Vina PUBLIC DRAFT Groundwater Sustainability Plan (GSP) Overview Brochure

Our efforts will ensure that groundwater in the Vina Subbasin continues to be a long-term resource to support our communities and a healthy environment. This document intends to provide a high-level summary and overview of the Vina Subbasin Groundwater Sustainability Plan (GSP). The content is derived from the draft Vina Subbasin GSP Executive Summary and is intended for a public audience.

How and when to Comment on the Draft GSP

The Groundwater Sustainability Plan is the detailed roadmap for how the Vina Subbasin will reach long-term sustainability… **and the time to share your input on this Plan is NOW**. Visit http://www.vinagsa.org to view the Draft GSP and learn how to submit comments. Public comments are **due by October 19, 2021, 11:59 p.m.**

Submit written comments through one of the following methods:

1. **By Email to:** vinagsa@gmail.com with "Vina GSP Comments" in the subject line. To better organize public comments, we are requesting that commenters use a comment tracking sheet. Visit https://www.vinagsa.org/public-review-draft-groundwater-sustainability-plan-gsp to access the comment form.
2. **By Mail to:** Butte County Department of Water & Resource Conservation
   RE: Vina Subbasin GSP
   308 Nelson Ave
   Oroville, CA, 95965

Submit verbal comments at upcoming meetings:

1. Public Workshop October 4th 6 – 8:30 PM at Chico Masonic Lodge, 1110 W. East Ave.
2. Virtual Public Workshop October 13th 6-8 PM via Zoom: https://cbuilding.zoom.us/j/97874456844
3. Stakeholder Advisory Committee (SHAC) Meeting on October 19th https://www.vinagsa.org/stakeholder-advisory-committee-meetings or a
4. GSA Board Meeting the second Wednesday of the month (https://www.vinagsa.org/board-meetings)

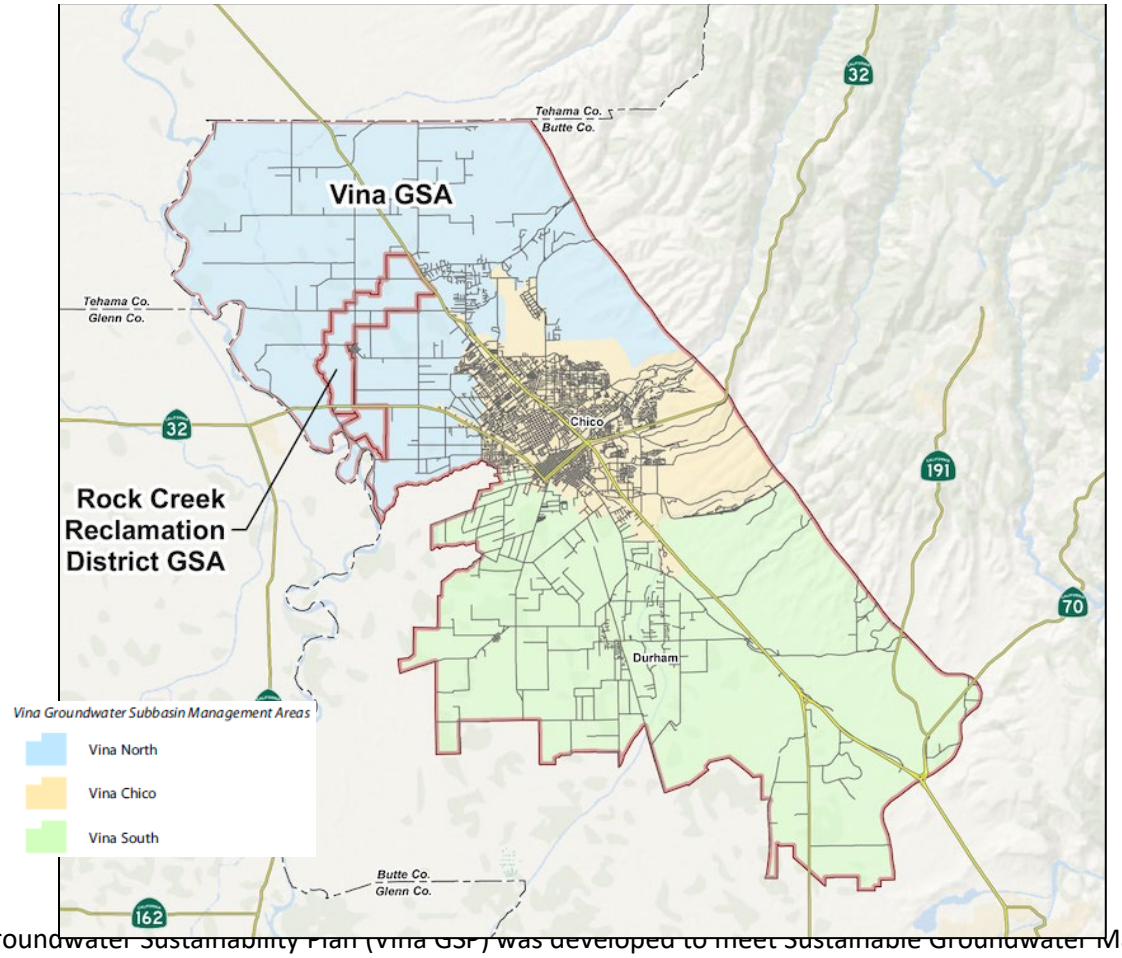
For additional information please email: vinagsa@gmail.com or visit: https://www.vinagsa.org/

Vina PUBLIC DRAFT Groundwater Sustainability Plan (GSP) Overview Brochure

Chapter 1: Where Is the Vina Subbasin & Who Manages the Groundwater Sustainability Plan (GSP)?

The basin lies in the eastern central portion of the Sacramento Groundwater Basin. The northern boundary is the Butte-Tehama County line and the western boundary is the Butte-Glenn County line. The southern boundary is a combination of the property boundaries owned by the M&T Ranch, the service area boundaries of RD 2106 and Western Canal Water District, and the eastern boundary is the edge of the alluvium as defined by DWR's 2003 Bulletin 118 as updated in 2016 and 2018.

Map of the Groundwater Sustainability Agencies and Management Areas in the Vina Subbasin



The Vina Groundwater Sustainability Plan (Vina GSP) was developed to meet Sustainable Groundwater Management Act (SGMA) regulatory requirements by the January 31, 2022 deadline while reflecting local needs and preserving local control over water resources. Signed into law in 2014, SGMA requires the adoption of local plans that will bring groundwater supply and demand into balance over a 20-year implementation period. The goal statewide is to stop removing more water out of underground aquifers than is being replenished (by nature or by humans), thus achieving groundwater sustainability. If local areas are unable or unwilling to come up with an effective plan, the law empowers the State to step in and create a plan, which could be more restrictive and more costly for residents. SGMA supports local control of groundwater resources by requiring the creation of local agencies, known as Groundwater Sustainability Agencies (GSAs), to develop plans for groundwater sustainability.

Who are the Groundwater Sustainability Agencies in the Vina Subbasin?

Vina PUBLIC DRAFT Groundwater Sustainability Plan (GSP) Overview Brochure

Two Groundwater Sustainability Agencies (GSAs) in the Vina Subbasin were formed in 2017 and are working together under a Subbasin cooperation agreement to develop, adopt, and submit one GSP for the entire Subbasin. The purpose of this GSP is to characterize groundwater conditions in the Vina Subbasin, establish sustainability goals, and describe projects and management actions the GSAs could implement to achieve sustainable groundwater management by 2042.

These two GSAs, the Vina GSA and the Rock Creek Reclamation District GSA serve as the policy-making agencies for SGMA implementation in the Vina Subbasin. All GSA Board meetings are subject to the Brown Act and are noticed and open to the public.

What must the GSP Achieve?

A GSP must assess groundwater quantity, rates of input, extraction, and lay out a plan to show sustainability of groundwater resources over a 20-year horizon. If it is determined that groundwater supplies are being depleted over time, the GSP must contain a strategy to reverse this trend and ensure long-term sustainability of the water available to businesses, residences, farms, ranches, and ecosystems.

The Vina GSA Board and Rock Creek GSA Board have been meeting regularly since 2020 to consider input from community members, groundwater users, and technical experts to ensure the GSP meets local needs *and* complies with State requirements outlined in SGMA. The GSP will be adopted and submitted to DWR by January 31, 2022.

In addition to developing the GSP, GSAs also manage both groundwater supply and demand in support of achieving groundwater sustainability, as outlined in the GSP. This may include:

- Developing strategies aimed at increasing groundwater supply or reducing demand
- Charging fees to implement the GSP or to support projects to maintain sustainable conditions
- Collecting data to demonstrate sustainability is being achieved
- Ensuring depletion of surface water due to groundwater pumping does not cause “undesirable results”

Chapter 2: Basin Setting: What We Know & Don’t Know

What is the Basin Setting?

The “Basin Setting” portion of the GSP describes what we know and don’t know about the subbasin. Characteristics like the geology, characteristics of the aquifer systems, and how water moves in and through the system (such as recharge and pumping areas) generally **do not** change over time. This understanding of the basin’s physical characteristics is called the Hydrogeologic Conceptual Model. This becomes the basis for our understanding of groundwater behavior and cause and effect relationships in the system. Additional sub-sections of the Basin Setting describe characteristics of the subbasin that **do** change over time and will likely change in the future, such as changes in climate (affecting water supplies), land use, water demands, etc. This includes a description of Groundwater Conditions (groundwater levels, water quality, and subsidence, if present) and the Water Budget, an accounting (quantitative) of the inflows and outflows of water through the surface water and groundwater systems over time.

How are groundwater conditions doing in the Vina Subbasin?

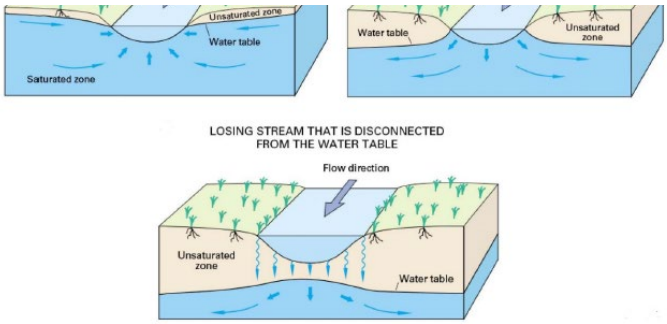
Groundwater levels in the Subbasin indicate that groundwater elevations are relatively stable except for localized cones of depression. Localized depressions have been observed under the City of Chico and in the Durham area. Regionally, there is a

groundwater mound near the Thermalito Afterbay, where groundwater flows outward from the groundwater mound. Another groundwater mound occurs near Hamilton City fed by the Stony Creek Fan. Groundwater quality in the basin is good except in areas where human causes have impacted the groundwater.

Groundwater storage in the Subbasin is relatively stable except in the areas noted above with depressions. The Sacramento River and streams that cross the Subbasin stabilize storage volumes by providing recharge to the Subbasin. The amount of groundwater in storage has decreased by approximately 0.07 percent per year between 2000 and 2018. As such, it is highly unlikely the Subbasin will experience conditions under which the volume of stored groundwater poses a concern. However, the depth to access that groundwater across the Subbasin does pose a concern. Due to the relatively stable groundwater levels, land subsidence has not historically been an area of concern in the Subbasin and there are no records of land subsidence caused by groundwater pumping.

The groundwater system and surface waters found in rivers and streams can be connected and affect one another. Surface water flow can be partially sourced from the groundwater in the aquifer (known as a gaining reach) or, oppositely, surface water can leak down into the aquifer as recharge (known as a losing reach). Because groundwater and surface water can be connected, if the water table beneath the rivers, creeks or streams lowers, the stream may disconnect entirely from the underlying aquifer.

Illustration of Gaining and Losing Interconnected and Disconnected Streams Reaches (Source: United States and Geological Survey



Chapter 3: How Is Sustainability Defined: Sustainability Indicators & Undesirable Results

The GSP must also assess certain "sustainability indicators" and propose measures to correct any "undesirable results" due to groundwater use. Undesirable results to be avoided in the Vina Subbasin are:

- **Lowering of Groundwater Levels.** *It sufficient in magnitude, this has the potential to cause significant and unreasonable declines such as: dewatering of some groundwater infrastructure, starting with the shallowest wells, increased pumping costs, adverse effects on groundwater dependent ecosystems including difficulty for plants and animals to access groundwater, changes in irrigation practices and crops grown, and impacts to property values and the regional economy.*
- **Reduction of Groundwater Storage.** *The primary potential effect would be potentially dewatering of existing groundwater infrastructure and changes in irrigation practices and crops grown and could adversely affect groundwater dependent ecosystems and property values. Additionally, reaching undesirable results for reduction of groundwater storage could adversely affect domestic and irrigation uses of groundwater in the Subbasin.*
- **Water Quality Degradation.** *This includes impacts from groundwater quantity related activities (i.e., groundwater extraction, recharge, etc.) rather than impacts from land use practices, naturally occurring constituents, etc. Potential impacts may include shortage in supply to groundwater users without additional treatment. High levels of salinity impact both drinking water and agricultural uses.*

- **Land Subsidence**. *Subsidence is a condition when the subsurface collapses due to groundwater extraction, causing the land surface elevation to decline which can cause issues to infrastructure, i.e. highways, bridges or water conveyance structures. Land subsidence is currently not a problem in the Vina Subbasin.*
- **Surface Water Depletion**. *Surface waters, like streams and rivers, are often connected to groundwater. A decline in groundwater can result in lower surface water levels, reduced surface flows, and/or increased temperatures that could potentially impact ecosystems.*

Seawater intrusion is not applicable to the Vina Subbasin due to distance from the Delta and Pacific Ocean.

Also, of concern to nearly everyone across the state are the **impacts of drought** on water supplies. Years of drier-than-normal conditions stress ecosystem function as soil moisture levels drop, pumping increases, and reservoirs decline. Droughts can significantly amplify the undesirable conditions described above. Implementation of the GSP should allow the Vina subbasin to weather future droughts better by planning for the variability of wet and dry cycles California experiences.

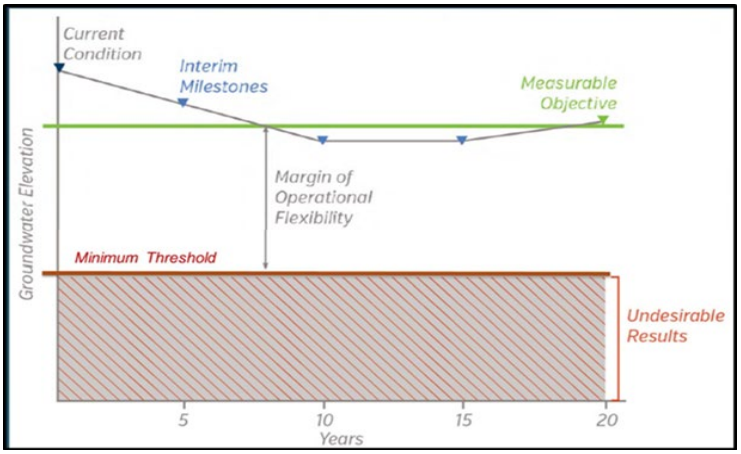
What is the Sustainability Goal?

The sustainability goal for the Vina subbasin is to ensure that groundwater is managed to provide a water supply of adequate quantity and quality to support rural areas and communities, the agricultural economic base of the region, and environmental uses now and in the future.

What are the Sustainable Management Criteria?

The Sustainable Management Criteria are the umbrella that include the Sustainability Goal (qualitative), Undesirable Results, Minimum Thresholds, and Measurable Objectives.

- Description of Undesirable Result: description of constitutes a "significant and unreasonable" condition.is determined by local GSAs and stakeholders.
- Minimum Threshold (MT): quantitative definition groundwater conditions at a representative monitoring site at which undesirable results may to occur.
- Measurable Objective (MO): quantitative definition that reflects desired groundwater condition and allows the GSAs to achieve sustainability within 20 years.



what

of

begin

Summary of Vina Subbasin Sustainability Indicators, Minimum Thresholds, Measurable Objectives, and Undesirable Results

Indicator	Minimum Threshold (MT)	Measurable Objective	Undesirable Result
Chronic Lowering of Groundwater Levels	2 RMS wells reach their MT for 2 consecutive non-dry year-types.	Groundwater level based on groundwater trend line for dry periods (since 2000) of observed short-term climatic cycles extended to 2030.	Sustained groundwater levels too low to provide a water supply of adequate quantity and quality to support rural areas and small communities, and agricultural economic base of region, or if significant & unreasonable impacts to environmental uses of groundwater occur.
Reduction of Groundwater Storage	Same as listed for chronic lowering of groundwater levels	Same as listed for Chronic Lowering of Groundwater Levels	Same as listed for Chronic Lowering of Groundwater Levels

Sustainability Indicator	Minimum Threshold (MT)	Measurable Objective	Undesirable Result
Degraded Water Quality	Minimum thresholds are 1,600 micro-siemens per centimeter (µS/cm) for each representative monitoring well, consistent with the upper limit of the California Secondary Maximum Contaminant Level (SMCL) for electrical conductivity.	Measurable objectives are 900 µS/cm for each representative monitoring well, consistent with the California SMCL for electrical conductivity.	If groundwater pumping compromises the long-term viability of rural areas and small communities, the agricultural economic base of the region, and environmental uses for suitable habitat. This occurs in the Vina subbasin when two RMS wells exceed their MT for two consecutive non-dry years.
Inelastic Land Subsidence	Same as listed for Chronic Lowering of Groundwater Levels	Same as listed for Chronic Lowering of Groundwater Levels	Groundwater pumping leads to changes in the ground surface elevation severe enough to disrupt critical infrastructure, development of projects that enhance the viability of rural areas, small communities, and the agricultural economic base of the region.
Depletion of Interconnected Surface Water	Same as listed for Chronic Lowering of Groundwater Levels	Same as listed for Chronic Lowering of Groundwater Levels	Avoiding significant and unreasonable depletion of surface water flows caused by groundwater pumping that significantly impacts beneficial uses.

*Monitoring of groundwater levels are used as a proxy for change in groundwater storage. The values developed for these criteria are based on the current understanding of the basin setting as described in Chapter 2. As new information is obtained, these values will be assessed and modified, as warranted.

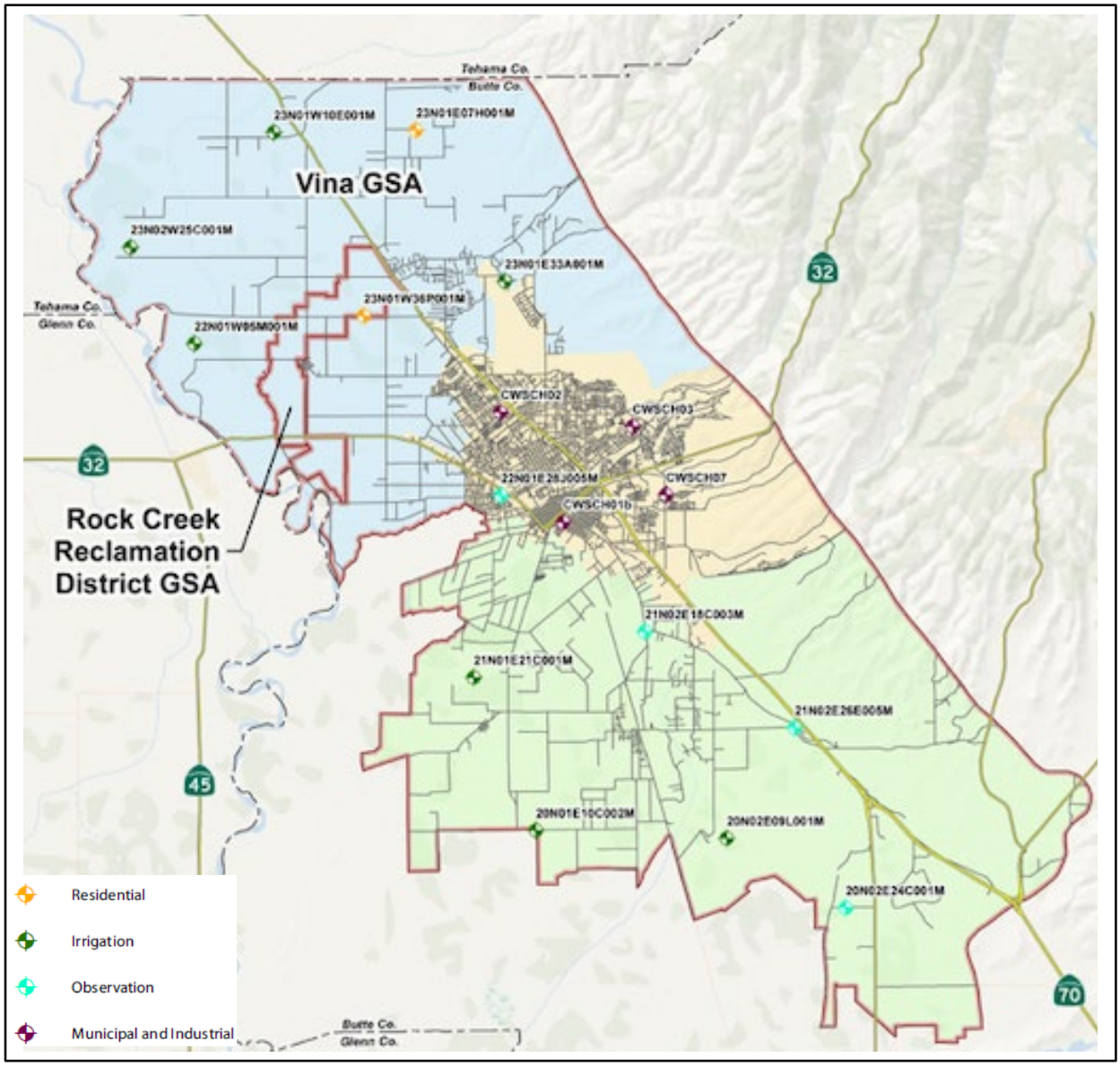
Vina PUBLIC DRAFT Groundwater Sustainability Plan (GSP) Overview Brochure

Chapter 4: How Are We Monitoring Conditions and Effectiveness of the Groundwater Sustainability Plan (GSP)?

Monitoring Networks

The draft Groundwater Sustainability Plan includes the representative monitoring network, with the objective of observing and recording data on groundwater levels, quality, interconnection of surface water and groundwater, and land subsidence. Wells included in the existing representative monitoring networks were selected to provide baseline information about current conditions in the Subbasin to assist with establishing Sustainable Management Criteria and to evaluate conditions related to the effectiveness of the GSP, specifically to detect short-term, seasonal, and long-term trends. The representative monitoring networks will be periodically reviewed and modified as needed.

Groundwater Elevation Representative Monitoring Well Locations



Chapter 5: How Will We Maintain Sustainability & What Will it Cost?

Projects and Management Actions

Projects and management actions were developed with the goal of leveling off the imbalance in groundwater storage, (estimated at 10 thousand acre-feet/year). There are four planned projects, 11 potential projects and seven management actions included in the draft GSP. Planned projects will move forward to help maintain the region's sustainability by 2042. Potential projects are currently in the planning stages and may potentially be implemented by the GSAs and may move forward if funding becomes available to support ongoing sustainability, offset the remaining imbalance above and beyond implementation of the Planned Projects.

Planned Projects

Project Name	Project Type	Gross Average Annual Benefit at Full Implementation
Planned Projects: Planned to be completed prior to 2042. The expected yield of these projects is expected to support GSAs in achieving the GSP sustainability goal and responding to changing conditions in the subbasin.		
Agricultural Irrigation Efficiency	Conservation	Up to 4,000 acre-feet/year (based on a reduction up to 2%)
Residential Conservation	Conservation	100 acre/feet/year
Streamflow Augmentation	Direct Recharge, In-Lieu Recharge	1,000-5,000 acre-feet/year
Flood Managed Aquifer Recharge (FloodMAR)/Surface Water Supply and Recharge Scoping	Direct Recharge, In-Lieu Recharge	N/A

Chapter 6: What is the Schedule, When Will Reporting Occur, and How Will We Fund Projects

Plan Implementation

A schedule for implementing the GSP is provided in Chapter 6. This chapter also discusses how information will be reported that includes Annual Reports and 5-year reviews of the GSP. At a minimum, a review of the SMCs must be presented in the 5-year review.

Administering and implementing the GSP, and monitoring and reporting progress, is projected to cost roughly $200,000 to $400,000 annually.

The GSAs will seek to capitalize on existing funding and programs that overlap with GSP requirements. For example, Butte County, DWR and other entities currently fund groundwater data collection programs at locations within the Subbasin.

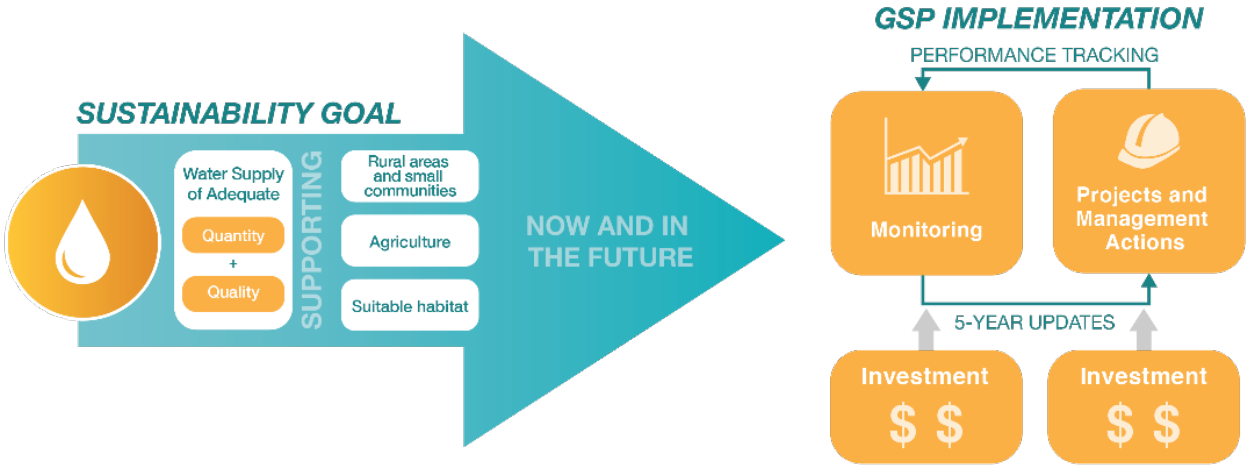
In cases where no funding or programs are established, the GSAs will be responsible for securing funding for the GSP implementation. The GSAs will coordinate funding with their respective constituent members within the Subbasin. GSAs may fund the GSP through a cost-sharing collaboration to be determined after adoption of the GSP.

Funding is anticipated to be met from one or a combination of the following sources: direct contributions from the GSAs constituent members, State and Federal grant funding, and taxes or assessments levied on landowners and groundwater users in accordance with local and state law.

The GSAs are evaluating a variety of funding mechanisms including Proposition 218 or Proposition 26 to support ongoing operational costs and to fund agency operations.

What is the alternative?

If the local GSAs are unable to implement a Plan that meets state requirements, the State Water Resources Control Board will step in and develop a plan to manage the subbasin. If this occurs, the State could charge up to $300/well/year for all groundwater extractors and up to $55/acre-foot for water pumped. The local GSAs are working hard to avoid State Intervention and these high costs.



More Information:

Vina PUBLIC DRAFT Groundwater Sustainability Plan (GSP) Overview Brochure

To download a copy of the Full GSP brochure: https://www.vinagsa.org/public-review-draft-groundwater-sustainability-plan-gsp

To contact us with questions: Email us at vinagsa@gmail.com or visit us at https://www.vinagsa.org/