

Community Vision for the Restoration of College Creek in West Ames

Ames residents constructed a vision for the future of College Creek in West Ames. Residents of the area and others in Ames participated in an online questionnaire; results were interpreted and summarized by a citizen's advisory group. These recommendations were forwarded to the City of Ames Public Works and Parks departments as well as the consulting engineer designing the stream restoration. Aspects of the vision include proposed improvements to water quality, channel and bank stabilization, channel alignment, wildlife habitat, and stream area appearance. Below are outcomes for the stream included in the vision:

Water in the stream is safe for human contact (wading and playing); this is particularly important to the community as children frequently play in the stream and wetlands. The source of high bacteria levels identified in 2008 and 2009 are better understood and mitigated. Bacteria concentrations in the stream routinely increase as the stream flows through the project limits; this differs from previous contaminations traced to the agricultural rural watershed.

Phosphorus concentrations in the stream are reduced. No-phosphorus fertilizer, less fertilizer use overall, and enhanced filtering of overland flow from adjacent residential are documented options homeowners can utilize to help solve this problem.

Eroded sediment reaching the stream from the urban and agricultural neighborhood is controlled and reduced. This outcome also requires cooperation from the upstream agricultural drainage district (Boone DD #93 and Story #4) to repair broken drain tiles and large gullies beyond city limits. These actions protect city and state investment in stabilization of College Creek. Permanent vegetation buffers near the stream filter and remove sediment and other pollutants before they reach the stream. Stream edges are converted, where required, to accommodate a narrow vegetation filter.

Future stability of the stream banks, following restoration, is critically important. The least amount of rock riprap needed to stabilize the toe of the slope is desired; ideally broken concrete debris is no longer used in the future to stabilize stream banks. Rock weirs or similar grade transition structures are necessary to accommodate channel elevation changes and to promote deeper pools and shallow riffle areas.

Existing trees in the stream area are important to protect where possible; often the roots of these trees provide mechanical protection to the slope while the trees themselves serve as a visual buffer and as important habitat. Beyond the existing trees, a variety of vegetation is present on the upper stream banks and public owned near-stream areas, including open areas of native grasses and flowering plants with scattered clumps of trees and shrubs. This variety of vegetation provides interesting experiences for people, enhances the quality of habitat, and improves of filtering of pollutants from stormwater.

Stream neighbors are recognized as important partners in protecting the stream and nurturing quality vegetation. Re-vegetation efforts (native plantings replacing mown turf and low-lying plantings near the stream, for example) are able to be supported and maintained through a combination of City staff and their equipment, and volunteers. Volunteers, including interested adjacent homeowners, serve an active role in the re-vegetation of near-stream areas. Management objectives are clearly articulated so all parties understand and respect how different types of land is managed—privately held land as well as publicly owned areas.

Visual connection to the stream water and wildlife using it are well considered for the future enjoyment of people using the walking trail. Design of vegetative filter plantings balances the need for filtering with this human use aspect.

Enhancing bird habitat is identified as the main priority in this section of the stream. Migratory and nesting birds prefer vegetation with a variety of heights and planting densities; this structure also relates strongly to people's aesthetic preferences. The need for small fish, insects, and amphibians in the corridor as a food supply for birds is also recognized.

The existing low-quality wetland present adjacent to the Daley Park segment of the channel is enhanced both in drainage function as well in habitat value. Curving stream channels are preferred over non-discreet mucky reaches as well as straight, trapezoidal channels. Participants in the visioning effort stated their overwhelming preference for the construction of a curving channel through this area and changes in vegetation. Some parts of the permanently wet, mucky areas are converted to deeper pools (3 feet deep) with gradual side slopes, while the remainder is somewhat drier. Deeper pools allow breeding of amphibians. Near-stream vegetation in Daley Park focuses on enhancing habitat for grassland birds (grassland and shrubs); this supports the adjacent CRP conversion of 20 acres at Hobbit's Hill immediately upstream from the park. Future vegetation retrofit in areas of Daley Park not used for active recreation are also an attractive option, adding habitat and stormwater filtering value.