



Water and Resource Conservation

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MEMORANDUM

DATE: June 30, 2022 – Drought Task Force and July 6, 2022 – Water Commission
TO: Drought Task Force and Water Commission
FROM: Kamie Loeser, Director Water and Resource Conservation
RE: Drought Impact Analysis Study Recommendations to the Board of Supervisors

BACKGROUND

On December 14, 2021, the Board of Supervisors approved a contract with Luhdorff and Scalmanini Consulting Engineers (LSCE) to conduct a 2021 Drought Impact Analysis Study (Drought Study). The purpose of the study was to evaluate and understand the impacts of drought conditions in 2021. It was anticipated that based on the study's findings, the Drought Task Force (DTF) and the Water Commission (WC) would then identify recommendations for the Board of Supervisors to consider in response to the continued drought emergency in 2022 and plan for future drought resiliency.

A presentation of content from the draft Drought Study was given to the Butte County Board of Supervisors (Board) on April 26, 2022. Edits and additions were made per the Board's input. The final Drought Study was released mid-May with a public webinar conducted by LSCE on June 1, 2022.

An overview of the document was provided to the DTF on June 7, 2022 and the WC on June 8, 2022 for information and discussion. It was anticipated that recommendations from the DTF and WC would go before the Board at their June 14th meeting. However, due to the timing of the release of the final Drought Study, meeting dates of DTF and WC, as well as planned Board agenda items for June 28th and only a single Board meeting in July, it is anticipated that the DTF and WC recommendations will be presented at the Board's July 26, 2022 meeting.

[Current Drought Response Activities](#)

The focus of current drought response activities is to address immediate needs caused by circumstances of the drought emergency. These activities will continue through the duration of the drought and will adjust as needed.

Drought Webpage

Butte County's Department of Water and Resource Conservation (DWRC), Office of Emergency Management (OEM) and Administration have been working collaboratively to update the County's website to provide drought related information and resources. A webpage, www.buttecounty.net/drought has been specifically dedicated and designed to be a clearinghouse for current drought information.

Drought Assistance Program

OEM was awarded \$1.16M from the California Department of Water Resources (DWR) for a local drought response program to provide drinking water to residents without access to clean water. This program has three parts which have been initiated by OEM: 1) an emergency water filling station program, 2) potable water delivery for homes with water storage tanks, and 3) provision of temporary portable water storage tanks at homes without them.

Emergency Water Filling Station – Similar to what was done in the fall of 2021, OEM is working with CalWater to set up a location in the Chico area where residents can fill their portable tanks with potable water. OEM is finalizing the contract agreement with CalWater and putting a volunteer group together to run the station.

Water Deliveries and Storage Tanks – The Butte County Drought Assistance Program will provide drinking water deliveries to residents without access to clean water. The first phase of the project will provide up to 5,000 gallons per month per household for residents who have a storage tank. The second phase will provide temporary storage tanks to residents who don't have them already installed. There are three ways to sign up for the program, which is free to all qualifying residents of Butte County:

- Complete the [online application](#)
- Call the Butte County Office of Emergency Management at 530.552.3333
- Visit the Butte County Office of Emergency Management located at 25 County Center Drive, Suite 213 in Oroville

OEM, DWRC, and the Division of Environmental Health (EH) are encouraging residents with dry or non-performing wells to visit: <https://mydrywell.water.ca.gov/report/> and report their issues. Tracking this information allows the County to apply for more grant funding that will provide more robust drought solutions.

Implementing the Drought Preparedness and Mitigation Plan

The Drought Preparedness and Mitigation Plan (Drought Plan) was adopted by the Board of Supervisors on October 26, 2004 and components are currently being implemented in response to the current drought emergency. The purpose of the Drought Plan is to provide an efficient and systematic process for Butte County that results in a short- and long-term reduction in drought impacts to the citizens, economy, and environment in Butte County. In addition, the Drought Plan

identifies mitigation that can help with the reliability of water supply for other California communities when resources are available.

The Drought Plan established the DTF, which is comprised of various County Department Directors and other identified stakeholders. Per the Drought Plan, it is the responsibility of the DTF to monitor and report on drought forecasts and conditions, identify resource information gaps and recommendations to address them, and identify and respond to information needs of other identified working groups. In addition, the Drought Plan established a continuous monitoring and reporting system, including monitoring and reporting hydrologic conditions throughout the water year. The Drought Plan also identifies response and mitigation efforts for urban, agricultural, environmental water uses, and specialized needs of remote communities.

[Meeting Requirements of Senate Bill 552](#)

Senate Bill 552 Drought Planning for Small Water Suppliers and Rural Communities (SB 552), was signed into law approved on September 23, 2021, adding a new section to the Water Code. These new requirements are expected to improve the ability of Californians to manage future droughts and help prevent catastrophic impacts on drinking water for communities vulnerable to impacts of climate change. SB 552 outlines the new requirements for small water suppliers, county governments, California Department of Water Resources (DWR), and the State Water Board to implement more proactive drought planning and be better prepared for future water shortage events or dry years.

Requirements of SB 552 that are specifically applicable to Counties are:

- Create a standing Drought & Water Shortage Task Force for state small water systems (serving 5 to 14 connections), domestic wells, and other privately supplied homes within the County's jurisdiction.
- Develop a plan demonstrating the potential drought and water shortage risk and proposed interim and long-term solutions for state small water systems and domestic wells.

These requirements may be implemented as part of other existing committees and/or planning processes. Therefore, the DTF and Drought Plan initially fulfill the requirements of SB 552; however, the Drought Plan needs to be updated to include specific discussions pertaining to small water systems and domestic wells.

[Upcoming Drought Planning and Response](#)

As stated previously, the purpose of the Drought Study was to evaluate and understand the impacts of drought conditions in 2021 and use the information to identify recommendations for the Board of Supervisors to consider in response to the continued drought emergency in 2022 and plan for future drought resiliency. The Drought Study identified several "next steps" to improve drought resiliency, which are discussed in more detail in Chapter 7 of the study. In addition, the WC and DTF met on June 6 and 7, 2022, respectively, to discuss the Drought Study and identify topics of concern. Both the WC and DTF directed DWRC staff to identify the recommendations in

the Drought Study and develop additional recommendations, as applicable, to bring back for review and input, then subsequently present to the Board of Supervisors for consideration and approval.

Provided below is a summary of the Drought Study chapters. In addition, some previously discussed drought response activities fall within the scope of the DWRC Strategic Plan or the purview of GSAs. The following sections describe these areas of overlap followed by a section with a series of recommendations for discussion and consideration by the WC and DTF.

Drought Impact Analysis Study Overview

Chapter 1 provides an overview of the ground-water basins within Butte County, summarizes surface water features (reservoirs, rivers and creeks) within the wider Northern Sacramento Valley; provides a brief discussion of how groundwater management occurs through local groundwater sustainability agencies (GSAs) and how these GSAs align and manage specific basins with the Northern Sacramento Valley.

Chapter 2 describes the area basin settings, including current and historical conditions, such as climate, streamflow, groundwater elevation changes, reservoir levels, reported dry wells, details on well completion reports, land use (i.e., agricultural acreage), historic and current drought restrictions ecosystem response and increased fire concerns related to current drought conditions.

Chapter 3 describes how the conveyance of water through Northern California occurs, which agencies participate in water transfers, how water transfers are implemented through different programs (i.e., crop idling, groundwater substitution, or reservoir releases), and how these programs are managed. Chapter 3 also details specifics on where transfers occurred, how much water was transferred, and the average price received for these transfers. Lastly, the impacts to water resources are also detailed in this Chapter.

Chapter 4 describes how groundwater use was estimated in Butte County. Demand is presented for different sectors including agricultural, domestic, and municipal (in the subbasins and within the Foothills). This chapter also compares 2021 pumping demands to sustainable yield estimates from previous studies [i.e., recently completed Groundwater Sustainability Plans (GSP)].

Chapter 5 discusses how an understanding of groundwater levels, and the direction of flow is essential to sustainable groundwater management. This includes both the spatial and temporal variations in groundwater. Historical and current groundwater levels throughout the Northern Sacramento Valley were evaluated using data obtained from public databases. To gain a perspective, groundwater elevation contour maps and groundwater change maps (Spring 2019 – Spring 2021) were created for shallows wells [perforated less than 200 feet below the ground surface (bgs)], intermediate wells (perforated below 200 feet bgs and less than 600 feet bgs) and deep wells (perforated below 600 feet bgs).

Chapter 6 provides an overall assessment of the economic costs of the 2021 drought, specific to agriculture, public water supply, domestic wells, government, and ecosystem services (i.e.,

wetland habitat and wildfires). Cost is differentiated between direct and indirect costs. Direct cost is related to how the lack of water affects a specific entity.

Chapter 7 provides an assessment of the drought risk based on user and type of use, discusses regional policies to strengthen drought response, provides guidance on the development of drought response metrics to minimize future drought impacts, includes an approach to filling data gaps and identifies future funding opportunities to fund drought resiliency projects.

DWRC Strategic Plan Activities

On June 14, 2022, the Board of Supervisors approved the DWRC 2022-2027 Strategic Plan. The following recommendations or topics raised during the Drought Study discussions with the DTF and WC are similar to the activities included in DWRC Strategic Plan; therefore these items are expected to be implemented or addressed by the Department over the next five years:

- Continue to participate in regional water planning efforts, including but not limited to the Northern Sacramento Valley IRWM Plan and applicable GSP five year updates and integrate any County drought policy updates during the process.
 - Plan County policy updates during the 2022-24 period (consistent with IRWM and SGMA goals and objectives) so that when IRWMP and GSPs are updated the County will be prepared to integrate their updated drought-related policies accordingly.
- The County should engage in and coordinate through the IRWM and GSA processes on a regular basis to ensure that its priorities are included in future updates.
- The County should compare drought data gaps with GSP monitoring networks and data gaps to optimize and synthesize additional groundwater data and information collected to improve the long-term sustainability of the subbasin.
- Public outreach should be further developed to support the major drought planning and response elements. Refer to Table 7-4 in the Drought Impact Analysis Study for suggested drought planning activities associated with various drought stages.
- The Drought Task Force should include Emergency Operations, Administration, Water Resources, Finance, and Public Works staff, local agencies and water professionals, and others that can achieve an effective public outreach program.
- The County's update of its Drought Preparedness Plan should include or expand Outreach strategies to coincide with drought response triggers and corresponding actions to mitigate future drought impacts on all users.

In addition, it was noted by County Division of Environmental Health staff that they will be initiating an update of the Butte County Code 23B, Water Well Ordinance in the 2022/23 fiscal year.

Implementation of Groundwater Sustainability Plans (GSPs)

Some of the topics raised by the DTF, WC, and public in June are under the purview of the GSAs and are part of the implementation of GSPs. As per the Department's Strategic Plan, *Goal 2- Produce Data, Information, and Analyses on Water Resources*, staff will partner with and provide

technical assistance to the GSAs in implementing their GSPs, as applicable. The GSPs for the Vina, Wyandotte Creek, and Butte subbasins each contain a list of projects and management actions that will assist the GSAs in meeting their sustainability goals. Projects are categorized into several project types, including, but not limited to direct and in-lieu recharge, intra-basin water transfers, water recycling, demand conservation, and monitoring. Example projects include: monitoring groundwater levels and water quality, shallow monitoring for interconnected surface water and impacts on groundwater dependent ecosystems, inter-basin coordination, implementing agricultural irrigation efficiency, and Flood-MAR and surface water supply and recharge projects, updating the County well permitting ordinance, extending orchard replacements, and providing community water education. The GSAs are currently in the process of developing the scope of work for many of these projects and will be pursuing Sustainable Groundwater Management Grant Program funding through DWR for the implementation of GSP projects.

Topics that were raised in June at the DTF and WC meetings that could be addressed by the GSAs and implementation of their GSP include:

- Promote water use efficiency.
 - Pumping Timing program – coordinate/stagger time of use by neighborhood to reduce impacts to adjacent domestic well owners
 - Hours of operation, gallons per minute
 - Promote the use of dual source irrigation – also encourage those with intact surface water rights to keep using it and maintain infrastructure (i.e., ditches cleared) for use; keep surface water as a viable water source
- Flood/Ag-MAR, off stream surface water diversions to adjacent land in high water flow conditions
- More analysis of the amount of water used by crop and patterns of planting to understand net increase of [water use] shifting from field to orchard crops
- Consider impacts to Groundwater Dependent Ecosystems (GDEs) and urban tree canopies
- Environmental impacts and cumulative impacts, recommendations from consultants on monitoring approaches [particularly regarding GDEs and interconnected streams].
- Interbasin groundwater flow modeling
- Investing in more surface water storage

Recommendations for Consideration and Discussion

Department staff has taken the “next steps” recommendations from the Drought Study and the drought related topics discussed during the DTF and WC meetings and grouped them into categories to help guide the review process and determine what additional drought response, planning, and mitigation activities should be considered. Ultimately, it is anticipated that recommendations would be incorporated into the Drought Plan, per direction of the Board.

1. Drought Plan Update

Much of the information in the 2004 Drought Plan is outdated and should be updated to reflect current regulations, including SB 552, specifically with regard to small water systems and domestic well owners.

In addition, the Drought Plan should be revised to incorporate existing County processes and responses to drought, particularly in light of 2021 drought needs and response activities as well as the OEM's anticipated drought relief projects for 2022. These drought relief projects include emergency water stations, water hauling, and temporary storage tanks.

New State regulations, i.e., SB 552, necessitate the need to update the County's Drought Plan, which is also a recommendation of the Drought Study. Therefore, Department staff recommends the following:

Potential Recommendation 1: *As funding becomes available, update the Drought Plan to comply with the provisions of SB 552 and incorporate drought response, planning, and mitigation recommendations to include the following:*

- *Develop metrics that monitor and report on drought and water shortage risk for small water systems and domestic water uses.*
- *Identify data gaps and develop strategies, metrics, or tools that provide better information to water managers in a timely manner that could facilitate proactive drought management policy before impacts become too severe. Refer to Table 7-3 in the Drought Impact Analysis Study for list of existing data sets and data gaps that could be used to provide drought cycle updates.*
- *Incorporate existing County processes and responses to drought, particularly in light of 2021 drought needs and response activities as well as the Office of Emergency Management's drought relief projects for 2022.*

2. Other Drought Study Recommendations

Staff has compiled the Drought Study "next steps" into recommendations for consideration by the DTF and WC to be forwarded to the Board of Supervisors for review and approval. Recommendations address 1) risk assessment by assessing drought risks by user and type of use, 2) drought response metrics, 3) pursuing funding opportunities, 4) domestic well replacement program, and 5) future reporting and data needs.

Risk Assessment

Risk assessment is the best approach to determine how Butte County can identify, mitigate, and manage drought related risk for the agricultural, urban, domestic, and environmental uses (including recreation) and sectors. Section 7.1 of the Drought Impact Analysis Study suggests:

- Small systems and domestic systems should be a major focus of drought mitigation and should be a high priority in developing county programs and policy to reduce the impact of future water shortage conditions.

- Use DWR tools to assess drought and water shortage vulnerability for small water systems on an as-needed basis.
- Use and review of the drought and water shortage risk scores for small community water systems and self-supplied systems (i.e., domestic wells) and use them as a screening tool to identify higher risk systems in terms of water shortage risk and drought resiliency for planning drought response policies to mitigate risk during future drought cycles.

Potential Recommendation 2: *Identify screening tools, including the use of DWR dashboards, to assess drought and water shortage vulnerability for small water systems and self-supplied systems (domestic well users). Evaluations would include both agricultural and domestic well vulnerability. Incorporate a Risk Assessment discussion into the Drought Plan and include a “potential drought risk” discussion as part of DWRC Annual Groundwater Status Report to Board of Supervisors per Chapter 33.*

Drought Response Metrics

The Drought Study suggests that the County develop new drought response metrics based on data and observations from the 2012-2016 and current drought cycles that may provide early warning benefits to avoid potential groundwater impacts during multi-year drought events. Refer to Section 7.3 of the Drought Impact Analysis Study for specific metrics suggestions.

Potential Recommendation 3: *Develop and incorporate into the Drought Plan, drought response metrics that establish risk thresholds that trigger actions to be taken in critically dry/multiple dry year drought events. Identify specific actions that would be taken to reduce drought risk. Metrics should be developed demarcating between the valley and foothill areas and potentially have different metrics for these areas for assessing drought risk. Identify appropriate drought mitigation.*

Drought Funding Opportunities

Recommendations in the Drought Study included pursuing drought funding opportunities.

- The County should continue to pursue outside grant funding opportunities and leverage outside funding sources to update key drought policy and management objectives.
- Consider local approaches to augment outside funding opportunities. The goal would be to use these funding sources and grants to improve the County’s drought resiliency with a focus on regional water opportunities and small systems and domestic wells mitigation programs.

Potential Recommendation 4: *Continue to pursue outside grant funding opportunities and leverage outside funding sources to update key drought policy and management objectives and prepare a comprehensive update of the Drought Plan.*

Domestic Well Replacement Program

The Drought Study states that the County should consider submitting an application to the currently available County-wide and Regional Funding Program in 2022 to fund a Small System and Domestic Well Replacement Program to mitigate some of the impacts felt by small well users during the current drought cycle. The funding program is for counties or eligible partner entities to receive funding to implement regional programs that address drought-related and/or contamination issues for state small water systems (state smalls) and domestic wells serving disadvantaged communities (DACs) and low-income households. If a proposed program includes provisions for domestic well replacement, general eligible costs include: water quality sampling and laboratory analysis; design; permits and connection fees; new well construction, well replacement, well rehabilitation/repair, well abandonment; distribution/conveyance pipelines (up to the point of entry of household); and all necessary appurtenances.

The County does not currently have a well replacement program, although a domestic well mitigation management action has been included as a Vina and Wyandotte Creek Subbasin implementation project in their respective GSPs. Because there are many factors that should be considered when developing and implementing a well replacement program, the Department is requesting input from the DTF and WC.

The Vina GSP program is outlined as follows:

Domestic Well Mitigation

If an increasing number of domestic groundwater wells go dry in the Vina Subbasin, the GSAs could propose a series of steps to help mitigate this issue. The following steps are proposed under this management action:

1. Establish a voluntary registry of domestic wells.
2. Compile domestic well logs, screen depths, and locations.
3. Secure financial resources to improve, deepen or replace select domestic wells.
4. Provide emergency response to homes with dry domestic wells, including supplying bottled water and potable water for sanitation.

Priority would be given to disadvantaged communities dependent on groundwater as a drinking water resource. Creating a registry of domestic wells in the region, with information on well location and screen depths, would help the GSAs compile important data into a centralized location. This would allow the GSAs to determine which wells need to be updated to the current standards and which may need to be deepened, as well as to help them prioritize certain communities for emergency response.

Discussion Question for Direction: *Should the County develop a domestic well mitigation program for inclusion in the Drought Plan and/or the GSPs?*

Future Reporting and Data Needs

The following topics were raised by either the DTF, WC, or public pertaining to the Drought Study.

- Expand the scope of the [Drought] report to include adjacent counties – Glenn, Colusa and Tehama
- Analyze / report on post drought recovery aspects that have occurred in the past (economic, environmental, water resources)
- More analysis of cost of agricultural water – should include the cost of surface water but also an evaluation of costs related to owning and using a well and pumping costs relative to the depth of the well

Discussion Question for Direction: *Should the County fund and prepare the Drought Impact Study for subsequent future drought years? If so, what should the scope of the study include?*

Potential Recommendation 5: *The data and metrics to track and report drought conditions to the Board of Supervisors during wet, dry and drought water years should be defined in an update to the Drought Plan using the Drought Study as a guide.*

Summary

Based on the information and potential recommendations provided above, Department staff is seeking input and recommendations that would be brought forward from the DTF and WC to the Board of Supervisors for inclusion in a Drought Plan Update and/or implementation as appropriate.