



DRAFT MANAGEMENT ACTIONS AND PROJECTS FACT SHEET

Paso Robles Subbasin GSP Development

***Disclaimer** These Draft Documents are provided for information only and are intended to help facilitate discussions related to Projects & Management Actions to be considered in the Paso Basin Groundwater Sustainability Plan (GSP), currently under development. The information contained herein is subject to change and does not commit, nor does it necessarily reflect the views, opinions or endorsement of, the Cooperative Committee or any Agency.*

PURPOSE

This fact sheet provides an overview of the potential management actions and projects that are being considered for the Paso Robles Subbasin Groundwater Sustainability Plan (GSP). These management actions and projects will be implemented to sustainably manage groundwater resources in the Subbasin.

The Sustainable Groundwater Management Act (SGMA) requires the GSP to demonstrate how the proposed management actions and projects will lead to sustainability. The concepts presented herein are not final. The intent of the fact sheet is to prompt discussion and feedback from the Groundwater Sustainability Agencies (GSAs) and stakeholders on acceptable management actions and projects that will lead to sustainable groundwater conditions in the Subbasin and will maintain the social and economic vitality of the region.

A combination of management actions and projects adopted for the Subbasin will achieve a number of outcomes including:

- Achieving groundwater sustainability by meeting Subbasin-specific sustainable management criteria. These criteria must be achieved for each relevant sustainability indicator by 2040.
- Providing equity between who benefits from projects and who pays for projects.
- Providing a source of funding for project implementation (not operational costs).
- Providing incentives to constrain groundwater pumping within limits. Unregulated pumping in the future would require importation of new water supplies that are likely unavailable.

OVERVIEW

The approach for implementing management actions and projects will provide individual landowners and public entities flexibility in how they manage water and how Subbasin achieves groundwater sustainability. All groundwater pumpers will be allowed to make individual decisions on how much groundwater they pump based on their perceived best interests. Some groundwater pumpers may choose to reduce pumping; others may choose to buy water from neighbors or retire land, while others may choose to pay for new water supply projects.

The proposed approach for implementing management actions and projects is based on a **water charges framework**. This framework is designed to achieve two important outcomes:

1. Promote voluntary pumping reductions; and
2. Fund new water supply projects by charging groundwater pumpers a fee if they choose to not voluntarily reduce pumping.

This conceptual water charges framework would include:

- Quantifying pumping allowances for every groundwater pumper. **These allowances are not water rights.** Instead, they form the basis of a financial rate structure to fund new water supply projects.
- Developing a tiered rate structure for pumping groundwater. Groundwater pumped within a pumping allowance would be charged a base rate. Groundwater pumped above a pumping allowance would incur a higher cost (surcharge).
- Using base rate funds to plan, design, and permit one or more of the management actions or projects described below.
- Using surcharge funds to purchase and treat water, and bring it into the Subbasin.

Alternate approach to the framework outlined above could be implemented. One alternate approach would be to first develop new water supply projects. In this case, all pumpers would pay a surcharge and the GSAs would immediately begin developing projects and bringing in water to the Subbasin. Pumpers would pay a smaller surcharge or possibly no surcharge if they decided to voluntarily reduce pumping. This has the same net effect as the proposed structure, except the initial focus would be on building new water supply projects instead of promoting voluntary pumping reductions.

In considering a water charges framework, some new water supply projects may be so important or desirable that they would be implemented outside of the proposed fee structure. For example, obtaining State Water Project water could be initiated outside of the water charges framework and could be funded by a general fund developed by the GSAs.

WATER CHARGES FRAMEWORK

WATER CHARGES

Base Pumping Assessment

Fee per acre-foot charged for all non-exempt pumping.

Overproduction Surcharge

 Additional fee per acre-foot charged for any non-exempt pumping above the Production Allowance.

The water charges framework is the fundamental structure for managing groundwater pumping and funding projects. The framework includes developing pumping allowances, ramping down pumping to an allowable limit, developing and implementing a fee payment program, and funding projects.

The GSP will not impose mandatory pumping restrictions. Instead, the framework promotes voluntary pumping reductions that may be achieved in a variety of ways. For example, a pumper may choose to switch to less water-intensive crops, implement water use efficiencies, or transition to non-groundwater sources.

Alternatively, if reducing pumping is not of interest or acceptable, a pumper may instead pay an

overproduction surcharge. *De minimis* pumpers, defined as domestic groundwater pumpers using up to 2 acre-feet per year, would be exempted from water charges.

Funds from the water charges program would be used by the GSAs to develop new water supplies, as described below. Revenues could also fund incentive-based programs to reduce water demand - for example, agricultural land acquisition and retirement. Under the framework, there would be two categories of water charges: base pumping assessments and overpumping surcharges (defined in the callout box). Revenues from the pumping assessments would fund the fixed costs associated with new water projects that benefit all pumpers. Revenues from the overpumping surcharge would fund the variable costs associated with new water projects as the water is used to offset or replace overproduction.

PUMPING ALLOWANCES

Pumping allowances are not water rights and do not limit pumping. Pumping allowances would be established only to enable calculation of overpumping surcharges. The proposed process for establishing initial pumping allowances is as follows:

- **Agricultural Pumpers:** Initial pumping allowances are established for agricultural pumpers based on average cropped acreage for the years 2010 through 2015. The assumed amount of pumping per acres is consistent with water use factors established in San Luis Obispo County's existing Agriculture Offset Program.
- **Municipal & Industrial (M&I) Pumpers:** Initial pumping allowances are assigned according to actual pumping amounts (estimated or measured).
- ***De minimis* Pumpers:** Exempt.

RAMP DOWN

Pumping allowances will be ramped down in areas where overdraft exists. The ramp down will occur over a number of years to ensure pumping is within the Subbasin's sustainable yield. A number of ramp down options are available. We propose that pumping be reduced in specific areas of the basin where overdraft exists according to copping patterns and historically observed changes in groundwater elevations. Different water rights holders will be subject to different ramp downs:

- Surface water rights holders are not subject to this ramp down
- Pumping of any water owned and recharged by and individual or entity is not subject to ramp down

- Overlying water rights holders and quantified prescriptive rights holders are subject to equal ramp downs within a geographic area
- Appropriative rights holders are subject to a greater ramp down than the overlying water rights holders in the same geographic area.

Such adjustments would be timed to meet the interim milestones set forth in the GSP. Other options may also be appropriate and would be developed by the GSAs.

CARRYOVER

Groundwater pumping can fluctuate from year-to-year depending on weather conditions, particularly for agricultural pumpers. To provide pumpers the flexibility to pump more during dry years and less during wet years, the unused portion of a Pumping Allowance for a given year may be carried over for use in subsequent years. For example, an agricultural pumper with 10 acre-feet (AF) of Pumping Allowance who only pumps 5 AF this year would be able to pump 15 AF next year (10 AF of annual Production Allowance plus 5 AF of carryover) without incurring an overproduction surcharge. The amount a pumper can carryover would be limited. For example, one approach might be to limit each pumper's individual carryover amount to an amount equal to that pumper's pumping allowance. Additionally, carryover is discounted over time. Every year, a pumper loses a percentage of their carryover.

RE-LOCATION AND TRANSFER OF PUMPING ALLOWANCES

Pumping allowances may be moved between properties temporarily or permanently. For example, an agricultural pumper could voluntarily fallow marginal farmland, and move the pumping allowance to highly productive farmland to expand irrigation on the better land. Such re-location of pumping allowances would be subject to review by GSAs to ensure that sustainability goals are being met. GSAs will model the re-location using the GSP model to assess any significant and unreasonable impacts from the proposed relocation. Re-locating pumping allowances provides pumpers with flexibility, and maintains consistency with San Luis Obispo County's current Agriculture Offset Program. Pumping allowances could also be permanently or temporarily sold between water users, and could be used for another pumping purpose. For example, agriculture use to M&I use, subject to pumping amount adjustments for changes in consumptive use.

ADMINISTRATION, ACCOUNTING, AND MANAGEMENT

The GSAs would administer the water charges program. Administrative duties would include developing initial pumping allowances, tracking pumping allowance ownership, accounting for water use, calculating, assessing, and collecting fees, and reviewing proposed re-location of

pumping allowances. GSAs would use Water Charges revenues to fund projects that develop new water supplies for the benefit of the Subbasin.

The total amount of groundwater pumped by each land owner or entity will be measured in a number of ways:

- Municipal groundwater users and small water systems report their measured groundwater usage to the SWRCB Division of Drinking Water. These data are available on the State’s Drinking Water Information Clearinghouse website (“Drinking Water Information Clearinghouse”). These data will be used to quantify municipal and small water system pumping.
- Agricultural pumping will be collected in two ways:
 - Agricultural pumpers may report metered pumping directly to their GSA.
 - Pumping will be estimated by the GSA for agricultural pumpers that do not report their pumping. The annual pumping will be estimated using the County of San Luis Obispo’s crop data and crop duty estimates, times a multiplier. For example, if the crop duty for wine grapes is 1.2 acre-feet/year, using a multiplier of 1.5 means a grower is assessed 1.8 acre-feet of water (1.2 time 1.5) for every acre of unreported wine grape pumping.

MANAGEMENT ACTIONS

Management actions are new or revised programs or policies that are intended to improve local groundwater use. Several potential management actions are being considered by the GSAs, including urban conservation, agricultural conservation, and land use restrictions. Management actions can be implemented by individual landowners or by GSAs.

A combination of management actions will be required to achieve sustainability and avoid adversely impacting the local economy. Some management actions may work for one pumper, while others may work for a different pumper. the water charges framework provides a flexible structure that allows each pumper to select their preferred management actions.

POTENTIAL MANAGEMENT ACTIONS

-  Urban conservation
-  Agricultural conservation/efficiency
-  Land use restrictions
-  Mandatory pumping restrictions

One example of management actions that could be undertaken by GSAs is agricultural land retirement. Water charges revenues may be used by a GSA to acquire and retire irrigated land to reduce pumping. In some areas of the Paso Robles Subbasin where groundwater levels are declining, delivering non-groundwater sources to offset pumping is infeasible because of high cost and/or technical limitations. Irrigated land purchased by a GSA would be done on a voluntary basis from willing sellers at negotiated market prices. GSAs would cease irrigation on acquired land to reduce pumping. GSAs would coordinate with other local agencies and stakeholders to determine beneficial uses of the acquired land.

WATER SUPPLY PROJECTS

Funds raised from the water charges framework could be used to develop projects that enhance groundwater recharge either directly or through in-lieu methods. There are five potential new water sources available to the Paso Robles Subbasin, and three methods of distributing and using these new water supplies. Available water supplies, procurement options, and considerations are summarized in Table 1.

AVAILABLE WATER SUPPLIES

- State Water Project
- Nacimiento Water Project
- Recycled Water
- Diversion of Local Rivers/Streams
- Expansion of Salinas Dam

AVAILABLE WATER SUPPLIES

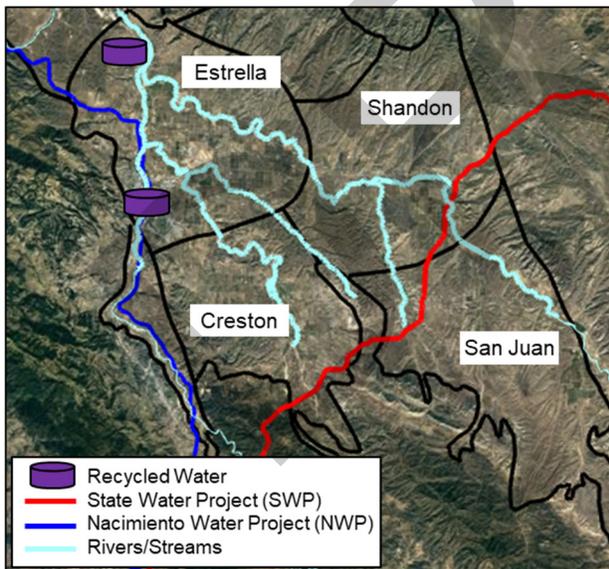


Figure 1. Available Water Supplies

State Water Project (SWP) – Treated SWP water is conveyed through the southeastern portion of the Subbasin via the Coastal Branch Aqueduct. San Luis Obispo County Flood Control and Water Conservation District (the District) currently has a SWP allocation of 25,000 AFY, of which about 14,500 AFY is unused “excess” allocation. SWP could be purchased either through a long-term agreement with an existing subcontractor, or by becoming a new SWP subcontractor under the District. Under the latter approach, one of the GSAs – likely the County – will become a subcontractor.

Historically, DWR delivers about 58% of allocated supplies. Multiplying 58% by the unused excess amount of 14,500 acre-feet per year yields an average annual supply of 8,900 acre-feet per year that may be available for use in the Subbasin. Actual availability would be less in dry years and more in wet years. Developing

SWP supplies for use in the Subbasin will require negotiation of contracts, engineering studies, and environmental permits. Because these activities are time-consuming, the GSAs will recommend in the GSP to initiate work on developing SWP water shortly after adoption of the GSP. This includes immediate negotiations on acquiring the use and rights to the district as excess allocation

Nacimiento Water Project (NWP) – Raw water from Nacimiento Reservoir is currently conveyed through the NWP pipeline to five contractors in the region. To use NWP water to achieve sustainability, GSAs could contract with and purchase water from an existing contractor or through a turnback pool among all existing contractors. The NWP water is fully allocated, although surplus supplies exist because subcontractors are not using their full allocation. The current average annual surplus supply is about 8,600 AFY; this amount is projected to decrease to about 5,700 AFY in 2040. The NWP contractors are currently developing a formalized water marketing program to trade and sell unused allocation. This formalized program may simplify the GSAs ability to obtain NWP water. The GSAs will recommend in the GSP that negotiation of long-term contracts with existing contractors begin shortly after approval of the GSP.

Recycled Water (RW) – RW projects are already being planned by both the San Miguel Community Services District (San Miguel) and the City of Paso Robles. San Miguel plans to reuse 200 AFY. The City of Paso Robles expects to reuse between 2,900 and 5,000 AFY. A total of about 2,600 AFY of recycled water are assumed available as new supply.

Local Rivers/Streams – Excess surface water from Salinas River, Estrella River, and/or Huer Huero Creek could be used to achieve sustainability. To do this, GSAs could apply for either a standard diversion permit or possibly a new temporary flood flows permit (currently being developed by the State Water Resources Control Board). Standard diversion permits are challenging to obtain, subject to protest by existing users, and would only allow for diversion during spring months due to existing water rights. Temporary flood flow permits are anticipated to be easier to obtain; however, substantial high cost infrastructure would be required to make use of rare winter high flood flow events. Due to these challenges, diverting and using local surface water as a new supply will be included in the GSP as a potential back-up project.

Localized recharge of rainfall runoff before it enters a stream or river is also possible. This type of program is currently being implemented in Pajaro Valley. While this is a simpler project to implement, the amount of water realized from these types of programs is generally small. However, the GSAs should develop a program to promote local, on farm recharge of runoff. The program could include reductions in the water charges framework surcharge cost for every acre-foot of water recharged.

Expansion of Salinas Dam – Expansion of the Salinas Dam on Lake Santa Margarita is being investigated by the County. The transfer of ownership, benefits of expansion, and funding

options are yet to be determined. Expansion of Salinas Dam to derive new water supplies for the Subbasin will be included in the GSP as a potential back-up project.

Table 1: Summary of Available Supplies in the Paso Robles Subbasin

Source	Procurement Options	Important Considerations
SWP	<ul style="list-style-type: none"> • Become new SWP subcontractor under the District • Negotiate contract with an existing subcontractor 	<p>Less water available during dry years.</p> <p>Water available during growing season</p>
NWP	<ul style="list-style-type: none"> • Long-term purchase agreement from existing contractor • Turnback pool among existing contractors 	Potential water quality issues
RW	<ul style="list-style-type: none"> • City of Paso Robles planned project underway • City of San Miguel planned project underway 	Requires blending with other water to reduce salt loading
Local Rivers & Streams	<ul style="list-style-type: none"> • Standard diversion permit • Anticipated temporary flood flows permitting process 	Permits are uncertain
Salinas Dam Expansion	County is in the process of investigating transfer of ownership, benefits of expansion, and funding options	Legal and timing concerns are currently unclear

OPTIONS TO DELIVER NEW WATER SUPPLIES

There are several options to deliver new water to the Subbasin, including:

Direct Delivery – A new non-groundwater supply could be delivered directly to irrigators to offset the use of groundwater. Direct delivery projects would require design, permitting and construction of pumping stations, pipelines, and storage facilities to convey the variable supply of new water to agricultural users. Direct delivery requires that the water be available during the growing season (i.e. summer and shoulder months) for immediate use or stored in on-site ponds.

DELIVERY OPTIONS



Direct delivery (offset pumping)



Recharge basins



Direct injection

Recharge Basins – Recharge basins are artificial ponds that would be filled with available new water supplies. Water from the recharge basin slowly seeps into the groundwater system.

Recharge basins would be appropriately located to maximize the benefit of recharge to the underlying aquifers. Recharge basins can be used throughout the year. Water recharged into the groundwater basin through recharge ponds can flow to other parts of the basin, resulting in benefits to the Subbasin in areas away from the recharge ponds.

Direct Injection – Injection wells could be used to inject available new water supplies directly into the groundwater basin. Treated water (e.g., treated SWP water) could be injected directly; raw water would need to be treated before injection. Injection wells can be operated continuously throughout the year. Injection wells are typically more efficient at getting water to productive aquifers than recharge basins. Water injected into the groundwater basin through direct injection can flow to other parts of the basin, resulting in benefits to the Subbasin in areas away from the injection wells.

DEVELOPMENT OF PROJECT ALTERNATIVES FOR GSP

For the GSP, projects alternatives were developed from combinations of available new water supplies and delivery options. Total planning-level costs were estimated for each alternative, including capital, operation and maintenance costs. Important assumptions used to develop project alternatives are shown in Table 2.

Table 2: Project Alternatives Assumptions

GENERAL ASSUMPTIONS	<ul style="list-style-type: none"> • The Basin will be managed as a whole but projects will be needed in target areas to address local groundwater deficits. • The shortest pipelines with the smallest elevation gains were selected for conceptual evaluation of water delivery to target. • For direct delivery projects, pipeline alignments were selected to deliver water to the largest users closest to the water source.
SWP ASSUMPTIONS	<ul style="list-style-type: none"> • SWP water is treated water and is therefore suitable for direct injection. • SWP pipeline is located in the southern portion of the basin; therefore, water injected near the SWP pipeline will benefit the whole basin by flowing north into the regions with lower water table elevations.
NWP ASSUMPTIONS	<ul style="list-style-type: none"> • NWP water supply projects were selected to not conflict with the recycled water service area.
OTHER SUPPLY ASSUMPTIONS	<ul style="list-style-type: none"> • Expansion of Salinas Dam is being investigated and a disposition study for transfer to the District is underway. Timing and legal requirements remain unclear so is currently assumed to be a back-up project.

For the GSP, projects alternatives will be evaluated that include practical combinations of water supply and delivery options that could be implemented to deliver new water supplies to areas where pumping has depleted groundwater storage in the basin. Table 3 summaries estimated project costs, which would vary by water supply type, delivery option, area within the Subbasin, and cost of the water. Costs were not estimated for backup projects.

Table 3: Estimated Planning-Level Cost of Project Alternatives

Supply	Area	Delivery Option	Estimated Amount	
			AFY	Cost (\$/AF) ¹
SWP	Creston	Direct delivery for irrigation	4,000 – 9,000	\$2,600 – 3,900/AF
		Recharge basins ¹	4,000 – 9,000	\$1,300 – 2,600/AF
		Direct Injection	4,000 – 9,000	\$1,800 – 3,100/AF
	Shandon	Direct delivery for irrigation	4,000 – 9,000	\$2,400 – 3,700/AF
		Recharge basins ¹	4,000 – 9,000	\$1,300 – 2,600/AF
	San Juan	Direct delivery for irrigation	4,000 – 9,000	\$2,900 – 5,400/AF
NWP	Estrella	Direct delivery for irrigation	4,000 – 8,000	\$2,200 – 3,200/AF
		Recharge basins ¹	4,000 – 8,000	\$1,500/AF
RW	San Miguel	Direct delivery for irrigation	200	to be determined
	City of Paso Robles	Direct delivery for irrigation	2,900+	<\$1,900/AF

Notes:
(1) Include cost to purchase raw water, capital and construction costs annualized over 30 years, and operations and maintenance costs. Costs do not include efficiency factors. For example, the cost (\$/AF) for recharge basin projects appears lower than others; however, only a portion of recharge basin water will directly benefit the deeper aquifers.

RECOMMENDED PRELIMINARY PROJECT ALTERNATIVES AND COSTS

Table 4 summarizes preliminary project alternatives that were developed based on the following criteria: the cost per acre foot of water, the ability of recharged water to benefit the deep aquifers in the Paso Robles Formation that are overdrafted, the ability of the project to meet sustainable management criteria, capital costs, and project feasibility. Direct delivery and injection project types were prioritized above recharge basins since they have the highest recharge (or in-lieu recharge) efficiency.

Table 4: Preliminary Recommended Projects for GSP

Supply	Area	Delivery Option	Estimated Supply AFY
SWP	Creston	Direct injection	4,400
	Shandon	Direct injection	4,400
NWP	Estrella/Salinas Confluence	Direct delivery for irrigation	2,300
RW	Near Airport	Direct delivery for irrigation	2,425+
	San Miguel	Direct delivery for irrigation	200
Total AFY:			13,725+

The candidate project alternatives are described briefly below.

DIRECT INJECTION OF SWP WATER

GSAs would negotiate an agreement to acquire excess SWP water from the District. This water supply could be up to about 8,900 AFY, although for planning purposes it was assumed that 4,400 AFY could be obtained. SWP water would be taken from the Coastal Branch pipeline at new or expanded turnouts in the Shandon and Creston areas. Because this water is treated, this water could be directly injected via wells with minimal pretreatment in the Creston and Shandon areas.

DIRECT DELIVERY OF NWP WATER

GSAs would negotiate agreements with existing NWP water contractors to secure long-term contract for NWP water. This water would be directly delivered via pipeline to growers near the confluence of the Estrella and Salinas River to offset a portion of their groundwater pumping in that area. Recharge basins to recharge the groundwater basin with NWP water are potential back-up project, although suitable locations for basins near the NWP pipeline would need to be identified and proven. Direct injection may also be feasible; however, this option would require some forms of pretreatment. Additional studies would be needed to evaluate the feasibility of recharge via basins and/or injection wells.

RECYCLED WATER USE

The planned RW projects of the City and San Miguel will be included in the GSP because they would offset some groundwater pumping and contribute to reducing the

future groundwater storage deficit. RW would be directly delivered to growers for irrigation to offset a portion of their groundwater pumping. These projects will be undertaken by the Cities and not by the GSAs.

OTHER CONSIDERATIONS

Not all areas of the Subbasin will have all options open to them. For example, the cost to bring new water supplies to the southern end of the San Juan area was found to be high; therefore, to meet sustainable management criteria in this area, management actions like pumping cutbacks, land retirement and/or conservation measures would need to be implemented.

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