

SUBURBAN STREAM CORRIDORS

A Guide for Streamside Residents
in Johnson County, Kansas



JOHNSON COUNTY
KANSAS

Stormwater Management Program

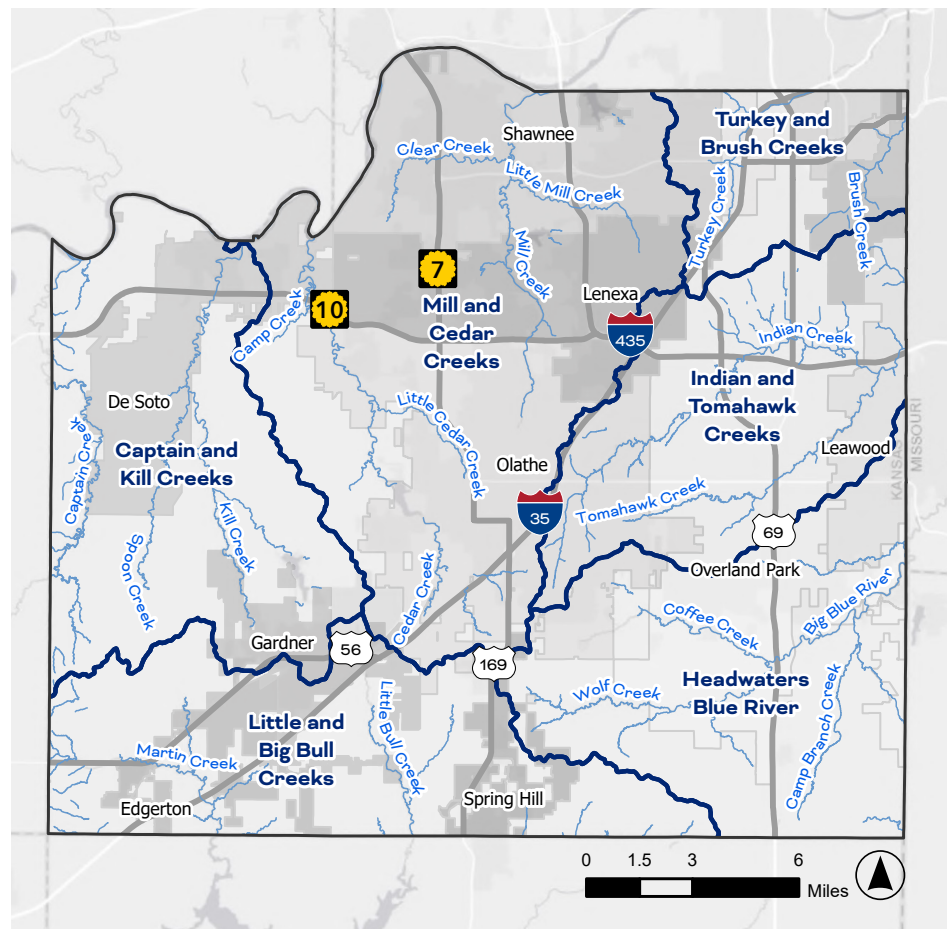
IT STARTS WITH YOU.

This guide provides practical, science-based guidance for suburban residents to understand, assess, and responsibly address streambank erosion while protecting property, water quality, and the ecological health of streams.

Living alongside a stream in Johnson County offers beauty, wildlife, and a meaningful connection to the natural landscape. Whether your property borders a small neighborhood creek or a larger tributary, you are part of a living system that shapes water quality, habitat and downstream conditions across the watershed. With that connection comes both opportunity and responsibility — especially when it comes to managing streambank erosion.

Watersheds in Johnson County

A watershed is made up of land areas that channel all surface water (rain, snowmelt, and runoff) into ditches, pipes, creeks, or streams toward a river or other primary body of water. Johnson County is made up of six major watersheds. Each contains numerous smaller watersheds that flow into the Kansas, Missouri, or Marais des Cygnes Rivers.



Map of major streams and watersheds in Johnson County

Understanding Your Stream

Before taking action, it's important to understand a key truth: **not all erosion is a problem.**

Streams are dynamic systems. They naturally shift, meander and reshape their banks over time. This movement:

- ◆ Creates aquatic and terrestrial habitat for fish and wildlife
- ◆ Transports sediment downstream
- ◆ Maintains ecological balance

In suburban areas, however, this natural process is often altered **by human activity**, leading to excessive or damaging erosion.

Common Causes of Stream Erosion

- ◆ Increased stormwater runoff from roofs, driveways, and streets
- ◆ Stormwater outfalls that concentrate and discharge runoff directly into streams
- ◆ Removal of native vegetation (including trees) along streambanks
- ◆ Planting and mowing turf grass to the edge of the streambank
- ◆ Channel straightening or past modifications
- ◆ Foot traffic or informal access points

When rain falls on developed land, it runs off quickly rather than soaking into the soil. This **faster, higher-volume flow** hits streambanks with more force, leading to instability.

Recognizing Problem Erosion

Some signs of erosion are normal. Others indicate a need for action.

Watch For These Warning Signs

- ◆ **Vertical or near-vertical banks** (greater than ~3 feet tall)
- ◆ **Exposed roots** of trees or shrubs
- ◆ **Slumping soil** or chunks of bank falling into the stream
- ◆ **Bare soil** with little or no vegetation
- ◆ **Undercutting** beneath trees or turf
- ◆ **Sediment buildup** downstream

If your streambank shows two or more of these signs—especially if erosion threatens structures, fences, or usable yard space—it may require intervention.



Healthy stream



Stormwater outfall



Modified channel



Exposed roots

TURF GRASS Is **NOT** ENOUGH

While common in suburban yards, turf grass has shallow roots, provides minimal bank stability, and often fails during high flows.

Managing Runoff From Your Property

One of the most overlooked contributors to erosion is runoff coming from your own yard.

Common Issues

- ◆ Downspouts draining directly toward the stream
- ◆ Sloped turf grass lawns funneling water downhill
- ◆ Compacted soils or impervious surfaces (patios, sidewalks, and driveways) that prevent infiltration

Practical Solutions

- ◆ Redirect downspouts away from the stream
- ◆ Install rain gardens or infiltration areas
- ◆ Use rain barrels to capture roof runoff



Most cities in Johnson County offer a residential cost-share program for installing rain gardens, rain barrels and native plantings – visit containtherainjoco.com for more information about these programs, and to find out about local native plant sales and other special events.



Deep root structures of native plants (compared to turf grass) help create a healthy streamside buffer

Better Alternatives: Native Riparian Buffers

A **riparian buffer** is an intact strip of vegetation along the stream. Even a modest buffer (15–25 feet) can significantly reduce erosion. Buffer widths of 50 feet or greater are best, if possible.

The Power of Vegetation

The most effective and affordable way to stabilize streambanks is with vegetation—especially native plants.

Why native vegetation works:

- ◆ Deep roots bind soil together
- ◆ Plants absorb and slow runoff
- ◆ Stems reduce water velocity during floods
- ◆ Vegetation traps sediment and rebuilds banks over time

Recommended Plant Types

- ◆ Deep-rooted native grasses (e.g., Switchgrass, Eastern Gama Grass, Little Bluestem and many others)
- ◆ Native wildflowers (for pollinators and soil health)
- ◆ Shrubs (e.g., Dogwood, Elderberry, etc.)
- ◆ Trees (e.g., Oaks, Black Gum, River Birch, etc.)



Switchgrass



Little Bluestem



Elderberry



Swamp White Oak



Black Gum



Native wildflowers

“**START SIMPLE.
WORK WITH
NATURE, NOT
AGAINST IT.**”



Built access to Little Cedar Creek in Ernie Miller Park & Nature Center (Olathe)

Simple First Step

- ◆ Stop mowing to the stream edge
- ◆ Plant a vegetative buffer with native plants
- ◆ Supplement with native plantings if needed

These three steps can dramatically improve bank stability within 1–3 growing seasons.



Streamside plantings

Access

If you use your stream for recreation or access, consider how foot traffic affects stability. You can reduce bank disturbance while preserving usability. Before making any structural changes (see photo at left) be sure to check with local regulatory agencies.

Best Practices

- ◆ Create a **single designated access point**, avoid multiple informal paths
- ◆ Stabilize it with stone, mulch, or steps

Stabilization Options by Severity

Not all erosion problems are the same. The appropriate response depends on the scale and severity.

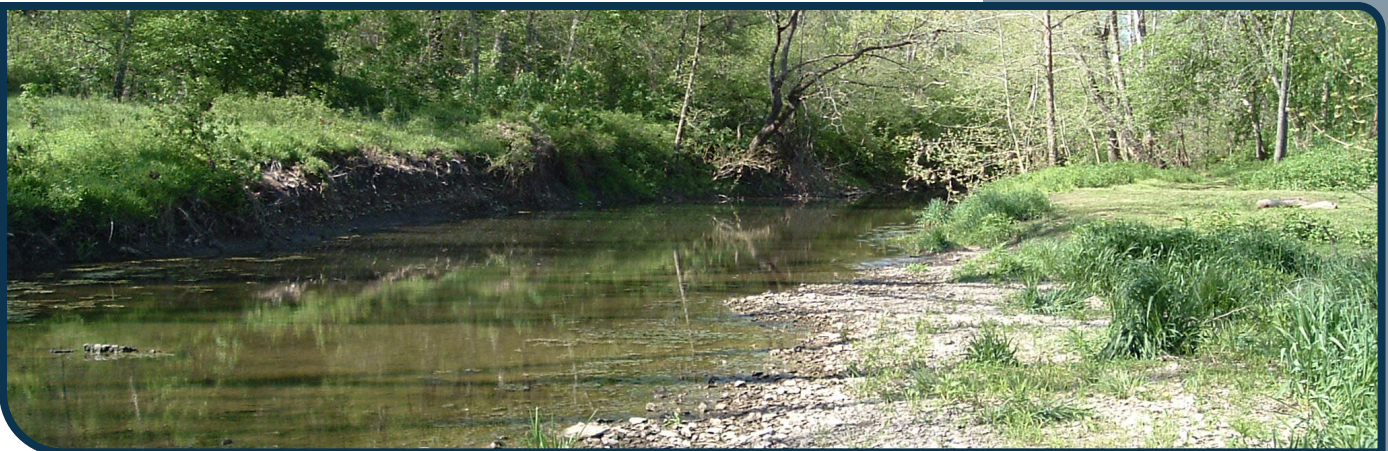
Mild Erosion (Early Signs)

Symptoms:

- ◆ Minor bare patches
- ◆ Slight bank slope instability

Recommended actions:

- ◆ Reduce mowing and foot traffic
- ◆ Add erosion control blankets or mulch (this should not be used as a long-term measure but, can be used until vegetation is established)
- ◆ Establish native vegetation
- ◆ In some cases, vegetation alone may not be enough



Natural streambank erosion



Severe streambank erosion

Moderate Erosion

Symptoms:

- ◆ Noticeable bank slumping
- ◆ Exposed tree roots
- ◆ Expanding bare areas

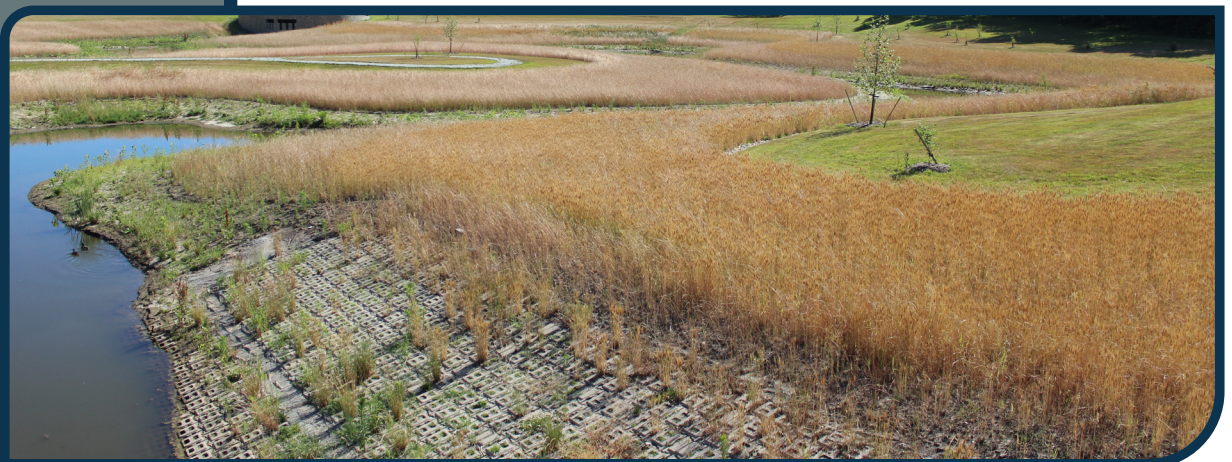
Recommended actions:

- ◆ Regrade steep banks to a gentler slope (3:1 or less)
- ◆ Install native plantings immediately after grading
- ◆ Use “bioengineering” techniques such as:
 - Live stakes (cuttings that root into the bank)
 - Coir logs (biodegradable fiber rolls at the toe of the bank)
 - Hybrid of rock and vegetation

These methods combine natural materials with structural support to stabilize banks while promoting long-term ecological recovery.



Coir logs



Hybrid of rock and vegetation

Severe Erosion

Symptoms:

- ◆ Large vertical banks
- ◆ Rapid land loss
- ◆ Threats to structures or infrastructure

Recommended actions:

- ◆ Consult a professional (engineer, stream specialist, or conservation district)
- ◆ Consider engineered solutions combined with vegetation

Important:

Heavy structural fixes—such as rock riprap or retaining walls (hard armoring)—should be used **sparingly and carefully**. Poorly designed hard armoring can:

- ◆ Increase erosion downstream
- ◆ Deflect water and worsen bank instability elsewhere
- ◆ Reduce habitat value

In most cases, **hybrid solutions** (rock + vegetation) are preferred.

What to Avoid

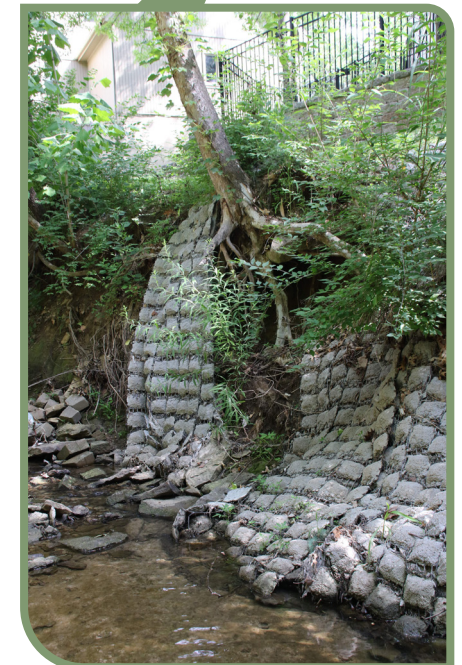
Well-intentioned fixes can sometimes make erosion worse. Streams respond to changes in complex ways. Quick fixes often shift the problem rather than solve it.

Avoid These Common Mistakes:

- ◆ Dumping yard waste or debris onto the streambank or into the stream
- ◆ Installing solid walls without proper design
- ◆ Removing all vegetation before “fixing” the bank
- ◆ Straightening or redirecting the stream channel
- ◆ Using non-permeable materials that reflect water force



Vertical bank erosion



Improper stabilization

Long-Term Stewardship

Streambank stabilization is not a one-time fix—it's an ongoing process.

What to Expect:

- ◆ Vegetation takes time to establish
- ◆ Banks may continue to have minor adjustments
- ◆ Maintenance is minimal but important

Ongoing Care Includes:

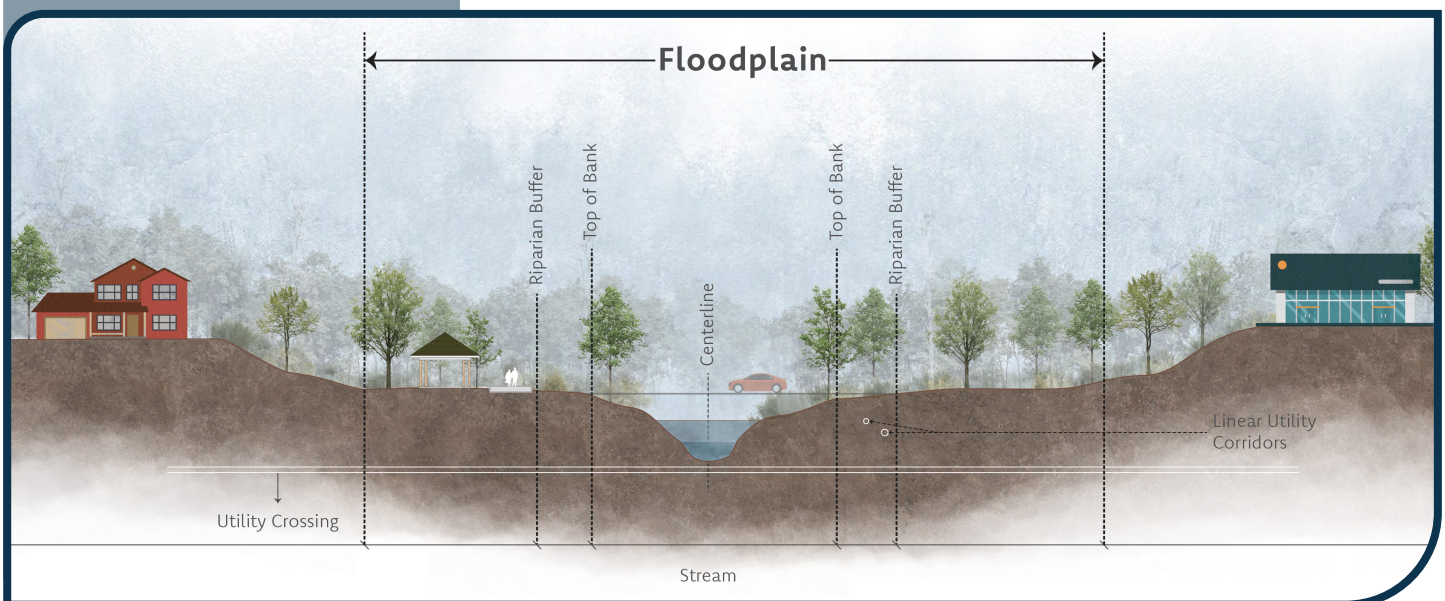
- ◆ Monitoring after major storms
- ◆ Replanting areas that fail to establish
- ◆ Removing invasive species
- ◆ Maintaining buffer zones

Benefits Beyond Your Property

Your actions as a streamside resident have impacts far beyond your backyard. Healthy streambanks:

- ◆ Improve water quality
- ◆ Reduce sediment pollution
- ◆ Support fish, birds, pollinators, and other wildlife
- ◆ Decrease downstream flooding and erosion
- ◆ Enhance neighborhood beauty and property values

Individual stewardship adds up to watershed-scale impact.



Creating Your Simple Action Plan

If you're not sure where to start, follow this step-by-step approach:



1. Observe Your Stream

- ◆ Identify proximity of stream to structures
- ◆ Measure severity of erosion (depth and length of channel)
- ◆ Note vegetation conditions
- ◆ Note conditions upstream and downstream of the segment on your property. Is this issue isolated to your property or does it also affect neighbors?



2. Stop Mowing to the Edge

Allow a vegetative buffer to form and augment with other native plants



3. Address Runoff

Redirect stormwater runoff from downspouts and paved surfaces into rain gardens or vegetated swales, and away from the streambank



4. Plant Native Vegetation

Focus on deep-rooted species



5. Stabilize Problem Areas

Use bioengineering for moderate issues



6. Seek Expert Help if Needed

Especially for severe erosion

Permits and Local Considerations

In Johnson County, work within or near streams may require permits or coordination with local agencies.

You May Need Approval For:

- ◆ Grading or altering the streambank
- ◆ Installing structural stabilization
- ◆ Working within floodplains

Contact your local city or county (if unincorporated resident) public works department. Getting guidance early can save time, money, and potential compliance issues.

BE PART OF THE SOLUTION

Living along a stream is both a privilege and an opportunity to contribute to the health of Johnson County's waterways. While erosion can feel alarming, the most effective solutions are often the simplest—restoring vegetation, managing water thoughtfully, and working with the natural system rather than trying to control it.

By taking a measured and informed approach, you can protect your property, support local ecosystems, and be part of a broader effort to create resilient, healthy stream corridors throughout the region.

