

## INTEGRATED MANAGEMENT PLAN

Jointly Developed by the  
Tri-Basin Natural Resources District  
and the  
Nebraska Department of Natural Resources

### CHAPTER 1: EFFECTIVE DATE

I. This Integrated Management Plan (IMP) was adopted by the Tri-Basin Natural Resources District (Tri-Basin NRD) on August ??, 2009, and by the Nebraska Department of Natural Resources (Department) on August ??, 2009. This IMP became effective on September 15, 2009.

### CHAPTER 2: INTRODUCTION

I. Tri-Basin NRD encompasses portions of the Republican, Platte and Little Blue River Basins (see map #1 in appendix A). Each of the three counties in the NRD also contains numerous non-tributary wetlands, known as “rainwater basins.” Their watersheds range in size from a couple hundred acres up to the 28,000 acre Sacramento Creek basin. The district also contains a large area spanning portions of all three basins that is characterized by groundwater levels that are higher than historic “pre-development” groundwater elevations.

II. Tri-Basin NRD Vision Statement

The vision (overall goal) for Tri-Basin NRD is to **“work cooperatively with district residents and others to promote good stewardship of land and water resources.”**

III. Tri-Basin NRD Mission Statement

Tri-Basin NRD’s mission is to **“manage, conserve and protect the district’s land and water resources.”** This mission will be accomplished by protecting the quality and quantity of surface water and groundwater, reducing soil erosion and flooding, promoting agricultural best management practices, and through forestry and wildlife habitat preservation. These tasks can only be accomplished by working cooperatively with local residents and agencies of local, state and federal government.

IV. IMP Goals

A. Pursuant to Section 46-715, R.S. Supp., 2004, the goals and objectives of an IMP must have as a purpose “sustaining a balance between water uses and water supplies so that the economic viability, social and environmental health, safety, and welfare” of the residents of Tri-Basin NRD are assured for both the short term and long term. The following goals and objectives are adopted by the Tri-Basin NRD and the Department to achieve that purpose.

1. Tri-Basin NRD and the Department will work with district residents, businesses and other stakeholders to sustain a balance between the uses and supplies of groundwater and

surface water, while protecting the viability of production agriculture and the general economy, as well as the social and environmental health, safety and welfare of district residents. Tri-Basin NRD and the Department will work to achieve this goal while accommodating, to the greatest extent possible, economic development needs of the district for the near and long-term future.

2. Tri-Basin NRD and the Department recognize that surface water supply project operations recharge aquifers within the district. We will encourage project owners and all affected water users to operate these projects in a manner that maximizes beneficial groundwater recharge, while meeting all statutory requirements.

3. Tri-Basin NRD and the Department will work together to ensure that the Tri-Basin NRD's regulations and programs will not cause the state to be in non-compliance with lawful interstate compacts, decrees and agreements relevant to management of the integrated water resources of the district, such as the Platte River Recovery Implementation Program (PRRIP) and any applicable successor agreements or programs that are legally binding upon the state and its political subdivisions. Furthermore, with respect to interstate compacts, agreements and court decrees, Tri-Basin NRD and the Department agree:

(a) That they will ensure that groundwater and surface water users within the Tri-Basin NRD will only be expected to assume their fair shares of the burden to keep Nebraska in compliance with PRRIP (and applicable successor interstate agreements for the Platte River system).

(b) That neither Tri-Basin NRD nor the Department will require the IMP to be amended solely for the purpose of changing the responsibility of water users within the Tri-Basin NRD based on the failure of other NRDs to implement or enforce an IMP to meet their share of the responsibility to keep Nebraska in compliance with these interstate agreements, and

(c) That Tri-Basin NRD's share of that burden will be distributed in an equitable manner, minimizing to the extent possible, adverse economic, social and environmental consequences.

4. Tri-Basin NRD and the Department will continue to support the development and maintenance of water management models, databases, stream gauges, observation wells and other tools and facilities needed to accurately measure and clearly depict the current state of groundwater and surface water resources as well as potential future water resource trends and conditions (see map #2 in appendix A). More particularly, the agencies will work toward development of a water budget/accounting model that will be used to set annual and longer term targets for water consumption. The model results will be reviewed annually, comparing their output to actual water level and streamflow measurements to determine how well the model mimics reality. The Department and the Tri-Basin NRD will investigate any instances where real-world measurements conflict with model forecasts. After reviewing the models, model results and available data, models will be corrected and improved as needed to improve their accuracy and their ability to simulate actual hydrologic conditions. These tools

will be essential for decision makers as they consider whether and how to regulate consumption of integrated water resources. They will also serve as one mechanism to monitor and measure the progress of this IMP.

5. Tri-Basin NRD and the Department will, with limited exceptions allowed by law, limit net consumptive water use within the Platte Basin in Tri-Basin NRD to 2006 levels, except for the overappropriated portion of the Platte Basin (west of Highway 183), where the IMP, in the first increment, will address streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent upon recharge from streamflow, to the extent those depletions are due to water uses initiated after July 1, 1997, as well as ensure compliance with PRRIP.

6. Nothing in this IMP will compel Tri-Basin NRD or the Department to continue to pursue the goals and objectives of this IMP if changes are made in state or federal law that make the integrated management planning process unnecessary or irrelevant.

### **CHAPTER 3: PLATTE BASIN**

#### **I. Authority**

A. The Platte Basin overappropriated area joint IMP was prepared by the Board of Directors of Tri-Basin NRD and the Department in accordance with Sections 46-715 through 46-720, NE RRS. The Platte Basin west of Highway 183 in Tri-Basin NRD was declared overappropriated by the Department on September 15, 2004. The Platte Basin east of Highway 183 was declared fully appropriated by the Department on April 21, 2006.

#### **II. Background**

A. More than 100,000 acres of cropland within the Platte Basin portion of Tri-Basin NRD are irrigated with water diverted from the Platte River and distributed through the canals of the Central Nebraska Public Power and Irrigation District (CNPPID). Surface irrigation water and the canals that distribute it enhance recharge of groundwater supplies within the district. In addition to helping sustain groundwater supplies, this incidental recharge has increased streamflows in Platte and Republican tributary streams. High groundwater levels have also saturated soil and sub-soil in parts of northern Phelps and Kearney counties, requiring CNPPID and the NRD to construct drainage ditches (Improvement Project Areas or IPAs) in an attempt to stabilize groundwater levels below the crop root zone(see map #3 in appendix A). The NRD has designated portions of the Platte Basin as a “High Groundwater Management Area” pursuant to NRD rule 8.6 for purposes of stabilizing the groundwater table at levels that minimize harm to agricultural land.

B. Water disputes in the Platte River Basin date back to early Nebraska history. Tri-Basin NRD has been involved in Platte Basin water issues since it was established in 1972. Most recently, Tri-Basin NRD directors have participated in meetings and negotiations associated with development of the Platte River Cooperative Agreement and PRRIP. This program will manage certain land and water resources to provide defined benefits for four species in Nebraska that are

listed as threatened or endangered by the federal and state governments. PRRIP is intended to provide ESA compliance for water users in the Platte River Basin upstream of Columbus, Nebraska.

#### **CHAPTER 4: MAP AND MANAGEMENT AREA BOUNDARIES**

I. Maps of the district, its management areas and river basins are located in Appendix A. The area subject to the overappropriated portion of this IMP is the geographic area of the Tri-Basin NRD designated by the Department as overappropriated on September 15, 2004 (see map 4). The areas subject to the fully appropriated portion of this IMP are the fully and overappropriated areas shown on Map 5.

#### **CHAPTER 5: FULLY APPROPRIATED PORTION OF THE PLATTE BASIN**

##### **I. GOALS AND OBJECTIVES**

A. The overall goals for the Platte Basin are listed in the IMP Goals section above. Tri-Basin NRD and the Department agree to accomplish the following objectives for the Platte River Basin portion of the district in order to achieve the goals of this joint IMP.

1. To prohibit landowners, with limited exceptions for *de minimis* uses such as livestock wells and domestic wells that are not capable of pumping more than 50 gallons per minute, from initiating new or expanded uses of water that increase beneficial consumptive use of water within the fully appropriated portion of the Platte River Basin within Tri-Basin NRD;
2. To investigate methods to reduce the impact of vegetative growth, particularly invasive species infestations, on streamflows in the Platte River and its tributaries.
3. To develop, in collaboration with CNPPID and other affected water users, and implement plans to continue groundwater recharge from surface water supplies in amounts sufficient to sustain existing groundwater uses where possible.
4. To certify all land irrigated with groundwater and track transfers and changes in use. The Department will continue to track surface water transfers and those groundwater transfers it has responsibility for.
5. To ensure that Platte streamflows needed for existing surface water appropriations and ground water uses will not be depleted by water uses developed after June 15, 2006. This objective will be accomplished by offsetting depletions caused by new water uses via water conservation incentives, offset projects, mandated reductions in water uses, or some combination of these three methods.
6. To prevent depletions to US Fish and Wildlife Service (USFWS) target flows due to water uses developed after July 1, 1997.

##### **II. PLAN COMPONENTS**

## A. Action Items to Achieve Goals and Objectives

The action items described in this section are intended to be consistent with the requirements of Neb. Rev. Stat. § 46-715(3).

## B. Non-Regulatory Action Items

### 1. Information and Education Programs

(a) The Tri-Basin NRD and the Department will provide educational materials to the public and carry out educational activities that will inform the public about the following issues, among others: the fully appropriated determination, the overappropriated designation, the IMP, NNDP, PRRIP, hydrologically connected groundwater and surface water, invasive species management, conversion of irrigated acres to dryland agriculture or wildlife habitat, limited irrigation cropping systems, soil residue and tillage management, alternative crops and funding sources for programs that enhance water supply.

(b) These educational materials and activities will include public meetings held jointly at least once a year, pamphlets, and website information.

### 2. Incentive Programs

(a) Tri-Basin NRD and Department intend to continue to promote existing conservation programs that result in reductions in use of integrated water resources, such as the Conservation Reserve Enhancement Program (CREP) and Environmental Quality Incentives Program (EQIP), which are primarily funded by the U.S. Department of Agriculture. Tri-Basin NRD and the Department may establish and implement financial or other incentive programs to reduce beneficial consumptive use of water within the Tri-Basin NRD. Such incentive programs may include any program authorized by NRD rules and policies, state law or federal programs.

(b) As a condition for participation in an incentive program, water users or landowners may be required to enter into and perform such agreements or covenants concerning the use of land or water as are necessary to produce the water conservation benefits for which the incentive program is established.

### 3. Water Banking

(a) A water banking process may be developed to enable the Tri-Basin NRD to offset existing consumptive water uses, help water users find offsets for new consumptive water uses and reconfigure irrigated acres to achieve maximum water use efficiency. The NRD board is considering whether to develop a water bank and how to structure its administration. The purpose of a water bank would be to encourage and facilitate the transfer of water between users. If the Tri-Basin NRD purchases or otherwise acquires

transfers of certified groundwater irrigated acres or other groundwater use or surface water appropriations, the Tri-Basin NRD will hold the transferred water uses in its water bank for the purposes of:

- (1) offsetting new or expanded consumptive uses;
- (2) saving to meet statutory requirements or interstate agreement obligations;
- (3) saving to meet future incremental targets toward achieving a fully appropriated condition;
- (4) future sales to individuals as offsets for development of new consumptive uses of groundwater within the Tri-Basin NRD; or
- (5) aggregation of certified groundwater-irrigated acres for the purpose of improving irrigation efficiency. Transfers for this purpose are likely to reduce groundwater pumping, but may or may not result in reductions in depletions to streamflows.

New consumptive uses of groundwater are those non de minimis uses which will result in an additional depletion to target flows or existing water users in the Platte River Basin.

(b) In determining the amount of accretions to the stream that will be placed into the water bank due to the transfer of groundwater or surface water uses, Tri-Basin NRD and the Department will agree on the best available tools or methods to utilize for calculating these accretions (i.e. the bankable volume of water). The process used to determine the accretions to be put into the water bank will consider the impact to streamflows through at least a fifty (50) year period and will be consistent with the methods used to evaluate transfers as described in Chapter 5, section II.C.5 of this IMP. Additionally, these calculations will determine the timing and location of streamflow changes due to the transfer to the water bank and any impacts to existing groundwater or surface water users.

(c) If the Tri-Basin NRD intends to purchase, lease or otherwise acquire a surface water appropriation for deposit in the water bank, Tri-Basin NRD will contact the Department prior to such purchase. The Department will conduct a field investigation of the surface water appropriation and notify Tri-Basin NRD of the results within ninety (90) days. Tri-Basin NRD will work collaboratively with the Department in performing analyses to evaluate the bankable volume of water resulting from purchase, lease or acquisition by other means of surface water appropriations. If surface water appropriations are transferred to another purpose or point of use, Tri-Basin NRD will follow the appropriate statutes and rules and regulations of the Department for approval of such transfers.

(d) Tri-Basin NRD will obtain and maintain permanent easements on all property from which surface water or groundwater uses that have been retired for purposes of the water bank.

(e) All deposits, withdrawals and other activities (purchases, sales, leases, transfers and assignments) related to the water bank will be reported annually according to section II.A of Chapter 7 of this IMP.

(f) Any water banking activity carried out by Tri-Basin NRD will follow the procedures for any groundwater regulatory action (e.g. transfers, certification or municipal and non-municipal industrial accounting) applicable to such activity. Any surface water related water banking activity carried out by the Tri-Basin NRD must follow the appropriate state statute and Department rules and regulations.

C. Groundwater Regulatory Action Items (controls)

1. The groundwater controls that have been adopted and implemented by Tri-Basin NRD are those found in the *Rules and Regulations – Ground Water Management in the Tri-Basin Natural Resources District*. Tri-Basin NRD utilizes several statutorily authorized groundwater management controls to protect groundwater quality and quantity.

2. The current benchmark for groundwater quality is that groundwater resources should contain less than 9 ppm nitrate-nitrogen. The benchmark for groundwater quantity is that a three-year rolling average of groundwater table elevations should equal or exceed average springtime groundwater table elevations during the period 1981-85.

3. The Tri-Basin NRD will periodically review the controls being implemented to carry out the goals and objectives of this IMP. The Tri-Basin NRD reserves the right to adopt additional controls identified in state statutes and may adjust or modify the listed controls if the board of directors determines that such controls will help the district achieve the goals and objectives of this IMP. Changes to these controls may be the result of the annual review of progress being made toward achieving the goals of this IMP, according to 46-715(4)(d)(i). Specifically, Tri-Basin NRD will require landowners to either reduce groundwater-irrigated acres or limit groundwater pumping through allocation, if necessary. Any adjustments or modifications to the controls must not be in conflict with the goals and objectives of this IMP. Prior to the removal of the listed controls, the Tri-Basin NRD and the Department must amend this IMP.

4. The Department and the Tri-Basin NRD will coordinate with the other Platte Basin NRDs (Central Platte NRD, Tri-Basin NRD, Twin Platte NRD, South Platte NRD and North Platte NRD) to develop a consistent method of calculation that will be applied when calculations of depletions or accretions to the stream are necessary to implement groundwater regulatory actions.

5. Tri-Basin NRD and the Department have already taken several steps intended to protect interconnected groundwater and surface water resources. The following three (3)

groundwater regulatory actions are currently being implemented in the fully appropriated area of the Tri-Basin NRD and will continue to be implemented in the future: (a) moratorium on drilling new wells for new water uses, (b) certification of irrigation uses and (c) regulation of transfers of irrigated land, ,

(a) Moratorium

There will be a moratorium on the issuance of new water well construction permits for development of new groundwater uses and on new or expanded groundwater uses. The Tri-Basin NRD may grant a variance from the moratorium if there is an offset for the new or expanded use or if there will not be an increase in consumptive use due to the new or expanded use. In granting a variance, the Tri-Basin NRD will consider the timing, location and amount of the depletion and the corresponding offset so there will not be an adverse impact on existing groundwater or surface water users.

(b) Certification of Irrigation Uses

All groundwater irrigation uses have been certified by the Tri-Basin NRD. If modifications to certified irrigated acres are necessary, the Tri-Basin NRD will consider the timing, location and amount of any depletion associated with the modification and any associated offset to ensure that no adverse impacts on existing groundwater or surface water users occur as a result of Tri-Basin NRD-authorized transfers.

(c) Transfers

(1) General Guidelines for Transfers

(i) The purpose of a transfer is to allow for the consumptive use of groundwater to be changed either in location or purpose without causing an increase in depletions to the Platte River or an impact to existing surface water or groundwater users.

(ii) The types of transfers that the Tri-Basin NRD will permit and regulate or take action on through the Tri-Basin NRD's Ground Water Management Rules and Regulations are (1) physical transfers of groundwater off of overlying land; (2) transfers of the type of use or addition of use; (3) transfers of certified irrigated acres; (4) physical transfers of groundwater or certified irrigated acres between the Tri-Basin NRD and adjoining Platte Basin NRDs; (5) municipal transfer permits (if the applicant does not have a municipal transfer permit from the Department); (6) industrial transfer permits (if the applicant does not have an industrial municipal transfer permit from the Department); and (7) transfers out of state.

(iii) For transfers listed in 1-7 above, permits will be required from the Tri-Basin NRD. The specifics of the transfer permitting process including the evaluation criteria are described in Tri-Basin NRD's Ground Water Management

Rules and Regulations. The evaluation criteria for a transfer permit will include, but not be limited to, the following considerations: (1) whether the proposed transfer will cause an impact to existing groundwater or surface water users; (2) whether the proposed transfer will cause an increase in depletions to the Platte River; (3) whether the proposed transfer will result in an increase in consumptive use; (4) the amount, location and timing of any changes in depletions or accretions to the river due to the proposed transfer; (5) whether the proposed transfer will adversely affect the state's ability to comply with PRRIP; (6) whether the proposed transfer is consistent with the purpose for which the Integrated Management Area was designated; and (7) whether the proposed transfer will protect the public interest and not be detrimental to the public welfare.

(iv) Tri-Basin NRD and the Department will agree on the methodology to determine whether proposed transfers will meet criteria related to the state's ability to comply with PRRIP including the determination of the effects of transfers on the Platte River and its perennial tributaries, including the timing, amount and location of the depletion and the associated offset. Any actions taken by the Tri-Basin NRD related to the approval of transfer permits will be documented and shared with the Department pursuant to Chapter 7 section II.A of this IMP.

## (2) Guidelines for Types of Transfers

(i) Physical transfer of groundwater off of the overlying land – (1) permits will not be required for the physical transfer of groundwater for domestic or range livestock uses;

(ii) Transfer of the type of use or addition of use – (1) the transfer cannot result in an increase in consumptive use unless an offset is provided and (2) the registration must be changed to reflect the new or additional use

(iii) Transfers of certified irrigated acres – (1) the certified acres being transferred will be decertified on the original parcel and an equal or lesser number of acres will be certified on the destination parcel; (2) transfers will not result in increases in consumptive use; (3) if the location the certified acres are being transferred to has a stream depletion factor that is less than one hundred and ten percent of the stream depletion factor of the original location of the certified acres, the same number of acres can be moved. If the destination parcel for the certified acres has a stream depletion factor that is ten percent or more greater than the original location of the certified acres, the number of acres that can be transferred will be decreased by an amount proportional to the increase in the stream depletion factor; (4) the parcel that the certified acres originated from will remain in dryland agricultural use, or another lower consumptive use land practice approved by the Tri-Basin NRD; and (5) no certified acre transfers will be allowed from land that has surface water or commingled water sources to land that will have groundwater as the sole source of irrigation water.

(iv) Transfers from Outside to Inside the Tri-Basin NRD and from Inside to Outside the Tri-Basin NRD – (1) a permit from the Tri-Basin NRD is required; (2) the transfer must be in conformance with the rules and regulations of the NRD from which the transfer is coming from or going to; and (3) an agreement must be reached between the Tri-Basin NRD and the other NRD involved in the transfer that the use being retired in one district will remain retired for the duration of the transfer.

(v) Municipal Transfer Permits – (1) transfers without a municipal and rural domestic transfer permit from the Department will require a transfer permit from the Tri-Basin NRD; (2) copies of variances or Tri-Basin NRD permit applications for municipal uses shall be forwarded to the Department for review, to ensure that compliance with the PRRIP will be maintained; and (3) a water well construction permit shall not be issued until the board has granted a variance to the moratorium on the issuance of new water well construction permits and has approved the transfer permit.

(vi) Industrial Transfer Permits – (1) groundwater transfers without an industrial transfer permit from the Department will require a transfer permit from the Tri-Basin NRD; (2) copies of variances or Tri-Basin NRD permit applications for industrial uses shall be forwarded to the Department for review, to ensure that compliance with the PRRIP will be maintained; and (3) a water well construction permit shall not be issued until the board has granted a variance to the moratorium on the issuance of water well construction permits and has approved the transfer permit.

(vii) Transfer Out of State – (1) The Department will consult with the TPNRD when considering applications filed to transfer groundwater out of state, pursuant to Neb. Rev. Stat. § 46-613.01. The Tri-Basin NRD will take action to approve or deny the transfer request based on the same criteria that transfers within the district are subject to prior to the issuance of a transfer permit by the Department; and (2) a water well construction permit shall not be issued until the board has granted a variance to the moratorium on the issuance of new water well construction permits and has approved the transfer permit.

6. Tri-Basin NRD will adopt or revise groundwater management rules and regulations as needed to carry out the four (4) ground water action items (a) through (d) described below.

(a) Municipal Use and Accounting

(1) Tri-Basin NRD will calculate baseline consumptive use for each municipality within the district based on historical consumptive use data for the interval August 1, 2001, through July 31, 2006. Consumptive use will be determined from groundwater pumping volumes and, where applicable, wastewater discharge volumes. The baseline will be used to determine annual increases in consumptive use.

(2) Annual changes in consumptive use will be tracked for each municipality through a reporting and database system administered by Tri-Basin NRD. Increases in consumptive use will be subdivided to the extent possible using available data into three categories: new or expanded commercial/industrial uses; increases in governmental uses; and increases in per capita consumptive use.

(3) Tri-Basin NRD will be responsible for offsetting all increases in municipal governmental consumptive use, increases in per capita use up to two hundred twenty-five (225) gallons per person per day, and new or expanded single commercial/industrial consumptive uses of less than twenty-five (25) million gallons per year. If a municipality holds a municipal and rural domestic transfer permit granted by the Department, then the Tri-Basin NRD must offset the increased consumptive use above the baseline consumptive use, as long as total municipal water use remains lower than the limits granted in the municipal and rural domestic transfer permit.

(4) The municipality will be responsible for offsetting all increases in per capita use greater than two hundred twenty-five (225) gallons per person per day and new or expanded single commercial/industrial consumptive uses of greater than twenty-five (25) million gallons per year. If a municipality holds a municipal and rural domestic transfer permit granted by the Department, then the municipality must offset increased consumptive use above the baseline consumptive use if total municipal water use exceeds the limits granted in the municipal and rural domestic transfer permit.

(b) Non-Municipal Industrial Use and Accounting

(1) Tri-Basin NRD will calculate baseline consumptive use for each non-municipal commercial/industrial user within the district based on historical consumptive use data for the interval August 1, 2001, through July 31, 2006. Consumptive use will be determined from groundwater pumping volumes and, where available, wastewater discharge volumes. The baseline will be used to determine annual changes in consumptive use.

(2) Annual changes in consumptive use will be tracked for each non-municipal commercial/industrial user through a reporting and database system administered by Tri-Basin NRD.

(3) Tri-Basin NRD will be responsible for offsetting all new or expanded single commercial/industrial consumptive uses of less than twenty-five (25) million gallons per year and, if a user holds an industrial transfer permit, the increased consumptive use below the permitted limit, so long as total industrial water use remains lower than the permitted limit.

(4) Non-municipal commercial/industrial users will be responsible for offsetting the entirety of a new or expanded consumptive use of greater than twenty-five (25) million gallons per year or, if a user holds an industrial transfer permit, any increased consumptive use above the permitted limit.

(c) Large User Permits

(1) Any public water supplier, with the exception of municipalities, who desires to withdraw and consume groundwater shall, prior to: 1) changing the use of an existing groundwater well or wells; 2) commencing construction of any new or replacement groundwater well; or 3) modifying the existing infrastructure for the purpose of expanding the consumptive use of groundwater, receive from the Tri-Basin NRD a large user permit to authorize such withdrawal and consumption of groundwater.

(d) Variances

(1) Tri-Basin NRD may grant a variance for good cause shown for any of the above-listed groundwater regulatory actions. Any variance granted by Tri-Basin NRD will consider the timing, location and amount of any depletion associated with the variance and insure that such depletion is offset to ensure that there will not be an adverse impact to existing groundwater or surface water users or to the state's ability to comply with the PRRIP.

D. Rules and Regulations and Other Authorities

1. The rules and regulations of Tri-Basin NRD are separate and distinct from this IMP. This IMP establishes the inter-related water management goals, objectives and work tasks, while the rules and regulations create the regulatory framework and precise mechanisms that will be used to implement this plan and other plans and policies established by the board of directors.

2. Tri-Basin NRD may, from time to time, change its rules and regulations to better achieve the purposes of this plan or other plans and policies of the district. Tri-Basin NRD also reserves the right to rescind portions of its rules and regulations, as long as such changes in rules do not interfere with the NRD's ability to meet the goals and objectives of this IMP.

3. Tri-Basin NRD may utilize its statutory authority under Neb. Rev. Stat. 2-3252 to establish one or more Improvement Project Areas (IPAs) to finance groundwater recharge or surface water depletion offset projects. These IPAs would assess land based on potential benefits resulting from such projects.

E. Surface Water Regulatory Actions

The following surface water controls as authorized by Neb. Rev. Stat. § 46-716 will be implemented or will continue to be implemented by the Department:

1. The Department will continue the moratorium on new surface water appropriations in the portion of the Platte River Basin within the boundaries of the Tri-Basin NRD. Variances may be granted by the Department in accordance with Department rules and regulations.
2. Transfers of surface water appropriations will be in accordance with statute and Department rules and regulations.
3. Surface water appropriations will continue to be administered according to statute and Department rules and regulations.
4. The use of surface water will continue to be monitored to make sure that unauthorized use is not occurring.
5. The Department will not require surface water appropriators to apply or use conservation measures.
  - (a) If the Department in the future requires surface water appropriators to apply or use conservation measures, the surface water appropriators will be allowed a certain amount of time to identify conservation measures to be applied or used and to develop a schedule for such application and utilization.
6. The Department does not anticipate a need to require additional restrictions on surface water use.
  - (a) If the Department in the future requires other restrictions on surface water use, such restrictions must be consistent with the intent of § 46-715 and the requirements of § 46-231.
  - (b) If the Department in the future requires other restrictions on surface water use, the surface water appropriators will be allowed a certain amount of time to comment on the proposed restrictions.

## **CHAPTER 6: OVERAPPROPRIATED AREA AND NEBRASKA NEW DEPLETION PLAN**

### **I. GOALS AND OBJECTIVES**

In addition to the overall goals and objectives for the Platte Basin listed above, Tri-Basin NRD and the Department agree that the joint IMP should include the following additional goals and objectives for the Overappropriated Area and Nebraska New Depletion Plan portion of this IMP.

#### **A. Goals**

1. Incrementally achieve and sustain a fully appropriated condition.

(a) Within the first ten (10) year increment, address impacts of streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent upon recharge from streamflow to the extent those depletions are due to water use initiated after July 1, 1997.

(b) Impacts of streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent upon recharge from streamflow to the extent those depletions are due to water use initiated prior to July 1, 1997 may be addressed prior to a subsequent increment with the intent of achieving a fully appropriated condition.

(c) Once a fully appropriated condition is achieved, maintain such condition through the implementation of the IMP.

2. Ensure that no act or omission of the Tri-Basin NRD will cause the state to not be in compliance with any interstate compact or decree or other formal state contract or agreement.

(a) More particularly, Tri-Basin NRD and Department agree that they do not intend to allow any act or omission of the Tri-Basin NRD to cause the state to not be in compliance with NNDP included within PRRIP, for as long as PRRIP exists.

3. Maintain consistency with the Basin-Wide IMP.

## B. Objectives

1. Goal I.A.1(a) Objectives:

(a) Implement measures within the first ten (10) year increment to offset an annual depletion of two thousand five hundred (2,500) acre-feet to the Platte River for the period 2043-2048. This rate is the current best estimate and is subject to change based upon new data and information.

(b) Conduct a technical analysis as described in Neb. Rev. Stat. § 46-715(4)(d)(iii) for this IMP after it has been in effect for six (6) years, to determine whether the measures adopted in this IMP are sufficient to offset depletions due to post-July 1, 1997 water uses.

2. Goals I.A.1(a) and (b) Objectives

(a) Continue to refine the estimation methodology used to calculate the difference between the current and fully appropriated levels of development.

(b) Use available funds to offset depletions that are identified as part of the overall difference between current and fully appropriated levels of development.

3. Goals I.A.1(a), (b), and (c) Objectives

- (a) Develop and maintain data sets and analytical tools, such as the Cooperative Hydrologic Study (COHYST) and other programs and projects needed to implement this IMP.
- (b) Annually Review the provisions of this IMP to insure progress toward implementing the provisions of this IMP to insure that they are adequate to offset depletions due to post- July 1, 1997, water uses and will lead toward reaching a fully appropriated condition.
- (c) Review the provisions of this IMP annually to insure that they are adequate to maintain a fully appropriated condition, once that condition has been achieved.

4. Goal I.A.2(a) Objectives:

- (a) To the extent it is required in order to maintain compliance with the NNDP, Tri-Basin NRD will provide accretions to the Platte River that equal or exceed the annual depletion amount, taking into account appropriate timing and location, for the first ten (10) year increment as shown in table 1. The data shown in table 1 represent the current best estimate of post-1997 stream depletions to the Platte Rive due to changes in groundwater irrigated acres between 1997 and 2005 and are subject to change based upon new data and information. These estimates will serve as a target for the Department and Tri-Basin NRD, but they are subject to change based upon new data and information.

**Table 1:** Current best estimate of post-1997 depletions to the Platte River due to changes in groundwater irrigated acres within the Tri-Basin NRD between 1997-2005 based upon the June 10, 2008, COHYST report on stream depletions.

Year	2009	2010	2011	2012	2013	2014
<b>Annual Stream Depletion (AF)</b>	<b>2,241</b>	<b>2,411</b>	<b>2,552</b>	<b>2,685</b>	<b>2,812</b>	<b>2,930</b>

Year	2015	2016	2017	2018	2019
<b>Annual Stream Depletion (AF)</b>	<b>3,043</b>	<b>3,150</b>	<b>3,253</b>	<b>3,352</b>	<b>3,445</b>

- (b) As required by the NNDP, Tri-Basin NRD will submit reports to the Department as necessary to assist Nebraska in maintaining compliance with the PRRIP.

5. Goal I.A.3 Objectives:

- (a) Amend this IMP as needed to remain consistent with the Basin-Wide IMP.
- (b) Participate in basin-wide planning activities.
- (c) If necessary, follow the dispute resolution process in the Basin-Wide IMP.

## II. PLAN COMPONENTS AND ACTION ITEMS

The action items described in this section are intended to be consistent with the requirements of Neb. Rev. Stat. § 46-715(3).

### A. Non-regulatory Action Items

#### 1. Information and Education Programs

These programs are discussed in the fully appropriated portion of this IMP.

#### 2. Incentive Programs

(a) A discussion of incentive programs can be found in the fully appropriated portion of this IMP. In the overappropriated area, the Platte Basin NRDs and the Department have identified PBHEP (Platte Basin Habitat Enhancement Program) as an incentive program that they intend to pursue to reduce consumptive use within the overappropriated portion of the Platte River Basin. The Tri-Basin NRD and the Department may also seek opportunities to work with landowners to voluntarily and permanently retire irrigated lands. Any reductions in groundwater or surface water consumption that occur within Tri-Basin NRD and result in accretions to streamflow that are adequately documented by the Tri-Basin NRD or the Department and supported by the best available science may be credited toward Tri-Basin NRD's objective of offsetting depletions to streamflows that are due to groundwater pumping necessary to protect existing surface water and groundwater users and meet the objectives of the NNDP.

(b) Tri-Basin NRD and the Department may also make incentives available to Tri-Basin NRD water users to adopt technologies such as no-till farming, technological advances or agronomic practices that reduce evaporation or consumptive water use by crops and water-saving crop rotations that will help reduce irrigation water consumption.

#### 3. Other Programs

(a) The Tri-Basin NRD and the Department may investigate opportunities to reduce the consumptive use of surface water and create water supply enhancement projects. Tri-Basin NRD and the Department may develop an incentive-based program if such opportunities exist. When developing any surface water-based programs, it is the intent of the Department and Tri-Basin NRD to follow these principles:

(1) Use the best science readily available to determine any offset credits that would result from such projects.

(2) Comply with state and federal laws, contracts, interstate compacts and decrees that govern the water use of irrigation districts or canal companies.

- (3) Work with irrigation districts, not just individual appropriators, when potential projects could affect an irrigation district's operations.
  - (4) Protect existing water users, including surface water appropriations (the diversion amounts of irrigation districts and canal companies) and groundwater users.
  - (5) Consider the long term viability of the irrigation districts and canal companies.
  - (6) If all or part of an existing incidental underground storage permit is changed to an intentional underground storage permit, the amount of intentionally stored water that is consumed after the change will be no greater than the maximum amount of incidentally stored water that was consumed prior to the change. 42-290(b)(e)(iii).
- (b) These other programs may include, but are not limited to: (1) transfer of existing surface water appropriations within the Tri-Basin NRD to instream flow appropriations; (2) transfer existing surface water appropriations or apply for new appropriations for intentional recharge in existing canals during the irrigation or non-irrigation season and recovery when appropriate; and (3) development of new infrastructure that may include intentional recharge projects and recovery when appropriate.
- (c) Process for Implementing Other Programs to be carried out by the Tri-Basin NRD and the Department
- (1) Consult with irrigation districts, canal companies and other surface water and groundwater users to quantitatively estimate available surface water supplies.
    - (i) Unappropriated Surface Water
      - (i.a.) Perform an analysis to determine if there is unappropriated surface water within the first year of the first ten (10) year increment.
      - (i.b.) Review the analysis to determine whether unappropriated water is available at the necessary time, in the right location and in the correct amount, or determine if it can be appropriately relocated or retimed.
    - (ii) Appropriated Surface Water
      - (ii.a.) Compile a list of existing surface water appropriations within the Tri-Basin NRD within the first year of the first ten (10) year increment.
      - (ii.b.) Review this list to determine whether the appropriated water is available at the necessary time, in the right location and in the correct amount, or determine if it can be appropriately relocated or retimed.
    - (iii) Groundwater

(iii.a.) Compile a list of certified groundwater uses in the Platte River Basin within Tri-Basin NRD within the first year of the first ten (10) year increment.

(iii.b.) Determine whether it is legally possible, economically feasible and desirable to convert selected certified groundwater uses to another use or to otherwise retime or relocate them to provide net accretions to the river at the necessary time and in the right location.

(2) Develop a list of criteria to evaluate the potential to utilize available surface water and/or groundwater supplies for streamflow enhancement and groundwater recharge. The criteria may take into consideration the following:

(i) Any permitting requirements or regulatory constraints related to the utilization of the available water supplies.

(ii) The potential benefits and the estimated cost of operation.

(iii) The cyclical water supply conditions.

(3) For existing surface water appropriations, Tri-Basin NRD will contact appropriators to determine willingness to cooperate, lease and/or sell those appropriations. If willing sellers are identified, develop and execute contract(s) with appropriator(s).

(4) For existing groundwater uses, Tri-Basin NRD will contact landowners to determine their willingness to cooperate with proposed projects. If willing, develop and execute contracts with such landowners.

(5) Submit the required permit applications as needed.

(6) Implement approved projects.

(d) Identification of Specific Other Programs

(1) The Tri-Basin NRD and the Department have identified specific programs that may be used to meet the goals and objectives of this IMP. At this time, those programs consist of the following: 1) work in cooperation with CNPPID and other surface water appropriators to develop and implement plans to continue groundwater recharge from surface water supplies to the overappropriated basin in amounts that are comparable to recharge that occurred during 1997. Tri-Basin NRD will also seek to lease additional water from CNPPID and its customers, to the extent that it is available and needed, to offset depletions.; 2) Elwood Reservoir management; 3) management of Tri-Basin NRD-owned reservoirs for retiming and augmentation of flow; 4) exploration of potential to utilize the existing wastewater pipeline owned by

KAAPA Ethanol plant as a conduit for transporting groundwater and surface water to the Platte River; 5) seek opportunities to construct groundwater wells in areas where depletions to the Platte River will be minimal and transport water pumped by those wells via canals, streams or pipelines to the river to offset depletions and to augment Platte streamflows for purposes of PRRIP and 6) explore water supply opportunities on the Platte River.

## B. Groundwater Regulatory Actions

1. In order to determine whether groundwater regulatory actions are needed in the overappropriated area, the annual stream depletion amounts shown in table 2 will be compared to the stream accretions resulting from actions taken by Tri-Basin NRD. As long as the annual net sum of the accretions resulting from the actions taken by the Tri-Basin NRD and the annual depletions (shown in table 2) are less than or equal to zero<sup>1</sup>, regulatory actions will not be required. The depletion amounts shown in table 2 are subject to change based upon the best scientific data and information available.

**Table 2:** Current best estimate of post-1997 depletions to the Platte River due to changes in groundwater irrigated acres within the overappropriated area of the Tri-Basin NRD between 1997 and 2005 based upon the June 10, 2008, COHYST report on stream depletions

Year	2009	2010	2011	2012	2013	2014
<b>Annual Stream Depletion (AF)</b>	<b>1,234</b>	<b>1,319</b>	<b>1,382</b>	<b>1,440</b>	<b>1,493</b>	<b>1,541</b>

Year	2015	2016	2017	2018	2019
<b>Annual Stream Depletion (AF)</b>	<b>1,586</b>	<b>1,627</b>	<b>1,666</b>	<b>1,702</b>	<b>1,735</b>

2. Based on an analysis of actions (e.g. one year of purchased inflows to Elwood and CREP retirements) taken by Tri-Basin NRD through December 31, 2008, the Department has determined that the accretions from these actions do not provide the necessary stream accretions to obtain a net sum of accretions and depletions of less than or equal to zero. Therefore, further actions must be taken to offset the currently identified post-1997 depletions.

3. The Department and the Tri-Basin NRD recognize the potential for implementation of voluntary programs, incentive measures or other projects to provide stream accretions that will help bring the annual depletions and accretions to a net sum of less than or equal to zero, and will work diligently to implement measures to provide stream accretions in a timely manner. Regular progress toward meeting the goal of an annual net sum of accretions and depletions less than or equal to zero must be demonstrated. Regular progress will be determined by the following triggers

<sup>1</sup> Negative values indicate streamflow accretions

(a) If, by the end of 2012, an accretion to the Platte River equal to or exceeding a rate of one thousand four hundred and forty (1,440) acre-feet annually and every year thereafter throughout the first ten (10) year increment has not been met, the Department and the Tri-Basin NRD will jointly determine what steps need to be taken to ensure that any necessary, agreed-upon regulatory actions will be in place by the beginning of the 2014 irrigation season.

If the above trigger has been met, the following triggers will be used to determine progress toward meeting the goals and objectives of this IMP.

(b) If, by the end of 2015, an accretion to the Platte River equal to or exceeding a rate of one thousand five hundred eighty six (1,586) acre-feet annually, and every year thereafter throughout the first ten (10) year increment, has not been met, the Department and the Tri-Basin NRD will jointly determine what steps need to be taken to ensure that the agreed-upon regulatory actions will be in place by the beginning of the 2016 irrigation season.

(c) By the end of 2015, measures will be in place to achieve an accretion to the Platte River equal to or exceeding a rate of one thousand seven hundred and fifty (1,750) acre-feet annually (70% of the 2,500 acre-feet required for the period 2043-2048). If this trigger has not been met, the Department and the Tri-Basin NRD will jointly determine what steps need to be taken to ensure that the agreed-upon regulatory actions will be in place by the beginning of the 2016 irrigation season.

4. Chapter 7 Section II.A.2 of this IMP describes how progress toward achieving these triggers will be measured.

5. At this time, the Department and Tri-Basin NRD have identified the following groundwater controls as potential regulatory actions that may be implemented if any of the above triggers cannot be achieved through voluntary programs, incentive measures or other projects:

(a) Groundwater Controls

(1) Prior to implementation of any of the groundwater controls listed below, the Tri-Basin NRD and the Department will agree to the method of implementation and the methods used to measure the success of the control(s) in reaching the goals and objectives of the Overappropriated Area and Nebraska New Depletion Plan Section of this IMP.

(2) In order to reach these goals and objectives, a limit on the amount of consumptive use on certified irrigated acres within the overappropriated area may be implemented. The methods by which a limit on the amount of consumptive use would be implemented include, but are not limited to, the following:

- (i) Crop rotation
  - (ii) Reduction of certified irrigated acres
  - (iii) Allocation
- (b) Other Groundwater Controls

(1) Tri-Basin NRD reserves the right to utilize groundwater controls specified in 46-739 NE RRS, which will achieve the goals and objectives of the Overappropriated and Nebraska New Depletions Plan portion of this IMP.

### C. Surface Water Regulatory Actions

The surface water controls that will be used in the overappropriated area are the same as those described in the fully appropriated portion of this IMP.

## CHAPTER 7: MONITORING AND STUDIES SECTION

### I. INTRODUCTION

The objective of the monitoring and studies section of this IMP is to gather and evaluate data, information, and methodologies that could be used by Tri-Basin NRD and the Department to:

- 1) increase understanding of the surface water and hydrologically connected groundwater system;
- 2) to test the validity of the conclusions and information upon which the IMP is based and
- 3) to assist decision makers in properly managing the water resources within the district to ensure that the overappropriated and fully appropriated areas within the district boundaries reach and/or maintain a fully appropriated condition.

Tri-Basin NRD and the Department will utilize data from a variety of sources to monitor and measure the progress made by the district and its constituents toward achieving the goals and objectives of this IMP.

### II. MONITORING

A. Various methods will be employed to monitor the progress of the implementation of this IMP. Part one of the monitoring section describes the tracking and reporting of water use activities within district boundaries by Tri-Basin NRD and the Department. Part two of the monitoring section describes analyses that will evaluate progress that has been made in: 1) offsetting streamflow depletions that affect existing surface water and groundwater users and USFWS target flows that result from new or expanded consumptive groundwater or surface water uses initiated after July 1, 1997; 2) reaching a fully appropriated condition in the overappropriated Platte Basin (west of US Highway 183); and 3) sustaining a fully appropriated

condition in the Platte Basin east of US Highway 183. Part three of the monitoring section describes the procedure for evaluating whether additional actions will be needed to meet the goals and objectives of this IMP.

1. Part One: Tracking and Reporting of Water Related Activities

(a) Tracking

(1) Tri-Basin NRD works closely with county assessors and CNPPID to track the location and number of irrigated acres in the district. Comparison of NRD certified irrigated acres to assessed irrigated acres provides Tri-Basin NRD with a measure of the district's conformance to its objective of preventing development of additional irrigated land uses, unless those new uses are offset by retirement of an equivalent amount of existing water uses. Tri-Basin NRD will continue to gather data on crops planted and harvested, tillage systems and other soil and water conservation practices. The Tri-Basin NRD will be responsible for maintaining up-to-date records of and ensuring compliance with rules regulating the following activities within the district: 1) certification of groundwater uses and any changes to these certifications; 2) approved transfers of groundwater and certified irrigated land, including all of the information included in the application and approval of the transfer; 3) groundwater pumping (flow meter) data that is reported to or gathered by the Tri-Basin NRD; 4) any water well construction permits issued; 5) any other permits issued by the Tri-Basin NRD; 6) any conditions associated with any permits that are issued; 7) information gathered through the municipal and non-municipal industrial accounting process; 8) any variances issued including the specifics and the reasoning behind approval of the variance; 9) groundwater level data collected from dedicated observation wells and irrigation wells; and 10) specifics on water banking activities. Tri-Basin NRD will also continue to work with landowners to track the location and number of currently irrigated acres, along with crops and tillage systems used on those lands, using crop reports.

(2) Tri-Basin NRD will continue to monitor the location of the headwaters of Platte tributaries that originate within this district. The locations of these headwaters are identified every spring and fall using GPS locators. A significant movement of any of these headwaters upstream or downstream could indicate changes in local groundwater levels.

(3) The Department will be responsible for tracking the following activities within the district on an annual basis: (1) any surface water permits issued; (2) any dam safety permits issued; (3) any groundwater permits issued; (4) reports of water diverted, and when available stored by surface water users and (5) the associated offsets for any new permits issued. The Department will be responsible for tracking the following activities within the district on a five (5) year basis: (1) National Agricultural Statistics Service livestock data; (2) US Census Bureau population data; (3) inventory of sandpits; (4) inventory of all surface water reservoirs, including those capable of storing less than fifteen (15) acre-feet of water; (5) any retirements of

irrigated acres or other activities by the Department for the purpose of returning to a fully appropriated condition; and (6) offsets provided for depletions resulting from increased consumptive use related to the above listed items. The Department will collaborate with CNPPID to obtain water delivery records for CNPPID customers.

(4) Tri-Basin NRD and the Department will continue to cooperatively operate several stream gages within the district (see map #2 in appendix #?). Average streamflow trends measured by these gages will be monitored by the Tri-Basin NRD and the Department.

(b) Reporting

(1) An annual review of the progress being made toward achieving the goals and objectives of the first ten (10) year increment will include an annual reporting by the Department and Tri-Basin NRD of the information being tracked as described above. This information will be shared between Tri-Basin NRD and the Department, presented at the basin-wide annual meeting, and used for PRRIP compliance.

(2) Reports from Tri-Basin NRD and the Department should include information on the location, estimated amount, and timing of depletions caused by each permitted new or expanded water use, as well as the associated offset and the location, estimated amount and timing of the offset's accretions to the river.

(3) These reports should be made available at least four (4) weeks prior to each basin-wide annual meeting. The format of the reports will be standardized as agreed to by the Department and the Platte Basin NRDs (Central Platte NRD, Tri-Basin NRD, Twin Platte NRD, North Platte NRD and South Platte NRD).

(4) The reported information will be utilized as appropriate in the evaluation process as described in part two below. All of this data will be combined into computer models that simulate the condition of and interaction between groundwater and surface water systems. These models will be used to forecast future depletions. These forecasts will be used as a basis to determine offset needs and limits on water consumption. Model forecasts will be compared after-the-fact to real-world groundwater and surface water system measurements. These comparisons will enable improved model calibration and water use forecasting.

2. Part Two: Measuring the Success of this IMP in Meeting the Goals and Objectives of this IMP

(a) Measuring the success of the IMP in addressing streamflow depletions due to new uses initiated after July 1, 1997 (Goals I.A.1(a) and I.A.2(a) in Chapter 6 of the IMP).

(1) In order to meet the requirements of Neb. Rev. Stat. § 46-715(d)(ii), data contained in annual reports submitted by Tri-Basin NRD and the Department will be reviewed and analyzed to assess the progress being made toward achieving the goals

and objectives of the Overappropriated Area and Nebraska New Depletion Plan portion of this IMP for the first ten (10) year increment. The analysis will include a forecasting of the balance of the depletions and offsets from the current year through the year 2048.

(2) In addition to the annual review, a more robust review of the progress being made toward achieving the goals and objectives of the Overappropriated Area and Nebraska New Depletion Plan portion of this IMP for the first ten (10) year increment will be carried out periodically. The process for this review is described in the Monitoring and Studies Section and described below.

(i) The groundwater models utilized for this process will be calibrated to estimated stream baseflows and measured groundwater levels in the area with sufficient temporal variability to enable a reasonably accurate estimate of the impacts of post-July 1, 1997, water uses on a monthly basis. The groundwater models will be updated to simulate management practices that have been implemented to date. The evaluation period of this model will be 1998 through 2048.

(ii) The following two groundwater model runs will be conducted to measure the success toward reaching the objectives of Goal I.A.1(a) and Goal I.A.2(a) of Chapter 6 of this IMP:

(ii.a.) **The 1997 Development Level Run** - A model run that simulates stream baseflow resulting from cropland acres irrigated in 1997 and the crop mix associated with that land. It will assume that the full crop irrigation requirement for the 1997 crop mix was met. This model run will serve as the baseline to which the evaluation run will be compared. The run will be conducted using data through the current date and will include an update from the current date through the year 2048.

(ii.b.) **The Evaluation Run** - A model run that simulates stream baseflow resulting from annual changes in the number of irrigated acres throughout the evaluation period in comparison to irrigated acres in 1997. The model, when appropriate, will utilize available flow meter data or, in the absence of flow meter data, assume the full crop irrigation requirement. The run will be conducted using data through the current date and will include an update from the current date through the year 2048.

(ii.c.) **Difference between the Evaluation Run and the 1997 Run** - The simulated baseflow output from each model run will be compared to determine the difference in streamflow impacts between 1997 and post-1997 irrigated land.

(ii.d.) **Surface Water Accretions and Other Uses not Covered by the Model** - If surface water acres are retired to offset streamflow depletions due

to new uses initiated after July 1, 1997, accretions resulting from those retirements will be determined using agreed-upon methods.

(ii.e.) **Evaluation Results** - For the objectives of the first ten (10) year increment to be considered achieved, the results of combining the difference between the evaluation run and the 1997 development level run with the addition of surface water accretions and other uses not covered by the model will be less than or equal to zero. See the following equation:

$$\text{(Depletions from the Evaluation Run) - (Depletions from the 1997 Development Level Run) + (Surface Water Accretions and Other Uses not Covered by the Model) = Net Depletions}$$

(b) Measure the success of reaching a fully appropriated condition

(1) Because a fully appropriated condition is not currently determined, the Department and the Tri-Basin NRD will work on defining the process that will measure the success of reaching the fully appropriated condition once that condition has been determined.

(c) Measure the success of maintaining a fully appropriated condition

(1) Current Fully Appropriated Area - Monitor and analyze uses in the fully appropriated area to determine the change in stream depletions due to such uses.

(2) Current Overappropriated Area - Because a fully appropriated condition is not currently defined, the Department and the Tri-Basin NRD will work on defining the process that will measure the success of maintaining a fully appropriated condition once that condition has been determined.

(d) In performing these analyses, the Department and the Tri-Basin NRD will use the best data and science that is readily available. The Department and the Tri-Basin NRD will work with other agencies and/or interested parties, if necessary, to identify data gaps in their analyses and determine whether studies should be undertaken to address these gaps.

3. Part 3: Evaluating the Need for a Subsequent Increment

(a) The Department and the Tri-Basin NRD will carry out the studies and the technical analysis as specified in Neb. Rev. Stat. § 46-715(4)(d)(iii) to determine whether or not a subsequent ten (10) year increment is necessary. This will include a process to test the validity of the conclusions and information upon which this IMP is based, as required by § 46-715(2)(e).

(b) Determining the difference between the current and fully appropriated levels of development.

(1) Within the first ten (10) year increment, the Department and the Tri-Basin NRD will continue to refine the estimation methodology used to calculate the difference between the current and fully appropriated levels of development in accordance with §46-715(4)(c). Fully appropriated levels of development will be determined through the following process:

- (i) Determine the changes in recharge from surface water diversions and the impacts of those changes on streamflow using readily available data.
- (ii) Determine the changes in groundwater irrigation, municipal, industrial, domestic, livestock and other uses and the streamflow depletions caused by those changes using readily available data.
- (iii) Determine the effects of conservation measures on streamflows.
- (iv) Determine the timing and location of the net changes in streamflow.
- (v) Determine when streamflow changes impact existing users, taking into account the effects of cyclical supply (e.g. drought).
- (vi) If significant changes in either the timing or location of streamflow have impacted existing users, Tri-Basin NRD and the Department will work collaboratively with affected parties to determine subsequent ten (10) year increment goals. These goals will include consideration of the socioeconomic benefits derived from the various uses impacted by such changes in streamflow.
- (vii) The Department and Tri-Basin NRD will review other data and/or methodologies relevant or significant to the process.

(c) The process described above in section I.A.3.b of this Chapter will focus on uses initiated prior to July 1, 1997, and their impacts on hydrologically connected streamflows. All uses initiated subsequent to July 1, 1997, will be evaluated utilizing the process described in the section I.A.2 of this Chapter.

(d) In performing these analyses, the Department and the Tri-Basin NRD will use the best data and science that is readily available. The Department and the Tri-Basin NRD will work with other agencies and/or interested parties, if necessary, to identify data gaps in their analyses and determine whether studies should be undertaken to address these gaps.

### III. STUDIES

A. The Department and the Tri-Basin NRD will jointly pursue and evaluate studies contingent upon budget and staff resources to evaluate their effectiveness in measuring the success toward and increasing the potential for achieving the goals and objectives of this IMP.

B. The following topics for potential studies have been identified by the Department and Tri-Basin NRD: 1) potential for reducing consumptive water use and evaluation of streamflow depletion impacts of various crop rotations; 2) potential for reducing consumptive water use and evaluation of streamflow depletion impacts of various methods of riparian vegetation management; 3) potential for reducing irrigation scheduling; 4) conducting an update of previous surveys of the type and location of irrigation systems throughout the district; 5) potential for reducing consumptive water use and evaluation of streamflow depletion impacts of various tillage practices; 6) potential for reducing consumptive water use and evaluation of streamflow depletion impacts of other agricultural and land management best management practices; and 7) potential for reducing consumptive water use and evaluation of streamflow depletion impacts of various means of enhancing conjunctive water resources management.

C. In regards to item III.B.2) listed above, the Tri-Basin NRD intends to work with other agencies and private landowners to reduce the density and coverage of infestations of noxious weeds and invasive plants in riparian areas within the district. The Tri-Basin NRD will also work with landowners, agencies, and others to implement sustainable, long-term riparian land management plans that have as their goal returning these lands to their native condition. Progress made toward meeting this objective will be measured in terms of acres of riparian land treated using herbicides and other methods to reduce invasive plant infestations and upon which sustainable, long-term management plans are being implemented that will improve the condition of riparian ecosystems. The Department and the Tri-Basin NRD will work to determine whether or not any water saved as a result of these activities can provide a water use credit to offset depletions to streamflows resulting from groundwater pumping.

## **CHAPTER 8: REVIEW OF AND MODIFICATIONS TO THE IMP**

### **I. FULLY APPROPRIATED PORTION OF THE IMP**

A. The Tri-Basin NRD and the Department will jointly determine whether amendments need to be made to this IMP as necessary.

B. Modifications to this IMP will require agreement between Tri-Basin NRD and the Department regarding proposed changes. After the proposed changes have been agreed to, a joint hearing on whether to adopt those changes will be required. Following the joint hearing, the Tri-Basin NRD and the Department will, by order, adopt the amendments to this IMP.

C. If the published results of COHYST or other model(s) or tool(s) are developed as part of the monitoring effort and indicate annual depletion values different than those in table 1, the Department and Tri-Basin NRD shall meet and discuss how this IMP may need to be revised.

### **II. OVERAPPROPRIATED AREA AND NEBRASKA NEW DEPLETION PLAN PORTION OF THE IMP**

A. First Ten (10) Year Increment

1. The Tri-Basin NRD and the Department may amend the Overappropriated Area and Nebraska New Depletion Plan portion of this IMP after an annual review of progress being made toward achieving the goals and objectives of the Overappropriated Area and Nebraska New Depletion Plan portion of this IMP or at more frequent intervals as more data and information become available.

(a) If the published results of COHYST or other models or tools are developed as part of the monitoring effort and indicate annual depletion values different than those in table 2, the Department and the Tri-Basin NRD will meet and discuss how this IMP should be revised.

2. If the Basin-Wide IMP is revised and results in the need for this IMP to be revised to be consistent with the Basin-Wide IMP, this IMP will be revised accordingly, in a manner agreed to by Tri-Basin NRD and the Department.

### 3. Basin-Wide IMP Disputes

(a) If a dispute is presented at the annual meeting as described in the Basin-Wide IMP, the Platte Basin NRDs and the Department will make a determination of whether or not the dispute has hydrologic impact. If it is determined that the dispute does have hydrologic impact, then the Platte Basin NRDs and the Department will determine whether the dispute pertains to all of the Platte Basin NRDs or just individual NRD(s).

(b) If the dispute pertains to all of the Platte Basin NRDs, an investigation will be conducted by the Platte Basin NRDs and the Department to determine what management actions will address the dispute(s) either in the Basin-Wide IMP and/or the IMPs. If the management action pertains to this IMP it will be revised accordingly.

(c) If the dispute is not a basin-wide issue, but pertains to the Tri-Basin NRD, the Department, the Tri-Basin NRD and any other affected Platte River Basin NRD(s), working with the affected water user(s), shall develop management solutions as appropriate to address the issue(s).

4. Modifications to the Overappropriated Area and Nebraska New Depletion Plan portion of this IMP will require an agreement by both the Tri-Basin NRD and the Department as to the proposed changes. After the proposed changes have been agreed to, a joint hearing on those changes will be required. The IMP will be provided to all of the other Platte Basin NRDs for comment before the revisions are approved by the Tri-Basin NRD and the Department.

## B. Second Increment

1. A technical analysis as described in Neb. Rev. Stat. § 46-715(4)(d)(iii) will be completed after this IMP has been in effect for six (6) years. This technical analysis will determine whether the measures adopted in this IMP are sufficient to offset depletions due to post-July 1, 1997, water uses.

2. If it is determined from this technical analysis that a subsequent increment is needed to meet the goals and objectives of this IMP, then pursuant to Neb. Rev. Stat. § 46-715(4)(d) (iv), the goals for the subsequent increment will be developed using the consultative and collaborative process described in Neb. Rev. Stat. § 46-715(4)(b). The subsequent increment shall be completed, adopted, and take effect not more than ten (10) years after adoption of this IMP.

## CHAPTER 9: INFORMATION CONSIDERED

Department Title 454 “Rules for Practice and Procedures”, Chapter 13 “Integrated Management Plans” specifies that certain information be considered during development of joint IMPs. Title 454, Chapter 13 reads as follows:

001 TYPES DATA CONSIDERED. The following types of scientific data and other information will be considered in the adoption of a plan for the integrated management of hydrologically connected surface and groundwater pursuant to Neb. Rev. Stat. § 46-717.

- 001.01 Historical data on streamflows within the proposed integrated management plan area.
- 001.02 Past, present and potential future surface water use within the proposed integrated management plan area.
- 001.03 Groundwater supplies within the proposed integrated management plan area including hydraulic conductivity, saturated thickness, and other groundwater reservoir information, and/or groundwater models if available.
- 001.04 Local recharge characteristics and rates from any sources, if available.
- 001.05 Precipitation and the variations including trends within the proposed integrated management plan area.
- 001.06 Crop water needs within the proposed integrated management plan area.
- 001.07 Water data collection programs.
- 001.08 Past, present, and potential groundwater uses within the proposed integrated management plan area.
- 001.09 Proposed water conservation and supply augmentation programs within the proposed integrated management plan area.
- 001.10 The availability of supplemental water supplies, including the opportunity for groundwater recharge within the proposed integrated management plan area.
- 001.11 Surface and groundwater concerns within the proposed integrated management plan area.

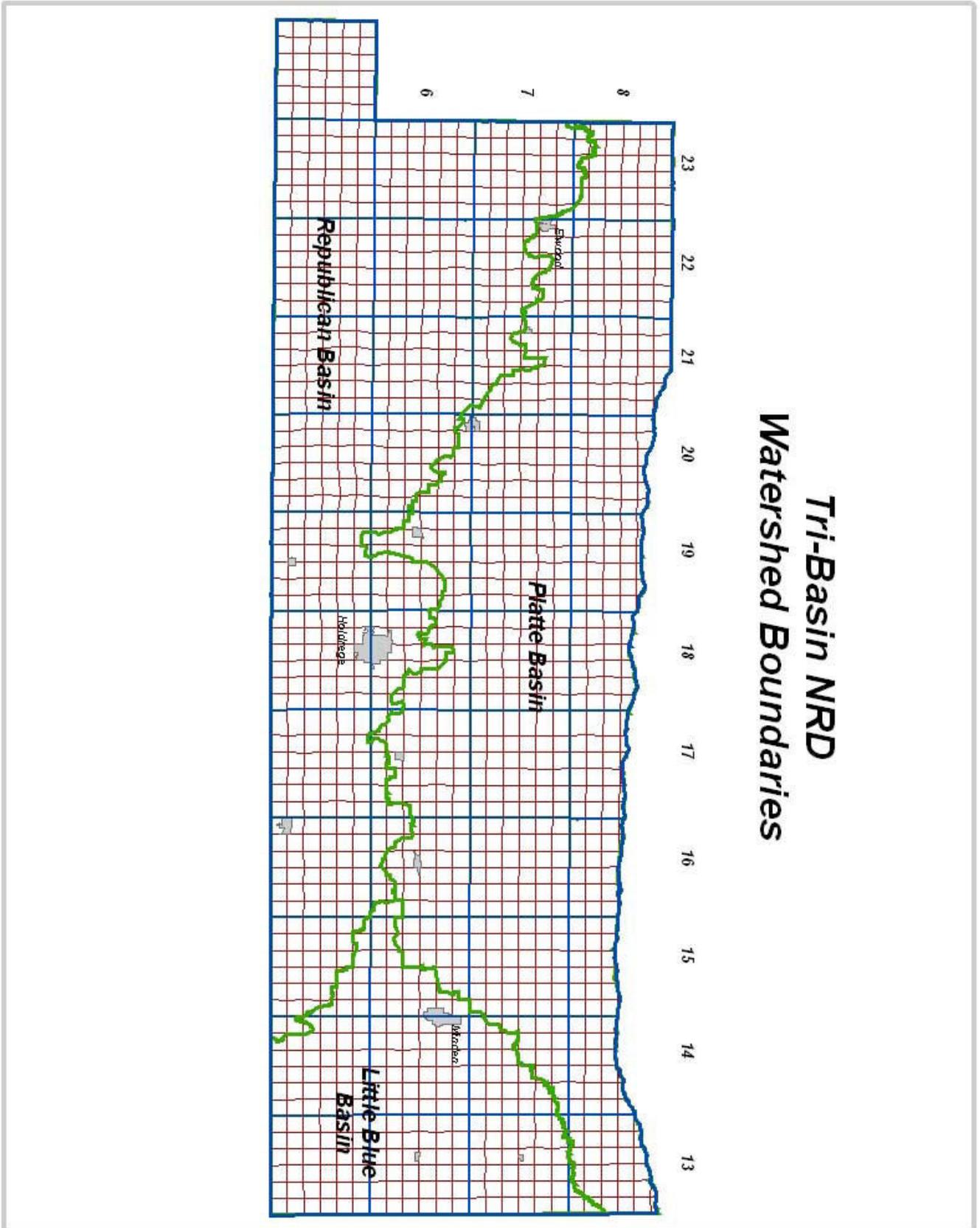
- 001.12 Opportunities to integrate and coordinate the use of water from different sources of supply within the proposed integrated management plan area.
- 001.13 Existing and potential sub irrigation uses within the proposed integrated management plan area.
- 001.14 The relative economic value of different uses of surface and groundwater proposed or existing within the proposed integrated management plan area.
- 001.15 Rules and regulations for groundwater management developed by the natural resources district(s) affected by the integrated management plan.

Additional information used in the preparation and to be used in the implementation of this integrated management plan can be found in the simulation runs of the COHYST model, the Order Designating Overappropriated River Basins, Subbasins, or Reaches, and Describing Hydrologically Connected Geographic Area in the Matter of the Platte River Basin upstream of the Kearney Canal Diversion, the North Platte River Basin, and the South Platte River Basin, Chapters 2 and 3 of the 1996 Tri-Basin NRD Ground Water Management Plan and additional data and information on file with Tri-Basin NRD and the Department.

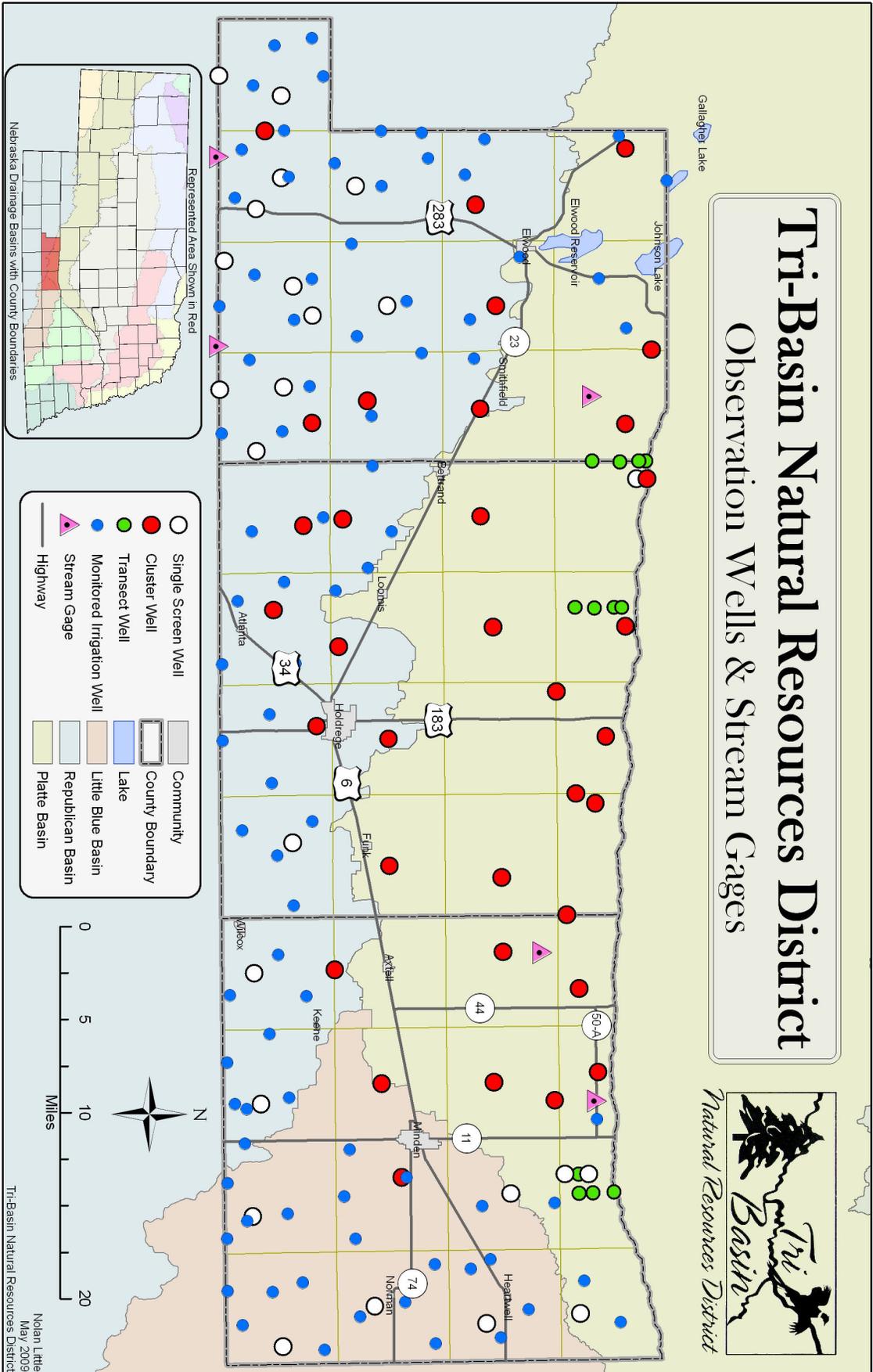
# **Appendix A**

## **Maps**

Map A1

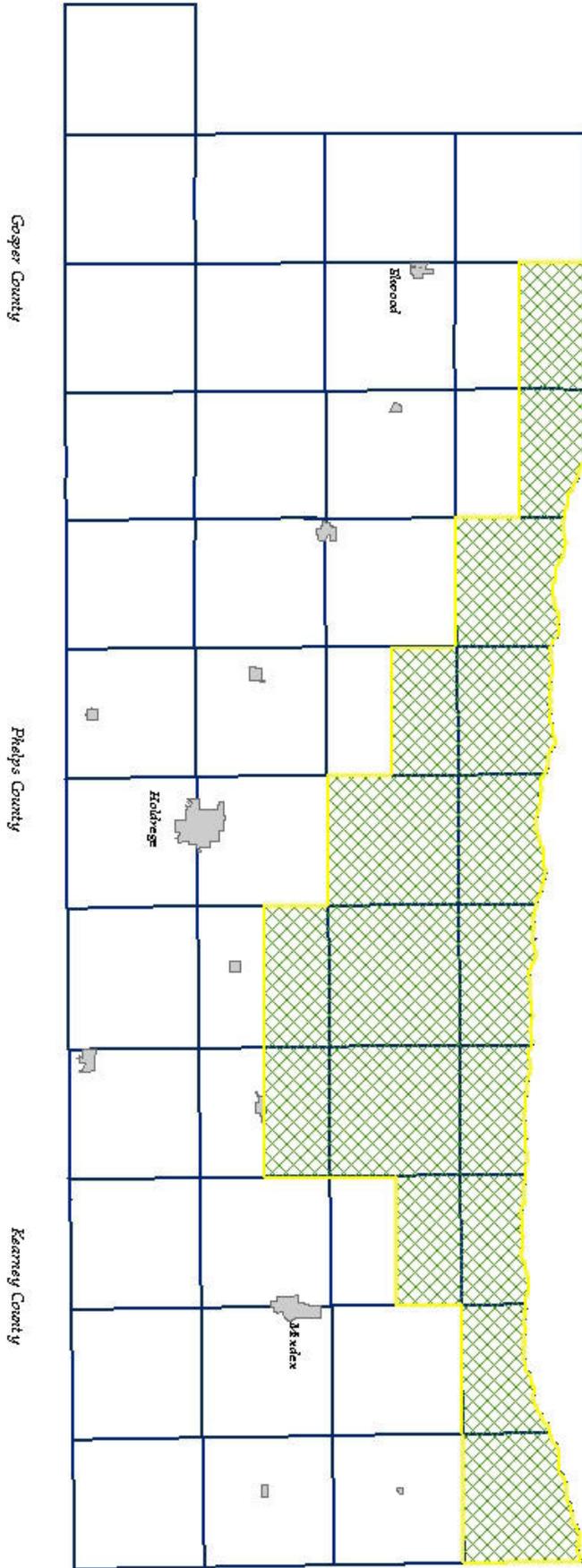


Map A2



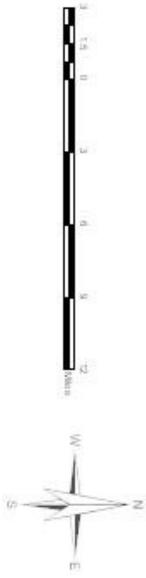
# Map A3

## Tri-Basin Natural Resources District High Groundwater Management Area



**Key to Features**

- Townships
- City / Village
- High Groundwater Area



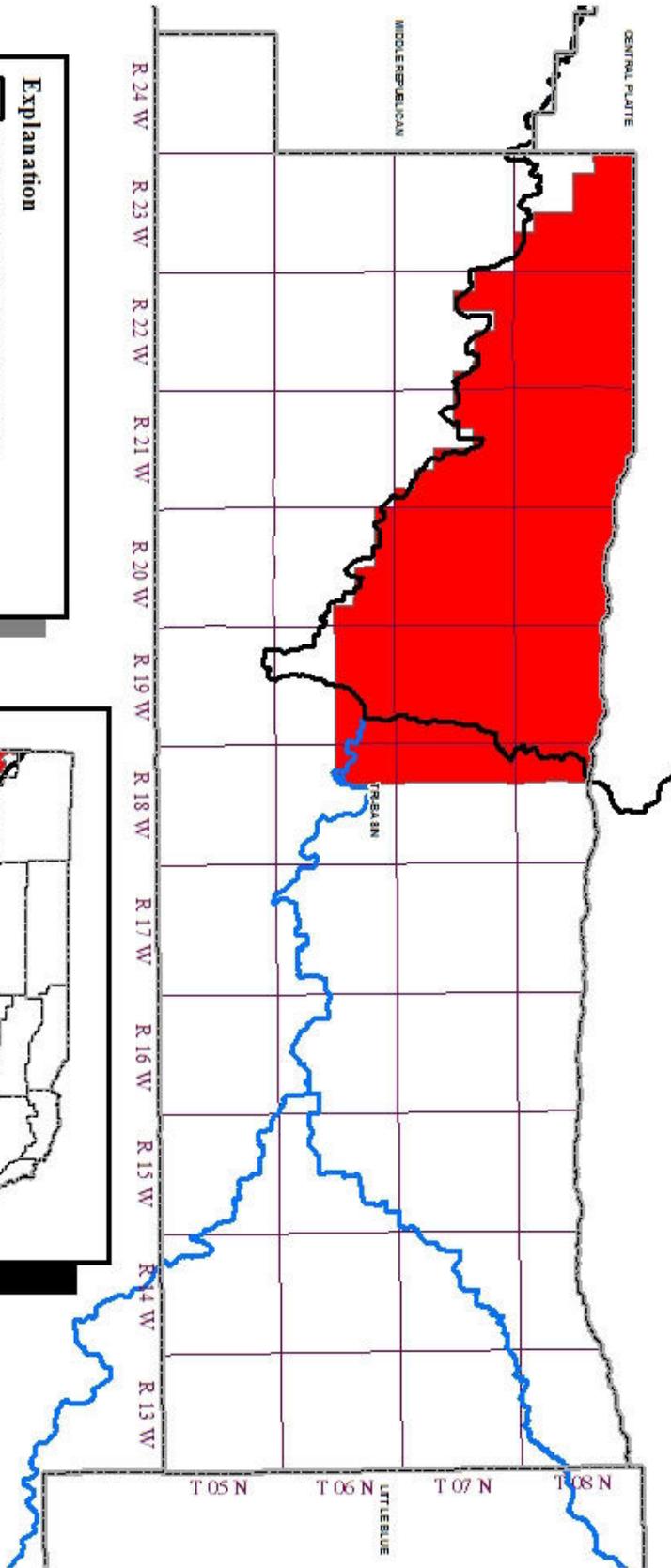
*Draft*

Map by: Roger David  
Tri-Basin Natural Resources District  
Produced March, 2007



NEBRASKA  
Department of Natural Resources  
Planning Section

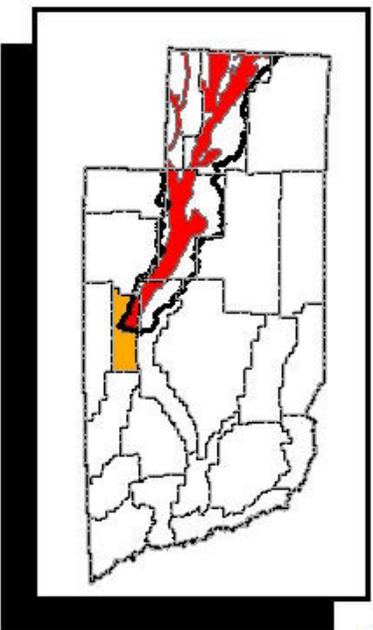
### Map 4: Tri-Basin NRD Overappropriated Surface Water and the Geographic Area Determined to Have Surface Water Hydrologically Connected to Ground Water for the Purpose of Overappropriated Designation.



**Explanation**

- Overappropriated Surface Water Area
- Hydrologically Connected Surface and Ground Water
- Surface Water Basins
- NRDs
- Tri-Basin Township Lines

This map represents the areas described in the Order issued by the Department of Natural Resources on September 15, 2004 designating the surface water resources within the Platte River Basin above the Kearney Canal Diversion, the North Platte River Basin including Panhandle Creek and the South Platte River Basin including Lodgepole Creek as overappropriated. Also represented is the geographic area within which it has been determined that surface water is hydrologically connected to ground water for the purpose of designating the surface water resources within this same area. Additional information regarding the designation can be found in the Order issued by the Department of Natural Resources on September 15, 2004.

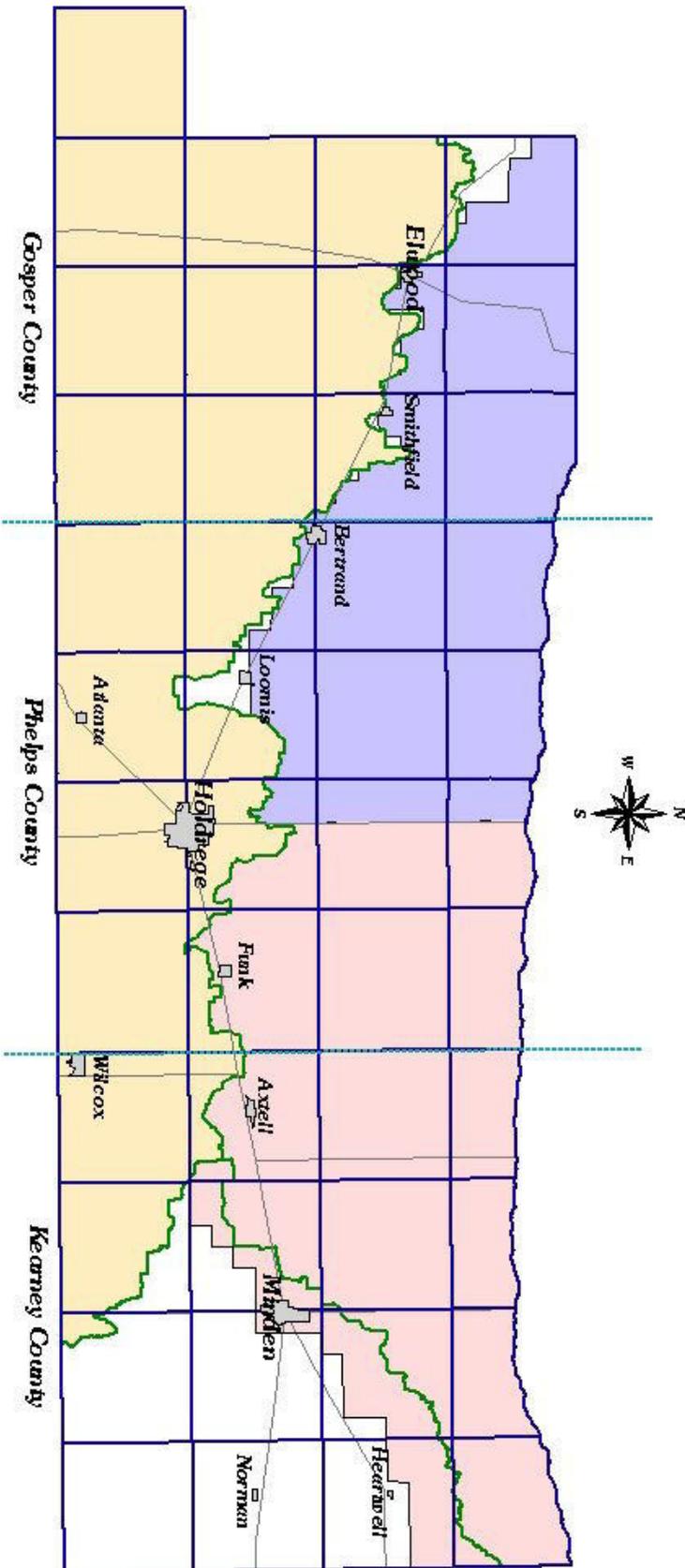


Map Produced by Kevin J. Schwanman, June 2, 2009

Map A5



# Tri-Basin Natural Resources District Integrated Water Management Area



**Key to Features**

- Tri-Basin
- County Lines
- Highways
- Watershed Boundaries
- Cities
- Fully Appropriated
- Preliminary Fully Appropriated
- Over Appropriated



Map by Roger David  
Tri-Basin Natural Resources District  
02/2006