



# **CHEROKEE METROPOLITAN DISTRICT**

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## **Water Provider Supplement to Water Resource Report for Meadowbrook Park**

September 21<sup>st</sup>, 2020

Commitment 2020-11

This document has been prepared to satisfy El Paso County's requirement of a Water Provider's Report in support of **Meadowbrook Park** at **the north corner of U.S. Highway 24 and State Highway 94.**

## **Introduction**

Cherokee Metropolitan District (CMD) is a Title 32 special District which provides water and wastewater to an 800-acre enclave of unincorporated El Paso county surrounded by the City of Colorado Springs. Currently CMD serves approximately 7000 residential taps and 600 commercial taps in addition to bulk users in eastern El Paso County including Schriever Air Force Base and several small developments located along State Highway 94.

CMD water is sourced entirely from groundwater in two regions. The majority is recovered from the alluvial Upper Black Squirrel (UBS) Aquifer in eastern El Paso County via 20 wells. The remainder is sourced from two wells in deep bedrock aquifers in the northern part of the county on the “Sundance Ranch” property. Water from eight of the 20 wells in the eastern part of the county can only be used to serve a fixed list of customers. Water for the main service area of CMD comes only from the remaining 12 wells in UBS along with the two wells at the Sundance Ranch.

## **Calculation of Anticipated water Demand**

The subdivision will have 70 residential lots with 0.88 acres of fully irrigated common space and 1.07 acres of 60% reduced watering native grass. This development will have lots 3000 square foot lots with limited opportunities for individual landscaping. Based on similar small lot developments in the District and elsewhere, a lower presumptive water use value is used than with traditional single family subdivisions.

The District uses a presumptive use value of 0.22 Acre-Feet per Year (AFY) per Single Family Equivalent (SFE) as a conservative estimate for actual water use in these small lot developments. Actual small lot single family use is close to 0.20 AFY even in low precipitation years and this higher value includes distribution system losses. The 70 lots at 0.22 AFY per lot yields 15.4 AFY for domestic and per lot irrigation use.

Water demand for the 1.95 AFY of common space was calculated using El Paso County’s fully irrigated landscaping estimate of 2.53 feet of water per year. Applying this to the 0.88 acres of fully irrigated common space and the 1.07 acres of 60% reduced watering common space yields an irrigation use estimate of 3.3 AFY. The total for irrigation and domestic use across the development is projected to be 18.7 AFY.

## **Water Supplies**

Cherokee has eight wells (numbered 1-8) that are restricted to serving a maximum of 653 AFY to a fixed list of customers within the Upper Black Squirrel Creek Designated Basin (the Basin). Excess allocation for these wells is unavailable for new developments, even if those developments are located inside the Basin, so this water is tracked separately from CMD’s general exportable supply portfolio. Water from CMD’s other alluvial wells is exported for use

outside the UBS basin. The total annual volume available to CMD from these exportable supplies is 3,985 Acre-Feet per Year (AFY) (Table 1). The physical yield of these wells is significantly higher than their annual appropriation, allowing for flexibility in satisfying irrigation season demand.

**Table 1:** Water rights and tributary status of Exportable Wells

Well Number	Water Right (AFY)	2019 Use (AFY)	Permit Number	Aquifer	Aquifer Status
Well 9	176	132	14145-FP-R	UBS Alluvium	Tributary
Well 10	176	108	14146-FP-R	UBS Alluvium	Tributary
Well 11	244	161	6821-FP-R	UBS Alluvium	Tributary
Well 12	244	149	11198-FP	UBS Alluvium	Tributary
Well 13	1268	975	49988-F	UBS Alluvium	Tributary
Well 14	0	0	52429-F	UBS Alluvium	Tributary
Well 15*	281	145	54070-F	UBS Alluvium	Tributary
Well 16*	219	123	54069-F	UBS Alluvium	Tributary
Well 17*	175	151	63094-F	UBS Alluvium	Tributary
Well 18	225	138	16253-RFP-R	UBS Alluvium	Tributary
Well 19	95	79	20567-RFP-R	UBS Alluvium	Tributary
Well 20	400	38	4332-RFP	UBS Alluvium	Tributary
Well 21	290	0	81782-F	UBS Alluvium	Tributary
DN-4**	110	110	78315-F	Denver Aquifer	Non-Tributary
AR-1***	147.7	155	75881-F	Arapahoe Aquifer	Non-Tributary
<b>Total</b>	<b>3984.7</b>	<b>2464</b>			

\*Wells 15, 16, and 17 can produce a combined 609 AFY despite their total individual allocations equaling 675 AFY. This reduction is reflected in the total.

\*\*CMD holds additional water rights in the Denver Aquifer associated with the Sundance Ranch property but this particular well has a maximum annual recorded yield of 110 AFY

\*\*\*As of December 2019 AR-1 has 2040 AF of banked water which allows actual pumping to exceed allocation on a limited basis

CMD is developing owned water supplies to increase available water and improve flexibility in provision of summer flows. By the end of 2021, these new wells will contribute 458 AFY of capacity to the CMD system (Table 2) for a total of 4,443.0 AFY. Since 2011, actual demand from CMD customers has fallen 30-35% below commitments, partially due to some committed developments being incomplete but largely due to water saving measures undertaken by CMD customers.

**Table 2:** New water supplies slated for completion in 2021

Well Number	Water Right (AFY)	Permit Number	Aquifer	Aquifer Status
Albrecht Well	153.5	27571-FP	UBS Alluvium	Tributary
DA-1	40.3	83604-F	Dawson	Not Non-Tributary
DA-4	64.5	83603-F	Dawson	Not Non-Tributary
AR-1 Expansion	200	75881-F	Arapahoe	Non-Tributary
<b>Total</b>	<b>458.3</b>			

By the end of 2021, CMD will have a total of 4,443 AFY of exportable water supplies sourced from alluvial and deep bedrock aquifers. Further development in the Denver Basin is not planned at this time and instead CMD is focusing on acquiring new renewable supplies proximate to existing infrastructure.

## Water Commitments

CMD's water commitments stand at 4,111.7 AFY before the addition of the proposed development. These commitments are broken down below in Table 3. The Tipton and Kane commitments are related to an arrangement from the mid-2000's where developers reserved commitments on two new wells. The water from these wells is considered fully committed to these developers even if they have not yet begun the projects associated with the reserved commitments. Due to a complex legal history, the "Kane" water right was not tied to a specific physical water well but instead operates as a commitment served from CMD's general supply portfolio. The "Tipton" water right corresponds to CMD's Well 18.

**Table 3:** CMD Commitments before addition of new development

Commitments	AFY
In-District (2015)	2693
Committed Since 2015	406.7
Schriever Air Force Base	537
Kane	200
Tipton	225
Construction	25
Parks	25
<b>Total</b>	<b>4111.7</b>

## Water Balance

With 4,443.0 AFY of exportable supply and 4,111.7 AFY of commitments, CMD has a water balance of 331.3 AFY before the subject development. After commitment of 18.7 AFY to this development, the District will have 312.6 AFY remaining for additional commitments.

**Table 4:** Water balance with new development

Water Balance Before New Commitment	331.3 AFY
New Commitment: Meadowbrook Park	18.7
<b>Water Balance Remaining</b>	<b>312.6 AFY</b>

## Other Relevant District Information

### Recent Water Acquisitions/Losses

CMD has not acquired any new water rights since 2015 but has been developing owned water rights into productive wells. CMD has not engaged in any water trades nor lost any water rights in the last year. The District is not currently under contract to purchase new water rights although CMD is investigating purchases of renewable water rights proximate to its existing infrastructure on an ongoing basis.

### New Augmentation Plans

CMD is currently pursuing a replacement plan in partnership with Meridian Service Metropolitan District (MSMD) in order to claim credits for its treated water return flows and maximize the efficiency of its water supplies.

### Major System Capital Improvements

CMD has been actualizing owned water by drilling wells and beginning production on several well sites. In February of 2020 CMD brought the Sweetwater 5 well (81782-F) online after a year of planning and construction. In the next 6 months it is expected that the “Albrecht Well” (27554-FP) will be brought online providing an additional 153.5 AFY of water.

CMD is currently preparing to increase pump capacity in well AR-1 (75881-F), its only well in the Arapahoe aquifer, and to install pumps in two existing wells in the Dawson Aquifer (83603-F & 83604-F). Beyond these projects, additional well construction in the Denver Basin is not anticipated at this time, although CMD has a substantial amount of undeveloped water rights in the Denver Basin Aquifers.

Existing CMD wells have had a series of upgrades to improve quality and efficiency within in the last year. The screen and pump on Well 11 (6821-FP-R) were replaced to improve

water flow and several in-district potable water tanks have been cleaned and rehabilitated. More incremental improvements in the distribution system to improve reliability and resiliency include deeper computer integration, upgrades to treatment systems, and emergency generator refurbishment.