# Frenchman Valley Appraisal Study
# PLAN OF STUDY

## STUDY AUTHORITY

The study is authorized under the authority of the Federal Reclamation Act of June 17, 1902, as supplemented and as amended.

Funds in the amount of $121,000 were appropriated in Fiscal Year 2006 under Nebraska Investigations.

## STUDY PURPOSE

The purpose of this appraisal study is to determine if there is a Federal (Reclamation) interest in participating in a cost shared feasibility study for improving or otherwise providing water supply, recreation, fish and wildlife and related water quality improvements to Enders Reservoir, Frenchman Creek downstream of the reservoir and the existing Federal and private irrigation projects associated with Enders Reservoir and Frenchman Creek. The study will also investigate legal and institutional measures relating to improving water supply, addressing groundwater/surface water interaction problems and compliance with the Republican River Compact.

The appraisal study will determine the existence of conditions necessary to justify a feasibility investigation. This includes a preliminary assessment of alternatives and a recommendation to either proceed to feasibility investigation or terminate the study. An appraisal report will be prepared which will document the recommendation. In the event that a feasibility study is recommended, a draft plan of study will be developed per CMP 05-01.

## LOCATION OF STUDY, NON-FEDERAL SPONSOR(S) AND CONGRESSIONAL DISTRICTS

The study area is located in southwest Nebraska and was initially defined as the entire drainage basin of the Frenchman Valley and extending east to include the project areas of the Frenchman Valley and H & RW Irrigation Districts, which end just east of McCook, Nebraska.. (insert or reference map here)

The non-Federal sponsor(s) and other participants for the study are the Frenchman Valley Irrigation District, the H & RW Irrigation District, the Nebraska Department of Natural Resources, the Nebraska Game and Parks Commission, the Upper Republican Natural Resource District, and the Middle Republican Natural Resource Distirct. While cost-sharing is not required for the appraisal study, these entities have indicated a desire to provide data and other in-kind services. [could do MOU if NKAO deems necessary/appropriate]

The study area lies within the jurisdiction of the following Congressional Districts:

a) 3rd District in Nebraska, Congressman Tom Osborne
b) 4th District in Colorado? ? ? ? Congresswoman Marilyn Musgrave

The study area is shown on Figure 1.

## PRIOR REPORTS AND EXISTING PROJECTS

The following reports and documents will be reviewed in this study:

a) [Short paragraph for each].

The following project features are located within the study area:

a) Enders Dam and Reservoir
b) Culbertson Diversion Dam
c) Culbertson Canal
d) Culbertson Canal Extension
e) Riverside Diversion
f) Riverside Canal

## PLAN FORMULATION

The study will be conducted in accordance of the national/Federal objective of water and related land resources planning: *contribute to national economic development consistent with protecting the nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements.* The study will follow the following six planning steps: specify problems and opportunities, inventory and forecast conditions, formulate alternative plans, evaluate effects of alternative plans, compare alternative plans, and select the recommended plan. Activities during the appraisal study will include at least one full iteration of these steps.

The most important of the planning steps is identifying problems and opportunities, which culminates in the establishment of working planning objectives and planning constraints. The planning objectives will initially be based on the problems identified through: the study authorization, study appropriation language, existing data, contacts made with constituents and potential feasibility study partners, and field observations. After a limited evaluation of potential alternatives, the planning objectives may be refined as a basis for the next iteration of the planning steps.

Similarly, planning constraints, including environmental constraints, will be identified and refined. A major determination will be the alignment of the planning objectives with Reclamation law and with regard to high priority outcomes, which will be provided by the Regional Director in the early stages of the study. This test of consistency with Reclamation authorities and budget

priorities is necessary to determine the types of outputs and potential project purposes that will be used to define the Federal/Reclamation interest in and scope of the potential feasibility study.

The limited, and often qualitative, evaluation of the potential costs, benefits and environmental impacts of alternatives will be used to provide a preliminary, sometimes intuitive, screening of potential measures or alternatives to better scope the activities in the potential feasibility study. Alternatives, which would be clearly unjustified, or alternatives that would clearly be beyond the local sponsor's capability to implement would be eliminated from further consideration. The environmental evaluation will identify types of impacts, in an effort to scope the feasibility phase. Judgment of experienced team members, as well as local sponsor knowledge, will be of paramount importance in making qualitative evaluations.

A benefit-cost analysis is required, or an incremental cost analysis if it can be justified as appropriate. Potential costs will be described at the appraisal level as defined in the latest revision to the Reclamation Manual (FAC P07, FAC 07-01, CMP 05-06, FAC P08, FAC 08-01 and FAC 08-02). Benefits will also be developed at the appraisal level. It may be necessary to estimate potential benefits and costs in a qualitative manner using subjective expert judgments that are based on previous experiences such that a solution can likely be found with equal or less average annual costs or equal or greater benefits. All descriptions of costs, benefits and environmental impacts will be appropriately qualified so as not to infer a level of certainty that does not exist.

**PUBLIC CONCERNS**

The study will determine public concerns through coordination with the potential sponsor(s) affected, the Nebraska Department of Natural Resourcse, and through some initial coordination with other state and Federal agencies. The preliminary public concerns that are related to the establishment of planning objectives and planning constraints include the following, which will be added to and refined during the course of the study:

a) Present: Diminished water supply to project acres
b) Present: decreased recreation, fish, and wildlife opportunities at Enders Reservoir
c) Present: elimination of groundwater recharge from delivery system
d) Present: allocations to existing groundwater wells
e) Future: diminished water supply could lead to dissolution of the Districts
f) Future: protection of Federal investment in the project
g) Future: economic sustainability of the area

**PROBLEMS**

Problems are related to inflow depletion, the related potential for payment default by the Districts, and conformance with the Republican River Compact to provide flows to Kansas.

a) Enders Dam and Reservoir (Frenchman Unit)

Inflows to the reservoir have been reduced to the point that the Frenchman Valley Irrigation District and the H&RW Irrigation District are receiving virtually no water supplies from storage. This is likely to worsen in the future. Reclamation's 1978 concluding report on the Frenchman Unit provided six findings and recommendations:

1. That groundwater development above Enders Reservoir has caused water supply depletions to the two irrigation districts and the United States. The lack of legislative or judicial definition of the relationship between groundwater and surface water in Nebraska has permitted this development to occur without restraint.

2. That projections by USGS indicate that the perennial flows in the Frenchman and Stinking Water Creek would be essentially reduced to zero by 1991 with the existing groundwater development.

3. That the USGS report states that the groundwater resources in the project area are insufficient to meet consumptive irrigation demands for the developed project lands.

4. That neither the groundwater development nor the canal lining alternatives identified in Reclamation's 1977 Appraisal Report as the most favorable measures to supplement the districts' depleting surface water supplies can be hydrologically justified as a long-term solution.

5. That as a result of groundwater development which has depleted surface water supplies, Reclamation's studies have not resulted in identification of any physical solution to the water supply problems.

6. That there is evidence the water shortages within the Frenchman Unit are going to become progressively worse and that water users should take every possible step to conserve the available water supply.

The 2005 report by the Nebraska Game and Parks Commission (NGPC) indicates that in addition to groundwater development in Nebraska, the inflow declines are also linked to substantial groundwater development in eastern Colorado. The report states that Frenchman Creek historically has been a gaining stream and used to begin approximately 20 miles into Colorado but inflows at the conclusion of the 2004 irrigation season began only about 3-4 miles above the reservoir. The report also indicated that inflows into Enders will continue to decline even with pumping limits of 13.5 inches per year.

NGPC invested nearly $500,000 recently in a habitat improvement project with the goal of retaining more water in the reservoir without jeopardizing primary

uses and to stabilize eroding shorelines. They concluded that fully success of the project would include negotiation of an acceptable agreement with the two irrigation districts that will keep more water in the reservoir. The report indicated possibilities such as paying for improvements in water delivery systems, such as was done at Reclamation's Box Butte Reservoir or by direct purchase of water. NGPC also indicated that the passage of bill LB 962 creates possibilities for negotiation with the districts that did not previously exist. But the report indicated that it is not financially sound to buy more storage rights when flows may completely disappear by 2007-2009.

b) Republican River Compact

The Republican River Compact, entered by Colorado, Nebraska and Kansas in 1942, generally apportions the water supply. In May 1998, the State of Kansas filed a motion with the U.S. Supreme Court alleging that Nebraska violated the Compact by allowing the proliferation of groundwater wells hydraulically connected to the Republican River and its tributaries and by failing to protect surface flows from other unauthorized appropriations. In December 2001, the Special Master assigned to the case agreed to postpone the progression of the case in order to allow the three states to engage in settlement negotiations. These negotiations culminated in an approved settlement package in December 2002. Elements of the settlement pertinent to this study include:

1. [Culbertson Gage as an accounting location...]
2.

c) LB 962

1. [...]

**OPPORTUNITIES**

The study will identify opportunities in the study area, which will include the following and which will be updated during the course of the study:

a) Increase surface water flows by reducing groundwater depletions in Colorado and Nebraska.

b) Optimize the use among water supply, fish and wildlife and recreation.

c) Reduce the political pressure of Nebraska DNR.

d) Expand the project to include beneficiaries who are currently receiving project water supply benefits for free.

e) Fix the water quality problem (selenium) in the study area.

f) Provide the basis for litigation and/or further negotiation for restoring surface water supplies.

**NO ACTION/FUTURE WITHOUT PROJECT**

The team will also develop the No Action condition. No Action assumes that no project would be implemented by the Federal Government or by local interests to achieve the planning objectives. No Action, which is synonymous with the

Without Project Condition, forms the basis from which all other alternative plans are measured.

**PLANNING OBJECTIVES**

The water and related land resource problems and opportunities identified in this study will be stated as specific planning objectives and will provide focus for the formulation of alternatives. These planning objectives reflect the problems and opportunities and represent desired positive changes in the without project conditions. The following preliminary planning objectives will be updated during the study:

a) Maximize the economic benefits to Nebraska for compliance with the Compact.

b) Maximize irrigation benefits by increasing diversions into the Culbertson Canal and Culbertson Extension Canals.

c) Maximize benefits to Nebraska to the Republican River Compact by maximizing the flows at the Frenchman Creek gaging station at Culbertson.

d) Improve recreation benefits by increasing Enders Reservoir levels to elevation 3089.40 or to elevation 3099.00.

e) Maintain the revenue stream to the United States from the Districts' contracts.

f) Restore the historical surface water supply of the Frenchman River above Enders Reservoir.

g) Reduce selenium concentrations [where] [by how much] [by when].

h) Provide the basis for future water rights/Compact litigation.

i) Sell the entire project to the highest bidder for at least the present value of the revenue that the U.S. would have received.

**PLANNING CONSTRAINTS**

Unlike planning objectives that represent desired positive changes, planning constraints represent restrictions that should not be violated. The preliminary planning constraints will be identified in this study and will include the following, which will also be updated during the course of the study:

a) Comply with Republican River compact.

b) Complete the study within allotted time and funding.

c) Comply with LB 962.

d) Comply with the Districts' IMP's

**NO ACTION/FUTURE WITHOUT PROJECT**

The study will develop the No Action condition. No Action assumes that no project would be implemented by the Federal Government or by local interests to achieve the planning objectives. No Action, which is synonymous with the Future Without Project Condition, forms the basis from which all other alternative plans are measured.

## MANAGEMENT MEASURES AND ALTERNATIVES

A management measure is a feature or activity at a site, which addresses one or more of the planning objectives. The study team will consider a wide variety of measures, some of which will be found to be infeasible due to technical, economic, or environmental constraints. Each measure will be assessed and a determination made regarding whether it should be retained in the formulation of alternative plans.

The study team will develop preliminary plans comprised of one or more management measures that survived the initial screening. The descriptions and results of the evaluations of the preliminary plans that were considered in this study will be presented. This will include categorizing as preliminary plans eliminated from further consideration and preliminary plans for further consideration.

The preliminary screening will indicate the how the alternatives address the planning objectives and constraints and in consideration of effectiveness, efficiency, acceptability and completeness. The potential magnitude and types of benefits from the proposed actions will be identified. Likewise, the environmental effects will be described and which would include potential mitigation measures, as appropriate. Based on this information, the study will indicate if there is at least one potential alternative that could be justified for Federal implementation.

## PRELIMINARY FINANCIAL ANALYSIS

If a feasibility study is recommended, the report will identify the non-Federal sponsor who will be required to provide 50 percent of the cost of the feasibility study. The sponsor will indicate their understanding of the cost sharing requirements for the study and for potential project implementation in a letter of intent as an attachment to the report.

## ASSUMPTIONS AND EXCEPTIONS

If a feasibility study is recommended, the appraisal report will clearly indicate any policy exceptions anticipated that will either streamline the feasibility study process and that will not adversely impact the quality of the feasibility study.

## APPRAISAL STUDY MILESTONES

| | | | |
|---|---|---|---|
| A1 | Initiate Study | 0 | 0 |
| A2 | Public Workshop/Scoping | 1 | 1 |
| A3 | Interim Conference | 4 | 5 |
| A4 | AO Submit Draft Report for Review | 8 | 13 |
| A5 | Regional Office Review | 1 | 14 |
| A6 | Draft Report to WO | 1 | 15 |

## APPRAISAL STUDY COST ESTIMATE

| Activity | Description | Cost |
|---|---|---|
| | Hydrology and Hydraulics | |
| | Engineering, Design, Cost Estimates | |
| | Environmental Resources | |
| | Economics and Benefits | |
| | Public Involvement | |
| | Report Preparation | |
| | Technical and Policy Review | |
| | Study Management and Administration | |
| | Contingencies | |