

FEASIBILITY STUDY GUIDELINES

INTRODUCTION

A Feasibility Study (Study) is a required part of the Credit Program. It is to be a detailed description of many elements of the proposed water conservation measure. The Study will be used to determine the viability of the proposed conservation measure, to identify the water conservation credit that will be realized as a result of the implementation of the proposed measure, and to determine the level of NEPA compliance that will be required for the project. It must contain enough information, in sufficient detail, that the aforementioned items can be clearly evaluated. A Draft form of the Study which is at least 90% complete must be submitted to CUWCD for determination of the required NEPA compliance level and evaluation of its cost effectiveness. Changes may be recommended based upon CUWCD's review of the Draft and a field trip may be required at this time. The U.S. Department of Interior will review and approve all Feasibility Studies prior to project implementation. Supplemental information may be required as a result of the Department of Interior's review. See the Feasibility Study section of the Credit Program for more information on the review and evaluation criteria.

CONTENTS

The Feasibility Study must be typed and a minimum of three bound copies submitted to the Credit Program Coordinator for review. The Study, including all section and subsection headings, must be formatted the same as shown in these guidelines, using NA (not applicable) where the requested information is not applicable. Studies will be evaluated by CUWCD on a case by case basis, to determine which proposed projects will proceed to the NEPA process. Studies will be reviewed for completeness and accuracy of information, as well as to determine the initial level of NEPA compliance required. Conservation measures classified as NEPA Categorical Exclusions may be processed by CUWCD staff as received.

The Study is divided into eight sections: administrative information, project description, water conservation, cost effectiveness, financial analysis, water rights/ownership, project effects, and public or community involvement. Each section has instructions which detail the specific requirements of that section. Studies not addressing each item in each section and subsection specifically will be returned to the applicant for revision and re-submittal, and will be evaluated with the first group following a complete Study submittal.

A **Cover Page** is required for all Studies and shall include, at a minimum, the following items: project name, application number, date, and indication of Draft or Final.

I. Administrative Information

Administrative information should be as concise as possible and presented in the first few pages of the Study.

A. Project Name

List the project name or title.

B. Application Number

This is the number which was given to the application upon receipt by CUWCD. CUWCD will provide this information.

C. Administrative Contact Name

Name of the person to whom all correspondence concerning this project should be sent, as well as address, telephone and fax number.

D. Technical Contact Name

Name of the person to whom all technical correspondence concerning this project should be sent (typically the individual who has prepared Feasibility Study), as well as address, telephone and fax number.

E. Signature and Date

The Study must be signed and dated by the Director, Chairman or other responsible persons authorized by the applicant.

II. Project Description

The project description must clearly address each element of the project and contain sufficient detail to thoroughly describe, at a minimum, the following:

A. General Description

1. Overview: Provide a general overview of the project, its purpose, location and method by which water will be conserved. Identify specifically where the water for the project is currently and/or historically used and in what amounts.

Education Proposals should describe the goal of the proposed program, the audience (users, persons, organizations, school districts, conference attendees, etc.) targeted by the program and the total number of persons to be reached, participating in, or educated by, the program.

2. Laws & Regulations: Identify and describe the laws and regulations that presently affect the project (e.g. State law on use of treated effluent water, State water rights laws governing the amount of water that may be applied, and zoning regulations).
3. Permits, Licenses, Approvals: Identify and describe any permits, licenses, or approvals which were or must be obtained in order to construct the project (e.g. State Engineer approval, Corps Of Engineers Section 404 permit, easements, right-of-ways). Identify what stage you are at in obtaining each required permit, license, and approval.

B. Detailed Description

1. Project Facilities: Identify and describe each element of the project. Include the number of each facility, its length, size, and/or capacity. This information may be easily presented in a table. For example:

Description	Size	Quantity	Surface Disturbance (II. B. 3.)	Comments
Pipeline	18-inch	15 miles	all within existing paved Right-of-Way	25 cfs
Reservoir	18 surface acres	45 acre foot capacity	18 acres of grass and scattered shrubs	Open, plastic lined

2. Land Ownership: Identify the land ownership by project facility. For example; 2 miles of pipeline Forest Service, 5 miles private; 50 acre reservoir - 25 acres private, 25 acres Division of Wildlife Resources.
3. Surface Disturbance: For each facility included in the project, identify the acres that were or will be disturbed during construction, the acres covered by the facility (include any acres that may be contained within a fence which encloses the facility), and the number of acres associated with each facility that will be revegetated upon completion of construction. Identify the acres by vegetation or crop type as appropriate.

C. Location

1. Provide a description of the location of the project (township, range, section). Identify the city, town, or nearest community, and county.
2. Provide a written description or map of how to reach the project.
3. Provide maps of an appropriate scale (minimum scale of a USGS 15 minute quad map) to show:
 - a. Location and/or placement of each facility of the project.
 - b. Relationship of the various project facilities to each other.
 - c. Relationship of proposed project facilities to major geographical points.
 - d. Areas disturbed during construction by vegetation type or crop type.

D. Construction (Not Applicable to Constructed Projects)

1. Time Frame: Describe the time frame in which the construction would occur. Provide a schedule showing when each permit, license and approval will be obtained, when the facilities will be constructed, and the expected time period required for construction for each part of the proposed project.

E. Operation and Maintenance

Describe how the project will be operated and maintained. Include a description of how the operation of the project differs from previous procedures (e.g. stream flows before and after project construction). Identify and describe the time period over which the project will be operated, how pipelines will operate (including monitoring and operation of safety measures), how reservoirs will be operated, etc. If the project involves an increase or change in the number of acres used or crops raised, provide information on what the area was used for before the project and what crops will be raised after the project. Identify the number of acres and show locations on a map.

WATER CONSERVATION CREDIT PROGRAM

F. Useful Life

Estimate the useful life of the project; this must be a minimum of 20 years for Credit Program participation. Applicants will be responsible for reporting on, operating and maintaining the project for this stated life. See Credit Program Implementation and Assessment Section for more information.

Education proposals shall provide an implementation schedule and plan. In addition, the duration of the proposed program shall be identified.

G. Alternatives

Identify and describe any alternatives to the proposed project that you considered in deciding on what the proposed project would be.

H. Environmental Enhancement

Identify and describe any environmental enhancement features or actions that could be or were achieved through implementation of the project. Applicants are encouraged to investigate environmental enhancement options, and contact one of the following: 1.) a representative of the Utah Outdoor Interest Coordinating Council (UOICC) as designated by its Executive Director, 2.) a representative of the Department of Natural Resources, Division of Wildlife Resources, 3.) a representative of the U.S. Fish and Wildlife Service, 4.) someone from the Utah Reclamation Mitigation and Conservation Commission, or 5.) someone knowledgeable about environmental considerations, such as a consultant. Summarize the results of the related input. Provide copies of any related letters or documentation in an appendix to this Study.

I. Similar Local Projects

Determine and list similar local projects and past studies relating to the proposed conservation measure. Include a brief assessment of each similar project.

III. Water Conservation

A. Projected Water Conservation

Using a technically sound method, provide an estimate of the water conservation projected to occur as a result of implementation of the measure. Include the complete calculations as well as a description of the methodology used to determine the projected water conservation.

Applicants of on-farm irrigation projects may estimate projected water conservation according to the following irrigation efficiencies provided by the Natural Resources Conservation Service (NRCS). If more accurate information for a project area is available, that data should be documented and used.

<u>System Type</u>	<u>Efficiency</u>
Flood	30-40% (use 35%), laser leveled 50-55%
Gated Pipe	40-50% (use 45%)
Gated Pipe with surge valves	about 70% with land leveled & proper length runs
Wheel Lines, Hand Lines	65%
Pivots - Low Pressure (40 psi)	70% on level ground
Pivots - High Pressure (120 psi)	65%, 60% in windy areas

B. Method of Water Conservation Assessment

Describe the method that will be used to assess or measure actual water conservation. If the project is funded, the applicant will be required to submit a Project Annual Report to CUWCD documenting the water savings. The report must use this method of assessment to support the amount of annual water conserved. See Credit Program Implementation and Assessment Section for more information. Meters will be required at all points of delivery for projects funded through the Credit Program.

Sponsors of education proposals shall describe the method that will be used to assess the effectiveness or quality of the proposed program.

C. Schedule of Water Conservation Realization

Provide a schedule showing quantity of water conservation realized through the life of the project; include provisions for phased implementation of the measure and/or loss of efficiency where appropriate. This information may be easily presented in a table or a graph, for example:

WATER CONSERVATION CREDIT PROGRAM

Year(s)	Conservation (AF/year)
2004 to 2006	250
2007 to 2010	350
2010 to 2024	450

D. Proposed Use of Conserved Water

Describe the proposed use(s) of the water conserved as a result of the implementation of this project. Uses of conserved water must be consistent with state law. Describe issues which must be resolved to receive approval of the Utah Division of Water Rights for the proposed use of the conserved water.

IV. Cost Effectiveness

To determine cost effectiveness, it is necessary to identify and analyze the benefits and costs of each proposed project in a consistent manner. The Act requires that the benefits and costs to CUWCD, the applicant, other directly impacted water users, and society be considered. The benefits and costs required in this analysis are those for which a dollar value can be estimated. Education proposals need only identify the total estimated program cost and nothing more.

In this section provide estimates of benefits and costs of the proposed conservation measure. Provide all benefits and costs on an annual basis, using current dollar estimates (do not adjust dollar amounts for inflation). Provide annual costs and benefits for the expected useful life of the project.

A. Data Requirements

1. Provide estimates of the following benefits and costs of the project in current dollar terms for each year of the life of the project. If a benefit or cost appears to be applicable under more than one category, only estimate that benefit or cost once. Do not duplicate benefits and costs.
 - a. Planning costs - Include the cost of preliminary studies, the Feasibility Study, layouts, and cost estimates.
 - b. Design costs - Include the cost to prepare design drawings.
 - c. Construction engineering and management costs - Include the cost of preparing specifications and contract documents, soils investigations, land surveys, and

- construction inspection.
- d. Construction costs - Include the cost of materials, equipment, labor, and land, right-of-way, or easement acquisition.
 - e. Environmental Costs - Include the cost of environmental enhancement features and mitigation.
 - f. Legal costs - Include the cost of legal services, water rights investigations, legal fees, and settlements.
 - g. Financing costs - Include the cost of interest and services on bonds issued or loans taken to implement the project. These costs are not eligible for funding through the Credit Program, but will be used to determine the cost effectiveness of the project.
 - h. Public education costs - Include the cost of additional labor, services, equipment, and materials required for public education and marketing of the project.
 - i. NEPA costs - This cost will be provided by CUWCD after review of the 90% submittal. The cost will include all costs associated with NEPA compliance.
 - j. Net change in on-farm costs or operation, maintenance, and replacement costs - Include the cost and cost savings as a result of increased or decreased labor, equipment, power, drainage and material requirements for the implementation and maintenance of the project. Also include any rebate costs, if applicable.
 - k. Net change in wastewater treatment costs - Include the cost and cost savings as a result of increased or decreased labor, equipment, power, and material requirements for any affected wastewater treatment facilities. If affected facilities are not owned by the applicant, the owner must concur with estimates provided.
 - l. Net hydroelectric power generation - Include the net benefit or cost of a change in power generation, valued at avoided cost, of any affected hydroelectric facilities. If affected facilities are not owned by the applicant, the owner must concur with estimates provided.
2. Per section 207(b)(2)(B)(i) of the Act, calculate the value of water conserved. The per acre-foot value is to be determined, *in the case of municipal water, on the basis of the project municipal and industrial repayment obligation of CUWCD, but in no case less than \$200 per acre-foot, and, in the case of irrigation water, on the basis of operation, maintenance, and replacement costs plus the "full cost" rate for irrigation computed in accordance with section 302(3) of the Reclamation Reform Act of 1982 (96 Stat. 1263; 43 U.S.C. 390bb), but in no case less than \$50 per acre-foot.* Provide documentation for values used that are different from those described above.
 3. Estimate the expected annual volume of water conservation that will be made available to CUWCD for instream flows as specified in section 207(b)(4) of the Act

WATER CONSERVATION CREDIT PROGRAM

- B. Method of Analysis (This section is provided for the applicant's information only; no data is required of the applicant for this section.)

The economic analysis performed by CUWCD is intended to provide CUWCD with an objective evaluation of the cost effectiveness of each proposed project.

The following assumptions will be used in the economic analysis :

1. Only benefits and costs that can be expressed in terms of dollars (or, in some instances, volume of water conserved) are relevant in analysis calculations.
2. Benefits and costs that are included in the analysis will be net of the expected future condition without development of the proposed project.
3. The prices used to estimate project costs and benefits are market prices, except where explicitly noted (e.g., the determination of the value of saved water).
4. The period over which project benefits and costs are evaluated is the expected useful life of the principal project feature. CUWCD will make the final determination of project life if any discrepancy arises.
5. The discount rate used to adjust future benefits and costs to a present value will be determined by CUWCD and will be an approximation of the real rate of return (adjusted for inflation and risk). The discount rate to be used is 3.0% unless otherwise noted.
6. CUWCD will evaluate the effectiveness of this analysis on an annual basis and may adjust any section as necessary. Requirements and analysis will not differ between proposed projects in any prioritization process.

CUWCD will use the following method to review the cost effectiveness of proposed projects.

1. Benefit/Cost Ratio
C Threshold of $\Rightarrow 1.0$.

V. Financial Analysis

A. Federal Participation Limit and Funding Eligibility

With the cost effectiveness information supplied, CUWCD will determine the federal participation limit. Federal funds cannot be: 1) more than 65% of the total project implementation cost, or 2) greater than the federal participation limit.

Federal funds are limited, and total funding may not be available. The prioritization committee has the authority to vary (increase or decrease) the amount of funding recommended. Respond to the question: Will the project proceed without Credit Program funding?

B. Sources of Funding

Provide a listing of all sources of funding including in-kind contributions used or to be used in implementing the conservation measure. Show the percent of the total costs to be received from each funding source, as well as a statement describing the status of the funds from each source. Provide documentation relating to the ability to finance or fund the local cost share portion of the project. If a portion of the funding will be supplied by your agency, proof of your ability to pay must also be included.

Provide a schedule of when funding from each source identified above, including Credit Program funds, will be obtained. Local funding must be proportionate and concurrent with Credit Program funding.

C. Other Resources

Provide proof of ability to operate and maintain the conservation measure for the projected life of the measure.

D. Financial Impacts

Provide an estimate of the financial impacts (both positive and negative) that would occur as a result of the implementation of the project. Include impacts on your agency as well as any other organization that may be financially impacted. Do not include estimate of financial impacts upon CUWCD. Applicants must work directly with any affected petitioners to determine financial impacts on those petitioners. At the applicant's request, CUWCD will identify the potentially affected petitioners.

VI. Water Rights/Ownership

A. Water Ownership Information

Provide a complete and clear listing of all water rights associated with the water to be used or conserved by the proposed water conservation measure. Provide a copy of the water right filing showing the present owner of record as filed with the Utah Division of Water Rights. An analysis of the water rights may be requested by CUWCD in some cases.

VII. Project Effects

A. Affected Agencies

List the local agencies, including municipalities, water agencies, and wastewater agencies, that will be affected by implementation of the measure. Include the effects (excluding financial impacts) that will be felt by each agency, and the extent or degree of the effect. Include both positive and negative effects. Financial impacts are detailed in Section V.

Identify the level and feasibility of interagency coordination that will be required for implementation of the measure.

B. Number of Affected Customers

List the approximate number of customers that will be affected as a result of the implementation of the project. Include what effects and the extent or degree of the effects that will be felt.

C. Environmental Effects

This information is requested to anticipate the level of NEPA compliance which may be required. For the proposed conservation measure, identify any possible environmental or social problems/issues that implementing the measure may cause. Respond to each item in the list provided below with Yes, No or Don't Know. For each "Yes", provide a brief description of what the change or effect would be. Provide an estimate of the amount of change; e.g. 1,000 acres would be changed from flood irrigation to sprinkler irrigation or 5 historic sites would be disturbed. If unable to provide a specific amount of change, provide a range of possible change. If unsure that a change will occur, indicate with "Don't Know". If other resources will be impacted that are not listed, identify them. Use the best information readily available. A detailed research effort is

not required at this point.

Resources Impacted and/or Issues Expected to Develop

1. Socio-economic effects

Will implementation of the proposed measure result in a change in:

- a. The number of people in the area;
- b. The type of individuals, for example:
 - (1) low-income persons,
 - (2) handicapped persons,
 - (3) elderly persons, or
 - (4) minorities including American Indians;
- c. Number and kinds of jobs;
- d. Income of individuals;
- e. Types and numbers of businesses;
- f. Type of community; or
- g. Change in the culture or custom in a community?

2. Agriculture

Will implementation of the proposed measure result in a change in:

- a. What the land is presently being used for;
- b. Productivity;
- c. Drainage patterns;
- d. Ability to travel the land; or
- e. Accessibility of the land (do parcels become landlocked)?

3. Cultural Resources

Will implementation of the proposed measure affect:

- a. Archaeological or historical sites; or
- b. Landmarks and places listed or eligible for listing on the National Register of Historic Places

4. Air Quality

Will implementation of the proposed conservation measure result in a change in the air quality?

WATER CONSERVATION CREDIT PROGRAM

5. Noise

Will implementation of the proposed conservation measure result in a change in the noise level?

6. Energy Consumption

Will the proposed conservation measure result in less or more energy being used (gas or electricity)?

7. Water Quality and Quantity

Will implementation of the proposed measure result in a change in:

- a. Water discharges;
- b. Water use (culinary, agricultural, or industrial);
- c. Groundwater recharge;
- d. Stream and lake water quality;
- e. Ground water quality?

8. Threatened or Endangered Species

Will implementation of the proposed measure affect:

- a. Listed threatened or endangered plant or animal species; or
- b. Species proposed for listing; or
- c. Habitat of any listed or proposed for listing species

9. Wildlife and Wildlife Habitat

Will implementation of the proposed measure affect any wildlife and their habitats, including game and non-game, resident and migratory species?

10. Fisheries and Aquatic Habitat

Will implementation of the proposed measure affect fisheries or aquatic habitat?

11. Public Health or Safety

Will implementation of the proposed measure affect public health or safety?

12. Vegetation

Will implementation of the proposed measure remove any or change the type of vegetation present in the area?

13. Hazardous Waste

- a. Will implementation of the proposed measure generate any hazardous waste?
- b. Will implementation of the proposed measure disturb any known or possibly contaminated:
 - (1) Soils;
 - (2) Groundwater; or
 - (3) Surface water?

14. Riparian and Wetland Ecosystems

Will implementation of the proposed measure affect any:

- a. Riparian zones;
- b. Wetlands; or
- c. Floodplains?

15. Special Use Lands

Will implementation of the proposed measure affect any:

- a. Park lands;
- b. Recreation lands; or
- c. Refuge lands?

D. Determination of Public Interest

Describe how the proposed water conservation measure is in the public interest. The public is defined as "*all Utahns served by the project (CUP)*." The following issues should be addressed:

- 1) How does the proposed water conservation measure serve the public's economic and financial interests?
- 2) How does the proposed water conservation measure serve the public's environmental interests?
- 3) How does the proposed water conservation measure balance the preceding considerations?

VIII. Public or Community Involvement

A. Activities to Enlist Public Involvement or Public Approval

Include a schedule of all planned public involvement activities associated with the proposed project.

B. Initial Public Reaction

List public reaction to the proposed conservation measure. This includes positive and negative newspaper editorials, letters or calls to the applicant, opposition or support expressed at public meetings.