

## Summary of the 2023 Wichita County LEMA Annual Review

**Introduction** - The Wichita County Local Enhanced Management Area (WC LEMA) was enacted in 2021 for the five-year period, January 1, 2021, to December 31, 2025, restricting water use for all irrigation use, to extend the useful life of the Ogallala Aquifer in the County. The WC LEMA Plan includes annual review requirements to evaluate how the LEMA is performing, to inform whether the LEMA should continue and to assist in determining if changes to the LEMA should be considered for the future.

Water use data for 2021 and 2022 as well as water level data from the January 2022 and 2023 water level measurement program conducted by the KDA-DWR and KGS became available during 2023 and are the subject of this second annual review under the LEMA.

### Wichita County's Water Conservation Area (WCA)

While the purpose of this annual review is to evaluate the performance of the LEMA, overall water use in Wichita County is significantly affected by Wichita County's WCA put in place in 2017. The Wichita County WCA is a voluntary program implemented on a countywide basis. It commits enrollees to reductions over four seven-year periods, with increasing reduction requirements with each successive period. Reduction requirements for the period 2017-2023 are 30% from the average use for 2009-2015. There are 25 active consent agreements covering 11,391 acres and projected savings of 2,665 Acre-feet per year.

Through 2022, a review of the data indicates the following:

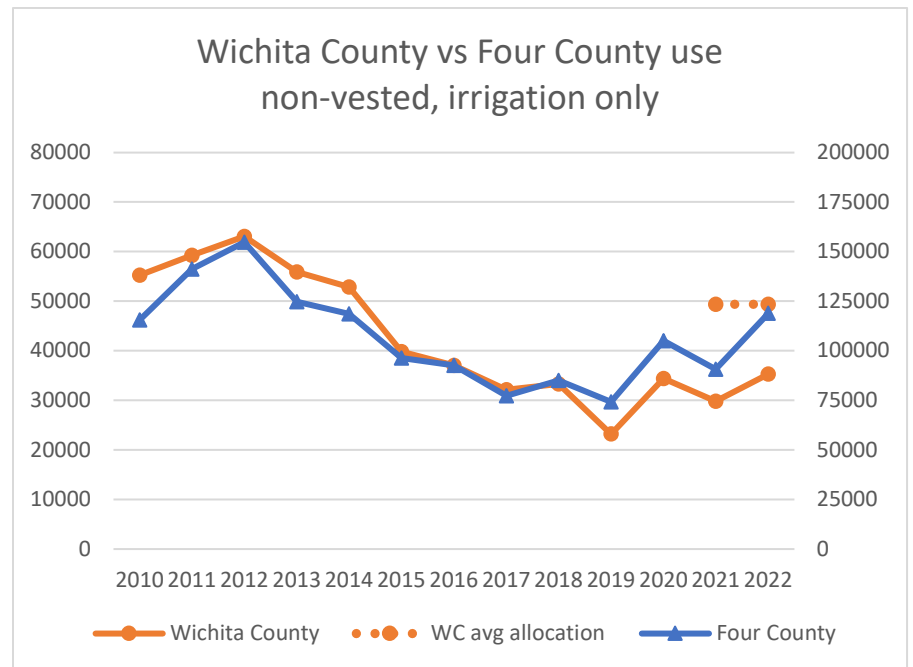
- Over the first 6 years of the WCA (2017-22) average use has been 69% of the average allocation allowed and 48% of the 2009-15 average use.

- Savings (average use 2009-15 – average use 2017-22) have been almost twice the initially projected savings of 2665 acre-feet/year at approximately 4500 acre-feet per year.

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**Water use data** - Wichita County's 2021-22 water use was compared with the average use allowable under the Wichita County LEMA and Wichita County water use trends were also compared with the Four County trends.

The figure below shows annual total use for Wichita County (using the left axis), the total use of the Four Counties (using the right axis), and the average annual Wichita County LEMA allocations, all measured in acre-feet/year.



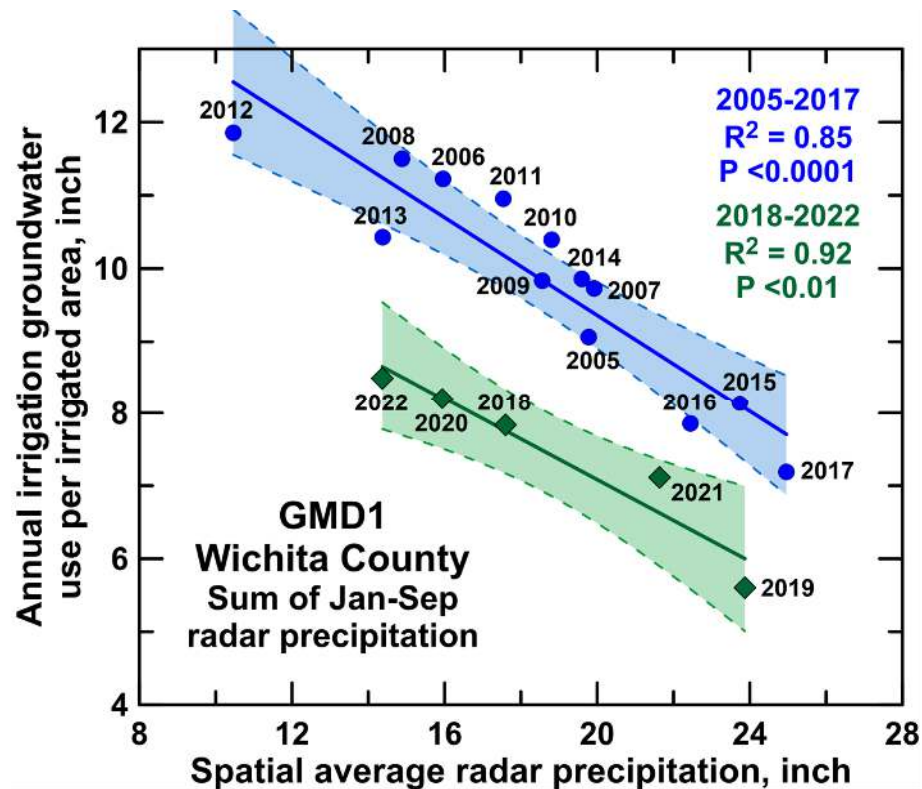
In summary, this county-wide review of the 2021-22 wateruse found the following:

- Average use for the first two years of the Wichita County LEMA (2021-22) was 66% of the average LEMA allocation.
- The non-vested irrigation use within Wichita County in 2022 was 82% of the 2011-20 average, compared to 111% in the rest of the District.

### KGS Evaluation of Wichita County Wateruse vs Precipitation

The KGS compared annual water level changes to annual wateruse in the Ogallala-High Plains Aquifer generally, with emphasis in areas of enhanced management to determine if these records indicate a change in wateruse behavior. The KGS' work found evidence in both the GMD 4's Sheridan 6 LEMA and in Wichita County of a changing relationships between pumping and annual precipitation.

The figure below is a summary of part of KGS's evaluation for Wichita County. The figure plots wateruse expressed as irrigation depth versus annual precipitation, contrasting for the pre-WCA/pre-LEMA period (2005-2017) with WCA/LEMA period. KGS' work indicates that total water savings from 2005 to 2022 in Wichita County is roughly 39% which has exceeded expectations and has been in part due to management changes put in place by these described conservation methods (WCA & LEMAs). This data indicates that total savings may be broken down to 23.9% from improved irrigation management, and 15.6% from decreased irrigated areas and other factors (KGS). Importantly, this data shows that these locally based conservation plans are successful in decreasing pumping through management changes.



### Future reviews

As is noted in the introduction above, next year's annual review will be the start of the Board's process to consider whether it is wished to continue this LEMA on the same or different terms. This review will start with a review of the three years of data that will be available, both overall and the assessment of how individual water rights are conforming to the LEMA requirements.