



COUNTY OF SAN LUIS OBISPO

**PASO BASIN SUPPLEMENTAL WATER SUPPLY
OPTIONS**

**TECHNICAL MEMORANDUM NO. 1
PROJECT GOALS, OBJECTIVES, APPROACH AND
EVALUATION PROCESS**

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PROJECT GOALS, OBJECTIVES, APPROACH AND EVALUATION PROCESS

1.0 INTRODUCTION/BACKGROUND

The Paso Robles Groundwater Basin (Paso Basin) has experienced dropping groundwater levels over several decades and is the subject of many studies to determine perennial¹ yield and whether this perennial yield is being exceeded. In an effort to ensure sustainable water supply for the customers the Paso Basin serves while meeting its management objectives, the San Luis Obispo County Flood Control and Water Conservation District (District) is initiating this feasibility study to identify sources of supply that can be obtained to supplement the Paso Basin. This study shall identify, describe, and analyze the water that may be available from State Water Project (SWP) water, Lake Nacimiento, local exchanges and recycled water. The goal is to develop a prioritized list of the most beneficial and viable options for procuring available state and local water resources to wholly or in part, stabilize groundwater levels and to provide a clear path forward to obtaining these supplies for the Paso Basin.

This Technical Memorandum #1 (TM1) outlines the project objectives and needs, vision, goals, and approach to developing/vetting options.

1.1 Water Issues in Paso Robles Basin

The Paso Basin is a 790 square mile basin that serves as the primary water supply for the North San Luis Obispo County. Water from the Paso Basin is extracted by agricultural, urban, and rural users. Water use in the Paso Basin has increased over time due to population growth and a shift in agricultural use to a point where the perennial yield has been reached (i.e., basin outflows are equal to or greater than basin inflows) and groundwater levels have been in decline for many years. As a result the Board of Supervisors established a Level of Severity III (most severe level) for the Paso Basin and adopted an Urgency Ordinance in August 2013 requiring all new development and agriculture to offset their water usage at a 1:1 ratio (provide a new water supply (or conserve) equal to what they plan to use).

¹ For the purposes of this report, the perennial yield for the Paso Basin is defined as the amount of water that can be withdrawn and consumed on an average annual basis over the long-term and under given land use conditions without exceeding the combined natural and artificial recharge to the groundwater basin (total pumping – change in storage). Managing groundwater basins in a manner consistent with its perennial yield helps avoid long-term adverse impacts such as groundwater level declines. Because land uses and hydrologic conditions can change over time, the perennial yield must be re-evaluated periodically. Perennial yield is interchangeable with terms like “safe” or “sustainable” yield.

There are numerous documents and studies that have summarized issues in the Paso Basin. Recent efforts include the 2011 Groundwater Basin Management Plan and the on-going (2014) Water Balance and Model update. Many of the documents and issues related to the Paso Basin are located and described on the County's website: www.pasobasin.org.

1.2 Alternatives Previously Considered/Ranked

As part of implementing the Paso Robles Groundwater Basin Management Plan, a Blue Ribbon Steering Committee (BRC) was formed to provide input into the potential "solutions" for the declining groundwater level problem. The outcome of this effort was a list of Top Ranked Solutions in August 2013. The solutions were divided into categories of management, conservation, supplemental and recycling alternatives. In addition, the solutions were categorized as short, medium, and long-term solutions.

For this supply option study, the management and conservation alternatives or solutions are not applicable. However, the list of supplemental and recycling options is, therefore they are presented in the Table 1.1.

Table 1.1 Summary of Relevant Top Ranked Solutions from BRC, Aug. 2013 Paso Basin Supplemental Water Supply Options County of San Luis Obispo			
Category	Timeline	Option	Description
Supplemental	Short Term	ST -12	Exchange or Bank Nacimiento Water with Santa Margarita Lake
		ST -13	Paso Robles to use alluvial water first, Nacimiento second and Paso Basin water last
Supplemental	Med/Long Term	MLT -1	Implement supplemental supplies from State Water, Salinas River, Nacimiento, Santa Margarita
		MLT -2	Explore opportunities with Monterey County including Lake Nacimiento/San Antonio intertie
		MLT -3	Direct delivery of unsubscribed Nacimiento or State Water Project allocations
Recycling	Med/Long Term	MLT -8	Incentive onsite reuse/greywater systems
Notes:			
(1) From Blue Ribbon Steering Committee Top Ranked Solutions, Aug 21, 2013			

Most of the options listed in Table 1.1 are relevant to this study and set the framework for starting the effort of evaluating supplemental supply options for the Paso Basin. However, a few of these options are less relevant for this study, including ST-13 and MLT-8. ST-13 is really an operational decision process by the City of Paso Robles on when and how they

utilize their existing supplies rather than a supplemental supply. However, opportunities to work with the City in developing supplemental supplies will be considered. MLT-8 is also more of a management option that would require ordinances and incentives to encourage home and land-owners to capture onsite water that could be reused to offset potable or groundwater supplies for activities like landscape irrigation. Different from MLT-8 but along similar lines of reusing water resources, opportunities to do centralized recycled water from wastewater treatment plants will be considered during this study for their supplemental supply benefits.

Other top ranked solutions that are already underway were also noted by the BRC include:

- C-1: Atascadero's use of its full Nacimiento allocation (2000 AFY) through use of existing percolation ponds.
- C-9: Templeton's increased use of Nacimiento allocation (250 AFY).
- C-10: Connect Shandon to State Water and set up distribution system (100 AFY).

These opportunities and their progress toward implementation will be included and summarized in this study.

2.0 PROJECT GOALS AND OBJECTIVES

The Goals of this Supply Options Study is to determine the quantity, quality, cost, and points of transfer of supplemental water options, infrastructure needs at transfer points, and the terms and/or conditions under which a Paso Basin entity could procure it (e.g., contractual issues/negotiations/"transfer terms"). This Supply Options Study will detail the following:

- How much State Water, Nacimiento Water and Recycled Water may be available, including its quality/suitable uses.
- When each water supply option may be available (i.e. how long into the future, duration, wet/normal/dry years).
- Alternative points of delivery to the Paso Basin for each water supply option.
- Costs.
- Other considerations including regulatory, contractual, environmental, financial, timing and public/institutional acceptance.

2.1 Complimentary Studies under Consideration

The District is currently pursuing federal funding for evaluation of opportunities to optimize the use of any water available from the Salinas River Basin to stabilize groundwater levels. A separate modeling effort to be scoped on a parallel track would determine where the water needs to go and how much is needed to achieve basin management objectives (e.g., stable levels), however it is uncertain at this time as to whether it would be funded by the

Flood Control District. A separate “in-basin solutions” study would evaluate the options for putting supplemental water to use (e.g., direct delivery to an irrigation district, recharge basin, etc.) in a way that achieves basin management objectives, however it is uncertain at this time as to whether it would be funded by the Flood Control District. Ultimately, all of these efforts are needed in order to identify the appropriate short and long-term solutions for long-term sustainable management of the Paso Basin.

3.0 OVERALL APPROACH

Water supply options to be considered in this study include Lake Nacimiento Water, State Water and Recycled Water options. In addition to utilizing the currently unallocated supplies, potential exchanges for additional water supplies will be considered.² Availability of these supply options will be determined. The infrastructure required to make supplies available at points of delivery and any contractual or environmental considerations will also be identified. Supply options will be ranked and screened through a rough screening analysis based on input from the public and stakeholder groups. Relative costs (capital and annual operation and maintenance) will be identified for the rough screening.

3.1 Approach to Work

Figure 1.1 shows conceptually how the options will be evaluated. Technical memorandums (TMs) will be developed for each of the three main supply types: In-Basin Supplies (Nacimiento), State Water, and Recycled Water. These TMs will identify the supply options and present a fatal flaw analysis to screen out any options that are not feasible or extremely difficult to implement. Interviews will be conducted with existing Nacimiento and State Water participants and relevant agencies about each option and these same entities will be provided an administrative draft TM for ensuring all information is correct prior to public release. The Paso Basin Supply Options Subcommittee and other stakeholders will be able to provide input and comment to the draft TMs.

Town hall style public meetings will be held to solicit comments and input prior to moving into the Rough Screening. During the Rough Screening, additional alternative details will be developed as needed, including further discussions and investigations into contractual, institutional, and environmental issues. In a workshop setting, alternatives will be compared and ranked resulting in a prioritized list and recommended plan for the procurement of preferred supplemental water supplies. The results of the Rough Screening will be summarized into a report that will be distributed to the public for comment and eventually be presented to the Board of Supervisors.

² For example, what is the feasibility of building a recycled water plant in the South County to free up South County State Water for use in the Paso Basin?

4.0 EVALUATION PROCESS/CRITERIA

The supply options will be scrutinized for potential fatal flaws and compared to each other to determine the prioritization ranking. To compare the options, a consistent set of criteria must be used by which to compare the options.

4.1 Evaluation Process

The following four-step evaluation process will be used to screen down the list of options:

Step 1: Identify options under each supply type: Nacimiento, State Water, Recycled Water. Supply options will be defined by their source/quantity, level of treatment and point of delivery.

Step 2: Sort into fatal flaw list (those options screened out), deferred options list (those that may have merit but are not within the scope of this study), and rough screening list.

Step 3: Evaluate rough screening list to rank within supply type.

Step 4: Evaluate the three rough screening lists to create a combined ranking and recommended procurement plan.

4.2 Evaluation Criteria

The Step 2 analysis will evaluate if a supply option is not viable for a variety of reasons. The criteria to be used during the fatal flaw/deferred option analysis include:

1. Institutionally/contractually/financially complicated compared to other options.
2. Other option would need to be implemented first (not an independent project).
3. Potential key partner not interested.
4. Strong opposition at this time.

An example of how options will be compared in the TMs is shown in Table 1.2.

Table 1.2 Comparison of Water Supply Options - Fatal Flaw Analysis Paso Basin Supplemental Water Supplies Options County of San Luis Obispo				
Supply Option	Estimated Supply AFY⁽¹⁾	Timeline and Duration	Criteria Triggered	Placement
Option 1: [Description]	Normal Dry Wet	Short/ Temporary	[Description of key issues identified]	[Placement into Fatal Flaw List, Deferred List or Rough Screening List]
Option 2: [Description]	Normal Dry Wet	Long/ Permanent		
Note: (1) Typical available supply in a normal year and range of estimated dry to wet year availability.				

Consistent with the BRC's Top Ranked Solutions and Ranking Key, the Step 3 and 4 evaluation process (rough screening) to identify the most viable options will be based on the following evaluation criteria:

1. Quantity, quality and reliability of supply.
2. Cost (Capital and O&M).
3. Environmental impacts.
4. Schedule for implementation.
5. Time of use.
6. Regulatory/contractual/permitting approvals.
7. Public Acceptance (Community and Regional Support).
8. Technical complexity.

These evaluation criteria will be vetted with the Supply Options Subcommittee prior to completion of the Rough Screening Report. An example of the Rough Screening is shown in Table 1.3.

Table 1.3 Comparison of Water Supply Options – Rough Screening Analysis Paso Basin Supplemental Water Supplies Options County of San Luis Obispo				
Supply Option	Supply AFY⁽¹⁾	Timeline and Duration⁽²⁾	Cost Capital/O&M	Comments on Issues/Benefits (Quality, Regulatory, Environmental, Contractual, Public Acceptance, Complexity)
Option 1: [Description]	Normal Dry Wet	S/T	\$ \$/yr	[comments]
Option 2: [Description]	Normal Dry Wet	L/P	\$ \$/yr	[comments]
Notes:				
(1) Typical available supply in a normal year, range of dry to wet year availability will also be determined.				
(2) S=short term, L= long term, T= temporary, P= permanent.				

4.3 Options Considered in Kickoff Meeting

During the Supply Options Study kickoff meeting, the project team, County staff and City of Paso Robles representatives brainstormed options that would benefit the Paso Basin. Only those relevant to the scope of this study are shown herein. This list is a starting point, along with the BRC list, for the list of options to be evaluated. This list will be sorted into the “fatal

flaw” list and the list to be included in the Rough Screening. Additional options will be added as identified through discussions with local stakeholders and agencies. The list of options discussed is as follows, along with the team’s estimate of whether the projects would be long term (L) or short term (S) implementation and permanent (P) or temporary (T) solutions:

State Water (SW) Project:

- SW allocation, direct delivery (to farmers) – LP.
- Conjunctive Use: Exchanges between SWP, Nacimiento, Salinas additional recharges, South County Users (give SLO more SWP from Paso, in exchange send down water from Santa Margarita – recharge Atascadero subbasin) – ST option; work on longer term solution.
- SW Raw water pipeline from Polonio Pass towards Shandon at a point that makes sense for recharge into San Juan River system (can bring all SWP to Polonio, but treated water is constrained) – LP.
- Treated water deliveries to Creston – SP for recharge; LP for direct delivery.
- Raw water extension to Creston subarea (Huer Huero, Estrella river, Chela runs to Salinas), for recharge not direct delivery – LP.
- 4,830 AF (existing contractual rights) capacity County owns in Polonio Pass and downstream pipeline. Deliver it all, every year – put in Paso Basin (utilize by recharge, direct delivery). – S and T/P.
- Obtain additional delivery capacity – adequate physical capacity up to 10,000 AF to deliver to Shandon, only contractual extent. After Polonio Pass there is limited capacity, but North County has availability. Polonio Pass has unused treatment capacity. County negotiate arrangement with CCWA to use additional treatment capacity - S/L and P.

Recycled Water:

- Paso Robles – optimize recycled water recharge – LP:
 - Recycled water may not be new water, should look at moving discharge point to bulls eye so catching 100%.
- Shandon RW – LP.
- RW/Nacimiento blending in-lieu to users – LP.
- RW pipeline through 46 east corridor – LP.

- Water from turnout to upstream of Paso Wells (north of City PR), what happens if put more water in river north of fault.
- Maximize reuse from Atascadero and Templeton.

Paso Basin Options

- Nacimiento Water for in lieu – SP.
- Deliver water out of Nacimiento - Utilize existing infrastructure – subscribe and deliver all Nacimiento Water. Raw recharge/direct recharge (direct delivery is preferred) – SP.
- Exchange with City of SLO – Nacimiento for Salinas – ST and LP.
- Use Nacimiento turnout – for river discharge at Paso turnout – SP.
 - Use Salinas as a conveyance system, Atascadero is where catch.
 - Shallow wells along river to recapture?
- Wheel water through Paso’s system for potable water. Neighboring rural residential, City could treat and wheel Nacimiento Water – LP.
- Nacimiento-San Antonio intertie pipeline – LP.