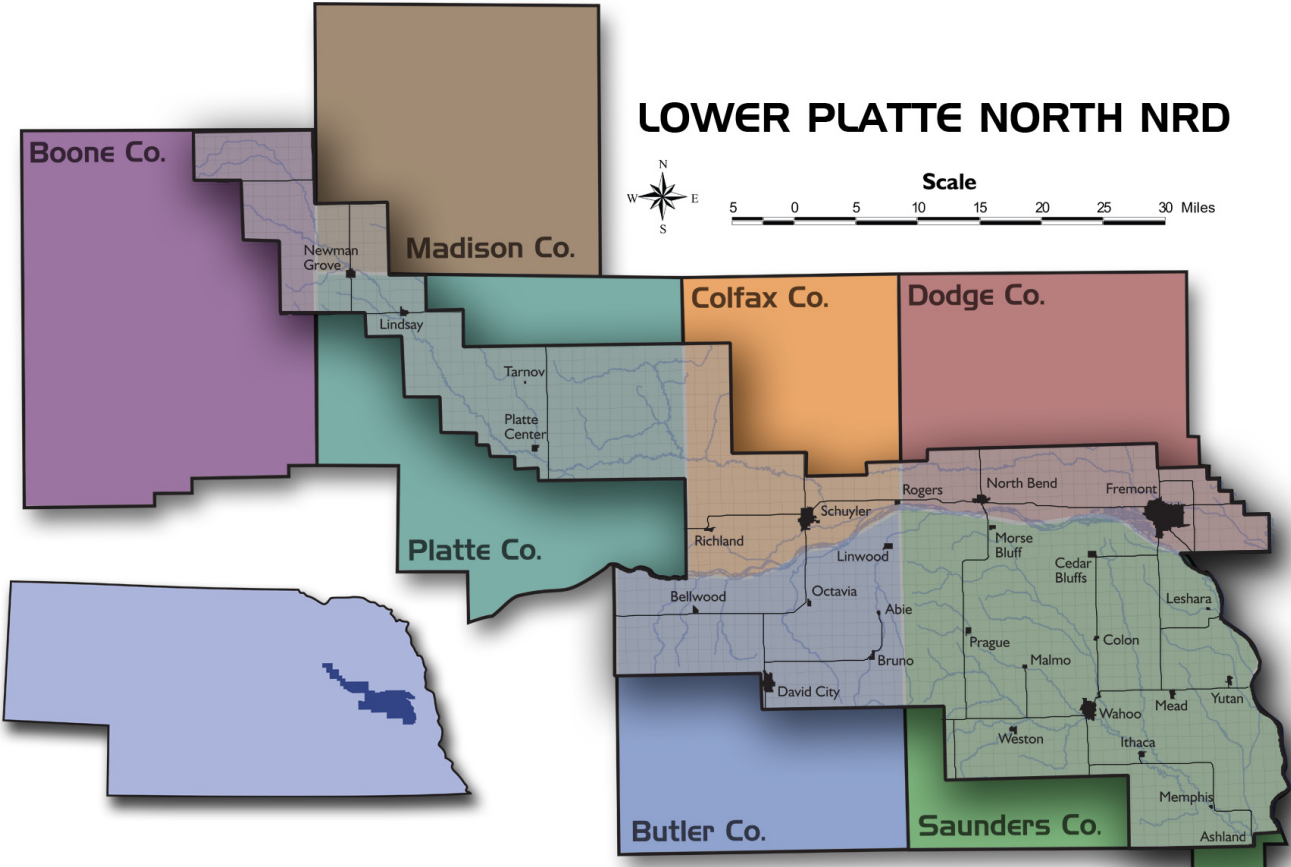




Lower Platte North NRD
Long Range
Implementation Plan
Fiscal Year 2012

LOWER PLATTE NORTH NRD



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LOWER PLATTE NORTH NRD

LONG RANGE IMPLEMENTATION PLAN

Introduction

The Lower Platte North Natural Resources District (LPNNRD) is one of 23 Natural Resources Districts created in 1969 with the passage of LB 1357 by the Nebraska Unicameral. Since its formation in 1972, the LPNNRD has been assisting people in the Lower Platte North River Basin in the development and protection of our soil and water resources. Nebraska Statutes require that Natural Resources Districts develop a Long Range Implementation Plan. The purpose of this plan is to summarize accomplishments during fiscal year 2011 (July 1, 2010 to June 30, 2011) and planned District activities for fiscal year 2012 (July 1, 2011 to June 30, 2012). There are also objectives for a five-year period from fiscal years 2013 to 2017. The plan serves as an implementation tool of the district's Master Plan.

Authority and Responsibilities

The Natural Resources Districts have been given statutory responsibility outlined in Sections 2-3229, R.R.S. 1943. In this section it states that "The purposes of the Natural Resources Districts shall be to develop and execute, through the exercise of powers and authorities contained in this act, plans, facilities, works and programs relating to: (1) erosion prevention and control, (2) prevention of damages from flood water and sediment, (3) flood prevention and control, (4) soil conservation, (5) water supply for any beneficial uses, (6) development, management, utilization, and conservation of groundwater and surface water, (7) pollution control, (8) solid waste disposal and sanitary drainage, (9) drainage improvement and channel rectification, (10) development and management of fish and wildlife habitat, (11) development and management of recreational and park facilities, and (12) forestry and range management."

Lower Platte North NRD programs and projects are available to meet the goal of properly developing our water and related land resources.

Description of the District

The Lower Platte North Natural Resources District is located in the Lower Platte River Basin in eastern Nebraska and includes 1,031,000 acres of land. A portion of Saunders, Butler, Platte, Dodge, Colfax, Boone and Madison Counties are within the district (see Appendix A), which includes twenty-eight cities, towns and villages. Besides the Platte River, other notable tributaries in the district include Wahoo Creek, Skull Creek, Bone Creek, Loeske Creek, Taylor Creek, Shell Creek, Elm Creek, Clear Creek, Rawhide Creek, Silver Creek, Sand Creek, and Duck Creek.

The population of the district is approximately 61,000, of which about half is rural and half urban. The Lower Platte North NRD is financed by a tax levy which may be up to four and one-half cents per \$100 valuation for general purposes and another one cent for water programs. The FY 2012 tax levy is 5.4850 cents per \$100 valuation.

Governing Body

The Lower Platte North Natural Resources District (LPNNRD) is governed by a 19-member Board of Directors. The directors are elected at the general election for a term of four years, with half of the members up for election every two years.

The district is divided into nine (9) subdistricts. Two board members are elected from each of the nine subdistricts. Also, one board member is elected at large every four years.

The district operates by a set of bylaws which are kept on file at the district headquarters at Wahoo, Nebraska.



One of the great natural resources of Nebraska is the Platte River. It is the feature that attracted early settlers to our state and guided the wagon trails. Today, we look at the Platte River differently. It is a water source for agriculture and cities like Fremont, Lincoln and Omaha, a haven for wildlife, and a place for recreation. Issues surrounding the Platte are top priority at the LPNNRD, since approximately 72 miles of the river flow directly through or border the district.

FY 2011 Platte River Basin Activities

Platte River Alliance

The Lower Platte River Corridor Alliance entered its sixteenth year in FY 11. The Alliance members are the Lower Platte North NRD, Lower Platte South NRD, Papio-Missouri River NRD, and several state agencies. One primary focus has been on building a coalition including counties, cities, businesses and individuals concerned with the preservation and proper use of the Platte River.

The Alliance is primarily concerned with the lower portion of the Platte River. This stretch of the river runs from Columbus to Plattsmouth. It winds past or through towns and cities such as Bellwood, Schuyler, North Bend, Fremont, Waterloo and Louisville. In FY 11, the Alliance was involved with many activities and projects that included: Environmental Suitability Assessment, Cumulative Impact Study, River Obstruction Removal, hosted a PRCA Summit, River Tours and educational events.

Ice Jam Agreement

In 1994, the LPNNRD entered into an agreement with two other NRDs and four counties to more effectively deal with ice jams and their resulting flood damages along the Lower Platte River. This area of concern is primarily south of the city limits of Fremont, Nebraska. Besides the Lower Platte North NRD, other partners include the Papio-Missouri River NRD, Lower Platte South NRD, and Cass, Douglas, Sarpy and Saunders Counties. This group has pooled funds to use explosives, when needed, to remove ice jams in a timely manner.

During the winter of 2010-11, no ice jams caused any adverse flooding.

Rock & Jetty Program

This program was developed to offer cost-share assistance to landowners to construct erosion control devices for stream bank stabilization and to assist Dike and Drainage Districts with maintenance of dikes along the Platte and Elkhorn rivers and perennial streams. In FY 11, this program provided \$21,702 to 12 cooperators.

FY 2012 Platte River Basin Objectives

- Administer \$20,000 in the Rock & Jetty Program to assist with stream bank stabilization for a potential 45 cooperators. This includes assisting cooperators with meeting the regulations of the Clean Water Act and 404 permits.
- Participate with LPSNRD, PMRNRD and other partners and provide up to \$150,000 for the Western Sarpy/Clear Creek Levee Project.
- Partner with the City of Schuyler to complete levee project designs to reduce flooding and economic losses from Shell Creek and the Platte River.
- Provide leadership assistance to Fremont and Schuyler to complete Army COE studies that will explore flood control possibilities for these cities.
- Support the Lower Platte Weed Management Area financially and technically in controlling noxious weeds.
- Support the Nebraska Land Trust in acquiring easements for the protection and preservation of quality lands.

FY 2013-2017 Long Range Platte River Basin Objectives

- Continue to support the Platte River Corridor Alliance and continue to seek available federal and state funds to assist with Alliance objectives.
- Continue to budget cost-share funds for bank stabilization along the Platte and Elkhorn rivers and other perennial streams in the district.
- Promote riparian buffer zones along the Platte River and other perennial streams.
- Continue to explore new, innovative and cost-effective ways to protect against stream bank erosion.
- Provide education on stream bank protection and regulations.

- Budget annually, as needed, for the Ice Jam Agreement Fund.
- Keep up to date on Clean Water Act and Endangered Species Act regulations.
- Continue to participate with Fremont and Schuyler to study potential structural and nonstructural measures to reduce flooding and economic losses on the Lower Platte River.
- Encourage cities and counties to join the Lower Platte River Corridor Alliance and initiate flood plain management planning to promote wise flood plain development.
- Assist dike and drainage districts to certify and properly maintain levy projects.
- Budget annually, if in need, to support the Lower Platte Weed Management group in controlling noxious weeds.



One of the Lower Platte North NRD's major responsibilities is to conserve and protect our ground and surface water supplies. To accomplish this goal, the Lower Platte North continues to participate in water quality studies, ground water level monitoring, and water resource educational activities.

FY 2011 Ground and Surface Water Activities

Ground Water Management Area

The LPNDR implemented a District-wide Ground Water Management Area (GWMA) on January 1, 1997, to address both water quality and quantity concerns. Data gathered since 1985 indicates where ground water quality conditions have deteriorated beyond those established as health standards, such as nitrate nitrogen. On that date, ground water quality Phase I (education) regulations in effect for the entire District. One primary rule in Phase I requires certification for fertilizer use. The District has developed a ground water program emphasizing a protection-based approach rather than a reactive, corrective approach.

As of 2011, the District has two Phase 2 ground-water quality control areas, those being Bellwood and Richland/Schuyler. The Bellwood Phase 2 Area was established in 2003. This area covers approximately 30 square miles in the western portion of the Platte Valley in Butler County and includes the town of Bellwood. The Richland/Schuyler Phase 2 Area was established in 2004. This area covers approximately 55 square miles in the Platte Valley of Colfax County and includes the towns of Richland and Schuyler. Elevated nitrate-nitrogen levels continue to be the major concern in both Phase 2 areas.

Due to the drought from 2000 to 2006 and heavy water demand, several of the District's aquifers declined to the point where several wells have reached or exceeded their trigger levels. If more than 50% of the subarea, as measured in our GWEL network wells reach those trigger levels then a management area maybe declared. Due to three consecutive years (2004, 2005 & 2006) of groundwater declines in the Butler County Uplands aquifer, the Lower Platte North NRD declared a "Level One Management Area" for the David City area effective in 2007. Due to changes in the District's rules and regulations the remainder of the district has also been declared a Level One management area. By the spring

of 2009, the David City aquifer had recovered for two consecutive spring readings, therefore the District has changed the status of the David City subarea on October 8, 2009 from a potential Level 2 to a Level 1 ground water management area.

As 2007 progressed, the district noted increased ground water demands for irrigation, due in part to good commodity prices. Expansion in the Uplands portion of Saunders and Butler Counties raised concerns that small pocket aquifers in the glaciated areas may not be able to accommodate even one or two additional high capacity wells. On May 14, 2007 the Board of Directors declared these areas as a 'Temporary Stay Management Area.' A second Temporary Stay Management Area was declared on November 12, 2007. The District completed a Subarea Delineation Study to identify aquifer subareas and to help determine if the two consecutive stays should be made permanent in all or portions of the Uplands or be allowed to expire. In 2008, the LPNDR revised its rules and regulations to take into account glaciated portions of our District, effects of the recent drought and new information from our Subarea Delineation Study. This revision included declaring a Level One District-wide management area for ground water quantity, different classes of water well permits based on annual usage, and adoption of Stay Management Areas. The temporary stay became a Permanent Stay Management Area in May 2008 for the Swedeburg, Prague, Yutan, and Yutan South subareas. Other subareas are being monitored and may be placed in future Stay Management Areas if needed.

In August of 2008, our office received four phone calls from domestic well owners all in or adjacent to the Platte River Uplands subarea northwest of Fremont, that they were running out of water. Following a survey of all well owners in the area, this subarea was declared a temporary Stay Management Area on December 8, 2008. A second temporary stay was declared on June 6, 2009 and was under review to make this a permanent stay or let the temporary stay lapse. On December 3, 2009 this area was declared a permanent Stay Management Area.

In December 2008, the Nebraska Department of Natural Resources (NDNR) declared the Lower Platte River Basin as "fully appropriated". This designation would mean that no new additional irrigation acres would be allowed in the hydrologically connected area unless offsets were provided. After an intense review of the model that NDNR used, it was discovered that there were errors that lead to this declaration. NDNR reversed their preliminary decision in April 2009 and

declared that the basin was not fully appropriated at this time. With the passage of LB 483, the District along with other NRD's completed an update of our rules and regulations, which were approved by NDNR on August 21, 2009, to help avoid becoming fully appropriated in future years. The District will be able to expand new irrigated acres by an additional 2,500 acres per year for four years in this hydrologically connected area. To assist with providing the best science for future fully appropriated decisions, the District has teamed with NDNR, UNL, and neighboring NRD's to complete special studies to provide assessments and modeling to provide the best information in determining groundwater effects to the Lower Platte River. These studies include Elkhorn Loup Model, The Eastern Nebraska Water Resources Assessment, and the Platte River Modeling Study. From October 2009 to October 2011 the District has issued 7,454.83 new irrigated acres of the 7,500 acres available in the hydrologically connected (limited water development area) of the District. Currently the District has also awarded 753 new irrigated acres for the 2012 allocation, but these will not be issued until January 2012.

As of October 2011, the District had 4,368 active registered irrigation wells and 165 wells in our GWEL network. The Metropolitan Utilities District (MUD) well field became operational in the summer of 2008. The MUD well field has 26 high capacity municipal wells in Saunders County (LPNNRD) and 16 municipal wells in Douglas County (PMNRRD). This well field has a Corps of Engineers 404 permit to produce a maximum annual average of 52 Maximum Gallons per Day (MGD) and a maximum daily yield of 104 MGD. Of the four bio-fuels plants planned for our District, none of them are currently in operation.

At the July 2011 Board meeting, the Directors voted to start the process for a voluntary Integrated Water Management Plan (IMP). In the fall of that year, LPSNRD, LPNNRD, and Papio-Missouri River NRD met to discuss working together to develop an IMP for the Lower Platte River basin. LPSNRD has already started the process, while the Board for Papio-Missouri River NRD has not yet voted on the proposal. The four other NRD's in the basin (LENRD, UENRD, LLNRD, and ULNRD) are still undecided.

Current rules and regulations of the GWMA are available at the LPNNRD headquarters in Wahoo.

Ground Water Quality Sampling

The Lower Platte North NRD continues efforts to develop a ground water quality inventory. The District has been divided into four primary aquifer regions: Todd Valley, Platte Valley, Shell Creek and the Uplands, and

further divided into 26 subareas. Due to current staff limitations the District is focusing on the State-wide ground water quality network, where staff sample the same 53 wells each summer to determine long term trends for nitrate-nitrogen. This information is provided to the Department of Environmental Quality and the Department in turn provides this to the Nebraska Legislature on an annual basis.

Due to the short irrigation season in 2011, only 41 of the 53 wells were sampled. All of these wells were tested for nitrate-nitrogen. The median concentration for nitrate-nitrogen was 3.67 parts per million (ppm) with a range of <RL of 0.05 ppm to 22.2 ppm.

Nitrate-nitrogen Range	Median Nitrate - nitrogen	% Nitrate-nitrogen 0 to 8.0 ppm	% Nitrate-nitrogen 8.01 to 10.00 ppm	% Nitrate-nitrogen > 10.00 ppm
0 to 22.2 ppm	3.67 ppm	76% (31 of 41)	7% (3 of 41)	17% (7 of 41)

The maximum contaminant level for nitrate is 10 ppm: levels above this are considered a health risk, especially for pregnant women and infants.

Ground Water Quality Sampling – Bellwood Subarea

In 2010 and 2011 the District also did intensive nitrate-nitrogen sampling of the ground water in and around the Bellwood Phase 2 management area. In 2010 the goal was to sample one well from each section and in the end 56 wells from 57 sections were actually sampled. In 2011, the second year of the Bellwood Subarea sampling, staff attempted to sample two wells that were not sampled in the previous year from each of the 57 sections in the study area. Some sections did not have 2 wells left to sample. Staff collected samples from 113 wells in this area. All 113 samples were analyzed for nitrate, bicarbonate, sulfate, chloride, calcium, sodium, potassium and magnesium. The majority of the low nitrate – nitrogen results were outside the Bellwood Phase 2 area.

Nitrate-nitrogen Range	Median Nitrate - nitrogen	% Nitrate-nitrogen 0 to 8.0 ppm	% Nitrate-nitrogen 8.01 to 10.00 ppm	% Nitrate-nitrogen > 10.00 ppm
0 to 23.3 ppm	5.41 ppm	69% (78 of 113)	4% (5 of 113)	27% (30 of 113)

Twenty-four of the 113 wells sampled were analyzed for Pesticides. Four of the 24 wells sampled positive for one of the pesticides analyzed. Three wells tested positive for atrazine and one well tested positive for heptachlor epoxide, but all positive tests were well below any MCL's. Heptachlor epoxide was used in the 1960's and 1970's as an insecticide against termites and other insects on corn. By 1988, the commercial sale of heptachlor was banned in the United States and is restricted today against fire ants in transformers. Heptachlor epoxide can persist in the soil for several years.

Pesticides Tested:

Alachlor	Heptachlor
Aldrin	Heptachlor Epoxide
Atrazine	Hexachlorobenzene
Benzo(a)pyrene	Hexachlorocyclopentadiene
Butachlor	Lindane
Butylate	Methoxychlor
Chlorpyrifos	Metolachlor
Cyanazine	Metribuzin
Di(2-ethylhexyl)adipate	Propachlor
Di(2-ethylhexyl)Phthalate	Simazine
Dieldrin	Total Chlordane
Endrin	Trifluralin
Fonofos	

Ground Water Energy Level Monitoring Network

One of the responsibilities of the NRDs in the State is to monitor fluctuations in ground water levels. With the help of area cooperators, a ground water energy level monitoring network has been established in the LPNNRD. This monitoring network has been established to obtain a better understanding of the ground water levels throughout the District. As of June 2009, the LPNNRD had 161 wells in the ground water energy level monitoring network. These wells are monitored each spring and fall, with selected wells also measured in late August.

The LPNNRD compares the latest spring reading to the 1987 base-year to determine if a subarea needs to be declared a Level 2 or Level 3 ground water management area. Level 2 and 3 management areas require flow meters on wells, annual reporting of water use, and establishment of acre-inch allocations. For the 25 subareas within the District, 17 subareas are currently at Level 1 management, while the other 8 subareas still need additional information before these can be designated. The District prefers at least three years of data before the subarea can be designated as a Level 1, 2, or 3 management area.

Due to three consecutive years (2004-2006) of groundwater declines in the Butler County Uplands

aquifer, the Lower Platte North NRD declared a “Level Management Area” for the David City area effective Jan. 15, 2007. This was the district’s first management area for ground water quantity. Changes in the district’s rules and regulations in 2008 have placed the entire District in a Level One management area. The David City subarea’s ground water levels have recovered above its designated trigger levels for two consecutive years (2008-2009), therefore this subarea was not placed into a Level Two management area, but reverted back to a Level One.

The District has also established, with the help of Lincoln Water System, Metropolitan Utilities District of Omaha, US Geological Survey, US Army Corps of Engineers, University of Nebraska, Lower Platte South NRD, and Saunders County, a network of monitoring wells to track changes in ground water levels in the Wann Basin area, which is in the Platte River valley north of Ashland. This area has two major municipal well fields and the on going clean up efforts of a former ordnance plant south of Mead, Nebraska. This network was established in the fall of 2003. Readings are taken three times per year in late March, late August, and late October.

Chemigation

Chemigation is the practice of applying fertilizers or other agricultural chemicals to land or crops through an irrigation system. To protect Nebraska’s ground water from possible back-flow of chemicals into irrigation wells, the Legislature enacted LB 284, the Chemigation Act in the 1980s. The Act requires the operator of a chemigation system to obtain a permit prior to use. To obtain this permit, the irrigation system must be properly equipped, inspected and approved by the NRD before applying any chemicals. As of November 14, 2011 the District had 376 approved chemigation sites.

In 2011 the Legislature though LB28 proposed some changes to Title 195 – the Chemigation Regulations. Most of these changes were simple house-keeping changes, except for the addition of rules for sub-surface drip irrigation. Maintenance of sub-surface drip irrigation systems is exempt from the chemigation permits provided 1) the system has an inline check valve and 2) the system has an Underground Injection Control Permit. This is only applicable for one maintenance event each year.

Decommissioned (Abandoned) Wells

Decommissioned (Abandoned) wells are a health and safety concern and have been ruled as illegal by the Nebraska Legislature. It is estimated that there are approximately one-thousand improperly abandoned wells within the Lower Platte North Natural Resources Dis-

tract boundaries. A well not used for three consecutive years or one which is no longer useful is considered to be abandoned and needs to be properly decommissioned.

The Lower Platte North NRD offers up to 75% cost share assistance to landowners to properly decommission abandoned water wells. In addition, the district will assist with up to 75% of the cost for pump and obstruction removal on domestic and stock wells. To receive cost share assistance, the actual decommissioning must be performed by a certified well driller or pump installer. The landowner has six months from the time of application to accomplish this task.

Since 1992 the district has administered local and state cost-share dollars to decommission 514 wells. During FY10-11, 22 wells were plugged with this program. The district will administer approximately \$15,000 of state and local funds to plug additional wells during FY11-12.

Precipitation Gauging Network

The Lower Platte North NRD has a District-wide precipitation gauging network, which consists of six sites maintained by cooperation landowners. Precipitation information is useful when merged with other District water programs including: ground water quality sampling, ground water energy levels, and surface water/ground water correlations, among others.

Our normal yearly precipitation is 28 inches per year and for 2010, some parts of the District were over that amount and others less. Upper Shell Creek had the least rainfall with 26 inches, while the Prague area had the most with over 33 inches. In March 2011 the forecast for the rest of year appeared that we maybe coming back into a dry cycle. However, later that spring and summer provided normal or above precipitation, but the fall of 2011 has been very dry like the fall of 2010.

Registered Wells

The Nebraska Legislature declared that the conservation and the beneficial use of ground water are essential to the future well-being of the State. State Law requires that all water wells in the State of Nebraska be registered with the Department of Water Resources. Wells that are not registered are illegal and should be registered as soon as possible. It is estimated that 15% of the total irrigation wells in the District are not registered. As of October 2011, the LPNNRD had 5,076 registered irrigation wells in the District, of which 4,368 were listed as active.

Well Permits

In May of 2008, the LPNNRD placed a flow meter and water reporting condition on well permits for all permits

issued after that date. All well permits will require the owner of that well to install a flow meter and report the total water pumped from the well during the calendar year to the LPNNRD by January 31 of the following year. This reporting requirement is effective the year the well is drilled and for each year thereafter, until the well is decommissioned. For 2010, the District issued 39 well permits. Twenty-nine permits were issued for new irrigation wells (many in the hydrologically or limited water development area), 6 for replacement irrigation wells, 0 for commercial/industrial wells, 2 for municipal, and 2 well permits for 'other' wells.

Special Studies

Elkhorn Loup Model

The LPNNRD is a partner in the Elkhorn Loup Model Study, as this basin overlaps and covers portions of upper Shell Creek. The Elkhorn-Loup Model (ELM) project is a study of surface water and groundwater resources in the Elkhorn River basin upstream of Norfolk, Nebraska and the Loup River basin upstream of Columbus, Nebraska. The study will assist the Nebraska Department of Natural Resources and the Natural Resources Districts within the study area by characterizing the groundwater system and by providing a regional groundwater flow model that could be used to evaluate surface water/groundwater interaction in the study area. The study will also provide data and interpretations that could serve as the basis for future management of the regional water resources. This study is well underway and some of the reports have been completed and are available online at <http://ne.water.usgs.gov/projects/elm.html>. The ELM model is currently in Phase 3 with emphasis on developing a two layer model to more accurately reflect observed changes in ground water levels.

In early 2011, the ELM project learned that funding from IWMPPF was being reduced due to budget cuts from DNR and the Nebraska Legislature. Further test holes and geophysical work was delayed or eliminated. At subsequent technical meetings the group discussed which scenarios had the highest priority to run by the model once it is completed.

Eastern Nebraska Water Resources Assessment

LPNNRD is a partner in the Eastern Nebraska Water Resources Assessment study. In order to better understand and manage this resource, several Natural Resources Districts, State and Federal Agencies have formed the Eastern Nebraska Water Resources Assessment group (ENWRA) and are proposing to do a geologic framework study at three locations. These pilot studies will evaluate different methods and techniques to char-

acterize and map the subsurface. One of these methods will use Helicopter Electromagnetic (HEM) surveys, which is a geophysical method that can quickly map the subsurface geology over a fairly large area. HEM has been used successfully in other parts of the United States. A separate study funded by the Nebraska Department of Natural Resources will look at other geophysical methods to test their effectiveness, such as Direct Current Resistivity survey. Information from that study will be incorporated into this project. Test holes and monitoring wells will also be installed to verify these different geophysical methods and will be used as long-term ground water quantity and quality monitoring sites in the future. If successful, geophysical techniques could provide a rapid assessment technique to characterize other glaciated areas of eastern Nebraska. This project will lay the groundwork for future studies (including ground water modeling efforts) and improving on existing water management plans.

Now in the fifth year of the study, the focus has shifted to publication of existing C&SD data and updating of the DNR database. C&SD has numerous drilling logs and studies that need to be digitized for publication. Also publication of test results for the three study areas and evaluation of the HEM and Time Domain geophysical methods are being developed. These reports were presented in the spring of 2011.

Platte River Modeling Study

The University of Nebraska is conducting this ground water modeling effort of the Platte River in the LPNNRD. The purpose of this project is to develop a regional groundwater flow model that will be used to analyze the interactions of aquifer-stream-well systems and to determine the 10-50 boundary line for wells that are hydrologically connected to rivers and streams. The model will focus on the analysis of wells in the following counties: Saunders, Butler, Colfax, and Dodge, which are administered by the Lower Platte North NRD. This project consists of two phases: phase I – development of model framework; phase II – hydrologic data collection and groundwater-stream model development.

In 2008 & 2009, phase 1 of the project were generally completed:

- Aquifer tests (pumping and recovery) were conducted at two sites – south of the Platte River [Butler County] northwest of Octavia, and north of the Platte River [Colfax County] northeast of Schuyler.
- Collected geo-probe samples (soil cores and electro-conductivity) from sandbars along the banks of the Platte River at ten locations – one in Colfax County, three in Butler County, two in Dodge County, and

four in Saunders County. Two more sites still need to be done, but high flows in the Platte River have caused delays.

- Permeameter testing at seven sites in the Platte River.

In the fall of 2010, Dr. Chen (chief investigator) reports that calibration of the model is in progress and hopes to begin actual simulations in the spring of 2011. Grant funding for this project comes from the Nebraska Environmental Trust.

For 2011, Dr. Chen asked for a six month extension to complete the model by the end of the year.

Subarea Delineation Study

In March 2007, the District hired Olsson Associates to conduct a subarea delineation study of the LPNNRD, using existing data. This was funded from a grant from the Interrelated Water Management Plan Program Fund (IWMPPF) administered by the Nebraska Department of Natural Resources (DNR). Approximately 26 geologic subareas were identified, which will aid the District in future decisions concerning ground water management. This study was completed in June 2009. The District updated its ground water management area rules and regulations in early 2008 and 2009, based in part on the information provided from this study. The results of this study are being used almost on a daily basis, especially when staff are evaluating class three variances or class three well permits.

Eastern Nebraska HEM Aquifer Mapping (Swedeburg Area)

Grant funding for this project comes from the Nebraska Environmental Trust. In April 2009 portions of the Swedeburg subarea aquifers were mapped using electromagnetic sensors mounted on a helicopter. This was followed in October 2010 with the installation of three test holes by C&SD to ground truth the HEM data. As an additional measure to assist with ground truthing, LPNNRD GPS selected irrigation and domestic wells in this same area that currently do not have footage or lat. – long. coordinates for their well logs. In the fall of 2011, three additional test holes were drilled by C&SD which fulfilled the contract with the University. Dana Divine (Project Coordinator) gave a presentation on the HEM data at the September 28, 2011 Water Committee, but due to limitations in the NET grant, the comparison of the HEM data with the test hole data had to be cut. Staff will review the cost of ground truthing the HEM data for further discussion by the Board.

Farm Process Package (FMP) of MODFLOW Groundwater Modeling Software

The Farm Process Package is an application to the MODFLOW software program that looks at consumptive use of water based on precipitation, crop type, and maturity of crop to assist in future management decisions. The FMP can be an important new refinement to MODFLOW to allow the NRD's to more accurately account for water use by irrigated agriculture. This is a cooperative study between the Papio-Missouri River NRD, LPNNRD, and LPSNRD and the USGS who did the actual modeling for this project. The study area included land within the three NRD's and focused primarily on the Todd Valley and the Platte River Valley north of Ashland, Nebraska. This two year study ran from 2010 to 2011 with a possible report to be written in 2012, if additional funding becomes available.

Certifying Acres

In July 2009, the District signed a contract with GIS workshop to develop a GIS database and obtain county assessor records as the preliminary step to certifying irrigated acres. Using those assessor records LPNNRD staff in early 2010 mailed out letters to landowners in Madison County to verify which fields are irrigated or not. As of September 2010 mass mailings to landowners in Butler, Boone, and Platte counties have also been completed. The long work of review and approval of these estimated 2,000 parcels, still need to be accomplished. In the near future, staff will send letters to landowners in Colfax, Saunders, and Dodge counties. The assessor records in Saunders and Dodge counties lack an active GIS database, which means obtaining accurate records will be more of a challenge. When certifying acres has been completed, this will provide a true inventory of the irrigation needs in the District, which will be an important part for future ground water management and planning.

Nebraska Ordnance Plant Water Pollution Clean Up at Mead

During the 1940s, 1950s and 1960s, an Army Ordnance Plant near Mead was used to assemble bombs and served as an early Atlas Missile ICBM site. Over time, the soil and ground water at the plant site became polluted with various explosive residues and solvents. The cleanup has been divided into three basic project areas: Soils (OU1), Ground Water (OU2), and Building contamination (OU3). This area has been under study by the Army Corps of Engineers (COE) since 1988.

The Soils cleanup was completed in 1998. Sixteen thousand tons of soil contaminated with RDX (an explosive residue) were incinerated. As part of the cleanup efforts for OU3, the COE demolished the load line buildings and storage bunkers in 1998. Approximately 900 cubic yards of soil contamination (antimony may be from a former paint shop) was also removed near Load Line 4 in 2007. Other significant developments included the continued search for the Mustard Gas Agent from Offutt Air Force, which was disposed at the landfill area below the NRD reservoir.

The cleanup of the ground water (OU2) involved drilling 11 wells at the leading edge of the current contaminant plumes to halt their further advance. Water from these wells is treated and then discharged to Wahoo Creek or Clear Creek, or used for beneficial reuse. The time frame for OU2 cleanup is estimated at 90 to 140 years, extracting up to approximately 3.7 million gallons of water per day. More recent modeling efforts indicate that the majority of the contaminants could be cleaned up within 30 years. The containment wells and constructed water treatment plant were completed in 2002. Additional containment and monitoring wells plus additional treatment plants have since been established to assist with the cleanup effort and to contain the contaminant plumes. Beneficial reuse of the clean up water is currently being used by the University of Nebraska-Lincoln Agricultural Research and Development Center (ARDC) south of Mead, and by two landowner/producers for irrigation, livestock water, and for filling a pond.

The groundwater cleanup has involved modeling efforts to determine the impact of the proposed Omaha Metropolitan Utilities District (MUD) (located in the Platte Valley, two and a half miles northeast of the edge of one of the contaminant plumes) on containment of the contaminant plumes. The COE Omaha office approved a construction permit for MUD in 2003 for this well field and operations began in 2008. The LPNNRD has and will continue to play a vital role in working with the Army COE, MUD and area landowners to help insure containment of the contaminant plumes and eventual cleanup without severe impact to the underground aquifer supplying the area.

At a recent public meeting on October 19, 2011 the Army COE had the following update:

- TCE total removed = 19,690 pounds from the ground water by the four treatment plants.
- RDX removed by the main treatment plant = 211 pounds
- 2010 ground water model evaluation has modified the use of some containment wells. EW-2,

EW-5, EW-8, EW-10, and EW-13 have been turned off since these were causing the contaminate plumes to move further south than expected. New wells FEW-11, FEW-14, FEW-15, EW-16 are now in operation and better placed to contain the contaminate plumes.

- MW-116 on two sampling events had 'detects' of TCE and a new irrigation well in the area is the likely influence of these results. Pump test done on EW-1 shows the capture zones of this well will normally keep this TCE in containment. In the future the COE will likely pump EW-1 harder during the irrigation season to compensate for this irrigation well.

Wellhead Protection Program

The LPNNRD implemented a wellhead protection program in FY 2001. The goal of the program is to minimize potential polluting activities on the land surrounding a community's public water supply well(s). The District has identified 22 communities with public supply wells and they have been encouraged to become involved in the program.

The town of Lindsay is experiencing higher nitrate levels in some of their municipal wells and in 2010 applied to DEQ to develop a wellhead protection area for the town. If a wellhead protection area is established by the community, the LPNNRD may become involved in sampling area wells and the possible establishment of a Phase 2 or 3 ground water management area. No new updates for 2011.

Rural Water Districts

In recent years, the District has worked with communities who have had difficulties with water quality and quantity by forming two rural water systems. The Butler County system linked the village of Bruno, who was having water quality and quantity problems, to David City. The Saunders County system linked the village of Colon, who was experiencing water quality concerns, to Wahoo. The LPNNRD operates both of these systems. The District purchases water from the larger communities and delivers it to the smaller communities. Both systems are designed to serve rural customers along each service route. The District has been in contact with several other communities and anticipates several more communities and rural customers to be serviced by rural water systems in the future.

Geographic Information System (GIS) and Global Positioning System (GPS)

The LPNNRD has been using Geographic Information System (GIS) technology since 1996. GIS is an automated system that combines an information system with mapping capabilities. Features on a map created with GIS technology contain attributes or features descriptions that are referenced by location. Initially, a series of base maps were created and coverages included counties, townships, sections, major streams, and major roads with the District. Later, new coverages were generated using Digital Elevation Models (DEM's), Digital Orthophoto Quarter Quadrangles (DOQQ's), and the NRCS Soil Survey, among other sources. The District has incorporated the use of GIS to greatly enhance program and project activities. The LPNNRD brought the NRD MapMaker system online in 2002. The system was developed in cooperation of several neighboring NRD's, the UNL Conservation and Survey Division and the Lower Platte River Corridor Alliance. The system allows the delivery of GIS information over the Internet. Continuing efforts will be made to create and update the metadata for the District's geographic data coverages. The District also plans to continue updating GIS data layers and publishing appropriate material on the NRD MapMaker system.

The Global Positioning System (GPS) relies on 28 NAVSTAR satellites, which provide worldwide positioning and navigation information around the clock. Receivers acquire signals from satellites to determine precise locations on earth. The data obtained from taking GPS positions can be downloaded and mapped with GIS, making the two technologies complementary.

FY 2012 Ground and Surface Water Objectives

- Continue with LPNNRD Ground Water Management Area (GWMA) programs to help avoid the Lower Platte Basin being designated "fully appropriated."
- Start the voluntary Integrated Water Management Plan (IMP) for the District.
- As part of the GWMA, continue with LPNNRD certification classes, demonstration plots, generation of maps indicating problem areas, and development of a landowner database using spreadsheets and GIS.

- Continue to cooperate with the United States Geological Survey (USGS) in monitoring groundwater levels at two sites.
- Use the Subarea Delineation Study to identify ‘small pocket aquifers’ in the Swedeburg, Prague, Yutan, and Yutan subareas. Review other aquifer subareas to determine if Stay Management Areas are justified in other portions of our District.
- Continue sampling of approximately 53 wells in our District that are part of the Nebraska State-wide Network.
- Following intensive ground water sampling of the Bellwood Phase 2 area in 2010 and 2011, evaluate continuation of this Phase 2 area and/or modifications of its boundaries.
- Commence intensive ground water sampling of the Richland-Schuyler Phase 2 area in 2012.
- Administer \$15,000 of state and local cost-share funds to decommission abandoned water wells, and provide 100% cost-share assistance within Wellhead Protection Areas.
- Continue to manage the Phase II Ground Water Management Areas in the Bellwood region of Butler County and the Richland-Schuyler region in Colfax County.
- Maintain a multi-agency ground water energy level monitoring network in the Wann Basin of the Platte Valley north of Ashland to pool information from different agencies collecting water level data. This information is being used by the COE and MUD to refine their ground water modeling efforts.
- Continue to implement the Chemigation Program to inspect safety equipment on permitted irrigation systems in the district.
- Continue with the district’s Well Permitting Program and review of Variances in Stay Management Areas (Limited Development or Restricted Development areas).
- Continue to review water use reports submitted to the LPNNRD as part of the well permitting process from new and replacement wells.
- Provide information and education on water conservation and safe disposal of farm and household chemicals.
- Continue to site registered and unregistered wells in the district using GPS.
- Promote and sponsor “Spring Conservation Sensation” at Czechland Lake in May 2010.
- Provide information on Integrated Pest Management in news releases and the “Viaduct” newsletter to encourage reduced use of pesticides.
- Support “Landscape Connection” event in Lincoln to promote the wise use of chemicals in urban areas.
- Assist in organizing the annual NRD Water Programs Conference held each year to update the NRD’s on activity of State and Federal Agencies, new research and Legislative issues.
- Continue to Monitor changes in ground water levels and quality in the district.
- Continue to install flow meters on irrigation wells that are part of our Ground Water Energy Level (GWEL) Network.
- Expand the GWEL network to monitor aquifer subareas as designated in the Subarea Delineation Study. This will be done by incorporating additional high capacity wells and the drilling of new monitoring wells.
- Implement a flow meter cost share program funded by a 319 grant on irrigation wells in our Phase 2 areas to benefit ground water quality efforts.
- Maintain a homepage for the Groundwater Management Districts Association (GMDA). GMDA is composed of Management Districts in Nebraska, Kansas, Colorado, Texas, Oklahoma, Louisiana and Mississippi.
- Continue to monitor clean up efforts by the COE at the Former Ordnance Plant at Mead, Nebraska.
- Work with the COE to establish spacing requirements for future high capacity irrigation, industrial, and/or municipal wells that are requesting to be installed near known contaminate plumes from the Former Ordnance Plant near Mead, so these wells will not interfere with the COE’s clean up efforts.
- Continue to monitor clean up efforts by the University of Nebraska at the ARDC facilities east of Ithaca, Nebraska.
- Maintain transducers placed in District monitoring wells to record changes in ground water energy levels.
- Review livestock permits from DEQ.
- Investigate irrigation runoff and groundwater management area complaints as needed.
- Continue to administer the Precipitation Gauging Network established by the district.
- Expand the NeRain program within our District.
- Continue to be a sponsor member of the Elkhorn – Loup Model (ELM)
- Continue ground water modeling efforts with the University on the Platte Valley. Study will focus on determining hydrologic connection between surface water and ground water and determination of the 10/50 boundary.

- Commence ground water modeling in the Todd Valley of Saunders County of our District. Like the Platte Valley model, the focus will be on the hydrologic connection between surface and ground water, and the long term sustainability of this very important aquifer.
- Implement the Eastern Nebraska HEM Aquifer Mapping study, which will test the validity of using helicopter electromagnetic survey to map pocket aquifers in the Swedeburg area of the Lower Platte North NRD. If successful, HEM maybe expanded to other areas of our District.
- Improve irrigation efficiency by working with UNL Extension on the Nebraska Agricultural Water Management Demonstration Network (NAWMDN) to install Watermark sensor's and ET gauges with 40 producers each year in our District over a three year period and train them in its proper use.
- Continue with the process of Irrigated Acre Certification within the District.
- Complete the Wahoo Creek Watershed Water Quality Plan.
- Assist in the projected decommissioning of 500 water wells in the district.
- Continue to use GPS to site registered and unregistered wells within the district.
- Keep the Saunders County Rural Water System study as an alternative in the event of changing federal regulations governing municipal water supplies.
- If necessary, designate Level II and III boundaries within the district to manage declining ground water levels.
- Continue measurement of ground water energy levels in the district.
- Develop a ground water model for each sub-area.
- Complete Platte Valley modeling efforts and submit information to the Department of Natural Resources for their review of the 10/50 boundary line.
- Complete Elkhorn – Loup Model (ELM) to determine which areas in the Shell Creek watershed are in hydrologic connection with the Elkhorn or Loup River basins.
- Complete Eastern Nebraska Water Resources Assessment (ENWRA) and apply information to the glaciated portions of our District.

FY 2013-2017 Long Range Ground and Surface Water Objectives

- Update the Ground Water Management Plan to include Integrated Management of surface and ground water.
- Continue ground water quality sampling throughout the LPNNRD, both the State-wide network and intensive sampling of selected regional aquifers.
- Continue water quality education programs based on the goals and objectives of the LPNNRD Ground Water Management Area, which includes LPNNRD certification classes for landowners, municipal and industrial water users.
- If needed, designate further Phase II & III boundaries for the Groundwater Quality Management Areas.
- Continue with nitrogen application demonstrations and participate with demonstrations on integrated pest management and sustainable agriculture.
- Additional studies to identify vulnerable aquifers and modify GWMA rules and regulations to protect these aquifers. Continue geophysical work, installation of monitoring wells and test holes to better define these vulnerable sub-areas.
- Expand GWEL network to have wells in each sub-area to better manage the resource.
- Initiate new ground water studies to further define aquifers and their long term sustainability in the LPNNRD.
- Install at least one monitoring well in each sub-area with continuous recording of ground water energy levels.
- Install precipitation gauges near monitoring wells in important sub-areas.
- Complete the certification of irrigated acres and incorporate this into our Ground Water Management Plan and rules and regulations.



In response to the Erosion and Sediment Control Act (LB 474), passed in 1986, the Natural Resources Commission developed the Nebraska Soil and Water Conservation Strategy. This strategy outlines a course of action for efficiently conserving and managing the state's natural resources.

The Lower Platte North NRD administers the Erosion and Sediment Act and has patterned its local program after the state strategy. Strategy objectives include completing 80% of the 1987 land treatment needs by the year 2010 and reducing soil loss on all lands to soil levels ("T") by 2025. The LPNNRD updated the district's Erosion and Sediment Control Program in FY 96 to include provisions for sediment runoff control in urban areas. The district administers state and local cost-share funds through Soil and Water Conservation Programs (SWCP) to offer incentives to farmers for installation of land treatment practices.

FY 2011 Soil Conservation Activities

Soil and Water Conservation Programs (SWCP)

Under Soil and Water Conservation Programs (SWCP), the LPNNRD administered \$108,727 of state funds and \$33,000 of local funds for land treatment practices during fiscal year 2011. Approximately \$78,000 in 319 Grant Funds have been spent in the Sand & Duck Creek watersheds. These cost-share monies helped construct practices including approximately 59,650 linear feet of terraces, 17,537 linear feet of tile outlets, 94 risers and 32 basins. In addition, 24 Buffer Strip contracts were administered with \$13,200 in state funds and approximately 42 acres of crop ground were converted back to grass. The district also administered four new planned grazing projects that affected approximately 229 acres of grazed pasture land.

For fiscal year 2012, approximately \$108,727 of state funds (from the Nebraska Department of Natural Resources) and \$33,000 of local funds will be allocated for soil and water conservation practices.

Erosion and Sediment Complaints

The LPNNRD responds to occasional erosion and sediment complaints. In most cases, these complaints are resolved before going through the formal complaint process. Many cases are drainage issues that are resolved

between the District and landowners. During FY 11 the district received no complaints.

FY 2012 Soil Conservation Objectives

- Use technical assistance from the NRCS in the planning, design, construction, and maintenance of conservation measures applied to the land.
- Use Federal, state and local funds to promote and implement land and water treatment projects in the Duck Creek Watershed to improve water quality.
- Administer \$115,882 of State NSWCP and \$224,708 of local cost-share and grant funds to landowners for the construction of terraces, tile outlets, waterways, diversions, small dams, planting of permanent vegetation, and maintaining water quality.
- Actively pursue grant funds to assist with land treatment objectives in the Skull Creek Watershed.
- Continue to promote conservation tillage measures, pasture & range management, sustainable agriculture, and the Conservation Reserve Program (CRP), through news releases and the district's newsletter.
- Recognize the Outstanding Conservationist, Soil & Water Stewards, Tree Planter, Water Resources Cooperator and Teacher of the Year at the Annual Recognition Banquet.
- Continue to assist landowners in resolving soil erosion and sediment complaints.
- Provide financial support and staff time to conservation education activities.
- Continue to work closely with locally-led groups working to promote conservation throughout the district.
- Complete the Wahoo Creek Watershed Water Quality Plan.

FY 2013-2017 Soil Conservation Long Range Objectives

- Maintain existing land treatment practices and programs.
- Continue to work with all counties in the district to reduce roadside erosion.
- Continue to administer the Duck/Sand Creek 319 Grant Program to improve water quality throughout the two priority watersheds.

- Look for new and innovative soil and water conservation methods.
- Continue to work closely with locally-led watershed groups in their efforts to improve all aspects of their water and soil quality.
- Continue to support the Land and Range Judging Contests.
- Continue with the district's targeted land treatment program in the Skull Creek Watershed.
- Develop GIS software program for calculating applied land treatment and promoting soil conservation practices.
- Promote the use of and make available soil surveys and land use information.
- Continue to work with the Shell Creek Watershed Improvement Group to focus priority support for soil conservation practices.



Watershed projects have been completed in five of eleven sub-watersheds (see Appendix E) in the LPNNRD to help control floodwater and provide grade stabilization. These projects include Bellwood, Clear Creek, Cottonwood Creek, and Swedeburg watersheds, along with Rawhide Creek. Future flood control priority areas include Shell Creek, Skull Creek and Wahoo Creek watersheds. On federal and state projects where the LPNNRD acts as project sponsor, the district obtains land rights and mitigates for loss of trees, wildlife habitats and fences destroyed by project construction. The LPNNRD is also responsible for operation and maintenance activities on these projects after they are built.

The LPNNRD offers local assistance for the construction of small dams that can help counties and/or landowners protect county roads, control erosion and provide water for livestock and wildlife.

FY 2011 Flood Control and Damage Reduction Activities

Sand Creek Environmental Restoration Project (Lake Wanahoo)

In 1993, the Lower Platte North NRD, City of Wahoo and Saunders County began investigating the possibility of constructing a multipurpose dam site on Sand Creek, one mile north of Wahoo. A feasibility study was completed to look at soil types, water budget and benefits derived from the possible construction of the lake. The report gave a positive benefit cost ratio should the lake be constructed. The study identified reduction in storm damages and recreation as two major benefits, with no fatal flaws identified. A later study by the U.S. Army Corps of Engineers identified Lake Wanahoo and seven smaller upstream dams as the preferred alternative for environmental restoration and flood control in the watershed.

With the invaluable assistance of numerous local, state and federal partners, 2011 witnessed the completion of construction on Lake Wanahoo's earth embankment. The breakwater feature and the fisheries component have also been completed. Recreation components were also started for Lake Wanahoo in FY 2011 and landrights were secured for five of the seven upstream sediment/nutrient trap structures. Construction on the five is anticipated to be completed in FY 2012.

Operation and Maintenance

District staff completed inspections on 40 watershed structures and special projects in the NRD in FY 10/11. These inspections help detect problems before they become serious. Also during the 2011 fiscal year, noxious weeds were sprayed on 40 structures and along Rawhide Ditch 8. Annual maintenance activities such as removing debris, repairing fences and unplugging risers were completed at many of the dam locations.

Army Corps of Engineers 205 Flood Studies

Over the past few years, the District has partnered with local entities and the US Army Corps of Engineers to study flood protection alternatives for their areas. In 2004, LPNNRD partnered with Fremont, Inglewood and Dodge County to look at a potential levee project to remove areas from the Platte River 100-year ice induced floodplain. In 2005, LPNNRD entered into a interlocal agreement with the City of Schuyler to evaluate levee protection options to protect the city from flooding from the Platte River and Shell Creek. In FY 2011, both studies made much progress in narrowing down the most preferred cost effective project alternative.

FY 2012 Flood Control and Damage Reduction Objectives

- Continue with accelerated land treatment efforts in Sand Creek, Shell Creek, Wahoo Creek, Bone Creek and Skull Creek watersheds.
- Complete biannual inspections on 40 watershed structures; spray noxious weeds on 40 dams and 10 miles of ditch; complete regular maintenance activities at all sites.
- Continue to educate the public on watershed management and flood control in LPNNRD newsletters and news releases.
- Cooperate with landowners and counties in evaluating small dam sites for cost-share throughout the district.
- Continue to pursue funding opportunities for the Sand Creek Environmental Restoration Project.
- Continue with the Army Corps of Engineers 205 study efforts and move toward feasible flood control projects for Fremont.
- Partner with the City of Schuyler to complete levee project designs to reduce flooding and economic losses from Shell Creek and the Platte River.

- Assist North Bend and Woodcliff to evaluate future flood protection for their communities.

**FY 2013-2017 Flood Control and
Damage Reduction Long Range
Objectives**

- Commit funds and staff time toward obtaining funds for floodwater control structures in the Wahoo Creek Watershed.
- Continue to budget staff time and funds to maintain and operate completed flood control structures that are sponsored by the LPNRRD.
- Continue working toward the objectives of the Wahoo Creek and Skull Creek Flood Control Project Plans.
- Continue to support the efforts of the Platte River Alliance to encourage cities and counties in the district to accept and implement Flood Plain Management Authorities.
- Continue to explore cost-effective ways to reduce flooding within the Shell Creek Watershed.
- Assist Fremont and Schuyler, with flood protection projects as identified by the Army Corps of Engineers 205 studies.



The district administers several programs designed to enhance the region’s forest, range, and wildlife land, including the Tree Planting Program, Wildlife Habitat Program, SWCP Program, and Mitigation Program. The district also sponsors educational activities such as Range Judging and Land Judging contests, and other school-oriented activities.

FY 2011 Forestry, Range and Wildlife Habitat Activities

Tree Program

One of the most visible and popular programs offered by the LPNNRD is the district’s tree planting program. As a direct result of this program, begun in 1973, an estimated 800,000 trees and shrubs have been planted in the district. Trees and shrubs may be obtained from the NRD for windbreaks, shelter belts, wildlife habitat, woodlots, and Christmas tree plantings. Besides providing a planting service, the NRD also designs tree plans and offers technical advice on ground preparation for tree sites.

During the spring of 2011, 17,550 trees and shrubs were distributed to District residents. Of this total, approximately 3,350 were planted by the NRD field crew at 12 sites.

WILD Nebraska Program

WILD Nebraska, the replacement for WHIP, is intended to encourage landowners to set aside land for wildlife habitat, but payment rates and acceptable practices have been adjusted in the new program to make it more flexible.

The new program bases its payments on average county rental rates. There are numerous habitat practices eligible for funding in three major categories: Woodlands, Wetlands and Grasslands. Funding for the program is split between the Nebraska Game and Parks Commission (75%) and the NRD (25%).

The district did not receive any new applications for the program in FY 10/11.

Community Forestry Program

In FY 2010/11, the LPNNRD donated seedlings to the Conservation Sensation, Boy Scouts, and schools.

FY 2012 Forestry, Range and Wildlife Habitat Objectives

- Plant and distribute a minimum of 20,000 trees and shrubs through the districts Tree Planting Program.
- Continue to include tree planting as an eligible cost-share practice under the SWCP program.
- Offer trees and give staff presentations to elementary students across the district.
- Sign up 1-3 cooperators in the district’s WILD Nebraska Program and assist with funding from the CREP program.
- Cooperate with the Extension Service and the NRCS in obtaining tree orders from District residents.
- Recognize a cooperator for outstanding tree planting efforts at the Annual Recognition Banquet.
- Provide cost-sharing for the conversion of cropland to grassland through the SWCP program.
- Cooperate with Pheasant Forever Chapters to enhance wildlife habitat and establish windbreaks.

FY 2013-2017 Forestry, Range and Wildlife Habitat Long Range Objectives

- Continue to sell between 20,000 and 40,000 trees and shrubs each year through the district’s Tree Planting Program, and to plant at least half of the trees ordered.
- Provide information and education on tree planting, woodland management, grassland management, and proper wildlife habitat enhancement through the media, tours, and schools.
- Continue to administer the WILD Nebraska program in cooperation with the Nebraska Game and Parks Commission.



FY 2011 Recreation Activities

Czechland Lake Recreation Area

Czechland Lake Recreation Area is a multipurpose project located one mile north of Prague, Nebraska on Highway 79. Flood control, recreation and education are the main benefits of the project. Located at a convenient distance from Omaha, Lincoln, Fremont and Wahoo, the 85 surface acre lake is situated on 265 acres of public access land operated and maintained by the LPNNRD.

State park permits and fees are not required for entrance to the area. The District installed electrical service to 8 camper pads and established an \$18/night fee for the use a camping pad. A Nebraska Fishing License is required for anglers. The lake fishery is managed by the Nebraska Game and Parks Commission, which stocks and monitors fish populations. Catfish, Bluegill, Northern Pike and Largemouth Bass were initially stocked in Czechland Lake.

Originally built as one of twelve floodwater structures in the Cottonwood Creek Watershed, Czechland Lake has developed into one of the areas most popular recreation spots. The reservoir and recreation area development was built at a total cost of \$1.8 million. Funding for the project was shared by the Nebraska Natural Resources Commission, Saunders County, USDA Natural Resources Conservation Service and LPNNRD. Grant monies from the U.S. Environmental Protection Agency have been used to reduce non-point source pollution entering the lake and to provide educational resources.

In FY 01 the district received grants from DEQ (EPA Section 319) and the Nebraska Environmental Trust to construct a silt dam with a sediment pumping station to route excess silt downstream around Czechland Lake to prevent it from being deposited in the lake. The project was completed in December 2001.

The Czechland recreation area was used extensively during FY 11. Mowing, trash removal, repair and upkeep of park equipment, and thistle control kept LPNNRD park staff very busy during the spring and summer.

Homestead Lake (Skull Creek Site #55)

Construction was completed on Homestead Lake in 2001. The dam offers flood control for nearby communities, and has been developed for public recreation. Recreation facilities include a shelter, restroom, picnic areas, a boatramp, and hunting areas.

Lake Wanhoo

Work proceeded on recreation facilities at Lake Wanhoo one mile north of Wahoo throughout FY 2011. Recreation facilities at the 1,600 acre site straddle the 662 acre lake, with camping and boating access on the west side and a day use area on the east. A rocked hiking/biking trail winds throughout the park, linking the east and west side recreation areas over a breakwater levee one mile north of the dam. Mowed trails north of the levee provide access to undeveloped areas set aside for wildlife habitat.

The camping area contains 74 camper pads and 60 tent camping sites. All camper pads are equipped with electrical hookups and 50 of them are hard surfaced, with the remainder on grass. All tent sites will have fire rings and picnic tables.

The camping area also offers access to a large boat ramp that's wide enough to accommodate three boats at a time. Boating at the lake will be no-wake only.

The day use area on the east side of the lake has two large picnic shelters and two smaller ones, all offering scenic views of the lake.

Both the camping and day use areas will provide excellent fishing access, with a total of seven fishing jetties. One jetty on each side has an attached handicapped pier. The lake was stocked with largemouth bass, bluegill, blue catfish, crappie, northern pike, and walleye beginning in 2008.

Limited hunting opportunities will continue to be available at Lake Wanhoo through the popular PATH Program, where adults can schedule a time to mentor a youth hunter at designated hunting sites north of the recreation area.

The Lake Wanhoo Recreation Area will open to the public in spring 2012.

Wildlife Habitat Public Access Areas

Under the WILD Nebraska program, administered jointly with the Nebraska Game & Parks Commission, the LPNNRD encourages landowners to allow public access on habitat lands signed up under the program. The NRD currently has a total of 26 habitat acres in the WILD Nebraska and CREP programs, none of which offer public access.

FY 2012 Recreation Objectives

- Continue to budget funds for maintenance, including grass mowing, painting, tree trimming, road grading, outhouse cleaning, trash removal, and noxious weed control, at Czechland Lake and Homestead Lake Recreation Areas.
- Acquire an additional 50 to 100 acres of wildlife habitat lands which allow public access under the WILD Nebraska program.

FY 2013-2017 Recreation Long Range Objectives

- Continue to pursue development of new public lake recreational facilities near Wahoo in the Wahoo Creek Watershed and in Skull Creek Watershed near Abie and Bruno.
- Continue to administer the WILD Nebraska programs and pursue developing new areas offering public access.



DRAINAGE IMPROVEMENT AND CHANNEL RECTIFICATION

It is the general policy of the LPNNRD not to provide financial assistance for drainage improvement and channel rectification unless a project has public benefit and is sponsored by a county or city. Under this policy, the district has cooperated on several projects that have provided public benefit. In FY 2010, the District assisted Colfax County to study the 5-mile Hughes/Payzant drainage ditch east of Schuyler. With the help of a community block grant, this drainage system will be improved in FY 2012 to help move local drainage off public and private land.

FY 2012 Drainage Improvement & Channel Rectification Objectives

- Continue to oversee the progress of the Rawhide Creek West Branch Project to ensure that vegetation is established and the creek stays clean.

- Assist Platte Center with stabilizing a segment of Elm Creek.
- Lead the Lower Shell Creek Steering Committee in evaluating flood reduction measures for Schuyler and Colfax County.
- Assist Colfax County with the renovation of the Hughes/Payzant Drainage Ditch east of Schuyler.

FY 2013-2017 Drainage Improvement & Channel Rectification Long Range Objectives

- Continue to assist counties and cities in the district that sponsor sound drainage and channel improvement projects.



In recent years, vast changes have occurred in Nebraska's solid waste regulations. Landfills that weren't properly designed, operated or sited were required to shut down, as were unauthorized dumps. Now, in order for a landfill to operate, it must be approved by the State and receive a permit. If a permit is not issued, the landfill cannot legally operate. Currently, the only permitted landfill in the Lower Platte North NRD is a facility near David City.

FY 2012 Waste Disposal & Pollution Objectives

- Promote recycling efforts in the district through education programs, newsletters, and news releases.
- Participate in education efforts to promote the reduction of pollution to our air, water, and soil resources.
- Cooperate and be supportive of other group and agency pollution control efforts, education, and/or regulation.
- Sponsor a scrap tire recycling effort at Platte Center.

FY 2013-2017 Waste Disposal & Pollution Long Range Objectives

- Assist and encourage all District communities in establishing collection locations for recyclable wastes.
- Assist District cities and counties in establishing pickup days for hazardous household and farmstead wastes.
- Promote waste reduction efforts in the district through education and incentives.

A major responsibility of the Lower Platte North NRD is to keep the public aware of the district's various projects and programs, and to inform and educate children and adults about the wise use and management of our natural resources.

FY 2011 Information & Education Activities

During fiscal year 2011, the Lower Platte North NRD conducted many activities to help residents learn the importance of our soil and water resources and keep abreast of natural resource issues and concerns. Some of the highlights included:

Education Programs

The district once again sponsored the "Spring Conservation Sensation" activities held at the Czechland Lake Recreation Area in May 2011. During this all-day event, 360 fifth- and sixth-grade students from Saunders, Butler, Platte, Colfax and Dodge Counties participated in various activities. Hands-on activities were presented by agency personnel and volunteers to teach the students about the environment and their natural resources. Students visited stations demonstrating tree planting, fishing, soil erosion, water sampling and more.

The district hosted the East Central Land Judging Contest in October 2010 for area FFA chapters, with 179 students competing.

District staff presented various activities at natural resources festivals, field days, and school classrooms.

District staff participated in NACEE, the Nebraska Alliance for Conservation and Environmental Education. The NRD hosts and maintains the NACEE website.

Awards, Contests, and Events

The district issued numerous awards recognizing outstanding accomplishments, including: Conservationist of the Year, NRCS Employee of the Year, Water Resources Cooperator of the Year, and Volunteer of the Year, among others.

Free materials were distributed to churches to honor Soil and Water Stewardship Week.

The LPNNRD also attended four county fairs.

Publications

Three issues of the district's newsletter "Viaduct" were distributed to over 1,200 subscribers in FY 2011. The district also distributed 30,000 copies of the 2010 annual report in area newspapers.

Various brochures describing LPNNRD programs and services were produced and/or updated. A Fact Sheet for use with the NRD's public relations campaign was updated, and the statewide NRD Outdoor Recreation Areas brochure was updated and reprinted.

News releases were mailed to district papers and radio stations, and numerous ads spotlighting different NRD programs were aired on KTIC Radio.

Web Site

The NRD's website at www.lpnrd.org contains information on nearly all of the district's projects and programs, as well as staff and director information, committee and board meeting minutes, and more. Online application and registration forms for various projects and programs are available as well. In FY 2008, online payment capabilities were added to the site to allow customers to pay for trees and rural water bills.

In FY 2010, the district's website was redesigned. The district also established a social networking presence on Facebook and Twitter.

In FY 2011, the district's website was updated to present mobile-friendly layouts for smartphone devices.

Also in FY 2011, two new statewide websites went online: Conservation Trees for Nebraska (www.nrdtrees.org) and NRD Outdoor Recreation Areas (www.nrdrec.org). Apps for the iPhone/iPod Touch/iPad were also released on the iOS App Store covering the same topics.

FY 2012 Information & Education Objectives

- Publish the district newsletter "Viaduct" quarterly and mail to at least 1,200 subscribers.
- Publish the LPNNRD's Annual Report in early 2012 in 30,000 newspapers.
- Send timely news releases to the local media on various LPNNRD programs, projects and activities.
- Assist in development of an outdoor classroom for a District school.
- Continue with the annual Award Program.

- Provide District elementary students free trees, as requested, in the spring.
- Disseminate pamphlets and other publications about LPNNRD programs.
- Provide LPNNRD staff as requested to speak to community organizations and schools on NRD activities and environmental topics.
- Continue to provide a display at county fairs (four major counties) within the district.
- Promote Soil & Water Stewardship Week and distribute free materials to churches throughout the NRD.
- Sponsor the Spring Conservation Sensation in spring 2011.
- Sponsor the area Land Judging Contest in fall 2011.
- Participate in Nebraska Alliance for Conservation and Environmental Education.
- Update the district's web site regularly.

- Continue social networking outreach for the district through use of tools such as Facebook, Twitter, etc.

FY 2013-2017 Information & Education Long Range Objectives

- Search for new and effective ways to inform and educate the public on the NRD purpose and programs.
- Increase participation in activities sponsored by other agencies related to NRD responsibilities.
- Seek to have conservation/environmental education as a part of the school curriculum.
- Support environmental education activities and events.
- Participate with the Information & Education Staff Group to coordinate statewide I&E activities and produce statewide products.

NRD Staff

The staff of the Lower Platte North NRD includes 16 full-time and part-time employees at the district office in Wahoo. The NRD also staffs a full-time field technician, four clerks in Natural Resource Conservation Service county offices, and a Recreation Facilitator for Czechland Lake Recreation Area. Current staff as of December 1, 2011 was:

*Larry Angle, **Water Resources Manager***
*Curt Becker, **Water Resources Specialist***
*Jill Breunig, **Administrative Manager***
*Andrew Ekstein, **O&M/Rural Water Specialist***
*Eric Gottschalk, **Projects Coordinator***
*Bob Heimann, **Operations & Maintenance Supervisor***
*John Miyoshi, **General Manager***
*Tom Mountford, **Assistant Manager***
*Mike Murren, **Lake Wanhoo Coordinator***
*Russell Oaklund, **Water Resources Specialist***
*Dave Odvody, **Recreation Facilitator***
*Chris Poole, **GIS/Computer Specialist***
*Karen Rezac, **Secretary/Receptionist***
*Mike Sousek, **Rural Water Manager***
*Krystal Sund, **Accountant***
*Troy Thompson, **Information & Education Specialist/***
Computer Specialist

Staff Support for NRCS Offices:

*Kelly Bartek, **Conservation Technician***
*Susie Leu, **Field Office Clerk (Butler County)***
*Brenda Wardman, **Field Office Clerk (Colfax County)***
*Jenny Campbell, **Field Office Clerk (Dodge County)***
*Marla Milliken, **Field Office Clerk (Saunders County)***

In addition to the listed full-time and part-time positions, the district employs seasonal conservation technicians to assist in the layout of land treatment structures. There are also seasonal employees hired to help with water sampling, tree planting and maintenance of NRD projects.

FY 2013-2017 Personnel Needs

- Personnel positions and assigned responsibilities could increase as increased project and program responsibilities increase. An example of such an increase would be if the district was asked to lead a rural water district for communities in Saunders County. Another potential area which may warrant additional long range personnel is for the design and inspection of land treatment practices.

FY 2012 Financial Objectives

Funding required for the LPNNRD projects and programs for Fiscal Year 2012 requires a general operating budget of \$7,468,645. A tax levy of .054850 cents per \$100 actual valuation is required from District property. The projected budgets for FY 2012-2017 are shown in Appendix F.

A tax levy of .054850 means that an owner of a \$100,000 home will pay about \$55 in NRD taxes for FY 2011. An owner of farm land valued at \$4,000 per acre will pay about \$2.20 an acre/year in tax. The LPNNRD levy represents about 1.5 percent of the total property tax collected.

FY 2013-2017 Long Range Financial Objectives

- Although it is expected that the amount of revenue from all sources will fluctuate during the next few years, it appears that the LPNNRD will need to operate at a mill levy between \$0.045 and \$0.055 per \$100 actual valuation on District property. The increase in activities within our groundwater management areas will be a large determining factor as to our maximum mill levy needs.

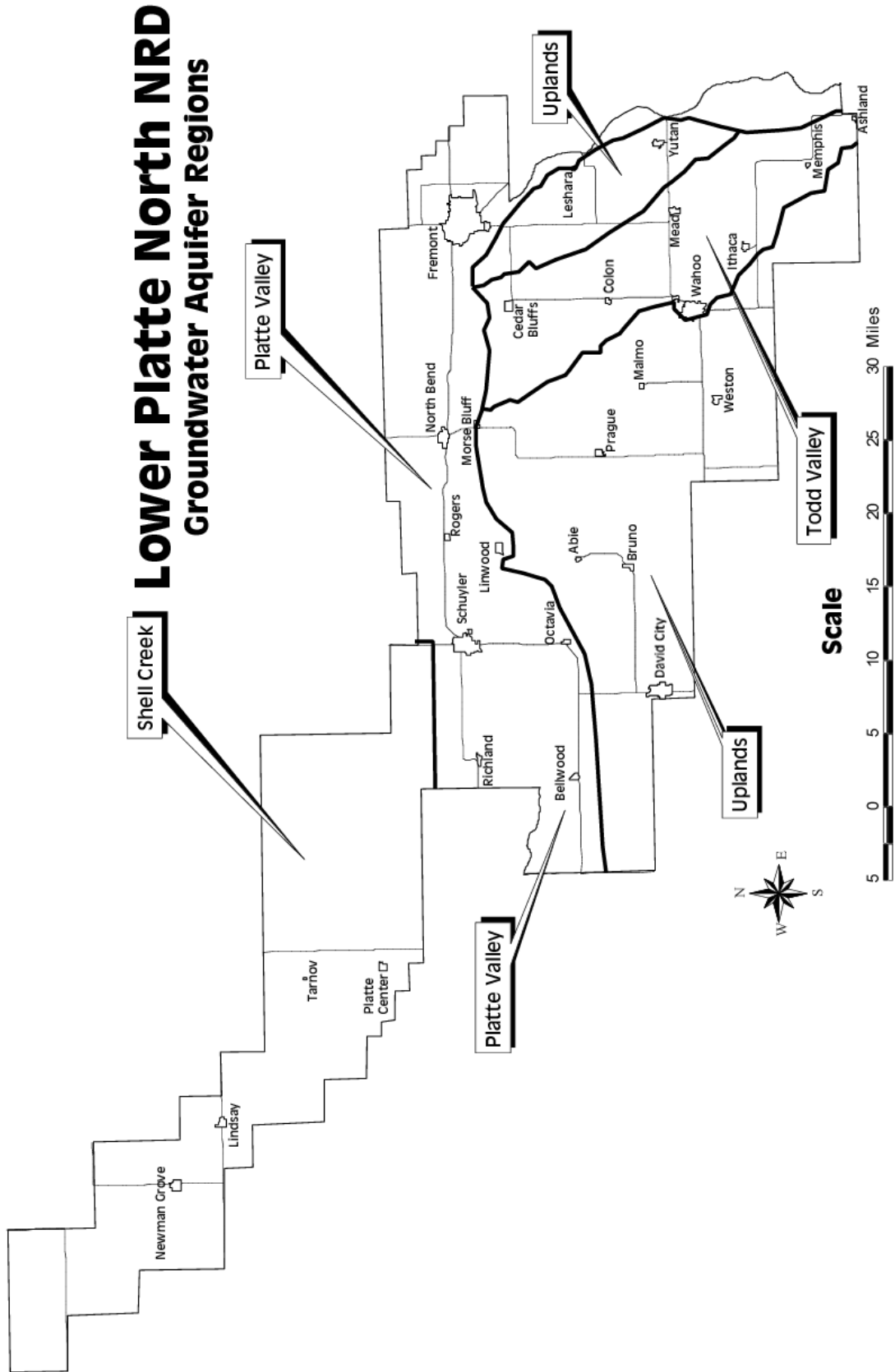


APPENDIX A - Estimated Population by County

COUNTY	% OF COUNTY IN DISTRICT	ACRES IN DISTRICT	RURAL POPULATION IN DISTRICT	URBAN POPULATION IN DISTRICT	TOTAL	% OF FISCAL INPUT
Boone	12.6	54,473	362	–	362	2.3
Butler	44.3	165,476	2,022	3,387	5,409	11.0
Colfax	41.9	111,528	1,414	4,237	5,651	10.0
Dodge	30.2	104,245	3,100	25,215	28,315	35.7
Madison	6.3	23,086	194	770	964	1.5
Platte	38.5	169,432	2,878	723	3,571	10.5
Saunders	81.5	401,234	6,698	6,949	13,647	29.0

Twenty-eight cities, towns and villages are located within the Lower Platte North NRD, listed below with their populations:

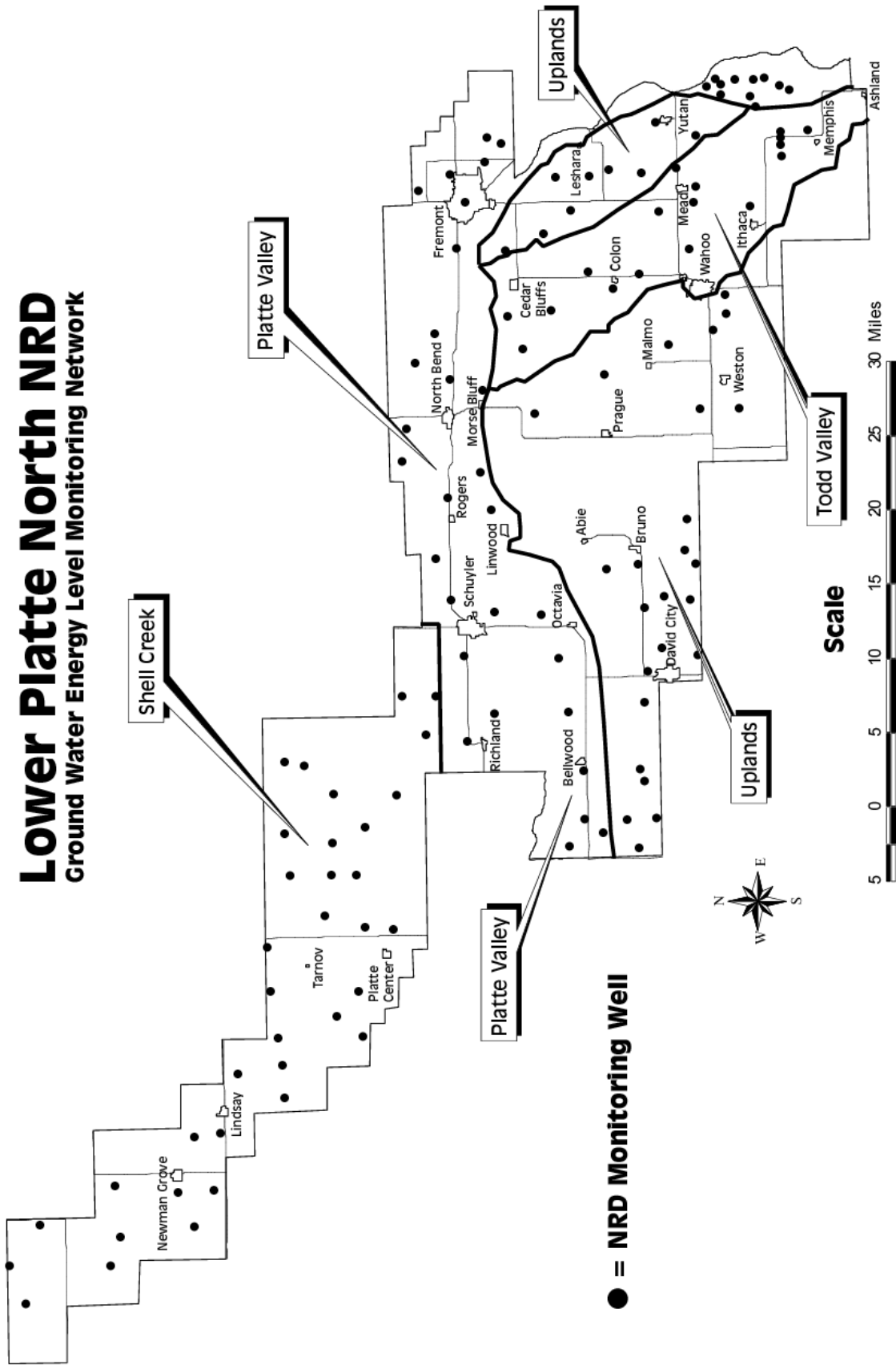
Fremont	23,680	Inglewood	286
Wahoo	3,681	Prague	282
Schuyler	4,052	Weston	299
David City	2,522	Morse Bluff.....	128
North Bend.....	1,249	Malmo	114
Ashland.....	219	Tarnov	141
Newman Grove	770	Colon	128
Cedar Bluffs.....	591	Leshara	118
Yutan.....	626	Richland.....	96
Ithaca.....	133	Linwood.....	91
Mead	513	Octavia	132
Platte Center.....	341	Rogers	117
Lindsay.....	321	Memphis	117
Bellwood	395	Abie	106

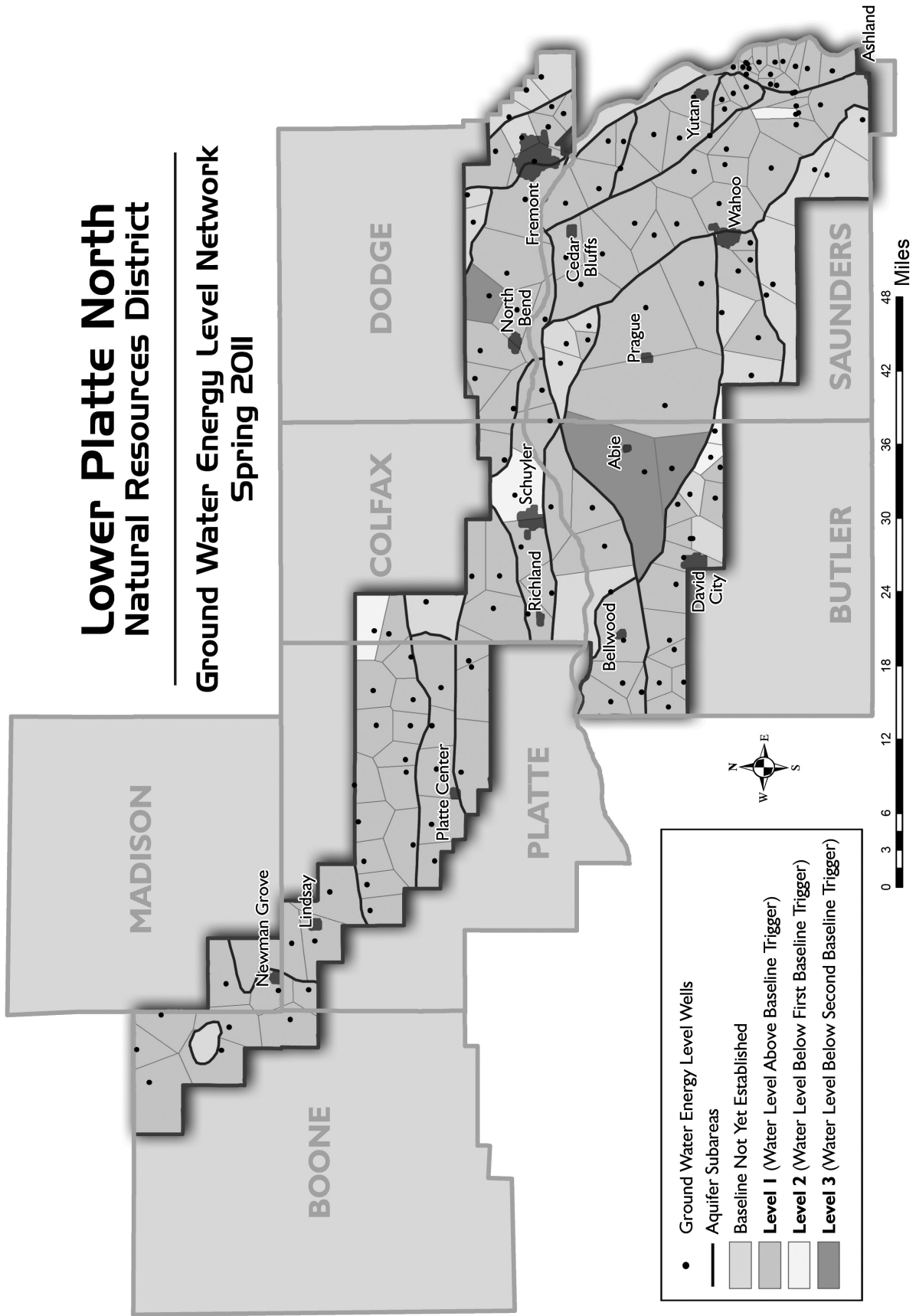




Lower Platte North NRD

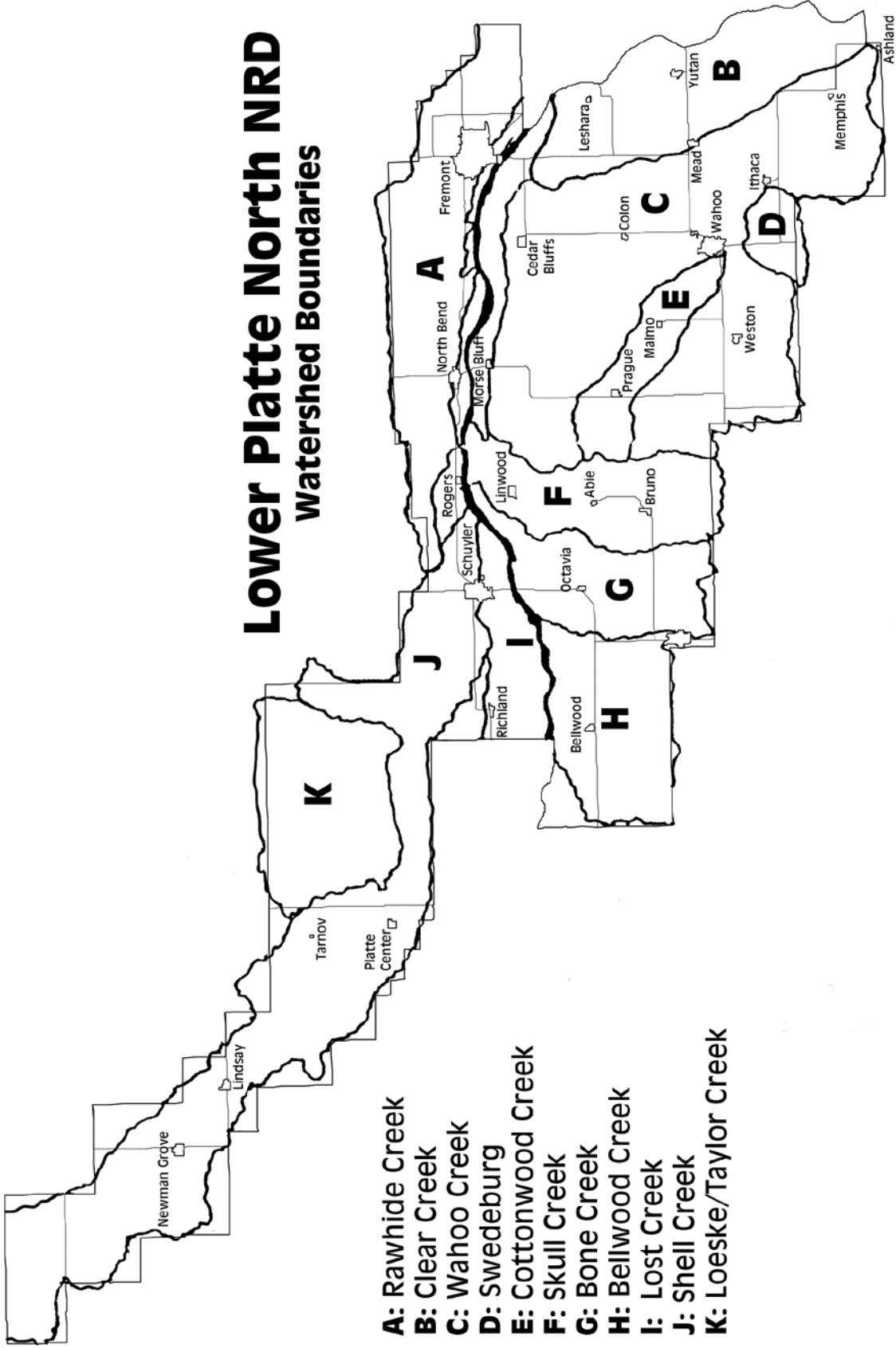
Ground Water Energy Level Monitoring Network







Lower Platte North NRD Watershed Boundaries



- A:** Rawhide Creek
- B:** Clear Creek
- C:** Wahoo Creek
- D:** Swedebug Creek
- E:** Cottonwood Creek
- F:** Skull Creek
- G:** Bone Creek
- H:** Bellwood Creek
- I:** Lost Creek
- J:** Shell Creek
- K:** Loeske/Taylor Creek

APPENDIX F - Projected Budgets, Fiscal Years 2012-2017



Description	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
<u>ADMINISTRATION</u>						
Bonds	415	440	480	520	560	600
Dues and Membership	25,219	26,000	27,040	28,122	29,246	30,416
Fees & Licenses	9,000	9,360	9,734	10,124	10,529	10,950
GIS	3,500	4,000	4,500	5,000	5,500	6,000
Insurance	35,089	36,493	37,952	39,470	41,049	42,691
Interest Expense	2,000	2,000	2,000	2,000	2,000	2,000
Legal Notices	3,500	3,640	3,786	3,937	4,095	4,258
Maintenance Contracts	5,000	5,150	5,356	5,570	5,793	6,025
Office Supply & Expense	11,900	12,376	12,871	13,386	13,921	14,478
Computer Supply & Expense	8,100	8,424	8,761	9,111	9,476	9,855
Postage	8,000	8,320	8,653	8,999	9,359	9,733
Professional Services	76,050	78,000	81,000	84,000	87,000	90,000
Rent Expense	550	550	550	550	550	550
Support to Organizations	8,000	8,500	9,000	9,500	10,000	10,500
Telephone	11,500	11,960	12,438	12,936	13,453	13,992
Utilities	8,000	8,320	8,653	8,999	9,359	9,733
<u>INFORMATION & EDUCATION</u>						
Education	2,400	2,496	2,596	2,700	2,808	2,920
Information	17,425	18,122	18,847	19,601	20,385	21,200
Scholarships & Grants	600	624	649	675	702	730
Other	3,700	3,800	3,900	4,000	4,100	4,200
<u>OPERATION/MAINTENANCE</u>						
Auto & Truck Expense	20,500	21,320	22,173	23,060	23,982	24,941
Building Maintenance	7,850	8,164	8,491	8,830	9,183	9,551
Comm. Forestry Program	2,000	2,000	2,500	2,500	3,000	3,000
Operation and Maintenance	70,250	73,060	75,982	79,022	82,183	85,470
Project Repairs	3,000	10,000	15,000	15,000	15,000	15,000
Stream Bank Stabilization	20,000	20,000	20,000	20,000	20,000	20,000
WHIP/CREP	300	500	500	500	500	500
Other	26,160	30,000	32,500	35,000	37,500	40,000
<u>PERSONNEL</u>						
Directors Expense	53,800	55,952	58,190	60,518	62,938	65,456
Directors Per Diem	42,000	31,000	32,000	33,000	34,000	35,000
Employee Benefits	322,597	335,501	348,921	362,878	377,393	392,489
Payroll Taxes	76,870	79,945	83,143	86,468	89,927	93,524
Personnel Expense	35,500	36,920	38,397	39,933	41,530	43,191
Salaries	1,040,139	1,071,343	1,114,197	1,158,765	1,205,115	1,253,320
<u>PROJECTS</u>						
Inter-governmental	49,500	50,000	55,000	60,000	65,000	70,000
Special Projects	30,520	25,000	25,000	25,000	25,000	25,000
* Wanahoo	534,000	530,000	500,000	475,000	450,000	425,000
* Sand/Duck Creek 7 Sites	10,000	10,000				
Other Projects	226,250	500,000	500,000	500,000	500,000	500,000
<u>LPR CORRIDOR ALLIANCE</u>	131,484	175,000	180,000	185,000	190,000	195,000
<u>WATER</u>						
Ground water Management Area	304,000	300,000	300,000	300,000	300,000	300,000
Ground water Programs	60,250	62,660	65,166	67,773	70,484	73,303
Regulatory	500	500	500	500	500	500
Surface Water Programs	17,000	18,000	20,000	22,000	24,000	26,000
Special Projects	169,570	200,000	200,000	200,000	200,000	200,000
Land Treatent	232,500	250,000	250,000	250,000	250,000	250,000
<u>NRD RURAL WATER</u>	6,000	7,000	7,500	8,000	8,500	9,000
<u>RURAL WATER DISTRICT</u>	89,507	90,000	90,000	90,000	90,000	90,000
<u>CAPITAL IMPROVEMENTS</u>						
Sand Creek Project	2,014,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Land	1,505,000					
Rural Water	0	20,000	20,000	20,000	20,000	20,000
Buildings	16,100	2,000	2,000	2,000	2,000	2,000
<u>CAPITAL OUTLAY</u>	111,550	100,000	100,000	100,000	100,000	100,000
BUDGET TOTAL	7,468,645	5,614,439	5,675,925	5,749,945	5,827,620	5,908,077