



**AGENCY:** City Council  
**MEETING DATE:** September 13, 2021  
**DEPARTMENT:** City Manager/Public Works  
**PRESENTED BY:** T. Miller  
**EMAIL ADDRESS:** [tmiller@fortbragg.com](mailto:tmiller@fortbragg.com)

## AGENDA ITEM SUMMARY

### **TITLE:**

**Receive Report, Conduct Public Hearing, and Consider Adoption of City Council Resolution Declaring a Stage 4 Water Crisis and Implementing Stage 4 Mandatory Water Conservation Measures**

### **ISSUE:**

The City of Fort Bragg Municipal Code Chapter 14.06, Water Conservation, updated on July 12, 2021, provides the City Manager with the discretion to determine whether the system's water supplies and sources available are sufficient to meet the current customer demands on the system after considering all relevant factors. The City Manager shall consider, among other things: 1) any variations in the reliability of the water supplies available to the system; 2) availability of well or other nonpotable water to meet the nonpotable demands on the water system; 3) weather forecast and other factors that impact flows in the City's surface water sources; and 4) the success, or lack thereof, of previous declarations of a less stringent water conservation stage in meeting the water-use reductions sought by the City.

While Chapter 14.06 provides that the City Manager determine the stage of water conservation, it requires the City Council to declare by resolution a Stage 4 Water Crisis, after a properly noticed public hearing. A final recommendation to the City Council on whether to declare a Stage 4 Water Crisis will be provided at the September 13, 2021 public hearing. There are too many factors and scenarios to make that recommendation as of writing this staff report but the next 30 days could be critical to the City's water supply.

### **ANALYSIS:**

The months of September and October 2021 will be key to determining how well Fort Bragg managed the drought emergency this year. These months will also provide the City with invaluable information to prepare for what could be a third year of drought in the summer and fall of 2022. The impact from the high tides increases as the flows in the Noyo River drop over the course of the summer and early fall. At the start of September, the flows in the Noyo River are at record lows. This means that even during low tides the amount of water the City is able to pump from the river is limited and during high tides the saline content makes the water untreatable in the City's Water Treatment Plant.

The Summers Lane Reservoir levels were at capacity at the beginning of September, but we project using water from the reservoir for most of September to subsidize the limited amount available in the Noyo River. The arrival and implementation of the Desalination-Reverse Osmosis Treatment System so that Noyo River water can be treated during high tides and the Ground Water Treatment System to convert the FBUSD irrigation well water into potable water are critical to stabilizing the City's water supply. Both systems are

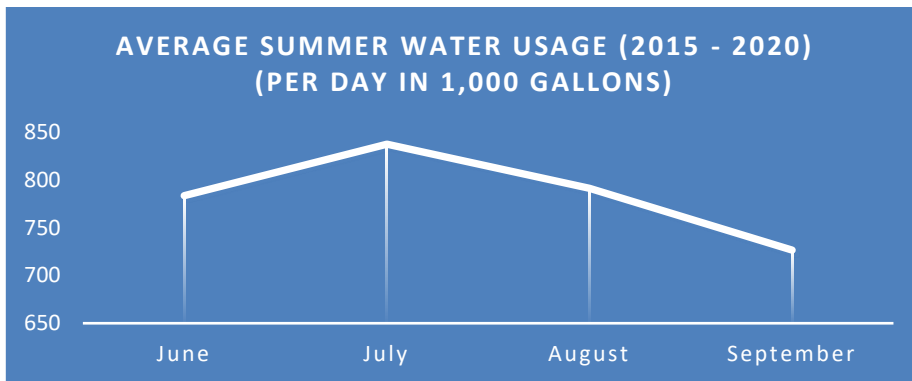
estimated to arrive near the end of September. The supply chain challenges that are plaguing industries and governments around the world are also challenging the City's suppliers' abilities to build the treatment systems and ship them to northern California. Any additional delays in receiving the treatment equipment will place additional stress on the City's water supply.

### Water Supply Available

As explained before, the City of Fort Bragg's water supply system relies solely on three surface water sources: Waterfall Gulch (tributary to Hare Creek), Newman Gulch (tributary to Noyo River), and the Noyo River (diversion at Madsen Hole). In 2015, the City's water supply system could only store small amounts of water that provided enough to maintain proper water system pressure and to provide a safety margin for fire-fighting flows. Six years later, the City has made progress with water storage with the addition of a 1.5 million gallon finished water storage tank and the Summers Lane Reservoir with a raw water capacity of 14.7 million gallons. This brings our total water storage capacity to 22.6 million gallons, which is approximately 30 days of storage with average daily use, including water loss during production, of 750k gallons.<sup>1</sup>

During the winter and spring, pumping of the Noyo River is used only to supplement the Waterfall Gulch and Newman Gulch sources. The two tributary sources generally provide a higher quality of raw water and gravity-feed to the water treatment plant, whereas water from the City's Noyo River diversion must be pumped.

As summer progresses and the flows in the tributary streams diminish, the Noyo River diversion is used more frequently and in greater quantities. In July, Waterfall Gulch and Newman Gulch provide approximately 40% of the City's water needs and 60% of summer water supply comes from the Noyo River. In August, the Noyo River provided less than 50% of summer water supply. The shortage was filled by conservation and temporary use of the Summers Lane Reservoir. As the water levels in the Noyo River drop and the high tide levels rise, increased salinity levels in the Noyo River impact the City's ability to pump from this water source. City water usage typically peaks in July as seen in the graph below.

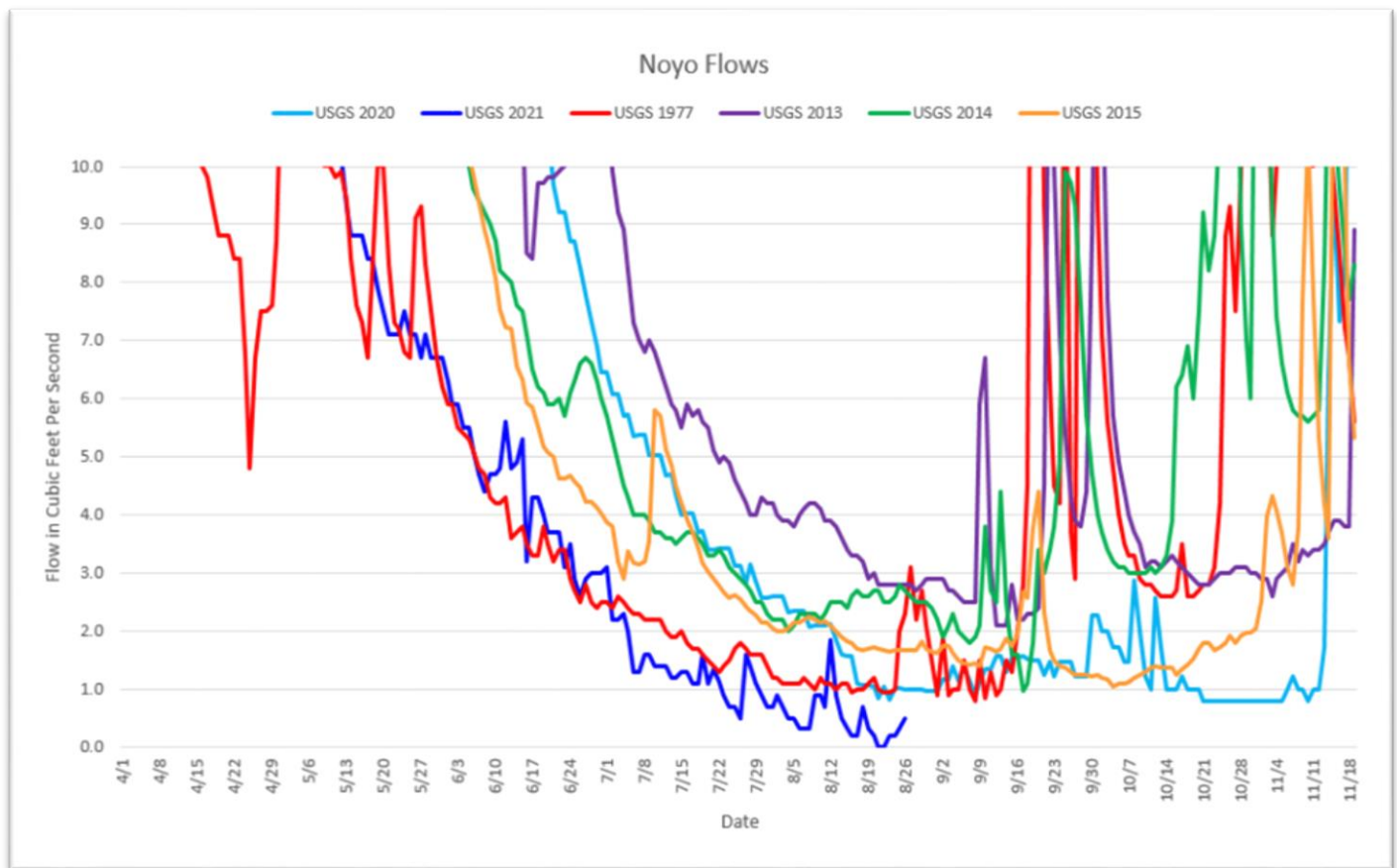


Most of the year, the City's three surface water sources exceed the City's daily usage. During these times, the 22.6 million gallons of storage is regularly replenished and remains

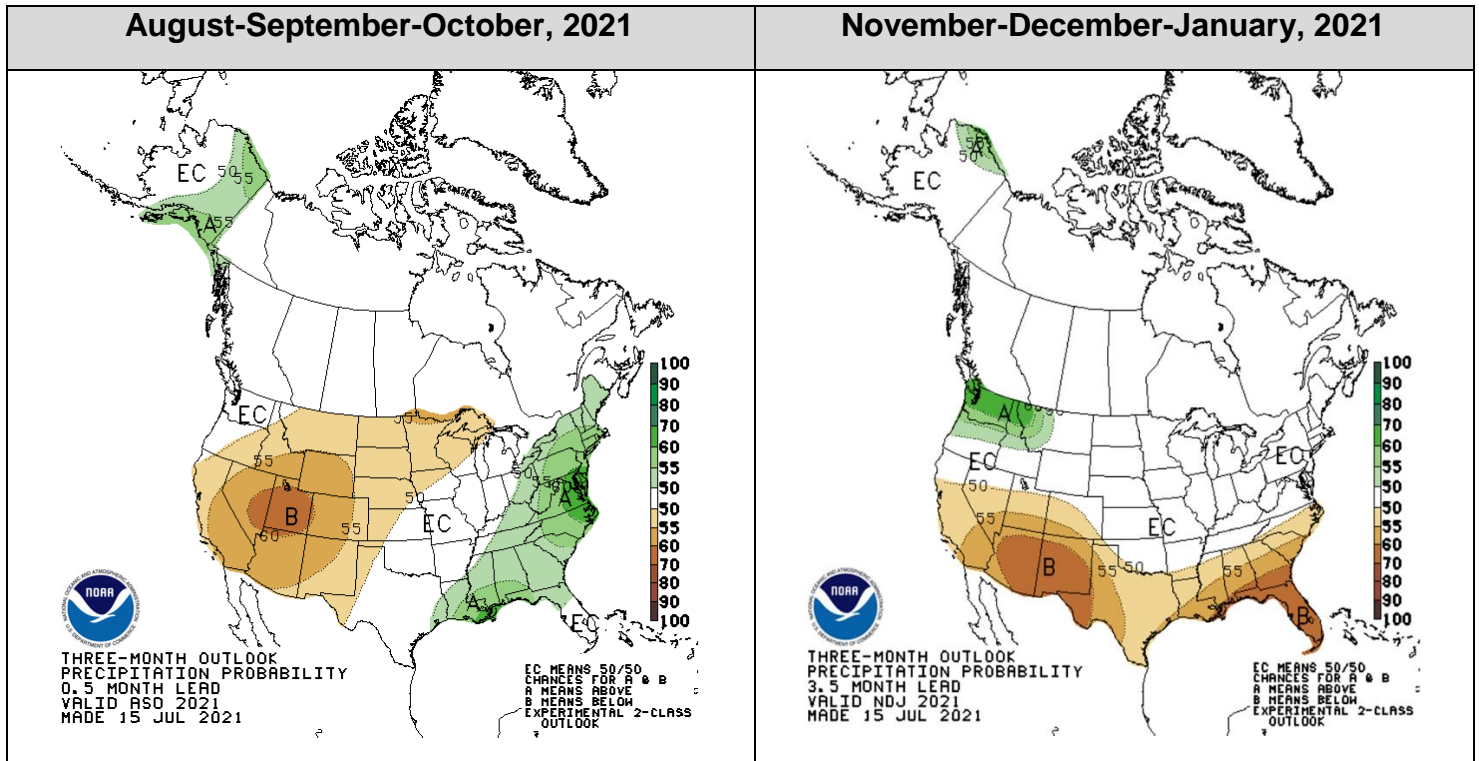
<sup>1</sup> Successful water conservation restrictions and reduced usage in the fall months will extend the 30 days of supply.

at capacity. Excess available water continues to feed the river or streams down water from the source. Therefore, while year-round conservation saves money and builds good habits that benefit our environment, unlike water systems heavily dependent on water drawn from reservoirs, it does not save water that is available later. This means that balancing daily use versus daily supply is important and reductions do not help the City's stored water supply until daily demand exceeds supply.

Flows in the Noyo River in the late summer and early fall depend on rainfall received, much more so than the Waterfall Gulch and Newman Gulch sources. Flows in the Noyo River typically hit the lowest levels in August and remain there until there is significant rainfall. When rainfall will reach levels that impact the Noyo flows for more than just a day or two depends on the year. In 2015 and 2020, flows remained low until the first part of November when the region experienced regular levels of rainfall (see graph below).



There is little indication that late summer and fall will see any significant precipitation in the Northern California region. Based on predictions provided by the National Oceanic and Atmospheric Administration (NOAA), our region will experience below average precipitation for the next six months (see prediction graphs on next page).



Like August, there are 17 days with tide levels predicted at or above 6.0 feet<sup>2</sup> in September, the level at which pumping during low flow periods is challenging. The high tides started on September 3 and are predicted to end on September 20. It is unlikely that the Desalination-Reverse Osmosis Treatment System will arrive in time to be placed into service during September. The high tides in October are predicted to start on October 5. Assuming the equipment is received and operational by that date, we will be able to supplement the City's water supply with brackish water on or just after October 5.

Based on historical flows and current flow levels, staff predicts that total sources will provide 10 million gallons during September. This excludes the Desalination-Reverse Osmosis Treatment System, the FBUSD well, and the Summers Lane Reservoir. Based on water usage during August, demand is predicted at 17.5 million gallons. This is a shortfall in supply of approximately 7.5 million gallons or just over 50% of the capacity of the Summers Lane Reservoir, which will be used to supplement that shortfall.

Without additional Noyo River water provided from the Desalination-Reverse Osmosis Treatment System, the treated well water from the FBUSD irrigation well, and/or measurable rainfall, this could leave the Summers Lane Reservoir dry by the end of October. However, with the Desalination-Reverse Osmosis Treatment System, the treated well water from the FBUSD irrigation well, and/or measurable rainfall, the City's water supply could be replenishing the Summers Lane Reservoir by the end of October.

<sup>2</sup> <https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=9417426&legacy=1>

Thus, the reason that September and early October are so critical to understanding the City's ability to implement new water sources.

#### Success of Prior Conservation Stages

Water usage for August 2021 was 17.96 million gallons, lower than any other August on record (records start in 1980). This is a 33.2% reduction from August 2019, the base year for our conservation comparisons. The City Council declared a Stage 3 Water Emergency on August 9 and implemented the Stage 3 Water Conservation Requirements on August 10. Stage 3 targeted a 20-30% reduction in seasonal water use. The 33.2% reduction for August exceeded the conservation goal that was only in effect for two-thirds of the month. This is a strong indication that declarations of water conservation requirements are effective in meeting the level of reduction sought by the City.

One source of reduction in usage is attributable to the City's decision to eliminate out of City water sales as of July 18, 2021. For the month of June 2021, outside water sales hit an all-time high of 745k gallons. This accounted for 3.6% of total water usage in June 2021. In comparison, in June 2020, outside water sales accounted for less than 1.0% of total usage or just 201k gallons. Outside water sales through July 18 were 652k gallons, an estimated 3.1% of the total demand for July 2021.

Water usage in summer of 2020 reflected a similar response to both the voluntary and mandatory water conservation restrictions. On August 10, 2020, the City Council asked for a voluntary reduction of 10% in usage. When compared to the prior year, August 2020 was down 12% from 2019. On August 31, 2020, a Stage 2 Water Emergency was declared and mandatory conservation restrictions targeting a 20% decrease were implemented, water usage dropped in September 2020 by 20% from September 2019.

The prior success of water conservation stages indicates that the City will be able to reduce usage during the Stage 4 Water Emergency by the upper end of the 30-40% target. If this goal is not attained, the City Manager may consider recommending the Council implement Stage 5 conservation requirements.

#### Stage 4 Water Emergency Conservation Restrictions

1. All Stage 3 restrictions shall continue to apply, except to the extent they are replaced by more restrictive requirements imposed by this subsection.
2. No landscape irrigation shall be allowed, including public and private streetscape landscaping (medians and frontage) and drip irrigation.
3. No water from the city water system shall be used to drain and refill swimming pools, artificial lakes, ponds or streams and no new permits for swimming pools, artificial lakes, ponds or streams shall be issued until the water conservation stage has been declared to be Stage 1.

4. Water use for ornamental ponds and fountains is prohibited unless required to maintain existing vegetation or to sustain existing fish/animal life.
5. New or expanded landscaping on properties is limited to drought-tolerant trees, shrubs, and ground cover and no new turf or grass shall be planted, hydro-seeded or laid.
6. Washing of automobiles or equipment shall only be done at a commercial establishment that uses recycled, reclaimed water or private well water.
7. All water leaks shall be repaired within twenty-four hours of notification by the utilities department or discovery by the owner, or service may be discontinued.
8. Discontinued use of hot tubs and in-room spa tubs at hotels/motels and lodging establishments.
9. Base water allocations, as established by the City pursuant to Section 14.06.030 for the appropriate customer class may be implemented to establish a maximum water usage limitation.

Recommendation to be presented at September 13, 2021 Public Hearing

This is the worst water drought on record for the City of Fort Bragg. However, the City has prepared for this event by increasing water storage by more than 70% since the last major drought in 2015. Voluntary conservation measures implemented on May 10<sup>th</sup>, earlier than any other year, have been very successful and exceeded the conservation target goals. The City has also arranged for additional supply to be available in late September and early October to supplement usage at the point when the Noyo River flows reach the lowest points of the year and pumping is disrupted by high tides. As of writing this staff report, some conditions are still speculative and unknown. The City Manager will take into account the most current information available to provide the City Council a recommendation at the September 13, 2021 public hearing.

**RECOMMENDED ACTION:**

Based on the updated recommendation presented on September 13, 2021, consider adopting a Resolution declaring a Stage 4 Water Crisis and implementation of Stage 4 Conservation measures, which target a 30-40% decrease in seasonal water usage from the most recent non-drought year (2019).

**ALTERNATIVE ACTION(S):**

1. Do not adopt Resolution.
2. Provide alternative direction to staff.

**FISCAL IMPACT:**

Reduced water usage will impact Water Fund revenues during the time frame customers practice water conservation, however, the water fund's reserves and fund balance can absorb the loss.

**GREENHOUSE GAS EMISSIONS IMPACT:**

Reduced water usage will have an incremental reduction in pumping and water treatment, which will result in a small decrease in the use of electricity and resulting greenhouse gas emissions.

**CONSISTENCY:**

N/A

**IMPLEMENTATION/TIMEFRAMES:**

Compliance with a Stage 4 water emergency would be immediate and if implemented, water usage should be reduced immediately.

**ATTACHMENTS:**

1. Resolution
2. Noyo River Flows Graphs
3. Notice of Public Hearing

**NOTIFICATION:**

N/A