

**Table 4-1 Existing or Ongoing Projects and Management Actions for Sierra Valley [to be updated based on work group discussions]**

Title	Description	Near-Term Actions	Comments, Considerations, Unintended Consequences
Inventory and Metering	<p><b>Current MA:</b> SVGMD maintains a list of large-capacity wells in the Subbasin, including active metered wells and inactive wells. All large-capacity agricultural wells are fitted with flow meters owned and read by SVGMD.</p> <p><b>MA Enhancement:</b> Continue and enhance inventory and metering efforts to support groundwater management.</p>	<ul style="list-style-type: none"> <li>• Continue existing metering and data collection program</li> <li>• Refine well inventory &amp; registry program, including GPS coordinates for each</li> <li>• Install, reinstall, repair, calibrate, and replace flowmeters as needed</li> </ul>	<ul style="list-style-type: none"> <li>• Consider adding some form of domestic and stock well inventory and use estimation</li> <li>• Investigate telemetry implementation options and cost</li> </ul>
Data and Modeling	<p><b>Current MAs:</b> SVGMD collects water usage data from large-capacity agricultural wells as well as usage data from municipal well operators in the Subbasin. SVGMD and DWR collect water-level data in monitoring wells around the Subbasin, with DWR data posted in CASGEM and SVGMD data reported in public board meetings. Water quality data has been sporadically collected by DWR and more regularly collected by County Environmental Health Departments (and operators?) for public supply wells (confirm)</p> <p><b>MA Enhancement:</b> Expand data collection to inform management decisions in the Subbasin and support updates of the hydrogeologic conceptual model.</p>	<ul style="list-style-type: none"> <li>• Continue existing water level and water use monitoring</li> <li>• Expand water level monitoring network, as needs are identified (does this fit here or next row?)</li> <li>• Discuss frequency of updates and recalibration of model</li> </ul>	<ul style="list-style-type: none"> <li>• Is anything needed on water quality?</li> </ul>
Monitoring and Reporting	<p><b>Current MA:</b> SVGMD reads flowmeters on large-capacity agricultural wells monthly during the growing season and sounds monitoring wells for groundwater levels periodically. DWR measures groundwater levels in the Subbasin twice per year and posts results in CASGEM. The Sierra Valley Watermaster collects stream flow data in the Subbasin, which is not published publicly.</p> <p><b>MA Enhancement:</b> Expand or implement monitoring networks and data gathering, sharing, and analysis for: groundwater, surface water, subsidence and GDEs/ISW.</p>	<ul style="list-style-type: none"> <li>• Install surface water stream gauges</li> <li>• Perform groundwater-dependent ecosystem (GDE) monitoring (describe)</li> <li>• Implement subsidence monitoring</li> <li>• Develop comprehensive, streamlined, easy-to-use reporting systems to comply with SGMA and to support management decisions</li> </ul>	<ul style="list-style-type: none"> <li>• Add something on GW quality – practices SVGMD will undertake to ensure GW quality is not degraded by groundwater use or management</li> </ul>

Title	Description	Near-Term Actions	Comments, Considerations, Unintended Consequences
Education and Outreach	<p><b>Current MA:</b> SVGMD and UCCE have conducted period workshops to update stakeholders on topics related to water management.</p> <p><b>MA Enhancement:</b> Expand current education and outreach programs to cover additional topics related to sustainable groundwater management and on-farm best management practices (BMPs) for landowners.</p>	<ul style="list-style-type: none"> <li>• Host quarterly educational workshops</li> </ul>	
Well Permit Ordinances	<p><b>Current MA:</b> SVGMD has enacted ordinances that:</p> <ul style="list-style-type: none"> <li>• Require meters on all high-capacity wells (82-03);</li> <li>• Require review of water availability for new development applications (83-01)</li> <li>• Restrict installation of new high-capacity agricultural wells in specific areas of the Subbasin (18-01 §3a)</li> </ul> <p><b>MA Enhancement:</b> Continue existing protections and adjust as-needed (see comments)</p>	<ul style="list-style-type: none"> <li>• Develop a decision-making process for review of requests to reactivate registered inactive wells</li> </ul>	<ul style="list-style-type: none"> <li>• Maybe there should be something here about large-capacity wells outside the restricted zone – developing monitoring strategies to launch if other areas of the Subbasin become active with GW pumping.</li> </ul>
Reuse	<p><b>Current MA:</b> Reuse of treated wastewater from Loyalton for alfalfa irrigation</p> <p><b>MA Enhancement:</b> Repair leaks in Loyalton sewer pipes (confirm)</p>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

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**group discussions]**

**Potential Projects and Management Actions for Sierra Valley [to be updated based on work**

Title	Description	Near-Term Actions	Comments, Considerations, Unintended Consequences
Aquifer characterization, pumping test	Coordinate with parties that have large capacity wells to conduct aquifer characterization studies throughout the Subbasin.		
Agricultural efficiency improvements	Various equipment and operational improvements designed to reduce overall water demand.	<ul style="list-style-type: none"> <li>• Install soil moisture sensors</li> <li>• Fix leaking irrigation pipes</li> <li>• Convert to low-profile (near ground-level) sprinkler applicators, as appropriate</li> <li>• Manage irrigation timing to reduce evaporative and wind drift losses</li> <li>• Reduce use of end guns on center pivots</li> <li>• Convert flood irrigation to sprinkler</li> <li>• Convert wheel lines to center pivot systems</li> <li>• Line or pipe open ditches used to convey groundwater</li> <li>• Line ditches and improve turnouts and field water distribution</li> </ul>	<ul style="list-style-type: none"> <li>• How common are some of these irrigation systems or issues?</li> </ul>
Reoperation of, or adjustments to, surface water supplies		<ul style="list-style-type: none"> <li>• Modify surface water rights delivery from Frenchman Lake and Little Last Chance Creek for more efficient use of surface water</li> <li>• Divert some Lake Davis water into Sierra Valley</li> <li>• Gain benefit from winter spills from Frenchman Lake and winter runoff from other streams by winter diversions to pasture (icing)</li> <li>• Increase capacity of Frenchman Lake</li> </ul>	<ul style="list-style-type: none"> <li>• Does this include moving irrigation start date back from March 15 to March 1?</li> </ul>

Title	Description	Near-Term Actions	Comments, Considerations, Unintended Consequences
Off-stream storage	Develop off-stream surface water storage projects	<ul style="list-style-type: none"> <li>• Increase on-farm storage of surface water (Smithneck and Little Last Chance)</li> <li>• Store flood water for later use through catchments, tanks</li> </ul>	<ul style="list-style-type: none"> <li>• Be aware of potential off-stream ponding consequences, such as invasive species and possible stranding of important species</li> </ul>
Drought mitigation & planning	Drought mitigation planning and identification of drought triggers tied to precipitation, runoff, and other factors.	<ul style="list-style-type: none"> <li>• Develop Drought Mitigation Plan</li> </ul>	
Water Conservation and Demand Management	Develop a water conservation program to reduce water demand to offset ground and surface water pumping.	<ul style="list-style-type: none"> <li>• Develop voluntary conservation agreements</li> <li>• Develop pilot program for implementation of water use efficiency practices (is this different from ag efficiency improvements, prior?)</li> <li>• Design a water rights structure (groundwater shares program) – that would be available as needed – to incrementally reduce the permitted pumping amount, but allows for transfers and flexibility during drought conditions.</li> </ul>	
Watershed Management and Restoration	Implement multi-benefit projects that enhance precipitation retention and infiltration (i.e., reducing runoff), reduce fuel loads, and support ecosystem services such as reducing peak flood flows and enhancing summer baseflows	<ul style="list-style-type: none"> <li>• Watershed management</li> <li>• Upland management (forest / meadow restoration, road improvements or removal, soil decompaction)</li> <li>• Enhance wetlands and meadows to better retain water in GDEs</li> <li>• Planning study with pilot program</li> </ul>	
Voluntary Managed Land Repurposing	This includes a wide range of voluntary activities that make dedicated, managed changes to land use (including crop type) on specific parcels in an effort to reduce consumptive water use in the Subbasin	<ul style="list-style-type: none"> <li>• Support alternative crop conversion (i.e., alfalfa to grain)</li> <li>• Develop terms contracts through a Conservation Reserve Program</li> <li>• Develop crop rotation program</li> <li>• Develop irrigated margin reduction</li> </ul>	

Title	Description	Near-Term Actions	Comments, Considerations, Unintended Consequences
Groundwater Recharge	Develop aquifer recharge projects to store and augment water supply.	<ul style="list-style-type: none"> <li>• Planning/GIS study on feasibility of Managed Aquifer Recharge in SV Subbasin</li> <li>• Spreading Subbasins / flood agricultural fields</li> <li>• Injection wells</li> <li>• Distributed stormwater collection and MAR</li> </ul>	