identified by median concentrations exceeding screening values. The 303(d) assessment methodology document (Appendix B) details the methodologies used for specific pollutants based on their designated use.

Watersheds monitored by the individual stream chemistry stations comprise multiple stream segments as an assessment unit for the purposes of the 303(d) program. Waters flowing directly into some large reservoirs were not surveyed as part of the stream chemistry monitoring network, instead being assigned to the assessment unit associated with that reservoir.

The public notice for the 2024 draft 303(d) list provides a mechanism for soliciting all readily available and existing water quality data from other agencies. In most cases, any submitted data corroborated the conclusions reached from the corresponding KDHE data. The public comment period ended March 21, 2024. No comments were received from the public which required modification of the list. The final 303(d) list, submitted to USEPA on April 1, 2024, identifies 428 station/pollutant combinations listed as Category 5 water quality impairments.

Priorities and Schedules; Introduction of the Kansas TMDL Vision 2.0

The Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program established by EPA and the States proclaimed:
"The Clean Water Act Section 303(d) Program provides for effective integration of implementation efforts to restore and protect the nation's aquatic resources, where the nation's waters are assessed, restoration and protection objectives are systematically prioritized, and Total Maximum Daily Loads and alternative approaches are adaptively implemented to achieve water quality goals with the collaboration of States, Federal agencies, tribes, stakeholders, and the public."

Previously termed as the "TMDL Vision", the 2013-2022 period is now colloquially referred to as "Vision 1.0." Following the end of Vision 1.0, with coordination between EPA and the various designated authorities and associated groups, the 2023-2032 Vision for the Clean Water Act Section 303(d) Program was created and more commonly referred to as "Vision 2.0."
In the document outlining Vision 2.0, it is proclaimed:

"The Clean Water Act Section 303(d) program strives to strategically plan and prioritize activities, engage partners, and analyze and utilize data to develop water quality assessments, plans, and implementation approaches to restore and protect the Nation's aquatic resources."
Just as Vision 1.0 focused on Prioritization as one of the six elemental goals, EPA has identified for Vision 2.0 to include Planning and Prioritization, Restoration, Protection, Data and Analysis, and Partnerships that echo Vision 1.0. Additionally, EPA has provided additional focus areas for consideration of Environmental Justice, Climate Change, Tribal Water Quality and Program Development, and Program Capacity Building.

KDHE followed a clear and concise prioritization framework in Vision 1.0. TMDLs over the 10-year span were focused upon priority watersheds using the Kansas Nutrient Reduction Framework of pursuing load reductions in lieu of numeric criteria pursuits. The prioritization

factors included consideration historic condition, stressors, relative value of water, and implementation potential. This Vision 1.0 prioritization resulted in the following figure:

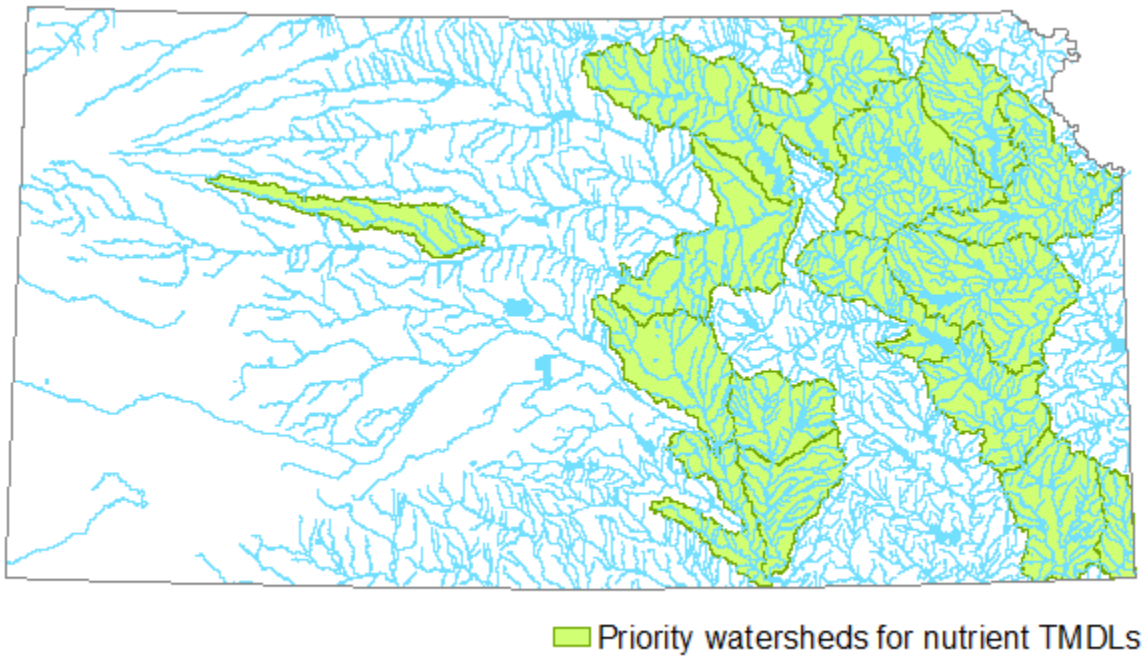

Figure 9. Sixteen priority watersheds targeted for nutrient TMDL development 2014-2022.

KDHE achieved the commitments of TMDLs to be written in Vision 1.0 ahead of the 2022 deadline and completed additional TMDLs that were proposed considerations as part of the previous prioritization framework and Vision 1.0. As Vision 2.0 guidance was being completed by EPA, states were asked for "Bridge Priorities" following the 2022 terminus of the Vision 1.0. KDHE followed in the previous Vision 1.0 framework and continued production of restorative TMDLs for total phosphorus impairments but moved outside the focused HUC8 watersheds identified in the Figure 9.

As Vision 2.0 encompasses from 2022 through 2032, the Bridge Priorities became the first two years of commitments by the states for the new Vision. KDHE committed to four restorative TMDLs and proposed a protective TMDL to consider during this period. The TMDL for the Arkansas River near Great Bend was approved in 2022 and the TMDL for Prairie Dog Creek was approved in 2023. The TMDL for the Pawnee River near Larned has been submitted to EPA but had not been approved by the finalization of the Kansas Integrated Water Quality Assessment report. The TMDL for Cow Creek and Caney River continue to be developed.

For the remaining eight years of Vision 2.0, KDHE has had internal discussions about the goals and priorities of the Department in meeting the goals of the Clean Water Act and the roles of the 303(d) and TMDL programs within the Department to meet them. While Vision 1.0 focused upon priority HUC8 watersheds based upon historic condition, stressors, relative value of water, and implementation potential. Much of what was identified precludes many of the same focus for

phosphorus reductions in the state to consider all of those factors in the Vision 2.0 as they have been addressed predominately in the Vision 1.0 process.

As Vision 1.0 has come to a close and Vision 2.0 has been plotted, much time and deliberation has occurred as result of implementing the nutrient TMDLs previously completed. Upon reflection of successes and failures and more vague considerations of what defines success for the state with reviewing 50 years of the Clean Water Act, there are many convoluted approaches and realistic effects to be considered with TMDL prioritization and implementation.

Following over a decade of focus and achievement in nutrient TMDL development and implementation, KDHE was left with the question of what to do next. Many ideas were reviewed that were explored by other states, recommended by EPA, and a result of lessons learned from KDHE's own Vision 1.0. For developing Vision 2.0, multiple tiers of focused intent were devised. First tier is requirements of the program. Second tier are focused on most environmental gains for effort exerted. Third tier is then focused on what are expected to alleviated current bureaucratic setbacks and refocus efforts.

For the first tier, the requirements of the TMDL program are stated in the Clean Water Act as needing to be written from time to time. EPA has generally applied that interpretation with their Bridge Priority Metrics where TMDLs to be written in the next two years must be provided and is stated as such at 40 CFR § 130.7. EPA has made a national database that states must report to for this in ATTAINS. In it, credit for writing a TMDL is only granted for stream segments that are already identified as Category 5 impaired waters without a plan in place for restoration for that specific parameter impairment. Thus, the requirements fall to the states that protective TMDLs and rewriting of TMDLs is not given credit under the ATTAINS system. The first tier of commitments to be made by the state are reflected in the 2024 303(d) Methodology TMDL commitments (Table 9).

Table 9. Targeted streams for TMDL development.

HUC 8 Subbasin	Stream Chemistry Station	Stream Assessment Unit	Targeted TMDL Development Year
10260006	SC713	Fossil Creek near Russell	2025
10260012	SC721	Deer Creek Near Kirwin	2027
10260015	SC511*	Solomon River near Glasco	2029
10260014	SC668*	Twin Creek near Corinth	2031
11040006	SC222**	Cimarron River near Forgan, OK	2031

*SC511 and SC668 have a median total phosphorus value of 0.204 and 0.210 mg/L, respectively; as the threshold for Category 5 listing is a median of 0.201 mg/L, it is possible either location will be delisted with accumulation of new data before the 2030 303(d) List and thus both options are presented should either be delisted.
**SC222 was delisted in 2024 but it is possible with new data that it will be again cross the threshold for Category 5.

With these commitments, the core requirements of the Vision 2.0 process as suggested by EPA will be met along with demonstrating 100% compliance in the ATTAINS system. However, these sites were not arbitrarily selected just to appease the federal database system. Instead, they were selected from the second tier of considerations made in determining TMDLs to be developed in Vision 2.0.

For the second tier of considerations, the goal of making the most water quality improvements for the amount of effort exerted were considered. With Kansas's focus on nutrient reductions from point sources well established in Vision 1.0 for the targeted watersheds, the question then is do the other watersheds of the state now warrant consideration as worthy of this focus on nutrient reductions?

By examining the 303(d) List for current impairments for Total Phosphorus (TP), the remaining Bridge Priority commitments were filtered out as locations that not only have a Category 5 impairment for TP, but also have point sources in the watershed with mechanical treatment for their municipal treatment plants. By committing to these locations, it continues the spirit of the Vision 1.0 in focusing efforts on point source reductions where known impairment exists and there is a point source that can reduce its contributions exists.

While much focus has been presented on combining the first and second tiers, the second-tier considerations that don't fit in the first were also considered. For those, protective TMDLs have taken an interest with KDHE. If a TMDL is written to address an impairment, the question of 'do we have to wait for an impairment to act?' is worth positing. For a category 5 listing of TP, KDHE compares the median TP for a site to thrice the ecoregional TP value (0.067 mg/L * 3 = 0.201 mg/L). For sites that are habitually at 0.197 mg/L, are they not worthy of considering reduction of nutrient levels? As part of the current 303(d) Listing and ATTAINS credit system, they would not be credited as worth doing. Instead, KDHE shall consider these sites for protective TMDL development where a category 5 impairment does not exist; but the state creates a TMDL for the intent of keeping it from that designation in perpetuity and potentially improving water quality as well. The same focus and determination towards watersheds with point sources will be considered by the state in these selections for execution with the TMDL program.

While the Clean Water Act was created in 1972, Vision 1.0 was not established until around 2010. A painful learning experience was felt nationwide with what is now termed the "consent decree era" of TMDLs. As the Clean Water Act requires TMDLs be written from time to time, many states were falling short of that metric. As a result of being sued for this failure as outlined by the Act, a consent decree was reached for catching up on TMDLs that should have been developed previously. Many of these documents meet the legal requirements of what constitutes a TMDL, but have no additional information provided for implementation, long-term considerations, or various other relationships that are considered core components of KDHE's modern TMDL program. As a result, the implementation of these TMDLs in the NPDES and other programs is time intensive and repetitive with permits only being able to issue in 5-year increments. Thus, consideration for the most problematic consent decree TMDLs to be rewritten are also provided as options for KDHE in the Vision 2.0 process. As ATTAINS does not provide credit for rewriting a document already addressing an impairment, it fails to meet the first tier of

consideration but still holds merit for consideration and application under the second and third tiers considered by KDHE for Vision 2.0.

Another proposed consideration for further KDHE review and potential adoption in the future are trash TMDLs. Some locations across the nation have noted trash in surface waters isn't natural and is a violation of narrative criteria that state waters shall be free from garbage and other discarded materials. The difficulty lies in setting a natural concentration of trash in a stream where obviously there are no naturally occurring grocery bags or car batteries in surface waters. Thus, setting the natural concentration at zero would be the correct presumption, but establishing that as the metric of success is fantasy. Instead, a non-constrictive path of reducing trash in streams is worthy of discussion. KDHE has considered the merits of what EPA now terms Alternative Restoration Plans and considers potential merit in these efforts for reducing trash levels in streams to levels as implementable as actually possible. It should be noted that while this fits the mold of the second tier of consideration beautifully, it's possible it may work against the third tier of creating more long-term paperwork and bureaucracy along with social and political ramifications as addressing trash in Kansas streams can't be meaningfully addressed without also acknowledging homeless encampments along many of Kansas streams are a major source of trash that end up in the surface waters and reducing the homeless population is well beyond the bounds of the Clean Water Act.

Another consideration for KDHE in Vision 2.0 is the potential inclusion of Environmental Justice TMDLs. While this is unfamiliar territory for the Department, these challenges don't decrease potential merit under the second tier of considerations the Department has made. If a disadvantaged community has been more heavily affected by environmental impacts than other communities, it may well warrant the attention and commitment of resources of KDHE to focus on environmental restoration for these locations.

That all said, the only proposed means of implementing Environmental Justice (EJ) in the TMDL program that has been provided by EPA to date recommends that a state consider a watershed of a TMDL and setting lower waste-load allocations in the EJ community portions of the watershed to improve water quality in those communities. KDHE is extremely alarmed by this proposed notion. First, criteria are established under the Water Quality Standards (WQS) program for protection of aquatic life, recreation, human health, and other use considerations. Criteria are protective of these uses, and human health criteria that are protective in one location should be considered protective in all locations of the state. Setting different limits for different communities gets away from the scientific defensibility mandate of the Clean Water Act for WQS and takes science and Clean Water policy experts into extremely unfamiliar policy grounds and precedent.

Further, this proposed means of application can be more damaging to the community in a holistic perspective. In Kansas, the Kansas River ("Kaw") confluences with the Missouri River at the state line. The Kaw before that confluence is the boundary between Wyandotte and Johnson County. In Wyandotte County, the median household income is significantly lower than in Johnson County and racially far more diverse in the former as well. If KDHE writes a TMDL for parameter X for the Kaw and follows EPA's suggestion of setting lower waste-load allocations in the Wyandotte County area of the watershed, then several things will result. First, the waste-

load allocation will be implemented in permits. Every community produces sewage treated at a municipal treatment plant. Those municipal plants serve those communities and of course are located where the sewage is produced in those communities because piping things elsewhere costs more money typically. So, the municipal sewage treatment has to treat to a higher level of quality in Wyandotte County than Johnson County in this scenario. In other words, the more financially disadvantaged community will have a higher sewer bill than the more economically advantaged community.

To go further, other discharges are termed “industrial” in Kansas. For industrial discharges to surface waters, in the above EJ application scenario, it just became cheaper for industry in the economically wealthier community than in the more disadvantaged community to discharge. To extend that even further, if a new industry is determining where in the Kansas City metro, they would like to set up shop, their cost analysis will now demonstrate it’s cheaper to set up shop in Johnson County instead of Wyandotte County.

In this scenario imagined in entirely plausible consequences like this, the cost to live in Wyandotte County just went up for the disadvantaged community through increased sewer bill, industry costs have increased in their community, and new industry have been incentivized to build on the other side of the river from the disadvantaged communities. The net positive being the stream is now protected to a higher level than the criteria require for human health protections. Holistically, KDHE advocates against this EJ approach for its obvious detriments against relatively minimal benefits.

Tracking Previously Listed Waters

The 2024 303(d) list also identifies waters from previous lists that were once impaired by a pollutant (Category 5) but that are now placed in other listing categories established by USEPA. Waters with approved, established TMDLs are placed in Category 4a.

A small number of water bodies have been designated as Category 4b, meaning their particular impairments have been addressed by some means other than development of a TMDL. Previous Category 4b waters addressed through the appropriate limits, schedules of compliance, and other conditions placed on NPDES permits and are now achieving the respective water quality criteria have been placed in Category 2, which is reserved for those Kansas waters that were once impaired, but whose water quality has subsequently been restored to meet standards. Effluent quality data from individual facility discharge monitoring records, corresponding water quality data at downstream monitoring stations, and special monitoring efforts upstream and downstream of selected facility outfalls support the transfer of those waters to Category 2.

Atrazine impairments in a limited number of water bodies in the Little Arkansas River watershed have been addressed through implementation of a WRAPS watershed plan. Continuation of Category 4b status is contingent upon ongoing efforts and results to abate atrazine loads in the selected subwatersheds of the Little Arkansas River. Because of the burden of proof placed on designated waters into Category 4b, it is unlikely that additional such entries will be made into that category. Other WRAPS groups may address impairments through implementation of their