

Appendix F

Preliminary Plan of Study – Feasibility Study

Preliminary Plan of Study

Feasibility Study

**Lower
Republican River Basin**

Nebraska and Kansas

January 2005

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Chapter I – Purpose and Scope

I Definition

This plan of study (POS) for the feasibility study defines the planning approach, activities to be accomplished, schedule, and associated costs that the Federal Government and the local sponsor(s) will be supporting financially. The POS, therefore defines a “buy-in” between the Bureau of Reclamation (Reclamation) and the local sponsor(s) as well as those who will be performing and reviewing the activities involved in the feasibility study. The POS describes the tasks of the feasibility study and continues through the preparation of the final feasibility report and the National Environmental Policy Act (NEPA) compliance document called Planning Report/NEPA document (PR/NEPA document). Advance Planning activities such as project design and other implementation activities will be covered in a subsequent project management plan after construction authorization is received.

Feasibility studies are detailed investigations specifically authorized by law to determine the desirability of seeking Congressional authorization for implementation. Feasibility studies cannot begin until specifically authorized in accordance with the Federal Water Project Recreation Act (Public Law 89-72, Section 8; Stat. 217). While appraisal studies use existing data, feasibility studies include additional data collection and analyses to develop and consider a full and reasonable range of alternatives. Feasibility studies must be consistent with the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, March 10, 1983, (P&Gs)*.

Feasibility studies are normally prepared in compliance with the NEPA, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and other related environmental and cultural resource laws. These combined analyses culminate in an integrated PR/NEPA compliance document.

The POS is also a basis for change. Because planning is an iterative process without a predetermined outcome, more or fewer costs and time may be required to accomplish reformulation and evaluations of the alternatives. Changes in scope will occur as the technical picture unfolds. With clear descriptions of the scopes and assumptions outlined in the POS, deviations are easier to identify and manage.

The POS is a basis for the review and evaluation of the PR/NEPA document. It will be used as the basis to determine if the draft has been developed in accordance with established procedures and previous agreements and understandings of Reclamation and the sponsors into the scope, critical assumptions, methodologies, and level of detail. Review of the draft report will

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be to ensure that the study has been developed consistent with these agreements and understandings with the objective of providing early assurance that a recommended project can be supported by higher authorities in the Administration, by the project sponsor, and by the Congress.

Lastly, the POS is a study management tool. It includes scopes of work that are used for allocating funds and managing the schedule by the study manager. It forms the basis for identifying commitments to the non-Federal sponsor and serves as a basis for performance measurement.

II Summary of POS Contents

This POS is comprised of the following chapters:

Chapter I – Purpose and Scope

This chapter includes the definition of the POS and a summary of the POS requirements.

Chapter II – Appraisal Study Summary

This chapter is an overview of the results of the appraisal study and the plan formulation rationale. The Lower Republican River Basin (Basin) Appraisal Study was completed in September 2004.

Chapter III – Feasibility Study Overview

This chapter provides an overview of the feasibility study, the processes to be followed and important assumptions.

Chapter IV – Summary Scopes of Work

This chapter contains a listing of the feasibility study milestones, a listing of the work tasks necessary to be accomplished during the study and summary scopes of work which are required to accomplish the tasks, in narrative form. The cost estimates consider all costs necessary to complete the study according to the schedule in Chapter V. This chapter provides a reference to the detailed scopes of work included as Enclosure C.

Chapter V – Schedule, Organizational Responsibility and Cost Summary

The schedule defines when key decision points and milestones will occur as well as the activities needed to be accomplished for each. The chapter also includes a table of organizational responsibilities for conducting the activities and a table of work task costs.

Chapter VI – Quality Management

This chapter addresses quality management.

III List of Enclosures

Enclosure A	Study Area Map
Enclosure B	Milestones
Enclosure C	Scopes of Work
Enclosure D	List of Acronyms
Enclosure E	Preliminary Table of Contents
Enclosure F	Review Checklist
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Chapter II – Appraisal Study Summary

I Authority

The Appraisal Study (Study) of the Lower Republican River Basin (Basin) was authorized under Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof and supplementary thereto). The study was programmed and funded from Kansas Investigations.

II Purpose and Scope

The purpose of this Study, supported by Kansas and Nebraska, is to meet the requirements as stated in the U.S. Supreme Court’s Final Settlement Stipulation (FSS), December 15, 2002:

IV. E. “The States agree to pursue in good faith, and in collaboration with the United States, system improvements in the Basin, including measures to improve the ability to utilize the water supply below Hardy, Nebraska on the main stem.”

V.A. 4. “Kansas and Nebraska, in collaboration with the United States agree to take actions to minimize the bypass flows at Superior-Courtland Diversion Dam.”

This Study also meets the States (Colorado, Kansas, and Nebraska) responsibilities of the 1942 Republican River Compact (Compact) “... to provide for the most efficient use of the water of the Basin for multiple purposes...”

III Project Area and Description

The appraisal study area lies in the Basin below Harlan County Dam in south-central Nebraska to Clay Center, Kansas just above the upper reaches of Milford Lake in north-central Kansas (Enclosure A). Included in this area is the Bostwick Division of the Pick-Sloan Missouri River Program (P-SMBP), a Reclamation project. There are two irrigation districts that operate and maintain the irrigation system: the Bostwick Irrigation District in Nebraska and the Kansas Bostwick Irrigation District No. 2 (KBID). These two districts began delivering water in the early 1950’s. Current service is available to 22,935 acres in Nebraska and 42,500 acres in Kansas. Storage water is provided to the Bostwick Division from the Corps of Engineer’s (Corps) Harlan County Lake and Reclamation’s Lovewell Reservoir. The water supply for Harlan County Lake comes from the Republican River and Lovewell’s water supply comes from diversions from the Republican

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River at the Superior-Courtland Diversion Dam with some inflow from White Rock Creek. Irrigation water for the Bostwick Division is diverted directly from Harlan County Lake and Lovewell Reservoir, from the Republican River at the Superior-Courtland Diversion Dam, and a small amount pumped from the Republican River below Harlan County Dam.

There are about 3,722 square miles of surface drainage area in the Basin between Harlan County Dam and the river gaging station at Clay Center, Kansas. The Republican River is the predominant natural feature. Throughout its length, the river has eroded a valley mantled by alluvial sand and gravel deposits ranging to 60 feet in depth. The valley, averaging less than 2 miles wide, is now entrenched 100 to 200 feet below the adjacent uplands. The bordering loess-mantled prairie plains have been eroded into long tongues of rolling uplands. There are several small, entrenched tributaries, flowing nearly at right angles to the river that drain the upland areas.

This study area is considered subhumid. Precipitation in the area is normally poorly distributed and insufficient for optimum plant growth. The Bostwick Division depends primarily upon the storage water from Harlan County Lake and Lovewell Reservoir. Harlan County Lake inflows have been generally declining with an occasional year or two of excess inflows that helps to replenish some of the storage water. Harlan County Lake usually has a limited amount of carryover storage. Lovewell Reservoir carryover storage is supplemented by fall diversions from the Republican River through Courtland Canal. There are competing needs for the limited available water so there is an urgent need to use the available water supplies as prudently and efficiently as possible.

IV Problems and Needs

There are many competing needs for the limited available water supplies in the study area. The two project irrigation districts usually receive less than the full amount of water needed for a full irrigation water supply. Kansas has established Minimum Desirable Streamflow (MDS) requirements at two locations on the Republican River. The instream flow requirements for these two locations have a priority date of April 12, 1984, established by the Kansas Legislature. Water users that have a priority date after April 12, 1984 are closed when the flows are less than the MDS levels established.

V Objectives and Constraints

Input on planning objectives and constraints was sought for the Appraisal Study from the involved States and interested parties such as the Bostwick Irrigation Districts, Natural Resources Districts (NRD) in the Basin, and the Lower Republican Water Users. This resulted in Reclamation identifying the following

planning objectives for the appraisal study and which also will apply to the Feasibility Study, subject to modifications as the study progresses:

1. Minimize bypass at Superior-Courtland Diversion Dam.
2. Provide augmentation storage water for MDS.
3. Develop cost effective solutions.
4. Provide additional water supply to Bostwick Division lands.
5. Provide additional recreation benefits.
6. Recognize possible environmental and cultural impacts.

Planning constraints on the development of these plans include the following:

- Republican River Compact
- State Water Rights
- Harlan County Consensus Plan
- Physical limitations of existing facilities, including Courtland Canal, Lovewell Reservoir, and other storage facilities
- Environmental and Cultural Considerations

VI Development of Alternatives

During the negotiations for settlement, a Value Study Report, Proposals for More Efficient Management of Lower Republican River Water Supplies, was completed by Reclamation on December 17, 2002, and the Compact Commissioners recommended the following proposals from that report be studied and analyzed:

1. Courtland Canal Automation, Reshape Canal Prism, and provide for Winter Operation.
2. Increase Lovewell Capacity – 16,000 acre-feet (ac-ft).
3. Increase Lovewell Capacity – 35,000 ac-ft.
4. Off-stream Storage, Kansas Tributaries, Beaver Creek.

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The appraisal study formulated nine alternatives using the recommended proposals provided by the Compact Commissioners. An operation study simulating reservoir conditions and streamflow at different locations in the Basin was completed for the baseline condition and each alternative. Because of the operations model limitations, the hydrology analyses modeled the operation of the system for each alternative with the intent to maximize Bostwick irrigation benefits. Additional hydrological analyses to model system operation which emphasized other potential resource needs, such as MDS, were not performed. As a result, only irrigation benefits were quantitatively estimated. Allocation of water to provide MDS benefits would reduce the water available to provide irrigation benefits. The study also briefly investigated three other alternatives for supplying water to meet MDS-related needs in Kansas, which could include private irrigators who are junior to the MDS.

VII Results from the Study

The study results indicate additional water can be made available for storage in Lovewell Reservoir. The storage of this additional water could also be considered for other possible downstream facilities such as Beaver Creek site or Jamestown Wildlife Management Area site. The irrigation benefits accruing from the changes in operations associated with each alternative were estimated and the benefits were then compared to project costs. The alternatives which involve Lovewell Reservoir enlargements along with automating and winterizing the Courtland Canal appear to be the most viable, as shown in Table 1 and Table 2. The enlargement alternatives could potentially increase the recreational use at Lovewell Reservoir. Environmental impacts are associated with each alternative. If further studies are conducted, the NEPA documents will identify the full scope of the environmental impacts associated with each alternative.

The estimated implementation cost for the alternatives ranged from \$1,650,000 to \$25,000,000. Benefits do not exceed costs for all of the alternatives. Four of the alternatives have benefits which exceed costs. The benefit-cost ratios for the alternatives ranged from 0.13 to 4.2.

TABLE 1. SUMMARY OF ALTERNATIVE EVALUATIONS—IRRIGATION BENEFITS ONLY

Alternative	Implementation Cost	Benefits (Irrigation Only)	Objective 1	Objective 2		Cost Ratio	Objective 4 (inches)	(Average Hydrologic Conditions) (vs. Baseline)
A	\$13,000,000	\$1,640,000	-	NE	Smallest Increase	0.13	0.2	No Change
B	\$2,000,000	\$3,990,000	+	NE	Moderate Increase	2.00	0.5	No Change
C	\$15,000,000	\$5,500,000	+	NE	Moderate Increase	0.37	0.7	No Change
D	\$3,600,000	\$11,000,000	+	NE	Moderate Increase	3.06	1.5	Moderate Increase
E	\$16,500,000	\$11,700,000	+	NE	Largest Increase	0.71	1.6	Moderate Increase
F	\$12,000,000	\$15,200,000	+	NE	Largest Increase	1.27	2.2	Largest Increase
G	\$25,000,000	\$15,700,000	+	NE	Largest Increase	0.63	2.3	Largest Increase
H	\$1,650,000	\$6,960,000	-	NE	Smallest Increase	4.22	0.9	Smallest Increase
I	\$14,500,000	\$6,960,000	-	NE	Smallest Increase	0.48	0.9	Moderate Increase
J	\$14,490,000	NE	NE	NE	Likely Decrease	NE	NE	NE
K	\$6,720,000	NE	NE	NE	Likely Decrease	NE	NE	NE
L	\$12,600,000	NE	NE	NE	Likely Decrease	NE	NE	NE

Objectives

- Objective 1 – Minimize bypass at Superior-Courtland Diversion Dam
- Objective 2 – Provide augmentation storage water for MDS
- Objective 3 – Develop cost-effective solutions
- Objective 4 - Provide additional water supply to Bostwick Division lands – (additional inches of water)
- Objective 5 – Provide additional recreation benefits

+ = highly complies with objective
 - = does not comply with objective
 NE = Not Estimated or Evaluated

Alternatives

- A – Courtland Canal to Design Capacity, Winterize
- B – Automate, Winterize
- C – Automate, Winterize, Courtland Canal to Design Capacity
- D - Automate, Winterize, Raise Lovewell 16,000 ac-ft
- E - Automate, Winterize, Raise Lovewell 16,000 ac-ft, Courtland Canal to Design Capacity
- F – Automate, Winterize, Raise Lovewell 35,000 ac-ft.

- G – Automate, Winterize, Raise Lovewell 35,000 ac-ft, Courtland Canal to Design Capacity
- H - Raise Lovewell 16,000 ac-ft
- I – Raise Lovewell 16,000 ac-ft, Courtland Canal to Design Capacity
- J – Off-Stream Storage, Jamestown Waterfowl Management Area South Dam
- K - Off-Stream Storage, Jamestown Waterfowl Management Area North Dam
- L – Off-Stream Storage, Beaver Creek

TABLE 2.—SUMMARY OF ALTERNATIVE EVALUATIONS—MDS ENHANCEMENT ONLY

Alternative	Implementation Cost	Benefits	Objective 1	Objective 2	(in MDS violations)		(vs. Baseline)	(Average Hydrologic Conditions) (vs. Baseline)
A	\$13,000,000	NE	-	-	Small Decrease	NE	No Change	No Change
B	\$2,000,000	NE	+	-	Small Decrease	NE	No Change	No Change
C	\$15,000,000	NE	+	-	Small Decrease	NE	No Change	No Change
D	\$3,600,000	NE	+	0	Moderate Decrease	NE	No Change	Moderate Increase
E	\$16,500,000	NE	+	0	Moderate Decrease	NE	No Change	Moderate Increase
F	\$12,000,000	NE	+	+	Largest Decrease	NE	No Change	Largest Increase
G	\$25,000,000	NE	+	+	Largest Decrease	NE	No Change	Largest Increase
H	\$1,650,000	NE	-	0	Moderate Decrease	NE	No Change	Smallest Increase
I	\$14,500,000	NE	-	0	Moderate Decrease	NE	No Change	Moderate Increase
J	\$14,490,000	NE	NE	+	Largest Decrease	NE	NE	NE
K	\$6,720,000	NE	NE	+	Largest Decrease	NE	NE	NE
L	\$12,600,000	NE	NE	+	Largest Decrease	NE	NE	NE

Objectives

- Objective 1 – Minimize bypass at Superior-Courtland Diversion Dam
- Objective 2 – Provide augmentation storage water for MDS
- Objective 3 – Develop cost-effective solutions
- Objective 4 - Provide additional water supply to Bostwick Division lands – (additional inches of water)
- Objective 5 – Provide additional recreation benefits

- + = highly complies with objective
- 0 = complies with objective
- = does not comply with objective
- NE = Not Estimated or Evaluated

Alternatives

- A – Courtland Canal to Design Capacity, Winterize
- B – Automate, Winterize
- C – Automate, Winterize, Courtland Canal to Design Capacity
- D - Automate, Winterize, Raise Lovewell 16,000 ac-ft
- E - Automate, Winterize, Raise Lovewell 16,000 ac-ft, Courtland Canal to Design Capacity
- F - Automate, Winterize, Raise Lovewell 35,000 ac-ft.

- G – Automate, Winterize, Raise Lovewell 35,000 ac-ft, Courtland Canal to Design Capacity
- H – Raise Lovewell 16,000 ac-ft
- I – Raise Lovewell 16,000 ac-ft, Courtland Canal to Design Capacity
- J – Off-Stream Storage, Jamestown Waterfowl Management Area South Dam
- K- Off-Stream Storage, Jamestown Waterfowl Management Area North Dam
- L – Off-Stream Storage, Beaver Creek

Chapter III – Feasibility Study Overview

I Authority

The POS assumes that Reclamation is authorized by Congress to conduct the study and enter into a feasibility study cost-share agreement with non-Federal partners for providing water supply improvements in the Basin area. On October 2, 2003, Congressman Tom Osborne (NE) introduced H.R. 3241 which was referred to the Committee on Resources, “To authorize the Secretary of Interior to conduct a study to determine the feasibility of implementing a water supply and conservation project to improve water supply reliability, increase the capacity of water storage, and improve water management efficiency in the Basin between Harlan County Lake in Nebraska and Milford Lake in Kansas”. The final legislation will be listed and described in this section when received from the Congress.

II Location of Study, Non-Federal Sponsor, and Congressional Districts

Based on the draft authorizing legislation, the study area is assumed to be located in the Basin between Harlan County Lake in Nebraska and Milford Lake in Kansas.

The non-Federal sponsors for the feasibility of the study are the States of Kansas and Nebraska.

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

- 3rd District, NE – Tom Osborne
- 1st District, KS – Jerry Moran

III Prior Reports

Many reports and studies were completed during the development of the Basin over the last 60 years. Some of the more significant reports are listed below. These reports will be reviewed as a part of the initial stages of the feasibility study. The goal will be to draw key information critical in directing the feasibility study, such as problems and opportunities, planning objectives and constraints, public concerns, measures to address identified planning objectives, preliminary plans, conclusions from the preliminary screening and establishment of plan

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formulation rationale. In addition, the reviews will analyze preliminary plans as well as the screening criteria used for eliminating plans, provide a rationale for the likely array of alternatives to be studied in the feasibility study and will include an analysis of resource agency views and concerns.

The Bostwick Division was authorized for construction by the Flood Control Act of 1944, Public Law 534 as part of the Missouri River Basin Project (now the Pick-Sloan Missouri Basin Program [P-SMBP]). The plan was outlined in Senate Document No. 191, and revised in Senate document No. 247, as a coordinated plan of Reclamation and the Corps.

Reports having significance to the Bostwick Division and the Basin are:

- Bostwick Division, Nebraska-Kansas, Volume 1, Parts 1, 2, 3, and 4, Definite Plan Report (DPR), Bureau of Reclamation, Region 7, Denver, Colorado, June 1953.
- Bostwick Division, Nebraska-Kansas, Volume 1, Supplement, General Plan of Development, Definite Plan Report (DPR), Bureau of Reclamation, Region 7, Denver, Colorado, April 1956.
- Republican River Basin, Water Management Study, Special Report, Bureau of Reclamation, February 1985.
- Republican River Basin Flows; Flows Adjusted to 1993 Level Basin Development, prepared by Lane, Norval, and Weghorst in the Flood Hydrology Group, Bureau of Reclamation, Technical Service Center, Denver, Colorado, October 1995.
- Resource Management Assessment (RMA), Republican River Basin, Water Service Contract Renewal, Bureau of Reclamation, Great Plains Region, July 1996.
- Repayment and Long-Term Water Service Contract Renewals for the Republican River Basin, Nebraska and Kansas, July 2000.
- Technical Assistance to States (TATS) Study, Lower Republican River, Kansas, Water Augmentation Analysis, Bureau of Reclamation, May 2002.
- Final Settlement Stipulation (FSS), Supreme Court of the United States, Kansas vs. Nebraska and Colorado, December 15, 2002.

- Value Study Report, Proposals for More Efficient Management of Lower Republican River Water Supplies, Bureau of Reclamation, Technical Service Center, Denver, Colorado, December 17, 2002.
- Volume Analysis and Revised Flood Frequency Analysis for Comprehensive Facility Review, Lovewell Dam, Bureau of Reclamation, Technical Service Center, Denver, Colorado, May 2003.
- Republican River Basin Report of Preliminary Findings, Nebraska Department of Natural Resources, May 20, 2003.
- Analysis Addressing Hydrologic/Hydraulic Issues, Lovewell Dam, Bureau of Reclamation, Technical Service Center, Denver, Colorado, September 2003.

IV Financial Considerations

After the study is authorized and funds appropriated by the Congress, a cost-share agreement with the non-Federal sponsors must be executed before the study can commence. As the non-Federal sponsors, the States of Nebraska and Kansas will be required to provide funding or in-kind services for 50 percent of the cost of the feasibility study. Cost-sharing requirements for project implementation will be discussed with the sponsors as the study progresses. Letters of intent from the local sponsors stating a willingness to pursue the feasibility study and to share in the cost and an understanding of the cost sharing are included as Enclosure G.

V The Planning Process in the Feasibility Study

The feasibility study should be responsive to the authorizing legislation, and should identify, evaluate and recommend an appropriate, coordinated and implementable solution to the identified problems and opportunities. The report should:

1. Be a complete decision document and should present the results of the appraisal and feasibility studies;
2. Provide a complete presentation of study results and findings, including those developed in the appraisal report;
3. Comprehensively evaluate those methods and alternative plans requiring additional authority;
4. Document the non-Federal sponsor cost-sharing requirements;

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5. Demonstrate that sufficient alternatives were formulated and evaluated to maximize net benefits per the Principles and Guidelines and meet the requirements of NEPA; and
 6. Indicate compliance with local, State, and national laws, regulations, executive orders and public policies.
- Principles and Guidelines (P & G). The feasibility study will be conducted according to the P&G. Formulation and evaluation of alternatives will follow Reclamation policy and procedures for implementing NEPA and other applicable Federal rules and regulations. The overall Federal objective for such planning is to contribute to national economic development consistent with protecting the Nation's environment. The preliminary Table of Contents for the Basin Feasibility Study is provided as Enclosure E.
 - Plan Formulation. Planning objectives will be refined from those identified in the Appraisal Study based on the study authorizing language, public input and other factors. Alternatives, including potentially viable alternatives identified in the Appraisal Study and other studies, will be formulated in a systematic manner to ensure that a full range of reasonable alternatives is identified and evaluated to address problems, take advantage of opportunities, meet planning objectives and avoid constraints. If newer technology or experiences are available they will be applied in reformulation and modifying previously developed alternatives. Under the P&G, at least one alternative will be developed that maximizes net economic development benefits to the Nation (national economic benefits exceed costs). This plan is called the National Economic Development (NED) Plan. Plans that address State and local concerns or emphasize other functions such as environmental quality and other social effects may also be formulated.
 - Evaluation and Comparison. Each identified alternative plan will be tested against **four criteria** to determine viability. The criteria are **completeness** (the extent to which a plan accounts for all investments or action to ensure realization of planned effects); **effectiveness** (the extent to which a plan alleviates specified problems); **efficiency** (the extent to which a plan is responsive to the most cost-effective means of alleviating specified problems while being consistent with protecting the Nation's environment); and **acceptability** (the plan is workable with respect to State, Tribal, and local entities and the public and is compatible with existing laws, regulations, and public policies). After viable alternatives are formulated they will be evaluated, compared, and displayed in up to four accounts, e.g. national economic development (NED), environmental quality (EQ), regional economic development (RED) and other social effects (OSE).

- Level of Detail. The engineering and related technical aspects of the feasibility study will be developed to the level that will provide a reliable project schedule and cost estimate which will support the appropriation ceiling to be established by the authorizing legislation. The data gathered to develop feasibility estimates, e.g., implementation costs, is therefore confined to the minimum reasonably required to support this level of detail with reasonable contingency factors and is not of sufficient detail to support specifications for construction designs.
- These implementation costs include the post authorization planning and design costs, construction costs, construction contingency costs, and operations, maintenance and replacement (OM&R) costs. They also include costs for all fish and wildlife habitat mitigation, historic and archaeological mitigation and data recovery, lands, easements, relocations, rights-of-way, disposal/borrow areas and water and mineral rights necessary to implement the project.

Existing data prepared by Reclamation or by other agencies will be sought out and used in lieu of obtaining new data whenever possible. The most economical methods of obtaining the necessary design and related data will be emphasized, consistent with a reasonable degree of accuracy and the objectives of the feasibility study. If field testing is deemed necessary, it will be confined to the recommended plan whenever possible because of cost. Any additional analyses or tests planned for the later phases of design (e.g., post authorization) for the recommended plan will be described and costs included in the project cost estimate and schedule.

VI Assumptions and Exceptions

The following assumptions provide a basis for the feasibility study which will be revisited at the initiation of the study:

- Future Without Project/No Action Condition. The No Action or Future Without condition will describe conditions that would exist in the future if no Federal solution were implemented to meet the needs in the study area. The No Action plan will serve as a base from which to measure the benefits and impacts of the various alternative plans. The planning horizon is anticipated to be year 2050. Since the primary focus of the study is water supply, the study team will review and verify previous analyses and reports such as surface and ground water studies conducted by the States and others. Activities by the States which are underway or likely to proceed in response to the FSS will be incorporated in the No Action as will possible operation and maintenance (O&M) type activities such as restoring Courtland Canal capacity and automating and

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winterizing the Superior-Courtland Diversion Dam and Courtland Canal. The No Action hydrology will consider the agreement by the States that future water supply conditions and corresponding shortages to the Bostwick Divisions and flows in Kansas should not be worse than the Present Conditions (approximate year 2000).

- Study Area. It is assumed that the authorizing legislation identifies the study area as the Lower Republic Basin between Harlan County Lake in Nebraska and Milford Lake in Kansas.
- Safety of Dams (SOD) Activities. Potential dam safety issues associated with the Lovewell Dam enlargement proposals were analyzed during the Appraisal Study. A Flood Frequency Analysis was completed to determine flood peaks and volumes for floods up to a 10,000 year event. The floods were routed for the existing reservoir conditions and for the two enlarged reservoir conditions. Routings of the 10,000 year event indicate very little difference in available freeboard for the existing and modified reservoir conditions. A risk analysis to document existing versus modified reservoir dam safety risks will be performed by the Technical Service Center (TSC).

The specific changes in risk scenarios associated with an enlargement proposal will be documented. The risk analysis will address all failure modes that would be impacted by the enlargement, including risks associated with seepage and piping failure modes associated with higher reservoir water surfaces as well as risks associated with overtopping failure modes. Reclamation will pursue reasonable actions to mitigate increased risks associated with the modifications, even when the increased risks are below Reclamation guidelines for pursuing Dam Safety risk reduction actions.

- Plan Formulation. For cost estimating purposes, the feasibility study will initially consider the nine alternatives identified in the Appraisal Study plus two additional storage reservoir sites referred to as Beaver Creek and Jamestown sites.
- Start Date. A start date of 10/01/2005 is assumed.
- Cost Estimates. Costs are current through FY 2004.
- Policy Exceptions. The study will be conducted in compliance with the feasibility study authorizing legislation, the P&G, local, State and national laws, regulations, executive orders and public policies. No exceptions to established guidance and policy have been identified.

VII Potential Issues Affecting Initiation of a Feasibility Study

Continuation of this study into the cost-shared feasibility study is contingent upon an authorization and appropriation from Congress and an executed Feasibility Study Cooperative Agreement (cooperative agreement).

Some alternatives outlined in the Appraisal Study may be eligible for completion under existing Reclamation programs, such as the O&M Program, Water Conservation Field Services Program (WCFSP), or the Water 2025 Challenge Grant Program. The WCFSP provides technical and financial assistance for implementing water conservation activities through cooperative agreements or grants. The Water 2025 Challenge Grant Program is administered by Reclamation and provides local irrigation districts throughout the West with matching funds to support a variety of projects to make more efficient use of existing water supplies through water conservation.

If the sponsors successfully garner a WCFSP or Water 2025 grant from Reclamation, they and Reclamation will revisit the area's resultant needs and determine whether or not to continue with the feasibility study and/or whether an appropriate modification in scope is required.

VIII Project Area Map

A map of the study area is provided as Enclosure A.

Chapter IV – Summary Scopes of Work

I Milestones

Seven milestones are identified for the feasibility study, as follows:

- F1 Initiate Study
- F2 Complete Public Workshops/Scoping
- F3 Preliminary Formulation Scoping Meeting
- F4 Alternative Formulation Meeting (Completes Plan Formulation)
- F5 Complete Public Review
- F6 Final PR/NEPA document to Regional Director
- F7 Commissioner Approval

II Work Tasks

Parent tasks are identified below as separate products that go into the feasibility documentation and appendices. They are the major separable elements of the activities that are keyed to separately identifiable products developed for the major feasibility study milestones above. Sub-tasks will be developed during the initial phases of the feasibility study. The parent task listing follows:

- A. Hydrology Studies and Report
- B. Safety of Dams and Report
- C. Engineering and Design Analysis and Report
- D. Reservoir Mapping
- E. Socioeconomic Studies & Recreation Studies and Report
- F. Fish and Wildlife Studies and Report
- G. Real Property Studies and Report
- H. Environmental Studies and Report
- I. Fish and Wildlife Coordination Act Report
- J. Cultural Resource Studies and Report
- K. Public Involvement Process
- L. Project Management
- M. Policy, Legal and Institutional Review

III Summarized Scopes of Work

For each parent task a scope of work was developed that describes the work that is to be performed. Each scope of work describes the activities to be accomplished in narrative form and includes estimated costs. The detailed scopes of work are in Enclosure C. It should be noted that prior to completion of

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Milestone F2, the study team will review all existing reports identified in Chapter III as well as other reports discovered during study start-up. See Enclosure B for more information on milestones.

In addition to review of existing information, analyses will be performed under each parent task to define the Future Without condition and develop statements of problems, opportunities, planning objectives and constraints.

The POS assumes that activities will be undertaken during plan formulation to assess alternatives for the enlargements at Lovewell Reservoir and for two downstream sites at Beaver Creek and Jamestown. The level of detail is as indicated in Chapter III, Section V e.g., to perform the minimum engineering and related technical analyses to develop a reliable cost estimate and schedule for the recommended plan with reasonable contingency factors. Cost estimates are based on fiscal year 2004 salary rates.

A. Hydrology Studies and Report \$206,000

There are several other hydrology activities ongoing as the results of the Basin Negotiated Settlement of the Compact litigation. This study effort is a separate effort from the Republican River Compact Administration (RRCA) Groundwater Model, the 5-Year Running Average System Operation Study, Compact Accounting, and the Soil and Water Conservation Evaluation. If data and information are available from these efforts and they are deemed important for this study, then all efforts will be made to incorporate such data and information.

1. Future Without (No Action) — Hydrology studies will be performed to consider net space available in reservoirs after sediment accumulation, conversion of agricultural supplies to other demands, and water conservation and its impact on future needs. The States agree that the Future Without water supply conditions should not be worse than the Present Condition (approximate year 2000).
2. Future With — Alternatives will be evaluated to include coverage of such items as:
 - a. Operation studies considering reservoir yield, storage allocations, diversion requirements for present and anticipated future cropping patterns, return flows, storage, instream flows, and improvements to the diversion facilities to better utilize natural flows, and fish and wildlife enhancements will be conducted in order to quantify possible benefits for alternatives being evaluated.
 - b. The operation studies conducted will be limited to quantifying possible benefits and impacts for identified alternatives and are not the operation studies being conducted for the Compact Settlement that are reviewing 5-year averages for Compact accounting.

- c. Water Rights. The Compact annually allocates, the entire water supply for beneficial consumptive use (BCU) in Kansas originating in the Basin downstream from the lowest crossing of the river at the Nebraska-Kansas state line. If alternatives are identified that require new state water rights the States will need to resolve these issues.
- d. Compacts. The Hydrology studies will conform to the U.S. Supreme Court’s May 19, 2003 approval of the December 16, 2002 Final Settlement Stipulation.
- e. Fish and Wildlife impacts, including enhancements, will be evaluated.
- f. Environmental and Recreation (water quality, instream flows, flat water recreation) impacts will be evaluated.

B. Safety of Dams \$35,400

A risk analysis will be performed on Lovewell Dam assessing the existing condition and the incremental risk associated with raising the embankments. Studies will be completed in accordance with Reclamation’s *Guidelines for Achieving Public Protection in Dam Safety Decision Making*, June 15, 2003.

C. Engineering and Design Analysis and Report \$247,000

- 1. Future Without (No Action) —No anticipated work is required.
- 2. Future With — Engineering involvement in support of the feasibility study includes designs and cost estimates for plan formulation, planning/VE studies for alternative sites and for the recommended plan. Engineering and design will be conducted to determine reasonable and comparable costs for the alternatives. When a recommended plan is identified, additional work will be conducted to improve the design and accuracy of the feasibility cost estimate and schedule. Data collection, mapping and field work will be accomplished as necessary for the comparable evaluations of the identified alternatives.

D. Reservoir Mapping \$50,000

Aerial photogrammetry of Lovewell Reservoir to produce 2 foot contour interval drawings. Work includes photo acquisition (1:7200 scale B&W photographs), ground control, photogrammetric mapping, production of 2 foot contour interval drawings, contact prints, and digital data on DVDs. The area involved is about 9,000 acres. Current mapping efforts being completed by the State of Kansas for the Jamestown site will be utilized to study the Jamestown alternative.

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E. Socioeconomic Studies and Report \$199,000

1. Future Without (No Action) – In addition to review of existing information and reports, an analysis of recreation (flat-water and in-stream) will be completed.
2. Future With – Alternatives will be developed and evaluated to meet identified needs and will include coverage of the Principles and Guidelines (P&G) items such as NED, RED, EQ and OSE. The Social-economic team members will participate in the process to identify the recommended alternative.

F. Fish and Wildlife Studies \$30,000

Studies relating to fish and wildlife impacts, water and land requirements, water operations, benefits, etc. will be required.

G. Real Property Studies and Report \$5,000

1. Future Without (No Action) – In addition to review of existing information and reports, an analysis of the existing publicly owned property boundaries and flowage easement lines for Lovewell Reservoir and the Jamestown site will be performed.
2. Future With – Activities will be undertaken in support of alternatives requiring real property acquisitions or flowage easements.

H. Environmental Studies and Report \$110,000

1. Future Without (No Action) – In addition to review of existing information and reports, the No Action condition will be prepared to include consideration of the riverine environment, streamflows, and descriptions from other parent tasks such as T&E species, cultural resources, wildlife, wetlands and water quality.
2. Future With – Studies and analyses of environmental issues associated with alternatives will be undertaken and documented. This will also include activities relating to public involvement and NEPA document preparation.

I. Fish and Wildlife Coordination Act Report \$50,000

1. Future Without (No Action) – In addition to review of existing information and reports, the USFWS will identify issues relating to wetland habitat, associated riparian and upland wildlife values at Lovewell Reservoir, and the downstream reservoir sites and overall water quality in the study area.
2. Future With – Activities will be undertaken relating to the study's recommended alternative, which will include loss of wetlands habitats, loss of associated riparian and upland wildlife habitats, effects on fisheries and effects on water quality.

J. Cultural Resource Studies and Report **\$20,000**

1. Future Without (No Action) – In addition to review of existing information and reports, a description of the No Action condition will be prepared from a cultural resources perspective at Lovewell Reservoir and the downstream reservoir sites.
2. Future With – During plan formulation, literature searches will be conducted at all of the sites to determine reasonable and comparable cultural resource impacts and costs for the alternatives. This will include potential construction and operational impacts of alternatives including land acquisition and utility, road and recreation area relocation, borrow areas, etc. When a recommended plan is identified, fieldwork will be conducted and a resource inventory developed which will be important for signing a MOA or Programmatic Agreement with the State Historic Preservation Office (SHPO) and Indian tribes. The feasibility report will also describe activities and indicate the cost for additional surveys, mitigation and related activities to be conducted in the “advance planning/final design” phase for the recommended plan.

K. Public Involvement Process **\$35,000**

The public involvement specialist will plan, develop and implement a process to involve the various publics that have an interest in addressing the water supply needs in the study area in compliance with NEPA regulations. This will include developing a flexible public involvement strategy to include key events such as public meetings and/or workshops, identifying important contacts, developing a process for tracking public contacts, collecting public comments, implementing and maintaining public communications (media releases, informational e-mails, telephone trees, and media management), preparing executive summaries and other reports necessary for public distribution and information, and other assistance to the study team leader and members as requested. The process will provide assurance that interested publics are identified and invited to participate in a meaningful way.

L. Project Management **\$79,600**

This includes study management responsibilities and cost for the study team leader over a 3-year period.

M. Policy, Legal and Institutional Review **\$20,000**

This item includes policy, legal and institutional input and review by the Regional Office at key junctures of the study. It may include a representative of the Field Solicitor’s Office in Billings. This task also includes review and/or input from the States of a policy, institutional or legal nature.

Chapter V – Schedule, Organizational Responsibilities, and Cost Summary

I Study Schedule

The parent tasks and subtasks and milestones will be entered into Microsoft Project and a Gantt chart for the feasibility study.

II Organizational Responsibilities

The scopes of work represent understandings between the Area Manager and first line supervisors of functional organizations in the Area Office in Grand Island NE, Regional Office in Billings MT, Technical Service Center in Denver, CO, and the sponsors. The primary responsible organization for each parent task is identified by organization codes in Table 3, keeping in mind that Reclamation and the sponsor could likely each have responsibilities with any given parent task.

TABLE 3. ORGANIZATION RESPONSIBILITIES

Parent Task	Reclamation	Sponsor	Other
A. Hydrology Studies and Report	GPRO	NE/KS	
B. Safety of Dams	D-8300		
C. Engineering and Design Analysis and Report	D-8100		
D. Reservoir Mapping	GPRO		
E. Socioeconomic Studies and Report	D-8500		
F. Fish and Wildlife Studies	NKAO		USFWS
G. Real Property Studies and Report	NKAO		
H. Environmental Studies and Report	NKAO D-8500		
I. Fish and Wildlife Coordination Act Report	NKAO		USFWS
J. Cultural Resource Studies and Report	NKAO		
K. Public Involvement Process	NKAO	NE/KS	
L. Project Management	NKAO		
M. Policy, Legal & Institutional Review	GPRO SOL	NE/KS	

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Codes

NKAO – Nebraska-Kansas Area Office
GPRO – Great Plains Regional Office (Billings)
D-8100 – Technical Service Center, Civil Engineering Services Division
D-8300 – Technical Service Center, GeoTechnical Services Division
D-8500 – Technical Service Center, Water Resources Division
SOL – Field Solicitor’s Office (Billings)
NE/KS – State of Nebraska/State of Kansas
USFWS – U.S. Fish and Wildlife Service

III Funding Constraints

Funding for the first and subsequent years of the feasibility study is assumed to be unconstrained. The schedule indicates an optimum schedule based upon unconstrained funding.

IV Uncertainties in the Schedule

The study plan assumes a start date of October 1, 2005 with a 36 month study period. Assuming adequate funding is available, there appear to be no known scheduling uncertainties.

V Basis for the Cost Estimate

The feasibility cost estimate is based upon a summation of the costs that were identified for the individual parent tasks in the detailed scopes of work that are included in Enclosure C. The current year study cost without contingencies is \$1,087,000.

Salary rates for current year 2004 were utilized. Assuming the major study effort will not commence until 2006, the cost estimates were adjusted to include 10 percent allowance for inflation. Appropriate contingencies are also included to deal with the uncertainty in the elements of the study. A contingency in the amount of 10 percent of the study costs is applied to the above estimate to arrive at the final estimate. The resulting total study cost including contingencies and inflation adjustment is \$1,305,000.

VI Costs for Federal and Non-Federal Activities

The non-Federal sponsor must contribute 50 percent of the cost of the study and the distribution of the Federal and non-Federal costs is as shown in Table 4.

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Nebraska and Kansas have agreed to equally share the non-Federal cost share portion with either cash or in-kind services.

TABLE 4. COST FOR FEDERAL AND NON-FEDERAL ACTIVITIES (\$1,000's)

	Total Cost	Federal Cost	States' Cash*	States' In-Kind*
A. Hydrology Studies and Report	206.0	103.0	48.0	55.0
B. Safety of Dams and Report	35.4	17.7	17.7	0.0
C. Engineering and Design Analysis and Report	247.0	123.5	93.5	30.0
D. Reservoir Mapping	50.0	25.0	25.0	0.0
E. Socio-economic & Recreation Studies and Report	199.0	99.5	62.0	37.5
F. Fish and Wildlife Studies	30.0	15.0	0.0	15.0
G. Real Property Studies and Report	5.0	2.5	2.5	0.0
H. Environmental Studies and Report	110.0	55.0	40.0	15.0
I FWCA** Report	50.0	25.0	25.0	0.0
J Cultural Resource Studies and Report	20.0	10.0	5.0	5.0
K. Public Involvement Documents	35.0	17.5	5.0	12.5
L. Project Management	79.6	39.8	39.8	0.0
M. Policy, Legal & Institutional Review	20.0	10.0	2.0	8.0
SUBTOTAL	1087.0	543.5	365.5	178.0
10% for Inflation	109.0	54.5	36.7	17.8
10% for Contingencies	109.0	54.5	36.7	17.8
TOTAL (rounded)	1305.0	652.5	438.9	213.6

* States' share of in-kind services and cash are proposals only and have not been finalized.

** Fish and Wildlife Coordination Act

Chapter VI – Quality Management

I Quality Management Objective

The quality management objective is to ensure that a high-quality feasibility study is undertaken encompassing all aspects of its development, including planning, engineering, hydrology, environmental compliance and other technical as well as policy and legal considerations. Quality management will be undertaken via a multi-tier quality control (QC) process and a quality assurance (QA) process to achieve a defensible PR/NEPA document that meet or exceed customer requirements and consistent with Reclamation policies, rules and regulations.

For QC, the interdisciplinary planning team will undertake the study and at key junctures functional supervisors will perform a technical check. All work will be further reviewed by qualified and disinterested peer reviewers at appropriate stages. For TSC-performed activities, the existing TSC “peer review” process will be used. Written documentation of all reviews will be developed and included in the transmittal of the draft report to the Regional Office. The Nebraska-Kansas Area Office (NKAO) Area Manager will transmit the draft report and supporting QC documentation to the Regional Office.

For QA, the Regional Planning Coordinator will ensure that QC has been adequately incorporated into the study process and that technical and peer review documentation has been developed for the study and transmitted with the draft report to the Regional Office.

II Documents to be Reviewed and Schedule for Review Activities

The process for accomplishing policy and technical review will begin with study initiation and will proceed throughout the study. Appropriate reviews will be accomplished prior to the release of materials to other study team members or integrated into the overall study process. All of the products of the tasks listed in the detailed scopes of work will be subject to review. Costs for performing technical and related peer reviews are included in the task cost estimates. Costs for Regional Office policy, legal and institutional review are included in Work Task M.

Review and comment will occur prior to two major milestone meetings in the planning process, e.g., milestones F3 and F4, so that the results can be relied upon in setting the course for further study. Policy, legal and institutional reviewers will participate as appropriate at these milestone meetings. Since this quality

control will have occurred prior to each milestone meeting, meetings are free to address critical outstanding issues and set direction for the next step of the study since a firm technical and policy basis for making decisions will have already been established.

III Process and Schedule

A. Technical and Peer Review Protocol

Functional supervisors in the TSC, Area Office and Regional Office will check work products throughout the study to confirm the proper selection and application of established criteria, regulations, laws, codes, principles and professional procedures to ensure a quality product. Review will also confirm the constructability and effectiveness of the product and the utilization of clearly justified and valid assumptions and methodologies. All work products will undergo a peer review process similar to that developed and implemented by TSC.

B. Policy, Legal and Institutional Review Team

A review team from the Regional Office and the Field Solicitor's Office will provide input and/or review comments on policy, legal and institutional considerations at key junctures of the study. The States are also assumed to be represented on this team. Reviews will be performed and comments furnished in advance of milestone F3 (Preliminary Formulation Scoping Meeting) and milestone F4 (Alternative Formulation Meeting) as well as at an intermediate point between F3 and F4 if necessary. The team will also review the Draft PR/NEPA document during the public review process.

The review team will document the comments and guidance in memoranda and transmit to the team via the Area Manager. The memoranda will be used to revise or incorporate changes to the study, to complete all required detailed analyses and prepare the draft PR/NEPA document for Regional Director signature and transmittal to the Commissioner. The Area Manager, acting through the study team leader, will be responsible for ensuring that comments and guidance identified in the memoranda are fully addressed.

IV Review Checklist

The technical, peer, policy, legal and institutional reviews conducted during the study will ensure that there is a uniform application of clearly established Reclamation-wide procedures and policy. It will also identify issues that must be resolved in the absence of clearly established criteria, guidance, regulations, laws principles and procedures or where judgment plays a substantial role. Lastly, it will minimize the time that the report is in the Regional Office before transmittal to the Commissioner.

To aid functional supervisors and other reviewers, a checklist is provided as Enclosure F.

V Roster of the Feasibility Study Team

(To be completed prior to study initiation)

Organization/Function	Name/Title	Address	Phone/e-mail
D-8000			
GPRO			
NKAO			
KANSAS			
NEBRASKA			

VI Roster of the Review Team

(To be completed prior to study initiation, including State representation)

Organization/Function	Name/Title	Address	Phone/e-mail
GPRO			
SOL			
KANSAS			
NEBRASKA			

VII Feasibility Study Quality Certification

The documentation produced during the review process (technical, policy, legal and institutional) will be included with the submission of the draft PR/NEPA document to the Regional Director. The documentation will be accompanied by a certification signed by the Area Manager indicating that the review process has been completed according to the POS and that all technical, policy and legal issues have been addressed.

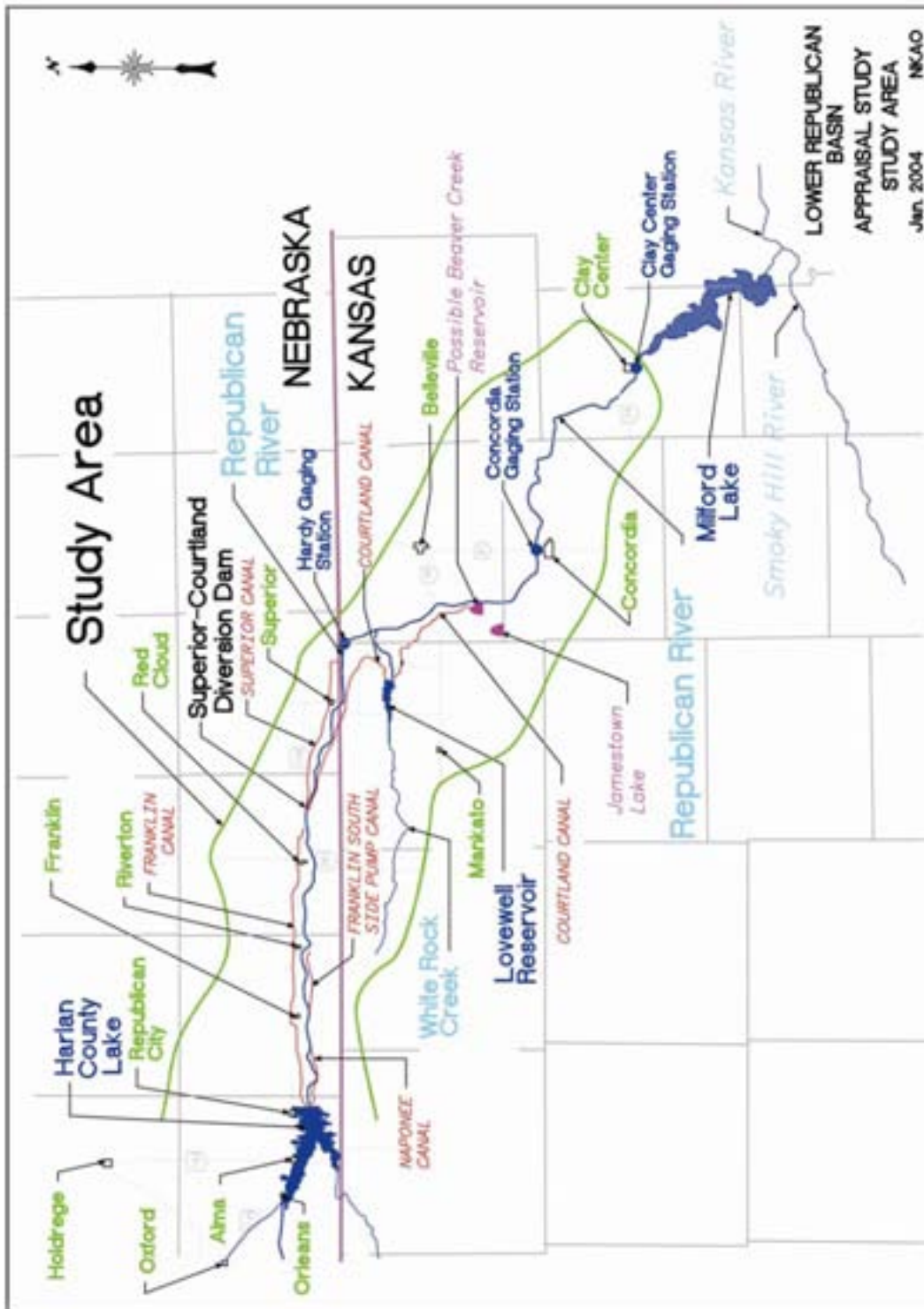
VIII List of Enclosures

Enclosure A	Study Area Map
Enclosure B	Milestones
Enclosure C	Scopes of Work
Enclosure D	List of Acronyms
Enclosure E	Preliminary Table of Contents
Enclosure F	Review Checklist
Enclosure G	Letters of Intent from Kansas and Nebraska

Enclosure A

Study Area Map

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Enclosure B

Feasibility Study Milestones

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Milestone	Name	Description
F1	Initiate Study	This is the date Reclamation receives study funds. Assume to begin October 1, 2005
F2	Final Public Workshop/ Scoping Meeting	This is the final public workshop/scoping meeting to inform the public and obtain input, public opinions and fulfill scoping requirements for NEPA purposes. March 31, 2006
F3	Preliminary Formulation Scoping Meeting	The scoping meeting is with the study team and the policy, legal and institutional team to address potential changes in the POS, to finalize future without (No Action) project conditions, screen preliminary alternatives and ensure that the study is focused and tailored to meet the specific objectives and constraints. June 30, 2006
F4	Alternative Formulation Meeting	The Alternative Formulation Meeting (AFM) completes plan formulation. At this meeting among the study team and the Regional Office team, final plans will be evaluated and consensus reached that the evaluations are adequate to recommend a plan. The primary goal is to identify and resolve any concerns that would otherwise delay the approval of the draft report. The meeting will also address actions required to prepare and release the draft report. March 31, 2007
F5	Public Review	This milestone is the conclusion of field level coordination of the draft PR/NEPA document including review by the public and the Regional Office team. March 31, 2008
F6	Draft PR/NEPA document to RD	Date of submittal of final report package to GPRO including technical and legal certifications, compliance memoranda and other required documentation. June 30, 2008
F7	Commissioner Approval	Date of the signature. This milestone is used as the completion of the feasibility study. September 30, 2008

Enclosure C

Scopes of Work

Task A – Hydrology Studies and Report

Issues and Concerns to be Addressed

Determine extent of the existing hydrologic studies and address additional model development requirements.

Technical Service Center

Description: A yield study will be performed by personnel representing the Great Plains regional office. Output from the study will include the normal water surface elevation associated with the proposed raised embankment and dike sections. Some technical support will be provided by the TSC. Only costs associated with the technical support by the TSC are included herein.

Cost: The estimated number of staff days for this task is 8 days at skill level 3 or \$6,500.

Great Plains Region

Description:

Task 1: Up-Date Data Sets for OPSTUDY Hydrologic Model

There is a need to develop hydrology data sets for the OPSTUDY model to represent future-without-project conditions. The starting point for this data set will be the 1993 level-of-development data set used for the appraisal study. That data set was developed from historic recorded monthly flows that were adjusted to reflect the impacts of development in the basin through 1993. This data set will be brought up to the most recent level using historic recorded flow data after 1993. This is based on the assumption that reduced stream flows in the basin have already resulted in the states' curtailment of additional development that may significantly reduce flows.

This data set may need further refinement for the feasibility study to reflect hydrologic impacts from any physical or administrative processes in the basin that are probable and reasonable to anticipate at the future planning horizon. This could include the effects of future sedimentation in reservoirs, and impacts from the administration of water usage to meet the Compact allocations.

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- Streamflow data used in appraisal level study were based on 1931-2000 recorded data adjusted to the 1993 level-of-development in the basin. Streamflow records for the entire Basin will be extended based on most recent available data.
 - 2 staff days
- There is a need to incorporate the simulation of Federal project irrigation return flows into hydrologic model. This will require re-adjusting the previous OPSTUDY hydrology to remove the impacts of historical return flows. Hypothetical return flow patterns will need to be developed for the projects and reach gains will need to be reduced accordingly. Discussions with study partner hydrologists will be needed for methods to calculate conveyance and application losses, what percentage of those losses are anticipated to return to streams, and the pattern to distribute the return flows to the stream over time.
 - 10 staff days
- Historic trends will be reviewed to assess if the 1993 level-of-development is acceptable for usage as future level. Some of the Republican sub-basins may be showing a continued downward trend in flows from the '93 level. If trend is still declining, then there is a need to perform a re-evaluation of regression analyses used to develop '93 levels.
 - 5 staff days
- It is anticipated that a potential exists for future changes to the streamflow regime if States (Nebraska) administer consumptive use in the basin to meet compact allocations. The States will be contacted to provide their best estimates as to what impacts their administration procedures may have on flows. For example, Nebraska may need to run the compact's ground-water model to provide impacts to streamflow.
 - 5 staff days
- Future sediment rates in all Basin reservoirs will need to be reviewed. Pool capacities in reservoirs will be adjusted for estimated sediment rates at designated future planning horizon.
 - 8 staff days
- The OPSTUDY model will need to be rerun with the changed pool capacities and new future level streamflow to arrive at the simulated inflows to Harlan County Lake.
 - 4 staff days

Task 2: Develop MODSIM and Inputs

There is a need to develop the MODSIM monthly time step hydrology model of the river basin for the entire Basin down to and including Milford Lake. The existing OPSTUDY model contains much of the data needed for developing a new model. Output from the present version of MODSIM needs additional processing for presenting results. MODSIM results can be imported into another program, like Excel, for processing into tables and graphs for usage in reports.

- **Develop MODSIM Model from OPSTUDY Data: Multiple ownership accounts will be developed for the enlarged Lovewell Reservoir. Incorporate priority dates for various diversions and storage rights. Develop Visual Basic module code in Excel for importing MODSIM output to produce tables and graphs. Write up of model description and data sources.**
 - 20 staff days

- **Update Monthly Irrigation Demands to Match New Period of Record: This involves collecting climatological data and calculating CIRs. Need to determine the method that will be used for CIR calculations. The same method that was used for the contract renewal model could be used, or we could utilize CIR data developed for the RRCA settlement GW model. Irrigation demands are also a function of conveyance losses and on-farm efficiencies. There is a need to examine and determine: conveyance losses and on-farm efficiencies; demand amounts (percentages or quantities); and adjustments for water short periods.**
 - 10 staff days

- **Develop Demands for Flow Augmentation Releases from Non-Irrigation Pools: If there is an alternative to replace flow depletions in Kansas by groundwater pumpers, then a groundwater model will be needed to calculate these depletions. The existing groundwater model for the Lower Republican in Kansas will be reviewed to determine if it is capable to supply these depletion calculations. A determination will have to be made if Kansas can run the model and supply the demands? If a new model is needed, then considerable more time for model development can be expected.**
 - 5 staff days

- **Write Script for MODSIM to Simulate Harlan Consensus Operations, Simulate Milford Lake Operations, and Test: The algorithm for OPSTUY in the Appraisal Study has been developed in FORTRAN and needs to be converted to script for MODSIM. Assistance from Reclamation's Technical Service Center staff who have written script for MODSIM may be utilized in order to minimize time expended on a learning curve. There is also a need to develop Harlan County Lake 5-year running average inflows for the Consensus algorithm. These 5-year averages may come**

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from simulated inflows to Harlan County Lake from the OPSTUDY model. These flows will need to reflect the impacts of present and/or future level development in the basin.

- 8 staff days
- Develop Demand Curve and write script for MODSIM to simulate Milford Lake operations. This is proposed to be a Kansas task.
- A procedure to equalize shortages to districts during periods of water supply shortages in the Basin will be needed. This will probably require writing script in MODSIM to determine the available supply at the beginning of the irrigation season and set deliveries to individual districts to maintain a balanced delivery to the farm. This is so that a uniform delivery per acre can be maintained.
 - 8 staff days
- Additional nodes will need to be added to the model as necessary in order to simulate private diversions, off-stream storage structures and conveyance systems to the storage structures. The area-capacity relationships will need to be developed for new storage structures.
 - 10 staff days
- There will be a need to develop and incorporate ground-water response functions into model to simulate groundwater-surface water interaction. This will need KS and NE assistance to provide groundwater modeling data, including depletions by alluvial well pumpers.
 - 20 staff days

Task 3: Calculate Available Natural Water Supply

The available natural water supply for flow augmentation at off-stream storage sites will need to be calculated.

- Previous studies identified potential locations for off-stream storage sites in tributaries to the Republican River in Kansas which could provide augmentation water in Kansas. However, those studies did not quantify the potential available supply or look at sizing of structures. Several of the proposed sites have some recorded flow measurements, although they may not be current. Other sites have streams with no past flow measurements. Methodologies to develop streamflow available for storage to augment streamflow will be evaluated. Methods to transpose measured flows, including drainage area ratios, basin characteristics comparisons, and correlation of flows with nearby measurement sites will be considered. Concurrent flow measurements at potential storage sites may be needed to correlate with measured data at nearby sites. In addition to water supply

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for storage, flood flows will need to be assessed for design of storage structures.

- 15 staff days

Task 4: Develop Future Without Hydrology Scenario

- The affected environment will be described and the future-without-project scenario developed for the hydrology sections of feasibility/planning report. The hydrologic model simulations for future-without-project and alternatives will be performed. Results from the model will be extracted and report sections prepared describing hydrologic impacts by future-without and study alternatives. Various stages of the feasibility/planning report will be reviewed. (This estimate does not include running the model to develop project impacts for present-level conditions)
 - 35 staff days

Target Milestones (assuming that Plan Formulation is completed by 3/31/07).

<u>Start</u>	<u>Completion</u>
Task 1 - October 1, 2005	December 31, 2005
Task 2 - January 1, 2006	June 30, 2006
Task 3 - July 1, 2006	July 30, 2006
Task 4 - Aug 1, 2006	September 30, 2006

Costs:

Task	Overall Time For Task	Resources	Unit (Days)	Cost
Task 1 – Up-Date Data Sets for OPSTUDY Hydrologic Model	10/1/05 to 12/31/05	GP-4500	34	\$25,500
Task 2 – Develop MODSIM and Inputs	1/01/06 to 6/30/06	GP-4500	82	\$61,500
Task 3 – Calculate Available Natural Water Supply	7/01/06 to 7/30/06	GP-4500	15	\$11,250
Task 4 – Develop Future Without Hydrology Scenario	8/01/06 to 9/30/06	GP-4500	35	\$26,250
Rerun Model				
Evaluate Results				
Totals				\$124,500

\$357,000*can be concurrent

Nebraska-Kansas Area Office

Description: NKAO would be responsible for providing input data, verifying model runs, determining that the model is working correctly and analyzing results from model runs.

Cost: The total costs are estimated to be \$20,000.

States

Description: Nebraska and Kansas are responsible for providing data as indicated in the Great Plains Regional Office task descriptions as well as verifying the model and analyzing results from model runs.

Cost: Nebraska and Kansas would each provide \$27,500 of in-kind services for this task.

Total Cost Task A – Hydrology

\$206,000

Task B – Safety of Dams and Report Lovewell Reservoir Enlargements – Risk Analysis

Technical Service Center

Description: A risk analysis will be performed to assess the existing baseline risk conditions prevailing for Lovewell Dam. Once the yield study has been completed, the results will be utilized with the existing area-capacity curves to quantify the magnitude of the embankment and dike raise required to provide approximately equal flood protection as the baseline conditions. These raise heights (on the order of 3 to 6 feet) will be utilized in conjunction with construction, geology, and performance data to assess the incremental static risk associated with raising the embankments, dikes, and spillway crest. If the risks associated with the selected raise heights are outside of Reclamation guidelines the risk analysis team will determine the likely raise configuration to establish compliance.

Factors contributing to risk at Lovewell Dam include: (i) landslides; (ii) hydrologic loading; and (iii) others. The interplay between these factors necessitates a thorough risk analysis to include personnel representing Geotechnical Engineering, Geology, and Waterways and Concrete Dams. In addition, personnel representing the regional office, area office, and O&M should attend. A risk analysis report documenting the findings and conclusions of the risk analysis team will be drafted and peer reviewed.

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Cost: The estimated number of staff days for this task is presented below. The estimated cost to perform a risk analysis as described above is approximately \$35,400.

Subtask Description	SD SL2	SL2 Rate (FY04)	SD SL3	SL3 Rate (FY04)
Data Collection				
Geotech	3	\$696		\$816
Geology			1	
Risk Analysis				
Geotech	5		5	
Geology			5	
WWCD			6	
Facilitator			5	
At-Risk Op	6			
RA Report				
Geotech	7		2	
Geology			1.5	

Great Plains Regional Office

Description: No work under this task.

Cost: NA

Nebraska-Kansas Area Office

Description: No work under this task.

Cost: NA

States

Description: No work under this task.

Cost: NA

Total Cost Task B – Safety of Dams and Report \$35,400

Task C – Engineering and Design Analysis and Report

Technical Service Center

Task 1: Geotechnical Engineering and Geology

Description: Geotechnical engineering and geology will collect and perform a review of the available construction, geologic, and performance data relevant to Lovewell Dam. The collected data will be made available to the risk analysis team. The geotechnical engineer will estimate the modified embankment/dike heights and cross sections based on the results of the yield study and completed appraisal level study.

Once the available data have been reviewed and the risk analysis completed, geotechnical engineering and geology personnel will visit the dam site to evaluate likely exploration locations. Geology personnel then will draft a field exploration request (FER) to collect additional embankment, foundation, and borrow soils data required to facilitate a feasibility level design. The anticipated field exploration includes two drill holes (assumed 80-feet-deep) and up to two test pits to be logged by regional personnel.

The geotechnical engineer will utilize the results of the risk analysis to evaluate the final feasibility level top of dam elevation and develop approximately two alternatives for the raise of the embankment and dikes. Stability of a limited number of cross sections will be analyzed based on the alternatives developed. Feasibility level cost estimates for each raise alternative in compliance with Reclamation's safety of dams guidelines will be prepared.

The geologist will perform a review of available borrow sources likely to be utilized during modification work. The geologist will review and organize field exploration data and laboratory test results as they become available.

Cost: The estimated number of staff days for Task 1 is presented below. The estimated total cost to perform geotechnical and geologic analyses as described above is approximately \$76,100.

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Subtask Description	SD SL2	SL2 Rate (FY04)	SD SL3	SL3 Rate (FY04)
Data Collection and Review				
Geotech	10	\$696		\$816
Geology			4	
Site Visit (1)				
Geotech	3			
Geology			3	
Prepare FER				
Geotech	1			
Geology			5	
Establish Top of Dam Elevations				
Geotech	10		5	
Develop Raise Cross Sections				
Geotech	15		2	
Geology			5	
Slope Stability				
Geotech	10		4	
CADD Support				
Geocats	10			
Cost Estimates				
Geotech	10		4	

(1) Assumes \$1,000 non-labor cost for each individual (i.e., \$2,000 total)

Task 2: Hydrologic and Hydraulic Analyses

Description: An initial data review will be performed to assess studies performed to date. Personnel from the Waterways and Concrete Dams Group will participate in the feasibility study by performing a hydrologic assessment of the existing (i.e., baseline) condition in support of the risk analysis. In addition, these personnel will be performing flood routings to assist the geotechnical engineer in locating the top of dam for the raised sections to maintain the existing level of downstream flood protection during the probable maximum flood (PMF).

Modifications to the existing spillway crest structure and chute will be evaluated as necessary to accommodate the embankment raise and new water surface elevations. Personnel assigned to Task 2 will work closely with personnel from the Mechanical Branch to allow for the necessary feasibility estimate for required modifications to the existing radial gates. The cost of modifying the existing

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spillway and chute will be developed for each alternative. In addition, diversion requirements during construction would be assessed.

Cost: The estimated number of staff days for Task 2 is presented below. The estimated total cost to perform hydrologic and hydraulic analyses as described above is approximately \$38,400.

Subtask Description	SD SL2	SL2 Rate (FY04)	SD SL3	SL3 Rate (FY04)
Data Collection and Review / Project Management				
WWCD		\$696	2.5	\$816
Hydraulic Design				
WWCD	18		4	
Structural Design				
WWCD	14		1	
Optimize Layouts				
WWCD	2		1	
Cost Estimate				
WWCD	3			
Drawings/Documentation				
WWCD	7		1	

Task 3: Mechanical Systems Analyses

Description: Personnel from the Mechanical Systems Group will determine the necessity for modifications to the existing radial gates due to the proposed modifications to the existing spillway crest structure and anticipated reservoir water surface elevations. Previous analyses indicated that for a 3-foot-high crest raise a minor amount of gate modifications would be necessary. However, for a 6-foot-high spillway crest raise more significant mechanical modifications would be necessary. The personnel assigned to Task 3 would reassess the mechanical modifications necessary due to more refined modifications to the spillway crest elevations obtained during the hydraulic analyses performed during Task 2.

The necessity of mechanical modifications to the radial gates will be evaluated for each alternative developed. Construction cost estimates for this work will be developed for each alternative.

Cost: The estimated number of staff days for Task 3 is presented below. The estimated total cost to perform mechanical analyses as described above is approximately \$2,800.

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Subtask Description	SD SL2	SL2 Rate (FY04)	SD SL3	SL3 Rate (FY04)
Mechanical Assessment				
MEG	3	\$696		\$816
Cost Estimate				
MEG	1			

Task 4: Cost Estimating

Description: Feasibility level cost estimates will be developed for each alternative developed.

Cost: The estimated number of staff days and for Task 4 is presented below. The estimated total cost to develop feasibility level cost estimates as described above is approximately \$4,300.

Subtask Description	SD SL2	SL2 Rate (FY04)	SD SL3	SL3 Rate (FY04)
Cost Estimating				
Estimating Group	5	\$696	1	\$816

Task 5: Laboratory Soils Testing

Description: A limited amount of laboratory soils testing will be included during the feasibility study. Relatively undisturbed samples will be collected during the field exploration work and borrow site investigations. Soils testing for the identified fine-grained borrow areas and anticipated embankment materials would consist of: (i) compaction; (ii) gradations; and (iii) CU' triaxial tests. Soils testing for the identified coarse-grained borrow areas would consist of: (i) compaction; (ii) gradations; (iii) index testing; and (iv) relative density.

The estimated (FY04) cost for laboratory soils testing is approximately \$8,300. The estimated cost for drilling and test pit excavation is approximately \$59,200.

Summary of Cost: The total Technical Service Center cost for Tasks 1 through Task 5 is \$189,100.

Great Plains Regional Office

Description: The Great Plains Regional Office would provide peer review and consultation services for the design data package and engineering report, along with the technical review of the reservoir mapping contract.

Cost: The total estimated cost is \$12,000.

Nebraska-Kansas Area Office

Description: The Nebraska-Kansas Area Office would provide design data for feasibility level design and cost estimate, including the assembly of the required field data, preliminary design criteria, the work requirements, and other required information and data.

Cost: The total estimated cost is \$15,900.

States

Description: The states would provide support for technical review and analysis of the results.

Cost: Nebraska and Kansas are each to provide \$15,000 of in-kind services.

Total Cost Task C – Engineering Design and Analysis \$247,000

Task D – Reservoir Mapping

Technical Service Center

Description: No work on this task is to be performed by TSC.

Cost: NA

Great Plains Regional Office

Description: Aerial photogrammetry of Lovewell Reservoir to produce 2 foot contour interval topography. Work includes photo acquisition (1:7200 scale B&W photographs), ground control, photogrammetric mapping, production of 2 foot contour interval drawings, contact prints, and digital data on DVDs. The area involved is about 9,000 acres. The cost estimate includes support for the contracting officer. For the downstream Reservoir Sites, it is assumed there is no requirement for additional mapping.

Cost: The total cost is estimated to be \$49,000.

Nebraska-Kansas Area Office

Description: Nebraska-Kansas Area Office would provide the statement of work, field data, and technical review of the map product.

Cost: The total cost is \$1,000.

States

Description: No work will be performed by the States under this item.

Cost: NA

Total Cost Task D – Reservoir Mapping \$50,000

Task E – Socioeconomic Studies and Report

Technical Service Center

Description: Economics

Task	Staff Days		Labor	Non Labor	Total
	SL2	SL3			
1. Agriculture	40		\$27,840		\$27,840
2. Recreation		75	\$61,200		\$61,200
3. Regional		50	\$40,800		\$40,800
TOTAL	40	125	\$129,840		\$129,840

Social And Environmental Justice

Identify and analyze significant social and environmental justice impacts associated with a range of alternatives for improving water supply for the Basin.

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Task Detail:

- Describe existing and future social and environmental justice conditions for the immediate study area and any other identified impact areas for the period of analysis. Initial social and environmental justice issues and concerns will be identified during scoping. Additional issues and concerns may be identified as the study progresses.
- Prepare social and environmental justice impact analysis (environmental consequences) of alternatives (comparison of action alternatives to the no action alternative). Assist in preparation of the Other Social Effects Account (OSE), i.e., analyses prepared by others may also be included in the OSE. Results of scoping, public involvement activities and regional economic analyses will be used to identify additional social and environmental justice impacts. Social and environmental justice impacts may also occur outside the immediate study area. Work will be coordinated with Economics and other disciplines to avoid duplication of effort.
- Participate in team meetings and plan formulation and evaluation activities. Review draft reports and respond to comments.
- Prepare information for inclusion in the PR/NEPA compliance document. No formal appendix will be prepared.

Task	Staff Days		Labor	Non Labor	Total
	SL2	SL3			
1. Affected Environment/Existing Conditions	10		\$6,960		\$6,960
2. Environmental Consequences/Impact Analysis	10		\$6,960		\$6,960
3. Team meetings, plan formulation, and evaluation activities	10		\$6,960	\$3,000	\$9,960
4. Peer review, review drafts, respond to comments	10		\$6,960		\$6,960
TOTAL	40		\$27,840	\$3,000	\$30,840

Great Plains Regional Office

Description: No work is anticipated by GPRO.

Cost: NA

Nebraska-Kansas Area Office

Description: The Nebraska-Kansas Area Office will provide field and office data support and consultation.

Cost: The estimated cost is \$800.

States

Description: The State will provide technical review and analysis of the report.

Cost: Nebraska is expected to provide \$18,700 of in-kind services and Kansas is to provide \$18,800 of in-kind services.

Total Cost Task E – Socioeconomic Studies and Report \$199,000

Task F – Fish and Wildlife Studies

This task is in addition to the Fish and Wildlife Coordination Report as detailed under Task I.

Technical Service Center

Description: No work for this task is expected by TSC.

Cost: NA

Great Plains Regional Office

Description: Provide technical support and report review.

Cost: The total cost is estimated to be \$5,000.

Nebraska-Kansas Area Office

Description: Future Without (No Action) — In addition to review of existing information and reports, identify issues relating to wetland habitat, associated riparian and upland wildlife values at Lovewell Reservoir, and the Jamestown site and overall water quality in the study area.

Future With — Activities will be undertaken relating to the study’s alternatives, which will include loss of wetlands habitats, loss of associated riparian and upland wildlife habitats, effects on fisheries and effects on water quality

Cost: The total cost is estimated to be \$10,000.

States

Description: The State will provide data and information support, technical analysis, and peer review.

Cost: Nebraska and Kansas are expected to each supply \$7,500 in in-kind services.

Total Cost Task F – Fish and Wildlife Studies \$30,000

Task G – Real Property Studies and Report

Issues/Concerns

Work involves reservoir enlargements and/or downstream reservoirs. Verify the need for real property land acquisitions including boundary line adjustments and determine need for flowage easements.

Technical Service Center

Description: No work is expected from TSC.

Cost: NA

Great Plains Regional Office

Description: Provide technical support and report review.

Cost: The GPRO cost is estimated to be \$2,000.

Nebraska-Kansas Area Office

Description: The Nebraska-Kansas Area Office will perform record searches and determine acquisition boundaries, and prepare report section.

Cost: The NKAO cost is estimated to be \$3,000.

States

Description: No work is expected by the States.

Cost: NA

Total Cost Task G – Real Property Studies and Report **\$5,000**

Task H – Environmental Studies and Report

Issues/Concerns

1. Cultural Resources: Effects of increased water elevations and bank cutting on cultural resources
2. Lands/Real Property Interests: Determine the need to acquire additional lands interest, including flood easements, as a result of enlargements and higher water surfaces at storage or impoundment facilities.
3. Recreation: Changes in Points of Diversion and stream flows that affect fishery habitat, recreation, water quality, and impact to existing facilities due to dam enlargements.
4. Socioeconomic impacts: Effects on downstream agricultural interests and growth.
5. Streamflow changes: Streamflow changes as they affect other resources.

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6. Threatened and Endangered Species: If the FWS determines that there are listed threatened and/or endangered species or critical habitat that could potentially occur in the project area, the action agency must then prepare a biological assessment (BA) to determine whether the proposed action may affect a listed species. The BA will state whether there is a "no affect" or "may affect" for each species on the list. After the Service reviews the BA, they must determine whether they concur with the action agency's conclusion. A "may affect" determination results in the action agency consulting with the Service.
7. Wildlife: effects on avian nesting species and other species that are affected by changes in operation and enlargements. Determine this thru Fish and Wildlife Coordination Act (FWCA).
8. Wetlands: Effects on wetlands as a result of decreased flows and wetlands in and adjacent to enlarged reservoirs as a result of flooding.
9. Water Quality: Effects on water quality in the river as a result of altered flow regimes.

Technical Service Center

Description: The Resource Manager for this effort will be responsible for the preparation of the Draft and Final Feasibility Report and NEPA Compliance Document and all associated coordination activities of those providing input into that process. Work activities and associated expenditures will be monitored and controlled to the extent possible to ensure that the products are provided on time and within budget. All work commitments and products will receive the proper review and peer review. Specific tasks include the development of a schedule and major milestones for completion of the NEPA document, development of the Purpose and Need statement, the identification of issues for evaluation in the NEPA document, and development of a reasonable range of alternatives.

Task Detail:

- Service agreements between the TSC and the NKAO will be developed and modified as needed in accordance with the needs of the study.
- Work accomplishments of individual technical disciplines will be tracked in relation to expenditures to ensure that study progress is being achieved efficiently. Problem areas will be identified early and discussed with TSC staff and NKAO staff as necessary to develop an acceptable solution.

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- Coordination with NKAO staff and other participants will occur on a periodic basis through e-mail, phone calls, conference calls, and meetings when needed to monitor study progress and discuss study accomplishments and problems or concerns.

- The development of a final purpose and need statement, goals and objectives, criteria for alternative development, and alternatives for the proposed project will be coordinated with NKAO and TSC staff as well as other participants as appropriate.

- All documents produced as part of this study will be reviewed to ensure that they meet all requirements in accordance with purpose and need, goals, and objectives of the project.

Task	Staff Days		Labor	Non Labor	Total
	SL2	SL3			
1. Develop service agreements and modify as needed.	1	2	\$2,328		\$2,328
2. Track work accomplishments and expenditures.	2	1	\$2,208		\$2,208
3. Coordinate with NKAO and other participants.	2	4	\$4,656		\$4,656
4. Coordinate and participates in the development of a final purpose and need statement, goals and objectives, and alternative formulation for the project.	3	7	\$7,800		\$7,800
5. Ensure that all documents meet project requirements in accordance with purpose and need, goals, and objectives of the project.	2	4	\$4,656		\$4,656
TOTAL	10	18	\$21,648		\$21,648

Cost: The estimated cost is \$21,600.

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Great Plains Regional Office

Description: The Great Plains Regional Office will provide staff technical support and review of the NEPA document.

Cost: The estimated cost is \$30,000.

Nebraska-Kansas Area Office

Description:

Task
Complete draft study reports to address issues identified, but not addressed in the PR Technical Reports
Preliminary Draft NEPA document/Feasibility Study (FS) for internal agency review
Preliminary NEPA document/FS - agency comments/revisions
Distribute NEPA document/FS for public review/comment, public hearings
Incorporate/respond to NEPA document/FS comments (finalize documents)
Prepare and sign NEPA document - Distribute copies

Cost: The estimated cost is \$43,400.

States

Description: Kansas will provide technical support and assist FWS in performing some of the activities and review report.

Cost: Kansas is expected to provide \$15,000 of in-kind services

Total Cost Task H – Environmental Studies and Report \$110,000

Task I – Fish and Wildlife Coordination Act Report

Anticipated Fish and Wildlife Related Issues

Certain plant and animal surveys can only be accomplished during certain times of the year. It is assumed the activities listed below will be performed for the recommended alternative only.

Activity
1. Mapping and quantifying riparian, wetland, and other wildlife habitat types that would be affected by the new maximum water surface elevations. The Jamestown area will be provided by Kansas.
2. Modeling necessary to predict frequency of flooding of additional areas that will be affected by re-operation and increased elevations. (Accomplished under Task A)
3. Models to show changes in stream flow regime of the River and other tributaries affected by enlargement. (Accomplished under Task A)
4. Analysis of increased fishing demand as a result of enlarged reservoirs and development of mitigation. Kansas will provide assistance.
5. Survey new areas for listed or sensitive species- Data partially available through contract renewal process.
6. Transfer funding to FWS for FWCA work (includes accomplishment of above work)

Description: The above listed work and preparation of the report would be completed by FWS.

Cost: This report is expected to cost \$50,000. Cost is reflected under Nebraska-Kansas Area Office's portion of the work.

Total Cost Task I – FWCA Report **\$50,000**

Task J – Cultural Resource Studies and Report

Technical Service Center

Description: No work is expected by TSC.

Cost: NA

Great Plains Regional Office

Description: No work is expected by GPRO. Technical support provided by Regional Office is addressed under Task H.

Cost: NA

Nebraska-Kansas Area Office

Description:

Task
Inventory of affected resources
Research and write NEPA Cultural Resources sections
Write agreement on effects of project
Consultation on NEPA, Section 106 with State Historic Preservation Officer, Advisory Council on Historic Preservation and Tribes
Inventory of affected resources
Research and write NEPA Cultural Resources sections
Write programmatic agreement on effects of project
Consultation on NEPA, Section 106 with State Historic Preservation Officer, Advisory Council on Historic Preservation and Tribes

Cost: The expected cost is \$15,000.

States

Description: Provide technical support and report review.

Cost: Kansas is expected to provide \$5,000 of in-kind services.

Total Cost Task J – Cultural Resource Studies and Report \$20,000

Task K – Public Involvement

The public involvement specialist would plan, develop and implement a process to involve the various publics that have an interest in the water supply needs in the study area. Public involvement action will be in compliance with NEPA regulations.

Technical Service Center

Description: No work by TSC is anticipated.

Cost: NA

Great Plains Regional Office

Description: The Great Plains Regional Office will provide technical staff support and assistance.

Cost: The estimated costs are \$5,000.

Nebraska-Kansas Area Office

Description:

Task Detail

1. Develop a flexible, evolving public involvement strategy. Identify key events, e.g., public meetings, workshops, promotional opportunities; identify important contacts; develop process for tracking public contacts, etc. Provide assistance, strategies, etc., to team leader and members as requested.

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2. Establish and maintain ongoing rapport with local communities to include responding to day-to-day inquiries in support of NEPA
3. Identify publics to assure all probable interested publics are identified, informed and invited to participate in the study. Develop and maintain a mailing list.
4. Plan public meetings.
5. Conduct public meetings.
6. Collect public comments.
7. Prepare public involvement and public comments summaries.

PUBLIC INVOLVEMENT	Staff Days			Labor	Non-Labor	Fees	Total
	L1	L2	L3				
Develop and revise public involvement strategy.							
Establish and maintain rapport							
1. Identify publics; develop and maintain mailing list.							
2. Plan public meetings							
3. Conduct public meetings							
4. Process public comments							
5. Prepare public involvement and public comments summaries							
Paid public notices							
Court reporter							
Facility rental fees							
TOTALS							

Public Involvement Documents

As required under the NEPA, Reclamation will make a diligent effort to inform and involve the public as it conducts the feasibility study.

The first step in the process will be to make a good-faith effort to identify interested and affected publics. Reclamation’s public involvement plan can be built upon previous public relations work already undertaken in the area. Reclamation will also continue its cooperative working relationship with the States in public involvement.

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The first step in the public involvement process will be scoping. Scoping is the process used to ask interested publics to help identify significant issues related to the proposal. It may include purchased public notices via the media, news releases, e-mail notifications, website development, public meetings and/or workshops and other public involvement techniques. This process will also help further identify interested and affected publics and how to keep them informed.

As alternatives are developed and evaluated, there will be other opportunities to seek public input. This may come through soliciting comments on environmental documents and additional public forums at which the public may seek information and make comments. The level and type of public involvement at this stage is normally a function of public interest in the study and the level of controversy associated with the issues.

Another step in the public involvement process will occur as environmental documents are released in draft. News releases and media management, public notices through the media, public meetings, and other public involvement methods may be used to assure sufficient opportunity is provided to make comments.

Cost: The estimated costs are \$17,500.

States

Description: The State will provide support and assistance in coordination and conduct public involvement activities, especially public meetings.

Cost: Nebraska is expected to provide \$6,300 of in-kind services and Kansas is expected to provide \$6,200.

Total Cost Task K – Public Involvement **\$35,000**

Task L – Project Management

Technical Service Center

Project Coordination

Description: Technical project coordination will be performed by the assigned principal engineer. Project coordination will include meetings, conference calls, and providing guidance to personnel assigned to each task. In addition project coordination will include drafting a service agreement and tracking progress.

Cost: The estimated number of staff days for project coordination is 40 SD at SL2 is \$27,840. The estimated cost for project coordination does not include funding for travel to meetings held outside the Technical Service Center in Denver. Some of the TSC costs of project management are described and included in Items E and H.

Great Plains Regional Office

Description: The Great Plains Regional Office will provide technical support and policy guidance to the Area Office and study team.

Cost: The estimated cost is \$24,000.

Nebraska-Kansas Area Office

Description: The Nebraska-Kansas Area Office will provide team leader for overall project coordination and administration activities.

Cost: The estimated cost is \$27,800.

States

Description: No work is expected.

Cost: NA

Total Cost Task L – Project Management **\$79,600**

Task M – Policy, Legal and Institutional Review

The team will provide input and/or reviews at key junctures of the study. The makeup of the team is envisioned to include representatives from the Regional Office, from the Field Solicitor's Office in Billings and from each of the States. This team will help insure that the policy, legal and institutional aspects of the study are adequately incorporated. The work is likely to include conformance with P&G, NEPA, Administration and Reclamation policy and Reclamation Law.

The team will insure that alternatives, including potentially viable alternatives identified in the appraisal study, are formulated in a systematic manner to ensure that a full range of reasonable alternatives are identified and evaluated. They will also insure that at least one alternative is developed that maximizes net economic development benefits to the Nation (national economic benefits exceed costs), e.g., the NED Plan. They will also insure that plans that address State and local concerns or emphasize other functions such as environmental quality and other social effects are also formulated as appropriate. They will review, provide input to and concur in the No Action/ Future Without condition A as described in milestone F3

The team will also insure that each identified alternative plan will be tested against four criteria to determine viability. The four criteria are: completeness (the extent to which a plan accounts for all investments or action to ensure realization of planned effects); effectiveness (the extent to which a plan alleviates specified problems); efficiency (the extent to which a plan is responsive to the most cost-effective means of alleviating specified problems while being consistent with protecting the Nation's environment); and acceptability (the plan is workable with respect to State, Tribal, and local entities and the public and is compatible with existing laws, regulations, and public policies).

After viable alternatives are formulated the team will insure that they are evaluated, compared, and displayed. While only the national economic development (NED) account display is required to indicate changes in the economic value of the national output of goods and services, the environmental quality (EQ) account, the regional economic development (RED) account and the other social effects (OSE) account may also be displayed if doing so will better illuminate the decision process.

Great Plains Regional Office and Field Solicitor’s Office

Description: The Great Plains Regional Office will provide representatives to serve on the policy, legal and institutional team.

Cost: The estimated cost is \$10,000.

Nebraska-Kansas Area Office

Description: The Nebraska-Kansas Area Office will provide project coordination and support.

Cost: The estimated cost is \$2,000.

States

Description: It is assumed that the States will each provide a representative to serve on the team.

Cost: Nebraska and Kansas are each expected to provide \$4,000 of in-kind services and \$1,000 in cash.

Total Cost Task M- Policy, Legal, and Institutional Rev. \$20,000

Summary

The following table shows the summary of task costs:

SUMMARY OF TASK COSTS
LOWER REPUBLICAN RIVER BASIN FEASIBILITY STUDY
(UNIT – \$1,000)

Task	Total Cost	Federal Cash	Nebraska Cash	Kansas Cash	Nebraska In Kind	Kansas In Kind	Total Cash	NKAO	GPRO	TSC
A – Hydrology	206.0	103.0	24.0	24.0	27.5	27.5	151.0	20.0	124.0	6.5
B – Safety of Dams	35.4	17.7	8.8	8.9	0.0	0.0	35.4	0.0	0.0	35.4
C – Engineering and Design	247.0	123.5	46.8	46.7	15.0	15.0	217.0	15.9	12.0	189.1
D – Reservoir Mapping	50.0	25.0	12.5	12.5	0.0	0.0	50.0	1.0	49.0	0.0
E – Socioeconomic Studies and Report	199.0	99.5	31.0	31.0	18.7	18.8	161.5	.08	0.0	160.7
F – Fish and Wildlife Studies	30.0	15.0	0.0	0.0	7.5	7.5	15.0	10.0	5.0	0.0
G – Real Property Studies and Report	5.0	2.5	1.2	1.3	0.0	0.0	5.0	3.0	2.0	0.0
H – Environmental Studies and Report	110.0	55.0	27.5	12.5	0.0	15.0	95.0	43.4	30.0	21.6
I – Fish and Wildlife Coordination Act Report	50.0	25.0	12.5	12.5	0.0	0.0	50.0	50.0	0.0	0.0
J – Cultural Resource Studies and Report	20.0	10.0	5.0	0.0	0.0	5.0	15.0	15.0	0.0	0.0
K – Public Involvement	35.0	17.5	2.5	2.5	6.3	6.2	22.5	17.5	5.0	0.0
L – Project Management	79.6	39.8	19.9	19.9	0.0	0.0	79.6	27.8	24.0	27.8
M – Policy, Legal and Institutional Review	20.0	10.0	1.0	1.0	4.0	4.0	12.0	2.0	10.0	0.0
Subtotal	1087.0	543.5	192.7	172.8	79.0	99.0	909.0	206.4	261.5	441.1
+/-10% for Inflation	109	54.5	19.4	17.3	7.9	9.9	91.2	20.7	26.3	44.2
+/-10% for Contengencies	109	54.5	19.3	17.4	7.9	9.9	91.2	20.7	26.3	44.2
Total	1305	652.5	231.4	207.5	94.8	118.8	1091.4	247.8	314.1	529.5

Notes: NKAO costs include FWCA Report; Estimates are based on FY 04 Salary Rates; States shares of in-kind services and cash are preliminary proposals. Sept. 22, 2004

Enclosure D

List of Acronyms

List of Acronyms

ac-ft	acre-feet
AFM	Alternative Formulation Meeting
BA	Biological Assessment
the Basin	Lower Republican River Basin
BCU	Beneficial Consumptive Use
the Compact	Republican River Compact
Corps	U.S. Army Corp of Engineers
DPR	Definite Plan Report
EA	Environmental Assessment
ESA	Endangered Species Act
EQ	environmental quality
FS	Feasibility Study
FSCA	Feasibility Study Cooperative Agreement
FSS	Final Settlement Stipulation
FWCA	Fish and Wildlife Coordination Act of 1958
FWS	Fish and Wildlife Service
FWS/USFWS	U.S. Fish and Wildlife Service
FY	Federal Fiscal Year
GPRO	Great Plains Regional Office, Billings Montana
KBID	Kansas Bostwick Irrigation District No. 2
MDS	Minimum Desirable Streamflow
NA	Not Applicable
NED	National Economic Development
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NKAO	Nebraska-Kansas Area Office

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NRD	Natural Resources District
O&M	operation and maintenance
OM&R	operation, maintenance and replacement
OSE	other social effects
P&G	Economic and Environmental Principles and Guidelines for Water Related Land Resources Implementation Studies
PMF	Probable Maximum Flood
POS	plan of study
P-SMBP	Pick-Sloan Missouri Basin Program
PR	Planning Report
PR/NEPA	Planning Report / National Environmental Policy Act
QA	Quality Assurance
QC	Quality Control
RD	Regional Director
Reclamation	Bureau of Reclamation
RED	regional economic development
RMA	Resource Management Assessment
RRCA	Republican River Compact Administration
SHPO	State Historic Preservation Office
SOL	Field Solicitor's Office, Billings, Montana
the States	Colorado, Kansas, and Nebraska
Study	Appraisal Study
TATS	Technical Assistance to States
TSC	Technical Service Center

Enclosure E

Preliminary Table of Contents

Suggested Content: PR/NEPA document (assuming EA/FONSI)

Feasibility studies are detailed investigations specifically authorized by law to determine the desirability of seeking congressional authorization for implementation. Feasibility studies cannot begin until specifically authorized in accordance with the Federal Water Project Recreation Act (Public Law 89-72, Section 8; Stat. 217). While appraisal studies use existing data, feasibility studies include additional data collection and analyses to develop and consider a full and reasonable range of alternatives. Feasibility studies must be consistent with the P&G and NEPA.

Feasibility studies are normally integrated with National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and other related environmental and cultural resource laws and compliance requirements. These combined analyses culminate in an integrated Planning Report/NEPA compliance document. Also see <<http://www.usbr.gov/recman/cmp/cmp05-02.htm>>.

Table of Contents

Summary

Chapter 1. Introduction

- Location of potential project
- Study purpose, scope, and objectives
- Study authority
- Public involvement/scoping (include cooperating agencies)
- Previous studies of the project area by Reclamation or others
- Relationship of other water and related resources activities to our study

Chapter 2. Need for Action

This chapter defines the problems, needs, and opportunities and resulting planning objectives and constraints toward which plan formulation is directed. This chapter also addresses needs associated with National, State, and local concerns and clearly defines the problem in each category and the resource needs to solve the problem.

This chapter should state problems, needs, and opportunities for both current and future conditions.

Chapter 3. Resources, Opportunities, and Constraints

This chapter provides a general discussion of present and future conditions in those resource categories that have a bearing on the formulation of plans to address the identified needs. This chapter should cite physical, statutory, social, institutional, and environmental opportunities and constraints that limit the capability of the resources to meet needs.

Chapter 4. Alternatives

Alternative formulation

Recommended plan

Overview of plan concept

Plan accomplishments

Plan description

Project costs

Economic and financial analysis

Discuss National Economic Development evaluation, cost allocation, and cost sharing. Also describe non-Federal interest and participation in project funding.

Environmental acceptability

Briefly discuss, since supporting analyses are included in the Environmental Quality Account and Environmental consequences discussion.

Social acceptability

Briefly discuss, since supporting analyses are included in the Social Account and environmental consequences discussions.

Actions and permits

Other viable alternatives

No Action Alternative

Explain that this alternative serves as the basis for determining the effects of all viable alternatives.

Comparative evaluation and plan selection (include Recommended Plan, other viable alternatives, and No Action Alternative). Evaluate each alternative on a number of parameters, e.g., economic, environmental, social, legal, institutional, and technical.

1. Include a comparative four-account display consisting of the National Economic Development, Environmental Quality, Regional Economic Development, and Social evaluations, as appropriate. The NED account is the only mandatory display. The evaluations must be consistent with and supported by the environmental consequences analysis.

2. Include a comparative discussion of responsiveness of alternatives (tests of viability) in instances where these factors influence plan selection. The tests of viability are acceptability, effectiveness, efficiency and completeness.
3. Provide the rationale for selecting the Recommended Plan.

Other Plans Considered (eliminated as viable alternatives)

Chapter 5. Affected Environment and Environmental Consequences

Note: For a Feasibility Report, note only the Potential Effects of Alternatives

Setting
Water resources
Fish and wildlife
Recreation
Other resources, if they are issues
Endangered species
Economics
Social environment
Cultural resources
Indian trust assets
Environmental justice

Chapter 6. Consultation and Coordination

Public involvement
 Scoping process
 Public meetings
Fish and wildlife consultation
 Endangered Species Act, Section 7
 Fish and Wildlife Coordination Act
Cultural resources consultation
Issues to be resolved and areas of controversy
Other agency consultation
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Acronyms and Abbreviations

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Attachments

Fish and Wildlife Coordination Act Report and Responses to
Recommendations
Others as appropriate

Lists of Figures and Tables

Enclosure F

Review Checklist

Review Checklist

Items that will be considered during the reviews include the following:

A. Formulation

1. Will alternatives function safely, reliably, and efficiently, and are they engineeringly sound?
2. What is the future without-project (No Action) condition and what are the assumptions upon which it is based?
3. Are the key assumptions underlying the predicted with-project conditions documented and justified as the most likely parameters?
4. What alternatives, including different performance levels, have been considered?
5. What is the rationale for screening out the alternatives that were not selected for implementation?
6. What beneficial and adverse effects have been evaluated for the alternative plans studied in detail?
7. Does risk and/or uncertainty inherent in the data or in the various assumptions of future economic, demographic, social, and environmental trends, have a significant effect on plan formulation?
8. What coordination has occurred with State, local, and Federal agencies and how have their views been considered in formulating the recommended plan?

B. Recommended Plan

1. Is the recommended plan the NED (or most cost effective) plan?
2. If a departure from the NED (or most cost effective) plan is being recommended, what is the rationale to support the recommended departure?
3. How do the benefits and costs of the NED (or most cost effective) plan compare to other candidate plans?
4. Are there any interstate implications of the project, and if so, how have they been addressed?

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5. Are there any legal or institutional obstacles to project implementation, and if so, how have they been addressed?
6. Does the Federal Power Marketing Agency indicate the marketability of the power produced for the recommended plan?

C. Economic Feasibility

1. What discount rate, price level, and amortization period were used to determine annual benefits and costs?
2. What procedures were used to evaluate NED benefits?
3. What are the bases for the economic projections?
4. What separable features have been incrementally economically evaluated, and what are the separable B/C ratios?
5. Have all anticipated project outputs, monetary and non-monetary, positive and negative, been included in the economic evaluation? If not, what outputs were omitted and why?
6. What is the B/C ratio of the project and separable elements based on existing benefits?
7. What contingency allowances were used for major cost items and what is the basis for them?
8. What engineering and design, and supervision and administration charges were included in the estimate, and what is the basis for them?
9. What items are included in annual OM&R costs, and how were they developed?
10. Was interest during construction documented?

D. Environmental Evaluation

1. What studies and coordination were conducted in accordance with NEPA and other applicable environmental laws?
2. What studies were conducted to determine if there are potential or actual contaminated lands (hazardous and toxic wastes, pollutants, etc.) included in the land requirements?

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3. What preservation, conservation, historical, and scientific agencies and interests were consulted, what were their views, and how were their views considered during plan formulation?
4. What incremental analysis was performed to determine the scope of the fish and wildlife mitigation plan?

E. Environmental Design Considerations

1. Is the project designed to be in concert with the environment and the sponsor and public's views concerning the environment?
2. Overall, is this project environmentally sound? To what degree does this project add or detract from the environment?

F. Engineering

1. Is there an engineering appendix to the planning report?
2. Does the report document that the cost estimate will remain relatively stable based on the engineering effort in the appendix?
3. Does the report document the design with clear references and assumptions?
4. Have design criteria for the project been established and do they include functional requirements, local sponsor requirements, technical design, and environmental engineering considerations?
5. If appropriate, has the Corps been contacted to determine requirements for permits for any structures to be constructed or relocated over a navigable waterway?
6. Does the engineering appendix provide a comprehensive discussion and complete documentation of the envisioned design?

G. Hydrology and Hydraulics

1. Is the analysis based on current hydraulic, hydrologic, and climatic data?
2. Does the report provide the hydraulic and hydrologic studies necessary to establish channel capacities, structure configurations, freeboard, ability to safely pass the PMF, etc?

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3. Have physical and/or numerical modeling been performed? If modeling or other studies are not to be performed, is the rationale for omitting these efforts documented and has the appropriate approval been obtained?

H. Surveying and Mapping

1. Does the report provide topographic or other maps to support the level of detail required to eliminate possibility of large quantity errors?
2. Has the report met Reclamation's requirements for Geospatial Data and Systems?

I. Geotechnical.

1. Does the report document that a site investigation, subsurface explorations testing and have analysis been accomplished and present geotechnical information to support the type of project, foundation design, structural components and availability of construction materials?
2. Does the report address any special construction features or procedures (dewatering, stage construction, etc.) and are they included in the estimate?
3. Does the report provide the level of design necessary to document the cost estimate?

J. Structural Design

1. Does the report clearly present the results of alternatives needed to support the selected project site, configuration, and features, including main structures and major appurtenances?
2. Does the report document the comparison of alternatives in sufficient detail to establish a realistic comparison of costs?
3. Have appropriate additional studies or tests planned for later phases of the design been identified?

K. Hazardous and Toxic Waste

1. Have hazardous and toxic wastes areas been identified and the project designed to avoid problems?

L. Construction Materials and Procedures

1. Have potential sources and suitability of construction material for concrete, earth and rock borrow, stone slope protection; and for disposal sites been identified?
2. Have preliminary construction procedures, construction sequence and duration, and a water control plan for each step of the proposed plan, been developed?
3. Have construction equipment and production rates been determined for major items, in support of the work schedule and cost estimate?

M. Operation, Maintenance, and Replacement (OM&R)

1. Has an OM&R plan been developed for the project, and does it include detailed estimates of the Federal and non-Federal costs?

N. Cost Estimate and Schedule

1. Is the baseline estimate the fully funded project cost estimate and is it developed for the recommended scope and schedule established in the report?
2. Does the estimate include all Federal and non-Federal costs for lands and damages, all construction features, planning, engineering and design and supervision and administration along with the appropriate contingencies and inflation associated with each of these activities through project completion?
3. Do the contingencies reflect the risks related to the uncertainties or unanticipated conditions identified by the data and design detail available at the time the estimate was prepared?
4. Is the final product a reliable, accurate cost estimate that defines the local sponsors obligations and supports project authorization within the established laws and regulations?

O. Value Engineering (VE)

1. For projects with estimated cost of \$2,000,000 or greater, has a Value Engineering Study been completed or is there a cost estimate and schedule for the study?
2. If a VE study is not recommended, has a formal waiver request been approved by the Regional Office?

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P. Real Estate.

1. Does the Planning Report contain a comprehensive real estate plan that describes the real estate requirements needed to support all project purposes?
2. Does the report provide a complete real estate cost estimate?
3. Does the report document the thorough investigation of facility/utility relocations?
4. Does the report provide a suitable acquisition and related real estate schedule?

Q. Cost Sharing Requirements

1. What project purposes are addressed by the recommended plan and how have costs been allocated to them?
2. If recreation or fish and wildlife enhancement are included in multiple-purpose projects, has the appropriate letter of intent from the non-Federal sponsor been obtained in accordance with Public Law 89-72?
3. What documentation is available to assure that the sponsors fully understand and are willing and capable of furnishing the local cost sharing specified?
4. How was the apportionment of cost to sponsors calculated?
5. Who are the beneficiaries of the project and are there special circumstances associated with the project that warrant consideration of increased non-Federal cost sharing?
6. If the non-Federal sponsor is relying on non-guaranteed debt (e.g. a particular revenue source or limited tax, or bonds backed by such a source) to obtain remaining funds, what information is available to demonstrate the financial capability of the non-Federal sponsor and that the projected revenues or proceeds are reasonably certain and are sufficient to cover the sponsor's stream of costs through time?
7. If the non-Federal sponsor is relying on third party contributions, is data available from the third party to insure financial capability and its legal commitment to the sponsor?

R. Project Authorization

1. Have all elements necessary for Congressional authorization been included in the report?

S. Technical and Legal Review

1. Has documentation of significant issues and possible impact and their resolution been provided?
2. Has certification of technical / legal review been provided?

Enclosure G

Letters of Intent from Kansas and Nebraska



RECEIVED
MAR 22 2004

DEPARTMENT OF AGRICULTURE
FOR AM. J. POLANSKY, SECRETARY

March 17, 2004

Mr. Steve Ronshaugen
Acting Area Manager
U.S. Bureau of Reclamation
PO Box 1607
Grand Island, NE 68802-1607

KATHLEEN SEBASTIAN	
How	
A Mike DK	3-22
Michael (by copy)	
Wang	
4.00	
Local - All the way from Kansas	
KANSAS	

RE: LOWER REPUBLICAN RIVER
AUGMENTATION FEASIBILITY STUDY

Dear Mr. Ronshaugen:

This letter is to express Kansas' support for the proposed feasibility study in the Lower Republican River basin to be conducted by the Bureau of Reclamation in cooperation with the states of Kansas and Nebraska.

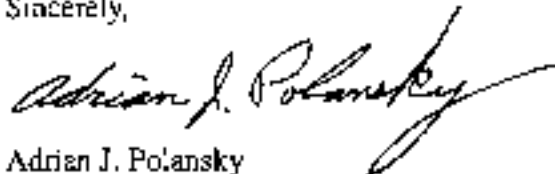
In the December 15, 2002, Settlement Stipulation in the Kansas v. Nebraska and Colorado case (Supreme Court Original No. 126), the "States agree[d] to pursue in good faith, and in collaboration with the United States, system improvements in the Basin, including measures to improve the ability to utilize the water supply below Hardy, Nebraska on the main stem." In accordance with that agreement, Kansas has participated in value engineering and appraisal studies that explored a number of alternative projects. The projects under consideration for this feasibility study are a result of those earlier studies and initial evaluations.

Kansas is interested in pursuing the feasibility study to further assess possible system improvements. We understand this pursuit involves participation by Kansas and Nebraska to the extent that each provides 25 percent cost-share. Kansas anticipates its involvement to include both in-kind services and fiscal participation. Fiscal participation hinges funding being made available by the Kansas Legislature, as well as on the participation of Nebraska and the Bureau of Reclamation.

Mr. Steve Ronshaugen
U.S. Bureau of Reclamation
March 17, 2004
Page 2

We appreciate the bureau's work in the appraisal study and look forward to continued collaboration with the bureau and the state of Nebraska.

Sincerely,



Adrian J. Polansky
Kansas Secretary of Agriculture

c: David L. Pope, Chief Engineer, Division of Water Resources
Joe Harkins, Director, Kansas Water Office

AJP/DLP/gaa/dim

STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES
Roger K. Patterson
DirectorMike Johanns
Governor
 MAR 2004
 RECEIVED
 GREAT PLAINS DIV.
 P.O. BOX 94676
 LINCOLN, NE 68509

March 9, 2004

IN REPLY REFER TO:

 Michael Kube
 Bureau of Reclamation - Great Plains Region
 Nebraska-Kansas Area Office
 PO Box 1607
 Grand Island, NE 68802

RE: Lower Republican Feasibility Study

Dear ^{Mike} Mr. Kube:

The Nebraska Department of Natural Resources would like to support the further study of the Lower Republican River Basin by participating in the feasibility study.

We understand that by participating in this study, we will be responsible for a portion of the associated costs of the study. As the State of Nebraska is currently in the middle of a prolonged period of budget cuts, we would like to maximize the portion of our contributions as in-kind services.

Our representative and contact for the study will continue to be Jeff Shafer. Please direct all correspondence and requests to him. Jeff can be reached at (402) 471-0586 or jshafer@dnr.state.ne.us.

Sincerely,

 Roger K. Patterson
 Director

js

NAME	INITIAL	ACTION	DATE
Stevs			
A. Spin	DS	-	3/11
Mike			
McLure (by copy)			
last 400			
Shaw	CS		
REMARKS:			

040215