Memo

Date:	Monday, October 02, 2017
Project:	Lower Platte River Basin-wide Water Management Plan
To:	Lower Platte River Basin Coalition
From:	HDR Team
Subject:	Water Banking

1.0 Introduction and Background

The Lower Platte River Basin Water Management Plan Coalition (Coalition) included a separate task focused on water banking within its original Request for Proposal (RFP) for services related the development of a basin-wide management plan. The steps identified under this task were further refined in the Scope of Services developed by the Coalition and the consulting team, as outlined under Task 440 of that document. This Technical Memorandum summarizes the work conducted for the Coalition on water banking during the course of this project, along with suggestions and recommendations concerning future water banking activities among the Coalition members.

Under the original RFP, the consulting team was tasked with leading one workshop for the Coalition members to explain and discuss both conjunctive management opportunities and the water banking system. In subsequent dialogue with Coalition members, it was determined that the complexity of the issues involved, and the need for greater input from Coalition stakeholders, called for water banking discussions beyond the single workshop that was originally scheduled. Besides a “preview” water banking workshop presentation to the Technical Committee in Ord on February 10, 2015, water banking was discussed in three larger workshops in Columbus (March 10, 2015; July 20, 2015; and November 17, 2015, respectively), and three smaller “break-out” workshops for the Platte, Elkhorn, and Loup basins on October 14, 2015; October 19, 2015; and October 21, 2015, respectively.

The consulting team also conducted interviews with the staff from the Lower Loup NRD, and the Central Platte NRD, to obtain information on their existing water banking programs. Information on the water banking efforts was presented to both the Technical and Management Committees multiple times over the course of the project. With respect to deliverables, besides this technical memorandum, the consulting team also prepared a “Water Banking 101” document which served as an introductory summary of water banking issues for the Coalition, along with the three larger workshop presentations which were made available as pdf documents via the Coalition’s web site. Other materials concerning water banking were made available to participants of the

"break-out" workshops, and to attendees of the various Management and Technical Committee meetings.

2.0 Types of Water Banking Systems

From the outset of this project, it was already apparent that the term "water bank" often can mean different things to different people, and that there are large numbers of entities and structures in Nebraska, across the United States, and beyond, that could be considered a water bank. One of the first challenges with the water banking efforts was to develop a working definition of a "water bank" that would be applicable to the Coalition's efforts, using existing banks in Nebraska and other parts of the U.S. as examples. Two important sources were used in developing this definition and constructing an inventory of the attributes of various water banks: a water banking "guidebook"[1] developed by Dr. Bonnie Colby at the University of Arizona in 2010, and an "Analysis of Water Banks in the Western States"[2] prepared by the Washington Department of Ecology and WestWater Research in 2004.

The simple definition developed for this process proposes that a "water bank" usually refers to a mechanism used to facilitate the transfer of water between parties, often using market-driven transactions. In addition, water banks were differentiated as being institutional, physical, or mixtures of both. The first water banking workshop focused on these topics, and described three example water banking systems that are already in place: Lower Loup NRD's Water Bank, Central Platte NRD's Water Bank, and the Kern Water Bank in California.

The second water banking workshop focused on potential new water banks within the Coalition area: Sargent Canal Recharge, Sherman Reservoir Operations, a new Skull Creek Reservoir, and Augmentation Pumping. For each of these potential water banking systems, a set of graphics was used to indicate the changes that would result to hydrographs downstream of the project and to the basin water supply. The workshop also introduced the concept of the "Speed of Delivery" Spectrum, which used a simple graphic representation to indicate how quickly each project could deliver water to the point of demand.

The third water banking workshop built on earlier efforts, including the "break-out" workshops held in different parts of the basin, and introduced three types of inter-NRD water bank examples: a storage/retiming project delivering water from the Loup Basin to the Lower Platte Basin, a storage/retiming project using a new Skull Creek Reservoir in the Lower Platte Basin, and an example water transfer in the Elkhorn Basin involving

[1] http://ag.arizona.edu/arec/sites/cals.arizona.edu.arec/files/publications/ewsr-Banks-final-5-12-10.pdf
[2] https://fortress.wa.gov/ecy/publications/publications/0411011.pdf

the trading of allowable water usage from the Lower Elkhorn NRD to the Upper Elkhorn NRD. Each of these examples included a consideration of the components of the water banking activity, impacts to regional water supplies, and the "Speed of Delivery" in moving water to the point of demand. The workshop also included a discussion of issues related to the Loup Power District, which could play an important role in certain water banking operations where banked water would be moved around, or sent through, the District's facilities. Lastly, the water bank included a discussion of allowable development approaches, which was closely related to the concept of an overall accounting system for water banking and other management decisions, as discussed further below.

3.0 Components of Water Banking Systems

In order to better understand the similarities, and differences, between different types of water banks, the water banking systems discussed as part of the workshops were compared against a "Water Banking Creation and Operation Checklist", which was included as part of the 2010 guidebook created by Dr. Colby. A copy of this checklist is included at the end of this appendix, and includes seven major categories:

1. Management and Operation
2. Strategic Policy
3. Geographic Area and Participant Eligibility
4. Operational Policy and Market Creation
5. Encourage Irrigator Participation
6. Environmental and Third Party Impacts
7. Cost of Administration and Monitoring

An eighth category, called "Project Need", was added to the checklist to emphasize the fact that water banks can be customized to meet the particular need, or needs, identified. The application of the checklist to the example projects can be found in the respective workshop presentations (archived as pdf files), and served as the principle method for describing and categorizing the various components of each of the water banking systems.

With respect to Category #4 (Operational Policy and Market Creation), the consulting team developed a significant component of the water banking analysis through the development of a **"Basin-wide Accounting" system**. This extensive accounting methodology was built based on the mechanics of the draft fully appropriated methodologies currently under development by the Nebraska Department of Natural Resources (NeDNR) and the related INSIGHT decision support platform also under the purview of NeDNR. The basin-wide accounting system was developed to allow for consistent measurement of water supplies and water uses at different regional scales,

and can be applied to water banking, and other conjunctive management activities, to determine the changes to uses and supplies as a result of those activities. The basin-wide accounting system includes the capability to measure the interaction between ground water and surface water supplies, including impacts to streamflow from ground water pumping and groundwater recharge, and is as a result ideally suited for tracking water banking and conjunctive management activities.

4.0 Statutory and Regulatory Authorities

State statute does not directly refer to water banking in Nebraska, although the Water Policy Task Force did consider developing specific legislative language for banking under the direction of its operating agreements, which included a mandate to develop a "potential water banking system that would facilitate the temporary or permanent transfer of water uses."[3] Instead, the **relevant statutory and regulatory authorities for water banking systems in Nebraska depend on** the particular type of system involved.

[3] Water Policy Task Force Operating Agreements, as determined through authorization of the Task Force via LB 1003 on April 19, 2002.

Nebraska Revised Statute	Topic
§ 46-290 to 46-294.05	Intrabasin surface water transfers
§ 46-288 to 46-289	Interbasin surface water transfers
§ 46-691	Agricultural groundwater transfers
§ 46-691.01	Domestic groundwater transfers
§ 46-638 to 46-650	Municipal and rural domestic groundwater transfers
§ 46-675 to 46-690	Industrial groundwater transfers
§ 46-295 to 46-2106	Besides the standard permit to divert surface water, banking operations may also require a permit for intentional underground water storage
§ 46-242	In order to then use, or "recover" the intentionally stored underground water, a separate permit may be required
§ 46-739	Groundwater controls for designated management areas (includes transfers)

Figure 1: Sample of Nebraska Laws Related to Water Banking

A sample of Nebraska statute related to water banking is shown in Figure 1. These statutes include language related to intrabasin and interbasin water transfers of both groundwater and surface water, as well as permitting guidelines for structures involved in the physical storage of underground water. The statutes also include language related to groundwater controls for those NRDs that have active management areas, which can limit the methods in which transfers can occur within the boundaries of those areas.

As mentioned earlier, because there is no explicit language in State statute governing water banks, the specific authorities involved with a particular bank will depend on its particular characteristics, including whether or not the bank includes a structural component. Despite the lack of more tailored statutory and regulatory guidelines, it is also clear that as long as water banks are operated in a manner consistent with their individual physical and institutional structures, they are in fact legal systems within the State of Nebraska, and already are an important part of the overall suite of available water management tools.

5.0 Implementation Strategy for Establishing a Lower Platte Basin Water Bank

During the initial development of the scope of the project, Task 440 included a placeholder for the creation of an implementation strategy for establishing a Lower Platte Basin Water Bank. As work on the water banking efforts commenced, it quickly became apparent that Coalition managers, and other stakeholders in the basin, were strongly against a "one-size-fits-all" approach, and that the goals and priorities of individual NRDs should be respected, and emphasized, as part of the water banking efforts. The geography, hydrology, and infrastructure within each NRD are clearly different, and suggest that multiple types of water banking projects would be more effective than attempting to force a single implementation strategy on all Coalition members. In addition, areas such as the Lower Loup NRD already have water banking

operations in place, and the need in that area appears to be not for a new implementation strategy, but instead for a way to ensure that banking operations conducted by the NRD are acknowledged, and protected, into the future.

In response, the consulting team focused on the one key implementation strategy embraced by all Coalition members – the development of a consistent basin-wide accounting system. As already discussed, this accounting system is needed to be able to fairly and consistently track water supplies and uses within the Coalition area, and to allow for water banking or transfer actions between different NRDs. The basin-wide accounting system is designed to serve as the administrative backbone for future water management actions by the Coalition, and can be adapted to account for any form of water banking and conjunctive management projects that may be chosen by individual NRDs, or groups of NRDs.

6.0 Recommendations Based on Coalition Goals and Objectives

As already mentioned, one of the primary lessons learned during the course of discussions on water banking was that the Coalition members are united in their desire to avoid the adoption of a one-size-fits-all approach, so that each NRD is free to choose, or not choose, a banking configuration that optimizes the resources and opportunities within its boundaries. At the same time, the Coalition members also feel that a consistent method between all members must be adopted with respect to determining how deposits and withdrawals to and from any water bank are counted, to ensure fairness and equity and to allow for partnerships between individual NRDs. It is our recommendation that this balance between local control and accounting consistency should serve as a guiding principle for any future water banking systems established by the Coalition. The development of the basin-wide accounting system is a significant step in that direction, and should continue to be a priority in any future water banking efforts.

It is also apparent that opportunities exist for partnerships between NRDs to help to balance water supplies and demands, and allow for long-term sustainable water use. The example banking systems evaluated in the water banking workshops are evidence that there is no shortage of different structural and institutional mechanisms for either physically moving water, or changing the location at which water is consumptively used. The primary challenges associated with these transactions will likely include third-party impacts. Reductions in water use can have impacts beyond those that directly impact the water users themselves, including economic impacts on regional economies, and changes in the availability of supplies between the water transaction source and water transaction demand.

Some water banks, such as the Lower Loup NRD Water Bank, directly prohibit banking transactions that move water use downstream, to prevent third-party impacts on water users in between the transaction points. For the more abstract third-party impacts involving the regional economy, some water banks include transaction costs that are used to compensate those impacted by the water transfers. Any water banking activity that involves significant distances between the water supply and water use locations will need to include a consideration of the impacts – either direct or indirect – to other water users and the regional economy in structuring the way in which water banking actions take place.

Another important third-party impact to consider involves the Loup Public Power District, and their unique water management role in the Coalition area. We also recommend that the Coalition members consider partnering with the District in those instances where District infrastructure is involved in, or impacted by, water banking activities. In some instances, this cooperation may be mandated by the laws of prior appropriations, and the constitutional preference system. In others, while the need for dialogue with the District may not be required, there may still be opportunities for greater efficiency and flexibility in water transfers through partnerships with the District. As with any water banking activity considered by the Coalition, the particular requirements and opportunities will depend on exactly what type of transaction is involved.

7.0 Attachments

1. Water Banking Creation and Operation Checklist[4]
2. Completed Checklist for LLNRD Water Bank
3. Completed Checklist for CPNRD Water Bank
4. Water Banking 101

[4] http://ag.arizona.edu/arec/sites/cals.arizona.edu.arec/files/publications/ewsr-Banks-final-5-12-10.pdf

Water Banking Creation and Operation Checklist
Below is a checklist of major issues to consider when creating a water bank.

Management and Operation
- ☐ Determine appropriate entity to manage/operate the bank:
  - Public organization
  - Private non-profit organization
  - Private for-profit organization
  - Public-private partnership
- ☐ Create a system of education and outreach.
  - Public awareness campaign created?
  - Is there a manner in which individuals may conduct water bank inquiries?
- ☐ Include key community members in the decision-making and/or management processes.

Strategic Policy
- ☐ Develop long term strategic policy.
- ☐ Should the bank be designed to store water in a physical location?
  - If yes, should the bank utilize reservoir storage or underground storage?
  - If no, should the bank be designed to accommodate brokerage services or institutional (trust) services?
- ☐ Should the bank have the ability to purchase water entitlements on its own, or should the bank operate in a more administrative capacity?
- ☐ Set a fee for service structure.
  - Set flat participation fee?
  - Charge a fee per transaction?
  - Set different fees depending on the types of transactions or transaction volumes?
- ☐ Set an equitable and efficient dispute resolution mechanism.

Geographic Area and Participant Eligibility
- ☐ From what area should participation be allowed?
  - Large enough are to encourage robust participation, but not so large make administration and transportation costs overly burdensome.
- ☐ Which entitlements should be allowed to participate?

Operational Policy and Market Creation
- ☐ Establish a method of verifying bankable quantity, type of entitlement, and transfer capability of water entitlements.
- ☐ Determine what type of market (or pricing) structure to utilize:
  - Unilaterally set prices per volume of water?
  - Utilize a bulletin board method for pricing?
  - Utilize an auction method?
    - Single sided or double sided?
  - Allow a contingent contract (option contract) structure?

Encourage Irrigator Participation
- ☐ Utilize outreach activities to target irrigators and irrigation districts.
- ☐ Explain that irrigators may directly benefit from both the purchase and sale of entitlements.

Environmental and Third Party Impacts
- ☐ Has instream flows been legally classified as a beneficial use?
- ☐ Will water banking create negative environmental or third party impacts?
  - Should a mitigation fund be developed to compensate for negative environmental or third party impacts?

Cost of Administration and Monitoring
- ☐ Design a system of record-keeping and reporting.
- ☐ Implement a system of monitoring and enforcing fallowing agreements

LLNRD Water Bank Scoping Checklist[1]

Need

- What is the need that prompted the creation of the water bank?
    - Ultimately the catalyst may have been the erroneous determination by DNR in 2008 that the Lower Platte River Basin was fully appropriated. Following the reversal of the determination via the April 8, 2009, DNR Order, provisions of the newly passed LB 483 became effective, which (as a result of the reversed determination) limited the expansion of irrigated acres within LLNRD to 10,000 acres over 4 years. The moratorium was extended after the four-year period, and continues today. The transfer program, and the associated Water Bank, were established in part to allow for growth under these constrained conditions, while also encouraging efficiency.

Management and Operation

- What type of entity manages/operates the bank
    - The Lower Loup NRD owns and operates the water bank, as a public subdivision of the State of Nebraska.
- What types of public education and outreach are available for the water bank?
    - Has a public awareness campaign been created?
        - Webpage, newsletter articles, and public presentations.
    - Is there a manner in which individuals may conduct water bank inquiries?
        - With the Lower Loup NRD Water Bank, transactions to date have involved deposits into the bank as a result of other transfer actions. No withdrawals from the bank have been allowed by the NRD. However, for parties interested in conducting transfers, the NRD can serve as a source of information. The NRD does not broker transfers, but they can help landowners obtain information helpful in determining transfer opportunitites.
- Are water bank participants in jeopardy of losing their rights via adjudication as a result of non-use (use-it-or-lose-it) provisions in state water law?
    - Deposits into the water bank to date have mainly involved groundwater uses. However, some transactions have been completed involving the relinquishment of surface water rights. In these instances, the surface water right is retired, a

[1] This document draws heavily from a January 2010 report by Michael O'Donnell and Dr. Bonnie Colby, titled "Water Banks: A Tool for Enhancing Water Supply Reliability", which is part of a series of papers produced through the Arizona Water Institute for assisting with the design and implementation of water acquisition programs.

groundwater well is used as a replacement irrigation source, and the difference in stream depletion is deposited into the water bank. As a result, the non-use provisions of state water law are inapplicable, since the surface water right has been retired [verify this section with LLNRD staff].

For groundwater uses that are deposited into the water bank, they are obviously not subject to the non-use provisions of surface water code. As a result, the deposits can be maintained indefinitely.

- Are there key community members involved in the decision-making and/or management processes?
    - Yes. The LLNRD board includes many well-known community leaders and respected agricultural producers. While the board makes the ultimate decisions on water bank activities, the Water Committee works on water bank issues in greater detail, and makes recommendations to the board.

Strategic Policy

- What is a description of the current long term strategic policy for the water bank?
    - As mentioned before, the District would like to use the water bank as a tool in allowing for responsible growth at a sustainable level, while promoting efficiency. The bank will also provide a source of offsets (including for municipal development) should the NRD ever be determined fully appropriated in the future.
- Is the bank designed to store water in a physical location?
    - Reservoir storage or underground storage?
        - There are no reservoirs currently involved with the water bank. However, the groundwater aquifer obviously plays a crucial role in water bank activities, as it is directly impacted by any changes of groundwater use on overlying lands.
    - If no, is the bank designed to accommodate brokerage services or institutional (trust) services?
        - The transactions that take place when water use is deposited into the water bank as a part of the water transfer process do have some elements of institutional banking. The groundwater use acquired by the District is held and managed by the NRD in trust within the water bank.
- Does the bank have the ability to purchase water entitlements on its own, or does the bank operate in a more administrative capacity?
    - It is probably possible for the NRD to purchase irrigated lands directly for the water bank, but this has not yet occurred.

- How is the fee for service structure established?
    - Is there a flat participation fee?
        - In terms of water transfers, which can result in deposits into the water bank, title searches are required for both the receiving and transferring lands. The costs associated with those title searches are the responsibility of the respective landowners.
    - Does the bank charge a fee per transaction?
        - With respect to water transfers, which can result in deposits into the water bank, there is a $300 fee per water transaction.
    - Does the bank set different fees depending on the types of transactions or transaction volumes?
        - For water transfers that require variances, such as those involving transfer of water use across basins, the arrangements are conducted on a case-by-case basis, and may require additional fees to cover costs such as legal fees or additional administrative work.
- Does the water bank have an equitable and efficient dispute resolution mechanism?
    - Any disputes will result in field verification by NRD staff, and the variance processes that may be required are explained in some detail within the District's Groundwater Management Area Rules and Regulations, as amended.

Geographic Area and Participant Eligibility

- From what area is participation allowed?
    - Any part of the NRD can be involved in a water transfer (as long as they involve certified acres), but the right to irrigate cannot be transferred to a wellfield protection area.
- Which types of water entitlements are allowed to participate?
    - Certified groundwater use is the primary source of water involved in transfers, but surface water sometimes comes into play when surface water relinquishment is used to switch water use from surface water to groundwater. However, in the case of surface water relinquishment, the water right is retired, and only the difference in stream depletion is deposited into the water bank.

Operational Policy and Market Creation

- What methods are used to verify bankable quantity, type of entitlement, and transfer capability of water entitlements?
    - For enforcement, the NRD can utilize the infrared photography it obtains via annual flyovers.
- What type of market (or pricing) structure does the water bank utilize?
    - Unilaterally set prices per volume of water?
        - As mentioned before, deposits into the water bank to date have resulted from requirements with water transfers used to prevent increases in stream depletions. There are no prices set on water bank deposits or the transfers themselves. Any prices associated with water transfers are determined between the buyer and seller, without the direct involvement of the NRD.
    - Utilize a bulletin board method for pricing?
        - No.
    - Utilize an auction method?
        - Single sided or double sided?
            - No.
    - Allow a contingent contract (option contract) structure?
        - No.

Encourage Irrigator Participation

- Does the water bank utilize outreach activities to target irrigators and irrigation districts?
    - While the NRD has provided educational materials on the water transfer process via presentations, online documents, and other sources, much of the outreach has occurred via word-of-mouth, through direct interaction with irrigators.
- Are irrigators able to directly benefit from both the purchase and sale of entitlements?
    - With respect to water transfers, irrigators are able to directly benefit from the transactions. With respect to the water bank itself, the deposits have not yet been used by any parties, including irrigators. In the future, however, the NRD may consider allowing irrigators to obtain credits from the water bank to offset new uses – including irrigation uses. However, as of now the water transfer process is being used to meet those purposes, and deposits into the water bank are being reserved to address potential future needs.

Environmental and Third Party Impacts

- Have instream flows been legally classified as a beneficial use?
    - Yes, the instream use of water for recreation or fish and wildlife is considered a beneficial use of water in the State of Nebraska (Neb. Rev. Stat. § 46-2,108(2)). Instream appropriations can only be obtained by NGPC or an NRD.
- Will water banking create negative environmental or third party impacts?
    - Should a mitigation fund be developed to compensate for negative environmental or third party impacts?
        - There is a growing amount of evidence that transfer actions have actually resulted in environmental benefits, since the transfers are often from marginal ground to more productive and stable ground.

          In addition, all transfers now require consultation with NRCS to determine if the land to which the water use is being transferred to is Highly Erodible Land (HEL). If so, a Conservation Plan is required as part of the transaction. These plans are tied to the deed, and if there is any violation of the conservation plan, the NRD may put a cease and desist on the well in question.

Cost of Administration and Monitoring

- Has the water bank designed a system of record-keeping and reporting?
    - Yes, the NRD staff maintains records of water transfer amounts, and tracks the deposits made into the water bank.
- Has the water bank implemented a system of monitoring and enforcing fallowing agreements?
    - As mentioned above, field verification and annual infrared aerial flyovers are some of the tools available to the NRD for monitoring and enforcement involving transfers.

CPNRD Water Bank Scoping Checklist[1]

Need

- What is the need that prompted the creation of the water bank?
    - Overappropriated and Fully Appropriated directives to reduce and maintain depletions to the Platte River, and PRRIP responsibilities for achieving target flows in the critical reach. The area managed by CPNRD seeks flexibility in allowing for future development while meeting depletion goals into the future. Aging and deteriorating surface water canals also offer conjunctive management opportunities in harmony with other project goals.

Management and Operation

- What type of entity manages/operates the bank
    - CPNRD – a public organization established as a political subdivision of the State of Nebraska.
- What types of public education and outreach are available for the water bank?
    - Has a public awareness campaign been created?
        - Webpage, newsletter articles, and public presentations.
    - Is there a manner in which individuals may conduct water bank inquiries?
        - Phone calls, emails or other correspondence to NRD staff can be used to inquire about potential transactions and pricing.
- Are water bank participants in jeopardy of losing their rights via adjudication as a result of non-use (use-it-or-lose-it) provisions in state water law?
    - CPNRD Water Bank activities to date have focused on groundwater use, and reducing stream depletions through retiring groundwater irrigation via the establishment of permanent conservation easements. As such, surface water rights, and their related abandonment provisions do not yet apply. However, CPNRD has enacted new rules, effective January 2, 2010, which now require that certified groundwater acres be irrigated at least 2 out of 10 years in every decade starting in 2010, with certain exceptions. One of those exceptions involves the temporarily transfer to the water bank of the right to use groundwater via irrigation wells. CPNRD is currently considering a small number of temporary water bank enrollments which, if approved, should fall under the provisions of this exception to the 2 out of 10 rule.

[1] This document draws heavily from a January 2010 report by Michael O'Donnell and Dr. Bonnie Colby, titled "Water Banks: A Tool for Enhancing Water Supply Reliability", which is part of a series of papers produced through the Arizona Water Institute for assisting with the design and implementation of water acquisition programs.

CPNRD is also considering incorporating surface water rights into the water bank by including the water rights obtained through partnerships with irrigation districts in the western part of the NRD. In fact, the water accounting methodologies used by the water bank are currently being used to determine impacts to the Platte River resulting from conjunctive management activities involving the partnering irrigation canals. Depending on how and if these surface water rights formally become a part of the water bank operations, the provisions of surface water abandonment may or may not become an issue with respect to the CPNRD Water Bank.

- Are there key community members involved in the decision-making and/or management processes?
    - The CPNRD board, which includes many well-known community leaders and respected agricultural producers, are involved with the oversight of the bank. In addition, the development of the Integrated Management Plans (IMPs), which included work that led to the establishment of the water banks, utilized extensive stakeholder involvement from key decision-makers in the District.

Strategic Policy

- What is a description of the current long term strategic policy for the water bank?
    - To reduce the need to regulate irrigators within the District, in part by purchasing water rights as a solution to balance water that is being used with water that is available (from language on CPNRD Water Bank webpage).
- Is the bank designed to store water in a physical location?
    - Reservoir storage or underground storage?
        - While no reservoir storage is currently used directly with the water bank[2], the groundwater aquifer obviously plays a critical role in water bank activities, as it is directly impacted by any changes of groundwater use on overlying lands. The aquifer is also the storage vessel used to facilitate the conjunctive management activities with partnering surface water canals, through which excess flows are diverted during times of abundant stream flow and allowed to percolate through the canals and recharge the aquifer. These conjunctive management actions are not strictly

[2] However, the B-1 Reservoir, which is owned by CPNRD, has been involved in temporary transfers that, while not formally part of the water bank, have used water bank accounting methods to determine depletion impacts for offset purposes.

water bank operations, but they do use water bank accounting methodologies to determine the impacts to stream flow.

  - If no, is the bank designed to accommodate brokerage services or institutional (trust) services?
    - The procurement process used by the bank does include some elements of institutional banking, in that the groundwater use acquired by CPNRD – whether temporary or permanent – is held and managed by the District in trust during the duration of the agreement.

- Does the bank have the ability to purchase water entitlements on its own, or does the bank operate in a more administrative capacity?
  - The bank does have the ability to purchase water rights or groundwater use on its own, under the administration of CPNRD.
- How is the fee for service structure established?
  - Is there a flat participation fee?
    - For permanent retirement of groundwater use through conservation easements, there are charges assessed that vary on a case-by-case basis. All permanent water bank transfers, however, involve a title search and lienholder check[3], which typically costs around $350 per transaction.
  - Does the bank charge a fee per transaction?
    - No, there is no arbitrary fee per transaction. Permanent transfers involve fees determined on a case-by-case basis.
  - Does the bank set different fees depending on the types of transactions or transaction volumes?
    - As mentioned earlier, permanent transactions may involve certain administrative fees, while temporary bank enrollments do not.
- Does the water bank have an equitable and efficient dispute resolution mechanism?
  - Disputes are handled by the decision of the CPNRD board, with direction from the Water Bank Subcommittee.

Geographic Area and Participant Eligibility

- From what area is participation allowed?
  - Any irrigated lands within the fully appropriated or overappropriated areas are eligible to participate in the water bank, but preference is given toward areas in the overappropriated portion above Elm Creek – since replacement needs are higher in this area, and areas further upstream in the NRD are more able to provide offsets for a larger number of downstream water uses.

[3] These investigations are required for any CPNRD transfer action involving more than 4 acres.

- Which types of water entitlements are allowed to participate?
    - Any certified surface water rights, groundwater irrigated lands, or comingled irrigated lands within the overappropriated or fully appropriated areas are eligible to participate.

Operational Policy and Market Creation

- What methods are used to verify bankable quantity, type of entitlement, and transfer capability of water entitlements?
    - All surface water rights, groundwater irrigated acres, and comingled irrigated acres have been certified by the NRD.
- What type of market (or pricing) structure does the water bank utilize?
    - Unilaterally set prices per volume of water?
        - The NRD board sets the price for transactions in the water bank on a per acre-feet of depletion basis after 50 years of irrigation pumping or diversions (as determined through the COHYST groundwater model or surface water appropriation rates, respectively). One of the primary indices used by the board to set the price is the land rental rates, as determined through the UNL Nebraska Farm Real Estate Reports, including the price differential between irrigated and dryland acres.
    - Utilize a bulletin board method for pricing?
        - No.
    - Utilize an auction method?
        - Single sided or double sided?
            - No.
    - Allow a contingent contract (option contract) structure?
        - No. Some features of the conjunctive management activities with the participating irrigation districts include elements of a contingent contract structure, since their canal operations vary depending on the wet or dry stream conditions. However, while these activities use water banking accounting methods, they are not yet formally part of the water bank program.

Encourage Irrigator Participation

- Does the water bank utilize outreach activities to target irrigators and irrigation districts?
    - Following the initial roll-out of the water bank, during which several presentations and other informational materials were made available to District water users, word-of-mouth has been sufficient to generate bank activity.

Approximately 1,150 water transfers that are formally outside of the water bank purview, but which use water bank accounting methodologies, have taken place since the establishment of the water bank. These numerous transactions have helped irrigators in the District gain first-had experience with how depletions are accounted for by the water bank. In addition, CPNRD has reached out to several irrigation districts in the region, including 6-Mile Canal, Cozad Canal, 30-Mile Canal, and Orchard Alfalfa Canal, with which partnerships have been developed to develop conjunctive management activities. These canal operations utilize the water bank accounting methods.

- Are irrigators able to directly benefit from both the purchase and sale of entitlements?
    - Yes. In addition to establishing permanent conservation easements, which reduce the consumptive use of water due to irrigation, the water bank also allows for temporary enrollments in the bank which could be withdrawn by the depositor at a later time, or which could be transferred to a different user – including another irrigator. The temporary enrollment component of the water bank has not yet been exercised, but several pending temporary transactions may be approved in the near future. In addition, as mentioned earlier, irrigators have engaged in extensive water transfers outside of the water bank which use the bank's accounting methodologies for assessing impacts to stream flow.

Environmental and Third Party Impacts

- Have instream flows been legally classified as a beneficial use?
    - Yes, the instream use of water for recreation or fish and wildlife is considered a beneficial use of water in the State of Nebraska (Neb. Rev. Stat. § 46-2,108(2)). Instream appropriations can only be obtained by NGPC or an NRD.
- Will water banking create negative environmental or third party impacts?

  Because the CPNRD Water Bank is designed to enhance flows in the Platte River through reductions in depletions to stream flow, negative environmental impacts are not anticipated. With respect to third party impacts, there could be impacts to the agricultural economy due to reductions in irrigated acres. However, these impacts are likely much smaller than the economic impacts that could be experienced if large-scale regulation was required in lieu of the banking operations.
    - Should a mitigation fund be developed to compensate for negative environmental or third party impacts?
        - For the reasons described above, a mitigation fund is not considered necessary at this time.

Cost of Administration and Monitoring

- Has the water bank designed a system of record-keeping and reporting?
    - Yes. As mentioned before, the large number of water transfers that take place in the NRD also use the water bank accounting methodologies. There is also an established procedure for handling the legal component of permanent water bank transactions through conservation easements.
- Has the water bank implemented a system of monitoring and enforcing fallowing agreements?
    - Yes. Every year, the District pays for aerial flyovers, which produce digital infrared imagery, which can be used to confirm the irrigation status of a given tract. When necessary, field checks can also be performed to confirm the irrigation status.

Additional Questions Specific to CPNRD Water Bank

- The web page material often refers to "water rights and uses". Is this a differentiation between surface water rights and ground water use?
    - Yes. While the bank has only used groundwater uses to date, it is authorized to acquire and manage surface water rights as well.
- The web page content mentions that, as of the time the information was posted (possibly in 2008?), "the NRD has purchased 827 acre-feet of water and another 148.5 acre-feet are in planning to be purchased from landowners who have expressed interest". Is any update to these numbers available?
    - As of mid-August, 2014, the CPNRD Water Bank had purchased approximately 2,400 acre-feet of water on about 30 separate tracts through the establishment of permanent conservation easements. In addition, about 10 temporary enrollments in the bank are currently being considered.
- How much of the banked water currently accrued was obtained through perpetual conservation easements?
    - See above.
- According to the water bank web site, the rate to pay for a water right was set by the board at $8,000 per acre-ft of depletion as of Nov. 15, 2012. Has that rate changed since that time?
    - No. That is the current rate.
- What rules and regulations are used to govern the water bank?
    - The primary guidelines for the CPNRD Water Bank are contained in the "Rules and Regulations for Groundwater Use in Fully and Over Appropriated Areas".

The latest amended version of these rules and regulations is dated April 24, 2014.

- What state statutes are followed in governing the bank?
    - All state statutes must be followed with the bank, but so far no formal participation by DNR has been necessary with bank transactions, since those activities already fall within the governing authority of the NRD. As mentioned earlier, if the bank were to expand to formally include surface water rights and canal operations, certain state statutes may apply.
- What happened to the stream depletion percentage maps that used to be online (links from water bank page are no longer active)?
    - The links will be updated by NRD staff.

Summary of Water Banking

Lower Platte River Basin Water Management Coalition

What is a Water Bank?

The words "water bank" have been used to describe several different things in the State of Nebraska, and an even greater number of things across other parts of the U.S. Water banks are often brought up in Nebraska during discussions involving water management, but probably more people than would care to admit it—including many with significant experience in water resources—would struggle if asked to define a "water bank".

So what exactly is a water bank? The answer is, unfortunately, not straightforward, because a water bank can mean a different thing depending on who you ask and where you ask the question. At a very general level, a water bank usually refers to a mechanism used to facilitate the transfer of water between parties, often using market-driven transactions. Water banks can be institutional mechanisms, physical projects, or both.

- In some cases, the bank includes actual tracts of land where **surface water is diverted and allowed to percolate into the underlying aquifer.** This water "recharge" then may either slowly progress naturally back towards the stream, where it will **result in retimed accretions to surface flows**, or it may be actively pumped out of the aquifer and delivered to a stream via a pipeline or other conveyance structure. Recharge ponds, lined pits, pumps, canals, and other physical structures form the basis of these structure-based water banks.
- Other water banks are more institutional in nature, and focus on the accounting of transferred water. These institutional banks often offer a **clearinghouse where buyers and sellers of water can gather and provide information in order to facilitate the transfer of water.**

What Water Banks Already Exist in Nebraska?

The **Central Platte NRD Water Banking Program** is a well-known water bank, established in 2007, which involves the transfer of water to manage river depletions. It is designed to help meet the objectives of an Integrated Management Plan (developed jointly by the NRD and DNR), and the Platte River Recovery and Implementation Program. The late Ron Bishop, former general manager of CPNRD, pioneered the design of this innovative banking program. The Central Platte NRD Water Banking Program has elements of an institutional water bank, but also can involve structural components, and may be unique in the U.S. in the way it tracks consumptive use changes based on land use and the resulting changes to river depletions.

Lower Loup NRD Irrigated Acres Transfer Program is an initiative which requires deposits into a water bank for certain types of water transfers.

Other NRDs and the CNPPID Delivery Location Transfer Program use elements of water banking operations in their water management practices as well.

Learn More!

- Link to 2004 WestWater Research Report
- Link to 2010 University of Arizona Report
- Link to LPRBWMPC Website

Is Water Banking in Nebraska Legal?

YES!

As long as a water bank follows existing state statutes and regulations, water banking systems are legal in Nebraska.

While Nebraska does not currently have explicit statutory language governing water banks, there are several laws and regulations relating to water transfers, water storage, and other aspects that can—depending on the particular type of water bank involved—provide guidance on how to operate a particular bank.

SAMPLE OF NEBRASKA LAWS RELATED TO WATER BANKING*

Nebraska Revised Statute	Topic
§ 46-290 to 46-294.05	Intrabasin surface water transfers
§ 46-288 to 46-289	Interbasin surface water transfers
§ 46-691	Agricultural transfers
§ 46-691.01	Domestic transfers
§ 46-638 to 46-650	Municipal and rural domestic transfers
§ 46-675 to 46-690	Industrial transfers
§ 46-296	Besides the standard permit to divert surface water, banking operations may also require a permit for intentional underground water storage
§ 46-242	In order to then use, or "recover" the intentionally stored underground water, a separate permit may be required

* Applicable statutes will depend on the particular type of water bank in question.