



Wakarusa River Valley **Vision & Area Plan**

Existing Conditions Summary
September 2025

Introduction

PROJECT BACKGROUND & GOALS

The purpose of this document is to summarize of existing conditions, opportunities, and constraints related to approximately 15,400 acres of land in the floodplain of the Wakarusa River south of Lawrence, Kansas, in a study area reaching from the Clinton Dam to Eudora. This study documents existing conditions within the study area that may be relevant to its future use and identifies opportunities and constraints within the study area based on existing features, adopted plans, and policies.

Our intention is to create a final plan grounded in data and spatial information that can serve as a long-term blueprint for community planning in the valley. It should include protected areas, habitat, recreation and culture and their synergy. We hope to seed collaboration and a shared vision from a wide range of planning partners on recommended tools that can prioritize resilience, community healing, appreciation and access for future generations.

Douglas County Open Space Plan prioritizes preserving land within or adjacent to rivers, streams, creeks and wetlands with balanced and functional ecosystems as well as areas that can support access to low-impact recreation opportunities, either through the creation of new trails and infrastructure or connection to existing opportunities.

Introduction

STUDY AREA & LANDOWNERS

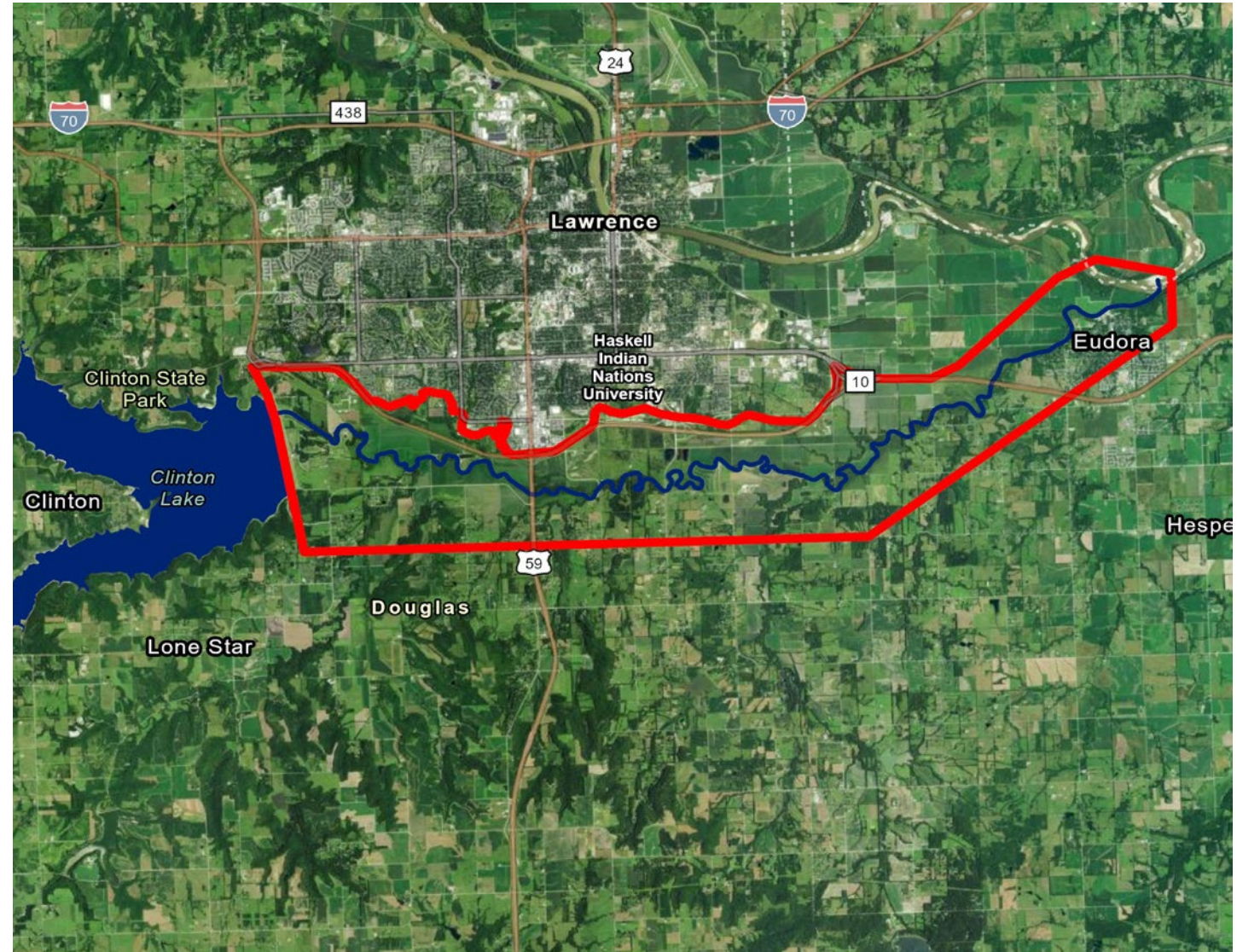
**Jurisdictions of Douglas County,
Cities of Lawrence and Eudora**

**Parcels directly abutting the
Wakarusa river**

- ~68 land owners, mostly agriculture
- ~6000 acres
- Median landowner holding = ~45 acres
- 18 landowners with holdings ≥ 100 acres

**Parcels in 100 year floodplain
(including tribs in study area)**

- 349 separate land owners
- ~15,400 acres



Introduction

METHODOLOGY

Collaborative decision-making requires an engagement effort to anchor and inform the analysis, design, and policy recommendations in a process that builds consensus around actionable recommendations. This report and the Vision and Area Plan are based on 1) leadership from the Institutional Planning Partners (Douglas County, Cities of Lawrence & Eudora, and Haskell Indian Nations University); 2) two phases of interviews and Focus Groups with land managers and technical specialists; 3) A 3-day Workshop in fall 2025, and 4) online updates for the planning process.

The overarching Douglas County Open Space Plan entailed broad community outreach and this planning process for the Wakarusa River Valley is a direct result of that input. Although the engagement is much more focused and specific for this effort, since starting work in early 2025, the consultant team has held four focus groups, conducted six interviews, prepared a survey instrument to landowners, and supported a website and outreach at community events.



Planning Context

Douglas County's policies strive to balance development, agriculture, conservation, and resilience through an integrated framework of zoning, floodplain management, open-space planning, sustainable initiatives, and innovation in land use.

Douglas County Open Space & Land Conservation

- The Open Space Plan (2024) defines conservation goals for parks, farmland, floodplains, trails, wetlands, cultural sites and buffers. It identified the Wakarusa River Corridor as one of the highest priorities in open space planning and led to this work.

- Pilot Land Protection Program: The County has partnered with the Kansas Land Trust on a pilot program to support open space conservation through voluntary easements.

Lawrence Parks, Recreation, and Culture Master Plan

A ten-year plan with a focus on the *Unmistakable Identity* outcome area in the City Strategic Plan.

Eudora Parks & Recreation Master Plan

Eudora is currently completing future improvements to Eudora's park system based on an in-depth analysis of its current conditions and future needs.

Planning Context Cont.

Horizon 2020 Comprehensive Plan

The 1997 Comprehensive Plan for Lawrence and Unincorporated Douglas County did not include development south of the Wakarusa River to meet its objectives. It suggested that residential development should be deterred by the sensitive nature of the area and its extensive wetlands.

Plan 2040

The 2019 Comprehensive Plan update identifies the area south of the Wakarusa as a future growth area, which would require major utility enhancements as a prerequisite to urban growth.

Floodplain & Stormwater Management

The county participates in FEMA's National Flood Insurance Program and enforces floodplain land-use regulations; updated FEMA maps are expected by mid-2026.

Zoning & Land Use Regulations

The Douglas County zoning code (2020) aligns with Plan 2040 and area-specific plans, guiding development, ag preservation, and floodplain and sensitive land protection. Zoning integrates floodplain controls to prohibit uses that would increase risk and danger to health, safety, or property during flood events.

Planning Context Cont.

Agricultural & Resource Management

- Soil and water conservation: Private land stewardship is supported by cost-share and technical assistance programs provided by agency partners including Douglas County Conservation District, Kansas Alliance for Wetlands & Streams, Kansas Forest Service, and Kansas Department of Wildlife and Parks.
- Collaboration with Kansas Department of Agriculture's Division of Water Resources ensures dam standards, stream protections, floodplain permitting, and water rights align with policy.

Sustainability & Climate Adaptation

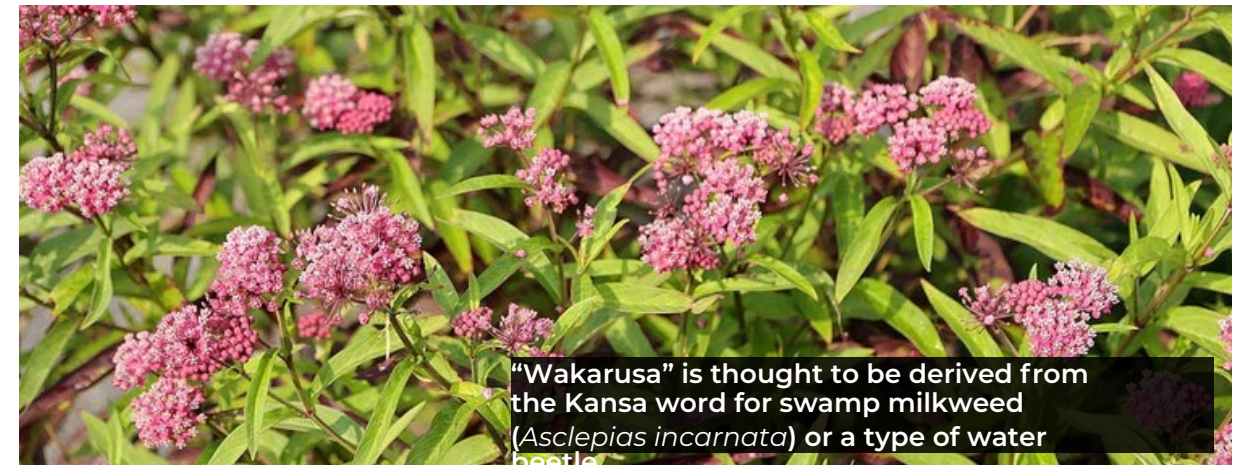
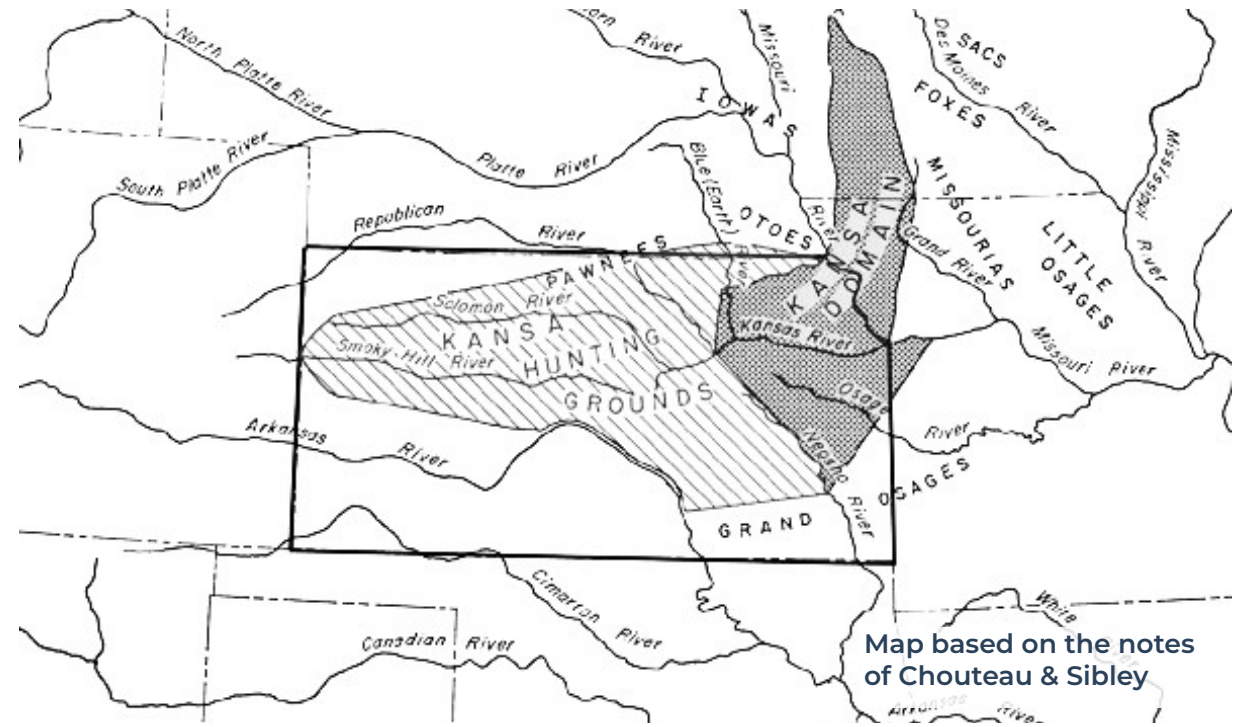
Adapt Douglas County, a collection of countywide goals for climate action, aligns with vision opportunities within the Wakarusa Valley, including restoring ecosystem services provided by wetlands, watershed planning, conserving floodplains, and realizing co-benefits for community resilience.

Human History

TRADITIONAL HOMELANDS

Until recently, rivers such as the Kaw and the Wakarusa have been highways of trade and travel for each cultural group that has come into contact with them. The semi-nomadic Kansa (or Kaw) and Osage nations' territories both included the Wakarusa River Valley, though they were forcibly removed to Oklahoma in the 1870s. The Otoe-Missouria tribe also hunted in this region. Bands of the Oceti Sakowin Confederacy likely moved through at times following bison, as well.

Nations forced from their homelands and crossing or residing the state for various periods include the Kickapoo, Prairie Band & Citizen Band Potawatomi. Although eventually forced south, the Delaware, Wyandotte, Sac and Fox, and Shawnee were also here.



"Wakarusa" is thought to be derived from the Kansa word for swamp milkweed (*Asclepias incarnata*) or a type of water beetle.

Blue Jacket's Crossing

OREGON TRAIL

In 1855, three grandsons of Chief Blue Jacket, the last principal war chief of the Shawnee Tribe, established a ferry crossing a few miles west of the confluence of the Wakarusa and Kaw. The limestone bluffs made the crossing notoriously difficult, so they added ramps and a ferry so that travelers could avoid dismantling their carts and lowering them with ropes to the channel bottom.



The Eldridge Hotel after the Lawrence Massacre from a 1863 Harper's Weekly.

Bleeding Kansas

WAKARUSA WAR AND QUANTRILL

Lawrence was founded by abolitionists and the once extensive Wakarusa bottoms were known to hide stops on the Underground Railroad. In 1855, abolitionist John Brown and allies feuded with Missourian pro-slavery factions in what became known as the Wakarusa War when opposing groups fought over the freedom of a free-stater witness to a murder over a land dispute.

When William Quantrill attacked Lawrence in 1863, the Wakarusa River again bore witness. Quantrill carefully scouted the river crossings in preparation and burned Blanton's Bridge as his raiders left after the massacre. Blanton's family hid downstream.

Haskell Indian Nations University (HINU)

FROM ALLOTMENT TO THE FIGHT FOR SELF-DETERMINATION

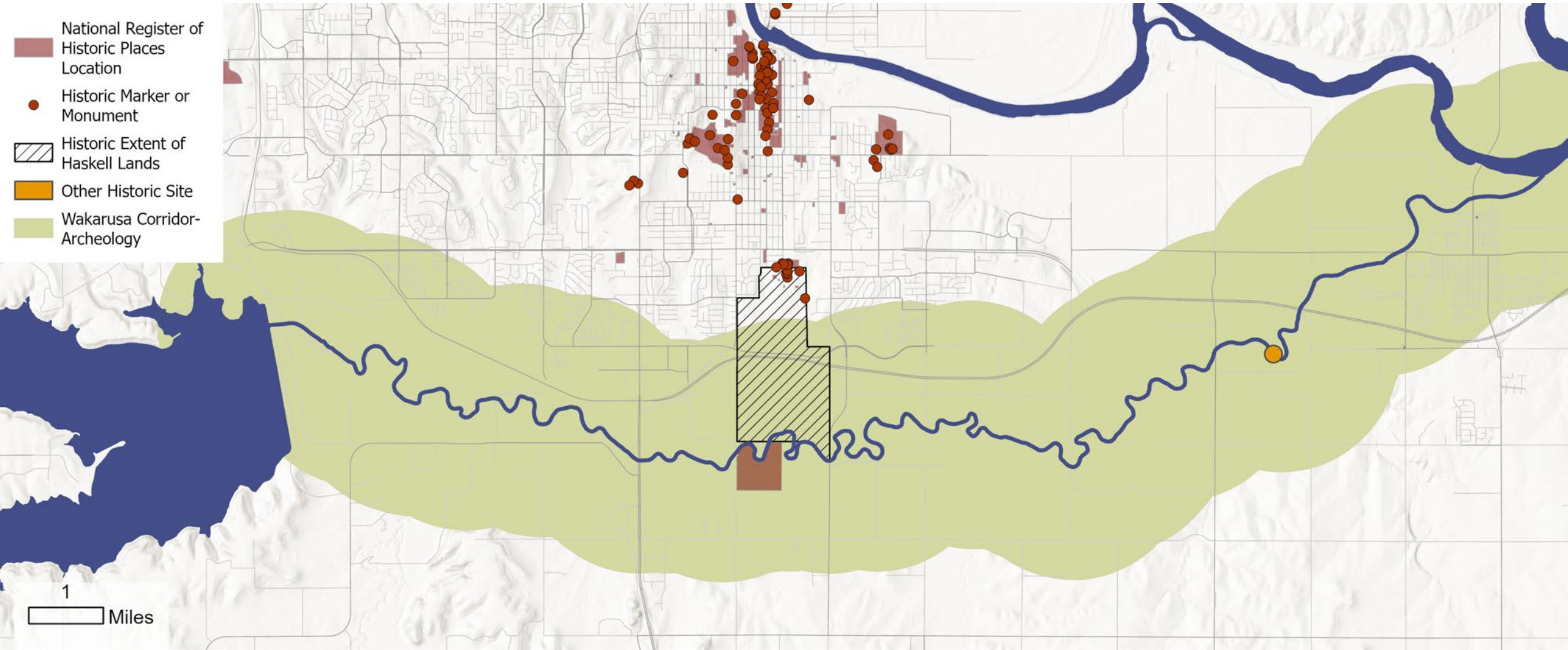
Opening its doors in 1884, the United States Indian Industrial Training School was designed to assimilate Native students, in part via Western agricultural practices. By 1922, three large ditches had drained the Haskell wetlands, where students were then compelled to tend crops. The farming program ended by 1934, after the Merriam Report documented abusive conditions including poor diet, overcrowding, below-standard medical care, and emphasis on physical labor instead of education. Before Haskell was reorganized, students who trying to escape and find their way home were known to flee to the wetlands, according to records and elders. Today there are serious concerns that the wetlands became the final resting places for some.

Although not shareable, the State Historic Preservation Office keeps data suggesting that the corridor merits archaeological investigation to proceed development. Several areas are of particular historical interest to the HINU community because they served as a storage and disposal site for decades of Haskell history, before the wetlands were transferred to others or sold. See Appendix C for more on this history.



Cultural Corridor

NATIVE, SETTLER, AND CIVIL WAR SITES



The Baker and Haskell Wetlands

RECENT WETLAND HISTORY

By 1934, with the farm program ended, the Bureau of Indian Affairs began leasing the wetland areas to local farmers. In the 1950s, portions were declared surplus land and given to Lawrence, KU, and KDWP. Baker University received the remaining 573 acres free of charge through a 30-year Quit Claim Deed in 1968; the land was to be used for education, research, and restoration.

Over the next three decades, Baker U. staff implemented gradual prairie, wetland, and riparian forest restorations, retired roads, repaired and replaced levies to restore wetland hydrology, and removed decades of accumulated trash.

The western leg of the controversial South Lawrence Trafficway (SLT) was built in 1996.

Years of debate followed, contesting the proposed southeast alignment through the culturally and ecologically significant wetlands. Despite litigation, construction of the southeast segment began in 2013, bisecting the wetland ecosystem. Environmental mitigation measures were negotiated in part through a 2012 agreement to expand wetland acreage and restoration efforts on the Baker property.



The Discovery Center was built as part of the 2012 agreement with KDOT. Read more at bakeru.edu/visit-baker/wetlands-discovery-center.

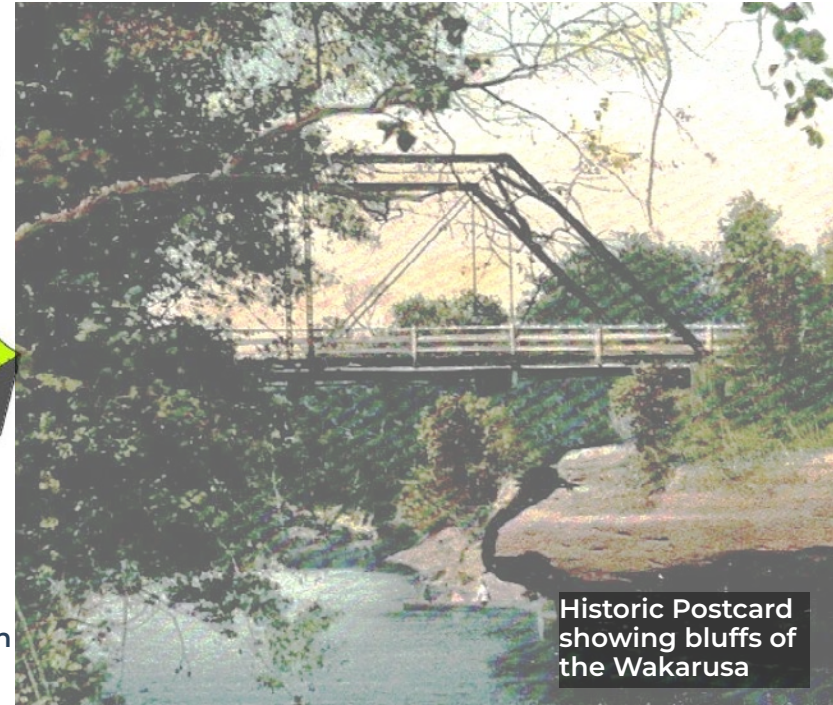
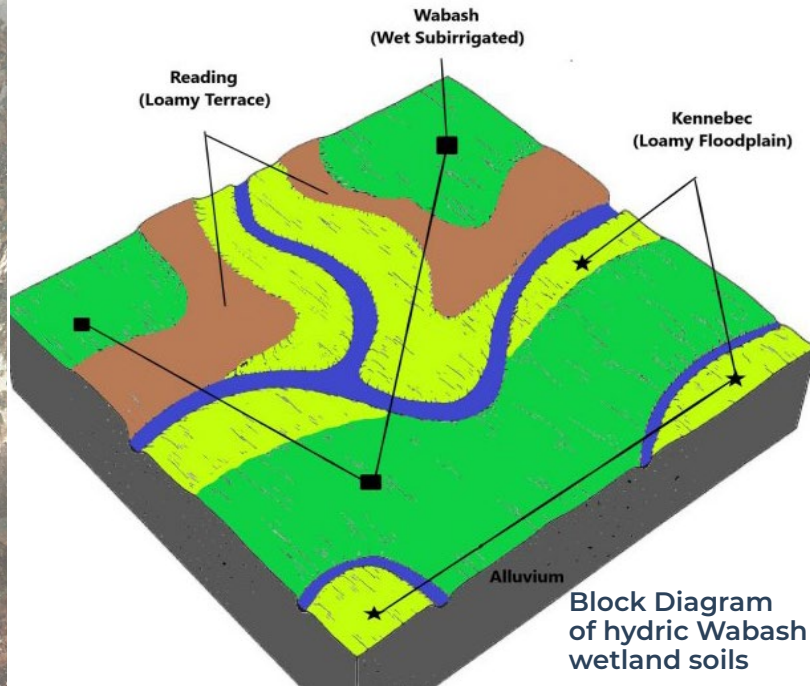
Biophysical History

GEOLOGY AND SOILS

The layers of slate, limestone, and shale typical of the valley and the Osage Cuestas Ecoregion are easy to see along the spillway. Shaped by its location on the edge of the Kansas glacier, the Wakarusa River Valley was always steeper than the wide Kaw valley, and early accounts describe how hard it was to cross with carts. Before European agriculture spread, the area supported mostly tallgrass prairie with floodplain forests along the streams, a mosaic of vegetation that was shaped by regular fires. Near the river, the very deep, poorly drained Wabash soils supported wet prairie meadows.



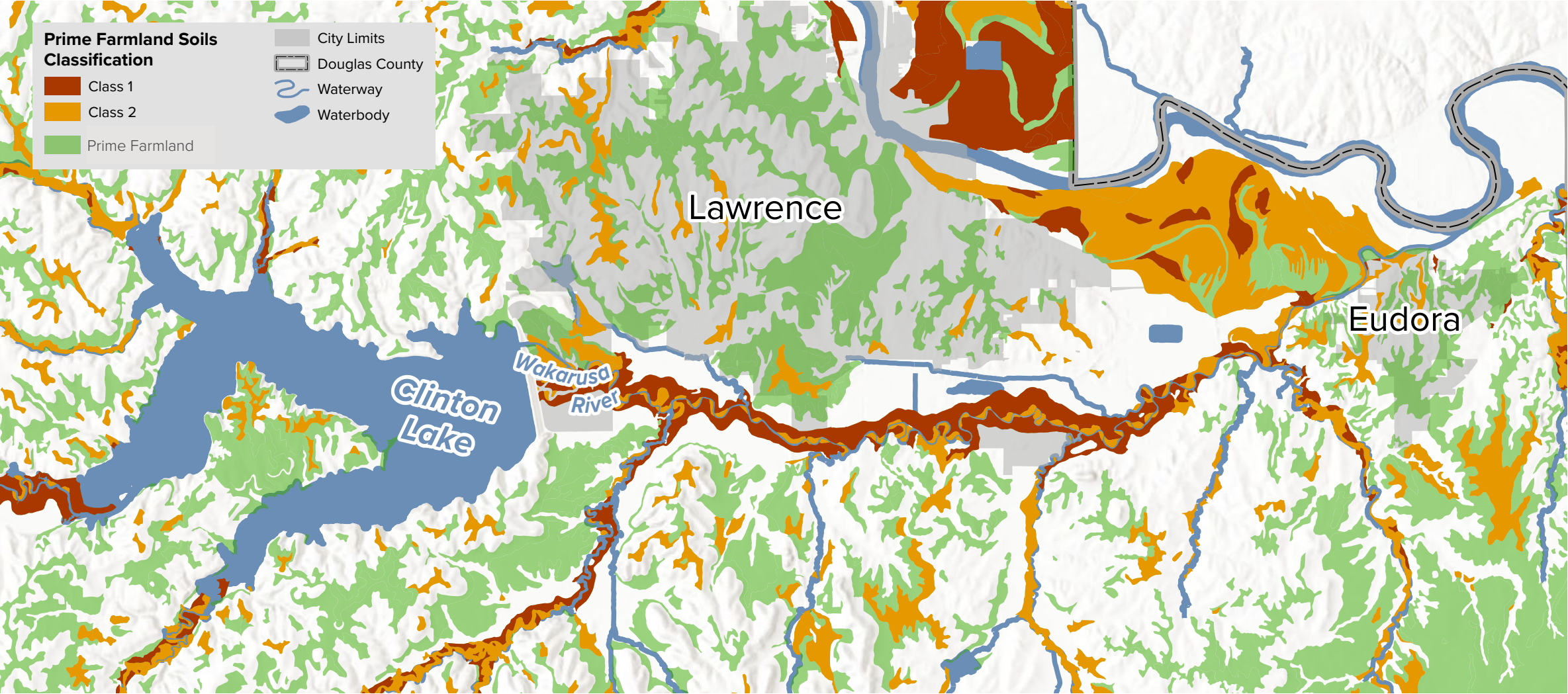
1873 painting of Bluejacket's crossing by Henry Learned
Permission pending



Historic Postcard
showing bluffs of
the Wakarusa

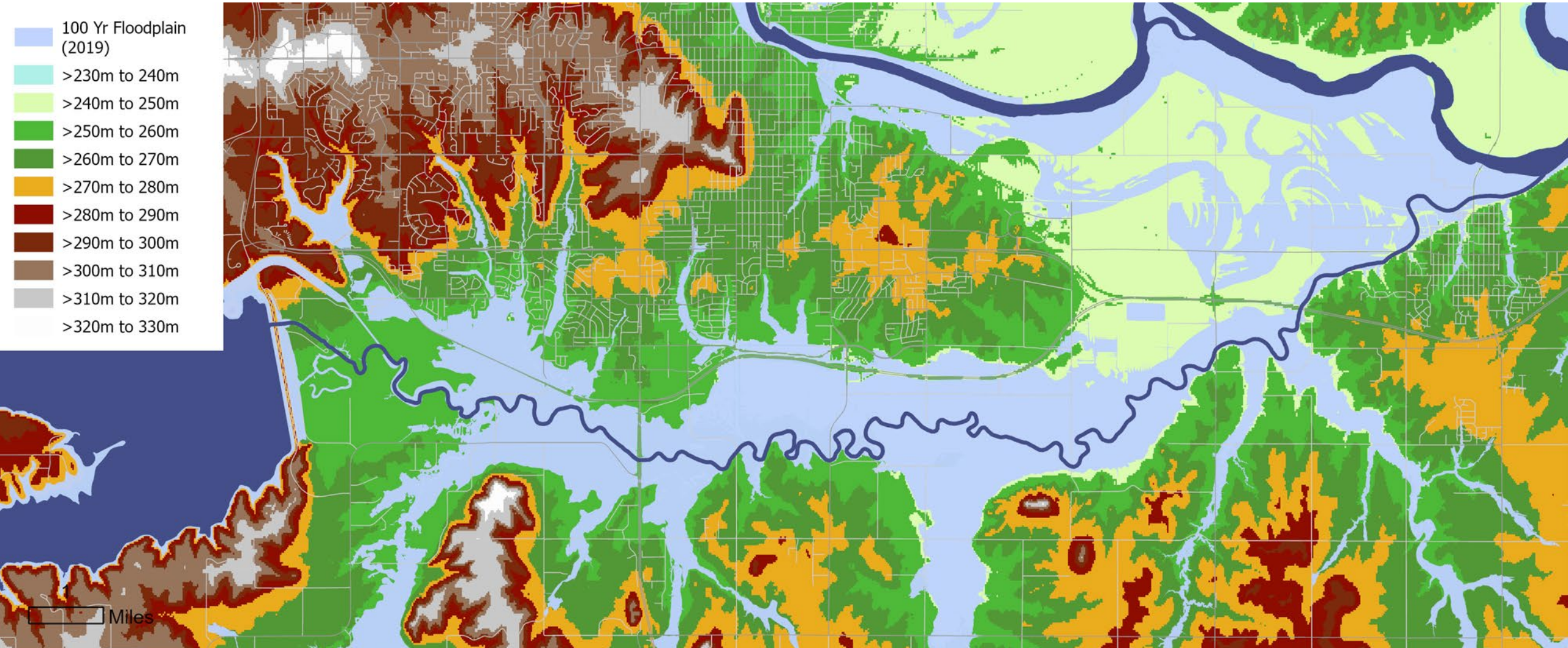
Biophysical History

PRIME FARMLAND & SOILS



Topography

BROAD FLOODPLAIN

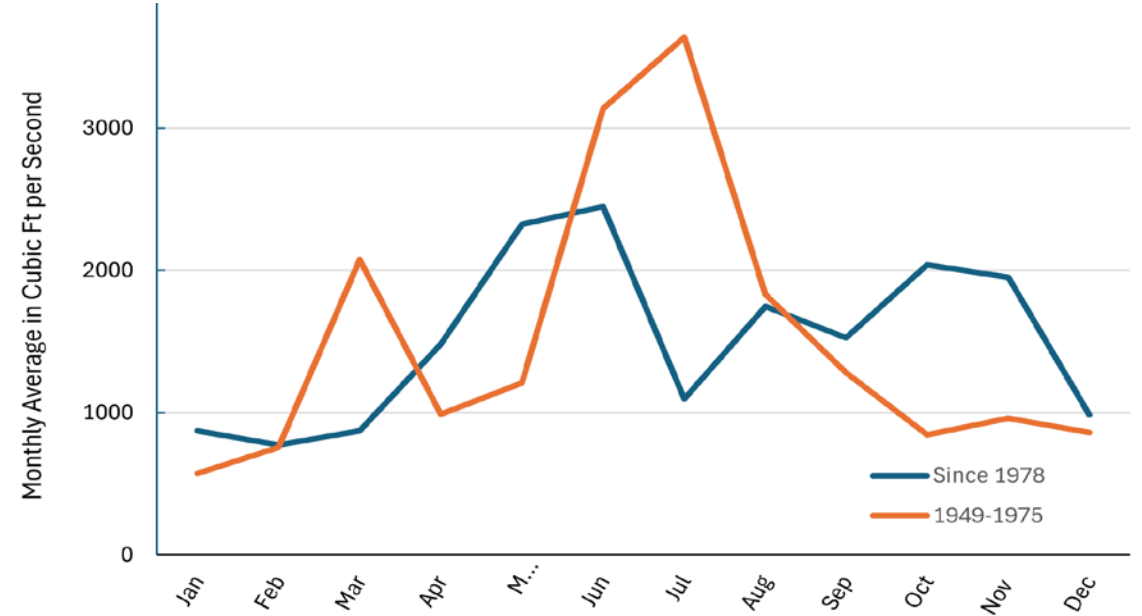


Biophysical History

HYDROLOGY AND HYDRAULICS

The U.S. Army Corps of Engineers constructed Clinton Dam in 1975 for flood control, water conservation, recreation, and fish & wildlife enhancement. According to the gage at the US 59 bridge, the Wakarusa River has passed 20 feet in height five times in the last 15 years. Before the dam was built, the river reached 20 or 30 feet almost every year.

Today the water entering the Wakarusa River channel is set to a minimum of 21 cfs April through September and 7 cfs for the rest of the year. In alternating years, the lake level is managed for waterfowl or fish (e.g. in fish years shoreline vegetation is inundated for forage opportunities and March and April have limited release to retain walleye fry). The plan is undergoing a revision scheduled to be



completed in 2027 with a focus on drought contingencies.

The Kansas Sustainable Rivers Program recommends adding more variability to the system to mimic the naturally wet, average, and dry years that occurred before the dam. The program hopes to make specific recommendations for the Wakarusa River in 2026.

Biophysical Context

REDUCING FLOOD RISK

Growing urban areas have more impervious surfaces and less natural protection, so areas with periodic flooding are at increased risk.

Development along the tributaries can also be a contributor. Washington Creek, one of the less developed tributaries of the Wakarusa, was selected for a 2024 KS Mitigation Technical Assistance study because of recent flood history and the opportunity to model mitigation actions under current undeveloped conditions and future development scenarios.

The study's engineer, Stantec, found that Land Conservation nature-based solutions such as setbacks and riparian buffers can mitigate future flood hazards by enhancing

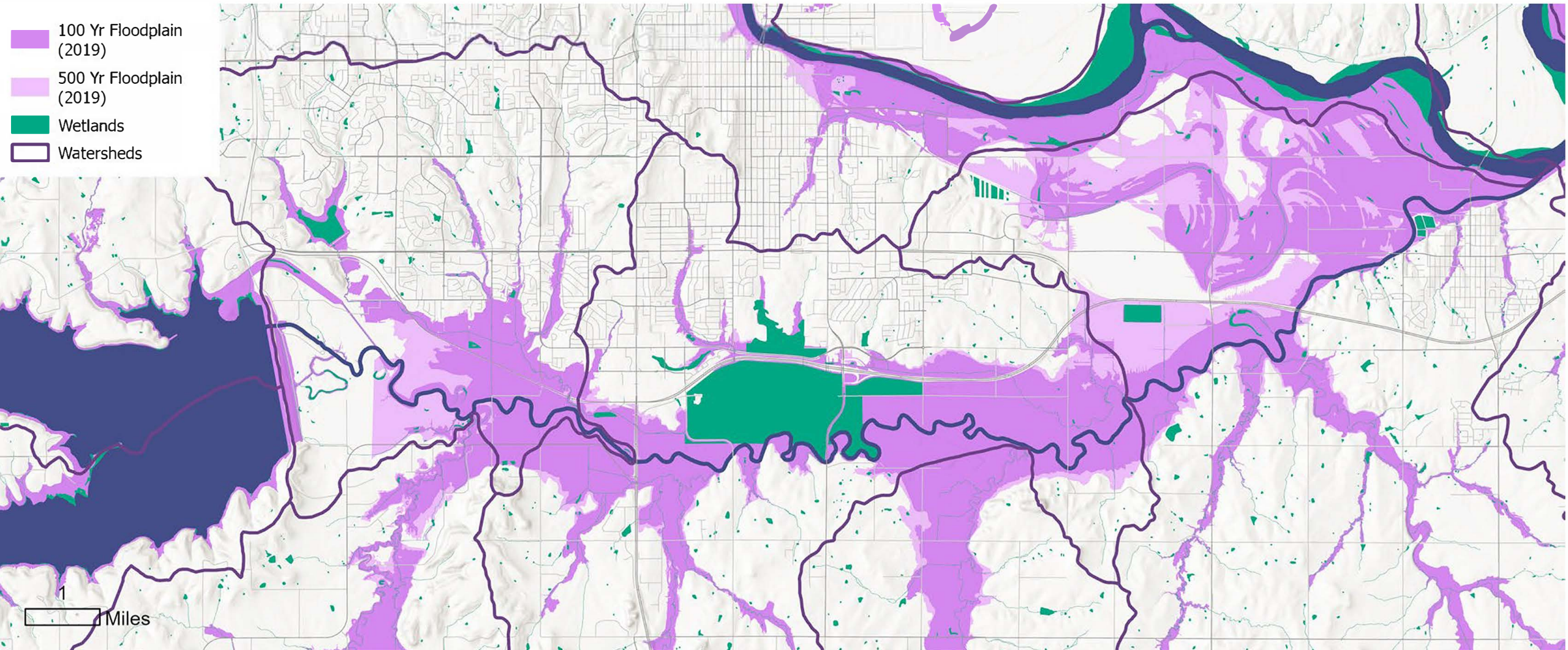
the area's capacity to handle future climate and land use scenarios, reducing exposure of buildings and infrastructure to high-risk zones.

The recommended Nature-based Solutions:

- Land Conservation
- Soil Health BMPs
- Urban Trees & Forest
- Detention/Retention
- Wetland Restoration

The County is currently partnering with KDA and JEO to perform a similar hydraulic analysis of the Wakarusa River, intended to inform this visioning process and future decision making on flood risk under various development and regulatory scenarios, with results expected in the fall of 2025.

Floodplains and Wetlands



Living Systems

BIOLOGY OF THE CORRIDOR

Prairies

The tallgrass prairie, characterized by its rich soils and a diverse mix of grasses and wildflowers, is one of the world's most endangered ecosystems. Due to the conversion of land to agricultural uses and the disruption to natural disturbances (e.g. grazing, fire), very few, isolated remnants of tallgrass prairie remain in the Wakarusa Valley. The largest contiguous tracts of remnant wet prairie (~45 acres) are maintained at the Baker U. Wetlands.

Forests

Local oak/hickory forests were only in areas that were naturally protected from fire, such as along rivers, streams, and steep slopes.

Burr Oak, Shagbark Hickory, Cottonwood, and Paw Paw are common in places along rivers and streams, and large contiguous forest patches occur in the Wakarusa Valley.

Aquatic Conditions

The presence of the dam and the water release schedules have fundamentally altered the Wakarusa River basin. Dams trap sediment and release water quickly, leading to erosion and scouring, which degrades aquatic habitat. The reservoir also serves as an important impediment to connectivity, disconnecting upstream reaches from downstream ones.

Living Systems

BIOLOGY OF THE CORRIDOR

Mammals, Fish & Other Wildlife

The Wakarusa River Valley hosts a variety of mammals, including mink, badger, and river otters. White-tailed deer, coyotes, and bobcats are also common. Twenty-nine species of fish have been documented in the river and wetlands, alongside a wide assortment of amphibians, turtles, and snakes.

Birds

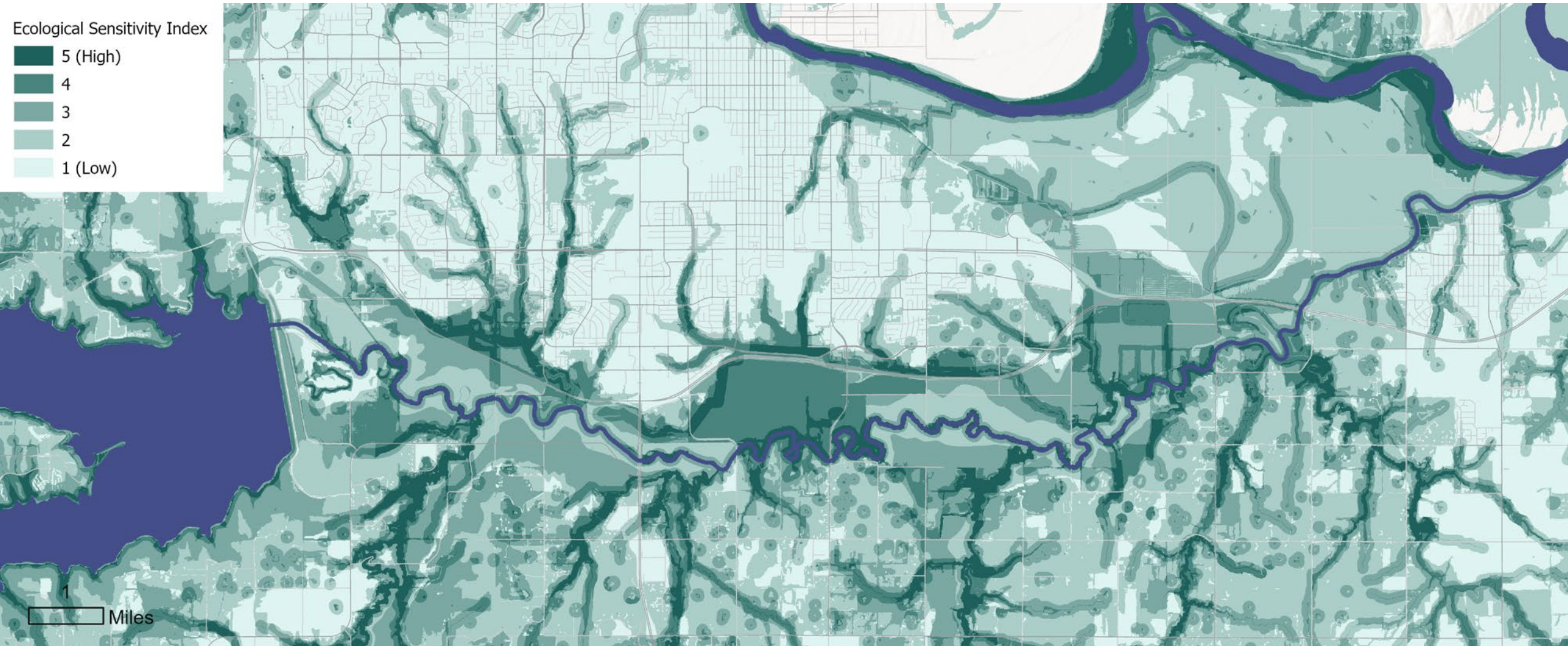
The valley has exceptional bird life, in part due to its importance to migration and location in the core of the Central Flyway. Within Kansas, Douglas County is the county with the most bird species, 288 of which are found in the Haskell and Baker wetlands.



Lesser Yellowlegs and other birds of the Baker and Haskell Wetlands. Photo: D. Martin

Ecological Sensitivity Index

The compiled index is intended to guide partners in identifying and prioritizing areas that are vulnerable to ecological disturbance or have greater ecological importance.



WHAT IS HEALTHY?

A Thriving River

5 BIOLOGY Biodiversity

4 PHYSICOCHEMICAL Temperature, oxygen, nutrients

3 GEOMORPHOLOGY Transport of wood & sediment to create a diverse channel

2 HYDRAULICS Transport of water in the channel, through flood- plain, & sediments

1 HYDROLOGY Transport of water from watershed to the channel

Healthy fish and wildlife depend on water quality, channel conditions, and flow dynamics

STRESSORS

Threats to River Health



Habitat loss



Stormwater runoff



Bank erosion and Scour



Flooding



Regulated by Clinton Dam Photo: A Golledge

OPPORTUNITIES

Stewardship & Restoration



Habitat enhancement



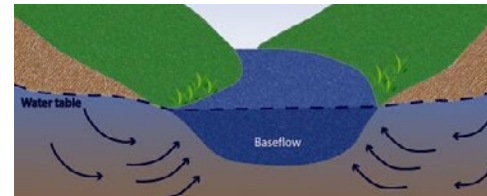
LID and Stormwater Management



Detention Basins & Constructed Wetlands



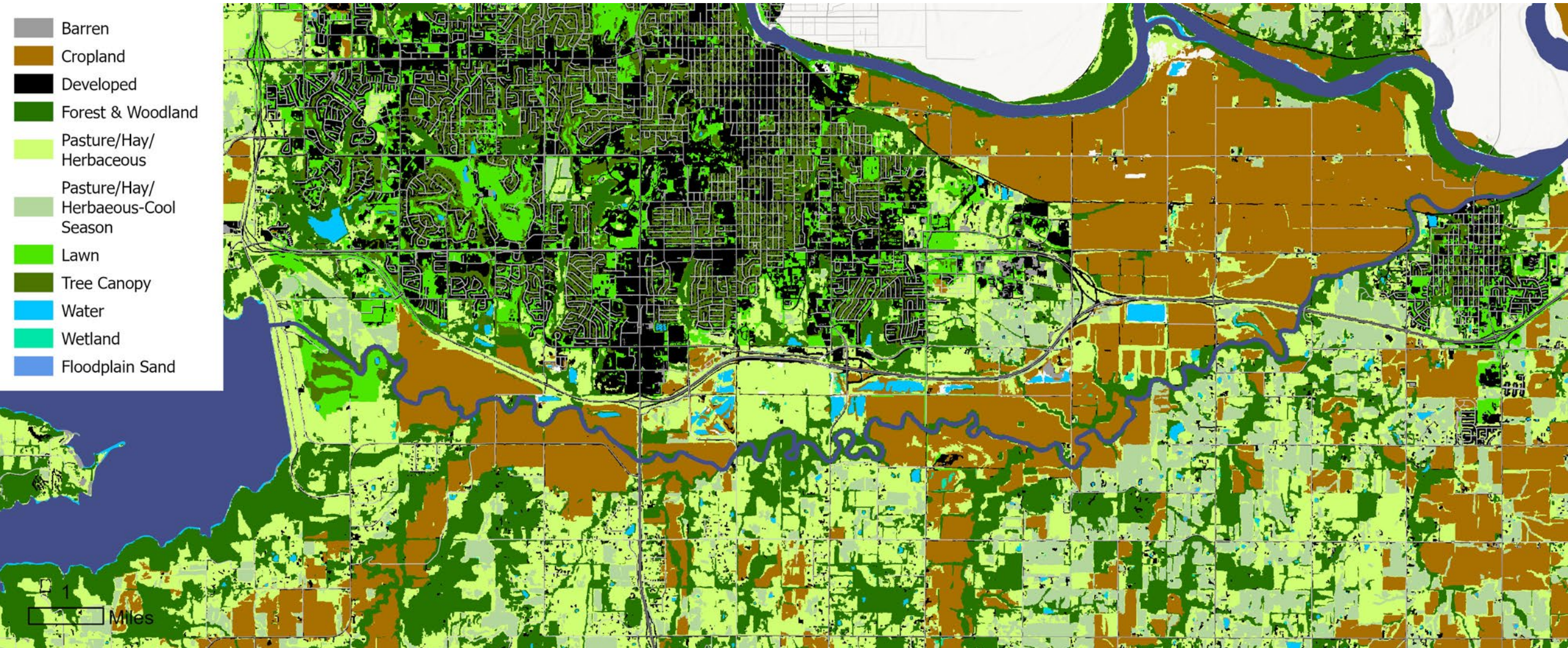
Buffer Revegetation Photo: LJW



Maintain Environmental Flows

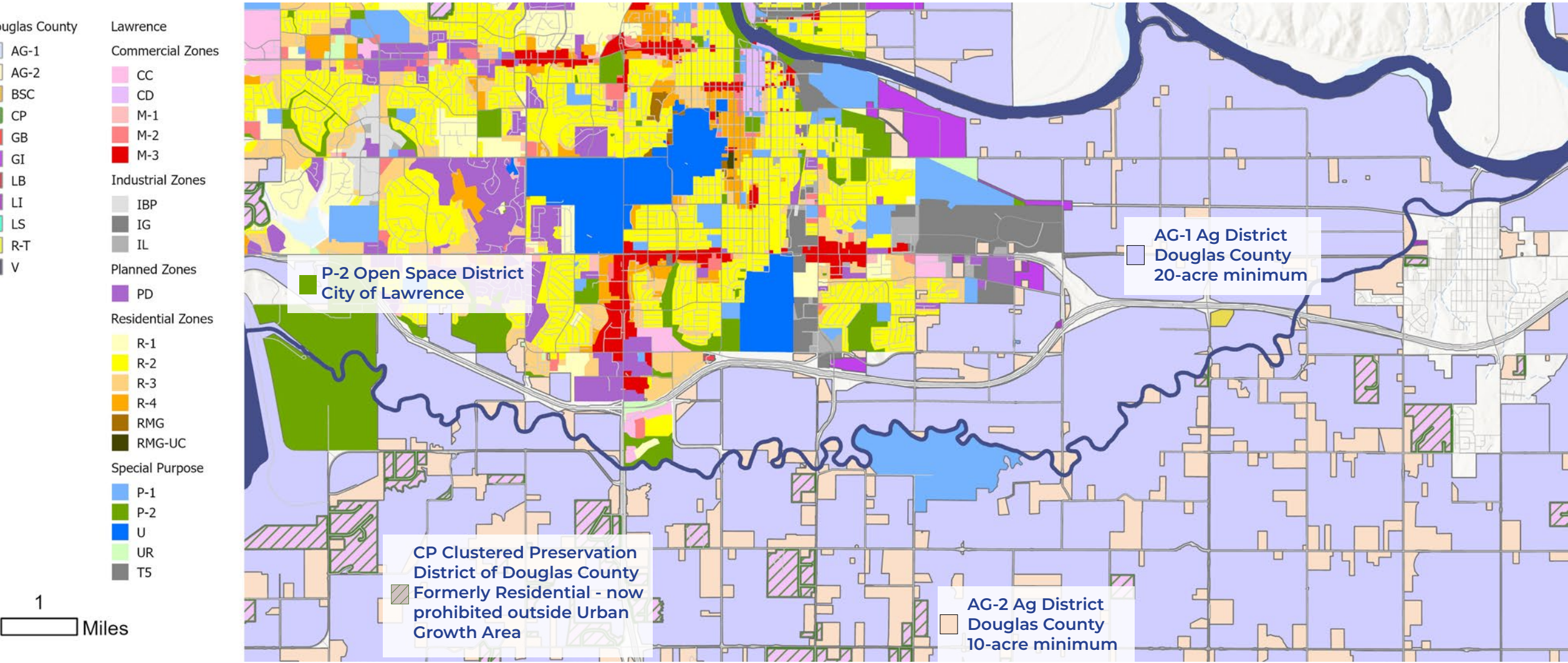
Land Use

In the largely agricultural context of unincorporated Douglas County, the Wakarusa River Valley supports cropland in its rich floodplain soils. Kansas Ecological Mapping.



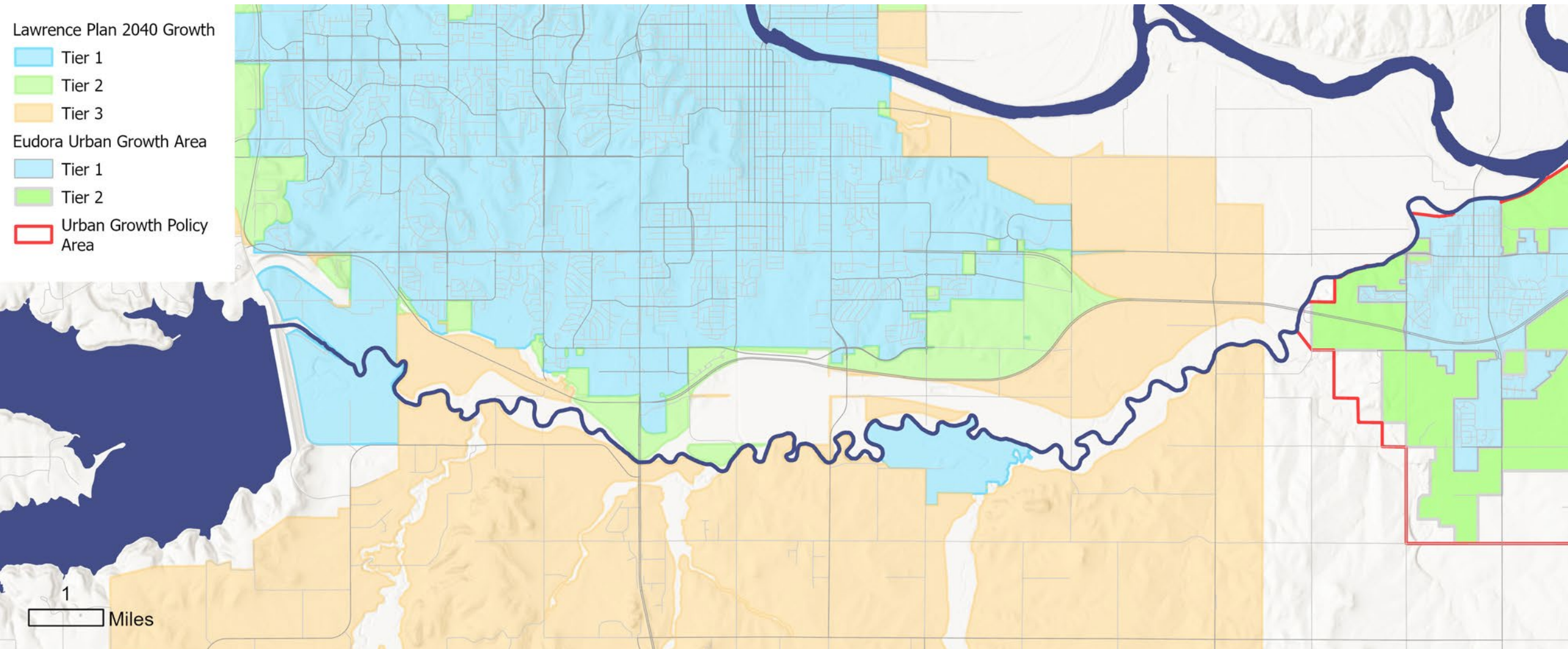
Zoning

Unincorporated Douglas County receives new non-farm rural residential development where it avoids encroachment into sensitive lands, FEMA floodplains, or historic features.



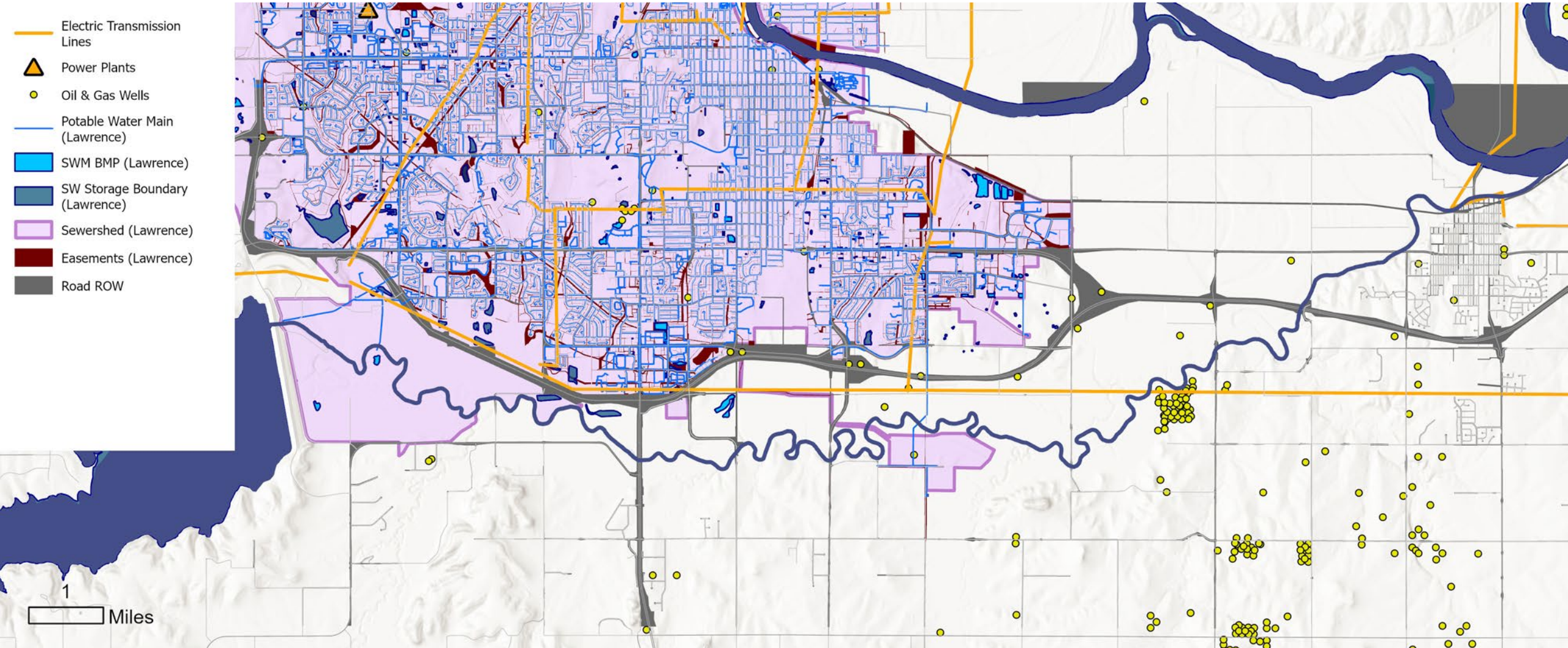
Urban Growth Tiers

Tier 3, the Future Lawrence Growth Area from Plan 2040, underscores Horizon 2020's finding that the sensitive nature and extensive wetlands South of the Wakarusa should be considered a deterrent to urban development.



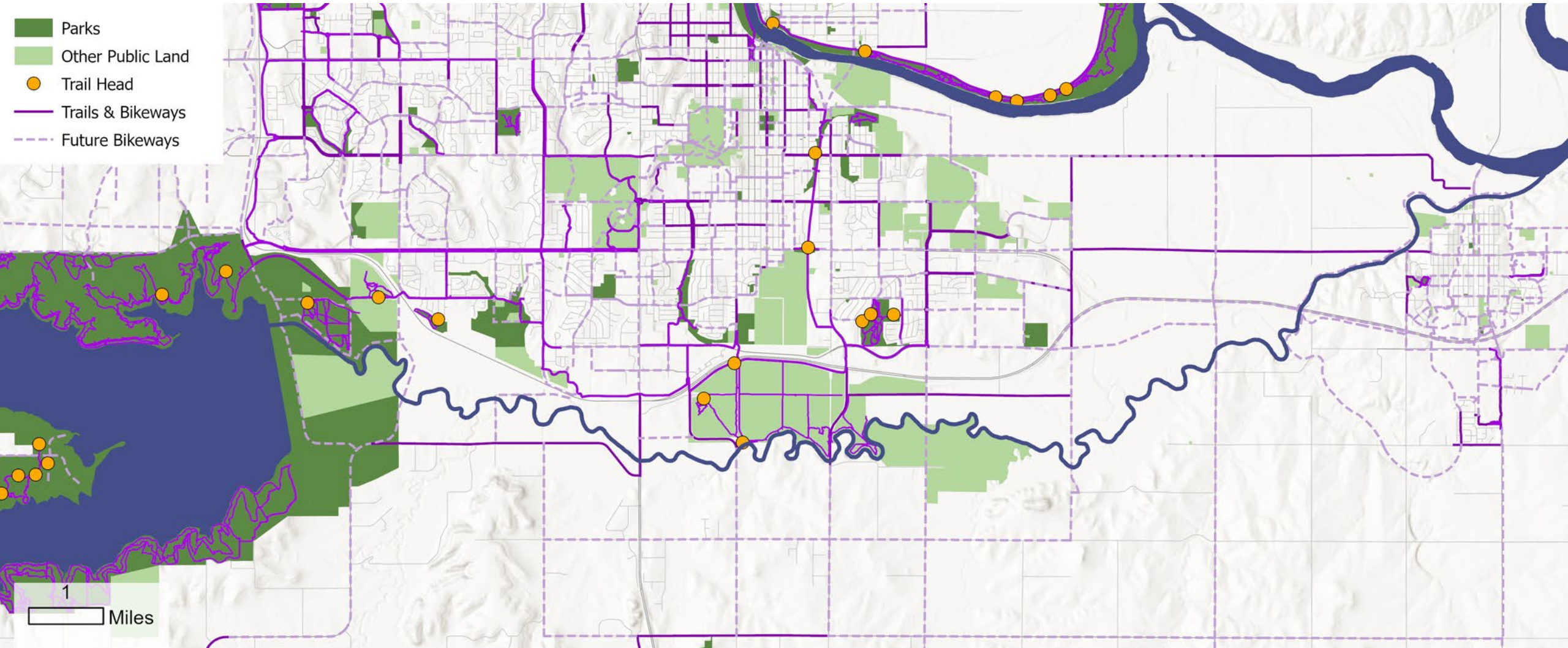
Utilities and Easements

Few major utility corridors or easements cross the Wakarusa River Valley.

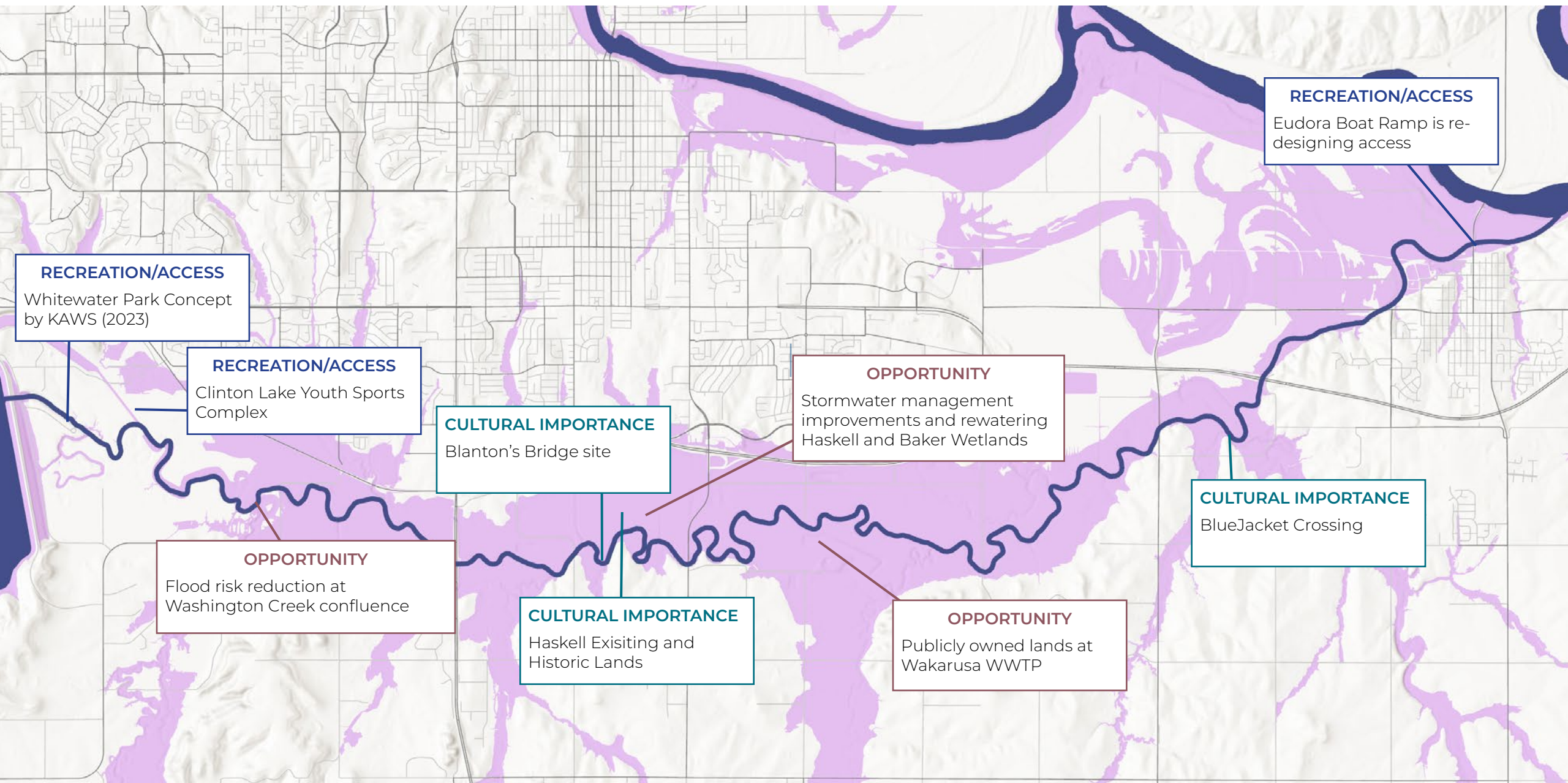


Access & Public Lands

Although most of the corridor is privately owned, there are several important public spaces along the Wakarusa River and opportunities to connect to a wider system of trails.



Notable Sites



Planning Charrette: Land Management Toolkit

As the planning team reviewed information and interviewed partners for the Vision and Area planning this fall, they tracked land management tools that were recommended or successfully employed elsewhere. Online guides might also facilitate the discussion, e.g. <https://library.weconservepa.org/guides/140-trail-easements>.

Voluntary	Conservation/Trail Easements
	Public access agreements and Voluntary Public Access
	Land Donation/Bargain Sales
	Restoration Projects
County-led	County Land Acquisition
	Public Rights of Way
	Access points – public spaces
Regulatory	Floodplain zoning
	Overlay Zones
	Riparian buffer ordinance
	Permitting requirements such as easements or TDR
Physical Land Management (various mechanisms)	Riparian buffers
	Wetland/floodplain
	Regenerative agriculture