press *9
Evaluation Results

Katie Cole
Project Manager
Woodard & Curran
Study Methodology

Initial List of Supply Options

Screening Analysis

Short List of Supply Options

Detailed Analysis

- Cost-effectiveness
- Scalability (volume)

Score each option using complete list of criteria and criteria weights

Clearly document why options were removed from list
11 Options Removed During Screening Analysis

**Groundwater**
- **GW-1** Additional groundwater extraction wells
- **GW-2** Conversion of emergency wells to supply wells
- **GW-3** Aquifer Storage and Recovery
- **GW-4** Regional groundwater extraction wells
- **GW-5** Regional Aquifer Storage and Recovery

**Purified Recycled Water**
- **PR-1** Produce at Laguna Treatment Plant (direct use)
- **PR-2** Produce at a satellite location (direct use)
- **PR-3a** Produce at Laguna Treatment Plant and inject into groundwater via aquifer storage & recovery wells (indirect use)
- **PR-3b** Produce at Laguna Treatment Plant and add to Lake Ralphine before use (indirect use)
- **PR-3c** Produce at Laguna Treatment Plant and add to Lake Sonoma (or alternate) before (indirect) use
- **PR-4** Regional purified recycled water

**Nonpotable Recycled**
- **RW-1** Expand Nonpotable Recycled Water Service

**Desalination**
- **DE-1** Brackish desalination (likely Regional)
- **DE-2** Ocean desalination (Santa Rosa or Regional)

**Surface/Stormwater**
- **SW-1** Capture excess winter flows from Santa Rosa Creek/ Laguna de Santa Rosa, store in aquifer for later withdrawal
- **SW-2** Store excess winter flows from Santa Rosa Creek/Laguna de Santa Rosa, store in enlarged Lake Ralphine, construct water treatment plant to withdraw from Lake Ralphine
- **SW-3** Regional Stormwater

**Efficiency Programs to Reduce Demand**
- **E-1** Aggressive incentives for efficiency programs (turf removal, direct install toilets) to reduce demand
Rationale for Screening

- Retains options that are highly cost-effective and scalable
- Keeps options that further diversify portfolio (stormwater, satellite purified water)
- Includes City and Regional projects
- Includes aggressive efficiency incentives to reduce demand over time
- Consistent with input from Water Team, Stakeholder Group, BPU & the Community
7 Options Underwent Further Analysis

- GW-1: Add Extraction Wells
- GW-2: Convert Emergency Wells to Production Wells
- GW-3: Add Aquifer Storage & Recovery Wells
- PR-2: Satellite Direct Potable Reuse
- PR-4: Regional Direct Potable Reuse at Laguna Treatment Plant
- SW-1: Stormwater Storage in Aquifer
- E-1: Efficiency Programs
## Criteria and Weights Used for Evaluation

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<th>Criterion</th>
<th>How assessed</th>
<th>Weight</th>
<th>Score Multiplier</th>
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<td>Cost effectiveness</td>
<td>Capital and O&amp;M costs</td>
<td>High</td>
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<td>Scalability</td>
<td>Can capacity be tailored to need? Can actual production be tailored to need?</td>
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<td>Resiliency</td>
<td>How well does the option perform if future conditions differ from projected?</td>
<td>High</td>
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<td>Equity</td>
<td>Does option avoid disproportionate impact on vulnerable communities?</td>
<td>High</td>
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<tr>
<td>Environmental performance</td>
<td>Does option minimize adverse effects?</td>
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<td>Legal, permitting, and regulatory</td>
<td>Does the option face major implementation challenges? Consider level of mitigation required.</td>
<td>Med</td>
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<td>City control and interagency coordination</td>
<td>Would the City be able to tailor to meet City priorities?</td>
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<tr>
<td>Multi-benefit</td>
<td>Does the project provide multiple benefits?</td>
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## Results of Qualitative Scoring
(Higher Score is Better)

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Questions & Comments

• Zoom participants – click “Raise Hand”

• Phone participants – Press *9
Portfolios

Xavier Irias
Technical Advisor
Woodard & Curran
What do we mean by “portfolios”?

• Different mixes of water supply options to achieve the goal

• Each portfolio could be based on a different value or metric:
  • Least cost
  • Fastest to implement
  • Most likely to be eligible for grant funding
  • Another organizing principle

“ADAPTIVE”
Portfolio Example Themes & Outcomes

“MINIMALIST”
- Extraction wells
- Water efficiency

“BLENDED”
- Extraction wells
- Water efficiency
- Purified water

“ADAPTIVE”
- Extraction wells
- Purified water
- Water efficiency
Example Blended Portfolio

- **Groundwater Element**

  - **Adopt Preferred Water Supply Strategy**
    - Initial elements funded

  - **Timeline:**
    - 2024: Evaluate sites
    - 2026: Implement initial sites, Project online July 2030
    - 2028: Re-evaluate needs, assess project performance July 2035
    - 2030: Operate Project
    - 2032: Expand/adjust as needed
    - 2034, 2036, 2038, 2040, 2042, 2044: Continue operations and adjustments as needed
Example Blended Portfolio

Groundwater Element

- Evaluate sites
- Implement initial sites
- Project online (July 2030)
- Re-evaluate needs, assess project performance (July 2035)
- Operate Project
- Expand/adjust as needed

Efficiency Measures

- Develop detailed plan
- Explore funding opportunities
- Expand Conservation staffing
- Implement program

Initial elements funded

Adopt Preferred Water Supply Strategy
Questions & Comments

- Zoom participants – click “Raise Hand”
- Phone participants – Press *9
Next Steps

Colin Close
Senior Water Resources Planner
Santa Rosa Water
# Project Timeline and Milestones

<table>
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**KEY DELIVERABLES**

1. Supply goals
2. Supply options
3. Criteria & methods

1. Feasibility study report
2. Synopsis of portfolios

1. Working draft Plan
2. Admin draft Plan
3. Final Plan
Monday August 28th from 5:00-7:00 PM via Zoom

• Project update
• Draft Water Supply Alternatives Plan
• Community comments
• Q&A
• Live Spanish interpretation

More information (and recordings of previous meetings)
srcity.org/OurWaterFuture
Additional Opportunities for Public Input

Meetings

Community Meetings (Zoom)
  • Aug 28, 2023

Board of Public Utilities (Hybrid)
  • Aug 3, Sep 21, & Oct 19, 2023

City Council (Hybrid)
  • Sep 26 & Oct 24, 2023

Written comments

Email
  • WaterResources@srgcity.org

Postal Service
  • Santa Rosa Water
    Attn: Colin Close
    69 Stony Circle
    Santa Rosa, CA 95401

More information about upcoming meetings:
srcity.org/OurWaterFuture
Questions & Comments

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Thank you!

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