City of Santa Barbara
Public Works Department

Memorandum

DATE: January 17, 2019

TO: Water Commission

FROM: Kelley Dyer, Water Supply Manager

SUBJECT: Drought Update

RECOMMENDATION:

That the Water Commission receive an update on the status of the current drought, drought-response capital projects, and continuing efforts.

DISCUSSION:

Drought Update

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. Since then, the Stage Three Drought condition has been amended with appropriate conservation targets and water use regulations in response to current and forecasted supply conditions.

The City’s 2011 Long Term Water Supply Plan (LTWSP) outlines the City’s adopted water supply planning policies for managing the drought situation. The LTWSP planned for a 10-15 percent demand reduction during drought conditions. However, the current drought has been historic, resulting in drier conditions for a longer duration than previous drought periods on record. As a result, the City increased the required demand reductions to range up to 40 percent, on a temporary emergency basis, based on local water supply conditions. On March 21, 2017, the Stage Three Drought condition was amended to a City-wide water conservation target of 30 percent reduction in response to February 2017 rains, which filled Gibraltar Reservoir and increased storage in Lake Cachuma. Subsequent rainfall in January and March 2018 filled Gibraltar Reservoir again; however, the storms were not sufficient to noticeably increase storage in Lake Cachuma. Based on current and forecasted supply conditions, the 30 percent water conservation target (as compared with 2013 pre-drought water demands) remains in effect.

The City recently wrapped up the driest consecutive seven-year period on record. The 2018 water year ended with rainfall well below average, despite the January storm that resulted in the debris flow in Montecito. In accordance with the LTWSP, depleted surface water supplies have been replaced with increased groundwater production, purchases of
supplemental imported water, the reactivation of the Charles E. Meyer Desalination Plant in the spring of 2017, and extraordinary water conservation from the community.

This drought update will cover the following items:

- Water Supply Outlook/Weather Forecast
- Water Demands
- Conservation Efforts

**Water Supply Outlook/Weather Forecast**

A new water year began on October 1, 2018, marking the beginning of the eighth water year since Cachuma last spilled in May 2011. Even though the water year officially starts in October, the City typically receives most of its rainfall from January through March. As with every new water year, the City’s water supply planning charts have been updated to reflect actual water used during the previous 2018 water year (October 1, 2017 – September 30, 2018), and the supply strategy has been extended one additional year, through 2021, for drought planning purposes. The projections show that the City’s water demands can be met through 2020, using a combination of water from Lake Cachuma and the State Water Project, water stored in Gibraltar Reservoir, groundwater, desalination, recycled water, and extraordinary conservation that meets or exceeds the 30 percent water conservation target. Additional water shortages are anticipated in 2021, assuming no significant inflow to Gibraltar and Cachuma over the next three rainy seasons. Staff will reassess the water supply strategy in the spring of 2019 at the end of the rainy season and adjust conservation targets, as necessary, in order to provide sufficient supply through 2021.

The National Oceanic and Atmospheric Administration (NOAA) forecasts a chance of a weak El Niño developing during the winter of 2019. Wetter, warmer weather is typically associated with El Niño events in Southern California. For our region, NOAA’s forecast for January through March shows above-average temperatures with an equal chance for above- or below-average precipitation. Given the unpredictable nature of El Niño and La Niña events, and the unprecedented nature of the current drought situation, the City is planning for continued drought conditions.

**Water Demands**

City-wide water demands during the drought have been below 10,000 acre-feet per year (AFY), compared with 14,600 AFY in 2013 (pre-drought) and 16,000 AFY in the 1980s (prior to the City’s Water Conservation Program). Recent demands match the City’s water use in 1958, when the population was only half of what it is today. The declining water use since the late 1980s is attributed to the City’s long-term ongoing conservation programs, efficient plumbing codes, landscape design standards, and extraordinary conservation efforts during drought periods. Regarding demands from new development, new annual demands have averaged 26 AFY, which represents approximately 0.27 percent of the City’s current total water demand and is below the anticipated demand of approximately 40 AFY annually in the City’s General Plan Final Environmental Impact Report. Therefore, demand from new development continues to represent a minor impact.
on water supplies. The demand estimate is based on information provided in the General Plan Update Final Environmental Impact Report and City data on development over the last ten years. More information on water demands can be found at www.SantaBarbaraCA.gov/Drought.

Conservation Efforts

The City’s water conservation reduction for the month of November was 22 percent, and the 12-month running average water conservation reduction at the end of November 2018 was 28 percent, compared to 2013 water demands. Conservation is measured based on the City’s water production meters (not retail customer meters used for water billing). This approach is consistent with state reporting requirements for conservation, since production meters account for overall water loss occurring in the system. As part of the City’s ongoing meter replacement program, several production meters were replaced in March and April. Analysis conducted by staff indicates that while metered sales have remained consistent during the drought, the new production meters are registering greater production, reducing the City’s water conservation percentage compared with previous years.

Revenues

Water revenues for Fiscal Year 2019, which includes revenues through December 2018, shows that revenues for metered sales are projected to be on target with the budget, with little variance.
DROUGHT UPDATE

Water Commission
January 17, 2019
Outline

• Drought Status
• Demand Status
• Water Supply Status
• Water Supply Strategy
DROUGHT STATUS
Rain Totals for Water Year 2019

- Rainfall for the Water Year 9/01/18 to 1/17/19 (7:45 am):
  - Gibraltar Reservoir – 15.42” (150% of Normal)
  - Cachuma Reservoir – 8.38” (108% of Normal)
  - Santa Barbara – 10.25” (150% of Normal)
• Federal drought monitor: Severe Drought Condition

• 7 driest consecutive years on record in Santa Barbara region

• City remains in a drought emergency
THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID JFM 2019
MADE 20 DEC 2018
DEMAND STATUS
30% Reduction for Month of December

29% 12-month Running Average
WATER SUPPLY STATUS
Gibraltar Reservoir

- **Storage as of 1/17/19**
  - 3,361 Acre Feet (57.6% of capacity)

- **Status**
  - Anticipate reservoir will continue to fill over the next week with a strong possibility of spilling
  - Water Quality
  - Diverting water to the maximum extent possible, with blending from other sources
  - *Consistent supply diversions since May ~4 AF/day*
  - *Anticipate temporary shut down of diversions following large storms*
Cachuma

• Storage as of 1/17/19
  - 62,376 Acre Feet (32% of capacity)
  - City’s Stored Cachuma Supply is ~8,405 AF

• Status
  - Without significant inflows, COMB emergency pumping facility will need to be operational by Fall 2019 (NTP by Spring 2019)
  - COMB continues to monitor lake level projections
Imported Water

• Initial 2019 Allocation: 330 AF (10% of 3,300 Max Table A)

• City’s 2018 carryover in San Luis:
  • ~338 AF in San Luis Reservoir as of Dec 1
  • No risk of spill for City’s water

• Planning to shut down City’s delivery of State Water in Feb-March
  • Reserves some water for ID#1 exchange later in the year
    • Low State Water Allocation, City’s Water Purchases still TBD
  • Reduces evaporative losses on City accounts at Cachuma
  • Little to no impact to barge timing
Imported Water

• Supplemental Water
  • Pursuing up to 2,800 AF additional purchases, based on current conditions
  • Mojave Water Agency Opportunity
    • $320/AF purchase cost (~$650K-$900K)
    • 4:1 Exchange; max $250/AF return cost (~$175K max to return 700 AF)
    • Maintains maximum deliveries to Cachuma through Spring 2020
  • Will re-asses needs after winter rains (Spring 2019)

• Water Debt
  • ~3,700 AF of remaining water debt
Groundwater

• Monitoring seawater intrusion and water levels
• Currently resting basins for winter period; wells are being exercised regularly
• Planning to bring 4 out of 9 wells online in Spring 2019, if winter remains dry
Desalination Project

- Plant continues to operate in full production
- January 29th – Present
- Water Sales Agreement Term Sheet to Council
  - Seeking approval of Term Sheet and direction to complete WSA with the Montecito Water District
WATER SUPPLY STRATEGY
Water Supply Strategy

- Extraordinary Conservation
- Add'l Conservation/Supply - TBD
- Desalination
- State Water/Water Purchases
- Groundwater
- Gibraltar/Mission Tunnel
- Cachuma Allocation/Carryover/MWD
- Recycled Water

(Acre-feet per year - AFY)

For more information:

www.SantaBarbaraCA.gov/Water

Call: 564-5460