YOUTH RECREATIONAL LAKE

Community ...

Curtis Youth Recreational Lake is located on the southeast corner of town. The 1.7-acre lake was built by volunteer labor in 1992. The lake had an average depth of about three feet. Over the years, the city and local civic groups cooperated to have fish stocked and to build parking and walking facilities. The lake receives runoff water from a small rural/urban watershed. When needed, additional water is supplied by a nearby well. The lake has been used for fishing, as a family recreation area and for outdoor education by local schools and the local natural resources district.

Challenges ...

This small lake suffered from several problems, including high turbidity, algae blooms, lack of depth, and the lack of an outflow structure to control water levels. Water depths were the most significant problem, as maximum depths were only a few feet. All contributed to periodic fish kills. Seepage rates of about two inches per day in the summer also necessitated adding well water, which in 2006, come to an estimated 4.8 million gallons.

Solutions ...

After draining, about 19,360 cubic yards of sediment were removed from the lakebed, increasing depths to 10 feet. The lakebed was sculpted to an irregular shape to improve water quality and support fish habitat. Adding clay sealed the bottom. Excavated sediment was used as a base for a new city multi-use building. Shorelines were gradually sloped, covered with an erosion control blanket and seeded

with native grasses, including Prairie Cord grass. A cover crop was planted as intermediate care and for initial production of fish food. Cedar trees were also placed on the lake bottom for habitat. Wetland areas were constructed around the perimeter of the lake to filter stormwater runoff and an aeration system was installed to provide adequate dissolved oxygen for fish. When the project was completed, no vehicle traffic was allowed within 100 feet of the lake and steps were taken to keep trash and debris at bay.

Results ...

Post-project sampling showed dramatic reductions in sediment, phosphorus and nitrogen loading of the lake, resulting in big improvements in water quality. The seven-month project was completed in September 2007 at a cost of about $153,766. Of this, CLEAR contributed $99,339 while the city contributed $54,427. Other project partners included Medicine Valley Public Schools, Medicine Valley High School FFA, Middle Republican Natural Resources District and T.C. Engineering Inc.