

**INTEGRATED MANAGEMENT PLAN
For those portions of Tri-Basin NRD located within
the Republican River Basin**

Jointly Developed by
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 May 8, 2012, and by the Nebraska Department of Natural Resources (NDNR) on June 1, 2012. This IMP became effective on July 1, 2012.

CHAPTER 2: INTRODUCTION

I. Tri-Basin NRD encompasses portions of the Republican, Platte and Little Blue River Basins (see map #1). 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 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.

III. Tri-Basin NRD and NDNR IMP Vision Statement

The vision (overall goal) for Tri-Basin NRD and the NDNR is to work cooperatively with district residents and others to promote good stewardship of land and water resources in a manner that strives to balance uses and supplies and protect existing users of groundwater and surface water for both the near term and long term.

CHAPTER 3: AUTHORITY AND BACKGROUND

I. Authority

The Republican Basin integrated management plan was jointly prepared by the Board of Directors of Tri-Basin Natural Resources District (Tri-Basin NRD) and the Nebraska Department of Natural Resources (NDNR) in accordance with Sections 46-715 through 46-720, R.S.Supp., 2004.

II. Background

The Republican River originates in eastern Colorado and traces a course through southern Nebraska on the way to its confluence with the Kansas River. The Republican River does not pass through Tri-Basin NRD, but approximately 40% of the district lies within the Republican watershed (see Map #1 in Appendix A). Several tributaries of the Republican originate in or pass through the district. Base flows in some of these tributaries (Muddy Creek, Elk Creek, Turkey Creek and Spring Creek) have increased through time, likely due to a rise in the groundwater table. This rise resulted primarily from delivery and irrigation with surface water from the Platte River by Central Nebraska Public Power and Irrigation District (CNPPID) and its customers in the Platte Basin in Gosper, Phelps and Kearney Counties. The increase in baseflows in these tributaries has been so significant that it has created annual credits in excess of 10,000 acre-feet annually in Republican Basin Compact Accounting for the State of Nebraska.

In 1943 the States of Colorado, Kansas and Nebraska, with the approval of Congress, entered into the Republican River Compact (hereinafter the Compact). The Compact provides for the equitable apportionment of the "virgin water supply" of the Republican River Basin. Following several years of dispute about Nebraska's consumptive use of water within the basin, Kansas filed an original action in the United States Supreme Court against the states of Nebraska and Colorado in 1998. After several rulings by the Court and its Special Master and several months of negotiation, all three states entered into a comprehensive Settlement Agreement. That Agreement was approved by the Court on May 19, 2003 and the Special Master's final report approving the Joint Groundwater Model developed by all three states for use in computing stream flow depletions resulting from groundwater use was submitted to the Court on September 17, 2003.

In July, 1996, the Tri-Basin NRD and the other three Natural Resources Districts in the Republican River Basin, initiated a joint action planning process with the Department of Water Resources (DWR), a predecessor agency of NDNR, pursuant to then Section 46-656.28 of Nebraska statutes. In accordance with that process, DWR made a preliminary determination in 1996 that "there was reason to believe that the use of hydrologically connected ground water and surface water resources is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over the Republican River Compact." When the studies required by Section 46-656.28 had been completed, NDNR issued its conclusions on May 20, 2003 in the form of a

report entitled: "Republican River Basin, Report of Preliminary Findings." Those conclusions included the following determination:

"Pursuant to Section 46-656.28 (this section was repealed by LB 962 in 2004) and the preliminary findings in this report, the NDNR determined that present and future Compact disputes arising out of the use of hydrologically connected ground water and surface water resources in the Republican River Basin can be eliminated or reduced through the adoption of a joint action plan."

Following four hearings on that report, NDNR made final the preliminary conclusions in the report and the four basin Natural Resources Districts were so informed. The Tri-Basin NRD and the other three Districts each then adopted orders to proceed with developing a joint action plan for integrated management of hydrologically connected surface water and ground water resources in the basin; preparation of a joint action plan for the Tri-Basin began soon thereafter. The objective of that joint action plan for the Republican River Basin portion of Tri-Basin is as follows:

"The key objective of the Plan is to maintain, at sufficient levels to offset depletions to the Republican River caused by ground water pumping within the Tri Basin NRD, the Republican River Compact credit (the "imported water credit" to the Republican Mainstem Basin that originates within the Tri-Basin NRD) that Nebraska receives because of discharges from the "ground water mound" to the surface water supplies in the Republican River Basin. To achieve this objective, the Tri Basin NRD will utilize the ground water management authorities available to it to maintain the water levels in its portion of that "ground water mound" at or above the average water levels for the years 1981 through 1985."

This objective created the basis for creation of a joint action plan for the Republican River portion of the Tri-Basin NRD, as described in Neb. Rev. Stat. Sec. 46-720 (4) (a). Tri-Basin NRD and NDNR agreed on the objective for a joint action plan on July 13, 2004.

The Tri-Basin NRD and NDNR are modifying that original joint action plan and incorporating new goals and objectives into this integrated management plan pursuant to Neb. Rev. Stat. Sec. 46-720 (4) (a).

CHAPTER 4: MAP AND MANAGEMENT AREA BOUNDARIES

I. Maps depicting the district, its management areas, depletive effects of groundwater pumping on Republican Basin streamflows and river basins are located in Appendix A. The Tri-Basin NRD Board of Directors declared the entire district as an Integrated Water Management Area on July 16, 2004. The area subject to this IMP is the Republican Basin within Tri-Basin NRD (Map 1).

CHAPTER 5: REPUBLICAN BASIN IMP GOALS

I. Goals

Pursuant to Section 46-715, R.S. Supp., 2004, the goals and objectives of an integrated management plan 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 Natural Resources District are assured for both the short term and long term. The following goals and objectives are adopted by the Tri-Basin NRD and the NDNR to achieve that purpose. The goals of the Tri-Basin NRD Republican Basin Integrated Management Plan are:

A. Tri-Basin NRD will assist the State of Nebraska, in cooperation with other Natural Resources Districts, in maintaining compliance with the Republican River Compact as adopted in 1943 and as implemented in accordance with the settlement approved by the United States Supreme Court on May 19, 2003 and other lawful interstate compacts, decrees and agreements relevant to management of the integrated water resources of the district. Furthermore, with respect to interstate compacts, agreements and court decrees, Tri-Basin NRD and NDNR agree:

1. That ground water and surface water users within Tri-Basin NRD will only be expected to reduce their water use or make up for depletions to streamflow if streamflow depletions are determined to be in excess of the imported water supply.
2. The Tri-Basin NRD and NDNR agree that any reductions in to streamflow depletions will not be required to exceed 2,000 acre-feet per year for the first ten years of this IMP.
3. That neither Tri-Basin NRD nor NDNR will require this integrated management plan to be amended solely for the purpose of changing the responsibility of water users within the Tri-Basin NRD due to the failure of other NRDs to implement or enforce their integrated management plans as needed to meet their share of the responsibility to keep Nebraska in compliance with these interstate agreements, and
4. That Tri-Basin NRD and NDNR will strive to ensure that any economic impacts resulting from Tri-Basin NRD and NDNR's management of Republican Basin virgin water supplies will be distributed in an equitable manner, minimizing to the extent possible, adverse economic, social and environmental consequences.

B. Tri-Basin NRD and NDNR will continue to support the development and maintenance of digital 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. 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 plan.

C. Tri-Basin and DNR will, with limited exceptions allowed by law, limit groundwater pumping within the Republican Basin portion of the NRD to 2005 levels.

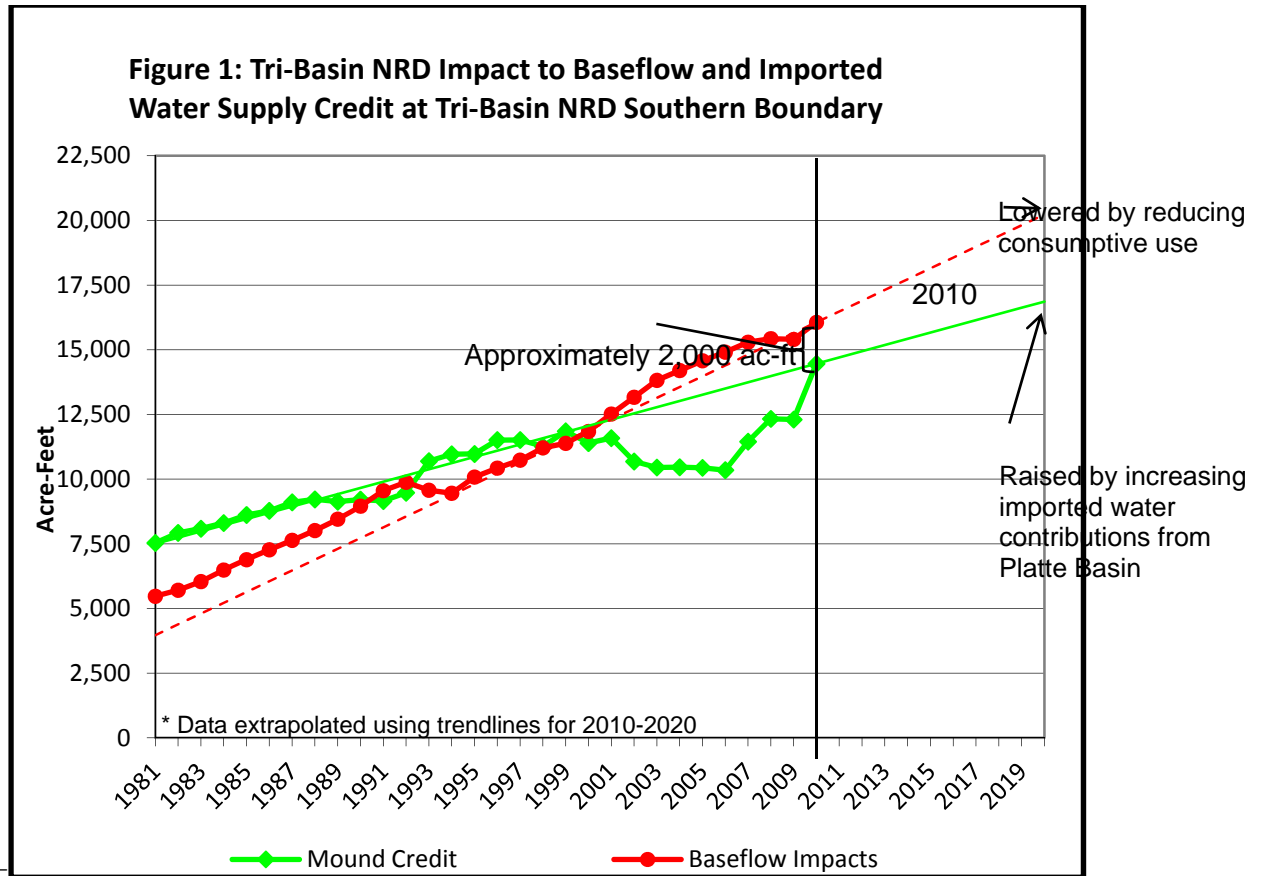
CHAPTER 6: REPUBLICAN BASIN IMP OBJECTIVES

I. IMP Objectives

Tri-Basin NRD and NDNR agree to accomplish the following objectives for the Republican River Basin portion of the district in order to achieve the goals of this joint IMP.

Goal A. Objectives

1. Revise existing NRD integrated water management rules and regulations, to the extent necessary, to insure that the NRD will incrementally achieve and sustain a hydrologically "balanced" condition so that, in combination with imported water contributions from the Platte basin, streamflow augmentation and other management actions, Tri-Basin NRD water users will not cause a net depletion to streamflow. Figure 1 shows Tri-Basin NRD's impact to baseflow in the Republican River Basin and the imported water mound credit. Under a hydrologically balanced condition in the context of this plan, baseflow impacts and the mound credit will be equal.



Data Source: Republican River Compact Administration Groundwater Model utilizing analysis points at the southern boundary of the Tri-Basin NRD

2. Develop and implement plans, in collaboration with CNPPID, its customers and other affected water users, that continue and, to the extent possible, increase groundwater recharge and stream baseflow enhancement from Platte Basin surface water supplies in amounts sufficient to sustain existing groundwater uses and to maintain imported water contributions to the Republican River Basin.
3. Tri-Basin NRD will manage consumptive groundwater use to the greatest extent legally and physically practical in order to maintain groundwater levels at or above 1981-85 average levels.
4. Utilize methods outlined in Chapter 8 of this plan to evaluate streamflow depletions and mound accretions at the southern boundary of the Tri-Basin NRD.

Goal B Objectives

1. Develop and maintain the necessary analytical tools and other programs and projects needed to implement this IMP.

2. Ensure that data collected as a result of monitoring activities is readily available to both Tri-Basin NRD and NDNR.

Goal C Objectives

1. Ensure that Republican streamflows needed for existing surface water appropriations and ground water uses will not be depleted by water uses developed after September 15, 2004. This objective will be accomplished by offsetting depletions caused by new water uses via water conservation incentives, stream baseflow enhancement and other depletion offset projects, mandated reductions in water uses, or some combination of these three methods.
2. Tri-Basin NRD and NDNR will 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 Republican River Basin within Tri-Basin NRD. New consumptive uses of groundwater are those non *de minimis* uses which will result in an additional depletion to streamflows relied in the Republican River Basin.
3. Tri-Basin NRD will certify all land irrigated with groundwater and track transfers and changes in use. The NDNR will also continue to track surface water diversions, surface water transfers and those groundwater transfers that are within its responsibility.

CHAPTER 7: 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(4).

I. Non-Regulatory Action Items

A. Information and Education Programs

1. Tri-Basin NRD and NDNR will provide educational materials to the public and carry out educational activities that will inform the public about the following issues, among others: 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.

2. These educational materials and activities will include public meetings held jointly as needed, pamphlets, and website information.

B. Incentive Programs

1. Tri-Basin NRD and DNR, alone or in cooperation with other parties, intend to establish and implement financial, incentive, and qualified projects as described in *Neb. Rev. Stat. §§ 2-3226.04* to reduce beneficial consumptive use of water within the Tri-Basin NRD. These projects include, but are not limited to (1) acquisition by purchase or lease of surface water or ground water rights, including storage water rights with respect to a river or any of its tributaries, (2) acquisition by purchase or lease or the administration and management, pursuant to mutual agreement, of canals and other works, including reservoirs, constructed for irrigation from a river or any of its tributaries, (3) vegetation management, including, but not limited to, the removal of invasive species in or near a river or any of its tributaries, and (4) the augmentation of river flows.

2. 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 benefits for which the incentive program is established.

3. Tri-Basin NRD and NDNR 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 NDNR 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.

C. Water Banking

1. A water banking process may be developed to enable the Tri-Basin NRD to more readily achieve the objectives of this IMP, to better protect groundwater supplies. It would also give irrigators another tool to improve their irrigation efficiency. Purposes of the water bank would be: to offset existing consumptive water uses, help Tri-Basin NRD track temporary and permanent reductions of irrigated land and to quantify any water use credits that result from these reductions, 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. If Tri-Basin NRD purchases or otherwise acquires certified

groundwater irrigated acres or other groundwater uses or surface water appropriations, the NRD could hold the transferred water uses in its water bank for purposes of:

- (a) offsetting new or expanded consumptive uses;
- (b) saving to meet statutory requirements or interstate agreement obligations;
- (c) saving to meet future incremental targets toward achieving a hydrologically balanced condition, as described in Ch. 5, I. A.;
- (d) future sales to individuals as depletion offsets for development of new consumptive uses of groundwater within the Tri-Basin NRD; or
- (e) enabling irrigators to aggregate 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.

2. 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 NDNR 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 a fifty (50) year period and will be consistent with the methods used to evaluate transfers as described in Chapter 8, section II.C.5. (c) of this IMP. Additionally, these calculations will determine the timing and location of streamflow changes resulting from transfers to the water bank, as well as any impacts to existing groundwater or surface water users.

- (a) 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 NDNR prior to such purchase. The NDNR 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 NDNR 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 NDNR for approval of such transfers.

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

(c) All deposits, withdrawals and other activities (purchases, sales, leases, transfers and assignments) related to the water bank will be reported to NDNR annually

(d) 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 NDNR rules and regulations.

D. Riparian vegetation management

Tri-Basin NRD and NDNR will work with available resources to identify occurrences of invasive riparian plants. When infestations are detected, available resources may be directed toward eradication of these plants.

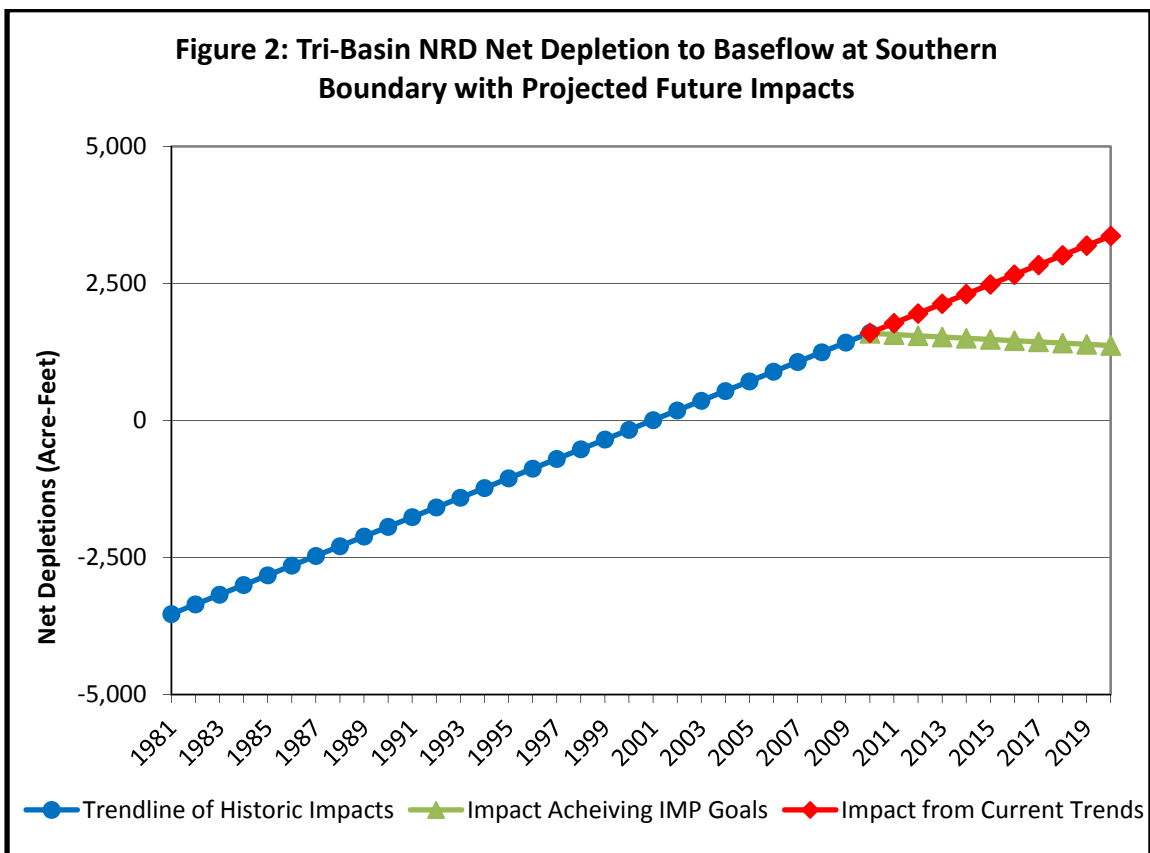
E. Encourage use of conservation best management practices

Tri-Basin NRD and NDNR will review available, reputable, relevant scientific studies that quantify consumptive water use reductions that result from applying water saving conservation practices and seek to determine the effect of such changes on water consumption within the Republican Basin portion of the district.

II. Groundwater Regulatory Action Items (controls)

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*. The Tri-Basin NRD will periodically review the controls being implemented to carry out the goals and objectives of this IMP. Tri-Basin NRD reserves the right to adopt additional controls identified in state statutes and may adjust or modify the rules used to carry out the listed controls if the board of directors determines that such modifications will help the district achieve the goals and objectives of this IMP. Any adjustments or modifications to the rules 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 NDNR must amend this IMP.

Goal A Objective 1 of this IMP is to establish a hydrologically “balanced” condition in which Tri-Basin NRD water users will not cause a net depletion to streamflow of the Republican basin when evaluated on a three-year rolling average basis. Anticipated progress toward this goal within the first ten years is charted in Figure 2. The graph shows the trendline of historic net depletions caused by Tri-Basin NRD through 2010 (blue circles). It also shows projected net depletions to streamflow through 2020 with (green triangles) and without (red diamonds) a 2000 acre-feet reduction in net depletions to Republican tributary streamflows. Tri-Basin NRD’s progress toward meeting this objective will be evaluated annually using the methods outlined in Chapter 8. Progress may also be forecast for milestone years five years and ten years after approval and initial implementation of this IMP. In the event that Tri-Basin NRD does not achieve sufficient reductions in depletions to match the downward trend shown in the graph, Tri-Basin NRD will take additional regulatory actions agreed upon between the Tri-Basin NRD and NDNR designed to meet Goal A Objective 1 of this IMP.



Data Source: Republican River Compact Administration Groundwater Model and utilizing analysis points at the southern boundary of the Tri-Basin NRD

If a 2000 acre-foot annual streamflow depletion reduction is not sufficient to achieve a hydrologically balanced condition after the first ten years, then a subsequent additional incremental reduction in streamflow depletions will be

identified by the Tri-Basin NRD and NDNR. Once a balanced condition is achieved, The Tri-Basin NRD will maintain such condition on a three-year rolling average basis through continuing implementation of the IMP.

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 September 15, 2004 may also be addressed prior to a subsequent increment with the intent of achieving a balanced condition.

Tri-Basin NRD and NDNR 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 Republican Basin portion of the Tri-Basin NRD and will continue to be implemented in the future: (1) moratorium on drilling new wells for new water uses, (2) certification of irrigated land and other non *de minimis* consumptive water uses and (3) regulation of transfers of groundwater and of certified irrigated land. In addition, Tri-Basin NRD will continue to require landowners in the Republican basin portion of the district to meter groundwater pumping and annually report their flowmeter readings in order to monitor and track current and future groundwater uses.

1. Moratorium

There is a moratorium on the issuance of new water well construction permits for development of new groundwater uses and on development of 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, 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.

2. 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 additional adverse impacts on existing groundwater or surface water users occur as a result of Tri-Basin NRD-authorized transfers.

3. Transfers

(a) 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 Republican River or its perennial tributaries or an impact to other 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 Republican Basin NRDs; (5) municipal transfer permits (if the applicant does not have a municipal transfer permit from NDNR); (6) industrial transfer permits (if the applicant does not have an industrial or municipal transfer permit from NDNR); and (7) transfers out of state.

(iii) Permits will be required from Tri-Basin NRD for the categories of transfers listed in 1-7 above. 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 include, but are not 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 Republican River or its perennial tributaries (see map 3 in Appendix A); (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 the Republican River Compact; (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 NDNR will agree on the methodology used to determine whether proposed transfers will affect the state's ability to comply with the Republican River Compact and ensure that Republican streamflows needed for existing surface water appropriations and ground water uses will not be depleted by water uses developed after September

15, 2004. The methodology will evaluate the effects of transfers on the Republican River and its perennial tributaries, including the timing, amount and location of the depletion and the associated offset. Actions taken by Tri-Basin NRD related to the approval of transfer permits will be documented and shared annually with NDNR.

(b) 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; (2) the transfer cannot result in an increase in consumptive use unless an offset is provided and (3) the registration must be changed to reflect the new or additional use.

(iii) Transfers of certified irrigated acres – The Tri-Basin NRD board of directors will only approve transfers of certified irrigated acres within the Republican Basin portion of the district if requesting landowners agree to meet the following requirements. (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, and (2) certified irrigated acre transfers will not result in any net increase in consumptive use. The second condition will be satisfied in the following manner: (a) if the proposed destination for the certified acres being transferred has a stream depletion factor (SDF) that is equal or less than ten percent greater than the SDF of the original certified acres location, the same number of acres can be certified at the new location. 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; (b) the parcel that the certified acres originated from will remain in dryland agricultural use, or another lower consumptive use land practice approved by Tri-Basin NRD; and (c) 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 – Landowners who wish to transfer groundwater or certified irrigated acres from outside Tri-Basin NRD into the district, or vice versa, must: (1) secure a permit from Tri-Basin NRD; (2) the transfer request must conform 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 specifying that the use being retired in one district will remain retired for the duration of the transfer.

(v) Municipal Transfer Permits – (1) Any municipal transfers issued after the effective date of this IMP 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 Department for review, to ensure that compliance with the Republican River Compact 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 NDNR 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 NDNR for review, to ensure that compliance with the Republican River Compact 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) Transfers Out of State – (1) The NDNR will consult with Tri-Basin NRD when considering applications filed to transfer groundwater out of state, pursuant to Neb. Rev. Stat. § 46-613.01. 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 NDNR; 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.

4. Metering

Tri-Basin NRD requires metering and annual reporting by all *non de minimus* groundwater users. This requirement will be maintained in accordance with Chapter 6 of the Tri-Basin NRD Groundwater Management Rules and Regulations for the duration of this IMP.

Tri-Basin NRD will adopt or revise groundwater management rules and regulations as needed to carry out the three (3) action items (a) through (c) described below.

5. Municipal Use and Accounting

(a) Tri-Basin NRD will calculate average baseline water use for each municipality and municipal wellfield within the Republican Basin portion of the district based on historical pumping data and wastewater discharge data. An appropriate interval for a historical water use baseline will be determined by Tri-Basin NRD and NDNR based on availability of data, climate records and other relevant factors.

(b) Annual groundwater pumping and wastewater discharges by each municipality will be tracked through a reporting and database system administered by Tri-Basin NRD.

(c) Annual water use will be determined by subtracting wastewater discharge volumes from groundwater pumping volumes. A three-year rolling average of annual water use will be compared to the baseline average to determine overall changes in municipal water use.

(d) Tri-Basin NRD will evaluate and address depletions to streamflow resulting from all increases in municipal water use due to: increases in governmental consumptive use, increases in population 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 NDNR, then Tri-Basin NRD must offset depletions to streamflow due to the increased water use above baseline water use, as long as total municipal water use remains lower than limits listed in the municipal and rural domestic transfer permit.

(e) The municipality will offset all increases in water use and new or expanded single commercial/industrial consumptive water uses greater than twenty-five (25) million gallons per year.

6. Non-Municipal Industrial Use and Accounting

(a) Tri-Basin NRD will calculate average baseline water use for each industry not supplied with municipal water within the Republican Basin portion of the district. The baseline average will be based on historical pumping data and wastewater discharge data. An appropriate interval for a historical water use baseline will be determined by Tri-Basin NRD and NDNR based on availability of data, climate records and other relevant factors.

(b) Annual groundwater pumping and wastewater discharges by each industry meeting the criteria in 5.(a) above will be tracked through a reporting and database system administered by Tri-Basin NRD.

(c) Annual water use will be determined by subtracting wastewater discharge volumes from groundwater pumping volumes. A three-year rolling average of annual water use will be compared to the baseline average to determine overall changes in industrial water use.

(d) Tri-Basin NRD will evaluate and address depletions to streamflow resulting from all expanded single commercial/industrial consumptive uses of less than twenty-five (25) million gallons per year. If an industry holds an industrial transfer permit granted by NDNR, then Tri-Basin NRD must offset depletions to the streamflow due to increased water use above the baseline water use, as long as total industrial water use remains lower than limits listed in the industrial transfer permit.

(e) Industries will offset all new water uses and expanded single commercial/industrial consumptive water uses greater than twenty-five (25) million gallons per year.

7. Large User Permits

Any industrial water user or 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 existing infrastructure for the purpose of expanding consumptive use of groundwater, apply to Tri-Basin NRD for permission to authorize such withdrawal and consumption of groundwater.

8. Variances

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 Republican River Compact.

III. Surface Water Regulatory Action Items (controls)

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

1. Metering of all surface water diversions at the point of diversion from the stream will continue to be required. For surface water canals that are not part of a Bureau of Reclamation project, farm turnouts also will be required to be metered. All meters shall have a totalizer and shall meet DNR standards for installation, accuracy and maintenance. All appropriators will be monitored closely to ensure that neither the rate of diversion nor the annual amount diverted exceeds that allowed by the applicable permit or by statute.
2. The DNR's moratorium on the issuance of new surface water permits was made formal by Order of the Director dated July 14, 2004, and will be continued. Exceptions may be granted to the extent permitted by statute or to allow issuance of permits for existing reservoirs that currently do not now have such permits. Such reservoirs are limited to those identified through the FSS required inventory of over fifteen (15) acre-feet capacity reservoirs.
3. All proposed transfers of surface water rights shall be subject to the criteria for such transfers as found in *Neb. Rev. Stat.* §§46-290 to 46-294.04 and related DNR rules or the criteria found in *Neb. Rev. Stat.* §§46-2,120 to 46-2,130 and related DNR rules.
4. The DNR completed the adjudication process for individual appropriators in the Republican River Basin upstream of Guide Rock in 2004. The results of that adjudication provided up-to-date records of the number and location of acres irrigated with surface water by such appropriators. Those records will be used by the DNR to monitor use of surface water and to make sure that unauthorized irrigation is not occurring. The DNR also will be proactive in initiating subsequent adjudications whenever information available to the DNR indicates the need for adjudication as outlined by state statutes.
5. During Compact Call Years, as determined through the forecast set forth in Neb. Rev. Stat. § 46-715(6), DNR will regulate and administer surface water in the basin as necessary to ensure Compact compliance.

CHAPTER 8: 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 NDNR to:

- A. increase understanding of the surface water and hydrologically connected groundwater systems;
- B. to test the validity of the conclusions and information upon which the IMP is based and
- C. to assist decision makers in properly managing the water resources within the district to ensure that the district reaches and maintains a hydrologically balanced condition.

Tri-Basin NRD and NDNR 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 this section describes the tracking and reporting of water use activities within district boundaries by Tri-Basin NRD and NDNR. Part two of this section describes analyses that will evaluate progress that has been made in: 1) offsetting streamflow depletions that result from new or expanded consumptive groundwater or surface water uses initiated after September 15, 2004; and 2) establishing a balance between consumption of virgin water supplies of the Republican Basin within the district and imported water credits originating from within the district.

Part One: Tracking and Reporting of Water Related Activities

(a) Tracking

(i) Tri-Basin NRD works closely with county assessors to track the location and number of irrigated acres in the district. Tri-Basin NRD will continue to gather data on crops planted and harvested, tillage systems and other soil and water conservation practices. 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: a) certification of groundwater uses and any changes to these certifications; b) approved transfers of groundwater and certified irrigated land, including all of the information included in the application and approval of the transfer; c) compilation of groundwater pumping (flow meter) data that is reported to or gathered by the Tri-Basin NRD; d) issuance of water well construction ; e) any other permits issued by the Tri-Basin NRD; f) any conditions associated with any permits that are issued; g) information gathered through the municipal and non-municipal industrial accounting process; h) any variances issued, including specific conditions attached to the variance and the

reasoning behind approval of the variance; i) groundwater level data collected from wells and test holes; j) conservation easements and other agreements between Tri-Basin NRD or other agencies and landowners to temporarily or permanently cease irrigation on land within the Republican Basin portion of the district; and k) 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.

(ii) Tri-Basin NRD will continue to monitor the location of headwaters of Republican River 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. Tri-Basin will also continue to measure groundwater levels in wells at numerous locations around the district as a means to evaluate the extent of the groundwater mound and imported water contributions from the Platte to the Republican Basins (see Map 4 in Appendix A).

(iii) The NDNR will be responsible for tracking the following activities within the district on an annual basis: a) any surface water permits issued; b) any dam safety permits issued; c) any groundwater transfer permits issued; d) reports of water diverted, and when available stored by surface water users and e) the associated offsets for any new permits issued.

(iv) Tri-Basin NRD and NDNR will use available resources to inventory the number of acres of cropland on which water-saving conservation practices, such as minimum tillage methods, are being applied. The parties may also attempt to quantify changes in the coverage of these practices over time, and their impact on net consumptive water use attributable to irrigation.

(v) Tri-Basin NRD and NDNR will continue to cooperatively operate several stream gages within the district. Average streamflow trends measured by these gages will be monitored by the Tri-Basin NRD and NDNR (see Map 4, Appendix A).

(b) Reporting

(i) A meeting will be held annually to review progress being made toward achieving the goals and objectives of the IMP. Additional, items discussed during this meeting may include annual tracking by NDNR and Tri-Basin NRD of data and information as described above. This information or portions of this information may also be used for assessing compliance by Nebraska with the Republican River Compact.

(ii) Reports on permitted activities from Tri-Basin NRD and 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. The reported information will be utilized as appropriate in the evaluation process as described in part two below.

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 Goal A.

(i) The NDNR will annually calculate the depletions to streamflow due to groundwater pumping within the Tri-Basin NRD, the imported water credit, and accretions to streamflow due to Tri-Basin NRD management actions. Calculation of the depletions to streamflows and imported water credit will be calculated using the RRCA groundwater model. Other actions taken by the Tri-Basin NRD to reduce depletions or augment streamflows will be evaluated using methods consistent with the RRCA accounting procedures. These calculations will be summarized into a rolling three-year average to assess the progress toward achieving a hydrologically balanced condition. If the Tri-Basin NRD and NDNR jointly determine that sufficient progress is not being made toward achieving a hydrologically balanced condition then additional controls or management actions will be implemented as described in section 7.II of this IMP.

(b) Measuring the success of the IMP in addressing Goal B.

- (i) Tri-Basin NRD and NDNR will annually meet to discuss studies and tools that could be developed to assist with enhancing integrated management activities.
- (ii) Additionally, Tri-Basin NRD and NDNR will make available data collected as part of ongoing monitoring activities. These data may be used to evaluate the accuracy of calibration of the Republican River Compact Administration (RRCA) Model. If concerns arise, they may be brought to the attention of the RRCA.

(c) Measuring the success of the IMP in addressing Goal C.

(i) Evaluate all newly permitted activities, variances, and changes in municipal and industrial uses to determine if significant changes in the amount, timing and location of streamflow have occurred.

(ii) If Department and Tri-Basin NRD agree that changes in the amount, timing or location of streamflow resulting from uses developed after September 15, 2004 have significantly negatively impacted existing users, Tri-Basin NRD and NDNR will work collaboratively with affected parties to identify, plan and implement regulatory or voluntary actions that will effectively address these impacts. Tri-Basin NRD and NDNR will consider the socioeconomic benefits derived from the various uses impacted by such changes in streamflow as they develop plans to address negative streamflow impacts.

In performing all analyses, NDNR and Tri-Basin NRD will use the best data and science that is readily available. The NDNR and Tri-Basin NRD will work with other agencies and interested parties, as appropriate, to identify gaps in their analyses and determine whether studies should be undertaken to address these gaps.

III. STUDIES

A. The NDNR and Tri-Basin NRD will jointly pursue and evaluate studies, contingent upon budget and staff resources, to evaluate their effectiveness in achieving the goals and objectives of this IMP.

B. The following topics for potential studies have been identified by 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 groundwater pumping through 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. 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. Tri-Basin NRD and NDNR will evaluate available, reputable, relevant scientific studies that quantify consumptive water use by invasive plants to determine whether and to what extent invasive plants consume water at higher rates than native vegetation. Said reviews will be conducted as needed prior to or during annual meetings between NDNR and Tri-Basin NRD. After such reviews have been conducted, NDNR and Tri-Basin NRD will determine an appropriate amount of water use credit that should be deducted from the deficit between the imported water credit originating from Tri-Basin NRD and consumptive use of Republican Basin virgin water supplies within Tri-Basin NRD when infestations of such plants are eradicated or significantly reduced in coverage.

CHAPTER 9: REVIEW OF AND MODIFICATIONS TO THE IMP

II. Amending the IMP

A. The Tri-Basin NRD and NDNR will jointly determine whether amendments need to be made to this IMP as necessary. Proposed amendments to this IMP will be discussed at the annual progress review meeting or, as necessary, at other meetings between the Tri-Basin NRD and NDNR.

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

C. Nothing in this IMP will compel Tri-Basin NRD or NDNR 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 10: INFORMATION CONSIDERED

NDNR 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 resourced 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 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 NDNR.