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Section 6: Projects and Management Actions
Groundwater Sustainability Plan
Sonoma Valley Groundwater Subbasin

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6.0 PROJECTS AND MANAGEMENT ACTIONS

This section satisfies Sections 354.42 and 354.44 of the SGMA regulations, which require that GSPs include descriptions of projects and possible management actions that the GSA has determined will help achieve the sustainability goal as well as to respond to changing conditions in the basin over the fifty-year planning horizon. Additionally, the GSP is required to include: (1) what measurable objective will benefit from a specific project or management action, (2) criteria and circumstances that would trigger implementation and future termination, and (3) the process by which the GSA will determine a project or management action is necessary to execute. Projects and management actions can be utilized to meet interim milestones, address minimum threshold exceedances and undesirable results that have occurred or are imminent

The management actions and projects included in this chapter outline a framework for achieving sustainability, however many details must be negotiated before many of the projects and management actions can be implemented. Costs for implementing projects and actions are in addition to funding to sustain the operation of the GSA, and the funding needed for monitoring and reporting. The collection of projects and management actions included in this section demonstrate that sufficient options exist to reach and maintain sustainability. Not all projects and actions have to be implemented to attain sustainability, and they have not yet all been sufficiently developed or agreed upon by stakeholders. Therefore, the projects and management actions included here should be considered a list of options that will be refined during GSP implementation.

6.1 Identification and Evaluation of Projects and Management Actions

This section describes the process and procedures used to identify and conduct initial evaluations of projects and management actions considered for the GSP.

6.1.1 Identification of Projects and Management Actions

The projects and management actions considered for implementation and further planning are informed by historical groundwater management activities conducted within the Subbasin listed below.

- Availability and use of imported surface water by the City of Sonoma and Valley of the Moon Water District municipalities (Sonoma Water's water contractors) in lieu of local groundwater supplies.
- Development and use of recycled water supplies for meeting agricultural and landscape irrigation demands.
- Successful implementation of water-use efficiency and conservation programs within the urban water-use sector.
- Studies and implementation of water-use efficiency measures within the agricultural

sector.

- Studies and initial planning for managed aquifer recharge, including:
    - Feasibility study and initial planning for aquifer storage and recovery (ASR).
    - Studies, data collection and pilot testing for stormwater recharge projects.

While some of these initiatives and activities have historically been developed and planned specifically to address groundwater conditions within the Subbasin, many have been developed and implemented to achieve other benefits, objectives and purposes. Inclusion and further assessment of these initiatives and activities during implementation of the GSP will facilitate coordination and optimization of these initiatives and activities to support sustainable groundwater management.

Potential projects and management actions were described and considered by the Advisory Committee and GSA Board. Input received from the Advisory Committee and GSA Board helped refine and categorize the projects and management actions into those that could be initially evaluated as part of this GSP, and those that require further assessment or study prior to implementation. Additionally, other ideas for projects and actions raised by Advisory Committee members would need to be further developed and planned in order to evaluate with model scenarios, for example, recharge net-metering programs, water markets, and zero-net water use requirements for new development. Other management actions the GSA has under its authority, such as mandatory conservation or pumping reductions, will also be studied and considered during the initial five years of GSP implementation, as described in Section 6.3.

6.1.2 Evaluation of Projects through Scenario Modeling

For the purposes of conducting an initial evaluation of projects for this GSP, staff assembled conceptual projects and management actions that are likely to be initiated within the first five years of implementation into two general categories:

1) Those that have identified potential funding sources or are voluntary or incentive-based and are lower-cost (Group 1 projects). The Group 1 projects represent voluntary, incentive-based water-use efficiency and alternate water source projects focused on rural residential and agricultural groundwater users. Examples include smaller-scale dispersed land-owner projects, such as turf removal, rainwater harvesting, and irrigation efficiency practices. The exact types of these dispersed projects are not distinguished for the purposes of evaluating potential benefits using model scenarios. Group 1 projects also include recycled water deliveries to recent rural domestic and agricultural customers for existing contracts which began after the end of the current period.

2) New or significantly expanded projects/actions and more costly projects or as needed mandatory actions that may require further studies and planning for implementation (Group 2a and 2b projects).

- Group 2a projects expand upon the Group 1 scenario but also contain additional expansion of recycled water deliveries and managed aquifer recharge consisting of operation of two ASR wells by City of Sonoma and Valley of the Moon Water District to offset existing localized pumping. The expansion of recycled deliveries includes new deliveries and storage along 8th St East and Napa Road, which includes a 50% build out of "west study area" described in the Recycled Water System Plan (West Yost, 2018).

- Group 2b projects represent additional managed aquifer recharge projects that aim to raise and maintain groundwater levels in depletion areas in the shallow and deep aquifers and benefit streamflows. The Group 2b projects consist of additional ASR projects in the El Verano area and east of the Eastside Fault and stormwater capture and recharge projects that could specifically benefit shallow aquifer system groundwater levels and streamflows within the Subbasin.

These general categories formed the basis for model scenarios of potential project and management actions. The model scenarios were performed as an initial evaluation of benefits of the Group 1, 2a and 2b projects and management actions relative to the baseline 50-year projected scenario. The methodology and results of the scenario modeling are described in Appendix 6-A. General findings from the model scenarios indicate the following:

- **Groundwater Levels**: In the baseline scenario, groundwater levels in the shallow aquifer are generally above minimum thresholds and no undesirable results are projected to occur within the initial 20-years of the simulation. For the deep aquifer system, minimum threshold exceedances and undesirable results are projected to occur during the initial 20 years of the simulation. For the later stages of the 50-year simulation minimum threshold exceedances are projected to occur more frequently in response to the simulated 20-year drought.
    - During future normal and wetter climactic cycles, Group 1 projects are projected to raise groundwater-levels 5 to 30 feet in some areas of the Subbasin and reduce the frequency of MT exceedances within the deep aquifer system, but on their own are not projected to address chronic groundwater-level declines within the deep aquifer system.
    - Group 2A projects are projected to raise groundwater-levels an additional 5 to 20 feet in the vicinity of the projects and further reduce the frequency of MT exceedances within the deep aquifer system. Group 2A projects are not projected to fully address chronic groundwater-level declines within the deep aquifer system
    - Group 2B projects are projected to raise groundwater-levels an additional 25 to 90 feet in the vicinity of the projects and further reduce the frequency of MT exceedances within the deep aquifer system. For the deep aquifer, no simulation

avoids undesirable results for the entire simulation period. However, Group 2B only contains two years with undesirable results during the simulation period. These two years correspond to excessive drought conditions.

- **Groundwater storage:** Groundwater in storage under a baseline scenario without projects is estimated to decline by an average of 290 AFY over the entire 50-year projection period that includes a simulated extreme 20-year drought between 2050 and 2070. Cumulative projects are simulated to mitigate the average decline by approximately 220 AFY over the entire 50-year projection. For all three PMA scenarios, average annual change in storage is positive from 2021-2040, which represents a wetter period in the future projected climate record. All scenarios have a negative average annual change in storage during 2041-2070, which represents drought conditions included as part of the future climate scenario selected for the GSP.
- **Stream-Aquifer Interaction:** Higher groundwater levels near streams can better support streamflow, particularly in the summer and fall months. Results show that with Group 1, Group 2A, and Group 2B projects, there is a projected reduction in net streamflow depletion due to reduced pumping and increased recharge. Simulated results indicate that streams within the Subbasin change from a net losing stream leakage of 120 AFY under the baseline scenario to net gaining system of 190 AFY under the cumulative Group 1, 2A and 2B scenario (net improvement of approximately 310 AFY). In general, the most significant benefits to net groundwater-surface water exchange occur in spring to early summer, along Carriger Creek and Sonoma Creek.
- **Potential for Seawater Intrusion:** Higher groundwater levels near the Baylands area can reduce the inflow of higher salinity groundwater from the Baylands area. Results show that with Group 1, Group 2A, and Group 2B projects, there is a projected reduction in net inflows from the Baylands area of approximately 380 AFY.

The Group 1, Group 2A and Group 2B project scenarios improve groundwater declines but do not avoid all minimum threshold exceedances. The Group 2B project scenarios show the largest improvement to the water budget as well as to groundwater elevations. The Group 2B Scenario helps improve groundwater declines during the latter portion of the projected period (affected by the major drought), in both the shallow and deep aquifers. Although minimum threshold exceedances are not completely avoided during this more extreme dry period under these scenarios, the exceedances during severe droughts are not representative of undesirable results unless groundwater levels do not recover during subsequent wetter time periods.

Considering current uncertainties due to modeling, data gaps, and project information, these project scenarios show reasonable efforts towards reaching sustainability in the Subbasin to meet GSP requirements. Additional data collection and project conceptualization during early phases of GSP implementation will help refine these scenarios and allow for consideration of additional scenarios.

6.2 Project Descriptions

To prevent potential undesirable results and to achieve measurable objectives, PMAs are planned as part of GSP implementation. As described above, a portfolio of PMAs has been developed and evaluated with the goal of addressing relevant sustainability indicators. The GSA plans to immediately begin implementation of selected PMAs. In some cases, initial implementation steps include performing studies or analyses to refine the concepts into actionable projects. The following sections provide descriptions of the projects included in the Group 1, 2A and 2B scenarios, including information required by 354.44.

6.2.1 Water-Use Efficiency and Alternate Water Source Projects

The water-use efficiency and alternate water source projects included in the Group 1 scenario represent voluntary, incentive-based projects focused on rural residential and agricultural groundwater users. Examples include smaller-scale dispersed land-owner projects, such as turf removal, rainwater harvesting, and distributed stormwater capture/reuse. As described in Section 2.6, numerous regional and local water conservation programs are operational in the Plan Area including the Sonoma-Marin Saving Water Partnership, the LandSmart Program, and the Sustainable Winegrowing Program. Tools and best management practices (BMPs) from these existing programs would be leveraged and utilized to implement these projects. Examples of the tools and BMPs included in these programs are:

- Increasing indoor (high efficiency toilets, fixtures, and washers) and outdoor (landscaping assistance, surveys and retrofits) conservation rebate programs for high-efficiency appliances and fixtures; landscape water budgets; landscape and irrigation design; and irrigation scheduling.
- Stormwater management through LID practices.
- Rain water harvesting.
- Soil moisture monitoring and efficient irrigation scheduling.

This project will include an assessment of groundwater use characteristics, existing levels of conservation and water-use efficiency, and recommendations on preferred tools and strategies for implementation, including options for incentivizing.

6.2.1.1 Objectives, Circumstances and Timetable for Implementation

Objectives for implementing the Group 1 projects are to help achieve measurable objectives and avoid undesirable results for the chronic lowering of groundwater levels sustainability indicator. Achieving measurable objectives and avoiding undesirable results for the chronic lowering of groundwater levels sustainability indicator is also expected to benefit the groundwater storage, seawater intrusion and land subsidence sustainability indicators. Additionally, depending upon the locations within the Subbasin where Group 1 projects are implemented, benefits to the measurable objectives for the depletion of interconnected surface water sustainability indicator may also be realized.

After a short planning period, it is assumed that water-use efficiency and alternate water source projects will begin in 2023. As described above, initial implementation of these projects will include an assessment of the exact types of water-use efficiency tools and alternate water source projects that are expected to be most effective and feasible for Subbasin stakeholders. The assessment will also identify specific metrics for evaluating the benefits of Group 1 projects and assess Subbasin conditions that may lead to mandatory implementation of water-use efficiency projects.

6.2.1.2 Expected Benefits

Expected benefits from implementation of Group 1 projects are described in detail in Appendix 6-A. Based on the assumptions described in Appendix 6-A, benefits simulated include reduction in the number of potential future minimum threshold exceedances for the chronic lowering of groundwater levels, as well as decreasing the decline in groundwater storage, reducing inflows from the Baylands area and improving net surface water and groundwater exchange. As described above, the planned initial assessment of Group 1 projects will include recommendations for evaluating specific metrics related to Group 1 implementation.

6.2.1.3 Public Noticing, Permitting and Regulatory Process

Public noticing and outreach communications will be a critical component to the success of implementing Group 1 projects, as these are initially planned as voluntary actions that will rely on Subbasin stakeholders clearly understanding their importance and benefits. Outreach activities described in Section 7.2.2 will include focused outreach to rural residential and agricultural stakeholders on benefits of participating.

Some of the types of projects and actions planned for inclusion in Group 1 projects do not have any permitting or regulatory requirements. Any projects that may include permit or regulatory requirements, such as graywater systems, would need to comply with local requirements and ordinances.

6.2.1.4 Estimated Costs and Funding Plan

A total of $80,000 is included in the initial five-year budget provided in Section 7.2 for: (1) performing the assessment of Group 1 projects; and (2) funding initial roll-out of voluntary measures. In order to continue and/or expand implementation of Group 1 projects, the GSA will seek grant funding. The GSA is also planning to apply for funding of toilet replacement and agricultural BMP implementation through the State's 2021 Drought Relief Program.

6.2.1.5 Legal Authority

No legal authority is anticipated to be needed to voluntarily implement the Group 1 projects.

6.2.2 Recycled Water Expansion

Recycled water is water that goes into the wastewater system from within the service area of the Sonoma Valley County Sanitation District (SVCSD) and is treated to tertiary standards at the Sonoma Valley Wastewater Treatment Plant. Recycled water has been and will continue to be an important source of irrigation water to offset the use of local groundwater and potable water supplies in Sonoma Valley. Recycled water can be used in applications where potable water is often used (such as the irrigation of public parks and golf courses and for agriculture). In addition to allowing for potable water offsets, recycled water use can facilitate "in lieu groundwater recharge." For example, if a farm that has historically used well water for crop irrigation begins using recycled water instead, the groundwater aquifer beneath will "recover" through reduced pumping and natural recharge. Other benefits of recycled water include a local, reliable water supply that is less vulnerable to drought events. Recycled water is a sustainable water source and allows potable supplies to be reserved for the best and highest use. Additionally, utilizing recycled water for irrigation also means a decrease in discharge of treated wastewater to local water bodies such as the San Pablo Bay.

Over the past 20 years SVCSD has produced an average of approximately 3,800 acre-feet per year (afy) of tertiary treated wastewater, which varies year to year based on climate conditions and water conservation efforts and has ranged from approximately 2,600 acre-feet (2013) to 4,100 acre-feet (2010). The total amount produced has declined in recent years due to the drought and water conservation efforts. Deliveries of recycled water to agricultural users in Sonoma Valley began in the early 1990s and has been used to offset groundwater pumping for vineyards, dairies, and pasturelands in the southern Sonoma Valley with demand and use increasing significantly between 2012 and 2014. Additionally, beginning in 2012 recycled water has been used for environmental uses which, in 2014, included providing approximately 500 acre-feet for wetlands enhancement to the Napa Sonoma Salt Marsh Restoration Project (Salt Marsh Restoration Project).

The SVCSD has included the construction of the Napa Road Recycled Water Pipeline and associated storage alternative in the Phase 2 EIR developed through the North Bay Water Reuse Program (ESA, 2018). The Napa Road Recycled Water Pipeline would expand the recycled water service area in the unincorporated areas of Sonoma County east of the City of Sonoma along Napa Road. Pipeline construction would have an estimated project yield of 200 AFY and include 11,500 LF of 12-inch diameter pipeline located within the roadway or roadway shoulder. The pipeline would connect to existing pipelines and extend eastward from 5th Street East to serve additional customers. In order to reliably deliver recycled water during the irrigation season, it is assumed that additional storage facilities would need to be developed to seasonally store wintertime recycled water flows.

Studies of additional alignments are also included in SVCSD's Recycled Water Plan (West Yost, 2018), including the West Study which is also incorporated into the Group 2A scenario evaluated in this GSP.

6.2.2.1 Objectives, Circumstances and Timetable for Implementation

Objectives for expanding recycled water deliveries are to help achieve measurable objectives and avoid undesirable results for the chronic lowering of groundwater levels sustainability indicator. Achieving measurable objectives and avoiding undesirable results for the chronic lowering of groundwater levels sustainability indicator is also expected to benefit the groundwater storage, seawater intrusion and land subsidence sustainability indicators. Additionally, depending upon the locations within the Subbasin where recycled water projects are expanded, benefits to the measurable objectives for the depletion of interconnected surface water sustainability indicator may also be realized.

As described above, recycled water projects require permitting, environmental analysis and engineering design. The SVCSD has included the Napa Road Recycled Water Pipeline in the Final EIR developed for the Phase 2 North Bay Water Reuse Program. Initiation of design is dependent upon securing funding for the project. For the purposes of evaluating using model scenarios, it is assumed that the Napa Road Recycled Water Pipeline would be initiated in 2025, The timing of projects is based on best estimates and may shift as GSP implementation proceeds based upon the needs at the time.

6.2.2.2 Expected Benefits

Potential benefits from implementation of recycled water projects based on the scenario modeling are described in Appendix 6-A. Based on the assumptions described in Appendix 6-A, benefits simulated include reduction in the number of potential future minimum threshold exceedances for the chronic lowering of groundwater levels, as well as decreasing the decline in groundwater storage. Benefits from recycled water projects would primarily be evaluated using changes in measured groundwater levels and improvements to groundwater storage changes.

6.2.2.3 Public Noticing, Permitting and Regulatory Process

Public notice for aspects of the recycled water projects will be carried out by the lead agency, which is anticipated to be the SVCSD. For recycled water projects where the GSA is not the lead agency, the GSA will provide support for outreach activities to nearby well owners and the local community. As noted above, compliance with the California Environmental Quality Act (CEQA)

is incorporated into the existing EIR for the Phase 2 North Bay Water Reuse Project. Any additional recycled water projects would be included in future CEQA analysis, as-needed.

Existing wastewater treatment and recycled water production occur at the SVCSD WWTP in compliance with Order No. R2-2014-0020 (NPDES Permit No. CA0037800) issued by the San Francisco Bay RWQCB. It is anticipated that future expansion of recycled water deliveries would also occur under this or future revised or amended orders.

6.2.2.4 Estimated Costs and Funding Plan

Preliminary costs to develop the Napa Road Pipeline are estimated to be approximately $3,600,000 (Brown and Caldwell, 2017). This project is included in the Phase 2 North Bay Water Reuse Program and the GSA will closely coordinate with project proponents to advance and support opportunities to obtain grant funding for the project.

A total of $70,000 is included in the initial five-year budget provided in Section 7.2 for the GSA to collaborate with SVCSD to perform an assessment of additional recycled water opportunities. It is anticipated that the assessment will include:

- Evaluation of existing and future availability, delivery commitments and constraints
- Assessment of options for optimization of existing and projected future available supplies
- Preliminary cost/benefit analysis for future options

6.2.2.5 Legal Authority

As described above, the SVCSD has the legal authority to treat wastewater and deliver recycled water for irrigation uses.

6.2.3 Aquifer Storage and Recovery

As described in Section 2.6, regional planning for ASR and well-specific assessments have been performed by local agencies within the Subbasin (GEI, 2013 and West Yost, 2013). Conceptually, an ASR program would involve the diversion and transmission of surplus Russian River water produced at existing drinking water production facilities during wet weather conditions (i.e., the winter and spring seasons) for storage in the deep aquifer system of the Subbasin. The stored water would then be available for subsequent recovery and use during dry weather conditions (i.e., the summer and fall seasons) or emergency situations. The Groundwater Banking Feasibility Study (GEI, 2013) provided an evaluation of the regional needs and benefits, source water availability and quality, regional hydrogeologic conditions, and alternatives for groundwater banking. Based on the findings from the study, pilot studies to further assess the technical feasibility of ASR as a method for groundwater banking were recommended and in 2018 a pilot project was completed in the City of Sonoma along the margins of the Subbasin (GEI, 2020).

Prior to implementing long-term ASR programs, pilot projects are recommended to verify location specific feasibility, including aquifer capacity for recharge and recovery operations and geochemical compatibility. Pilot testing involves injecting potable drinking water into the Subbasin's aquifers and recovering it to assess injection and recovery capacities and monitor potential water quality impacts to native groundwater resources. Information generated by pilot test evaluations will help inform the degree to which ASR is a feasible strategy to improve the reliability water supply, along with helping to evaluate whether or not an ASR project can be developed and operated in a manner that will achieve both supply reliability and groundwater sustainability benefits. A pilot project has already been implemented in the City of Sonoma and one will be conducted by Valley of the Moon Water District before going forward with full-scale implementation of ASR at that location.

Additionally, it is recognized that other water purveyors are pursuing initiation of ASR in the Subbasin on a more expedited timeframe in response to the 2020/2021 drought and associated funding opportunities. The GSA will coordinate and provide support for planning and implementation of ASR projects that may be developed and implemented by Sonoma Water and other project proponents in response to current drought conditions.

6.2.3.1 Objectives, Circumstances and Timetable for Implementation

Objectives for implementing ASR projects are to help achieve measurable objectives and avoid undesirable results for the chronic lowering of groundwater levels sustainability indicator. Achieving measurable objectives and avoiding undesirable results for the chronic lowering of groundwater levels sustainability indicator is also expected to benefit the groundwater storage and land subsidence sustainability indicators. Additionally, depending upon the locations within the Subbasin where ASR projects are implemented, benefits to the measurable objectives for the depletion of interconnected surface water sustainability indicator may also be realized.

As described above, ASR projects require permitting, environmental analysis and engineering design, which would begin in 2022. Depending upon results of pilot studies, full-scale implementation of the City of Sonoma and Valley of the Moon ASR projects is anticipated to begin in 2024 and 2025, respectively. The timing of projects is based on best estimates and may shift as GSP implementation proceeds based upon the needs at the time. As noted earlier, this timeframe may be further accelerated in response to the 2021/2022 drought.

6.2.3.2 Expected Benefits

Expected benefits from implementation of ASR projects include:

- Recuing the amount of chronic lowering of groundwater levels and undesirable results for other associated sustainability indicators.

- Enhanced reliability of the regional water supply during droughts, natural hazard events (e.g., earthquakes), and periods of peak seasonal water demands.

- Additional potential benefits include improved habitat conditions by enhancing tributary base flows by reducing groundwater pumping, or in the case of Dry Creek, reducing summer releases from Warm Springs Dam (due to reduced peak demands) thus improving flow conditions for ESA-listed salmonids.

Potential benefits from implementation of ASR projects based on the scenario modeling are described in Appendix 6-A. Based on the assumptions described in Appendix 6-A, benefits simulated include reduction in the number of potential future minimum threshold exceedances for the chronic lowering of groundwater levels, as well as decreasing the decline in groundwater storage. Benefits from ASR projects would primarily be evaluated using changes in measured groundwater levels and improvements to groundwater storage changes.

6.2.3.3 Public Noticing, Permitting and Regulatory Process

Public notice for aspects of the ASR pilot projects will be carried out by the lead agency for each project. For ASR projects where the GSA is not the lead agency, the GSA will provide support for outreach activities to nearby well owners and the local community. For the full-scale ASR project, public noticing is anticipated to occur through compliance with the California Environmental Quality Act (CEQA) for any facilities or plans associated with the project. This includes the development of an Underground Storage Supplement to permit the storage of water in the Subbasin that is required by the State Water Resources Control Board, and through publicly noticed discussions of the proposed project at public meetings.

The State Water Resources Control Board (SWRCB) has recognized that it in the best interest of the state to develop a comprehensive regulatory approach for ASR projects, and has adopted general waste discharge requirements for ASR projects that inject drinking water into groundwater (Order No. 2012-0010-DWQ or ASR General Order). The ASR General Order provides a consistent statewide regulatory framework for authorizing both pilot ASR testing and permanent ASR projects. Pilot tests and any future permanent ASR facility will be permitted under the ASR General Order. Oversight of these regulations is done through the Regional Water Quality Control Boards (RWQCBs) and will require project proponents to comply with the monitoring and reporting requirements of the ASR General Order. Any additional permits required for the construction and operation of an ASR facility will be obtained by the lead agency for each ASR project as needed.

6.2.3.4 Estimated Costs and Funding Plan

Preliminary cost estimates to test, permit and construct project facilities for ASR is estimated to range from about $300,000 to $3,600,000 depending upon the complexity of each project (GEI, 2013). For the purposes of estimating the approximate five-year costs for implementing the Group 2A components of the ASR projects, a total of $5,000,000 is estimated for capital project costs associated with the City of Sonoma and Valley of the Moon Water District projects. The range of the costs also varies dependent upon whether existing facilities could be retrofitted or new facilities would need to be constructed. Preliminary costs will need to be further refined and provided upon completion of site-specific evaluation and pilot testing. The current plan for developing ASR in the Subbasin would utilize to the greatest extent possible existing infrastructure, meaning that new infrastructure would be greatly limited and allowing for earlier onset of both incremental drought supply and groundwater sustainability benefits. Costs for implementing ASR in other areas of the Subbasin (i.e., Group 2B projects) requires additional study and project development prior to estimating.

A total of $325,000 is included in the GSA's initial five-year budget provided in Section 7.2 for: (1) contributing to an updated regional ASR feasibility study; and (2) site-specific investigations of favorable areas. In order to continue and/or expand implementation of ASR projects, the GSA will coordinate with other project proponents who may be pursuing ASR projects, consider providing additional funding in future years and will seek opportunities for grant funding.

6.2.3.5 Legal Authority

Local water supply agencies and the GSA have the authority to develop water supply projects, such as ASR for both water supply benefits and to provide groundwater sustainability benefits.

6.2.4 Stormwater Capture and Recharge

As described in Section 2.6, planning for stormwater capture and recharge efforts, including site investigations and pilot studies have been initiated by local agencies and growers within the Subbasin. Group 2B stormwater capture projects were evaluated in three areas (1) Carriger, Felders and Rodgers Creek alluvial fan , (2) Arroyo Seco Creek alluvial fan, and (3) Sonoma Creek near Glen Ellen. Group 2B stormwater capture and recharge projects are intended to cover two general types of stormwater capture activities that have been identified in the Russian River Regional Storm Water Resource Plan. The first stormwater capture activity involves retaining and recharging onsite runoff. Examples of this type of activity include low impact development (LID) and on-farm recharge of local runoff. The second stormwater capture activity involves recharge of unallocated storm flows. These actions require temporary diversions of storm flows from streams, and conveyance of those flows to recharge locations. State programs and grants

(e.g. FLOOD-MAR, Proposition 68) and local entities (e.g. Resource Conservation Districts) can be utilized as resources to move forward on stormwater capture and recharge efforts.

Prior to implementing long-term stormwater capture and recharge programs, site-specific field investigations, assessments will be needed to identify suitable locations. Therefore, early stages of implementing Group 2B projects are anticipated to include site-specific investigations and pilot studies of on-farm and other dispersed recharge opportunities that consider and include the following:

- Water available for recharge
- Areas with permeable near-surface soils
- Optimal methods and techniques
- Outreach to interested landowners with locations that could help sustain baseflows to streams and support GDEs

6.2.4.1 Objectives, Circumstances and Timetable for Implementation

Objectives for implementing the stormwater capture projects are primarily anticipated to help achieve measurable objectives and avoid undesirable results for the depletion of interconnected surface water sustainability indicator. Depending upon the location of Group 2b projects and hydraulic connection between surficial recharge locations and the shallow aquifer system, benefits to the chronic lowering of groundwater levels, groundwater storage and land subsidence sustainability indicators may also realize benefits.

As described above, stormwater capture and recharge projects require permitting, environmental analysis and engineering design, which would begin with planning for site investigations in 2022. Depending upon results of site investigations and pilot studies, planned to be initiated in 2023, full-scale implementation of stormwater capture and recharge projects is anticipated to begin in 2028. The timing of projects is based on best estimates and may shift as GSP implementation proceeds based upon the needs at the time and resources available.

6.2.4.2 Expected Benefits

Expected benefits from implementation of stormwater capture and recharge projects are described in Appendix 6-A. Based on the assumptions described in Appendix 6-A, benefits simulated include increases in spring and summertime streamflows, reduction in the number of potential future minimum threshold exceedances for the chronic lowering of groundwater levels, as well as decreasing the decline in groundwater storage. Benefits from stormwater capture and recharge projects would primarily be evaluated using changes in measured groundwater levels and surface water flows near and downstream of project locations.

6.2.4.3 Public Noticing, Permitting and Regulatory Process

Public outreach would be conducted to identify landowners interested in participating in stormwater capture and recharge projects. The degree of public noticing will vary depending upon the scale and type of recharge project.

Recharge of stormwater by retaining and recharging onsite runoff does not require permits. Recharge of unallocated storm flows is currently subject to the SWRCB's permit program for groundwater recharge by capturing high flow events. Recharge of unallocated storm flows will be subject to the terms of these five-year permits. Stormwater capture may also be subject to CEQA permitting.

6.2.4.4 Estimated Costs and Funding Plan

A total of $160,000 is included in the initial five-year budget provided in Section 7.2 for: (1) performing site specific investigations; and (2) funding a pilot study. In order to continue and/or expand implementation of stormwater capture projects, the GSA will coordinate with other project proponents who may be pursing multi-benefit projects, consider providing additional funding in future years, and seek opportunities for grant funding.

6.2.4.5 Legal Authority

Other than acquiring required permits and the right to divert stormwater, there are no other legal authorities required to implement stormwater capture and recharge.

6.3 Management Actions and Projects Requiring Additional Assessment

In addition to initiating the projects described above, the GSA will further assess the following management actions and potential future projects that require additional assessment and planning:

- Study of potential policy options
- Coordination of Farm Plans with GSP implementation

Additionally, as provided by SGMA, should the above-described projects and management actions not be sufficient to eliminate undesirable results during implementation of the GSP, the GSA has authorities to limit groundwater pumping. Section 6.3.3 further describes these authorities and potential situations where they may be considered.

6.3.1 Assessment of Potential Policy Options for GSA Consideration

SGMA provides a number of authorities to GSAs which can be utilized to achieve groundwater sustainability and requires coordination between GSAs and land use agencies.

Description of conceptual management action: This project involves a collaboration between the GSA Board, local land use agencies, GSA member agencies, and stakeholders to assess future policy options that may be appropriate for the GSA to consider adopting or recommending for adoption by other agencies. Based on input from the Advisory Committee and GSA Board, the following initial list of policy options has been developed for potential inclusion in the assessment:

- Water conservation plan requirements for new development.
- Discretionary review of well permits for any special areas identified in GSP.
- Expand low impact development or water efficient landscape plan requirements
- Well construction and permitting recommendations (e.g., water quality sampling/reporting for COCs, requirement for water-level measurement access, procedures for preventing cross-screening of multiple aquifers).
- Well metering program.
- Study of water markets.
- Permitting and accounting of water hauling.

A total of $75,000 is included in the initial five-year budget provided in Section 7.2 for the GSA to perform the assessment and initiate implementing recommendations.

6.3.2 Coordination of Farm Plans with GSP Implementation

Farm Plans are voluntary plans developed by third party organizations in collaboration with individual landowners that identify best management practices and provide site-specific actions to mitigate issues like sediment run-off or to improve water quality. In some areas of California, regulatory fees are reduced for landowners with Farm Plans that are certified by agreed-upon third parties. Currently, most Farm Plans do not include aspects of groundwater management that would directly support the GSA's efforts to comply with the requirements of the SGMA.

Description of conceptual management action: This project involves a collaboration between the three Sonoma County GSA's and interested members of the agricultural community to evaluate the feasibility of developing a program that coordinates Farm Plans, developed at individual farm sites, with the implementation of the basin-wide GSP. This effort will identify areas of mutual interest (e.g., improved water use efficiency, increased groundwater recharge, increased monitoring and data collection, coordinated information sharing, and reporting) in addition to challenges that need to be addressed (e.g., data confidentiality, data quality requirements, verification of Farm Plan performance). This project will: (1) identify requirements or standards that need to be met to demonstrate that the implementation of the Farm Plan contributes to compliance with SGMA; (2) develop metrics that will be measured and

verified during implementation of the Farm Plan; and (3) consider options for Farm Plan sites to receive a form of credit for the contributions of the subject farm to the compliance with SGMA. Within one year of funding approval, staff would submit a report to the GSA Board with recommendations on the viability of such a program and next steps, as appropriate.

A total of $40,000 is included in the initial five-year budget provided in Section 7.2 for developing and beginning implementation of the work plan. It is assumed that costs for portions of the study will be shared with the Petaluma Valley and Sonoma Valley GSAs.

6.3.3 Other Potential Management Actions Available Under GSA Authorities

In many of the groundwater basins subject to SGMA throughout the State, pumping restrictions are one of the key components of the GSP. The GSA believes that the current level of Subbasin pumping can be continued with the effective implementation of the projects and management actions described above. However, California Water Code §10726.4 (a)(2) provides GSAs the authorities to control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate.

For the purpose of the GSP, pumping restrictions are defined as reductions or limitations in the amount of water a current or future groundwater user can pump from the Subbasin. This could be applied in the case of a situation where planned projects and management actions are insufficient to reach and/or maintain sustainability and undesirable results are occurring and are not projected to be eliminated by 2040 using other available projects and management actions.

Under a curtailment scenario, the GSA would need to determine the amount of water that affected pumpers could take sustainably, and the pumpers would be required to reduce their groundwater extraction to that allocation. Under such a scenario, all pumpers subject to allocations and restriction would be required to be metered. In the event of a need to restrict pumping, pumping restrictions could also be placed on new wells. Restrictions on permits for new groundwater wells would be considered if there was high demand for wells that, if constructed, could lead to the basin water extractions exceeding the sustainable yield for the basin. Alternatively, restrictions on permits in specific areas could be considered if additional localized pumping drives one or more sustainability indicators below the minimum threshold. Limits could also be placed on which aquifers could be extracted from if there was a potential adverse impact in a particular zone that might affect certain sustainability indicators. Pumping restrictions on new uses would need to be applied equitably and in a similar proportion to restrictions on existing users.

Considerably more work and discussion would need to be done to define the policies and procedures for potential pumping restrictions in the event that pumping restrictions are determined necessary to attain and maintain sustainability. For the purposes of this GSP, funding is not included for assessing or developing pumping restrictions beyond the initial assessment of policy options described in Section 6.3.1, above.

6.4 References

Brown and Caldwell, 2017. North Bay Water Reuse Program Phase 2 Feasibility Study.

Environmental Science Associates, 2018. North Bay Water Reuse Program Phase 2 Final Environmental Impact Report/Environmental Impact Statement.

GEI Consultants, Inc. Pueblo Water Resources and Parker Groundwater (GEI et. al.) 2013. Santa Rosa Plain/Sonoma Valley Groundwater Banking Feasibility Study.

GEI Consultants, Inc. Pueblo Water Resources and Sonoma Water (GEI et. al.) 2020. Technical Addendum: ASR Pilot Testing at TW-6A. March

West Yost Associates, 2018. Sonoma Valley County Sanitation District Recycled Water System Plan.