

Platte River Conjunctive Management Study

A new study is underway to develop a plan to conjunctively manage surface and ground water resources in the Central Platte Valley. The Platte River Conjunctive Management Study is being developed through the cooperation of the Nebraska Department of Natural Resources (NDNR), Central Platte Natural Resources District (CPNRD), Twin Platte Natural Resource District (TPNRD) and Nebraska Public Power District (NPPD) (Sponsors).

The Conjunctive Management Study will proceed in three phases. Phase one, which has been completed, gathered substantial background information and funding requirements to proceed with phase two objectives. Phase two, which is currently underway, will create the tools necessary to evaluate conjunctive management strategies. Phase three will identify those strategies to be implemented and evaluate methods of implementation.

As part of Phase two, the sponsors are modifying the COHYST ground water model so that it can be used as a management tool and in conjunction with a surface water model. The Sponsors have hired HDR Engineering to assist in creating the surface water model, which will be capable of simulating how the reservoirs and canals of the area have been and can be operated, and how these operations interact with ground water. As part of this effort, HDR will develop additional tools that include: 1) a model of surface water runoff; 2) a farm model to assess crop water budgets; 3) a water quality model to evaluate the impacts of management decisions on water quality; and 4) economic analysis tools to evaluate cost effective solutions the will not harm existing users.

The integrated modeling tools will be developed for the Platte River Basin from downstream of Lake McConaughy on the North Platte River, downstream of Julesburg Colorado on the South Platte River to the confluence with the Loup River near Columbus, Nebraska. The study will seek to accomplish changes in current water use practices (along with associated oversight and monitoring).

- One type of change may be to reduce water use and associated depletions. Reductions could be sought on a temporary (dry period) or permanent basis. Reductions could result from fewer acres, changes in crops, or more efficient irrigation practices. Reductions in water use will result in higher ground water levels and/or increased streamflows.
- Another type of change may be to use renewable surface water to more effectively meet water needs and/or to augment ground water supplies. This means management that recognizes the ways in which surface and ground water are interconnected, and the

comparative benefits of each. Typically, streamflow is valued for being a sustainable resource and one with great environmental benefits; ground water is valued for ease of use and reliability.

- Other changes may be considered if they benefit the overall objectives. For example, one potential change would be to import water to increase streamflows. The water source could be upstream surface water, or ground water that is not hydrologically connected.