City of Santa Barbara  
Public Works Department  
Memorandum

DATE: November 21, 2019  
TO: Water Commission  
FROM: Dakota Corey, Water Supply Analyst  
SUBJECT: Water Supply Status Update

Recommendation:

That Water Commission receive an update from staff on the City’s water supplies.

Background:

City Council declared Stage One and Stage Two Drought Conditions on February 11, 2014 and May 20, 2014, respectively, as a result of unprecedented drought. On May 5, 2015, in response to the driest consecutive four-year period on record, Council declared a Stage Three Drought Emergency. The Stage Three Drought Emergency was amended with appropriate conservation targets and water use regulations in response to ongoing supply conditions through April 2019. On April 9, 2019, Council rescinded the Stage Three Drought Emergency and declared a Stage One Water Supply Condition which recognized the cumulative effects of the prolonged drought on the City water supplies has been extreme and despite above-average rainfall over the winter it could take several years for the City’s water supplies to recover completely.

This water supply status update will provide an overview of the City’s water supplies at the beginning of Water Year 2020, and includes an analysis of whether the City’s available water supplies are sufficient to meet demands over the next three years.

Discussion:

A new water year began on October 1, 2019, marking the beginning of the ninth water year since Lake Cachuma last spilled in May 2011. While the water year officially starts in October, Santa Barbara typically receives most of its rainfall from January through March. At the start of each new water year, staff updates the City’s water supply planning charts to reflect actual water used during the previous water year (October 1, 2018–September 30, 2019) and extends the supply strategy one additional year for drought planning purposes. Thus, the supply strategy extends through Water Year 2022.

Updates to the City’s water supply planning strategy are conservative. They assume hydrological conditions similar to actual conditions during the most recent drought, during which there was little to no rain for three years, resulting in no new inflows to Lake Cachuma or Gibraltar Reservoir. Under this assumed scenario, a full allocation (100 percent) of the City’s Cachuma water is assumed for Water Year 2020, but then is reduced to 80 percent in Water Year 2021 and 40 percent in Water Year 2022. Assuming drought conditions statewide, the State Water Project allocation is assumed to be only 35 percent for planning purposes. This conservative planning approach allows the City to evaluate whether it has enough water to meet demands under three years of drought conditions.
The most recent update to the City’s water supply planning strategy shows that the City’s water demands can be met through Water Year 2022 even under drought conditions using a combination of water from Lake Cachuma, the State Water Project, Gibraltar Reservoir, groundwater (minimal pumping from the Santa Barbara basin in Water Years 2021 and 2022), desalination, and recycled water. No supplemental water purchases would be needed to meet the next three years’ demands, and there would be no need to expand the current capacity of the desalination plant. However, the City’s water supplies would be significantly diminished at the end of another three-year dry period, and a fourth year of drought conditions would require water from supplemental sources.

The supply planning update conservatively assumes that the community will continue to conserve at a rate of 20 percent of pre-drought (2013) demands of 13,765 acre-feet/year (AFY). The current 12-month running average water conservation reduction is 31 percent, as compared to 2013 water demands. While a rebound in demands is expected should the City continue to see more normal precipitation patterns, based on experiences from the last major drought in the 1990’s this rebound is predicted to take seven years to complete. The City’s water demands are expected to never fully return to pre-drought demands, as some water conservation changes made by customers in response to the drought were permanent, such as installing drought-tolerant landscaping. As a result, it is estimated that the City’s demands will return to 10 percent less than pre-drought demands.

The most recent supply planning update considered if the City has enough surplus water supplies to meet the conditions of the Water Supply Agreement currently under negotiation with Montecito Water District (MWD). If the agreement were to be ratified, the City would be responsible for supplying MWD with 1,432 AF of water per year. Planning results demonstrate that the City has a sufficient amount of surplus water to meet both City demands as well as the proposed additional demand for MWD.

The National Oceanic and Atmospheric Administration’s (NOAA) forecast for November through January predicts above-average temperatures and normal to below-average precipitation. Unfortunately, given the unpredictable nature of these forecasts for the South Coast, our supply planning remains conservative.

While the supply planning update shows the City has sufficient water supplies to meet both City and MWD demands, even with persistent drought conditions over the next three years, it is still prudent that the City remain in the Stage One Water Supply Condition. The City relied heavily on its groundwater supplies for several years during the drought. The Foothill groundwater basin is still at historic low levels, and the Santa Barbara groundwater basin shows signs of seawater intrusion from the more intense pumping. Continued water conservation and the use of desalinated water to meet demands is allowing the City to rest its groundwater basins so they can recharge and recover naturally. Staff will reassess the water supply strategy in spring, following the rainy season, to determine if the Stage One Water Supply Condition continues to be warranted.
Outline

• Summary of Water Year 2019
  - Annual Water Supply Management Report in December
• Water Supply Status
• Water Supply Outlook
• Enhanced UWMP Update
Rainfall Totals for Water Year 2019

- Rainfall for the Water Year 9/01/18 to 8/31/19:
  - Gibraltar Reservoir – 34.80” (133% of Normal)
  - Cachuma Reservoir – 26.67” (136% of Normal)
  - Santa Barbara – 25.85” (141% of Normal)
Water Year 2019 Planned vs. Actual Supply Usage

- Used 20X more Gibraltar water than planned
- ~22,240 AF stored in Cachuma
- Resting groundwater basins
- Desal at full production
- Customers continue to conserve at 30%
Demand Status

- November 2018 – September 2019
  Drought Target: 30% of 2013
- October 2019 (moving forward)
  Drought Target: 20% of 2013

21% Reduction for Month of October 2019
31% 12-month Running Average
WATER SUPPLY STATUS
Gibraltar Reservoir

• Storage as of 11/20/19
  - 1,419 Acre Feet (33% of capacity)
  - Continuing to divert at 14 AF/day

• Status
  - Water quality challenging after large storms (high turbidity and organic matter)
  - Diverting to maximum extent with blending from other sources
Cachuma Reservoir

• Storage as of 11/20/19
  - 139,958 Acre Feet (72% of capacity)
  - City’s Stored Cachuma Supply is ~22,240 AF

• Status
  - Water Year 2020 allocation: 100%
Imported Water

• Current Allocation: 2,475 AF (75% of 3,300 Max Table A)
• No delivery of State Water to Cachuma currently
  – Waiting on materials for bypass piping up and over the dam
• City Water Debt: ~5,000 AF
• Contract Reassignment
Groundwater

- Continuing to monitor seawater intrusion and water levels on a monthly basis
- Currently resting basins; wells are being maintained
- Full recovery of basins expected to take 5-10 years, based on observations after last major drought
Desalination Plant

- Plant continues to operate in full production
  - WY 2019: 95% of 3,125 AF
- Important role in drought recovery of other supply sources (e.g. groundwater)
Recycled Water

- Plant is currently online and meeting customer demands
- Load-testing plant to determine new capacity post-repairs
WATER SUPPLY OUTLOOK
Major Supply Planning Assumptions

- No additional inflows to Cachuma or Gibraltar
  - Water Year 2020: 100% Cachuma allocation
  - Water Year 2021: 80% Cachuma allocation
  - Water Year 2022: 40% Cachuma allocation
- 35% State Water Project allocation
- Desal production at 240 AF/month
- Conservation at 20% pre-drought demands
Major Supply Planning Conclusions

• City has sufficient supplies to meet demands through Water Year 2022
  - No desal expansion anticipated through WY2022
  - No supplemental water purchases planned through WY2022

• City has sufficient excess supplies to meet demands of WSA with MWD (1,430 AFY), should it be ratified

• Stage 1 Water Supply condition remains appropriate
  - Revisit in Spring 2020
ENHANCED UWMP UPDATE
Enhanced Urban Water Management Plan

• Why Enhanced UWMP vs. LTWSP?
  - Continuity/ease for City Planning
  - Streamlined CEQA process

• RFP Released 10/23/19
  - Proposals due 12/12/19
  - Project kick-off expected March 2019