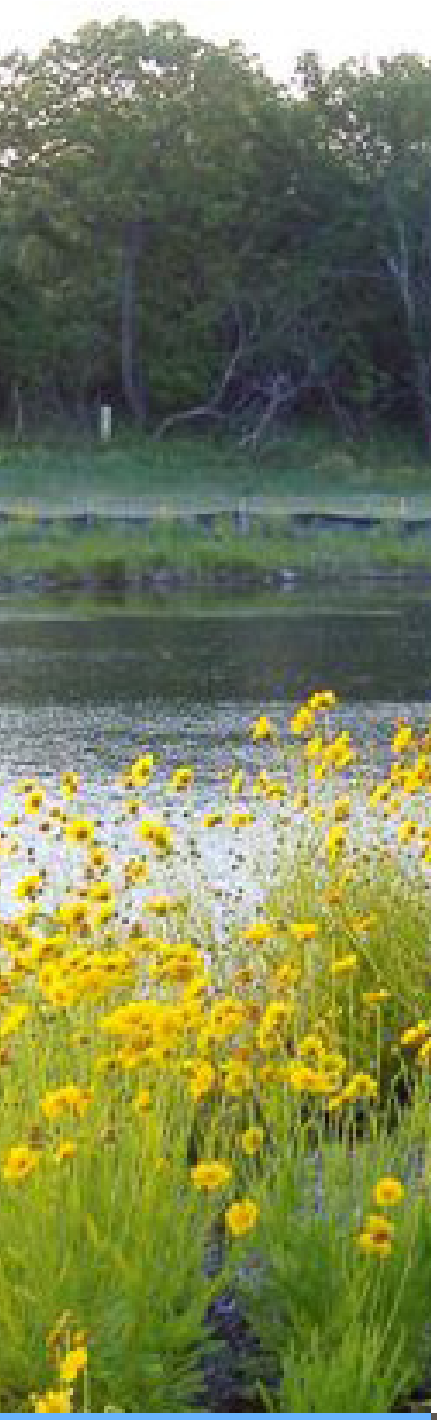
Lenexa
KANSAS
Rain to Recreation

Mize Lake

Bioretention cells improve water quality



To implement post-construction stormwater Best Management Practices, the City of Lenexa's Rain to Recreation Program created the Mize Lake treatment train, which filters and infiltrates stormwater runoff from upstream development before it enters the lake. Mize Lake's system included some of the first bioretention cells in Kansas City.

The lake

Mize is a seven-acre lake with three sediment forebays, three wetlands, and two bioretention cells, located along Mize Boulevard, a four-lane, major arterial street which serves as the dam to the lake. The wetlands are located in subwatersheds of Cedar Creek that are currently undergoing development.

The use of wetlands as a stormwater treatment facility is fairly limited in this region; however, this method of treatment is more prevalent in other areas of the country. The wetlands are designed to treat and hold the water quality storm (1.37 inches for the region) that falls on the entire drainage area directly upstream from the lake.

Construction specs

Runoff flows through a pretreatment forebay before entering the wetland. Much of the runoff flows through a winding path of native wetland vegetation until it is discharged into the lake, while some is permanently ponded throughout the wetland. A sediment forebay and wetland were placed at each channel entering the lake.

The wetlands are immediately downstream and one foot lower than the sediment forebays. The water enters the sediment forebay, where most large particles are deposited as the water spills over a weir into the constructed wetland. Plants filter pollutants and nutrients in the wetland and then, the filtered water is controlled and released slowly through an inline water level control structure. A stacked stone weir was installed at the downstream end of the wetlands for flow rate control.

Green infrastructure in action

The city is monitoring the quality of the stormwater runoff as it flows through the wetlands and to the lake to evaluate the wetlands's effectiveness. Working with both Kansas State University and the University of Kansas, preliminary results indicate that the wetlands are removing sediment and nutrients, protecting the health and sustainability of the lake.

Family fun

As part of Rain to Recreation's mission, the lake's park has trails, protected forest, fish and wildlife habitat and native plantings.