

Water Supply Alternatives Plan Update

Subregional Technical Advisory Committee
February 9, 2023

Colin Close
Senior Water Resources Planner

Water Supply Alternatives Plan

Purpose

Enhance Santa Rosa's water supply resiliency and reliability to mitigate impacts of shortages due to severe droughts and emergencies.

Approach

Assess the feasibility of new water supply options and develop a plan for increasing resiliency.



Project Work Update



Water Team

- 2 working sessions (Oct & Dec). Solicited input on goal, supply options, evaluation criteria, and methodology.

Community

- 2 community webinars (Oct & Jan). Solicited input on goal, supply options, criteria, and methodology.

Stakeholder Group

- 2 working sessions (Nov & Dec) Solicited input on goal, supply options, criteria, and study methodology.

Board of Public Utilities

- Held study session (Jan). Solicited input on goal, supply options, evaluation criteria, and study methodology.

Consultant Team

- Supported work described above.
- Refined study parameters with input received.

Input Received to Date

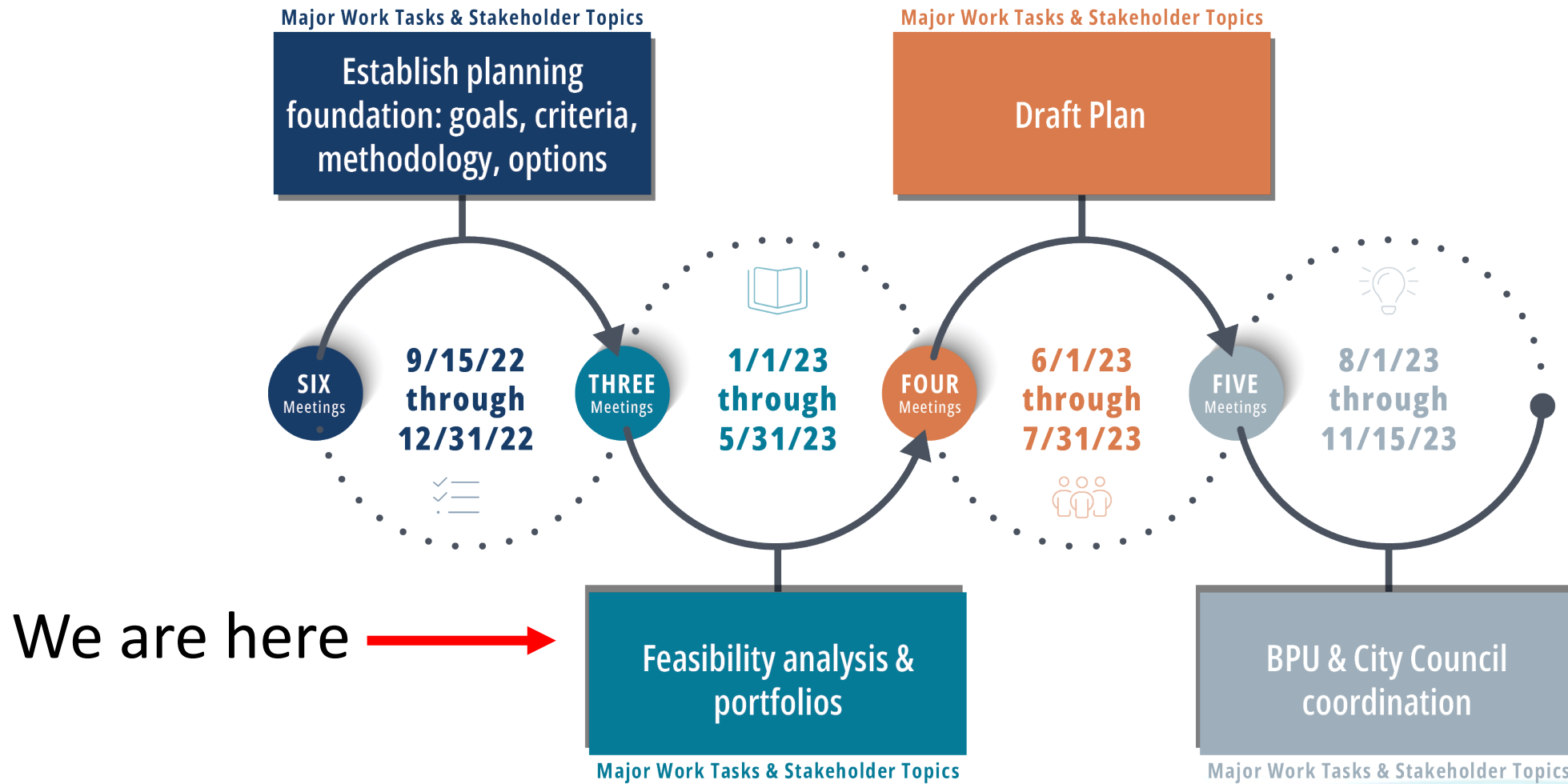
Input received from:

- Water Team
- Stakeholder Group
- Community
- Board of Public Utilities

Key themes from input:

- Equity
- Cost-effectiveness of supply options
- Community impacts (e.g., level of conservation required, impacts on rates)
- Desire for greater independence and diversification

Project Timeline



Water Supply Resiliency Goal

Diversify and increase city supplies to reduce dependence on Sonoma Water, particularly during Sonoma Water supply shortages or disruption in delivery.

Meet 30% of city's water demand with city supplies to mitigate impacts of Sonoma Water supply shortages.

What would this goal provide during....?

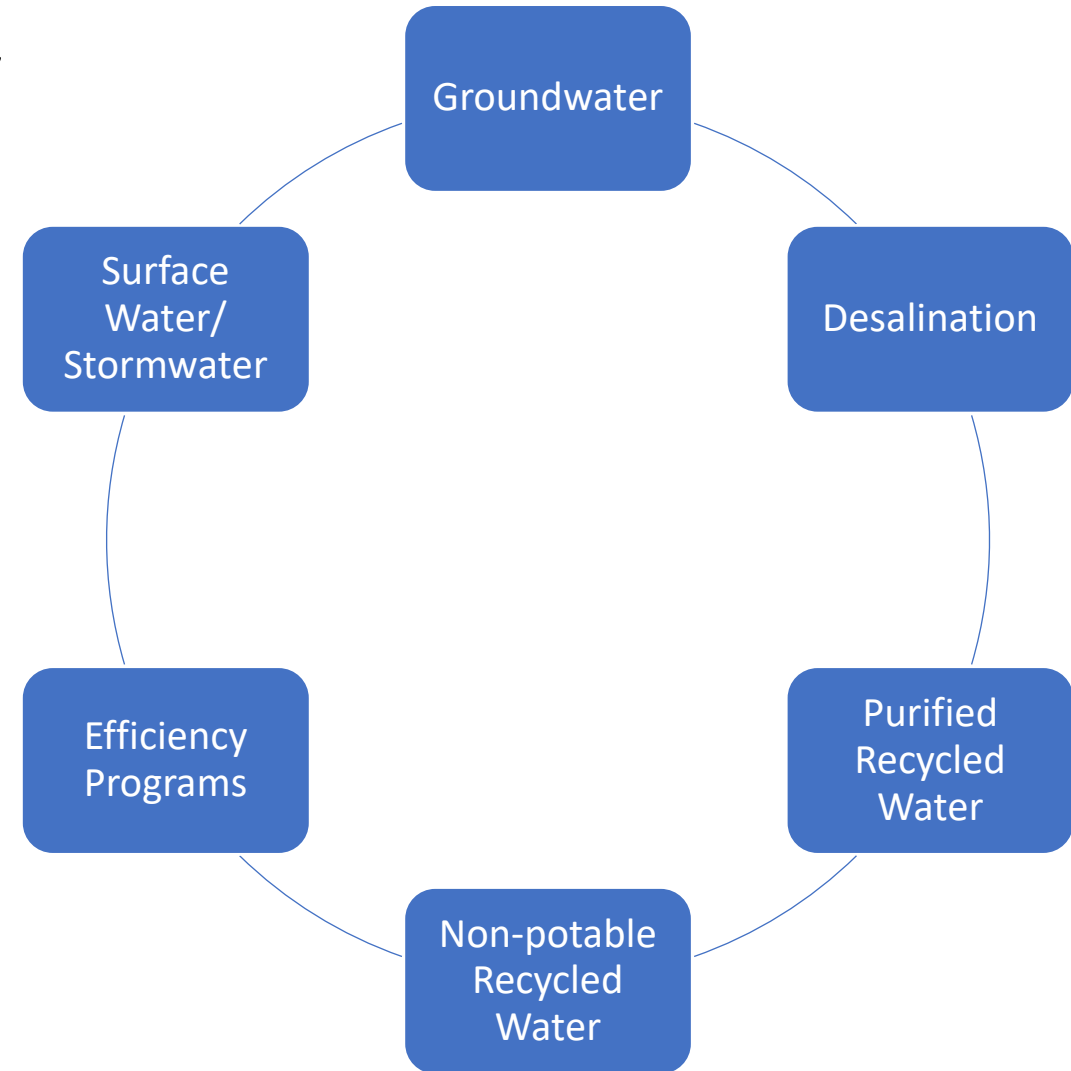
- **Drought:** Reduce impact of droughts by providing up to 30% of demand with city supplies (about 7,500 acre-feet per year in 2045)
- **Natural Disasters** (shorter-term disruption): Provide about half of normal indoor water use (about 9 million gallons per day).
- **Peak Day Demand:** Provide 30% of peak month average day demand for potable water (9 million gallons per day in 2045)



Supply Options for Study

Study will include

- Description of source
- Potential supply
 - Acre-feet per year (AFY)
 - Million gallons per day (MGD)
- Limiting factors for supply
- Proposed/likely location
- Components to be constructed
- Considerations (e.g., permitting)



Water Supply Options for Study

Initial List of Options to Undergo Screening Analysis

Groundwater

- Add groundwater extraction wells
- Convert emergency wells to production
- Add Aquifer Storage and Recovery wells
- Regional groundwater extraction wells
- Regional Aquifer Storage and Recovery

Purified Recycled Water

- Produce at LTP for direct use
- Produce at a satellite site for direct use
- Produce at LTP or satellite for indirect use
 - Inject into groundwater via ASR wells
 - Add to Lake Ralphine or alternate
 - Add to Russian River, Lake Sonoma, or alt.
- Regional purified recycled water

Nonpotable Recycled

- Expand nonpotable recycled water service

Desalination

- Brackish desalination (likely Regional)
- Ocean desalination (Santa Rosa or Regional)

Surface/Stormwater

- Capture excess winter flows from creek(s), Laguna de Santa Rosa, Sonoma Water/Russian River, other
 - Inject and store in aquifer for later potable use
 - Store in enlarged Lake Ralphine (or alt) and construct treatment plant for later potable use

Efficiency Programs to Reduce Demand

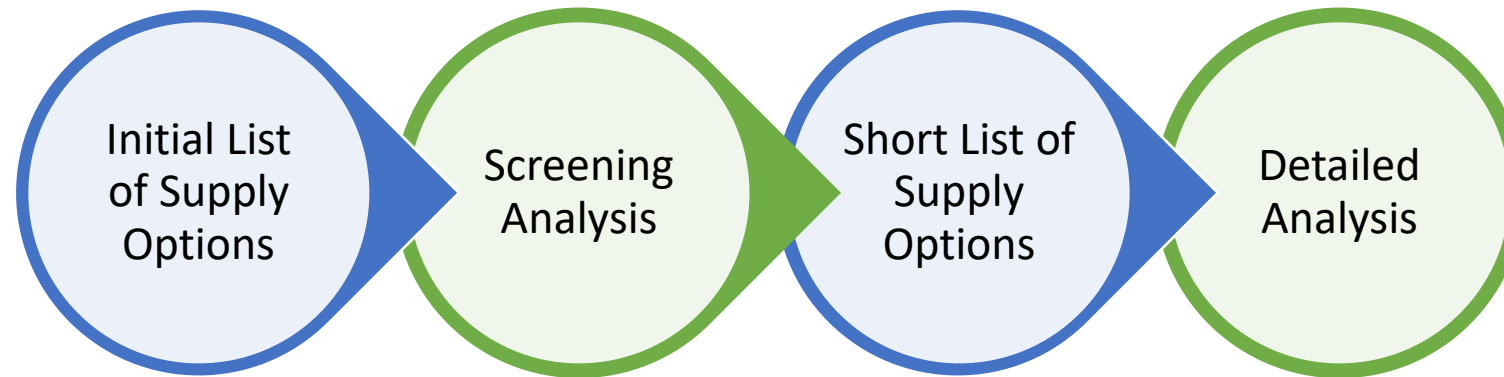
- Add aggressive incentives for efficiency programs to reduce demand (continue existing programs)

Evaluation Criteria

Criterion	Proposed Evaluation Metric
Cost effectiveness	Quantitative calculation of life-cycle costs, based on future scenarios per the project goals
Scalability	Qualitative assessment of ability to provide sufficient supply to satisfy goals, achieve desired level of service for each scenario, and scale further to address future uncertainty.
Resiliency	Qualitative assessment of performance in the face of future uncertainty; for example, future regulations, energy costs, hydrology.
Equity	Qualitative assessment of any disproportionate impacts on vulnerable communities.
Environmental performance	Qualitative assessment of potential environmental impacts not already included in permitting/regulatory compliance (e.g., level of GHG emissions).
Legal, permitting, and regulatory	Qualitative assessment of complexity/effort to address legal issues (e.g., water rights), obtain necessary permits, and comply with regulations
City control and interagency coord.	Qualitative assessment of level of City control and coordination with potential partner agencies, if any (e.g., agreements needed for regional projects).
Multi-benefit	Qualitative assessment of benefits provided in addition to water supply.

Study Methodology

1. Screen all supply options.
 - Use 2 key criteria: high-level assessment of cost effectiveness and scalability.
 - Document reasoning for why supply options advance for further consideration (or not)
 - Yield manageable “short list” of options for detailed analysis.
2. Use defined metrics for each criterion for scoring.
3. Assign weight to each criterion to inform scoring process.



Study Methodology

Criterion	Proposed Evaluation Metric	Weight
Cost effectiveness	Life cycle cost effectiveness for key scenarios (\$/AF) (quantitative)	High
Scalability	Ability to meet goals, and secondarily to increase production later, without undue effort/cost increase (qualitative)	High
Resiliency	Performance in the face of uncertainty (qualitative)	High
Equity	Level of disproportionate impact on vulnerable communities (qualitative)	High
Environmental performance	Magnitude of potential impact (qualitative)	High
Legal, permitting, and regulatory	Level of complexity and effort to address (qualitative)	Med
City control and interagency coord.	Level of city control & coordination with potential partner agencies, if any (qualitative)	Med
Multi-benefit	Benefits provided in addition to water supply (qualitative)	Med

Next Steps

Project Timeline and Milestones

WORKING SESSIONS	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
Water Team	WT		WT					WT	WT	WT				
Stakeholder Group		SG	SG					SG		SG				
BPU				BPU					BPU			BPU	BPU	
Council												CC	CC	
Community	Com			Com				Com			Com			
KEY DELIVERABLES	<ul style="list-style-type: none"> ✓ Supply goals ✓ Supply options ✓ Criteria & methods 			<ol style="list-style-type: none"> 1. Feasibility study report 2. Synopsis of portfolios 						<ol style="list-style-type: none"> 1. Working draft Plan 2. Admin draft Plan 3. Final Plan 				

Questions?