

Stream Channel Restoration Project Newsletter

Frequently Asked Questions



STREAM RESTORATION OVERVIEW

What is stream restoration? Stream restoration creates a stream that is in balance with stormwater flows from its watershed. The result is a stable, self-maintaining stream channel that can dissipate energy along its flow path and balance the processes of erosion and sediment deposition.

Why do a stream restoration project? Why not just leave the stream as it is? Little Beaver Creek and Prairie Creek have been impacted by stormwater runoff, causing erosion along the stream channel. There are several compelling reasons to do stream restoration now rather than in the future as follows:

- **Reduce sediment pollution.** Sediment that erodes from the banks degrades the water quality in the stream also pollutes rivers downstream. Sediment, and the nutrients carried with it, are pollutants that reduce dissolved oxygen, block sunlight from water, and smother aquatic life. For these reasons, the U.S. Environmental Protection Agency has recognized urban stream restoration as a key component to maintain water quality of our streams, rivers, and lakes.
- **Improve stream health.** By creating a stable stream channel, the habitat for aquatic organisms will be enhanced.
- **Protect the storm sewer outlets.** The stream erosion has damaged the storm sewer outlets in several locations, making it more susceptible to breaks and reduced capacity.
- **Improve the long-term health of the stream flood plain.** The stream erosion continues to undermine trees along the stream bank, and a substantial number of mature trees have fallen into the stream in recent years. Many of the trees that will be removed by the restoration project are trees that are already undermined by existing stream erosion and are likely to fall or die. The restored stream channel will generally be stable, and, as a result, the remaining trees after restoration will be protected.
- **Restore native vegetation.** The area surrounding the stream channels are overrun with invasive plants. These plants choke out native vegetation and generally do not support local wildlife.
- **Protect property, utilities, and trails.** Overtime, erosion is threatening private property and may threaten the trail and other utilities through the stream corridor in several places in the future.



Figure 1. Prairie Creek Stream Channel in Need of Restoration



Figure 2. Little Beaver Creek Storm Sewer Outlet Damage

Why isn't more money and resources being devoted to addressing the problem of storm water runoff at the source? Wouldn't the long-run cost be less and the resolution better? Stream restoration and watershed retrofits are both needed to protect our local and regional water resources. Watershed retrofits are storm water management facilities added close to the source to slow down and treat storm water runoff. Watershed retrofits help water quality in our streams in the long term, but cannot undo the damage that development and excessive runoff have already caused to local streams. Streams that have eroded down and widened in their channel will continue to do so, washing more sediment and pollution downstream, and threatening more

trees along the stream channel. In addition, the highly urban nature of the stream corridor means there is limited space for new stormwater management facilities. Stream restoration and watershed retrofits are both costly, particularly in urban communities.

Most of the year the stream has very low flow, so why do we need a large, expensive project that reshapes the entire area to deal with a few episodes? Flows during storms are the flows that shape and impact stream channels the most, and the ones that must be addressed in managing and restoring urban streams. During times of high flow in natural streams, water spills over the banks onto a floodplain area. This area exists in all natural stream and river systems. The floodplain slows the stream's flow during storms, deposits nutrients for the streamside forest, protects in-stream habitat and prevents erosion of the stream banks and channel. Currently, Little Beaver and Prairie cannot overflow its banks onto a floodplain in many locations, even during very severe storms. Instead, these flows are trapped within the stream's banks. The energy from these high flows has scoured the stream bottom and banks, causing erosion and pollution downstream, damaging trees, storm sewer lines, and trails, and destroying habitat for fish, amphibians and invertebrates that live in the stream. The stream restoration will incorporate several design features to restore some areas of the floodplain connection and control stream energy during storm events.

PROJECT BACKGROUND

When did the project start? Over the last 10 years, the city of Grimes has received complaints from property owners along the stream channels that the erosion of the channel banks is impacting their property. In some cases, repairs of the channel have been completed in specific locations. However, it has been determined that a more complete channel restoration project should be completed through a capital improvement project to provide more comprehensive channel improvements and to reduce the cost of continued maintenance on the channel. The public planning and design process for the project began in 2016. The tentative schedule for the project is as follows:

- **Public meeting, October 17, 2017**
- **Preliminary design, December 8, 2017**
- **Final Design, January 26, 2018**
- **Construction Start, March 2018**
- **Construction End, December 2018**

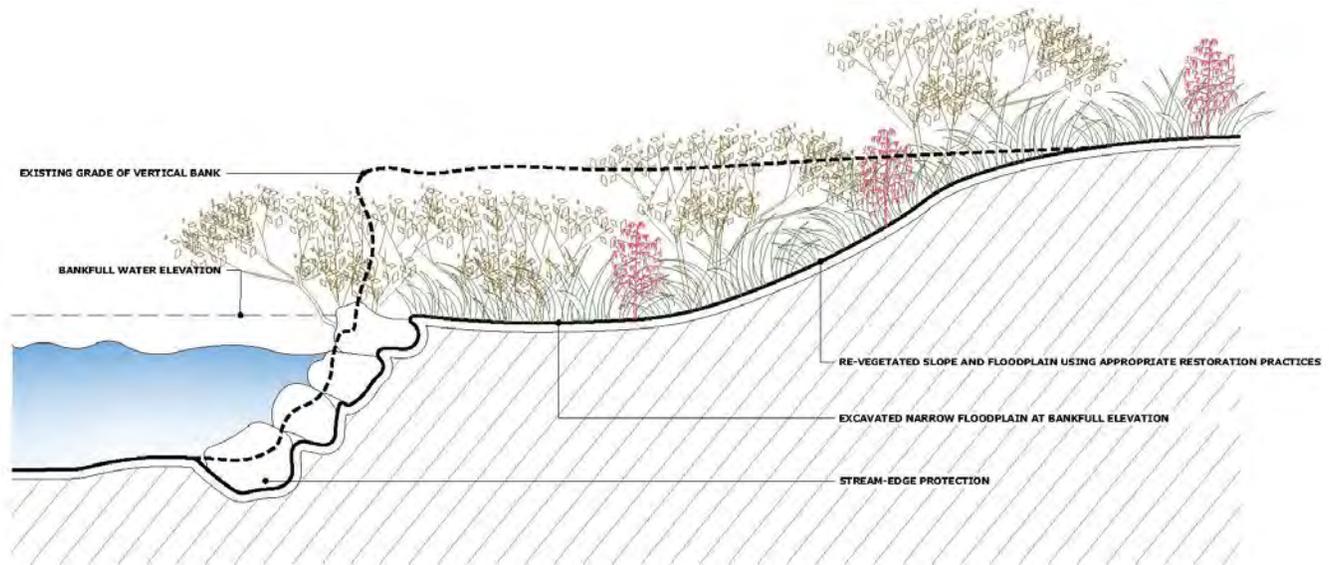


Figure 3. Typical Stream Channel Toe and Planting Detail

How will people be notified about design and construction? Adjacent property owners will be notified and updated through mail, email, or door hangars during the design and construction phases of the project. Property owners are encouraged to attend public meeting as they are made available.

PROJECT LOGISTICS

How will the project impact neighbors and users of the stream corridor (noise, access, etc.)? Construction equipment will be used in the stream restoration project, to reshape the stream channel, install storm sewer lines, and move heavy items such as rocks and other debris. City staff will work with the community to minimize disturbance as much as possible. Remodeling a house is a good metaphor for a stream restoration project: There is some disturbance and mess while the remodeling takes places, but the end goal should be a drastic improvement that is worthy of the disturbance.

What type of equipment will be used for the project? Some heavy equipment, such as backhoes, bulldozers, and dump trucks, will have to be used in restoring the stream channel. Disturbance to neighbors will be minimized as much as possible and great efforts will be made to protect trees and plants from damage from the equipment where they can be. However, to restore the stream channel, many of the trees within the channel section will need to be removed.

TREES AND PLANTS

How are the trees going to be replaced? Many of the trees within the stream channel will need to be removed in the course of re-configuring the stream channel. However, many of the trees that are close to the stream banks are already endangered due to the stream erosion. Some additional native trees and plants may be planted following the restoration project.

What types of plants will be used in re-vegetating the stream banks after the project? The stream valley is mostly shaded, and some shade-tolerant native species of grasses, shrubs, and trees will be used. Currently, there are extensive invasive, non-native plants throughout the stream valley, so the addition of more native plants will improve the habitat for wildlife.

Why are you planting small trees (seedlings) instead of larger ball-and-burlap trees? Won't they take a long time to grow? The survival rate for smaller trees is much higher than for larger trees. The Iowa Department of Forestry recommends planting seedlings for reforestation for these reasons:

- Ball-and-burlap trees must be watered for the first year or so to ensure survival. This is challenging in a stream corridor setting.
- Ball-and-burlap trees spend the first few years re-growing root mass that was removed when they were transplanted. Seedlings are transplanted with their entire root system intact and can spend all their energy on growth, so they typically catch up with their ball-and-burlap counterparts in height and diameter in several years.



Figure 4. Typical Restored Stream Channel