



Annual Report and Plan of Work for the Nebraska State Water Planning and Review Process

Submitted to the Governor and Legislature
by the
Director of the Nebraska Department of Natural Resources

September 2014

I. INTRODUCTION

Authority

The Nebraska State Water Planning and Review Process was initiated in 1978 to redirect and accelerate Nebraska's water planning efforts. This is a report of the Director of the Department of Natural Resources and is submitted in compliance with *Neb. Rev. Stat.* §§ 2-1599 and 2-15,106.

Nebraska Revised Statute § 2-1599 provides that:

In order to provide for the effective conservation and management of Nebraska's water resources, the legislature hereby endorses the concept of a state water planning and review process. The purpose of this planning process shall be to coordinate and direct the planning efforts of the state agencies and university divisions with the responsibilities and interest in the water resources field. This interagency planning process shall be designed to: (1) Provide the Legislature and citizens of Nebraska with information and alternative methods of addressing important water policy issues and areawide or statewide water resources problems; (2) provide coordinated interagency reviews of proposed local, state, and federal water resources programs and projects; (3) develop and maintain the data, information, and analysis capabilities necessary to provide state agencies and other water interests with a support base for water planning and management activities; (4) provide the state with the capacity to plan and design water resources projects; and (5) conduct any other planning activities necessary to protect and promote the interests of the state and its citizens in the water resources of Nebraska.

The Department of Natural Resources (Department) utilizes several of its program areas to implement *Neb. Rev. Stat.* § 2-1599. Implementation focuses on the following objectives:

1. Maintain data, information, and analysis capabilities for water planning, including specific programs for collecting, maintaining, and distributing information on streamflows, as well as analyzing water uses and water supplies across the state;
2. Provide staff and resources to support planning and implementation of water resources projects;
3. Support locally developed water management plans for managing hydrologically connected water supplies;
4. Provide resources to map and identifying areas vulnerable to flood damage; and
5. Provide coordination of federal agencies, state agencies, local natural resources districts (NRDs), and other water interests for the development of water resources programs and projects.

Purpose

The purpose of the Department's Annual Report and Plan of Work document is to fulfill the Department's obligations under *Neb. Rev. Stat.* §§ 2-1599 and 2-15,106. This document provides information on several key areas of Department water planning activities, including current and future activities regarding information, data, and analysis capabilities, as well as water resources planning and management. The *summary of previous work completed* component of this report details Department activities that aided in achieving those goals over the previous year. The *future activities* component of this report details how various Department programs work towards achieving the Department's goals of implementing its authorities and related statutes; acquiring, summarizing, and disseminating water related data; increasing interagency collaboration; and utilizing planning to recognize water management opportunities.

This document contains only activities pertaining to the Department's authorities and does not include independent activities or authorities of other local, state, or federal agencies. The Department's authorities do not include water quality, groundwater management, or management of public drinking water supplies; these authorities lie with other local or state agencies. The Department does coordinate with agencies when a nexus of authorities occurs, such as in integrated management planning and floodplain planning.

To accomplish its water planning objectives, the Department primarily utilizes staff from the Integrated Water Management, Program Assistance, and Floodplain/Dam Safety/Survey Divisions, with support from five field offices located across the state. Department divisions contribute to and support water planning activities in a collaborative effort in order to achieve planning objectives.

Report Outline

The general report format utilizes the river basin framework to provide an update on Department water planning activities for the previous fiscal year, and near-term future activities in regard to its information, data, and analysis capabilities, as well as its water planning and management activities. The document provides a description of statewide activities as well as specific activities occurring in the various basins throughout the state. The basins in this document include: 1) the Big Blue-Little Blue River Basins; 2) the Lower Platte River Basin, 3) the Missouri River Tributary Basins; 4) the Niobrara-White-Hat River Basins; 5) the Republican River Basin; and 6) the Upper Platte River Basin, as shown in Figure 1 below:

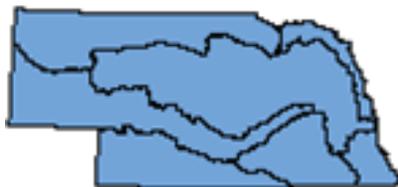


Figure 1. River basins of Nebraska

The Statewide section and each basin section are divided into two subsections: *Synopsis of 2013 Activities* and *4-Year Work Projection*. These sections provide a summary and

analysis of previous fiscal year events that aided in the achievement of Department objectives, as well as future planned work for the succeeding four years. These sections contain information pertaining to the Department's data and analyses capabilities, planning activities, and management activities.

Additionally, the Statewide section contains an update on the Department's objectives related to interagency coordination, as well as management alternatives and project development. These two sections are discussed in the Statewide section as the Department strives to develop and implement consistent protocols and metrics for interagency coordination across the state, as well as assist in the development of management alternatives and projects.

II. STATEWIDE

Synopsis of 2013 Activities

Interagency Coordination

The Department has contracted with the Public Policy Center of the University of Nebraska for assistance in considering its internal operations in regard to water planning, and to begin assessing potential methods of iteratively building a strategic planning process that can be used to gather input, produce needed information, and provide a framework for addressing future state-level water planning needs.

The Department continues to collaborate with the Public Policy Center of the University of Nebraska to improve its water planning, stakeholder engagement, and public participation processes. The Public Policy Center will assist the Department in evaluating its internal operations in regard to water planning and begin to assess potential methods of iteratively building a strategic, state-level planning process. This collaboration is also important to the Department's efforts to effectively disseminate water-related information pertinent to water management entities and the public.

The services provided by the Public Policy Center allow the Department to evaluate how it interacts with the public through a variety of tools including the NASIS survey, focus groups, and other directed surveys. Groups surveyed include the general public, water managers, and other state agency personnel. This type of information will allow the Department to assess its effectiveness in how it provides information to the public and other entities, how useful others find this information, and how to engage a larger sector of the public. After evaluation of the surveys and focus groups, the Public Policy Center will work with the Department to formulate options to effectively increase public outreach and participation through the planning process.

The Department continues to dedicate resources toward the development of water management projects and management alternatives. These efforts largely fall under the authorities of the integrated management responsibilities of the Department. The Department has played various roles in the development, design, and implementation of management alternatives. The Water Resources Cash Fund is used to support water management efforts in fully appropriated or overappropriated basins. These funds can be utilized to aid management actions taken to reduce consumptive uses of water, or to enhance streamflows or groundwater recharge. Through the use of funds made available by the Water Resources Cash Fund, the following are examples of projects that the Department has partnered on with local NRDs since 2009:

- The J-2 Regulating Reservoir
- Development of conjunctive management projects on the Cozad Canal, Orchard-Alfalfa Canal, and Thirty-Mile Canal
- Temporary surface water and groundwater leases
- Obtaining permanent conservation easements
- Recharge projects
- Augmentation projects

The Department's statewide water planning activities center on acquiring relevant water data, summarizing and analyzing the information, utilizing the information for planning and management activities, and providing that data and information in an easily accessible format to the public. Water-related information, such as streamgage measurements, water use diversions, land cover, stream locations, etc., are important components to hydrologic analysis, and these types of information are currently scattered throughout a myriad of databases, departments, or other entities. Through its planning and management efforts, the Department has either acquired these types of information, worked with other entities to obtain their data, or has plans to develop and/or acquire such data in the future with the intention of providing this information to water managers and the public in order to aid in water management decisions.

Data Acquisition

The Department maintains various programs to acquire or update databases relevant to water planning activities. Specific statewide programs or activities that aid in water planning are listed below:

- National Hydrography Dataset
 - Department staff coordinate stewardship of the NHD, which provides a common reference digital hydrographic dataset of surface water features
- Water Rights Digitizing
- NeRAIN
- Watershed Boundary Delineation
- Section Corner Database
- NE GIS Council and Sub-Committees
- Streamflow Gaging
- INSIGHT

Funds to Aid Local Government

The Department administers several funds that support water related management activities, programs, or projects within the state. These include:

- Nebraska Resources Development Fund
- Interrelated Water Management Plan Program Fund
- Water Sustainability Fund

Details regarding the administration of these funds can be found on the Department's website (<http://dnr.nebraska.gov/natural-resources-commission>) and below.

Nebraska Resources Development Fund

The Nebraska Resources Development Act of 1974 created the Nebraska Resources Development Fund (NRDF) to assist with the development and wise use of Nebraska's water and land resources. The NRDF can be used to provide grants or loans to political subdivisions of the state, or an agency of the state, for development projects. The Department is responsible for administering the program, while the statutory authority for approving projects and funding levels rests with the Nebraska Natural Resources Commission (Commission).

Legislation during the 2014 session included major changes to this funding program. LB905 included a new appropriation for NRDF of nearly \$10.5 million for FY15, in addition to the previously approved appropriation of \$3,140,325. However, LB906 amended the NRDF governing statutes by capping expenditures to the previously approved allocations for each project, prohibiting reallocation among approved projects and prohibiting any new applications for funds. After currently approved cost share commitments to existing projects totaling about \$17.4 million are satisfied, the NRDF will cease to operate. Those existing projects are; Buck & Duck Creek, Lower Turkey Creek, Pigeon/Jones Creek, Sand Creek Environmental Restoration, Upper Prairie/Silver/Moores Creek, and Western Sarpy/Clear Creek.

Interrelated Water Management Plan Program Fund

The Interrelated Water Management Plan Program Fund (IWMPPF) was created in 2006 with the passage of LB1226, Section 20. This grant program was intended to facilitate the duties delegated to the NRDs by the Nebraska Ground Water Management and Protection Act, and to help offset costs incurred in the performance of those duties. The Department is responsible for administering the program, while the statutory authority for approving projects and funding levels rests with the Commission.

Guidelines for the IWMPPF were originally adopted by the Commission on July 13, 2006, and subsequently revised in November 2006, July 2007, November 2007, January 2009, and November 2009. These guidelines state that previously funded multi-year projects shall have priority in the allocation of each year's available funds. Due to limited available funds in the 2011 fiscal year, the Commission acted to ensure the successful completion of previously approved projects by suspending the consideration of new applications.

The appropriations bill for the 2013-2015 biennium (LB195) stated the Legislature's intent that no new projects were to be approved for funding and that existing projects had to be completed by June 30, 2015. Therefore, the Commission committed a final distribution for fiscal year 2015 of \$353,290.76 (including \$3,290.76 carry forward funding) to this fund.

Water Sustainability Fund

The Legislature, through LB906, created the new Water Sustainability Fund and directed that \$21 million be transferred to the fund in July 2014, with the stated intent that \$11 million be transferred to the fund each year thereafter. LB1098 established the intent, basic governance constructs, and legal authorities for the new fund. As stated in the bill, the goals of the Water Sustainability Fund are to:

- a) *Provide financial assistance to programs, projects, or activities that increase aquifer recharge, reduce aquifer depletion, and increase streamflow;*
- b) *Remediate or mitigate threats to drinking water;*
- c) *Promote the goals and objectives of approved integrated management plans or ground water management plans;*
- d) *Contribute to multiple water supply management goals including flood control, reducing threats to property damage, agricultural uses, municipal and industrial*

- uses, recreational benefits, wildlife habitat, conservation, and preservation of water resources;*
- e) Assist municipalities with the cost of constructing, upgrading, developing, and replacing sewer infrastructure facilities as part of a combined sewer overflow project;*
 - f) Provide increased water productivity and enhance water quality;*
 - g) Use the most cost effective solutions available; and*
 - h) Comply with interstate compacts, decrees, other state contracts and agreements and federal law.*

The Legislature found that these goals can be met by equally considering programs, projects, or activities in the following categories:

- a) Research, data, and modeling;*
- b) Rehabilitation or restoration of water supply infrastructure, new water supply infrastructure, or water supply infrastructure maintenance or flood prevention for protection of critical infrastructure;*
- c) Conjunctive management, storage, and integrated management of ground water and surface water; and*
- d) Compliance with interstate compacts or agreements or other formal state contracts or agreements or federal law.*

It was further stated that the Legislature intended the fund to be equitably distributed statewide to the greatest extent possible for the long-term and to give priority funding status to projects that are the result of federal mandates.

The Department is responsible for administering the program, while the statutory authority for approving projects and funding levels rests with the Commission. Before any applications for funding can be accepted, the Commission and the Department must define and establish policies and rules for the applications and processes of review and evaluation within the statutory requirements set out in LB1098.

Changes to the Nebraska Natural Resources Commission

With LB1098, the 2014 Legislature also increased the number of Natural Resources Commission (Commission) members from 16 members to 27. Eleven new members were appointed by Governor Heineman in mid-May, joining three other appointed members already on the Commission. The appointed commissioners represent: agribusiness, agriculture, groundwater irrigators, irrigation districts, manufacturing, metropolitan utilities districts; municipal water users from Omaha, municipal water users from other municipalities, outdoor recreation users, public power districts, public power and irrigation districts, range livestock owners, surface water irrigators, and wildlife conservation interests. The remaining 13 commissioners were, and will continue to be, elected by Natural Resources District board members to represent the river basins across the state.

Participation in Outside Organizations

The Department participates in various organizations and committees that either directly involve water planning or provide input from the Department's perspective on water quantity related topics. Two of these organizations, the Western States Water Council and the Interstate Council on Water Policy, allow the Department to interact with and share information with other state agencies that administer similar responsibilities. The Department is involved to varying degrees with other organizations, including: the Climate Assessment and Response Committee, Nebraska Carbon Sequestration Advisory Committee, Missouri River Input Group Meetings, Missouri River Recovery Implementation Committee, Missouri River Ecosystem Restoration Plan, Missouri River Recovery Program, Lower Platte River Corridor Alliance, and the Lower Platte River Cumulative Impacts Study.

Streamgaging Program

Stream and canal gaging activities are considered part of the State Water Planning and Review Process. *Neb. Rev. Stat.* §§ 46-227, 46-252, 46-258, 46-261(3), 61-208, 61-209, 61-211, 61-215, and 61-216 authorize and require the Department to measure the quantity of water in the state's streams and canals. Due to the size of the streamgaging network and the importance of accurate, timely streamflow information, significant funding is budgeted for ongoing streamgaging activities. The streamgaging program is currently undergoing some organizational changes to improve the efficiency of data distribution. The most significant change was the creation of a Data Collection Program within the Engineering Programs and Services Division. This program is overseen by the Natural Resources Program Director who will be responsible for the overall administration and coordination of the Department's streamgaging program. The Data Collection Program oversees data collection procedures, reviews streamgaging records, and ensures that quality control standards are met. The Data Collection Program works in close conjunction with the five Department field offices. The field offices are responsible for making streamgaging measurements, operating and maintaining streamgaging stations and equipment, and for working and checking each station's record.

Department staff collect and report flow data for streams, canals, and pump diversions, as well as storage in reservoirs. Data collected through the streamgaging network is used by the Department to make informed decisions when administering water rights, issuing permits, studying surface water/groundwater interactions, responding to flood emergencies, modeling floodplains, quantifying water supplies and uses, calibrating groundwater models, complying with interstate compacts, and planning for future water demands.

Floodplain Management

The Department is responsible for handling floodplain management matters for the State of Nebraska. The floodplain section of the Engineering Programs and Services Division coordinates an overall program aimed at addressing the wise use of land that is subject to flooding. This program includes multiple elements related to hazard mitigation and floodplain management planning.

Technical Assistance

The Department provides technical assistance to communities, state agencies, federal agencies, and the general public on a daily basis. One unique form of technical assistance that the State of Nebraska provides to local floodplain administrators is Base Flood Elevations (BFEs) Determinations. These BFEs allow administrators to make informed floodplain management decisions related to proposed development. During fiscal year 2014, the Department provided 474 BFE Determinations.

The Department also provides technical assistance through outreach and training for local officials. During the last fiscal year, the Department presented on floodplain issues at the Nebraska Floodplain and Stormwater Managers Association (NeFSMA) Annual Conference, Silver Jackets Levee Safety Outreach, NeFSMA Membership Meeting, NeFSMA Spring Meeting, and the Association of State Floodplain Managers National Conference; information booths on floodplain management were exhibited at the Lower Platte River Corridor Alliance Water Quality Open, Husker Harvest Days, Nebraska Association of County Officials Conference, and American Planning Association/Nebraska Planning and Zoning Association Conference, and demonstration booths with the floodplain model were exhibited at the Nebraska City Apple Jack Festival, Omaha Children's Museum, Lincoln Waterfest, and the Lincoln Science Focus Program High School. The Department also publishes the NDNR Floodplain Newsletter.

Mapping

The Department identifies and delineates floodplain and floodways using both federal and state dollars. As of June 30, 2014, the State of Nebraska had 55 counties with digital Flood Insurance Rate Maps (FIRMs), and six counties with digital Work Maps provided by either or both the floodplain management section and the Federal Emergency Management Agency (FEMA). This mapping information is utilized by communities to support hazard mitigation and floodplain management planning activities.

National Flood Insurance Program

The Department serves as the National Flood Insurance Program (NFIP) Coordinator for the State of Nebraska. The NFIP Coordinator serves as a liaison between FEMA, Nebraska Community Floodplain Administrators, and the general public. Numerous Community Assistance Visits, Community Assistance Contacts, and Ordinance Review Assistance efforts have been completed around the State. This typically involves floodplain management or flood insurance related technical assistance that is used to support community floodplain management decision making. Due to ongoing changes in the NFIP, the Department has also sent staff to training sessions to learn more about the Community Rating System (CRS) in order to provide accurate technical assistance. Department staff are now providing additional technical assistance to help communities interested in joining the CRS program. CRS allows communities to implement floodplain management activities above the NFIP minimum and get credits in the form of flood insurance premium reductions. The Department helps the communities in the state save approximately \$560,000 per year in flood insurance premium costs. Currently, there are six communities in Nebraska participating in CRS and there are four new communities working on their applications. NFIP coordination activities and CRS assistance activities provide resources to communities that support floodplain management planning and the management of floodplain development.

Mitigation

The Department provides technical assistance to any entity implementing flood mitigation planning and related projects. The Department provides Natural Resources Districts (NRDs), counties, and communities with planning assistance for the purpose of updating local Hazard Mitigation Plans (HMPs). According to the Nebraska Emergency Management Agency (NEMA), most of the state's population is now covered by an all Hazards Mitigation Plan, or will be covered by a plan in the future. HMPs include flood mitigation components.

The Department currently administers the Flood Mitigation Assistance grant on behalf of the FEMA. In addition to this program, the Department assists the NEMA with two other FEMA programs: the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation grant program (PDM).

Due to recent and anticipated disaster declarations, the state has received funding for hazard mitigation projects through FEMA's HMGP, administered by NEMA. Grant applications received may include flood risk mitigation projects. The Department assists with review of these applications and may provide technical assistance for project implementation as appropriate, per existing authorities.

Integrated Water Management

The Department is tasked annually to complete and publish an evaluation of the expected long-term availability of hydrologically connected water supplies. In December 2013, the Department published its 9th annual evaluation, titled, "2014 Annual Evaluation of Availability of Hydrologically Connected Water Supplies," also known as the Fully Appropriated Basin (FAB) report. Statute requires that the report be completed on an annual basis by January 1 of each year. The Integrated Water Management staff compiled the report using a variety of hydrologic, water use, and water rights information, as well as other related data.

Recognizing that the current methodology for determining fully appropriated status did not adequately transition to planning and management frameworks, the Department determined that the development of a new methodology was necessary. Changes to the methodology require simultaneous changes to Department rules. The Department is developing a process to solicit stakeholder feedback on proposed changes to the rules. The proposed rules align with the Department's new INSIGHT initiative.

The new approach to determining basin status does transition more readily to planning activities by providing an assessment of the location and timing of the basin's water supplies and uses. This initial assessment provides water managers with both a short and long-term view of whether water supplies and demands are in balance. This information can be further refined to identify periods of water surpluses and water shortages. This new approach will aid areas currently developing voluntary integrated management plans (IMPs) by providing foundational information pertinent to the determination of necessary management actions.

To further its obligations under *Neb. Rev. Stat. § 46-713*, the Department has been developing new hydrologic tools and models, and intends to have them in place for every region of the state. These tools are in different stages of development: some models are complete, others are in the development phase, some are still in the design phase, and the appropriate tool for development of others has yet to be determined. Details for each model are provided in the basin sections below.

In order to assist the examination of planning options and management alternatives, the Department developed a web-based portal to access water information throughout the state, known as Integrated Network of Scientific Information and GeoHydrologic Tools (INSIGHT). INSIGHT provides the best available scientific data, information, and technology related to streamflow and water quantity management. Various Department programs, including Integrated Water Management, Program Assistance, Streamgaging, and Surface Water Administration, will contribute data and information to the INSIGHT project, along with source data from local NRDs, surface water irrigation districts, and other water users. The INSIGHT project provides an easily accessible, transparent web portal for information regarding Department data and analyses on water supplies and water uses. INSIGHT provides a broad overview of information intended for the general public, more technical information for water managers, and includes access to data and model files intended for engineers, modelers, or other highly technical individuals and agencies.

Four-Year Work Projection

Based on needs across the state, the Department continually prioritizes and evaluates its data collection and analysis capabilities to support state and local planning efforts. The Department is working to update the hydrologic data management software system that is used to process and store streamgaging data. The Department is also working to identify and implement an upgrade in the near future. As part of this change, the Data Collection Program and the field offices will work together to develop improved workflows, implement automated quality checks, and increase data accessibility. Improvements to data accessibility are also expected with the implementation of a real-time streamgaging website.

Further improvements are expected to sustain and upgrade the streamgaging network to meet the Department's current and long-term stream information needs. This will include identifying and developing systematic approaches to evaluate the adequacy of the existing streamgaging network, as well as determining the need for additional gages.

The Department will continue to provide technical assistance to communities for floodplain management administration activities and deliver related training to local officials. The Department will also continue to offer technical assistance to any entity implementing flood mitigation planning and related projects. This includes assisting NEMA as requested. The Department also provides NRDs, counties, and communities with planning assistance for the purpose of updating local HMPs and developing new ones.

In May 2013, the Department completed an update to the State Flood Mitigation Plan, which was funded by a Flood Mitigation Assistance grant provided by FEMA. The Flood Mitigation Plan identifies goals that can be achieved through a wide range of mitigation program and project efforts. In cooperation with local HMPs, the plan will also provide a planning framework that will allow communities to apply for and receive grants to complete local mitigation projects. During spring 2014, the Flood Mitigation Plan was incorporated into the State Hazard Mitigation Plan, as part of the three-year update completed by NEMA. Over the next four years, the Department will coordinate with NEMA to complete periodic reviews of the flood mitigation planning components of the State Hazard Mitigation Plan and will assist with preparations for the next State Hazard Mitigation Plan Update.

The Department will continue to work with all NRDs (either through FAB determinations or voluntary approaches) that have IMPs, are developing IMPs, or are participating in basin-wide planning activities. IMPs are continually evolving documents and may be modified as the needs or goals within a particular basin change through time. Each adopted IMP is evaluated annually to determine if modifications or updates to the plan, tools, or data are necessary.

The Department will continue to update existing models and tools, as well as develop new tools. Some of these future tool updates will be collaborative efforts with NRDs in regard to the planning process and evaluation of overall plan goals. Other efforts will concentrate on developing new tools or updating existing models to support the FAB analyses.

III. Blue (Big & Little) River Basins

Synopsis of 2013 Activities

Streamgaging Activities

In the Blue River Basin, the Department operates six streamgages.

Floodplain

Flood maps of Jefferson County-wide are in the final stages of completion and are expected to become effective FIRMs in the next fiscal year. For more information, see the Statewide section for reference to general statewide floodplain activities related to the Blue River Basin.

Blue River Basin Model

The Department completed development of a groundwater model of the Big and Little Blue River basins and will utilize this model for its FAB report. The Department will continue to collect data and information to modify the model as necessary. In addition to fulfilling FAB responsibilities, the Department will work with various NRDs who choose to use the model as part of cooperative activities.

Fully Appropriated Basins Report

For the most recent FAB report, the Department reached a preliminary conclusion that the Big and Little Blue basins are not fully appropriated.

Blue River Basin Compact

The Blue River Basin Compact Administration meets in May of each year. During the annual meeting, regular business includes reports from Nebraska and Kansas on water administration activities in the basin and standing committee reports on water levels, streamgage readings, legal activities, and budget items. Department staff supply support for compact administration and standing committees. Intra-state coordination on the Blue River Basin Compact mainly occurs between the Department of Environmental Quality and the local NRDs.

Four-Year Work Projection

Based on needs across the state, the Department continually prioritizes and evaluates its data collection and analysis capabilities to support state and local planning efforts. These efforts will continue in the area of streamgaging, floodplain mapping, and integrated management. Certain details regarding the four-year projection of work are contained in the Statewide section of this report. Additional basin-specific efforts are identified below.

Over the next several years the Department will be working with FEMA to complete a Risk MAP project in the West Fork Big Blue River Watershed. It will include new detailed hydrologic and hydraulic studies and incorporate the Department Work Maps into new FIRMs. The Risk MAP process will include outreach and planning events to promote resilient communities and risk reduction. The desire is to have new FIRMs for

Adams, Hamilton, York, and Seward counties by time the Risk MAP project is completed.

The Department completed and utilized the Blue River Basin Model for inclusion in the INSIGHT methodology, web portal, and general basin information. This model will provide some of the data and information necessary for the Department to evaluate both the Big and Little Blue River basins in the FAB report. The Department will continue to evaluate both the Big and Little Blue River basins.

The Department will continue to fulfill its obligations under the Blue River Basin Compact and does not expect an increased level of commitment under this obligation.

Department staff will continue to coordinate with other state and local water management agencies in order to refine the hydrologic data that supports a better understanding of hydrologically connected water resources. These efforts will likely focus on expanding the network of information that is available on water uses. Additional efforts may be made to assess existing data sources and models. These efforts may include assessment of local aquifer properties and recharge characteristics, refinement of hydrologic modeling tools, and further analysis of these resources.

IV. Lower Platte River Basin

Synopsis of 2013 Activities

Note: this section includes the Elkhorn, Loup, and Lower Platte River basins.

Streamgaging Activities

In the Lower Platte River Basin, the Department does not operate streamgages on the Platte River. However, the Department does utilize five Platte River gages operated by the U.S. Geological Survey. On the Elkhorn River and its tributaries, the Department operates 11 streamgages, one canal gage, and cooperates with the U.S. Geological Survey on one streamgage. On the Loup River and its tributaries, the Department operates 10 streamgages and 23 canal gages.

Floodplain

In fiscal year 2014, flood maps were finalized for Waterloo in Douglas County. Flood maps of Big Slough in Howard County are in the final stages of completion and are expected to become effective FIRMs in the next fiscal year. A new hydrologic and hydraulic study was completed for the streams within the City of Wahoo in Saunders County. For more information, see the Statewide section for reference to general statewide floodplain activities related to the Lower Platte River Basin.

CENEB—Central Nebraska Model

The Central Nebraska Model (CENEB) is a regional model that encompasses portions of the Loup and Elkhorn River Basins, which are tributaries to the Lower Platte River Basin. Model construction was completed in July 2013, with utilization of the model occurring within the previous year. The Department's new INSIGHT methodology utilized this model to evaluate portions of the Niobrara and Elkhorn River basins, as well as the entire Loup River Basin. The CENEB model will also provide useful information to the NRDs currently pursuing voluntary IMPs.

Lower Platte and Missouri Tributaries Assessment Study

The Department initiated and completed a study to assess the current datasets available and the current feasibility of developing hydrologic tools for portions of the Platte River Basin and Missouri Tributaries. The results of this study will be utilized in the development of additional groundwater models and the INSIGHT methodology for this region of the state.

Fully Appropriated Basins Report

The Department made a preliminary determination in 2008 that the Lower Platte River Basin was fully appropriated, and in 2009 made a final determination that the basin was not fully appropriated. Pursuant to *Neb. Rev. Stat. § 46-713(1)(a)*, at the Director's discretion, the Lower Platte River Basin was not evaluated. Currently, no portion of the Lower Platte River Basin is fully appropriated.

Voluntary IMPs

Several NRDs (Lower Elkhorn, Lower Platte North, Lower Platte South, and Papio-Missouri) have initiated a voluntary IMP process with the Department. The Lower Platte

South NRD and the Department completed and adopted an IMP this year. The Papio-Missouri NRD has completed the stakeholder process and plan development. The intent is to finalize and adopt the plan this year. The Lower Elkhorn NRD and Lower Platte North NRD have completed two of the six planned stakeholder meetings and anticipate completing the IMPs in calendar year 2015.

Lower Platte River Basin-Wide Plan Development

The Department and several Lower Platte River Basin NRDs (Upper Loup, Lower Loup, Upper Elkhorn, Lower Elkhorn, Lower Platte North, Lower Platte South, and Papio-Missouri) recently signed an inter-local cooperative agreement to begin efforts to develop a basin-wide plan for the Lower Platte River Basin. Over the next several months and subsequent years, this group will continue to develop broad goals and objectives for water quantity management in this portion of the basin.

Four-Year Work Projection

Based on needs across the state, the Department continually prioritizes and evaluates its data collection and analysis capabilities to support state and local planning efforts. These efforts will continue in the area of streamgaging, floodplain mapping, and integrated management. Certain details regarding the four-year projection of work are contained in the Statewide section of this report. Additional basin-specific efforts are identified below.

The Department and consultants will continue to work to develop various numerical and analytical tools to assess portions of the Platte River Basin and Missouri Tributaries, which include the development of both the Lower Platte Missouri Tributaries groundwater model and the Nemaha Basin groundwater model. These tools will continue to be updated and utilized in the Department's annual FAB report. Additionally, the Department will continue to collect data to update the CENEb model in order to assess portions of the Niobrara, Loup, and Elkhorn River basins. This tool will continue to be updated as needed and utilized in the Department's annual FAB report.

The Department will continue its current work with the Lower Elkhorn, Lower Platte North, Lower Platte South, and Papio-Missouri NRDs to develop or implement their respective voluntary IMPs. It is the intention of each NRD to complete, adopt, and enter the initial implementation phases of an IMP within the next four years. These local IMPs will be supported through the Lower Platte River basin-wide planning efforts. The Department will continue to work with the NRDs within the basin and identified in the inter-local cooperative agreement to develop a basin-wide plan for the Lower Platte River Basin.

V. Missouri River Tributaries

Synopsis of 2013 Activities

Floodplain

A new hydrology and hydraulic study was done last summer and preliminary FIRMS were released in February for the Little Bazile Creek Watershed for the City of Bloomfield and Knox County. The Department continues to work on Work Maps for Nemaha and Richardson Counties, as time allows. For more information, see the Statewide section for reference to general statewide floodplain activities related to the Missouri River Tributary Basins.

Lower Platte and Missouri Tributaries Assessment Study

The Department initiated and completed a study to assess the current datasets available and the current feasibility of developing hydrologic tools for portions of the Platte River Basin and Missouri Tributaries. The results of this study will be utilized in the development of additional groundwater models and the INSIGHT methodology for this region of the state.

Fully Appropriated Basins Report

For the areas with sufficient data to do an analysis, in the most recent FAB report the Department reached a preliminary conclusion that the basins are not fully appropriated.

Voluntary IMP

In the Missouri River Tributary Basins, one NRD, the Lewis & Clark NRD, has initiated the process of developing a voluntary IMP. This process has only recently been initiated but will be included in the Department's expected work over the next four years

Four-Year Work Projection

Based on needs across the state, the Department continually prioritizes and evaluates its data collection and analysis capabilities to support state and local planning efforts. These efforts will continue in the area of streamgaging, floodplain mapping, and integrated management. Certain details regarding the four-year projection of work are contained in the Statewide section of this report. Additional basin-specific efforts are identified below.

The Department and consultants will continue to develop various numerical and analytical tools to assess portions of the Platte River Basin and Missouri Tributaries. These tools will continue to be updated and utilized in the Department's INISIGHT methodology process and annual FAB report. The Department also intends to support efforts of the ENWRA organization to evaluate the effectiveness of geophysical techniques in assessing the hydrologic connection of aquifers and streams.

The Department and the Lewis and Clark NRD plan to work together over this period to collect data, information, and stakeholder input for developing content for the IMP. The details of this process are only in the initial phases and will likely be updated further in the next annual report.

VI. Niobrara, White, & Hat River Basins

Synopsis of 2013 Activities

Streamgaging Activities

In the Niobrara management area, the Department operates 13 streamgages, 20 canal gages, and uses information from an additional two gages operated by the U.S. Geological Survey.

Floodplain

See the Statewide section for reference to general statewide floodplain activities related to the Niobrara, White, and Hat River basins.

UNWNRD Conjunctive Use Model

The Department and the Upper Niobrara White NRD developed an integrated surface-groundwater model to evaluate the effects of potential management strategies. This model includes portions of the Niobrara River Basin, with small regions of the White and Hat River basins represented as well. Typical of Department modeling efforts, this model incorporates a soil-water balance model (CROPSIM), a surface water operations model (Stella), and a groundwater flow model (MODFLOW). The model construction was completed this year and management scenario development is ongoing. This modeling tool utilizes a flexible design in order to accommodate other potential water management options identified through a joint NRD-Department process. Of particular interest are the surface-groundwater effects of management strategies in the Mirage Flats Irrigation District and groundwater declines in the Box Butte county region.

CENEB—Central Nebraska Model

The Central Nebraska Model (CENEB) is a large model that encompasses portions of the Niobrara, Elkhorn, and Loup River basins. The Department initiated this study in 2011 and hired a consultant to both assess dataset availability and model development. Model construction was recently completed. The Department's new INSIGHT methodology utilized this tool to model portions of the Niobrara and Elkhorn River basins, as well as the entire Loup River Basin. The CENEB model can also provide useful information for those NRDs currently pursuing voluntary IMPs.

Fully Appropriated Basins Report

For the most recent FAB report, the Department reached a preliminary conclusion that the Lower Niobrara River Basin (area downstream of Spencer Hydropower) was not fully appropriated. Due to the 2011 reversal, the Niobrara River Basin downstream of the Mirage Flats Diversion Dam and upstream of Spencer Hydropower, was not evaluated in the Department's FAB report.

Completed IMPs

In the Niobrara River Basin, two IMPs have been completed. The Upper Niobrara White NRD, has completed an IMP for the portion of their district upstream of the Mirage Flats

Irrigation District. This IMP is evaluated annually, with the last update to the IMP occurring in 2012. The Lower Niobrara NRD, completed and adopted a voluntary IMP in spring 2014. Throughout 2012, various meetings and workshops were held and stakeholder input was gathered in order to develop goals, objectives, and other components of this IMP.

LB483 Implementation

Due to the 2011 reversal of the fully appropriated designation, the areas downstream of Mirage Flats Irrigation Diversion Dam and upstream of the Spencer Hydropower facility were subject to *Neb. Rev. Stat. § 46-714(12)*. This restricts development of new surface and groundwater irrigation within each NRD. New surface water acres that were subject to approval totaled 834 within each NRD. Portions of all affected NRDs (Upper Niobrara White, Middle Niobrara, Lower Niobrara, Upper Loup, and Upper Elkhorn) developed rules and regulations to restrict irrigated acre development for the required four-year timeframe. Upon sunset of the LB483 acre restrictions many NRDs will continue limitations on groundwater irrigation development.

Niobrara River Compact

The Upper Niobrara River Compact (Compact) was ratified by the states of Wyoming and Nebraska in 1962. The Compact provides for an equitable division of the available surface water supply of the basin. It provides for acquisition of information regarding groundwater and underground water flow necessary for apportioning said flow, in addition to calling on the states to address issues that may lead to disagreements. The Department and the Wyoming State Engineer's Office meet to discuss the Compact at a regularly occurring meeting in the fall. At this year's meeting, both states discussed streamgaging efforts, surface water administration, progress on the Niobrara River Basin WaterSMART Study, and other related hydrologic activities. In the spring, an additional technical subcommittee meeting was held to discuss the results of the joint U.S. Bureau of Reclamation and Department, Niobrara River Basin Study.

Four-Year Work Projection

Based on needs across the state, the Department continually prioritizes and evaluates its data collection and analysis capabilities to support state and local planning efforts. These efforts will continue in the area of streamgaging, floodplain mapping, and integrated management. Certain details regarding the four-year projection of work are contained in the Statewide section of this report. Additional basin-specific efforts are identified below.

The Department will continue to work with the Upper Niobrara White NRD to collect the information needed in order to update the groundwater and operations models for subsequent years and analyses. The Department will also work with the District to develop various management scenarios that these modeling tools could evaluate. The Department will continue to collect data to update the CENEB model in order to assess other portions of the Niobrara River Basin. This tool will continue to be updated as needed and utilized in the Department's annual FAB report.

The Upper Niobrara White NRD and the Lower Niobrara NRD and the Department will continue to evaluate and modify the current IMPs to meet the goals and objectives of

their respective regions. The NRDs and the Department will also evaluate the IMP's planning objectives to determine when modifications to the current hydrologic tools are necessary. Additionally, the NRDs and the Department intend to evaluate each IMP each year after its initial approval to determine if plan or monitoring modifications are necessary.

The states of Wyoming and Nebraska will continue to meet at least once annually to discuss the Compact. They may continue to hold additional technical meetings until the completion of the Niobrara River Basin Study.

VII. Republican River Basin

Synopsis of 2013 Activities

Streamgaging Activities

In the Republican River Basin, the Department operates 19 streamgages, 12 canal gages, and cooperates with the U.S. Geological Survey on three streamgages

Floodplain

See the Statewide section for reference to general statewide floodplain activities related to the Republican River Basin.

Republican River Groundwater Modeling

The Department continues to provide groundwater modeling resources in support of the implementation of IMPs within the Republican River Basin. These efforts by the Department provide for the evaluation of management options that are brought forward by the NRDs in the basin.

Integrated Management Plans

The Department and Republican River Basin NRDs continually assess the implementation of the IMPs in the basin. This year's forecast indicated the potential for non-compliance without the proactive implementation of management actions. Those actions have been taken by both the NRDs and the Department.

Republican River Compact

In the spring of 2011, the United States Supreme Court accepted the case regarding issues that were previously arbitrated between Nebraska and Kansas. The current litigation focuses on Nebraska's non-compliance in 2005-2006, Kansas' proposed remedies for future compliance, and technical issues related to methods used in Compact accounting. The Special Master in the case has issued a final report, and oral arguments have been scheduled with the United States Supreme Court.

Nebraska has initiated non-binding arbitration proceedings to work toward the implementation of crediting for augmentation projects in the basin, as well as to utilize provisions of the Final Settlement Stipulation that provide Nebraska with the authority to develop an alternative water short year plan. These proceedings have resulted in outcomes largely supporting the State's positions, but Kansas has rejected those outcomes to date.

Republican River Basin Conjunctive Management Project and WaterSMART Study

The Republican River Conjunctive Management Study (WaterSMART) was developed to proceed in two phases. Phase I, the conceptualization of various scenarios and the development of hydrologic tools, is nearly complete. Phase II of the study focuses on the analysis of conjunctive management scenarios, evaluating those scenarios to assess hydrologic and economic implications, and developing a plan for implementation. The Department and Republican River Management Districts Association are collaborating to complete this effort.

Four-Year Work Projection

Based on needs across the state, the Department continually prioritizes and evaluates its data collection and analysis capabilities to support state and local planning efforts. These efforts will continue in the area of streamgaging, floodplain mapping, and integrated management. Certain details regarding the four-year projection of work are contained in the Statewide section of this report. Additional basin-specific efforts are identified below.

Republican River Basin Conjunctive Management Project and WaterSMART Study

The Department will continue to work with the Republican River Basin NRDs to develop the Republican River Basin Conjunctive Management Project. Project output will entail several modeling tools that will be utilized on a regular basis to analyze the effects of various management options. The Department will continue to evaluate the tools and data to determine if updates or additional data are necessary.

The Department and Republican River Basin NRDs will continue to meet annually to evaluate the IMPs and progress toward meeting plan objectives. These evaluations focus on assessment of two key compliance standards: limitations on groundwater depletions and limitations on groundwater pumping. The Department and NRDs will assess the compliance standards and make necessary adjustments as needed.

The Department will continue to work to implement the Compact and ensure compliance through integrated management planning activities.

With the passage of LB 1098 in the 2014 Legislative session, the Department and the Republican Basin NRDs have been directed to work with stakeholders to develop a basin-wide plan. Through a collaborative process, this plan will be developed over the next several years with the goal of sustaining a balance between water uses and supplies.

VIII. Upper Platte River Basin

Synopsis of 2013 Activities

Streamgaging Activities

In the Upper Platte River Basin, the Department operates 47 streamgages, 58 canal gages, and cooperates on one additional gage operated by the U.S. Geological Survey.

Floodplain

See the Statewide section for reference to general statewide floodplain activities related to the Upper Platte River Basin.

Integrated Management Modeling Efforts

In the Upper Platte River Basin, two regional modeling efforts are underway: the Cooperative Hydrology Study (COHYST) and the Western Water Use Model (WWUM). Both of these projects include model components for groundwater and surface water operations, as well as land processes. The model components work together to create tools capable of analyzing varied management scenarios such as the effects of conjunctive management projects, well pumping, alternative surface water operations, etc. The tools are being developed to meet the goals and objectives of the IMPs.

Current workplans anticipate having a tool capable of completing the evaluation of the first increment of the overappropriated area IMPs within the next two years. Analysis will be performed shortly after the tool is developed. In partnership with the local NRDs and irrigation districts, Department staff have expended significant resources over the past year in support of the development of these models.

Integrated Management Plans

Currently, there are six IMPs in place within the Upper Platte River Basin. As the need arises, modifications are made to the IMPs to accomplish plan objectives and accommodate changes in statute.

Basin-Wide Plans

There is one basin-wide plan in place in the Upper Platte River Basin. This plan is for the overappropriated area of the Platte River. The Department and five Upper Platte River Basin NRDs meet regularly to discuss implementation of the basin-wide plan as well as the IMPs for the overappropriated area. Each year, one regular meeting occurring in June or July is directed toward dissemination of information to basin stakeholders and the general public.

Another basin-wide plan is in the early development phases for the Lower Platte River Basin. While this plan focuses on the Lower Platte River, upstream entities, particularly NRDs, will be encouraged to remain current on plan developments.

North Platte Decree, Platte River Recovery Implementation Program, and South Platte Compact

Three interstate agreements involve the Upper Platte River Basin: the North Platte Decree, the Platte River Recovery Implementation Program, and the South Platte Compact. Each interstate agreement is being fully implemented by the Department. This implementation includes the administration of water rights, various reporting elements, and support of various subcommittees and annual meetings. The Department is continuing on track with implementation of the agreed to schedule of tasks in support of these interstate agreements.

Four-Year Work Projection

Based on needs across the state, the Department continually prioritizes and evaluates its data collection and analysis capabilities to support state and local planning efforts. These efforts will continue in the area of streamgaging, floodplain mapping, and integrated management. Certain details regarding the four-year projection of work are contained in the Statewide section of this report. Additional basin-specific efforts are identified below.

The Department will continue to utilize the WWUM and COHYST models and pertinent datasets for IMP analyses. The Department and others will review the data, tools, and plans to prepare for the second increment of the IMPs in the overappropriated region of the Upper Platte River Basin.

Five of the IMPs are for the overappropriated area of the Platte River Basin. These plans, in accordance with state statute, are written with a first increment to last no more than ten years. The plans are now beginning year six of implementation. State statute requires that these IMPs be evaluated for their progress in meeting the plan objectives, and based upon this evaluation as well as other factors, the plans for a new increment of integrated management planning will be built. Within the next two years the work of planning for a second increment is expected to begin. This process may include an evaluation and revision of the basin-wide plan as well. For the implementation of IMPs, most coordination occurs with the NRDs. For specific projects, coordination also occurs with irrigation districts, canal companies, and other state agencies such as the Department of Environmental Quality, the Department of Roads, the Department of Health and Human Services, and the Nebraska Game and Parks Commission.

As the existing basin-wide plan and subsequent IMPs continue to be implemented over the next several years, Department staff will continue to supply technical and administrative support to develop, implement, and maintain planning efforts. Ongoing monitoring of the projects and their impacts on streamflows and groundwater levels is a significant section of each IMP. The Department supports monitoring activities by offering information, data, and the technical capability to analyze and utilize the developed hydrologic tools.

Ongoing activities of implementation related to the interstate agreements are expected to continue on the agreed upon schedule. Regular monitoring for compliance with the agreements will also continue. For the North Platte Decree, regular coordination is carried out with the Bureau of Reclamation, the state of Colorado, and the state of

Wyoming. Within Nebraska, the local irrigation districts and the North Platte NRD are contacted to coordinate on Decree meetings and any issues which impact their interests. As part of the interstate agreements, Department staff supply technical and administrative support for the development of projects according to the agreement schedules. The North Platte Decree Committee's ongoing project to inventory and study irrigation practices and consumptive use along the North Platte River in Wyoming continues.

For the Platte River Recovery Implementation Program (PRRIP), the Department works with the states of Colorado and Wyoming, the Bureau of Reclamation, the U.S. Fish and Wildlife Service, water users across the Platte River Basin, and environmental groups. In regard to PRRIP, the Department also holds regular meetings with the Nebraska Department of Environmental Quality, the Nebraska Department of Roads, the Nebraska Games and Parks Commission, and a downstream water users group which is composed of the five overappropriated area NRDs, Central Nebraska Public Power and Irrigation District, and Nebraska Public Power District. One large-scale water project being developed through PRRIP is the J-2 Regulating Reservoir Project. This project is a collaborative effort of all PRRIP parties and will utilize the existing Central Nebraska Public Power and Irrigation District infrastructure and newly constructed reservoir areas to temporarily hold excess streamflow and supply it back to the Platte River at times when it is needed to meet state protected flows and target flows.

The Department and the NRDs in the overappropriated area of the Upper Platte River Basin have been very active in implementing various management alternatives and projects to meet the goals and objectives of the IMPs. In many cases, the projects being implemented also meet the terms of PRRIP. Throughout the Upper Platte River Basin, several conjunctive management projects are being developed and implemented. Conjunctive management projects involve the use of both surface water and groundwater resources to maximize water use and minimize negative impacts on streamflows and groundwater levels in order to increase the availability and reliability of the water supply in a region. In other words, conjunctive management projects optimize use of the whole water supply. The NRDs have entered into agreements with canal companies to utilize the existing infrastructure of the canal systems so that streamflows in excess of system demands, as well as other transferred surface water rights, can be used to recharge the groundwater aquifers and increase baseflow to the stream. As partners in the IMPs, the Department cooperates on these projects with technical, administrative, and monetary support.

IX. Financial Summary Table

	<u>FY 2013</u> <u>Actual</u>	<u>FY 2014</u> <u>Actual</u>	<u>FY 2015</u> <u>Budget</u>	<u>FY 2016</u> <u>Budget</u>	<u>FY 2017</u> <u>Budget</u>	<u>FY 2018</u> <u>Budget</u>
Personal Services	\$1,627,523	\$1,746,285	\$1,892,746	\$1,892,746	\$1,892,746	\$1,892,746
Travel Expenses	\$47,436	\$49,734	\$65,700	\$65,700	\$65,700	\$65,700
Operating Expense – SOS Temporary Personnel	\$129,575	\$81,138	\$458,124	\$458,124	\$458,124	\$458,124
Operating Expense- Mgmt consultant, Contractual Services and Engineering & Architectural Services	\$1,622,274	\$2,104,041	\$4,523,216	\$4,523,216	\$4,523,216	\$4,523,216
Equipment, Computer and Software	\$72,978	\$68,370	\$190,600	\$190,600	\$190,600	\$190,600
Operating Expense - Other	\$115,414	\$337,300	\$966,823	\$966,823	\$966,823	\$966,823
Capital Outlay/Fixed Assets Except Computer	\$93,148	\$67,011	\$165,000	\$165,000	\$165,000	\$165,000
Interstate Water Litigation	\$302,464	\$591,808	\$1,013,207	\$1,013,207	\$1,013,207	\$1,013,207
TOTAL	\$4,010,812	\$5,045,687	\$9,275,416	\$9,275,416	\$9,275,416	\$9,275,416