

# SUCCESS STORY

## ▶▶▶ USING GIS TO IMPLEMENT WATER RIGHT BANKING

### PROBLEM

The Central Platte Natural Resource District (CPNRD) is responsible for managing the natural resources within the Platte River Basin from Kearney, NE, in the west, to Columbus, NE, to the east. Part of their mission is the management of ground and surface water usage within the river basin. With over 2 million acres of land within their boundaries, the CPNRD ground and surface water was determined to be fully appropriated. That is, all available ground and surface water available for irrigation within their district was being consumed and a moratorium on new wells and irrigated acres was put in place. In order to continue to allow the land owners within their boundaries to irrigate their land as needed, the CPNRD realized that they needed to develop a system for managing these resources. Water Right Banking was that solution.

### SOLUTION

Water Right Banking, at its core, is very similar to financial banking. Every irrigated acre in the district was certified by the CPNRD which established a baseline account balance of water rights “owned” by the land owners within the district. This baseline defined the total amount of water being consumed within the CPNRD. At any given moment, the water usage in the district cannot exceed this balance. In order to manage this accounting system, the CPNRD contracted with ADC to develop a complex system of GIS layers and non-spatial Microsoft SQL tables to track and manage the water. The solution developed by ADC is accessed through a desktop extension for ArcGIS ArcInfo that provides a simple user interface which leverages the full power of the relational database within ESRI’s file Geodatabase and Microsoft SQL Express. The extension allows for on the fly calculation of water usage for given field selected from the GIS layers, owner information management, and crop type definition as well as tracking of the movement of water rights from field to field within the district. Because of the extensive transaction tracking built into the extension, CPNRD staff can query the history of how a water right came to be or ceased to exist at anytime; now and years into the future.

### RESULTS

By utilizing the Water Right Banking extension developed by ADC, the CPNRD is able to accurately and easily manage the ground and surface water resources for the entire district. With over half of the more than 2 million acres within the CPNRD being certified as irrigated agricultural land, the benefit of these resource management efforts will be long lasting and far reaching; allowing future generations to continue to benefit from the natural resources within the Central Platte Natural Resource District.

