

Western Kansas Groundwater Management District No. 1 Four County LEMA (FCL)



Presented By:

Katie Durham – District Manager

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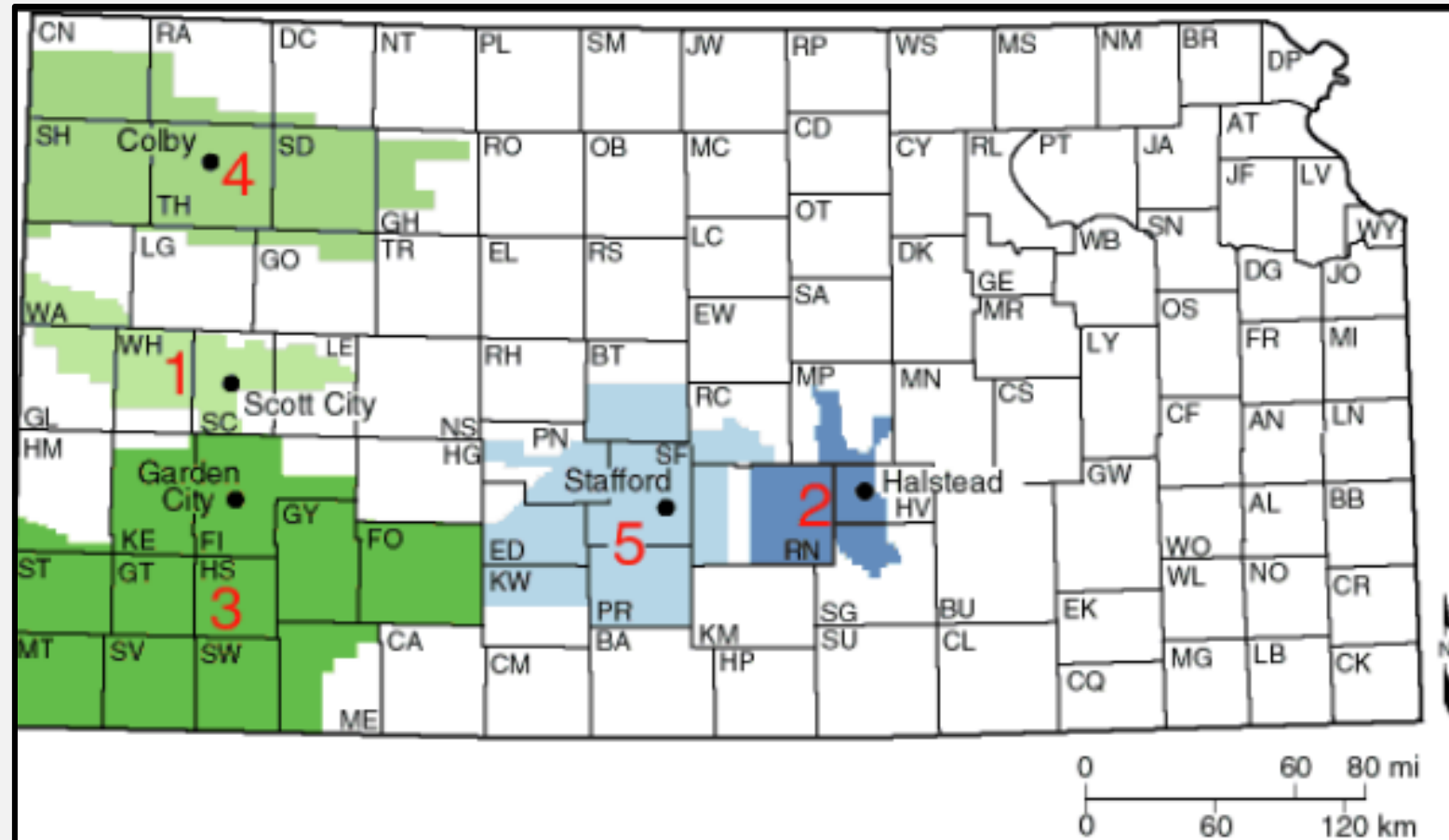
Western Kansas Groundwater Management District No. 1 Formation & History

-GMD 1

- 1973
- Wallace, Greeley, Wichita, Scott & Lane
- 1.1 million acres
- 2,379 WR (2,120 IRR, 286 STK, 20 STK/IRR)

- What is the Historic Role of the GMD's?

- GMD1 Programs
 - Weather Modification
 - Cost Share
 - LEMA Development



LEMA Statute – Process & Key Concepts

IGUCA – Limited to No Local Control

- Alternative a process to a LEMA where the Chief Engineer conducts hearing(s) to determine “corrective controls” to address ground water declines.

LEMA – Local Control

- In LEMAs, GMD develops a plan to address groundwater declines, including goals and proposed regulation to reduce use. The Chief Engineer conducts hearings to determine if the GMD’s plan should be adopted.

The heart of LEMAs is its “corrective controls,” typically water use **allocations** that works to achieve groundwater savings.

LEMA typically **provide flexibility** in use of allocations (multi-year, and at times, allowing allocations to be grouped or moved around)

Other elements of proposed GMD1 FCL: Dynamic appeals process

GMD 1 Efforts in Conservation & The History of the LEMA

The GMD 1 Board Has Long Supported Water Conservation

- Cost-share programs, education/outreach & research
- Support Wichita County WCA development

2012 Amendments to the GMD Act to allow for the creation of Local Enhanced Management Area (LEMAs).

- GMD 4 LEMA efforts in Sheridan 6
- **2013-2014:** District-wide LEMA development; total vote count showed insufficient support for the proposed plan
- **2016-2017:** Wichita County Water Conservation Area (WCA) developed
- **2018-2020:** The Board again discusses LEMAs for the District; decided to move forward with Wichita County LEMA first as it had the greatest support, the most urgent need, and to gain experience in LEMA processes.
- **2021: Approval and implementation of Wichita County LEMA for 2021-2025**

Proposed GMD 1 Four County LEMA

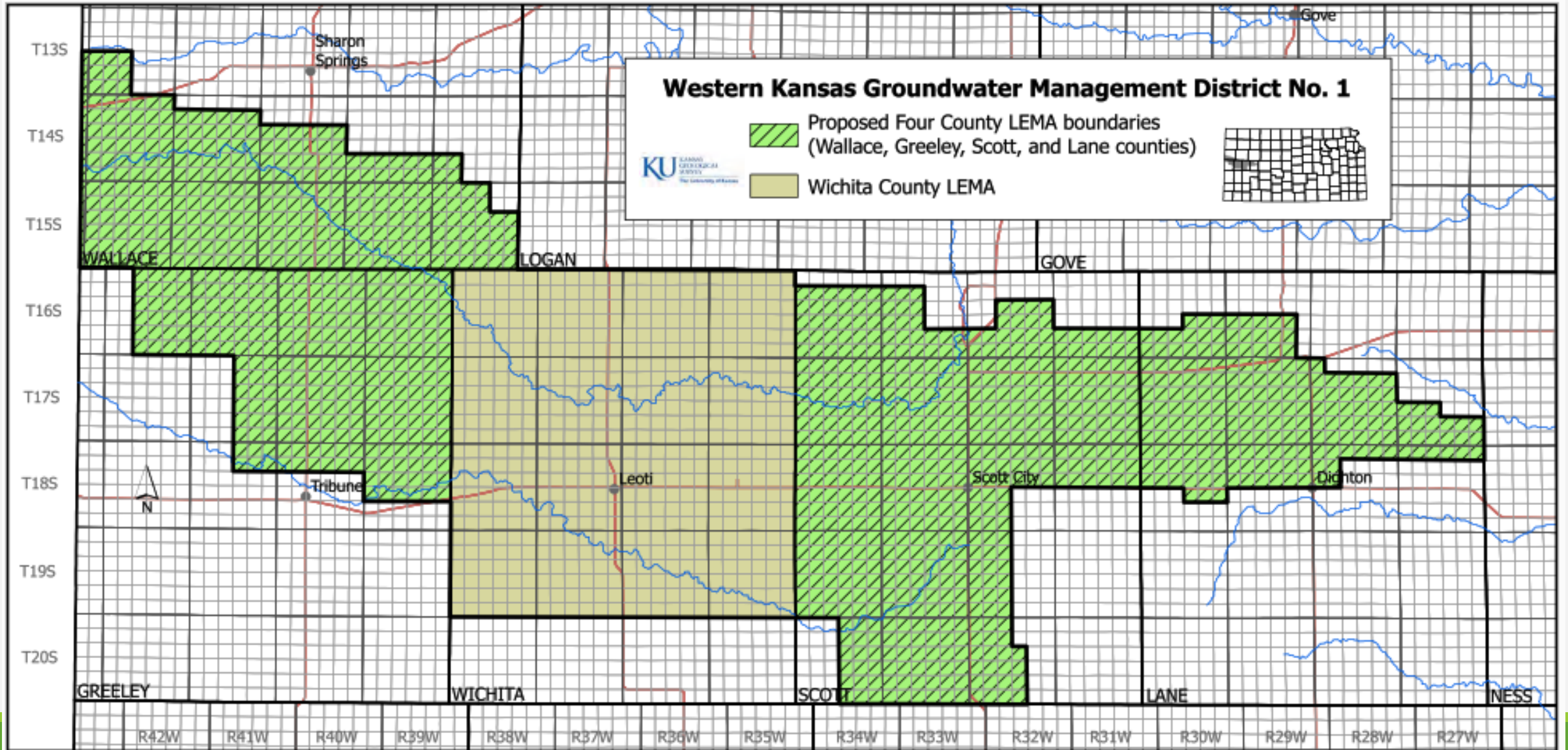
Wallace, Greeley, Scott, Lane Counties

Fall 2020: The GMD Board re-starts discussions on additional LEMA(s) to fulfill its mission to extend the useful life of the aquifer.

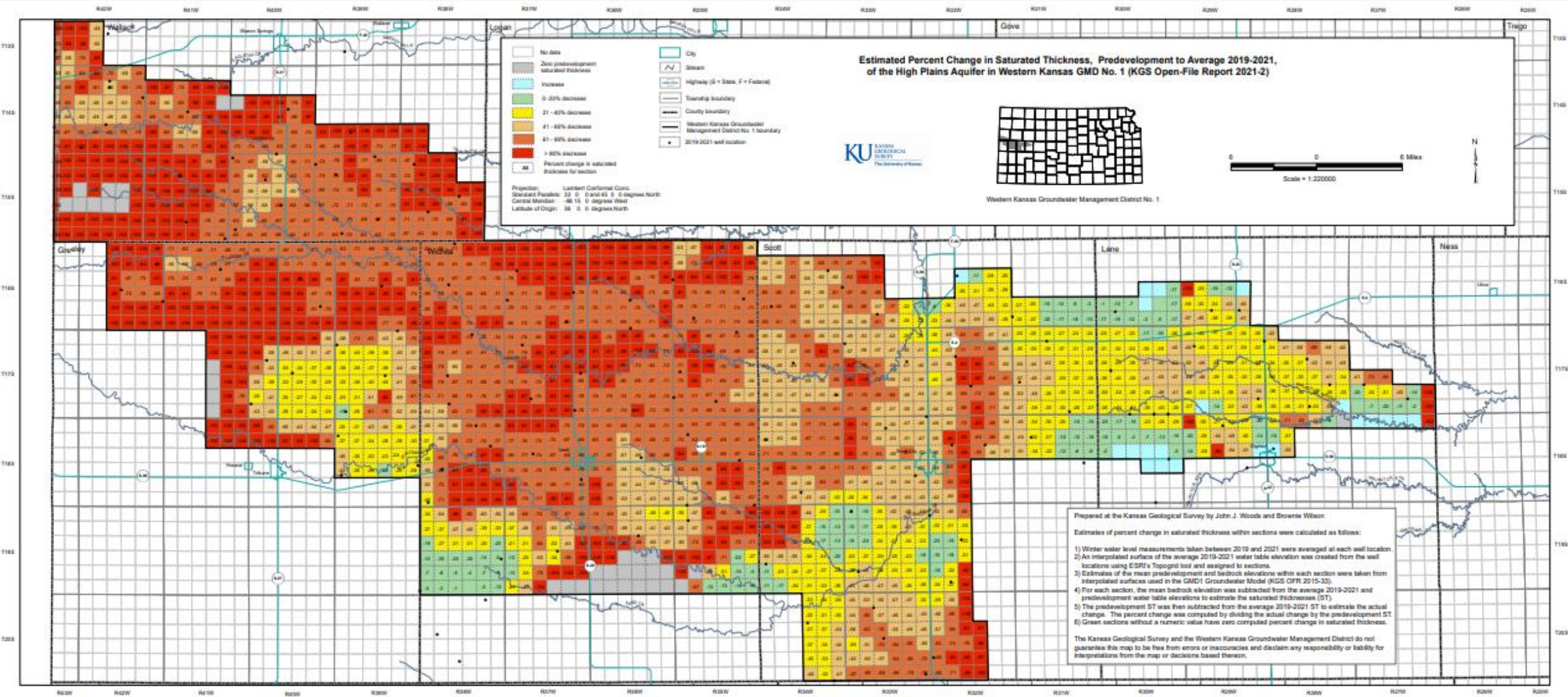
Current Methodology Behind Proposed LEMA:

- The goal is a significant step to extend the life of the aquifer; encourage maximum economic benefit
- Overall goal savings of approximately 10%
- Maximum reduction of **25% from historic use** to individual waterusers; smaller reductions for those with limited water users
- Provide as much flexibility as possible: 5-year allocations, group allocations
 - “Group” Definition: Composed of all legally overlapping water rights by point of diversion, place of use or both.
- Robust allocation appeal process will be included in the LEMA plan

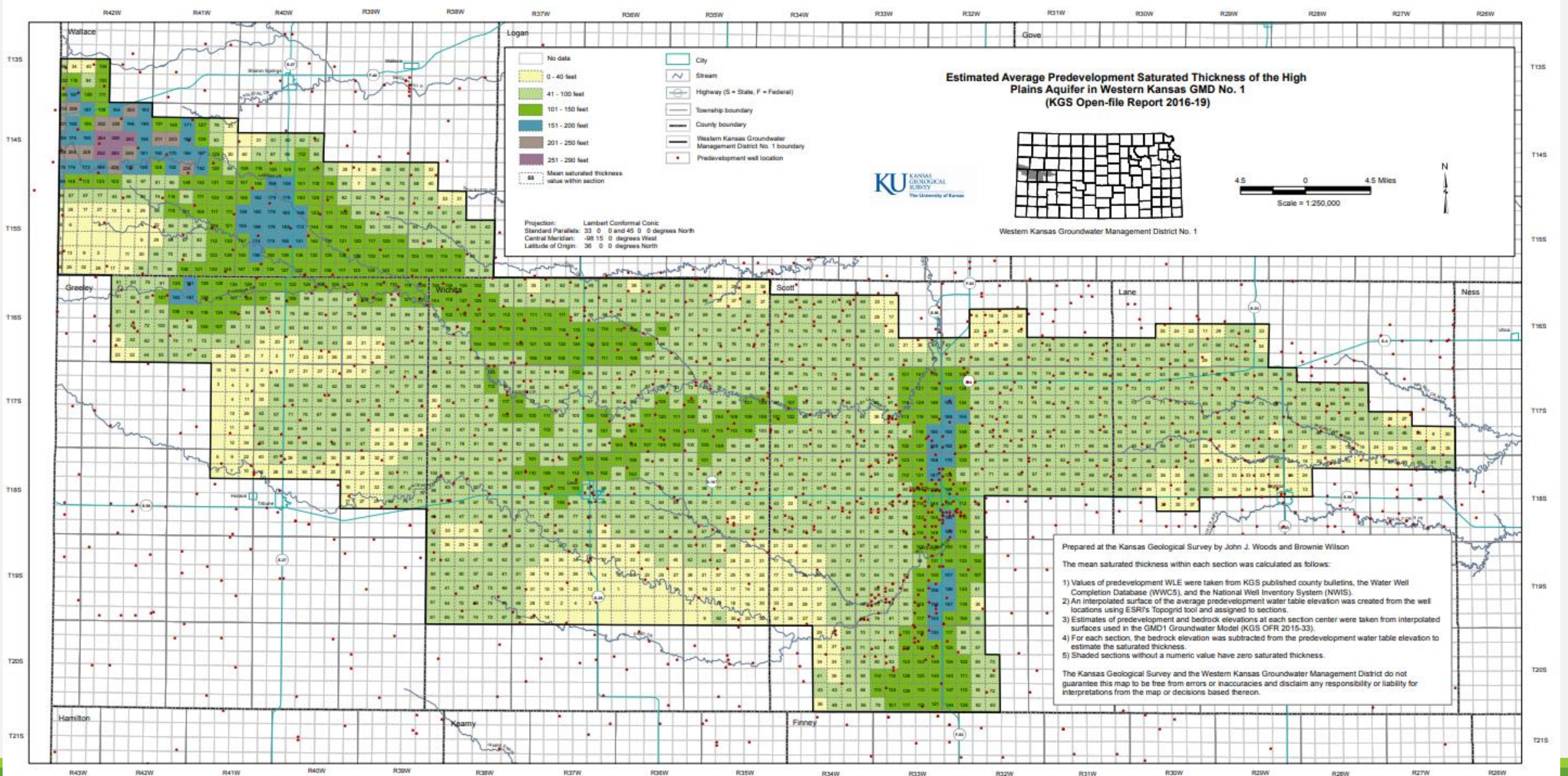
Existing LEMA work in GMD1



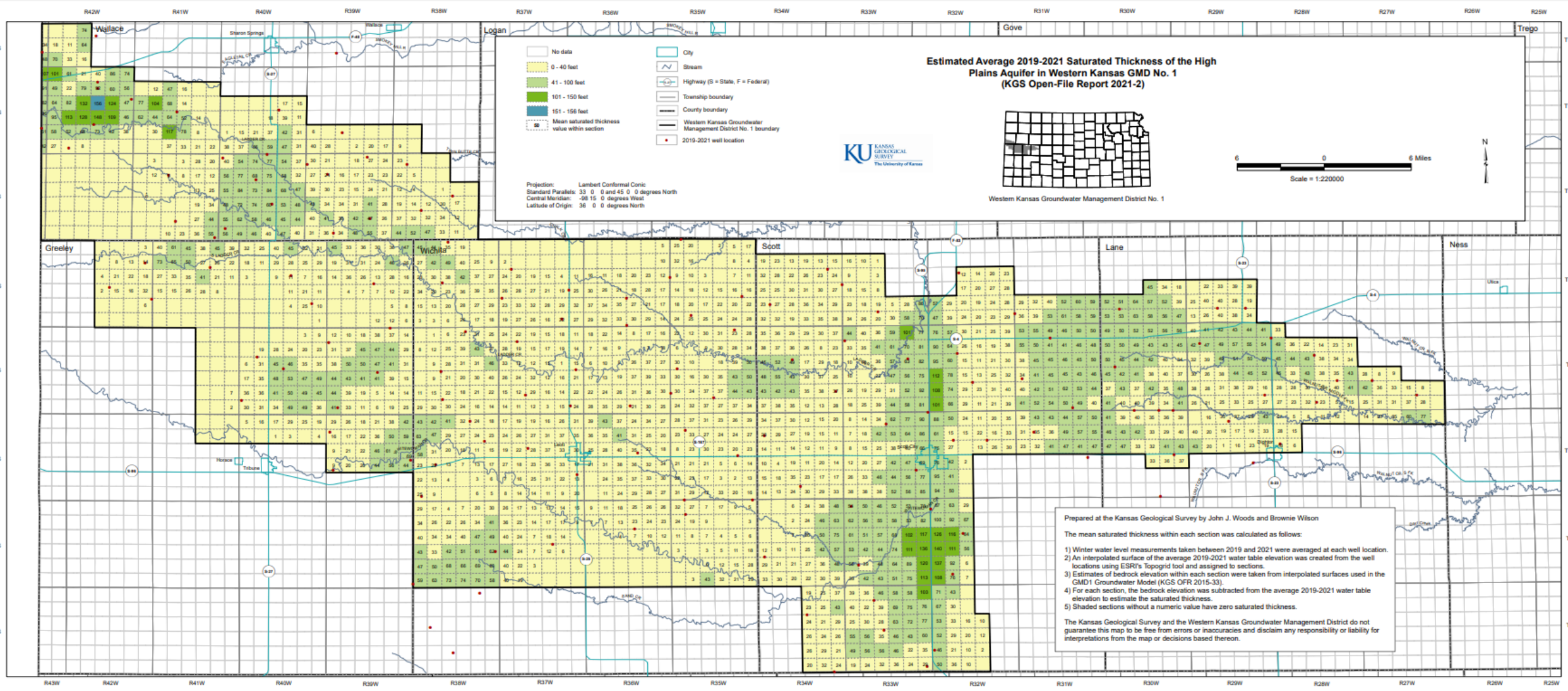
% Water Decline in GMD1 – Through 2021



Pre-development Saturated Thickness



2021 Remaining Saturated Thickness



Past LEMA Methodologies Explored

1. Allocations based on **fixed** percent of authorized quantity (ex. 25% District wide)
2. Allocations based inches per authorized acre
3. Allocations based inches per maximum acres of a recent period
4. Allocations based inches per average acres of a recent period

None of these were found suitable or fair as each method gives allocations greater than historic use to some; thus, necessitating greater reductions of others to accomplish the overall reduction goal.

Subsequently, the Board reviewed **three Hybrid methods**, with allocations based on recent historic use, but varying reductions based on a “sliding scale” measure of historic use vs authorization (2011-2020). With an appeal process.

Water Rights & The LEMA

Vested Water Rights: A water right which was put to beneficial use prior to June 28th, 1945

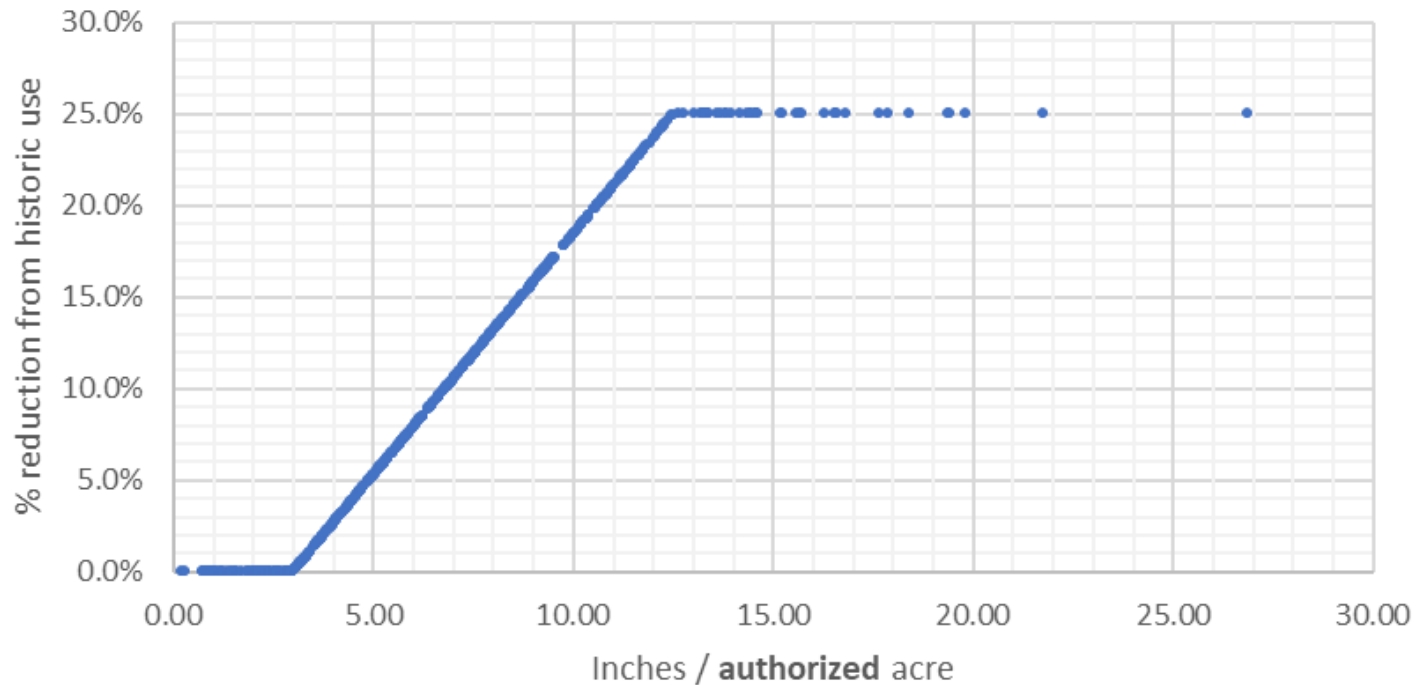
- Not restricted under the Proposed LEMA.
- Water Right Numbers start with a two-letter county abbreviation.

Appropriation Water Rights: Developed after 1945 and have a priority number.

<u>Water Right Type</u>	<u>In the FCL LEMA</u>
Irrigation	Yes
Stock	No
Municipal	No
Vested	No

Allocation method selected: Reduction % based on Inches used per Authorized Acre

Preferred allocation method:
Sliding scale, 3-12 inches



- Average Non-0 use per authorized acres computed

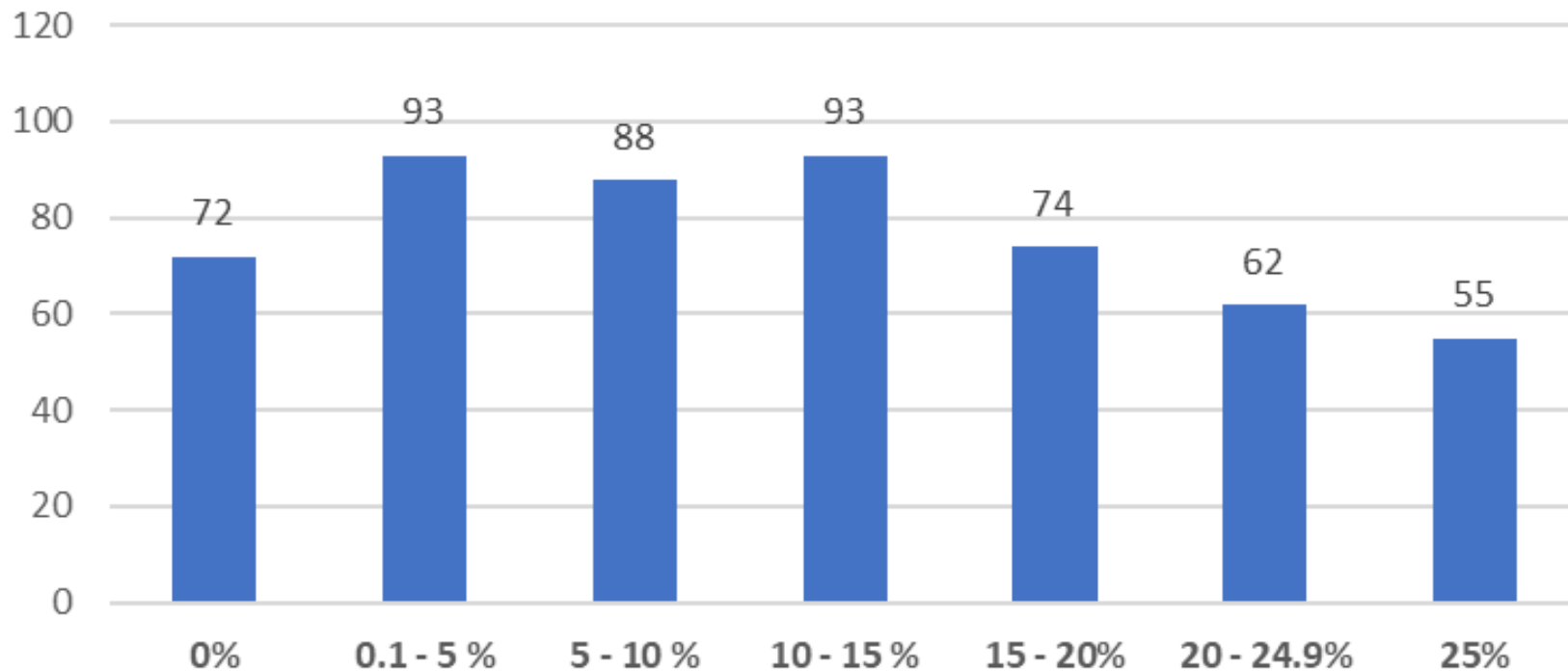
- When use is less than 3 inches/authorized acre, a 0% reduction

- When use is more than 12 inches/authorized acre, a 25% reduction

- In between, a sliding scale reduction creating a range

Effect of the FCL Allocation Method

Preferred allocation method, inches/AA (3-12)
Percent reduction from historic use
Number of groups per reduction class



- Average total reduction of water use over the 4 counties (before appeal): **10.5 %**
- **13 %** of water rights have **NO** reduction
- **10 %** of water rights are reduced by 25%
- **76 %** in between on sliding scale

Explanation of Allocation Reports

1543 1

GMD No. 1 Proposed Four-County LEMA
Draft Group Allocation Report, May 16, 2022



Notes:

1. Allocations are draft and subject to change due to potential adjustments to the allocation methods by the Board, or an appeal, if filed.
2. Water Right Group definition - A Water Right Group is composed of all legally overlapped water rights (by place of use, point of diversion, or both)
3. Vested Water Rights (a Water Right which was put to beneficial use prior to June 28, 1945) are not restricted as part of this proposed LEMA.
4. LEMA allocations pertain only to irrigation water rights.
5. The average water use calculations below are for years 2011-2020, excluding years of no Group use.
6. Contact the GMD No. 1 office to request detailed water use at 620-872-5563, gmd1@wbsnet.org

Table 1A: Water Rights in Group 137

File Number	Water Right Type	Point of Diversion	Correspondent Type	Average Water Use, Acre-Feet
	Appropriation			90.93
	Appropriation			72.52
	Appropriation			0.00

Table 1B: Water Rights Group 137, 5-Year Allocation Computation

Line	Description	Value	Units
1	Group Authorized Quantity (for reference only)	1000.00	Acre-Feet
2	Group Authorized Acres	476.00	Acres
3	Historic Average Water Use of Vested Rights, if applicable	n/a	Acre-Feet
4	Historic Average Water Use of Appropriation Rights	163.45	Acre-Feet
5	Total Historic Average Water Use: [Line 3] + [Line 4]	163.45	Acre-Feet
6	Historic Inches on Authorized Acres: [Line 5] / [Line 2] * 12	4.12	Inches
7	Group % Reduction from sliding scale	3.11%	%
8	Group 5-Year Allocation for Appropriation Rights: [Line 4 in AF] * (1 - [Line 7 in %]) * 5 years = Group Total Allocation Water Use in AF * % Reduction * 5 years = Group Total Allocation	791.81	Acre-Feet

Base Appeal Approach	New Owner/Operator Control With 3 or More Years of Record	New Owner/Operator Control or Irrigation System Change With Less Than 3 Years of Record	No Historic Use Appeal Approach
<ul style="list-style-type: none"> • Appropriate for circumstances where there has <u>not</u> been a control/ownership change. • New owners/operators may utilize the Base Appeal Approach should they agree with and choose to use historical data provided by previous owner. • A minimum of three representative years of use data is required. • Years of demonstrated conservation will be excluded from averaging. • For example, if 2015 and 2016 had demonstrated conservation, then years 2011-2014 and 2017-2020 will be summed and divided by 8 to get the average water use to determine the required reduction. 	<ul style="list-style-type: none"> • Appropriate for circumstances where recent change of control/ownership <u>has</u> taken place with <u>3 or more</u> representative years of history This Appeal process requires written documentation proving such changes and must be deemed acceptable by the Board. (DWR/FSA Records) • Years of demonstrated conservation may be excluded from averaging. • Under new control, the new water use record may be used. • For example, the new ownership ownership/control was for the period 2017-2020, the water use in 2017-2020 will be summed and divided by 4 to determine the average for purposes of determining the required reduction and allocation. 	<ul style="list-style-type: none"> • Appropriate for circumstances where recent change of control/ownership <u>has</u> taken place with <u>less than 3</u> representative years of history. This Appeal process requires written documentation proving such changes and must be deemed acceptable by the Board. If a deficit in annual data is present NIR may be used to supplement data. FCL Reductions will apply to years of historic data and will not apply to NIR. • A current owner who exceeds three years of data, but can provide proof that a new irrigation system change directly resulted in less than three years of reflective operational water use data shall qualify. • Years of demonstrated conservation may be excluded from averaging. • Under new control, the new water use record may be used. • For example, if a new owner only has 2 years of data they may supplement NIR data for the 3rd year. 	<ul style="list-style-type: none"> • Appropriate for circumstances of non-use for 2011-2020 or for a new owner/operator Jan 1st 2021 through Feb. 22nd 2022. NIR would be used for new owner/operator only. FCL Reductions will apply to years of historic data and will not apply to NIR. • Where the appeal is for Jan 1st 2021 through Feb. 22nd 2022, an allocation of NIR will be given where clear boundaries of irrigation can be demonstrated such as an irrigated circle or buried drip tape or consistent flood acres. Other cases will be reviewed if the boundary is not clear or clean, then the next option would be a pump test multiplied by 150 days. • Where a Group that has had use, but also has an individual point of diversion with non-use and is appealed, a pump test to demonstrate the ability to pump is required to provide an allocation of the pump test times 150 days.

1. Defining Voluntary Conservation

2. Appeals Process

LEMA Progress & Implementation

- FCL was submitted on July 1st, 2022, after being unanimously approved by the GMD1 Board of Directors
- First Public Hearing was held on October 17th, 2022
 - Second Public Hearing
- Importance of County Outreach Meeting May 19th & 20th (Wallace, Lane & Scott)

Upon approval, the Four County LEMA would take effect January 1, 2023.

What public feedback has GMD1 received during this process?

Take away experiences by the Board of Directors?

Thank you for the teamwork that has made
the Four County LEMA Possible!

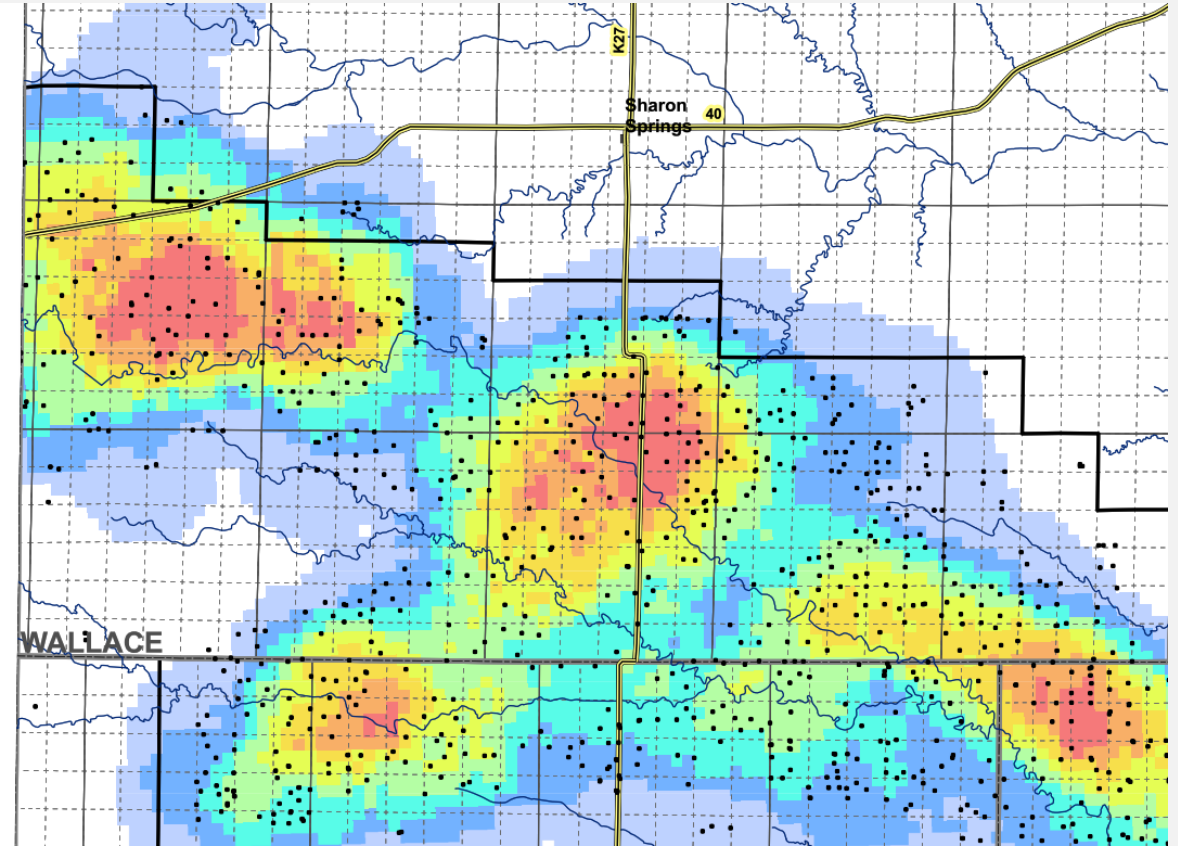
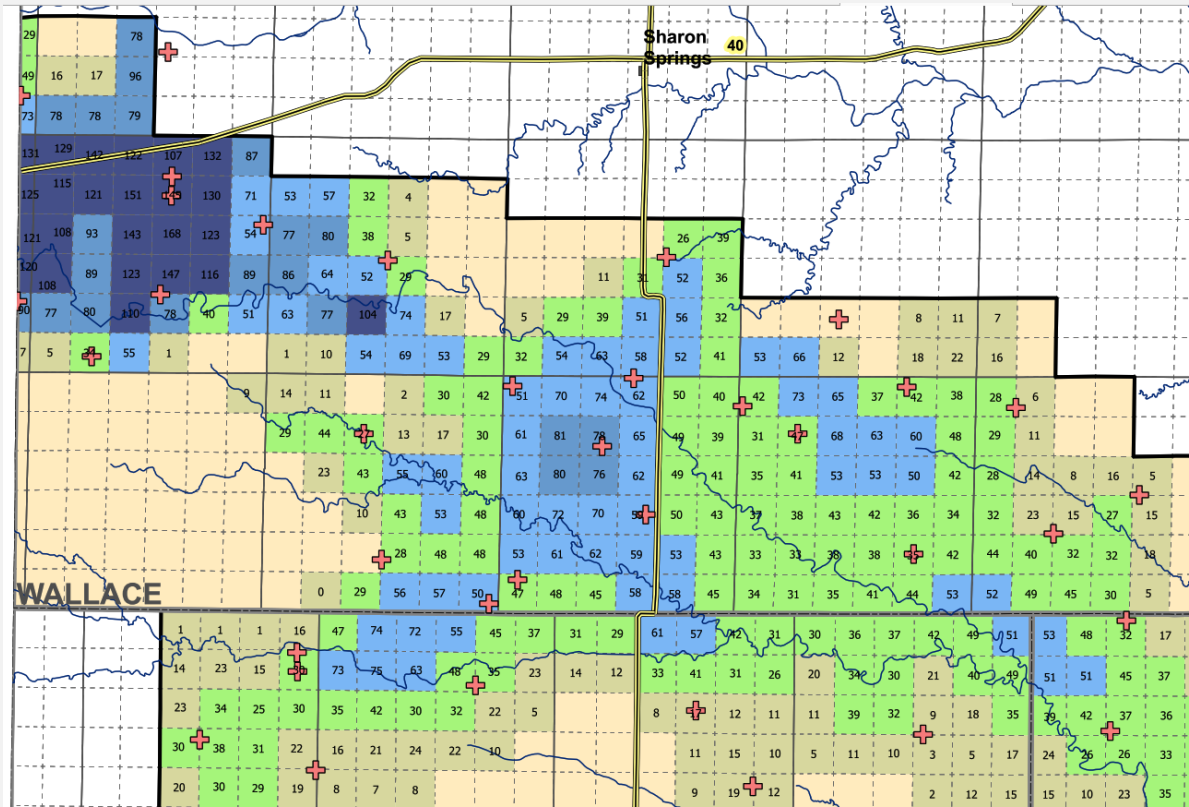


- GMD1 Landowners & Community Members
- GMD1 Board of Directors
- Past GMD1 Directors & District Staff
- Brownie Wilson – Kansas Geological Survey
- Mike Meyer – Division of Water Resources
- All State agencies and individuals who have supported and assisted in the development of the GMD1 Four County LEMA & Wichita County LEMA

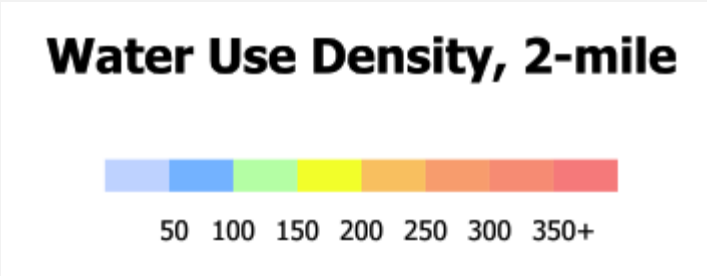


Questions?

Supplemental Slides



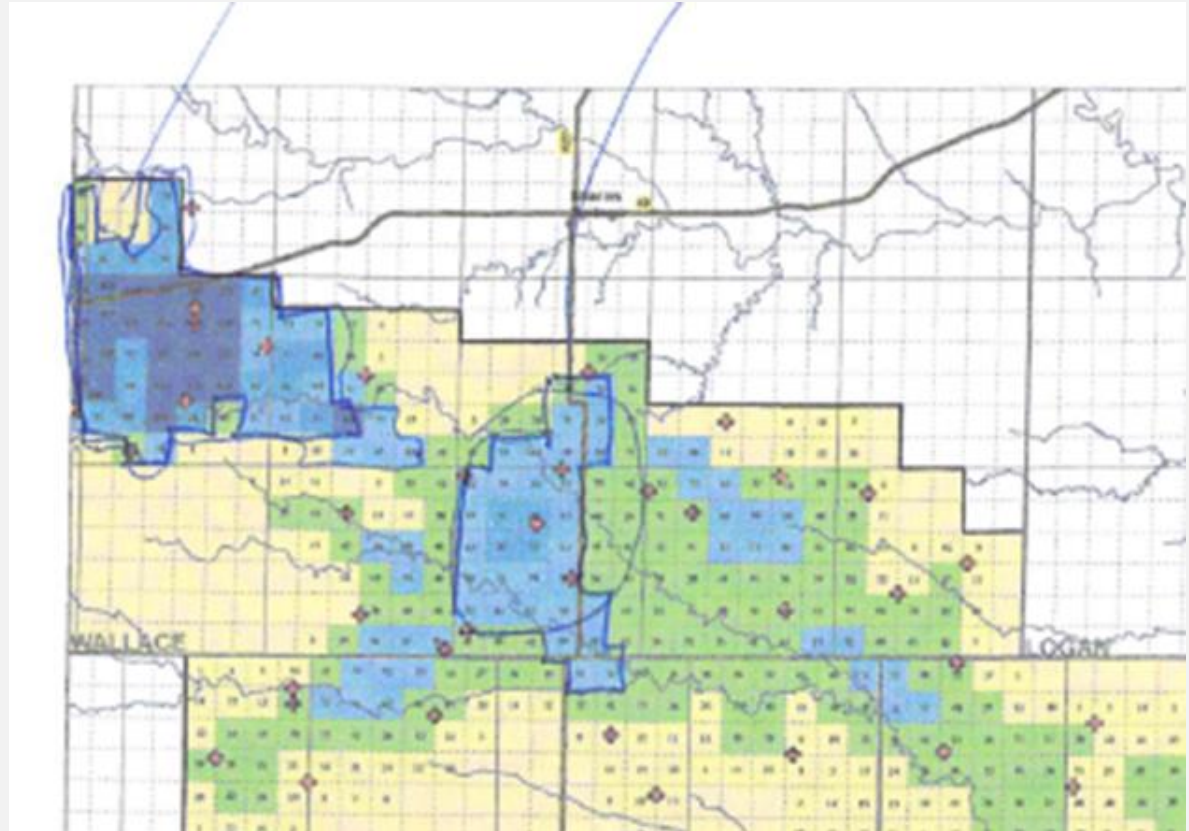
Wallace Greeley Counties:
 Current Saturated Thickness
 and Density of Use



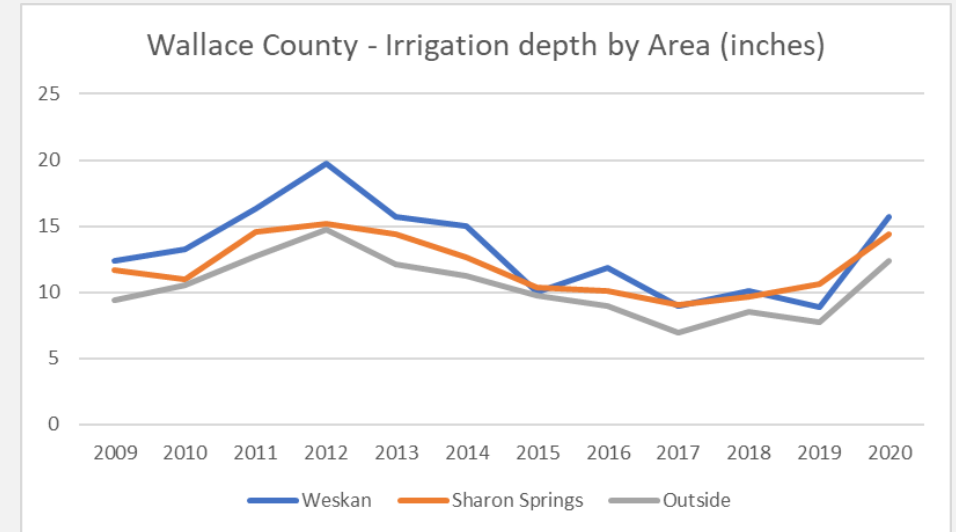
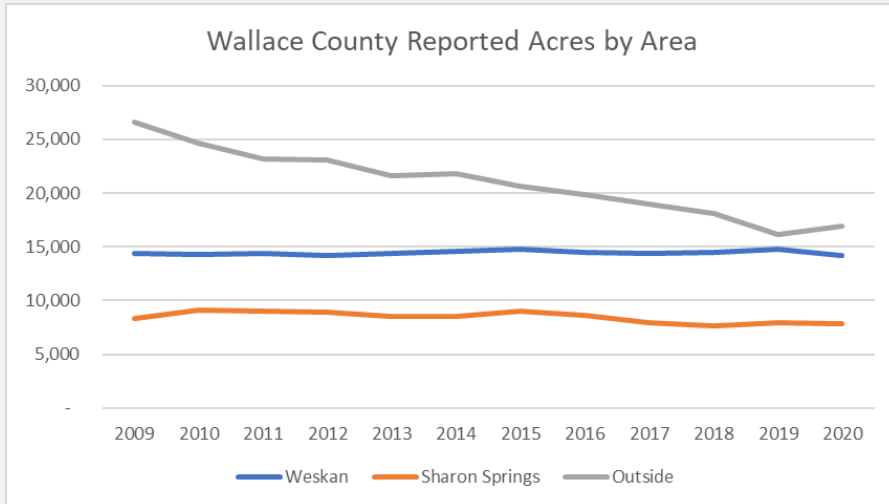
Wallace County Sub-area Analysis

The detailed Wallace County results were tabulated into three sub-areas:

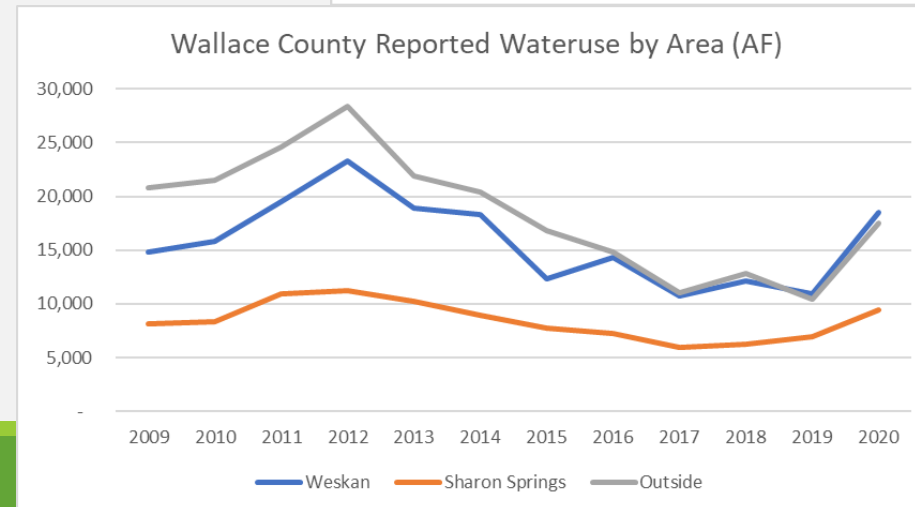
- The “Weskan” area
- The area south of “Sharon Springs”, with greater than 50 feet of saturated thickness
- The “Outside” area, those areas of Wallace County in GMD 1, but not in the two areas above. Sometimes referred to herein as the area of limited water supply.



Wallace County Sub-area Analysis



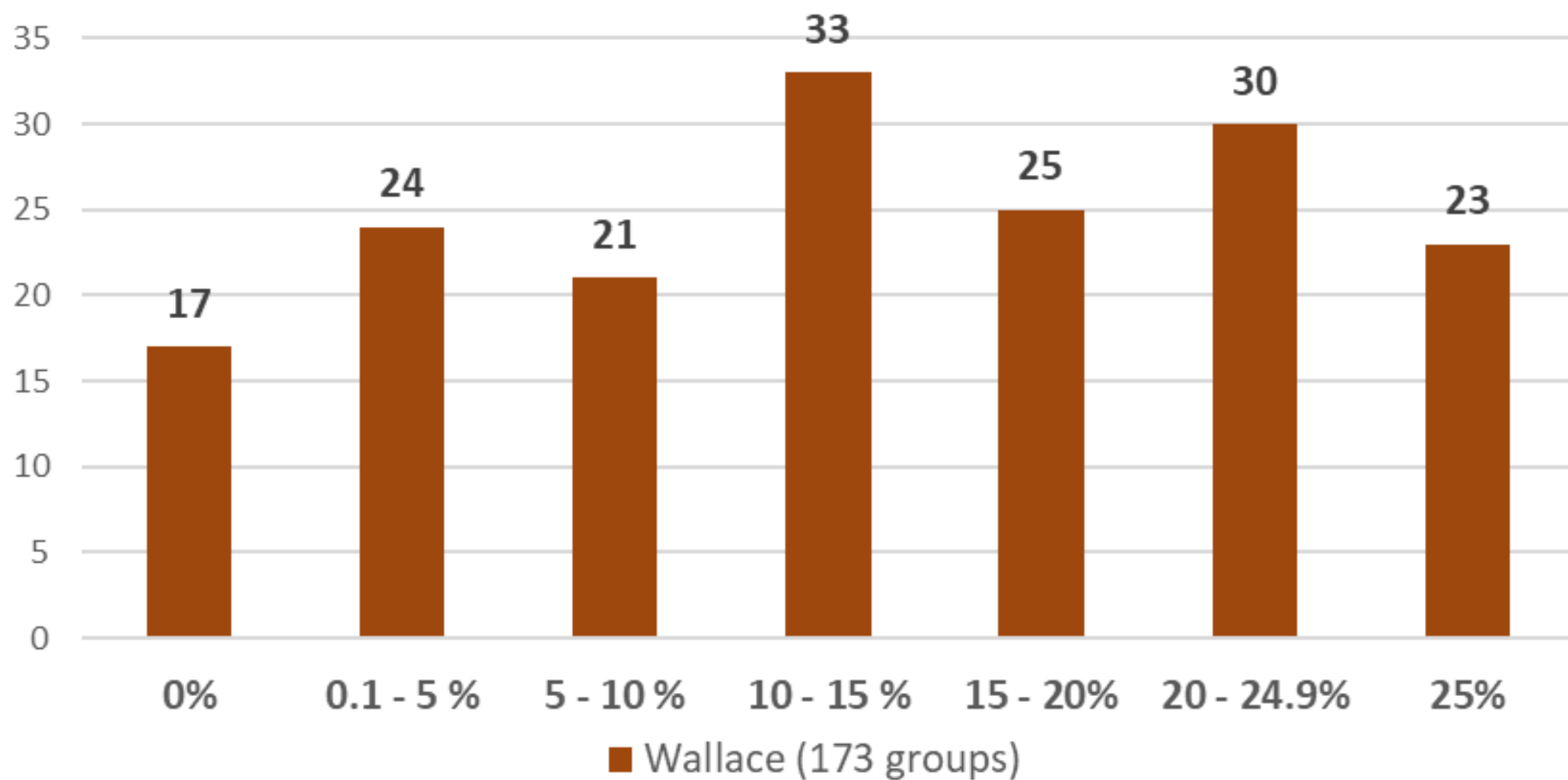
- The areas of limited saturated thickness are seeing a very significant reduction in acres irrigated.
- The Weskan area applied more inches/acre than the areas of limited saturated thickness, but the gap is narrowing.



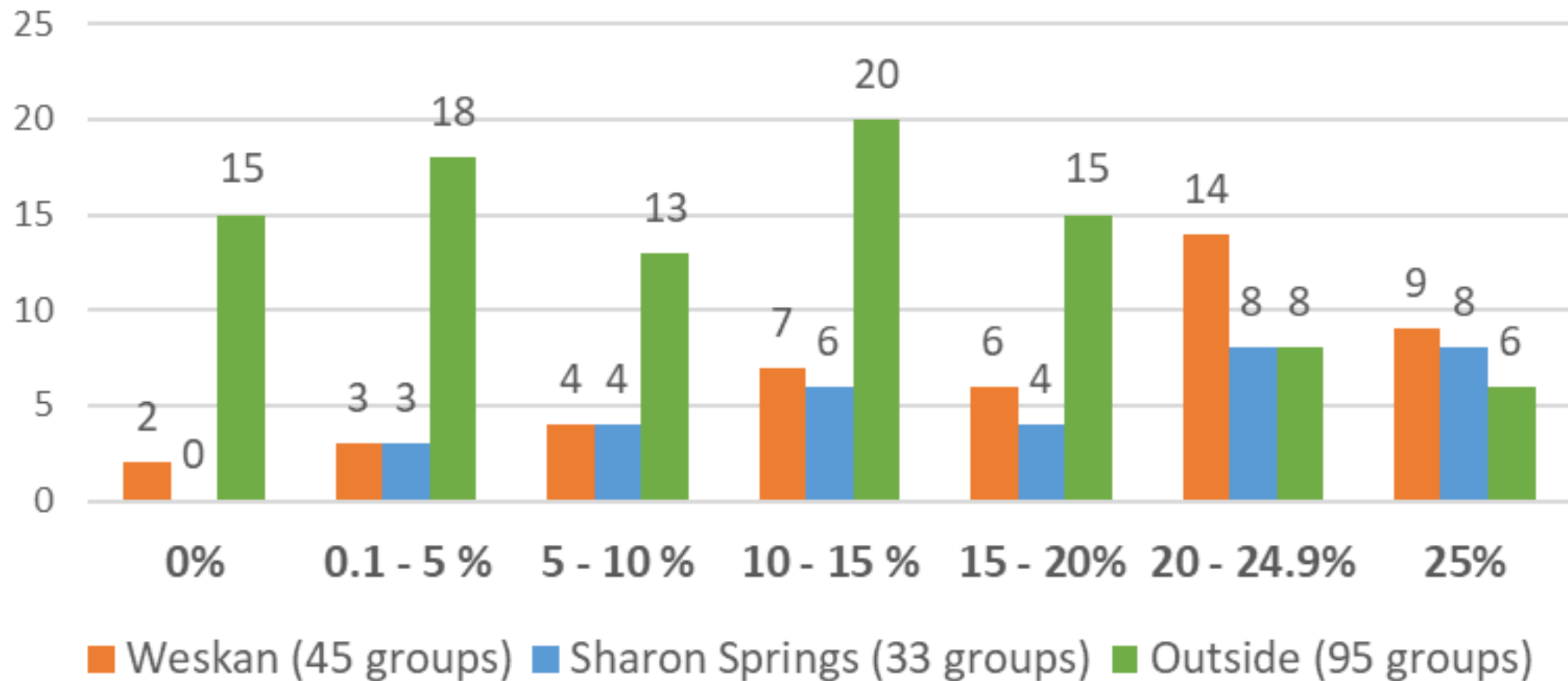
Wallace County sub-area review statistics

	Historic Use			Proposed Allocations basis		
	Average	Average	Average	Group	Group	Total
	Wateruse	Acres	depth on	Inches on	Percent	Group
	2011-20	2011-20	reported acres	Auth. Acres	reduction	Allocations
County totals/averages						
Greeley	16,360	18,725	10.48	6.94	11.0%	14,557
Lane	14,652	18,891	9.31	6.69	9.7%	13,231
Scott	39,151	45,487	10.33	5.14	8.7%	35,730
Wallace	42,277	42,910	11.82	7.13	12.2%	37,116
Total	112,441	126,013	10.71	6.22	10.5%	100,634
Wallace County Sub areas						
Weskan	15,900	14,455	13.20	9.27	18.5%	12,956
Sharon Springs	8,513	8,400	12.16	7.74	16.8%	7,084
Outside	17,864	20,055	10.69	5.73	4.4%	17,076

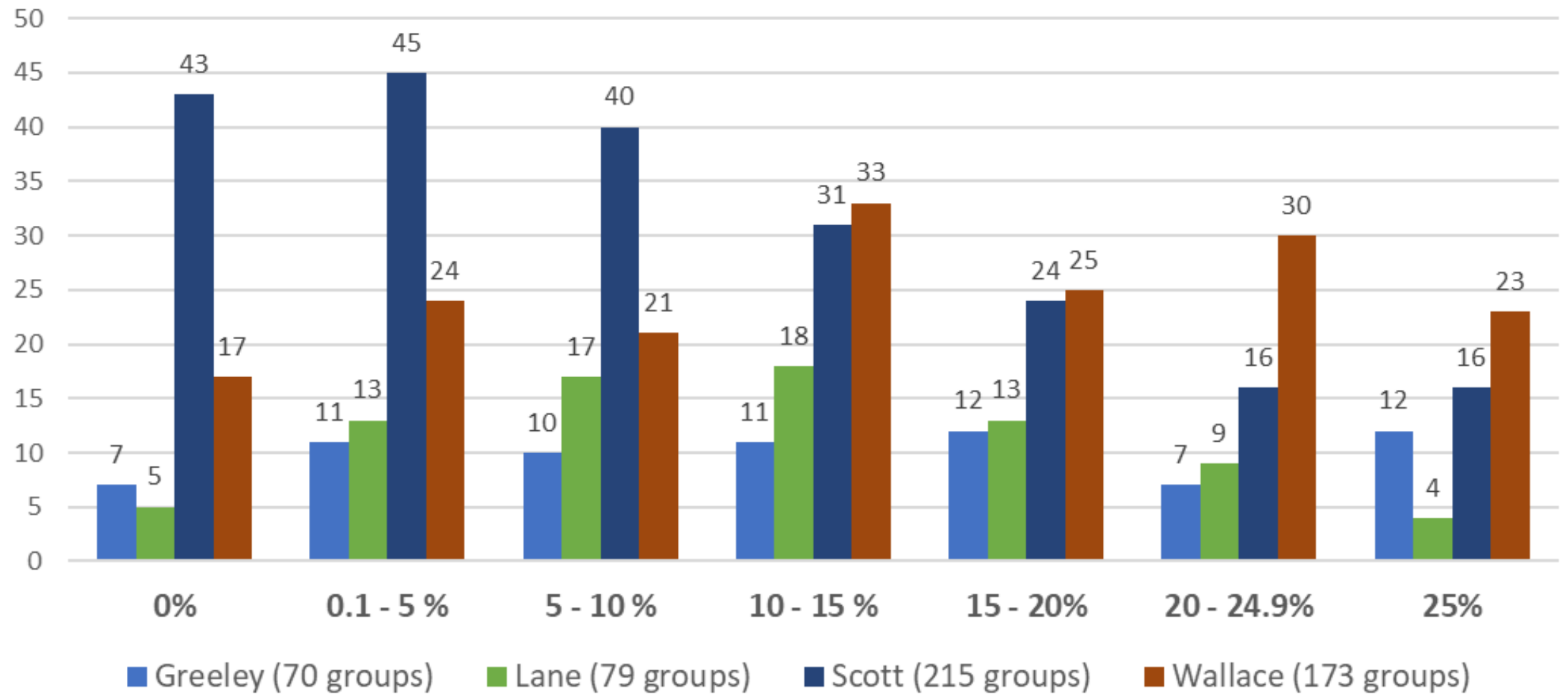
Number of groups in each % reduction range Wallace County



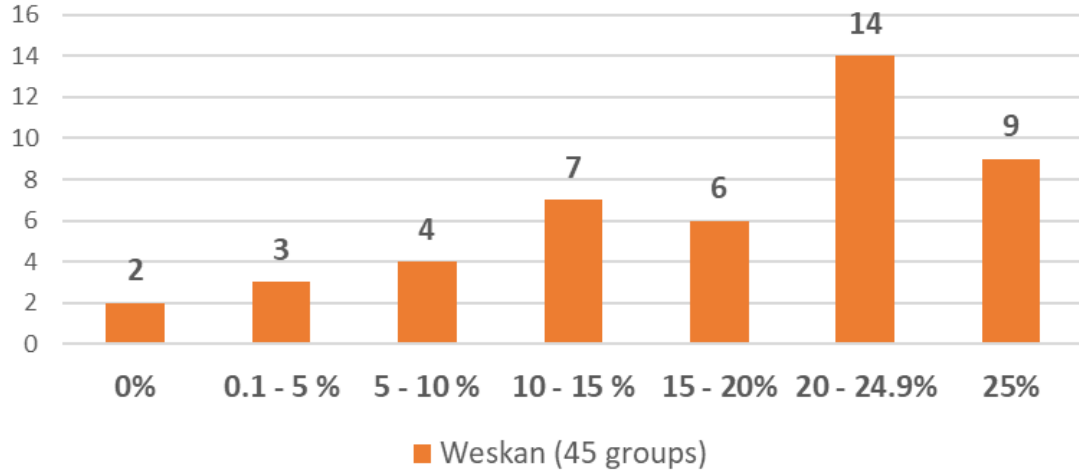
Number of groups in each % reduction range Wallace County sub-areas



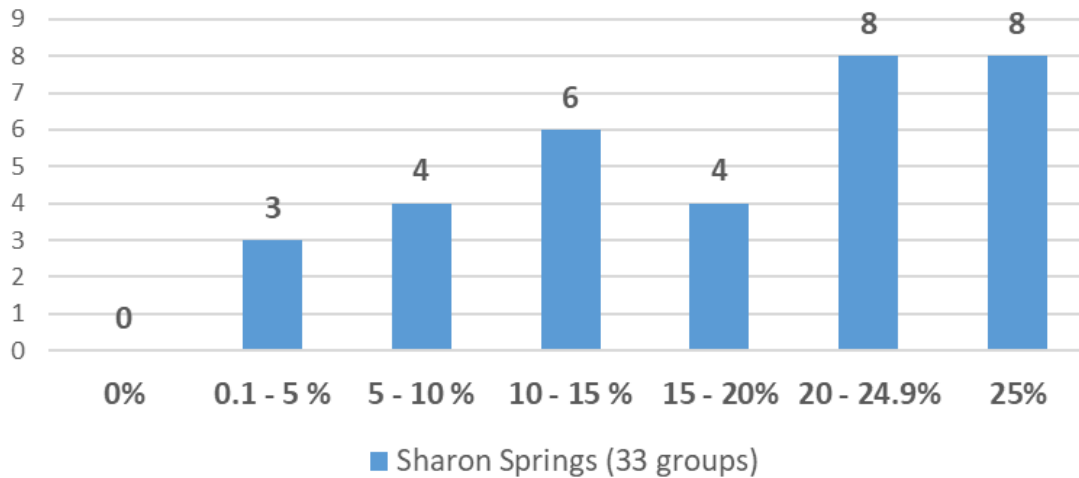
Number of groups in each % reduction range



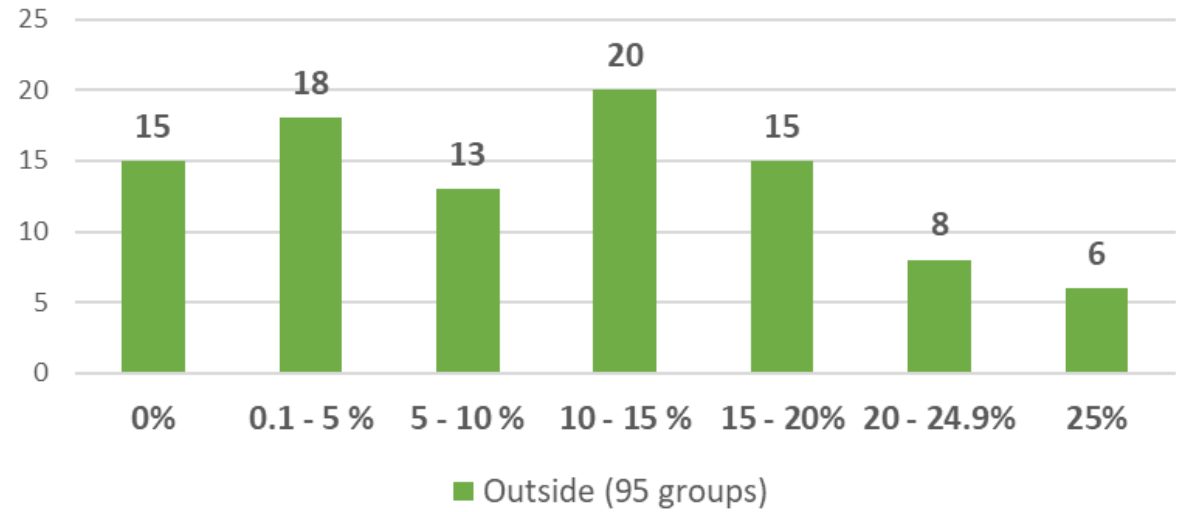
Number of groups in each % reduction range
Weskan Area



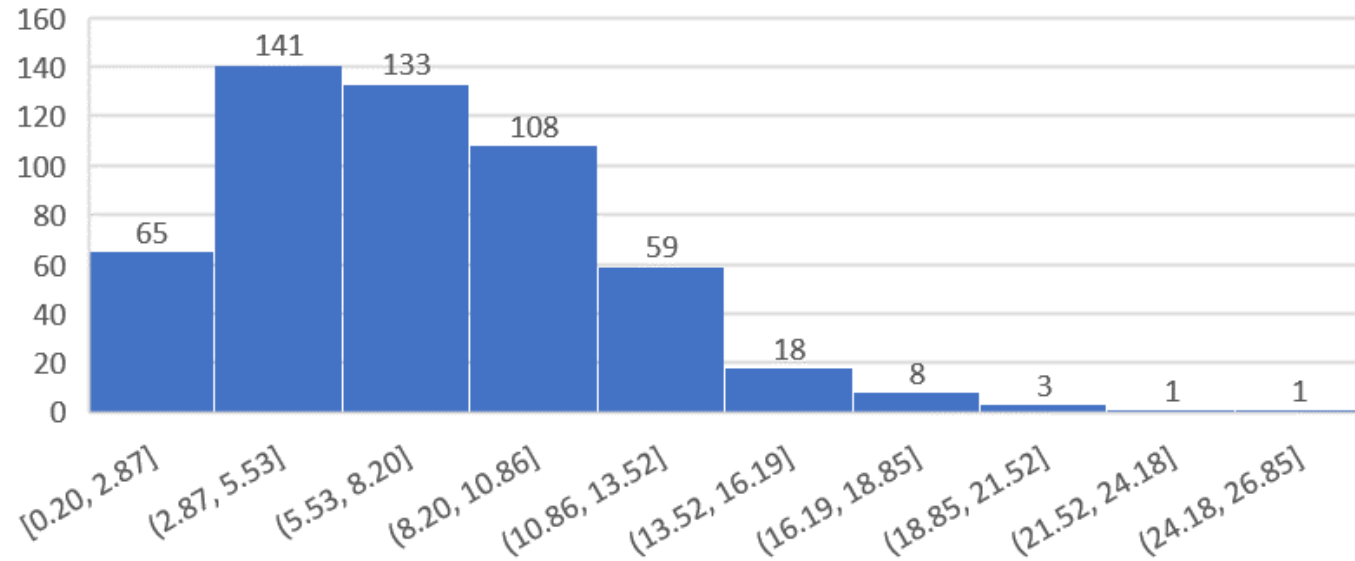
Number of groups in each % reduction range
Area South of Sharon Springs



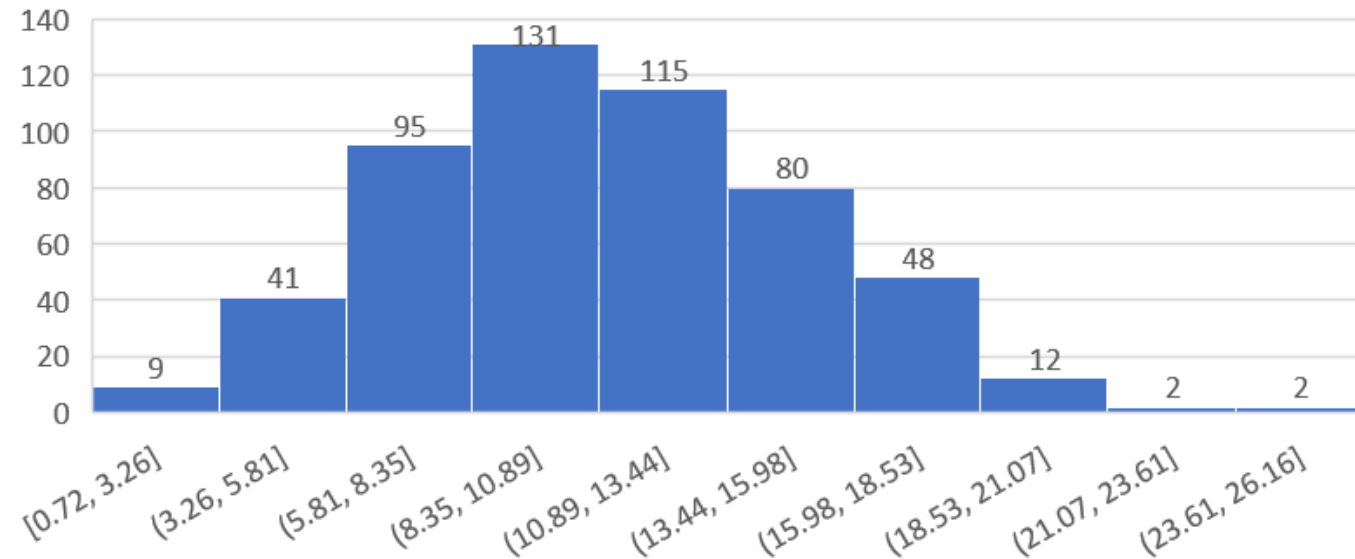
Number of groups in each % reduction range
Wallace County Outside Weskan and Sharon Spr.



Group Inches/authorized
Acre



Group inches/reported acre
of groups per range



Supplemental Slides Cont.

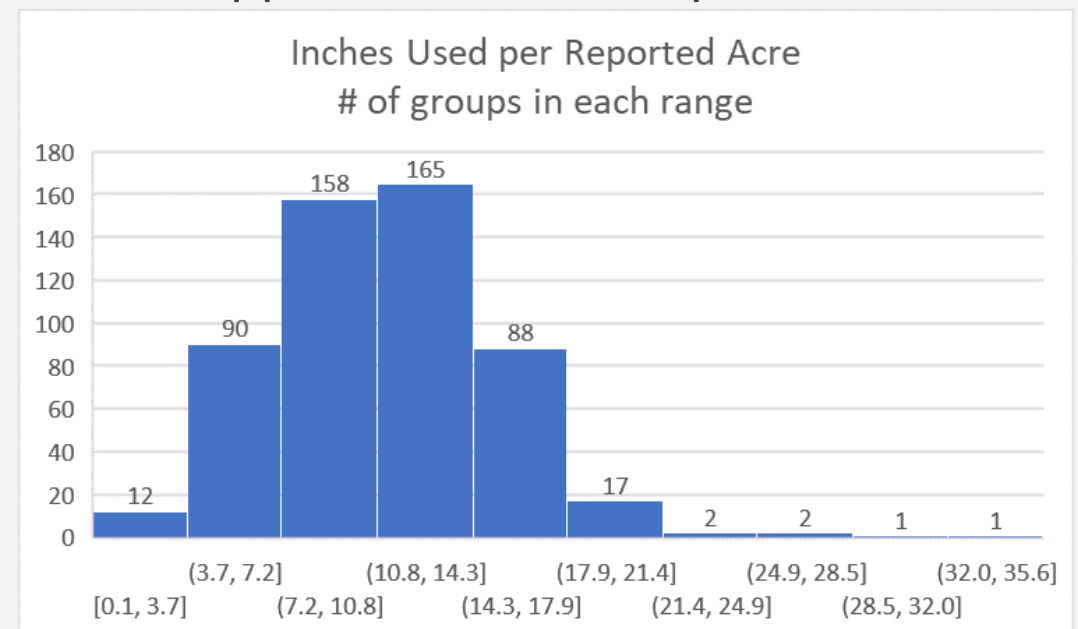
Why not provide allocations based on inches/acre?

The Board examined this alternative during the spring of 2021, looking at allocations based on inches per authorized acre, inches per recent maximum acres, and inches per recent average reported acres.

For example, to get to the 10% reduction in use desired by the Board, using inches/average reported acres, the allocations would have to be based on approx. 10 inches/reported acre.

This graph shows the number of water right group in each inch/reported acre range. For example, there are 158 groups that averaged between 7.2 and 10.8 inches/acre;

With this allocation method, those irrigating at least then 10 inches/acre would get no reduction; those irrigating at more than 10 inches per acre would take a sizeable reduction to get to the goal.

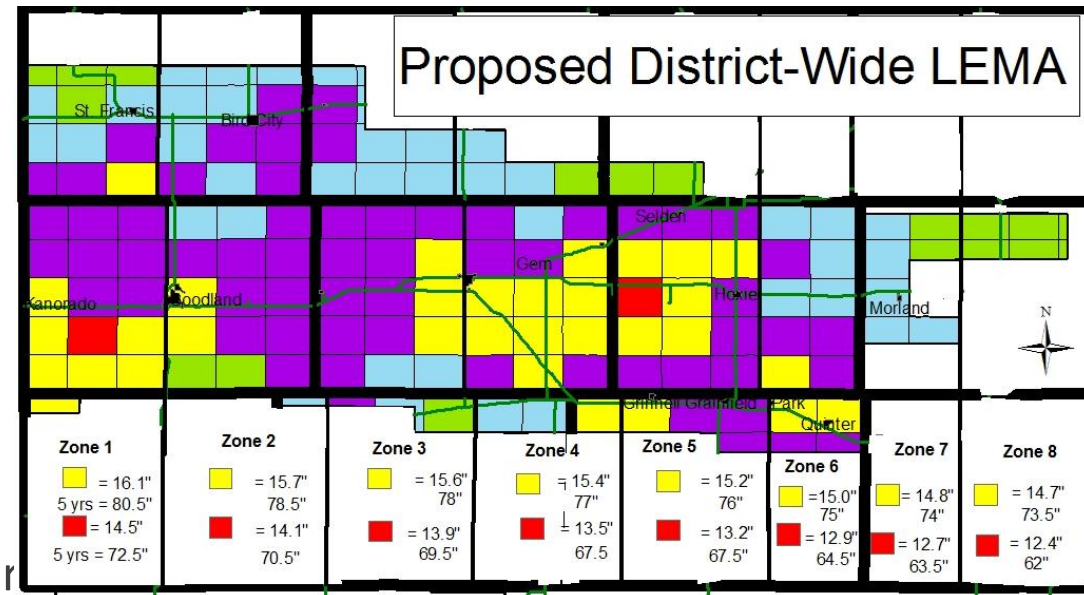


Existing LEMA allocation methods

Sheridan (2013, 2018): allocations = 11 inches on recent acres

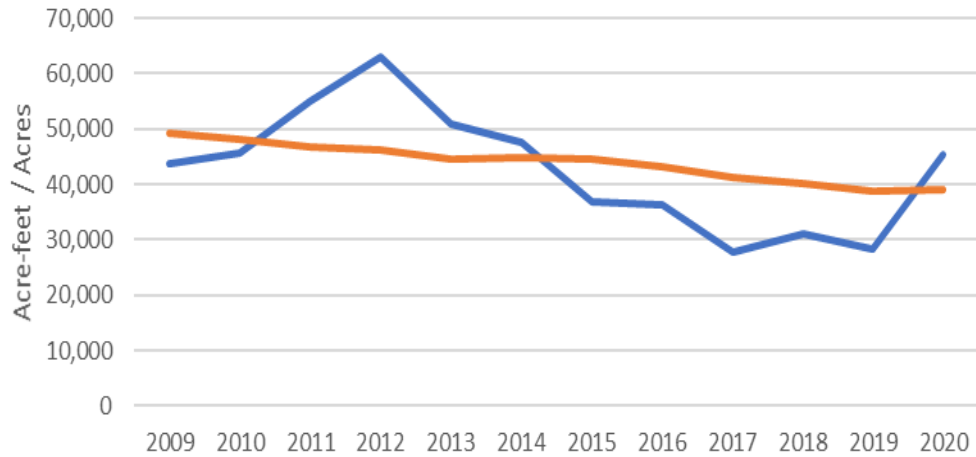
GMD 4 District wide (2018): allocations based on inches on recent acres, with the inches depending on rate of groundwater decline in the township but are generally greater than 15 inches/acre.

Wichita County LEMA (2021):
 Allocations based on a 25% reduction from 2009-15 water of their authorized quantity

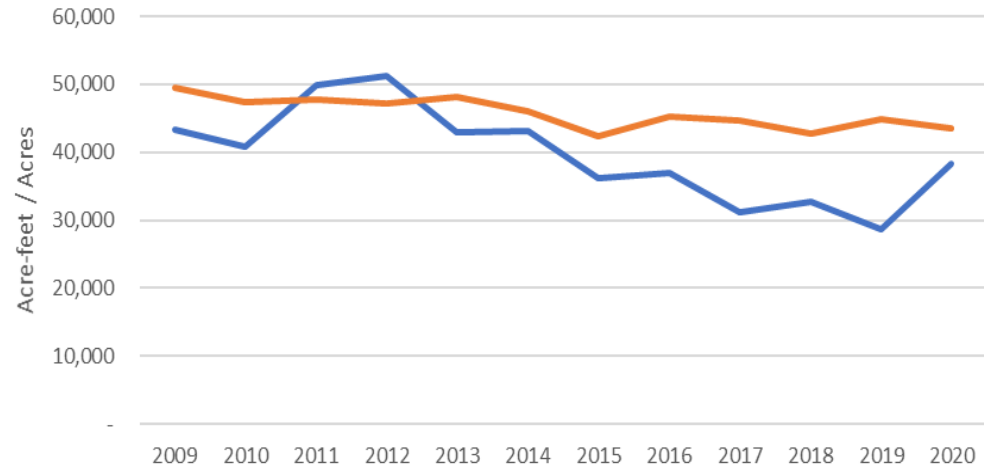


County wateruse and acreage trends, 2009-2020

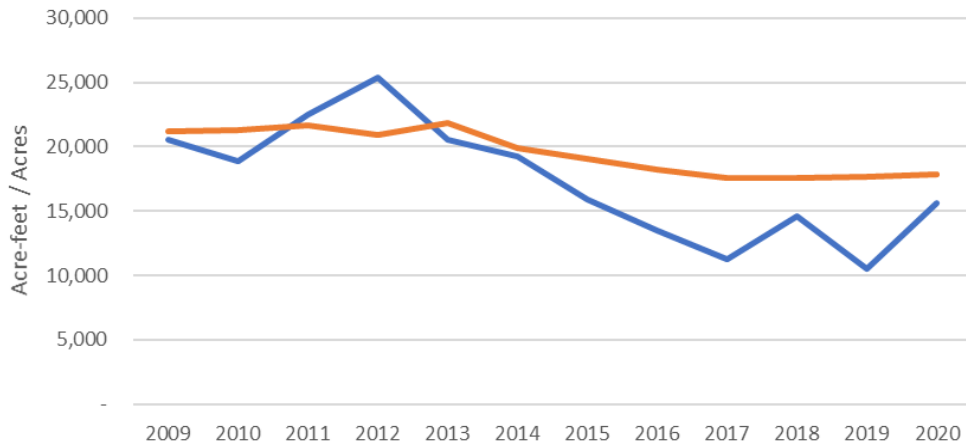
Wallace County



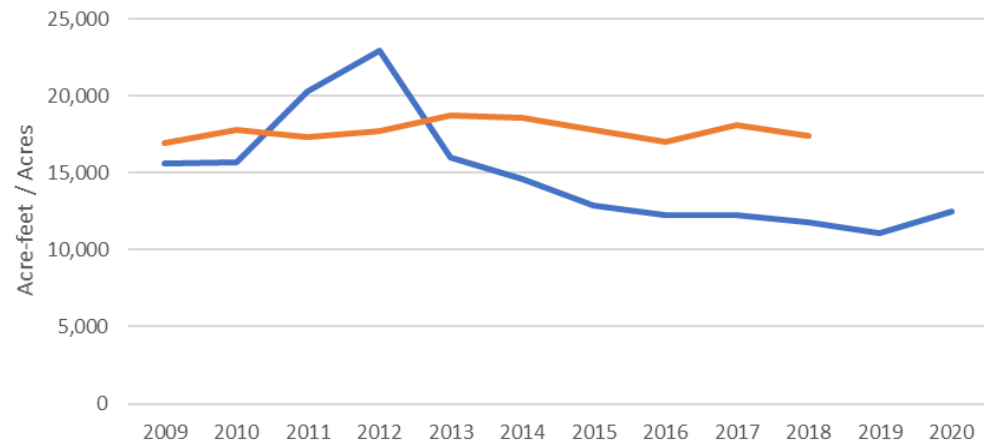
Scott County



Greeley County



Lane County

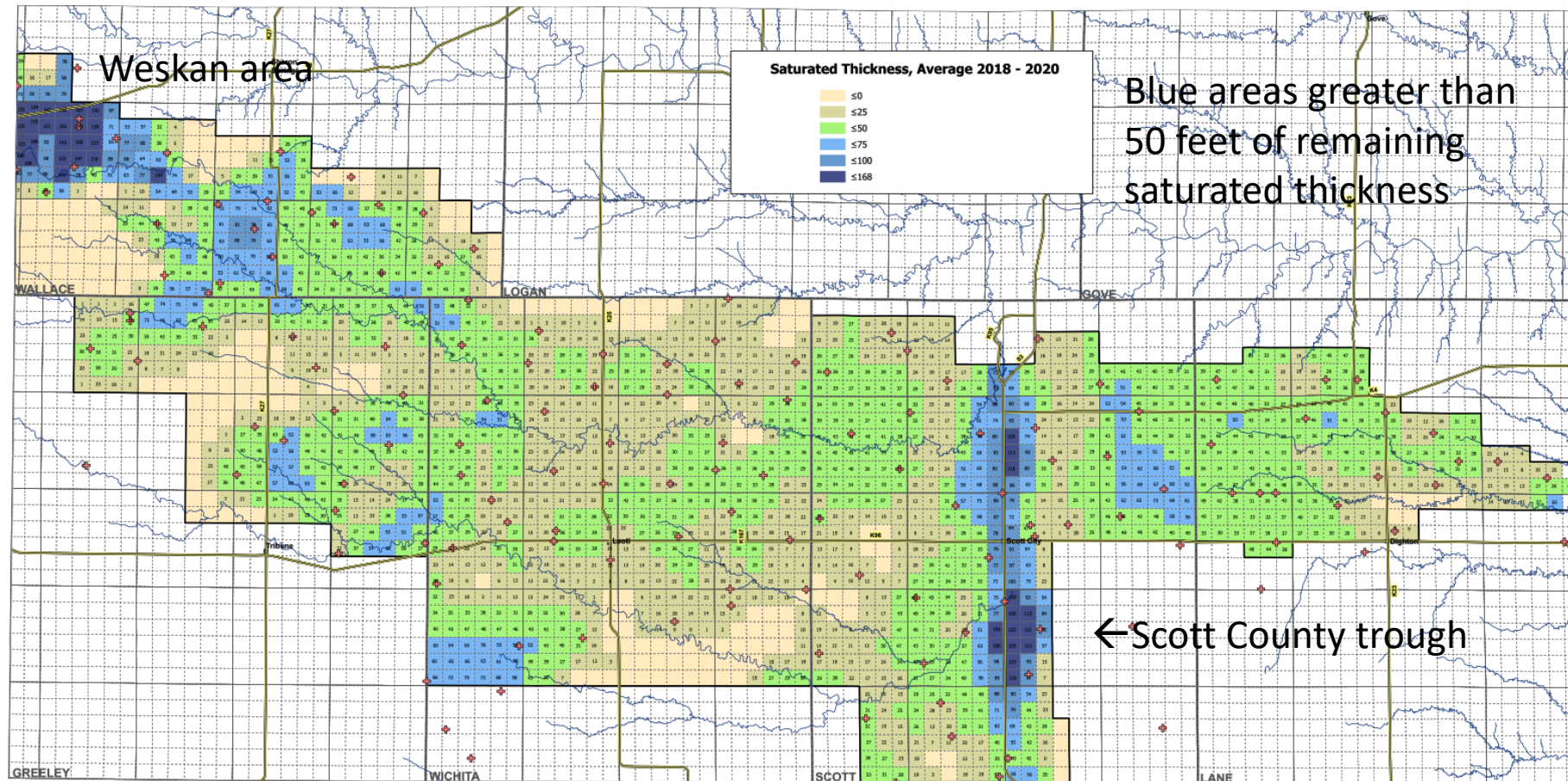


- Acres are gradually declining throughout most of GMD 1
- Wateruse varies from year to year based on climate, but also gradually declining

Note: Lane County for 2019-20 under review due to significant double counting.

— Wateruse — Acres

Current situation, remaining saturated thickness



- Limited saturated thickness and well yields in much of the District, with the exception of the “Weskan” area and the Scott County trough.
- Yet, significant use remains and the desire to extend the benefits into the future

Potential elements of the LEMA plan, con't

Allocation appeal opportunities, per point of diversion, based on three reasons:

1. Verification of water use history
2. Consideration for previous voluntary conservation measures
3. Water right ownership/control changes.

Any unused LEMA allocation will be recommended as allowable carryover to a new 2028 LEMA plan without the carryover quantity being subjected to the new LEMA's conservation factor.