Study Parameters for the Water Supply Alternatives Plan

Board of Public Utilities
January 19, 2023

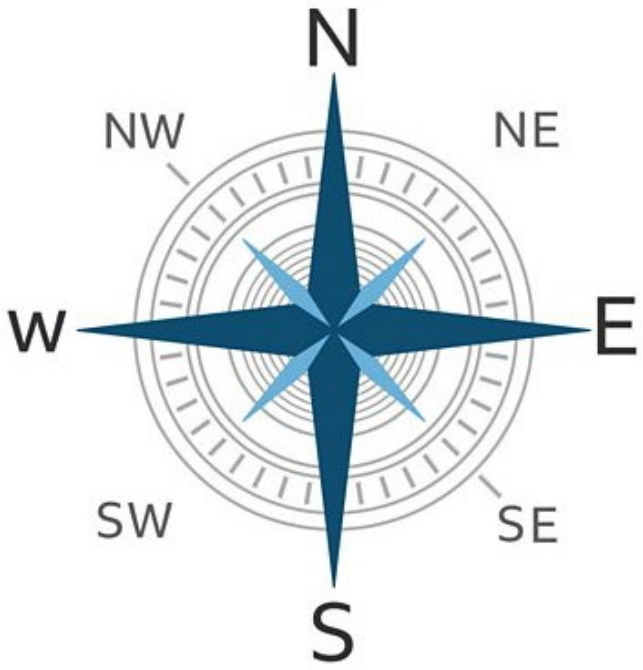
Colin Close
Senior Water Resources Planner

Santa Rosa WATER

Purpose for Today

Staff is seeking Board direction on the study parameters for assessing potential water supply options.

- Water Supply Resiliency Goal
- Supply Options for Study
- Evaluation Criteria
- Study Methodology



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.

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?

Scope of Work

Engage wide range of interests.

- Water Team, Stakeholder Group, Community, BPU

Establish study parameters.

- Resiliency goal and supply options
- Evaluation criteria and study methods

Conduct study.

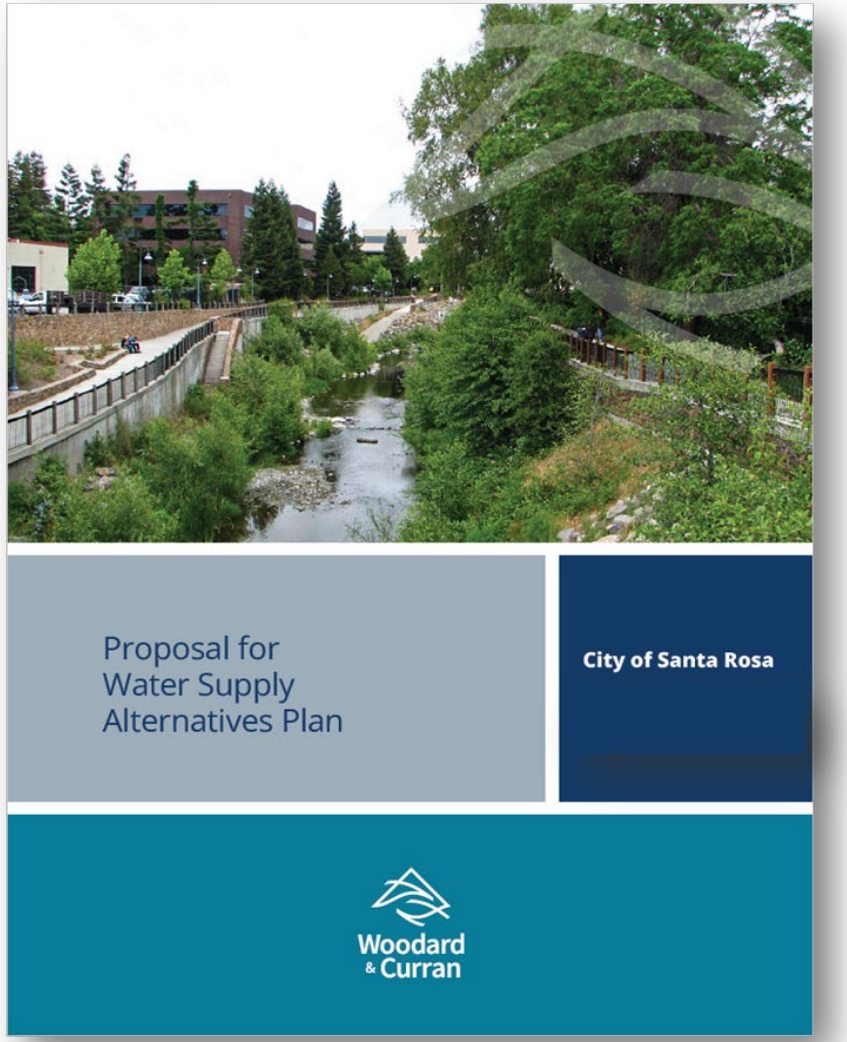
- Determine feasibility of supply options

Develop portfolios of options.

- Sets of supply options to achieve the goal over time

Develop Water Supply Alternatives Plan.

- Adaptive path to achieve water supply resiliency

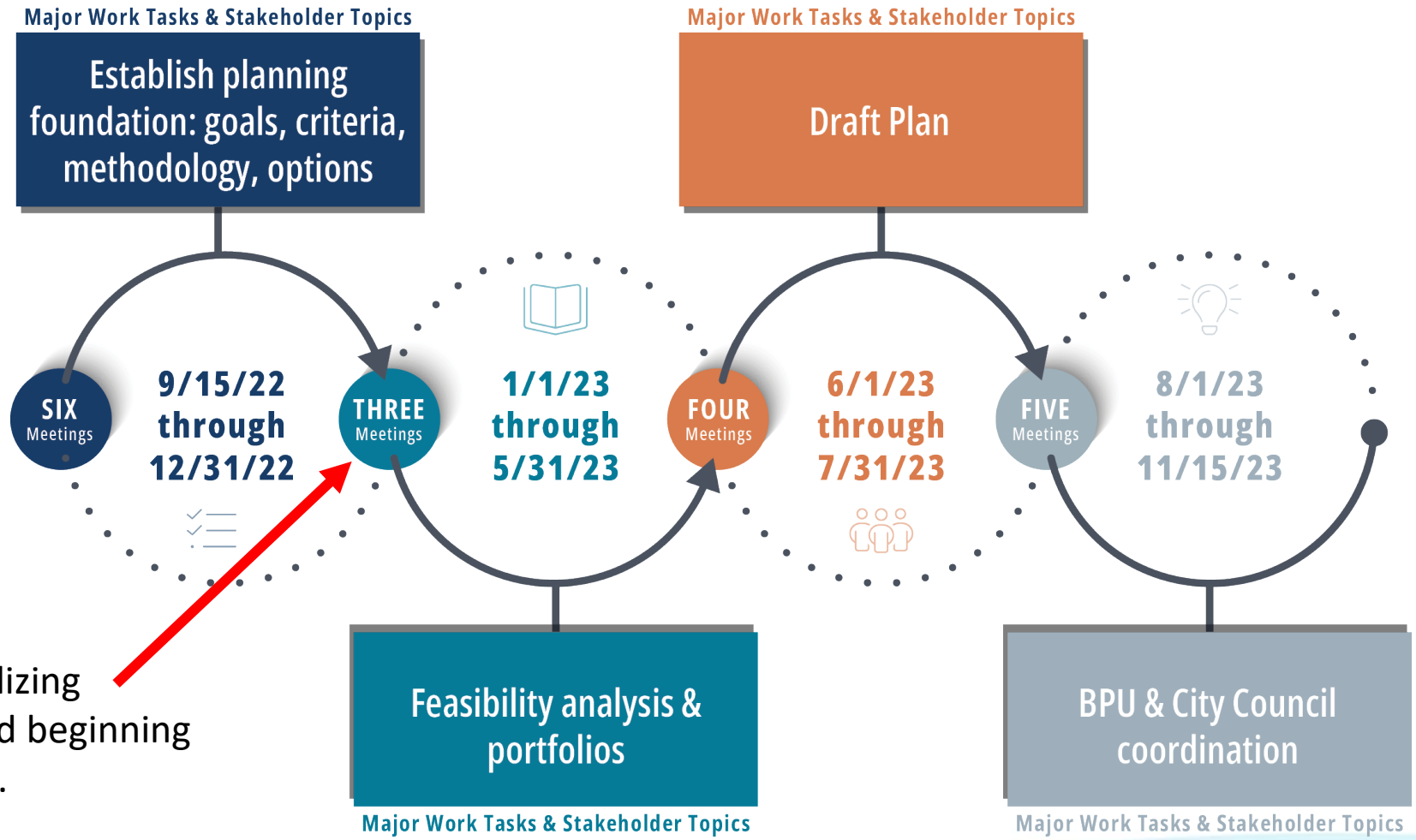


Work Completed to Date

Understand the foundational work to build the plan

Christy Kennedy, Woodard & Curran

Project Timeline



We are here! Finalizing study proposal and beginning feasibility analysis.

Project Work Update

Water Team

- Site visit (10/13). 1st working session (10/17). Input on goals, supply options, and criteria via homework.
- 2nd working session (12/15). Input on study proposal. Reached consensus on study proposal to move forward.

Community

- 1st community webinar (10/25). Input on goals, supply options, and criteria via poll questions and Q&A session during webinar.

Stakeholder Group

- 1st working session (11/16). Input on goals & supply options via interactive exercises. Input on evaluation criteria via homework.
- 2nd working session (12/14). Input on proposed goals, supply options, evaluation criteria, and study methodology.

Woodard & Curran

- In addition to work to support above tasks, prepared study proposal for Water Team and Stakeholder Group.

Input Received to Date

- Water Team, Stakeholder Group, and Community
- Gathered input through Q&A, interactive exercises, and facilitated discussions
- Received additional input from Water Team and Stakeholder Group through follow-up assignments
- Key themes:
  - Equity
  - Cost-effectiveness of supply options
  - Community impacts (e.g., level of conservation required, impacts on rates)
  - Desire for greater independence and diversification
- Study proposal incorporates key input from meetings to date

Proposed Study Approach

Review goal, water supply options, evaluation criteria, study methodology

Christy Kennedy, Woodard & Curran

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.

- Mitigating Droughts (7,500 acre-feet per year in 2045)

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

- Mitigating Natural Disasters and Catastrophic Events (9 million gals/day)

  Provide half of normal domestic/indoor demand for potable water with city supplies during Sonoma Water service disruption. Critical facilities to be prioritized for health and safety. Irrigation banned.

- Mitigating Peak Day Demand (9 million gallons per day in 2045)

  Meet 30% of peak month average day demand for potable water with city supplies.

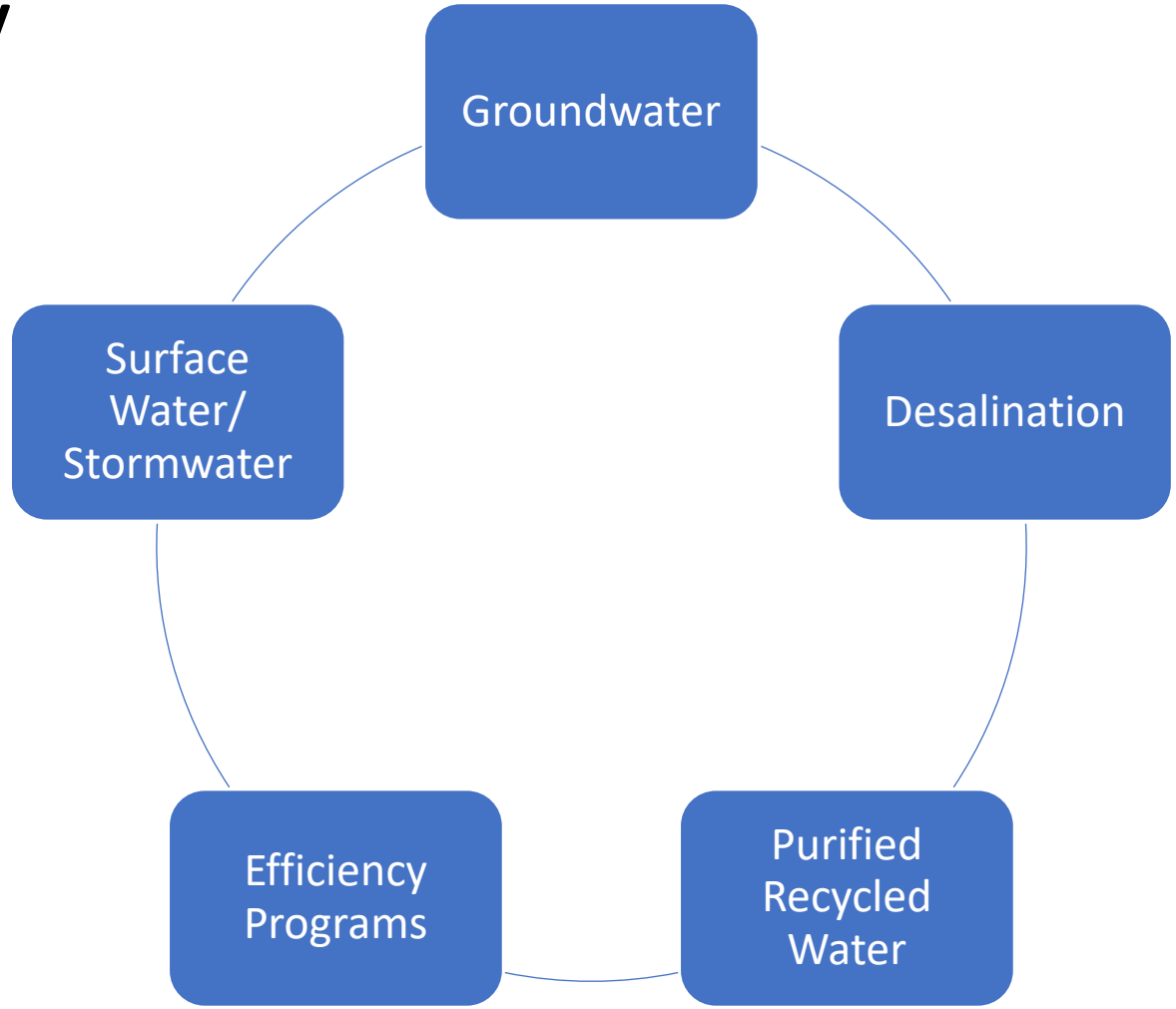
Rationale for Goal

- Provides guidance to support decision making regarding magnitude of resiliency portfolio.
- Increases city supply resiliency and reduces demand on Sonoma Water.
- Mitigates shortages in Sonoma Water supply and interruptions in service.
- Increases ability to meet a portion of peak day demand with city supplies.
- Could be achieved over time with a mix of supplies.
- Allows for adjustments to volume target if demands are lower/higher than anticipated (percentage-based goals).
- Integrates input from Water Team, Community, and Stakeholder Group.

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)

Rationale for Supply Options

- Retains a broad diversity of options.
- Includes City and Regional projects.
- Includes aggressive efficiency incentives to reduce demand over time.
- Integrates input from Water Team, Community, and Stakeholder Group.

Evaluation Criteria

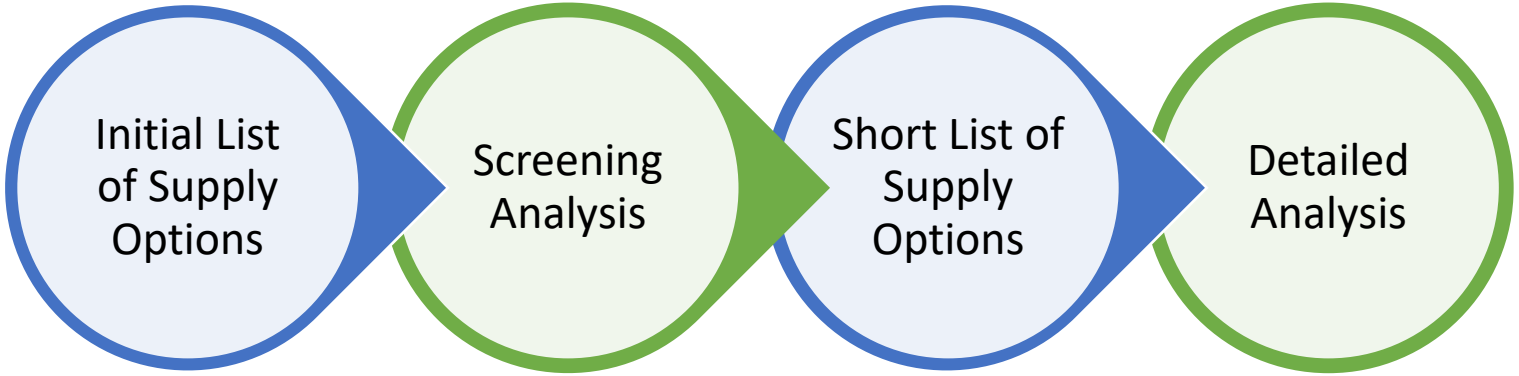
Criterion	Proposed Evaluation Metric
Cost effectiveness	Quantitative calculation of life-cycle costs, based on future scenarios per the project goals
Scalability	Qualitative assessment of ability to provide sufficient supply to satisfy goals, achieve desired level of service for each scenario, and scale 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.

Rationale for Criteria

- Captures key considerations that differentiate projects.
- Consolidates criteria where appropriate.
- Removes criteria that would pose a fatal flaw if not met.
- Removes criteria that did not need to stand alone.
- Integrates input from Water Team, Community, and Stakeholder Group.

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)	Low

Rationale for Study Methodology

- Uses screening process to identify any non-starter options.
- Emphasizes key considerations such as cost, resiliency, and equity via weighting.
- Enables comparisons based on qualitative factors such as permitting/regulatory considerations.
- Provides enough detail for meaningful comparison, given level of available information.
- Integrates input from Water Team and Stakeholder Group.

Next Steps

Review of next steps

Colin Close, Santa Rosa Water

Project Timeline and Milestones

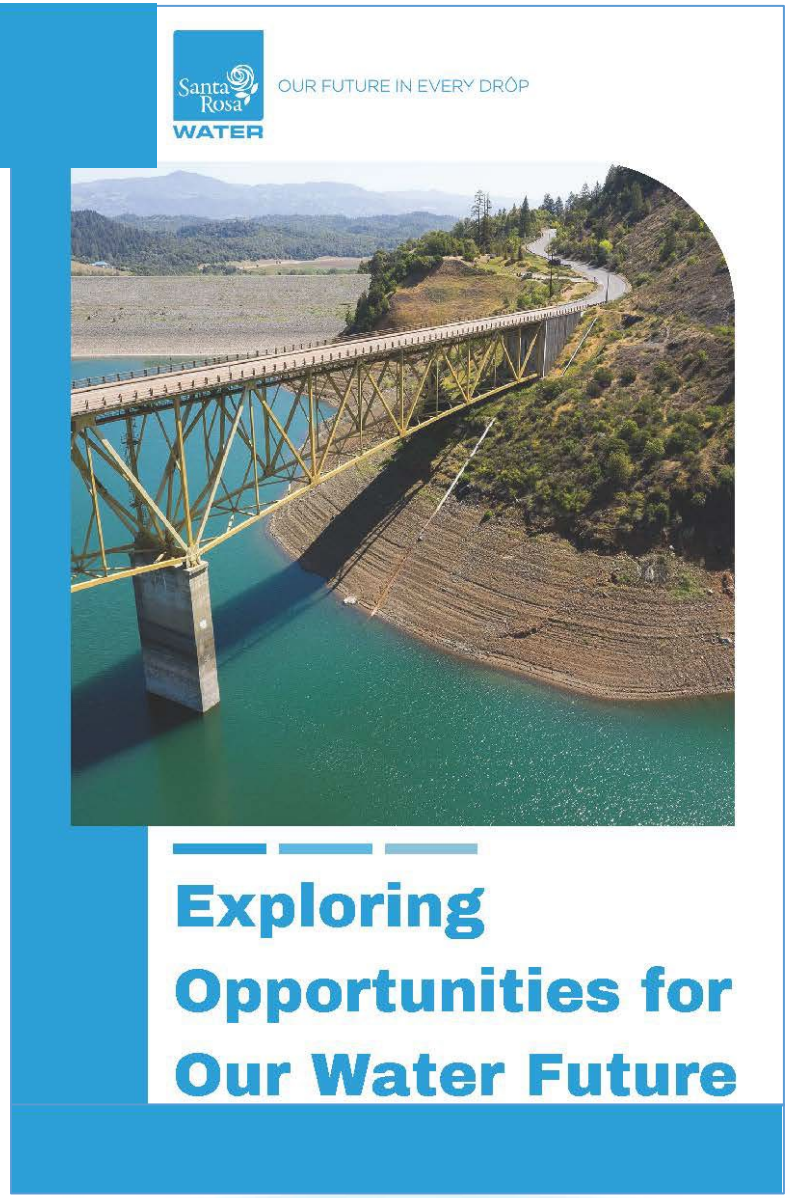
WORKING SESSIONS	*OCT*	*NOV*	*DEC*	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
Water Team	*WT*		*WT*					WT	WT	WT			
Stakeholder Group		*SG*	*SG*					SG		SG			
BPU				BPU					BPU			BPU	BPU
Council												CC	CC
Community	*Com*			Com				Com			Com		
KEY DELIVERABLES	*1. Supply goals* *2. Supply options* *3. Criteria & methods*			1. Feasibility study report 2. Synopsis of portfolios						1. Working draft Plan 2. Admin draft Plan 3. Final Plan			

Community Meeting #2 – Our Water Future

Wednesday, January 25th, 5-7 p.m., via Zoom

- Provide project update
- Review study parameters:
  - Resiliency Goal and Supply Options
  - Evaluation Criteria and Study Methodology
- Seek community comments and questions
- Provide live (simultaneous) Spanish translation

More information & registration link
srcity.org/OurWaterFuture



Discussion/Direction

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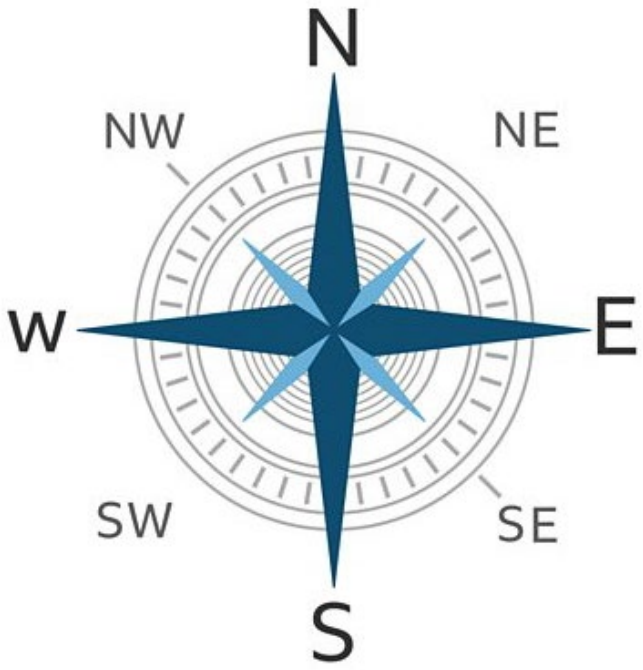

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