

4.0 GOALS & OBJECTIVES

NOTE TO REVIEWERS: The order of BMOs has been changed based on comments received - none of the BMOs were deleted – the reordering of BMOs has not been tracked, as it would be too messy to review. Also, to reduce redundancy, BMO 1&2 (now BMO 1), BMO 14&15 (now BMO 18), and BMOs 16&20 (now BMO 14) were combined. If these changes cause concern, I suggest you simply compare the section titles and the BMOs for each section to the previous version.

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4.0 GOALS & OBJECTIVES

4.1 INTRODUCTION

This Plan includes an overall goal and a set of management objectives, described in the following sections. Section 5 describes a series of plan components that outline a series of activities and actions necessary to meet the Plan goal and management objectives. The Plan Elements are summarized in the diagram in Figure 4-1.

4.2 PLAN GOAL

The goal of the Plan is to locally manage and protect groundwater resources by a balanced group of stakeholders through non-regulatory measures to support all beneficial uses, including human, agriculture, and ecosystems, in an environmentally sound, economical, and equitable manner for present and future generations.¹

4.3 BASIN MANAGEMENT OBJECTIVES

The Basin Management Objectives (BMOs) are the measurable and/or verifiable accomplishments required to meet the overall goal of the groundwater management program (see Section 1.0). For each BMO identified in this section, cross-references are provided to plan actions identified in subsequent chapters of the Plan.

The BMOs were developed through an iterative and collaborative process by Panel members, which included outreach by Panel members to constituency groups for input and feedback from the larger stakeholder community. The BMOs described below have been grouped into the following general focus areas:

- Stakeholder Involvement and Public Awareness
- Monitoring and Modeling
- Groundwater Protection and Recharge
- Water Conservation
- Water Reuse
- Integrated
- Water Planning &
- Management

4.3.1 Stakeholder Involvement and Public Awareness

Stakeholder involvement and public awareness helps facilitate a healthy, productive groundwater management plan development and during program implementation; it is also required under the California Water Code. The Plan calls for an ongoing stakeholder forum, information and current media to educate and improve the public and stakeholder awareness of water and groundwater supplies and

¹ We have received several comments on the Goal and will revisit it with the Panel.
SRPGMP

Figure To be Developed

Figure 4- Organization of Plan Elements.

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management issues, to help secure local support of the plan, and to ensure collaboration in addressing future challenges during program implementation.

BMO-1 Ensure continuous groundwater management program information is readily accessible through the internet and other public forums, for members of the public with different levels of technical knowledge, and receive public input during periodic public meetings at key milestones

The Plan intends to continually make information available regarding groundwater management resources, activities, and results through Panel and TAC meetings, other public forums, the news media, and the program website. Public input beyond the stakeholder advisory groups is desirable for specific Plan projects and at key Plan implementation milestones. The Plan intends to provide public notice and outreach to encourage attendance, provide information, and solicit public feedback to strengthen the groundwater management program. The Plan also calls for making information easily accessible and making that information understandable for a variety of audiences.

BMO-2 Provide information to increase public awareness of current surface water and groundwater supplies and planning activities in a changing climate

Potential hydrologic effects from climate change suggest more frequent, less intensive rainfall events will be replaced by less frequent more intensive extreme weather events. These projected future conditions may result in less reliable surface water and groundwater supplies in the future. Providing information to increase public awareness of climate change, current and future supplies and trends in reliability will help the public understand and manage the water supply challenges in the future.

4.3.2 Monitoring and Modeling

Monitoring and modeling have been identified by the Panel as key for measuring and assessing water resources in the Plan Area and simulating and planning for various climate and proposed project scenarios. The Plan will provide consistent and ongoing comprehensive data collection, data management, and monitoring programs and analytical tools.

BMO-3 Groundwater Elevations - Measure groundwater elevations and foster activities aimed at maintaining groundwater elevations to support all beneficial uses and protecting against land subsidence and loss of groundwater storage capacity

The lowering of groundwater levels can have adverse impacts that include increased energy costs for pumping, the need to deepen existing wells or construct new ones, or adverse impacts on water quantity and quality. The Plan intends to minimize potential impacts related to groundwater pumping and maintain or improve overall groundwater levels in the Plan Area over time. Reducing impacts on groundwater pumping and improving groundwater levels in the Plan Area will help to protect

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against the potential for future land subsidence and the possible loss of groundwater storage capacity.

BMO-4 Surface Water-Groundwater Interaction - Evaluate surface water and groundwater interactions and foster protection against adverse interactions between groundwater and surface water flows, thereby protecting and enhancing aquatic ecosystems

The major creeks provide habitat for a variety of fish and wildlife habitat. The Plan is committed to preserving the fishery, wildlife, recreational and aesthetic values of the streams and the Laguna de Santa Rosa, and also to assuring a stable supply of water for residences, agriculture, and businesses. If groundwater levels should drop where streams gain flow from groundwater, flows will decrease in the streams, potentially impacting water quality and ecosystems. Operations utilizing groundwater should not negatively impact the surface water flows in streams. The Plan also calls for gaining a better understanding of potential impacts of the discharge of local-area groundwater to surface water channels (e.g. contribution of total dissolved solids). The Plan identifies surveys and studies to gain a better understanding of the interaction of surface water flows and groundwater for improved management and possible mitigation measures if necessary.

BMO-5 Water Quality - Monitor groundwater quality and foster activities aimed at protection and improvement of groundwater quality for beneficial uses

Use of groundwater in the Plan Area should not be hindered by contamination, and should not cause degradation of the quality of the resource. Where contamination is documented, or occurs in the future, the Plan provides that coordination with appropriate state and federal regulatory agencies will occur to pursue actions that result in the containment and eventual remediation of the contamination. The Plan calls for continued and enhanced monitoring to track groundwater quality trends, and studies to assess any significant issues in the Plan Area. The Plan investigates potential water management strategies including increased recycled water, groundwater recharge, and conjunctive use, which could help protect and improve groundwater quality in the Plan Area.

BMO-6 Land Subsidence - Monitor for land subsidence and foster activities aimed at protecting against groundwater extraction-related land subsidence

Land subsidence can cause significant damage to essential infrastructure, and decrease the capacity of the underlying groundwater reservoir. Potential subsidence related to groundwater pumping, past, present, or future has not been fully evaluated in the Plan Area. The Plan calls for efforts to evaluate the present potential for groundwater extraction-related land subsidence, and to periodically assess potential land subsidence in the future.

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BMO-7 Rainfall – Monitor rainfall to improve modeling of water supply through a better understanding of rainfall distribution and density

Rainfall distribution is known to be highly variable in the Plan Area, especially in the highlands, and rainfall monitoring is not adequate across the Plan Area (e.g., in the Rohnert Park-Cotati vicinity). Additionally, new understanding of rainfall patterns indicates the presence of atmospheric rivers, which are long, narrow streams of precipitation that concentrate rainfall in narrow bands. The Plan calls for additional rainfall monitoring to improve the water budget and surface water-groundwater model of the Plan Area.

BMO-8 Modeling – Maintain and update the surface water/groundwater model at an appropriate frequency based on current data to track and assess the water budget including inputs, outputs and change in storage, and to support and enhance science-based decision-making

The USGS study (USGS, 2013) identifies data gaps in the current understanding of the Plan Area and outlines the need for additional streamflow, groundwater use, and hydrogeologic information. The Plan calls for maintaining and improving the existing database developed for the study. The Plan calls for updating and improving the groundwater simulation model over time through the incorporation of new and additional data from additional monitoring, surveys and studies.

4.3.3 Groundwater Protection and Recharge

Protection of the quantity and quality of groundwater supplies for future beneficial uses is essential. For example, land use activities involving hazardous substances can cause water quality impacts, and hardscapes can impede direct percolation and increase runoff. The Plan intends to advance protection of groundwater and enhance recharge through several management objectives.

BMO-9 Identify and map groundwater recharge areas, encourage the protection of recharge areas to preserve natural recharge and groundwater quality, including low impact development approaches designed to mimic natural hydrologic conditions, and provide groundwater recharge area maps to local agencies for planning

Better understanding and delineation of groundwater recharge areas is critically important for the protection and enhancement of groundwater recharge in the Plan Area. The Plan calls for studies to further identify and map groundwater recharge areas, and to share information from the studies with planners to foster incorporation of groundwater recharge protection and promotion in land use planning and development. The Plan also calls for advancing and encouraging increased coordination between Sonoma County, local municipalities and water providers on General Plan and other land use planning activities.

BMO-10 Consider and evaluate, and where appropriate, promote activities to enhance groundwater recharge (i.e. supply) while protecting or improving groundwater quality

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Groundwater recharge is a typical component of a successful conjunctive management program, and is recommended as part of the Plan. Actively recharging groundwater with wells and spreading basins provides the opportunity to raise groundwater levels where they have lowered and bank groundwater for drier years. The Plan includes actions and activities to further assess the feasibility of recharging groundwater with wintertime Russian River water and with local stormwater, while protecting or improving water quality.

BMO-11 Encourage best practices and proper permitting for the construction, placement, reconstruction and destruction of all wells to provide protection of groundwater resources from pollution, and to reduce the number of existing abandoned, non-destroyed wells which may provide conduits for groundwater contamination

Wells can act as conduits if not properly constructed, cross connecting aquifers and providing a means for mixing of waters and potential groundwater quality degradation. Abandoned wells that are not properly destroyed and sealed also provide the potential for groundwater quality degradation if contamination reaches the well. The Plan intends to provide input to local agency permitting requirements that might assist with reducing the risk of groundwater quality degradation from improperly constructed or abandoned wells. The Plan includes additional actions and activities to provide information to well owners on well maintenance and to encourage the proper destruction and sealing of abandoned wells.

4.3.4 Water Conservation

The Plan recognizes the need for improved water conservation, and water and energy efficiency practices and approaches.

BMO-12 Promote actions to conserve and reduce water usage and increase water and energy efficiency by urban and non-urban water users

While many successful water conservation programs are currently being implemented, the Panel has acknowledged that more conservation can be implemented across all water users in the Plan Area. Actions proposed in the Plan intend to improve all aspects of water conservation, and water and energy efficiency, including outreach to the general public for added conservation and efficiency in residential and agricultural practices.

4.3.5 Water Reuse

The Plan recognizes water reuse as an important tool in reducing the demand for potable water and groundwater used for irrigation. Water reuse currently occurs across multiple scales throughout the Plan Area, ranging from large-scale municipal recycled water programs to graywater systems developed by individual property owners. The Plan intends to promote the increased responsible reuse of water to the extent feasible.

BMO-13 Increase water reuse in a safe and environmentally sound manner to enhance water supply reliability and reduce demands on groundwater and surface water resources

Increased use of recycled water (water reuse) is a key water management option for the Plan Area. Compared to the other water management options, the increased recycled water supply option has made significant progress with existing recycled water being applied for irrigation already in the Plan Area, and more capacity in the future. The Plan calls for an assessment of the public acceptability, feasibility and capacity to increase recycled water use at the local level over time.

Climate change has been rapid in California over the past decade, particularly in comparison to the previous 50 years (Flint and Flint 2012). Observed hydrologic effects have included earlier springtime weather patterns and increased numbers of extended dry periods (Lundquist et al 2009). These types of hydrologic effects suggest increased reliance on groundwater supplies. Preparing for climate change in terms of water supply, water quality, flooding, drought, and ecosystems require local and regional information on potential changes to climate and response of the hydrology and ecosystems. The Plan calls for water supply management decision-making, the information needs to be based on the best available science and information at the basin scale.

4.3.6 Integrated Water Planning & Management

Integrated water planning & management means developing management objectives and actions, and adopting policies that recognize the links between groundwater and the broader hydrologic system. This includes all components of the watershed including rivers, wetlands, other ecosystems, and surface water and groundwater users, as it is all interconnected hydrology. Groundwater management is integrated when planning and policy decisions consider groundwater connected to surface water resources, land uses, and the environment in a changing climate. The Plan integrates groundwater management as a means to recognize and help to address potential impacts on surface waters and groundwater resources, including groundwater-dependent ecosystems, while not unduly constraining groundwater use.

BMO-14 Improve coordination and interaction between water resource management agencies and further cultivate state and federal partnerships for program implementation

Managing water resources involves a complex policy, legal, institutional, technical and economic factors for decision-making. A number of federal, state and local agencies are involved in water resources management decision-making affecting the Plan Area. Improving coordination and interaction between these various agencies will help facilitate integrated groundwater management at the local level. State and federal partnerships are fundamental to help position the Plan for funding opportunities. The Plan provides the collaborative and institutional foundation to seek state and federal grant and loan opportunities and in-kind services to carry out

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activities. The Plan intent is to further develop and cultivate long-term relationships and partnerships with a number of state and federal agencies.

BMO-15 Conjunctively manage surface water and groundwater to improve water supply availability and reliability

Conjunctive management (or conjunctive use) is the planned and coordinated operation of both surface water and groundwater resources to meet water requirements in a manner that balances and optimizes the supplies of both. During seasonally wet times and periods of above-normal precipitation, the Plan intends to promote the use of available surface water sources and recharge of groundwater supplies (as feasible), thereby conserving groundwater supplies for dry periods and droughts.

BMO-16 Coordinate surface water and groundwater management with land use planning and development

Water resource availability and water supply source identification need to be considered in decisions in land use planning. The Panel proposes to coordinate and inform land use planning with surface water and groundwater management activities. The Plan will provide an informational resource of best available science to all participants (water providers, planners, decision-makers, business, urban, agricultural environmental, and rural stakeholders) for integrating groundwater management concepts into the planning and development process.

BMO-17 Foster shared management responsibilities among urban and rural stakeholders

As described in the Basin Advisory Panel Charter and Governance Proposal, the Panel developed this voluntary, non-regulatory Plan and guides its implementation by working towards consensus as a fundamental principle. The Panel is composed of a broad base of stakeholders, including urban and rural groundwater users, who share the responsibility to guide implementation of the Plan. Panel members will engage urban and rural groundwater user constituencies in developing shared management responsibilities; both are groundwater users and have demands to be met.

BMO-18 Ensure adequate water supply reliability and drought resiliency by incorporating planning for the potential effects of climate change on surface water and groundwater supplies into existing and future local and regional plans

Preparing for climate change in terms of water supply, water quality, flooding, drought, and ecosystems require local and regional information on potential changes to climate and response of the hydrology and ecosystems. The Plan calls for water supply management decision-making based on the best available science and information at the basin scale. The Plan supports ongoing and additional region- and basin-specific climate change studies for the potential effects on surface water and groundwater supplies, and additional vulnerability and resilience studies. These

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climate change studies form the basis for preparing and planning for a reliable and drought resilient supply of water in the future. The Plan also calls for conjunctive management operations and enhanced groundwater recharge, which will assist in securing a reliable supply of water under future changing climate conditions. The Plan also calls for improving coordination and interaction between federal, state and local agencies to more effectively incorporate climate change effects on surface water and groundwater supplies into existing and future local and regional plans.