

Big Valley Groundwater Sustainability Plan GSP Regulations Checklist (Elements Guide) for Chapter 8

This checklist of the GSP Elements and indicates where in the GSP each element of the regulations is addressed.

Article 5. Plan Contents for Big Valley Groundwater Basin				GSP Document References				Notes
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	
SubArticle 4. Monitoring Networks								
§ 354.32. Introduction to Monitoring Networks								
			This Subarticle describes the monitoring network that shall be developed for each basin, including monitoring objectives, monitoring protocols, and data reporting requirements. The monitoring network shall promote the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
§ 354.34. Monitoring Network								
(a)			Each Agency shall develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation.	X	8.2			
(b)			Each Plan shall include a description of the monitoring network objectives for the basin, including an explanation of how the network will be developed and implemented to monitor groundwater and related surface conditions, and the interconnection of surface water and groundwater, with sufficient temporal frequency and spatial density to evaluate the affects and effectiveness of Plan implementation. The monitoring network objectives shall be implemented to accomplish the following:					
	(1)		Demonstrate progress toward achieving measurable objectives described in the Plan.	X	8.1			
	(2)		Monitor impacts to the beneficial uses or users of groundwater.	X	8.1,8.2			
	(3)		Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.	X	8.1,8.2			
	(4)		Quantify annual changes in water budget components.	X	8.1,8.2			
(c)			Each monitoring network shall be designed to accomplish the following for each sustainability indicator:					
	(1)		Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:					
		(A)	A sufficient density of monitoring wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.	X	8.2.1			
		(B)	Static groundwater elevation measurements shall be collected at least two times per year, to represent seasonal low and seasonal high groundwater conditions.	X	8.2.1			
	(2)		Reduction of Groundwater Storage. Provide an estimate of the change in annual groundwater in storage.	X	8.2.1, 8.2.4			

"X" indicates that the element has been addressed.
The page number will be filled in once the entire GSP is compiled.

Shaded areas are elements of the regulations that don't have to be addressed in the GSP

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	(3)	Seawater Intrusion. Monitor seawater intrusion using chloride concentrations, or other measurements convertible to chloride concentrations, so that the current and projected rate and extent of seawater intrusion for each applicable principal aquifer may be calculated.	N/A					Seawater intrusion not applicable to the BVGB
	(4)	Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.	X	8.2.2				
	(5)	Land Subsidence. Identify the rate and extent of land subsidence, which may be measured by extensometers, surveying, remote sensing technology, or other appropriate method.	X	8.2.3				
	(6)	Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:						
	(A)	Flow conditions including surface water discharge, surface water head, and baseflow contribution.	N/A					No SMCs established for interconnected surface water.
	(B)	Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.	N/A					No SMCs established for interconnected surface water.
	(C)	Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.	N/A					No SMCs established for interconnected surface water.
	(D)	Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.	N/A					No SMCs established for interconnected surface water.
(d)		The monitoring network shall be designed to ensure adequate coverage of sustainability indicators. If management areas are established, the quantity and density of monitoring sites in those areas shall be sufficient to evaluate conditions of the basin setting and sustainable management criteria specific to that area.	X	8.2				
(e)		A Plan may utilize site information and monitoring data from existing sources as part of the monitoring network.	X	8.2				
(f)		The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based upon the following factors:						
	(1)	Amount of current and projected groundwater use.	X	6.2, 6.4				
	(2)	Aquifer characteristics, including confined or unconfined aquifer conditions, or other physical characteristics that affect groundwater flow.	X	4.4				
	(3)	Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.	X	8.2				
	(4)	Whether the Agency has adequate long-term existing monitoring results or other technical information to demonstrate an understanding of aquifer response.	X	8.2				

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(g)			Each Plan shall describe the following information about the monitoring network:					
	(1)		Scientific rationale for the monitoring site selection process.	X	8.2			
	(2)		Consistency with data and reporting standards described in Section 352.4. If a site is not consistent with those standards, the Plan shall explain the necessity of the site to the monitoring network, and how any variation from the standards will not affect the usefulness of the results obtained.	X	8.2			
	(3)		For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestones that will be measured at each monitoring site or representative monitoring sites established pursuant to Section 354.36.	X	8.2			
(h)			The location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used.	X	8.2	8-1:8-3	8-1,8-3	
(i)			The monitoring protocols developed by each Agency shall include a description of technical standards, data collection methods, and other procedures or protocols pursuant to Water Code Section 10727.2(f) for monitoring sites or other data collection facilities to ensure that the monitoring network utilizes comparable data and methodologies.	X	8.2.1.4, 8.2.2.1, 8.2.3.1			
(j)			An Agency that has demonstrated that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin, as described in Section 354.26, shall not be required to establish a monitoring network related to those sustainability indicators.	X	8.2			
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.2, 10727.2, 10727.4, 10728, 10733, 10733.2, and 10733.8, Water Code					
§ 354.36. Representative Monitoring								
			Each Agency may designate a subset of monitoring sites as representative of conditions in the basin or an area of the basin, as follows:					
(a)			Representative monitoring sites may be designated by the Agency as the point at which sustainability indicators are monitored, and for which quantitative values for minimum thresholds, measurable objectives, and interim milestones are defined.	X	8.2.1			
(b)			(b) Groundwater elevations may be used as a proxy for monitoring other sustainability indicators if the Agency demonstrates the following:					
	(1)		Significant correlation exists between groundwater elevations and the sustainability indicators for which groundwater elevation measurements serve as a proxy.	X	8.2.1			
	(2)		Measurable objectives established for groundwater elevation shall include a reasonable margin of operational flexibility taking into consideration the basin setting to avoid undesirable results for the sustainability indicators for which groundwater elevation measurements serve as a proxy.	X	8.2.1			
(c)			The designation of a representative monitoring site shall be supported by adequate evidence demonstrating that the site reflects general conditions in the area.	X	8.2.1			

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			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10727.2 and 10733.2, Water Code					
§ 354.38.			Assessment and Improvement of Monitoring Network					
(a)			Each Agency shall review the monitoring network and include an evaluation in the Plan and each five-year assessment, including a determination of uncertainty and whether there are data gaps that could affect the ability of the Plan to achieve the sustainability goal for the basin.	X	8.2.1.5, 8.2.2.2, 8.2.3.2		8-2, 8-4	
(b)			Each Agency shall identify data gaps wherever the basin does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency.	X	8.2.1.5, 8.2.2.2, 8.2.3.2		8-2, 8-4	
(c)			If the monitoring network contains data gaps, the Plan shall include a description of the following:					
	(1)		The location and reason for data gaps in the monitoring network.	X	8.2.1.5, 8.2.2.2, 8.2.3.2		8-2, 8-4	
	(2)		Local issues and circumstances that limit or prevent monitoring.	X	8.2.1.5, 8.2.2.2, 8.2.3.2		8-2, 8-4	
(d)			Each Agency shall describe steps that will be taken to fill data gaps before the next five-year assessment, including the location and purpose of newly added or installed monitoring sites.	X	8.2.1.5, 8.2.2.2, 8.2.3.2		8-2, 8-4	
(e)			Each Agency shall adjust the monitoring frequency and density of monitoring sites to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions under circumstances that include the following:					
	(1)		Minimum threshold exceedances.	X	8.2		8-1	
	(2)		Highly variable spatial or temporal conditions.	X	8.2		8-1	
	(3)		Adverse impacts to beneficial uses and users of groundwater.	X	82			
	(4)		The potential to adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of sustainability goals in an adjacent basin.	N/A				No basins adjacent to Big Valley
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.2, 10727.2, 10728.2, 10733, 10733.2, and 10733.8, Water Code					

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Appendix 8C Selection from DWR Monitoring BMP

Abbreviations and Acronyms

ACWA	Ash Creek Wildlife Area
Basin	Big Valley Groundwater Basin
BVGB	Big Valley Groundwater Basin
BVAC	Big Valley Groundwater Basin Advisory Committee
CASGEM	California Statewide Groundwater Elevation Monitoring

36	DDW	Division of Drinking Water, State Water Resources Control Board
37	DWR	Department of Water Resources
38	EC	Electrical Conductivity
39	GAMA	Groundwater Ambient Monitoring and Assessment Program
40	GSA	Groundwater Sustainability Agency
41	GSP	Groundwater Sustainability Plan
42	SB	Senate Bill
43	SGMA	Sustainable Groundwater Management Act of 2014
44	SWRCB	California State Water Resources Control Board
45	USGS	United States Geologic Survey
46	SWRCB	State Water Resources Control Board

8. Monitoring Networks (§ 354.34)

8.1 Monitoring Objectives

This chapter describes the monitoring networks necessary to implement the Big Valley Groundwater Basin (BVGB or Basin) groundwater sustainability plan (GSP). The monitoring objectives under this GSP are twofold:

- to characterize groundwater and related conditions to evaluate the Basin's short-term, seasonal, and long-term trends related to the six sustainability indicators.
- to provide the information necessary for annual reports, including water levels and updates to the water budget¹.

The sections below describe the different types of monitoring required to meet the above objectives, including groundwater levels, groundwater quality, subsidence, streamflow, climate, and land use. Each type of monitoring relies on existing programs not governed by the groundwater sustainability agencies (GSAs) and therefore the monitoring networks described in this chapter are subject to change if the outside agencies modify or discontinue their monitoring.

8.2 Monitoring Network

8.2.1 Groundwater Levels

Monitoring of groundwater levels is necessary to meet several needs based on the above stated objectives of the monitoring networks, including:

- Representative monitoring for groundwater levels and groundwater storage sustainability indicators
- ~~The assumed G~~groundwater contours required for annual reports
- Shallow groundwater monitoring to help define potential interconnection of groundwater aquifers with surface water bodies

Table 8-1 lists existing wells that have been used for groundwater monitoring along with the newly constructed dedicated monitoring wells. The table indicates which wells are used for each of the three groundwater level monitoring networks. A more detailed table with elements required under §352.4(c) is included in **Appendix 8A**. Further details for each well and water

¹ Water levels are needed to generate hydrographs, contours, and an estimate of change in storage as required for the annual report. Also required for the annual reports are estimates of groundwater pumping, surface water use, and total water use which can be estimated from the water budget.

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Table 8-1 Big Valley Groundwater Basin Water Level Monitoring Network

Well Name	Well Use	Well Depth (feet bgs)	Screen ¹ Interval (feet bgs)	Representative Well ²	Depth to Water (feet bgs)		Groundwater Elevation (feet msl)		Contour Well	Shallow Well	Monitoring Frequency
					Measurable Objective ³	Minimum Threshold ⁴	Measurable Objective ³	Minimum Threshold ⁴			
01A1	Stockwatering	300	40 - 300	X	148	288	4035	3895	X		biannual
03D1	Irrigation	280	50 - 280						X		biannual
06C1	Irrigation	400	20 - 400						X		biannual
08F1	Other	217	26 - 217	X	32	172	4222	4082	X		biannual
12G1	Residential	116	--								biannual
13K2	Irrigation	260	20 - 260	X	66	206	4062	3922	X		biannual
16D1	Irrigation	491	100 - 491	X	93	233	4079	3939	X		biannual
17K1	Residential	180	30 - 180						X		biannual
18E1	Irrigation	520	21 - 520						X		biannual
18M1	Irrigation	525	40 - 525								biannual
18N2	Residential	250	40 - 250								biannual
20B6	Residential	183	41 - 183	X	41	181	4085	3945	X		biannual
21C1	Irrigation	300	30 - 300						X		biannual
22G1	Residential	260	115 - 260								biannual
23E1	Residential	84	28 - 84								biannual
24J2	Irrigation	192	1 - 192						X		biannual
26E1	Irrigation	400	20 - 400	X	20	160	4114	3974	X	X	biannual
28F1	Residential	73	--								biannual
32A2	Other	49	--						X		biannual
32R1	Irrigation	--	--						X		biannual
ACWA-1	Irrigation	780	60 - 780						X		biannual
ACWA-2	Irrigation	800	50 - 800						X		biannual
ACWA-3	Irrigation	720	60 - 720	X	23	163	4136	3996	X	X	biannual
BVMW 1-1	Observation	265	175 - 265	X	53	193	4162	4022	X		continuous ⁵
BVMW 1-2	Observation	52	32 - 52							X	continuous ⁵
BVMW 1-3	Observation	50	30 - 50							X	continuous ⁵
BVMW 1-4	Observation	49	29 - 49							X	continuous ⁵
BVMW 2-1	Observation	250	210 - 250	X	22	162	4194	4054	X		continuous ⁵
BVMW 2-2	Observation	70	50 - 70							X	continuous ⁵
BVMW 2-3	Observation	70	50 - 70							X	continuous ⁵
BVMW 2-4	Observation	60	40 - 60							X	continuous ⁵
BVMW 3-1	Observation	185	135 - 185	X	18	158	4146	4006	X		continuous ⁵
BVMW 3-2	Observation	40	25 - 40							X	continuous ⁵
BVMW 3-3	Observation	50	25 - 50							X	continuous ⁵
BVMW 3-4	Observation	50	25 - 50							X	continuous ⁵
BVMW 4-1	Observation	425	385 - 415	X	65	205	4088	3948	X		continuous ⁵
BVMW 4-2	Observation	74	54 - 74							X	continuous ⁵
BVMW 4-3	Observation	80	60 - 80							X	continuous ⁵
BVMW 4-4	Observation	93	73 - 93							X	continuous ⁵
BVMW 5-1	Observation	540	485 - 535	X	47	187	4082	3942	X		continuous ⁵
BVMW 5-2	Observation	115	65 - 115							X	continuous ⁵
BVMW 5-3	Observation	85	65 - 85							X	continuous ⁵
BVMW 5-4	Observation	90	70 - 90							X	continuous ⁵

Notes:

-- = information not available

feet bgs = feet below ground surface (depth to water)

feet msl = feet above mean sea level (groundwater elevation NAVD88)

water year = October 1 to September 30

¹ For the purposes of this GSP, the terms "screen" or "perforation" encompasses any interval that allows water to enter the well from the aquifer, including casing perforations, well screens, or open hole.

² Representative wells for Water Levels and Groundwater Storage

³ Measurable objective is set at the Fall 2015 water level or at the lowest water level measured for wells that don't have a Fall 2015 measurement

⁴ Minimum threshold is set at 140 feet below the measurable objective

⁵ Continuous measurements are currently available due to the water level transducers installed in the wells. Less frequent monitoring may be appropriate in the future once the period of record of these wells is longer and interconnection of surface and groundwater is better understood.

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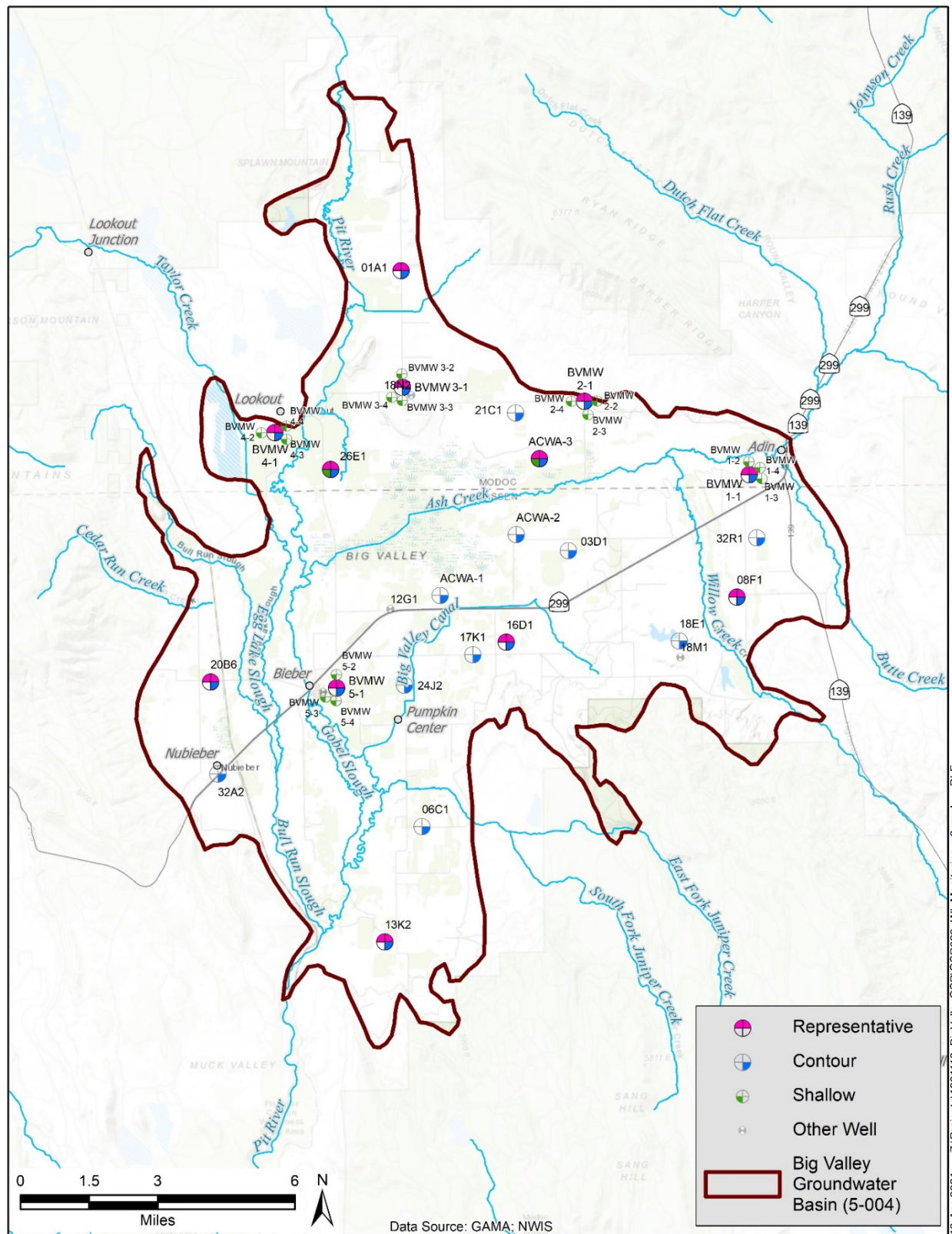


Figure 8-1 Water Level Monitoring Networks

level hydrographs are included in **Appendix 5A**. **Appendix 8B** contains the As-Built Drawings for the dedicated monitoring wells, also required by §352.4(c). The locations of the wells are shown on **Figure 8-1**.

GSP Regulation §352.4 states that monitoring sites that do not conform to Department of Water Resources (DWR) best management practices (BMPs) “shall be identified and the nature of the divergence from [BMPs] described.” DWR’s BMP (DWR 2016a) states that wells should be dedicated to groundwater monitoring. In addition, §354.34 indicates that wells in the monitoring network should have “depth-discrete² perforated intervals”. Many of the historic wells listed in **Table 8-1** diverge from these standards and the explanation of their suitability for monitoring is described below.

Previous groundwater level monitoring in the Basin has relied on existing domestic and irrigation wells that ~~typically often~~ have pumps in them ~~and are~~ used for irrigation, stockwatering, or domestic uses. The intent of groundwater level monitoring is to capture static (non-pumping) water levels. However, historic ~~(and the proposed future)~~ monitoring is performed before and after the irrigation season, March or April for spring measurements and October for fall measurements³. Since these measurements are taken at a time when large-scale groundwater use is typically not active, using production wells is acceptable in the absence of dedicated monitoring wells. DWR staff who monitor the wells will indicate if the well (or a nearby well) is pumping so that can be considered when assessing water level measurements.

In addition to the well use considerations, most of the historic wells do not have depth-discrete screen intervals⁴, as the typical well construction practice in the Basin has been to use long (100 feet up to 800 feet) screens, perforations, or open hole below about 30-40 feet of blank well casing. This construction practice is designed to maximize well yield. The use of such long-screen wells is acceptable for monitoring in Big Valley because multiple aquifers have not been defined in the Basin and these long intervals therefore do not cross defined aquifers. Since most wells are constructed with this practice, water levels in these long-screen wells should be indicative of the aquifer as a whole and less likely to be affected by perched water or isolated portions of the aquifer that may not be interconnected over large areas.

8.2.1.1 Representative Groundwater Levels and Storage Monitoring Network

The representative monitoring network includes all wells that have been assigned sustainable management criteria (minimum thresholds and measurable objectives). DWR does not give strict guidance on the number or density of wells appropriate for representative monitoring. Their BMP document cites sources that recommend well densities ranging from 0.2 to 10 wells per 100

² “Depth-discrete” means that the screens, perforations, or open hole is relatively short (typically less than about 20 feet).

³ Local stakeholders have advocated for future measurements to occur in mid-March and late-October to ensure they are taken before and after the irrigation season.

⁴ Screens in this context includes perforated casing, well screens, or open hole, all of which allow water to flow into the well.

square miles (DWR 2016a). Through consultation with the Big Valley Advisory Committee (BVAC), twelve wells were selected for representative monitoring of the 144 square mile Basin, a density of 8.3 wells per 100 square miles.

Considerations for selection of the wells included:

- Spatial distribution throughout the Basin to represent agricultural pumping areas and domestic well clusters
- An existing monitoring record (where available) to track long-term trends
- Access for long-term future monitoring
- Well depth (greater than ~~150~~ 140 feet below fall 2015 levels⁵)
- Wells dedicated to monitoring where available

Table 8-1 shows the measurable objectives and minimum thresholds for the twelve representative wells.

8.2.1.2 Groundwater Contour Monitoring Network

The GSP Regulations (§356.2) require that annual reports include groundwater contours for the previous year (spring and fall) as well as an estimate of change in groundwater storage. Historic groundwater storage changes were estimated in Chapter 5 using groundwater contours contained in **Appendix 5B**. Therefore, for annual reports to be comparable to historic conditions the wells used for groundwater contouring should be the same, or nearly the same as those used for the historic contours. Five wells that were used in the historic contours are not included in the groundwater contour monitoring network (18M1, 18N2, 22G1, 23E1, and 28F1), because they were either replaced by a new dedicated monitoring well or there was another well close by that makes the measurement unnecessary. **Table 8-1** lists the groundwater contour monitoring network and **Figure 8-1** shows their locations.

8.2.1.3 Shallow Groundwater Monitoring Network

Chapter 5 discusses the lack of interconnected surface water and describes the perennial streams in the BVGB which may be interconnected to the groundwater aquifer. As described in Chapter 7, there is currently no conclusive evidence for interconnection of perennial streams with the groundwater aquifer ~~and the volume of depletions (if any) is unknown~~. Therefore, measurable objectives, minimum thresholds, and a representative monitoring network for ~~depletion of~~ interconnected surface water have not been established. Monitoring will be assessed at the 5-year update. Through consultation with the BVAC, a shallow monitoring network has been established that includes the shallow wells from each of the five monitoring well clusters. These

⁵ These well depths are needed to ensure water levels can be measured if they approach the minimum threshold as defined in Chapter 8.

clusters were designed to measure the magnitude and direction of shallow groundwater flow and are equipped with water level transducers that collect continuous (15-minute interval) water level measurements so that potential correlations with streamflow gages can be assessed. Well 26E1 was also added to the shallow network due to its position between the two major streams (Pit River and Ash Creek), that it is screened up to a shallow depth (20 feet below ground surface), and it does not have a pump. Well ACWA-3 was also selected for the shallow network due to its location on the Ash Creek Wildlife Area (ACWA) within the northern portion of the Ash Creek wetlands associated with Big Swamp. **Table 8-1** lists the shallow groundwater monitoring network and **Figure 8-1** shows their locations.

8.2.1.4 Monitoring Protocols and Data Reporting Standards

Currently, DWR measures groundwater levels at 21 wells in Big Valley. The expectation of the GSAs is that DWR will also monitor levels at the dedicated monitoring wells and download the transducer data from these wells. Transducer data will be corrected for barometric fluctuations using data from two barometric probes installed at two of the clusters. Water level data will be made available on the state's SGMA Data Viewer website for use by the GSAs in their annual reports and GSP updates. DWR's water level monitoring protocols are documented in their Monitoring Protocols, Standards, and Sites BMP. (DWR 2016b). Portions of the BMP relevant to water levels are included in **Appendix 8C**.

8.2.1.5 Data Gaps in the Water Level Monitoring Network

Data gaps are identified in this section using guidelines in the SGMA Regulations and BMP published by DWR on monitoring networks (DWR, 2016a). **Table 8-2** summarizes the suggested attributes of a groundwater level monitoring network from the BMP in comparison to the current network and identifies data gaps. No data gaps exist except the area near 06C1, shown on **Figure 8-1**.

8.2.2 Groundwater Quality

Chapter 5 describes water quality conditions as overall excellent, and the few constituents that are infrequently elevated in Big Valley are all naturally occurring. Therefore, measurable objectives, minimum thresholds, and a representative monitoring network have not been established. Monitoring will be assessed at the 5-year update. To make such an assessment, the GSAs will rely on existing programs, described in Chapter 7. Focus will be on the water quality reported for wells regulated by the State Water Resources Control Board's (SWRCB's) Division of Drinking Water (DDW). DDW wells are shown on **Figure 8-2** and are in Bieber and Adin, with one well in the western portion of the Basin. In addition to data from DDW, the GSAs have installed three transducers to measure electrical conductivity (EC) at wells BVMW 1-1, 4-1, and 5-1, shown on **Figure 8-2**. These transducers increase the distribution of the monitoring network around the Basin and with increased frequency of measurement will allow the GSAs to better understand temporal trends that may not be apparent from infrequent DDW measurements. The

Table 8-2. Summary of Best Management Practices, Groundwater Level Monitoring Well Network, and Data Gaps

Best Management Practice (DWR, 2016a)	Current Monitoring Network	Data Gap
Groundwater level data will be collected from each principal aquifer in the basin.	12 representative wells	None. There is a single principal aquifer and therefore all wells monitor the aquifer
Groundwater level data must be sufficient to produce seasonal maps of groundwater elevations throughout the basin that clearly identify changes in groundwater flow direction and gradient (Spatial Density).	22 contour wells	21 of the 22 proposed contour wells are currently monitored. Well 06C1 was monitored up until water year 2016. This well fills an important spatial area in the southern part of the Basin. To fill the data gap, the well could be re-activated, a new willing well owner found, or a dedicated monitoring well constructed in the area.
Groundwater levels will be collected during the middle of October and March for comparative reporting purposes, although more frequent monitoring may be required (Frequency).	All proposed monitoring network wells, except 06C1 are measured biannually, with the dedicated monitoring wells collecting continuous (15-minute) measurements	None. Current DWR monitoring occurs in March or April and in October for seasonal high (spring) and low (fall) respectively.
Data must be sufficient for mapping groundwater depressions, recharge areas, and along margins of basins where groundwater flow is known to enter or leave a basin.	Groundwater depressions are present in the east-central part of the Basin near 03D1 and in the southern portion of the Basin near 06D1 and 13K2	03D1 defines the east-central depression. To ensure adequate definition of the southern depression, well 06C1 could be re-activated, a new willing well owner found, or a dedicated monitoring well constructed in the area.
Well density must be adequate to determine changes in storage.	22 contour wells	Filling of data gap near 06C1
Data must be able to demonstrate the interconnectivity between shallow groundwater and surface water bodies, where appropriate.	17 shallow wells, including 5 clusters of 3 shallow wells each	None
Data must be able to map the effects of management actions, i.e., managed aquifer recharge.	22 contour wells and 17 shallow wells	None. Once projects and management actions are defined, monitoring specific to those projects and management actions will be identified.
Data must be able to demonstrate conditions near basin boundaries; agencies may consider coordinating monitoring efforts with adjacent basins to provide consistent data across basin boundaries. Agencies may consider characterization and continued impacts of internal hydraulic boundary conditions, such as faults, disconformities, or other internal boundary types.	22 contour wells and 17 shallow wells	None. There are no direct boundaries with adjacent Basins. Inflow/outflow from Basin addressed above
Data must be able to characterize conditions and monitor adverse impacts to beneficial uses and users identified within the basin.	12 representative wells	None

EC transducers may be able to put anomalous measurements from DDW into better context.

Table 8-3 lists the groundwater quality monitoring sites and their details.

Table 8-3 Big Valley Groundwater Basin Water Quality Monitoring Network

Well Name	SWRCB Public Source Code	DWR Site Code	Well Use	Well Depth (feet bgs)	Open Hole	Screen ¹ Interval (feet bgs)	Constituents
Bieber Town Well 1	1810003-001		Public Supply	200	yes	62 - 200	Title 22
Bieber Town Well 2	1810003-002		Public Supply	240	no	60 - 240	Title 22
Adin Ranger Station Well 3	2500547-003		Public Supply	--	--	--	Title 22
Intermountain Conservation Camp Well 1	1810801-001		Public Supply	--	--	--	Title 22
BVMW 1-1		411880N1209599W001	Observation	265	no	175 - 265	Electrical conductivity
BVMW 3-1		412029N1211587W001	Observation	185	no	135 - 185	Electrical conductivity
BVMW 5-1		411219N1211339W001	Observation	540	no	485 - 535	Electrical conductivity

Notes:

-- = information not available

feet bgs = feet below ground surface (depth to water)

¹ For the purposes of this GSP, the terms "screen" or "perforation" encompasses any interval that allows water to enter the well from the aquifer, including casing perforations, well screens, or open hole.

8.2.2.1 Monitoring Protocols and Data Reporting Standards

While DWR provides guidance on protocols and standards for water quality in their BMP (DWR 2016b), these don't generally apply to the Big Valley water quality monitoring network. For the DDW wells, monitoring protocols used by the parties responsible for collecting and analyzing samples will be relied upon. DDW and other data regulated by the SWRCB is made available on their GeoTracker GAMA website. At the 5-year update, the GSAs will download and analyze the available data. For the EC transducers, measurements are made in situ with no samples collected or analyzed in a laboratory.

8.2.2.2 Data Gaps in the Water Quality Monitoring Network

Table 8-4 summarizes the recommendations for groundwater quality monitoring from DWR's BMPs, the current network, and data gaps. There are no data gaps in the water quality monitoring network.



Table 8-4. Summary of Groundwater Quality Monitoring, Best Management Practices, and Data Gaps

Best Management Practices (DWR, 2016a)	Current Network	Data Gap
Monitor groundwater quality data from each principal aquifer in the basin that is currently, or may be in the future, impacted by degraded water quality. The spatial distribution must be adequate to map or supplement mapping of known contaminants. Monitoring should occur based upon professional opinion, but generally correlate to the seasonal high and low groundwater level, or more frequent as appropriate.	4 public supply wells and 3 monitoring wells with EC transducers	None. Most known contaminants are located in Bieber and Nubieber. Monitoring at Bieber Town wells and in BVMW 5-1 have not shown contaminants, but monitoring there would indicate if they become present.
Collect groundwater quality data from each principal aquifer in the basin that is currently, or may be in the future, impacted by degraded water quality. Agencies should use existing water quality monitoring data to the greatest degree possible. For example, these could include ILRP, GAMA, existing RWQCB monitoring and remediation programs, and drinking water source assessment programs.	4 public supply wells and 3 monitoring wells with EC transducers	None.
Define the three-dimensional extent of any existing degraded water quality impact.	No degraded water quality impacts are present	None.
Data should be sufficient for mapping movement of degraded water quality.	No degraded water quality impacts are present	None.
Data should be sufficient to assess groundwater quality impacts to beneficial uses and users.	No degraded water quality impacts are present	None.
Data should be adequate to evaluate whether management activities are contributing to water quality degradation.	None. Projects and management activities that are implemented will assess potential water quality impacts.	None.

8.2.3 *Land Subsidence*

As described in Chapters 5 and 7, no significant land subsidence has occurred in the BVGB and no subsidence is likely to occur that would have an impact on infrastructure or flood risk. Therefore, measurable objectives, minimum thresholds, and a representative monitoring network have not been established. This assessment was made based on a continuous global positioning system (CGPS) station near Adin (P347) and interferometric synthetic aperture radar (InSAR) data provided by DWR. Future assessment of subsidence at the five year GSP update will rely on data provided by the National Oceanic and Atmospheric Administration (NOAA) who operates P347 and updated InSAR data provided by DWR. The data will be assessed to determine if significant subsidence is occurring and the source of that subsidence.

8.2.3.1 *Monitoring Protocols and Data Reporting Standards*

Since the monitoring network relies on NOAA and DWR-provided data, the monitoring protocols and reporting standards for those organizations apply.

8.2.3.2 *Data Gaps in the Subsidence Monitoring Network*

Since InSAR data is continuous across the Basin, there are no spatial data gaps. If subsidence is indicated by future InSAR datasets, there may be a need to field verify those areas to determine if field leveling has occurred. Additional field validation could potentially be made by re-surveying monuments in the Basin, including those installed at the new monitoring wells.

8.2.4 *Monitoring to Support Water Budget*

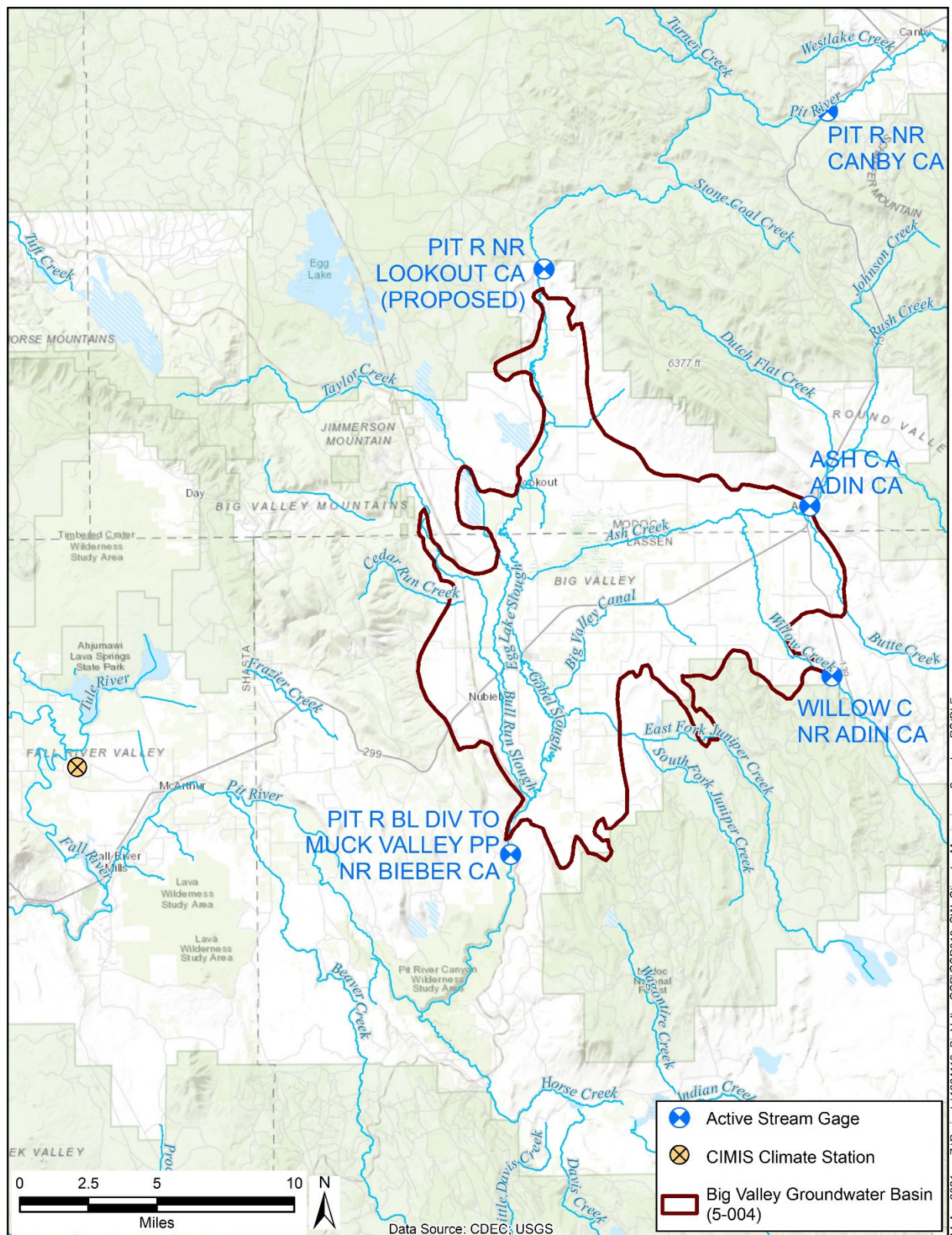
8.2.4.1 *Streamflow and Climate*

Streamflow and climate data are needed to update the water budget. Current monitoring sites are shown on **Figure 8-3**. Modoc County has been working to improve water budget estimates and is proposing to add a stream gage on the Pit River just north of the BVGB, shown on **Figure 8-3**. Data gaps for smaller streams, such as inflow from Roberts Reservoir, Taylor Creek, and Juniper Creek are proposed to be filled by investigating SB88 stream diversion records submitted to the SWRCB.

8.2.4.2 *Land Use*

Land use data is needed for updates to the water budget. Since 2014, DWR has provided land use mapping using remote sensing processed by LandIQ. DWR has provided these datasets for 2014, 2016, and 2018. The GSAs will rely on DWR continuing to provide this land use data to generate annual updates to the water budget. The most recent land use data available will be used to generate the evapotranspiration estimates. Current research is being performed to develop the relationship between evapotranspiration (ET) and applied water. This research indicates that

237 crops in this area are typically irrigated less than indicated by the assumptions made by
238 multiplying reference ETo by crop coefficients.



239

Figure 8-3 Surface Water and Climate Monitoring Network

8.3 References

- Department of Water Resources (DWR), 2016a. Monitoring Networks and Identification of Data Gaps BMP. December 2016. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-2-Monitoring-Networks-and-Identification-of-Data-Gaps_ay_19.pdf.
- DWR, 2016b. Monitoring Protocols, Standards and Sites BMP. December 2016. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-1-Monitoring-Protocols-Standards-and-Sites_ay_19.pdf.

Appendix 8A Water Level Monitoring Well Details

Well Name	State Well Number	DWR Site Code	DWR Well Completion Report Number	Well Use	Ground Surface Elevation (feet msl)	Reference Point Elevation (feet msl)	Reference Point Description	Well Depth (feet bgs)	Open Hole	Screen ¹ Interval (feet bgs)	Period of Record Start (water year)	Period of Record End (water year)	Highest Depth to Water (feet bgs)	Lowest Depth to Water (feet bgs)	Depth to Water Range (feet bgs)	Groundwater Elevation Range (feet msl)	Comments
01A1	39N07E01A001M	412539N1211050W001	14565	Stockwatering	4183.40	4184.40	Hole in plate at TOC.	300	yes	40 - 300	1979	2021	19.50	148.00	20 - 148	4164 - 4035	
03D1	38N08E03D001M	411647N1210358W001	16564	Irrigation	4163.40	4163.40	TOC below pump base, west side.	280	no	50 - 280	1982	2021	14.80	91.80	15 - 92	4149 - 4072	
06C1	37N08E06C001M	410777N1210986W001	14580	Irrigation	4133.40	4133.90	Hole in pump base on NW side.	400	yes	20 - 400	1982	2016	6.60	67.20	7 - 67	4127 - 4066	
08F1	38N09E08F001M	411493N1209656W001	49934	Other	4253.40	4255.40	Top of casing below welded plate.	217	yes	26 - 217	1979	2021	23.60	32.90	24 - 33	4230 - 4221	
12G1	38N07E12G001M	411467N1211110W001	--	Residential	4143.38	4144.38	None Provided	116	no	--	1979	1994	4.70	12.40	5 - 12	4139 - 4131	Measurements stopped in 1994
13K2	37N07E13K002M	410413N1211147W001	090029	Irrigation	4127.40	4127.90	Hole in pump base NE side; remove bolt.	260	yes	20 - 260	1982	2021	17.70	65.50	18 - 66	4110 - 4062	
16D1	38N08E16D001M	411359N1210625W001	090143	Irrigation	4171.40	4171.60	2" access tube, SW side.	491	yes	100 - 491	1982	2021	9.00	92.67	9 - 93	4162 - 4079	
17K1	38N08E17K001M	411320N1210766W001	218	Residential	4153.30	4154.30	TOC	180	yes	30 - 180	1957	2021	3.30	38.20	3 - 38	4150 - 4115	
18E1	38N09E18E001M	411356N1209900W001	138559	Irrigation	4248.40	4249.50	Hole in pumpbase, SE side.	520	yes	21 - 520	1981	2021	14.30	86.40	14 - 86	4234 - 4162	
18M1	38N09E18M001M	411305N1209896W001	138563	Irrigation	4288.40	4288.90	Under cap plate, southwest side.	525	yes	40 - 525	1981	2021	55.70	96.10	56 - 96	4233 - 4192	Located next to 18E1
18N2	39N08E18N002M	412144N1211013W001	127457	Residential	4163.40	4164.40	TOC	250	yes	40 - 250	1979	2021	3.20	26.80	3 - 27	4160 - 4137	Located next to BVMW-3
20B6	38N07E20B006M	411242N1211866W001	128135	Residential	4126.30	4127.30	TOC where rope goes in well.	183	yes	41 - 183	1979	2021	9.70	49.40	10 - 49	4117 - 4077	
21C1	39N08E21C001M	412086N1210574W001	127008	Irrigation	4161.40	4161.70	TOC; remove bolt from 3/8" hole in steel plate SE side	300	yes	30 - 300	1979	2021	12.90	79.30	13 - 79	4149 - 4082	
22G1	39N07E22G001M	412074N1211497W001	5322	Residential	4143.40	4144.40	TOC under plate -- SW side.	260	yes	115 - 260	1979	2021	6.70	38.20	7 - 38	4137 - 4105	In Lookout, outside basin
23E1	38N07E23E001M	411207N1211395W001	38108	Residential	4123.40	4123.40	TOC where rope goes in.	84	yes	28 - 84	1979	2021	14.30	53.00	14 - 53	4109 - 4070	In Bieber next to BVMW-5
24J2	38N07E24J002M	411228N1211054W001	--	Irrigation	4138.40	4139.40	Hole in pump base.	192	yes	1 - 192	1979	2021	0.70	81.70	1 - 82	4138 - 4057	
26E1	39N07E26E001M	411911N1211354W001	127484	Irrigation	4133.40	4135.00	Hole inside SE corner of pumpbase.	400	no	20 - 400	1979	2021	2.10	44.50	2 - 45	4131 - 4089	
28F1	39N09E28F001M	411907N1209447W001	--	Residential	4206.60	4207.10	None Provided	73	no	--	1982	2021	4.50	12.03	5 - 12	4202 - 4195	In Adin next to BVMW-1
32A2	38N07E32A002M	410950N1211839W001	--	Other	4118.80	4119.50	TOC	49	no	--	1959	2021	0.00	12.10	0 - 12	4119 - 4107	
32R1	39N09E32R001M	411649N1209569W001	--	Irrigation	4243.40	4243.60	Hole in pumpbase, south side.	--	no	--	1981	2021	37.90	82.20	38 - 82	4206 - 4161	
ACWA-1	38N08E07A001M	411508N1210900W001	0962825	Irrigation	4142.00	4142.75	Access port on NE side of wellhead.	780	no	60 - 780	2016	2021	15.65	102.85	16 - 103	4126 - 4039	
ACWA-2	39N08E33P002M	411699N1210579W001	484622	Irrigation	4153.00	4153.20	Access on SE side of well casing	800	no	50 - 800	2016	2021	13.65	26.60	14 - 27	4139 - 4126	
ACWA-3	39N08E28A001M	411938N1210478W001	0951365	Irrigation	4159.00	4159.83	Hole in pump base, remove plug. Same access as airline.	720	no	60 - 720	2016	2021	8.42	23.07	8 - 23	4151 - 4136	
BVMW 1-1	--	411880N1209599W001	2020-006214	Observation	4214.17	4213.84	Notch on PVC casing	265	no	175 - 265	2020	2021	29.66	52.66	30 - 53	4185 - 4162	
BVMW 1-2	--	411881N1209598W001	2020-006283	Observation	4214.54	4214.21	Notch on PVC casing	52	no	32 - 52	2020	2021	28.69	36.82	29 - 37	4186 - 4178	
BVMW 1-3	--	411878N1209593W001	2020-006285	Observation	4218.50	4218.17	Notch on PVC casing	50	no	30 - 50	2020	2021	32.69	40.84	33 - 41	4186 - 4178	
BVMW 1-4	--	411880N1209590W001	2020-006328	Observation	4218.39	4218.06	Notch on PVC casing	49	no	29 - 49	2020	2021	32.38	40.36	32 - 40	4186 - 4178	
BVMW 2-1	--	412119N1210286W001	2020-006667	Observation	4216.51	4216.18	Notch on PVC casing	250	no	210 - 250	2020	2021	21.66	22.33	22 - 22	4195 - 4194	
BVMW 2-2	--	412118N1210286W001	2020-006670	Observation	4216.77	4216.44	Notch on PVC casing	70	no	50 - 70	2020	2021	17.48	20.82	17 - 21	4199 - 4196	
BVMW 2-3	--	412110N1210287W001	2020-006674	Observation	4214.26	4213.93	Notch on PVC casing	70	no	50 - 70	2020	2021	31.30	34.73	31 - 35	4183 - 4180	
BVMW 2-4	--	412120N1210294W001	2020-006677	Observation	4209.95	4209.62	Notch on PVC casing	60	no	40 - 60	2020	2021	19.77	23.63	20 - 24	4190 - 4186	
BVMW 3-1	--	412169N1211050W001	2020-006592	Observation	4164.75	4164.41	Notch on PVC casing	185	no	135 - 185	2020	2021	14.86	18.34	15 - 18	4150 - 4146	
BVMW 3-2	--	412170N1211050W001	2020-006595	Observation	4164.92	4164.58	Notch on PVC casing	40	no	25 - 40	2020	2021	9.96	13.60	10 - 14	4155 - 4151	
BVMW 3-3	--	412157N1211051W001	2020-006593	Observation	4164.36	4164.02	Notch on PVC casing	50	no	25 - 50	2020	2021	5.70	8.56	6 - 9	4159 - 4156	
BVMW 3-4	--	412157N1211054W001	2020-006596	Observation	4165.31	4164.97	Notch on PVC casing	50	no	25 - 50	2020	2021	6.83	9.81	7 - 10	4158 - 4156	
BVMW 4-1	--	412029N1211587W001	2019-017359	Observation	4152.73	4152.40	Notch on PVC casing	425	no	385 - 415	2020	2021	37.43	64.75	37 - 65	4115 - 4088	
BVMW 4-2	--	412029N1211588W001	2019-017360	Observation	4153.06	4152.73	Notch on PVC casing	74	no	54 - 74	2020	2021	29.77	48.57	30 - 49	4123 - 4104	
BVMW 4-3	--	412030N1211579W001	2019-017361	Observation	4152.66	4152.33	Notch on PVC casing	80	no	60 - 80	2020	2021	29.68	48.96	30 - 49	4123 - 4104	
BVMW 4-4	--	412035N1211578W001	2019-017362	Observation	4161.65	4161.32	Notch on PVC casing	93	no	73 - 93	2020	2021	39.06	58.80	39 - 59	4123 - 4103	
BVMW 5-1	--	411219N1211339W001	2020-006658	Observation	4129.05	4129.05	Notch on PVC casing	540	no	485 - 535	2020	2021	40.35	46.65	40 - 47	4089 - 4082	
BVMW 5-2	--	411220N1211339W001	2020-006659	Observation	4128.92	4128.92	Notch on PVC casing	115	no	65 - 115	2020	2021	20.40	25.80	20 - 26	4109 - 4103	
BVMW 5-3	--	411212N1211366W001	2020-006661	Observation	4131.73	4131.73	Notch on PVC casing	85	no	65 - 85	2020	2021	34.86	45.02	35 - 45	4097 - 4087	
BVMW 5-4	--	411206N1211340W001	2020-006663	Observation	4130.23	4130.23	Notch on PVC casing	90	no	70 - 90	2020	2021	33.67	43.27	34 - 43	4097 - 4087	

Notes:

-- = information not available

feet bgs = feet below ground surface (depth to water)

feet msl = feet above mean sea level (groundwater elevation NAVD88)

water year = October 1 to September 30

¹ For the purposes of this GSP, the terms "screen" or "perforation" encompasses any interval that allows water to enter the well from the aquifer, including casing perforations, well screens, or open hole.

Appendix 8B New Monitoring Well As-Built Drawings

D

**B**

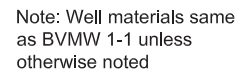
Flush-mounted,
traffic-rated,

DEPTH (FT)

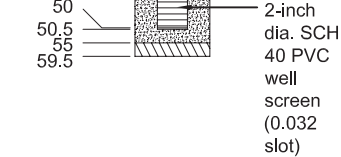


DEPTH (FT)

DTW = 28.36' on 3/4/2020

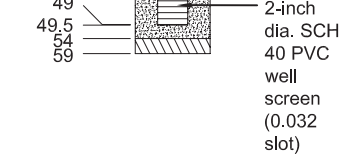


DEPTH (FT)



DEPTH (FT)

DTW = 32.05' on 3/4/2020



Site 1

**MW 1-1 (Deep)**

MW 1-4 ✓

MW 1-3

ON BEHALF OF:



DESIGNED: D. Fairman	CHECKED: J. Zumbro
DRAWN: F. Olson / V. Yap	REVIEWED: D. Fairman

BIG VALLEY
GROUNDWATER BASIN

DRAWING 1

D

**B**

Diagram illustrating the cross-section of a well installation, showing depth (FT) on the left and components on the right.

Depth markers (FT): 5, 20, 130, 135, 185, 185.5, 193, 470.

Components and Notes:

- Traffic Box See Detail
- 2-Sack Sand-Cement Slurry
- DTW = 9.80' on 3/4/2020
- Neat cement sanitary seal
- 8-inch dia. borehole
- 2.5-inch dia. SCH 80 PVC blank casing
- Bentonite chips
- 8 x 16 Gravel envelope
- 2.5-inch dia. SCH 80 PVC well screen (0.030 slot)
- Bentonite chips

Note: as BV other

See Detail

2-Sack Sand-Cement Slurry

DEPTH (FT)

5

20

22

25

40

40.5

45

DTW = 13.90 on 3/4/2020

2-inch dia. SCH 40 PVC blank casing

2-inch dia. SCH 40 PVC well screen (0.032 slot)

Note: Well materials same as BVMW 3-1 unless otherwise noted

DEPTH (FT)

DTW = 5.68' on 3/4/2020

2.5-inch dia. SCH 40 PVC blank casing

2-inch dia. SCH 40 PVC well screen (0.032 slot)

0

20

22

25

50

50.5

53

55

The diagram illustrates the cross-section of a traffic box installation. Key components and dimensions include:

- Native Ground:** The original ground level on the left side.
- Traffic Box:** The central structure being installed.
- 2-Sack Sand-Cement Slurry:** The material filling the space around the traffic box.
- 2 or 2.5-inch dia. PVC Blank Casing:** The vertical pipe through the traffic box.
- Neat Cement Sanitary Seal:** The seal at the base of the casing.
- Road Base:** The layer above the traffic box, with a thickness of 12".
- Dimensions:**
 - 60" (width of the road base above the traffic box)
 - 60" (height of the traffic box)
 - 8" (width of the casing at the base)

Site 3

MW 3-2

MW 3-1 (Deep)

MW 3-3

MW 3-4

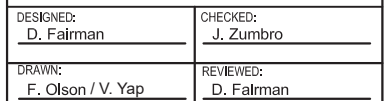
E Gouger Neck Rd

Co Rd 87

0 200 400 Feet

**Corrected reference point elevation should be used for water level measurements and accounts for horizontal offset and curvature of casing.*

ON BEHALF OF:



Date: 4/13/2021

Drilling Completed By:
Maggiore Brothers Drilling, Inc.
Jan-Feb 2020

BIG VALLEY
GROUNDWATER BASIN

AS-BUILT MONITORING WELL CONSTRUCTION DETAILS: SITE 3 ROADS 87 & 90

DRAWING 3

Appendix 8C Selection from DWR Monitoring BMP

PROTOCOLS FOR MEASURING GROUNDWATER LEVELS

This section presents considerations for the methodology of collection of groundwater level data such that it meets the requirements of the GSP Regulations and the DQOs of the specific GSP. Groundwater levels are a fundamental measure of the status of groundwater conditions within a basin. In many cases, relationships of the sustainability indicators may be able to be correlated with groundwater levels. The quality of this data must consider the specific aquifer being monitored and the methodology for collecting these levels.

The following considerations for groundwater level measuring protocols should ensure the following:

- Groundwater level data are taken from the correct location, well ID, and screen interval depth
- Groundwater level data are accurate and reproducible
- Groundwater level data represent conditions that inform appropriate basin management DQOs
- All salient information is recorded to correct, if necessary, and compare data
- Data are handled in a way that ensures data integrity

General Well Monitoring Information

The following presents considerations for collection of water level data that include regulatory required components as well as those which are recommended.

- Groundwater elevation data will form the basis of basin-wide water-table and piezometric maps, and should approximate conditions at a discrete period in time. Therefore, all groundwater levels in a basin should be collected within as short a time as possible, preferably within a 1 to 2 week period.
- Depth to groundwater must be measured relative to an established Reference Point (RP) on the well casing. The RP is usually identified with a permanent marker, paint spot, or a notch in the lip of the well casing. By convention in open casing monitoring wells, the RP reference point is located on the north side of the well casing. If no mark is apparent, the person performing the measurement should measure the depth to groundwater from the north side of the top of the well casing.
- The elevation of the RP of each well must be surveyed to the North American Vertical Datum of 1988 (NAVD88), or a local datum that can be converted to NAVD88. The elevation of the RP must be accurate to within 0.5 foot. It is preferable for the RP elevation to be accurate to 0.1 foot or less. Survey grade global navigation satellite system (GNSS) global positioning system (GPS) equipment can achieve similar vertical accuracy when corrected. Guidance for use of GPS can be found at USGS <http://water.usgs.gov/osw/gps/>. Hand-held GPS units likely will not produce reliable vertical elevation measurement accurate enough for the casing elevation consistent with the DQOs and regulatory requirements.
- The sampler should remove the appropriate cap, lid, or plug that covers the monitoring access point listening for pressure release. If a release is observed, the measurement should follow a period of time to allow the water level to equilibrate.
- Depth to groundwater must be measured to an accuracy of 0.1 foot below the RP. It is preferable to measure depth to groundwater to an accuracy of 0.01 foot. Air lines and acoustic sounders may not provide the required accuracy of 0.1 foot.
- The water level meter should be decontaminated after measuring each well.

Where existing wells do not meet the base standard as described in the GSP Regulations or the considerations provided above, new monitoring wells may need to be constructed to meet the DQOs of the GSP. The design, installation, and documentation of new monitoring wells must consider the following:

- Construction consistent with California Well Standards as described in Bulletins 74-81 and 74-90, and local permitting agency standards of practice.
- Logging of borehole cuttings under the supervision of a California Professional Geologist and described consistent with the Unified Soil Classification System methods according to ASTM standard D2487-11.
- Written criteria for logging of borehole cuttings for comparison to known geologic formations, principal aquifers and aquitards/aquicludes, or specific marker beds to aid in consistent stratigraphic correlation within and across basins.
- Geophysical surveys of boreholes to aid in consistency of logging practices. Methodologies should include resistivity, spontaneous potential, spectral gamma, or other methods as appropriate for the conditions. Selection of geophysical methods should be based upon the opinion of a professional geologist or professional engineer, and address the DQOs for the specific borehole and characterization needs.
- Prepare and submit State well completion reports according to the requirements of §13752. Well completion report documentation should include geophysical logs, detailed geologic log, and formation identification as attachments. An example well completion as-built log is illustrated in **Figure 2**. DWR well completion reports can be filed directly at the Online System for Well Completion Reports (OSWCR) <http://water.ca.gov/oswcr/index.cfm>.

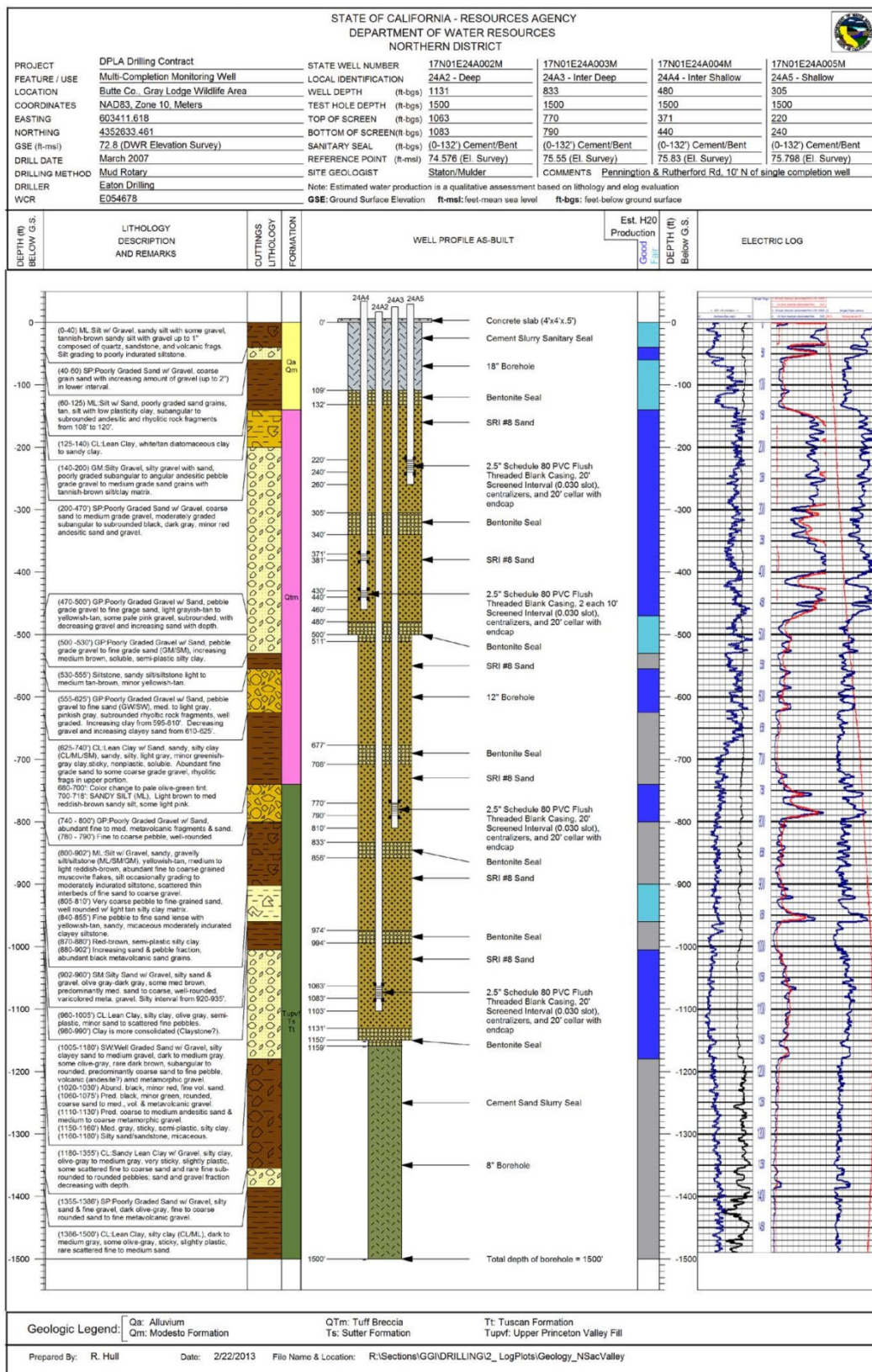


Figure 2 – Example As-Built Multi-Completion Monitoring Well Log

Measuring Groundwater Levels

Well construction, anticipated groundwater level, groundwater level measuring equipment, field conditions, and well operations should be considered prior collection of the groundwater level measurement. The USGS *Groundwater Technical Procedures* (Cunningham and Schalk, 2011) provide a thorough set of procedures which can be used to establish specific Standard Operating Procedures (SOPs) for a local agency. **Figure 3** illustrates a typical groundwater level measuring event and simultaneous pressure transducer download.

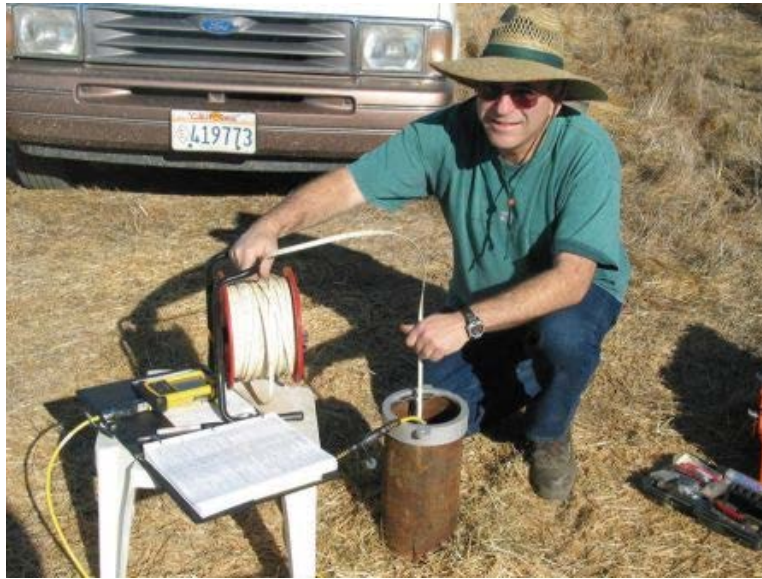


Figure 3 – Collection of Water Level Measurement and Pressure Transducer Download

The following points provide a general approach for collecting groundwater level measurements:

- Measure depth to water in the well using procedures appropriate for the measuring device. Equipment must be operated and maintained in accordance with manufacturer's instructions. Groundwater levels should be measured to the nearest 0.01 foot relative to the RP.
- For measuring wells that are under pressure, allow a period of time for the groundwater levels to stabilize. In these cases, multiple measurements should be collected to ensure the well has reached equilibrium such that no significant changes in water level are observed. Every effort should be made to ensure that a representative stable depth to groundwater is recorded. If a well does not stabilize, the quality of the value should be appropriately qualified as a

questionable measurement. In the event that a well is artesian, site specific procedures should be developed to collect accurate information and be protective of safety conditions associated with a pressurized well. In many cases, an extension pipe may be adequate to stabilize head in the well. Record the dimension of the extension and document measurements and configuration.

- The sampler should calculate the groundwater elevation as:

$$GWE = RPE - DTW$$

Where:

GWE = Groundwater Elevation

RPE = Reference Point Elevation

DTW = Depth to Water

The sampler must ensure that all measurements are in consistent units of feet, tenths of feet, and hundredths of feet. Measurements and RPEs should not be recorded in feet and inches.

Recording Groundwater Levels

- The sampler should record the well identifier, date, time (24-hour format), RPE, height of RP above or below ground surface, DTW, GWE, and comments regarding any factors that may influence the depth to water readings such as weather, nearby irrigation, flooding, potential for tidal influence, or well condition. If there is a questionable measurement or the measurement cannot be obtained, it should be noted. An example of a field sheet with the required information is shown in **Figure 4**. It includes questionable measurement and no measurement codes that should be noted. This field sheet is provided as an example. Standardized field forms should be used for all data collection. The aforementioned USGS *Groundwater Technical Procedures* offers a number of example forms.
- The sampler should replace any well caps or plugs, and lock any well buildings or covers.
- All data should be entered into the GSA data management system (DMS) as soon as possible. Care should be taken to avoid data entry mistakes and the entries should be checked by a second person for compliance with the DQOs.

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WELL DATA

[illegible]

Figure 4 – Example of Water Level Well Data Field Collection Form

Pressure Transducers

Groundwater levels and/or calculated groundwater elevations may be recorded using pressure transducers equipped with data loggers installed in monitoring wells. When installing pressure transducers, care must be exercised to ensure that the data recorded by the transducers is confirmed with hand measurements.

The following general protocols must be followed when installing a pressure transducer in a monitoring well:

- The sampler must use an electronic sounder or chalked steel tape and follow the protocols listed above to measure the groundwater level and calculate the groundwater elevation in the monitoring well to properly program and reference the installation. It is recommended that transducers record measured groundwater level to conserve data capacity; groundwater elevations can be calculated at a later time after downloading.
- The sampler must note the well identifier, the associated transducer serial number, transducer range, transducer accuracy, and cable serial number.
- Transducers must be able to record groundwater levels with an accuracy of at least 0.1 foot. Professional judgment should be exercised to ensure that the data being collected is meeting the DQO and that the instrument is capable. Consideration of the battery life, data storage capacity, range of groundwater level fluctuations, and natural pressure drift of the transducers should be included in the evaluation.
- The sampler must note whether the pressure transducer uses a vented or non-vented cable for barometric compensation. Vented cables are preferred, but non-vented units provide accurate data if properly corrected for natural barometric pressure changes. This requires the consistent logging of barometric pressures to coincide with measurement intervals.
- Follow manufacturer specifications for installation, calibration, data logging intervals, battery life, correction procedure (if non-vented cables used), and anticipated life expectancy to assure that DQOs are being met for the GSP.
- Secure the cable to the well head with a well dock or another reliable method. Mark the cable at the elevation of the reference point with tape or an indelible marker. This will allow estimates of future cable slippage.
- The transducer data should periodically be checked against hand measured groundwater levels to monitor electronic drift or cable movement. This should happen during routine site visits, at least annually or as necessary to maintain data integrity.

- The data should be downloaded as necessary to ensure no data is lost and entered into the basin's DMS following the QA/QC program established for the GSP. Data collected with non-vented data logger cables should be corrected for atmospheric barometric pressure changes, as appropriate. After the sampler is confident that the transducer data have been safely downloaded and stored, the data should be deleted from the data logger to ensure that adequate data logger memory remains.

PROTOCOLS FOR SAMPLING GROUNDWATER QUALITY

The following protocols can be incorporated into a GSP's monitoring protocols for collecting groundwater quality data. More detailed sampling procedures and protocols are included in the standards and guidance documents listed at the end of this BMP. A GSP that adopts protocols that deviate from these BMPs must demonstrate that the adopted protocols will yield comparable data.

In general, the use of existing water quality data within the basin should be done to the greatest extent possible if it achieves the DQOs for the GSP. In some cases it may be necessary to collect additional water quality data to support monitoring programs or evaluate specific projects. The USGS *National Field Manual for the Collection of Water Quality Data* (Wilde, 2005) should be used to guide the collection of reliable data. **Figure 5** illustrates a typical groundwater quality sampling setup.



Figure 5 – Typical Groundwater Quality Sampling Event

Big Valley GSP Comment Matrix Chapter 8

Document	Page & Line Number	Comment	Date	Notes and Responses
Chapter 8 Public Draft	Appendix 8B	Don't like the inclusion of well logs	4/27/2021	Well logs removed from appendix and well log number added to Appendix 8A.
Chapter 8 Public Draft	1, 67	Add "The assumed" groundwater contours...	5/24/2021	Text added
Chapter 8 Public Draft	1, 68	Shallow groundwater monitoring to "help" define the potential interconnection of groundwater aquifers with surface water bodies	5/24/2021	Text added
Chapter 8 Public Draft	Table 8-1	Revise table to adjust to 140 feet below 2015 baseline	5/24/2021	Table replaced.
Chapter 8 Public Draft	Figure 8-1	During the summer, Willow Creek is 100% adjudicated. There is no water. If you were going to argue that there is a surface water/groundwater connection, what is it connected to if there is no water? Same for Ash Creek west of Adin.	5/24/2021	This comment should be addressed in Chapter 5, when it is updated and compiled into the entire draft of the GSP.
Chapter 8 Public Draft	4, 89:97	It is noted that many of the DWR wells are domestic which have pumps all the time. How is this accounted for?	5/24/2021	The end of the paragraph addresses this, where staff that monitor the wells should be noting when the well or a nearby well is pumping.
Chapter 8 Public Draft	4, footnote 2	Moniutoring needs to be late october. Needs to be communicated and coordinated with DWR who collects level measurements.	5/24/2021	Text changed to "late-October"
Chapter 8 Public Draft	5, 116	It needs to be noted that the BVAC has done a great job making sure the wells are spatially distributed.	5/24/2021	The factual statement that the wells are distributed throughout the basin should suffice. DWR or other readers can make their own judgment on this.
Chapter 8 Public Draft	5, 8.2.1.2	We would like to understand the contour mapping requirements better. Doesn't make sense.	5/24/2021	Groundwater contours are presented in Chapters 4 and 5
Chapter 8 Public Draft	5, 136:143	Modify text: Chapter 5 discusses the lack of interconnected surface water and describes the perennial streams in the BVGB which may be interconnected to the groundwater aquifer. As described in Chapter 7 there is currently no conclusive evidence for interconnection of perennial streams with the groundwater aquifer, and the volume of depletions (if any) is unknown. Therefore, measurable objectives, minimum thresholds, and a representative monitoring network for depletion of interconnected surface water have not been established.	5/24/2021	Text modified.

Big Valley GSP Comment Matrix Chapter 8

Document	Page & Line Number	Comment	Date	Notes and Responses
Chapter 8 Public Draft	Table 8-2	DWR, 2016a : What is this?	5/24/2021	This is a reference (documented in the references list) to a best management practices paper published by DWR. This is used as guidance on monitoring standards so that data gaps can be assessed.
Chapter 8 Public Draft	Table 8-2	"Data must be sufficient for mapping groundwater depressions, recharge areas, and along margins of basins where groundwater flow is known to enter or leave a basin" Comment: There is no data.	5/24/2021	This table identifies the data gaps

Big Valley Groundwater Sustainability Plan GSP Regulations Checklist (Elements Guide) for Chapter 9

This checklist of the GSP Elements and indicates where in the GSP each element of the regulations is addressed.

Article 5. Plan Contents for Big Valley Groundwater Basin				GSP Document References				Notes
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	
SubArticle 5. Projects and Management Actions								
§ 354.42. Introduction to Projects and Management Actions								
			This Subarticle describes the criteria for projects and management actions to be included in a Plan to meet the sustainability goal for the basin in a manner that can be maintained over the planning and implementation horizon.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
§ 354.44. Projects and Management Actions								
(a)			Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.	X	9		9.3	
(b)			Each Plan shall include a description of the projects and management actions that include the following:					
	(1)		A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:					
		(A)	A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.	X	9		9.3	
		(B)	The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.	X	9		9.3	
	(2)		If overdraft conditions are identified through the analysis required by Section 354.18, the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.					
	(3)		A summary of the permitting and regulatory process required for each project and management action.	X	9		9.3	
	(4)		The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.					
	(5)		An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.	X	9		9.3	
	(6)		An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.	X	9			

"X" indicates that the element has been addressed.

Shaded areas are elements of the regulations that don't have to be addressed in the GSP

Article 5. Plan Contents for Big Valley Groundwater Basin				GSP Document References				Notes
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	
	(7)	A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.						
	(8)	A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.		X	9		9.3	
	(9)	A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.						
(c)		Projects and management actions shall be supported by best available information and best available science.						
(d)		An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.						
		Note: Authority cited: Section 10733.2, Water Code.						
		Reference: Sections 10727.2, 10727.4, and 10733.2, Water Code.						

Chapter 9 Projects and Management Actions

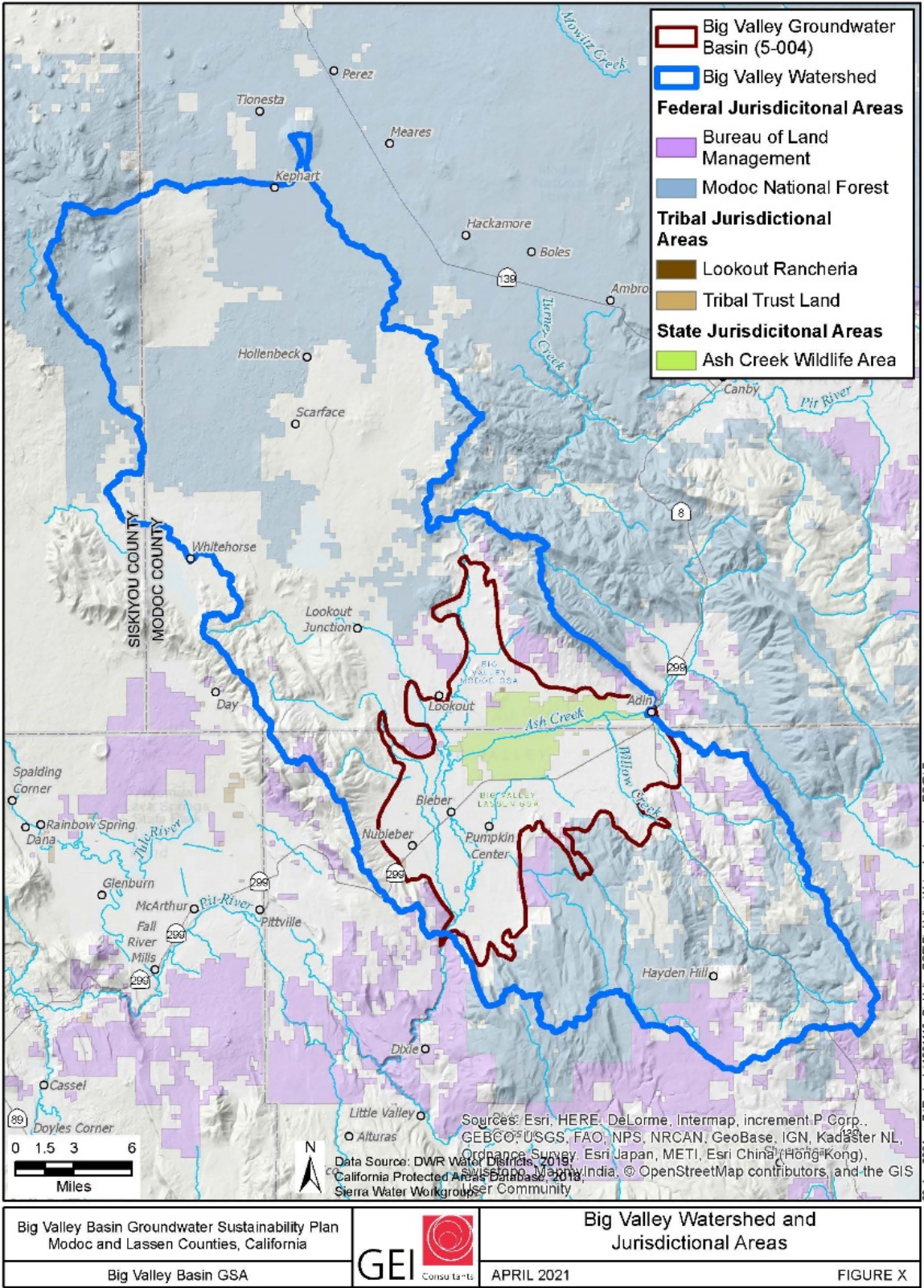
Introduction

Through an extensive planning and public outreach process, the GSA's have identified an array of projects and management measures that may be implemented to meet sustainability objectives in Big Valley Groundwater Basin. Additionally, numerous state and federal programs are available in the basin to help meet the sustainability goals. Some of the projects can be implemented immediately while others will take significantly more time for necessary planning and environmental review, navigation of regulatory processes, and implementation. The Big Valley Basin is relatively small, and while recharge does occur within the basin itself significant recharge comes from the extensive uplands surrounding the basin. Projects will be located within the greater Big Valley watershed boundary shown in [Figure 9.1](#).

Although the Big Valley area is extremely rural, and resource capacity is limited, there a number of local, state, and federal agencies that can assist in project development. Project implementation will also be impacted by funding acquisition. [Table 9.1](#) lists current state and local funding sources that can be targeted to support project planning and implementation.

With a proactive approach to identify projects for increased recharge and conservation in the Big Valley basin and surrounding watershed, it is envisioned that the GSAs will be successful in returning to a sustainable groundwater basin. With the possible exception of a large surface water storage project such as Allen Camp Dam, the projects and management measures describe in this chapter are expected to work in combination and should be considered as a whole rather than dependent on any single strategy. Should sustainability not be realized, additional projects and management actions will be considered and developed as appropriate. A timeline for projects can be found in [Table 9.2](#) and additional details fulfilling state requirements can be found in [Table 9.3](#).

29 **Figure 9.1 Big Valley Watershed Boundary**



30
31

9.1 Basin Recharge Projects

Enhancing recharge to get more of the available water into the aquifer is one of the key means to attaining sustainability. For off-season diversion recharge projects to be widely available in the Big Valley Basin, an off-season water availability study must be completed for the Pit River watershed up-river of Big Valley such that growers could obtain a permit for winter flow diversion. This study would include a survey of potential water rights held for off-season use, storage, and hydroelectric power. A more detailed description of what is needed in this process can be found

(https://www.waterboards.ca.gov/waterrights/water_issues/programs/applications/groundwater_recharge/docs/streamlined_waa_guidance.pdf). Once this survey is completed and approved by an licensed engineer, permits to divert for available surface water can be solicited from the Department of Water Resources. Currently this permitting process can take 6 to 18+ months and cause significant economic burden to the applicant. An organized application for Basin wide winter diversions by the GSAs could lessen some of the regulatory burden since they qualify for a streamlined process but a waiver of fees for extremely disadvantaged communities working to improve groundwater recharge may also be needed. More information about this streamlined process can be found here.

(https://www.waterboards.ca.gov/waterrights/water_issues/programs/applications/groundwater_recharge/streamlined_permits.html). Along with permitting costs, there are also costs to the irrigator in electricity and labor costs to apply water.

9.1.1 Agriculture Managed Aquifer Recharge (AgMAR)

One approach to basin recharge currently being considered is the intentional recharge of groundwater aquifers by spreading water over agricultural fields at times when excess surface water is available, a concept called agricultural managed aquifer recharge, or AgMAR (Kocis & Dahlke, 2017, Dahlke et al. 2018). With significant surface water irrigation and diversions already present in Big Valley, AgMAR is a viable option in the Basin. Much of the current research on AgMAR has been completed on relatively well-drained soils that are not present in Big Valley. Research in Big Valley on soils with infiltration rates of slow to very slow looks initially promising. While recharge of groundwater may be slower in the Basin, it could still be a feasible means for deep water recharge, and filling the shallow aquifer and root zone. AgMAR can be utilized for both, increasing recharge and decreasing water application of groundwater during the growing season due to a saturated soil profile. A conservative estimate of 25,000 acres in Big Valley of agricultural and native vegetation lands are accessible to surface water and available for AgMAR. Priority will be given to low infiltration over very low infiltration soils for recharge and areas addressing more critical groundwater levels.

Among the perennial crops, alfalfa is considered a promising candidate for AgMAR for several reasons and much initial research has been completed throughout California on its feasibility

(Dahlke et al. 2018). 80-85% of the alfalfa in California is irrigated by flood irrigation which in turn could allow for areas where surface water can be utilized for groundwater recharge (Dahlke et. al. 2018). Alfalfa is widely grown in Big Valley and flood irrigation is common. Alfalfa is a nitrogen-fixing plant that seldom receives nitrogen fertilizer, which reduces the risk of leaching excess nitrate to groundwater, one of the main concerns of AgMAR (Putnam and Lin 2016; Walley et al. 1996). Dahlke, H.E., Et. al. 2018 found that winter recharge had no discernible effect on alfalfa yield (first and second cutting) and led to increased crop water availability in the deep soil profile offsetting potential irrigation deficits during the growing season.

Research currently being completed in Big Valley on the feasibility of AgMAR on grass pasture and hay fields looks promising. Although soils in Big Valley have lower infiltration rates, winter recharge rates of 0.2 - 0.5 acre-feet per acre per irrigation in March and April have shown no damage to crops. Irrigating every 5-7 days for roughly 10 weeks in the winter/spring would benefit 2-5 acre-feet of water per acre. Previous research has quantified that 90% of water is recharged to deep aquifers or available in the soil profile (Dahlke et al. 2018). This is the first AgMAR research completed on grass which is a dominate perennial crop in Big Valley. There has been some concern over nitrogen application and AgMAR which can easily be addressed with best management practice (BMPs) of applying nitrogen outside of the winter recharge window. This work could also be easily applied to AgMAR feasibility on adjacent rangeland, conservation reserve project or wetland reserve project land.

9.1.2 Drainage or Basin Recharge

Using the same principles as used in AgMAR, excess surface water can be diverted into irrigation drainages or canals, and recharge basins to percolate into the groundwater table and replenish upper levels of the aquifer. This water is then available to be extracted at a later date for beneficial use. The volume of water recharged is limited by the availability and access to surface water, infiltration rates of the soils, losses to evaporation and available infrastructure.

The total number of feet or miles of irrigation canals or ditches needs to be determined and the availability of current water storage basins for recharge. Additional basins may need to be created for the sole purpose of groundwater recharge. Producers wanting to participate in this program would notify the GSA and report diverted water for the purpose of drainage or basin recharge. The development of a water availability study and permitting as described on in [Table 9.3](#) also applies to this project. Unlined drainages, canals, and basins could recharge up to 90% of diverted surface water to the shallow aquifer.

9.1.3 Aquifer Storage and Recovery (ASR) and Injection Wells

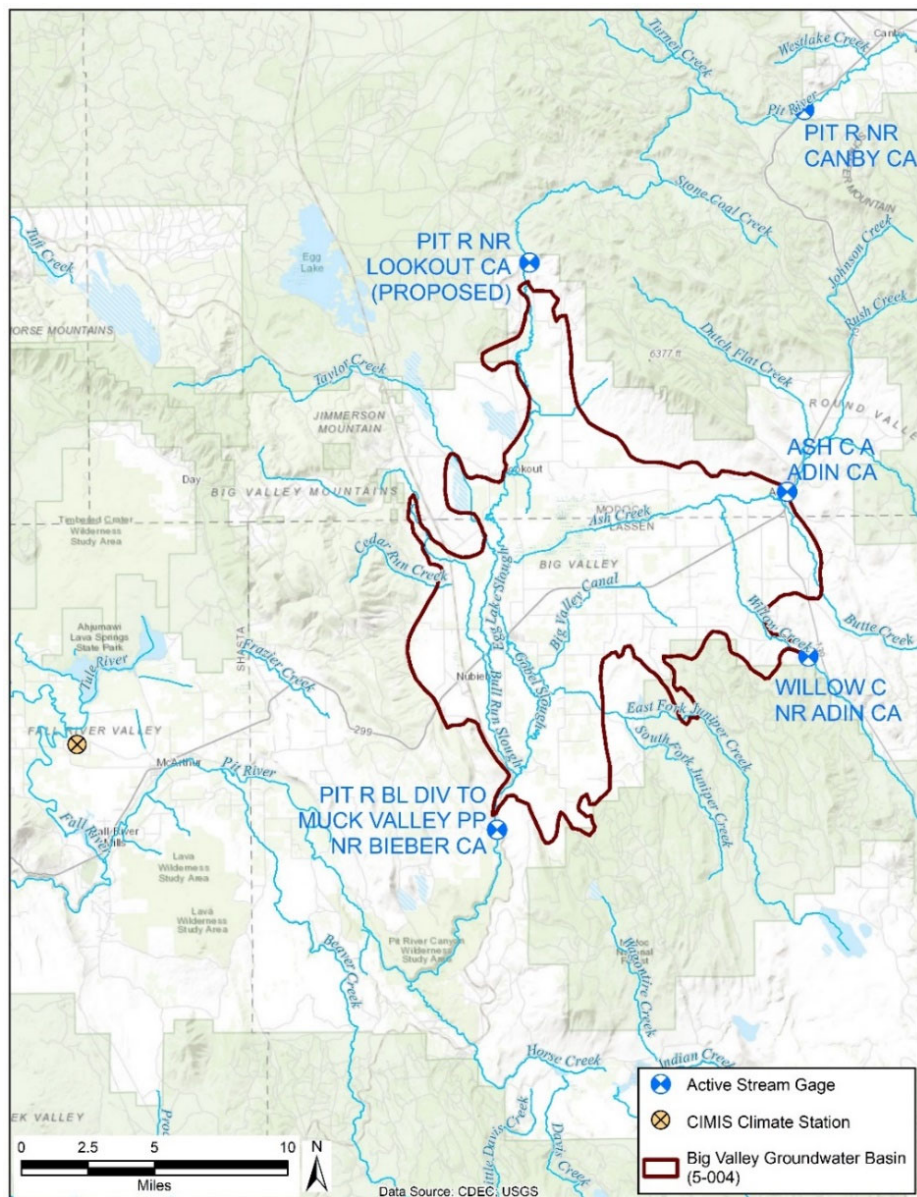
ASR is the artificial method of storing water underground to be used for later dates by injecting surface water during wet periods to fill underground aquifers. It can be used as a more economical and practical alternative to reservoirs and other surface water storage techniques in some areas. There is significant concern about the quality of water for injection and whether treating water before it is injected into the wells is needed. It is unclear if this is solely in systems

used for drinking water or whether environmental regulation also requires this in agriculture applications if so cost would be raised significantly and would eliminate practicality of ASR for many situations.

Before injection can be used, significant knowledge of the subsurface of the injection site are needed, minerals, contamination, saturation of the soil etc. Structure and capacity of the well also needs to be analyzed. Agriculture production wells with high elevation screening may be applicable to this use. More research needs to be completed as to whether this option is applicable to Big Valley.

<https://www.epa.gov/uic/aquifer-recharge-and-aquifer-storage-and-recovery>

Figure 9.2 Current and Proposed Stream Gauges



9.2 Research and Data Development

Data gaps are mentioned and detailed throughout the GSP chapters. Continuing to fill gaps, participate in research, and collect data to support the GSP is a necessity to continue to work towards sustainability using the best science available.

9.2.1 Additional Stream Gauges and Flow Measurement

Several seasonal streams contribute inflow to the Big Valley Basin (Figure 9.2). Many of these streams had historical stream gauges or have current gauges monitored by the USGS and DWR. The Pit River which is a major inflow river and significant contributor of surface water irrigation and recharge in Big Valley has a gage 13 miles from where the Pit River enters Big Valley at the Canby bridge. There are many springs and small tributaries that flow into the Pit River after the Canby bridge as well as irrigated lands water use between Canby and the Big Valley Basin. Modoc County has been working to install an additional stream gauge at the Shaw pit to fill this data gap and provide more current stream flow information for GSP development and water management. There is also funding for additional streamgages if locations of need can be determined. The current and proposed stream gauges are in Figure 9.2.

9.2.2 Refined Water Budget

Many assumptions were taken to create the Big Valley water budget in Chapter 6. Some of these assumptions are data gaps that need to be addressed and other areas are opportunities to collect and analyze data that is being submitted through other regulatory programs. This section describes a combination of projects that will help improve the accuracy of the water budget and in-turn better inform groundwater management in Big Valley.

There is currently no agri-climate or CIMIS station located in Big Valley. Nearby stations in other basins have helped to create models to determine averages but significant geologic features affecting elevation often make weather patterns unpredictable from nearby basins. These stations have more sensors than typical weather stations including solar radiation, soil temperature, air temperature, wind speed and direction, relative humidity, soil moisture, and rain gauging. These measurements can determine accurate evapotranspiration (ET) which is very helpful in creating a more refined water budget for the basin and help maintain sustainable groundwater conditions. ET is used as a metric for applied water especially when meters on actual applied water are not available. These stations can also help farmers in determining irrigation need and promote water conversation especially early in the growing season.

With an accurate estimate of ET, the next assumption is the relationship between ET and applied water in Big Valley. Since most crops grown in Big Valley are hay crops, irrigation must be stopped when cutting, drying, and bailing even though ET continues. Pinpointing the relationship between ET and applied water could greatly refine the water budget and amount of irrigation water that is being applied.

A voluntary well monitoring program has been available in Big Valley for upwards of two decades through the Lassen Modoc Flood Control Water Control District (LMFCD). Reinvigorating this program by identifying meters that need to be replaced, conducting outreach to add new wells to the program, and organizing the historical data fills a data gap and also provides critical data to refine the water budget and pinpoint areas of concern. Funding from DWR in a grant to Modoc County is currently available to provide well meters to voluntary applicants. Development of additional wells strictly for monitoring is also of interest as they provide unobstructed measurements year-round.

The continuing applied research on effectiveness of off-season recharge in hay fields, impact of forest thinning, fuels reduction, or juniper removal projects, and recharge from drainages, canals, and basins will better quantify the impacts from those actions and thus help refine the water budget. Additional research projects to support the water budget will be identified as needed and funding sources are acquired.

9.2.3 Adaptive Management

There are many unknowns and data gaps with respect to groundwater resources in the Big Valley basin. As a result, estimates, and assumptions are currently used in the plan to determine several key variables. To address the lack of necessary information, a significant commitment in monitoring of both ground and surface water is described in this plan. By further developing and enhancing monitoring networks in Big Valley we can gather the needed data to inform management and set criteria as needed.

What we are describing is an adaptive management strategy. Adaptive management is an approach to improve natural resource management which focuses on learning by doing. Learning occurs through monitoring, data development, and collaborative interpretation. Then the adaptation of management criteria and tools are completed as needed as critical information is known. This approach is very applicable to the Big Valley Groundwater Basin and will serve as a bridge towards sustainability by providing current site specific information to inform appropriate sustainable management criteria and thresholds as well as the ongoing assessment of projects and management actions in the basin.

Although we recognize that the Big Valley Basin does not have unsustainable conditions seen in other basins around the state, monitoring and filling data gaps from SMCs that were determined to not require thresholds helps us prepare for annual reports and five year revisions and make management decisions. These SMCs without identified thresholds include interconnected surface water and groundwater, water quality, and subsidence. Additional, monitoring could aid in the analysis of the relationship between groundwater levels and GDE connectivity and identification of locations vulnerable to damage from subsidence.

9.3 Increased Surface Water Storage Capacity

Increasing the capacity to store surface water run-off during winter/spring high-flows could provide significant amounts of water for summer irrigation. An increase in surface water available for irrigation, would lessen the reliance on groundwater and thus help achieve sustainability.

9.3.1 Expanding Existing Reservoirs

Expansion of existing reservoirs serving Big Valley Basin would increase the capacity of surface water for irrigation and recharge projects as well as help balance the water budget. An increase in water storage would make the basin more sustainable to climate variability and decreases in snowpack while also relieving pressure on groundwater for irrigation in Big Valley. One larger reservoir, Robert's Reservoir, is located northeast of Lookout and has a current capacity of XXX. Difficult to navigate regulations make expanding current reservoirs possibly more palatable than building new reservoirs. Need expansion.

9.3.2 Allen Camp Dam

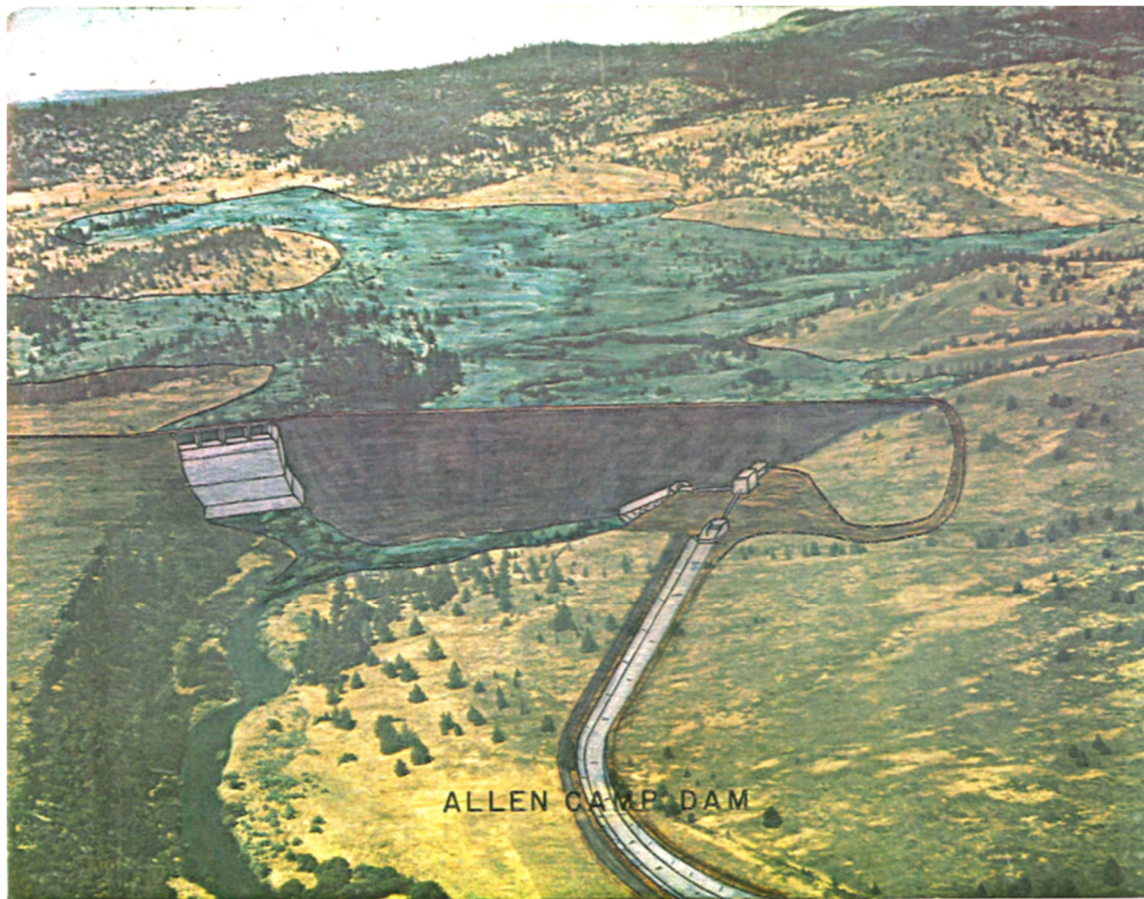
The Allen Camp Dam and Reservoir (Figure 9.3) was authorized by the Department of the Interior (DOI) as part of the Allen Camp Unit of the Central Valley project in 1976 to regulate flows of the Pit River primarily for irrigation and fish and wildlife purposes, as well as flood control and recreation services. Although the DOI's Report concluded that based on the existing criteria the proposed project was economically inadvisable, it may be appropriate to conduct a new investigation into the feasibility of this project to reflect the changes to water needs of the community and the environment that have occurred over the last 40 years.

Located around 11 miles north of the Modoc-Lassen County line, Allen Camp Reservoir would have a 90,000 acre-foot storage capacity, an 18,000 acre-foot surcharge, 2,350 acres of water surface area and a normal year yield of 22,400 acre-feet. The Dam would be constructed from earth and rockfill and would measure 103 feet from the streambed. The construction of the various proposed project components would require the acquisition of about 18,240 acres of private land through easements or through fee titles, and the withdrawal of roughly 11,845 acres of public land. Most of the land acquired would be allocated for the Dam and Reservoir project features, a total of 18,015 acres with another significant allocation, 11,562 acres, for the proposed Big Valley National Wildlife Refuge, intended to offset habitat loss for species such as deer, and migratory waterfowl. The remaining land would be partitioned at 355 acres for the Hillside Canal, 148 acres for the Lateral distribution system, and 5 acres for the Nubieber protective dike.

In 1981, there were 62 ownerships slotted to receive deliveries from this project, accounting for a total 11,700 irrigable acres all of which would benefit from full or supplemental water deliveries. The report stated that the groundwater basin area of the project has a storage capacity of roughly

532,000 acre-feet with a safe yield of 7,000 acre-feet per year, with 5,000 acre-feet of that developed. These numbers may have changed over the 40 years that have elapsed since the report was published and should be reviewed under an updated feasibility study. An increasingly variable climate casts uncertainty over water availability, with drier years driving an increased reliance on groundwater supplies. Further, an updated feasibility study might consider how this project could mitigate some of the effects of climate variability and watershed conditions on the Big Valley Groundwater Basin by providing a reliable source of surface water and contributing to basin recharge.

Figure 9.3 Allen Camp Dam Drawing



9.4 Improved Hydrologic Function and Upland Recharge

9.4.1 Forest Health / Conifer and Juniper Thinning

The watershed surrounding the Big Valley Basin is comprised of approximately 800,000 of conifer forest and rangeland (Figure 9.4). Management policies have resulted in tree densities that are currently much higher than at the beginning of the 20th century. This includes both mixed conifer forests and western juniper (Stephens, 2016) (Miller and Tausch, 2001).

There are two main mechanisms by which dense conifers impact water availability in forested watersheds. First is the interception of snow (primarily) and rain that gets caught in branches and needles and evaporates before ever reaching soil surface and second is the high rate of transpiration due to dense layered canopy and vigorous network of roots (Ryel, 2011). An excellent summary paper by Smerdon et al (2009) describes linkages between forest health and tree density and groundwater recharge in a variety of landscapes.

Spring snow water content (SWC) ranged from 33% to 44% higher in the aspen and an open meadow SNOTEL site vs adjacent conifer forest where interception of snowfall was much higher (LaMalfa, 2008). Averaged over the entire catchment, strategically placed fuel treatments in the wetter central Sierra Nevada (American River) creating a relatively light vegetation decrease (8%), resulted in a 12% runoff increase, averaged over wet and dry years. Wildfire, with and without forest treatments, reduced vegetation by 38% and 50% and increased runoff by 55% and 67%, respectively. Forest fuel reduction in drier sites in the southern sierra had less increase in run-off than wetter sites in the central sierra (Saska, 2020).

A similar increase in water availability has been documented on juniper-invaded rangelands. During the period of maximum water uptake, mature trees used between 45 and 69 times more water than juniper saplings depending on precipitation and, consequently, soil water availability. In summary, 1) juniper water use varies greatly with precipitation and 2) because of the large difference between mature and sapling trees, juniper control results in considerable water savings, even after a 14-yr period of juniper regrowth (Mata-Gonzales 2021). Paired watershed studies in Oregon have demonstrated increased deep soil moisture, increased spring flow, and increased surface water run-off after juniper harvest compared to untreated areas. They have also documented a hydrologic connection between shallow groundwater on juniper sites and a nearby riparian valley. (Ochoa 2016).

The opportunity to enhance upland watershed recharge is significant as projects are already in planning and implementation stages to reduce fire risk and improved wildlife habitat (citation), and programs such as Cal Fire's Forest Health Program support project implementation funding. Forest health projects can be developed and meet multiple resource objectives including hydrologic values. Removal of conifers from meadow edges, drainages, and spring areas as well as improving hydrologic function of road crossings, ditches, and stream channels (where feasible) will enhance hydrologic and recharge benefit of forest health projects. Given the vast land area surrounding Big Valley, even a fraction of the land area is treated a significant amount of the current recharge deficit can be mitigated.

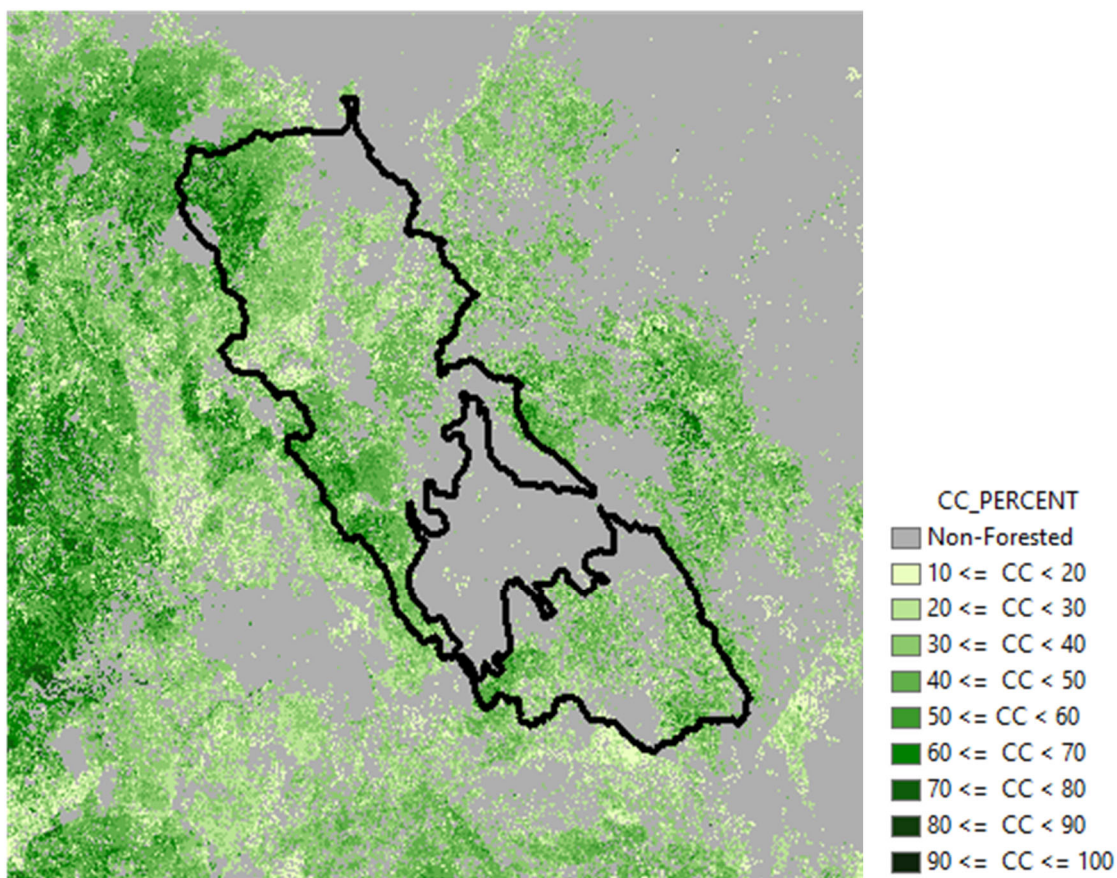


Figure 9.4 Canopy cover (CC) percentage of forested areas within the Big Valley watershed.

9.4.2 Stream Channel Enhancement and Meadow Restoration

Several meadow restoration techniques exist for the purpose returning proper hydrologic function to montane and rangeland meadows. Two commonly used in the Big Valley Basin and surrounding uplands include pond and plug and beaver dam analogs. Both techniques result in reconnection of a stream channel with a functioning floodplain and restoration of a degraded meadow's water table up to its historic level. Restoration of the meadow water table results in re-watering of meadow soils and vegetation, with significant effects throughout the restored floodplain for meadow hydrology, wildlife, and forage. Restored floodplain connectivity spreads flood flows so that a meadow's natural ability to settle the coarse or fine sediment delivered from steeper stream reaches is restored and natural percolation can occur. When floodplain function is restored, a portion of winter and spring runoff is stored in meadow soils rather than racing down the pre-project gully during the runoff season. Data indicates that release of this stored runoff results in increased stream flow in late spring. (Hunt, 2018)

In mountains of the western United States, channel incision has drawn down the water table in many meadow floodplains. Increasing climate variability is resulting in earlier melt and reduced snowpack and water resource managers are investing in meadow restoration which can increase springtime storage and summer flows. Between 2012-2015, during a record setting drought, a

pond and plug restoration in Indian Valley in the Sierra Nevada Mountains was implemented and monitored. Despite sustained drought conditions after restoration, summer baseflow from the meadow increased 5–12 times. Before restoration, the total summer outflow from the meadow was 5% more than the total summer inflow. After restoration, total summer outflow from the meadow was between 35% and 95% more than total summer inflow. In the worst year of the drought (2015), when inflow to the meadow ceased for at least one month, summer baseflow was at least five times greater than before restoration. Groundwater levels also rose at four out of five sites near the stream channel. Filling the incised channel and reconnecting the meadow floodplain increased water availability and streamflow, despite unprecedented drought conditions. (Hunt 2018)

Other studies have also shown that these techniques may increase surface and subsurface storage and groundwater elevations that contribute to channel complexity and residence times. These factors that could lead to stronger flow permanence in channels subject to seasonal drying. Increased availability of water and productivity of riparian vegetation can also support human uses in arid regions, such as irrigation and livestock production (Pilliod, 2018).

9.5 Water Conservation

9.51 Irrigation Efficiency

The fundamental objective of an irrigation system is to deliver an optimum amount of water for crop growth during spring, summer and fall growing season while temperature and daylength are conducive to plant growth but natural precipitation is lacking. Irrigation water and water application costs comprise the single biggest operational cost associated with alfalfa or grass hay production in the intermountain area accounting for approximately 30% of total operating costs (Wilson, 2020) (Orloff, 2016). Increasing the efficiency of crop water use is an economic as well conservation minded goal. Farmers in the Big Valley area have been adopting water conservation measures and as feasible opportunities arise will continue to do so. Support for infrastructure, new technology and education outreach will help attain this goal.

Flood, wheel-line, and center pivot irrigation systems are all used on Big Valley farms. The best irrigation system depends on water availability, crop, soil type, and infrastructure. Commonly, center-pivots are rated as the most efficient systems but there are appropriate use of all three types. Many advancements in irrigation efficiency have been made and will continue to be developed and implemented. It is critical that implementation is done at a farm-by-farm basis in such a way as to fit specific conditions and production systems. One-size fits-all application will be neither effective nor economically viable.

It is important that any irrigation system be well maintained to operate properly. Flood irrigated fields should be appropriately leveled with appropriate width and length of irrigation check to provide for a uniform application of water. Sprinkler systems should be regularly checked for function and be designed with the right nozzle size for available flow and pressure. Systems that can utilize larger diameter nozzles can reduce droplet size and evaporation loss. Length of

irrigation set should make use of soil water holding capacity without incurring excessive tailwater. Specialized systems such as Low Energy Sprinkler Application (LESA) can improve water use efficiency up to 15%. Length of irrigation set should make full use of soil water holding capacity without incurring excessive run-off.

To optimize efficiency of water use, the amount and timing of irrigation water applied should closely match the amount of water needed by the crop thus maintaining adequate soil moisture for crop growth while minimizing tailwater run-off. Effective use of irrigation technology such as soil moisture sensors, tracking of evapotranspiration, flow meters etc. are available to help farmers manage irrigation timing and length of set to get the most of their irrigation system. While some of these have been applied in Big Valley some are relatively novel.

Genetic selection and the continued improvement of forage crop species as has resulted in the increased availability of drought tolerant, heat tolerant, or short-season forage grasses that may provide growers and viable alternatives in certain situations where water availability is otherwise limited. Crop selection is often based on the best fit for particular soil depth, soil texture, and water availability in conjunction with value and marketability. Although Big Valley cropping systems are heavily constrained by climate and growing season, on-going forage crop improvement may provide growers with a wider range of species and variety options.

Overall good agronomic practices in terms of soil fertility, weed control, harvest etc. is critical and promotes an efficient use of all resources including water. Finally, as mentioned in other places in this plan, agricultural fields and farms provide important wildlife habitat in the valley. Irrigated lands are an important part of the overall landscape. A good example is that flood irrigated pastures are highly valued by migratory birds particularly in the spring. Emphasis on water efficiency is important but should not become such a single-focused objective that other resource values or farm profitability are ignored.

It should be clear that efficient use of water for irrigated forage crop production is multi-faceted, and several small improvements, strategically together to fit on-farm conditions, is the most effective approach. To this end, education outreach via UC Cooperative Extension, technical support from Natural Resources Conservation Service, and cost-share and grant programs are all critical to supporting water use efficiency measures. Support and incentive programs that have been used and can be further expanded upon in Big Valley are listed in Table 9.1 (funding program table).

9.5.2 Landscaping and Domestic Water Conservation

While Big Valley is extremely rural, there are opportunities to enhance water conservation among domestic water users as well. Particularly with regarding domestic landscaping, use of native drought adapted plants, irrigation timers, effective mulch, and rainwater/snow water catchments can reduce water requirements. Low water landscaping can also be integrated with homeowner firesafe planning. Landscaping guides for homeowners can be distributed at public

centers and at regional garden supply stores (Hartin, 2014) (California Native Plant Society, 2021).

9.6 Public Education and Outreach

The GSAs believe that public education and outreach are an important component of this plan. Education can change use patterns that promote water conservation and protection of water resources. The GSAs support continued education on preventing illegal dumping, properly sealing abandoned wells, and best management practices. Continued outreach to support the coordination of efforts and information sharing, fostering relationships with relevant agencies and organizations, and attending meetings with local and region groups involved in water management is also important. Increased public outreach about funding opportunities and programs that support water conservation methods, increased recharge, and mediation opportunities for decreasing water levels. A table of example funding opportunities is 9.1. More information on public outreach and communication can be found in chapter 11.

Outreach methods that can be expanded include radio public service announcements, cooperator workshops with UCCE, and social media posts informing the public about upcoming meetings and deadlines, BMPs, plan updates, recharge opportunities, and updated water conditions. An organized effort to compile recharge and conservation activities would aid GSAs in tracking impacts for future plan revisions.

Table 9.1 - Available Funding Supporting Water Conservation

Funding Program Title	Managing Agency	Description of Funding
Wetlands Reserve Program, Crop Reserve Program, Environmental Quality Improvement Program (WRP, CRP, EQIP)	Natural Resource Conservation Service (NRCS) (website)	Cost share funding for wide array of soil, water, and wildlife conservation practices. Funding priorities developed locally.
Conservation Innovation Grants (CIG)	NRCS (website)	Supports development of new tools, approaches, practices and technologies to further conservation on private lands
Partners for Fish and Wildlife Program	US Fish and Wildlife Service (USFWS) (website)	Private land meadow, forest, or rangeland restoration, conservation easement
State Water Efficiency and Enhancement Program (SWEEP)	California Dept of Food and Agriculture (CDFA) (website)	Supports implementation of water saving irrigation systems
Healthy Soils Program (HSP)	CDFA (website)	Supporting management and conservation practices for enhancing soil health (which includes water holding capacity)
Farmer/Rancher and/or Professional + Producer grants	Western Sustainable Agriculture Research and Education (Western SARE) (website)	Farmer-driven innovations in agricultural sustainability including profitability, stewardship, and quality of life.
Alternative Manure Management Program (AMMP) (link)	CDFA (website)	Financial assistance for non-digester manure management
Sustainable Groundwater Management (SGM)	Dept of Water Resources (DWR) (website)	Planning and implementation grants supporting sustainable groundwater management. Disadvantaged communities and economically distressed areas.
State Forest Health Program	Cal Fire (website)	Improve forest health throughout California
USDA for household well deepening	USDA Rural Development (website)	No interest loan up to \$11K to improve existing domestic wells

Table 9.2 - Projects and Potential Implementation Timeline

No.	Category	Description	Estimated Time for Potential Implementation (years)		
			0-2	2-8	>8
1	9.1 Recharge Projects	AgMAR	X	X	X
2		Drainage and Basin Recharge	X	X	X
3		Ag Injection Wells			X
4	9.2 Research and Data Development	Stream Gauges	X		
5		Refined Water Budget	X	X	
6		Agro-Climate Station	X		
7		Voluntary Installation of Well Meters	X	X	
8		Adaptive Management	X	X	X
9	9.3 Increased Storage Capacity	Roberts Reservoir		X	
10		Allan Camp Dam			X
11	9.4 Improved Hydrologic Function	Forest Thinning and Management	X	X	X
12		Juniper Removal	X	X	X
13		Stream and Meadow Restoration	X	X	X
14	9.5 Water Conservation	Irrigation Efficiency	X	X	
15		Landscaping and Domestic Water Conservation	X	X	
16		Conservation Projects	X	X	
17	9.6 Education and Outreach	Public Communication	X		
18		Information and Data Sharing	X	X	
19		Fostering Relationships	X		
20		Compiling Efforts	X	X	
21		Educational Workshops	X		

Insert Table 9.3 Required Elements for Projects and Management Actions

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Project	Brief description	Circumstances under which the project will be implemented	Public notification process	Permitting and regulatory process	Benefits	Schedule	Estimated cost	Legal authority
9.1 Basin Recharge Projects	Agricultural Managed Aquifer Recharge is the practice of using excess surface water (when available) and applying it to agricultural fields to intentionally recharge groundwater aquifers	AgMAR will be performed during winter months during high surface flows. The nature, frequency, and timing of these flows will be evaluated through a Water Availability Analysis (WAA).	Notification of available water and success of this projects will be communicated through the Big Valley Groundwater Advisory Committee. Agreements will be made between the GSAs and interested producers.	Following development of the WAA, an AgMAR permit for surface water diversions can be solicited from the Department of Water Resources. Currently this permitting process can take 6-18+ months and cause significant economic burden to the applicant. An organized application for Basin wide winter diversions by the GSAs could lessen some of the regulatory burden since they qualify for a streamlined process but a waiver of fees for extremely disadvantaged communities working to improve groundwater recharge may also be needed.	Irrigating every 5-7 days for roughly 10 weeks in the winter/spring would benefit 2-5 acre-feet of water per acre. Previous research has quantified that over 90% of water is recharged to deep aquifers or available in the soil profile with AgMAR. The limitation to this project is available winter for recharge but a project goal of 1,000 acres per year could provide roughly 10,000 acre/feet of water per year benefit.	Water budget planning and permitting will take 6-18 months and possibly more depending on the case load at the department of water resources. After an off-season water budget is completed, permitting can be distributed to the GSAs for winter recharge location selection. AgMAR could start being used at productive scale by 2024 if all processes go smoothly.	The cost to develop the WAA is still being developed, but may be covered under existing grants from DWR. The cost of submitting a streamlined permit will also be developed, including fees .	[Need support here, potentially from council on the authority of the GSAs to coordinate this permitting]
9.2 Research and Data Development	Stream gages are scientific instruments used to collect streamflow and water quality data in order to decrease scientific uncertainty in order to inform water management decisions Add more on other data development	In addition to the continued use of existing stream gages which monitor many of the seasonal streams that contribute inflow to the Big Valley Basin, stream gages may be installed if locations and need are determined. Presently, Modoc County is working to install an additional stream gage at the Shaw Pit.	Stream Gauge and other data development progress will be shared at public GSA meetings. Data collected from gaging stations will be publicly available.	We will continue to work with the Department of Water Resources to ensure compliance with any relevant laws and to obtain any necessary permits related to stream gage installation and maintenance.	Decreasing data gaps would decrease reliance on assumptions to govern groundwater management decisions. As more data becomes available, more accurate estimates of evapotranspiration would allow for more precise water budgeting estimates.	Gaging stations be installed where necessary early in the planning process in order to decrease uncertainty related to streamflow. They will be monitored throughout.	Funding is available through (DWR?) for the development of new gaging stations. Maintenance costs may vary, but one estimate projects the annual maintenance cost for a single gage to be around \$15,000. Federal funding for stream gages generally covers 30% of the cost. Additional funding may be obtained through DWR. (Source)	
9.3 Increased Surface Water Storage Capacity	Surface water storage may be used to reduce reliance on groundwater by providing an alternative water source. As water levels in streams and other water courses diminish during the dry months, existing diversions may not adequately meet the needs of users. Storing water from snowmelt and storm events could provide a more reliable supply of water for these users. Several options related to surface water storage may be explored in order to meet ground water sustainability goals including expanding Robert's	Projects intended to increase surface water storage will be implemented when it is economically advisable to do so, and when they may help mitigate basin overdraft.	Pursuant to environmental review, these projects will have opportunities for public comment and project documents will be made publically available whenever appropriate. Both NEPA and CEQA compliance mandate opportunities for public comment.	Permitting for surface water storage projects will be subject to NEPA and CEQA depending on whether the project sites are located on federal or state land respectively.	Increasing the capacity to store surface water by capturing runoff could reduce reliance on groundwater during summer months. Further, increasing surface water storage would improve water security during dry years.	The timeframe for largescale infrastructure projects would likely be upwards of 8 years, as the regulatory and environmental review processes generally require extensive coordination between agencies and stakeholders for planning and compliance.	Large infrastructure projects can be quite expensive. 1\$ in May 1981 had the same buying power as \$2.97 in April 2021. A ball park estimate of the capital costs for the Allan Camp Project in its entirety would amount to approximately \$344,041,830, with the Dam and Reservoir component amounting to \$174,487,500. These figures are Funding may be available from the federal government in the form of loans under the Small Reclamation Projects Act of 1956.	

	Reservoir and reassessing the Allan Camp Dam and Reservoir.							
9.4 Improved Hydrologic Function and Upland Recharge	Upland forest recharge enhancement occurs in conjunction with vegetation management and forest fuels reduction by increasing snow water content (SWC) and reducing dense forest canopy and associated evapotranspiration	Upland forest recharge will take place will be enhanced by implementation of forest health and fuels reduction projects within the Big Valley watershed. Such projects are on-going and in varying stages of planning and implantation. Support from GSA's and local, state, and federal partners will increase implementation rate and scope. Water availability and recharge enhancement will be realized along with fire/fuels and wildlife habitat benefits.	On federally managed lands public notification of projects will be conducted under NEPA (National Environmental Policy Act).by the Modoc National Forest or Applegate BLM. State funded projects will follow CEQA public notification process. Opportunities on private land be communicated by GSA's, Pit Resource Conservation District , and other state and local entities.	Projects permitting will vary by land ownership. On federal lands NEPA and applicable federal land policies. On private lands state forestry rules are applicable and programs such as Cal Fire's Forest Health Program will help clarify and streamline permitting processes.	Snow water content has been shown to increase by 33 to 44% from a dense conifer canopy to an open area. Surface un-off has also been shown to r treatments. Recharge figures are difficult to quantify, but even a modest increase in recharge over 10% of the potential upland recharge area could result several thousand acre-ft of water.	The initial upland forest recharge project "Wagontire Project" is scheduled for implementation in 2022 and is expected completion in a 2 to 4 year window.	Project costs vary by site but an estimated average is from \$500 to \$650 per acre.	
9.5 Water Conservation Projects	Water conservation and water use efficiency projects would primarily be adopted by growers and homeowners on their private property. Infrastructure improvements, while requiring capital outlay are not subject to permitting or public environmental review.	Project implementation will be voluntary with cost-share incentives. Projects will be implemented on a site-by-site basis and designed for overall production and economic efficiency, along with water use savings.	Notification of opportunity to participate will be through local agricultural organizations, extension outreach meetings and by sponsoring agencies. Broad public notification of individual projects is not required.	Projects in this category such as upgrading irrigation infrastructure, irrigation management techniques, home landscaping, etc. are generally not subject to permitting requirements.	Some practices have been shown to result in efficiency increases in the range of 10% at the field scale. Multiplied over a number of farms, water use savings could be significant.	Irrigation infrastructure and water use efficiency incentives are on-going. UC Cooperative Extension has submitted a grant proposal to SWEEP to initiate an outreach education program in 2022.	Costs vary widely. New irrigation infrastructure on a field scale can exceed \$100,000. Soil moisture meters for irrigation scheduling can be in the \$100's to \$1,000's of dollars per farm. Landscaping and homeowner water efficiency projects in the \$100's to \$1000's per home.	Farmers and homeowners have legal authority to make upgrades to their own systems.
9.6 Education and Outreach	Education and outreach efforts can drive beneficial changes in patterns of use and protect water resources. Existing efforts employed by the GSAs include outreach about funding opportunities that support water conservation methods, coordinating information sharing efforts and facilitating informational meetings with stakeholder groups.	As an essential part of sustainability, outreach and education will be conducted throughout the development of the GSP, with many opportunities for public engagement.	Public information is available through the Big Valley GSP communication portal, accessible at bigvalleygsp.org . Informational brochures will be distributed to interested parties in order to make information about the GSP more accessible.	Public engagement is important to the regulatory process of SGMA and other acts that the GSP may be subject to. However, education and outreach is an incredibly important part of meeting the sustainability goals of this GSP, especially as it relates to equity and inclusion.	Public involvement in the GSP development is crucial in attaining sustainability. Research has shown that here are many social, economic and environmental benefits to education and outreach efforts in water management. These benefits can vary widely, but generally include increased levels of social cohesion, equity and conflict avoidance, improved water use efficiency and improved water quality.	Ongoing efforts to engage the public in outreach and education programs related to groundwater management are essential as part of the Groundwater Sustainability Plan. The anticipated timeline for outreach and education efforts is indefinite, but especially important for the next 8 year window.	Costs may vary depending on program type.	

Table 9.3 Required elements for each project and management action

Big Valley Groundwater Sustainability Plan GSP Regulations Checklist (Elements Guide) for Chapter 10

This checklist of the GSP Elements and indicates where in the GSP each element of the regulations is addressed.

Article 5. Plan Contents for Big Valley Groundwater Basin				GSP Document References				Notes
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	
§ 354.6.			Agency Information					
			When submitting an adopted Plan to the Department, the Agency shall include a copy of the information provided pursuant to Water Code Section 10723.8, with any updates, if necessary, along with the following information:					
(a)			The name and mailing address of the Agency.	X	2.1			
(b)			The organization and management structure of the Agency, identifying persons with management authority for implementation of the Plan.	X	2.2, 2.3			
(c)			The name and contact information, including the phone number, mailing address and electronic mail address, of the plan manager.	X	2.3			
(d)			The legal authority of the Agency, with specific reference to citations setting forth the duties, powers, and responsibilities of the Agency, demonstrating that the Agency has the legal authority to implement the Plan.	X	2.4			
(e)			An estimate of the cost of implementing the Plan and a general description of how the Agency plans to meet those costs.	X	10.6,10.7		10-4, 10-5	
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.8, 10727.2, and 10733.2, Water Code.					
§ 354.40.			Reporting Monitoring Data to the Department					
			Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10728, 10728.2, 10733.2, and 10733.8, Water Code.					

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Appendices

Appendix 10A California Financing Coordinating Committee 2021 Funding Fair Handbook

Abbreviations and Acronyms

Basin	Big Valley Groundwater Basin
BVGB	Big Valley Groundwater Basin
BVAC	Big Valley Groundwater Basin Advisory Committee
CASGEM	California Statewide Groundwater Elevation Monitoring
CDEC	California Data Exchange Center
CIMIS	California Irrigation Management Information System
DMS	Data Management System
DWR	Department of Water Resources
ET _o	Reference Evapotranspiration
GAMA	Groundwater Ambient Monitoring and Assessment Program
GIS	Geographic Information System
GRA	Groundwater Resources Association of California
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
InSAR	Interferometric Synthetic Aperture Radar, a technology used to detect subsidence
LMFCWCD	Lassen-Modoc Flood Control and Water Conservation District
North Cal-Neva Regs	North Cal-Neva Resource Conservation and Development Council GSP Regulations: California Water Code Title 23, Division 2, Chapter 1.5, Subchapter 2
SGMA	Sustainable Groundwater Management Act of 2014
SWRCB	California State Water Resources Control Board
USGS	United States Geologic Survey
WIFIA	Water Infrastructure Finance and Innovation Act
WIIN	Water Infrastructure Improvement for the Nation Act
WY	Water Year (October 1 to September 30)

10. Implementation Plan

Groundwater Sustainability Plan (GSP) implementation generally consists of four categories of activities:

- GSA Administration and Public Outreach
- Monitoring and Data Management
- Annual Reporting
- Plan Evaluation (5-year updates)
- Projects and Management Actions

This chapter contains discussion of the details for each of these activities, then sets forth a schedule for implementation, estimates costs of implementation, and discusses funding alternatives.

10.1 GSA Administration and Public Outreach

The nature of groundwater sustainability agency (GSA) administration is not addressed explicitly in the GSP Emergency Regulations (Regs). Much of the work to implement portions of the GSP (e.g. monitoring and projects and management actions) will be performed by outside entities such as DWR and hydrology professionals. However, this work will need to be coordinated by the GSAs and some work will need to be performed by GSA staff.

One category of work that rests on GSA shoulders is public outreach. The level of effort needed from GSA staff depends greatly on the details of public outreach discussed in Chapter 11. In addition to the public outreach performed during GSP development, the Regs (§354.10(d)) require GSAs to develop a communication section of the plan that includes the following:

- (1) An explanation of the Agency's decision-making process*
- (2) Identification of opportunities for public engagement and a discussion of how public input and response will be used.*
- (3) A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.*
- (4) The method the Agency shall follow to inform the public about progress implementing the Plan, including the status of projects and actions.*

Chapter 11 will contain the Communications and Engagement Plan, but the requirements of the Regs are presented here for awareness by GSA staff to refine this chapter and understand the level of effort and expense that may be required for this component of GSP implementation. Decisions will need to be made regarding whether the Big Valley Advisory Committee (BVAC) continues as a functioning body after completion of the GSP, and if the BVAC continues what

role they take and how often they meet will determine the level of GSA staff effort to facilitate BVAC meetings and activities.

10.2 GSP Annual Reporting

According to §356.2 of the Regulations, the Big Valley Groundwater Sustainability Agencies (GSAs) are required to provide an annual report to DWR by April 1 of each year following the adoption of the GSP. The first annual report will be provided to DWR by April 1, 2022 and will include data for the prior Water Year (WY), which will be WY 2021 (October 1, 2020 to September 30, 2021). The Annual Report will establish the current conditions of groundwater within the Big Valley Groundwater Basin (BVGB or Basin), the status of the Groundwater Sustainability Plan (GSP) implementation, and the trend towards achieving sustainability. A general outline is included below.

- ❖ General Information
 - Executive Summary
 - Introduction (1 map of Basin)
- ❖ Basin Conditions
 - Groundwater Elevations (2 contour maps, 12 hydrographs)
 - Estimated Groundwater Extractions (1 table from water budget)
 - Estimated Surface Water Supply (1 table from water budget)
 - Estimated Total Water Use (1 table from water budget)
 - Estimated Change in Groundwater Storage (2 maps, 1 graph, and 1 table)
- ❖ GSP Implementation Progress
 - Progress Toward Measurable Objectives
 - Updates on Projects and Management Actions

Another way to organize this requirement and for GSA staff and stakeholders to understand the level of effort and expense involved in developing annual reports is to outline major technical tasks. Below is a summary outline of tasks to be performed by GSA staff and/or consultants to develop the annual report.

- ❖ Download Water Level Data from state website and generate:
 - Hydrographs for 12 representative wells.
 - Spring and Fall groundwater contours.
 - Groundwater difference contours. (e.g. Fall 2020 to Fall 2021)
- ❖ Download water budget data from state websites¹
 - Run water budget for the water year and generate estimates of:
 - Groundwater extractions.
 - Surface water supply.

¹ This includes precipitation and reference evapotranspiration (ET_o) from CIMIS and streamflow data from CDEC, BVWUA, Brookfield Energy, and other sources.

- Total water use.
- ❖ Assemble and write annual report.
- ❖ Upload report and data to state website.

10.2.1 General Information

In accordance with §356.2(a), each Annual Report will include, at the front of the report, an executive summary that will summarize the activities and the condition of groundwater levels within the BVGB for the prior year. The executive summary shall also include a map of the BVGB, its GSAs, and the monitoring network.

The annual report will include an introduction that will describe the following:

- A description of the BVGB and the two GSAs
- The general conditions of the BVGB for the prior water year (precipitation, surface water allocations, crop demands, municipal demands, etc.)
- Any significant activities or events that would impact the water supply and/or groundwater conditions for the BVGB

10.2.2 Basin Conditions

Included in the annual report will be a discussion of specific local water supply conditions per §356.2(b). This section will provide a description of the water supply conditions for the preceding water year along with a graphical representation of the conditions. A water year shall be defined as the 12-month period starting October 1 through September 30 of the following year. Water supply conditions that will be discussed include:

- Groundwater Elevations – elevation data from the monitoring network, including hydrographs for the representative wells and groundwater contours for spring and fall.
- Groundwater Extractions – groundwater pumping estimates and measurements for agricultural, municipal and domestic pumping, generated from the water budget
- Surface Water Supply – data from surface water supplies to irrigation demand, conveyance losses, and groundwater recharge, generated from the water budget
- Total Water Use – total water uses by agricultural, municipal and domestic sectors, generated from the water budget
- Change in Groundwater Storage – a determination of the groundwater (volumetric) change, calculated from groundwater difference contours and/or the water budget.

10.2.3 Plan Progress

The annual report also needs to describe progress of the Plan since the previous report, including progress toward achieving measurable objectives and status of projects and management actions.

10.3 Data Management System

The Regs require a data management system (DMS), but do not give strict guidance on format or how to develop and maintain the DMS. §352.6 of the Regs states:

“Each Agency shall develop and maintain a data management system that is capable of storing and reporting information relevant to the development or implementation of the Plan and monitoring of the basin.”

The data management system proposed for Big Valley is separated into two categories: data for annual reports and data for GSP updates.

10.3.1 Annual Report DMS

Annual reports require water level data and other data to update the water budget. **Table 10-1** lists the data needed and the sources of those data. The DMS can be stored using common software (Microsoft Excel and ArcGIS) on GSA servers. Water level data will be downloaded from the state website² and stored in an Excel hydrograph spreadsheet tool. This tool will store the well information, water level data, water year types, and sustainable management criteria (minimum thresholds and measurable objectives). The tool will allow users to generate hydrographs and provide the data needed to generate contours. **Figure 10-1** shows a screenshot of the Excel Water Level Tool for storing water well and water level data and generating hydrographs.

Table 10-1 Annual Report DMS Data Types

Data Type	Collecting Entity	Data Source	DMS Tool
Water Levels	DWR	SGMA Data Viewer	Excel Water Level Tool
Precipitation	DWR	CIMIS	Excel Water Budget Tool
Evapotranspiration	DWR	CIMIS	Excel Water Budget Tool
Streamflow (gages)	USGS/DWR	CDEC	Excel Water Budget Tool
Streamflow (water rights reporting)	SWRCB	eWRIMS	Excel Water Budget Tool
GIS Base Data ¹	GSAs	various	GIS Database

¹ Base data includes GIS layers such as the county boundaries, streams, roads, well locations, etc which generally don't change over time and don't need to be updated.

Water budget data will also be stored in an Excel spreadsheet tool as shown in **Figure 10-2**. Each of these spreadsheet tools has instructions, sheets to store raw data, and sheets that perform calculations and generate the needed figures for annual reports or other purposes.

² Currently water level data for Big Valley is being managed and stored through [DWR's CASGEM system](#). Once the GSP is completed, the data will be brought into DWR's new [SGMA Portal](#) Monitoring Network Module (MNM). Data from either of these systems is available through the [SGMA Data Viewer](#).

Big Valley GSP Chapter Public Draft
Big Valley Groundwater Basin
May 26, 2021

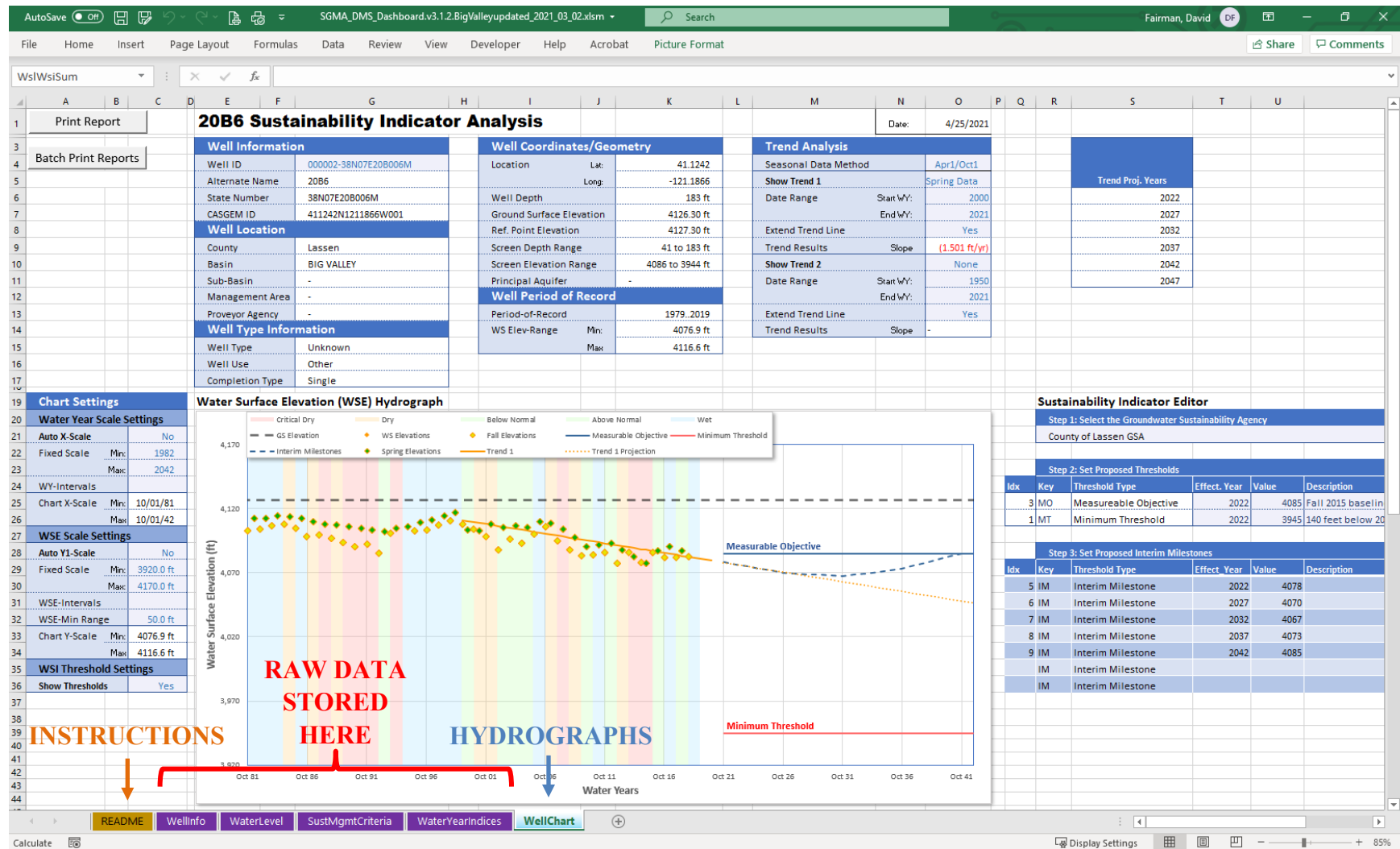


Figure 10-1 Excel Water Level Tool

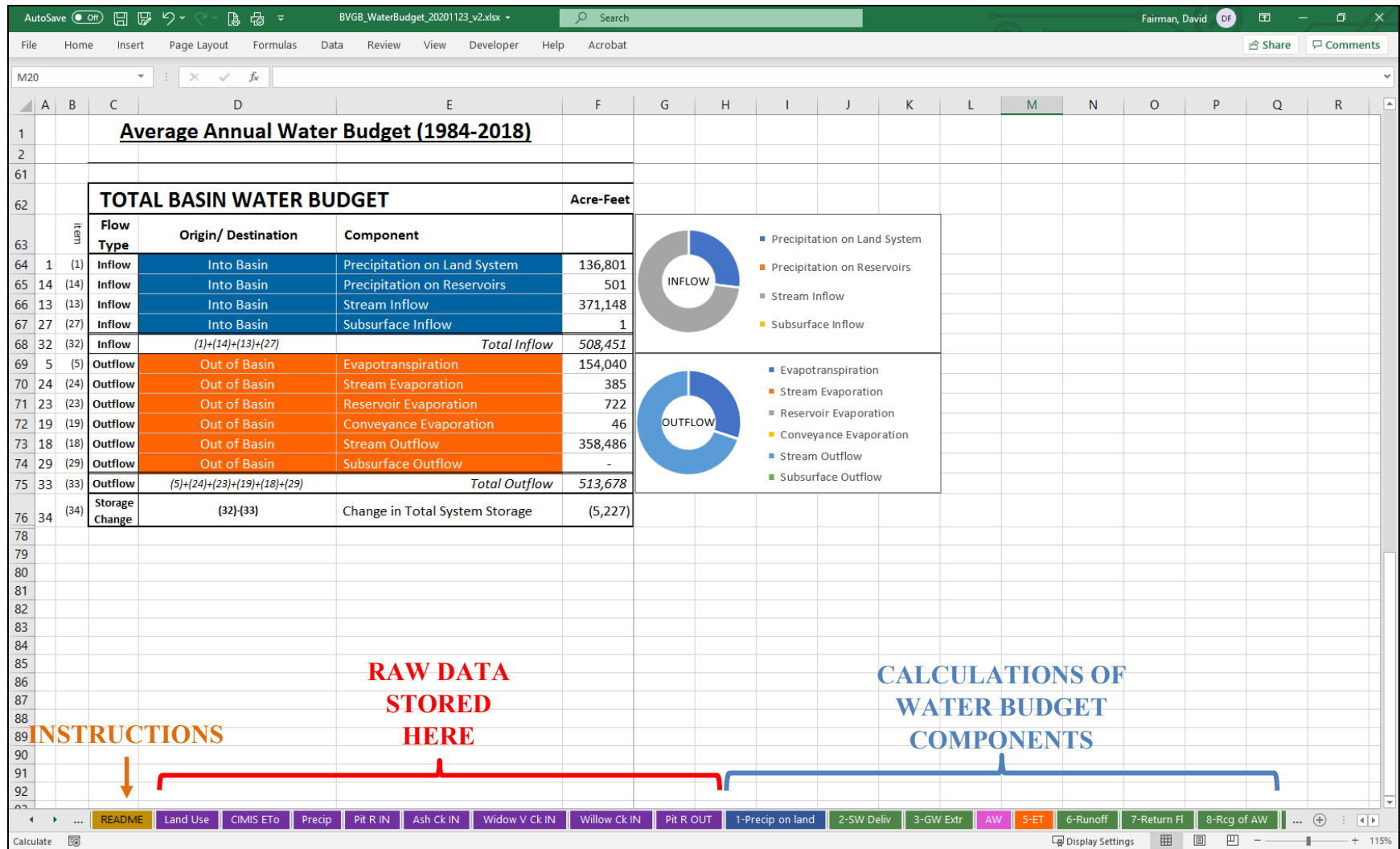


Figure 10-2 Excel Water Budget Tool

Annual reports require maps, which are generated with widely-used ArcGIS software. The geographic information system (GIS) data, including base data such as streams, roads, and well locations will be organized into a folder structure as shown in **Figure 10-3**. Water level data will be imported into GIS to generate contours for annual reports.

10.3.2 GSP Update DMS

Additional types of data are needed to update the GSP, listed in **Table 10-2**. Much of this additional data is GIS-based and will be stored in the GIS database, shown in **Figure 10-3**. One type of data that will need its own management structure is water quality. The State Water Resources Control Board (SWRCB) makes groundwater quality data from its various programs available on its GAMA Groundwater Information System site. This data will need to be downloaded and will be managed in a spreadsheet tool shown on **Figure 10-4**.

Table 10-2 GSP Update DMS Data Types

Data Type	Collecting Entity	Data Source	DMS Tool
Water Levels	DWR	SGMA Data Viewer	Excel Water Level Tool
Precipitation	DWR	CIMIS	Excel Water Budget Tool
Evapotranspiration	DWR	CIMIS	Excel Water Budget Tool
Streamflow (gages)	USGS/DWR	CDEC	Excel Water Budget Tool
Streamflow (water rights reporting)	SWRCB	eWRIMS	Excel Water Budget Tool
Water Quality	SWRCB	GAMA	Excel Water Quality Tool
Land Use	DWR	SGMA Data Viewer	GIS Database
Subsidence (InSAR)	DWR	SGMA Data Viewer	GIS Database
GIS Base Data ¹	GSAs	various	GIS Database

¹ Base data includes GIS layers such as the county boundaries, streams, roads, well locations, etc which generally don't change over time and won't need to be updated.

10.4 Periodic Evaluations of GSP (5-year Updates)

Updates and amendments to the GSP can be performed at any time, but at a minimum the GSAs must submit and update and evaluation of the plan every five (5) years. (§356.4) While much of the content of the GSP will likely remain unchanged for these 5-year updates, the Regs require that most chapters of the plan be updated and supplemented with any new information obtained in the preceding five years. Chapters that are likely to require significant updates and re-evaluation include:

- Chapter 4: Hydrogeologic Conceptual Model
- Chapter 5: Groundwater Conditions
- Chapter 6: Water Budget
- Chapter 7: Sustainable Management Criteria

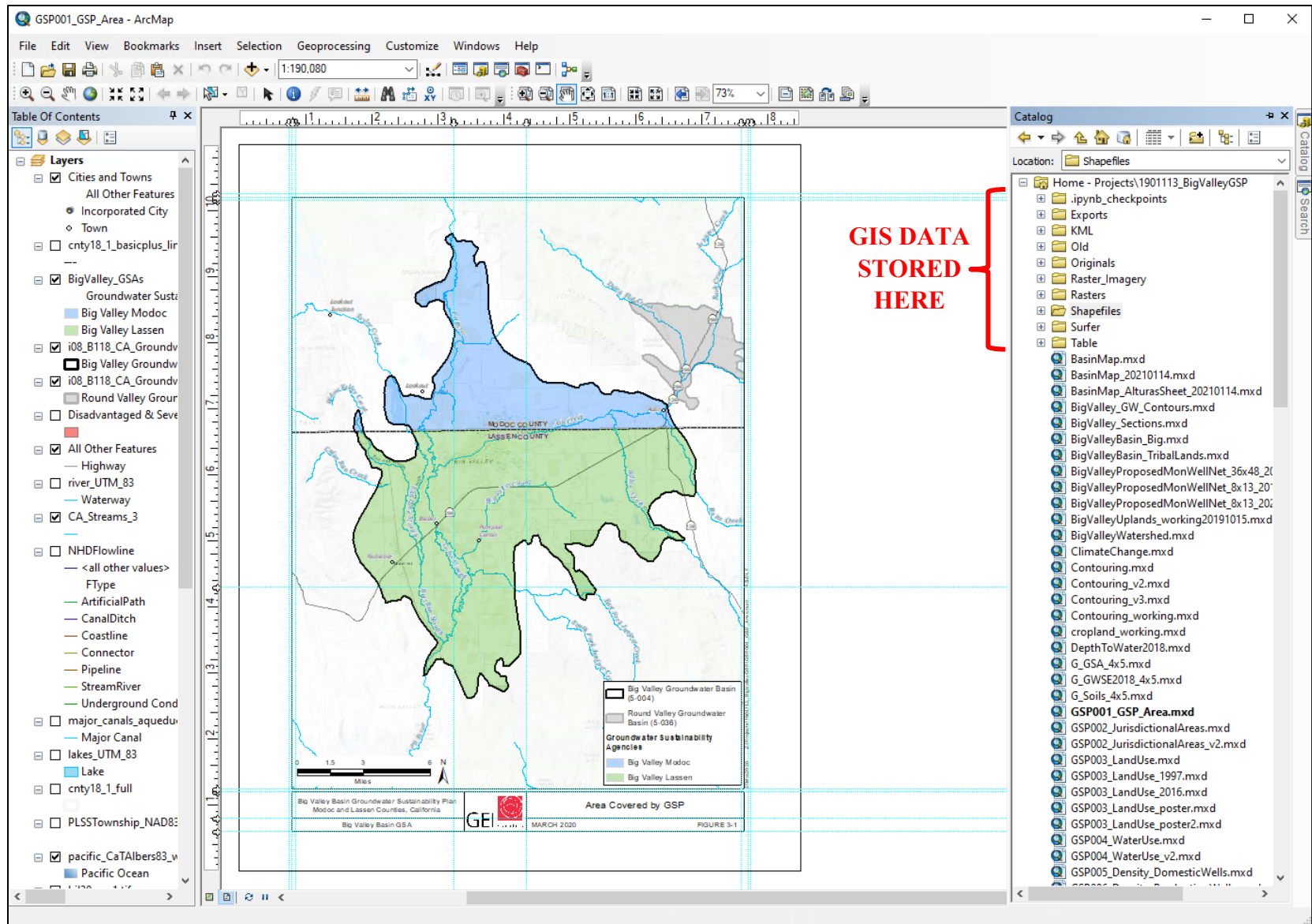


Figure 10-3 GIS Database

Big Valley GSP Chapter Public Draft
Big Valley Groundwater Basin
May 26, 2021

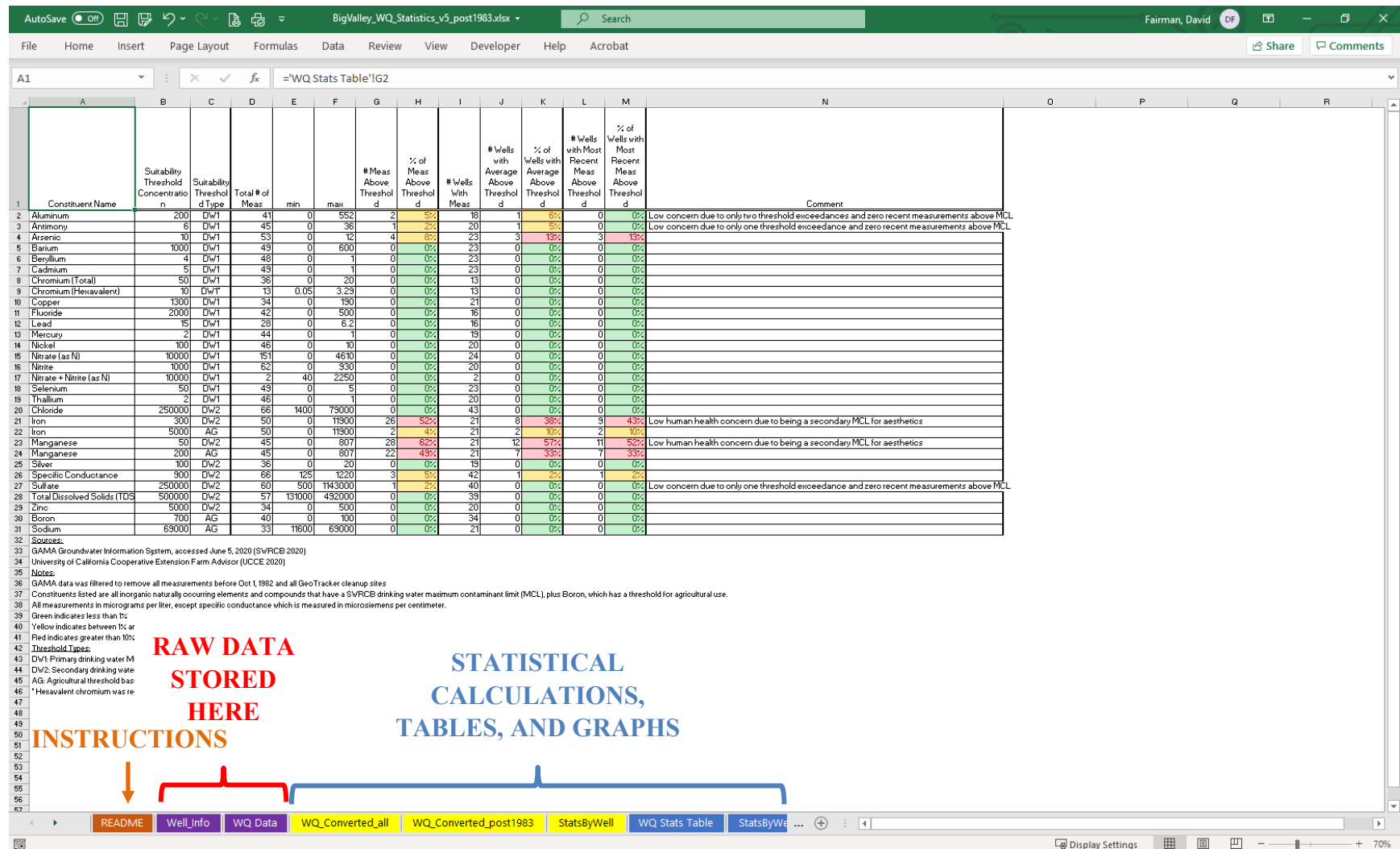


Figure 10-4 Excel Water Quality Tool

- Chapter 8: Monitoring Network
- Chapter 9: Projects and Management Actions

Similar to this first version of the GSP, the Basin Setting (Chapters 4 through 6) will need to be signed and stamped by a California Professional Geologist or Engineer.

10.5 Implementation Schedule

Figure 10-5 shows the implementation schedule. Schedules for individual projects are still under development in Chapter 9.

10.6 Cost of implementation

DWR gives little guidance on how to develop and define costs. An analysis of GSPs from critically overdrafted basins found a broad variety of approaches, categories of costs, and level of detail, from a single cost with no detail or justification to detailed costs for multiple categories. The purpose of this section is to present some information of cost ranges given for other basins and to give estimates of costs for the categories of implementation presented in this chapter, listed below. These costs may change based on how the GSAs choose to implement the GSP (e.g. the amount and type of public outreach and the amount and type of support sought from outside hydrology professionals such as consultants and/or UCCE).

- GSA Administration and Public Outreach
- Monitoring and Data Management
- Annual Reporting
- Plan Evaluation (5-year updates)
- Projects and Management Actions

Cost is a fundamental concern to the GSAs and stakeholders in the BVGB, as the Basin is a disadvantaged community and there is little to no revenue generated in the counties to fund the state-mandated requirements of SGMA. Therefore, the approach in implementing the plan and estimating costs is to leverage as much outside funding and technical support as possible to cover costs. (See Section 10.6 below) For costs that must be borne by the GSAs, efficient implementation methods while still meeting the SGMA requirements to support the GSP is the desired outcome. **Table 10-3** shows a summary of the costs from GSPs submitted in 2020. As mentioned, not every GSP had every category of costs listed, but the number of GSPs that did detail costs for each category is shown. It should be noted that Big Valley is extremely unique in a variety of ways documented in this GSP. However, looking at the costs estimated by others gives a check on the reasonableness of cost estimates for Big Valley.

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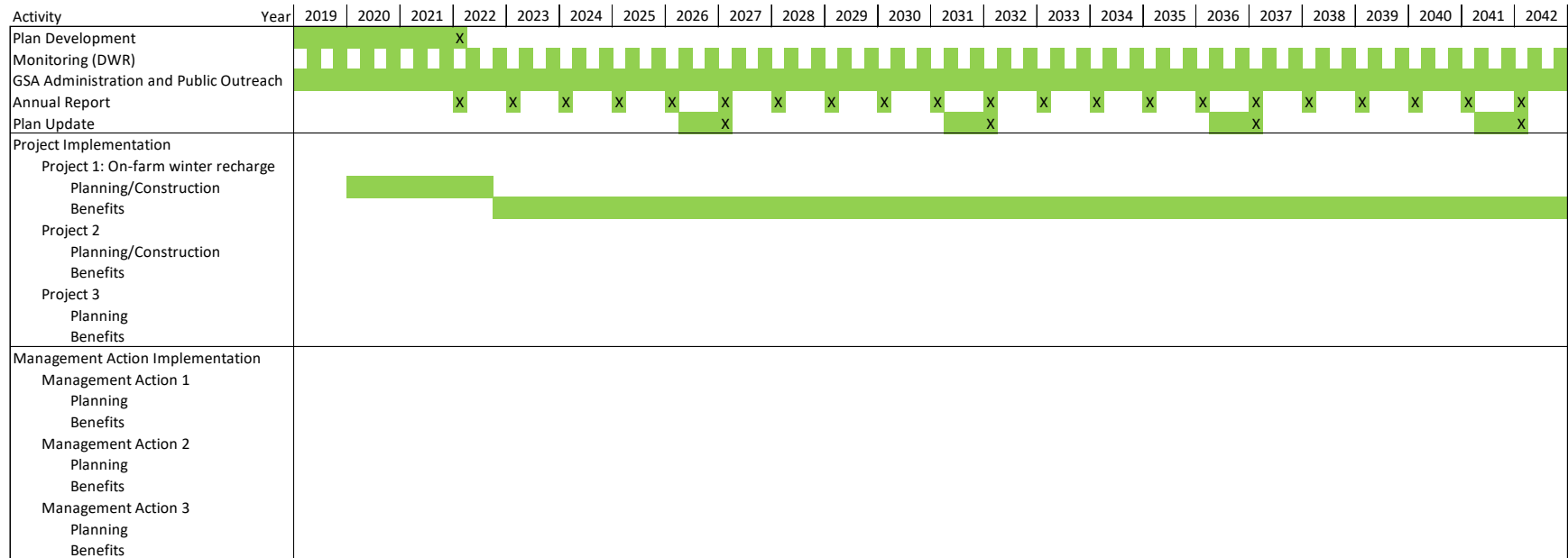


Figure 10-5 Implementation Schedule

Table 10-3 GSP Implementation Cost Statistics for 2020 GSPs in California

	Annual Cost Details						5-Year Update
	Total Annual	GSA Admin	Public Outreach	Annual Monitoring	DMS Update	Annual Report	
count	34	21	11	23	8	15	20
min	\$ 50,000	\$ 51,000	\$ 5,000	\$ 20,000	\$ 10,000	\$ 20,000	\$ 50,000
max	\$ 2,596,384	\$ 1,538,794	\$ 75,000	\$ 1,057,590	\$ 170,000	\$ 350,000	\$ 1,400,000
mean	\$ 981,296	\$ 607,861	\$ 27,573	\$ 293,907	\$ 42,875	\$ 56,267	\$ 455,369
median	\$ 720,100	\$ 418,900	\$ 20,000	\$ 136,000	\$ 20,000	\$ 25,000	\$ 330,000

Source: Fricke 2020

10.6.1 GSA Administration and Public Outreach

The fundamental activities that will need to be performed by the GSAs are public outreach and coordination of GSP activities. Public outreach may entail updates at County board of supervisors meetings and/or public outreach meetings. At a minimum the GSAs will receive and respond to public input on the Plan and inform the public about progress implementing the Plan as required by §354.10(d)(4) of the Regs. Coordination activities would include ensuring monitoring is performed, developing and/or coordinate the development of annual reports and 5-year updates, and coordinating projects and management actions. Based on current grants which have funded filling of data gaps and identifying recharge opportunities, the GSA administrative costs of projects and management actions may be largely covered by grant funds (see Section 10.6).

In other GSPs already submitted, 21 itemized GSA administration and their estimates ranged in cost from \$51,000 to over \$1.5 million per year, with a median of about \$200,000. However, most of these basins are much larger than Big Valley, have more complex governance structures (i.e. have multiple GSPs in the Basin), and more stakeholder groups. This cost for Big Valley could vary depending on the nature of public outreach written in the Plan.

10.6.2 Monitoring and Data Management

Twenty-three GSPs submitted to DWR to date have itemized annual monitoring with cost estimates ranging from \$20,000 to over \$1 million per year with a median of about \$65,000. Twelve GSPs itemized DMS updates with costs ranging from \$3,000 to \$170,000 with a median of \$15,000.

DWR staff currently measures water levels in the Basin and posts them on their website and has indicated that they will continue to do so for the foreseeable future and that they could monitor water levels in the newly constructed monitoring wells. If DWR follows through on this assumption, there would be little to no costs to the GSAs for monitoring. The GSAs would need to download and populate the DMS tools detailed above. However, for costing purposes, we have assumed this to be covered under the Annual Report cost category. There may be some minimal costs associated with hosting the servers where the data is stored, but that cost is assumed to be negligible.

If DWR chooses to discontinue its water level monitoring of wells in Big Valley, the cost could be on the order of \$2,000 to \$3,000, which equates to 40 to 60 staff-hours.

10.6.3 Annual Reporting

Annual report costs were estimated in 15 GSPs ranging from \$20,000 to \$350,000 with a median of \$25,000. Annual reports have substantial requirements and assembling the data, processing, and generating the necessary charts, maps, and tables described in Section 10.2. There are ways to streamline and automate the process, many of which are described in Section 10.2.3.

However, there does need to be a level of professional effort and judgement to ensure that the data is accurate and reasonable. The level of professional judgment could be reduced over the course of the first few years, but an initial estimate of \$25,000 for developing an annual report, then dropping to perhaps about \$10,000. In this case, if the annual report is developed, written, and submitted by GSA staff, this would equate to about 200 staff-hours.

10.6.4 Plan Evaluation (5-year Updates)

The cost of updates to the GSP will be lower than the cost of initially developing the GSP. However, the Regulations require all parts of the GSP to be updated with recent data and information and will require substantial effort from a licensed professional. Of the 20 GSPs submitted that had GSP update cost estimates, they ranged from \$50,000 to \$1.4 million with a median of \$330,000. However, many of the GSPs already submitted are in basins with multiple GSPs. In those types of basins, the basin setting (Chapters 3-6) is typically performed on a basin-wide basis. Therefore, the basins that are estimating on the low end won't have to bear some of the cost the Big Valley will have to because Big Valley will have to update the basin setting. Therefore, a range of about \$200,000 to \$300,000 is estimated to update the GSP.

10.6.5 Projects and Management Actions

Costs of projects and management actions are addressed in Chapter 9.

Table 10-3 summarizes the cost estimates of annual and 5-year updates discussed above.

Table 10-4 Summary of Big Valley Cost Estimates

		Annual Cost Details			
	Total Annual	GSA Admin and Public Outreach	Annual Monitoring and DMS Update	Annual Report	5-Year Update
Low	\$ 30,000	\$ 20,000	\$ -	\$ 10,000	\$ 200,000
High	\$ 68,000	\$ 40,000	\$ 3,000	\$ 25,000	\$ 300,000

10.7 Funding Alternatives

This section discusses funding alternatives. **Table 10-5** describes the various funding options available to the GSAs. The table describes both outside funding (state and federal assistance and grants) and local funding (general fund, fees, and taxes). Annual costs are less likely to be funded directly by outside sources because of the premise of SGMA that groundwater basins are best managed locally, and administration, monitoring and reporting costs are most likely to be seen as an obligation for the local GSAs under this premise. However, 5-year updates and particularly projects and management actions are good candidates for outside funding. Some of this outside funding that currently exists could through the DWR Prop 1 grants obtained by the North Cal-Neva Resource Conservation & Development Council (North Cal-Neva) and Modoc

County could potentially be leveraged to support annual reporting in the next year or two. This depends on the degree that there is overlap between the scopes of work for the grants and the annual report requirements. These two existing grants are laying the groundwork for recharge projects and filling data gaps.

Table 10-5 Summary of GSP Funding Mechanisms

Funding Mechanism		Description
Assistance Programs		DWR offers Technical Services Support and Facilitation Services Support Programs to assistance GSAs in development and implementation of their GSPs. If granted, services provided under these programs are offered at no-cost to the GSAs.
Grant Funding	State Grants	DWR's Sustainable Groundwater Management Grant Program, funded by Proposition 1 and Proposition 68, provides funding for sustainable groundwater planning and implementation projects. Both DWR and the State Water Resources Control Board offer a number of grant and loan programs that support integrated water management, watershed protection, water quality improvement, and access to safe drinking water. Other state agencies and entities with grant or loan programs related to water and environment include the California Department of Fish and Wildlife and California Water Commission.
	Federal Grants	Federal grant and loan programs related to water planning and infrastructure include the Water Infrastructure Finance and Innovation Act (WIFIA), Water Infrastructure Improvement for the Nation Act (WIIN), and the U.S. Department of the Interior, Bureau of Reclamation's WaterSMART program.
General Funds		Cities and counties maintain a general fund which include funding from taxes, certain fees, state shared revenue, interest income, and other revenues. While not a funding mechanism, the general funds from cities and counties may be used to fund or provide in-kind services for GSA activities and GSP implementation.
Fees	Fees	Fees include "various charges levied in exchanges for a specific service" (Hanak et al., 2014). This includes water and wastewater bills, or developer or connection fees, and permitting fees. Under rules established by Proposition 218 (1996), new property-related fee increases are subject to a public hearing and must be approved by either a simple majority of property owners

Funding Mechanism		Description
		subject to the fee or by two-thirds of all registered voters (Hanak et al., 2014; League of California Cities, 2019).
	Groundwater Extraction Fees	SGMA grants GSAs certain powers and authorities including the authority to impose fees. Section 10730 of the Water Code states that a GSA may “permit fees and fees on groundwater extraction or other regulated activity, to fund the costs of a groundwater sustainability program, including, but not limited to, preparation, adoption, and amendment of a groundwater sustainability plan, and investigations, inspections, compliance assistance, enforcement, and program administration, including a prudent reserve.”
	Assessments	Assessments are a specific type of fee that are levied on property to pay for a public improvement or service that benefits that property.
Taxes		Taxes imposed by local agencies include general taxes, special taxes, and property taxes. Taxes generally fall into one of two categories: general or special (Institute for Local Government, 2016). <i>General taxes</i> are defined as “any tax imposed for general governmental purposes.” (Cal. Const. art. XIII C, § 1, subd. [a]) <i>Special taxes</i> are “any tax imposed for specific purposes, including a tax imposed for a specific purpose, which is placed into a general fund.” (Cal. Const. art. XIII C, § 1, subd. [d]). Proposition 218 (1996) states that special districts “could not levy general taxes, but only special taxes, and it clarified that local general taxes always required simple majority voter approval and that local special taxes always required two-thirds voter approval.”

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270 The BVAC has stated that they are unable to impose any new taxes or fees to cover the
271 implementation of this GSP for compliance with the annual reporting and 5-year update
272 requirements prescribed in the GSP regulations. The GSAs will identify and pursue grants to
273 fund the implementation of this GSP. To that end the BVGB will work closely with state and
274 federal grant administrators, including those who participate in the California Financing
275 Coordinating Committee’s (CFCC) annual Funding Fairs. More information on CFCC including
276 their 2021 Funding Fairs Handbook, included as **Appendix 10A**, is available at
277 <https://www.cfcc.ca.gov/funding-fairs/>.

10.8 References

Fricke, R., 2020. Personal communication and analysis of GSP implementation costs assembled and presented at 2020 Groundwater Resources Association's (GRA's) annual conference.

Hanak, E., Gray, B., Lund, J., Mitchell, D. Fahlund, A., Jessoe, K., MedellinAzuara, J, Misczynski, D. Nachbaur, J., and Suddeth, R., 2014. Paying for Water in California. Available at: https://www.ca-ilg.org/sites/main/files/file-attachments/basics_of_municipal_revenue_2016.pdf

Institute for Local Government, 2016. Understanding the Basics of Municipal Revenues in California; Cities, Counties and Special Districts. Available at: https://www.ca-ilg.org/sites/main/files/file-attachments/basics_of_municipal_revenue_2016.pdf.

League of California Cities, 2019. Proposition 26 and 218 Implementation Guide, May 2019. Available at: <https://www.cacities.org/Prop218andProp26>.

Appendix 10A

California Financing Coordinating Committee 2021 Funding Fair Handbook

MISSION STATEMENT

Infrastructure Financing for the 21st Century

The purpose of CFCC is to foster cooperation among the many funding agencies that administer water, wastewater, and other public infrastructure needs. The CFCC encourages the efficient use of funds by reducing administrative costs for recipients and funding agencies and evaluating methods for improved performance. CFCC members provide a forum to resolve state and federal program requirement conflicts that may make multi-funded projects difficult to administer. Additionally, funding fairs provide the CFCC with an opportunity to present current program information to the public. Attendees will also have the opportunity to speak with program staff directly.



What is CFCC?

Formed in 1998, CFCC composed of many state, federal, and local agencies. CFCC members facilitate and expedite the completion of various types of infrastructure projects helping customers combine the resources of different agencies. Project information is shared between members in support of identifying additional resources. Each year, CFCC members conduct free funding fairs to educate the public and potential customers about the different member agencies and the financial and technical resources available.

Who Should Attend

Representatives from water industry professionals, public works, local governments, and California Native American Tribes should attend. This includes city managers and planners, economic development and engineering professionals, officials from privately owned facilities, water and irrigation district managers, financial advisors, and project consultants.

Eligible Project Types

CFCC agencies fund the following types of eligible infrastructure projects: drinking water, wastewater, water quality, water supply, water conservation, water use efficiency, energy efficiency, and flood management. Some of the participating agencies also fund other types of infrastructure projects including streets and highways, emergency response vehicles, and community facilities.

CFCC Information

Please visit the CFCC website at www.cfcc.ca.gov for the CFCC member directory and general information.



California Financing Coordinating Committee

2021

Funding Fair

H A N D B O O K

Seeking Funding For Your Infrastructure Project?



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California Financing Coordinating Committee

State Agencies

- California Department of Housing and Community Development
- California Infrastructure and Economic Bank
- California Governor’s Office of Emergency Services
- California Department of Forestry and Fire Protection
- California Department of Resources, Recycling, and Recovery
- California Strategic Growth Council
- California Department of Water Resources
- California State Water Resources Control Board

California Department of Housing and Community Development (HCD)



California Department of Housing and Community Development
2020 West El Camino Avenue
Suite 200
Sacramento, California 95833

Program Contact
Roxann Kuhnert
(916) 263-6468
Roxann.Kuhnert@hcd.ca.gov

Website: <http://www.hcd.ca.gov>



Community Development Block Grant (CDBG)



- Housing
- Wastewater
- Water
- Roadways
- Community Facilities
- Public Accessibility

May 2021

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California Department of Housing and Community Development

Program Guidelines

Community Development Block Grant

Type

Grants to city and county jurisdictions.

Funding Limits

Funding limits vary by activity as specified in each notice of funding availability (NOFA).

CEQA/NEPA

A NEPA environmental impact statement must be completed and submitted with application to meet program threshold requirements.

Terms/Dates

The NOFA released on January 29, 2021. Applications may be submitted online. Application submittal start date: January 29, 2021. Application due dates are as follows:

- Community Development Activities: April 30, 2021, by 5 p.m. (PDT)
- Economic Development Activities: May 31, 2021, by 5 p.m. (PDT)

Eligibility Requirements

Non-entitled cities or counties that do not receive funding from the U.S.

Department of Housing and Urban Development's (HUD's) CDBG entitlement program.

Jurisdictions can pay for their own system, project, or community facilities, or grant or loan funds to private or public entities.

Contact HCD regarding special restrictions for Native American and Colonia funding.

Program Contacts

Roxann Kuhnert (916) 263-6468
Felicity Gasser (916) 263-6514



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Public Improvements – Water

Purpose

The project must principally benefit low/moderate income persons/households. For example, make water system upgrades for residents of communities with more than 51 percent of its residents being low/moderate income, or extend water service to a site for a business that creates jobs for low/moderate income persons.

Eligible Uses

- Pay for project feasibility study, final plans and specs, site acquisition and construction, and grant administration costs.
- Pay for repair or new construction of town's water tank.
- Pay for one-time assessment fees for low-income families.
- Pay for installation of private laterals and hook-up fees for low-income families under housing rehabilitation activity.

Ineligible Uses

- Maintenance costs.
- Refinancing of existing debt.

Public Improvements – Wastewater

Purpose

The project must principally benefit low/moderate income persons/households. For example, make upgrades to a sewage collection and treatment system for residents of a community with more than 51 percent of its residents being low/moderate income, or extend wastewater system to a site for a business that creates jobs for low/moderate income persons.

Eligible Uses

- Pay for project feasibility study, final plans and specs, site acquisition and construction, and grant administration costs.
- Rehabilitate or construct sewer/water lines or sewer lift station.
- Pay for one-time assessment fees for low-income families.

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Pay for installation of private laterals and hook-up fees for low-income families under housing rehabilitation activity.

Ineligible Uses

- Maintenance costs.
- Refinancing of existing debt.

Public Improvements – Roadways

Purpose

The project must "principally" benefit low/moderate-income persons/households. For example, install new roads or curbs, gutters, and sidewalk, or new street drainage system for residents of a community with more than 51 percent of residents being low/moderate income.

Eligible Uses

Pay for project feasibility study, final plans and specs, site acquisition and construction, and grant administration costs. Must be rehabilitation or a new road and can include installing streetlights, landscaping, and sidewalks. For example, assist families to install sidewalks in front of their home.

Ineligible Uses

- Maintenance costs.

Community Facilities

Purpose

The project must "principally" benefit low/moderate-income persons/households. For example, create a facility for homeless services or a healthcare facility in a community where at least 51 percent of residents are low income.

Eligible Uses

- Pay for project feasibility study, final plans and specs, site acquisition and construction, and grant administration costs.
- Types of facilities: fire and police stations, homeless and battered family shelters, day care centers for seniors or kids, social service and health care facilities, teen centers.

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Ineligible Uses

Refinancing existing debt.

Buildings for general use by local government.

To be eligible, public facilities must provide HUD-eligible public services. Contact CDBG for additional information.

Other

Purpose

The project must “principally” benefit low/moderate-income persons/households. For example, create or improve a park in a community where at least 51 percent of residents are low/moderate income, or upgrade public access to a facility to comply with requirements of the Americans With Disability Act (ADA).

Eligible Uses

Pay for project feasibility study, final plans and specs, site acquisition and construction, and grant administration costs.

Installation of ADA improvements in public facilities.

Ineligible Uses

Maintenance costs.

Refinancing existing debt.

Building of general use by local government.

Inquire regarding special restrictions for Native American and Colonia funding.

2021 California Financing Coordinating Committee Funding Fair

Workshop Notes

[illegible]

California Infrastructure and Economic Development Bank (IBank)

1325 J Street, Suite 1300
Sacramento, California 95814
(916) 341-6600

Website: <http://www.IBank.ca.gov>
Email: IBank@IBank.ca.gov



Rendering of IBank bond-financed Powerhouse Science Center

Types of Bonds

Section 501(c)(3) Bonds

Tax-exempt financing to eligible nonprofit public benefit corporations for the acquisition or improvement of facilities and capital assets. Typical borrowers include cultural, educational, charitable and recreational organizations, research institutes, and other types of nonprofit organizations that provide public benefits.

Bonds (tax-exempt or taxable)

- Section 501(c)(3) Bonds
- Industrial Development Bonds
- Public Agency Revenue Bonds
- Exempt Facility Bonds

California Infrastructure and Economic Development Bank

Industrial Development Bonds

Tax-exempt financing up to \$10 million for qualified manufacturing and processing companies for the construction or acquisition of land, facilities, and equipment.

Exempt Facility Bonds

Tax-exempt financing for projects that are government owned or leased to private parties and may consist of improvements within publicly or privately owned facilities. The qualifying projects include private airline improvements at publicly owned airports, docks and wharves, mass commuting facilities, solid waste disposal facilities, high-speed intercity rail facilities, local district heating or cooling facilities, and facilities for the furnishing of water.

Public Agency Revenue Bonds

Bond financings for various state and local government agencies for various public or economic development projects.

Types of Loans

Loans – Infrastructure State Revolving Loan Fund (ISRF)

Purpose

The ISRF Program provides direct loan financing to public agencies and nonprofit corporations sponsored by public agencies, for a wide variety of infrastructure and economic development projects (excluding housing). ISRF financing is available in amounts ranging from \$50,000 to \$25 million with loan terms for the useful life of the project up to a maximum of 30 years.

Eligible ISRF applicants include any subdivision of a local government, including cities, counties, special districts, assessment districts, joint powers authorities, and eligible nonprofit corporations.



IBank's ISRF Program financed the new Fresno Yosemite International Airport.

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Eligible ISRF projects include:

- City streets.
- County highways.
- State highways.
- Drainage, water supply, and flood control.
- Educational, cultural, and social facilities.
- Environmental mitigation measures.
- Goods movement-related infrastructure.
- Parks and recreational facilities.
- Port facilities, public transit.
- Power and communications facilities.
- Sewage collection and treatment.
- Solid waste collection and disposal.
- Water treatment and distribution.
- Defense conversion.
- Public safety facilities.
- Military infrastructure.
- Industrial, utility, and commercial.

Loans – California Lending for Energy and Environmental Needs (CLEEN) Center

Purpose

The CLEEN Center provides direct loan financing to public agencies including municipalities, universities, schools, and hospitals (MUSH borrowers) to help meet the State's goals for greenhouse gas reduction, water conservation, and environmental preservation. The CLEEN

Center offers two programs: the Statewide Energy Efficiency Program (SWEET) and the Light Emitting Diode (LED) Street Lighting Program. Financing can be in amounts from \$500 thousand to \$30 million.



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Eligible CLEEN applicants include any subdivision of a local government, including cities, counties, special districts, assessment districts, joint powers authorities and nonprofit corporations (as deemed eligible), municipalities, public universities, schools, and hospitals.

Eligible CLEEN Projects include:

- Advanced metering systems to support conversion of master-metered buildings to sub-metering.
- Data center, information technology, communications.
- Energy management or control systems.
- Demand response programs.
- Water/wastewater, pipeline, mining/extraction, and similar end-use processes, facilities, buildings, and infrastructure.
- Lighting and control systems.
- Converting incandescent to CFL.
- LED repairs, replacements, and upgrades.
- Heating, ventilation, and air conditioning systems (HVAC).
- Building envelope.
- Occupant plug load management systems.
- Load reduction.
- Zero-emission vehicles.
- Hydrogen fueling stations.
- Thermal and electric energy storage.

Other projects with proven technologies will be considered.

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Small Business Support

Purpose

The iBank Small Business Finance Center (SBFC) helps businesses create and retain jobs and encourages investment in low- to moderate-income communities. The SBFC has a Jump Start Loan Program, a Small Business Loan Guarantee Program, a Disaster Relief Loan Guarantee Program and a Farm Loan Program. The SBFC partners with seven Financial Development Corporations throughout the State.



Eligible Small Business Loan Guarantee applicants include eligible nonprofits and small businesses located in California with 1 to 750 employees and eligible nonprofits.

SBFC, Disaster Relief Loan Guarantee and COVID-19 Disaster Relief Loan Guarantee terms:

- Loans up to \$20 million.
- Max guarantee \$1 million.
- Guaranteed up to seven years; term can be longer.
- Guarantees up to 80 to 95 percent of loan.
- Loan interest rates negotiated between lender and borrower.
- Qualifications based on lender criteria.

Eligible uses of funds include:

- Start-up costs.
- Construction.
- Inventory.
- Working capital.
- Export financing.
- Franchise fees.

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- Business expansion.
- Lines of credit.
- Gap financing.
- Agriculture.
- Disaster relief.

California Rebuilding Loan Fund

The California Rebuilding Fund is a loan program to support California's small businesses—especially those located in economically disadvantaged and historically under-banked areas of the state. Businesses who employed 50 or less full-time equivalent employees and had gross revenues of less than \$2.5 million or below in 2019 are eligible to apply.

The loans are flexible, transparent, and are designed to help businesses access the capital and advisory services they need to get through these challenging economic times.

The loans are not forgivable in part or whole. The loans will need to be paid back over a three- or five-year term with a fixed annual interest rate that is currently 4.25 percent.

Not all businesses will be matched with a participating community lender based on each lender's initial criteria. If matched, you will be connected with a local community lender, which will be a certified Community Development Financial Institution (CDFI). The community lender will work with you on your full loan application. If approved, the loan will be made through that community lender and you will continue to work with them throughout the life of your loan.

The following criteria is the minimum required for a business to be considered eligible for a loan under this program:

- The business must have employed 50 or fewer full-time equivalent employees prior to March 2020; please note: any and all affiliates are counted in this total, including businesses with shared ownership.
- The business must have had gross revenues of less than \$2.5 million in 2019.
- The business must have suffered a direct economic hardship as a result of COVID-19 which has materially impacted operations (as evidenced by at least a significant reduction in revenues since January 2020).

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- The business must have returned to or sustained, for at least one-month, at least 30% of pre-COVID revenues relative to a similar period in 2019.
- The business must have demonstrated positive net income in 2019 (not including depreciation and amortization expenses).
- The business must have been in operation since at least June 30, 2019.
- The main office or headquarters for the business must be in California. The loan must be used to support only a business's California operations.

Eligible Jump Start Loan applicants include small businesses or individual(s) becoming a small business, located in California.

Jump Start Loan Program details:

- Borrowers must be a low-wealth entrepreneur with a business located in a declared disaster area, or
- Borrowers must be a low-wealth entrepreneur located in a low-wealth community within both:
 - A county with a per capita income equal to or less than 115 percent of the statewide average.
 - A city or unincorporated area with an unemployment rate equal to or greater than the statewide average.
- Borrowers annual income must be equal to or less than the statewide average.
- Loan proceeds must be used in California.

Eligible uses of Jump Start Loan funds include:

- Start-up costs.
- Property.
- Buildings.
- Machinery.
- Equipment.
- Inventory.
- Tenant Improvements.

Program Contacts

Bonds ***Direct Loans – ISRF Program and CLEEN Center***

Fariba Khoie
(916) 341-6644

SBFC

Megan Hodapp
(916) 341-6609

IBank Email

IBank@IBank.ca.gov

2021 California Financing Coordinating Committee Funding Fair

Workshop Notes

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California Governor's Office
of Emergency Services
(Cal OES)



Hazard Mitigation Assistance (HMA) Branch

California Governor's Office of Emergency Services
3650 Schriever Avenue
Mather, California 95655

Program Contacts

Ron Miller
Hazard Mitigation Operations
and Technical Analysis
(916) 845-8853
Ron.Miller@caloes.ca.gov

The Hazard Mitigation Assistance (HMA) Branch works to reduce vulnerability to disasters and their effects and promote community resiliency after a hazard event. Furthermore, HMA programs reduce response and recovery resource requirements in the wake of a disaster or incident, which results in a safer community that is less reliant on external financial assistance.

Visit Us

Cal OES website: <https://www.caloes.ca.gov/home>

Hazard Mitigation Grant Program (HMGP) website:
<https://www.caloes.ca.gov/cal-oes-divisions/recovery/disaster-mitigation-technical-support/404-hazard-mitigation-grant-program>

Pre-Disaster Mitigation & Flood Mitigation Assistance Program website:
<https://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/pre-disaster-flood-mitigation>

HMA Eligibility Requirements

Eligible applicants include:

- Local and State governments.
- Federally recognized Tribes.
- Private nonprofit (PNP) organizations providing essential government services.
- Special districts.

Hazard Mitigation Assistance Criteria:

- Programs HMGP, Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA).
- Must have a Federal Emergency Management Agency (FEMA)-approved Local Hazard Mitigation Plan (LHMP); plans are valid for five years.
- PNPs are exempt from the LHMP requirement.
- 25 percent non-federal cost share (match) required.
- 36-month grant performance period.
- Must obtain environmental clearances (CEQA and NEPA).
- Projects must demonstrate cost-effectiveness.
- Projects must be a stand-alone solution to mitigate risk to life or property from a natural hazard.

How to Apply for HMA Funding at Cal OES

Visit the Cal OES HMGP website for funding opportunities resulting from presidentially declared major disasters.

Visit the Cal OES pre-disaster mitigation (PDM)/FMA website for information about the annual hazard mitigation funding opportunities.

For more detailed information on eligibility criteria, visit the FEMA Hazard Mitigation Assistance Guidance website.

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Funding Programs

Hazard Mitigation Grant Program (HMGP)

Purpose

HMGP funds development of local hazard mitigation plans and hazard mitigation measures to reduce the long-term risk of loss of life and property from future natural hazards and disasters.

Types of projects include:

- Hazard mitigation planning.
- Hazardous fuels reduction.
- Ignition resistant construction.
- Defensible space.
- Post-disaster code enforcement.
- Soil stabilization.
- Erosion control.
- Localized and non-localized flood risk reduction.
- Structure elevation.
- Critical facility generators.
- Dry flood proofing.
- Mitigation reconstruction.
- Structural and non-structural retrofitting of existing buildings.
- Property acquisition.

Funding Availability

HMGP funding is available following a presidential major disaster declaration. The amount of HMGP funding available to the applicant is based on the estimated total federal assistance that FEMA provides for disaster recovery under presidential major disaster declarations.

Terms/Dates

The application process begins approximately one month after the date of the major disaster declaration. Selected projects have a 36-month period of performance (POP).

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Building Resilient Infrastructure and Communities (BRICs)

Purpose

BRIC implements a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in future disasters. Eligible subapplicants with projects that mitigate risk to public infrastructure, include innovative partnerships, mitigate risk to one or more lifelines, incorporate nature-based solutions, or incentivize adoption and enforcement of modern building codes are especially encouraged to apply.

Types of projects include:

- Hazard mitigation planning.
- Hazardous fuels reduction.
- Ignition resistant construction.
- Defensible space.
- Post-disaster code enforcement.
- Soil stabilization.
- Erosion control.
- Localized and non-localized flood risk reduction.
- Structure elevation.
- Critical facility generators.
- Dry flood proofing.
- Mitigation reconstruction.
- Structural and non-structural retrofitting of existing buildings.
- Property acquisition.

Funding Availability

BRIC provides funding on an annual basis.

Terms/Dates

The funding cycle for PDM begins with FEMA's release of the notice of funding opportunity (NOFO), typically mid-to-late summer, and subapplications are due to Cal OES in November. Please note that the application due date provided in the NOFO is for the State (Cal OES) to submit the overall funding request to FEMA. Selected projects have a 36-month POP, with potential for longer periods, if justified.

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Flood Mitigation Assistance Program (FMA)

Purpose

FMA provides funding to reduce or eliminate the risk of flood damage to buildings insured under the National Flood Insurance Program.

Types of projects include:

- Mitigate severe repetitive loss and repetitive loss properties.
- Acquisition and demolition or relocation.
- Structure elevation.
- Localized flood control.
- Infrastructure protective measures.
- Floodwater storage and diversion.
- Stormwater management.
- Utility protective measures.

Funding Availability

FMA provides funding on an annual basis.

Terms/Dates

The funding cycle for PDM begins with FEMA's release of the NOFO, typically mid-to-late summer, and subapplications are due to OES in November. Selected projects have a 36-month POP.

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Workshop Notes

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California Department of Forestry and
Fire Prevention (CAL FIRE) Grant Program



The California Department of Forestry and Fire Prevention (CAL FIRE) offers several grant opportunities, each with its own scope and funding priorities.

For detailed information on eligibility criteria, visit the CAL FIRE Grant Program website at <https://www.fire.ca.gov/grants/>. Assistance guidance is available.

Fire Prevention

Through the California Climate Investments (CCI) Fire Prevention Grant Program, CAL FIRE provides funding for local projects and activities that address the risk of wildfire and reduce wildfire potential to forested and forest adjacent communities. Funded activities include hazardous fuel reduction, fire prevention planning, and fire prevention education with an emphasis on improving public health and safety while reducing greenhouse gas emissions.

For more information on this program, email an inquiry to FPGrants@fire.ca.gov.

Forest Health

Through the CCI Forest Health Grant Program, CAL FIRE funds projects that proactively restore forest health to reduce greenhouse gases, protect upper watersheds where the state's water supply originates, promote the long-term storage of carbon in forest trees and soils, minimize the loss of forest carbon from large, intense wildfires, and further the goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32).

The emphasis of the Forest Health Program is to increase the carbon stored in living trees and protect forests, fish and wildlife habitats, native plant species, and water. This effort requires preventing epidemic tree mortality, protecting water quality in upper watersheds, and creating forests consisting of optimally spaced trees that are resilient to disturbances such as wildfire and tree mortality. Forests with these attributes will be able to store carbon for long time periods with a lower risk of loss to wildfire or insects and disease.

For more information about this program, email an inquiry to ForestHealth@fire.ca.gov.

Urban and Community Forestry

Through the Urban & Community Forestry Grant Program, CAL FIRE utilizes CCI funds to optimize the benefits of trees and related vegetation through multiple-objective projects as specified in the California Urban Forestry Act of 1978 (Public Resources Code 4799.06-4799.12). These projects further the goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32), result in a significant greenhouse gas benefit, and provide environmental services and cost-effective solutions to the needs of urban communities and local agencies. Co-benefits of the projects include increased water supply, clean air and water, reduced energy use, flood and storm water management, recreation, urban revitalization, improved public health, improved urban forest management, and producing useful products such as bio-fuel, clean energy, and high-quality wood.

For further information about this program, email john.melvin@fire.ca.gov.

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Workshop Notes

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California Department of Resources, Recycling, and Recovery (CalRecycle)

California Department of Resources,
Recycling, and Recovery
1001 I Street
Sacramento, California 95814
Email: loans@calrecycle.ca.gov
GHGReductions@calrecycle.ca.gov



Program Contacts

Chris Houlemard
CalRecycle Loan Programs
Loans Unit
(916) 341-6375
Chris.Houlemard@calrecycle.ca.gov
loans@calrecycle.ca.gov

Shirley Hom
CalRecycle Grant Programs
Grants and Payments Unit
(916) 341-6751
Shirley.Hom@calrecycle.ca.gov
GHGReductions@calrecycle.ca.gov

The California Department of Resources Recycling and Recovery (CalRecycle) offers funding opportunities authorized by legislation to assist public and private entities in the safe and effective management of the waste stream.

Visit Us

CalRecycle website: <https://www.calrecycle.ca.gov/>
CalRecycle funding programs: <https://www.calrecycle.ca.gov/funding>

CalRecycle on Social Media



CalRecycle



@calrecycle



calrecycle



CalRecycle

How to Apply for Funding at CalRecycle

Visit <https://www.calrecycle.ca.gov/Funding/> to learn more about loan programs, open grant solicitations, public comment opportunities, program contacts, and application timing.

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California Department of Resources, Recycling, and Recovery

Funding Programs

CalRecycle Loan Programs

Recycling Market Development Revolving Loan Program

Purpose

CalRecycle administers a Recycling Market Development Zone (RMDZ) Loan Program to encourage California-based recycling businesses located within California financing businesses that prevent, reduce, or recycle recovered waste materials through value-added processing or manufacturing. Facilities must be located within a CalRecycle-designated RMDZ and use postconsumer or secondary recovered waste feedstock generated in California.

- Available Funds: \$6,250,000 as of March 2, 2020.
- Interest Rate: 4.0 percent.
- For updates, email an inquiry to Loans@Calrecycle.ca.gov.

Eligible Applicants

All projects must be located in a CalRecycle-designated RMDZ, which can be determined by entering the project physical address into the [RMDZ Zone Search, Map, and Profiles website](#). In the case of mobile operations, the primary business location for the project must be located within the RMDZ.

Eligible applicants include:

- Private, for-profit entities.
- Nonprofit organizations (except private schools).
- Local government entities:
 - Cities, counties, and cities and counties combined.
 - Regional or local sanitation agencies, waste agencies, and joint powers authority.

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Funding

For more information about the RMDZ Loan Program, including eligible/ineligible project types, download the [RMDZ Eligibility Criteria](#).

- \$2,000,000 or 75 percent of total project cost, whichever is less.
- A borrower and its related entities may receive more than one RMDZ loan but may not have more than \$3,000,000 principal outstanding on all RMDZ loans.
- Term is up to 10 years when secured by business assets or up to 15 years when secured by real estate.
- Matching funds of at least 25 percent of the total project are required.
- Collateral is required.

Application

To view the application materials, visit the program's [Forms and Documents](#) webpage. Before applying for a loan contact CalRecycle (see the "Questions" section below).

Questions

To learn more about the RMDZ program or apply for a loan, complete and submit the [contact form](#) or contact your local zone administrator, or CalRecycle's zone liaison for that area.

General information can also be obtained by calling (916) 341-6199 or emailing LAMD@CalRecycle.ca.gov

For answers to loan program-specific questions, email an inquiry to Loans@CalRecycle.ca.gov.

Greenhouse Gas Reduction (GHG) Loan Program

Purpose

The GHG Reduction Loan Program provides funds to support new or expanded organics infrastructure, such as composting and anaerobic digestion facilities, as well as for facilities that manufacture fiber, plastic, or glass waste materials into beneficial products. The purpose of this investment is to further the purposes of the California Global Warming Solutions Act (Assembly Bill 32), reduce methane

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emissions from landfills and further GHG reductions in upstream resource management and manufacturing processes; benefit disadvantaged communities (DACs) by upgrading existing facilities and, where warranted, establishing new facilities that reduce GHG emissions; result in air and water quality improvements; and create jobs.

- Available Funds: \$2,500,000 as of March 2, 2020.
- Interest Rate: 4.0 percent.
- For updates, email an inquiry to Loans@CalRecycle.ca.gov.

Funding

- \$2,000,000 or 75 percent of total project cost, whichever is less.
- A borrower and its related entities may receive more than one GHG loan but may not have more than \$3,000,000 principal outstanding on all GHG loans.
- Term is up to 10 years when secured by business assets or up to 15 years when secured by real estate.
- Matching funds of at least 25 percent of the total project are required.
- Collateral is required.

Application

To view the application materials, visit the program's [Forms and Documents](#) webpage. Before applying for a loan, contact CalRecycle (see the "Questions" section below).

Questions

For answers to program-specific questions, complete and submit the [contact form](#) or send an email to Loans@CalRecycle.ca.gov.

Greenhouse Gas Reduction Grant Programs

CalRecycle established the Greenhouse Gas Reduction Grant Programs (listed below with web links) to provide financial incentives for capital investments in infrastructure for aerobic composting, anaerobic digestion, and recycling and manufacturing facilities that will reduce greenhouse gas emissions. A priority is to realize environmental and economic benefits in disadvantaged and low-income communities. These grants promote California infrastructure developments that

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achieve greenhouse gas emission reductions by diverting more materials from landfills and producing beneficial products such as soil amendments, renewable fuels or recycled-content products.

Greenhouse Gas Reduction Grant Programs

- Food Waste Prevention and Rescue Grant Program
- Organics Grant Program
- Recycled Fiber, Plastic, and Glass Grant Program
- Greenhouse Gas Reduction Loan Program
- Pilot Reuse Grant Program (new)
- Community Composting Grant Program (new)

Listserv

Join the [Greenhouse Gas Reduction Programs Listserv](#) to be notified by email about program updates and when funding becomes available.

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Workshop Notes

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California Strategic Growth Council (SGC)

California Strategic Growth Council
1400 10th Street
Sacramento, California 95814
Email: info@sgc.ca.gov



Program Contacts

Coral Abbott
Program Analyst
Regional Climate Collaboratives
(916) 322-6072
Coral.Abbott@sgc.ca.gov

Ena Lupine
Community Assistance Program
Manager
(916) 651-9251
Ena.Lupine@sgc.ca.gov

The California Strategic Growth Council (SGC) works collaboratively with public agencies, communities, and stakeholders to achieve sustainability, equity, economic prosperity, and quality of life for all. SGC administers a suite of grant programs funded through California Climate Investments — a statewide initiative that puts billions of cap-and-trade dollars to work reducing greenhouse gas (GHG) emissions while providing a variety of other benefits. SGC's programs fund affordable housing and transportation investments, agricultural land easements, community-led development and infrastructure projects, climate-related research investments, and technical assistance to increase capacity of local communities to compete for climate funding.

Visit Us

SGC website: <http://www.sgc.ca.gov>
SGC Listserv sign-up: <http://sgc.ca.gov/e-lists.html>

SGC on Social Media



@CalISGC



California Strategic Growth Council



California Strategic Growth Council

California Strategic Growth Council

SGC Funding Sources

CCI Grant Programs

Affordable Housing and Sustainable Communities Program

This program builds healthier communities and protects the environment by increasing the supply of affordable places to live near jobs, stores, transit, and other daily needs.

Transformative Climate Communities Program

This program empowers the communities most impacted by pollution to choose their own goals, strategies, and projects to reduce GHG emissions and local air pollution.

Sustainable Agricultural Lands Conservation Program

This program protects agricultural lands on the outskirts of cities and near residential neighborhoods from development.

Climate Change Research Program

This program invests in cross-cutting research investments that build community resilience, integrate land use and development considerations, and facilitate the transformation of California communities.

Climate Change Research Program

This program invests in cross-cutting research investments that build community resilience, integrate land use and development considerations, and facilitate the transformation of California communities.

Capacity Building and Technical Assistance Programs

These programs help create a more equitable playing field by increasing capacity in under-resourced communities to advance climate change mitigation, adaptation, and resilience.

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SGC Eligibility Requirements

Inquire with one of the program contacts directly to determine applicant eligibility requirements. The following entities are eligible for one or more SGC funding program.

- Public agencies (including city, county, transit agency, school district).
- Nonprofit organizations.
- Joint powers authorities.
- Housing developers.
- Land trusts.
- Universities within California (private and public).
- Federally recognized Tribes.
- California State Indian Tribes listed on the Native American Heritage Commission's California Tribal Consultation List.

Funding Programs

Affordable Housing and Sustainable Communities (AHSC)

Purpose

Increasing the supply of affordable homes and transportation options near jobs, stores, schools, and other daily needs. AHSC reduces emissions from personal vehicle use by funding projects that make it easier for residents to get out of their cars and walk, bike, or take public transit. Funded by auction proceeds from California's cap-and-trade emissions-reduction program, AHSC is administered by the Strategic Growth Council and implemented by the California Department of Housing and Community Development.

Eligible Applicants

Usual applicants include housing developers, local jurisdictions, and transit agencies. See program guidelines for the full list of applicant types.

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Eligible Projects

Projects typically include a combination of the following costs, with a requirement that at least 50 percent go to housing-related expenses:

- Affordable Housing Development: Loan funding for construction of affordable housing.
- Housing-Related Infrastructure: Grant funding for infrastructure required as a condition of approval for the affordable housing development (e.g. sewer, water, streets, electric).
- Sustainable Transportation Infrastructure: Grant funding for infrastructure that enables mode-shift (e.g., new transit vehicles, sidewalks, bike lanes).
- Transportation-Related Amenities: Grant funding for improvements that are publicly accessible and provide supportive amenities to pedestrians, cyclists and transit riders (i.e., bike parking, bus shelter, benches, street trees).
- Programs: Grant funding for programs that encourage residents to walk, bike, and use public transit.

Funding Availability

Varies round to round, depending on cap-and-trade auction proceeds. For the most recent round, \$550 million was available for AHSC projects.

Terms/Dates

Continuously appropriated through cap-and-trade, with funding until 2030. Annually, a notice of funding availability is released in November. Applications are due in February, and awards are made in June.

Program Contact

Ryan Silber
ahsc@sgc.ca.gov

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Transformative Climate Communities (TCC)

Purpose

TCC empowers the communities most impacted by pollution to choose their own goals, strategies, and projects to enact transformational change. TCC projects catalyze collective impact through a combination of community-driven climate projects in a single neighborhood. Projects must reduce GHG emissions significantly over time, leverage additional funding sources, and provide additional health, environmental, and economic benefits.

Eligible Applicants

A diverse range of community, business, and local government stakeholders must form a collaborative stakeholder structure to develop a shared vision of transformation for their community. This may include community-based organizations, local governments, nonprofit organizations, philanthropic organizations and foundations, faith-based organizations, coalitions or associations of nonprofits, community development finance institutions, community development corporations, joint powers authorities, and Tribal governments.

Eligible Projects

Project examples include:

- Affordable and sustainable housing developments.
- Transit stations and facilities.
- Bicycle and car share programs.
- Residential weatherization and solar projects.
- Water-energy efficiency installations.
- Urban greening projects.
- Bicycle and pedestrian facilities.
- Low-carbon transit vehicles and clean vehicle rebates.
- Health and well-being projects.

Funding Availability

Annually appropriated by the legislature, historically from the GHG Reduction Fund.

Terms/Dates

Schedule for applications and awards are dependent on the annual appropriation.

Program Contact

Saharnaz Mirzazad
tccpubliccomments@sgc.ca.gov

Sustainable Agricultural Lands Conservation (SALC)

Purpose

The protect agricultural lands that are at risk of conversion to other uses. Studies show that farmland produces 70 times less GHG emissions than urbanized land, and protecting farmland provides an opportunity to capture carbon in the land base. SALC grants simultaneously support California's need for agricultural conservation, economic growth, and sustainable development. Both planning grants and implementation grants are available through the program.

Eligible Applicants

Planning Grants

- Cities.
- Counties.
- Resource conservation districts.
- Special districts.
- Local agency formation commissions.

Agricultural Conservation Easement Grants

- Cities.
- Counties.
- Resource conservation districts.
- Nonprofit organizations.
- Regional park or open-space Districts or authorities.

Eligible Projects

Planning grants support the development of local and regional land use policies and economic development strategies to protect critical agricultural land. The program funds strategies related to establishing and implementing goals, policies, and objectives to support the economic viability of the local agricultural sector. It also supports planning processes to identify and designate priority lands for conservation and development.

Agricultural Conservation Easement grants are used to permanently protect croplands and rangelands that are at-risk of conversion to sprawl development. Agricultural conservation easements are deed restrictions that landowners voluntarily place on their property to preserve the land's agricultural uses.

Funding Availability

Varies round to round, depending on cap-and-trade auction proceeds.

Terms/Dates

Continuously appropriated through cap-and-trade, with funding until 2030.

Program Contact

Virginia Jameson
salcp@conservation.ca.gov

Climate Change Research (CCR)

Purpose

To invest in actionable, partnership-based research to inform climate actions that directly benefit California communities for all. CCR makes grants to research projects focused on advancing tangible outcomes and filling critical research gaps to address the State's climate change goals — including both reducing GHGs and building resilience to the impacts of climate change. CCR requires funded research projects to incorporate meaningful engagement with communities and stakeholders in order to successfully translate research into action.

Eligible Applicants

- University of California.
- California State University.
- Federally funded national laboratories (in California).
- Private colleges and universities
- Nonprofit research institutions.

Eligible Projects

CCR funds research projects that provide information, tools, and resources to support climate action in vulnerable communities and ecosystems in cross-cutting and holistic ways. This novel research approach often involves projects that aim to reduce greenhouse gas emissions while also addressing community needs and improving ecosystem and economic outcomes around California. Successful CCR-funded projects fill knowledge gaps that inform effective and equitable interventions that both advance the implementation of California's climate policies and result in real benefits to disadvantaged and climate-vulnerable California communities.

Funding Availability

Annually appropriated by the legislature, historically from the Greenhouse Gas Reduction Fund.

Terms/Dates

Schedule for applications and awards are dependent on the annual appropriation.

Program Contact

Elizabeth Grassi
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2021 California Financing Coordinating Committee Funding Fair

Workshop Notes

[illegible]

California Department of
Water Resources (DWR)



California Department of Water Resources
P.O. Box 942836
Sacramento, California 95814
Email: funding@water.ca.gov

Program Contacts

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Division of Flood Management
Flood Projects Office
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The California Department of Water Resources (DWR) financial assistance programs support integrated water management activities that address public safety, environmental stewardship, water supply reliability, and economic stability. Funded projects include ecosystem restoration, groundwater sustainability, stormwater capture and reuse, flood risk reduction, water supply and quality management, water recycling, water conservation, coastal, alluvial, decision support tools, and operational efficiency.

Visit Us

DWR website: <https://water.ca.gov>
Financial Assistance: <https://water.ca.gov/Work-with-us/Grants-and-loans>
Bond Accountability website: <http://www.bondaccountability.ca.gov>

DWR on Social Media



CADWR



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cadepartmentofwaterresources

DWR Funding Sources

General Obligation Bonds

Proposition 1 – The Water Quality, Supply, and Infrastructure Improvement Act of 2014.

Proposition 84 – Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006.

General Fund – Budget enacted State fund.

Proposition 50 – The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002

Proposition 68 – California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act of 2018.

DWR Eligibility Requirements

Contact the programs to determine applicant eligibility requirements. For most programs, the following applicants are eligible:

- Groundwater sustainability agencies (GSAs), member agencies of a GSA, and those entities with an approved alternative to a groundwater sustainability plan.
- Public agencies (e.g., city, county, water/drainage district).
- Disadvantaged communities (DACs)/underrepresented communities.
- Nonprofit organizations.
- Joint powers authorities.
- Public utilities.
- Federally recognized Indian Tribes.
- California State Indian Tribes listed on the Native American Heritage Commission's California Tribal Consultation List.
- Mutual water companies.
- Universities (some programs).

How to Apply for Funding at DWR

Visit <https://water.ca.gov/Work-with-us/Grants-and-loans> to learn more about open solicitations, public comment opportunities, program contacts, and application timing. **Contact the program representative directly to learn more about how to apply.**

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To submit applications for some programs, use the Grants Review and Tracking System at <https://water.ca.gov/Work-With-Us/Grants-And-Loans/GRanTS>.

Integrated Regional Water Management (IRWM)

To apply for IRWM grants, applicants must contact their IRWM region contact person listed in the IRWM Region Contact List at <https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs>.

Purpose

The IRWM Proposition 1 Grant Program provides funds for development and update of IRWM plan, ensuring involvement of DACs, and implementation of projects in IRWM plans. Goals of the program include (a) help build/update water infrastructure systems that adapt to climate change, including sea level rise; (b) provide incentives for water agencies throughout each watershed to collaborate in managing the region's water resources and setting regional priorities for water infrastructure; and (c) improve regional water self-reliance — thereby reducing reliance on the Sacramento-San Joaquin Delta.

IRWM Implementation Grant Program

The IRWM Implementation Grant Program provides funding for implementation projects that meet the intent of Proposition 1, Chapter 7.

Approximately \$459 million in grant funding was made available for grant solicitations with at least \$102 million being made available for DAC and Tribal involvement (DACTI) activities and implementation projects that provide direct benefits to DACs. To date, approximately \$267 million has been awarded for grant awards: \$4.2 million for IRWM plan developments and updates, \$51.7 million for DACTI activities, and \$211.1 million in Round 1 grant solicitation for project implementations, leaving approximately \$192 million to be awarded in Round 2 Implementation grant solicitation.

Here is a status of recent grants:

- IRWM Planning Grants – Program closed and completed February 2020.
- DACTI Program – In 2016–2017, \$51.7 million was awarded to 12 funding areas for the purpose of ensuring involvement of DACs, economically distressed areas, or underrepresented communities; and the program is currently underway.

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- IRWM Implementation Grants – Round 1 Solicitation: Completed and \$211 million has been awarded to 42 IRWM regions. Agreement Execution will be completed by spring 2021.

Potential applicants are highly encouraged to contact their respective IRWM region contact person listed in the IRWM Region Contact List at the bottom of the following link (under the “+IRWM Region Contacts” accordion)
<https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs>.

Types of Projects

Eligible projects must be included in an adopted IRWM plan (Water Code Section 79740) that is consistent with the most recent IRWM plan standards. Eligible project types are dependent on the proposition language and can be variable in different solicitations. For Proposition 1 – Round 1 solicitation, specific details on eligible project types are provided in Section II.C of the 2019 IRWM Guidelines.

Funding Availability

Approximately \$192 million will be made available in grants for IRWM projects in Round 2. Cost share of 50 percent is required, unless waived or reduced for a project that benefits a disadvantaged community.

Details are available at <https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs/Proposition-1/Implementation-Grants>.

Terms/Dates

IRWM Implementation Grants – Round 2 Solicitation (Tentative Schedule): Round 2 Implementation grant solicitation is tentatively scheduled to be open in late 2021 and awards to be announced in 2022–2023. Only one application is accepted per IRWM Region. Funding is awarded by “Funding Area” as defined in Proposition 1.

Program Contacts

Zaffar Eusuff
(916) 651-9266 (office)
(916) 247-9984 (cell)
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IRWM Website

<https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs>

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Sustainable Groundwater Management Implementation Grant Program

Purpose

Competitive grants to support implementation of local and regional groundwater projects required to support sustainable groundwater management.

Eligible applicants will be GSAs; member agencies of GSAs; an entity that represents a GSA(s) which can include public agencies, nonprofit organizations, public utilities, federally recognized Indian Tribes, State Indian Tribes listed on the Native American Heritage Commission’s Tribal Consultation list, or mutual water companies; and agencies with an approved alternative plan.

Types of Projects

Details of project eligibility and preferences are listed in the Sustainable Groundwater Management (SGM) Grant Program’s Proposition 68 2019 Guidelines (2019 Guidelines) and the SGM Grant Program’s Proposition 68 Implementation Proposal Solicitation Package (2020 PSP). However, as a general guidance, eligible projects may include activities or tasks that include the development of groundwater recharge projects with surface water, stormwater, recycled water, and other conjunctive use projects, or projects that prevent or clean up contamination of groundwater that serves as a source of drinking water (Public Resources Code Section 80146[a]). Other eligible project types are projects and programs that support water supply reliability, water conservation, and water use efficiency and water banking, exchange, and reclamation.

Funding Availability

Proposition 68: \$88 million.

- \$26 million planned in Round 1 for critically overdrafted basins.
- \$62 million in Round 2 for medium- or high-priority basins.

Cost Share: 25 percent.

Minimum Award: \$2 million.

Terms/Dates

Round 1 Solicitation closed in January 2021, final awards expected to be \$26 million in May 2021 with grant terms summer 2021 through June 2024. Round 2 is expected to be advertised in spring/summer 2022 and awarded fall 2022.

Program Contact

Kelley List
(916) 651-9222
Kelley.List@water.ca.gov

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Flood Control Subventions Program (FCSP)

Purpose

DWR and the Central Valley Flood Protection Board (CVFPB) provide financial assistance to local agencies cooperating in the construction of federally authorized flood control projects. The CVFPB is responsible for the State's financial assistance share for major U.S. Army Corps of Engineers' State Plan of Flood Control projects in the Central Valley, and DWR is responsible for disbursing funds for all other projects authorized by the State.

Types of Projects

Federally authorized projects that are not part of the State Plan of Flood Control are eligible for FCSP financial assistance. Projects are typically approved by the State Legislature and specifically cited in the California Water Code.

Funding Availability

Proposition 84: \$21 million.

Dependent on the project-specific authorization in the California Water Code.

Terms/Dates

Commitments are restricted to legislatively approved projects. Projects receive reimbursement of State cost share as approved by the Legislature for the specific project.

Claim submittals accepted on a continuous basis and are generally paid on a first-come, first-served basis, based on available State funding.

Program Contact

Mehdi Mizani
(916) 480-5351
Mehdi.Mizani@water.ca.gov

FCSP Website

<https://water.ca.gov/Work-With-Us/Grants-And-Loans/Flood-Control-Subventions-Program>

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Central Valley Tributaries Program

Purpose

To help fund flood management projects that enhance water quality and ecosystems of rivers and streams tributary to the Sacramento-San Joaquin Delta.

Types of Projects

Projects must be in the Central Valley and within or adjacent to the systemwide planning area. Projects in the Sacramento-San Joaquin Delta are excluded.

Funding Availability

Proposition 1: \$25 million left to award.

Unless reduced or waived for a DAC, 50 percent cost share required.

No maximum award. Award amounts are determined on a case-by-case basis.

Terms/Dates

Guidelines and proposal solicitation package will be announced when offered. New solicitation in fall 2021.

Program Contact

Robert Crane
(916) 574-0932
Robert.Crane@water.ca.gov
CVT@water.ca.gov

Central Valley Tributaries Program Website

<https://water.ca.gov/Work-With-Us/Grants-And-Loans/Central-Valley-Tributaries-Program>

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Floodplain Management, Protection, and Risk Awareness Program

Purpose

The Floodplain Management, Protection and Risk Awareness (FMPRA) Grant Program supports local agency efforts to prepare for flooding by providing financial assistance for flood risk reduction activities related to stormwater flooding, mudslides, and flash floods. The program supports both the Public Safety Initiative announced by Governor Brown's Administration in February 2017 and the Headwaters to Floodplains Flood Safety Partnership Program.

Types of Projects

Details of the project eligibility and preferences are available in the Program Draft Guidelines and Proposal Solicitation Package on the [Program webpage](#). As general guidance, funding will be available to support both implementation projects, as well as planning and monitoring projects that will lead to the future implementation of projects that will reduce flash flooding, mudslides, or stormwater flooding.

Funding Availability

Proposition 68: \$25 million

- \$22.5 million planned for implementation projects
- \$2.5 million planned for planning and monitoring projects

Cost Share: 25 percent.

Minimum Award: Dependent upon the number of applications received.

Terms/Dates

The Draft Program Guidelines and PSP 60-day public comment period closed on February 22, 2021. The program is scheduled to release the final Guidelines and PSP in spring 2021. The solicitation period will be opened following the release of these documents. Project selection and award is scheduled for winter 2021. The Proposition 68 funding is available and must be used in awarded contracts through June 2024.

Program Contact

Mehdi Mizani
(916) 480-5351
Mehdi.Mizani@water.ca.gov

FMPRA Website

<https://water.ca.gov/Work-With-Us/Grants-And-Loans/Flood-Management-Protection-Risk-Awareness-Program>

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Water Use Efficiency CalConserve Revolving Fund Loan Program

Purpose

This program provides loans to local agencies to provide low-interest loans to customers for water use efficiency upgrades and for on-site improvements to repair or replace leaking pipes. Loan recipient agencies would then offer customer low-interest or no-interest, on-bill financing. On-bill financing would remove first-cost barriers to efficiency upgrades.

Types of Projects

On-site improvements for water use efficiency or to repair or replace leaky pipes.

Funding Availability

Proposition 1: \$7 million in funds remaining.

- \$2 million total for water-use efficiency upgrades.
- \$5 million total for leak detection and repairs.
- A loan cap of \$3 million per agency.

Unless reduced or waived for a DAC, 50 percent cost share required.

Terms/Dates

Loan awards on a continuous first-come, first-served basis, based on available State funding.

Program Contact

Daya Muralidharan
(916) 653-6604
Daya.Muralidharan@water.ca.gov
wuegrants@water.ca.gov

Water Use Efficiency CalConserve Revolving Fund Loan Program Website

<https://water.ca.gov/Work-With-Us/Grants-And-Loans/CalConserve-Water-Use-Efficiency-Loan-Program>

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Safe Drinking Water – Contaminant Removal Technologies – Ultraviolet and Ozone Treatment

Purpose

Proposition 50 Chapter 6c to provide grant funds for projects using ultra-violet (UV) or ozone disinfection technologies.

Types of Projects

Drinking water disinfecting projects using UV technology and ozone treatment. Eligible applicants are public water systems under the regulatory jurisdiction of the State Water Resource Control Board.

Funding Availability

Proposition 50: \$5 million in funds remaining in program, up to \$2 million in funds for 2021 activities.

Minimum grant is \$50,000. Up to \$5 million per grant, reimbursement format.

Terms/Dates

Concept presented to DWR prior to full application.

Grant awards on a continuous first-come, first-served basis, based on available State funding.

Program Contact

Jeremy Callihan
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Jeremy.Callihan@water.ca.gov

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Safe Drinking Water – Contaminant Removal Technologies – Pilot and Demonstration Projects

Purpose

Proposition 50 Chapter 6b to provide grant funds to test new technologies in California for the removal of specific categories of contaminants.

Types of Projects

Contaminant treatment or removal technology pilot and demonstration studies. Eligible applicants are public water systems under the regulatory jurisdiction of the State Water Resource Control Board.

Funding Availability

Proposition 50: \$5 million in funds remaining in program, up to \$3 million in funds for 2021 activities

Minimum grant is \$50,000. Up to \$5 million per grant, reimbursement format

Terms/Dates

Concept presented to DWR prior to full application.

Grant awards on a continuous first-come, first-served basis, based on available State funding.

Program Contact

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Workshop Notes

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California State Water Resources Control Board (State Water Board)



California State Water Resources Control Board
1001 I Street
Sacramento, California 95814
(916) 327-9978

Program Contacts

Francine Fua, P.E.
Water Resource Control Engineer
Division of Financial Assistance
Office of Sustainable Water Solutions
Small Community Water Unit
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Visit Us

State Water Board website: <http://www.waterboards.ca.gov>

State Water Board on Social Media



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Clean Water State Revolving Fund (CWSRF) Program

Type

Loan/Principal Forgiveness

Purpose

This program provides financing for eligible projects to restore and maintain water quality in the state.

Eligibility Requirements

Eligible applicants include cities, counties, districts, joint power authorities, State agencies, nonprofit organizations, private entities (select categories and sources), and Tribes.

CEQA Plus

CEQA documents must meet all State and federal environmental review requirements.

CEQA documents must have been adopted less than five years before the accepted date of the financing agreement. If the CEQA documents is more than five years old, the applicant must re-evaluate the project's environmental conditions in an updated environmental document.

Eligible Uses

Funding for (a) wastewater and water recycling projects: wastewater treatment, local sewers, sewer interceptors, water reclamation facilities; and (b) nonpoint source (NPS) projects identified in California's NPS plan, estuary projects, stormwater reduction, and treatment facilities.

Ineligible Uses

Operation and maintenance costs.

Funding Limits

No minimum or maximum per project funding limits. The Program has established a yearly loan funding target. Yearly funding will range between 90 and 125 percent of the \$586 million target. A project must be on the fundable list to receive financing. Placement of an application on the fundable list does not

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guarantee financing. A financing agreement will be executed for a project on the fundable list only if the application meets all applicable eligibility requirements. The State Water Board will sort and rank projects from highest priority score to lowest priority score for potential placement on the fundable list.

Given the ongoing high demand on the CWSRF though, the State Water Board will not be able to fund all the projects currently requesting funding in State fiscal year 2020–2021. Applicants whose projects are not on the fundable list are encouraged to evaluate the CWSRF's finances and competing demands on the program as described in this intended use plan (IUP) and any updates during the year and evaluate all viable, alternative financing options for their projects considering any deadlines they must meet.

Terms/Dates

Applications accepted continuously. The application for readiness scoring ended on December 31, 2020. The schedule for intended use plan development for fiscal year 2021–2022 is:

- June 15, 2021, State Water Board adoption of fiscal year 2021–2022 IUP including fundable project list.
- IUP Implementation July 1, 2021.

Program Contact

Robert Pontureri
(916) 341-5828
Robert.Pontureri@waterboards.ca.gov

Website

http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/index.shtml

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Small Community Wastewater: Small Community Grant (SCG) Fund

Type

Grant/Loan

Purpose

The SCG fund helps finance communities with the most need, helping those that cannot afford a loan or similar financing to move forward with water quality improvements.

Eligibility Requirements

Eligible applicants include public agencies, Section 501(c)(3) nonprofit organizations, federally recognized Tribes and State Tribes that are small DACs: population less than 20,000, and median household income (MHI) is less than 80 percent of the Statewide MHI based on latest U.S. Census data.

CEQA Plus

CEQA documents must meet all State and federal environmental review requirements.

CEQA documents must have been adopted less than five years before the accepted date of the financing agreement. If the CEQA documents are more than five years old, the applicant must re-evaluate the project's environmental conditions in an updated environmental document.

Eligible Uses

For Planning projects, the maximum grant amount is \$500,000. The planning project can cover costs for engineering reports, public outreach, environmental documents, design, rate studies/Proposition 218-related work, income surveys, and sewer system evaluations.

For construction projects, the maximum grant amount is \$6,000,000. Severely DACs (MHI is less than 60 percent of the Statewide MHI based on latest U.S. Census data) are eligible for 100 percent grant. DACs (MHI less than 80 percent of the Statewide MHI based on latest U.S. Census data) are eligible for 75 percent grants and 25 percent loans. For DACs, wastewater rates need to be greater than or equal to 1.5 percent of their MHI. If the community's wastewater rates are greater than or equal to 4 percent of their MHI and their MHI is less than 100 percent of the Statewide MHI based on latest U.S. Census data, they are eligible for 50 percent grants and 50 percent loans. The maximum cost per household per project is \$30,000.

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For septic-to-sewer and regionalization projects, the maximum grant amount is \$8,000,000. Severely disadvantaged communities (SDACs) (MHI is less than 60 percent of the Statewide MHI based on latest U.S. Census data) are eligible for 100 percent grants. DACs (MHI less than 80 percent of the Statewide MHI based on latest U.S. Census data) are eligible for 75 percent grants and 25 percent loans. For DACs, wastewater rates need to be greater than or equal to 1.5 percent of their MHI. If the community's wastewater rates are greater than or equal to 4 percent of their MHI and their MHI is less than 100 percent of the Statewide MHI based on latest U.S. Census data, they are eligible for 50 percent grants and 50 percent loans. The maximum cost per household per project is \$75,000.

Ineligible Uses

Operation and maintenance costs.

Funding Limits

For fiscal year 2020–2021, approximately \$55 million is available. Applications are not scored and ranked. All new SDAC and DAC applicants will be added automatically to the fundable list. Projects may be funded at any time provided they submit a complete application and meet eligibility requirements.

Terms/Dates

Because of limited grant/principal forgiveness (PF) availability, the State Water Resources Control Board will prioritize grant/PF for small community wastewater projects. Public health projects, projects that address violations of waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permits, projects that connect previously unsewered areas or join communities to regionalize wastewater treatment works, and other projects identified as priority by the Regional Water Quality Control Boards are considered priority for grant/PF funding (priority projects).

Program Contacts

Jennifer Toney

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Jennifer.Toney@waterboards.ca.gov

James Garcia

(916) 341-5647

James.Garcia@waterboards.ca.gov

Website

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/scwww.html

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Water Recycling Funding Program (WRFP)

Type

Grant/Loan

Purpose

This program promotes use of treated municipal wastewater to augment or offset State/local fresh water supplies.

Eligibility Requirements

Eligible applicants include public agencies, Section 501(c)(3) nonprofit organizations, federally recognized Tribes and State Tribes that, mutual water companies.

CEQA Plus

CEQA documents must meet all State and federal environmental review requirements.

CEQA documents must have been adopted less than five years before the accepted date of the financing agreement. If the CEQA documents are more than five years old, the applicant must re-evaluate the project's environmental conditions in an updated environmental document.

Eligible Uses

Eligible projects include recycled water treatment; recycled water storage, distribution, and pumping; groundwater recharge; indirect potable reuse; and surface water augmentation.

Ineligible Uses

Operation and maintenance costs.

Funding Limits

For fiscal year 2021–2022, approximately \$22 million in grant funds and approximately \$3 million in loan funds is available for WRFP construction projects. The State Water Board also has authority to commit approximately \$20.1 million in planning grants. The projects on the fundable list that appear to be eligible for these funds are requesting in excess of \$66 million.

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Therefore, DFA anticipates that all available WRFP grant and loan funds can and will be committed by June 30, 2022, with a combination of eligible water recycling projects on the fundable list.

- A planning grant can cover 50 percent of the eligible planning costs up to a maximum grant amount of \$150,000.
- A construction grant can cover 35 percent of construction costs up to a maximum grant amount of \$5,000,000.
- A construction loan will cover 50 percent of the total eligible project cost.

A project must be on the fundable list to receive financing. Placement of an application on the fundable list does not guarantee financing. A financing agreement will be executed for a project on the fundable list only if the application meets all applicable eligibility requirements. The State Water Board will sort and rank projects from highest priority score to lowest priority score for potential placement on the fundable list.

Terms/Dates

Applications accepted continuously. The application for readiness scoring ended on December 31, 2020. The schedule for IUP development for fiscal year 2021–2022 is:

- June 16, 2021, State Water Board adoption of fiscal year 2021–2022 IUP including fundable project list.
- IUP Implementation July 1, 2021.

Program Contact

Sunny Kals
(916) 341-5415

Sandeep.Kals@waterboards.ca.gov

Website

http://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/

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Groundwater: Site Cleanup Subaccount Program (SCAP)

Type

Grant

Purpose

SCAP issues grants for projects that remediate the harm or threat of harm to human health, safety, or the environment caused by existing or threatened surface water or groundwater contamination.

Eligibility Requirements

Applicants with eligible projects.

Eligible Uses

Eligible projects include remediating the harm or threat of harm to human health, safety, and the environment from surface water or groundwater contamination; human-made contaminants (i.e., nitrates, PCE, TCE, DCE, DCA, pesticides, perchlorate, MTBE, hexavalent chromium.); a regulatory agency that issues a directive (unless this is infeasible); a responsible party that lacks financial resources. Projects may include site characterization, source identification, or implementation of cleanup.

Priorities

The priorities are significant threat to human health or the environment; disadvantaged or small community impact; cost and environmental benefit of project; lack of availability of other sources of funds; other State Water Board considerations.

Funding Limits

Annual appropriation of \$19.5 million.

Terms / Dates

No deadlines; continuous pre-application process.

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Program Contact

Email: gwquality.funding@waterboards.ca.gov

Subject Line: SCAP

Website

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/scap/

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California State Water Resources Control Board	California State Water Resources Control Board
Proposition 1: Groundwater Grant Program	Drinking Water State Revolving Fund (DWSRF) or CWSRF programs, or other State or federally sponsored loan program, may be used for match. The match requirement for a DAC or economically distressed area may be reduced or waived.
Type Grant	
Purpose	
This program provides planning and implementation grants to prevent and cleanup contamination of groundwater that serves or has served as a source of drinking water.	
Eligibility Requirements	
Eligible applicants include public agencies, Section 501(c)(3) nonprofit organizations, federally recognized Tribes and State Tribes, and mutual water companies.	
CEQA	
CEQA documents must have been adopted less than five years before the excepted date of the financing agreement. If the CEQA documents is more than five years old, the applicant must re-evaluate the project's environmental conditions in an updated environmental document.	
Eligible Uses	
Eligible projects must prevent or clean-up contamination of groundwater that serves or has a source of drinking water including wellhead treatment, installation of extraction wells combined with treatment systems, centralized groundwater treatment systems, groundwater recharge to prevent/reduce contamination of wells, and groundwater injection to prevent seawater intrusion.	
Funding Limits	
Approximately \$170 million will be available to fund projects through the Groundwater Grant Program for the Third Round solicitation. Approximately \$99 million of these funds remain for projects benefiting DACs/economically distressed areas.	
The applicant is required to provide a minimum local cost share "match funds" of 50 percent of the total project cost. Other State funds cannot be used for the required match funds. Match funds may include federal grant and loans, local and private funding, donated or "in-kind" services. Repayable financing through the	
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Proposition 68: Groundwater Treatment and Remediation Grant Program

Type
Grant

Purpose

This program provides grants for treatment and remediation activities that prevent or reduce the contamination of groundwater that serves as a source of drinking water.

Eligibility Requirements

Eligible applicants include public agencies, nonprofit organizations, public utilities, federally recognized Indian Tribes, California Native American Tribes, and mutual water companies.

Eligible Uses

Project must address contamination in groundwater that serves as a source of drinking water. Only projects addressing contaminants from a discharge of waste and causing contamination will be eligible.

Costs eligible for funding generally include required operations and maintenance (O&M) costs for existing treatment and remediation systems that prevent or reduce contamination of groundwater that serves as a source of drinking water, but are not limited to permitting, monitoring, reporting, utility bills, chemicals, replacement or changeout of equipment, or plant operator. The types of treatment systems that must qualify for O&M funding include wellhead treatment, extraction and treatment systems, centralized treatment systems, and source area cleanup.

It is expected that proposals will consist primarily of requests to fund O&M at existing facilities. New infrastructure projects will generally be directed to the Proposition 1 Groundwater Grant Program, with one potential exception: project proposals that include relatively small-scale capital improvements that will reduce long-term O&M costs. These capital improvements will be considered for funding if an applicant can demonstrate that the resulting reduction in O&M costs over the useful life of the improvement exceeds the proposed capital cost.

Ineligible Uses

Funds cannot be used for projects not resulting from a discharge of waste; acquisition of land through eminent domain; to pay any share of the costs of remediation recovered from parties responsible for the contamination of groundwater storage aquifer (funds may be used to pay costs that cannot be recovered from responsible parties); overhead or costs not directly to the project; or State or federal taxes.

Funding Limits

After completing two solicitations, approximately \$35 million remains uncommitted for funding for DAC drinking water projects. These funds may be utilized for noncapital expenditures, including ongoing O&M of existing facilities.

There is a minimum grant amount of \$500,000 and a maximum grant amount of \$5 million per project and a maximum grant amount of \$20 million per applicant for O&M projects, but additional funding for capital improvements to existing facilities will reduce long-term O&M costs may be provided as part of an award. Funding for such improvements has a maximum grant amount of \$2 million per project and \$5 million per applicant, which may be in addition to any funding provided for O&M activities.

The applicant is required to provide a minimum local cost share “match funds” of 50 percent of the total project cost. Match funds may include federal grant and loans, local and private funding, donated or in-kind services. Repayable financing through the DWSRF or CWSRF programs, or other State or federally sponsored loan program, may be used for match. The match requirement for a DAC or economically distressed area may be reduced or waived.

Terms/Dates

Another solicitation is not planned, but eligible projects that serve a SDAC can be funded on a continuous basis.

Program Contact

Email: gwquality.funding@waterboards.ca.gov

Subject Line: Proposition 68 Groundwater Treatment and Remediation Grant Program

Website

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/propositions/prop68.html

California State Water Resources Control Board	California State Water Resources Control Board
Proposition 1: Storm Water Grant Program (SWGP)	
Type Grant	Terms/Dates No solicitations at this time.
Purpose This program provides grants for multi-benefit stormwater management projects.	Program Contact Daman Badyal (916) 319-9436 Damanvir.Badyal@waterboards.ca.gov
Eligibility Requirements Eligible applicants include public agencies, nonprofit organizations, public utilities, federally recognized Indian Tribes, California Native American Tribes, and mutual water companies.	Website https://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/prop1/
Eligible Uses Implementation grants will only be awarded to projects that are included and implemented in an adopted IRWM plan, are included in a stormwater resource plan, respond to climate change, and contribute to regional water security. Multi-benefit stormwater management projects may include green infrastructure, rainwater and stormwater capture projects, and stormwater treatment facilities.	
Ineligible Uses Ineligible projects include projects that must seek eminent domain as part of their project implementation timeline; projects that do not meet the requirements of Proposition 1 SWGP guidelines, the Storm Water Resource Plan Guidelines, Water Code, and Proposition 1, or projects that consist of only education and outreach activities.	
Funding Limits No funding is available at this time. The minimum grant amount is \$250,000 and the maximum grant amount is \$10,000,000. The grant maximum will be applied on a per applicant basis across both Round 1 and Round 2 combined.	
The applicant is required to provide a minimum local funding match of 50 percent of the total project cost. Other State funds cannot be used for the required match. The funding match may include federal grants and loans, local and private funding, donated or in-kind services. Repayable financing through the DWSRF or CWSRF	
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Drinking Water State Revolving Fund (DWSRF)

Type

Low-Interest Loans and Grants

Purpose

This program provides low-interest loans and grants for planning and construction projects that support public water systems in meeting compliance with drinking water standards.

Eligibility Requirements

Eligible applicants include community water systems, nonprofit, and noncommunity water systems.

The following types of facilities may be determined to be a small SDAC with financial hardship: on-transient noncommunity water systems serving facilities such as a public school, a not-for profit private school, a daycare, a labor camp, and elder care facility or a health care facility, that are owned by a public agency or not-for profit water company.

Eligible Uses

Eligible projects include planning/design and construction of drinking water infrastructure projects including: consolidation; water meters; water storage; treatment systems; replacement of aged water transmission or distribution mains; groundwater wells, or other infrastructure; private laterals; interconnections; pipeline extensions.

Funding Limits

The maximum grant for a community is based on all funding the community receives in a five-year period. This includes planning, technical assistance, and construction funding for all DWSRF projects for the community. DACs (MHI is less than 80 percent of the Statewide MHI based on latest U.S. Census data) can receive up to 100 percent PT for eligible Category A-C projects.

The maximum amount of principal forgiveness, grant, or a combination thereof will not exceed \$60,000 per service connection for Category A-C projects and \$45,000 per service connection for Category D-F projects.

A consolidation incentive is available to public water systems who consolidate a small disadvantage community. A consolidation project will receive terms based on small DAC eligibility. The remaining public water system can receive up to \$10 million on zero-percent interest financing.

Terms/Dates

No deadlines; continuous pre-application process.

Program Contacts

Small DAC Contacts

North	South	South
Noel Gordon	Matthew Freese	Jennifer Toney
(916) 449-5630	(916) 341-5460	(916) 319-8246

Larger Systems Contact

Uyen Trinh Le
(916) 323-4719

Email: DrinkingWaterSRF@waterboards.ca.gov

Website

https://www.waterboards.ca.gov/drinking_water/services/funding/SRF.shtml

California State Water Resources Control Board	California State Water Resources Control Board
Safe and Affordable Funding for Equity and Resilience Funding Program and Safe and Affordable Drinking Water Fund (Senate Bill 200) Type Grant Purpose This program provides a set of tools, funding sources, and regulatory authorities designed to ensure that one million Californians who currently lack safe drinking water receive safe and affordable drinking water as quickly as possible. The fund will provide \$130 million per year. Eligibility Requirements Eligible recipients include public agencies, nonprofit organizations, public utilities, mutual water companies, California Native American Tribes, administrators, and groundwater sustainability agencies. Eligible Uses Eligible projects may be used for various types of assistance for DACs, voluntary participants, and public water systems with demonstrated failure or risk of failure, including projects that: • Provide interim access to safe water sources. • Contract or provide a grant to an administrator to address or percent failure to provide safe and affordable drinking water. • Improve water delivery infrastructure. • Provide technical assistance to DACs. • Consolidate systems. • Fund operation and maintenance for disadvantaged and low-income communities. Terms / Dates No deadlines; continuous application process.	Program Contacts Jeff Wetzel (916) 323-9390 Jeff.Wetzel@waterboards.ca.gov James Garrett (916) 445-4218 James.Garrett@waterboards.ca.gov Jasmine Oaxaca (916) 341-5957 Jasmine.Oaxaca@waterboards.ca.gov Website https://www.waterboards.ca.gov/drinking_water/programs/safer_drinking_water/
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Drinking Water for Schools Grant Program (DWFS)

Type

Grant

Purpose

This program was initially allocated and has awarded \$9.5 million in grants funds to school districts to improve access to, and the quality of, drinking water in public schools (Round 1). An additional \$6.8 million has been authorized for the DWFS Grant Program (Round 2). Grant funds were awarded to Self-Help Enterprises and Rural Community Assistance Corporation and they will act as program administrators. These administrators will work directly with eligible school districts to develop and fund projects for DAC schools. Program administrators will reach out to those schools meeting priority criteria in the next several months.

Eligibility Requirements

Eligible applicants include local educational agencies serving kindergarten or any of grades 1-12, inclusive, and preschools and child day care facilities, located on public school property. Additionally, all projects must be located at schools within, or serving, a DAC.

Eligible Uses

Eligible projects include:

- Installation or replacement of water bottle refilling stations or drinking water fountains with or without treatment devices capable of removing contaminants present in the school's water supply.
- Installation of point-of-entry, or point-of-use treatment devices for water bottle filling stations, drinking fountains, and other fixtures that provide water for human consumption.
- Installation, replacement, or repairs of drinking water fixtures and associated plumbing appurtenances that are necessary to address lead contamination identified by a school's public water system pursuant to the Lead Sampling of Drinking Water in California Schools Program and that requires a corrective action.
- Provision of interim alternative water supplies for applicants in process of implementing a permanent solution, including purchases of temporary transfer water, hauled water, and bottled water.

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Funding can also be used for interim solutions. Program administrators can utilize funds to provide the following types of assistance:

- Grants to local education agencies (LEAs) for project implementation.
- Direct project implementation on behalf of LEAs, which may include reimbursement for work implemented by contractors, including Public Water Systems.
- Technical assistance with completing funding applications, overseeing and inspecting project installations, monitoring, as well as planning and conducting operations and maintenance.

Ineligible Uses

Ineligible projects include:

- Major repairs or replacement of internal building plumbing systems.
- Replacement, repairs, or rehabilitation of wells.
- Establishing connections(s) to an adjacent public water system.
- Projects that are solely demonstration or pilot studies.
- Projects that are solely education and outreach.

Funding Limits

The maximum grant amount will be \$100,000 per individual school.

Terms/Dates

Round 1. Applicants have been notified of their approved project. The DWFS Program will soon post deadlines for Round 2 projects.

Program Contact

Matt Pavelchik
(916) 323-0624
Matthew.Pavelchik@waterboards.ca.gov

Website

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/schools/

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Emergency Drinking Water/Cleanup and Abatement Account (CAA)

Type

Grant

Purpose

The CAA may be utilized to fund projects that clean up or abate the effects of a waste on waters of the State, or projects that address urgent drinking water needs.

Eligibility Requirements

The following entities are eligible to apply for funding to clean up a waste or abate the effect of waste on waters of the State, provided the entity has the authority to undertake the cleanup or abatement activity for which it seeks funding:

- A public agency serving a DAC.
- A Tribal government that is on the California Tribal Consultation List maintained by the Native American Heritage Commission and is a DAC, that agrees to waive tribal sovereign immunity for the explicit purpose of regulation by the State Water Board pursuant to Division 7 of the Water Code.
- A not-for-profit organization serving a DAC.
- A community water system serving a DAC.

Eligible Uses

The CAA may be used to fund projects for the cleanup or abatement where there are no viable responsible parties available to undertake the work. Eligible projects also include:

- Bottled water.
- Well repair, rehabilitation, and replacement.
- Vending machines.
- Point-of-Use devices.
- Hauled water.
- Emergency interties.
- Treatment systems.

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The CAA may be also used to fund projects for the cleanup or abatement where there are no viable responsible parties available to undertake the work. Eligible projects also include:

- Cleanup of oil, diesel, or petroleum spill, mining waste leachate drainage, or other discharges.
- Removal or contaminated sediment, illegally dumped material, or other debris.
- Remediation of contaminated groundwater.
- Watershed restoration, including habitat restoration, erosion control, algae abatement.

Ineligible Uses

Ineligible projects include projects with a responsible party that has legal obligation and financial capacity to address the waste.

Funding Limits

\$500,000 per project, for routine noncontroversial projects.

Terms/Dates

No deadlines; continuous application process.

Program Contact

Matt Pavelchik
(916) 323-0624

Matthew.Pavelchik@waterboards.ca.gov

Website

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/caa/

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Orphan Site Cleanup Fund (OSCF)

Type

Grant

Purpose

This fund is a grant program that provides financial assistance for the cleanup of a site contaminated by leaking petroleum underground storage tanks (USTs) where there is no financially responsible party and the applicant is not an eligible claimant to the UST cleanup fund.

Eligibility Requirements

Eligible applicants include any entity type, except State and federal that also:

- Own or have access to the property.
- Are not eligible for UST Cleanup Fund.
- Are not responsible for the UST petroleum release.
- Are not affiliated with any person who caused or contributed to UST petroleum release.

Eligible Uses

Eligible projects include those that involve the cleanup of sites where the principal source of contamination is from an on-site UST and where there is no financially viable responsible party for the contamination.

Funding Limits

The maximum amount of grant available for an eligible occurrence is \$1 million for a grant application filed on or after January 1, 2015.

Terms/Dates

No deadlines; continuous application process.

Program Contacts

For questions regarding the OSCF electronic application submission:

- Bridget Freeborn: Bridget.Freeborn@waterboards.ca.gov
- General info: ustcleanupfund@waterboards.ca.gov (Subject line: OSCF)

Website

https://www.waterboards.ca.gov/water_issues/programs/ustcf/oscf.html

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Nonpoint Source (NPS) Grant Program

Type

Grant

Purpose

This program aims to minimize NPS pollution from land use activities in agriculture, urban development, forestry, recreational boating and marinas, hydromodification, and wetlands. The program's goal is to achieve water quality goals and maintain beneficial uses.

Eligibility Requirements

Eligible applicants include a public agency, nonprofit Section 501 (c)(3) organization, federally recognized Tribe, State agency, public college, or a federal agency. Federally recognized Tribes must provide a limited waiver of sovereign immunity for the purpose of grant enforceability.

Project must address NPS Grant Program preferences. Project must meet funding match requirements. Project must be completed in three years or less. Project must demonstrate climate change resilience.

Eligible Uses

The majority of NPS program funding is awarded to implementation proposals for impaired waters, or projects that implement practices to improve impaired waters. However, funding may be awarded to planning proposals if sufficient funding is available. In addition, some funding may be awarded to proposals for post-fire recovery and for protection of high-quality waters.

Ineligible Uses

- Private entities other than 501(c)(3) organizations.
- Projects necessary to satisfy an enforcement or civil settlement or judicial order.
- Projects that directly support the production of cannabis.
- Projects or activities that are required by or that implement a NPDES permit or an order applicable to regulated stormwater discharges under CWA section 402(p).

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- Projects that convert or upgrade individual septic systems are ineligible. However, large-scale upgrades or conversion of an entire community, or portion of a community, that address a common impairment to the same waterbody and are part of one grant project, may be supported as long as the project meets all other eligibility requirements.
- Projects that are entirely or primarily education and outreach
- Research studies and pilot projects.

Funding Limits

Project Type	Minimum Award	Maximum Award
Implementation of practices to improve impaired waters	\$250,000	\$800,000
Implementation of practices to protect or improve high-quality waters	\$250,000	\$800,000
Implementation of practices for post-fire recovery	\$250,000	\$800,000
Planning	\$80,000	\$200,000

Terms /Dates

The 2020 solicitation period closed on December 18, 2020. State Water Board staff will assess the proposals for minimum eligibility requirements and notify applicants of their status. The 2021 NPS fundable list will be available online.

Program Contact

Jodi Pontureri
(916) 341-5306
Jodi.Pontureri@waterboards.ca.gov

Website

http://www.waterboards.ca.gov/water_issues/programs/nps/319grants.shtml

Proposition 1: Technical Assistance

Type

Grant through technical assistance providers (nonprofit organizations and/or public universities).

Purpose

TA is intended to provide technical assistance to small DACs such that they can pursue funding for drinking water, wastewater, groundwater remediation, and stormwater capital improvement projects.

Eligibility Requirements

Eligible applicants include small (is less than 3,300 service connections or less than 10,000 population) DACs (median household income is less than 80 percent statewide median household income), and on a case-by-case basis, expanded small (less than 6,600 service connections or less than 20,000 population) DACs.

Eligible Uses

TA efforts are primarily focused on development of projects for the following funding programs:

- Drinking Water – Infrastructure improvements to correct system deficiencies and improve drinking water quality.
- Wastewater – Infrastructure improvements to correct system deficiencies and prevent pollution.
- Groundwater – Projects that prevent or cleanup the contamination of groundwater that serves or has served as a source of drinking water.
- Stormwater – Multiple benefit projects designed to infiltrate, filter, store, evaporate, treat, or retain stormwater or dry weather runoff.

Assistance types:

- Coordination and development of capital improvement projects.
- Facilitation of operation and maintenance.
- Engineering and environmental analysis.
- Legal assistance.
- Leak detection/water audits.

- Compliance audits.
- Financial analysis.
- Technical managerial and financial assessments.
- Board or operator training.

Funding Limits

There are no maximum or minimum funding request amounts. Each TA project is allocated funds on a case-by-case, needs-based, basis.

Demand for drinking water/wastewater TA is extremely high. Not all eligible request can be accommodated through the TA Funding Program. Requests relating to one or more of the following will generally be given priority: systems that are out of compliance or experiencing insufficient water delivery capabilities, extension of service for drought/contamination impacted communities, consolidation projects, systems serving less than 200 connections, and applicants with small or relatively low cost needs that will enable an otherwise complete funding application to move forward.

Stormwater TA resources are limited. We are not currently accepting new communities for stormwater TA.

Terms / Dates

No deadlines; continuous application process.

Technical Assistance Request Form

To apply for technical assistance, please complete the Technical Assistance

Request Form:

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/proposition1/docs/ta_request_form.pdf.

Program Contacts

Kim Dinh

(916) 341-5729

Kim.Dinh@waterboards.ca.gov

James Garrett

(916) 445-4218

James.Garrett@waterboards.ca.gov

Website

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/tech_asst_funding.html

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California Financing Coordinating Committee

Federal Agencies

U.S. Department of Agriculture Rural Development

U.S. Bureau of Reclamation

U.S. Economic Development Administration

USDA Rural Development

California State Office
430 G Street, Agency 4169
Davis, California 95616
www.rd.usda.gov/ca



United States
Department of
Agriculture

Rural Development

Program Contacts

Lisa Butler
Community Facilities Programs Director
(559) 754-3146
Lisa.Butler@usda.gov

Daniel Cardona
Water and Environmental Programs Director
(760) 397-5949
Daniel.Cardona@usda.gov

The U.S. Department of Agriculture (USDA) Rural Development has more than 40 programs to support investments in infrastructure, housing, and economic and community development projects throughout rural California. USDA's loan, grant, and loan guarantee programs work in partnership with State and local sources to help build stronger rural communities.

Visit Us

USDA Rural Development website: <http://www.rd.usda.gov/ca>

USDA Rural Development on Social Media

 USDA

 @RDCalifornia

 USDARurDev

 USDA

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Programs

Water & Waste Disposal Loan & Grant Program

Type

Loan and Grant

Purpose

This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas.

Eligibility Requirements

This program assists qualified applicants who are not otherwise able to obtain commercial credit on reasonable terms. Eligible applicants include most State and local governmental entities, private nonprofits, and federally recognized Tribes.

CEQA/NEPA

A NEPA environment impact statement must be completed for each project.

Eligible Uses

Funds can be used to finance the acquisition, construction, or improvement of drinking water sourcing, treatment, storage and distribution; sewer collection, transmission, treatment and disposal; solid waste collection, disposal and closure; stormwater collection, transmission, and disposal.

In some case, funding also may be available for related activities such as legal and engineering fees; land acquisition, water and land rights, permits and equipment; start-up operations and maintenance; interest incurred during construction; purchase facilities to improve service or prevent loss of service; other costs determined to be necessary for completion of the project.

Ineligible Uses

Projects not modest in size, design, and cost; loan or grant finder fees; rental for use of equipment or machinery owned by applicant; projects serving non-rural areas.

Funding Limits

There is no minimum or maximum loan amount. Grants limited to 45 percent and 75 percent of project cost based on alleviating health and sanitary violations and keeping rates affordable.

Terms/Dates

The loan term is up to a 40-year payback period, based on the useful life of the facilities, and financed with a fixed interest rate. The interest rate is based on the need for the project and the median household income of the area to be served.

Program Contact

Daniel Cardona
Water and Environmental Programs Director
(760) 397-5949
Daniel.Cardona@usda.gov

For more information, visit the Water & Waste Disposal Loan & Grant Program website: <https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program/ca>

Emergency Community Water Assistance Grants

Type

Grant

Purpose

This program helps eligible communities prepare, or recover from, an emergency that threatens the availability of safe, reliable drinking water. Emergency events include a variety of disasters such as drought or flood; earthquake; tornado or hurricane; disease outbreak; chemical spill, leak, or seepage; and other disasters. A federal disaster declaration is not required under this program.

Eligibility Requirements

Eligible applicants include most State and local governmental entities, nonprofit organizations, and federally recognized Tribes.

Projects must be in rural areas and towns with populations of 10,000 or less. The area to be served must also have a median household income of less than the State's median household income for non-metropolitan areas based on latest U.S. Census data.

CEQA/NEPA

A streamlined NEPA environment impact statement is required for each project.

Eligible Uses

Water transmission line grants are available to construct waterline extensions, repair breaks or leaks in existing water distributions lines, and addresses related maintenance necessary to replenish the water supply.

Water source grants available to construct a water source, intake, or treatment facility.

Ineligible Uses

Privately owned wells are not eligible.

Funding Limits

The maximum award is \$1 million for water source grants. For water transmission grants, the maximum award is \$150,000.

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Terms/Dates

Applications are accepted year-round.

Program Contact

Daniel Cardona
Water and Environmental Programs Director
(760) 397-5949
Daniel.Cardona@usda.gov

For more information, visit the Emergency Community Water Assistance Grants website: <https://www.rd.usda.gov/programs-services/emergency-community-water-assistance-grants/ca>

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USDA Rural Development	USDA Rural Development
Water & Waste Disposal Grants to Alleviate Health Risks on Tribal Lands and Colonias	Terms/Dates Applications accepted year-round.
Type Grant	Program Contact Daniel Cardona Water and Environmental Programs Director (760) 397-5949 Daniel.Cardona@usda.gov
Purpose This program provides low-income communities, that face significant health risks, access to safe, reliable drinking water and water disposal facilities and service.	For more information, visit the website for Water & Waste Disposal Grants to Alleviate Health Risks on Tribal Lands and Colonias: https://www.rd.usda.gov/programs-services/water-waste-disposal-grants-alleviate-health-risks-tribal-lands-and-colonias/ca
Eligibility Requirements Eligible applicants include State and local governmental entities serving eligible areas, nonprofit organizations, utility districts serving Colonias, federally recognized tribes. Eligible areas are federally recognized Tribal lands; areas recognized as Colonias before October 1, 1989; rural areas and towns with a population on 10,000 or less. Residents of the area to be served must face significant health risks resulting from a lack of access to, or use of adequate, affordable water or waste disposal. Areas not located in a Colonia must meet per capita income and unemployment rate requirements.	
CEQA/NEPA A NEPA environment impact statement must be completed as part of the grant application.	
Eligible Uses Construction of basic drinking water and waste disposal systems including storm drainage. Utility districts may also be able to provide grants to individual households to install indoor plumbing and connect to the system.	
Ineligible Uses Projects that are not modest in size, design, and cost; loan or grant finder fees; rental for use of equipment or machinery owned by applicant; and projects serving non-rural areas.	
Funding Limits No maximum or minimum grant amount but limited to funding availability.	
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Special Evaluation Assistance for Rural Communities and Households (SEARCH)

Type

Grant

Purpose

This program helps very small, financially distressed rural communities with predevelopment feasibility studies, design, and technical assistance on proposed water and water disposal projects.

Eligibility Requirements

Eligible applicants include most State and local governmental entities, nonprofits, federally recognized Tribes.

Eligible areas are those with a population of 2,500 or less and a median household income below the poverty line or less than 80 percent of the statewide non-metropolitan median household income based on latest U.S. Census data.

CEQA/NEPA

A NEPA environment impact statement must be completed as part of grant application.

Eligible Uses

To pay predevelopment planning cost, including:

- Feasibility studies to support applications for funding water or waste disposal projects.
- Preliminary design and engineering analysis.
- Technical assistance for the development of an application for financial assistance.

The predevelopment planning cost must be related to a proposed project that meets the following requirements:

- Construct, enlarge, extend, or improve rural water sanitary sewage, solid waste disposal, and storm wastewater disposal facilities.

- Construct or relocate public buildings, roads, bridges, fences, or utilities and to make other public improvements necessary for the successful operation or protection of facilities.
- Relocate private buildings, roads bridges, or utilities, and other private improvements necessary for the successful operation or protection of facilities.

Ineligible Uses

Construction activities.

Funding Limits

There is a maximum of \$30,000 per application.

Terms/Dates

Applications are accepted year-round.

Program Contacts

Daniel Cardona
Water and Environmental Programs Director
(760) 397-5949
Daniel.Cardona@usda.gov

For more information, visit the SEARCH website:
<https://www.rd.usda.gov/programs-services/search-special-evaluation-assistance-rural-communities-and-households/ca>

USDA Rural Development Community Facilities Direct Loan & Grant Type Loan and Grant Purpose This program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial, or business undertakings. Eligibility Requirements Eligible applicants include most State and local governmental entities, nonprofits, federally recognized Tribes. Rural areas including cities, villages, townships, and towns including federally recognized tribal lands with no more than 20,000 residents according to the latest U.S. Census Data are eligible for this program. CEQA/NEPA A NEPA environment impact statement must be completed as part of the loan/grant application. Eligible Uses Funds can be used to purchase, construct, and/or improve essential community facilities, purchase equipment and pay related project expenses. Examples of essential community facilities include: • Health care facilities such as hospitals, medical clinics, dental clinics, nursing homes or assisted living facilities. • Public facilities such as town halls, courthouses, airport hangars, or street improvements. • Community support services such as child care centers, community centers, fairgrounds or transitional housing.	USDA Rural Development • Public safety services such as fire departments, police stations, prisons, police vehicles, fire trucks, public works vehicles or equipment. • Educational services such as museums, libraries or private schools. • Utility services such as telemedicine or distance learning equipment. • Local food systems such as community gardens, food pantries, community kitchens, food banks, food hubs or greenhouses. Ineligible Uses Operating and working capital. Funding Limits There is a maximum of \$50,000 Grant per application. There is not a maximum for loan. Terms/Dates Applications are accepted year-round. Program Contact Lisa Butler Community Facilities Programs Director (559) 754-3146 Lisa.Butler@usda.gov For more information, visit the Community Facilities Programs website: https://www.rd.usda.gov/programs-services/all-programs/community-facilities-programs
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Workshop Notes

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U.S. Department of the Interior, Bureau of Reclamation (Reclamation)

Interior Region 10 California Great-Basin
CGB-410
2800 Cottage Way
Sacramento, California 95825



Website

<https://www.usbr.gov/mp/watershare/index.html>

Contact information

The U.S. Bureau of Reclamation (Reclamation) is divided into five regions. Two regions cover California: the California Great-Basin Region (CGB) (based in Sacramento, California) and the Lower Colorado Basin Region (based in Boulder City, Nevada).

Contact information for CGB Water Conservation Team is listed below. Any of the team members can answer questions about a potential project within the CGB region.

CGB Water Conservation Team Members

Angela Anderson
(916) 978-5215
AAnderson@usbr.gov

Anna Sutton
(916) 978-5214
ASutton@usbr.gov

Gene Lee
(916) 978-5219
GLee@usbr.gov

Thomas Hawes
(916) 978-5271
THawes@usbr.gov

David T. White
(916) 978-5208
DWhite@usbr.gov

Southern California Area Office Program Contact

Deb Whittney
(951) 201-6282 (cell)
DWhitney@usbr.gov

If you have questions about a project outside of the CBG region, contact one of the CGB team members, who will then find a Reclamation team member in the applicable region to assist you.

U.S. Bureau of Reclamation

Reclamation Notices of Funding Opportunity

Throughout the year, Reclamation posts to www.grants.gov notices of funding opportunity (NOFOs) for various activities and projects that promote water savings. Usually, the financial assistance document is a Grant, but it instead may be a cooperative agreement.

Each NOFO describes or lists eligibility requirements, eligible uses, ineligible uses, funding limits, and terms and dates.

A NEPA compliance determination is required prior to a successful applicant using federal funds to conduct any ground-disturbing activity. If an application is successful, Reclamation will work with the applicant during the NEPA analysis process.

Below are the names, descriptions, contact information, and website for many of the NOFOs Reclamation has posted online recently.

CALFED Water Use Efficiency Grants

Purpose

These projects conserve and use water more efficiently in an agricultural or urban setting.

Program Contact

Anna Sutton
(916) 978-5214
ASutton@usbr.gov

Website

<https://www.usbr.gov/mp/watershare/index.html>

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Agricultural Water Use Efficiency Grants

Purpose

These agricultural projects conserve and use water more efficiently and have on-farm benefits.

Program Contact

Thomas Hawes
(916) 978-5271
THawes@usbr.gov

Website

<https://www.usbr.gov/mp/watershare/index.html>

Sustain and Manage America's Resources for Tomorrow (WaterSMART): Basin Study Program

- Applied Science Tools
- Water Management Options Pilots

Purpose

These projects foster collaborative planning within a basin.

Program Contact

Avra Morgan
(303) 445-2906
AOMorgan@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

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U.S. Bureau of Reclamation

WaterSMART: Cooperative Watershed Management Program

Purpose

These projects provide a variety of benefits throughout a watershed.

Program Contact

Avra Morgan
(303) 445-2906
AOMorgan@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

WaterSMART: Desalination Construction

Purpose

Funding for planning, design, and constructions of WIIN brackish groundwater and ocean desalination projects.

Program Contact

Amanda Erath
(303) 445-2766
AErath@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

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U.S. Bureau of Reclamation

WaterSMART: Drought Response Program

- Drought Contingency Plans
- Drought Resiliency Projects
- Emergency Response Actions

Purpose

These projects increase water supply reliability and improve water management.

Program Contact

Sheryl Looper
(303) 445-2232
SLooper@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

WaterSMART: Title XVI Program

Purpose

These projects reclaim and recycle water.

Program Contact

Amanda Erath
(303) 445-2766
AErath@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

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U.S. Bureau of Reclamation

WaterSMART: Water Conservation Field Services Program

Purpose

These projects promote water conservation planning and design.

Program Contact

Angela Anderson
(916) 978-5215
AAnderson@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

WaterSMART: Water Marketing Strategy Grants

Purpose

These projects develop and implement a water marketing strategy.

Program Contact

Avra Morgan
(303) 445-2906
AOMorgan@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

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U.S. Bureau of Reclamation

WaterSMART: Small-Scale Water Efficiency Projects

Purpose

These projects conserve and use water more efficiently; mitigate conflict risk in areas at a high risk of future water conflict; and accomplish other benefits that contribute to water supply reliability in the western United States.

Program Contact

Robin Graber
(303) 445-2764
RGraber@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

WaterSMART: Water and Energy Efficiency Grants

Purpose

These projects conserve and use water more efficiently, increase the use of renewable energy and improve energy efficiency, benefit endangered and threatened species, facilitate water markets, or carry out other beneficial activities.

Program Contact

Josh German
(303) 445-2839
JGerman@usbr.gov

Website

<https://www.usbr.gov/watersmart/>

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Workshop Notes

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U.S. Economic Development
Administration (EDA)



U. S. Economic Development Administration
915 Second Avenue
Room 1890
Seattle, Washington 98174
Email: mmatson1@eda.gov, aking2@eda.gov

Program Contacts

Ms. Malinda Matson Economic Development Rep. Northern and Coastal California (916) 235-0088 mmatson1@eda.gov	Mr. Wilfred Marshall Economic Development Rep. Southern and Central California (310) 348-5386 wmarshall@eda.gov
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Ms. Asia King
Economic Development Rep.
Central Coast and Central
Valley California
(206) 247-0991
aking2@eda.gov

The U. S. Economic Development Administration (EDA) is a small, nimble agency within the U.S. Department of Commerce that provides a big impact by helping to make it easier for businesses to start and grow in the United States. We do this by working hand-in-hand with local economic development partners to advance their locally developed projects: projects that are tied to their region's long-term sustainable economic development strategy.

Visit Us

EDA website: www.eda.gov

EDA on Social Media



US_EDA



EDACCommerce



U.S. Department of
Commerce, Economic
Development Administration

+EDA Eligibility Requirements

Eligible Applicants:

- Local and State governments.
- Native American Tribal governments.
- Nonprofit organizations.
- Institutions of higher education.

Economic Distress Criteria

A proposed project must be located in a region that meets EDA’s economic distress criteria. The region must be subject to one (or more) of the following economic distress criteria:

- A 24-month unemployment rate that is one percentage point greater than the national average unemployment rate.
- Per capita income that is 80 percent or less of the national average per capita income.
- Special Need: Natural disasters, plant closures, persistent poverty (see current notice of funding opportunity for complete list).

How to Apply for Funding at EDA

Visit www.grants.gov (search for keyword “EDA”) to find open solicitations, notices of funding opportunity, and get application packages.

Funding Programs

Public Works

Purpose

EDA’s Public Works Program helps distressed communities revitalize and expand and upgrade their physical infrastructure. This program enables communities to attract new industry, encourage business expansion, diversify local economies, and generate or retain long-term private sector jobs and investment through the acquisition or development of land and infrastructure improvements needed for the successful establishment or expansion of industrial or commercial enterprises.

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Types of Projects

EDA Public Works Program investments help facilitate the transition of communities from being distressed to becoming competitive by developing key public infrastructure, including water and sewer systems improvements, industrial parks, business incubator facilities, expansion of port and harbor facilities, skill-training facilities, and brownfields redevelopment.

Funding Availability

EDA receives annual appropriations from Congress for the Public Works Program.

Terms/Dates

Applications are accepted on a rolling basis.

Program Contacts

Malinda Matson (916) 235-0088 mmatson1@eda.gov	Wilfred Marshall (310) 648-5386 wmarshall@eda.gov	Asia King (206) 247-0991 aking@eda.gov
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Website

<https://www.eda.gov>

Economic Adjustment Assistance

Purpose

The Economic Adjustment Assistance (EAA) Program provides a wide range of technical, planning, and public works and infrastructure assistance in regions experiencing adverse economic changes that may occur suddenly or over time. These adverse economic impacts may result from a steep decline in manufacturing employment following a plant closure, changing trade patterns, catastrophic natural disaster, a military base closure, or environmental changes and regulations.

Types of Projects

The EAA program can assist state and local entities in responding to a wide range of economic challenges. As EDA’s most flexible program, EAA can fund market and environmental studies, planning and construction grants, and capitalize or recapitalize revolving loan funds to help provide small businesses with the capital they need to grow.

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Funding Availability

EDA receives annual appropriations from Congress for the Economic Adjustment Program and from time-to-time receives disaster supplemental appropriations for the Economic Adjustment Program.

Terms / Dates

Applications are accepted on a rolling basis.

Program Contacts

Malinda Matson (916) 235-0088 mmatson1@eda.gov	Wilfred Marshall (310) 648-5386 wmarshall@eda.gov	Asia King (206) 247-0991 aking2@eda.gov
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Website

<https://www.eda.gov>

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California Financing Coordinating Committee

Technical and Other Assistance

California Conservation Corps

California Rural Water Association

Rural Community Assistance Corporation

California State Library – Grants Portal

California Conservation Corps (CCC)

California Conservation Corps Headquarters
1719 24th Street
Sacramento, California 95816
(916) 341-4430



The California Conservation Corps (CCC) is a department within the California Natural Resources Agency and is the oldest and largest conservation corps in the nation.

Founded in 1976, the CCC was modeled after the original Civilian Conservation Corps of the 1930s. The CCC's mission is to protect and enhance California's natural resources and communities while empowering and developing young adults through hard work and education.

All crews are supervised and trained in safety and tool use. CCC Corpsmembers can work on a variety of projects, including site preparation, levee work, erosion control, trail building and rehabilitation, planting native trees and plants, removal of non-native or invasive plant species, and management of fire fuels.

Proposition 1

The CCC is available to partner with organizations applying to Proposition 1 grant programs to provide affordable labor for projects focused on rivers, lakes, streams, coastal waters and watersheds.

Learn more about CCC Proposition 1 work at <https://ccc.ca.gov/proposition-1>.

Proposition 68

The CCC also received direct Proposition 68 funding to complete climate adaptation and resiliency projects. Organizations may collaborate with a CCC Center to develop a project and apply for CCC Proposition 68 funds.

Learn more about CCC Proposition 68 work at <https://ccc.ca.gov/proposition-68>.

Learn more about the CCC at <https://ccc.ca.gov/>.

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Workshop Notes

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California Rural Water Association (CRWA)



California Rural Water Association
1234 North Market Boulevard
Sacramento, California 95834
www.calruralwater.org
Toll Free: (800) 833-0322
Phone: (916) 553-4900
Fax: (916) 553-4904
Email: info@calruralwater.org

About CRWA

Incorporated in 1990, California Rural Water Association (CRWA) has emerged as the State's leading association dedicated to providing on-site technical assistance and specialized training for rural water and wastewater systems. Tapping into the expertise of experienced water and wastewater professionals, CRWA's governing Board of Directors, administrative staff, and technical field specialists work in concert to offer CRWA members an expansive range of essential programs and member services.

Whether a system needs help developing a new rate schedule, setting up proper testing methods, understanding those ever-changing and complex government regulations, preparing a Consumer Confidence Report, or updating operator certification requirements, CRWA is ready with assistance.

State Revolving Fund (SRF) Program

CRWA SRF Specialist Program provides State Water Board-approved utilities statewide including technical assistance; technical, managerial, and financial assessment assistance; capacity development building assistance; as well as planning and construction application assistance to the State revolving fund loan and grant funding program.

USDA Circuit Rider Program (Rural Development)

CRWA Circuit Rider programs provide a variety of hands-on and management technical assistance. They will specifically assist eligible utilities with the RD Apply application process for the USDA Rural Development Infrastructure Loan and Grant Program.

National Rural Water Association (NRWA)

CRWA staff also assist rural communities in accessing the Revolving Loan Program featured by NRW. This is a simple program with a \$100,000 maximum loan amount is typically used for preliminary engineering and funding application costs.

Visit Us

CRWA website: <https://www.calruralwater.org>

CRWA on Social Media



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Workshop Notes

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Rural Community Assistance Corporation
(RCAC)

Rural Community Assistance Corporation
3120 Freeboard Drive
West Sacramento, California 95691
(916) 447-2854



The Rural Community Assistance Corporation (RCAC) envisions vibrant, healthy, and enduring rural communities throughout the West.

Founded in 1978, RCAC provides training, technical, and financial resources and advocacy to help rural communities achieve their goals and visions. RCAC provides a wide range of community development services for rural and Native communities, and community-based organizations in 13 western states and Pacific Islands.

Loans

RCAC was certified as a Community Development Financial Institution (CDFI) in 1996 and finances affordable housing, community facilities, utility infrastructure, and small businesses in rural communities. As a certified CDFI, RCAC fills financing gaps and serves unconventional markets.

For more information, contact your local loan officer at:
<https://www.rcac.org/lending/loan-fund-contacts/>

Environmental

RCAC works with rural water, wastewater, and solid waste systems to make them sustainable. Our environmental services are directed to small, low-income communities in rural areas and Indian country to ensure that they comply with State and federal regulations. RCAC is a Rural Community Assistance Partnership member.

Request technical assistance at:
<https://www.rcac.org/contact-us/request-for-assistance/>

Learn more about RCAC at: <https://www.rcac.org/>

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Rural Community Assistance Corporation

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As part of the Grant Information Act of 2018 (Assembly Bill 2252, Stats. 2018, Chapter 318), the California State Library has created a website (grants.ca.gov/) that provides a centralized location to find State grant opportunities. Grant seekers are now able to see all current grant and loan opportunities that are offered on a competitive or first-come basis and can search and filter their results.

State grantmaking agencies input and update their information into prescribed data fields to make all state grant opportunities searchable on grants.ca.gov. The Grant Information Act requires state agencies to provide summaries of each of their grant or loan opportunities, including, among other items, information about how to apply and links that grant seekers can follow for more details.

The California State Library worked with State agencies and various grant seekers to develop the final site but is also currently looking for feedback and suggestions. To give feedback or suggestions for improving the site, please visit grants.ca.gov/contact-us/.

Acronyms and Abbreviations

ADA	Americans With Disability Act
AHSC	Affordable Housing and Sustainable Communities Program
BRIC	Building Resilient Infrastructure and Community
CAA	Emergency Drinking Water/Cleanup and Abatement Account
CAL FIRE	California Department of Forestry and Fire Prevention
Cal OES	California Governor's Office of Emergency Services
CalRecycle	California Department of Resources, Recycling, and Recovery
CCC	California Conservation Corps
CCI	California Climate Investments
CCR	climate change research
CDBG	Community Development Block Grant
CDFI	Community Development Financial Institution
CEQA	California Environmental Quality Act
CFCC	California Financing Coordination Committee
CGB	California Great-Basin Region
CLEEN	California Lending for Energy and Environmental Needs
CRWA	California Rural Water Association
CWSRF	Clean Water State Revolving Fund
CVFPB	Central Valley Flood Protection Board
DAC	disadvantaged community
DACTI	disadvantage community and tribal involvement
DCA	dichloroacetic acid
DCE	1,2-dichloroethane
DWFS	Drinking Water for Schools Grant Program
DWSRF	Drinking Water States Revolving Fund
DWR	California Department of Water Resources
EDA	U.S. Economic Development Administration
EAA	economic adjustment assistance

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Acronyms and Abbreviations

FEMA	Federal Emergency Management Agency
FCSP	Flood Control Subventions Program
FMA	flood mitigation assistance
FMPRA	floodplain management, protection and risk awareness
GHG	greenhouse gas
GSA	groundwater sustainability agency
HCD	California Department of Housing and Community Development
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HUD	Department of Housing and Urban Development
IBank	California Infrastructure and Economic Development Bank
IRWM	integrated regional water management
ISRF	Infrastructure State Revolving Fund
IUP	intended use plan
LEA	local education agencies
LED	light emitting diode
LHMP	local hazard mitigation plan
MHI	median household income
MTBE	methyl tere-butyl ether
MUSH	municipalities, universities, schools, and hospitals
NOFA	notice of funding availability
NOFO	notice of funding opportunity
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
NRWA	National Rural Water Association
O&M	operations and maintenance
OSCF	Orphan Site Cleanup Fund

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Acronyms and Abbreviations

PCE	perchloroethylene
PF	principal forgiveness
PDM	pre-disaster mitigation
PNP	private nonprofit
POP	period of performance
PSP	proposal solicitation package
Reclamation	U.S. Bureau of Reclamation
RCAC	Rural Community Assistance Corporation
RMDZ	recycling market development assistance
SALC	Sustainable Agricultural Lands Conservation
SBFC	Small Business Finance Center
SCAP	Site Cleanup Subaccount Program
SCG	small community grant
SDAC	severely disadvantaged community
SEARCH	Special Evaluation Assistance for Rural Communities and Household
SGC	California Strategic Growth Council
SGM	sustainable groundwater management
SRF	State revolving fund
SWEEP	Statewide Energy Efficiency Program
SWGp	Stormwater Grant Program
State Water Board	State Water Resources Control Board
TCC	transformative climate communities
TCE	trichloroethene
USDA	U.S. Department of Agriculture
UST	underground storage tank
UV	ultra-violet
WaterSMART	Sustain and Manage America's Resources for Tomorrow
WRFP	Water Recycling Funding Program

CALIFORNIA FINANCING COORDINATING COMMITTEE (CFCC)	
COMMON FUNDING INQUIRY FORM	
Instructions: An electronic copy of this form can be obtained at: www.cfcc.ca.gov Please provide the information below and e-mail the completed form to: ibank@ibank.ca.gov If completing a hard copy of this form, attach responses where applicable and fax to (916) 322-6314.	
Name of Applicant or Official System Name:	County:
Check the box that best describes the applicant's organization: ☐ Municipal entity ☐ Private entity, for profit ☐ Private entity, nonprofit	
Project OR problem description. Describe the problem or the need for the project, the purpose of the project, the basic design features of the project and what the project will accomplish. (Attach documentation, if available)	
Estimated Project Schedule. Provide a timeline that illustrates the estimated start and completion dates for each major phase or milestone of project development, construction and/or acquisition (including, for example, feasibility study, land acquisition, preliminary engineering, environmental review, final design and construction commencement and completion).	
Financing is needed for (check all that apply): ☐ Feasibility Study ☐ Rate Study ☐ Engineering/Architectural ☐ Land Acquisition ☐ Project Construction and Administration ☐ Other, specify: _____	
Estimated Total Project Costs \$ _____	Estimated amount of funding requested \$ _____
Multiple funding sources anticipated: ☐ Yes ☐ No <i>For water/sewer projects only:</i>	
System ID No.: _____	Service Area Population: _____ Number of Service Connections: _____ Estimated Median Household Income of service area: \$ _____
How did you hear about the California Financing Coordinating Committee? _____	
All correspondence regarding this inquiry will be sent to the individual named below. You will receive a written acknowledgement of the receipt of this inquiry form and be contacted by staff of the appropriate CFCC member agencies to pursue additional assistance.	
Printed Name of Inquirer _____	Title _____ Date _____
Mailing Address (street) _____	City/State _____ Zip code _____
() _____	() _____
Phone Number _____	FAX Number _____ Email _____
For CFCC Use Only:	Date of Referral to CFCC Member Agencies: _____ Date Responded to Applicant Inquiry: _____

California Financing Coordinating Committee Federal, State, and Local Agencies



www.cfcc.ca.gov