Master Response 2.7
Disadvantaged Communities

Overview

This master response addresses comments regarding the potential impacts of the plan amendments on disadvantaged communities (DACs)[1] and small public water systems.[2] Commenters expressed concerns that DACs might experience potential water supply shortages and deterioration of water quality as a result of the plan amendments, as well as be unable to fund solutions to address these potential issues. DACs relying on groundwater would be affected if local water users pump more groundwater instead of reducing current levels of consumptive and applied water use or making other adaptations in response to the plan amendments in order to compensate for potential reductions in surface water supplies. Because irrigated agriculture is the primary water use in the plan area, the reaction of local growers to reduced surface water supplies would ultimately produce potential issues associated with DACs and small public water systems.

As described in Chapter 22, *Integrated Discussion of Potential Municipal and Domestic Water Supply Management Options*, most DACs in the plan area are served by small public water systems and rely on groundwater either in whole or in part for their supply. Their groundwater wells are often shallower than wells operated by large public water systems and, thus, are more susceptible to water quality issues or the risk of going dry if the groundwater level is lowered. The groundwater level in the Central Valley has generally declined since intensive groundwater pumping for agricultural irrigation began in the valley 100 years ago. As a result, many of the groundwater basins in the Central Valley are overdrafted. The existing condition of overdraft means that many DACs and small public water systems, on shallow wells, which can lack funding to deepen or build new wells, could be vulnerable to reduced or inadequate water supplies, even in the absence of the plan amendments. The State Water Resources Control Board (State Water Board) is sensitive to commenters' concerns that a reduction in surface water supply due to the plan amendments may exacerbate this legacy problem and disclosed impacts on groundwater levels in Chapter 9, *Groundwater Resources*, as potentially significant and unavoidable and proposed mitigation measures accordingly. The State Water Board also recognizes in the SED that communities of color and low-income people living in tribal, rural, and farming communities often disproportionately experience impacts on their drinking water supplies.

As identified in the SED, the State Water Board's role with respect to vulnerable communities like DACs will be twofold. First, as identified in the SED, the State Water Board is at the forefront of assisting DACs with obtaining clean, safe, and reliable water supplies, including in the plan area. In doing so, it is effectuating its commitment to the Human Right to Water, explained further in the *Consideration of the Human Right to Water* section of this master response, through financial

[1] As used in this response to comments, the term DACs includes both low-income communities and environmental justice communities (i.e., minority and low-income communities adversely affected by environmental problems) in the plan area and extended plan area.

[2] For water supply issues related to East Palo Alto, please see Master Response 8.5, *Assessment of Potential Effects on the San Francisco Bay Area Regional Water System.*

assistance, technical assistance, consolidations, and other means. The State Water Board's implementation of the Human Right to Water means it will continue to use its authorities to assist DACs, including those on shallow wells that could be adversely affected if locals do not act to protect the groundwater basin.

Second, the Sustainable Groundwater Management Act (SGMA) requires that groundwater be managed sustainably to ensure reliable water supplies and to protect against degradation. Currently, all groundwater is managed locally. Consistent with that approach, SGMA entrusts local public agencies to achieve sustainability but places the state in an important oversight and enforcement role. By highlighting the vulnerability of DACs to reduced groundwater levels, commenters are raising a critical issue that the California Department of Water Resources (DWR), in consultation with the State Water Board, will have to consider when evaluating whether Groundwater Sustainability Plans (GSPs) developed in the plan area are adequate and can be implemented in a manner that will likely achieve the sustainability goal. SGMA specifies that GSPs must prevent a chronic lowering of groundwater levels, including a significant and unreasonable depletion of supply, if occurring over the planning and implementation horizon. Sustainable groundwater management also includes not causing undesirable results such as significant and unreasonable water quality degradation, including the migration of contaminant plumes that impair water supplies. If GSPs in the plan area are adequate, groundwater supply for human consumption, cooking, and sanitary purposes should be protected. If a GSP is deemed inadequate or is not being implemented in a manner that is likely to achieve the sustainability goal, the State Water Board, after notice and a public hearing, may designate the basin as probationary. If the local groundwater sustainability agency (GSA) does not remedy any deficiencies that are identified, the State Water Board may impose an interim groundwater management plan.

The State Water Board reviewed all comments related to DACs and developed this master response to address recurring comments and common themes. This master response addresses concerns of the DACs and small public water systems in greater detail below and includes, for ease of reference, a table of contents after the *Overview* to help guide the readers to specific subject areas. In particular, this master response addresses, but is not limited to, the following topics.

- The scope of the analysis in the SED and the assessment of impacts of the plan amendments on DACs.
- The Human Right to Water as related to DACs.
- Financial and technical assistance available to help DACs deal with water supply shortage and water quality emergencies.
- Consolidation of small water systems with larger systems.
- The role of SGMA related to DACs.

For information regarding the groundwater resource impact analyses and SGMA and how SGMA will protect groundwater resources, please see Master Response 3.4, *Groundwater and the Sustainable Groundwater Management Act*. For information regarding the broader discussion of service providers and the conservation that service providers have done during the recent drought, please see Master Response 3.6, *Service Providers*. For more information about southern Delta water quality and an explanation of why the salinity objectives would not affect water quality of the southern Delta, please see Master Response 3.3*, Southern Delta Water Quality*. For information

regarding the costs associated with water supply availability, potential rate payer effects, please see Master Response, 8.4, *Non-Agricultural Economic Considerations.*

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Consideration of Disadvantaged Communities

Multiple commenters stated DACs were not considered or evaluated in the SED. Chapter 4, *Introduction to Analysis*, Section 4.3, *Analytical Framework*, and Master Response 1.1, *General Comments*, discuss why the assessment of environmental effects in the SED is conducted at a programmatic level, which is broader than a project-specific analysis. This programmatic analysis of the environmental impacts of the plan amendments includes the reasonably foreseeable compliance actions and other indirect actions that the regulated community would take in response to the plan amendments. The specific details of the actions that would be taken by others in response to the plan amendments and how they would affect a particular community are unknown. Moreover, under CEQA, a project's social and economic impacts are not to be treated as significant effects on the environment. (Cal. Code Regs., tit. 14, § 15131.) Rather, the focus of an environmental impact report is on physical changes to the environment. (*Id*. subd. (a); see also Cal. Code Regs., tit. 14, § 15382.). In contrast, the National Environmental Policy Act (NEPA) requires evaluating whether a project would cause disproportionately high and adverse human health or environmental effects on minority and low-income populations (e.g., environmental justice effects).[3] Based on the foregoing, the SED, therefore, does not include impact assessments specifically related to a particular disadvantaged community within the plan area. However, given the importance of safe, clean, affordable, and accessible water for human consumption, cooking and sanitary purposes, Chapter 22, *Integrated Discussion of Potential Municipal and Domestic Water Supply Management Options*, acknowledges that DACs often disproportionately experience impacts on drinking water supplies.

Public water systems serving the DACs are a subset of municipal water users, and most of those water systems are considered small (serving fewer than 3,300 people), with more than 50 percent of them serving fewer than 500 people (Chapter 13, *Service Providers*, Table 13-3a). DACs in the plan area are often served by small public water systems and rely on groundwater in whole or in part for their supply, which can result in water quality issues (Chapter 22). Public water systems serving DACs are less likely to have the resources to adequately respond to water supply or water quality emergencies (Chapter 22). However, information from the recent drought and details of the funding streams and sources provided by the State Water Board, the plan amendments would not exacerbate drinking water quality from community water systems serving DACs and commenters' claims that funding is unavailable to assist DACs are unfounded.

Drinking Water Quality

Multiple commenters asserted that the quality of drinking water from those water supplies serving DACs would be reduced, compromised, or otherwise suffer. As identified by the commenters, the groundwater wells supplying DACs are often shallower than those from larger suppliers and can be susceptible to water quality issues or the risk of going dry due to declining groundwater levels (Chapter 22). Declining groundwater levels, and the water quality concerns generated by declines, are legacy issues, which have generally affected the four subbasins in the plan area and resulted in the designation of the subbasins as overdrafted or critically overdrafted (Chapter 9, *Groundwater Resources*). The declining groundwater levels are primarily attributed to the use of groundwater for irrigated agriculture, as municipal uses are relatively small compared to the amount of groundwater

[3] This is a federal requirement primarily driven by Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 Federal Register 7629).

pumped for agricultural purposes. Groundwater accounts for approximately 38 percent of the total water supply in the San Joaquin River (SJR) Hydrologic Region (DWR 2013); however, a majority of groundwater supplies (81 percent) is used for agriculture, while 13 percent goes to municipal use, and the rest (6 percent) goes to meet managed wetlands use in the region.

Between 2002 and 2010, approximately one-fifth of the state's active community water system wells used by groundwater-reliant communities (i.e., groundwater is the primary source of drinking water) had contaminated groundwater with detections above the maximum contaminant levels (MCLs) two or more times (State Water Board 2013). Of the 510 active wells (serving 148 community water systems) within the four subbasins underlying the plan area, 134 wells (serving 54 community water systems) had two or more MCL exceedances between 2002 and 2010. These exceedances reflect raw, untreated groundwater quality, and water systems that have groundwater contamination issues typically treat well water or blend well water before serving water to the public.

Chapter 13, *Service Providers*, Table 13-5, provides a summary of select consumer confidence reports (CCRs)[4]. This information characterizes the quality of water served in the plan area during dry years and wet years. Dry and wet years were selected to determine if there were any differences in reported water quality results. This information generally shows that during drier years, water quality was not substantially reduced, and water suppliers were able to treat, blend, or otherwise find solutions to address water quality issues. Additional CCRs for DACs were reviewed for dry and wet years and are summarized in Table 2.7-1 of this master response. Of the 15 service providers shown in Table 2.7-1, seven are servicing communities that are currently designated as DACs: Atwater, Merced, Stockton, Delhi County Water District (CWD), Hickman, Keys Community Services District (CSD), and Le Grand CSD (DWR 2017a). Some of these communities were also identified in Table 13-5, including Atwater, Manteca, Merced, Modesto, Riverbank Stockton, and Turlock.

As shown in Table 2.7-1, findings from the CCRs do not indicate increased water quality standard violations in public water systems despite greatly increased groundwater pumping in the recent drought, which is consistent with the information contained in Chapter 13. As compared to a wet year, there has not been a trend of increased numbers of violation in a dry year. The water quality problems (e.g., arsenic contamination) that public water suppliers experienced are legacy issues as they occurred in 2011 (a wet year), not caused by any decrease in surface water availability (as it would in a drought). In any given year, there can be violations, but Table 2.7-1 shows that there is not an increased level of violations in 2014 and 2015 (critically dry years) as compared to 2011 (a wet year).

As discussed in Chapter 13, the results of the water quality testing reflect the water quality at the source, not at the receiving end. If a violation is found, the service provider is required by law to carry out more frequent monitoring of the chemical of concern, more frequent notification to its customers, as well as corrective measures to remove the contaminant. As shown in the columns named "Corrective Action" in Table 2.7-1, the public water systems, including those that exceeded the MCL, did have the capacity or could get help from the state to address the problem.

As stated in Chapter 9, over 98 percent of Californians using a public water supply receive safe drinking water that meets all health standards (State Water Board 2013). In general, municipal

[4] Community water systems must provide annual drinking water quality reports, known as consumer confidence reports (CCRs), to their customers

drinking water wells do not exceed federal and state MCLs for water quality. This is because municipal wells are generally deeper than private wells, and water quality tends to be better in deeper aquifers. Furthermore, water quality is managed such that if the concentration of contaminants in well water exceeds criteria, the well can be taken offline or its water can be blended with higher quality water from other wells. In addition, water quality in community water systems are frequently monitored by the State Water Board's Division of Drinking Water and the service providers pursuant to various regulatory requirements stated in Chapter 13, Section 13.3, *Regulatory Background*.

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Table 2.7-1. Summary of Consumer Confidence Reports for Selected Public Water Suppliers during Representative Non-Drought and Drought Years

Public Water Supplier	Source of Water	County	Population Served in 2014	Non-Drought Year (2011)			Drought Year (2014)			Drought Year (2015)		
				Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action
Atwater	GW	Merced	28,100	N	NA	NA	N	NA	NA	*Not available*		
Manteca	GW and SW	San Joaquin	66,451	Y	Arsenic (in GW)	Filters were installed to remove arsenic from wells where MCL was exceeded. Maximized water production from sources with low arsenic levels.	N	NA	NA	N	NA	NA
Merced	GW	Merced	80,095	N	NA		N	NA	NA	N	NA	NA
Modesto	GW and SW	Stanislaus	212,000	N	NA	NA	N	NA	NA	N	NA	NA
Riverbank	GW	Stanislaus	22,201	Y	Total coliform bacteria	Drinking water system was disinfected, flushed, and contamination was resolved.	N	NA	NA	N	NA	NA
Stockton	GW and SW	San Joaquin	169,963	N	NA		N	NA	NA	Y	TTHM	TTHM LRAA exceedances were as follows: Westchester Circle, 84.0 µg/L; Res 2 (Northwest Reservoir – Tank 2), 82.5 µg/L. Following this violation, the City provided notification to all customers in the north Stockton water service area in a letter, mailed December 30, 2015. Since the exceedances, the water system has been in compliance with the disinfection by-product regulation. The latest TTHM LRAA monitoring is as follows: Westchester Circle, 77.0 µg/L; Res 2, 72.8 µg/L.
Turlock	GW	Stanislaus	64,215	Y	Arsenic	Two wells with arsenic in exceedance of the MCL (10 ppb) were immediately removed from service.	N	NA	NA	N	NA	NA
Delhi CWD	GW	Merced	7,068	N (but level of nitrate = 45 was detected, average was below 45)	NA	NA	N (but level of arsenic = 10 had been detected, average was below 10; level of nitrate = 46 was detected, average was below 45)	NA	NA	N (but level of arsenic = 10.6 had been detected, average was below 10; level of nitrate (as N) = 10.6 was detected, average was below 10)	NA	NA

Public Water Supplier	Source of Water	County	Population Served in 2014	Non-Drought Year (2011)			Drought Year (2014)			Drought Year (2015)		
				Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action
Denair CSD	GW	Stanislaus	3,225	N	NA	NA	Y	Total Coliform Bacteria	The district took 6 routine samples in December 2014; 2 of those showed presence of coliform bacteria. The standard is one more than positive sample per month. Within 24 hours of being notified of this result, the District sampled the two original sample locations as well as the upstream and downstream connections. The District also tested both wells for the presence of fecal coliform. They did not find any of these bacteria in the subsequent testing.	N	NA	NA
Escalon	GW	San Joaquin	7,137	N (the City provides granulated activated carbon (GAC) removal treatment at Well 1 to remove the DBCP from the raw well water prior to delivery of the water to the customers. The concentration of DBCP from the treated water averaged 6 ppt with a range of non-detect to 20 ppt, which was below the MCL of 200 ppt for DBCP)	NA	NA	N (the City provides granulated activated carbon (GAC) removal treatment at Well 1 to remove the DBCP from the raw well water prior to delivery of the water to the customers. The concentration of DBCP from the treated water averaged 60 ppt with a range of non-detect to 140 ppt, which was below the MCL of 200 ppt for DBCP)	NA	NA	N	NA	NA
Hickman	GW	Stanislaus	565	N	NA	NA	N	NA	NA	N	NA	NA
Hilmar CWD	GW	Merced	4,850	N (but level of arsenic = 13.3 was detected, average was below 10)	NA	NA	N (but level of arsenic = 14.1 was detected, average was below 10)	NA	NA	N (but level of arsenic = 11.2 was detected, average was below 10)	NA	NA
Keyes CSD	GW	Stanislaus	4,891	Y	Arsenic; Vanadium, which is not regulated, detected at a range of 47-58 with an average = 54.3, which was above AL.	For arsenic: Wells 8, 9, and 10 have exceeded the MCL. Quarterly monitoring is required at these wells. The CSD must provide public notification regarding the exceedance. The CSD is exploring areas that may have GW with arsenic < the MCL, which maybe suitable for the construction of new wells. If there are no suitable areas for the	Y	Arsenic	Wells 8, 9, and 10 have exceeded the 10 ppb. Quarterly monitoring of the well water is required at these wells. The CSD must provide public notification regarding the exceedance. Currently, The CSD is in the process of acquiring funding to provide a centralized arsenic treatment facility.	Y	Arsenic	The District has hired a consultant who specializes in the design of treatment systems to remove arsenic. The consultant has prepared a report of various design options and cost estimate. The District has qualified for funding from the State. If everything goes as planned it should take approximately 6 to 8 months for the plans

Public Water Supplier	Source of Water	County	Population Served in 2014	Non-Drought Year (2011)			Drought Year (2014)			Drought Year (2015)		
				Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action
						construction of new wells, the CSD will seek funding to provide arsenic removal treatment. For vanadium: no corrective action was mentioned.						and contract documents to be completed. Once the plans and contract documents are completed the District will hold community outreach meetings to keep the community informed of the progress and to answer any questions that may arise.
Le Grand CSD	GW	Merced	1,700	Y	Total coliform bacteria	In September and October, total coliform bacteria were detected in the drinking water distribution system. Coliforms were found in more samples than allowed and this was a warning of potential problems. The public was notified, the affected well was taken off-line, and the drinking water system was disinfected, flushed, and re-tested. Follow-up testing confirmed that the problem had been resolved.	*Not available*			Y	1,2,3-TCP was detected at Well 1A above the 0.0007 ppb public health goal and 0.005 ppb notification level. It is an unregulated chemical (the state is in the process of developing an MCL for it), and is an organic chemical that was an impurity in certain pesticides. Iron (secondary MCL).	For 1,2,3-TCP: no action was required. For iron: result of a follow-up testing a month later was below the secondary MCL.
McSwain Elementary School	GW	Merced	950	*Not available*			Y	Total coliform bacteria; Iron (secondary MCL); Lead (not regulated) was above AL.	For coliform: A "do not drink the water" notice was posted on all drinking fountains and bottle water was provided to staff and all the students. An emergency chlorination of the water system was completed and resample were taken. The results were all absent for Total Coliform Bacteria. For iron: no corrective action was mentioned.	Y	Total coliform bacteria; Nitrate as nitrate; Iron (secondary MCL); Lead and copper (both not regulated) were above AL.	For coliform: a "do not drink the water" notice was posted on all drinking fountains and bottle water was provided to staff and all the students. An emergency chlorination of the water system was completed. In June 2015 the storage tank was emptied, cleaned, chlorinated, and flushed then resampling was performed. The results were all negative. For nitrate: Well #1 produced nitrates over the MCL, it was physically disconnected from the system. Well #2 & Well #3 remain on

Public Water Supplier	Source of Water	County	Population Served in 2014	Non-Drought Year (2011)			Drought Year (2014)			Drought Year (2015)		
				Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action	Violation? (Y/N)	Primary Detected Contaminant	Corrective Action
												to supply the domestic system. For iron: no corrective action was mentioned.

Sources: City of Atwater 2012, 2015; City of Escalon 2012, 2015, 2016; City of Manteca 2012, 2015, 2016; City of Modesto n.d.a, n.d.b, n.d.c, n.d.d, 2015; City of Riverbank n.d.a, n.d.b, n.d.c; City of Stockton n.d., 2015, 2016; City of Turlock n.d.a, n.d.b, n.d.c; Delhi 2011, 2014, 2015; Denair 2012, 2015, 2016; City of Waterford n.d.; Hilmar County Water District n.d.a, n.d.b, n.d.c; Keyes Community Services District n.d.a, n.d.b, n.d.c; Le Grand Community Services District 2012, 2016; McSwain School 2015, 2016.

GW = groundwater
SW = surface water
NA = not applicable
TTHM = Total Trihalomethanes
LRAA = locational running annual average
µg/L = micrograms per liter
MCL = maximum contaminant levels
ppb = parts per billion
CWD = County Water District
CSD = Community Services District
1,2,3-TCP = 1,2,3 trichloropropane
DBCP = Dibromochloropropane
ppt = parts per trillion
AL = Regulatory Action Level (The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.)

Note: Hickman was operated by City of Modesto before 2015. In 2015, the City of Waterford bought this system, so now it is called Waterford-Hickman.

Consideration of the Human Right to Water

Multiple commenters asserted that the State Water Board did not consider the Human Right to Water as it relates to DACs, municipal uses, or other consumptive uses of water in the SED.

The Human Right to Water was enacted on September 12, 2012, through the passage of Assembly Bill (AB) 685, which made California the first state in the nation to legislatively recognize this right. The Human Right to Water policy is codified in Water Code section 106.3 and statutorily recognizes that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." It requires all state agencies to consider the policy when "revising, adopting, or establishing policies, regulations, and grant criteria" when they are pertinent to the uses of water, but does not expand the obligations of the state to provide water or to require expenditure of additional resources to develop water infrastructure beyond those that exist under policies, regulations, and grants.

Nitrate contamination of groundwater in DAC communities was a leading reason, although not the only reason, for the passage of the Human Right to Water. Prior to the legislation, nitrate pollution of groundwater, mainly from industrial agriculture, was recognized as a widespread and serious problem throughout California (Bianchi and Harter 2002). In 2011, Catarina de Albuquerque, the United Nations Special Rapporteur on the human right to safe drinking water and sanitation, visited the United States, including California's Central Valley. In her subsequent report, she found the following.

> The San Joaquin Valley in central California is also experiencing enormous challenges, particularly nitrate contamination, with regard to drinking water, The Valley represents around 10 per cent of the total population of California, with a population of 3.8 million people, 20 per cent of whom live below the poverty line, and 46 per cent of whom are Latino. While nitrates occur naturally at low levels, crop fertilizers, animal manure or septic systems can elevate nitrate levels in drinking water sources. Because it is difficult to assign responsibility for this type of pollution (non-point source pollution), no one is obliged to pay for the clean-up costs. In these circumstances, the affected community inevitably bears these costs. The San Joaquin Valley accounts for over half of the agricultural production of California. It is populated by numerous concentrated animal feeding operations, with an estimated 1.6 million dairy cows and 161,000 beef cattle in 2008; a typical cow produces over 30 tonnes of solid manure per year. It is vulnerable to nitrate contamination because groundwater serves as the primary source of drinking water for almost 90 per cent of its residents. According to the United States Geological Survey, millions of pounds of nitrate (in fertilizers and manure) and pesticides are applied to cropland annually, with some of these chemicals filtering into the groundwater and thereby threatening public health. During the mission, the Department of Agriculture acknowledged the need to address the challenges posed by targeting the small and disadvantaged water systems and noted some initiatives in this regard (UN 2011).

In January 2012, the University of California, Davis, (UC Davis), under contract with the State Water Board, issued its report *Addressing Nitrate in California's Drinking Water* (UCD 2012). The report was required by Senate Bill (SB) 1, Chapter 1, *Second Extraordinary Legislative Session of 2008*, and directed the State Water Board, in consultation with other agencies, to prepare a report to the Legislature to improve understanding of the causes of nitrate groundwater through pilot projects in the Tulare Lake Basin and the Salinas Valley that would, among other actions, identify potential remediation solutions and funding sources to recover costs expended by the state to clean up or treat groundwater and ensure the provision of safe drinking water to all communities (Wat. Code § 83002.5). The UC Davis nitrate report found that "groundwater is essential to California, and nitrate

is one of the state's most widespread groundwater contaminants. Nitrate in groundwater is principally a by-product of nitrogen use, a key input to agricultural production. However, too much intake of nitrate through drinking water can harm human health." In the Tulare Lake Basin and the Salinas Valley study areas, the UC Davis nitrate report found that cropland was the source of 96 percent of the nitrate contamination (UCD 2012). Both the UN Rapporteur's Report on the human right to water and the UC Davis nitrate report were cited heavily in the Legislative deliberations in support of California's Human Right to Water. The Assembly Water, Parks and Wildlife Committee analysis of the bill stated the following.

> Supporters of the bill emphasize that groundwater pollution occurs from various sources, including nitrates, pesticides, industrial chemicals, and some naturally occurring chemicals in high concentrations, and that such contamination can have a substantial impact on human health. For example, the bill's proponents note that between 1997 and 2001, nitrates were detected above regulatory standards in the drinking water supplies of more than 11.2 million Californians, and that the drinking water of 8.5 million Californians was subjected to five or more violations of the standard (AWPW 2011).

The supporters emphasize that such contamination has resulted in limited clean water supplies for a number of communities, especially those which are smaller, rural, and low-income. Supporters argue that citizens in these communities must resort to purchasing costly substitute sources of drinking water, like bottled water, and that these same citizens are often forced to utilize contaminated water for other basic needs, such as bathing and washing dishes, which can result in skin irritation, hair loss, and unknown, long-term health risks (AWPW 2011).

On February 16, 2016, the State Water Board adopted Resolution No. 2016-0010, identifying the Human Right to Water as a top priority and core value of the State Water Board and Regional Water Quality Control Boards (collectively, the Water Boards). The resolution states the Water Boards will work "to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." The resolution cements the Water Boards' commitment to considering how its activities impact and advance the human right to safe, clean, affordable, and accessible water to support basic human needs. The resolution states that the State Water Board will continue to consider the Human Right to Water in all activities that could affect existing or potential sources of drinking water. These actions include revising or establishing water quality control plans, policies, and grant criteria, permitting, site remediation and monitoring, and water right administration. Under the resolution, State Water Board staff will work with relevant stakeholders, as resources allow, to develop new systems or enhance existing systems to collect data and identify and track communities that do not have, or are at risk of not having, safe, clean, affordable, and accessible water for drinking, cooking, and sanitary purposes. State Water Board staff will also work with relevant groups to develop performance measures to evaluate the Water Boards' progress toward making the human right to water a reality, and such information will be made available to the public.

Consistent with Water Code section 106.3 and Resolution No. 2016-0010, the State Water Board has and will continue to consider the Human Right to Water in considering past, present, and probable future beneficial uses of water, including municipal beneficial uses, when considering adoption of the plan amendments in accordance with Water Code section 13241. The State Water Board is acutely aware of and sensitive to the water supply effects disclosed in the SED. It is incorrect to say that the State Water Board ignored the Human Right to Water in the SED. For example, Appendix K, *Revised Water Quality Control Plan*, states that the State Water Board "will also take actions as

necessary to ensure that the implementation of the flow objectives does not impact supplies of water for minimum health and safety needs, particularly during drought periods." The State Water Board will also continue to consider the Human Right to Water in terms of the many technical and financial assistance programs, described in the following section, offered to at-risk communities, including DACs, within the plan area and throughout the state.

Some commenters stated that protecting fish and wildlife uses is prioritizing those uses over the Human Right to Water. Others appeared to equate the reasonable protection of fish and wildlife with not considering or otherwise infringing on the Human Right to Water. It is incorrect that the State Water Board is subordinating or not considering the Human Right to Water if it acts to reasonably protect fish and wildlife in the plan area. That is a misapplication of the Human Right to Water policy. Resolution No. 2016-0010 states that it does not alter the State Water Board's authority and obligations under applicable law—including the State Water Board's obligation and responsibility to establish water quality objectives to reasonably protect beneficial uses, such as fish and wildlife beneficial uses. The Human Right to Water is not an isolated directive. It is a core value integrated into, and implemented through, the State Water Board's programs and activities, including the Office of Sustainable Water Solutions. The State Water Board has an obligation and responsibility to reasonably protect fish and wildlife beneficial uses and, in doing so, has and will continue to consider the Human Right to Water, as explained above.

Environmental justice issues are also important to the State Water Board. As acknowledged in Chapter 22, *Integrated Discussion of Potential Municipal Water Supply Management Options*, the historical effects of reduced surface water supplies have not been felt by communities equally, with "communities of color and low-income people living in tribal, rural, and farming communities often disproportionately [experiencing] impacts on drinking water." The recent drought highlighted this historical problem, which has been exacerbated by the expansion of permanent crops and increased number of groundwater wells in the areas near these communities in the plan area. The plan amendments do not result in these disproportionate effects; rather, it is the local agricultural response to reduced water supplies that ultimately affect groundwater supplies and quality for DACs. And, as described in the following section, it has been the State Water Board that has provided, and will continue to provide, technical and financial assistance to at-risk communities that have been affected by agricultural expansion.

Assistance Programs

Some commenters raised the concern that the plan amendments would disproportionally affect DACs and small public water systems because they lack the necessary financial resources to respond to water supply or water quality issues.

As commenters stated, given their small customer base, many small water systems serving DACs cannot develop or access the technical, managerial, and financial resources needed to comply with new and existing regulations. These water systems may be geographically isolated. Their staff may lack the time and capacity to make needed infrastructure repairs, install or operate treatment processes, or develop comprehensive water quality control or financial plans.

The current groundwater overdraft and its attendant impacts—including land subsidence and dry wells—are legacy issues caused by steady agricultural expansion and have adversely affected DACs

in the plan area and across the state. The State Water Board has offered, and will continue to offer, assistance to small public water systems and DACs as they confront these legacy issues.

As described in Chapter 22, *Integrated Discussion of Potential Municipal Water Supply Management Options*, Section 22.5, *Assistance Programs*, there are state and federal financial assistance programs designed to assist public water systems, particularly smaller systems serving DACs. There are also technical assistance programs designed to assist agencies implementing water supply and water quality projects. These programs are designed to ensure access to safe, clean, and affordable water supplies and maintain compliance with all applicable water laws and regulation. Eligible applicants can apply for and receive funding under these programs; however, approval of the funding is done on a competitive basis. In 2015, the State Water Board created in the Office of Sustainable Water Solution to "promote permanent and sustainable drinking water and wastewater treatment solutions to ensure effective and efficient provision of safe, clean, affordable, and reliable drinking water and wastewater treatment services, focusing on addressing financial and technical assistance needs, particularly for small disadvantaged communities." Such assistance programs include Proposition 1 Technical Assistance (TA) funding, Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF).[5] The following projects are examples of those that the State Water Board had funded in the past.

- In 2015, $165,000 was granted to Plainsburg Elementary School in Merced County, through the Drought Emergency Response program, to build a new well to replace an old well that went dry.
- In 2009, $492,955 was granted to the City of Ceres, through to Drinking Water State Revolving Fund, to build a new well to replace an old well that was contaminated with uranium and nitrate.
- In 2017, a non-repayable grant of $10,349,941 and a loan (at 0 percent interest and 30-year repayment period) of $3,489,243 were given to the Keyes CSD, through Proposition 1, to build an arsenic treatment plant to provide for the continuous removal of arsenic from their well water and to consolidate the four small water systems (a combined total of approximately 2.5 miles of 10-inch and 12-inch water mains to be constructed).

Proposition 1, which was approved by California voters in the November 4, 2014, general election, provided $900 million for a groundwater sustainability program of which the State Water Board is administering $800 million. Proposition 1 requires that at least 10 percent of the authorized funding be made available to projects that serve severely disadvantaged communities (SDACs)[6], and requires a minimum cost share of 50 percent of the total project cost. However, the cost share for projects benefitting a SDAC or DAC may be waived or reduced. The State Water Board adopted the Groundwater Grant Program Guidelines (GWGP) for administering GWGP Proposition 1 funds on May 18, 2016, and subsequently initiated the first project solicitation.

With local matching funds, the total value of the projects supported by state grant funds is more than $40 million (State Water Board 2017a). The eight funded projects include the construction of treatment systems to cleanup groundwater contaminated by past industrial activities; investigations

[5] Details of these assistance programs can be found at: http://www.swrcb.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/#ta.

[6] *Severely disadvantaged communities* are defined, for purposes of that law, as those communities with an annual median household income that is less than 60 percent of the statewide average (Public Resources Code, § 75005 subd. (g).).

into the most cost effective way to remove contamination from aquifers; and proper destruction of old wells to ensure contamination cannot easily travel through the well to drinking water sources. Of the eight projects awarded funding, one project is located in the plan area. The City of Modesto (Stanislaus County) applied for and received a preliminary grant award of up to $943,985 for the Destruction of Water Supply Wells Project. The project includes the request to destroy 14 legacy supply wells that are located in the western section of the Modesto and Turlock Subbasins, and which act as conduits allowing uranium and nitrate contaminated groundwater to impact the City's active drinking water supply sources. The project would eliminate the direct pathways and prevent the spread of contamination to an aquifer that serves as a source of drinking water (State Water Board 2017b).

The next round of solicitation for the GWGP was expected in October 2017(State Water Board 2017a). The State Water Board intends to have annual solicitations for projects until all funds have been expended (State Water Board 2016).

In addition, as required by the Health and Safety Code section 116276, the State Water Board established the Drinking Water for Schools Grant Program for the purpose of improving access to, and the quality of, drinking water in public schools.[7] A total of $9.5 million is available. In addition, technical assistance is available for eligible program applicants serving small disadvantaged communities. The program gives priority to projects for schools within, or serving students from, a small DAC.

Consolidation or Extension of Service

Multiple commenters incorrectly asserted that the plan amendments were a conspiracy to force small public water suppliers to consolidate their services with larger suppliers. Commenters also asserted the result of the plan amendments would be forced consolidation across the plan area.

Consolidation is one tool to help provide safe, affordable drinking water in DACs. Through consolidation or extension of service, existing communities, areas that rely on under-performing or failing water systems, private wells, and that those communities that lack resources to invest in their own public water systems, are integrated into existing neighboring public water systems. This reduces community costs and improves reliability. Water provided by public water systems is subject to regulation by the U.S. Environmental Protection Agency (USEPA) and the State of California. Requirements include regular monitoring and testing for contaminants. Consolidating or extending service from a public water system to a community otherwise served by unreliable systems or unregulated private wells advances the goal of a reliable, accessible supply of safe drinking water to all communities.

Consolidation is a separate program within the State Water Board and, while it has been used outside of the plan area, to date, it has not been used within the plan area. Consolidation authority is not a tool the State Water Board would use to implement the plan amendments. As stated in the *Executive Summary*; Chapter 1, *Introduction*, Section 1.1, *Project Description*; and Chapter 3, *Alternatives Description*, Sections 3.1, *Purpose and Goals*, 3.3, *Lower San Joaquin River (LSJR)*

[7] Details of the program can be found at: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/schools/.

Alternatives, and 3.4, *Southern Delta Water Quality (SDWQ) Objectives*, the plan amendments consist of updates to the 2006 Bay-Delta Plan, which include the following.

- New flow objectives on the LSJR and its three eastside tributaries (Stanislaus, Tuolumne, and Merced Rivers) for the protection of fish and wildlife beneficial uses.
- Revised water quality objectives for the protection of agricultural beneficial uses in the southern Delta.
- A program of implementation to achieve these objectives.
- Monitoring and special studies necessary to fill information needs and determine the effectiveness of, and compliance with, the new objectives.

As stated in the *Executive Summary*, Section ES4, *Purpose, Need, and Goals*, subsection 4.1, *Need for Flow Objectives*, the flow objectives are necessary because the Bay-Delta is in ecological crisis, and fish species have not shown signs of recovery since adoption of the 1995 Bay-Delta Plan objectives for the protection of fish and wildlife.

In 2015, the Resilient, Affordable, Safe Drinking Water for Disadvantaged Communities Framework was created, which identified a series of measures necessary to ensure that all communities have access to safe and affordable water. Since then, the Legislature and Governor Brown have taken important steps toward implementing the actions specified in the framework. Some of the actions include SB 88, by the Senate Committee on Fiscal Review, which gives the State Water Board authority to order the mandatory consolidations of public water systems that do not provide water that meets drinking water standards, as well as SB 552, which requires failing public water systems that serve disadvantage communities to obtain State Water Board approved managerial services to help reach compliance.

SGMAs Role in the Protection of DACs

As described in Chapter 9, *Groundwater Resources*, and Chapter 22, *Integrated Discussion of Potential Municipal Water Supply Management Options*, and mentioned in the Overview section of this master response, declining groundwater levels in the plan area have been primarily the result of supplying existing and expanding agricultural uses with groundwater over several decades. This section discusses the historic groundwater use in the plan area and discusses how SGMA will make groundwater supply more reliable for DACs as well as funding sources for DACs under SGMA.

Historical Groundwater Use

Current groundwater overdraft and its attendant effects are legacy issues and are caused by over-pumping of groundwater for irrigation, expansion of the agricultural land, and demand hardening. As discussed in Chapter 9, *Groundwater Resources*, due to long-term over pumping, groundwater level has declined and groundwater resources have depleted across the state and in the plan area. Groundwater accounts for approximately 38 percent of the total water supply in the SJR Hydrologic Region (DWR 2013); however, a majority of groundwater supplies (81 percent) is used for agriculture, while 13 percent goes to municipal use, and the rest (6 percent) goes to meet managed wetlands use in the region. Therefore, municipal use of groundwater is very small when compared to agricultural uses in SJR Hydrologic Region. The general decline in groundwater levels in the

region is primarily a result of extensive groundwater pumping to sustain and expand agriculture (Chapter 9, Section 9.2.1, *San Joaquin Valley Groundwater Basin and Subbasins*). As discussed in Chapter 9, two of the four subbasins underlying the study area (Eastern San Joaquin and Merced) are designated as high-priority and critically overdrafted (DWR 2016). The other two are designated as high priority (Modesto and Turlock).

Despite the recent worst drought ever recorded in the state, during which urban water agencies were mandated to 25 percent conservation, the agricultural sector thrived, in part because of groundwater pumping, but also because of high commodity prices during this time (e.g., milk). As described in Master Responses 3.5, *Agricultural Resources*, 8.1, *Local Agricultural Economic Effects and the SWAP Model*, 8.2, *Regional Agricultural Economic Effects*, and shown in Figure 2.7-1, total agricultural productions in California continued to increase annually during the drought (Weiser 2016), especially the permanent crops (walnuts, pistachios, almonds). A shown in Figure 2.7-1, the percentage of nut production of the total agricultural production in California rose from 2 percent in 1980 to 17 percent in 2015. Such a transition to permanent crops across the state and in the plan area has been underway for many years. This has required growers to steadily increase groundwater pumping to sustain permanent crops in areas already heavily reliant on groundwater.

As discussed in Chapter 13, *Service Providers*, many San Joaquin Valley cities rely on groundwater either in whole or in part to meet municipal needs. While municipal wells are typically deep wells, deep wells are expensive to construct, operate, and maintain (see Chapter 16, *Evaluation of Other Indirect and Additional Actions*, and Chapter 22, *Integrated Discussion of Potential Municipal and Domestic Water Supply Management Options*, for further discussion of the cost of wells). As a result, small public water systems serving DACs often rely on shallower wells, as do private individuals. Such wells are at the greatest risk of going dry due to the ongoing overdraft of groundwater for irrigation purposes in the San Joaquin Valley.

SGMA was passed by the Legislature as a way to address the overdrafting of groundwater basins in California (Chapter 9, Section 9.3.2, *Regulatory Background [State]*; Chapter 13, Section 13.3.2, *Regulatory Background [State]*). According to studies used to support enacting the legislation, 64 percent of the groundwater loss that occurred in the Central Valley occurred specifically in the San Joaquin Valley, with 75 percent of the cause being groundwater pumping to irrigate crops (NASA 2009). With the passage of SGMA, local agencies are, for the first time, being required to plan for and achieve sustainable groundwater basins, including protecting against overdraft and water quality degradation. In doing so, they are required to consider the interests of DACs, including those served by private domestic wells and small community water systems. (Wat. Code, § 10723.2., subd. (i).)

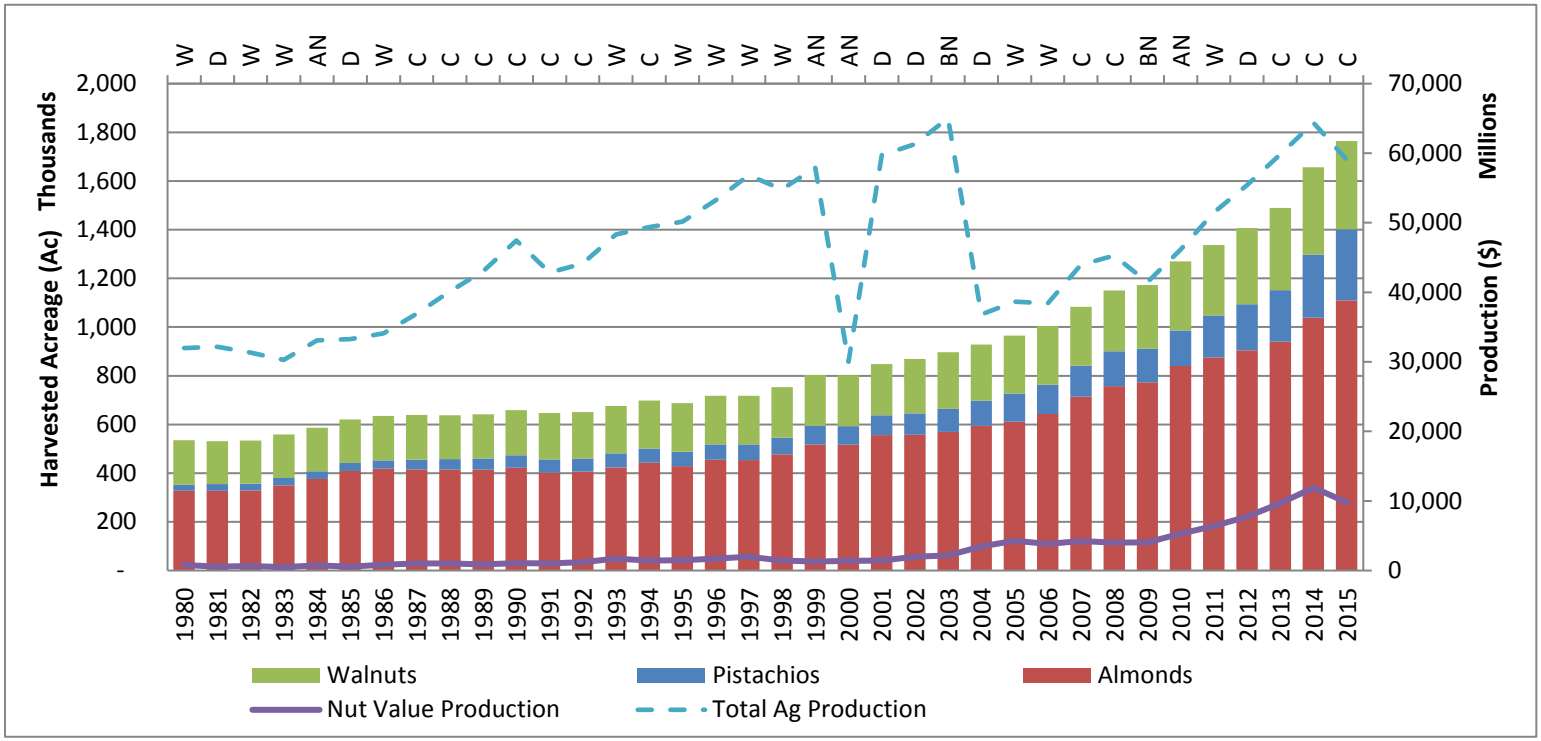

Figure 2.7-1. Nut (Walnuts, Pistachios, and Almonds) Harvested Acreage and Production vs. California Total Agricultural Production (Water Year Types: W = wet; AN = above normal; BN = below normal; D = dry; C = critical)

(Source: USDA 2017.)

Consideration and Protection of DACs in SGMA

As discussed above, DACs are vulnerable to decline in groundwater level because the wells used to supply groundwater tend to be shallower than wells operated by large public water systems. Some commenters asserted that the water supply of DACs would be jeopardized if the agriculture sector pumps more groundwater in order to compensate for potential reductions in surface water supplies instead of reducing current levels of consumptive use or making other adaptations. The commenters raised a critical issue of addressing groundwater sustainability in Central Valley. The State Water Board acknowledges that this is an existing challenge because agricultural irrigation is the majority of water use in the plan area. Therefore, the solution will be directly related to choices made about agricultural water use at local level and compliance with SGMA.

Although GSPs, are not yet developed, SGMA grants GSAs the authorities to sustainably manage their groundwater resources in order to ensure that the groundwater basin is operated within its sustainable yield and to ensure a more reliable local water supply for water users, including DACs and small water suppliers that rely solely on groundwater as source of their water supply and to meet public health needs.

As discussed in Master Response 3.4, *Groundwater and the Sustainable Groundwater Management Act*, SGMA is intended to manage and use the "groundwater in a manner that can be maintained during the [50-year] planning and implementation horizon without causing undesirable results" (Wat. Code § 10721 subd. (u).) The six specific conditions from groundwater pumping that are listed as "undesirable result[s]" if they rose to the level of "significant and unreasonable" are overdraft, groundwater storage reductions, saltwater intrusion, water quality degradation, land subsidence, and depletions of interconnected surface waters that impact beneficial uses of surface waters (Wat. Code § 10721 (w).)

SGMA explicitly requires that GSAs consider the interests of "[d]isadvantaged communities, including, but not limited to, those served by private domestic wells or small community systems" (Wat. Code § 10723.2.) SGMA requires GSAs to identify interested parties, including DACs, holding overlying groundwater rights within the proposed boundary of the GSA, in their GSA formation notifications submitted to DWR. Twenty-four GSAs were formed for the four subbasins underling the plan area (please see Master Response 3.4, Table 3.4-1, for a list of the GSAs). Of the 24 GSAs, 22 identified the presence of DACs within their GSA boundaries, with one GSA (the Merced Subbasin GSA) identifying specific DACs by name. In their formation notices, all of the GSAs have stated their intention of incorporating input from the DACs and collaborating with them during GSP development pursuant to Water Code Section 10723.2. In this way, DACs will be empowered to ensure their interest is protected through the implementation of SGMA. SGMA specifies that GSPs must prevent a chronic lowering of groundwater levels including a significant and unreasonable depletion of supply if occurring over the planning and implementation horizon (Wat. Code § 10735.2.) If GSPs in the plan area are adequate, groundwater levels should stabilize and, therefore, groundwater supply to the DACs will be protected.

Moreover, under recent legislation (Assembly Bill No. 1668 [2017-2018 Reg. Sess.]), DWR, in consultation with the State Water Board, is required to use available data to identify small water suppliers and rural communities that may be at risk of drought and water shortage vulnerability by

January 1, 2020.[8] (Wat. Code, § 10609.42, sugd. (a).) DWR is required to notify counties and GSAs of those suppliers or communities that may be at risk within its jurisdiction. (*Ibid*.) This notification will further ensure that GSPs protect groundwater supplies for DACs.

Funding Sources for DACs to Prepare GSPs

DWR released the Draft Proposal Solicitation Package (PSP) for GSPs and projects. DWR is administering the Sustainable Groundwater Planning Grant Program, using funds authorized by Proposition 1, to encourage sustainable management of groundwater resources that support SGMA. This PSP is making a total of approximately $86.3 million available, with at least $10 million made available to projects that serve SDACs and the remaining amount for planning, development, or preparation of GSPs. Eligible projects for this PSP must address high- and medium-priority basins as identified in DWR Bulletin 118 or a non-adjudicated portion of one of these basins. As mentioned above, all the four subbasins underlying the plan area are designated as high priority subbasins. Therefore, DACs located in these basins are eligible for the dollars available under the PSP. The first phase of the solicitation was open for 9 weeks, and final grant awards were announced in April 2018. Merced Irrigation District was awarded $2.4 million for groundwater subbasin sustainability (DWR 2018).

Example eligible SDAC projects include the following.

- Vulnerability assessments.
- Develop feasibility studies to evaluate sustainable groundwater management projects for SDACs.
- Design and environmental planning of sustainable groundwater management projects for SDACs.
- Technical assistance for SDACs to gather information and participate in groundwater sustainability planning activities.
- Evaluate the groundwater management needs of SDACs, including actions that foster engagement of SDACs in sustainable groundwater planning activities.
- Install and instrument a groundwater production well.
- Connect communities on degraded groundwater to municipal supplies.
- Retrofit existing groundwater well system to have water treatment capabilities.
- Installation of meters on groundwater production wells.
- Instrumentation of monitoring wells with pressure transducers.

[8] This legislation also assists DACs because it requires DWR, in consultation with the State Water Board, to propose to the Governor and the Legislature recommendations and guidance relating to the development and implementation of countywide drought and water shortage contingency plans to address the planning needs of small water suppliers and rural communities. (Wat. Code, § 10609.42, subd. (b).) The guidance is required to outline goals of the contingency plans and recommend components including actions to reduce drought vulnerability. (*Ibid*.)

Eligible GSP project types include those activities associated with the planning, development, or preparation of GSP(s) that will comply with and meet the requirements of the GSP Regulations (DWR 2017b).

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