Lower Platte South Natural Resources District

Integrated Management Plan

Jointly developed by the Lower Platte South Natural Resources District and the Nebraska Department of Natural Resources


Lower Platte River

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Chapter 1: Introduction

This Integrated Management Plan (IMP) has been developed by the Lower Platte South Natural Resources District (District) and the Nebraska Department of Natural Resources (Department) to collaboratively manage the surface water and ground water supplies in the District with a goal of developmental sustainability. Our vision is to develop an IMP that would achieve a balance between the water uses and water supplies in the District so that the economic viability, environmental sustainability, and safe living conditions within the District can be maintained and enhanced for both the short term and the long term.

Although there is no official determination by the Department that any area of the District is fully appropriated, the District is continuing to be proactive in water management and is voluntarily developing this plan jointly with the Department, in part to reduce the potential that the District be designated as fully appropriated in the future. This voluntary IMP is intended to meet many of the requirements of an IMP required if the District, or part of the District, is determined to be fully appropriated by the Department.

In developing and implementing this plan the District has the following goals and commitment to:

- Better define and manage the hydrologically connected waters in the District.
- Listen to and respect the opinions of all stakeholders in the District.
- Collaborate and work cooperatively with the citizens and communities in the District, and with other NRDs in the Platte River Basin.
- Base planning decisions on the best scientific data, information, and methodologies readily available.
- Promote the future economic growth and vitality of the District.
- Preserve and enhance instream flows and other water-based natural ecosystems that provide benefits supporting the health and safety of our citizens and the quality of their lives.
- Fairly and equitably allocate the water supplies in the District and protect the water supplies that are the basis of existing investments.

- Cooperate and collaborate on the identification and implementation of management solutions to reduce conflicts between and among ground water users and surface water appropriators.
- Promote the use of best available practices, technologies, service connection meters, water conservation measures, reuse of water, and the harvesting of rainwater that will help the District achieve the goals and objectives of the IMP.
- Ensure the District is in compliance with all federal, state and local laws.

The objectives and anticipated actions of this plan are separated into three areas. The areas are defined by the following goals:

- Water Inventory – Ensure the District has sufficient data to enable the achievement of a water supply that is in balance with current and future water demands in the District.
- Water Supply Management – Ensure a sustainable water supply is available in the amounts and location of the demand through management actions that meet the District's long term needs.
- Water Use Management – Encourage all water users to minimize water use while optimizing benefits.

This IMP shall be reviewed annually by the District's Board of Directors and the Department to ensure that the plan continues to meet the needs of the District and Department and to identify Action steps for the next two years. The public shall be invited to participate in this annual review. Any citizen in the District can request that changes to the IMP be considered by the District and the Department. If changes to Actions in the IMP are requested and are determined to be appropriate, the District Board of Directors and the Department may make those changes. If it is deemed necessary to change the goals and objectives of the IMP, a group of stakeholders with interests related to the issue in question shall be formed to review the issues related to the change and work collaboratively with the District and the Department to develop a proposed revision to the IMP. Any proposed changes to the IMP must be approved by both the District and the Department.

Chapter 2: Effective Date

I. This Integrated Management Plan (IMP) was adopted by the Lower Platte South Natural Resources District (the District) on March 19, 2014, and by the Nebraska Department of Natural Resources (Department) on April 14, 2014. The IMP became effective on May 15, 2014.

Chapter 3: Authority

I. This IMP was prepared by the Board of Directors of the District and the Department in consultation and collaboration with the District Stakeholder Advisory Group in accordance with Neb. Rev. Stat. §§ 46-715, 46-716, 46-717, 46-718 and 46-720.

Chapter 4: Map of Integrated Management Plan Boundaries

I. The boundaries of the area included in the Integrated Management Plan are the legal boundaries of the District (Exhibit A).

Chapter 5: Background

I. This document presents the IMP developed jointly by the District and the Department as a voluntary initiative as provided for in Neb. Rev. Stat. § 46-715 (1) (b) and includes the area encompassed by the entire District. On November 17, 2010, the Board of Directors of the District adopted a motion to inform the Department that the District intended to develop a voluntary Integrated Management Plan for the entire District and requested Department participation. The Department approved the District request on December 1, 2010.

II. The District commissioned a Water Balance Study of the entire District that inventories and characterizes the

sources and quantities of water supplies flowing into and within the District, along with the water uses and outflows from the District.

III. Land Use: The lands within the District are largely agricultural and include cropland, pasture and grasslands and urbanized areas totaling 1.07 million acres. The current land uses generally consist of dryland crops (48%), pasture and grassland (32%), forested areas (7%), urbanized areas (7%), and open water/wetlands (3%). Irrigated cropland (3%) is a relatively small portion of total District lands.

IV. **Population and Economics:**

a. The total population of the District is approximately 314,772, with 90% of the population residing in the incorporated communities.

b. The total valuation of real estate and improvements of the District is $24,307,449,008.

V. **Municipalities:** There are thirty-one incorporated municipalities in the District, including Lincoln (population 258,379), Plattsmouth (population 6,502), Waverly (population 3,277), and Ashland (population 2,453), all of which rely upon public water supplies from ground water wells or induced Platte River recharge. Five rural water districts also serve several small communities and certain rural areas with ground water supplies. Only one public water system, Beaver Lake Development, is sourced exclusively from surface water.

VI. **Geology:** The general geology of the District consists of a series of Paleozoic and Mesozoic bedrock units overlaid by a variety of more recent sediments deposited by glacial, wind, and stream action. Because of the complexity of these processes, the ground water resources of the District are highly variable. In certain areas within the District, ground water is generally available in quantities sufficient for most uses; these areas have been identified as Ground Water Reservoirs (GWRs) (Exhibit B). Aquifers in these areas are typically buried paleovalley deposits or more recent alluvial deposits associated with modern stream systems. In the rest of the District, ground water resources are limited, variable, or even almost nonexistent. This area has been identified as the Remaining Area (RA). Where ground water is available in the RA, it is typically found in limited deposits of silt, sand and gravel associated with the action of small stream systems, or in sandstone units of the Dakota Formation bedrock. The stratigraphic boundaries subject to this IMP include all sediments from ground level downward through all aquifer units underlying the geographic area of the IMP.

VII. **Ground water:** Ground water resources in the District range from near-absence to relative abundance. The District has identified in its Ground Water Management Plan five ground water reservoirs for ground water management purposes (Dwight-Valparaiso-Brainard, Crete-Princeton-Adams, Lower Salt Creek, Platte River, and Missouri River) (Exhibit B). These ground water reservoirs contain most of the 418 irrigation and public water supply wells. The balance of the District for management purposes is designated as the Remaining Area and these aquifers are generally limited and/or localized. The total ground water in storage in the District is estimated to be 4,000,000 Acre Feet.

VIII. **Surface Water:** Salt Creek and its tributaries drain the western portion of the District, with the eastern portion drained by the smaller tributaries to the Platte River and with Weeping Water Creek and tributaries draining to the Missouri River. The lower Platte River and the Missouri River both form portions of the eastern boundaries of the District. Ten U.S. Army Corps of Engineers flood control reservoirs are located within the Salt Creek drainage basin, and another two hundred plus permits have been issued for smaller reservoirs scattered throughout the District to store surface water. The estimated total surface water held in storage in the District is approximately 70,000 Acre Feet. There are also approximately 450 surface water permits issued to divert water from streams or reservoirs for irrigation purposes and there is one instream flow right on the lower Platte River issued to the Game and Parks Commission (Exhibit C).

IX. **Climate:** Precipitation ranges from 27.5 inches to 33.5 inches across the District from west to east, averaging 30 inches per year. Precipitation is the largest source of water supply to the District, totaling 2,729,000 Acre Feet

Wild Plum Lake

annually.

X. **Hydrologically Connected Ground and Surface Water:** The Department has identified and mapped those areas in the District where the surface water supplies are considered to be hydrologically connected to the ground water. The current extent of these areas is generally the alluvium along Salt Creek from Waverly to the Platte River and along the Platte and Missouri Rivers, totaling approximately 70 square miles (Exhibit D). Seven public water suppliers (Lincoln Water System, Ashland, Louisville, Waverly, Metropolitan Utilities District (MUD), Cass County RWD 1, and Cass County SID #5) have wells in the hydrologically connected areas.

XI. **Water Consumption:** Based on estimates derived from an evaluation of the total water budget, 81% of the available water supply for the District is consumed with the other 19% available for ground water recharge and surface water outflow from the District. Lincoln Water System imports approximately 40,000 Acre Feet annually from the Platte River aquifer, of which only 13,000 Acre Feet is consumed, and the balance is discharged back into Salt Creek through wastewater treatment plants or surface runoff. Of the annual consumption total of 2,220,000 Acre Feet, it is estimated that pasture/grassland consume approximately 35%, dryland corn and soybeans consume 40%, irrigated crops consume 2.5%, and urban land consume 5% of annual water supply.

XII. **Agency and Public Consultation and Input:** The District's staff, the Department's staff and the Integrated Management Plan Subcommittee were the leads in developing the IMP. The 21-member Stakeholder Advisory Committee jointly appointed by the District and the Department met numerous times during the development of the IMP and provided critical, original input and feedback to the Subcommittee. The goals, objectives and proposed action items were developed through this stakeholder process (Exhibit E). Additional public input was

provided through Focus Groups, Virtual Town Halls, agency consultation and meetings, open house/workshops, the project website and social media, and a public hearing (Exhibit F). The District Board of Directors approved the Goals and Objectives in September 2013 and the IMP in November 2013. The Department approved the IMP in December 2013.

XIII. **Water Quality Component:** The District has primary responsibility for ground water quality management. The District intends to develop and adopt a separate document addressing water quality as the District perceives it to be related to the goals of the Integrated Management Plan.

Chapter 6: Goals and Objectives

I. **Vision:** Water uses and water supplies are in a managed balance, supporting economic viability, environmental sustainability, and safe living conditions.

Goal Area: Water Inventory

a. **Statement:** Ensure the District has sufficient data to enable the achievement of a water supply that is in balance with current and future water demands in the District.

b. **Definition:** Water Inventory includes the inflow, precipitation, and water storage available to the District along with the water use and outflows from the District.

Objectives:

i. Develop and maintain a comprehensive inventory of the location and source of the District's water supplies, water use, and outflows.

ii. Evaluate variations in water inventory due to short-term climate variations and long-term climate trends.

iii. Develop a better understanding of basin-wide inflows/outflows to enable development of a more comprehensive water inventory.

iv. Project changes to water inventory due to urban and rural growth.

v. Evaluate potential effects on water inventory if additional water supplies are accessed through coordination, innovation, and technology.

vi. Determine the extent of hydrologically connected ground and surface waters in the District.

Goal Area: Water Supply Management

a. **Statement:** Ensure a sustainable water supply is available in the amounts and location of the demands through management actions to meet the District's short and long term needs.

b. **Definition:** Water supply is the management of water supply, both in and out of the District, through human efforts.

Objectives:

i. Ensure to the extent possible, that wells are located and designed to reflect the ground water geology and water supplies in accordance with aquifer characteristics.

ii. Research and implement, as needed, additional storage opportunities throughout the District.

iii. Evaluate the potential benefits of regional supply and distribution systems and, where warranted, facilitate discussions with impacted entities.

iv. Determine the feasibility and potential benefits of implementing different water reuse applications.

v. Use available data sources to monitor the impacts of vegetative growth on stream flows.

vi. As necessary to facilitate the goals of this IMP, collaborate with the state and local governments to identify additional water supplies outside the District.

Goal Area: Water Use Management

a. **Statement:** Encourage all water users to minimize water use while optimizing benefits.

b. **Definition:** Water use management is the management of how water is used and consumed while meeting current and future demands.

Objectives:

i. Determine the best available irrigation technologies and practices.

ii. Determine the best available industrial technologies and practices.

iii. Determine the best applications of native and low water use landscaping materials.

iv. Determine the best indoor water conservation practices.

v. Determine the best use of water conservation programs and service connection meters for all public water systems.

vi. Evaluate the potential benefits from: (1) the reuse of water (greywater), (2) the harvesting of rainwater, (3) the capture and reuse of storm water, and (4) the reuse of irrigation water to reduce overall water usage.

vii. As necessary, work with other agencies to evaluate the instream flow needs in the District.

viii. Manage the expansion of new water uses in the District so as not to adversely affect current users.

ix. Expand public education programs at all levels with the goal of increasing general awareness of water availability issues and the benefits of implementing water conservation practices.

x. Consider and implement, when appropriate, the use of fees and/or incentives that encourage water conservation.

Chapter 7: Plan Components and Action Items

I. **Non-regulatory:**

a. Information and education

i. Provide information to the general public through media releases, newsletters, and radio and television public service announcements.

ii. Target information to specific audiences through workshops, open houses, demonstration projects, and direct mailings.

iii. Support school environmental education programs focused on water.

b. Incentives/guidance

i. The District and Department may investigate opportunities to reduce the consumptive use of water, considering best management practices, in order to enhance water supply as well as other water quantity related projects. The District and Department may develop an incentive-based program if such an opportunity exists.

c. Interagency collaboration

i. The District and the Department will seek out interagency partners to collaborate in studies and investigations, in projects, and will share data.

Wildwood Reservoir

ii. An interagency meeting will be held annually and in conjunction with the annual IMP Review.

d. Water banking

i. It is anticipated that a regional water banking project will be developed by the Lower Platte River Basin Coalition with participation from the District. The bank may be available for use by the District and or by private users for offsets or additional supplies, if needed.

ii. The potential for additional surface water storage within the District to bank future water supplies will be studied.


Student Field Trip

e. Municipal and Rural Water Districts water use and accounting

i. In 2014, the District will develop and implement a process to collect and record water use data from all municipalities, and rural water districts. The Department will assist as necessary when such uses rely on surface water.

f. Non-municipal water use and accounting

i. In 2014, the District will develop and implement a process to collect and record water use data from all major non-municipal industrial water users.

II. Ground Water Regulatory Actions (Controls)

a. General statement

i. The District's Ground Water Management Plan and its ground water Rules and Regulations are the legal and regulatory context by which the District implements the components of this IMP.

ii. The District and Department will periodically review the ground water controls being implemented to carry out the Goals and Objectives of this IMP. The District, as appropriate or necessary, may adjust, modify, and/or expand the rules and regulations without amending the IMP as long as the changes are not in conflict with the goals and objectives of the IMP.

b. Actions currently in place

i. Well permitting

1. The District has established several classes with differing requirements for well permitting. All District wells capable of pumping more than 50 gallons per minute (gpm) and all remaining area nondomestic wells capable of pumping more than 20 gpm are required to obtain permits from the District prior to construction.

ii. Moratorium

1. The District from time to time may adopt for any geographic area within the District an immediate, temporary 180-day stay pursuant to Neb. Rev. Stat. § 46-707(2) on the construction of new water wells and on any increase in the number of acres historically irrigated. Following a public hearing during this 180-day stay, the District may adopt a permanent moratorium and the criteria for that moratorium.

iii. Well spacing

1. The District currently accepts the applicable minimum spacing requirements for wells, as provided in Neb. Rev. Stat. § 46-609 and § 46-651.

iv. Meters and reporting

1. All existing and new wells pumping more than 50 gpm are required to be equipped with water flow meters and the well owners are required to submit an annual report to the District which includes information about the volume of water pumped, and the number of irrigated acres, where applicable.

v. Certification of irrigated acres

1. Owners of properties with irrigated land of one acre or more are required to certify those irrigated acres with the District and to update those certifications with any changes annually.

vi. Variances

1. The District considers and may grant requests for variances to its ground water rules and regulations on a case-by-case basis.

vii. Ground water transfers

1. The District will consider requests for ground water transfers on a case-by-case basis, including transfers of ground water off the land where the water is withdrawn, transfers of rights to use ground water that result from district allocations, or transfers from one designated area of management to another designated area of management.

viii. Hydrologically connected areas

1. There are certain geographic areas within the District where the ground water and surface water have currently been identified to be hydrologically connected (Exhibit D). For those areas, the District will limit the expansion of historically irrigated acres, including certification of the historically irrigated acres, allowing for an annual expansion of irrigated acres not to exceed 20% of the total irrigated acres in the hydrologically connected areas.

ix. Water conservation incentives

1. District revenue may be used for grants of assistance to water users as incentives for modification of farming and irrigation practices, industrial practices, and residential and commercial practices, and the installation of mechanical equipment to augment those changes.

c. Potential actions:

i. The District may utilize other available controls provided for by Neb. Rev. Stat. § 46-739 of the Groundwater Management and Protection Act. Examples of such controls are:

1. Allocate the amount of ground water which may be withdrawn by ground water users.
2. Rotation of ground water use.
3. More restrictive well spacing than found in Neb. Rev. Stat. § 46-609 and § 46-651.
4. Reduction of irrigated acres pursuant to Neb. Rev. Stat. § 46-740(2).
5. Limit or prevent the expansion of irrigated acres or otherwise limit or prevent increases in consumptive use of ground water withdrawals from water wells used for irrigation or other beneficial uses.
6. Require the use of best management practices.
7. Impose mandatory educational requirements designed to stabilized or reduce the incidence of ground

water depletion,or conflicts between ground water users and surface water appropriators.

8. Require district approval of certain transfers of ground water pursuant to Neb. Rev. Stat. § 46-739 (1)(k).
9. Require new or replacement water wells to be used for domestic or other purposes to be constructed to such a depth that they are less likely to be affected by seasonal water level declines caused by other water wells in the same area.
10. Close all or a portion of the management area to the issuance of additional permits or may condition the issuance of additional permits on compliance with other rules and regulations adopted and promulgated by the district to achieve the purpose or purposes for which the management area was designated.
11. Adopt and promulgate such other reasonable rules and regulations as are necessary to carry out the purpose for which a management area was designated.

III. Surface Water Regulatory Actions (Controls)

a. General statement

i. The surface water controls authorized for adoption by the Department are set forth in Neb. Rev. Stat. § 46-716 of the Ground Water Management and Protection Act.

b. Actions in place

i. Tracking of surface water irrigated acres

1. The Department will continue to map and track surface water irrigated acres. The Department will also continue to require that project maps are submitted and approved prior to obtaining a surface water permit.

ii. Moratorium or restriction on new acres for irrigation

1. Should the District issue a moratorium on any increase in ground water irrigated acres, the Department will issue a similar moratorium to limit development of additional acres for surface water irrigation. Should the District issue a restriction on the number of additional acres irrigated from ground water, the Department will issue a similar restriction on the development of additional acres for surface water irrigation. The restrictions will be implemented in the surface water area that drains into the hydrologically connected ground water and surface water areas (Exhibit G), and will be equal to 1/3 of the amount that the District will allow for ground water irrigated acres. The Department will utilize the District's number of additional ground water irrigated acres as of January 1st of each year for determining the number of additional acres for surface water irrigation in each calendar year.

iii. Meters and reporting

1. A voluntary reporting program will be implemented by the Department for surface water irrigation permit holders in the District aimed at identifying the quantity of water pumped, the acres irrigated, and the type of irrigation system (i.e., gravity, pivot, etc.) used. Additionally, the Department will continue to evaluate the necessity for mandatory installation of water flow meters on all surface water pumps for irrigation, industrial and municipal uses.

iv. Variance and transfer process

1. All proposed transfers of surface water rights shall be subject to the criteria for such transfers found in Neb. Rev. Stat. §§ 46-290 to 46-294.04 and related Department rules or the criteria found in Neb. Rev. Stat. §§ 46-2,120 to 46-2,130 and related Department rules. Should a moratorium be placed

on new surface water appropriations in the District, the Department may grant a variance from the moratorium on a case-by-case basis, following the Department's rules and procedures.

IV. **Control Modification:**

a. The District and the Department will periodically review the ground water and surface water controls being implemented to carry out the Goals and Objectives of this IMP. If necessary and appropriate, the District and the Department will adjust, modify, and/or expand the existing controls, and/or implement additional controls to carry out the goals and objectives of this IMP. However, the District and the Department must amend this IMP prior to amendment of these controls. The annual review of progress being made toward achieving the goals of this IMP may result in such changes to the controls. Any changes to the controls must not be in conflict with the goals and objectives of this IMP.

V. **Emergency Response/Drought Mitigation Plan:**

a. The District and Department recognize that circumstances will likely occur that cause water supplies to be insufficient, at least temporarily, to meet immediate needs. As such, in 2014, the District and Department will begin to identify the most likely scenarios for temporary shortages. From this, the District and Department will develop an emergency response plan that can be implemented when temporary shortages occur. The District and Department recognize that some components of the emergency response plan may require significant efforts in design, permitting, and multi-agency collaboration.

Chapter 8: Monitoring and Studies

I. The objective of the monitoring and studies is to gather and evaluate data, information and methodologies that could be used to increase understanding of the surface water and ground water supplies and uses within, and as appropriate, outside the District. The District annually monitors up to 300 wells for both quality and quantity, and contracts with the United States Geological Survey for the operation of 13 stream gauges within the District (Exhibit H).

II. Various monitoring methodologies will be employed to measure the progress in achieving the goals and objectives of this IMP.

a. The Department will continue to monitor and administer surface water appropriation in the District and maintain accurate records of beneficial uses of appropriations, project maps, appropriations granted, appropriations canceled, and appropriations for the transfer of water rights.

b. The District will continue to monitor and report on ground water levels, certified irrigated acres, permitted wells and pumping, and variances and transfers under the processes outlined in the District's Ground Water Management Plan and in compliance with its ground water Rules and Regulations. The District will use this information to estimate changes in consumptive water use.

c. The District and Department will also monitor land use and land cover change and will use this information to better estimate water use.

d. The District and Department will develop and implement clear and transparent procedures to track depletions and gains to streamflows resulting from new, retired, or other changes to uses within the District. The procedures will utilize a generally accepted methodology to estimate depletions and gains to streamflows. Procudures will be identified that applicants for new uses shall take to apply for approval of a new water use and corresponding offset in the event limitations are applied.

e. The District and Department may cooperate with other state and federal agencies to monitor the impacts of changes in the Lower Platte River Basin on water supplies and consumptions, changes due to climate cycles, changes in stream flows, and changes due to other factors.

f. The District and Department, in cooperation with other local agencies, will monitor the changes in populations, consumption patterns and rates in municipalities and for non-municipal industrial water users.

i. The Department has developed a methodology in conjunction with several of the Platte Basin natural resources districts to quantitatively assess the hydrologically connected water supplies and water uses. The process and methodologies developed over the course of this four-year study will be utilized to monitor the near-term and long-term balance of water supplies within the District. The District and Department will collaborate to ensure that the best available information, data, and science are used to conduct this assessment.

ii. Topics of studies that will or may be pursued include refinements of the hydrologically connected ground and surface water areas, aquifer characteristics, effectiveness of various conservation best management practices, the impacts of climate cycles, the effectiveness and efficiency of water conveyance via streams from upstream sources, development of protocols for refining estimates of consumptive water use, and understanding instream flow needs.

iii. Additional studies may be implemented to gain a better understanding of specific storage, conveyance, or conservation projects in relation to the IMP goals and objectives.

Chapter 9: Review and Modifications to the Integrated Management Plan

I. The District and Department will annually prepare and exchange reports on data collected and, on new and expanded ground water or surface water permits and uses, and will review progress being made toward achieving the goals and objectives of the IMP.

II. A publicly available report will be prepared and distributed in advance of the annual review and the public will be invited to participate and provide input. Requests for changes in the IMP from members of the public will be considered by the District and Department.

III. The District and Department will jointly determine what amendments need to be made to the IMP and will identify action steps for the succeeding two years. If the only amendments are in the action items, the District and Department can proceed to adoption of amendments. If the proposed amendments are to the Goals and Objectives, a stakeholder group with interests related to the issue(s) in question shall be formed to review the proposed amendments and work collaboratively with the District and Department to develop a proposed revision(s) to the IMP. Any and all changes to the IMP must be approved by both the District and Department.

Chapter 10: Information Considered in Developing the Integrated Management Plan:

I. The following were sources of information and areas of consideration utilized in the preparation of this IMP, to the extent they are applicable and available:

a. The Lower Platte South NRD's Ground Water Management Plan (1995) and the subsequent Annual Reports.

b. Water for the Future: Stakeholder Perspectives (2011).

c. The Lower Platte South NRD's Water Balance Study (2012).

d. The Summary Report from the Public Involvement Plan implementation.

e. Historical data on streamflows within and bordering the IMP area.

f. Past, present and potential future surface water use within and bordering the IMP area.

g. Data on ground water supplies within the IMP area including hydraulic conductivity, saturated thickness, and other ground water reservoir information.

h. Local recharge characteristics and rates from any sources, where available.

i. Records on climate and precipitation, trends, and future projections for the IMP area.

j. Land use information and crop water needs estimates.

k. Data from water collection programs.

l. Past, present, and potential ground water uses within the IMP area.

m. Proposed water conservation and supply augmentation programs within or available to the IMP area.

n. The availability of supplemental water supplies, including the opportunities for ground water recharge within the IMP area.

o. Surface and ground water concerns within the IMP area.

p. Opportunities to integrate and coordinate the use of water from different sources of supply within the IMP area.

q. Existing and potential sub-irrigation uses within the IMP area.

r. The relative economic value of different uses of surface and ground water proposed or existing within the IMP area.

s. Rules and Regulations for ground water management developed by the District.

Antelope Valley Bike Path

Appendix A: List of Exhibits

A. District Boundaries/IMP Area Map

B. District Map with Ground Water Reservoirs and Community Water System Protection Areas

C. Map of Surface Water Permits

D. District Map of Hydrologically Connected Areas

E. Goals/Objectives/Action Items Identified through Stakeholder Process

F. Public Involvement Summary Report

G. District Map of Surface Water Areas that Drain into Hydrologically Connected Areas

H. District Map of Monitoring Wells and Surface Water Gauges

I. Glossary of Terms

J. Public Involvement Process Report

Exhibit A: District Boundaries/IMP Area Map

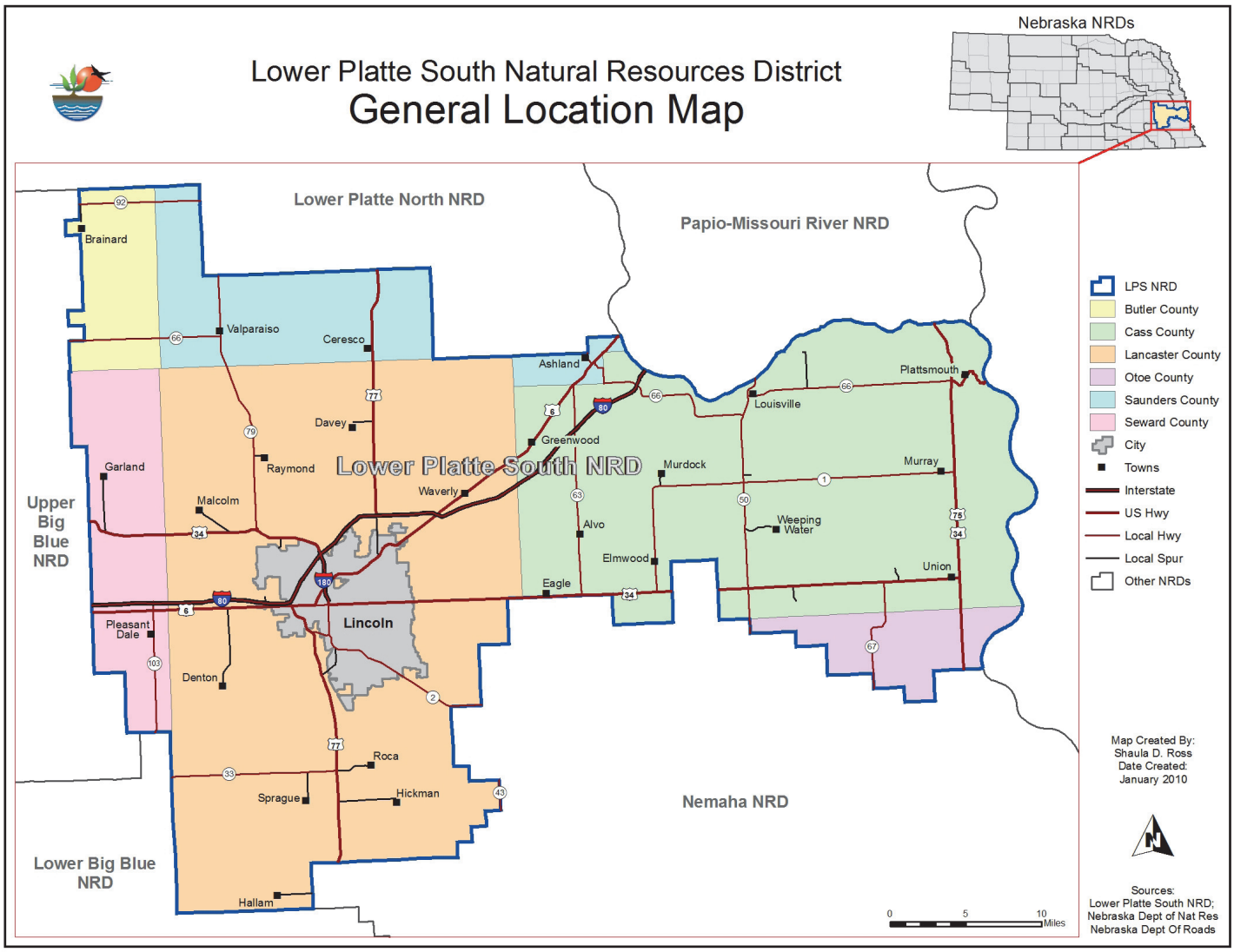

Exhibit B: District Map with Ground Water Reservoirs and Community Water System Protection Areas

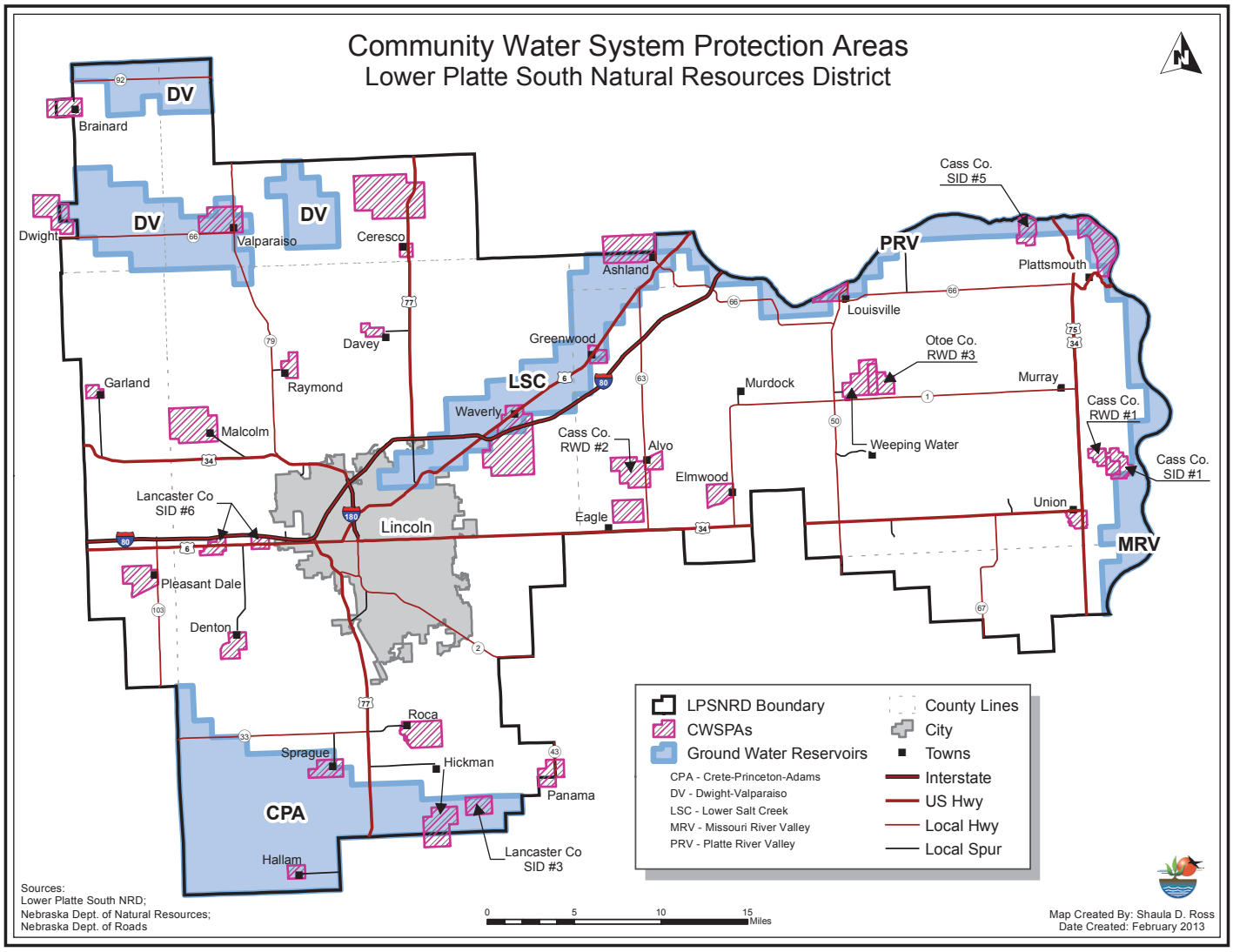

Exhibit C: Map of Surface Water Permits

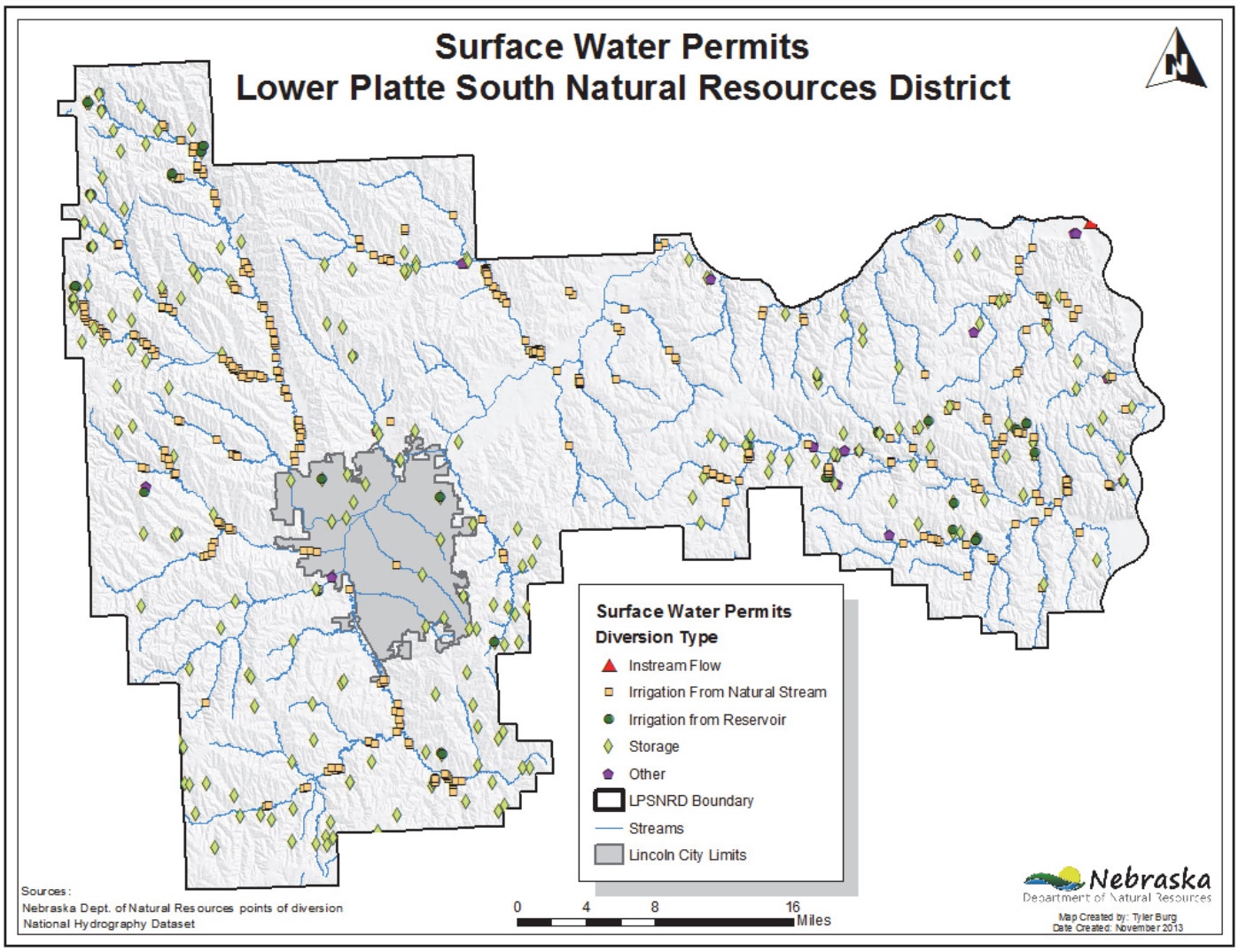

Exhibit D: District Map of Hydrologically Connected Area

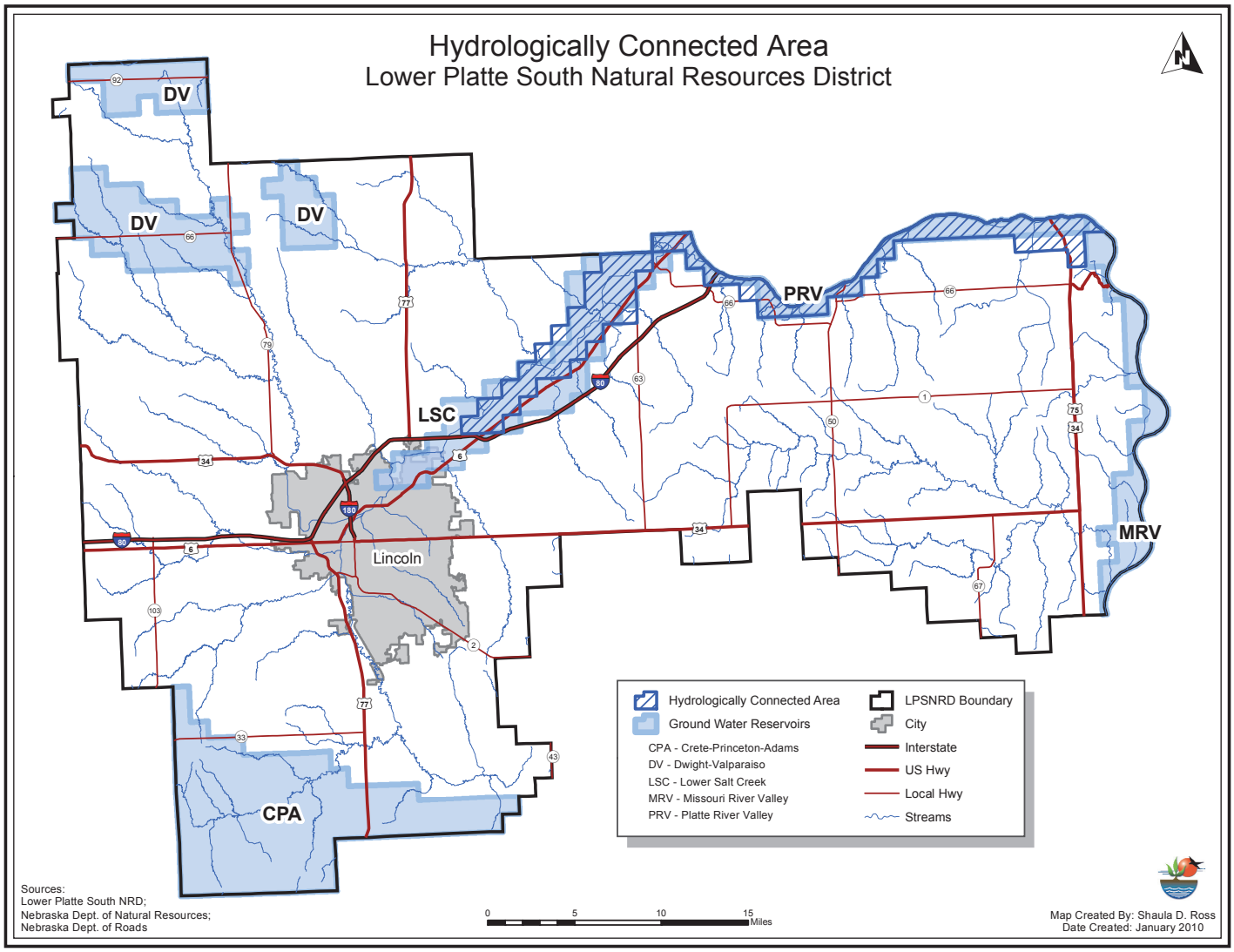

Exhibit E: Goals/Objectives/Action Items Identified Through Stakeholder Process

1.0 Water Inventory

Definition: Water inventory includes the inflow, precipitation, and water storage available to the District along with the water use and outflows from the District.

Statement: Ensure the District has sufficient data to enable the achievement of a water supply that is in balance with current and future water demands in the District.

1.1 Develop and maintain a comprehensive inventory of the location and source of the District's water supplies, water use, and outflows.

1.1.1 Use the best available data and tools to study and better understand the District's aquifer properties, extents and connectivity to surface water.

1.1.2 Improve sharing of water inventory data with other entities.

1.1.3 Track variability in water use and supply by regularly evaluating data from existing surface water, groundwater and weather monitoring networks.

1.1.4 Develop estimates of water use from private and domestic unmetered wells.

1.1.5 Develop and maintain a comprehensive spatial/tabular water inventory database that includes measurements or estimates of well withdrawals, surface water withdrawals, consumptive water use, district boundary inflows/outflows, land use, precipitation, groundwater levels, recharge and stream flows.

1.1.6 Estimate consumptive water use using the best available data and tools.

1.2 Evaluate variations in water inventory due to short-term climate variations and long term climate trends.

1.2.1 Coordinate to improve weather data sharing between entities and improve public access to these data.

1.2.2 Improve understanding of historic weather trends, including drought, and the effects these have had on water inventory.

1.2.3 Evaluate potential spatial and temporal gaps in water inventory data due to insufficient weather, groundwater and surface water monitoring networks and supplement or expand monitoring, accordingly.

1.3 Develop a better understanding of basin-wide inflows/outflows to enable development of a more comprehensive water inventory.

1.3.1 Convene with elected Basin officials to discuss goals related to water inventory.

1.3.2 Offer assistance in the Department Basin modeling efforts. The Department will provide updated and refined products related to water inventory (hydrologically connected area, etc.)

1.3.3 Evaluate the effectiveness and efficiency of water conveyance via streams from upstream "sources" and associated effects on stream flow.

1.4 Project changes to water inventory due to urban and rural growth.

1.4.1 Coordinate with other entities to better understand urban growth projections and from this estimate urban growth impacts on water inventory.

1.4.2 Coordinate with District-wide comprehensive planning initiatives to develop a technical review of rural development impacts on water inventory.

1.5 Evaluate potential effects on water inventory if additional water supplies are accessed through coordination, innovation, and technology.

1.5.1 Evaluate potential locations for well field development and effects on water inventory.

1.5.2 Evaluate potential effects to water inventory if there was better utilization of water resources through cooperation amongst Basin stakeholders.

1.5.3 Analyze and understand constraints on constructing additional water supply facilities.

1.5.4 Explore the potential effects to water inventory if additional water supplies are accessed both within and outside the Basin.

1.6 Determine the extent of hydrologically connected ground and surface waters in the District.

1.6.1 Coordinate with other entities in the collection and analysis of pertinent data and in the development of models to determine the extent of hydrologic connections between the aquifers and surface waters in the District.

2.0 Water Supply Management

Definition: Water supply is the management of water supply, both in and out of the District, through human efforts.

Statement: Ensure a sustainable water supply is available in the amounts and location of the demands through management actions to meet the District's short and long term needs.

2.1 Ensure to the extent possible, that wells are located and designed to reflect the ground water geology and water supplies, in accordance with aquifer characteristics.

2.1.1 Develop resources and recommendations for limited aquifer areas and coordinate with developers/ builders and city and county land-use planners and zoning agencies.

2.1.2 Encourage the review of well logs prior to the construction of wells.

2.1.3 Where feasible, discourage use of fresh water Dakota wells and irrigation wells to fill surface water impoundments.

2.1.4 Investigate areas where the geology indicates well interference is possible and explore options to prevent interference that could jeopardize existing water well users.

2.1.5 Develop tools to evaluate the potential impacts of new wells on existing wells.

2.2 Research and implement, as needed, additional storage opportunities throughout the District.

2.2.1 Explore and implement, as needed, the potential for integrated surface and groundwater storage opportunities such as intentional underground storage projects (i.e. aquifer recharge) that could be implemented during high flows.

2.2.2 Evaluate and implement, as needed, potential opportunities for new and expanded surface water storage.

2.3 Evaluate the potential benefits of regional supply and distribution systems and, as necessary, facilitate discussions where warranted with impacted entities.

2.3.1 Work with rural water districts and public water suppliers to evaluate regional supplies, issues with supplies, potential coordination between neighboring suppliers, and potential opportunities expand service areas.

2.3.2 Develop and distribute surveys to targeted District to evaluate community interest in the development of an Improvement Project Area for water supply and distribution.

2.3.4 Conduct a study of current expected water short areas, areas of surplus water, and the potential for sharing.

2.3.5 Encourage use of ground water supplies that are outside hydrologically connected groundwater and surface water areas.

2.3.6 Collaborate with other entities to develop proactive water management approaches (e.g. dry year leasing) that could potentially minimize the need for water administration.

2.4 Determine the feasibility and potential benefits of implementing different water reuse applications.

2.4.1 Provide cost shares on the capture and use of rain water by rain barrels and cisterns.

2.4.2 Evaluate the positive and negative effects of capturing and reuse of storm and waste water.

2.5 Use available data sources to monitor the impacts of vegetative growth on stream flows.

2.5.1 Implement a study to evaluate effects of vegetative growth on District stream flow. The study should include mapping the extent of the vegetative growth, estimating or measuring ET related to the growth, and evaluating changes to ET after growth is removed.

2.5.2 Remove invasive species to improve conveyance.

2.6 As necessary to facilitate the goals of this IMP, collaborate with the state and local governments to identify additional/regional water supplies outside the District.

2.6.1 Cooperate on water management studies and planning in the lower Platte River basin with the Lower Platte River Basin Water Management Coalition and with other agencies and organizations in integrating collaboration efforts in the Lower Platte River Basin.

2.6.2 Review and analyze existing studies of water storage opportunities in the lower Platte River basin and conduct additional multi-agency studies as needed.

3.0 Water Use Management

Definition: Water use management is the management of how water is used and consumed while meeting current and future demands.

Statement: Encourage all water users to minimize water use while optimizing benefits.

3.1 Determine the best available irrigation technologies.

3.1.1 Develop informational/educational materials for agricultural and commercial irrigators specific to conditions in southeast Nebraska.

3.1.2 Evaluate and support existing and new Best Management Practices, water efficient crops, and nutrient management techniques.

3.1.3 Support no-till and cover crops to increase soil health, lower evaporation rates and increased infiltration rates.

3.1.4 Support technology and management practices that utilize scheduling proper application rates, moisture blocks, and the use of regional weather networks.

3.1.5 Evaluate and estimate future irrigation demands under varying crop and commodity pricing scenarios.

3.1.6 Implement limitations or temporary or permanent moratoriums on irrigation of marginal lands during water shortages, as applicable.

3.1.7 Measure or estimate the consumptive use of water.

3.1.8 Cooperate with other agencies to collect and share weather data to estimate crop water demand and make estimates of consumptive use.

3.1.9 Provide technical assistance and cost-share incentives to agricultural and commercial irrigators to use Best Management Practices.

3.2 Determine the best available industrial technologies and practices.

3.2.1 Develop informational/educational materials for major industrial users specific to conditions in southeast Nebraska.

3.2.2 Evaluate and support new Best Management Practices and appropriate cost-sharing.

3.2.3 Identify major industrial users and discuss Best Management Practices.

3.3 Determine the best applications of native and low water use landscaping materials.

3.3.1 Support multi-agency effort to develop and implement standards and ordinances for water conserving landscapes.

3.3.2 Cooperate with other agencies and large industrial water users to develop informational/education materials on water conserving landscaping.

3.3.3 Provide cost-share incentives to implement water conserving landscaping.

3.4 Determine the best indoor water conservation practices.

3.4.1 Develop informational/education materials and demonstration projects on indoor water conservation.

3.4.2 Support multi-agency effort to develop standards and ordinances for indoor water conservation.

3.4.3 Provide cost-share incentives to implement indoor water conservation practices and efficient water use appliances.

3.4.4 Work with other agencies to document water and cost-savings for various practices.

3.5 Determine the best use of water conservation programs and service-connection meters for all public water systems.

3.5.1 Survey and review meter requirements, rates, and conservation programs on all public water systems.

3.5.2 Cooperate with public water suppliers to develop a template for coordinated programs and ordinances.

3.5.3 Provide cost-share on initial meter installation.

3.5.4 Cooperate with all communities to develop a conservation or water shortage action plan to implement in times of water shortage.

3.6 Evaluate the potential benefit from: (1) the reuse of water (greywater), (2) the harvesting of rainwater, (3) the capture and reuse of storm water, and (4) the reuse of irrigation water to reduce overall water usage.

3.6.1 Research success stories, numeric data, and examples for education purposes.

3.6.2 Model sample watershed(s) to evaluate positive and negative impacts of different applications and technologies.

3.6.3 Cooperate with public water systems to identify potential applications for reuse of treated wastewaters.

3.6.4 Evaluate potential water use impacts of providing incentives for and/or requiring rainwater harvesting.

3.6.5 Provide technical and cost-share assistance to implement recommended practices.

3.6.6 Evaluate the positive and negative effects of capturing and using waste water.

3.6.7 Collaborate with communities to learn about the latest technologies for using greywater and develop an implementation plan if appropriate.

3.6.8 Support pilot projects for the reuse of water and evaluate opportunities for agreements between landowners for reuse of irrigation runoff.

3.6.9 Develop informational / educational programs to encourage the capture of urban runoff.

3.7 As necessary, work with other entities to evaluate the instream flow needs in the District.

3.7.1 Develop a better understanding of the needs for water by wildlife.

3.7.2 Develop projects that will provide multiple benefits, such as wetland habitats, flood flows reductions, water quality improvement, and recreational and wildlife educational benefits.

3.7.3 Evaluate Lower Platte South streams for potential benefits from instream flow protection and determine minimum flows and levels needed.

3.7.4 Prioritize streams/segments and apply for instream flows for fish, wildlife, and public recreation appropriations on priority streams.

3.8 Manage the expansion of new water uses in the District so as not to adversely affect current users.

3.8.1 Develop an implementation plan including thresholds for ground and surface water use expansion.

3.8.2 Establish communications and two-way reporting protocols with public water systems and major water users.

3.8.3 Develop a database to record and compare changes in annual water use reports.

3.8.4 Develop science-based protocols for estimating unmeasured water uses.

3.8.5 Monitor land use change.

3.9 Expand public education programs at all levels on general awareness of water supplies and to reinforce water conservation measures.

3.9.1 Collaborate with schools to develop curriculum on water supplies and water conservation measures for use in classrooms.

3.9.2 Partner with all District public water systems to develop or expand education materials and programs on water supplies, water quality, and best conservation practices.

3.9.3 Develop a Special Report on LPSNRD Water publication for distribution, along with multimedia presentations aimed at general public audience, but covering all water uses in subject.

3.9.4 Develop an education program aimed at rural individual well owners and those considering rural property purchase/development.

3.9.5 Develop educational materials to help homeowners/property owners assess and manage issues surrounding construction of ponds and other aesthetic water features.

3.9.6 Develop/continue proactive outreach to well owners to inform them about District regulations, practices, cost-share as well as limitations in District authority.

3.9.7 Develop/enhance capability for demonstration projects and other outreach for irrigation, industrial, commercial water use Best Management Practices.

3.10 Consider, and implement when appropriate, the use of fees and/or incentives that encourage conservation.

3.10.1 Research conservation programs, fees, and incentives the District can implement.

3.10.2 Cost share with community water systems to put meters on outdoor water use faucets

3.10.3 Establish irrigation allocations and implement use fees when allocations are exceeded.

3.10.4 Coordinate with water suppliers to develop a consistent rate structure to encourage conservation.

3.10.5 Provide incentives that correspond to and reward voluntary water conservation practices.

Exhibit F: Public Involvement Summary Report

The public involvement process for the Lower Platte South Natural Resources District (District) Integrated Management Plan development process was designed to encompass broad stakeholder values, interests, future needs and priorities and raise awareness to encourage broad community support for water management within the basin. The public involvement process was guided by the principles outlined in the International Association for Public Participation's Spectrum of Public Participation. This document summarizes public involvement efforts during the development process.

Stakeholder Advisory Committee: In developing the IMP for the Lower Platte South basin, the District worked collaboratively with the Nebraska Department of Natural Resources (NDNR) and a Stakeholder Advisory Committee to meet the requirements of the IMP set forth by the NDNR. The twenty-member Stakeholder Advisory Committee included diverse representation from dryland and irrigated agriculture, small and large public water suppliers, well drillers, public power producers, chambers of commerce and economic development sectors, large and small industry/business, recreation, environmental groups, and educators. The Stakeholder Advisory Committee served at the request and direction of the IMP Subcommittee and was charged with the task of gathering information related to surface and ground water management, providing thoughtful and informed input, and helping educate and engage other stakeholders in the IMP planning process. The Advisory Committee met a total of six times over the course of a year. During their final meeting, committee members were asked to provide their recommendations for the Draft Plan. Table 1.0 provides the date and meeting purpose for each Stakeholder Advisory Committee meeting.

Table 1.0: Stakeholder Advisory Committee Meetings

Meeting Date	Meeting Focus
#1: September 27, 2012	Introduction of IMP Development Process and Purpose
#2: November 5, 2012	Issues Identification
#3: December 10, 2012	Goals and Objectives
#4: February 4, 2013	Goals and Objectives (cont.)
#5: June 8, 2013	Action Items Prioritization
#6: October 28, 2013	Recommendations on Draft IMP

Agency Outreach: Ongoing coordination and outreach was conducted to help ensure opportunities for interested agencies to participate by providing guidance and insight regarding the development of the IMP. Two agency coordination meetings were held to assist the District and NDNR in identifying key issues for the IMP and goals and objectives. The meeting dates were: September 4, 2012 and May 7, 2013. Additionally, agencies were asked to provide feedback on the Draft IMP for consideration in preparation of the final Plan. Table 2.0 identifies all representatives and agencies invited to participate in the IMP planning process.

Table 2.0: Agency Representatives

Name & Agency	
Cass County Planning Commission	Nebraska Game & Parks Commission

City of Ashland	Nebraska Public Power District
City of Hickman	US Fish & Wildlife Service
City of Lincoln	US Geological Survey
City of Louisville	University of Nebraska Lincoln, Conservation Survey Division
City of Plattsmouth	University of Nebraska Lincoln, Water Center
City of Waverly	United States Department of Agriculture/NRCS)
City of Weeping Water	University of Nebraska Lincoln, Conservation & Survey Division
Corps of Engineers	Lancaster County Planning Department
Environmental Protection Agency- Region 7	Nebraska Department of Agriculture
Lancaster County Extension	Nebraska Department of Economic Development
Lancaster County Health Department	Nebraska Department of Environmental Quality

Focus Groups: Four focus groups were held in the early stage of IMP planning. These groups provided insight on issues the District is currently facing or may face in the future regarding water resources and management. Each group was selected to gather specific information related to the concerns, needs and wants of their specific interests. The groups represented stakeholders from the following interest areas:

- environmental/recreational users
- business and economic development
- public water suppliers
- agricultural users

Table 3.0 illustrates the focus of each group's discussion and the number of attendees at each.

Table 3.0: Focus Group Attendance

Group Focus	Date of Meeting	# of Attendees
Focus Group 1: Agriculture	November 1, 2012	12
Focus Group 2: Environmental/ Recreation	November 1, 2012	17
Focus Group 3: Public Water Suppliers	November 2, 2012	14
Focus Group 4: Business and Economic Development	November 2, 2012	11

Virtual Town Hall Meetings: To increase the level of stakeholder involvement throughout the planning process, two Virtual Town Hall meetings were held to provide the public an opportunity to engage with IMP Subcommittee members, the District and NDNR staff regarding the Plan. A web-based application allowed for greater accessibility and participation, while giving participants an opportunity to engage in meaningful dialogue. Information provided on the Virtual Town Hall (*www.TeamingUpToTalkWater.com*) mirrored the information presented at in-person public meetings. The Virtual Town Hall site had 562 visitors and 6,065 page views. The first Virtual Town Hall meeting was available for participation between December 7, 2012 and February 10, 2013. This meeting was designed to solicit input on the three goal areas identified and objectives within each. The second Virtual Town Hall meeting was available between August 1, 2014 and September 30, 2013. This meeting was designed to solicit input on the prioritization results of the Public Open House Prioritization Workshops.

Public Open House Prioritization Workshops: Two Open House Prioritization Workshops were held with the public midway through the planning process. Both meetings were held on August 1, 2013. These meetings were conducted during lunch and dinner hours to better accommodate participants' schedules. Participants were asked to develop and prioritize actions the District could take to help manage water resources in seven categories:

- public education
- urban and rural needs
- science based decision-making
- legal and regulatory compliance
- future water needs
- technology and innovation
- supply and distribution

Results of the prioritization exercise were posted for public comment and further consideration on the second Virtual Town Hall. The public had two additional months to provide input electronically.

Table 4.0: Prioritization Workshop Attendance

Meeting Time	# of Attendees
12:00 pm – 1:00 pm	45
5:30 pm – 6:30 pm	20

Public Hearing: A public hearing will be held as a mandatory element to the IMP development process as required by Nebraska statutes. The purpose of public hearing is to take testimony on the proposed IMP and proposed controls. All interested persons may appear at the hearings and present testimony or provide other evidence relevant to the issues being considered. Representatives from the IMP Subcommittee and the District and NDNR staff will participate on a public comment panel.

Comments Received: Public comment was accepted throughout the IMP planning process. Multiple methods for providing comments were made available. The District's Integrated Management Plan project website hosted an online comment tool for online users to contact the project team and IMP Subcommittee members. In the Final Communication Report Summary, Table 5.0 summarizes the number of comments received by each communication method.

Table 5.0: Comments Received

Media	To Date
Email	8
Mailed Letter	0
Meeting Comment Form	n/a
Phone	1
Fax	0
Website	14
Virtual Town Hall	30
Total	53

Social Media Outreach: Social media (Facebook and Twitter) accounts were created and used to help enhance the public involvement outreach effort. These sites were used to promote ongoing activities in the IMP development process and to educate followers on the need for water resource planning in the District. Table 6.0 in the Final Communication Report Summary represents activity on both social media sites.

Table 6.0: Social Media Activity

To Date	# of Posts/ Tweets	Active Participation/Followers & Unique #
Facebook	33	26
Twitter	82	2,621

Additional Outreach: Additional outreach methods were used to help provide opportunity for public participation in the IMP development process. The District hosted an IMP website with planning resources, notices for participation and project information. The IMP website had 952 unique visitors (see Table 7.0: Project Website Traffic).

Table 7.0: Project Website Traffic

Activity	Total
# of Visits	1,341
# of Unique Visits	952
# of Virtual Town Hall Visitors	562
# of Virtual Town Hall Page Views	6,085
# of Virtual Town Hall Participants	56

Table 8.0 of the Final Communication Report Summary indicates additional types of outreach activities employed to advertise and solicit participation in the IMP development process. Two newspaper advertisements were run in the *Lincoln Journal Star, Ashland Gazette, Hickman Voice, Plattsmouth Journal,* and the *Waverly News* to publicize the Virtual Town Hall meetings and the Public Prioritization Workshops. Additionally, three legal notices were published in the *Lincoln Journal Star*. Finally, a Facebook advertisement was placed to garner participation at the second Virtual Town Hall meeting which focused on setting priorities for actions in the IMP. The advertisement resulted in 2 likes and 15,969 impressions.

Table 8.0: Outreach Activities

Media	To Date
Newspaper Advertisement	2
Legal Notice (November 27, 2012, January 5, 2013, and June 27, 2013)	3
Facebook Advertisement (June 22, 2013 – August 1, 2013)	1
Press Briefing (December 7, 2012)	1
Direct Mailings	585
Project Flyer	336
Total	928

Exhibit G: District Map of Surface Water Areas that Drain into Hydrologically Connected Areas.

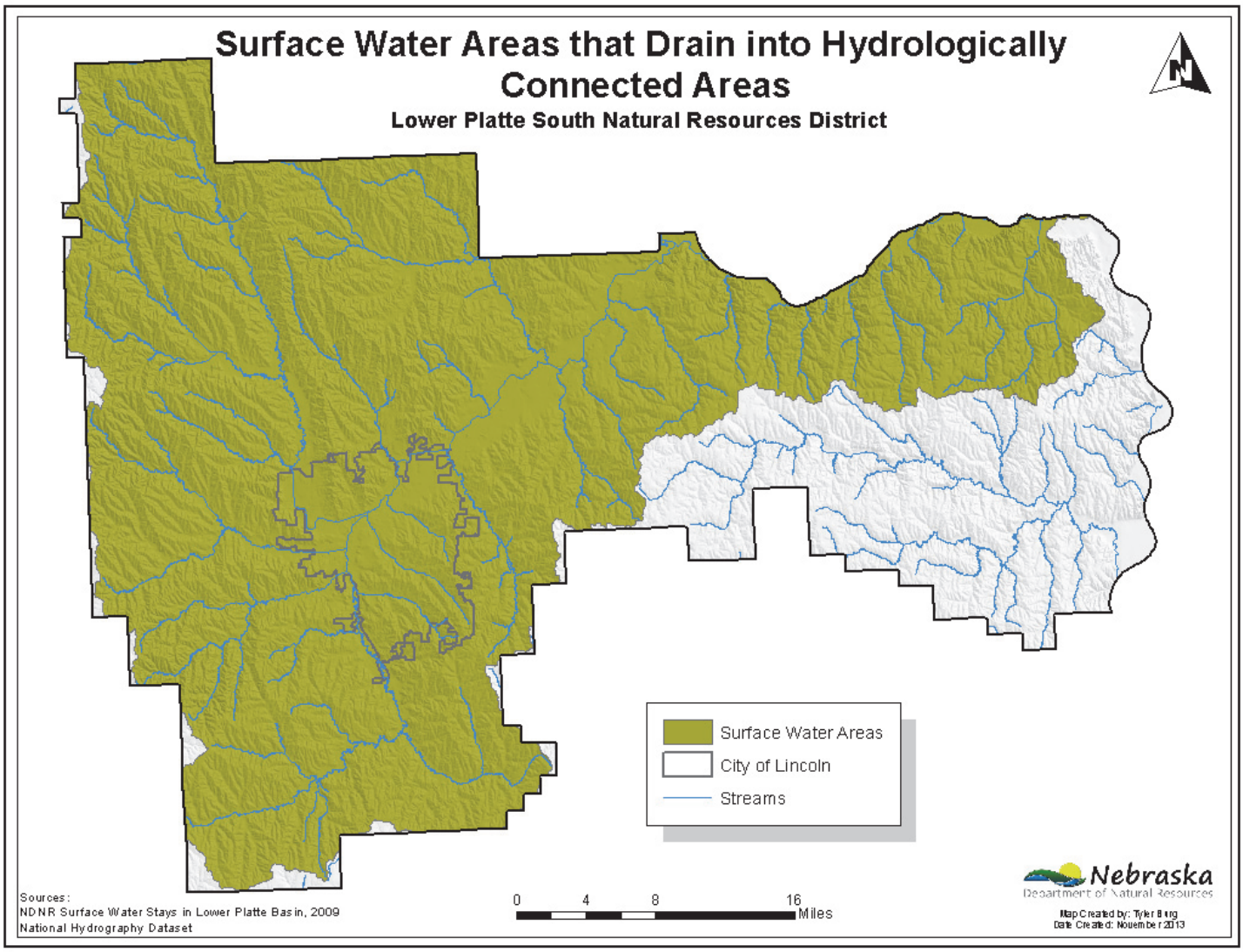

Exhibit H: District Map of Monitoring Wells and Surface Water Gauges

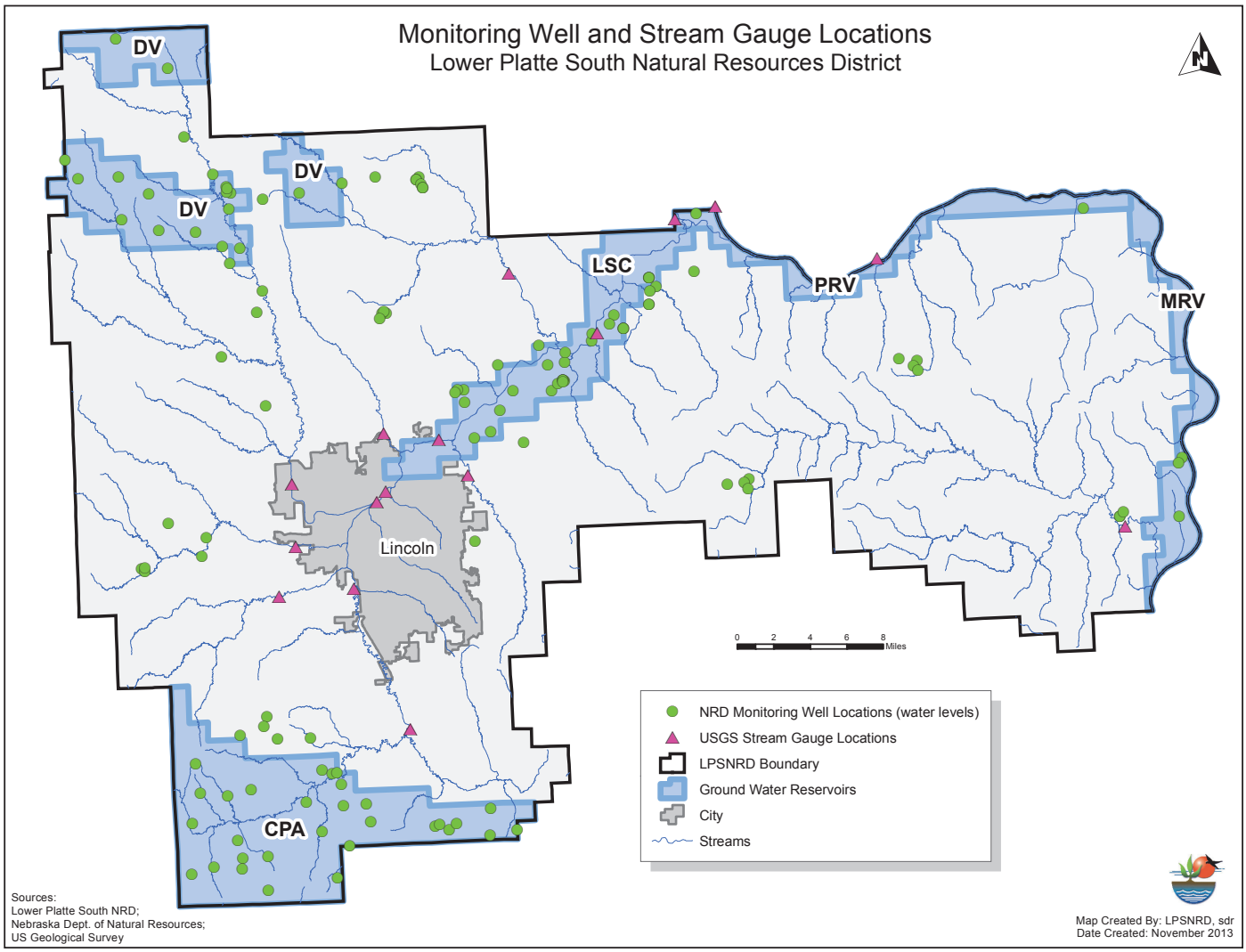

Exhibit I: Glossary of Terms

Term	Definition
APPROPRIATION	*A permit granted by the Department to use surface water for a beneficial use in a specific amount, purpose and location, and is based on first-in-time, first-in-right.*
AQUIFER	*A geological formation or structure of permeable rock or unconsolidated materials that stores and/or transmits water, such as to wells and springs.*
BENEFICIAL USE	*That use by which water may be put to use to the benefit of humans or other species.*
BEST MANAGEMENT PRACTICES	*Schedules of activities, maintenance procedures, and other management practices utilized for purposes of irrigation or other water use efficiency, to conserve or affect a savings of water, or to prevent or reduce present and future contamination of water.*
CERTIFIED IRRIGATED ACRE	*Lands identified and registered with the District greater than one acre which has water applied for irrigation.*
COMMUNITY WATER SYSTEM PROTECTION AREA	*The area of land designated by the NE Department of Environmental Quality that delineates the 20-year time of travel for ground water to be intercepted by a public water supply well.*
CONSUMPTIVE USE	*The amount of water that is consumed under appropriate and reasonable efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use is lawfully made. The amount of water removed from available supplies without return to a water resources system.*
COST-SHARE	*Public funds provided to a person to offset some or all of the cost of installing best management practices.*
DAKOTA WELL	*Water well drilled into the Dakota Formation.*
DEPARTMENT	*The Nebraska Department of Natural Resources, a State Agency*
DEVELOPMENTAL SUSTAINABILITY	*This includes economic development, social development, and environmental protection and restoration so that the needs of the present are met without compromising the needs of the future.*
DISTRICT	*The Lower Platte South Natural Resources District, a Political Subdivision of the State*
DOMESTIC WELL	*A well that provides ground water required for human needs as it relates to health, fire control, and sanitation or for domestic livestock as related to normal farm and ranch operations, or for irrigation of lands not exceeding a total of two acres in area.*
GREYWATER	*Water that has been used for one purpose but can be used again without repurification, e.g. bath water, which can be used to water plants.*
GROUND WATER	*Water which occurs in or moves, seeps, filters, or percolates through ground under the surface of the land, and shall include ground water which becomes commingled with waters from surface sources.*
GROUND WATER MANAGEMENT PLAN	*A plan adopted by the District for the management and regulation of the quality and quantity of ground water.*
GROUND WATER RESERVOIR	*A designated area of land under which a major aquifer is known to exist and which has been delineated by the District.*

HYDROLOGICALLY CONNECTED	*Describes a geographic area designated by the Nebraska Department of Natural Resources where the existing amount of ground water and surface water each has significant influence on the other and where appropriate regulations exist.*
IMPROVEMENT PROJECT AREA	*A geographic area designated by a District where a project provides primarily private benefits and the costs are assessed as benefits or the project produces revenues.*
INFLOW	*Water entering a water resources supply system from both ground and surface water sources, including return flows.*
INJECTION WELL	*Well used for injecting water into the underground water reservoir.*
INSTREAM FLOW	*An appropriation right held by a natural resources district or the NE Game and Parks Commission for water in certain amounts and certain times to be left in a stream for fish and wildlife and recreation purposes.*
INTENTIONAL UNDERGROUND STORAGE	*Underground water storage which is an intended purpose or result of a water project or use. Such storage may be accomplished by any lawful means such as injection wells, infiltration basins, canals, reservoirs, and other reasonable methods.*
INVASIVE SPECIES	*Introduced flora and fauna species that adversely affect the habitats and bioregions they invade economically, environmentally, and/or ecologically.*
IRRIGATION	*The artificial application of water to promote the growth of vegetation.*
IRRIGATION WELL	*A well that provides water for purposes of irrigation for more than two acres of crops and other plants.*
MESOZOIC ERA	*A period in geological time that represents 252-66 Million years ago.*
MOISTURE BLOCKS	*Equipment that measures soil moisture available to plants.*
MONITORING WELL	*A well which is used to withdraw water for purposes of testing for contaminants and /or which is used to check the level of ground water.*
MORATORIUM	*A legally authorized suspension of drilling of ground water wells or approval of new surface water appropriations.*
OUTFLOW	*Water leaving a water supply system as either ground or surface water.*
PALEOZOIC ERA	*A period in geological time that represents 541-252 Million years ago.*
PERSON	*A natural person, a partnership, a limited liability company, an association, a corporation, a municipality, an agency or political subdivision of the State of Nebraska or a department, an agency, or a bureau of the United States.*
PUBLIC WATER SUPPLY WELL	*A well that provides water to the public fit for human consumption through at least 15 service connections or that regularly serves at least 25 individuals.*
RECHARGE	*A hydrologic process where water moves downward from surface water to groundwater, both naturally through the hydrologic cycle or through intentional practices.*
REUSE	*The practice of water completing a purpose for one use then being used again for the same purpose or for another purpose.*
RURAL WATER DISTRICT	*A political subdivision whose purpose is to provide a water supply and distribution system for domestic use, primarily, to small communities and individuals in rural areas.*

SOIL HEALTH	*The capacity of a soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental health, and promote plant and animal health.*
STORAGE	*The capture and holding of water in natural or man-made structures for subsequent use for various purposes.*
STORM WATER	*The runoff and associated contaminants that result from precipitation events.*
SURFACE WATER	*Water which occurs or moves on the surface of the planet such as in a stream, river, lake, wetland, or ocean*
SUSTAINABLE	*Requires the maintenance of a desired flow of benefits to all current users, undiminished over time so that it will also be available for future generations.*[1]
WASTE WATER	*Water that has been used to fulfill some purpose and has become chemically or biologically altered and is discharged.*
WATER BALANCE	*A relative equilibrium between water inflows and precipitation, and water outflows, less consumptive uses.*
WATER QUALITY	*The measure of the physical, chemical, and biological characteristics of water.*
WATERSHED	*The area of land where all of the water that is under it or drains off of it goes into the same place.*
WELL LOG	*A detailed record of the geologic formation penetrated by a borehole. The log may be based either on visual inspection of samples brought to the surface or on physical measurements made by instruments lowered into the hole.*

[1] Gleick, 1998. Water in Crisis: Paths to Sustainable Water Use. Ecological Applications, 8(3), p. 571-579. Online at *http://www.udc.es/snl/documentospdf/Water_crisis.pdf*

Exhibit J: Public Involvement Process Report

Executive Summary

In 2011, the Lower Platte South Natural Resources District conducted an in-depth evaluation of the water resources and uses in the region. This study, "Water for the Future: Stakeholder Perspectives" prompted the decision to develop an extensive stakeholder and issue driven public involvement strategy to create a reciprocal communication process throughout the Integrated Management planning process.

The Lower Platte South Natural Resources District voluntarily chose to engage in the development of an Integrated Management Plan for the Lower Platte Basin region. The Integrated Management Planning effort will develop a comprehensive inventory of all available ground and surface water supplies and all current water uses, a projection of future water use needs and identification of potential sources, and a plan for the desired management of conservation programs.

The authority to develop this plan comes from the State of Nebraska. State statutes highlight that the objective of Integrated Management planning is to achieve and maintain a sustainable balance between water uses and water supplies "so that the economic viability, social and environmental health, safety, and welfare of the basin can be achieved and maintained for both the near term and long term." The LPSNRD and the Nebraska DNR will work jointly to develop a plan that considers the effects of current and new water uses on existing surface and ground water users and provides for additional water needed for municipal and industrial growth.

The intended outcome of the public involvement process for the LPSNRD is to develop an Integrated Management Plan that addresses the water supply and water uses in the Lower Platte South basin, consistent with Nebraska state statutes and other regulatory constraints. The Integrated Management Plan will encompass broad stakeholder values, interests, future needs, priorities, and raise awareness to encourage broad community support for water management within the Lower Platte River basin.

This plan outlines recommendations for a fully developed public involvement strategy in seven sections, which are summarized on the following pages.

- Project Stakeholders, Issues, and Engagement
- Public Involvement Process Timeline
- Tools and Techniques
- Contact and Communication Management Protocol
- Tracking and Reporting
- Project Messaging and Branding
- Production Schedule and Fee
- Appendices

Project Stakeholders: During the spring of 2012, the LPSNRD Integrated Management Subcommittee identified a list of key stakeholders and issues for the planning process. This group has been identified as any person or group who is affected by the ground and surface water management policy changes. While this group is broadly defined, the subcommittee reasonably identified targeted groups and individuals that are directly or indirectly impacted by the outcome of the planning process (see Appendix A for a detailed Stakeholder Contact List in the Full Public Involvement Plan located at *http://www.lpsnrd.org/IntegratedMgtPlan/impresources.htm*).

The Integrated Management Subcommittee also identified what issues would potentially be of concern to various stakeholders and at what level of participation should the stakeholder be involved in the planning process. Three primary categories of issues were identified in the issue analysis:

- Education
- Conservation
- Cooperation

The subcommittee employed the guidance of the International Association for Public Participation's Public Participation (IAP2) spectrum to place each stakeholder in a participation level. The levels of participation are:

- Inform
- Consult
- Involve
- Collaborate
- Empower

Public Involvement Process Timeline: The LPSNRD will pursue the development of an Integrated Management Plan over the course of the following year and will engage the public and all interested parties throughout the process to ensure all available input is taken into consideration. The Integrated Management Subcommittee will meet monthly throughout the planning process and will receive routine reports from the Stakeholder Advisory Committee following each of their Committee meetings. Communication Tools such as the Project website, focus groups, social media sites, virtual public meetings, and public open house and prioritization workshop will provide broad public input throughout the process. Near the conclusion of the planning process, the LPSNRD Board of Directors will present the plan to the public.

Tools and Techniques: Depending on the level of participation in theIAP2 Public Participation Spectrum, a public involvement strategy has been developed to guide the appropriate communication tools and techniques appropriate for properly engaging various stakeholders. At each level of participation, the following tools have been recommended for engagement:

Participation Level	Communication Tool	Reason
INFORM	Website	*Serves as an online information center for all potential stakeholders, provides ongoing information about the planning process, and opportunities for participation.*
	Social Media	*Enhances public involvement, especially in information dissemination and participant feedback.*
	Digital Tool Kit	*Streamlined communication tools that reach a broad and geographically dispersed audience can leverage existing stakeholder relationships.*
	Media Outreach Strategy	*Facilitates an ongoing flow of communication to the public about the planning process and opportunities to participate.*
CONSULT	Focus Groups	*Offer an alternative to conducting surveys when you are interested in measuring satisfaction and self-reported outcome measures and are especially useful when working with a narrow group.*

INVOLVE	Combined Open House Meeting & Prioritization Workshop	*Helps to establish a similar baseline understanding of the Plan by all stakeholders.*
	Public Hearing	*Mandatory element to the Integrated Management Planning process as required by the DNR.*
	Virtual Town-hall	*Allows for a broad and geographical reach to dispersed audiences beyond in-person activities.*
COLLABORATE	Stakeholder Advisory Committee	*Advisor to the LPSNRD Subcommittee and produce a final written recommendation to the Integrated Management Subcommittee.*
EMPOWER	N/A	

Contact and Communication Management Protocol: All public involvement activities will require thorough documentation, including a record of contacts, outreach, media, and comments throughout the entire Integrated Management planning process. An Access/Excel database will be used for contact management.

Tracking and Reporting: The public involvement strategy outlines specific strategies for tracking information garnered through the various communication tools employed throughout the planning process. All communication received throughout the planning process will be entered in to a comment management database. A thorough process of tracking and reporting public involvement throughout the planning process will include:

- Tracking and documenting public comments.
- Tracking and documenting public participation, outreach, media, and mailing lists.
- Providing participation data for metric and tracking results.

Project Messaging and Branding: Project messaging and branding have been developed to ensure design consistency and increase public recognition of project outreach materials and tools. Specific phrasing has been created to help ensure consistency throughout project messaging. A brand guideline book has been developed (See Appendix D in Full Public Involvement Plan located at *http://www.lpsnrd.org/IntegratedMgtPlan/impresources.htm*).

Production Schedule and Fee: Typically, NRD's have 3 years to complete the Integrated Management Planning process with the possibility of two one-year extensions. However, the goal of the LPSNRD was to complete the process of planning in roughly one year's time. Kick-off of the project is expected to take place by the conclusion of summer 2012.

A full fee schedule is provided (See Appendix G in Full Public Involvement Plan located at *http://www.lpsnrd.org/IntegratedMgtPlan/impresources.htm*) and is based on the elements detailed in the full Public Involvement Plan. The fee schedule takes into consideration resources that can be leveraged from within the LPSNRD.