



**City of Greenfield
Arroyo Seco
Groundwater Sustainability Agency**
599 El Camino Real
Greenfield, CA 93927

**Meeting Agenda
January 28, 2020
4:00 P.M.**

Your courtesy is requested to help our meeting run smoothly.

Please follow the following rules of conduct for public participation in the meetings:

- Refraining from public displays or outbursts such as unsolicited applause, comments or cheering.
- Any disruptive activities that substantially interfere with the ability of the Agency to carry out its meeting will not be permitted, and offenders will be requested to leave the meeting.

PLEASE TURN OFF CELL PHONES AND PAGERS

A. CALL TO ORDER

B. ROLL CALL

C. PLEDGE OF ALLEGIANCE

D. PUBLIC COMMENTS FROM THE AUDIENCE REGARDING ITEMS NOT ON THE AGENDA

This portion of the Agenda allows an individual the opportunity to address the Agency on any items not on closed session, consent calendar, public hearings, and agency business. Under state regulation, **no action can be taken on non-agenda items, including issues raised under this agenda item.** Members of the public should be aware of this when addressing the Agency regarding items not specifically referenced on the Agenda. **PLEASE NOTE:** For record keeping purposes and, in the event, that staff may need to contact you, we request that all speakers step up to the lectern and use the microphone, stating your name and address, which is strictly voluntary. This will then be public information. A three-minute time limit may be imposed on all speakers other than staff members.

**Meeting Agenda
January 28, 2020**

E. CONSENT CALENDAR

All matters listed under the Consent Calendar are considered routine and may be approved by one action of the Agency, unless a request for removal for discussion or explanation is received prior to the time Agency votes on the motion to adopt.

E-1. APPROVAL of the Minutes of the October 22, 2019 Meeting of the Arroyo Seco Groundwater Sustainability

E-2. AMEND Existing Agreement with the Salinas Valley Water Coalition for Groundwater Model Utilization

F. AGENCY BUSINESS

F-1. PRESENTATION of Monterey County Water Resources Agency Regarding the Nacimiento and San Antonio Dams Repairs

- a. Presentation
- b. Public Comments
- c. Agency Board – Comments / Review / Action

F-2. CONSIDER Publishing the Arroyo Seco Groundwater Sustainability Agency Groundwater Sustainability Plan Chapter 6

- a. Staff Report
- b. Public Comments
- c. Agency Board - Comments / Review / Action

F-3. RECEIVE Update on the Arroyo Seco Groundwater Sustainability Agency Department of Water Resource Grant Application and Provide Staff Direction

- a. Staff Report
- b. Public Comments
- c. Agency Board - Comments / Review / Action

F-4. RECEIVE Arroyo Seco Groundwater Sustainability Agency General Manager's Status Report

- a. Oral Report
- b. Public Comments
- c. Agency Board - Comments / Review / Action

G. ADJOURNMENT

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In compliance with the American With Disabilities Act, if you need special assistance to participate in this meeting, please contact the City Clerk at (831) 674-5591. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to the meeting (CFR 35.102-35.104 ADA Title II).
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This agenda is duly posted outside City Hall and on the City of Greenfield web site

**CITY OF GREENFIELD ARROYO SECO
GROUNDWATER SUSTAINABILITY AGENCY
MINUTES**

AGENCY MEETING OF OCTOBER 22, 2019

ROLL CALL

Present: Chair Thorp, Board Member Rodriguez and Martinez
Absent: Vice Chair Griva and Board Member Wood
Staff: Interagency Attorney Cochran, General Manager Weeks, City Clerk Rathbun

PLEDGE OF ALLEGIANCE

All recited the pledge of allegiance.

PUBLIC COMMENTS FROM THE AUDIENCE REGARDING ITEMS ONLY ON THE AGENDA

No comments were received.

APPROVAL OF MINUTES OF THE SEPTEMBER 24, 2019 MEETING OF THE ARROYO SECO GROUNDWATER SUSTAINABILITY

A MOTION by Board Member Martinez, seconded by Board Member Rodriguez to approve the Minutes of the September 24, 2019 Meeting of the Arroyo Seco Groundwater Sustainability. All in favor. Motion carried.

**CONSIDERATION A RESOLUTION OF THE BOARD OF DIRECTORS OF THE ARROYO SECO GROUNDWATER SUSTAINABILITY AGENCY AUTHORIZING APPLICATION TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES TO OBTAIN A GRANT UNDER THE 2019 SUSTAINABILITY GROUNDWATER MANAGEMENT (SGM) GRANT PROGRAM PLANNING – ROUND 3 GRANT, AND AUTHORIZING EXECUTION OF A GRANT AWARD AGREEMENT A RESOLUTION FOR THE SGMA PLANNING GRANT
RESOLUTION GSA #2019-01**

Staff report was given by General Manager Weeks.

A MOTION by Board Member Martinez, seconded by Board Member Rodriguez to adopt Resolution **GSA #2019-01, “A Resolution of the Board of Directors of the Arroyo Seco Groundwater Sustainability Agency Authorizing Application to the California Department of Water Resources to Obtain a Grant under the 2019 Sustainability Groundwater Management (SGM) Grant Program Planning – Round 3 Grant, and Authorizing Execution of a Grant Award Agreement a Resolution for the SGMA Planning Grant”**. All in favor. Motion carried.

CONSIDER RELEASE OF GROUNDWATER SUSTAINABILITY PLAN CHAPTERS 1-4 FOR PUBLIC REVIEW

Staff report was given by General Manager Weeks.

Board Member Martinez suggested that the chapters be posted on the GSA as well as the City of Greenfield's websites.

Board Member Rodriguez asked where the comments would come from. General Manager Weeks stated that the agriculture community would probably be the ones to comment.

Nancy Isakson, Salinas Valley Water Coalition, stated that the environmental community would probably also be commenting.

A MOTION by Chair Thorp, seconded by Board Member Rodriguez to release the Groundwater Sustainability Plan Chapters 1-4 for public review. All in favor. Motion carried.

RECEIVE ARROYO SECO GROUNDWATER SUSTAINABILITY AGENCY GENERAL MANAGER'S STATUS REPORT

General Manager Weeks stated that the Plan was the number one item that staff was working on; however, the coordination agreement was also being worked on. He also stated that staff was working on grant opportunities.

Nancy Isakson wanted clarification on the Arroyo Seco GSA's goal to work on submitting one grant application with the Salinas Valley Basin GSA. She also asked about the discussion regarding the expansion of the Advisory Committee. General Manager Weeks stated that after a long discussion with the Advisory Committee; they had concluded that at this time, the Advisory Committee not be expanded because they believed it would slow down the process. Steve McIntyre stated that, as a Board Member, he would like the Board to expand the Advisory Committee.

ADJOURNMENT

Meeting adjourned at 4:33 p.m.

Chair of the Board

City Clerk of the City of Greenfield

Amendment to the Memorandum of Understanding and Confidentiality Agreement

This Amendment to the Memorandum of Understanding and Confidentiality Agreement (“Amendment”) is made and effective as of the date appearing above the signatures by and between Arroyo Seco Groundwater Substantiality Agency (“ASGSA”) and Salinas Valley Water Coalition (“Coalition”) (collectively, the “Parties”, individually, the “Party”).

RECITALS

1. The Parties entered into that certain Memorandum of Understanding and Confidentiality Agreement (“MOU”) on September 26, 2018, to provide the ASGSA a model developed by Tim Durbin (“Durbin Model”), the Coalition’s consultant, for use by the ASGSA, at its sole discretion, in developing its Groundwater Sustainability Plan (“GSP”).
2. The Coalition had expended over \$250,000 for the Durbin Model.
3. Under the MOU, the Coalition charged the ASGSA with \$5,000 as user license fee.
4. Under the Groundwater Sustainability Management Act, Water Code §10726.5, private parties may provide funding to assist a groundwater sustainability agency in GSP development.
5. Under the user license fee, Gus Yates, the ASGSA’s consultant, reviewed and further refined the Durbin Model for use in the GSP.
6. The Coalition wishes to use the refined Durbin Model to run a winter release scenario pursuant to a settlement agreement reached between the Coalition and Monterey County Water Resources Agency and Monterey County and other purposes.
7. A winter release scenario is a component of the management action proposed in the GSP and could be reviewed and analyzed by the ASGSA for its consideration in the preparation and implementation of the GSP, at its sole discretion.
8. A fundamental premise of the Amendment and MOU is that nothing herein is to be construed as a representation, promise, or commitment on the part of the ASGSA to give special treatment to, or exercise its discretion favorably to the Coalition, its members, agents, employees, consultants, representatives or partners.

AGREEMENT

NOW THEREFORE, in consideration of the Recitals and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Parties agree to the following:

1. The ASGSA shall continue to use the Durbin Model under the license granted by the Coalition, and any refinements made to the Durbin Model by the ASGSA shall be shared with the Coalition once any such refinement is publicly available.

2. The Coalition shall share the Durbin Model's winter release scenario runs ("Model Runs") with the ASGSA for its review and consideration and possible use, at its sole discretion, in the preparation and implementation of the GSP.
3. The Parties hereby acknowledge and agree the Amendment and MOU shall not be construed as delegating to a private party to make, control, supervise, or interfere with the ASGSA or to perform any of the ASGSA functions. The ASGSA has sole discretion to use the Model Runs paid for by the Coalition in any manner at the agency's election. The ASGSA shall act independently and direct and control the GSP preparation and implementation at its sole discretion. The Coalition shall not have any authority to direct or control the activities of the ASGSA staff or consultants or have any role in the GSP preparation and implementation, other than as a stakeholder and a member of the public.
4. The Parties hereby acknowledge and agree that nothing in the Amendment and MOU are to be construed as a representation, promise, or commitment on the part of ASGSA to give special treatment to, or exercise its discretion favorably of the Coalition, its members, agents, employees, consultants, representatives or partners.
5. Nothing herein contained shall constitute a partnership between or joint venture by the Parties hereto or constitute an agent of the other. No party shall hold itself out contrary to the terms of the Amendment and MOU and no Party shall become liable by any representation, act or omission of the other contrary to the provisions thereof. Neither Party shall be authorized to act as an agent of or otherwise to represent the other Party. Except as provided in the Amendment and MOU, neither Party has the right or authority to assume or create any obligations of any kind or to make any representation or warranty on behalf of any other Party, whether express or implied, or to bind any other Party in any respect whatsoever. The Amendment and MOU are not for the benefit of any third party and shall not be deemed to give any right or remedy to any such party whether referred to herein or not.
6. Except as specifically amended herein, the Parties hereby reaffirm each and every term and provision of the MOU, and such terms and provisions shall remain in full force and effect. Should there be any conflict between this Amendment and the MOU, the provisions in this Amendment shall control.
7. This Amendment may be executed in counterparts, with each signature page deemed effective as of the "Effective Date," noted below, and which all constituting one and the same document. Copies of signatures, including signatures transmitted via facsimile or as PDFs attached to e-mails, shall be treated the same as originals.

IN WITNESS WHEREOF, the undersigned execute this Amendment as noted below.

DATED: _____

<p>Arroyo Seco Groundwater Sustainability Agency</p> <p>By: _____ Jim Thorp, Chair of the Board of Directors</p> <p>Approved as to form:</p> <p>By: _____ Mary F. Lerner, Legal Counsel</p>	<p>Salinas Valley Water Coalition</p> <p>By: _____ Nancy Isakson, President</p>
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**City of Greenfield
Arroyo Seco
Groundwater Sustainability Agency**

MEMORANDUM: January 24, 2020

AGENDA DATE: January 28, 2020

TO: Board Members

FROM: Curtis Week, General Manager

**TITLE: CONSIDER RELEASE OF GROUNDWATER SUSTAINABILITY
PLAN CHAPTER 6 TO PUBLIC FOR REVIEW**

In October of 2018, the Arroyo Seco Groundwater Sustainability Agency (ASGSA) formally began the development of the ASGA Groundwater Sustainability Plan. To date, we have conducted several public meetings with the ASGSA Board of Directors and the City Council of Greenfield to inform the public of our process, develop minimum threshold standards and provide the background setting of the Arroyo Seco groundwater basin. The GSP Chapter 6 has been prepared by our GSP consultant team, TODD Groundwater, and reviewed by staff and the Advisory Committee. The attached version of Chapter 6 incorporates comments from the Advisory Committee.

DISCUSSION:

Attached to this staff report is Chapter 6 of the ASGSA GSP. The ASGSA staff recommends the Board review and release GSP Chapter 6 to the public, post the Chapter on the ASGSA website and request public comments for a 30 day review period.

REVIEWED AND RECOMMENDED:

The ASGSA General Manager has reviewed this report, and recommends that the Board of Directors release and post GSP Chapter 6

ATTACHMENTS

ASGSA GSA Chapter 6.

6 PROJECT AND MANAGEMENT ACTION DETAILS

Groundwater conditions in the ASGSA area benefitting from the Arroyo Seco River are sustainable. The ASGSA area near the Salinas River with potential undesirable results are associated with 1) excessive water-level declines during droughts, and 2) gradual, long-term increases in groundwater salinity. ASGSA has developed several management actions to address those issues. To be consistent with terminology used in other Salinas Valley GSPs, “management action” in this GSP refers to policies and planning/feasibility studies that do not involve construction of new infrastructure. The term “projects” refers to activities that require new or modified infrastructure. Per SGMA Regs §354.44, the basic description of what the action is and how it would be implemented is followed by a checklist of specific characteristics, such as circumstances triggering its implementation, timetable, cost, etc. Following the selected management actions is a review of the list of specific potential actions SGMA requires “where appropriate”.

6.1 GENERAL PROVISIONS

All of the actions are policies or feasibility/planning studies. None of them are contingent on exceedances of minimum thresholds or other triggers, which is to say that ASGSA intends to initiate and probably complete all of them during the first 5-year GSP implementation period. Public notice of implementation is therefore provided by this GSP. One management action (Management Action 4) might be delayed in order to obtain grant funding and might be terminated if initial analysis indicates that permitting would be infeasible.

Management of groundwater extractions is not included as an action because it is unnecessary in the ASGSA area. Current levels of groundwater extraction—or more specifically, consumptive use—are sustainable.

6.2 MANAGEMENT ACTION 1: RESERVOIR REOPERATION

6.2.1 Description of Action

Reoperation of Nacimiento and San Antonio Reservoirs could prevent a recurrence of the exceptionally low groundwater levels that occurred in the ASGSA area near Salinas River (not influenced by Arroyo Seco River) during the latter part of the 2012-2016 drought. Those low levels resulted from three consecutive years without major reservoir releases and caused undesirable results for well operators (a reduction in well output) in that particular area. The prolonged lack of surface flow also caused undesirable impacts on riparian vegetation and possibly on steelhead migration. By changing the timing of major releases before and during droughts, it may be possible to avoid limiting those releases for more than two consecutive years.

The reservoirs are owned and operated by MCWRA pursuant to an appropriate water right permit issued by SWRCB. The permit was last updated in 2008, when terms were added implementing the steelhead flow prescription developed in 2007 by NMFS. ASGSA does not have the direct authority to

modify reservoir operation, but MCWRA has discretion in managing releases for downstream groundwater recharge and diversion at the SRDF, which collectively comprise most of the water released from the reservoirs. The groundwater recharge and diversion at the SRDF are considered part of the Salinas Valley Water Project (SVWP) and landowners within the Zone 2C assessment district pay assessment in order to receive these benefits pursuant to the Prop. 218 vote for the SVWP.

This management action consists of collaborating with the MCWRA and other interested parties to evaluate potential reoperation scenarios to ensure the sustainability of the lands near Salinas River within the ASGSA and to prevent the undesirable results that occurred during the recent drought. MCWRA committed itself to embarking on such a process in the 2018 update to its Nacimiento Dam Operation Plan:

“A Drought Contingency Plan describing reservoir operations will be incorporated into this document after such a plan is developed in collaboration with NMFS, other regulatory agencies, and stakeholders, reviewed by the Reservoir Operations Advisory Committee, and adopted by the Agency Board of Directors.”

This management action could be implemented in conjunction with an interagency effort to develop a habitat conservation plan for steelhead. NMFS withdrew its biological opinion for steelhead in 2019, but the flow prescription remains in MCWRA’s water rights permit. It is our understanding that MCWRA is in the initial steps of developing a habitat conservation plan to replace the biological opinion. The ASGSA plans to be a participant in the HCP process.

Three examples of reoperation strategies that could potentially avoid consecutive years without major reservoir releases are:

- Increase the amount of annual reservoir carryover storage in normal and wet years so that more storage is on hand at the start of a drought. This could decrease the amount of water released for recharge and SRDF diversions in normal/wet years in order to increase the amount released during droughts and potentially affect the special benefits paid by Zone 2C landowners.
- Develop quantitative operational criteria that differentiate “surplus” water from non-surplus water. SWRCB recently affirmed that MCWRA’s water rights permit only allows surplus flow to be stored in the reservoirs, which is flow not needed to replenish groundwater downstream of the reservoirs (SWRCB 2019). Two moderate inflow events were retained in the reservoirs in January and March 2016 that downstream groundwater users assert were not surplus flows. If those natural flows had been passed through the reservoirs the exceptionally low groundwater levels that occurred that year might have been avoided. The 2018 Nacimiento Dam Operation Plan does not mention the issue of surplus water or pass-through of natural inflows under certain circumstances.
- Implement the Winter Release Scenario developed by the Salinas Valley Water Coalition, which would release water as needed to maintain a flow of at least 155 cfs in the Salinas River near Spreckels whenever flow at the Arroyo Seco near Soledad gauge is greater than 173 cfs.

These strategies are not mutually exclusive, and others are possible.

A quantitative analysis tool will be essential to support any discussion of reservoir reoperation. This typically is a reservoir operations model. One was developed by consultants, known as Salinas Valley

Integrated Groundwater Simulated Model (SVIGSM) to support evaluation of the Salinas Valley Water Project, but it might not be available. Reservoir operations are reportedly included in a large hydrologic model of the Salinas River, reservoirs and groundwater basin being developed by the U.S. Geological Survey. That work is still in progress, however, and the availability and usability of the final model is uncertain.

In order to apply “best available science” to the analysis of reoperation scenarios, this management action includes working with the MCWRA to improve existing models or developing new ones to simulate reservoir operations and groundwater-surface water interactions along the Salinas River.

6.2.2 Expected Benefits

This management action will benefit the measurable objectives for water levels and interconnected surface water. Specifically, the benefits of reservoir reoperation are 1) maintaining an adequate discharge rate for wells near the Salinas River throughout drought periods by avoiding excessively low groundwater levels, 2) reducing the mortality of riparian trees along the Salinas River to some amount less than occurred by the end of 2016, and 3) increasing steelhead migration opportunity to above the amount that occurred during 2012-2016, possibly providing an additional year of reproductive success.

The above benefits would be regional in scope. The water-level benefits would occur throughout the Upper Valley and Forebay Subbasins, and the vegetation and fish benefits would apply to the entire length of the Salinas River.

Developing up-to-date, publicly available and reasonably user-friendly reservoir operations analysis tools would benefit MCWRA, NMFS, GSAs, consultants, environmental groups and others involved in water resources management in the Salinas Valley.

6.2.3 Circumstances for Implementation

Evaluation and development of reservoir operations analysis tools are underway. ASGSA intends to initiate coordination with MCWRA as soon as possible.

6.2.4 Legal Authority

ASGSA has the authority to conduct investigations (Water Code §10725.4), such as this investigation of reservoir reoperation. It can request but not mandate that MCWRA participate in a joint evaluation of reoperation strategies. MCWRA has the authority—within the constraints of its water rights permits—to modify the scheduling of releases for groundwater recharge and SRDF diversions.

6.2.5 Implementation Schedule

Evaluation and adoption of a revised reservoir operation plan could take 1-2 years of meetings, technical analysis, environmental review and public process. If reoperation for ASGSA purposes is subsumed into a larger habitat conservation planning process, the schedule could stretch to 3 years.

6.2.6 Estimated Cost

The estimated cost for participating in quarterly interagency meetings and intervening e-mail exchanges is \$30,000 per year. The initial cost to enhance or develop modeling tools is estimated to be \$30,000. If ASGSA continues to provide modeling services for the interagency group, the cost would rise accordingly. Thus, the total cost for a 2-year effort would be on the order of \$90,000-\$120,000.

6.3 MANAGEMENT ACTION 2: SALINITY MANAGEMENT STUDIES

6.3.1 Description of Action

Gradual, long-term increases in groundwater salinity in the Salinas River area were identified as unsustainable. Parts of the ASGSA area already have groundwater salinity high enough to impair crop growth or restrict crop selection. The highest existing TDS concentrations derive from natural sources (brackish groundwater entering the basin from the Pancho Rico Formation along the northeast side of the Salinas Valley). However, evaporation and transpiration of irrigation water adds significant amounts of additional salt to the basin when salts are flushed below the root zone by rainfall recharge or excess applied irrigation water. Another potential source of salt loading is self-regenerating water softeners, which are probably common in Greenfield given the high hardness of the municipal water supply.

This management action consists of completing a water softener management study and collaborating with other groups and agencies to accelerate the implementation of agricultural technologies and practices that decrease salt loading to groundwater and adapting to gradual long-term increases in salinity. The agricultural strategies would be potentially applicable throughout California. ASGSA's role in this management action would be to actively seek participation in regional or statewide efforts.

Management Action 2A: Water Softener Management Study. A residential self-regenerating water softener typically adds about 40 pounds of salt per month to the household wastewater stream. This salt passes through the wastewater treatment process. Treated effluent from the City of Greenfield wastewater treatment plant is percolated via ponds near the Salinas River northeast of the City. Those ponds are upgradient of the City of Soledad, which means that salt loading from water softeners in Greenfield adds to the salinity of the municipal water supply in Soledad and other down-gradient cities and towns.

Cartridge-type water softeners are an alternative to self-regenerating water softeners. Ion exchange is by means of a resin that stays in the water softener tank. A service company periodically replaces a used cartridge with a fresh one. The used cartridges are regenerated offsite where the resulting brine discharge is not a problem (such as discharging to an ocean outfall).

This study will commence with an inventory of water softener use in Greenfield based on the salinity of influent to the wastewater treatment plant, estimates of salt sales from local vendors and interviews with residents and local officials. If the salt load is significant, the availability and cost of cartridge-type water softeners will be ascertained. A plan for adopting an ordinance prohibiting self-regenerating water softeners will be prepared and provided to the City Council for possible adoption. Ordinances passed by Los Angeles County Sanitation District and the requirements of AB1366 (2009) will be used as guidelines. If the Greenfield salt load is significant, this suggests that other municipalities may be similarly contributing to salt loading. A subsequent appropriate action is to encourage King City public works personnel and the City Council to implement a similar water softener conversion program, which would decrease ambient salinity of groundwater flowing into the ASGSA area.

Management Action 2B: Collaboration on Reducing Agricultural Salt Loading and Adapting to Higher Groundwater Salinity. Agricultural activities tend to increase groundwater salinity, particularly where groundwater is the source of irrigation supply. Typically, the largest salt load is not from an addition of dissolved minerals but from evaporative concentration of applied irrigation water, which removes pure water and leaves dissolved minerals behind. Those minerals remain in the soil and are periodically

flushed downward below the root zone by rainfall or excess applied irrigation water (the “leaching fraction”). This relatively high-TDS recharge water eventually migrates downward to the aquifer strata tapped by wells. The water gets pumped again, applied for irrigation and subjected to a second round of evaporative concentration. Salinity can continue to increase until it reaches an equilibrium determined by the rates and salinities of other sources of recharge and the magnitudes of other outflows from the system. Application of fertilizers and gypsum to agricultural fields are additional inputs of dissolved minerals associated with agriculture. Long-term increases in groundwater TDS concentration in the San Joaquin Valley have averaged about 1 mg/L per year over the past century (Hansen and others, 2018). Groundwater salinity in the ASGSA area has not exhibited a statistically detectable increase over the past 60 years (see Appendix E), but current and future agricultural activities will continue to increase groundwater TDS to a level that will likely become detectable and to some extent problematic.

Improvements in irrigation application efficiency decrease salt loading without reducing water available to crop roots. Evaporation of sprinkler spray and from bare soil are examples of irrigation inefficiencies that contribute to salt loading. Salinas Valley growers have improved irrigation efficiency over the past 25 years, largely by converting from spray or furrow irrigation to drip irrigation. The increase in vineyard acreage has contributed to this improvement in overall irrigation efficiency because that crop is always drip-irrigated (except for frost protection). However, vegetable crops still account for 78 percent of total irrigation water use in the Forebay Subbasin (MCWRA, 2017).

An example of possible future improvements in irrigation efficiency would be more widespread use of low-evaporation sprinklers, such as the low-energy precision applicator (LEPA) type of linear move sprinklers. By emitting water at low pressure with large droplets just above the crop canopy, this irrigation method decreases overall irrigation water use and salt loading and even more dramatically decreases energy use (with attendant reductions in greenhouse gas emissions and grower cost).

In addition to reducing salt loading, adaptation to rising groundwater salinity is a reasonable salinity management strategy. This would consist of developing salt-resistant varieties of crops grown in the ASGSA area. Groundwater salinity increases gradually, and the pace of agricultural research might be able to keep up with it. Developing salt-tolerant crop strains through traditional breeding or biotechnology would allow continued production of the vegetable crops for which the Salinas Valley climate is particularly well suited. However, the pace of progress depends partly on research priorities and funding. ASGSA is not a logical agency to fund and lead crop research efforts, but it could reasonably collaborate with other agricultural interests to promote and fund additional research.

ASGSA’s commitments under this management action are:

- 1) Work with MCWRA, cooperative extension specialists and others to provide grower education regarding irrigation efficiency best management practices.
- 2) Actively identify and collaborate with growers, other water management agencies, irrigation equipment designers and vendors and agricultural extension specialists to refine and implement irrigation methods and practices that increase irrigation efficiency and decrease salt loading to groundwater.
- 3) Work with King City, Soledad and other cities and communities in the Salinas Valley to promote reduction of salt loading from self-regenerating water softeners.
- 4) Actively identify and collaborate with other agencies, grower groups and researchers to promote additional research aimed at developing salt-resistant crop strains.

6.3.2 Expected Benefits

This management action will benefit the measurable objective for groundwater quality. Improving irrigation efficiency would have three benefits: decreased groundwater salinity, increased water use efficiency and decreased greenhouse gas generation.

Promoting research to develop salt-tolerant strains of crops grown in the ASGSA area would increase the long-term viability of local agriculture by maintaining good crop yields and a broad range of crops that can be grown.

Eliminating the salt load from self-regenerating water softeners would decrease ambient groundwater salinity downgradient of the Greenfield wastewater treatment plant. If half of the homes in Greenfield have self-regenerating water softeners using 40 pounds per month of salt, converting those to cartridge-type softeners would decrease the TDS concentration of municipal wastewater by about 350 mg/L. This would amount to 444 tons per year of avoidable salt loading. Reducing the TDS concentration of municipal recycled water would also greatly increase its potential reuse for irrigation.

Because the Greenfield wastewater treatment plant is in the northeastern corner of the ASGSA area, most of the benefits would be to groundwater users to the north, notably the City of Soledad. If outreach to King City results in similar measures there, ambient groundwater salinity would be reduced in the southeastern part of the ASGSA area, near the Salinas River, where existing salinity concentrations are highest.

6.3.3 Circumstances for Implementation

ASGSA is committed to completing the water softener study and irrigation efficiency collaboration efforts. No conditions need to be met prior to initiating them.

6.3.4 Legal Authority

ASGSA has the authority to conduct studies (Water Code §10725.4). Pursuant to AB1366, cities have the authority to ban self-regenerating water softeners provided certain findings are made and the RWQCB concurs.

6.3.5 Implementation Schedule

The water softener study will be completed during the first 5-year GSP implementation period. If the results indicate significant benefits and reasonable cost-effectiveness of converting from self-regenerating to cartridge-type water softeners, active implementation will be pursued during the second 5-year period.

6.3.6 Estimated Cost

The cost of the water softener study is estimated to be \$12,000. A commitment of 2 weeks per year of ASGSA staff time to organize and present grower education workshops would cost approximately \$5,000 per year. In addition, 2 weeks of ASGSA staff time in the first implementation year to investigate opportunities related to irrigation technology refinement and crop salt tolerance research would cost roughly \$5,000. The total cost for the first five-year implementation period would be \$42,000.

6.4 MANAGEMENT ACTION 3: IMPROVE RURAL RESIDENTIAL WATER QUALITY

6.4.1 Description of Action

Rural residents supplied by on-site domestic wells are more likely to have poor-quality water because the quality is rarely tested, unregulated and usually from relatively shallow aquifers that typically have lower-quality water. Strategies for mitigating this situation include:

- Buying bottled water for drinking.
- Installing point-of-use under-counter reverse osmosis (RO) units at the kitchen sink to provide drinking water.
- Extend the City's municipal water supply system to serve nearby rural residences.

In recent years, the City has extended water service to some nearby rural residences, and its water master plan includes expansion of the municipal service area to new development around the perimeter of the existing urban area (Wallace Group, 2016).

This management action consists of educating rural residents about common groundwater quality issues and options for obtaining safe and aesthetic potable water in their homes.

6.4.2 Expected Benefits

This management action does not exactly address the measurable objective for water quality but does improve beneficial uses. None of the strategies has a beneficial or adverse impact on groundwater quality, but all of them improve potable water quality at rural residences. The dissolved minerals removed by RO units are returned to the groundwater basin via the septic system, resulting in no net change in groundwater quality.

6.4.3 Circumstances for Implementation

Rural homeowners may purchase bottled drinking water or install an RO unit at any time. Many RO units are readily available in home improvement stores and online. The City's Water Master Plan already intends to expand the distribution system. No further action is necessary, but service to more outlying could be considered.

6.4.4 Legal Authority

ASGSA has the authority to make non-binding recommendations of any kind. Homeowners do not need a permit to install an RO unit.

6.4.5 Implementation Schedule

The timing of bottled water purchases or installation of an RO unit is up to the rural resident. The Water Master Plan includes a schedule for expanding the municipal potable water supply distribution system.

6.4.6 Estimated Cost

Under-counter RO units typically cost several hundred dollars. Handy homeowners can do their own installation. Otherwise, a plumber can do the installation in 1-2 hours, at prevailing rates. Bottled water is ubiquitously available in local markets at a range of prices. In the first implementation year, ASGSA would compile information about home water quality treatment options and make it available to local residents via the ASGSA website. This would cost approximately \$3,000 of ASGSA staff time.

6.5 MANAGEMENT ACTION 4: OPPOSE NEW DAMS ON THE ARROYO SECO

6.5.1 Description of Action

This action consists of adopting a policy to actively oppose construction of new dams on the Arroyo Seco River and its tributaries. ASGSA opposes new appropriations of water from the Arroyo Seco watershed that would diminish groundwater recharge or sustainability in the ASGSA area or adversely impact the ecosystem and fishery resources. The action also recommends support of State or Federal designations for the Arroyo Seco River which disallow dams or disallow activities which modify the Arroyo Seco River's natural hydrograph or which disallow degradation of water quality/flow beyond current baseline.

Activities associated with this management action include participating in local, regional and state-level water planning processes to oppose any new dams in the Arroyo Seco watershed and or advocacy for appropriate protective designations, such as wild and scenic status for the river. The U.S. Forest Service recommended federal wild and scenic designation in a 2005 study, but Congress has not yet acted on the recommendation (Ventana Wilderness Alliance, 2019). This management action would likely entail monitoring the planning processes via the internet, participating in interagency meetings to develop a steelhead Habitat Conservation Plan, reviewing and commenting on draft planning documents and/or environmental compliance documents prepared by other agencies, seeking funding for watershed protection efforts, and occasionally attending meetings for planning processes led by other agencies.

6.5.2 Expected Benefits

This management action would benefit the measurable objectives for water levels, water quality and interconnected surface water. Groundwater users in the ASGSA receive significant water supply and quality benefits from the unregulated flow regime of the Arroyo Seco. It supplied more groundwater recharge to the ASGSA area during the 2012-2016 drought than did the regulated Salinas River. The salinity of Arroyo Seco water is also low, and recharge from the Arroyo Seco River has created a region of high-quality groundwater that covers most of the ASGSA area. In addition, there are very significant environmental benefits to maintaining the Arroyo Seco River in a natural state. The Arroyo Seco River is recognized as a Class 1 Recovery stream for threatened South-Central Coast Steelhead. It is the largest unregulated tributary to the Salinas River and is relatively close to the coast. As a result, it has the greatest potential for sustaining steelhead populations in the Salinas River watershed.

6.5.3 Circumstances for Implementation

The ASGSA Board may pass this policy at any time. No prior conditions need to occur prior to implementing this action.

6.5.4 Legal Authority

This management action consists of advocacy in the context of public proceedings. No special authority is required.

6.5.5 Implementation Schedule

This management action would be implemented as needed on an ongoing basis. The level of activity would likely be sporadic. If an HCP process gets underway, it would be reasonable to assume that it might last three years.

6.5.6 Estimated Cost

The estimated cost for staff or consultant time to monitor and participate in the planning activities of other agencies is \$10,000 per year. Active participation in a steelhead HCP process would be largely covered by the cost for Management Action 1, but it could entail an additional \$10,000 per year if additional experts are supported.

6.6 ADDITIONAL GSP ELEMENTS

Water Code §10727.4 requires that a GSP “shall include, where appropriate” the following list of potential management actions. Many of them are inherited from groundwater management plan requirements pursuant to AB3030. The applicability and utility of each action for ASGSA area sustainability are described below.

- a) **Control of saline water intrusion.** Intrusion is not an issue in the ASGSA area because of its inland location.
- b) **Wellhead protection areas and recharge areas.** The concept of wellhead protection areas originated with the 1986 Amendments to the federal Safe Drinking Water Act (SDWA). The California Department of Health Services (DHS), Division of Drinking Water and Environmental Management subsequently incorporated wellhead protection into its Drinking Water Source Assessment Program (DWSAP). Permitting of a new public water supply well requires that a DWSAP be completed, which is the responsibility of the permit applicant. Thus, wellhead protection is already implemented through an existing regulatory program that applies to the ASGSA area.

Recharge area protection is a resource management strategy of the California Water Plan. Its focus is on localized, high-rate percolation from stream channels or off-channel recharge basins. This GSP includes two management actions involving management and enhancement of recharge. The reservoir reoperation management action would change the timing of percolation from the Salinas River. The Arroyo Seco winter recharge management action would evaluate the feasibility of increasing recharge at moderate rates by applying water diverted from the Arroyo Seco in winter to agricultural fields where conditions are favorable for percolation.

- c) **Migration of contaminated groundwater.** Local contamination of groundwater by human activities is regulated by the State and Regional Water Quality Control Boards, which mandate clean-up actions. The Regional Water Quality Control Board also enforces the Irrigated Lands Regulatory Program, which is designed to reduce nitrate contamination from excess fertilizer applications to negligible levels. The City of Greenfield’s municipal water system is subject to the requirements for providing water below the primary (such as nitrate) and secondary (such as TDS) maximum contaminant levels to its customers. This GSP includes management actions to address groundwater salinity, which is elevated over broad areas due to natural sources and irrigation and may affect growers.
- d) **A well abandonment and well destruction program.** Well construction and destruction are regulated by Monterey County Health Department (see Section 2.2.2.5 “Permitting of Well Construction and Destruction”). No additional management actions are needed.

- e) **Replenishment of groundwater extractions.** This element is covered by Management Action 1: Evaluate Reservoir Reoperation. By changing the timing of recharge from the Salinas River, that management action would prevent undesirable results during droughts. Recharge would also be increased by Management Action 4: Enhance Arroyo Seco Winter Recharge.
- f) **Implementing conjunctive use or groundwater storage.** Surface water in the Arroyo Seco and Salinas Rivers are already conjunctively used with groundwater in the ASGSA area. Other than reservoir reoperation (Management Action 1), no further action is needed to achieve full sustainability.
- g) **Well construction policies.** See item (d) above.
- h) **Measures addressing groundwater contamination cleanup, groundwater recharge, in-lieu use, diversions to storage, conservation, water recycling, conveyance and extraction projects.** These activities are not needed or are already managed by existing agencies and programs: cleanup of contaminated groundwater (State and Regional Water Quality Control Boards), , conservation (see the LEPA sprinkler feasibility study in Management Action 2), water recycling (not needed at present; salinity constraints), conveyance and extraction projects (not needed).
- i) **Efficient water management practices.** The LEPA sprinkler feasibility study in Management Action 2 would improve agricultural water use efficiency.
- j) **Efforts to develop relationships with state and federal regulatory agencies.** Reservoir reoperation analysis (Management Action 1) will entail close interaction with MCWRA. ASGSA will be interacting with the Central Coast Regional Water Quality Control Board regarding water softener issues and effective implementation of the ILRP program for nitrate reduction for the small number of rural residents not served by the City’s water system.. ASGSA intends to participate with the National Marine Fisheries Service in developing a Habitat Conservation Plan for steelhead trout if or when that effort gets underway.
- k) **Review of land use plans.** The City of Greenfield already reviews regional land use plans.
- l) **Reduced impacts on groundwater dependent ecosystems.** As discussed in Section 4.9 “Interconnected Surface Water”, GDEs in the ASGSA area are sustainable with respect to groundwater. No specific action is needed at this time to reduce impacts on groundwater dependent ecosystems.