

**Benefits Accrued from Projects and Activities**

**Partially Funded by the Department of Natural Resources Water Resources Cash Fund**

**Through a Grant from the Nebraska Environmental Trust Fund**

**Under LB229, 2011**

**Submitted to the Natural Resources Committee, Nebraska Legislature**

**by the**

**Director of the Nebraska Department of Natural Resources**

**June 30, 2014**

**Executive Summary**

The projects and activities funded by the Nebraska Department of Natural Resources (the Department) through a grant from the Nebraska Environmental Trust Fund have resulted in enhanced streamflows, reduced consumptive uses of water, recharged groundwater, supported wildlife, or otherwise contributed towards conserving, enhancing, and restoring Nebraska's groundwater and surface water resources. Projects include the J-2 Regulating Reservoir, Orchard-Alfalfa Canal Rehabilitation Conjunctive Management Project, Nebraska Cooperative Republican Platte Enhancement Project, North Dry Creek Augmentation Well Project, North Platte Natural Resources District and Central Irrigation District Conjunctive Management Project, and the retirement of irrigated acres. Each project is in various stages of implementation, as described in the project summaries below. This report serves to provide demonstrable evidence of the benefits accrued from such projects and activities for the purpose of compliance with provisions of LB229, 2011.

## **Historical Legislative Context**

As required by *Neb. Rev. Stat.* § 81-15,175(4), the legal authority for this report, the subject matter is the demonstrable evidence of the benefits accrued from the projects and activities funded by the Department through grants from the Nebraska Environmental Trust (NET). The purpose, content requirements, and timing for this report originated with LB229, 2011. As designated by LB229, grant funds for these projects may only be expended under the authorities and limitations of the Department's Water Resources Cash Fund (WRCF).

The WRCF was created by the Natural Resources Committee's omnibus bill, LB701, 2007, to address the contingent fiscal needs of compliance measures required for both the Republican River Compact and the then newly adopted Platte River Recovery Implementation Program (PRRIP). With a statutorily planned funding schedule, the WRCF's generic purpose was to be a fiscal resource for the state to aid necessary water supply management actions taken for the purpose of reducing consumptive uses of water or enhancing streamflows or groundwater recharge in overappropriated or fully appropriated areas, or areas that are bound by an interstate compact or decree, or a formal state contract or agreement. Initial WRCF expenditures for the first few years of the program were primarily for surface water leases to support Republican River Compact compliance.

The anticipated appropriations to the WRCF for the period from 2012 to 2019 were decreased as a result of LB689, 2010. In providing for the NET grant application process by the Department, LB229 contingently replaced longer term funding needs for maturing WRCF water resources projects and commitments. In addition, LB229 joined the WRCF to the NET grant procedure for a unitary purpose, merged uses of General Fund appropriations and NET derived resources for such purposes, and included the requirement for this report to the Natural Resources Committee as a condition for continued funding.

## **The Nebraska Environmental Trust Grant**

The WRCF was the recipient of a three-year grant from NET in 2012 as result of the Department's grant application following enactment of LB229. The grant provided fiscal support for the coordinated efforts of the Department and five Platte River Basin natural resources districts to meet overlapping objectives of the Platte Basin integrated management plans required under the Nebraska Ground Water Management and Protection Act and PRRIP, as agreed to by the U.S. Department of Interior and the states of Nebraska, Colorado, and Wyoming. The projects and activities described in the first grant are focused on projects necessary to meet objectives consistent with the Nebraska New Depletions Plan portion of PRRIP, including the

Platte Basin Water Management Action Initiative. The grant therefore addresses the feasibility and evaluation phases of comprehensive planning designed to ultimately meet the longer term environmental objectives of conserving, enhancing, and restoring Nebraska’s ground and surface water resources.

One of the requirements for qualifying for priority points in an additional three-year grant from NET is this report of demonstrable evidence of the benefits accrued from grant projects and activities, as set out in the LB229 provisions that are codified in *Neb. Rev. Stat.* § 81-15,175(4)(b). In order to satisfy these requirements, the Department now wishes to provide the Natural Resources Committee the following documentation and analysis from the first three-year grant period.

## Projects

Due to the complexity involved in long-term water resources planning, expenditures of grant funds were divided among multiple coordinated projects and activities. Individual projects or activities under the grant may address multiple long range objectives, such as enhanced streamflow, reduced consumptive uses of water, recharged groundwater, or improving wildlife habitat. Each project is discussed below, within a context of both their short-term developmental and long range objectives.

**Project Name:** J-2 Regulating Reservoir

**Project Partners:** The Department, Twin Platte Natural Resources District (TPNRD), Tri-Basin Natural Resources District (TBNRD), Central Platte Natural Resources District (CPNRD), Central Nebraska Public Power and Irrigation District (CNPPID), & PRRIP

**Purpose under *Neb. Rev. Stat.* §§ 61-218(7)(a) and 81-15,175(4)(b):** To enhance streamflows and support wildlife habitat

<b>Total current obligation:</b>	<b><u>\$ 71,494,250</u></b>
WRCF – NET obligated funds:	\$ 4,907,700
WRCF – General Fund obligated funds:	\$ 6,426,750 <sup>1</sup>
NRD Matching funds:	\$ 3,271,800
Other funding sources:	\$ 56,888,000

**Project Description & Benefits:** The J-2 Regulating Reservoir Project is part of a larger plan to enhance flows in the Platte River for the benefit of integrated water management and wildlife habitat. The project will retime excess flows by collecting water discharged

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<sup>1</sup> WRCF General Fund dollars are being used by the Department for the J-2 Regulating Reservoir Project to reserve mitigation water for new or expanded water development activities that must be offset by the State of Nebraska.

from the J-2 Hydropower Plant and then releasing an average of 40,000 acre-feet (AF) of stored water annually to downstream river reaches to enhance streamflow when there are shortages in target streamflows. The project will also serve as a downstream regulator for the J-2 Hydropower Plant. In addition to providing enhanced streamflow benefits, this project will allow the hydropower plant to operate at peak efficiency without causing rapid fluctuations in the CNPPID’s irrigation canal or the Platte River downstream. Construction of the project is a joint effort by the project partners. To date, the work carried out on this project has primarily involved planning, permitting, feasibility studies, and land purchase activities. The anticipated total cost of this project to the state of Nebraska may be approximately \$18.1 million. Estimated project costs exceed the current funding that has been obligated through the WRCF NET transfer and General Fund dollars. Other funding sources are from Central Nebraska Public Power & Irrigation District and a combination of federal, Colorado, and Wyoming contributions to the PRRIP Governance Committee.

**Project Name:** Orchard-Alfalfa Canal Rehabilitation Conjunctive Management Project

**Project Partners:** The Department & CPNRD

**Purpose under *Neb. Rev. Stat.* §§ 61-218(7)(a) and 81-15,175(4)(b):** To enhance streamflows, recharge groundwater, and support wildlife habitat

<b>Total current obligation:</b>	<b><u>\$ 4,163,946</u></b>
WRCF – NET obligated funds:	\$ 2,498,368
WRCF – General Fund obligated funds:	\$ -
NRD matching funds:	\$ 1,665,578
Other funding sources:	\$ -

**Project Description & Benefits:** The Orchard-Alfalfa Canal provides irrigation water to 4,326 acres of land, has been in place since 1898, and has been jointly operated by the CPNRD and Southside Irrigation Company since 2012. Construction of several improvements to the canal began in 2013, with a total estimated project cost of \$4,691,589<sup>2</sup>. Improvements include replacing seven box culverts, 13 canal structures, and a diversion structure; clearing and grubbing 51 acres; grading 60,200 linear feet; removing three farm crossings; and installing an irrigation turnout structure, a slide gate with electric actuators on an existing overflow structure, and a rip-rap overflow structure for high flows. Together, these improvements enhance surface and groundwater supplies and protect water quality through groundwater recharge, divert and retime excess flows

<sup>2</sup> Estimated project costs exceed the current funding available through the WRCF NET grant and General Fund dollars.

to the Platte River, return natural flow irrigation rights to the Platte River, help satisfy requirements of the PRRIP agreement, help meet the requirements of the Ground Water Management and Protection Act to return the Platte River to its 1997 level of development, and help the CPNRD get closer to a fully appropriated status. Specifically, this project has the potential to enhance streamflow by approximately 2,500 to 9,000 AF annually.

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**Project Name:** Platte River Basin Portion of the Nebraska Cooperative Republican Platte Enhancement Project (N-CORPE)

**Project Partners:** The Department & TPNRD

**Purpose under *Neb. Rev. Stat. §§ 61-218(7)(a) and 81-15,175(4)(b)*:** To reduce consumptive uses of water, enhance streamflows, and support wildlife habitat

<b>Total current obligation:</b>	<b><u>\$ 1,500,000</u></b>
WRCF – NET obligated funds:	\$ 900,000
WRCF – General Fund obligated funds:	\$ -
NRD matching funds:	\$ 600,000
Other funding sources:	\$ -

**Project Description & Benefits:** The NET grant obligation to the Platte River Basin portion of the N-CORPE project will help reduce shortages to the Platte River by transporting water via a pipeline into the South Platte River. The water for the N-CORPE project will be available due to the retirement of approximately 15,800 acres from irrigation. The water that would have been used to irrigate the site will instead be stored in the Ogallala Aquifer, from where it will be pumped and piped to the Platte River when it is needed to fulfill target streamflow obligations. Planning began in spring 2014 to return the formerly irrigated land at the N-CORPE site to native vegetation for rangeland. Construction for the pipeline for the Platte Basin portion of this project will begin in mid to late 2014. It is estimated that the TPNRD will pump approximately 7,700 AF to the South Platte River annually as needed to meet the TPNRD Integrated Management Plan requirements. The total cost of the N-CORPE project is approximately \$120 million, of which TPNRD is responsible for approximately \$34.5<sup>3</sup> million.

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<sup>3</sup> Estimated project costs exceed the current funding available through the WRCF NET transfer and General Fund dollars.

**Project Name:** North Dry Creek Augmentation Well Project, Phase II

**Project Partners:** The Department & TBNRD

**Purpose under *Neb. Rev. Stat.* §§ 61-218(7)(a) and 81-15,175(4)(b):** To enhance streamflows and support wildlife habitat

<b>Total current obligation:</b>	<b><u>\$ 97,500</u></b>
WRCF – NET obligated dollars:	\$ 58,500
WRCF – General Fund obligated dollars:	\$ -
NRD matching funds:	\$ 39,000
Other funding sources:	\$ -

**Project Description & Benefits:** The TBNRD is constructing new groundwater well fields to augment streamflows in the lower reaches of North Dry Creek, which is a tributary of the Platte River. Each well field will include at least one production well for pumping water to the creek and at least one groundwater observation well for monitoring groundwater levels. The purpose of the new wells is to help reduce shortages to Platte River target streamflows through streamflow enhancement. Phase II of this project follows the completion and evaluation of Phase I, which consisted of constructing one 1,250 gallons per minute (gpm) production well and operating it as a prototype from 2011 to 2013. Phase II involves drilling an additional 1,250 gpm well in 2014, at a site upstream of the Phase I well field. The cost of construction and operation of the Phase I well field site since 2011 has been over \$70,000. The Phase II well site is expected to have similar costs to construct and operate and provide similar benefits to those associated with the Phase I well site.

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**Project Name:** North Platte Natural Resources District and Central Irrigation District Conjunctive Management Project

**Project Partners:** The Department, North Platte Natural Resources District (NPNRD), & Central Irrigation District (CID)

**Purpose under *Neb. Rev. Stat.* §§ 61-218(7)(a) and 81-15,175(4)(b):** To reduce consumptive uses of water, enhance streamflows, recharge groundwater, and support wildlife habitat

<b>Total current obligation:</b>	<b><u>\$ 491,895</u></b>
WRCF – NET obligated funds:	\$ 121,887
WRCF – General Fund obligated funds:	\$ 173,250
NRD matching funds:	\$ 196,758
Other funding sources:	\$ -

**Project Description & Benefits:** The NPNRD has entered into a lease agreement with a landowner and CID to remove 350.7 acres from irrigation for five years beginning on May 1, 2013, and to use that water as groundwater recharge via recharge pits. The cost of the full lease is \$569,888, with an additional estimated cost of between \$200,000 and \$300,000<sup>4</sup> for design and construction. This project will help meet the goals and objectives of the NPNRD integrated management plan by temporarily retiring the consumptive use of water on some lands and using that water to enhance streamflow. At this point, the recharge pit engineering design and hydrogeologic analysis of the site have been completed and the NPNRD is in the process of obtaining permits for construction.

**Project Name:** CPNRD & NPNRD Retirements of Irrigation Use

**Project Partners:** The Department, CPNRD & NPNRD

**Purpose under *Neb. Rev. Stat. §§ 61-218(7)(a) and 81-15,175(4)(b)*:** To reduce consumptive uses of water, enhance streamflow, and support wildlife habitat

<b>Total projected cost to complete:</b>	<b><u>\$ 1,871,629</u></b>
WRCF – NET obligated funds:	\$ 1,113,545
WRCF – General Fund obligated funds:	\$ 9,432
NRD matching funds:	\$ 748,652
Other funding sources:	\$ -

**Project Description & Benefits:** Both the CPNRD and NPNRD have retired irrigation use within their districts. Working in cooperation with the federal Agricultural Water Enhancement Program, the NPNRD was approached by a producer to assist with converting 13 acres of land from irrigated cropland to native dryland grass. The CPNRD retired approximately 740 groundwater irrigated acres and 800 surface water irrigated acres. These projects are estimated to provide over 1,000 AF of increased streamflows annually through the reduction of the consumptive use of irrigation water. Together, the total cost of these projects is approximately \$1,871,629.

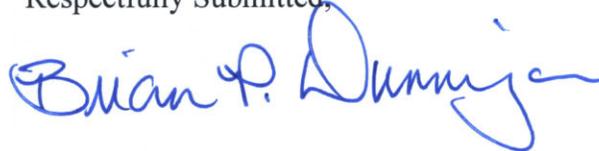
<sup>4</sup> Estimated project costs exceed the current funding available through the WRCF NET transfer and General Fund dollars.

## Summary

All funds provided for through the NET Grant have been obligated and local matching dollars of at least 40 percent and other funds have been contributed to support these projects (please see the attached Appendix containing a detailed cost breakdown). The benefits that have been or are expected to be realized through the implementation of these projects meets the purposes of the WRCF that were established by LB701, 2007, and the purposes established by LB229, 2011. These projects have been critical to the successful implementation of integrated management planning activities in the overappropriated portion of the Platte River Basin.

Having met the obligations outlined in *Neb. Rev. Stat.* §§ 61-218(7) and 81-15,175(4), the Department will submit a second NET Grant application in September 2014 to obtain funding for an additional three-year grant.

Respectfully Submitted,



Brian P. Dunnigan, P.E., Director

Appendix: Project Budgets obligated for the WRCF, both NET Grant and General Fund Dollars related to the NET grant application for the Platte Basin Water Management Action Initiative

	CPNRD	NPNRD	SPNRD	TBNRD	TPNRD	Total NRD	DNR (NET Transfer)	Total Project (Local + NET)	% local Match to NET Grant	DNR General Fund	Other Project Dollars <sup>1</sup>	Total Project (All Sources) <sup>2</sup>
J-2 Regulating Reservoir	\$1,168,500	-	-	\$1,168,500	\$934,800	\$3,271,800	\$4,907,700	\$8,179,500	40.00%	\$6,426,750	\$56,888,000	\$71,494,250
Orchard-Alfalfa Canal Rehabilitation Conjunctive Management Project	\$1,665,578	-	-	-	-	\$1,665,578	\$2,498,368	\$4,163,946	40.00%	-	-	\$4,163,946
CPNRD Retirement of Irrigation Use	\$742,364	-	-	-	-	\$742,364	\$1,113,545	\$1,855,909	40.00%	-	-	\$1,855,909
NPNRD Retirement of Irrigation Use	-	\$6,288	-	-	-	\$6,288	-	\$6,288	-	\$9,432	-	\$15,720
Platte River Basin Portion of the N-CORPE Project	-	-	-	-	\$600,000	\$600,000	\$900,000	\$1,500,000	40.00%	-	-	\$1,500,000
North Dry Creek Augmentation Well Project, Phase II	-	-	-	\$39,000	-	\$39,000	\$58,500	\$97,500	40.00%	-	-	\$97,500
NPNRD and Central Irrigation District Conjunctive Management Project <sup>3</sup>	-	\$196,758	-	-	-	\$196,758	\$121,887	\$318,645	40.00%	\$173,250	-	\$491,895
Fall 2013 GW recharge	\$6,000	-	\$2,970	\$112,199	\$10,930	\$132,099	-	\$132,099	-	\$198,149	-	\$330,248
CPNRD Conjunctive Management Projects	\$200,000	-	-	-	-	\$200,000	\$300,000	\$500,000	40.00%	-	-	\$500,000
<b>Totals by Contributor</b>	<b>\$3,782,442</b>	<b>\$203,046</b>	<b>\$2,970</b>	<b>\$1,319,699</b>	<b>\$1,545,730</b>	<b>\$6,853,887</b>	<b>\$9,900,000</b>	<b>\$16,753,887</b>	<b>40.00%</b>	<b>\$6,807,581</b>	<b>\$56,888,000</b>	<b>\$80,449,468</b>

Notes:

- 1 Other project dollars are from the Platte River Recovery Implementation Program and Central Nebraska Public Power and Irrigation District for the J-2 Regulating Reservoir.
- 2 Estimated project costs exceed the current funding available through the WRCF NET transfer and general fund dollars. The total cost for the J-2 Regulating Reservoir Project is projected to be \$75 million, with a State of Nebraska commitment of \$18.1 million.
- 3 This project has local match to the NET Grant and DNR General Fund Dollars