

**CITY OF BOULDER  
WATER RESOURCES ADVISORY BOARD  
INFORMATION ITEM**

**MEETING DATE: November 21, 2016**

**AGENDA TITLE:** Information Item – Utilities Annual Water Leasing Program

**PRESENTER/S:**

Jeff Arthur, Director of Public Works for Utilities  
Joe Taddeucci, Water Resources Manager  
Kim Hutton, Water Resources Engineer  
Doug Dunn, Water Resources Specialist

**EXECUTIVE SUMMARY:**

The purpose of this item is to summarize Utilities’ annual raw water leasing program, including how it is integrated into municipal water supply operations, considerations that go into setting lease prices and revenue resulting from the program. This information is being provided in response to WRAB questions about opportunities to generate additional revenue through sale or lease of raw water supplies.

Utilities leasing program primarily serves agricultural lessees and is managed by the Water Resources work group. The majority of leased water is from Utilities’ Northern Water (“Northern”), Colorado-Big Thompson (CBT) allotment but also includes shares in private irrigation ditch companies. Over the past 16 years, Utilities has leased roughly 59,000 acre-feet of water resulting in \$1.7 million in revenue.

**BACKGROUND:**

Utilities’ annual water leasing program is one of many current practices resulting from well over 100 years of strategic water supply planning. The City of Boulder began operating a municipal water supply system in 1875, which included development of municipal direct flow and storage rights along Boulder Creek. In order to support growing municipal water demands in the early 1900s, the city began acquiring senior water rights associated with shares in irrigation ditch companies<sup>1</sup>. The city’s early water supply development efforts eventually led to establishment of the North Boulder Creek source water system, including the Silver Lake Watershed.

In the 1940s and 1950s, additional municipal water supplies were sought due to population growth following World War II. As a result, the city decided to purchase CBT units and joined the Northern Colorado Water Conservancy District (also known as “Northern Water or “Northern”) in 1953. This water supply addition turned out to be timely with a severe drought occurring in 1954.

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<sup>1</sup> From 1995-2015, approximately 30% of the city’s annual water supply was associated with water rights attributable to irrigation ditch shares, many of which date back to the late 1800s and early 1900s.

In 1989, City Council adopted the Raw Water Master Plan, which resulted in the city's acquisition of the Barker system in 2001 and establishment of the water supply "reliability criteria". The Barker system improved system reliability by increasing the storage volume available to the city from the Middle Boulder Creek source and by adding Barker infrastructure (reservoirs and pipelines) to the city's source water system. The reliability criteria established important policy guidance for the city's source water supply by defining the acceptable frequency of water restrictions for droughts of varying severity. The reliability criteria are central to the city's water supply philosophy<sup>2</sup> and are used to test the adequacy of the city's water supply by computer modeling.

The city's ability to manage year-to-year variation in water supply is possible due to past efforts to establish the physical supply through its North and Middle Boulder Creek and Northern Water sources and due to the reliability criteria, which describes the water supply level of service. The leasing program provides a mechanism to share surplus supply available to the city in wet years, and in dry years, the reliability criteria provide a framework for measures needed to manage limited water supply. Such measures include water restrictions for water utility customers and curtailing the leasing program. In 2002, a significant drought occurred due to low winter snowpack. To manage supply, the City of Boulder imposed water restrictions and did not lease any CBT water to others.

The City of Boulder's integration of water leasing into its water supply management strategy is not unique. Many front-range municipalities similarly have leasing programs that make water available to other users in most years while managing annual water supply variation. For many communities located north of metro Denver, Northern's CBT system makes up a significant component of water available for lease and Northern plays a significant role<sup>3</sup> in administration of CBT leases.

### **ANALYSIS:**

Utilities' leasing program involves a number of pricing considerations that affect water utility revenue either directly from the leasing program or at times from Northern's Regional Pool program. Both the pricing considerations and leasing program revenue are summarized below.

Lease Pricing Considerations - Utilities current leasing program is based on the following:

- 1) Policy guidance in the Boulder Valley Comprehensive Plan encourages support of local agriculture. Local agriculture is a primary use of Utilities leased water. In setting lease rates, Utilities' charges a modest 10% administrative fee on top of Boulder's per-acre-foot assessment so that the leased water is affordable for agricultural users. This approach has resulted in lease rates comparable to other front range municipalities who lease water.
- 2) During wet years when water availability is high, lease demand is generally lower. During dry years, lease demand is high but water availability is lower. It has not been Utilities' practice to adjust lease rates based on water availability, and staff is not aware of any municipalities who make such pricing adjustments.

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<sup>2</sup> The reliability criteria are included in the city's current Drought Plan (Volume I-2010 and Volume II-2003) and most recent Source Water Master Plan (2009).

<sup>3</sup> Northern has an online process for administration of water transfers associated with leases and has the infrastructure and operations staff required to deliver the water to lessees.

- 3) One distinction in Utilities' pricing is the desired use of the leased water. Most of Utilities' leases are for a single year and involve water used for irrigation purposes. However, the city receives numerous requests each year for augmentation water<sup>4</sup>, most of which involve long term lease commitments. The city's lease rates for augmentation water, which are also comparable to regional rates, are generally substantially higher (currently \$1,000 per acre-foot for guaranteed long term leases) than for irrigation water. The higher pricing is because water rights available for such use are generally in shorter supply and because such leases generally require use of stored water, are administratively burdensome and usually involve very small amounts of water (fractions of an acre-foot).
- 4) One other consideration in lease pricing involves legal and process constraints. Leases involving ditch shares and Northern supplies need to stay within the historic ditch service area or Northern district boundaries, respectively, which limits the geographic area available for most City of Boulder water leasing. The city's water rights decrees, city code and Northern rules preclude use of city water for certain applications such as hydraulic fracturing (fracking) associated with oil and gas extraction. Water leased for fracking can involve lease rates many times higher than typical municipal or agricultural lease rates, however, most municipalities have not looked favorably upon making water available for such use.

Leasing Program Revenue - Over the past 16 years, Utilities has leased roughly 59,000 acre-feet of water resulting in \$1.7 million in revenue. Of that 58,400 acre-feet and \$1.6 million was associated with agricultural leases, the majority of which was CBT water as shown in Attachment 1. From 2000 to 2016, agricultural lease rates have ranged from \$11 per acre foot to \$150 per acre foot depending on the year and water source<sup>5</sup>. The agricultural leasing program has had nearly 100 different lessees (individuals and organizations) since 2000, some of whom have leased water annually from the city since at least 1991.

Another related revenue component is Northern Water's Regional Pool program. With this program any CBT water that is not leased or otherwise goes unused by the city may be auctioned off annually by Northern Water to other water users within the Northern District. The city receives any funds generated from its water sold in this auction, less an administrative fee. The first year of Northern's implementation of the regional pool program was 2010. Since that time, Northern has auctioned off 76,000 acre feet of water and Utilities has received roughly \$300,000 in payments for its pro rata share in the auctions.

#### **NEXT STEPS:**

The city's current water supply approach, including the agricultural leasing program is largely defined by the Boulder Revised Code, Boulder Valley Comprehensive Plan, and adopted master plans. If the WRAB was interested in pursuing substantive changes to the leasing program or the city's water supply approach, it would likely require City Council direction to add this to their annual work program. WRAB will have the opportunity to discuss recommendations regarding the City Council work program priorities at its annual retreat on Dec. 10.

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<sup>4</sup> Water decreed for augmentation purposes may be used to replace water that was diverted from a creek or pumped from a well at a time when the water right for those diversions was not in priority.

<sup>5</sup> For comparison, one acre-foot of treated water at the city's Block 1 rate (\$2.76 per 1,000 gallons) would cost \$899.

**Attachment 1 – Annual CBT Water Leases**

