

## SECTION 1 – ABSTRACT

The proposed area includes portions of 23 counties and 7 Natural Resources Districts (NRD), associated with the Republican River, North Platte River and Platte River. Prior to settlement, the vegetative community consisted primarily of lowland tallgrass prairie along the rivers and streams and mixed loess prairie and shortgrass prairie in the remaining area. The soil under these prairie grasses was found to be fertile and quite productive given adequate moisture. Consequently, landowners capitalized on the agricultural potential by converting over 90% of the land in the proposed project priority area to agricultural production. The result has been the fragmentation and substantial reduction of native vegetative communities and wetland complexes. Many wildlife species have responded negatively to these habitat changes and currently 13 different species in the project priority area receive some form of federal or state designation of concern.

The project priority area has been suffering from extreme drought conditions the past 5 years. The drought has stressed the availability of water supplies and accentuated the fact that a number of interests important to the state are competing for the same finite resources. This situation has been exacerbated further by the fact that farmers have been forced to apply additional water to existing irrigated cropland to offset precipitation shortfall. The Farm Service Agency (FSA) estimates our priority area to contain 1,576,219 acres of cropland of which 72% is irrigated. Corn is the major crop of this area (766,070 acres) and soybeans (178,712 acres), wheat (181,809 acres) and alfalfa (172,273 acres) would be considered secondary crops.

The current drought has already cost this region millions of dollars in agricultural and recreational revenues. Without concentrated efforts, the environment, communities and industries of the proposed project area could be devastated over the next few years. Nebraska proposes to initiate a Conservation Reserve Enhancement Program (CREP) project to reduce irrigation demand on available surface and groundwater supplies. Secondary benefits are also anticipated, such as providing more water for aquatic communities and increased terrestrial habitat by converting cropland to approved conservation practices (CP2, CP4D, CP21, CP22, CP23 and CP25). These benefits would be accomplished by retiring 100,000 acres of cropland in the proposed project priority area for a period of 10-15 years. The program acres would be divided between the Platte and Republican River basins. Landowners participating in this CREP would receive the average irrigated rental rates for their county for any qualified acreage they enrolled. The 10-year cost of the project to place 100,000 acres under contract is estimated at \$158,215,000 to be divided 80% by Federal and 20% by State sources. An additional \$10,000,000 would be needed for seeding program acres that would be split 50% by federal and 50% by State and local sources.

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divided evenly*

## SECTION 2 – GEOGRAPHIC AND EXISTING CONDITIONS

The proposed conservation priority area for Nebraska under this CREP includes 23 counties and 7 NRD's in south-central and western portions of the state (Figure 1). The area is called the Nebraska Platte-Republican Resources Area due to the inclusion of significant portions of the Platte River and Republican River basins. The designated project area has been experiencing persistent above normal temperatures and below normal precipitation since 1999. This on-going climate pattern has resulted in much of the proposed CREP area being designated in an extreme or exceptional drought by the U. S. Drought Monitor the last few years. The duration and severity of the current climate rivals the conditions reported during the "Dust Bowl" of the 1930's.

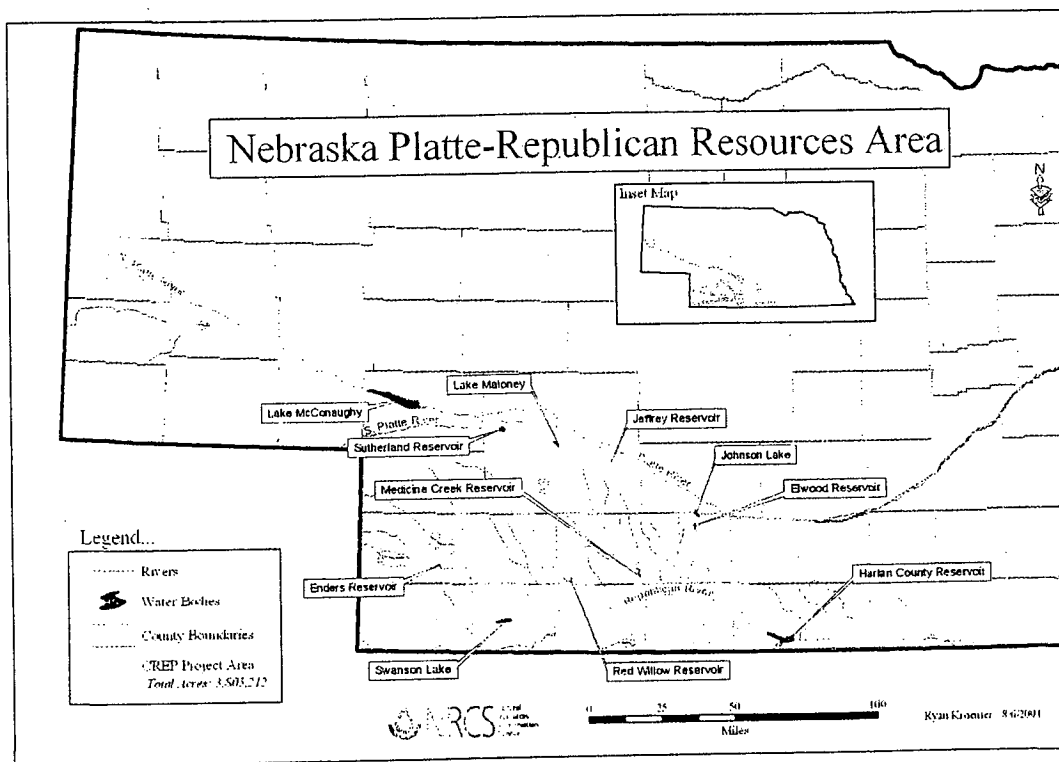


Figure 1 – Project priority area for the proposed Nebraska Platte-Republican Resources Area CREP

The Platte River receives water from snow and rain run-off resulting in periodic high flows associated with precipitous weather. The remaining flow seeps as base flow from hydrologically connected groundwater. The Republican River historically receives extreme high flows from heavy rain events and remaining flows come from hydrologically connected groundwater. Significant portions of the Republican River, Platte River and North Platte River have become dry or reduced in water quantity the past few years, exacerbated by the current drought. Lack of water in these basins has resulted

The Republican River has a history of flooding, which hampered settlement and agricultural development of the area. Perhaps most notable was the flood of 1935, reported as a "wall" of water 8 feet high. That flood claimed over 100 lives and prompted the development of a reservoir storage system for the primary benefits of flood control and irrigation. Five separate reservoirs were constructed in the Republican River Basin of Nebraska starting in the early 1940s. Swanson Reservoir and Harlan County Reservoir are main-stem reservoirs and Enders Reservoir, Red Willow Reservoir, Medicine Creek Reservoir were built on major tributaries.

The climate of the area is typical of the Great Plains of North America. Marked seasonal variations in precipitation characterize the region. Mean annual precipitation varies from 15-26 inches on the western to eastern edge of the priority area, respectively. The majority of precipitation (75-80%) falls during the growing season, April through September. Summer precipitation usually arrives in the form of thunderstorms. Mean evaporation rates frequently exceed mean precipitation rates.

Several different soil associations are found in the Republican and Platte River basins. Soils in the eastern priority area are typically very deep, gently sloping to steep, well-drained, silty soils formed in loess and alluvium. The western edge of the priority area has shallower, nearly level to moderately steep, excessively drained; sandy soils formed in eolian sand. Irrigation throughout the area, (Figure 3 & 4) has maximized the fertility and productivity of these soils.

Native or presettlement vegetation in this CREP area was dominated by a variety of grass communities (Figure 5). The Eastern edge of this priority area was composed of mainly mixed grass loess prairie, which shifted to short-grass prairie in Western Nebraska. Lowland tall-grass prairie dominated the rivers and streams throughout much of the CREP area, as well as some riparian woodland. Within the region, all three of these grassland communities have been significantly reduced to the point where only small fragmented remnants remain. The Nebraska Game and Parks Commission (NGPC) estimates that more than 80% of loess mixed-grass and lowland tall-grass communities have been lost within the state. Quantification for loss of short-grass prairie has been hampered by a lack of updated information. However, conservative estimates predict that over half of the native short-grass prairie habitat has been lost to conversion of land to agricultural and municipal development.

Grasslands were not the only natural and unique communities to be impacted by conversion to other uses. Part or all of five wetland complexes lie within the boundaries of the proposed priority area (Figure 6). These wetland complexes are diverse in nature and represent playas, saline/alkaline, and riverine types. Three of these complexes, the Rainwater Basin, Central Platte River, and Lower North Platte River, are of national and international significance because of the habitat they provide for migratory and threatened and endangered species. Appendix A provides detailed information on the profile, loss and threats to functions and values of these three important wetland complexes. The Rainwater Basin and Central Platte River have both lost >70% of

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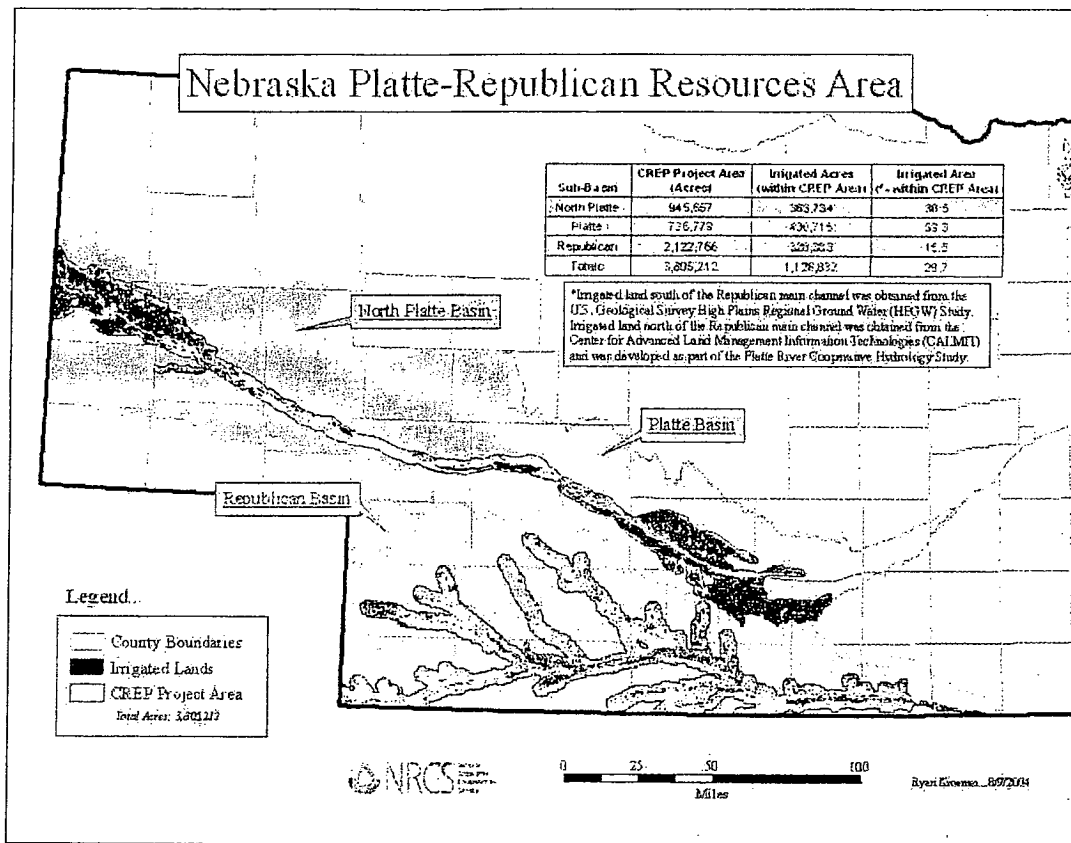


Figure 3 – Depiction of irrigated acres within the project priority area for the proposed Nebraska Platte-Republican Resources Area CREP

wetland acres since settlement. Loss of wetland acres in the remaining complexes has been difficult to quantify, but has accelerated with drought conditions. South-Central and Western Nebraska has also lost 60% of riparian communities to agricultural development. An additional habitat in jeopardy is a natural bur oak community along the lower Republican River.

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The project area contains over 6,500 farms, which have 1,576,219 acres of cropland. The average size of these units is 242 acres. We estimate the acreage has been devoted to primary crops as follows: Corn – 766,070 acres; Soybeans – 178,712; Wheat – 181,809; Alfalfa – 172,273. Land use has changed and intensified greatly in the past 40 years, as 72% of the cropland in the project area is irrigated (1,128,832 acres). Corn, soybeans, wheat, and alfalfa crops are raised on approximately 90% of the irrigated acres. The majority of land is privately owned and devoted to agricultural production. Less than 10% of the project area is devoted to urban areas, water, and public lands. Public lands comprise 3% of the area (Figure 7). Counties associated with the proposed CREP project priority area have been active in other federal land reserve programs (Table 1) and taken many other water savings actions, such as moratoriums on the granting of new surfacewater rights, construction of new wells and development of new irrigated acres.

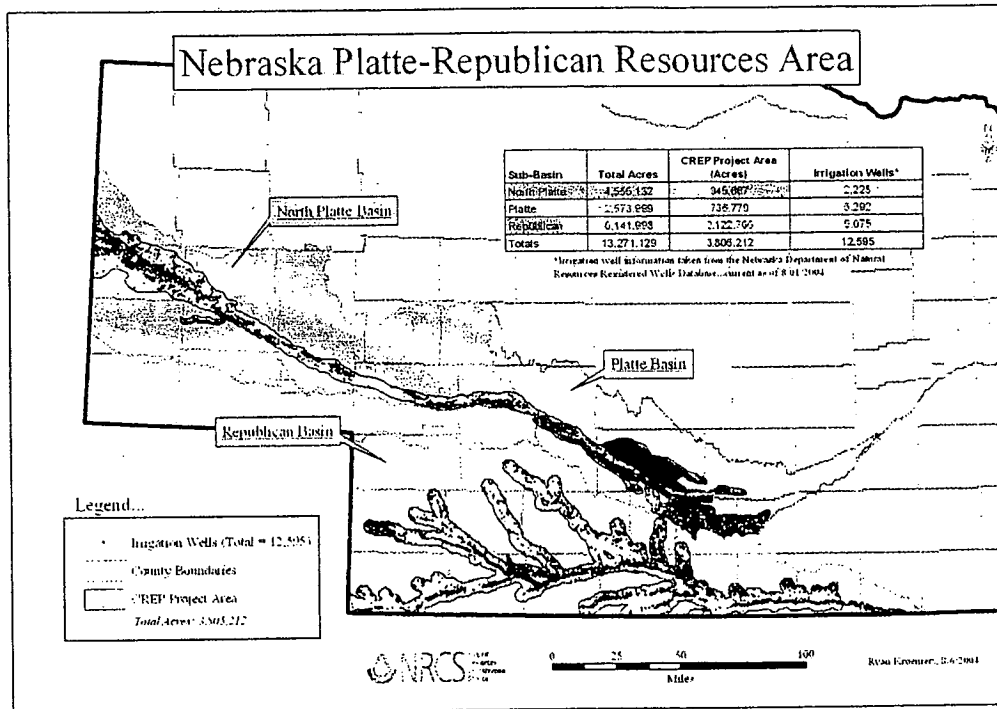


Figure 4 – Representation of irrigation well development within the project priority area for the proposed Nebraska Platte-Republican Resources Area CREP

The rich and diverse wildlife populations of the area have responded to various habitat changes brought about by settlement and agricultural development. Prior to settlement fish were limited to the river systems and their tributaries. Construction of ponds and reservoirs allowed an expansion in both the diversity and abundance of species. However, the continued development of land for agricultural and municipal purposes reduced and degraded plant communities, wetlands and aquatic systems, resulting in lost and fragmented wildlife habitats and declining populations of many species. Wildlife resources of the area include:

- A. Threatened and Endangered Species (Federally listed (F) and State listed (S)).
  1. Whooping Crane (F)
  2. Piping Plover (F)
  3. Interior Least Tern (F)
  4. Bald Eagle (F)
  5. Peregrine Falcon (F)
  6. Sturgeon Chub (S)
  7. River Otter (S)
  8. Finescale Dace (S)
  9. N. Redbelly Dace (S)
  10. Amer. Burying Beetle (S)
  11. Western Prairie Fringed Orchid (F)
  12. Small White Lady's Slipper (S)
  13. Lesser Prairie Chicken (F-historic)
- B. Bird Species
  1. Migratory Species (Federal Management Authority)
    - includes ducks, geese, swans, sandhill cranes, mourning doves, and shorebirds.
  2. Resident Game Birds
    - includes greater prairie chicken, sharptail grouse, northern bobwhite quail, and ring-necked pheasant.

#### Rock Diversion

- within 2 miles of the North Platte River and Platte River from the Wyoming border down to the Kearney Canal diversion
- within 1-mile of the Pumpkin Creek tributary through the Morrill County line
- receiving surface irrigation water from these defined rivers.

Several criteria must be met for land parcels to qualify for this program including:

- land must have been irrigated 4 of the 6 years (1996-2001)
- land must have been cropped 4 of the 6 years (1996-2001)
- over half of each land parcel enrolled must fall within the project boundaries
- to qualify as surface irrigated land, the water delivered to the land must exceed half the amount needed to augment growth of the crop on that land for 4 of the 6 years (1996-2001)
- surface irrigated acres that are supplemented by groundwater pumps do qualify
- all retired land must currently be legally and capably irrigated

The following conservation practices will be used in the Platte-Republican CREP:

- |                                |                                   |
|--------------------------------|-----------------------------------|
| CP2 - Native Grass             | CP4D - Wildlife Habitat           |
| CP21 - Filter Strips           | CP22 - Riparian Buffer            |
| CP23/23A - Wetland Restoration | CP25 - Rare and Declining Habitat |

In order to maximize benefits throughout the entire project area available acreage will be split between the Republican and Platte River basins (50,000 acres each). Enrolled land in the Republican River Basin will be ranked for potential water savings (Appendix C). Acres in the Platte River Basin will be available with general sign-up, but a ranking system will be developed as more detailed hydrological information becomes available.

Goals for specific conservation practices are; 85,000 acres of native grass-CP2, wildlife habitat-CP4D, and rare and declining habitat-CP25; 10,000 acres of filter strips-CP21 and riparian buffers-CP22; 5,000 acres of wetland restoration-CP23, CP23A.

Native grass, wildlife habitat, and rare and declining conservation practices are emphasized in this CREP to encourage enrollment of large pieces of land. A benefit to this approach is the efficiency of retiring entire irrigated fields. The efficiency of surface water delivery to fields is often less than 50%, and at times partial delivery suffers the entire loss, therefore retiring the entire field would maximize program benefits. Additionally, larger habitat sanctuaries that are more apt to act as a population source can be created with the retirement of entire fields. Using at least 40 point seeding mixes of CP2, CP4D, and CP25 on retired fields will maximize wildlife benefits.

The 10,000 acres designated towards filter strips and riparian buffers will be effective at removing nutrients and water-borne pesticides. Advantages to these vegetative practices are that specific acres are removed from irrigation, as well as herbicide and nutrient applications. Also, the strips of land actively filter out herbicide and nutrient applications made on cropland above them. This common sense approach will maximize the benefits for this CREP.

The 5,000 acres of wetland restoration will help address the need for functional wetlands that are lacking throughout the project area. Wetlands provide benefits in terms of water quality (sediment and nutrient filtering and cycling), floodwater storage, and wildlife habitat. These wetlands are essential components of wildlife habitat, and serve as a primary staging source for millions of migrating birds. These wetlands also provide value for wildlife associated recreation (hunting and wildlife viewing) which bring substantial funds into the local and state economies.

## SECTION 6 – COST ANALYSIS

A) Total Estimated Costs = \$158,215,000 over 10 years, 80% federal and 20% state (Appendix D). An additional \$10,000,000 for program cost share is needed with initial sign-up and would be split 50% federal and 50% state and local.

B) A table listing practices and applicable incentives:

Use	Practice	Incentive
Natural Resource Area	CP2, CP4D, CP25	EI of $\geq 8$ not required for enrollment Irrigated rental rates on enrolled cropland Up to 25% of cost-share
Filter Strips	CP21	Irrigated rental rates on enrolled cropland
Riparian Buffer Strips	CP22	Irrigated rental rates on enrolled cropland
Wetland Restoration	CP23, CP23A	Up to 25% of cost-share ( $\leq$ \$100/Acre) 6:1 maximum ratio of associated wetlands acres Eligible on farmed wetlands and prior converted acres

Federal land use rental payments would be based on irrigated rental rates. The focus of this CREP is to retire irrigated lands from crop production for 10-15 years, during which those lands will be planted to high value cover for water, soil, and wildlife conservation. The anticipated cost to crop production based from 3-year harvest average is 50,000 Acres of corn (150 bushels/Acre); 17,000 Acres of soybeans (49 bushels/Acre); 17,000 Acres of wheat (42 bushels/Acre); and 16,000 Acres of alfalfa (5 tons/Acre). The opportunity costs foregone will be negligible, since this land is currently farmed and in regions with ample land available for commercial and agricultural development.

## SECTION 7 – MONITORING PROGRAM

A) The Nebraska Department of Natural Resources (NDNR) and participating NRD's and irrigation districts will monitor water savings. These entities will undertake additional efforts to improve water use efficiency. The total savings in consumptive use will be delineated by river basin and include a separate assessment of surface and groundwater conserved.

- An irrigation Water Management Plan should be developed and described in detail. The plan should clearly indicate verification (monitoring and detailed annual reports) to FSA that water savings due to irrigated land enrollment are achieved.
- A formal water rights leasing document between the State and the participant should be developed and forwarded to FSA. The application process (including flow chart) indicating the application process should be included as part of the Water Management Plan.
- The proposal should include proposed or current irrigation water management techniques, including State moratoriums, water rights restrictions and any other legal activities (proposed or current) which may address water savings issues.
- Please provide a model/matrix of energy conservation goals/objectives for energy saved due to ground water pumping reductions
- Please include and provide justification for expected irrigation requirements to establish vegetative grass and/or trees on CRP practices.
- What is "Quick Response Acres"? What is the relationship to this project?
- Please detail and provide justification for including center-pivot corners, high-valued adjacent dryland buffers, small incidental dryland field sections in irrigated fields (high spots, etc.) How will this work with current CRP practice eligibility requirements and CRP practice standards?
- Do you plan to include a marginal pastureland (MPL) provision? Irrigated MPL rates?
- Page 23 – How will county committees determine the requirement for irrigated rates – "must exceed half the amount needed to augment growth of the crop on that land 4 of the 6 years 1996-2001? Please specify?
- Please indicate incentives required to entice participation. Please list by practice – SIP's, PIP's, 25 percent incentive for wetland restoration.
- What is the cost per acre/foot of water reduction. How does this compare to alternative methods to achieve water savings such as calibration of nozzles – re-leveling, etc.? Will EQIP achieve water savings at a lower rate?
- Please explain the impacts of land use on hydrology. What additional runoff would be expected from conversion of cropland to CRP?
- Quantify the impacts to nitrogen and phosphorus loadings?
- Do you propose paying a prorated irrigated rate for greater water savings?
- What variability is there in the region in terms of crops, water needs, etc. Please detail.
- What is the current water efficiency for surface irrigation and spray irrigation?
- Please provide a matrix detailing expected costs of the program and a detailed narrative justifying costs. What are we buying? What are we receiving? This should include, at a minimum, expected acres enrolled by practice and State and Federal contributions, etc.
- Please provide public support data for the program. Letters of support from environmental, wildlife, agencies, etc would be helpful.



**State of Nebraska's Platte-Republican Resources Area CREP  
Responses to USDA Letter Dated October 19, 2004**

For purposes of this document, the following are definitions of generally used acronyms:

FSA = Nebraska Farm Service Agency; NRCS = Nebraska Natural Resources Conservation Service; DNR = Nebraska Department of Natural Resources; DEQ = Nebraska Department of Environmental Quality; NDA = Nebraska Department of Agriculture; Game and Parks = Nebraska Game and Parks Commission; NRDs = any or all of the seven affected Natural Resources Districts in the project area; and CNPPID = Central Nebraska Public Power and Irrigation District.

**An irrigation Water Management Plan should be developed and described in detail. The plan should clearly indicate verification (monitoring and detailed annual reports) to FSA that water savings due to irrigated land enrollment are achieved.**

Below are the steps we've outlined as our irrigation water management plan:

- I. The State will provide a CREP Coordinator to manage and monitor the program on a continuing basis. DNR has agreed to assume that responsibility.
- II. For all lands in the CREP program, the following information shall be provided:
  - A. A map showing the legal description, number of acres and specific boundaries of the land enrolled in the CREP program.
  - B. A description of past practices including:
    1. The crops grown in the last five years;
    2. The irrigation application system used to irrigate the crops;
    3. The source of irrigation water, groundwater, surface water, or both, individual pump of irrigation district;
    4. An estimate of the total amount of water pumped and applied to the land.
  - C. A description of the proposed land cover or treatment during the period the land is in the CREP program.
- III. Each person enrolling land in the CREP program and the contractors of storage water from Lake McConaughy must sign the appropriate agreements as described below.
- IV. Each year, using the above information, other technical information and the annual weather conditions for that year, the CREP coordinator will calculate the difference in the amount of water that would have been consumed if the land was not in the CREP program as compared to the amount of water that was consumed by the land enrolled in the CREP program. This information will be compiled to estimate the water savings each year resulting from the program. This report will be provided to the FSA office by February 1 of each year.
- V. The DNR will be responsible for monitoring lands in the CREP program that were formerly irrigated with surface water or a combination of surface water and groundwater.

The local NRD will monitor the land irrigated with groundwater only. The lands in the CREP program will be checked at least once a year during the middle to the later part of the cropping season to determine compliance with the CREP contract. If any violations are found, this information will be reported to the FSA. The DNR will also be responsible for monitoring any water savings resulting from CREP in the targeted reservoirs.

**A formal water rights leasing document between the State and the participant should be developed and forwarded to FSA. The application process (including flow chart) indicating the application process should be included as part of the Water Management Plan.**

Options for Consideration: The objective can be accomplished several ways under Nebraska law.

Option 1: Include on the FSA application form the commitments that the participant must make to ensure there will be a reduction in consumptive use. Those commitments would include the following:

1. No water from any other source will be used to apply water to the lands described during the period covered by the application/agreement.
2. The surface water right or groundwater allocations previously used to irrigate the lands described will not be transferred elsewhere for irrigation or any other purposes.
3. If there is a violation of item 1 or 2 above during the period covered by this application/agreement, the applicant/participant agrees to forfeit all rights to any remaining CREP payments from FSA and/or the (State or NRD) and also to reimburse the FSA (and the State or NRD) as follows: (insert repayment provisions).
4. If either the land described or the control over the source of water used to irrigate such land is sold, leased or otherwise transferred during the period covered by this application/agreement, the applicant/participant shall continue to be responsible for ensuring compliance with items 1 and 2 above and for the consequences of any violation as described in item 3 above unless the responsibility, therefore, is assumed by the buyer, lessee, or other applicable party through the completion and filing with the FSA office of an FSA-approved form documenting such party's acceptance of the assignment of those responsibilities.

Option 2: Develop a separate agreement form that would supplement the FSA application/agreement form. The form developed under this option would need to commit the applicant to the same obligations as those proposed for Option 1, except that, as a separate form, additional information duplicating that on the FSA application/agreement would need to be included (e.g., participant's name, address, social security number, description of the land involved, cross reference to the FSA application involved, etc.).

By reducing the consumptive use of water on lands that otherwise would be irrigated, the CREP program over time will result in an increase in stream flow and reservoir storage. However, if the goal of the CREP program is to target any increases in specific reservoirs, a third option would be more advantageous.

Option 3: In addition to agreements outlined in either Option 1 or Option 2, to ensure the water savings that are realized by retiring the participating acres result in an increase in the targeted reservoirs, the State will develop additional agreements with storage appropriators stating that reductions in the demand for storage water that results from the CREP program would not be converted to an increased supply for