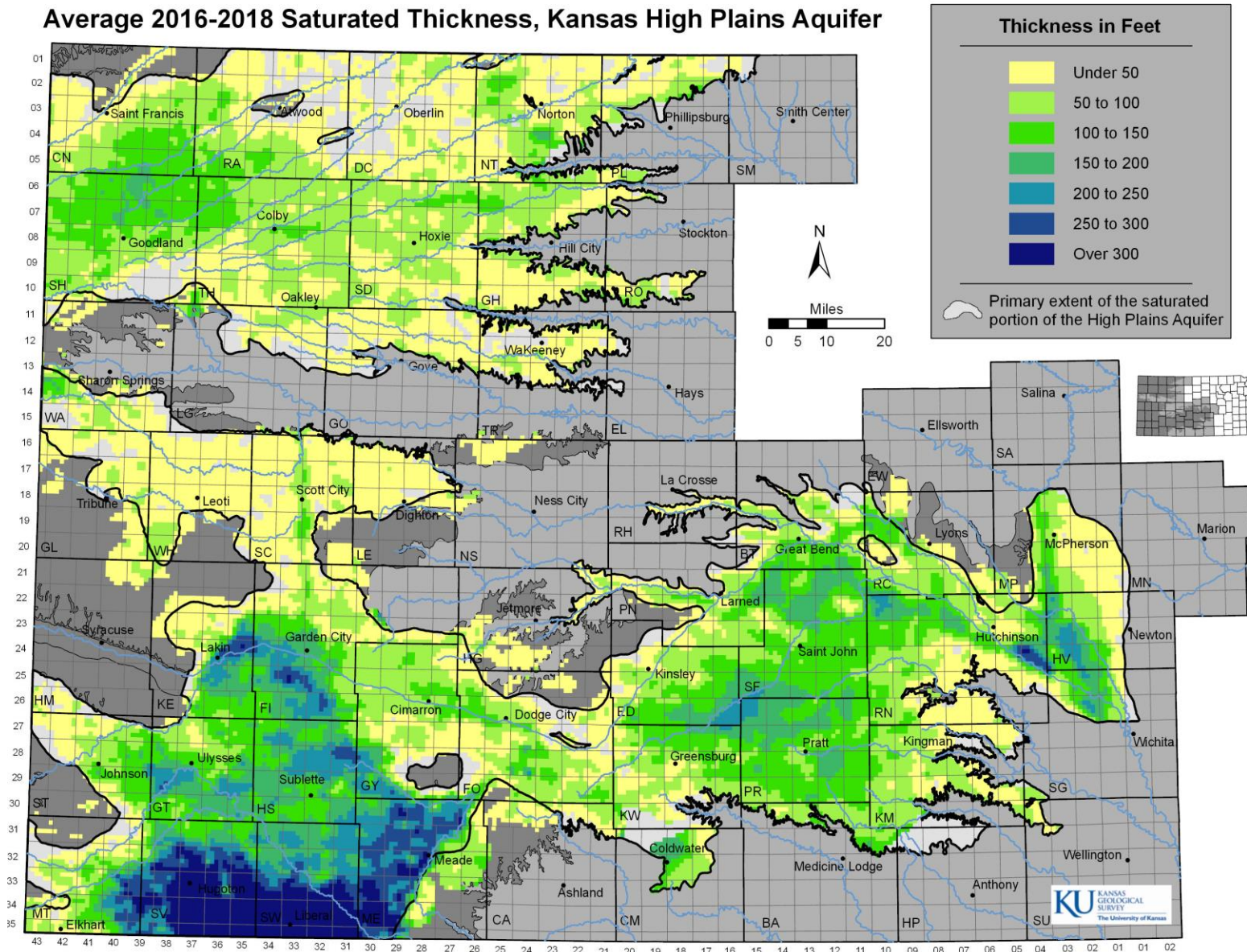


Upper  
Republican/Upper  
Smoky Hill

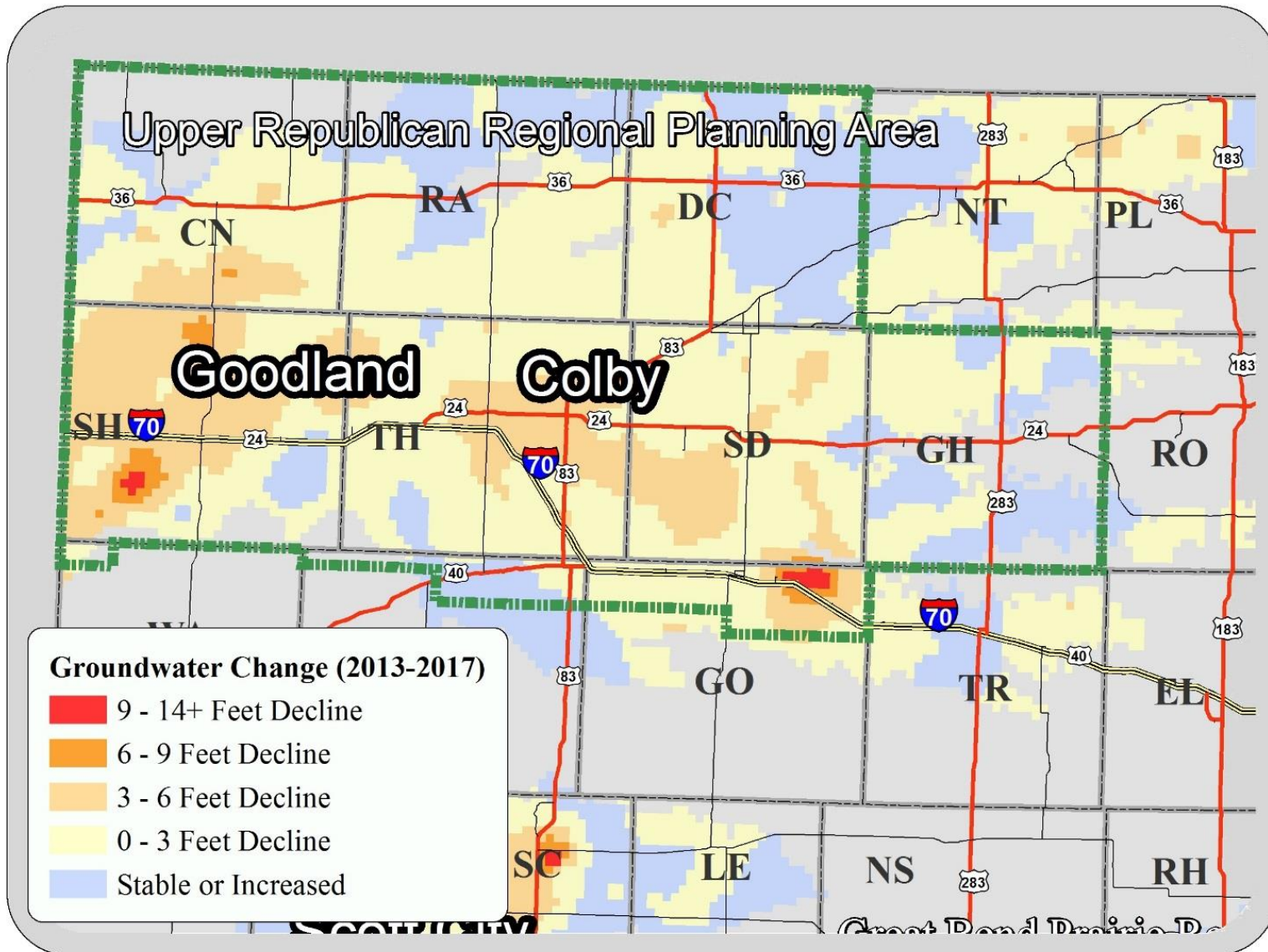
Common Goals and Progress

# Saturated Thickness

Average 2016-2018 Saturated Thickness, Kansas High Plains Aquifer

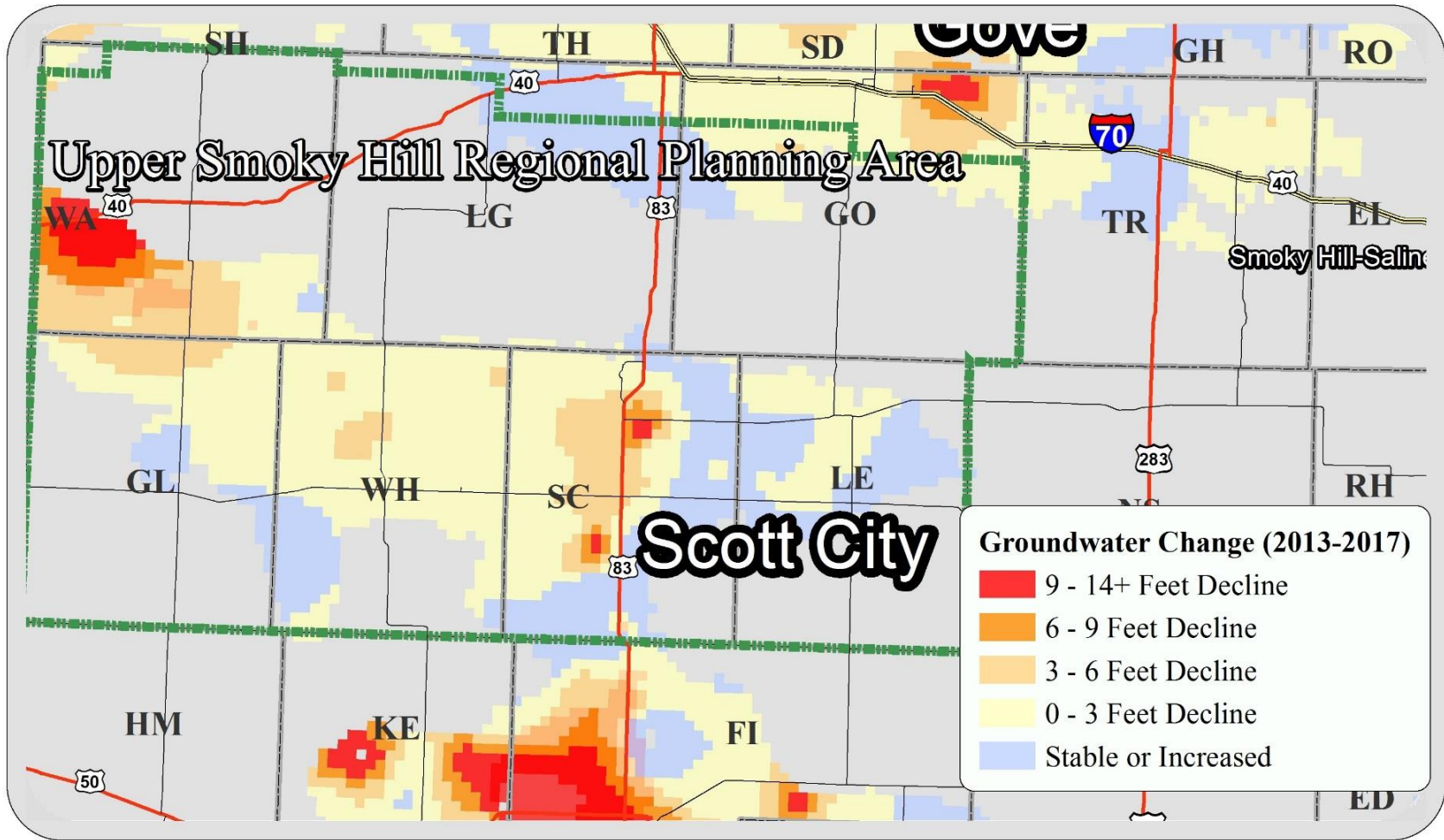


# Upper Republican Declines








# Upper Smoky Hill Declines



# Groundwater Declines

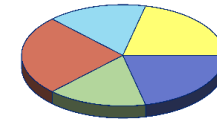
Region	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	10 Year Change	Average Annual Change (2007-16)
Cimarron	-2.37	-2.90	-1.65	-2.52	-3.93	-3.63	-1.72	-1.90	-0.91	-1.29	-22.81	-2.28
Equus-Walnut	1.87	1.56	0.00	-0.80	-2.96	-1.48	2.44	-1.21	1.38	1.94	2.74	0.27
Great Bend Prairie	3.11	0.59	0.70	-0.46	-2.88	-1.89	0.55	-0.68	-0.26	0.51	-0.69	-0.07
Upper Arkansas	-1.47	-2.29	-1.28	-2.97	-2.64	-2.82	-2.40	-1.85	-0.70	-0.45	-18.86	-1.89
Upper Republican	-0.69	-0.20	0.18	-0.39	-0.42	-1.40	-0.64	-0.39	-0.53	-0.29	-4.77	-0.48
Upper Smoky Hill	-0.87	-0.41	-0.22	-0.52	-1.01	-1.41	-0.63	-0.44	-0.13	-0.32	-5.96	-0.60
<b>ENTIRE HIGH PLAINS AQUIFER REGION</b>	-0.09	-0.60	-0.24	-1.08	-1.93	-1.98	-0.65	-0.93	-0.39	-0.12	-8.00	-0.80

Increase =   
 Decrease =   
 Unchanged = 

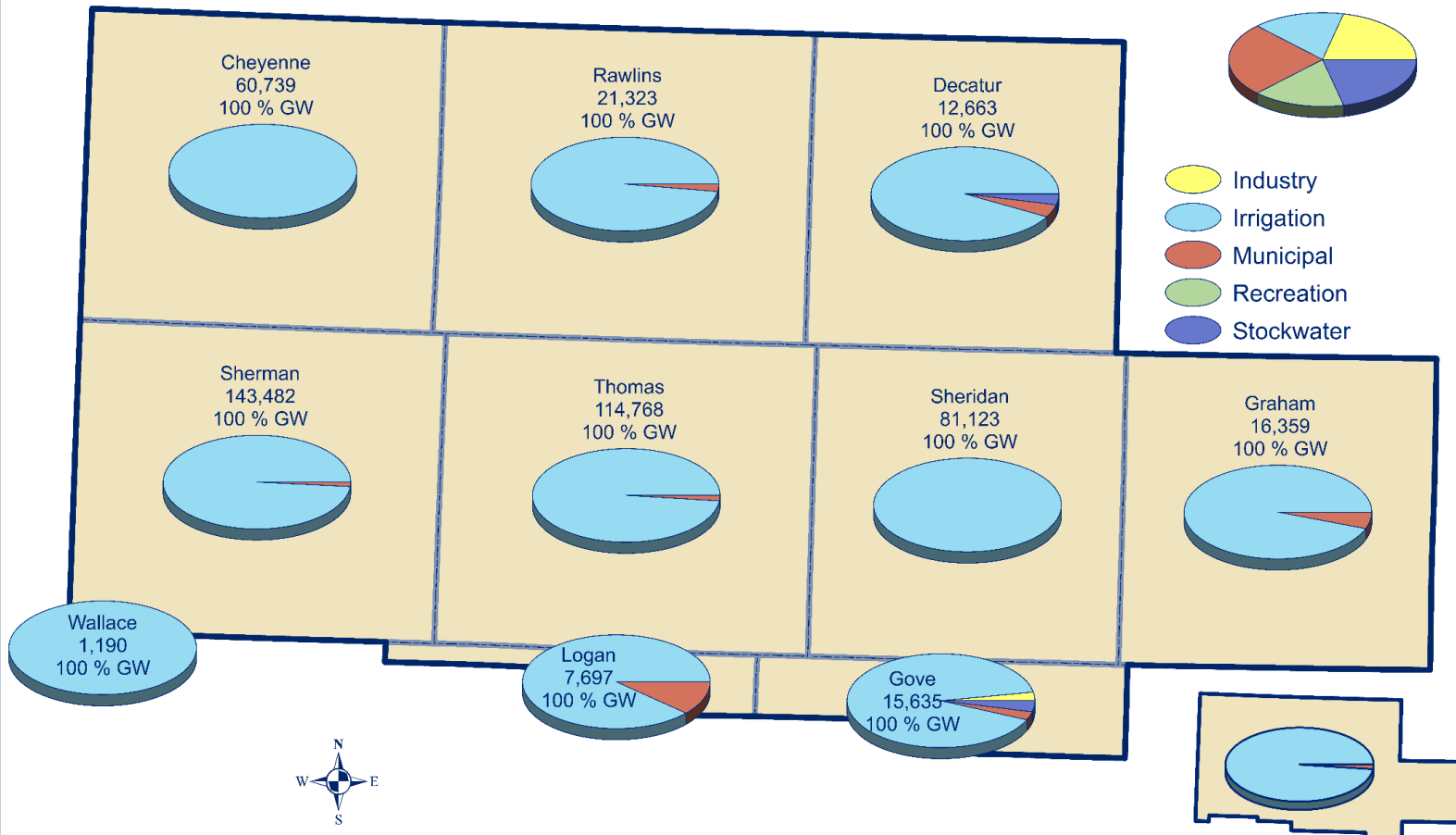
# Upper Republican Water Use

Upper Republican Regional Planning Area  
Average Water Use by Selected Uses and Percent Ground (GW)  
2011-2015 (Acre-Feet)

Water Use by Type



- Industry
- Irrigation
- Municipal
- Recreation
- Stockwater

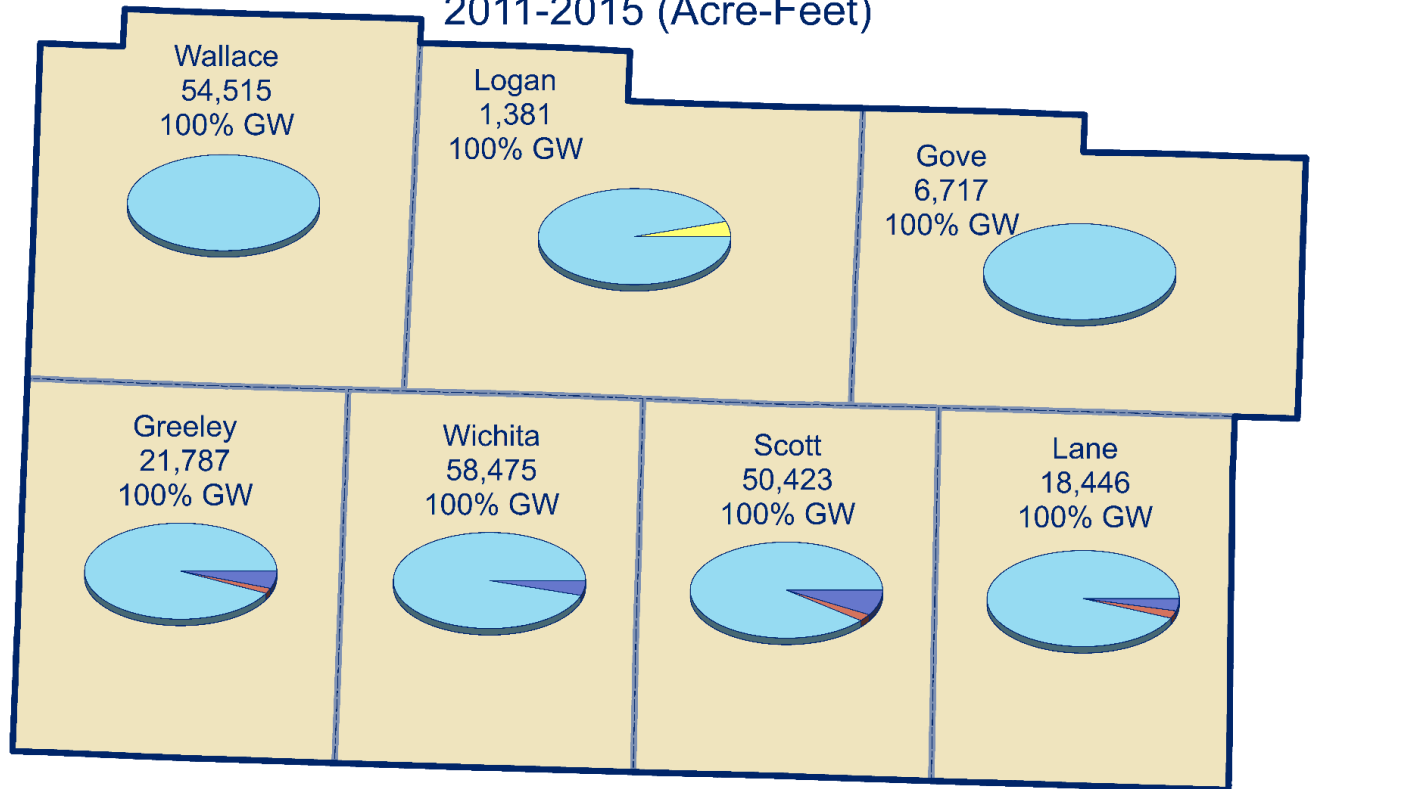


Sources:  
Division of Water Resources, Water Use Program  
Kansas Water Office, Water Marketing Program

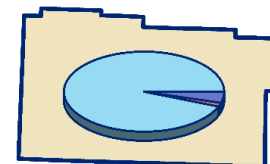
Total: 474,978  
100 % GW  
Kansas Water Office September 2017

# Upper Smoky Hill Water Use

Upper Smoky Hill Regional Planning Area  
Average Water Use by Selected Uses and Percent Groundwater (GW)  
2011-2015 (Acre-Feet)



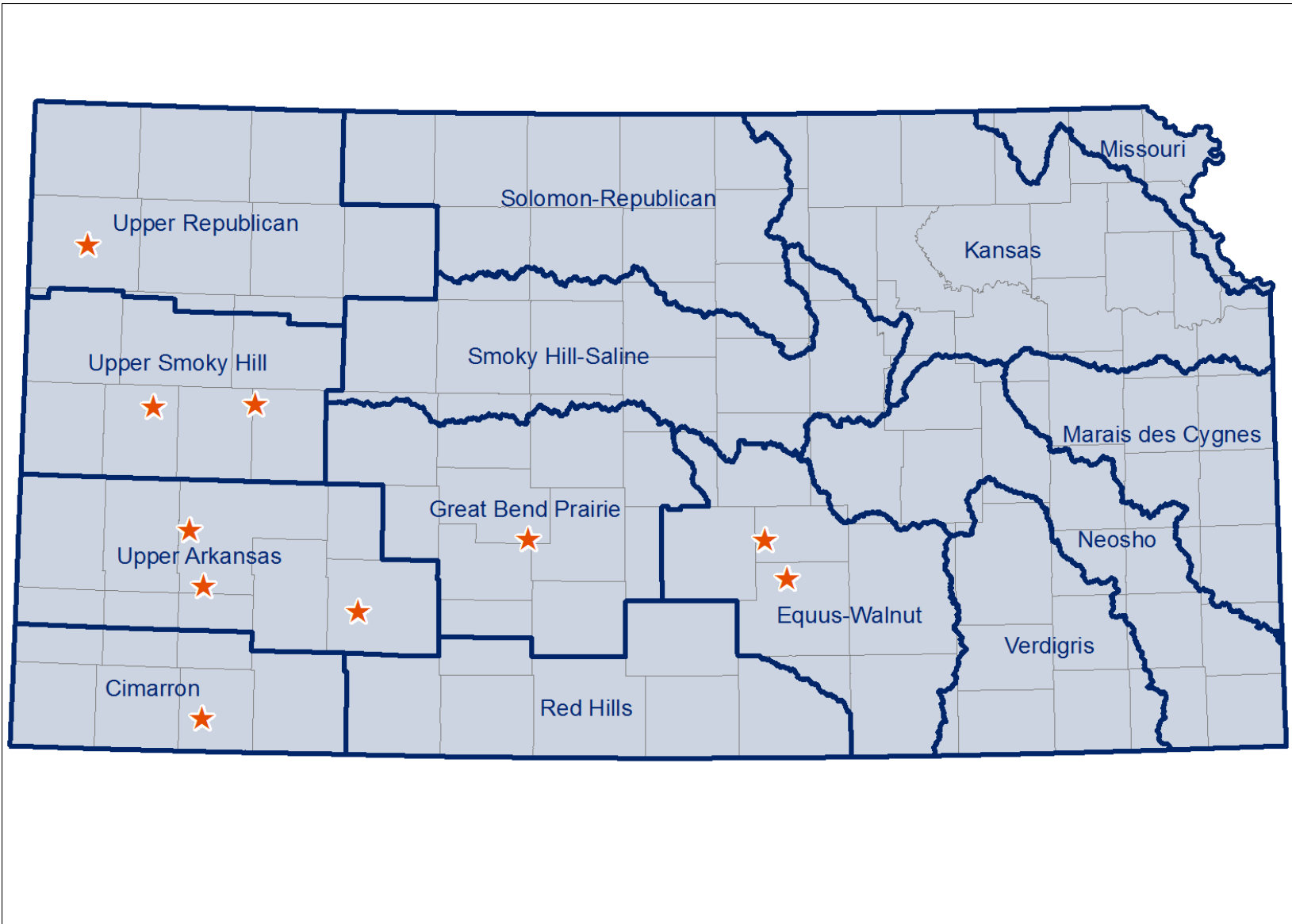
Water Use by Type



Total: 211,743  
100% GW



# Water Technology Farms





Upper Republican

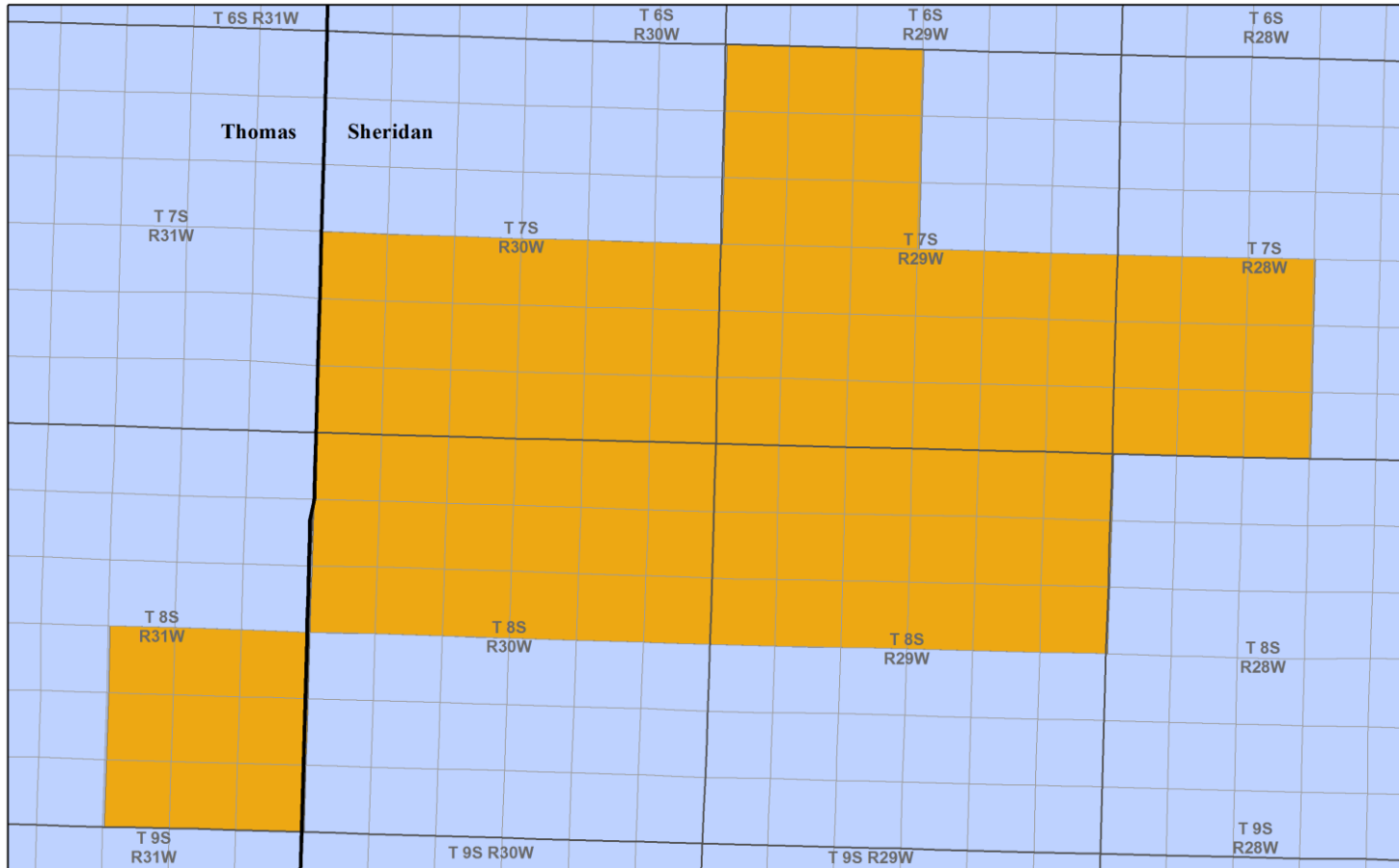
# WCAs

Three WCAs cover 3,177 acres of the 406,685 irrigated acres in the region, equating to 0.8% of the average total of irrigated acres.

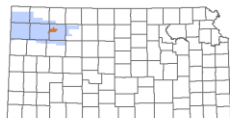
Two WCAs are pending that would add an additional 7,055 acres.

# Sheridan 6 LEMA: 2018 - 2022

## Sheridan County 6 LEMA



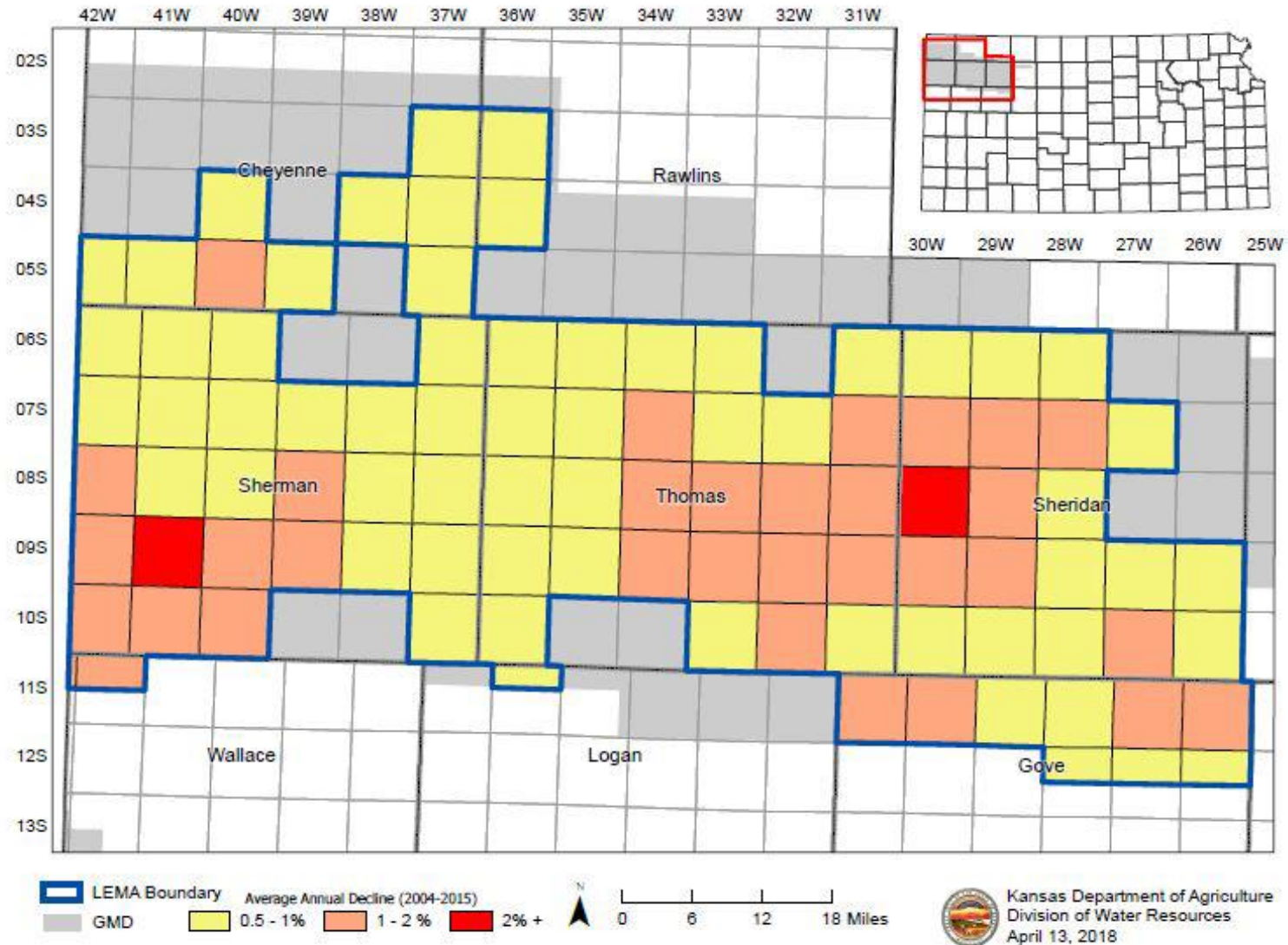
- Sheridan County 6 LEMA
- GMD No. 4



Kansas Department of Agriculture  
Division of Water Resources  
February 20, 2017

# GMD4 District LEMA: 2018 - 2022

## GMD No. 4 District-Wide LEMA





# Education

## UPPER REPUBLICAN

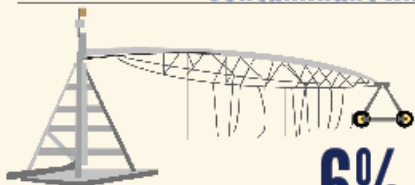
REGIONAL PLANNING AREA - AUGUST 2018

2007  
to  
2016

Samples from City of  
Brewster's wells detected  
high levels of nitrate above  
EPA & KDHE  
contaminant limit

10 year  
groundwater  
decline of

4.77  
Feet



WCA's and the SD6 LEMA cover **6%** of  
the total irrigated acres in the region. GMD4  
LEMA is approved and in effect, but subject to pending  
litigation.

7,342 sq miles

Located in **NORTHWEST** Kansas

KWO Planners - Alexandra Geisler & Armando Zarco  
alexandra.geisler@kwo.ks.gov  
armando.zarco@kwo.ks.gov

2013

1st LEMA  
In the state was established in  
Sheridan County

Water  
Supply  
Use



Irrigation 98%  
Industry 1%  
Stockwater <1%  
Municipal 1%  
Recreation <1%

2016 water level  
measurements show  
groundwater levels  
declined

0.29  
Feet

Republican River Compact Administration  
approved 2 resolutions establishing long-term  
agreements among



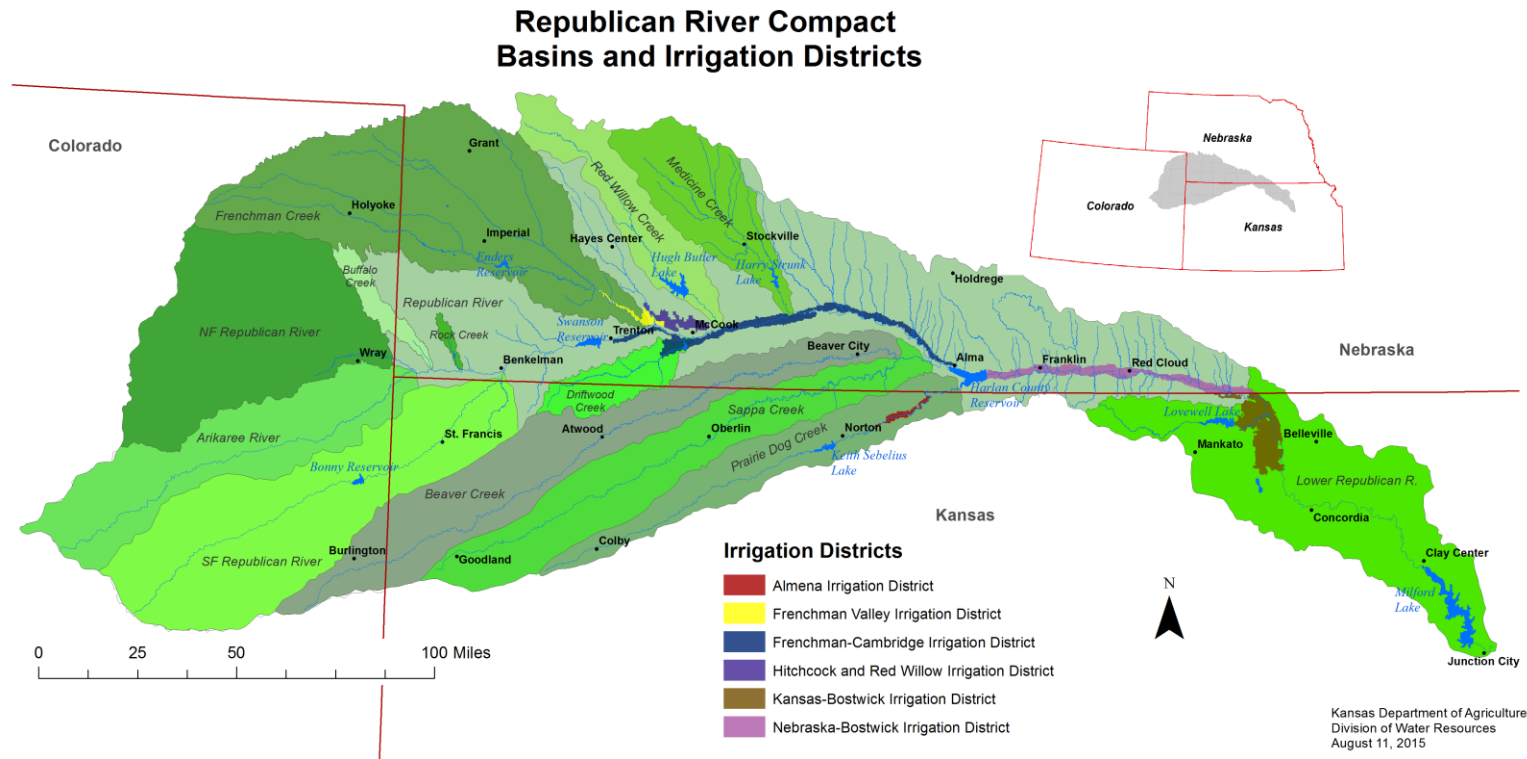
Kansas, Colorado,  
& Nebraska

Focus on committee lead  
outreach using SOTR  
information.

Looking to put together  
three versions of the  
same presentation  
including:

- Technical
- General Public
- Kids

# Republican River Compact

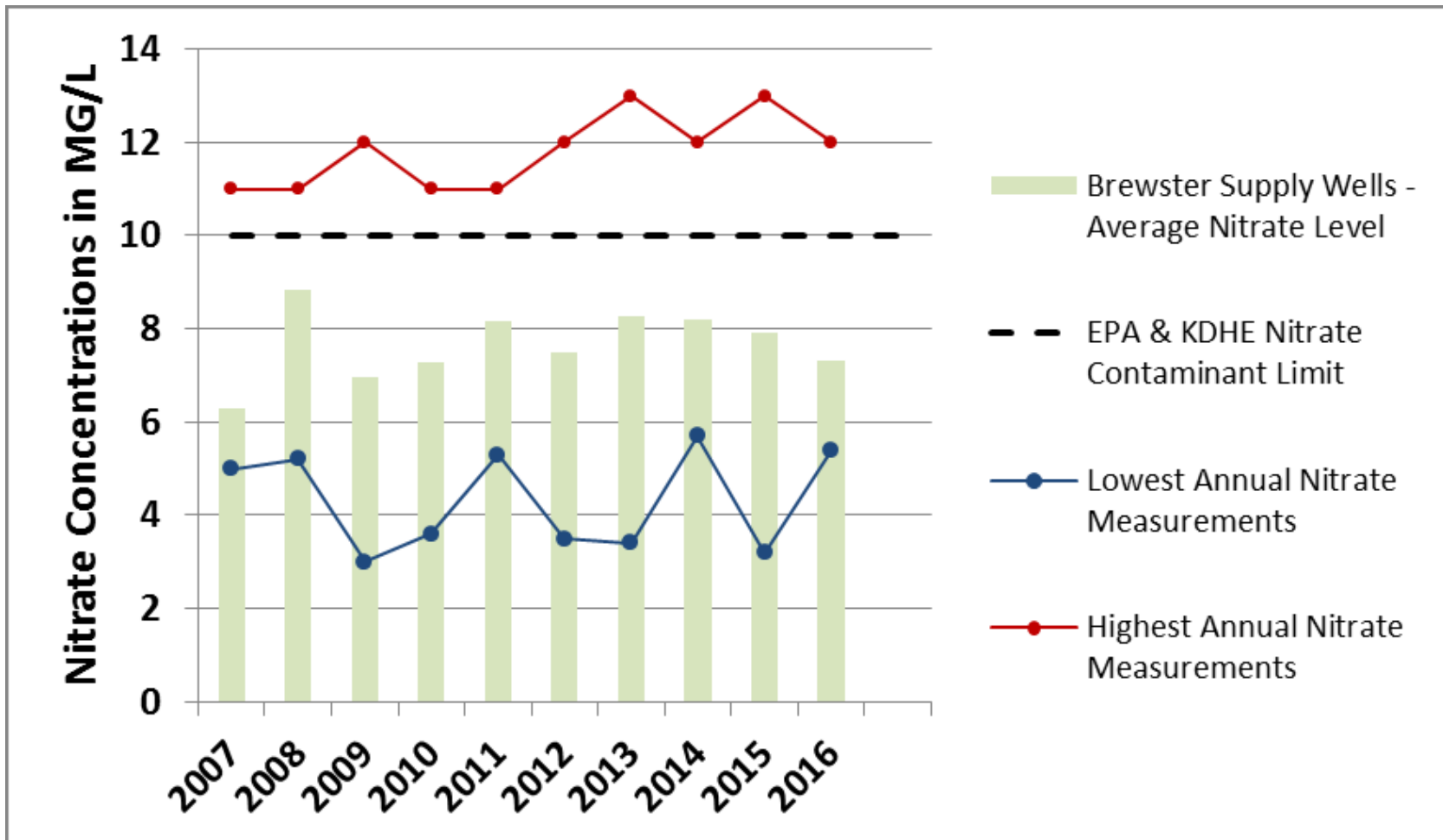


August 2018 a \$4m settlement was reached with Colorado

- \$2m to Colorado the benefit of the South Fork of the Republican River Basin within Colorado
- \$2m to Kansas the benefit of the South Fork of the Republican River Basin within Kansas

# Water Quality Concerns

Working on the development of a new water quality goal.



# Upper Smoky Hill

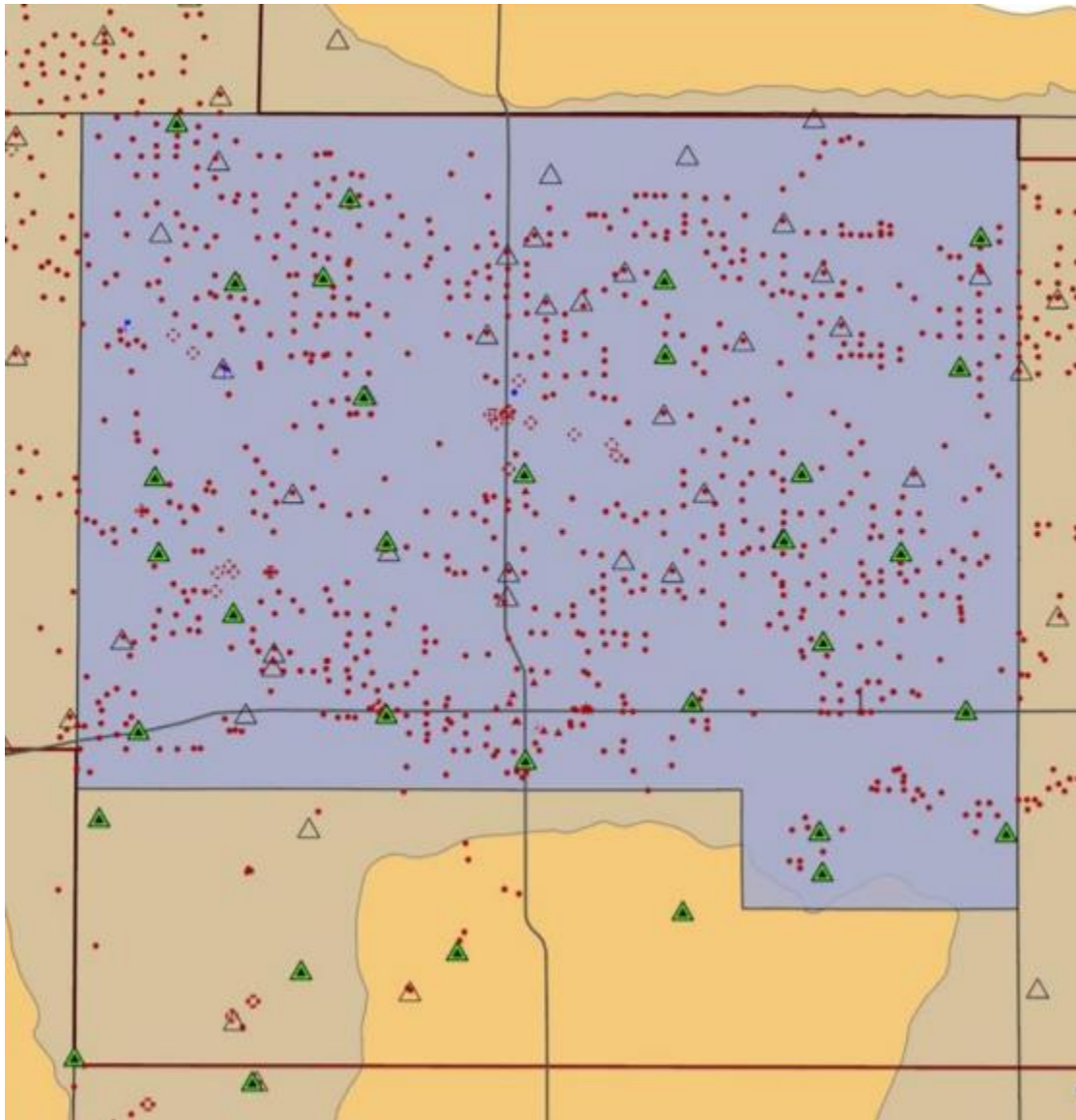


# WCAs

Four WCAs cover 15,048 acres of the 213,696 irrigated acres in the region, equating to 7% of the average total of irrigated acres.

One WCA is pending that would add an additional 1,027 acres.

# LEMA Development



Using a county by county approach starting with Wichita County.

# Education

## UPPER SMOKY HILL

REGIONAL PLANNING AREA - AUGUST 2018

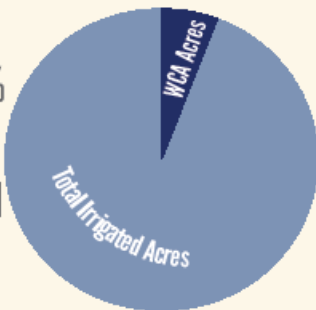
Water level measurements from 2007 - 2016 showed an accumulative decline of

**5.96 Feet**

**27** farms enrolled in **4** WCA's

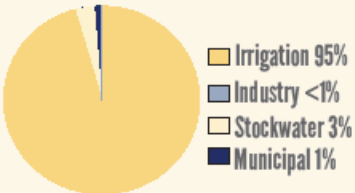
**58** Water Rights save nearly **2,500** acre-feet annually

WCA's cover 6% of total irrigated acres



Located in West Central Kansas

Water Supply Use



KWO Planners -  
Alexandra Geisler & Armando Zarco  
alexandra.geisler@kwo.ks.gov  
armando.zarco@kwo.ks.gov

Western Kansas GMD1 continues to provide **Cost Share** for irrigation technology

February 2017

First Water Talk Series meeting was held

**33%** reduction

needed in water use to achieve short term stable water levels in GMD 1

2018 High School education initiative to develop water related projects and curriculum specific to Western Kansas.

# Best Management Practices & Other Ideas

## BMPs

- Development and implementation of BMP Plans for all municipal, stockwater, and industrial users within the region.
- Addresses goals 3-5
- There has been limited progress

## Other Ideas

- Stockwater reuse project
- Water meter app



# Moving Forward

# Bringing It All Together

Sharing of Ideas & Potential for Collaboration

WCAs & LEMAs

Education

Other Ideas?