4/9/2024, 1:49 PM

Submit To:
CHIEF ENGINEER
Division of Water Resources
Kansas Department of Agriculture
1320 Research Park Drive
Manhattan, KS 66502-5000
http://agriculture.ks.gov/dwr

APPLICATION FOR PERMIT TO APPROPRIATE WATER FOR BENEFICIAL USE

Water Resources Received
KS Dept Of Agriculture

State of Kansas

STATUTORY FILING FEE MUST ACCOMPANY THIS APPLICATION
Please refer to the Fee Schedule attached to this application form.

File Number: **51224**
This item to be completed by the Division of Water Resources staff.

1. Name of Applicant: CITY OF COFFEYVILLE DIRECTOR OF WATER

Address: 7TH & WALNUT PO BOX 1629

City: COFFEYVILLE State: KS Zip Code: 67337-0949

Phone: 620-252-6132 Email: ssmith@coffeyville.com

2. The source of water is: ☒ surface water in VERDIGRIS RIVER (stream)

☐ groundwater in VERDIGRIS RIVER (drainage basin)

3. The maximum annual quantity of water desired is 1,006,090,000 GALS (3,088 AF) ☐ acre-feet ☐ gallons

to be diverted at a maximum rate of 10000 ☒ gpm ☐ c.f.s. ☐ natural flows ☐ natural evaporation

☐ This project involves surface water storage and rediversion. The maximum annual quantity of water desired to be rediverted is _____ ☐ acre-feet ☐ gallons, at a rate of _____ ☐ gpm ☐ c.f.s.

Conversion Factors
1 acre-foot (AF) = 325,851 gallons
1 million gallons (mg) = 3.07 acre-feet (AF)
1 cubic foot per second (c.f.s.) = 448.8 gallons per minute (gpm)

IMPORTANT: Once your application has been assigned a priority date and file number, the requested maximum rate of diversion and maximum requested annual quantity of water under that priority number can **NOT** be increased. Please be certain your requested maximum rate of diversion and maximum annual quantity of water are appropriate and reasonable for your proposed project.

4. The water is intended to be appropriated for the following use(s):

☐ Artificial Recharge*	☐ Irrigation*	☐ Recreational*	☐ Water Power*
☐ Industrial*	☒ Municipal*	☐ Stockwatering*	☐ Sediment Control
☐ Domestic	☐ Dewatering	☐ Hydraulic Dredging	☐ Fire Protection
☐ Thermal Exchange	☐ Contamination Remediation		

*__IMPORTANT:__ You **must** submit a supplemental form providing information to substantiate your request for the quantity of water listed in Item No. 3 for the intended use(s) referenced above.

4/10/2024
KAnderson

FOR OFFICE USE ONLY

FO 1 GMD _____ DUA _____ Use MUN Source S County MG By ALB Date 4/9/2024

Code RE3 Fee $ 860 TR # PY2404L4W37 Receipt Date 4/9/2024 Check # _____

File No. _____

5. The location(s) of the proposed diversion work(s) (well, pumpsite, etc.) are described below. Note that for the application to be accepted, the point of diversion location(s) **must** be described to at least a 10-acre tract, unless you specifically request a 60-day period of time in which to locate the site within a specifically described, minimal legal quarter section of land. You can specify a nickname for the point of diversion via the A.K.A. line to help you identify it.

> If the source of supply is groundwater, a separate application shall be filed for each proposed well or battery of wells, except that a single application may include up to four wells within a circle with a quarter (¼) mile radius in the same local source of supply which do not exceed a maximum diversion rate of 20 gallons per minute per well.
>
> A battery of wells is defined as two or more wells connected to a common pump by a manifold; or not more than four wells in the same local source of supply within a 300-foot radius circle which are being operated by pumps not to exceed a total maximum diversion rate of 800gpm and which supply water to a common distribution system.

(A) One in the NE quarter of the SW quarter of the NW quarter of Section 26, more particularly described as being near a point 3700 feet North and 4200 feet West of the Southeast corner of said section, in Township 34 South, Range 16 ■E ☐W, MONTGOMERY County, KS. A.K.A: _____

(B) One in the _____ quarter of the _____ quarter of the _____ quarter of Section _____, more particularly described as being near a point _____ feet North and _____ feet West of the Southeast corner of said section, in Township _____ South, Range _____ ☐E ☐W, _____ County, KS. A.K.A: _____

(C) One in the _____ quarter of the _____ quarter of the _____ quarter of Section _____, more particularly described as being near a point _____ feet North and _____ feet West of the Southeast corner of said section, in Township _____ South, Range _____ ☐E ☐W, _____ County, KS. A.K.A: _____

(D) One in the _____ quarter of the _____ quarter of the _____ quarter of Section _____, more particularly described as being near a point _____ feet North and _____ feet West of the Southeast corner of said section, in Township _____ South, Range _____ ☐E ☐W, _____ County, KS. A.K.A: _____

(E) One in the _____ quarter of the _____ quarter of the _____ quarter of Section _____, more particularly described as being near a point _____ feet North and _____ feet West of the Southeast corner of said section, in Township _____ South, Range _____ ☐E ☐W, _____ County, KS. A.K.A: _____

6. The proposed project for diversion of water will consist of ONE INTAKE
(number of wells, pumps, dams, etc.)
and was/will be completed on or by the following date: ALREADY COMPLETE
(date each was or will be completed)

7. The first actual application of water for the proposed beneficial use was or is estimated to be UPON APPROVAL
(Date)

8. List any application, appropriation of water, water right, or vested right file number that covers the same point(s) of diversion or any of the same place of use described in this application. Also list any other recent modifications made to existing permits or water rights in conjunction with the filing of this application.

P/D & P/U - MG 005 & 11954

LIMITATION - RATE LIMITED TO 10000 GPM WHEN COMBINED WITH MG 005 & 11954

4/9/2024

File No. _____

9. Will pesticide, fertilizer, or other foreign substance be injected into the water pumped from the diversion works?

☐ Yes ■ No If **yes**, a check valve shall be required. All chemigation safety requirements must be met including a chemigation permit and reporting requirements.

10. If you are planning to impound water, please contact DWR prior to submitting this application. Please attach a reservoir area capacity table and inform us of the total acres of surface drainage area above the reservoir.

Have you made an application for a permit for construction of this dam and reservoir with DWR? ☐ Yes ■ No

If yes, write the Water Structures permit number here: _____

11. Furnish a detailed topographic or aerial map that depicts the following information:

The application **must** be supplemented by a topographic map, aerial photograph or a detailed plat showing the information described in A-D below.

(A) The center of the section, the section lines or the section corners, and labels showing the appropriate section, township and range numbers, as well as a north arrow and scale,

(B) The location of the proposed point(s) of diversion (wells, stream-bank installations, dams, or other diversion works) described in Item No. 5 of the application, showing the North-South distance and the East-West distance from a section line or southeast corner of section,

(C) The location of the proposed place of use identified by crosshatching,

(D) **For Groundwater Use,** the location of any existing water wells of any kind within ½ mile of the proposed well or wells and indicate for each well its type of use and the name and mailing address of the property owner or owners, (If there are no wells within ½ mile, please indicate that on the map.)

For Surface Water Use, the names and addresses of the landowner(s) ½ mile downstream and ½ mile upstream from your property lines, and

(E) The locations of proposed or existing dams, dikes, reservoirs, canals, pipelines, power houses, and any other structures for the purpose of storing, conveying, or using water.

12. For groundwater use, furnish copies of the driller's logs for all test holes or completed wells. Please ensure that the driller's logs provide depth to the static water level. If driller's logs cannot be obtained for an existing well, provide the following information:

Well location as shown in Item No. 5	(A)	(B)	(C)	(D)	(E)
Date drilled					
Total depth of well					
Depth to static water level					

13. The owner(s) of the point of diversion, if other than the applicant is:

APPLICANT

(name, address, and phone)

4/9/2024

(name, address, and phone)

File No. _____

14. The owner(s) of the property where the water is used, if other than the applicant, is:

APPLICANT

(name, address, and phone)

(name, address, and phone)

15. The relationship of the applicant to the proposed place where the water will be used is that of:

☒ Owner ☐ Agent ☐ Tenant ☐ Other:_____

16. A water use correspondent (WUC) must be designated. The WUC will be mailed the annual water use report, which must be filed with the Division by March 1 of each year. Failure to timely file an accurate water use report will subject the owner(s) to a civil fine of up to $1,000 and potential suspension of the water appropriation or right. By signing this application, I verify that the owner(s) of the water right or permit have confirmed that the following person or agent should be designated as the WUC:

SAME AS APPLICANT

(name, address, and phone)

17. I understand that if this application is approved, there could be times, as determined by the Division of Water Resources, when I would not be allowed to divert water. This could affect the economics of my decision to appropriate water. Situations where this might occur may include times when minimum desirable streamflow (MDS) requirements are not met, when Assurance District or Water Marketing releases are made from storage in federal reservoirs, when a Water Reservation Right upstream of a federal reservoir is administered, or when water rights administration becomes necessary to prevent impairment.

I declare, under penalty of perjury, that I have legal access to or control of, the point(s) of diversion described in this application from the landowner or the landowner's authorized representative.

By signing below, I verify that the information set forth above is true to the best of my knowledge, I agree with all statements made above, and that this application is submitted in good faith.

Steven R. Smith — 4/3/2024

(Applicant Signature) (Date)

Steve Smith

(Applicant Name – please print)

Director of Water Services -- City of Coffeyville

(Applicant Title, if applicable – please print)

Assisted by BRETT BUNGER TFO/WATER COMMISSIONER Date: 2-27-24

(office/title)

4/9/2024

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KS Dept Of Agriculture

FEE SCHEDULE

Make checks payable to the Kansas Department of Agriculture.

1. The fee for an application for a permit to appropriate water for beneficial use, except for domestic, waterpower, dewatering, or sediment control use, shall be (see No. 2 below if requesting storage):

Million Gallons (mg)	Acre-Feet (AF)	Fee
≤ 32.585	≤ 100	$200.00
32.586 - 104.272	100.1 – 320.0	$300.00
> 104.272	> 320	$300.00 plus $20 for each additional 100AF (32.586mg) or any part thereof

2. The fee for an application in which **storage** of water is requested, except for domestic use, shall be:

Million Gallons (mg)	Acre-Feet (AF)	Fee
≤ 81.462	≤ 249.9	$200.00
≥ 81.463	≥ 250	$200.00 plus $20 for each additional 100AF (32.586mg) or any part thereof

Note: If an application requests both direct use *and* storage, the fee charged shall be as determined under No. 1 or No. 2 above, whichever is greater, but not both fees.

3. The fee for an application for **waterpower** or **dewatering** use shall be $100.00 plus $200.00 for each 44,880 gallons per minute (100 c.f.s.), or part thereof, of the diversion rate requested.

IMPORTANT NOTICE

If this application is approved, the applicant shall notify the Chief Engineer when the diversion works (well, pump, reservoir, pit, etc.) has/have been completed via the *Notice of Completion of Diversion Works* form (DWR 1-203.11) and along with the statutorily required field inspection fee of:

- $200.00 for sediment control use or groundwater pits for industrial use, or
- $400.00 for all other uses made of water

Failure to complete the diversion works by the deadline specified in the *Approval of Application and Permit to Proceed* (or any subsequent extension of time of said deadline) and/or failure to submit the proper notice and field inspection fee will result in the dismissal of the appropriation and forfeiture of any priority associated with it.

For assistance with this application, please contact the Division of Water Resources (DWR).

Manhattan HQ
1320 Research Park Dr.
Manhattan, KS 66502
785-564-6638

Topeka Field Office
1131 SW Winding Rd, Ste 400
Topeka, KS 66615
785-296-5733

Stafford Field Office
300 S. Main St
Stafford, KS 67578
620-234-5311

Stockton Field Office
820 S. Walnut
Stockton, KS 67669
785-425-6787

Garden City Field Office
4532 W. Jones Ave, Ste B
Garden City, KS 67846
620-276-2901

Helpful Sources of Information

DWR Water Appropriation Program	https://agriculture.ks.gov/divisions-programs/dwr/water-appropriation
DWR Water Appropriation Forms	https://agriculture.ks.gov/divisions-programs/dwr/water-appropriation/water-appropriation-forms
KGS Water Well Completion Records	https://www.kgs.ku.edu/Magellan/WaterWell/index.html
DWR Structures Program	https://agriculture.ks.gov/divisions-programs/dwr/dam-safety/permit-requirements

Applicant's Name _____
(Please Print)

MUNICIPAL (PUBLIC WATER SUPPLY) APPLICATION SUPPLEMENTAL INFORMATION SHEET

Application File Number
_____
(assigned by DWR)

SECTION 1: PRESENT WATER USE SUMMARY (IF NO PREVIOUS MUNICIPAL WATER USE HAS BEEN UTILIZED, PROCEED TO SECTION 3)
NOTE: WORKSHEET FOR WATER PUMPED, PURCHASED, AND SOLD BY YOUR WATER DISTRIBUTION SYSTEM.

Column 1 Raw Water Diverted Under Your Rights	Column 2 Water Purchased From All Sources	Column 3 Water Sold to Other Public Water Suppliers	Column 4 Water Sold to Your Industrial, Stock, and Bulk Customers	Column 5 Water Sold to Your Residential and Commercial Customers	Column 6 Other Metered Water	Column 7 Remaining Water Used (See Below Explanation)
TOTAL WATER = Columns 1 + 2		**ACCOUNTED FOR WATER = Columns 3 + 4 + 5 + 6**				**UNACCOUNTED FOR WATER**

UNACCOUNTED FOR WATER = TOTAL WATER - ACCOUNTED FOR WATER

Column 1: The amount of raw water diverted from all of your points of diversion.

Column 2: The amount of water purchased wholesale from all other public water supply systems or the Kansas Water Office.

Column 3: The amount of water sold wholesale to all other public water supply systems.

Column 4: The amount of water sold retail to all industrial, pasture, stockwater, feedlot, and bulk water service connections. Include the amount of water sold to all farmsteads using at least 200,000 gallons of water per year.

Column 5: The amount of water sold retail to your residential and commercial customers and to industries and farmsteads using less than 200,000 gallons of water per year.

Column 6: The amount of water used that is metered at individual service connections and supplied free, such as for public service, treatment processes, and connections receiving free water.

Column 7: The amount of remaining water used. The gallons reported in this column are found by adding the numbers in Columns 1 and 2 and subtracting the numbers in Columns 3, 4, 5, and 6.

UNACCOUNTED FOR WATER

Use the following to calculate your distribution system's Unaccounted For Water:
Start with the amount in Column 1 and add the amount in Column 2, then subtract the amounts in Columns 3, 4, 5, and 6 leaving an amount of water representing your unaccounted for water to enter in Column 7.

Use the following to calculate the percent Unaccounted For Water versus the Total Water of your system:

$$\text{Percent Unaccounted For Water} = \frac{\text{Unaccounted For Water}}{\text{Total Water (Columns 1,2)}} \times 100$$

If this number exceeds 20%, please explain the large amount of unaccounted for water and describe any steps being taken to reduce it.

4/9/2024

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SECTION 2: PAST WATER USE
COMPLETE THE FOLLOWING TABLE FROM YOUR PAST WATER USE RECORDS.

	Column 1 Raw Water Diverted Under Your Rights	Column 2 Water Purchased From All Sources	Column 3 Water Sold to Other Public Water Suppliers	Column 4 Water Sold to Your Industrial, Stock, and Bulk Customers	Column 5 Water Sold to Your Residential and Commercial Customers	Column 6 Other Metered Water	Column 7 Remaining Water Used (See Above Explanation)
20 years ago							
15 years ago							
10 years ago							
5 years ago							
	TOTAL WATER = Columns 1 + 2		**ACCOUNTED FOR WATER = Columns 3 + 4 + 5 + 6**				**UNACCOUNTED FOR WATER**

SECTION 3: PROJECTED FUTURE WATER NEEDS

PLEASE COMPLETE THE FOLLOWING TABLE SHOWING YOUR FUTURE WATER REQUIREMENTS FOR THE NEXT 20 YEARS:

	Column 1 Raw Water Diverted Under Your Rights	Column 2 Water Purchased From All Sources	Column 3 Water Sold to Other Public Water Suppliers	Column 4 Water Sold to Your Industrial, Stock, and Bulk Customers	Column 5 Water Sold to Your Residential and Commercial Customers	Column 6 Other Metered Water	Column 7 Remaining Water Used (See Explanation on other side)
Year 5							
Year 10							
Year 15							
Year 20							
	TOTAL WATER = Columns 1 + 2		**ACCOUNTED FOR WATER = Columns 3 + 4 + 5 + 6**				**UNACCOUNTED FOR WATER**

SECTION 4: POPULATION AND SERVICE CONNECTIONS

ESTIMATE THE NUMBER OF PERSONS DIRECTLY SERVED BY YOUR WATER DISTRIBUTION SYSTEM

PAST POPULATION - PROVIDE INFORMATION BELOW:
(CENSUS BUREAU INFORMATION)

LAST 20 YEARS	POPULATION
20 years ago	
15 years ago	
10 years ago	
5 years ago	
Last Year	

PROJECTED FUTURE POPULATION

ESTIMATE FUTURE POPULATION AND SUBSTANTIATE NUMBERS ON SEPARATE ATTACHMENTS

NEXT 20 YEARS	POPULATION
Year 5	
Year 10	
Year 15	
Year 20	

Provide number of current active service connections:

_____ Residential

_____ Industrial

_____ Other (specify) _____ 4/9/2024

_____ Commercial

_____ Pasture/ Stockwater/ Feedlot

_____ **Total**

Water Resources Received

KS Dept Of Agriculture

SECTION 6: AREA TO BE SERVED

Describe the area to be served or provide the legal description of the location where the water is to be used including any other city of water supply system (i.e. Rural Water District): _____

CITY OF COFFEYVILLE, KANSAS AND IMMEDIATE VICINITY; THE CITY OF DEARING, KANSAS AND IMMEDIATE VICINITY; WITHIN THE BOUNDARIES OF CONSOLIDATED RURAL WATER DISTRICT NO. 1, MONTGOMERY COUNTY, KANSAS AND IMMEDIATE VICINITY; WITHIN THE BOUNDARIES OF CONSOLIDATED RURAL WATER DISTRICT NO. 2, MONTGOMERY COUNTY KANSAS AND IMMEDIATE VICINITY; WITHIN THE BOUNDARIES OF RURAL WATER DISTRICT NO. 14, MONTGOMERY COUNTY, KANSAS AND IMMEDIATE VICINITY; WITHIN THE BOUNDARIES OF RURAL WATER DISTRICT NO. 6, LABETTE COUNTY, KANSAS AND IMMEDIATE VICINITY; THE CITY OF SOUTH COFFEYVILLE, OKLAHOMA, AND IMMEDIATE VICINITY; WITHIN THE BOUNDARIES OF RURAL WATER DISTRICT NO. 7, NOWATO COUNTY, OKLAHOMA AND IMMEDIATE VICINITY; AND THE CITY OF CANEY, KANSAS AND IMMEDIATE VICINITY.

You may attach additional information you believe will assist in informing the Division of the need for your request.

Table 3-2. Historical Water Supply and Usage, 2017 through 2021

Year	Raw Water Supplied (MGD)	Residential/ Commercial Usage (MGD)	Industrial Usage (MGD)	Solid To Public Water Suppliers (MGD)	Metered Water Provided Free (MGD)	Unaccounted for (MGD)	Percent Water Loss
2017	3.258	0.998	1.582	0.521	0.213	-0.056	-1.7%
2018	3.743	1.064	1.754	0.523	0.378	0.024	0.7%
2019	3.771	0.965	1.718	0.513	0.232	0.342	9.1%
2020	3.544	0.824	1.409	0.574	0.215	0.522	14.7%
2021	3.994	0.765	1.561	0.598	0.244	0.825	20.6%
Avg.	3.662	0.923	1.605	0.546	0.257	0.332	9.1%

As the table shows, the average daily volume of raw water supplied has increased by roughly 22% from 2017 to 2021. However, the volume of accounted for water (residential, industrial, public supply, and metered free) has dropped roughly 4%. The result is a sharp increase in the percent water loss for the distribution system.

There are many factors that contribute to water loss, including inaccurate metering and record keeping. The City is currently addressing this potential issue through the deployment of an advanced metering infrastructure (AMI) program. This program includes the replacement of all water meters throughout the distribution system, including master water meters. Additionally, the AMI system will continuously monitor and record water usage without the need for manual meter reading.

As the AMI system comes online, the City should continue to monitor the volume of unaccounted for water. If the percentage of water loss stays at its current level or increases, additional mitigation measures shall be evaluated. Including but not limited to, the replacement of water system piping, fire hydrants, valves, and evaluation and repair of underground storage reservoirs.

Aside from the average daily volume of water supplied and sold, it's also important to determine the maximum daily demand for the system. The maximum daily demand represents the highest water use of any one day of the year. This demand also represents the minimum capacity that a water system should be able to supply. The following table presents the average, maximum, and minimum daily water sales based on monthly totals for 2017 through 2021 for the four main user classifications.

Table 3-3. Average, maximum, and minimum daily water sales based on monthly totals for 2017-2021

User Class	Average Month, Daily (MGD)	Max. Month, Daily (MGD)	Min. Month, Daily (MGD)
Residential/Commercial	0.923	2.013	0.424
Industrial	1.605	2.187	0.992
Public Suppliers	0.546	0.749	0.425
Metered Water Provided Free	0.257	0.968	0.000
Combined Average	3.331	5.917	1.841

Although Table 3-2 and Table 3-3 present the actual volume of water supplied and sold, it's important to evaluate the volume of water the City is contractually obligated to sell. As stated previously, Coffeyville has agreements in place to sell water to three rural water districts within Montgomery County (MG-01C, MG-02C, and MG-14); one within Labette County (LB-06); one within Nowata County, Oklahoma (RWD #7); two municipalities (Dearing, KS, and South Coffeyville, OK), and one industrial facility (CVR). Table 3-4**Error! Reference source not found.** summarizes the contracted quantities and average monthly usage for each, except Montgomery County #1C. The agreement provided for Montgomery County #1C was originally from Montgomery County RWD #5, which consolidated with Montgomery County RWD #3 in 2000; the monthly limit in that agreement is significantly less than the current average monthly use.

Table 3-4. Contracted Water Supply and Usage

	Supply Rate	Daily Limit	Monthly Limit	Contract Year	Average Month
South Coffeyville	2,500 gpm	-	10 MG/month	2011	2.7 MG
Dearing	200 gpm	250,000 gpd	4 MG/month	2003	1.5 MG
Labette #6	1,280 gpm	-	-	2017	2.4 MG
Nowata #7	-	-	11 MG/month	1983	4.1 MG
Montgomery #2C	2,560 gpm	-	4 MG/month	2011	2.1 MG
Montgomery #14	-	50,000 gpd	1.5 MG/month	1998	0.7 MG
Montgomery #1C	-	-	0.25 MG/month*	1982	3.1 MG
CVR	1,040 gpm	1,500,000 gpd	45 MG/month	2015	37 MG

3.1.2. Current Design Conditions

Although the percentage of water loss was over 20% for 2021, it is our recommendation that the volume of water supplied to the distribution system be considered the current average daily water use (3.994 MGD). Also, when considering the 2021 average breakdown of water use by classification, residential/commercial customers accounted for 19% of water use, industrial customers accounted for 39%, water sold to public suppliers accounted for 15%, and the remaining 27% of water use is attributed to free water sales and water loss.

In the absence of historical data, KDHE recommends that the maximum daily water demand be equal to two 2.0 times the average daily water demand. However, from the historical data analyzed and presented in Table 3-3, the ratio of maximum daily water usage to average daily water usage was calculated to be 1.78 (5.917 MGD / 3.331 MGD). For the purpose of this report and in projecting future water demands, a ratio of 1.78 will be utilized. The current design maximum daily water demand is therefore 7.109 MGD (1.78 * 3.994).

Although not generally utilized in evaluating supply capacity, a system's peak hourly flow rate can also be approximated based on the average daily water demand. The peak hourly flow rate plus fire flow is generally utilized to size distribution and transmission mains. KDHE suggests that the peak hourly flow rates be assumed to be equal to 4.0 times the average daily water demand. The peak hourly flow based on these assumptions is estimated to be 15.976 MGD.

Table 3-5. Current Design Conditions

Current Average Daily Water Demand	3.994 MGD (2,774 gpm)
Current Maximum Daily Water Demand	**7.109 MGD (4,937 gpm)**
Current Peak Hourly Water Demand	15.976 MGD (11,094 gpm)

3.2. Existing Water Quality

Plant operators perform daily laboratory analysis of various parameters of the raw water and finished water quality.

3.2.1. Raw Water Quality

Raw water quality determines the level of treatment required to provide safe, clean water to the City's customers. Temperature, turbidity, total hardness, total organic carbon (TOC), alkalinity, calcium, magnesium, and fluoride levels are measured for the raw water. Table 3-6 shows the average and range of readings for each of these parameters.

Table 3-6. Raw water quality recorded between January 2018 and September 2022

PARAMETER	UNIT	AVERAGE	RANGE
Temperature	°F	61	34 - 86
Turbidity (Combined Filter Effluent, CFE)	NTU	56	4 - 262
Total Hardness	mg/L as $CaCO_3$	169	48 - 272
Total Organic Carbon (TOC)*	mg/L	6.8	4.5 - 10.0
Alkalinity*	mg/L as $CaCO_3$	151	97 - 190
Calcium	mg/L as $CaCO_3$	139	33 - 250
Magnesium	mg/L as $CaCO_3$	30	0 - 122
Fluoride	ppm	0.3	0 - 0.94

* TOC and alkalinity were taken from Coffeyville's 2022 TOC Compliance report.

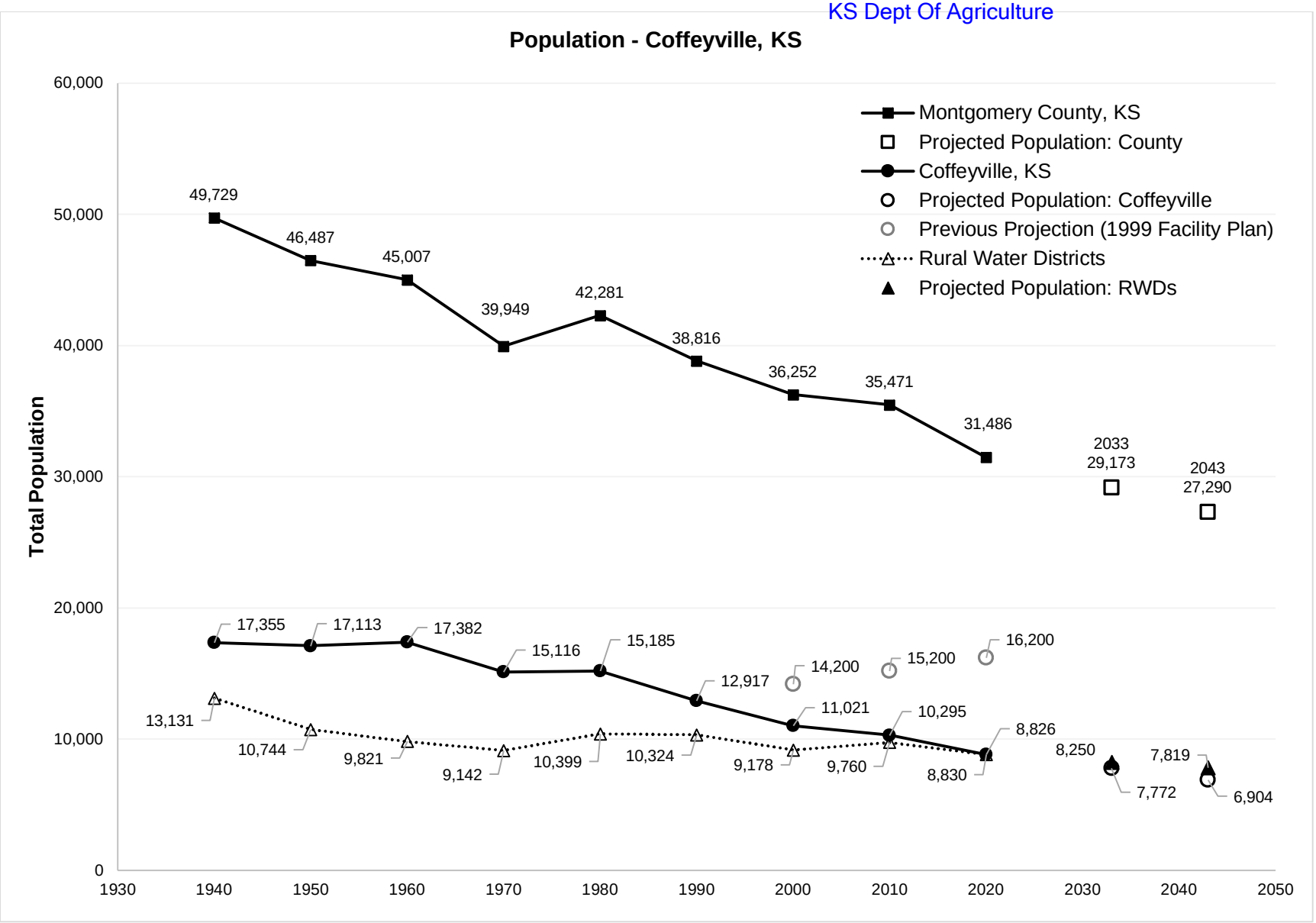


Figure 4-1 – Historic and projected populations for Coffeyville, Montgomery County, and estimated Rural Water Districts supplied by Coffeyville.

4.1. Projected Water Demand

Since the population of the area is declining, it is not recommended to use this trend to estimate the future water demand. Instead, a reasonably small increase in residential/commercial demands (including water sold to public suppliers) coupled with potential increases in industrial usages should be considered a conservative approach for projecting water usage.

For the purpose of this report, a 30% increase in residential/commercial water usage is anticipated. Over a 20-year study period, this equates to an increase of 1.5% per year. As shown in Table 3-3, the current Residential/Commercial, Public Suppliers, and Metered Water Provided Free totaled 1.726 MGD. A 30% increase over the next 20 years raises that average usage to 2.244 MGD. Applying the previously calculated maximum daily/average daily ratio of 1.78 yields a projected maximum daily usage of 3.994 MGD.

Industrial demand is expected to increase at a much higher rate. CVR has previously expressed interest in modifying their purchase contract to include an additional 1.5 MGD (for a total of up to 3.0 MGD). Additionally, in previous years there were discussions with a poultry processing facility to open a location within the City's industrial park. This facility was expected to require an average daily water use of approximately 3.0 MGD.

Error! Not a valid bookmark self-reference. presents a summary of the current and projected average and maximum daily water usages. The projected average and maximum daily water usages are presented with two options. One option only considers the additional water usage from CVR, while the second option considers the additional water usage from CVR and a potential poultry processing plant.

Table 4-1. Projected increase in demand for potable water (all values in MGD)

	2017-2021 Average[1]	Max. Daily Average[1]	Estimated Growth	Projected Average	Projected Max. Month[2]	Projected Peak Day[3]
Residential/Commercial	0.923	2.013	30%	1.200	2.136	4.800
Industrial	1.605	2.187	1.5 MGD	3.105	5.527	12.420
Public Suppliers	0.546	0.749	30%	0.710	1.264	2.840
Metered Water Provided Free	0.257	0.968	30%	0.334	0.595	1.336
Total (With Additional CVR Usage)	**3.331**	**5.917**	**-**	**5.349**	**9.522**	**21.396**
Poultry Processing Facility	-	-	3.0 MGD	3.000	5.340	12.000
Total (With Additional CVR and Poultry Processing Facility)				**8.849**	**14.862**	**33.396**

[1] Average and maximum daily usage taken from Table 3-3.
[2] Projected maximum daily usage estimated as 1.78 x projected average daily.
[3] Projected peak day estimated as 4.0 x average daily.

Table 4-2. Projected water supply with a regionalization approach (all values in MGD)

	Projected Average	Projected Max. Month[2]	Projected Peak Day[3]
Projected Water Supply with Additional CVR Usage[1]	5.349	9.522	21.396
South Coffeyville	0.217	0.386	0.868
Caney	0.300	0.534	1.200
Regionalization (With Additional CVR Usage)	**5.866**	**10.442**	**23.464**
Poultry Processing Facility	3.000	5.340	12.000
Regionalization (With Additional CVR and Poultry Processing Facility)	**8.866**	**15.782**	**35.464**

[1] Taken from Table 4-1.
[2] Projected maximum daily usage estimated as 1.78 x projected average daily usage.
[3] Projected peak day estimated as 4.0 x average daily

	Average Day	Maximum Day
Regionalization + 1.5 mgd CVR	5.866 mgd	10.442 mgd
Regionalization + 1.5 mgd CVR + 1.0 mgd Data Center	**6.866 mgd**	**12.221 mgd**
Regionalization + 1.5 CVR + 1.0 Data Center + 3.0 mgd Poultry	9.866 mgd	17.561 mgd
Regionalization + 1.5 CVR + 3.0 Poultry	8.866 mgd	15.782 mgd

Plant with a capacity of 10 million gallons per day (MGD). Over the years, the City has changed the treatment scheme from softening to turbidity removal. Following the previous facility evaluation, plantwide improvements were made in 2003.

Coffeyville's WTP pulls water from the Verdigris River (Exhibit 1) and processes it for distribution to its customers. The treatment facility consists of a raw water pump station, presedimentation basins (to remove initial sediment), upflow clarifiers (primary treatment), final basins (chlorine contact), filters (solids removal), and a clearwell, along with chemical feed systems, residual solids handling, and electrical control system.

5.2. Treatment Process Flow Path

The treatment process flow diagram is shown in **Error! Reference source not found.**. Raw water is pulled from the Verdigris River, screened, and pumped by three raw water pumps. Potassium permanganate and a pre-coagulant polymer are injected into the discharge line following the pumps. Water is pumped uphill, through a master meter vault, and into the raw water flow splitting structure.

The raw water flow splitting structure diverts water to two presedimentation basins, where the primary sludge settles and is removed. Following the presedimentation basins, flow combines in the rapid mix basin, where a secondary polymer and anionic (negative charge) weighting agent are added. The flow is then split once again to two upflow clarifiers where additional solids settling

6. ASSESSMENT OF FUTURE DEMANDS VERSUS PLANT CAPACITY

6.1. Required Future Plant Capacity

As discussed previously in this report, it's anticipated that the City's water needs will increase over the next two decades. This increase is heavily dependent on outside sources, whether it's an increase in water sales to CRV, a potential poultry processing facility, or as a regional supplier. These factors vary the projected average water supply requirements from 5.35 MGD to nearly 8.87 MGD.

However, the future WTP capacity should be based on the projected maximum daily water demand. Again, as previously discussed in this report, and depending on projected factors, the recommended plant capacity is as low as 9.52 MGD or as high as 15.78 MGD. The current firm WTP capacity is 5.5 MGD (single upflow clarifier is the limiting process) with a maximum capacity of 8.64 MGD (filter capacity is the limiting process). Not only are improvements required to extend the life of the WTP, but it's also clear that improvements must be made to meet the future 20-year water use projections.

6.2. Long-Term Water Supply

6.2.1. Verdigris River

The City of Coffeyville has a current allocation of 4,603 acre-feet (AF) per year from the Verdigris River (see Appendix F). This is equivalent to 1,500 MG/year, or 4.11 MGD average. The average volume of water withdrawn for 2017-2021 was 4,104 AF/year, or 89% of the current allocation.

Clearly there is a need for an increase in water rights to meet future water demands. To provide the lower projected average water use of 5.35 MGD, at least 453 MG/year (1.24 MGD or 1,390 AF/year) of additional supply will be needed. If a poultry processing facility and regionalization were both considered (estimated average of 8.87 MGD), at least 1,738 MG/year (4.76 MGD or 5,331 AF/year) of additional supply would be needed.

	Average Day	Additional Water Rights	
Regionalization + 1.5 mgd CVR	5.866 mgd	1968 ac-feet	1.76 mgd
Regionalization + 1.5 mgd CVR + 1.0 mgd Data Center	**6.866 mgd**	**3088 ac-feet**	**2.76 mgd**
Regionalization + 1.5 CVR + 1.0 Data Center + 3.0 mgd Poultry	9.866 mgd	6448 ac-feet	5.76 mgd
Regionalization + 1.5 CVR + 3.0 Poultry	8.866 mgd	5328 ac-feet	4.76 mgd

River typically remains at sufficient levels, this backup water source is an important resource if

4/9/2024

Water Resources
Received

KS Dept Of Agriculture

UPSTREAM AND DOWNSTREAM LANDOWNERS

Upstream –

#1) JAMES A & DIANNE L REED
5127 CR 2250
COFFEYVILLE KS 67337

#2) MEDADVISORS LLC
1937 TAYLOR RD
INDEPENDENCE KS 67301

Downstream –

#1) MEDADVISORS LLC
1937 TAYLOR RD
INDEPENDENCE KS 67301

#2) BRIAN BENNETT
2083 CR 3500
INDEPENDENCE KS 67301

#3) MULLER CONSTRUCTION INC
PO BOX 1235
COFFEYVILLE KS 67337

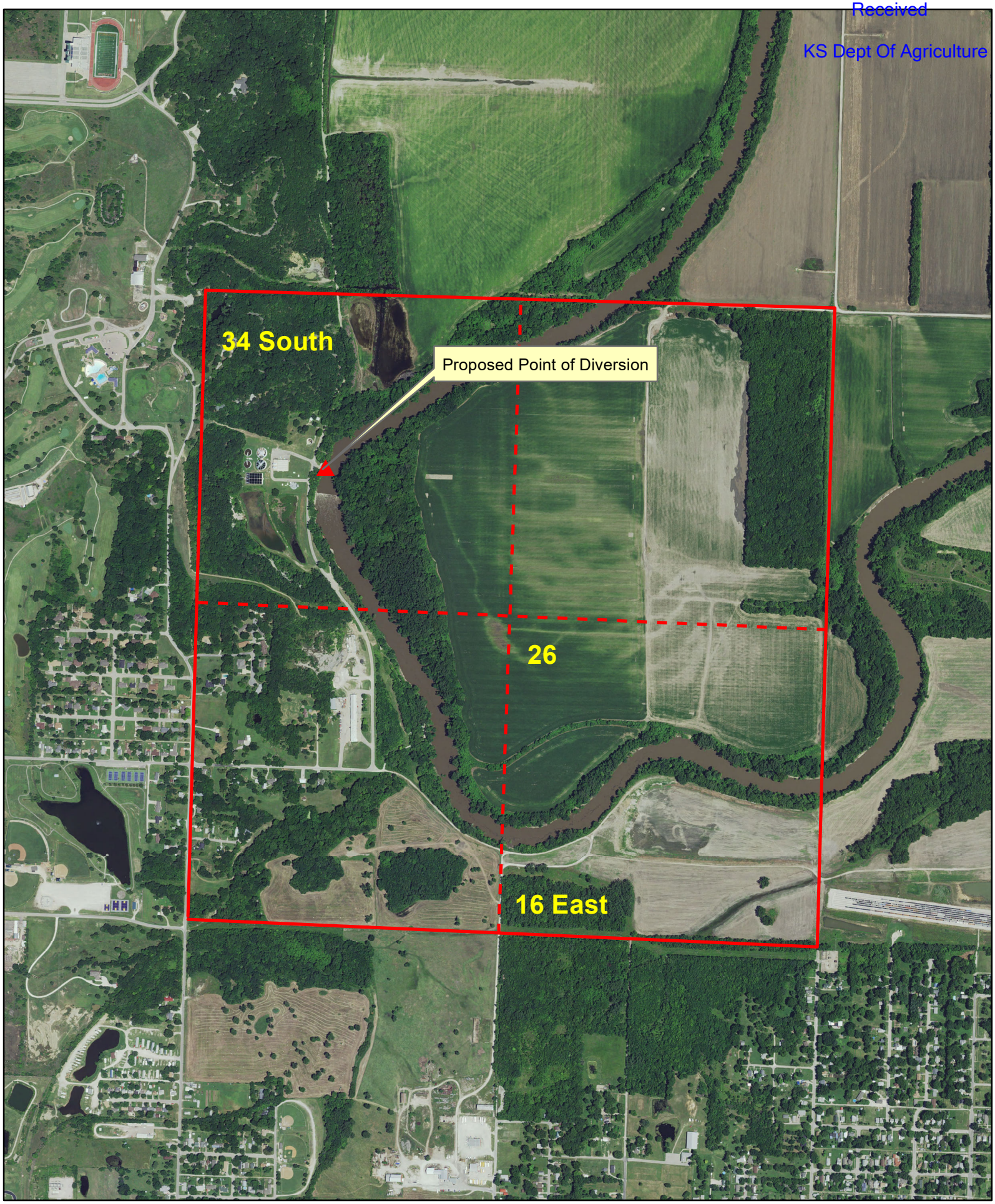
1:12,000

New Application

4/9/2024

Water Resources Received

KS Dept Of Agriculture



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Kansas
Department of Agriculture

900 SW Jackson, Room 456
Topeka, KS 66612
785-296-3556

Mike Beam, Secretary

Laura Kelly, Governor

April 12, 2024

CITY OF COFFEYVILLE
PO BOX 1629
COFFEYVILLE KS 67337-0949

RE: Application, File No(s). **51224**

Dear Sir or Madam:

The Division of Water Resources (Division) has received your application(s) for a permit to appropriate water for beneficial use. Your application(s) has been assigned the file number(s) referenced above. Please be aware that the Division may have a large number of pending applications on hand at times and makes every attempt to process them in the order in which they are received. You will be contacted if additional information is required.

Please note, this letter only acknowledges receipt of your application(s) and does not guarantee approval. In accordance with the provisions of the Kansas Water Appropriation Act, the use of water as proposed prior to approval of the application(s) is unlawful.

Additional information about the process may be found on our website at *agriculture.ks.gov/divisions-programs/dwr*. If you have any other questions, please contact our office at 785-564-6640 or your local Topeka Field Office at 785-296-5733. If you call, please reference the file number so we can help you more efficiently.

Sincerely,

Kris Neuhauser
New Applications Lead
Water Appropriation Program