MEMORANDUM

TO: Sean Chambers, Water and Sewer Director

FROM: Alex Tennant, Water Resources Administrator II

DATE: August 17th, 2022

RE: August 2022 Water Supply Update

ISSUE

In accordance with the Drought Emergency Plan, staff reports the water supply status to the Greeley Water and Sewer Board ("Board") in April, July, and November of each year. The Water Resources Division's goal is maximized rentals, maximized storage, and minimized spill by closely monitoring drought conditions, associated hydrologic conditions, and storage levels. Previous modeling analysis has shown that the target storage level needed to provide adequate drought protection for the citizens of Greeley is approximately 21,300 acre-feet. When the target storage level is met, Board can declare an "adequate water year" with normal watering restrictions. As base use demands increase in the future, periodic reevaluation of the target storage level will be required to ensure it is adequate to supply the citizens of Greeley.

The Greeley System Storage Analysis excel application is used for projecting the target storage level over a 12-month period. The model performs an annual water balance to arrive at a forecasted April 1st carryover storage based on existing supplies and demands for the current year. The storage analysis model only includes standard operational practices and does not take into account other plans (additional drought restrictions, etc.) that may be available to Greeley.

BACKGROUND

Northern Colorado entered the 2022 water year with moderate to severe drought conditions, spring in Greeley experienced average temperatures but below average precipitation early with the South Platte snowpack reaching 90 % of average. The snowpack melted out around June 12. Cumulative precipitation as of August 9th in Greeley is below the 2012-2021 historical average by 1.5 inches at a total of 7.92 inches.

The monsoon season has begun bringing ash and sediment into the Poudre River from the Cameron Peak fire burn area. Thus far, fire impacts to the Poudre River water quality have caused Bellvue to shut off its diversion from the river 26 days which equates to approximately 643 acre-feet. However, due to an agreement that was entered into with the North Poudre Irrigation Company (NPIC), Greeley has been able to continue treating water during these times of low water quality. In exchange for CBT that NPIC owns in Horsetooth Reservoir and can be directly delivered to the

Bellvue Water treatment plant, Greeley's sends their Poudre River direct flow water rights to NPIC. This allows Greeley to avoid water quality impacts and NPIC to receive the water they need for irrigation.

Reservoirs in the Colorado and South Platte River basins are at 95% and 96% of average, respectively. The Colorado SWSI[1] report for June showed the South Platte Basin at slightly below normal supply levels (-0.15).

Greeley's High Mountain Reservoir (HMR) system yielded 1,383 acre-feet of supply which is lower than historically because we did not fill Comanche or Hourglass reservoirs due to concerns about sedimentation from the Cameron Peak fire burn area. Most of this water was rented out to agriculture.

As of July 1, there is approximately 15,500 acre-feet of storage attributable to Greeley's unleased, changed ownership in the Greeley Loveland System (GLIC). Northern water was able to pump our full 4,900 acre-feet allotment of Windy Gap this year. Greeley did not need to collateralize any CBT because of the allotment.

Through August 8th, staff has rented approximately 18,800 acre-feet of water to agriculture. The Greeley System Storage Analysis table shows the April 2023 storage level will be approximately 22,344 acre-feet.

While our current water supplies are in good condition, forecasts are predicting above average temperatures, below average precipitation, and below average precipitation through October. Staff will continue to monitor weather and water supply closely.

RECOMMENDATION

Projected storage remains above the 21,300 acre-feet target storage level; therefore, the Adequate Water Year conditions declared in April 2022 remain valid. No formal recommendation at this time.

[1] The Surface Water Supply Index (SWSI) was developed by the Colorado Division of Water Resources and the U.S.D.A Natural Resources Conservation Service (NRCS). This is an indicator of mountain-based water supply conditions for the major river basins in Colorado. It is based on streamflow, reservoir storage, and precipitation. The SWSI scale goes from -4 (severe drought) to +4 (abundant supply) with 0 being near normal supply.

April 1, 2022 Storage (acre-feet)	
CBT	17,113
Windy Gap	0
GLIC	16,247
Tunnel	931
Total	**34,291**
Demands (April 1, 2022-March 31, 2023) (acre-feet)	
CBT	9,200
Windy Gap	3,900
GLIC	10,500
Tunnel	1,000
Total	**24,600**
Yields through April 2023 (acre-feet)	
CBT (Nov. 2022-April 1, 2022)	13,000
Windy Gap	4,400
GLIC	7,333
Tunnel	1,000
Total	**25,733**
April 2023 Storage by Source	
CBT	20,913
Windy Gap	500
GLIC	11,641
Tunnel	931
April 2023 Storage	**33,985**
April 2023 Storage-minus unusable GLIC	**22,344**
Target Storage Volume	**21,300**