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1.0 PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

The United States Department of Agriculture (USDA) Farm Service Agency (FSA) proposes to implement a new Conservation Reserve Enhance Program (CREP) Agreement for North Dakota. This Environmental Assessment (EA) has been prepared to analyze the potential environmental consequences associated with implementation of either the Proposed Action or the No Action Alternative. This analysis is programmatic in nature and does not address individual site-specific impacts, which would be evaluated for individual CRP contracts prior to approval.

1.2 Background

FSA was established during the reorganization of USDA in 1994. The mission of FSA is to:

“...ensure the well-being of American agriculture and the American public through efficient and equitable administration of agricultural commodity, farm loan, conservation, environmental, emergency assistance, and domestic and international food assistance programs.” (FSA 1997)

The Conservation Reserve Program (CRP) was established under Title XII of the *Food Security Act of 1985* (16 USC 58 part 3831, 1996). The purpose of CRP is to cost-effectively assist owners and operators in conserving and improving soil, water, and wildlife resources on their farms and ranches. Highly erodible and other environmentally sensitive acreage, normally devoted to the production of agricultural commodities, is converted to a long-term resource conservation cover. CRP participants enter into contracts for periods of 10 to 15 years in exchange for annual rental payments and cost-share assistance for installing certain conservation practices (CPs).

The initial goal of CRP was to reduce soil erosion on highly erodible cropland. Subsequent amendments to CRP regulations have made certain cropland and marginal pastureland eligible for CRP based on benefits to water quality and wildlife habitat. The Agricultural Act of 2014 (P.L. 113-79), commonly known as the 2014 Farm Bill, reduced the CRP total acreage enrollment cap from 32 million acres to 24 million acres by the 2017 fiscal year. The *Conservation Reserve Program Final Programmatic Environmental Impact Statement* contains a detailed analysis of the impacts of implementing the CRP nationwide, including the CREP component (FSA 2003). Additional analysis of CRP was studied in the 2010 Supplemental Environmental Impact Statement (SEIS) (FSA 2010) and 2014 Supplemental Programmatic EIS and Record of Decision (FSA 2015).

The Secretary of Agriculture initiated CREP in 1997. CREP is a subset of CRP. This program is based on the continuous CRP model but differs in four important ways:

- CREP is targeted to specific geographic areas and is designed to focus CPs on addressing specific environmental concerns.
- CREP is a partnership between USDA and a State, political subdivision, or agency thereof.
- CREP is results-oriented, and requires States to establish measurable objectives and conduct annual monitoring to measure progress toward achievement of those objectives.
- CREP is flexible, within existing legal constraints, and may be adapted to meet local conditions on the ground.

This voluntary program uses incentives and other benefits to encourage farmers and ranchers to enroll in contracts of 10 to 15 years in duration to remove lands from agricultural production.

CRP and CREP are administered by FSA. FSA is the lead agency in the development of this EA.

1.2.1 North Dakota CREP History

The current North Dakota CREP agreement was proposed in 2001; however, a Programmatic EA, Programmatic Environmental Assessment for Implementation of the Conservation Reserve Enhancement Program Agreement for North Dakota was not completed until March 2005 (FSA 2005). The Programmatic EA evaluated the impacts of the program as proposed at that time.

The 2001 CREP agreement intended to enroll over one thousand 20-acre plots into CRP. The plots are called CoverLocks under the CREP agreement. The CoverLocks were to be located in the following 17 counties: Adams, Burleigh, Dickey, Dunn, Emmons, Grant, Hettinger, LaMoure, Logan, McIntosh, Mercer, Morton, Oliver, Ransom, Sargent, Sioux, and Stark (FSA 2005). Each 20-acre plot consisted of a 5-acre shelterbelt (trees) and 15 acres of herbaceous cover. After 5 years, 5 acres of the herbaceous cover would be converted to a wildlife food plot. The agreement provided for public access on the CoverLock and adjacent land in each quarter section.

Currently, there are 86 CoverLock agreements held by the state in participation with the existing CREP agreement. CREP contracts occur in 13 of the 17 eligible counties, with Burleigh, Dickey, Hettinger, and Sargent counties having no participation. Four of the 86 CoverLock agreements were funded fully by the North Dakota Game and Fish Department (NDGF) as a pilot to test interest with producers, with those that were subsequently funded through USDA totaling 82 contracts.

Interest in the original CREP program has dwindled in recent years; to date, approximately 18,378 acres remain unsubscribed. Due to this, the NDGF is proposing to implement the CREP II Riparian Project (CREP II). The existing CREP agreement terms and conditions would remain in place for land enrolled under

the existing CREP but the existing CREP Agreement would be terminated upon CREP II being implemented.

1.3 Purpose and Need for Action

The purpose of the proposed CREP is to establish an area where eligible producers remove cropland from production and establish conservation practices to meet conservation goals identified by North Dakota in consultation with their State Technical Committee. The need for the Proposed Action is FSA's responsibility under the 1985 Farm Bill, as amended, and Section 1231 of the Food Security Act, which require FSA to respond to North Dakota's requested proposal in an effort to enter into contracts to take cropland out of production and put it into the Conservation Reserve Program.

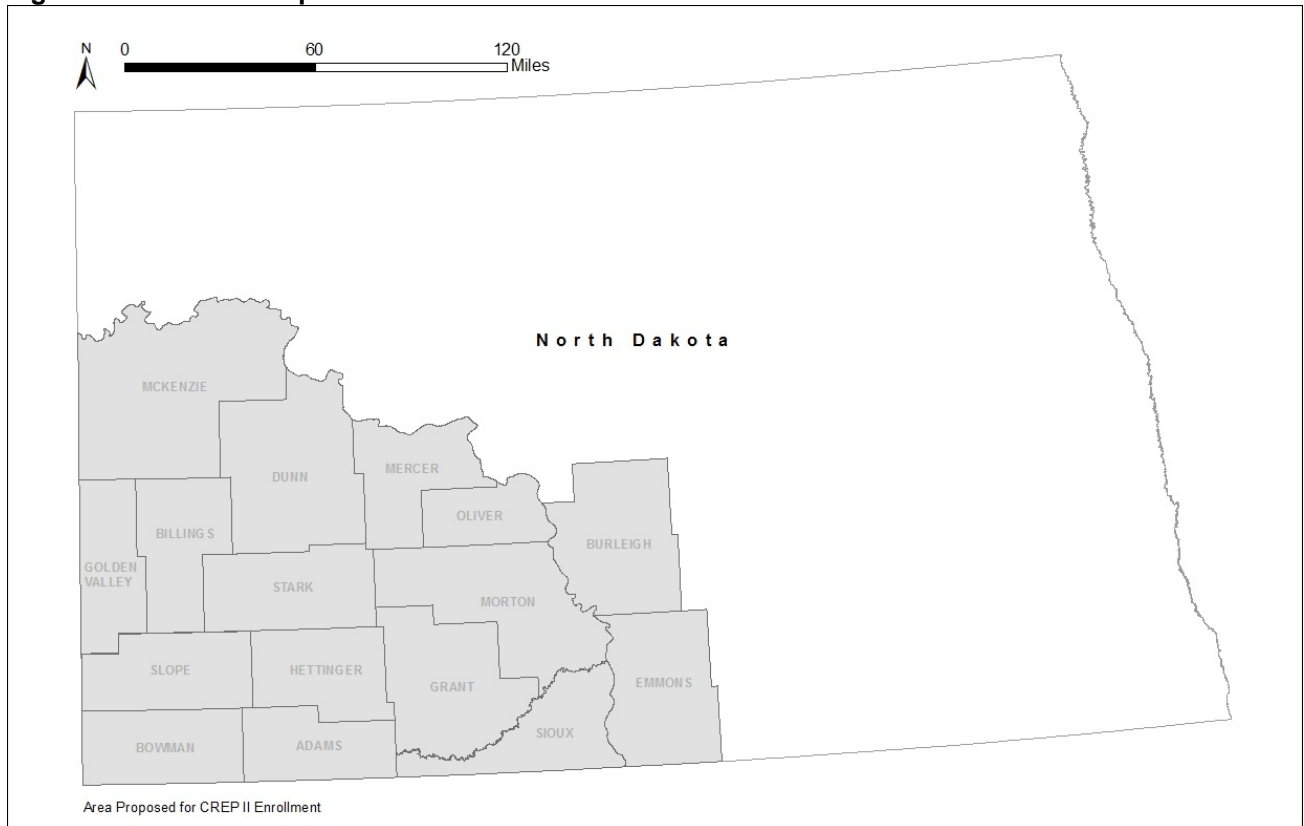
The NDGF is proposing to implement the CREP II Riparian Project in 16 counties in southwest and south central North Dakota (Figure 1). The primary objective of the CREP II Riparian Project is to address watershed impairments within the Project Area by reducing sediment loads and increasing infiltration in the adjacent uplands. The secondary objective is to enhance or maintain wildlife habitat within the selected watersheds, focusing on riparian areas and adjacent uplands. The CREP II Riparian Project proposes to meet these objectives by establishing 10,000 acres of buffers along riparian areas and 10,000 acres of habitat for pollinators and other wildlife. The NDGF is proposing four practices and additional incentives for enrollment in CREP II beyond those available through the normal CRP.

Resource concerns identified by the State and its partners include:

- Loss of riparian habitat
- Alteration of riparian habitat and improper grazing of riparian habitat
- Fragmentation and direct loss of native prairie
- Invasive species and noxious weeds
- Return of expired CRP contracts to agricultural production
- Impaired water quality

Four Conservation Practices (CPs) are being proposed to assist producers with addressing these resource concerns. The CPs are discussed in more detail in Section 2.2.3 of this EA.

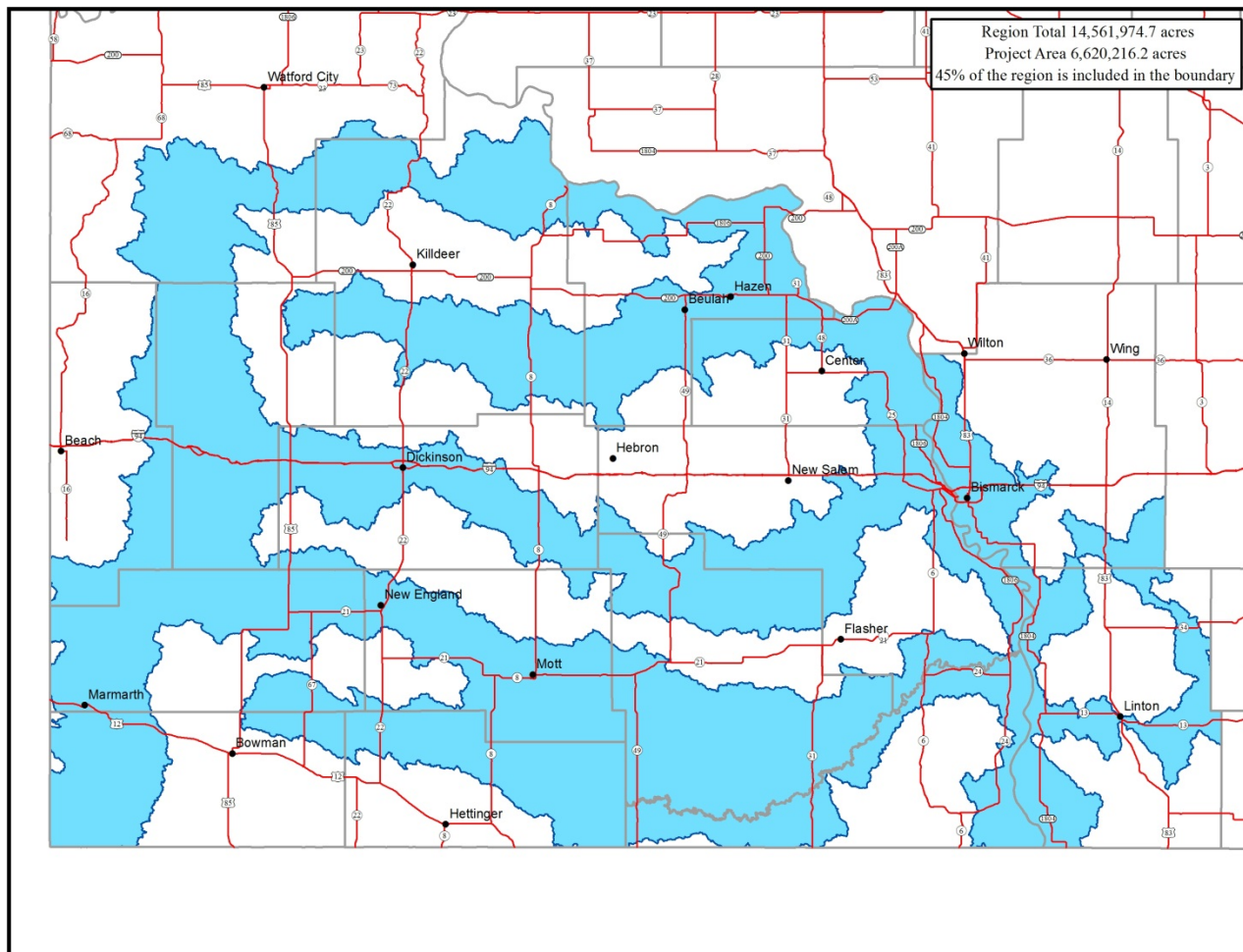
Figure 1. Counties Proposed for CREP II Enrollment.



The project is important to ND as the project area encompasses 12 watersheds in southwestern and south central North Dakota, only one of which that is not impaired according to the North Dakota Department of Health (NDDH 2014), the North Fork Grand River Watershed. The remaining watersheds have a variety of impairments, including, but not limited to fecal coliform, E. coli, dissolved oxygen levels, substrate habitat alterations, low flow alterations, sedimentation/siltation impairments, and bio-assessment indicators including threatened aquatic species. Many of the water quality impairments above could be addressed, at least in part, with the planned practices under the proposed CREP II.

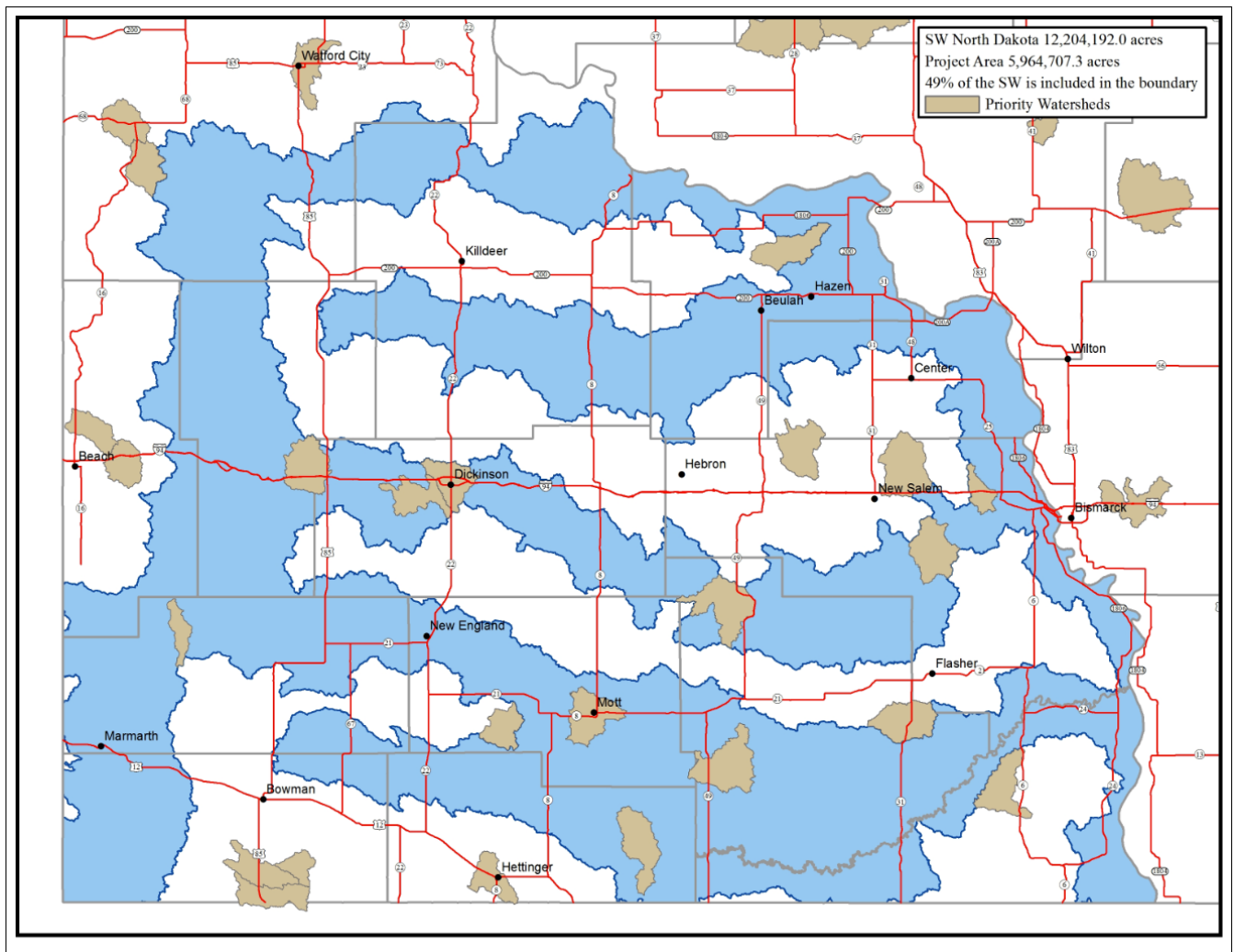
In addition, the NDGF has identified the major watersheds and riverine habitats as areas of conservation concern within their State Wildlife Action Plan (Dyke, Johnson, Isakson 2015) (Figure 2). This project would be located in an area where agriculture is an important part of the economy, and agriculture continues to be threatened by an ever-changing landscape and local economics. CREP II would be a viable means for producers to enroll into beneficial conservation programs, while sustaining agricultural operations on the remaining acres of their operation.

Figure 2. CREP II Project Area



Enrolling cropland into CRP through CREP II will improve or maintain soil and water quality. CREP II also falls very closely in line with the NDGF State Wildlife Action Plan (SWAP) focus areas for species of conservation priority and the Save Our Lakes Program (SOL) priority watersheds (Figure 3). In addition, the riparian habitats identified in the project area overlaps with 21 established or completed North Dakota 319 Watershed Projects (Dyke, Johnson, Isakson 2015).

Figure 3. CREP II Program Area with Save Our Lakes Program (SOL) priority watersheds



CREP II would allow producers in the Project Area to enroll eligible cropland into CREP II, provided the acreage meets the requirements for approved practices.

1.4 Regulatory Compliance

This EA has been completed as part of the National Environmental Policy Act (NEPA) process and is in compliance with its implementing regulations (40 CFR 1500 et seq., 2004) and the FSA regulation *Environmental Policies and Procedures: Compliance with the National Environmental Policy Act and Related Authorities* (7 CFR 7 parts 799, 2016). The intent of NEPA is to protect, restore, and enhance the human environment through well-informed Federal decisions. The following non-exclusive list of higher-tier executive orders (EOs), acts, and relevant decision and guidance documents apply to actions undertaken by Federal agencies and form the basis of the analysis presented in this EA:

- *Clean Air Act* (42 USC 85 parts 7401 et seq., 1999)

- *Clean Water Act* (33 USC 26 parts 1251 et seq., 2000)
- *Endangered Species Act [ESA] of 1973*, as amended (16 USC 35 parts 1531 et seq., 1988)
- EO 11514, *Protection and Enhancement of Environmental Quality* (35 *Federal Register* [FR] 4247, 1977)
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low- Income Populations* (59 FR 32, 1995)
- *National Historic Preservation Act* (54 USC 300101 et seq., 2014) and associated *Section 106 process* (54 USC 306108, 2014).

1.5 Organization of the EA

This EA discloses the potential impacts of the proposed action and the No Action Alternative on affected environmental and economic resources. Chapter 1.0 provides background information relevant to the proposed action and discusses the purpose and need for the Proposed Action. Chapter 2.0 describes the Proposed Action and alternatives. Chapter 3.0 describes the baseline conditions (i.e., the conditions against which potential impacts of the Proposed Action and alternatives are measured) for each of the resource areas. Chapter 4.0 explains the potential environmental impacts to these resources. Chapter 5.0 provides an analysis of cumulative impacts and irreversible resource commitments. Chapter 6.0 is a list of the preparers of this document, and Chapter 7.0 lists those persons and agencies contacted during the preparation of this document. Chapter 8.0 contains references used in the EA.

2.0 DESCRIPTION OF THE ALTERNATIVES

This chapter describes the alternatives, which include the Proposed Action and the No Action Alternative. These two alternatives are compared in terms of their environmental impacts and ability to meet the identified Purpose and Need and achieve the objectives listed in Section 1.3.

2.1 Alternative 1 – No Action

Alternative 1, the No Action Alternative, would involve not implementing the North Dakota CREP II agreement. No land would be enrolled in CREP II, and the goals for the North Dakota CREP II agreement would not be met. This alternative would result in a continuation of the current agricultural practices that contribute to the decline in wildlife habitat, a continued degradation of water quality and soil conditions, and limited long-term recreational opportunities for the public. The existing North Dakota CREP project would remain in effect and would be available for lands that are eligible. Due to the limited incentives that are currently available under this CREP, and the lack of local interest in the absence of additional incentives, it is unlikely that the remaining acres available will be enrolled.

2.2 Alternative 2 – Proposed Action

This alternative would implement the Proposed Action, the Proposed North Dakota CREP II Project (CREP II). This agreement would enroll lands in CREP II by establishing contracts with owners of eligible lands in 16 counties in southwest and south central North Dakota. The CREP II Project would coordinate federal, state, and local efforts to address issues identified in section 1.3 throughout the Project Area by seeking to enroll approximately 20,000 acres of cropland within targeted Hydrologic Unit Codes (HUCs) adjacent to key riparian areas and associated upland habitats. It would do this by providing additional economic incentives to remove these acres from agricultural production to established conservation cover through the four CP's. Additional incentives are also available for providing public access to the CREP acres and adjacent non-CREP acres.

The concept of the CREP II is to establish or maintain herbaceous cover adjacent to key riparian areas, and associated uplands. These areas are valuable for water quality and traditionally provide adequate winter cover and are important areas for many wildlife species. Adjacent non-CREP acres may be further enhanced through other NDGF private lands programs, or they may remain in the current use depending upon landowner desires. The concept is to “farm the best and leave the rest” through the use of CREP II and other non-federal NDGFD private lands programs and practices.

2.2.1 Objectives

The primary objective of CREP II would be to improve water quality within the project area by creating or maintaining appropriate vegetation, reducing sedimentation of targeted water bodies, and reducing adverse run-off into these riparian areas.

Secondary objectives of the CREP II project would be to improve and maintain pollinator and other wildlife habitat in the Project Area

Objectives will be accomplished by establishing new grass and forb mixes within the project area, especially in those identified areas in close association with riparian corridors.

Goals of the CREP II are:

- To provide a load reduction of sediment and nutrients and to provide erosion control on agricultural land previously used for crop production;
- To improve functions of riparian systems through establishment of 10,000 acres of riparian buffers and filter strips;
- To provide habitat for native pollinators and honeybees through establishment of 10,000 acres of pollinator and honeybee practices;
- To increase available wildlife habitat in the project area by establishing 20,000 acres of CRP contracts over a 10-15-year period; and,
- To provide free public hunting access for the duration of the CRP contract on CREP and adjacent non-CREP acres through the Department's PLOTS program.

2.2.2 Eligible Land

The proposed CREP II would enroll up to 20,000 acres in CRP, on a voluntary basis in coordination with individual landowners. As such, the exact location of parcels that might be enrolled is not known.

The availability of CREP II would be advertised locally, regionally, and on a statewide basis to increase awareness of the project, the environmental benefits it seeks to obtain, and the benefits available to participants, including but not limited to the incentives available if approved. Interested landowners would be encouraged to contact their local FSA office to determine if their lands are located within the CREP II Project Area. FSA and NRCS would determine producer, land and practice eligibility. Technical assistance would be provided from NDGF biologists or other partner biologists if necessary. The NDGF would coordinate with FSA during the application process to identify CREP/non-CREP acres for PLOTS. Applications would be accepted on a continuous basis. If the land offered is located within the CREP II Project Area and it and the producer(s) meet all eligibility requirements, such as ownership, land, and practice eligibility, the offer would be considered eligible for enrollment into CRP under CREP II. At least 51 percent of all the land under each offer and contract must be located in the CREP II Project Area to be eligible. Land that is located outside the Project Area must be offered as a block with land in the CREP II Project Area. That is, all offered land must be in the CREP II Project Area except in those cases where there is a block offer for land in which the block crosses the boundary for the Project Area, in which case at least 51 percent of the block must be within the boundaries of the Project Area. Land physically located outside of North Dakota is not eligible for CREP II or PLOTS. The NDGF would coordinate with FSA to enroll

CREP II offers into the PLOTS program for walk-in hunting access. NDGF would require an additional access agreement; a 40-acre minimum acreage is required for PLOTS, although the entire 40-acres do not need to be comprised entirely of acres enrolled in CREP II. A mix of CREP and non-CREP acres is acceptable for PLOTS. Although not required, NDGF may work with the producer to encourage additional habitat improvements on adjacent non-CREP acres in the offer, providing further benefits to habitat and water quality. For CREP II, all acreage must be enrolled at the same time under the same CRP contract with all practices for the same length of time.

2.2.3 Proposed Conservation Practices

The CPs proposed for implementation under the CREP II and acres to be enrolled includes the following:

- CP21, Filter Strips – 5,000 acres
- CP22, Riparian Buffer – 5,000 acres
- CP42, Pollinator Habitat – 5,000 acres
- CP42B, Honey Bee Habitat – 5,000 acres

Filter Strips (CP21)

Landowners are encouraged to establish filter strips on streams. This practice is to remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystem of the water body. Eligibility and practice criteria for this practice will follow guidelines outlined in FSA CRP National directives.

A minimum width of 50 feet and maximum width of 300 feet (if minimum width needed to address resource concern is greater than 300 feet, the minimum width required must be enrolled). Producers are required to enroll at least 50-foot width in all cases. Producers must enroll the minimum width, not to be less than 50 feet, needed to address the resource concern, as determined by NRCS. Producers may, but are not required to, enroll the maximum width of 300 feet, unless NRCS determines that it is the minimum width needed to address the resource concern.

USDA will pay 50 percent cost-share of eligible reimbursable costs to install the practice. USDA will pay a rental rate as well as a 40% rental rate incentive. USDA will pay a signing incentive payment according to FSA CRP national directives (one-time up-front payment equal to \$100 per acre enrolled). The NDGF will pay 50 percent cost-share of eligible reimbursable costs to install the practice and a one-time upfront incentive payment of \$100/acre for all acres enrolled in CREP II.

Riparian Buffer (CP22) Cropland Only

Only eligible cropland will be considered for this practice. Marginal pastureland offers will not be considered. Eligibility and practice criteria for this practice will follow guidelines outlined in FSA CRP National directives.

A minimum width of 50 feet and maximum width of 300 feet (if minimum width needed to address resource concern is greater than 300 feet, the minimum width required must be enrolled). Producers are required to enroll at least 50-foot width in all cases. Producers must enroll the minimum width, not to be less than 50 feet, needed to address the resource concern, as determined by NRCS. Producer may, but are not required to, enroll the maximum width of 300 feet, unless NRCS determines that is the minimum width needed to address the resource concern.

USDA will pay 50 percent cost-share of eligible reimbursable costs to install the practice. USDA will pay a rental rate as well as a 40% rental rate incentive. USDA will pay a signing incentive payment according to FSA CRP national directives (one-time up-front payment equal to \$100 per acre enrolled). The NDGF will pay 50 percent cost-share of eligible reimbursable costs to install the practice and a one-time upfront incentive payment of \$100/acre for all acres enrolled in CREP II.

Pollinator Habitat (CP42)

The purpose of this practice is to establish habitat to support a diversity of pollinator species. Seeding mixes shall contain a minimum of 9 species of pollinator-friendly wildflowers, legumes, and/or shrubs, although more are encouraged. At least three species will be having their primary blooming period April – mid June, three species will have primary bloom June 15- July, and three species shall be in bloom August – October. Mixes shall not exceed 25 percent grasses based on pure live seed per square foot. The use of native species is recommended, although beneficial introduced forb/legume species (non-invasive) may be used. Introduced forb/legume species may make up no more than 10 percent of the pure live seed mixture. Only native grass species may be used. The use of non-sod-forming grass species is encouraged.

At least 50 percent of each CREP II offer must be comprised of CP21 and/or CP22 (standard FSA rules prohibiting CP21 and CP22 in conjunction apply). Remaining portion, not to exceed 50 percent of the offer, may be devoted to CP42. Such acreage must be immediately adjacent to CP21/CP22. Producer is not required to enroll any acreage as CP42, entire offer could be for CP21 and/or CP22. Producer must elect to enroll, or not enroll, acreage as CP42 in CREP II at the same time the riparian acreage is enrolled in CREP II as CP21 and/or CP22. All acreage must be enrolled at the same time under the same CRP contract with all practices for the same length of time.

USDA will pay 50 percent cost-share of eligible reimbursable costs to install the practice. USDA will pay a rental rate as well as a 20% rental rate incentive. USDA will pay a signing incentive payment according to FSA CRP national directives (one-time up-front payment equal to \$150 per acre enrolled). The NDGF will pay 50 percent cost-share of eligible reimbursable costs to install the practice and a one-time upfront incentive payment of \$100/acre for all acres enrolled in CREP II.

Pollinator Habitat for Honey Bees (CP42B)

The purpose of this practice is to establish habitat and nutritious forage to support Honey Bees. Seeding mixes, eligible plant species, and other standards for CP42B will be consistent with those provided in Notice CRP-775 but shall include some flexibility for States to achieve maximum Honey Bee/pollinator benefits. Seeding mixes shall be developed in consultation with the State Technical Committee and NRCS and should contain a minimum of 9 species, although more are encouraged. Mixes should be designed to meet early, mid and late blooming periods. The use of native species is recommended, although beneficial introduced forb/legume species may be used.

At least 50 percent of each CREP II offer must be comprised of CP21 and/or CP22 (standard FSA rules prohibiting CP21 and CP22 in conjunction apply). Remaining portion, not to exceed 50 percent of the offer, may be devoted to CP42B. Such acreage must be immediately adjacent to CP21/CP22. Producer is not required to enroll any acreage as CP42B, entire offer could be for CP21 and/or CP22. Producer must elect to enroll, or not enroll, acreage as CP42B in CREP II at the same time the riparian acreage is enrolled in CREP II as CP21 and/or CP22.

USDA will pay 50 percent cost-share of eligible reimbursable costs to install the practice. USDA will pay a rental rate as well as a 10% rental rate incentive. USDA may pay a signing incentive payment, pending available funding, according to FSA CRP national directives. The NDGF will pay 50 percent cost-share of eligible reimbursable costs to install the practice and a one-time upfront incentive payment of \$100/acre for all acres enrolled in CREP.

Management Activities

All CRP participants are required to perform management activities as part of their approved CRP contract. CREP II will follow FSA CRP National directives regarding required management activities. Cost-share will be provided for eligible mid-contract management activities from USDA and from the NDGF.

2.2.4 Financial Support to Land Owners

Under CREP II, eligible participants will receive USDA annual rental payments. For practices CP21 and CP22, a per-acre incentive payment equal to 40 percent of the base soil rental rate will be made by USDA. For practice CP42 a per-acre incentive payment equal to 20 percent of the base soil rental rate will be made by USDA. For practice CP42B, a per-acre incentive payment equal to 10 percent of the base soil rental rate will be made by USDA. Participants would be compensated for practice establishment costs by both FSA and NDGF. FSA would pay a cost-share payment of up to 50 percent of the eligible reimbursable cost to establish the required practice. NDGF would pay the remaining practice establishment costs. Practices CP21 and CP22 would receive a one-time USDA signing incentive payment of \$100.00 per acre, while practice CP42 would receive a one-time USDA signing incentive payment of \$150.00 per acre. All practices would receive a one-time NDGF incentive payment of \$100.00 per acre and other non-

CREP acres may receive additional annual payments from NDGF; these payments would be based upon habitat type and land use and would vary from one offer to the next.

Total estimated costs for CREP II of 20,000 acres would total \$23,408,000 over 15 years (Table 1). Estimated USDA costs are \$15,300,000 (\$11,916,623 net present value) for rental and incentives and \$3,714,000 for installation costs. Estimated State costs would be \$3,894,000 for installation costs and PLOTS incentives. The NDGF would contribute additional in-kind costs totaling \$500,000 to the project in salaries, mileage, outreach and education, monitoring and cost of an environmental assessment (Table 2). Net present value calculations are provided in Appendix C.

State funds are derived from the NDGF's Private Land Habitat and Access improvement Fund described in the North Dakota Century Code 20.1-02-05(16) which states:

“The Director may: Provide for the funding of a private land habitat and access improvement program with moneys derived from the interest earned on the game and fish fund and habitat restoration stamp fees. The director shall place these funds in a special fund called the “game and fish department private land habitat and access improvement fund”.

Table 1.Total Cost Estimates for CREP II Implementation.

Practice and acres	SRR Incentive (Federal)	USDA Rental Payment (Federal)	USDA SIP (Federal)	USDA Cost Share (Federal)	NDGFD Cost Share (State)	NDGFD PLOTS Incentive (State)
CP21 5,000 acres	40%	Dryland rental	\$100/ ac.	50%	50%	\$100 per CREP acre
C22 5,000 acres	40%	Dryland rental	\$100/ ac.	50%	50%	\$100 per CREP acre
CP42 5,000 acres	20%	Dryland rental	\$150/ ac.	50%	50%	\$100 per CREP acre
CP 42B 5,000 acres	10%	Dryland rental	\$0/ac.	50%	50%	\$100 per CREP acre
Sub-total 20,000 acres	Rent and Incentives: \$15,300,000 (\$11,916,623 net present value)		Installation Costs: \$3,714,000		Installation Costs: \$1,894,000	PLOTS Incentive: \$2,000,000
					In-kind costs: \$500,000	

ND Conservation Reserve Enhancement Program
CREP II Riparian Project

Practice and Acres	SRR Incentive (Federal)	USDA Rental Payment (Federal)	USDA SIP (Federal)	USDA Cost Share (Federal)	NDGFD Cost Share (State)	NDGFD PLOTS Incentive (State)
Total	Total Federal Costs: \$19,014,000 (Adjusted for net present value discount \$15,630,623)				Total State Costs: \$4,394,000	

The NDGF would commit \$1,894,600 from the Private Land Habitat and Access Improvement Fund for installation costs. The NDGF would also commit \$2,000,000 for PLOTS incentives; this has been secured through a grant awarded to the NDGF by the state's Outdoor Heritage Fund (OHF) in September 2014. All State payments would be made by the NDGF as direct payments to the producer as a one-time, upfront payment. The payment rate is \$100.00 per acre of enrolled CREP.

Table 2. State In-Kind Costs	Rate	Total
Evaluation/compliance – 10 hrs/bio/agr	2,500 hours	\$112,500
Monitoring – Water Quality		\$50,000
Field site visits – 10 hrs/bio/agr	3,000 hours	\$135,000
Administrative/office – 12 hrs/bio/agr	3,000 hours	\$135,000
Mileage	5 biologists - 800 miles per year @ .55 per mile	\$22,000
Environmental Assessment	Estimated cost	\$20,000
Outreach and Education	Estimated cost	\$25,000
Total	Estimated cost	\$499,500
NOTES: 1. Based on 25 agreements annually 2. Avg. \$45/hr. salary 3. Water quality monitoring – To be completed on sites that meet a pasture condition score of 2 or greater		

3.0 AFFECTED ENVIRONMENT

This chapter describes relevant existing conditions for the resources potentially affected by the Proposed Action and the No Action Alternative. In compliance with guidelines contained in NEPA and Council on Environmental Quality (CEQ) regulations, the description of the affected environment focuses only on those aspects potentially subject to impacts.

3.1 Water Resources

3.1.1 Definition of Resource

The Clean Water Act (33 USC 26 parts 1251 et seq., 2000) was created to protect the nation's lakes, rivers, aquifers, wetlands, and coastal areas. For the purposes of this analysis, water resources include surface water, groundwater, wetlands, and floodplains. Surface waters are rivers, streams, and lakes. This analysis also addresses impaired surface waters, defined by the EPA as those with levels of pollutants that exceed State water quality standards.

Groundwater refers to subsurface hydrologic resources, such as aquifers, that are used for domestic, agricultural, and industrial purposes. For this analysis, groundwater includes sole source aquifers. Wetlands are defined by the U.S. Army Corps of Engineers (USACE) as areas that are characterized by a prevalence of vegetation adapted to saturated soil conditions. Wetlands can be associated with surface water or groundwater and are identified based on specific soil, hydrology, and vegetation criteria defined by USACE. For the purposes of this analysis, floodplains are defined as 100-year floodplains, designated by the Federal Emergency Management Agency (FEMA) as those low-lying areas that are subject to inundation by a 100-year flood (i.e., a flood that has a 1 percent chance of being equaled or exceeded in any given year).

3.1.2 Region of Influence

The Project Area for water resources includes the surface water, groundwater, wetlands, and floodplains within the 16 counties proposed for enrollment in CREP II and listed in Section 1.3.

3.1.3 Affected Environment

3.1.3.1 Surface Water

Major river systems of North Dakota include the Missouri, Heart, Knife, Cannonball, Cedar, James, Little Missouri, Red, Sheyenne, and Souris rivers. Other than the James, Sheyenne, Red and Souris rivers, all of these are located within the Project Area.

North Dakota can be divided into five basins. These are the Red River, Souris River, Upper Missouri River, Lower Missouri River, and James River basins (North Dakota Department of Health [NDDH] 2004a). The Red River and Souris River basins are in the northeastern portion of the State and are drained by the Red River of the North, which

flows to Hudson Bay. The Upper Missouri River, Lower Missouri River, and James River basins are in the southwestern portion of the State. These three basins are drained by the Missouri River, a tributary of the Mississippi River.

The basins that are partially within the Project Area include the Upper Missouri River and the Lower Missouri River basins (NDDH and NRCS 1998). The Upper Missouri River Basin, also known as the Lake Sakakawea River Basin contains Golden Valley County and includes portions of Bowman, Slope, Billings, McKenzie, Dunn and Mercer counties. Lake Sakakawea, the Missouri River, and the Knife River are partially within these counties. There are four designated impaired waters in the Upper Missouri River Basin (Appendix B). Three are designated impaired from fecal coliform bacteria, and the fourth, Lake Sakakawea, is impaired because of low dissolved oxygen, temperature, and methyl mercury (NDDH 2014).

The Lower Missouri River Basin is also known as the Lake Oahe River Basin. It encompasses the counties of Burleigh, Stark, Hettinger, Adams, Slope, Sioux, Grant, Morton, Oliver, and Emmons. It also includes portions of Billings, Bowman, Dunn, Mercer, McKenzie and Slope counties. Lake Oahe and a portion of the Missouri River are within these counties. Tributaries of the Missouri River that flow within these counties include Cedar Creek, Elk Creek, Green River, Heart River, Knife River, North Fork Cannonball River, Cannonball River, Antelope Creek, and Beaver Creek. There are 21 designated impaired waters in the Lower Missouri River Basin portion of the CREP II area (Appendix B). The most frequently reported impairment is fecal coliform bacteria. Other impairments result from sedimentation/siltation, high levels of nutrients or eutrophication, low dissolved oxygen, and biological indicators (NDDH 2014).

3.1.3.2 Groundwater

Glacial sediment deposits contain the groundwater reservoirs within the proposed CREP II area. These major glacial-drift aquifers are considered to have the greatest potential for yielding substantial quantities of water for domestic, agricultural, and industrial purposes. Statewide, the aquifers underlie an area of about 8,900 square miles and store an estimated 66 million acre-feet of water (North Dakota State Water Commission [NDSWC] 2004). There are no sole source aquifers within the Project Area (EPA 2004).

3.1.3.3 Wetlands

The 1987 USACE Wetland Delineation Manual (USACE 1987) provides guidelines to identify and delineate wetlands. For regulatory purposes under the Clean Water Act, wetlands are defined as:

“Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas” (33 CFR 3 part 328.3, 2004).

Wetlands once covered about 4.9 million acres of North Dakota--11 percent of the State. By the 1980s, the acreage had decreased to about 2.7 million acres, a loss of about 45 percent. Most of the losses have been caused by drainage for agricultural development. The rate of agricultural conversions in the future would likely depend on crop prices and other economic factors. Most of North Dakota's wetlands are prairie potholes (eastern North Dakota lies in what is known as the Prairie Pothole Region), which provide nesting and feeding habitat for migratory waterfowl and wading birds.

Wetlands are much less numerous in the western/southwestern part of the state. Wetland acreage in counties within the Project Area is listed in Table 3.

Table 3. Wetland acres by county.

County	Total Wetland Acres*
Adams	9,375.34
Billings	773.93
Bowman	4,823.80
Burleigh	61,679.40
Dunn	9,918.26
Emmons	33,680.97
Golden Valley	733.20
Grant	10,358.98
Hettinger	12,002.34
McKenzie	7,867.22
Mercer	4,917.60
Morton	8,841.58
Oliver	4,466.54
Sioux	3,999.29
Slope	5,648.42
Stark	3,375.25
Total	182,462.12
* Acres include temporary, seasonal, and semi-permanent wetlands (rivers and lakes not included).	

Source: USFWS, National Wetlands Inventory, 2014

3.1.3.4 Floodplains

In general, a floodplain can be defined as a flat area, located adjacent to a stream channel, which provides natural storage for water overflow during or after a storm event. EO 11988, Floodplain Management (42FR 26951, 1979), requires that Federal agencies:

“...take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains...”

FEMA maintains maps of 100-year floodplains within North Dakota. Site-specific evaluations would be conducted prior to enrolling a site into CREP II to determine if the site is within, or would impact, a 100-year floodplain.

3.2 Cultural Resources

3.2.1 Definition of Resource

Cultural or heritage resources are defined as those sites, structures, landscapes, districts, objects, records, and lifeway skills that are of importance to a culture or community for historic, scientific, traditional, or religious reasons. Cultural resources are tied to places, persons, events, or practices of social custom and traditional skills and are recognized for their heritage, social, educational, and scientific value through the passage of State and Federal laws for their protection.

Archeological resources are locations and objects from past human activities. Architectural resources are standing structures that are usually over 50 years of age and of significant historic or aesthetic value. Traditional cultural properties (TCPs) hold importance to American Indians or other ethnic groups for the continuing practice of traditional culture. Any of these properties may meet the criteria for inclusion in the National Register of Historic Places (NRHP) and this determination of eligibility (36 CFR 8 parts 800.3–800.13, 2004) is a requirement of the Federal and State environmental assessment process before the initiation of ground disturbance or alteration of a landscape or structure.

State and Federal regulations require Federal agencies to protect and manage the physical and visual integrity of heritage resources. This project would require compliance with Federal and State historic preservation statutes and regulations including, but not limited to:

- *American Indian Religious Freedom Act of 1978, as amended (42 USC 21 part 1996, 1994)*
- *Antiquities Act of 1906, as amended (54 USC 320101, 2014)*
- *Archaeological Resources Protection Act of 1979, as amended (54 USC 300101, 2014)*
- *Historic Sites, Buildings, and Antiquities Act (54 USC 302101, 2014)*
- *National Historic Preservation Act of 1966, as amended (54 USC 300101 et seq., 2014)*
- *Native American Graves Protection and Repatriation Act (25 USC 32 parts 3001 et seq., 1990).*

3.2.2 Region of Influence

The Project Area for cultural resources includes the 16 counties proposed for enrollment in CREP II.

3.2.3 Affected Environment

The Project Area is rich in cultural history tied to features such as the Missouri River and its tributaries, marshlands, native prairie and grasslands, and natural landmarks. State and Federal parks and reserves protect and interpret heritage features including:

- Prehistoric sites
- American Indian ethnographic and traditional use areas
- Early Euro American exploration, military activities, and pioneering
- The Lewis and Clark Trail along the Missouri River
- Nineteenth and twentieth century settlement
- Resource-based activities such as transportation, ranching, logging, and mining.

This rich cultural history within the Project Area is illustrated by systematic cultural resource inventories conducted on the 5,571-acre West Mine Area in northwest Mercer County, northwest of Beulah and south of Lake Sakakawea on the Missouri River, which recorded 1,732 prehistoric features, 1 TCP, and 50 historic period sites (Bureau of Land Management [BLM] 2004). TCPs for both American Indians and Euro American groups would be expected in the Project Area. Tables 4 and 5 list prehistoric and historic sites within the Project Area including properties listed in the NRHP and local, State, and Federal parks and reserves set aside to preserve cultural heritage in North Dakota. Site types include trails, structures, buildings, archaeological and historic sites, structures, districts, and landmarks.

3.2.3.1 Prehistoric Periods (12,000 years before present [BP]-A.D. 1,600)

More than a century of paleo ecological, archaeological, ethnographic, and historic work on the Great Plains and surrounding areas have resulted in a general understanding of the past 12,000 years of human occupation in the region and the cultures of American Indians living in North Dakota today. It is useful to organize this information into cultural-historical periods based on time, diagnostic artifacts or artifact assemblages from the archaeological record, and the environmental conditions that affected human adaptation to the landscape. The following is a generalized summary of the highlights of American Indian cultures of the northern Great Plains and the Missouri River region (DeMaillie 2001, BLM 2004).

Paleo-Indian Period (12,000–8,000 years BP)

Peoples of this period were highly mobile hunters of large mammals, including species now extinct. Archaeological cultures include Clovis, Folsom, Agate Basin, Hell Gap, Cody, and Scottsbluff, among others, defined on the basis of signature stone spear points and tool assemblages.

Table 4. Properties within the Project Area Listed in the NRHP.

County	Number of Properties	NRHP Property and Location
Adams	3	<u>Haynes</u> : Cedar Creek Bridge <u>Hettinger</u> : Adams County Courthouse, U.S. Post Office
Billings	10	<u>Medora</u> : Billings County Courthouse, Chateau de Mores, Custer Military Trail Historic Archaeological District, De Mores Packing Plant Ruins, Initial Rock, Myers School Timbered Lodge, Peaceful Valley Ranch, Theodore Roosevelt' Elkhorn Ranch and Greater Elkhorn Ranchlands, St. Mary's Catholic Church, Von Hoffman House
Bowman	2	<u>Rhame</u> : Fort Dilts <u>Bowman</u> : Emma Petznick and Otto Schade House
Burleigh	24	<u>Bismarck</u> : Bismarck Cathedral Area Historic District, Bismarck Civic Auditorium, Bismarck Tribune Building, Dr. Albert M. and Evelyn M. Brandt House, Burleigh County Courthouse, Camp Hancock Site, Chief Looking's Village Site, Depression Era Work Relief Construction Features at Double Ditch Indian Village Site State Historic Site, Depression Era Work Relief Construction Features at Menoken State Historic Site, Double Ditch Earth Lodge Village Site, Downtown Bismarck Historic District, Former North Dakota Executive Mansion, Fred and Gladys Grady House, Northern Pacific Railway Depot, Patterson Hotel, E.G. Patterson Building, Soo Hotel, Towne-Williams House, U.S. Post Office and Courthouse, Van Horn Hotel, Webb Brothers Block <u>Wing</u> : Florence Lake School No. 3 <u>Menoken</u> : Menoken Indian Village Site
Dunn	3	<u>New Hradec</u> : Saints Peter and Paul Church <u>Manning</u> : Hutmacker Farm <u>Dunn Center</u> : Lynch Quarry Site
Emmons	18	<u>Hague</u> : Old St. Mary's Cemetery/Wrought-Iron Cross site, St Aloysius Cemetery/Wrought-Iron Cross Site (two sites), St. Mary's Cemetery's Cemetery/Wrought-Iron Cross Site (three sites), St. Mary's Church Historic District <u>Linton</u> : Emmons County Courthouse, Goldade House, Sacred Heart Cemetery/Wrought-Iron Cross Site, Willows Hotel <u>Strasburg</u> : Holy Trinity Cemetery/Wrought-Iron Cross Site (four sites), Sts. Peter and Paul Catholic Church Complex, Tirsbol Cemetery/Wrought-Iron Cross Site, Welk Homestead

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County	Number of Properties	NRHP Property and Location
Grant	4	<u>Carson</u> : Carson Roller Mill <u>Elgin</u> : Hope Lutheran Church <u>Heil</u> : Medicine Rock State Historic Site <u>New Leipzig</u> : Evangelisch Lutheraner Dreieinigkei Gemeinde <u>Mandan</u> : Ft. Abraham Lincoln State Park
Golden Valley	2	<u>Beach</u> : Golden Valley County Courthouse <u>Sentinel Butte</u> : Sentinel Butte Public School
Hettinger	5	<u>Mott</u> : Hettinger County Courthouse, Neuburg Congregational Church, John and Fredricka (Roth) Stern Homestead <u>New England</u> : Riverside <u>Regent</u> : Hill Drug Store
McKenzie	3	<u>Cartwright</u> : Fairview Lift Bridge <u>Grassy Butte</u> : Grassy Butte Post Office <u>Keene</u> : Sandstone School
Mercer	8	<u>Beulah</u> : Beulah School <u>Stanton</u> : Big Hidatsa Village Site, Fort Clark Archeological District, Knife River Bridge, Knife River Indian Villages National Historic Site Archeological District <u>Hazen</u> : Fred Krause House, St. Paul's Lutheran Church <u>Riverdale</u> : High Butte Effigy and Village Site (32ME13)
Morton	9	<u>Mandan</u> : Stuart Dunlap House, Lewis and Clark Hotel, Mandan Commercial Historic District, State Training School Historic District, Sunnyside Farm Barn, Welsh House <u>Hebron</u> : German Evangelical St. Johns Church-Deutsche Evangelische St. Johannes Kirche, Louis Rehm Barn <u>Flasher</u> : Hotel Brown <u>Huff</u> : Huff State Historic Site
Oliver	1	<u>Hensler</u> : Cross Ranch Archeological District
Sioux	0	-
Slope	3	<u>Amidon</u> : H-T Ranch, Original Slope County Courthouse <u>Marmarth</u> : Mystic Theatre
Stark	6	<u>Dickinson</u> : Dickinson Public Library, Dickinson State Normal School Campus District, Elks Club and Store Building – Dickinson Lodge#1137, Stark County Courthouse, U.S. Post Office-Dickinson <u>Gladstone</u> : Gerhardt Octagonal Pig House

Source: National Park Service [NPS] 2015

Table 5. State Historic Sites within the Project Area.

County	Historic Site and Location
Project Area	The Lewis and Clark National Historic Trail (1804–1806) follows the Missouri River north-south through the center of the Project Area.
Billings	<u>Chateau De Mores</u> : Historic house of the Marquis’s family. Currently a museum, located in Medora. <u>de Mores Memorial Park</u> : Park donated to the town of Medora by the Marquis family in 1926. <u>Chateau de Mores Interpretive Center</u> : Medora. <u>de Mores Packing Plant</u> : Historic slaughterhouse on the western edge of Medora. <u>Chimney Park</u> : Park and picnic area located west of Medora.
Bowman	<u>Fort Dilts</u> : Historic site where an 80-wagon party were attacked by the Sioux Indians in September 1864. Site located near Rhame.
Burleigh	<u>Double Ditch Indian Village</u> : This site contains the ruins of a large Mandan Indian earth lodge village inhabited during the period of A.D. 1500-1781. Located north of Bismarck. <u>Menoken Indian Village</u> : Prehistoric earth lodge village located near Menoken. <u>North Dakota Heritage Center and State Museum</u> : Located on the State Capital grounds in Bismarck. <u>Former Governors’ Mansion</u> : Bismarck <u>Camp Hancock</u> : Military installation that provided protection for workers constructing the Northern Pacific Railroad. Located in Bismarck. <u>Steamboat Warehouse</u> : Historic marker for the location. Bismarck.
Dunn	<u>Killdeer Mountain Battlefield</u> : General Sully versus Sioux (1864), located in northwest portion of county
Grant	<u>Cannonball State Station</u> : Fifth station stop from Bismarck on the Black Hills Trail (1877–1880), located in south-central portion of county
Morton	<u>Fort Rice</u> : military post (1864), located on Missouri River in southeastern portion of county <u>Huff Indian Village</u> : Ruins of earth lodge dwelling of the Mandan Indian around A.D. 1480. Located South of Mandan along the Missouri River. <u>Bismarck-Deadwood Stage Trail</u> : located in southwestern portion of county
Oliver	<u>Fort Clark</u> : Mandan earth lodge village (1822) and American Fur Company (1830–1831), on the west bank of the Missouri River between Mandan and Lake Sakakawea in northeastern portion of county <u>Molander Indian Village</u> : Mandan/Hidatsa earth lodge village (1780–1845), located on Missouri River in eastern portion of county
Sioux	<u>Standing Rock Sioux Reservation</u> : encompasses all of Sioux County, includes the Sitting Bull (Hunkpapa Sioux, 1890) Burial Site and Fort Yates (town and original fort on Missouri River)

Source: State Historical Society of North Dakota 2015

Archaic Period (8,000 BP–2,000 BP)

Nomadic hunting and gathering continued during this time, along with the development of distinctive stone projectile points replacing the atlatl and dart, and there is evidence in

the archaeological record of adaptation to warming climatic conditions and increased dependence on plant foods. Stone rings dating to this period indicate the first use of tipis.

Late Prehistoric (2,000 BP–A.D. 1600)

This period is marked by the appearance of stone arrow points and the use of the bow, ceramics, incipient domesticated crops (e.g., corn, squash, and beans), seasonal villages and earth lodges, and communal hunts, particularly for bison.

From about A.D. 1000–1750, permanent villages, a horticultural economy, occasional intertribal conflict and changing alliances, tribal immigration and emigration, and cultural exchange mark the archaeological and early historic record for the Plains and Missouri River region.

3.2.3.2 Protohistoric Period (A.D. 1600–A.D. 1720)

The Protohistoric period is marked by the first appearance of European trade goods and, importantly, horses in the American Indian archaeological and ethnographic record, followed by direct contact with Euro Americans.

The Mandan, Arikara, and Hidatsa (now allied to form the Three Affiliated Tribes) have a deep history of occupation within the CREP II area, and the archeological record reflects the entry of the Yanktonai Sioux and other nomadic groups into the Missouri River region in the 1700s. With their semi-sedentary, agricultural village culture, the Mandan, Hidatsa, and Arikara lived along the Missouri River and its tributaries well before the time of Lewis and Clark with, generally, the Yankton-Yanktonai Sioux to the east, the Assiniboine and Cree to the north, and Crow and Arapahoe to the west (DeMaillie 2001).

3.2.3.3 Historic Period (A.D. 1720–Present)

The historical period of North Dakota is defined by the entry of Euro Americans into the Dakota region and the beginning of written records and observations, in the early 1700s. Following the period of transient Euro American presence and more formal exploration, military engagements (1800–1850) and subsequent transition in American Indian cultures, the immigration focus was on homesteading (1880s through World War I); roads, railroads and river transportation (1850s); agriculture and settled communities; and resource-based industry led by coal mining. Many of the new immigrants were of Scandinavian, German, and Russian heritage, and came directly from these countries or from interim residence in the eastern and Midwestern U.S. This heritage can be seen in the long standing traditions and customs, agriculture-based economy, religious practices, construction skills, and building styles that persist in North Dakota today (Wilkins and Wilkins 1977, BLM 2004).

3.3 Biological Resources

3.3.1 Definition of Resources

Biological resources are plant and animal species and the habitats in which they occur. This analysis divides these resources into vegetation; terrestrial wildlife; aquatic wildlife; and threatened, endangered, and sensitive species and their defined critical habitat.

3.3.2 Region of Influence

The Project Area for biological resources includes 5,964,707.3 acres in 16 southwestern and south central North Dakota counties.

3.3.3 Affected Environment

3.3.3.1 Vegetation

Ecoregions describe areas of general similarity in ecosystems including the type, quality, and quantity of environmental resources. North Dakota is divided into four Level II Ecoregions. From southwest to northeast, these are the Northwestern Great Plains, the Northwestern Glaciated Plains, the Northern Glaciated Plains, and the Lake Agassiz Plain (Omernik 1987). These ecoregions are further subdivided into Level IV Ecoregions (Table 6). The potential natural vegetation of these ecoregions in the proposed CREP II area is described in the following paragraphs of this subsection (see Table 7 for scientific names of vegetation).

The Northwestern Great Plains generally exhibits rolling topography with the occasional butte and badlands (Bryce et al. 1998). The Level IV Ecoregions are the Missouri Plateau, the Little Missouri Badlands, the River Breaks, and the Moreau Prairies. The Missouri Plateau contains blue grama, wheatgrass/needlegrass association, little bluestem, and prairie sandreed. Natural vegetation in the Little Missouri Badlands includes western wheatgrass, blue grama, little bluestem, and prairie sandreed in the short grass prairies. Rocky Mountain juniper can be found in draws and on north slopes. Riparian areas contain scattered cottonwood. The River Breaks has blue grama, western wheatgrass, buffalo grass, and some bluestem. Juniper and deciduous trees are found on north facing slopes. Cottonwood gallery forests are located on the floodplain. The Moreau Prairies are a mixed prairie of western wheatgrass, green needlegrass, blue grama and buffalo grass.

Table 6 Level IV Ecoregions.

County	Level IV Ecoregions
Adams	Missouri Plateau
Billings	Missouri Plateau, Little Missouri Badlands
Bowman	Missouri Plateau, Little Missouri Badlands, Sagebrush Steppe
Burleigh	Missouri Coteau, Collapsed Glacial Outwash, Missouri Coteau Slope, River Breaks
Dunn	Missouri Plateau, Little Missouri Badlands, River Breaks
Emmons	Collapsed Glacial Outwash, Missouri Coteau Slope, River Breaks
Grant	Missouri Plateau
Golden Valley	Missouri Plateau, Little Missouri Badlands
Hettinger	Missouri Plateau
McKenzie	Missouri Plateau, Little Missouri Badlands, River Breaks

Mercer	Missouri Plateau, River Breaks
Morton	Missouri Plateau, River Breaks
Oliver	Missouri Plateau, River Breaks
Sioux	Missouri Plateau, River Breaks, Moreau Prairie
Slope	Missouri Plateau, Little Missouri Badlands
Stark	Missouri Plateau

Source: Northern Prairie Wildlife Research Center (NPWRC) 2004

Table 7. Common and Scientific Names of Potential Natural Vegetation Within the Project Area.

Common Name	Scientific Name	Common Name	Scientific Name
Green ash	<i>Fraxinus pennsylvanica</i>	Northern reed grass	<i>Calamagrostis stricta</i>
Big bluestem	<i>Andropogon gerardii</i>	Prairie cordgrass	<i>Spartina pectinata</i>
Blue grama	<i>Bouteloua gracilis</i>	Prairie June grass	<i>Koeleria macrantha</i>
Buffalo grass	<i>Buchloe dactyloides</i>	Prairie muhly	<i>Muhlenbergia cuspidata</i>
Burr oak	<i>Quercus macrocarpa</i>	Prairie sandreed	<i>Calamovilfa longifolia</i>
Cottonwood	<i>Populus deltoids</i>	Rocky Mountain juniper	<i>Juniperus scopulorum</i>
American elm	<i>Ulmus americana</i>	Saltgrass	<i>Distichlis spicata</i>
Green needlegrass	<i>Nassella viridula</i>	Sand bluestem	<i>Andropogon hallii</i>
Indian grass	<i>Sorghastrum nutans</i>	Side-oats grama	<i>Bouteloua curtipendula</i>
Little bluestem	<i>Schizachyrium scoparium</i>	Switchgrass	<i>Panicum virgatum</i>
Needle-and-thread	<i>Hesperostipa comata</i>	Western wheatgrass	<i>Pascopyrum smithii</i>

Source: NPWRC 2004

The Northwestern Glaciated Plains marks the westernmost extent of continental glaciation and thus displays noted surface irregularity and high concentrations of pothole wetlands (Bryce et al. 1998). The Level IV Ecoregions include the Missouri Coteau, the Collapsed Glacial Outwash, and the Missouri Coteau Slope. Natural vegetation in the Missouri Coteau includes western wheatgrass, bluestem, needle- and-thread, and green needlegrass. Prairie cordgrass and northern reedgrass are found near wetlands. The Collapsed Glacial Outwash displays needle-and-thread, prairie muhly, prairie June grass, and blue grama. Alkaline areas contain saltgrass. The Missouri Coteau Slope has western wheatgrass, needle-and-thread, prairie June grass, and green needlegrass.

The Northern Glaciated Plains is a flat to rolling landscape composed of glacial drift (Bryce et al. 1998). The grassland is transitional between tall and short grass prairie and there are high concentrations of temporary and seasonal wetlands. The Level IV Ecoregions include the Glacial Lake Basins, the Glacial Lake Deltas, the Tewaukon Dead Ice Moraine, the Drift Plains, and the Glacial Outwash. The Glacial Lake Basins has western wheatgrass, needle-and-thread, blue grama, and green needlegrass. Potential natural vegetation of the Glacial Lake Deltas Prairie includes sandreed, little bluestem, Indian grass, Switchgrass, and sand bluestem. The Tewaukon Dead Ice Moraine exhibits western wheatgrass, green needlegrass, blue grama, needle-and-thread, and side oats grama. Western wheatgrass, big and little bluestem, Switchgrass, and Indian grass may

be found in the Drift Plains. The Glacial Outwash has little bluestem, needle-and-thread, blue grama, and prairie June grass. Elm, ash, and burr oak may occur in river bottoms.

The Lake Agassiz Plain is extremely flat and has fewer lakes and pothole wetlands than neighboring ecoregions (Bryce et al. 1998). Level IV Ecoregions include the Glacial Lake Agassiz Basin and the Sand Deltas and Beach Ridges. The tall grass prairie of Glacial Lake Agassiz Basin contains big and little bluestem, Switchgrass, and Indian grass. Cottonwood, willow, green ash, burr oak and American elm occur in riparian areas and on the Pembina Delta. The Sand Deltas and Beach Ridges is tall grass prairie with patches of oak savannah in delta areas.

3.3.3.2 Terrestrial Wildlife

North Dakota provides refuge to approximately 81 species of mammals, 223 species of breeding birds, 15 species of reptiles, 11 species of amphibians, and 95 species of fish. NDGF is responsible for management of these species and has legal authority over all fish and wildlife within the State that are not federally listed under the Endangered Species Act.

Hunting activity in the Project Area centers on big game and pheasants. Whitetail deer are found in every county in the Project Area. Other large hunted species in North Dakota include mule deer, pronghorn, bighorn sheep, elk, and moose. The habitat within the Project Area provides predominantly secondary range resources for mule deer, with areas along the Little Missouri River providing primary range. Primary range for pronghorns is in McKenzie, Golden Valley, Billings, Slope and Bowman counties. The rest of the Project Area is secondary range for pronghorn with the exception of Burleigh and Emmons counties. The heart of the bighorn sheep range is found within the Project Area in the badlands area of McKenzie, Dunn, Billings, Slope and Golden Valley counties. Elk inhabit the Project Area with their primary range existing in Dunn, McKenzie, Golden Valley, Billings, Slope and Bowman counties. Primary range for moose within the Project Area borders Lake Sakakawea in Mercer, Dunn and McKenzie counties.

Upland and smaller species hunted include wild turkey, sharp-tailed grouse, Hungarian partridge, pheasants, ruffed grouse, mourning doves, cottontails, and tree squirrels. Of these, pheasants seem to encourage the most hunters. Land within the CREP II Project Area is important to the State, as it encompasses historically valuable pheasant habitat, especially in the riparian areas.

Many species of neotropical migrant birds (i.e., species that summer in North America and winter in South or Central America) are declining in population throughout a number of States. North Dakota's Wildlife Action Plan identifies several neotropical migrants in North Dakota, including bobolinks, lark buntings, grasshopper sparrows, and dickcissels. These species prefer to inhabit CRP fields rather than agricultural fields (Kantrud et al. 1993). Returning croplands to grassland cover is important in maintaining habitat for grassland breeding birds, such as sedge wrens, red-winged blackbirds, grasshopper sparrows, savannah sparrows, common yellow throats, lark buntings, and Baird's sparrows (Johnson and Igl 1995).

3.3.3.3 Aquatic Wildlife

Historically, 103 fish species have been documented in North Dakota. Of the 96 species of fish currently found in the State, 14 have been introduced. Seven of these 14 introductions have been naturalized to North Dakota (Power and Ryckman 1998). Fish popular with North Dakota anglers include walleye, perch, paddlefish, Chinook salmon, catfish, northern pike, bass, bluegill, crappie, muskellunge, sauger, and trout.

3.3.3.4 Threatened, Endangered, and Sensitive Species and Their Designated Critical Habitat and Other Protected Areas

North Dakota does not have its own endangered species act. According to North Dakota Century Code (NDCC) (20.1 NDCC 2 part 05, 2003), the NDGF Director may:

“Exercise authority to establish programs and rules and administer state and federal funds provided to the state for the preservation and management of resident species determined by the director to be threatened or endangered species of wildlife. The authority exercised must be in compliance with the Endangered Species Act of 1973, Public Law 93–205. Any person who violates rules established under this subsection is guilty of a class B misdemeanor.”

There are several species identified in the NDGF Wildlife Action Plan as species of high-level concern. Those that occur primarily within the Project Area include long-billed curlew, ferruginous hawks, Swainson’s hawk, and black-tailed prairie dog. Other species in the Project Area include pollinators such as Monarch Butterfly, Regal Fritillary and Dakota Skipper. (Dyke, Johnson, and Isakson 2015). The NDGF has also outlined Key Species of Conservation Priority that are present along the river systems of the Project Area (SWAP; Dyke, Johnson, Isakson. 2015). All species would likely benefit from the local improvements in water quality and habitat availability. Table 8 outlines these species.

In North Dakota, there are six federally-listed endangered species and five federally-listed threatened species. Critical habitat has also been designated for two of the species. Ten of these species are/were found within the Project Area, including two endangered birds, two threatened birds, two endangered mammals, one threatened mammal, one endangered fish, and one threatened invertebrate (Table 9).

Table 8 Key Species of Conservation Priority within Rivers of Project Area.

River System	Key Species of Conservation Priority				
	Birds	Mammals	Fish	Mussels	Reptiles & Amphibians
	Bald Eagle	River Otter	Sturgeon Chub	N/A	N/A
	Golden Eagle	Northern Long-eared Bat	Sicklefin Chub		
	Piping Plover	Western Small-footed Bat	Northern Redbelly Dace,		
	Red Knot	Long-legged Bat	Flathead Chub		

Missouri River	Least Tern	Long-eared Bat	Blue Sucker		
	Red-headed Woodpecker	Little Brown Bat	Paddlefish		
		Big Brown Bat	Pallid Surgeon		
			Burbot		
River System	Key Species of Conservation Priority				
	Birds	Mammals	Fish	Mussels	Reptiles & Amphibians
Little Missouri River	Golden Eagle	Northern Long-eared Bat	Sturgeon Chub	N/A	N/A
	Red-headed Woodpecker	Western Small-footed Bat	Sicklefin Chub		
		Townsend's Big-eared Bat	Northern Redbelly Dace		
		Long-legged Bat	Flathead Chub		
		Long-eared Bat			
Knife River	N/A	N/A	Northern Redbelly Dace	Fragile Papershell	N/A
			Flathead Chub		
			Blue Sucker		
Heart River	N/A	N/A	Northern Redbelly Dace	N/A	N/A
			Flathead Chub		
Cannonball River	N/A	N/A	Redbelly Dace	N/A	Spiny Softshell
			Flathead Chub		Smooth Softshell
			Blue Sucker		

NDGF State Wildlife Action Plan 2015

North Dakota boasts more national wildlife refuges (NWRs) than any other state. North Dakota contains 63 NWRs covering over 290,000 acres managed by the U.S. Fish and Wildlife Service (FWS). There also are 11 wetland management districts (WMDs) totaling 254,000 acres of Waterfowl Production Areas statewide. Within the Project Area, there are 10 NWRs and 1 WMD (FWS 2015b). Local improvements in water quality and habitat availability would likely benefit species found on FWS refuges in the project area.

Table 9. North Dakota threatened, endangered, and candidate species in the Project Area.

Species	Federal Status ¹	Project Area Counties in Which Species Occurs
Interior least tern (<i>Sterna antillarum</i>)	E	Dunn, Emmons, McKenzie, Mercer, Oliver, Sioux
Whooping crane (<i>Grus americana</i>)	E	Adams, Billings, Bowman, Burleigh, Dunn, Emmons, Golden Valley, Grant, Hettinger, McKenzie, Mercer, Oliver, Sioux, Slope, Stark
Black-footed ferret (<i>Mustela nigripes</i>)	E	Adams, Billings, Bowman, Dunn, Golden Valley, Grant, Hettinger, McKenzie, Mercer, Oliver, Sioux, Slope, Stark
Pallid sturgeon (<i>Scaphirhynchus albus</i>)	E	Burleigh, Dunn, Emmons, McKenzie, Mercer, Morton, Oliver, Sioux
Gray wolf (<i>Canis lupus</i>)	E	Adams, Billings, Bowman, Burleigh, Dunn, Emmons, Golden Valley, Grant, Hettinger, McKenzie, Mercer, Oliver, Sioux, Slope, Stark
Piping Plover (<i>Charadrius melodus</i>)	T	Burleigh, Dunn, Emmons, McKenzie, Mercer, Oliver, Sioux
Dakota skipper (<i>Hesperia dacotae</i>)	T	Dunn, McKenzie, Oliver
Rufa red knot (<i>Calidris canutus rufa</i>)	T	Burleigh, Dunn, Emmons, McKenzie, Mercer, Oliver, Sioux
Northern long-eared bat (<i>Myotis septentrionalis</i>)	T	Adams, Billings, Bowman, Burleigh, Dunn, Emmons, Golden Valley, Grant, Hettinger, McKenzie, Mercer, Oliver, Sioux, Slope, Stark
Critical Habitat		
Piping Plover	D	Burleigh, Dunn, Emmons, McKenzie, Mercer, Morton, Oliver, Sioux
Dakota Skipper	D	McKenzie
¹ Status Codes: E = Endangered; T = Threatened; P = Proposed; C = Candidate, CH = Critical habitat, D = Designated		

Source: U.S. Fish and Wildlife Service (FWS 2015a)

Critical Habitat

Piping plover, federally listed as a threatened species, has designated critical habitat in seven of the proposed CREP II counties. Critical habitat for piping plovers includes alkali lakes and wetlands with the following characteristics: (1) shallow, seasonally to permanently flooded, mixosaline to hypersaline wetlands with sandy to gravelly, sparsely vegetated beaches, salt-encrusted mud flats, and/or gravelly salt flats; (2) springs and fens along edges of alkali lakes and wetlands; and (3) adjacent uplands 200 feet above the high-water mark of the alkali lake or wetland (Towner 2004). Critical habitat for the piping plover is located in Burleigh, Dunn, Emmons, McKenzie, Mercer, Morton, Oliver, and Sioux counties. Critical habitat areas include the Missouri River, Lake Sakakawea, and Lake Oahe. Some critical habitat areas for the piping plover in Burleigh County are privately owned (Appendix A).

There are 16 designated critical habitat locations for the Dakota skipper in North Dakota. McKenzie County has 2 critical habitat units and is the only county in the Project Area to have designated critical habitat for this species (Appendix A). The Dakota skipper's current distribution includes the border between tall-grass and mixed-grass prairie in western Minnesota, northeastern South Dakota, north-central North Dakota, and southern Manitoba, Canada (Royer 2004; USFWS 2002; USGS 2013).

3.4 EARTH RESOURCES

3.4.1 Definition of Resources

For the purposes of this analysis, earth resources include topography, soils, and paleontological resources.

3.4.2 Region of Influence

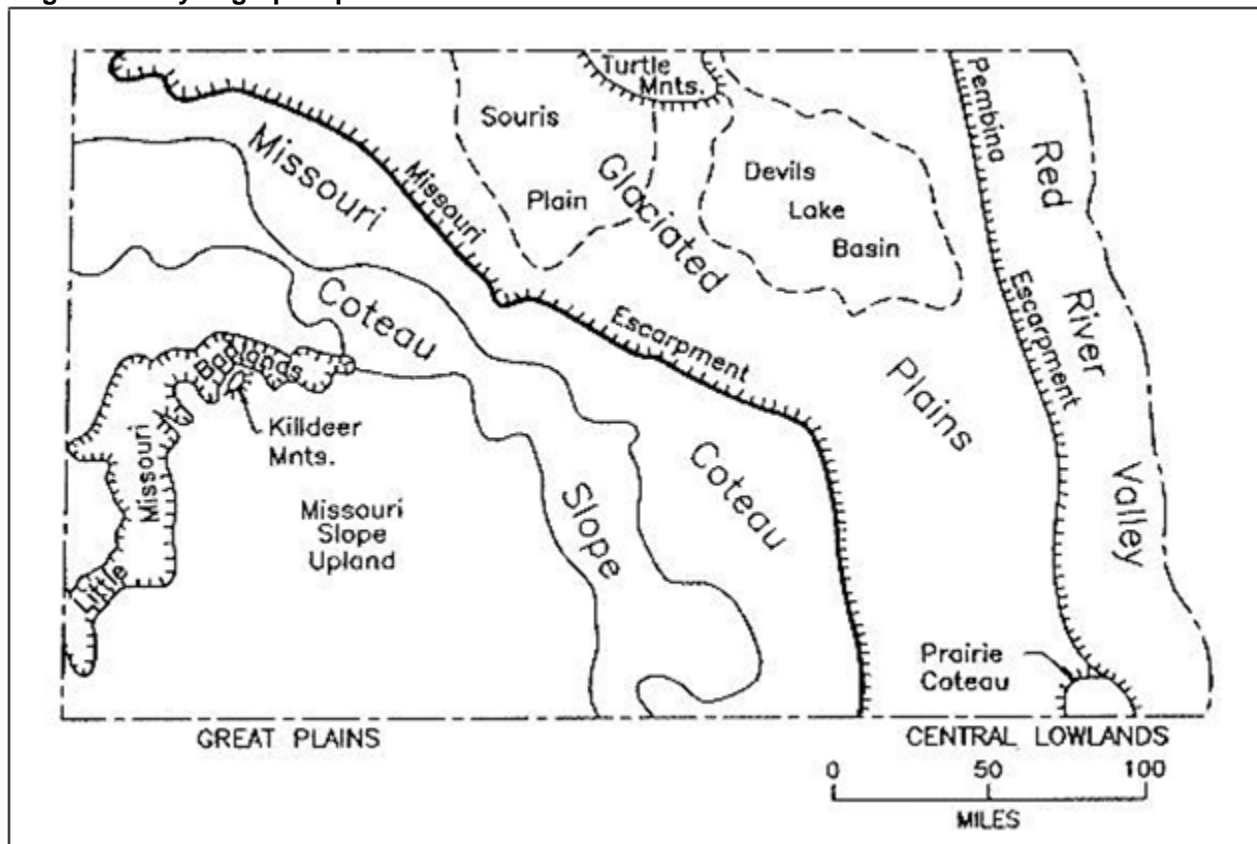
The Project Area for earth resources includes the 16 counties proposed for enrollment in CREP II.

3.4.3 Affected Environment

3.4.3.1 Topography

There are two major physiographic provinces in North Dakota (Figure 4). The Great Plains Province, located in the southern and western portions of the State, is characterized by a glacially-smoothed landscape that gradually rises west toward the Rocky Mountains. The Central Lowland Province, located in the northern and eastern portions of the State, contains both glaciated and non-glaciated landforms. These two provinces are divided by the Missouri Escarpment, which is a glacial moraine that runs roughly parallel to the Missouri River. As described by Bluemle and Biek (2004), the Central Lowland and Great Plains provinces can be further divided into regions that display similar landform characteristics.

Figure 4. Physiographic provinces of North Dakota



Central Lowland Province

The Central Lowland Province is composed of two distinct regions, the Red River Valley and the Glaciated Plains. The Red River Valley runs parallel to the eastern border of North Dakota. It is a flat plain that resulted from sedimentation of the prehistoric glacial Lake Agassiz.

The Glaciated Plains are separated from the Red River Valley by the Pembina Escarpment, which is a glacial moraine. The Glaciated Plains generally exhibit a gentle, rolling landscape. Exceptions to this mild topography occur in the Turtle Mountains, located at the northern boundary of the State, and in the Prairie Coteau at the southeastern portion of the State. The Souris Plain and the Devils Lake Basin are also located within the Glaciated Plains.

Great Plains Province

The Great Plains Province is divided into four regions including the Missouri Coteau, the Coteau Slope, the Missouri Plateau (also known as the Missouri Slope Upland), and the Little Missouri Badlands. The Missouri Coteau is characterized by a hummocky landscape and numerous potholes (i.e., small lakes where glacial ice persisted longest to prevent the depressions from becoming filled with sediment). Portions of Burleigh and Emmons counties are within this region.

The Coteau Slope has rolling to hilly plains and contains both erosional and glacial landforms. Portions of Burleigh and Emmons counties are within this region. The Missouri Plateau contains broad valleys, hills, and buttes produced by erosion. Mercer, Oliver, Morton, Sioux, Grant, Stark, Hettinger, and Adams counties fall within this region, as does a portion of Dunn, Billings, Slope and Bowman Counties. The Little Missouri Badlands is a ruggedly eroded region along the Little Missouri River. Portions of Dunn, McKenzie, Billings County, Golden Valley, Slope and Bowman are in this region.

3.4.3.2 Soil

For this analysis, soils are described by Level IV Ecoregion (Bryce et al. 1998, University of Idaho 2004) (Table 10). Soils in the Project Area are predominantly mollisols, which are the typical soils of grassland ecosystems. Mollisols are characterized by a thick, dark surface horizon. They are rich in organic materials and thus very productive agriculturally. Level IV Ecoregions comprised entirely of mollisols includes the Missouri Coteau, Collapsed Glacial Outwash, Missouri Coteau Slope, Glacial Lake Basins, Glacial Lake Deltas, Tewaukon Dead Ice Moraine, Drift Plains, and the Glacial Lake Agassiz Basin. The soils of these ecoregions are underlain by glacial sediments (e.g., till, outwash, drift), sandstone, and shale.

Entisols are another type of soil found within the Project Area. These soils are very diverse and are developed in unconsolidated parent material. They usually lack genetic horizons except an A horizon. Ecoregions that contain both entisols and mollisols are the Glacial Outwash, Sand Deltas and Beach Ridges, Missouri Plateau, and the Little Missouri Badlands. These ecoregions are underlain by glacial sediments, lacustrine sediments, or deltaic deposits.

Minor soils found within the Project Area are aridisols, alfisols, vertisols, and inceptisols. Aridisols are found in more arid regions and contain calcium carbonate. They are generally not used for agriculture unless irrigation water is available. Alfisols are relatively fertile and tend to be very productive for both agriculture and silviculture. Vertisols are clay-rich soils that shrink and swell with changes in moisture content, and thus tend to lack distinct, well-developed horizons. Inceptisols exhibit minimal horizon development and can occur in a wide range of ecological settings. Ecoregions with these soil types are the River Breaks and the Moreau Prairie. Both of these two ecoregions are underlain by sandstone and shale.

Table 10. Common soils in the Level IV Ecoregions.

Level IV Ecoregion	Common Soil Series
Collapsed Glacial Outwash	Ruso, Bowdle, Lehr, Wabek, Telfer, Lihen, Sioux, Parshall, Arvilla, Southam, Divide, Harriet
Little Missouri Badlands	Cabbart, Fleak, Zeona, Boxwell, Dogtooth Maltese, Patent, Havre, Glendive, Wolfpoint
Missouri Coteau	Barnes, Buse, Parnell, Svea Williams, Bowbells, Zahl
Missouri Coteau Slope	Williams, Max, Zahl, Bowbells, Parnell

Level IV Ecoregion	Common Soil Series
Missouri Plateau	Vebar, Chama, Amor, Williams, Rhoades, Belfield, Cabba, Flasher, Reeder, Regent, Parshall, Golva, Zahl
Moreau Prairie	Bullock, Parchin, Absher, Rhoades, Sorum, Reeder, Amor, Ekalaka, Janesburg, Moreau, Twilight
River Breaks	Sansarc, Opal, Bullock, Cabba, Amor, Flasher, Vebar, Temvik, Mandan, Cherry, Chama, Zahl, Lallie, McKeen

Source: NPWRC 2004

3.4.3.3 Paleontological Resources

Paleontological resources are tied closely to a geologic setting—sedimentary strata, landforms, areas of erosion into older rocks. The geological setting can be used to predict the occurrence of fossils, their type, abundance, and quality of preservation. North Dakota has geologic strata yielding plant, invertebrate, and vertebrate fossils from the relatively recent Pleistocene Epoch (10,000 years to 1.6 million years ago) back through the Cretaceous Period (66–91 million years ago). Fossils are protected on state owned land through the North Dakota Geological Survey under the North Dakota Paleontological Resource Protection Act (54 NDCC 17.3 parts 03–04, 2003).

3.5 Air Quality

3.5.1 Definition of Resource

Although the *Clean Air Act* (42 USC 85 parts 7401 et seq., 1999) is a Federal law, States are generally responsible for implementing the Act. Each State is required by the EPA to develop a State Implementation Plan that contains strategies to achieve and maintain the National Ambient Air Quality Standards (NAAQS). NAAQS establish limits for six criteria pollutants including ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and respirable particulates (PM10, or particulate matter less than 10 microns in diameter). Areas that violate air quality standards are designated as non-attainment areas for the relevant pollutants. Areas that comply with air quality standards are designated as attainment areas for relevant pollutants.

3.5.2 Region of Influence

The Project Area for this air quality analysis is the North Dakota Air Quality Control Region (40 CFR 16 part 81.335, 2004), which encompasses the 16 counties proposed for enrollment in CREP II.

3.5.3 Affected Environment

NDDH has the primary responsibility to ensure that the ambient air quality in North Dakota is better than the levels required by Federal and State standards. To evaluate compliance with air quality standards, NDDH operates eight ambient and two special purpose air quality monitoring sites. In addition, there are three industry-operated and source-specific air quality monitoring sites.

The State of North Dakota has relatively clean air and meets all State ambient air quality standards (NDDH 2004b). North Dakota is one of only 13 States that are in attainment for all criteria pollutants. There are no non-attainment areas within the Project Area.

3.6 Recreational Resources

3.6.1 Definition of Resource

Recreational resources are those activities or settings either natural or anthropogenic that are designated or available for recreational use by the public. In this analysis, recreational resources include lands and waters used by the public for hunting, fishing, wildlife watching, hiking, canoeing, and other water- related activities.

3.6.2 Region of Influence

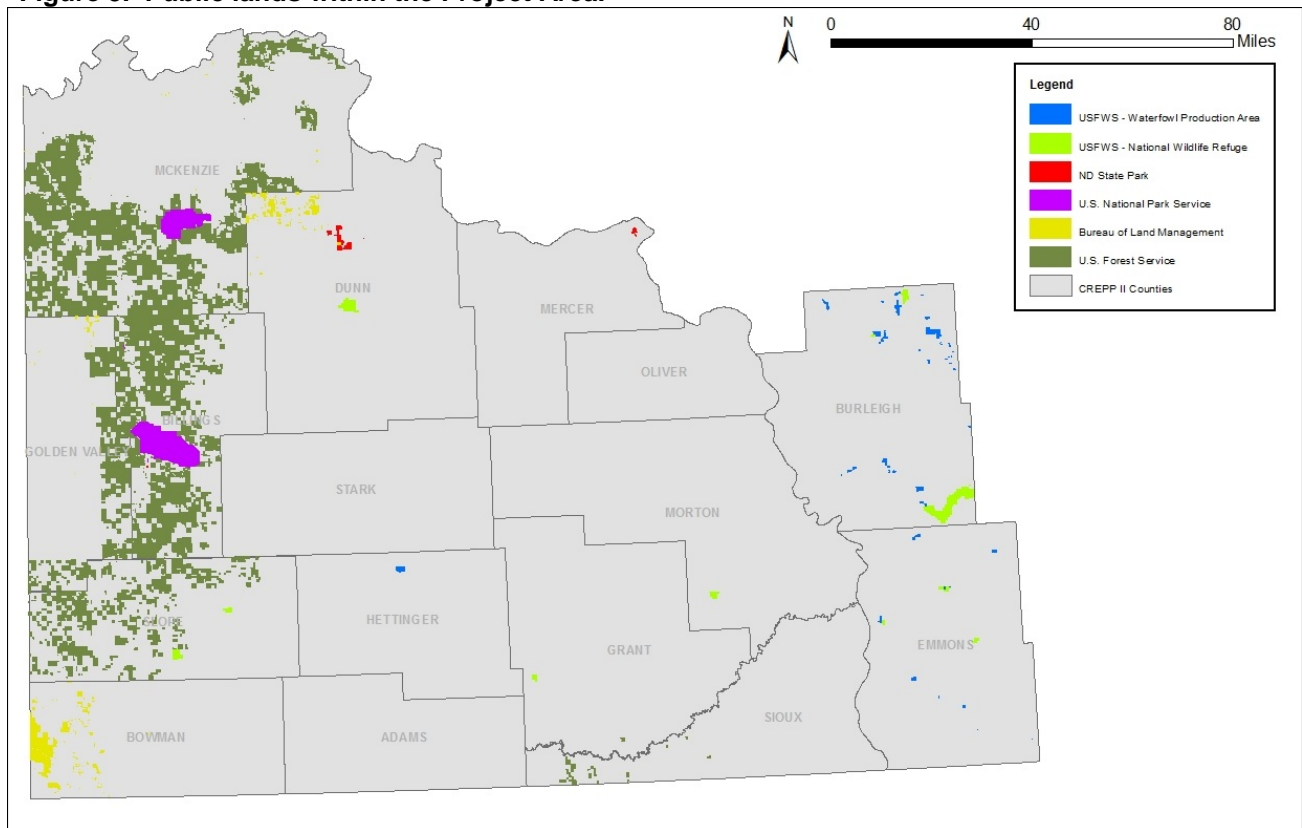
The Project Area for recreational resources includes the lands within the 16 counties proposed for enrollment in CREP II.

3.6.3 Affected Environment

Because the land that could be enrolled in CREP II is privately held, access to this land for recreational activities is presently controlled by landowners. CREP II would provide free public hunting access for the duration of the contract on CREP II and adjacent non-CREP II acres through the NDGF PLOTS program. This would increase the lands currently available for public recreation.

Currently, there are 1,027,891 acres of Little Missouri National Grasslands within McKenzie, Golden Valley, Billings and Slope counties (North Dakota State Forest Service [NDSFS] 2004) (Figure 5). Cedar River National Grasslands lies entirely in Grant County and Sioux counties and contains 6,722 acres. National grasslands within North Dakota are administered by the U.S. Forest Service (USFS) Dakota Prairie Grasslands Supervisor's Office in Bismarck (NDGF 1999). The BLM manages 50,591 acres in McKenzie, Dunn, Golden Valley and Bowman counties. The U.S. National Parks Service oversees two units of the Theodore Roosevelt National Park totaling 69,874 acres in McKenzie and Billings counties. In addition, there are 11 NWRs and 4 State parks in the proposed CREP II area (FWS 2004b, NDSFS 2004, North Dakota Parks and Recreation Department [NDPRD] 2004). There are no national monuments, wilderness areas, or wild and scenic rivers within the proposed Project Area.

Figure 5. Public lands within the Project Area.



Public land provides recreational activities such as hunting, hiking, camping, fishing, biking, and backpacking. Hunting and fishing require State-issued licenses for both public and private land. A discussion of the economics associated with hunting, fishing, and other recreational activities is provided in Sections 3.7 and 4.7.

3.7 Socioeconomics and Environmental Justice

3.7.1 Definition of Resource

Socioeconomic analyses generally include investigations of population, income, employment, and housing conditions of a specific area. Socioeconomic issues that are significant and considered in detail in this analysis are farm and non-farm employment and income, farm production expenses and returns, agricultural land use, and recreation spending in the Project Area.

In addition to these characteristics, populations of special concern are identified and analyzed for environmental justice impacts. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 32, 1995), requires that Federal agencies:

“...make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or

environmental effects of its programs, policies, and activities on minority populations and low-income populations....”

Race and ethnicity are two distinct categories of minority populations. A minority population can be described by either category, or by a combination of the two. Race as defined by the U.S. Census Bureau (USCB) includes White, Black or African American, American Indian or Alaskan Native, Asian, and Native Hawaiian or Other Pacific Islander (USCB 2001). Ethnicity is defined as either being of Hispanic or Latino origin and any race, or not of Hispanic or Latino origin and any race (USCB 2001). Hispanic or Latino origin is further defined as “a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race” (USCB 2001). A minority population can be described as being composed of a minority group and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population (CEQ 1997a).

National poverty thresholds are measured in terms of household income and are dependent upon the number of persons within the household. Individuals falling below the poverty threshold are considered low-income individuals. USCB census tracts where at least 20 percent of the residents are considered poor are known as poverty areas. When the percentage of residents considered poor is greater than 40 percent, the census tract is considered an “extreme poverty area” (USCB 1995).

3.7.2 Region of Influence

The Project Area for analysis of socioeconomics and environmental justice is the 16 counties proposed for enrollment in the North Dakota CREP II agreement.

3.7.3 Affected Environment

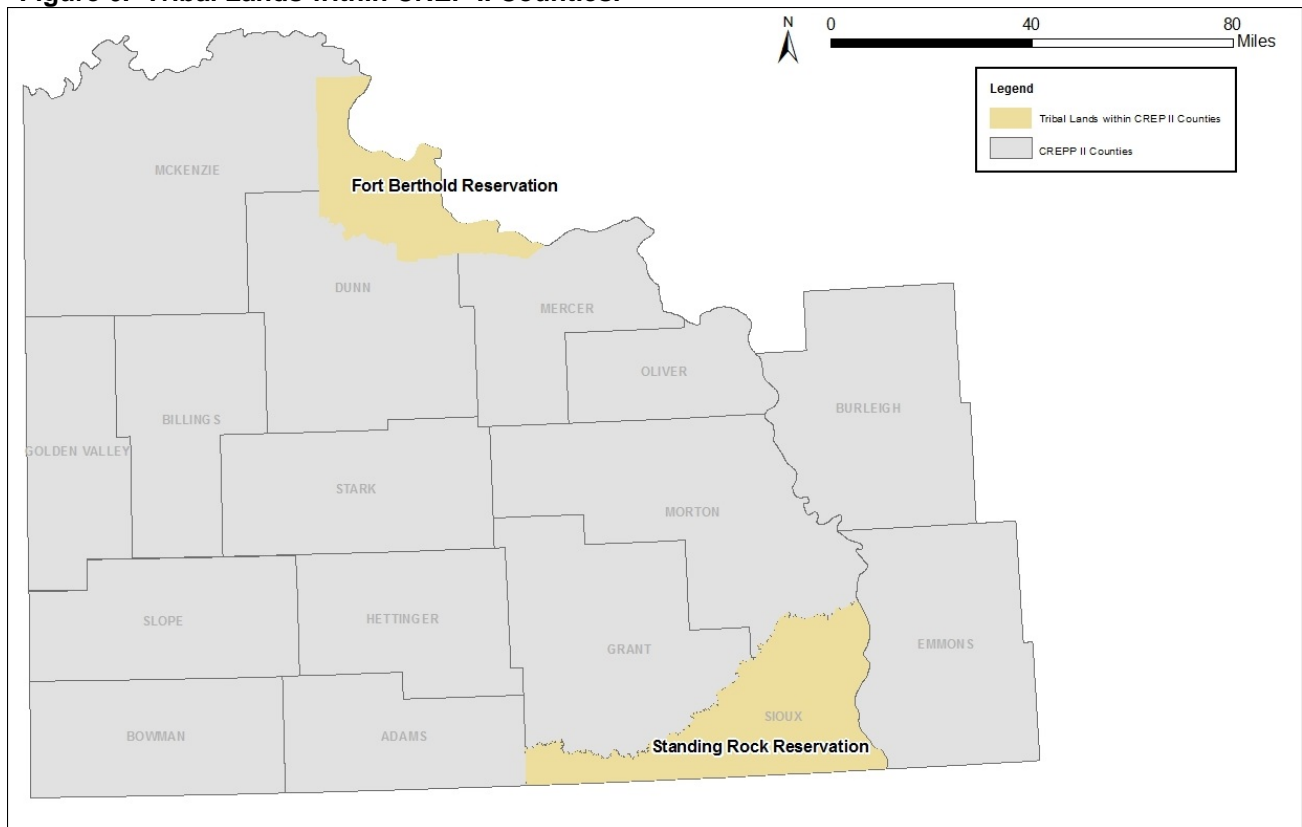
3.7.3.1 Demographic Profile

The total population within the Project Area was 191,586 people in 2013, which was a 0.91% percent increase from the population of 2010 (USCB 2015). Approximately 54 percent of the total population was located in urban areas or urban clusters, and 45 percent of the population was located within rural areas (USCB 2003b). This was a decrease of approximately 3 percent from the 1990 urban population (USCB 1993b).

As reported by the USCB (2015), demographics for the non-Hispanic Project Area population was 87.5 percent White, 0.5 percent Black or African American, 8.3 percent American Indian or Alaska Native, 0.30 percent Asian, 0.4 percent Native Hawaiian or Pacific Islander, 2.5% for Hispanic or Latino, and 1.03 percent all other races or combination of races. Overall the Project Area is not a location of a concentrated minority population; however, it is important to note that there are two American Indian reservations within the Project Area that do have concentrated minority populations (Figure 6). The Fort Berthold Reservation covers portions of McKenzie, Dunn and Mercer counties and Standing Rock Indian Reservation encompasses Sioux County. Tribal lands

are eligible for participation in CREP II; however, tribes may be hesitant to agree to the public access requirements of the agreement.

Figure 6. Tribal Lands within CREP II Counties.



In 2012, American Indians operated 80 farms within the Project Area, Hispanics operated 34 farms, and Asians operated 6 farms (USDA 2004). The Project Area accounts for 24.1 percent of all minority-operated farms within the State of North Dakota, while these 120 farms account for 1.5 percent of the total number of farms within the Project Area (USDA 2004).

3.7.3.2 Non-Farm Employment Income

Between 2007 and 2012, the non-farm labor force within the Project Area ranged from 97,128 in 2007 to 106,160 in 2012. Non-farm employment also ranged during this period from a low of 86,235 positions in 2007 to a high of 95,365 positions in 2012. The unemployment rate within the Project Area varied from a high of 3.4 percent in 2007 to 3.3 percent in 2012. Within the Project Area, Sioux County has experienced the highest average non-farm unemployment rate for the period (5.75), with the highest rate occurring in 2007 (6.3 percent).

Median household income between 2009 and 2013 ranged widely within the Project Area. The highest median household income in the Project Area was \$71,250 in Oliver County, and the lowest median household income was \$36,100 in Golden Valley, County. The average poverty rate for the Project Area in 2012 was 11.9 percent and varied from a high

of 40.5 percent in Sioux County to a low of 7.3 percent in Mercer County (USCB 2015). The Project Area would not be considered a poverty area, although it is acknowledged that Sioux County is considered low-income. However, given the anticipated dispersed locations of the potential enrolled acres throughout the Project Area, it is not anticipated that the enrolled acreage will be targeting or clustered in Sioux County. As such, while there may be a minor adverse impact to a handful of agricultural jobs in Sioux County, it would not be expected to be a significant impact.

3.7.3.3 Farm Employment and Income

As reported by the 2012 Census of Agriculture (USDA 2012), there were 10,190 hired farm workers on 7,848 farms within the Project Area, accounting for a payroll of \$44.5 million. Table 11 lists the hired farm and contract labor costs per county within the Project Area and labor costs as a percentage of total production costs. In 2007, the total hired farm and contract labor costs were \$28.8 million, which was 3.8 percent of total production costs. In 2012, the total hired farm and contract labor costs were \$89.5 million, which was 4.2 percent of total production expense.

Table 11. Hired farm and contract labor as a percentage of total production expenses for 2007 and 2012.

Area	2012				2007			
	Hired Farm Labor (\$1000)	Contract Labor (\$1000)	Total Production Expenses (\$1000)	Labor as a Percent of Total Production Expenses	Hired Farm Labor (\$1000) ^a	Contract Labor (\$1000) ^a	Total Production Expenses (\$1000) ^a	Labor as a Percent of Total Production Expenses
North Dakota	280,464	33,8498	7,296,140	4.3	169,978	14,459	4,239,872	4.4
Adams	2,536	681	72,585	4.4	1,220	489	47,693	3.6
Billings	1,115	306	33,421	4.3	659	96	15,871	4.8
Bowman	3,237	136	77,329	4.4	2,105	113	54,028	4.1
Burleigh	4,761	993	129,850	4.4	2,566	160	61,854	4.4
Dunn	3,245	987	85,589	4.9	1,788	163	48,323	4.0
Emmons	3,023	453	119,616	2.9	1,597	287	74,058	2.5
Golden Valley	1,942	307	47,873	4.7	1,108	256	33,032	4.1
Grant	2,714	581	101,470	3.2	1,612	139	55,560	3.2
Hettinger	3,194	1,168	109,704	4.0	1,384	763	58,256	3.7
McKenzie	3,708	1,344	82,334	6.1	2,092	385	55,635	4.5
Mercer	1,597	1,781	57,692	5.9	839	292	29,294	3.9
Morton	5,460	806	142,749	4.4	3,003	294	79,848	4.1
Oliver	1,741	356	65,162	3.2	1,281	114	37,473	3.7
Sioux	1,420	108	47,885	3.2	573	140	25,581	2.8
Slope	1,979	237	49,475	4.5	1,078	74	30,702	3.8
Stark	2,888	836	116,607	3.2	1,736	396	64,529	3.3

^aValue in 2012 dollars

Source: USDA, National Agricultural Statistics Service, 2012 Census of Agriculture – County Data

3.7.3.4 Farm Production Expenses and Returns

In 2012, farm production expenses exceeded \$8.6 billion within the Project Area. This is a large increase over the 2007 figure of \$772 million (adjusted to 2012 dollars) (USDA 2012). Using the 2012 acreage in active farm production (12,367,375 acres), the average cost per acre within the Project Area in 2012 was \$698 (USDA 2012). Using 2012 cropland, the cost per acre of agricultural chemicals inputs, including fertilizers and lime, was \$61.12 (USDA 2012). Average net cash return per farm within the Project Area was \$92,344 in 2012 (USDA 2012). The average net cash receipts per acre within the Project Area in 2012 were \$57.44 (USDA 2012). Table 12 lists the average farm production expenses and return per dollar of expenditure in 2012 within each county in the Project Area. Table 13 lists the average value of land and buildings and the average value of machinery and equipment per farm in 2012 within each county in the Project Area.

Table 12. Average farm production expenses and return per dollar of expenditure in 2012.

Area	Average Size of Farm (acres)	Average Total Farm Production Expense (\$)	Average Cost per Acre (\$)	Average Net Cash Return per Farm (\$)	Average Net Cash Return per Acre (\$)	Average Return per \$ Expenditure (\$)
North Dakota	1,268	235,656	186	147,12	116	0.62
Adams	1,534	185,165	146	117,95	77	0.53
Billings	1,425	273,017	192	37,821	27	0.14
Bowman	2,099	222,209	106	127,34	61	0.58
Burleigh	938	128,057	137	63,790	68	0.50
Dunn	1,642	136,287	83	77,279	47	0.57
Emmons	1,222	196,414	161	107,84	88	0.55
Golden Valley	2,241	190,730	85	78,508	35	0.41
Grant	2,067	199,745	97	130,49	63	0.65
Hettinger	1,449	222,072	153	136,80	94	0.61
McKenzie	1,854	143,438	77	76,832	41	0.53
Mercer	1,192	136,711	115	59,175	50	0.43
Morton	1,375	160,935	117	105,95	77	0.66
Oliver	1,360	224,698	165	89,014	65	0.39
Sioux	3,256	272,072	84	96,100	30	0.36
Slope	3,051	223,870	73	113,85	37	0.36
Stark	991	139,315	141	58,743	59	0.42

Source: USDA, National Agricultural Statistics Service, 2012 Census of Agriculture – County Data

Table 13. Average value of land, building, machinery, and equipment per farm in 2012.

Area	Average Size of Farm (acres)	Average Value of Land and Buildings per Farm (\$)	Average Value of Machinery and Equipment per Farm (\$)
North Dakota	1,268	1,808,8	300,334
Adams	1,534	1,236,1	192,021
Billings	1,425	2,888,9	226,416
Bowman	2,099	1,577,5	251,732
Burleigh	938	1,320,4	162,938
Dunn	1,642	1,498,7	250,261
Emmons	1,222	1,439,2	269,822
Golden Valley	2,241	1,887,9	258,785
Grant	2,067	1,904,9	235,537
Hettinger	1,449	1,624,5	263,455
McKenzie	1,854	1,366,3	246,225
Mercer	1,192	1,135,9	188,305
Morton	1,375	1,405,8	208,989
Oliver	1,360	1,388,9	192,590
Sioux	3,256	2,912,5	265,186
Slope	3,051	2,603,2	329,501
Stark	991	1,345,4	207,119

Source: USDA, National Agricultural Statistics Service, 2012 Census of Agriculture – County Data

3.7.3.5 Current Agricultural Land Use Conditions

In 2012, there were 7.2 million acres of land within the Project Area actively used for agricultural purposes including cropland, hay land, and pastureland. This was a 12.6 percent decrease from 2007 (USDA2012). Table 14 lists the acreage for different agricultural land uses in 2007 and 2012 and the percent change during that period. In 2015, there were approximately 164,000 acres within the Project Area enrolled in CRP and approximately 5,150 acres are enrolled in the Wetlands Reserve Program/Easement (WRP/WRE). The average value of farm land and buildings in 2012 was estimated at \$973 per acre (USDA 2012).

Table 14. Agricultural land uses within the Project Area in 2007 and 2012 and the percentage change experienced during that period.

Land Use	Acres in 2007	Acres in 2012	Percent Change
Cropland ¹	5,944,700	5,772,518	-2.9
Hay land ²	1,237,704	989,175	-20.1
Pastureland ^{3, 4}	1,057,510	443,228	-58
CRP and WRP ⁵	812,362	864,998	6.1
Active Agriculture ⁶	8,239,914	7,204,921	-12.6
Total Land in Farms ⁷	12,667,009	12,367,375	-2.4

¹ Cropland excludes all harvested hay land and cropland used for pasture or grazing
² Hay land includes all harvested and cropland used for pasture or grazing
³ Pastureland acres in Billings, Bowman, Golden Valley, Hettinger, Oliver, Sioux and Slope counties not included
⁴ Pastureland includes all pasture and rangeland, other than cropland and woodland pastured
⁵ Operations with land enrolled in CRP or WRP are counted as farms if they received \$1,000 or more in government payments.
⁶ Active agricultural lands include the sum of cropland, hay land, and pastureland (does not include data from Dunn, Grant, Hettinger, Logan, and Sioux counties)
⁷ Total land in farms includes the sum of cropland, hay land, pastureland, woodland, and house lots, etc.

Source: USDA, National Agricultural Statistics Service, 2012 Census of Agriculture – County Data (no data included to demonstrate any reason(s) for the declines)

3.7.3.6 Recreational Values

According to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (NSFHWAR), 279,000 State residents of ages 16 and older hunted or fished in North Dakota in 2006. This survey also revealed that in the same year, 148,000 residents participated in some form of wildlife watching (e.g., observing, photographing, or feeding wildlife) (FWS and USCB 2006).

North Dakota lured 106,000 anglers to State waters in 2006. Of that total, 88,000 (84 percent) were residents of North Dakota, while the remaining 18,000 (16 percent) were non-residents. Fishing-related expenditures for 2006 were in the range of \$94 million from residents and non-residents. The NSFHWAR estimated that approximately \$39 million went to trip-related expenses, such as lodging, food and transportation, while \$54 million went to related equipment and other expenses. In-state angling decreased from 179,000 anglers in 2001 to 106,000 anglers in 2006. The survey also indicated that the most popular species among anglers were walleye, sauger, northern pike, pickerel, muskie, muskie hybrids and panfish (FWS and USCB 2006).

Non-resident and resident hunters totaled 128,000 individuals in the 2006 survey. Non-residents accounted for 33 percent (42,000 non-residents) of that total, and residents accounted for 67 percent (86,000 residents). Hunting-related expenditures amounted to \$129 million of revenue for the State of North Dakota. Of this amount, \$72 million went to trip-related expenses, \$45 million to equipment, and \$11 million to other hunting expenses such as membership dues, licenses, and permits. The number of active hunters decreased from the 2001 survey to the 2006 survey. In 2001, there were 139,000

individuals who claimed to have hunted in North Dakota, and this number decreased to 128,000 in 2006. In 2006, approximately 77,000 hunted large mammals, 77,000 hunted smaller mammals, 24,000 hunted migratory birds, and 15,000 hunted other animals (FWS and USCB 2006).

According to the 2006 survey, wildlife-watching activities in North Dakota were enjoyed by 148,000 U.S. residents 16 years old and older. Wildlife-watching activities include photographing, observing, or feeding wildlife (non-consumptive activities). Such activities created revenue of \$23 million in North Dakota. Trip-related expenses including food, lodging, and transportation amounted to roughly \$5 million. Equipment, such as binoculars, film, and special clothing, amounted to \$17 million. Other related expenses, including memberships, donations, and contributions, amounted to \$982 thousand. A decreasing number of North Dakota residents are enjoying wildlife watching away from their homes. Total expenditures by State residents decreased from \$30,858 in 2001 to \$28,099 in 2006. In 2001, approximately 48,000 State residents participated in wildlife-watching activities away from their home, compared to 30,000 in 2006 (FWS and USCB 2006).

A more recent survey by North Dakota State University looked at hunter and angler economic effects during the 2011-2012 season. The survey randomly selected hunters and fishermen, who purchased licenses during the 2011-2012 season and sent out questionnaires to solicit information on expenditures made in North Dakota. Anglers purchased 38,197 non-resident fishing licenses and 125,286 resident licenses in North Dakota. A total of 22,664 resident hunters and anglers and 8,480 nonresident hunters and anglers were sent questionnaires. The survey received responses from 10,541 individuals (Taylor, Bangsund, and Hodur 2013).

According to the survey, non-resident anglers invested an average of \$1,107.76 in their fishing trips to North Dakota. Resident angler expenditures averaged \$4,122.60. Non-resident hunters averaged \$3,659.85 and resident hunters averaged \$6,686.12 in season expenditures. These expenditures include items such as food, gas, and lodging, as well as, firearms, tackle and clothing (Taylor, Bangsund, and Hodur 2013).

4.0 ENVIRONMENTAL CONSEQUENCES

This chapter discloses the potential environmental consequences or impacts to resources described in Chapter 3 that may result from implementing the Proposed Action or the No Action Alternative. As this analysis is programmatic and not site-specific, resource impacts are difficult to quantify. In compliance with guidelines contained in NEPA, CEQ, and FSA regulations, each individual CRP contract would require a site-specific environmental evaluation to be completed by FSA.

4.1 Water Resources

4.1.1 Alternative 1 – No Action

Under the No Action Alternative, the CPs described in Section 2.2.3 would not be implemented. The use of land for agriculture or conversion of lands to other types of agricultural production could result in the continued degradation of water quality from runoff of agricultural chemicals, animal waste, and sediment. Additionally, because this acreage would not be under a CREP contract, it is possible that it could be converted to non-agricultural uses. The benefits detailed below anticipated from implementation of the Proposed Action would not be achieved.

4.1.2 Alternative 2 – Proposed Action

4.1.2.1 Surface Water

Implementation of the proposed CREP II would have long-term positive effects on surface water quality where implemented. The CPs listed in Section 2.2.3 may provide water quality benefits, especially by establishing native vegetation communities. Where installed, these communities would stabilize soils and reduce soil erosion and sediment loading of surface waters, as well as decrease the runoff of nutrients and chemicals associated with agriculture. In addition, CREP II implementation is expected to cause a minor overall decrease in agricultural acreage that would result in reduced runoff from agricultural pesticides and other chemicals.

Activities such as vegetation clearing and soil disturbance may occur during the installation of CPs. These activities may result in temporary negative impacts to surface water quality resulting from runoff associated with these activities; however, the use of filter fencing or similar practices would reduce these impacts.

The primary goal of CREP II is to reduce the amount of sediment carried into the adjacent waterbodies on enrolled acreages by changing the land use to perennial vegetation. Soil loss analysis completed on the two highest acreages of class II, III and IV cropped soils within the watersheds, demonstrates that a local improvement in the reduction of the sediment load could be carried to the waterbodies. Soil losses completed using current cropping methods (as in the No Action Alternative) and changing to perennial vegetation were as follows:

Expected Reduction in Sediment Delivery (tons/ac/year) from the edge of field.

Soil type	<u>Current Crop/No Buffer</u>	<u>With a 50 Foot Buffer</u>
Class II Soils (Straw, Williams-Bowbells)	.5 to 1.5 t	0.0002 t
Class III Soils (Vebar, Parshall)	1.5 to 3.0 t	0.03 t
Class IV Soils	3.0 to 5.0 t	0.08 t

Research studies have determined that size of watershed, the type of vegetation and management, location and design of the buffer, soils, field topography, and rainfall intensity and amount all impact the performance and efficiency of a buffer.

- General findings, 50% reduction in sediments in most field settings.
- Equals approximately 50% reduction in nutrients leaving the field.

Pp. 43-58 in UMRSHNC (Upper Mississippi River Sub-basin Hypoxia Nutrient Committee). 2008. *Final Report:*

Gulf Hypoxia and Local Water Quality Concerns Workshop. St. Joseph, Michigan: ASABE. Copyright 2008 by the American Society of Agricultural and Biological Engineers.

The application of these buffers along the riparian areas would result in:

1. 60-90 percent reduction in sediment load delivered to downstream waterbodies, streams and rivers
2. 40-90 percent reduction in total nitrogen and phosphorus of runoff water passing through the established buffers.
3. 90 percent reduction in number of pesticide and fertilizer applications in the buffer areas (i.e., meaning that the only pesticides to be applied would be during the buffer establishment period).
4. Improved water quality in the project area by enrolling 1,500 acres annually, which would reduce the amount of nitrogen, phosphorus, and sediment entering rivers streams and other waterbodies by 75,000 pounds of nitrogen per year, 37,500 pounds of phosphorus per year, and 4,750 tons of sediment per year throughout the 16 county CREP II Project Area.

4.1.2.2 Groundwater

Implementation of the proposed CREP II would result in positive effects on groundwater. Where implemented, the proposed CPs would establish permanent vegetative cover where none currently exists. Where implemented, such vegetation would slow the rate of rainwater flow over the land, allowing for greater rates of aquifer recharge. The improvement in surface water quality previously discussed would result in improved quality of groundwater recharged by these surface waters. In addition, a reduction of acreage devoted to production agriculture would decrease the amount of nutrients leaching into the groundwater. All this said, these benefits would be limited to the areas impacted by the 20,000 acres installed under CREP II within the 16 county area. As such, due to the limited acreage involved and its widespread range across 16 counties, it is not expected that these impacts would be significant.

4.1.2.3 Wetlands

Implementation of the Proposed Action would not directly affect natural basin wetlands. CPs would not be constructed in wetlands. A potential indirect benefit of implementing the proposed action would be the reduction of agricultural nutrient and chemical runoff into wetlands and conversion to other uses, as compared to the potential impacts of the No Action Alternative.

4.1.2.4 Floodplains

CPs may potentially be constructed on floodplains, and minor improvements to floodplains in the Project Area are expected to occur as a result of the implementation of the proposed CPs. The establishment of vegetation is expected to decrease erosion in these areas and improve the function of floodplains. Implementation of the proposed CPs should not adversely alter the drainage, flow, or holding capacity of floodplains and would be expected to be short-term, temporary impacts.

4.2 Biological Resources

4.2.1 Alternative 1 – No Action

Under Alternative 1, the no action alternative, the proposed action would not be implemented. Lands that would have been eligible for enrollment in CREP II would likely remain in agricultural production or possibly be enrolled into an existing federal reserve program. The continued use of land for agriculture or the conversion of land to another type of agricultural production would continue to negatively alter and deplete wildlife habitat. The runoff of agricultural chemicals, animal wastes, and sediment would continue to degrade water quality, thereby degrading habitat for native plants and animals. The acreage proposed for CREP II would likely remain unenrolled under the existing CREP, as those incentives are inadequate. As the new incentives proposed in CREP II would not be implemented under the No Action Alternative, the benefits sought from that implementation, as detailed below, would not be achieved. Additionally, because this acreage would not be under a CREP contract, it is possible that it could be converted to non-agricultural uses.

4.2.2 Alternative 2 – Proposed Action

Implementation of Alternative 2 would result in locally beneficial impacts to biological resources in the proposed CREP II area and the waters downstream from the area. The agricultural land eligible for enrollment in the proposed CREP II area consists of previously disturbed and extensively managed landscapes. Vegetation and wildlife, including threatened, endangered, and sensitive species and their critical habitats, have been displaced from years of crop production on these lands.

4.2.2.1 Vegetation

The CPs proposed for implementation on 20,000 acres within 16 counties under the North Dakota CREP II would benefit vegetation resources in the 16 counties proposed for CREP II enrollment by establishing native plant communities. In particular, establishment of filter strips (CP21), riparian buffers (CP22), pollinator habitat (CP42), and Honey Bee habitat (CP42B) would increase biodiversity, soil stability, water quality and stream health, help

to reduce occurrences of exotic plant species, and provide habitat for wildlife and important pollinator species such as butterflies and bees.

Adverse impacts to vegetation may be incurred in the form of temporary roads and the exposure of bare soil during implementation of CPs; however, these impacts would be negligible and temporary.

4.2.2.2 Wildlife

Implementation of the proposed CREP II enrollment could locally increase species diversity by increasing wildlife habitat, thereby creating larger, stronger, and healthier wildlife populations on enrolled acreages. Enrollment of lands into CREP II would specifically provide localized benefits to honey bee and other pollinators through the installation of pollinator practices including pollinator-friendly wildflowers, legumes and/or shrubs. Stream and river drainages are used by wildlife as travel/dispersal corridors; an increase in habitat along these drainages would add forage and provide cover. Population data for wildlife species, specifically ring-necked pheasants, would be gathered annually in the Project Area by NDGF personnel using survey and census techniques currently in use to monitor changes in the pheasant population. These include spring crowing counts, late summer roadside brood counts and winter sex ratio counts. Random sample of representative CREP II sites within the Project Area would be surveyed annually to measure wildlife response and/or changes in production. Other wildlife species data may be collected to ensure practices being implemented are beneficial to Species of Concern identified in the NDGF Wildlife Action Plan.

4.2.2.3 Threatened, Endangered, and Sensitive Species and Their Designated Critical Habitat

Enrolling 20,000 acres of land into the CREP II is expected to have a local, positive impact on threatened and endangered (T&E) species where implemented. The majority of T&E species within the Project Area rely heavily upon rivers, beaches, islands, and floodplains. The establishment of riparian and other herbaceous cover would be beneficial to T&E species by providing such protection. The reduced agricultural runoff in these areas would marginally increase water quality, which in turn could positively impact pallid sturgeon recovery efforts within the counties that border the Missouri River system.

The Proposed Action would only have a negative impact on T&E species if CREP II implementation occurred during the breeding season of these species. Adverse impacts associated with the Proposed Action would include an increase in human disturbance during implementation and maintenance. To comply with the requirements of Section 7 of the ESA (16 USC 35 parts 1531 et seq., 1988), FSA and NRCS would ensure that all conservation plans consider whether T&E species or critical habitat are present within each specific site and, if needed, would consult with the FWS. FSA and NRCS may also consult with the appropriate FWS T&E staff on a programmatic level to determine what level of site-specific review may be necessary.

4.3 Cultural Resources

4.3.1 Alternative 1 – No Action

Under the No Action Alternative, farming practices in the 16 counties proposed for CREP II enrollment would continue. Though the continuation of farming in previously disturbed areas is not expected to impact cultural resources, a change in farming practices that would disturb previously undisturbed areas could result in impacts to known or unknown archaeological, architectural, or traditional cultural resources.

4.3.2 Alternative 2 – Proposed Action

As this EA does not address specific locales and settings at this time, detailed cultural resource information is not offered in this EA and all actions should be reviewed with the North Dakota State Historic Preservation Office (NDSHPO) during the planning and implementation phases. NDSHPO recommends that when the CREP II implementation areas are identified by legal description and actions are proposed, a Class I literature search be conducted to determine whether or not any previous cultural resource inventories have been conducted on these properties and if any further investigations or mitigation are warranted. FSA and NDSHPO offices would communicate with participating tribes during planning phases to integrate cultural resource protection and mitigation of any anticipated adverse impacts, as well as soliciting input on the identification and protection of any TCPs. Individual CRP contracts would require a site-specific environmental evaluation to be completed by FSA through the completion of a NRCS-CPA-52.

Potential may be great for recorded and unidentified archaeological sites to exist on CREP II properties, especially those near water sources (rivers and streams, springs, marshes), land forms and other topographic features, stone sources, and prehistoric and historic trails. Inquiries about North Dakota paleontological resources, or review of project plans and details and their potential impact on these resources, would be made to the Fossil Resource Management Program, North Dakota Geological Survey.

The following assumptions were considered during the cultural resources analysis for the CREP II EA:

- Actions in this EA may have potential direct, indirect, and cumulative effects on cultural resources. To the extent possible, these would be avoided, as appropriate consultations would be performed and, if needed, mitigation measures required.
- All project planning and work initiated under this EA would meet required Federal and State historic preservation statutes, regulations, and guidelines. Any permitting or ground-disturbing actions would be preceded by consultation with NDSHPO and tribal representatives, and followed by archival and field investigations as warranted. NDSHPO has published a statewide historic preservation plan that serves as a guide to preservation methods, goals, and research designs based on the cultural geography of the State (NDSHPO 2003).
- The potential for expected and cumulative adverse effects on identified cultural resources, including physical and visual impacts, would be determined and mitigation plans, if needed, developed by lead agencies for heritage resource protection and for the treatment of TCPs and unanticipated discoveries.

- Enhancement projects would be conducted on a mosaic of Federal, State, and private lands and different ecologies. Some environmental settings would carry the potential for more cultural and paleontological resources. Each project would require participation by and consultation with several public and private agencies, some of which would have oversight and permitting roles.

4.4 Earth Resources

4.4.1 Alternative 1 – No Action

Under Alternative 1, the No Action Alternative, the CPs described in Section 2.2.3 would not be implemented. The current rates of erosion and the changes in topography resulting from erosion would be expected to continue. There would be negligible effects to paleontological resources.

4.4.2 Alternative 2 – Proposed Action

Long-term positive impacts to soils are expected to occur under the Proposed Action. Implementation of the proposed CPs would result in localized stabilization of soils as a result of decreased erosion and runoff. Establishing permanent vegetation on 20,000 acres of former croplands would reduce erosion on these areas by wind and water. Short-term disturbances to soils during implementation of CPs may include tilling or installation of various structures such as fences, breakwaters, or roads. These activities may result in minor, temporary increases in soil erosion. Neither Managed nor Emergency haying or grazing would be conducted on land enrolled in CREP II. There would be negligible effects to paleontological resources.

4.5 Air Quality

Impacts to air quality in attainment areas (entire Project Area) would be considered significant if:

- Pollutant emissions associated with the proposed action caused or contributed to a violation of any national, State, or local ambient air quality standard.
- The proposed action exposed sensitive receptors (e.g., residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, parks, and outdoor restaurants) to substantially increased pollutant concentrations.
- Pollutant emissions associated with the Proposed Action exceeded any significance criteria established by the State Implementation Plan.

4.5.1 Alternative 1 – No Action

Implementation of Alternative 1 would not change existing air quality conditions. The CPs proposed under the Proposed Action and described in Section 2.2.3 would not be implemented. The opportunity to improve air quality, however minor, through permanent vegetated areas would be missed.

4.5.2 Alternative 2 – Proposed Action

Implementation of the Proposed Action would result in establishment of CPs as described in Section 2.2.3 within 16 counties in North Dakota. Implementing the proposed CPs

would reduce the amount of exposed soil, which would have long-term positive impacts to the local air quality. Due to the anticipated dispersed nature of the 20,000 acres within the 16 county range of CREP II, it is not expected that any of the CPs would result in significant impacts to air quality, beneficial or adverse.

Preparing the lands for CPs may include activities such as tilling, burning, and installation of various structures. These activities would have localized and temporary impacts to air quality. Tilling would temporarily increase PM10 concentrations in the immediate area; however, this increase is not expected to be significant due to the size of the Project Area. Plus, watering exposed soil during and after tilling would reduce the amount of PM10 released into the air from any given CREP II contract.

The amount of prescribed open burning that would take place is not known, but due to State and local restrictions governing fire management (designed to reduce adverse impacts) that will be adhered to, as well as the dispersed nature of the 20,000 acres within the 16 county Project Area, it is not expected to have a significant impact on the local air quality. Prescribed open burning would release toxic pollutants into the environment such as particulates, partially consumed fuel, liquid droplets, carbon monoxide, hydrocarbons, and nitrogen oxides. Over 90 percent of particulate emissions from prescribed burning are PM10, which poses particular health concerns (EPA 1992). The quantity and distribution of these pollutants would depend on the type of vegetation that is being burned, the configuration of the burned material (material heaped or organized in rows), and the weather at the time of burning. The method of burning the vegetation material would also determine how much of the pollutants are released to the environment. One method for reducing emissions would be the use of an air curtain incinerator, which consists of a burn pit and a device to blow air across and into the pit; thus, decreasing the amount of time required to burn the material (Eastern Research Group 2001).

Installing various fire management structures such as roads, firebreaks, and fences may require the temporary use of heavy-duty diesel construction vehicles. Primary emissions from construction vehicles include carbon monoxide and PM10. Best management practices would be used during construction activities to reduce the amount of temporary emissions.

Overall, due to the dispersion of the 20,000 acres within the 16 county Project Area, as well as the State and local laws governing emissions that will be complied with, it is not anticipated that the air quality emissions from any CREP II action would individually or cumulatively be significant.

4.6 Recreational Resources

4.6.1 Alternative 1 – No Action

Under Alternative 1, CREP II would not be implemented. CPs would not be used to improve lands and waters used by the public for hunting, fishing, hiking, birding, canoeing, and other water-related activities. Additionally, no (or relatively few, as compared against the Proposed Action) new areas would become available for these uses.

4.6.2 Alternative 2 – Proposed Action

Implementation of the Proposed Action would have a positive and long-term local impact on recreational resources within the CREP II area. Establishing the proposed CPs would increase habitat available and, therefore, would provide an opportunity for a minor and localized increase in the abundance of bird and mammal species. Marginally improved water quality would be able to support a minor increase in fish populations and provide for additional fishing opportunities. Public hunting and fishing acres would be increased by 20,000 acres or more within the 16 county Project Area. The increase in game and fish populations may increase funds spent on hunting and fishing licenses and improve socioeconomic conditions in the area (see Section 4.7, Socioeconomics and Environmental Justice). Implementation activities and displacement of hunted species may occur during installation of the proposed CPs; however, these impacts would be minor and temporary.

4.7 Socioeconomics and Environmental Justice

4.7.1 Alternative 1 – No Action

Under Alternative 1, CREP II would not be implemented and socioeconomic conditions would continue to follow the trends associated with the Project Area, North Dakota, and the Midwest region of the U.S., The small percentage of cropland anticipated to be placed in conservation programs under the No Action Alternative would not contribute to slowing farmland conversion.

Because the Project Area would not be considered an area of concentrated minority population or a low-income area, there would be no impacts to environmental justice as a result of selecting the no action alternative. Although it is acknowledged that Sioux County is considered low-income. However, given the anticipated dispersed locations of the potential enrolled acres throughout the Project Area, it is not anticipated that the enrolled acreage will be targeting or clustered in Sioux county. As such, while there may be a minor adverse impact to a handful of agricultural jobs in Sioux County, it would not be expected to be a significant impact.

4.7.2 Alternative 2 – Proposed Action

The implementation of the Proposed Action would result in a maximum of 20,000 acres being placed into conservation practices. The anticipated impact would include negative employment and income impacts from reduced agricultural production on the 20,000 acres involved. While labor would represent some portion of this impact, it is not known the exact portion. North Dakota traditionally experiences one of the lowest unemployment rates in the country. In recent years, oil and gas exploration has increased considerably due to the discovery of the increased potential of the Bakken Field using improved drilling technology. Oil and gas production is concentrated in western North Dakota; however, the secondary effects (refining, transportation, etc.) have substantively benefited the entire state's economy.

The addition of cost-share, annual rent payments, and incentive payments could result in a beneficial impact for the individual enrolling in CREP II. Since the intent of CREP II is to enroll cropland, current production expenses may exceed financial gains and enrollment in CREP II may represent a better financial decision for an individual. However, government payments to an individual farm do not generate economic activity the way agricultural production does; there are few to no jobs created, agricultural support services are not utilized, and no investment opportunities for the local area are created.

Enrollment in CREP II is voluntary and the number acres to be enrolled and their exact location cannot be predicted. While there may be negative economic impacts from the temporary loss of 20,000 acres of agricultural land, these impacts would be spread across the 16 county CREP II area and offset by the proposed incentives offered by CREP II.

It is expected that enrollment in CREP II would locally improve water quality and wildlife habitat for hunted species (e.g., white-tailed deer and ring-necked pheasants) and non-hunted species (e.g., pollinators, sedge wrens, lark buntings, and grasshopper sparrows). Due to the anticipated localized benefits to pollinator species, this may also increase wildlife-related recreation opportunities and, thus, generate associated economic activity within the Project Area. Habitat could be improved locally for pollinators such as Monarch butterfly, Regal Fritillary and Dakota Skipper.

Because the Project Area would not be considered an area of concentrated minority population or a low-income area, there would be no impacts to environmental justice as a result of selecting this alternative for implementation. Although it is acknowledged that Sioux County is considered low-income. However, given the anticipated dispersed locations of the potential enrolled acres throughout the Project Area, it is not anticipated that the enrolled acreage will be targeting or clustered in Sioux county. As such, while there may be a minor adverse impact to a handful of agricultural jobs in Sioux County, it would not be expected to be a significant impact.

5.0 CUMULATIVE IMPACTS AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

5.1 Cumulative Impacts

5.1.1 Definition of Cumulative Impacts

As defined by CEQ regulations:

“Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (‘Federal or non-Federal’) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (40 CFR 1508.7, 2004)

CEQ guidance suggests that the first steps in assessing cumulative impacts involve defining the scope of the proposed action and other actions, and evaluating the nature of potential interactions between the actions (CEQ 1997b). Scope must consider geographic and temporal relationships between the proposed action and other actions. Actions overlapping with or in proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, actions that coincide even partially in time would tend to offer a higher potential for cumulative effects.

For the purposes of this analysis, the Project Area is the 16 counties proposed for enrollment in CREP II and listed in Section 1.3. The primary sources of information used to identify reasonably foreseeable future actions are public documents prepared by Federal, State, and local government agencies.

5.1.2 Past, Present, and Reasonably Foreseeable Future Actions

The North Dakota NRCS manages the implementation of several programs that are focused on conserving and enhancing natural resources within the State. These programs are summarized in the following subsections to demonstrate the types of past, present, and reasonably foreseeable future actions that may occur in the Project Area.

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. In addition, a purpose of EQIP is to help producers meet Federal, State, Tribal and local environmental regulations. NRCS provided \$25,084,300 in EQIP obligations to North Dakota farmers and ranchers in 2014 (NRCS 2014).

Agricultural Conservation Easement Program

The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements (ALE) component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements (WRE, formerly Wetland Reserve Program-WRP) component, NRCS helps to restore, protect and enhance enrolled wetlands. As of 2013, there were 726 WRP agreements, covering 121,656.7 acres in North Dakota (NRCS2013).

In addition to NRCS, the NDGF implements several private land programs through its Private Land Initiative (PLI); these programs offer financial assistance for habitat development and public access for walk in hunting through the PLOTS program. The NDGF has utilized State Wildlife Grant funds through PLI to implement conservation actions identified in the State Wildlife Action Plan (SWAP). Contracts have been developed with producers to create habitat for wildlife and pollinators. Contracts provide financial assistance to develop or enhance habitat within designated focus areas for species identified in the SWAP. Projects have been developed for Dakota Skipper, grassland nesting birds such as bobolink and prairie chicken and waterfowl such as Northern Pintail. Diverse plantings of native forbs and legumes have been designed and planted on PLOTS projects to benefit pollinators such as Monarch butterflies.

5.1.3 Analysis of Cumulative Impacts

When considered in combination with other past, present, and reasonably foreseeable future actions, such as those examples specified, the incremental impact of the Proposed Action is expected to result in marginal, albeit net positive, impacts to biological, water, earth, and recreational resources in the 16 counties proposed for CREP II enrollment and in waters downstream. Due to the dispersed nature of the 20,000 acres within the 16 county Project Area, these benefits are not expected to be significant. No negative cumulative impacts to any resource are expected from the implementation of the Proposed Action.

5.2 Irreversible and Irrecoverable Commitment of Resources

As required by NEPA, any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented must be identified in environmental analyses. Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the effect that this use may have on future generations. Irreversible commitments are those that consume a specific resource that is renewable only over a long time period. Irrecoverable commitments are those that consume a specific resource that is neither renewable nor recoverable for use by future generations. No irreversible or irretrievable resource commitments are expected from implementation of the Proposed Action.

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USDA, Farm Service Agency, Fargo, ND

Nell Fuller
National Environmental Compliance Manager
USDA, Farm Service Agency, Washington, DC

7.0 PERSONS AND AGENCIES CONTACTED

Table 15 shows the federal, state, and local agencies; American Indian tribes; and interest groups contacted for the CREP II EA.

Table 15. CREP II EA consultation

Last Name	First Name	Title	Agency
Wood	Albert	Area I Director	ND Association of Conservation Districts
Bollum	Perry	Area II Director	ND Association of Conservation Districts
	Vacant	Area III Director	ND Association of Conservation Districts
Burkart	Alvin	Area IV Director	ND Association of Conservation Districts
Knopp	Richard	Area V Director	ND Association of Conservation Districts
Webb	Richard	Area I Asst. State Conservationist	USDA-NRCS
Blotter	Stuart	Area II Asst. State Conservationist	USDA-NRCS
Faaborg	Kresta	Area III Asst. State Conservationist	USDA-NRCS
McLaughlin	Steve	Superintendent	Bureau of Indian Affairs
Berg	Claudia	Director	State Historical Society – Preservation Office
Davis	Susan	Executive Director	Dakota Prairies RC&D
Devney	John	Vice President - US Policy	Delta Waterfowl Foundation
Walker	Johann	Director of Conservation Programs	Ducks Unlimited
Wrangham	Dwight	Executive Director	Land Owners Association of North Dakota
Fox	Fred	Chairperson	Natural Resources Committee - Three Affiliated Tribes
Ell	Mike	Mgr. Surface WQ Mgmt. Program	ND Department of Health - Division of Water Quality
Sturn	Gerald	SW District Director	NDSU Extension Service
Hall	Ken	Executive Secretary	New Town/Little Shell Segment - Three Affiliated Tribes
Johnston	Brian	CEO	North Dakota Association of Soil Conservation Districts
Vetsch	Rhonda	President	North Dakota Conservation District Employee Association
Aasmundstad	Britt	Policy & Program Analyst	North Dakota Department of Agriculture
Sandness	Greg	NPS Coordinator	North Dakota Department of Health
Lies	Daryl	President	North Dakota Farm Bureau
Braun	Dane	Agricultural Strategist	North Dakota Farmers Union
Kotchman	Larry	State Forester	North Dakota Forest Service
Claeys	Tom	Forestry & Fire Management Team Lead	North Dakota Forest Service

ND Conservation Reserve Enhancement Program
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Last Name	First Name	Title	Agency
Weinand	John	President	North Dakota Grain Growers Association
Dukart	Joshua	Coordinator/Field Representative	North Dakota Grazing Lands Coalition
Trego	Keith	Executive Director	North Dakota Natural Resources Trust
Fedorchak	Julie	Public Utility Analyst	North Dakota Public Service Commission
Volk	Eric	Executive Director	North Dakota Rural Water
Olson	Brad	Farm Program Director	North Dakota State FSA Office
Humann	Mike	Director of Surface Management	North Dakota State Land Department
Hochhalter	Scott	Soil Conservation Specialist	North Dakota State Soil Conservation Committee
Paczkowski	John	Water Development Division	North Dakota State Water Commission
Ressler	Scott	Environmental Services Director	North Dakota Stockmen's Association
Bush	Rachel	ND State Coordinator	Pheasants Forever, Inc.
Smith	Joseph	Agriculture Resource Mgmt Plan Team Member	Standing Rock Sioux Tribe
Fox	Mark	Chairman	Three Affiliated Tribes
Crooke	Patsy	Project Manager	U.S. Army Corps of Engineers
Weigel	Jim	Engineer	U.S. Bureau of Reclamation
Shelley	Kevin	ND State Supervisor	U.S. Fish & Wildlife Service, Ecological Services
McLeod	Scott	ND State Coordinator	U.S. Fish & Wildlife Service, Partners for Fish and Wildlife
Perrin	Rebecca	Region 8 Agricultural Adviser	United States Environmental Protection Agency
Tincher	Scott	Director	USDA - Risk Management Agency
Jantzi	Darin	Director	USDA National Agricultural Statistics Service
Sanderson	Matt	Research Leader	USDA-ARS Northern Great Plains Research Lab
Dudley	Mike	State and Private Forestry Coordinator	USDA-Forest Service (Intermountain Region)
Neitzke	Dennis	Supervisor	USDA-Forest Service-Dakota Prairies Grassland
Schwagler	Todd	State Resource Conservationist	USDA-NRCS North Dakota State office
Yellow	Lisa	Tribal Land-Grant Liaison	USDA-Office of Tribal Relations (OTR)
Beck	Rodney	Program Support Director	USDA-Rural Development
Linz	George	Field Station Leader	USDA-Wildlife Services
Smith	Colin	Regional Biologist	National Wild Turkey Federation
Casey	Dan	Coordinator	Northern Great Plains Joint Venture
Mandrich	Cheryl	Northern Great Plains Coordinator	American Bird Conservatory
Stemler	Casey	Coordinator	Prairie Pothole Joint Venture

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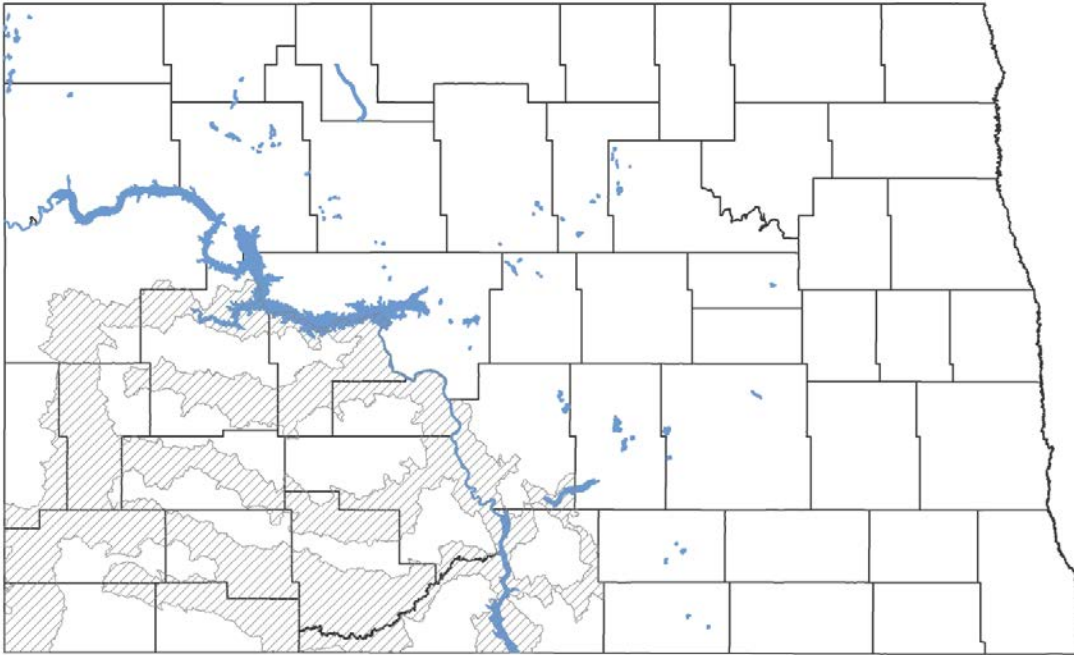
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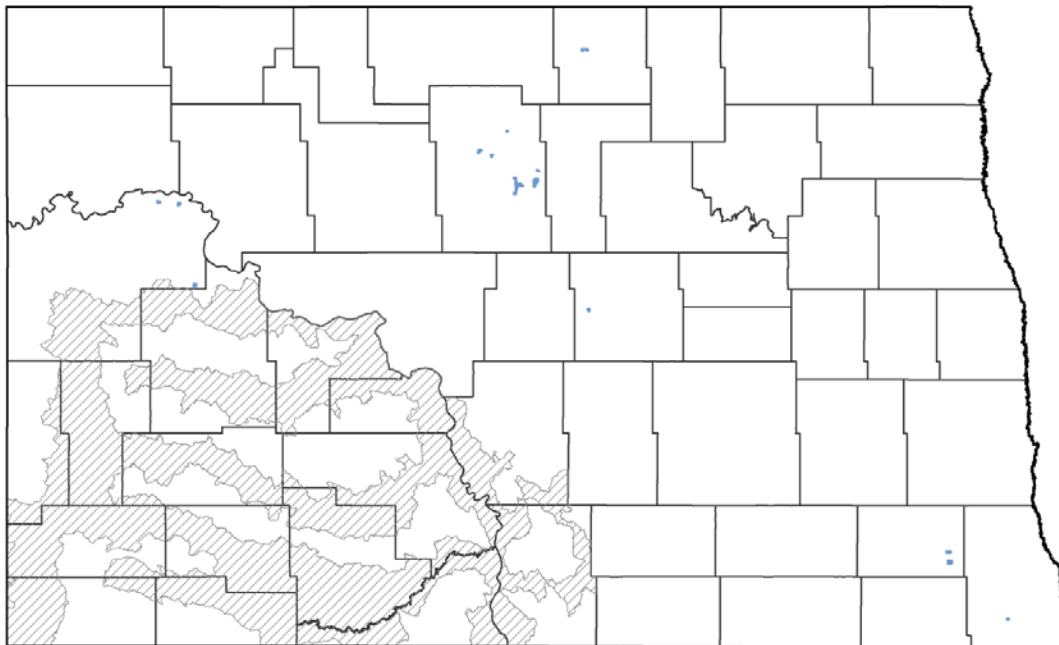
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Appendix A – Critical Habitat Locations



Critical Habitat Locations for Piping Plover.



Critical Habitat Locations for Dakota Skipper.

Appendix B – Impaired Waters

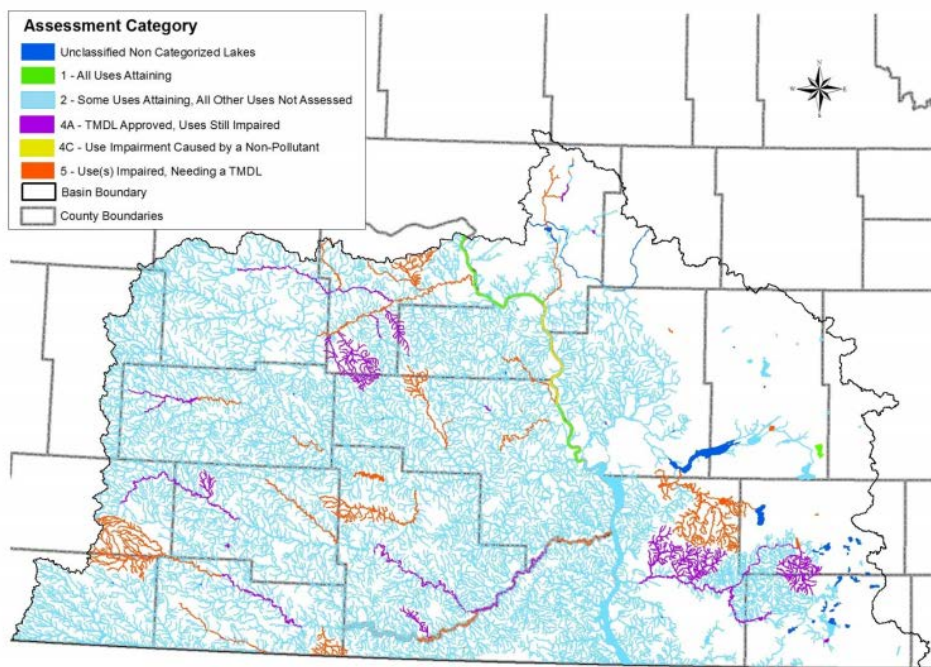


Figure VI-5. Graphical Depiction of 2014 Section 303(d) Listed Waters Needing TMDLs (Category 5) in the Lake Oahe/Missouri River Basin.

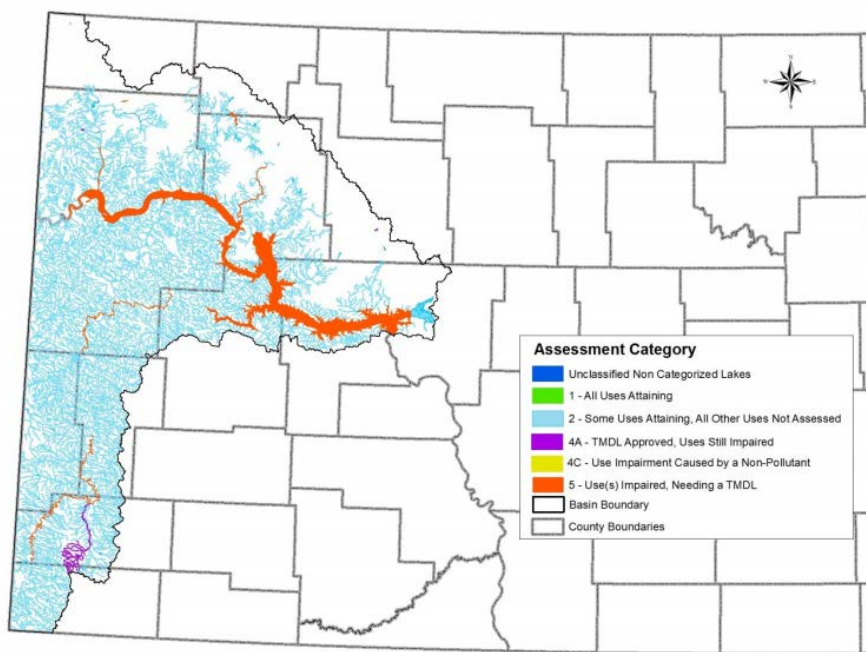


Figure VI-4. Graphic Depiction of 2014 Section 303(d) Listed Waters Needing TMDLs (Category 5) in the Lake Sakakawea/Missouri River Basin.

Appendix C – Net Present Value Worksheet

Rental	Estimated Acres	Updated Current CRP Rental	FSA Rental Rate Incentive	FSA Rental Rate w/Incentive	FSA Projected Total Annual Rent w/Incentive	State Incentive (PLOTS)	State Total Cost (PLOTS)
CP21	5,000	\$40.00	40%	\$56.00	\$280,000.00	\$100.00	\$500,000.00
CP22	5,000	\$40.00	40%	\$56.00	\$280,000.00	\$100.00	\$500,000.00
CP42B	5,000	\$40.00	10%	\$44.00	\$220,000.00	\$100.00	\$500,000.00
CP42	5,000	\$40.00	20%	\$48.00	\$240,000.00	\$100.00	\$500,000.00
Total	20,000				\$1,020,000.00		\$2,000,000.00
				Net present value	\$11,916,623		
			Total costs - Fully subscribed 15yr. Contracts			Total acres	20,000
						Non- discount	Discount
			Estimated USDA FSA Cost (Rent and Incentives)			\$15,300,000.00	11,916,623.00
			Estimated State Cost (PLOTS Incentive)			\$2,000,000.00	2,000,000.00
			Subtotal Rental and State Incentives			\$17,300,000.00	13,916,623.00
			Estimated USDA Installation Costs			\$3,714,000.00	\$3,714,000.00
			Estimated State Installation Costs (PLOTS cost share)			\$1,894,000.00	\$1,894,000.00
			Subtotal Installation Costs			\$5,608,000.00	\$5,608,000.00
			Subtotal Federal Costs: Rent, Incentive and Installation			\$19,014,000.00	\$15,630,623.00
			State Cost: PLOTS Incentive and Installation			\$3,894,000.00	\$3,894,000.00
			State Cost: Time - Field/Admin			\$270,000.00	\$270,000.00
			State Cost: Mileage			\$22,000.00	\$22,000.00
			State Cost: Environmental Assessment			\$20,000.00	\$20,000.00
			State Cost: Eval/Compliance			\$162,500.00	\$162,500.00
			State Cost: Education and Outreach			\$25,000.00	\$25,000.00
			Subtotal State Costs:			\$4,393,500.00	\$4,393,500.00
			Total Costs (State and Federal)			\$23,407,500.00	\$20,024,123.00
						81.2%	78.1%
						18.8%	21.9%

**DISCOUNT RATES FOR COST-EFFECTIVENESS, LEASE PURCHASE,
 AND RELATED ANALYSES**

Effective Dates. This appendix is updated annually. This version of the appendix is valid for calendar year 2016. A copy of the updated appendix can be obtained in electronic form through the OMB home page at http://www.whitehouse.gov/omb/circulars_a094/a94_appx-c/. The text of the Circular is found at http://whitehouse.gov/omb/circulars_a094/, and a table of past years' rates is located at <http://whitehouse.gov/sites/default/files/omb/assets/a94/dischist.pdf>. Updates of the appendix are also available upon request from OMB's Office of Economic Policy (202-395-3316).

Nominal Discount Rates. A forecast of nominal or market interest rates for calendar year 2016 based on the economic assumptions for the 2017 Budget is presented below. These nominal rates are to be used for discounting nominal flows, which are often encountered in lease-purchase analysis.

**Nominal Interest Rates on Treasury Notes and Bonds
 of Specified Maturities (in percent)**

3-Year	5-Year	7-Year	10-Year	20-Year	30-Year
2.0	2.4	2.7	2.9	3.2	3.5

Real Discount Rates. A forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions from the 2017 Budget is presented below. These real rates are to be used for discounting constant-dollar flows, as is often required in cost-effectiveness analysis.

**Real Interest Rates on Treasury Notes and Bonds
 of Specified Maturities (in percent)**

3-Year	5-Year	7-Year	10-Year	20-Year	30-Year
0.3	0.6	0.8	1.0	1.2	1.5

Analyses of programs with terms different from those presented above may use a linear interpolation. For example, a four-year project can be evaluated with a rate equal to the average of the three-year and five-year rates. Programs with durations longer than 30 years may use the 30-year interest rate.