

## Stream Channel Straightening: Why it's a short-term solution

Living and farming along a stream can provide benefits, but usually not without a few challenges. Many landowners battle with flooding, stream bank erosion, field erosion, sedimentation and other crop production-related problems.

Looking for a quick fix, some landowners decide to straighten a stream channel. However, this costly solution is only temporary; in the long run it creates additional problems both upstream and downstream.

Channel straightening replaces a winding stream with a shorter, straighter channel. The new channel has a steeper slope because water makes the same elevation drop over a shorter distance. After straightening, the stream must adjust to these abrupt elevation changes. Water begins to flow faster, causing increased scour of the streambed and increased bank erosion. As erosion continues upstream, increasing amounts of soil are deposited downstream. As a result, streamside landowners are usually faced with more problems after the project than before they started.



Streambank erosion cuts into a planted crop field.

Besides creating more problems, channel straightening is costly to the landowner, neighbors and local governments. Other low-cost, economically beneficial solutions are available that don't negatively impact your neighbors and will provide additional landowner benefits. Inside you'll learn more about these practical stream solutions that are good alternatives to channel straightening.



Rip rap is needed to stabilize this streambank to protect the bridge. Many bridges in Iowa are threatened because of channel straightening.


### Stream Straightening Costs

The costs for stream straightening are relatively high, both from a monetary and a societal perspective. Clearing, excavation, and stabilization costs are the most obvious and easiest to estimate. However, there are also environmental costs related to stream straightening. Besides the immediate environmental damage due to habitat loss and downstream sedimentation due to construction, there are long-term adverse impacts such as increased water temperature from loss of shading, increased turbidity, increased erosion, and more difficult fish migration due to increased water velocities.

Adverse impacts to water quality from activities like stream straightening result in a requirement for the landowner to obtain a permit from the U.S. Army Corps of Engineers before beginning such a project. If the permit is approved, it will likely require the landowner to install a series of rock stabilization structures and/or riffle structures within the stream. Vegetative buffers and other mitigation measures may also be required by the permit. Each of these measures will add expense to the project. Costs of these projects range from about \$7.50 to \$30 per stream foot.



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# Stream Solutions

## A Landowner's Guide





## Stream Solution Alternatives

Not every stream problem is caused by the same situation. Landowners should carefully evaluate the source of their stream problems before selecting a management solution. Here are some solutions that may work well for your operation.

### Reducing Sediment

Many stream problems are caused by sediment choking the stream channel or by runoff that's excessive for the channel's capacity. Soil conservation practices and stabilization structures will decrease sedimentation and reduce runoff. Visit your local Natural Resources Conservation Service (NRCS) office for more information about practices that may help restore the health of your stream.

### Removing Problem Debris

Some streambank problems are caused when water is directed into the bank by debris lodged in the channel. Selectively removing debris can reduce erosion; however, exercise caution not to remove valuable fish habitat. Check with local officials for help.

### Stabilizing Banks

When streambank erosion is not caused by obstructions, a structural approach may be needed. Bank protection measures such as placement of riprap or re-grading the bank and planting it to erosion-controlling vegetation can minimize the problem. It is important to note that an eroding streambank on a straightened stream can rarely be repaired cheaply.

### Installing Vegetative Buffers

One of the most practical stream solutions is to install buffers of grass and trees along the streambank. These buffers help stabilize the streambanks, protect water quality, provide wildlife habitat and reduce flood damage. The buffers also can

help straighten field boundaries, simplifying field operations.

Financial assistance for installing buffers is available through the Continuous Conservation Reserve Program. This program will also provide landowners a rental payment for the enrolled acres for the life of the contract.

## Help is Available

The health of Iowa's streams depends on your

management decisions. Visit your local USDA service center for information about stream solution options. Technical assistance is available from the Natural Resources Conservation Service (NRCS). Financial assistance for conservation buffers may be available from the Farm Service Agency (FSA).

### **Buffers: Before and After**

This landowner along Bear Creek in Story County, Iowa, elected to plant a riparian buffer through the Continuous CRP to help solve his stream problems. This site is now home to abundant wildlife and is the site of a national buffer research project which measures the water quality, soil erosion and wildlife benefits of buffers.

Check with your local USDA service center to learn more about installing buffers through the Continuous CRP.

