Prepared for
The Colorado Water Conservation Board

Organizational Analysis for the Northeast Colorado Water Cooperative

June 30, 2015

WSRA Grant Completion Report: Organizational Analysis for the Northeast Colorado Water Cooperative

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List of Abbreviations

ATM	Alternative Transfer Methods
CCGA	Colorado Corn Growers Association
CWCB	Colorado Water Conservation Board
GRC	Grant Review Committee
LSPWCD	Lower South Platte Water Conservancy District
NECWC	Northeast Colorado Water Cooperative
SWSP	Substitute Water Supply Plan
V&R	Vranesh and Raisch
WSRA	Water Supply Reserve Account

Executive Summary

Introduction

The Northeast Colorado Water Cooperative (NECWC) is an organization that was created by water users along the South Platte River in northeastern Colorado. It was formed to potentially provide various services to its members. One primary initial service would be developing a mechanism for leasing and exchanging water owned by the members (primarily, unused recharge credits that occur from the normal and proper operation of augmentation plans), typically on a short-term basis, thus allowing those members with water supplies to make them available to those members with water demands. The focus area for these activities is along the South Platte River in Water Districts 1 and 64. In the longer term, the NECWC plans to explore other ideas to further maximize water uses and supplies within Districts 1 and 64 and possibly within other parts of the South Platte River Basin.

The concept of the NECWC has been under development for some time. Several years ago, a small group of water users and water consultants began discussing the possibility of organizing a water organization in the area of Water Districts 1 and 64 in the lower South Platte River. As the water users were conducting their initial meetings, work relevant to the NECWC concept was being conducted under an Alternative Transfer Methods (ATM) grant led by the Colorado Corn Growers Association (CCGA) and others. The water users joined with the CCGA Study Team to evaluate the feasibility of the NECWC, and the results were favorable. As a result, additional funding was sought to further develop the NECWC concept.

The Lower South Platte Water Conservancy District (LSPWCD) has been the primary applicant for Water Supply Reserve Account (WSRA) and Alternative Transfer Method (ATM) grant projects aimed at developing a proposed organizational structure and operational plan for the NECWC. In addition, several entities have expressed interest and provided financial assistance in the formation of NECWC, including individual agricultural producers, augmentation plans, ditch companies, municipalities, and water conservancy districts. A Grant Review Committee (GRC) was formed to oversee the work funded by the various grants.

The purpose of this report is to describe organizational and operational feasibility study results funded by the WSRA grant regarding the NECWC.

Organizational Analysis

The objectives of the organizational analysis were to analyze and determine the best organizational structure for the NECWC and finalize the findings to the point of potential initiation of a water cooperative organization. Another objective of the analysis was to research and evaluate water law issues related to a water cooperative.

Research into appropriate organizational frameworks began with a fairly broad consideration of alternatives and factors that might be considered in evaluating different alternatives. The GRC firmly believed that the selection of an organizational structure should be guided and approved by the stakeholders who would eventually participate in the organization. As a result stakeholder meetings were held early in the evaluation process and GRC meetings were announced and open to stakeholder participation.

Following an initial screening process of organizational alternatives, the GRC consulted with a corporation attorney who had worked with the Super Ditch. The attorney suggested that, given the flexibility needs of the organization, a for-profit organization might not be the best model. However, a cooperative formed pursuant to the newly-passed Colorado Uniform Limited Cooperative Association Act could potentially work.

The GRC met several times and held a larger public meeting to gather broad water user input. Based on input from other organizations and stakeholders, several key goals were identified that need to be met in forming an organizational structure:

- Design membership criteria to be balanced, fair, and accessible for local water users.
- Design an organization that will operate in a transparent manner so that water users can see how decisions are made.
- Design Board of Directors criteria to be representative of members yet functional and effective.

After researching various organizations, talking with experts and members of other organizations, and obtaining input from stakeholders, the GRC determined that cooperatives seemed to be the organizational structure that best fit the criteria that had been developed.

Formation of the Organization

The GRC worked with a cooperative attorney to develop organizational documents and to deal with issues such as qualifications for membership, defining "patronage" of the cooperative, conditions for leaving the NECWC, costs for membership, qualifications for the board of directors, size of the board of directors, types of membership, etc. The cooperative was officially incorporated on January 1, 2014.

Many of the foundational features of the NECWC are defined in its Articles of Incorporation and its Bylaws. These documents and features of the NECWC are described below.

- **Articles of Incorporation.** A cooperative may be a stock or membership cooperative, and the Articles of Incorporation provide the rights of the members. Those rights may include the right to vote, the right to be a member of the board of directors, and the right to distributions. NECWC's Articles of Incorporation provide for two classes of membership stock, one with voting rights (Class A) and one without voting rights (Class B).
- **Bylaws.** A cooperative's Bylaws are used by the cooperative's Board of Directors and management team as the operational structure for the cooperative. Several components of the bylaws are described below.
  - **Membership qualifications.** In NECWC, there are two classes of membership, voting and non-voting. All members must patronize the cooperative and abide by the Articles of Incorporation, Bylaws, etc. The two main distinguishing characteristics for Class A voting members are that they own a decreed or pending application for an augmentation plan that includes water rights or a water recharge facility authorized by decree from a recognized Colorado Water Court (not including persons who are individual shareholders, members or users of an entity with such a right, plan or facility) and that they have a principal office or residence located in either Water District 1 or 64. The price for one share of Class A voting stock would be $2,000.00 and one share of Class B non-voting stock would be priced at $1,000.00.
  - **Board of Directors**. The next most important section of cooperative Bylaws includes the provisions for the Board of Directors. Nine of the original members of the GRC were named

as the initial board of directors during the first year of the cooperative. In May of 2015 the number of directors on the board was reduced to five persons.

- **Management**. The Lower South Platte Water Conservancy District has been hired, per a written services agreement, to operate the cooperative for the foreseeable future.
- **Membership Benefits**. The purpose of any cooperative business is to benefit the members of the cooperative, whether through services, purchasing power, for marketing and administrative services or, in the case of NECWC, for the efficient use of water owned by the members.

Water Law and Water Rights Considerations

The project team researched water law and water rights issues related to the goals of the organization to determine the best approach for achieving those goals and to evaluate items that might impact the organization or its members.

A primary goal of the organization is to provide a framework for more efficiently using unused recharge credits from decreed recharge water rights and augmentation plans. Numerous augmentation plan decrees were reviewed to identify the common provisions (described below) related to end uses of unused recharge credits that might be applicable to NECWC's cooperative operations.

- Many decrees adjudicating recharge water rights allow for the lease of unused recharge credits to other water users for either short-term or long-term periods, subject to certain approval requirements. Generally, the person or entity leasing excess, unused recharge credits must have an approved SWSP or plan for augmentation.
- Many decrees adjudicating plans for augmentation allow for the plan owner to add additional replacement sources to the augmentation plan, subject to notice and comment requirements concerning the water source to be added.

Several considerations have been identified with respect to future activities related to water court as a result of research into water law and water rights issues and the provisions of the reviewed recharge water right and augmentation plan decrees.

- An area-wide augmentation plan may be developed to allow flexible use of unused recharge credits.
- Decreed exchanges may be used to move these credits to upstream facilities for better water management.
- New places of storage and recharge may be added to facilitate use of the unused recharge credits.
- Changes of water rights are also being evaluated as a possible means to include other water sources and water users into the NECWC operations

Conceptual Operational Analysis

The NECWC has approached operational planning from both short and long term perspectives. The NECWC plans to provide its members with several services in the short term to coordinate the lease, exchange and retiming of unused recharge credits from members who at times have available water to members who at times have shortages. Note that all of the unused recharge credits occur from the normal operating conditions of existing individual augmentation plans. In the long term the

NECWC plans to explore other ideas to further maximize water uses and supplies within Water Districts 1 and 64 and possibly within other parts of the South Platte River Basin.

Work in Support of Shorter Term Operational Concepts

The NECWC conducted several tasks under their WSRA grant to further their understanding of shorter term operational issues and concepts. The studies and results are summarized below.

- **Unused Recharge Credits.** Currently, the NECWC is focused on better utilization of unused recharge credits generated by its members. The project team quantified unused recharge credits for most of the augmentation plans in Districts 1 and 64 using augmentation plan accounting data for 2009 and 2010 for this assessment. In addition the project team referenced data from a previous CCGA ATM project that quantified 2008 unused recharge credits in Districts 1 and 64. The results are shown in Table ES-1. The unused recharge credits varied from year to year. 2008 through 2010 were good years for recharge, and it is likely that in drought, unused recharge credits will be much reduced, if not eliminated.

Table ES-1. Estimated Amount of Unused Recharge Credit from 2008 through 2010 (acre-feet)

	2008	2009	2010
District 1	20,000	60,000	60,000
District 64	10,000	20,000	20,000
Total	30,000	80,000	80,000

- **Water Demands.** The project team conducted meetings and interviews with a number of water providers and representatives of augmentation plans to assess potential permanent or temporary demands for water that could be made available through the cooperative. Below is a summary of findings.
  - Most users expressed interest in water supplies during droughts.
  - Municipal providers generally have adequate supplies in most years, but may need water during drought conditions or for drought recovery.
  - Some augmentation plans with quotas that are consistently less than 100% expressed a need for firm supplies to allow full pumping.
  - Many augmentation plans have some degree of operational flexibility, but an additional source of supply could enhance their flexibility.
- **Exchange Capacity**. An exchange capacity tool developed for the CCGA ATM project was updated for the purposes of the NECWC WSRA grant project and now includes input data sets for the years 1999 through 2010.Exchange capacity during both the direct flow and storage seasons is higher in Districts 1 and 2 than in District 64. During the storage season, exchange capacity is limited between the Riverside and Jackson Lake inlet ditches and in District 64, because reservoir storage rights place calls on the river. The highest exchange capacity during both the storage and direct flow seasons is in the reach from Union Ditch to Empire Ditch.
- **Data and Water Accounting Needs**. Accurate water accounting will be a critical short and long term need of the NECWC. The GRC and consultants spent a considerable amount of time discussing data and accounting needs and developing an accounting tool. Important data and accounting needs are summarized below:

- The specific location and priority of calls will be important for evaluating the amount of unused recharge credit that is available and the ability to deliver water via exchange.
- The specific locations of supplies and demands will be needed from both an operations and accounting perspective.
- When leases are conducted and water is "brought into" the NECWC, information on the member plan (or lessor), the type of water being leased (unused recharge credits, water from senior irrigation rights, etc.), etc. will need to be provided and recorded.
- Information collected on individual leases will need to be aggregated for operational purposes.
- If the NECWC leases water and retimes it by delivering water to a recharge facility, the accounting will need to keep track of the amounts delivered, evaporative losses, and the timing of when the resulting streamflow accretions will be available in the future.
- The NECWC manager or accountant may need to evaluate various alternative delivery scenarios if they are trying to manage multiple supplies and demands at a point in time.
- Real-time information on location and amount of water supplies, water demands, dry up points, etc. will be useful to the NECWC manager or accountant for making sound and rapid operational decisions.

Work in Support of Longer Term Operational Concepts

The NECWC conducted several tasks under their WSRA grant to further their understanding of longer term operational issues and concepts. The studies and results are summarized below.

- **Evaluation of Other Water Supplies.** In the long term, the NECWC could potentially facilitate transactions of other kinds of water depending on the needs of members or non-members.
  - The NECWC could potentially apply for new storage or recharge rights to provide supplies for its members. For example, in the future the NECWC could construct recharge facilities that have long lag times for accretions. The study team evaluated the location and occurrence of unappropriated flows in the South Platte River. The evaluation suggests that availability of water for new water rights is highly variable on a temporal and locational basis, but in general, seems to peak near the confluence of the South Platte and Cache la Poudre Rivers.
  - In the future, the NECWC could potentially facilitate leases of senior water rights via alternative transfer methods. An assessment was conducted to quantify available water under alternative transfer using a method similar to what was used in feasibility studies for the Super Ditch in the Arkansas River basin. The high-level analysis suggested that approximately 30,000 to 40,000 acre-feet per year could be available through rotational fallowing in Districts 1 and 64 (assuming 65% participation in a rotational fallowing program for direct flow rights and 25% fallowing). However, the total could be substantially more or less depending on shareholder interest, the price for water, and the method of alternative transfer.
- **Longer Term Demands.** It is anticipated that additional demands will emerge as time goes on. Examples of this are provided in the report. As the NECWC develops and demonstrates its viability, it is possible that other water users will seek to gain membership in the future.
- I**nfrastructure.** In the longer term, the NECWC could potentially benefit from infrastructure that retimes unused recharge credits or that helps to alleviate exchange bottlenecks. The specific type and location of infrastructure needed will depend on the membership of the NECWC and locations and timing of supplies and demands.

  - The project team determined that facilities capable of retiming unused recharge credits would be useful. Recharge facilities that could help with seasonal retiming of recharge credits could be helpful to some augmentation plan. Recharge facilities that could retime unused credits for 3 to 5 years may be beneficial to mitigate impacts of longer term cycles of wet and dry hydrologic conditions.
  - Storage facilities located in the upstream reaches of the NECWC's service area would potentially provide operational flexibility given that unused recharge credits tend to occur variably in District 1 and in greater volume than in District 64. Geographic variability in the location of storage facilities will provide better flexibility for delivering water to storage given changing call scenarios, dry-up points on the river, and locations of supplies and demands.
  - Pump stations and pipelines could enhance exchange capacity through exchange bottlenecks depending on future needs.
- **Conceptual Long Term Operational Plan.** The GRC and consultants developed operational concepts that were shared with stakeholders to convey how the NECWC may function in the future based on locations and amounts of supply and demand. Draft operational concepts and goals have been input into an operational planning tool that is being used to develop more specific, future operational plans.

Implementation and Ongoing Work

The NECWC has obtained ATM grant funding from the CWCB to implement the NECWC. In addition, the NECWC is continuing to work on long term planning.

Upon incorporation of the organization, members of the GRC reached out to stakeholders who previously expressed interest in the NECWC and encouraged the stakeholders to buy stock in the NECWC and become members. This process took time, but eventually more than 20 members with augmentation plans and recharge water rights joined the NECWC.

Section 1

Introduction

1.1 Purpose of the Report

The purpose of this report is to describe organizational and operational feasibility study results that have resulted in the formation of an organization operating under the name of the Northeast Colorado Water Cooperative (NECWC). The work was funded by a Water Supply Reserve Account (WSRA) grant. The work conducted by the WSRA grant recipients was foundational to the formation of the NECWC, but it will also provide information and a framework for other parties interested in forming a similar organization.

The report first summarizes the research and analysis completed to provide the best organization structure for the NECWC. Second, the report discusses the data collected and the steps taken to describe the short and potential long-term operational structure of the NECWC. That is, the report discusses the necessary information collected in order to describe how water would move through not only the organization to those in need of augmentation water, but through the physical constraints of the South Platte River. Again, the report hopes that a transparent explanation of the data needs and the physical river limitations will help others in the formation of other organizations.

1.2 Report Organization

The report consists of the following general sections:

- Section 1: Introduction
- Section 2: Description of the process for evaluating organizational alternatives, selecting an organizational structure, and initiating the organization. This section also includes an overview of water rights and water use issues that the organization is examining.
- Section 3: Description of conceptual level operational analyses conducted for this project.
- Section 4: Description of on-going work.

1.3 Overview of the Cooperative

NECWC is an organization that was created by water users along the South Platte River in northeastern Colorado. It was formed to potentially provide various services to its members. One primary initial service would be facilitating the lease and exchange of water owned by the members, typically on a short-term basis, thus allowing those members with water supplies to make them available to those members with water demands.

Water users in Water Districts 1 and 64 are able to divert alluvial groundwater out-of-priority through the use of augmentation plans. Augmentation plans provide a means to offset stream flow depletions caused by out-of-priority diversions of alluvial groundwater. Augmentation plans are decreed by Colorado's Water Court. Many augmentation plans rely, either primarily or in part, on intentional alluvial recharge and resulting stream accretions ("recharge credits") as a source of water supply to offset or replace out-of-priority depletions to the river caused by well pumping. As

discussed in Section 1.5, these augmentation plans at times may have more recharge credits available than are needed on any given day to replace the out-of-priority depletions associated with the wells included in the plans. Absent some ability to lease or retime these recharge credits, they will not be used. The NECWC was formed to facilitate the lease and use of these "unused recharge credits" by other NECWC members. Leased unused recharge credits can be delivered either directly or as a source of exchange and can be moved up or down the river to provide an additional replacement source for member augmentation plans as needed.

In the longer term, the NECWC plans to explore other ideas to further maximize water uses and supplies within Water Districts 1 and 64 and possibly within other parts of the South Platte River Basin. For example, the NECWC could provide a means for leasing the transferrable portion of senior water rights as an alternative to traditional "buy and dry" water transactions. The NECWC could potentially use existing infrastructure or build new infrastructure to help improve water use efficiency by its members. In addition, depending on the needs of members or non-members, the NECWC could develop new appropriations of storage or recharge for a variety of beneficial uses.

1.4 History of the NECWC

Several years ago, a small group of water users and water consultants began discussing the possibility of developing a water organization in the area of Water Districts 1 and 64 in the lower South Platte River. The water users were interested in creating a means for making unused recharge credits from one augmentation plan available to other augmentation plans that had a temporary or periodic need for additional replacement water. The water users met numerous times to discuss the availability of unused recharge credits and the research needed to explore the feasibility of the organization and to plan a path forward. Over time, these water users became known as the "Steering Committee."

As the Steering Committee was conducting its initial meetings, work was also being conducted under an Alternative Transfer Methods (ATM) grant through the Colorado Corn Growers Association (CCGA), in partnership with Ducks Unlimited and the City of Aurora (collectively, "CCGA Study Team"). The CCGA Study Team was analyzing barriers to ATMs and exploring potential solutions. The concept of a water organization like the one researched and created by the Steering Committee (the NECWC), provided a potential way to overcome some of the ATM barriers identified by the CCGA Study Team. As a result, the Steering Committee and CCGA Study Team worked together to explore the technical feasibility of a potential organization. Technical analyses under the CCGA ATM grant included quantification of potential unused recharge credits that could be leased and an assessment of the ability to deliver unused recharge credits via exchange to water users upstream.

The preliminary analysis of unused recharge credits and available exchange capacity was favorable, and the Steering Committee decided that additional research and outreach to potential stakeholders and participants was warranted. The reader is referred to a report entitled "Completion Report: Development of Practical Alternative Agricultural Water Transfer Methods for Preservation of Colorado Irrigated Agriculture" (CCGA, et al., 2011) for more information on the technical and feasibility analyses of the NECWC (or "the potential Lower South Platte Water Cooperative" as referenced in the report).

During 2010, Steering Committee members met with numerous ditch and reservoir companies, irrigation districts, augmentation groups, and conservancy districts to discuss whether there was sufficient interest in developing a new water organization. Responses to the potential water organization were positive. To research and address issues raised during meetings with water users,

the Steering Committee prepared a work plan to outline a course of action. The primary goals of the Steering Committee were to:

- Develop an organizational structure for the new organization.
- Develop a detailed draft operational plan.
- Request necessary funding to accomplish this work.

1.4.1 Funding for Research

The Lower South Platte Water Conservancy District (LSPWCD) has been the primary applicant for Water Supply Reserve Account (WSRA) and Alternative Transfer Method (ATM) grant projects aimed at developing a proposed organizational structure and operational plan for a new organization. In addition, several entities have expressed interest in, and have provided financial assistance to, the formation of this new organization, including individual agricultural producers, augmentation plans, ditch companies, municipalities, and water conservancy districts. Many of these entities provided matching funds and letters of support for the grant applications or other consulting and advice. Table 1-1 below provides a listing of the entities that have provided financial and other support to the Steering Committee and the work effort that has resulted in the creation of the NECWC.

Table 1-1. NECWC Collaborating Partners

Colorado Water Conservation Board	22 Ranch Limited Partnership
Groves Farms	Colorado Division of Water Resources
Lower South Platte Water Conservancy District	Ft. Morgan Reservoir and Irrigation Company
North Sterling Irrigation District	Jackson Lake Reservoir and Irrigation Company
Northern Colorado Water Conservancy District	Colorado Open Lands
Riverside Irrigation District	Colorado Corn Growers Association
Riverside Land Company	Prewitt Reservoir Operating Committee
Ft. Morgan Reservoir and Irrigation Company	Lower Platte and Beaver Canal Company
Julesburg Irrigation District	Putman Ditch Company
South Platte Ditch Company	H-R-R Farms Augmentation
Harmony Ditch Company	Geisick Brothers Farms Augmentation
Vranesh and Raisch, LLP	Washington County
Phillips Law Offices, LLC	Baessler Farms
Brown and Caldwell	Morgan County Farm Bureau
Central Colorado Water Conservancy District	Springdale Ditch Company
Pioneer Irrigation Company	Lowline Ditch Company
Lower Logan Well Users, Inc.	Jensen & Teague Augmentation

The grants obtained by the LSPWCD and applied to work on and for the NECWC are described below.

Water Supply Reserve Account Grant

The first grant obtained to further research a potential new water organization was provided by the Water Supply Reserve Account (WSRA). The objectives of the WSRA grant are focused on identifying an organizational structure that will meet the needs of interested stakeholders and potential operational strategies of the organization. The project objectives as described in the WSRA grant application are:

- Analyze and determine the best organizational structure for a new organization in the lower South Platte River.

- Analyze and determine water law issues related to a new organization.
- Research and determine the best fit operational planning for a new organization.
- Finalize the findings to the point of potential formation of a new organization.

First ATM Grant

The LSPWCD has also obtained two grants funded by the Colorado Water Conservation Board's ATM grant program. The objectives of the first ATM grant are to develop an operational plan and strategy for the potential organization and to research economic issues associated with alternative transfer programs. The specific project objectives as described in the ATM grant application are:

- Develop an operational plan that identifies water supplies (including direct flow and/or storage water transferred through alternative means, unused recharge credits, new junior water rights, etc.), demands, and the means and infrastructure needed to provide water when and where it is needed.
- Identify existing and potential infrastructure that could help increase the ability of the organization to match supplies with demands.
- Obtain feedback from stakeholders on the operational plan.
- Identify specific data, water measurement, and accounting needs and work with potential members on developing data transfer methods.
- Gain a general understanding of options for funding the new organization.

Second ATM Grant

The objectives of the second ATM grant obtained by the LSPWCD are to conduct engineering, develop and implement a water accounting system, and do other tasks necessary to implement the new organization in 2014. The work consists of four general phases as described below:

- Engineering: The objective of the engineering phase will be to evaluate the supplies, demands, and delivery strategies for the specific initial participants in the new organization. The work will culminate in an Engineering Report that can be used to support a Substitute Water Supply Plan (SWSP) and Water Court application for the new organization.
- Accounting: The objective of the accounting phase will be to refine and implement an accounting system to track the movement of water among members of the new organization. Work on the accounting system will involve acquisition and input of necessary data and information from participating augmentation plans, ditch companies, water providers, etc. and testing of the accounting system. The project team will consult with the Division Engineer to ensure that the accounting protocols are appropriate. Grant funds were also obtained to cover the costs of conducting the actual water accounting for the first year of operation.
- Meetings: The project team will meet multiple times with water users who would likely participate as opposers in water court proceedings. The objectives of the meetings will be to identify potential concerns that opposers may have with the new organization and proposed water operations and to collaborate on potential solutions to their concerns prior to initiating the water court process.
- Project Reports: An Engineering Report will be written to support a water court application and SWSP for the new organization. In addition, a project completion report will be written and submitted to the CWCB.

A Grant Review Committee (GRC) consisting of 10 members (5 from District 1 and 5 from District 64) was formed to oversee and contribute to the research for the new organization. The GRC took the

place of the Steering Committee described above. The GRC has met regularly during the course of the research projects to discuss results, collaborate on important organizational concepts and needs, develop communication strategies with stakeholders, and guide the overall process of forming the organization and developing operational strategies.

1.5 Unused Recharge Credits

A primary goal of the Steering Committee, which has been incorporated into NECWC's planning and intended operations, is to find a way to make better use of unused recharge credits available to members of the organization that are not needed at the time when they accrete to the stream to cover the owning members' augmentation needs, but which could be used at the time of accretion by other members of the organization, or managed through storage or re-timing. Due to a variety of factors, such unused recharge credits are a necessary and unavoidable result of running reliable augmentation plans that include recharge as a replacement source. This section provides a general description of the conditions under which unused recharge credits occur.

Augmentation plans allow junior water rights (usually wells) to create out-of-priority depletions to stream flows as long as replacement water is provided to "augment" stream flows by replacing the stream depletions and preventing injury to senior water rights. Many agricultural augmentation plans rely on managed alluvial recharge as a main source of water supply to offset the well pumping depletions. Managed recharge is commonly done by diverting or pumping water from a river or stream, delivering the water to recharge sites, and allowing the water to percolate into the alluvial aquifer through recharge ponds or unlined irrigation ditches. Augmentation plans will usually have other sources of water available as well, such as shares in a more senior ditch or reservoir company that have been changed for replacement use. In general, plans with senior sources of supply use them only when recharge credits cannot cover all of the out of priority depletions.

Water rights for recharge are relatively junior in Colorado's priority administration scheme. As a result, when there is a senior call on the river, recharge rights are not in priority and cannot be diverted. In drier years, the opportunities to divert junior recharge rights might be few and far between and occur only during short windows of time. In normal years, there may only be certain periods when recharge rights are in priority – like the spring for example. However, even in dry years, the delayed accretions (credits) from previous diversions will be used in the augmentation plans.

Because junior recharge rights will only be in priority intermittently or during short windows of time, augmentation plan operators must divert and recharge more water when the rights are in priority than would be needed, on average, to balance the depletions from well pumping, because the plan operators do not know when they will be able to recharge again. And, the timing of the recharge credits resulting from diversions to recharge when those rights are in priority seldom matches exactly the timing of when replacement of depletions must be made resulting from water pumped from the augmented wells to irrigate crops.

Locations of recharge ponds and other recharge facilities relative to irrigation wells also present timing difficulties for augmentation plans. For example, if recharge ponds are located closer to the river than the irrigation wells in an augmentation plan, the recharge credits generally reach the river more quickly than the depletions. Augmentation plans need to have adequate water supplies to fully cover their pumping depletions at all times that the depletions are out of priority. However, on the days that the junior recharge rights are in priority for diversion, it is impossible to know what the river call will be on the days that the recharge accretions and the well depletions will reach the river, which will be months, years, and decades into the future.

These variabilities in recharge mean that it is impossible to divert and recharge precisely the amount of water ultimately needed to offset the well depletions. As a result, good augmentation plans will have some amount of unused recharge credits from time to time so that they can provide adequate supplies to cover depletions year round. But, this does not mean that the plans "have more than they need." Any plan can have surplus credits at some times, and be short of credits at other times during the same year. Patterns of recharge and depletion are shown for two actual plans in the Figures 1-1 and 1-2 (the figures are courtesy of the Lower South Platte Water Conservancy District). These graphs depict the unavoidable variability in the timing between when recharge credits reach the river compared to when well depletions reach it.

When added up, the many augmentation plans between Kersey and the state line can periodically generate significant amounts of unused recharge credits, usually in normal to wetter years. Much, if not all, of these unused recharge credits will not be available in drier years because of the factors described above.

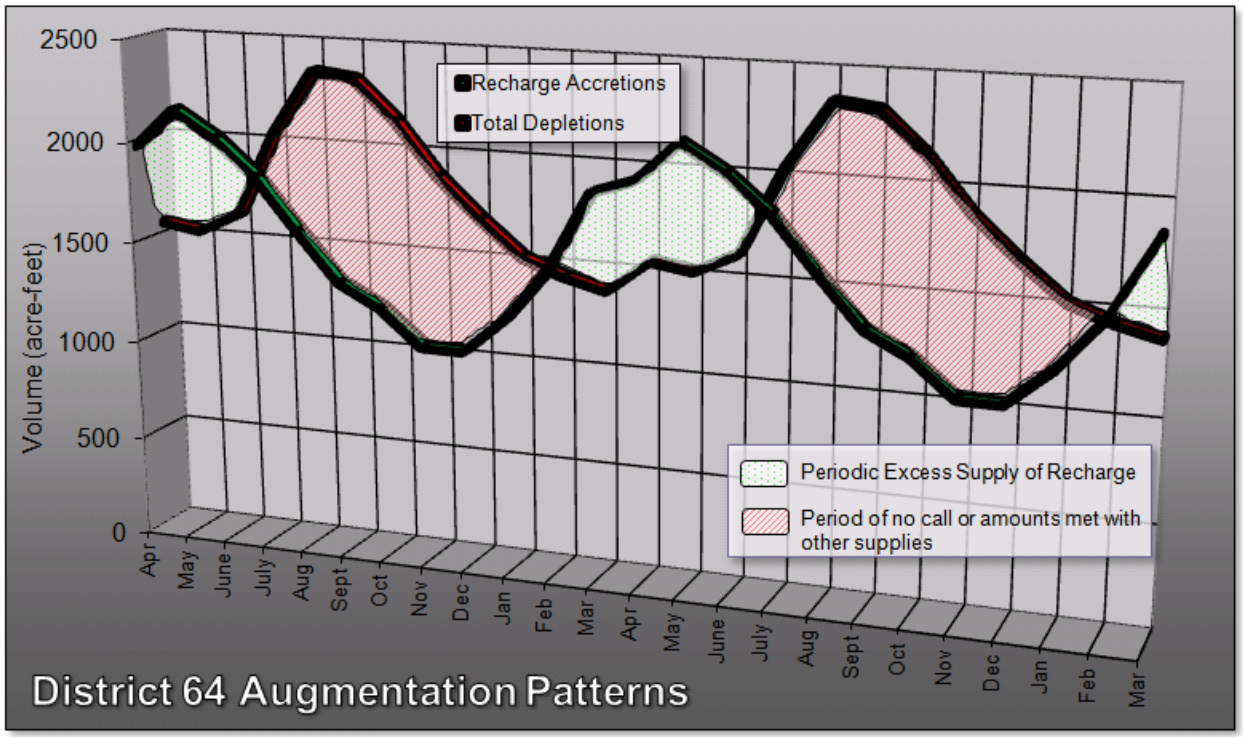


Figure 1-1. Pattern of District 64 augmentation plan depletions and accretions

Figure 1-1 illustrates the variability in patterns of depletions and recharge in District 64. In late winter and spring, recharge exceeds depletions. However in the summer and fall, depletions are more than recharge credits, and augmentation plans need to rely on other sources of water for augmentation supply.

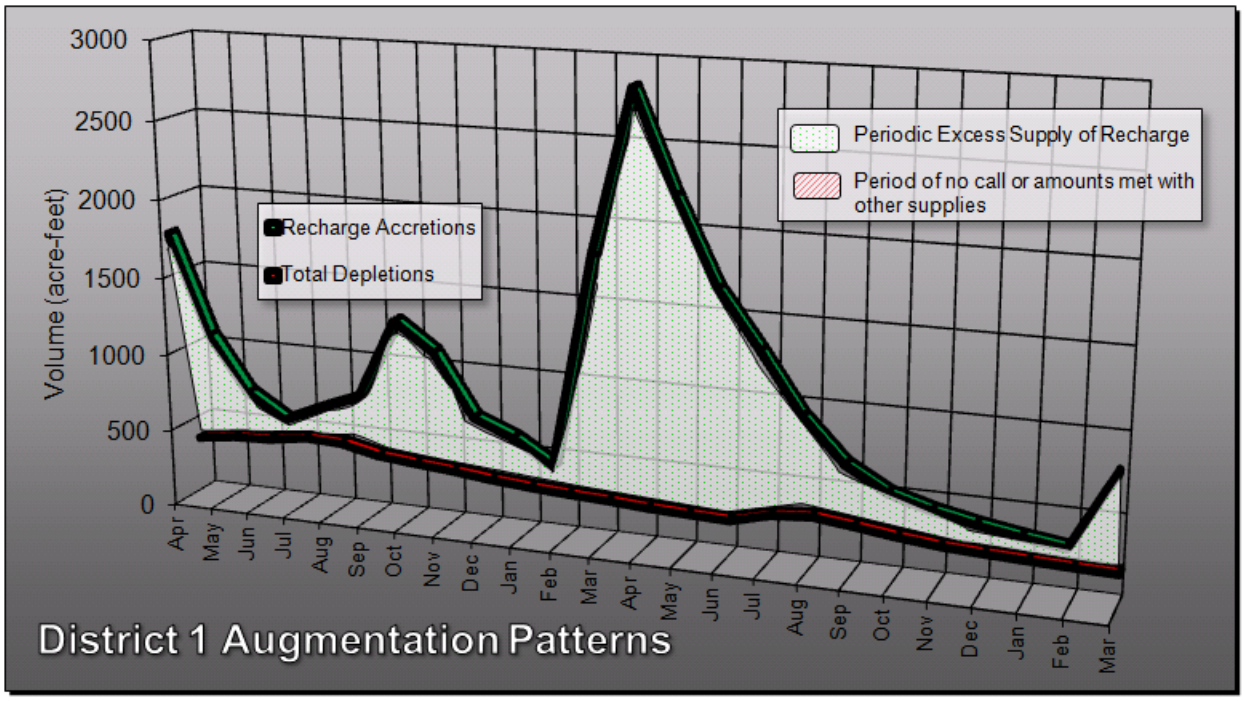


Figure 1-2. Pattern of District 1 augmentation plan depletions and accretions

In District 1 (shown in Figure 1-2), augmentation plans frequently need to recharge as much water as they can in the spring so that the lagged accretions last through the summer, fall, and early winter when the opportunity to recharge using junior water rights may not be available.

1.6 Focus Area

The NECWC is currently focused on Districts 1 and 64. Meeting local needs (i.e. within Districts 1 and 64) is very important to many stakeholders, but others are interested in meeting needs outside of Districts 1 and 64 in the future as well. The general area over which the NECWC plans to operate in the near future is shown in Figure 1-3. In the future, the NECWC may consider meeting needs further upstream of the area indicated in Figure 1-3.

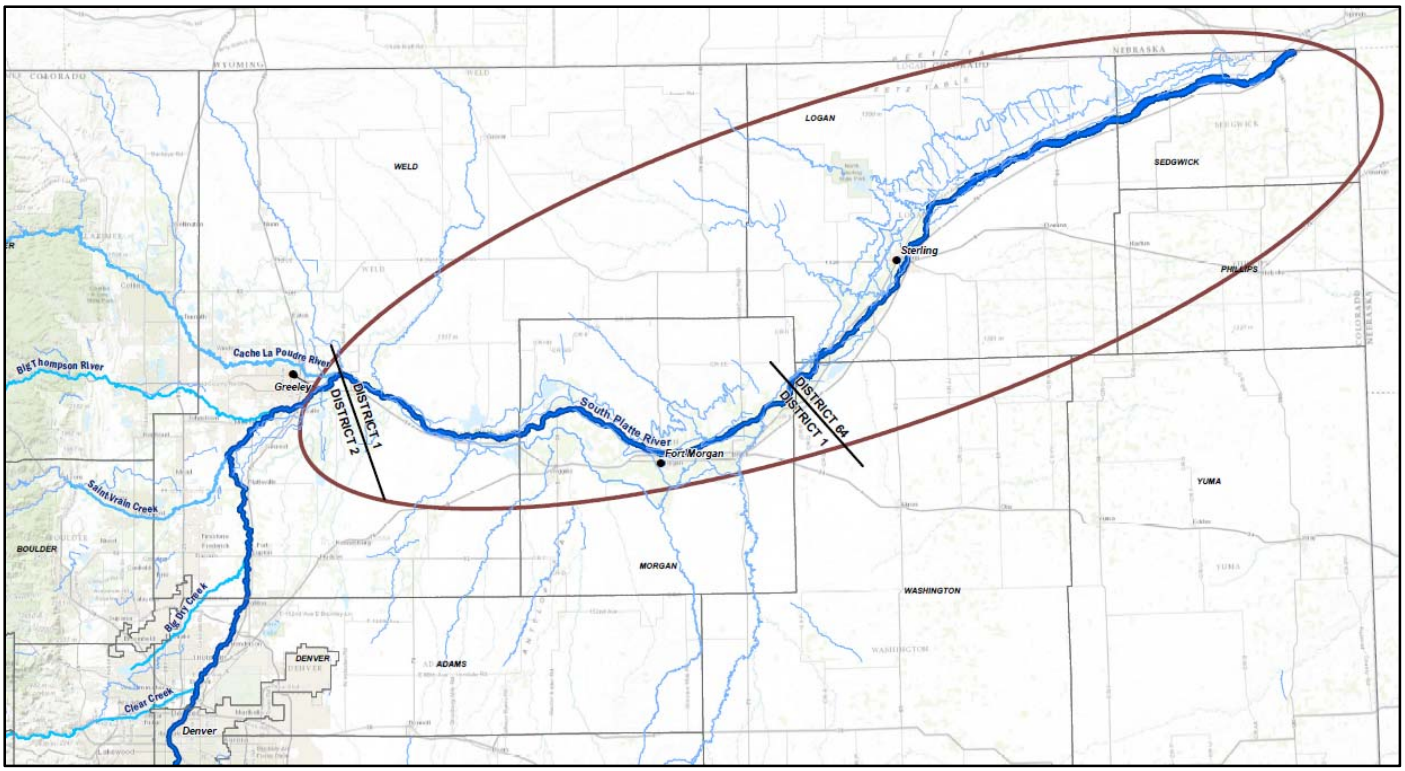


Figure 1-3. Current geographic focus of the NECWC

Section 2

Organizational Analysis

The objectives of the organizational analysis were to analyze and determine the best organizational structure for a new organization and finalize the findings to the point of potential initiation of the organization. Another objective of the analysis was to research and evaluate water law issues related to operation of a new organization. This section describes the process for the evaluating organizational alternatives, selecting an organizational structure, and initiating the organization. This section also includes an overview of water rights issues that the organization is examining.

2.1 Organizational Alternatives

Research into appropriate organizational frameworks began with a fairly broad consideration of alternatives and factors that might be considered in evaluating different alternatives. The GRC requested that Vranesh and Raisch ("V&R") provide a list of potential organizational structures and considerations for choosing an alternative. A wide list of organizational alternatives was considered during the early stages of research, and it included the following.

- Water conservancy district
- Water district (Special District Act)
- Mutual ditch company (non-profit)
- General non-profit corporation
- General for-profit corporation
- Limited liability company
- Cooperative
- Association

A wide range of selection factors were developed that could be considered in selecting an organizational structure. The factors are listed in Table 2-1.

Table 2-1. Selection Factors for Considering Organizational Structures	
General Category	**Specific Factors**
Creation process	• Simple (no formal process) • Complex (election/court approval)
Boundaries	• Fixed • Not fixed
Government Entity Requirements	• Open meetings • Open records • Mill levy
Board Selection Process	• Elected • Appointed
Federal and State tax status	• Profit • Non-profit • Exempt (government entity)
Governance Flexibility	• Low (fixed by statute), • Medium (some choice, but controlled by Board of Directors) • High (highly flexible and under member control)
Operational flexibility	• Choices in business plan
Options for obtaining financing/capital	• Grants, loans • Outside investors • Members buy in and finance from operation fees
Options for ownership structures	• Shares • Other
Options for profit distributions	
Marketing options	

2.1.1 Evaluation Process

The GRC firmly believed that the selection of an organizational structure should be guided and approved by the stakeholders who would eventually participate in the organization. As a result stakeholder meetings were held early in the evaluation process and GRC meetings were announced and open to stakeholder participation.

An evaluation process was considered and discussed with the GRC. Approaches that considered qualitative processes (discuss options and rank choices), quantitative processes (create a questionnaire, assign numeric scores for each factor, and rank choices), or combinations of both were evaluated. In addition, the GRC considered who would make the final decision (the GRC or stakeholders). After much discussion, it was decided that the GRC, as a representative body of the stakeholders, would evaluate the organizational research and make a recommendation to the stakeholders regarding the best-fit organizational structure. Stakeholders would ultimately make the selection.

Desired characteristics of the potential organization were discussed among GRC members and stakeholders. The feedback from these discussions suggested the following:

- The organization should serve both agricultural and municipal water needs. Note that there are differing opinions about this. Some would like the organization to work exclusively with agriculture while some would like to work with all end users. The organization should be able to establish goals for the types of end uses that are met.
- A simple rather than complex creation process is preferred.
- The organization should be focused on Districts 1 and 64 but should not have specific geographic boundaries. Meeting local needs (i.e. within Districts 1 and 64) is very important to many stakeholders, but others are interested in meeting needs outside of Districts 1 and 64 as well.
- The organization should not be a governmental entity.
- An elected board should oversee the organization.
- There should be flexibility in governance and operation.

In addition to general research of organizational structures, the team met with experts from the Super Ditch (an organization in Water Division 2) and the Rocky Mountain Farmers Union to discuss various organizational structures, including for-profit corporations and cooperatives.

As the GRC continued to meet, it expressed preliminary preferences about some primary factors that allowed initial screening of the organizational choices. For example, governmental entities were viewed as not flexible enough to achieve the goals of the proposed organization. They would require fixed boundaries, tax or fee levies, and other legal formalities that seemed inconsistent with the primary need for the organization to be highly flexible in terms of membership, decision making structure, and financial structure.

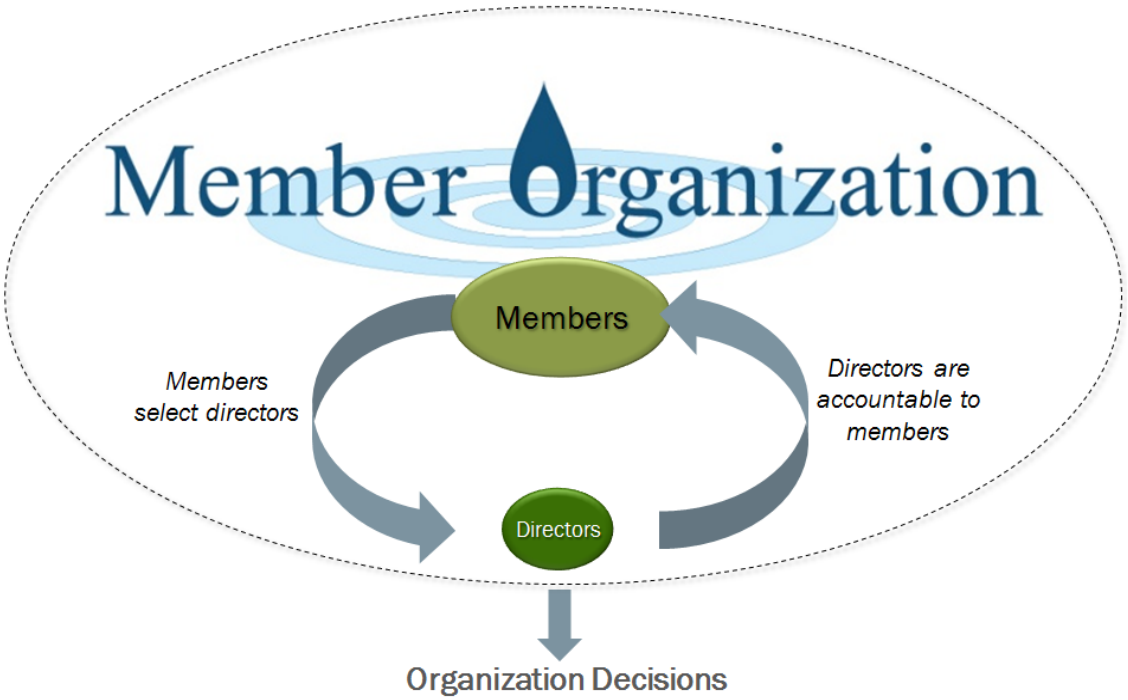
Following this initial screening process, the GRC consulted with Anthony Van Westrum, a corporation attorney who had worked with the Super Ditch. Mr. Van Westrum suggested that, given the flexibility needs of the organization, a for-profit organization might not be the best model. However, a cooperative formed pursuant to the newly-passed Colorado Uniform Limited Cooperative Association Act could potentially work.

The GRC met several times and held a larger public meeting to gather water user input. Based on input from other organizations and stakeholders, several key goals were identified that needed to be met in forming an organizational structure:

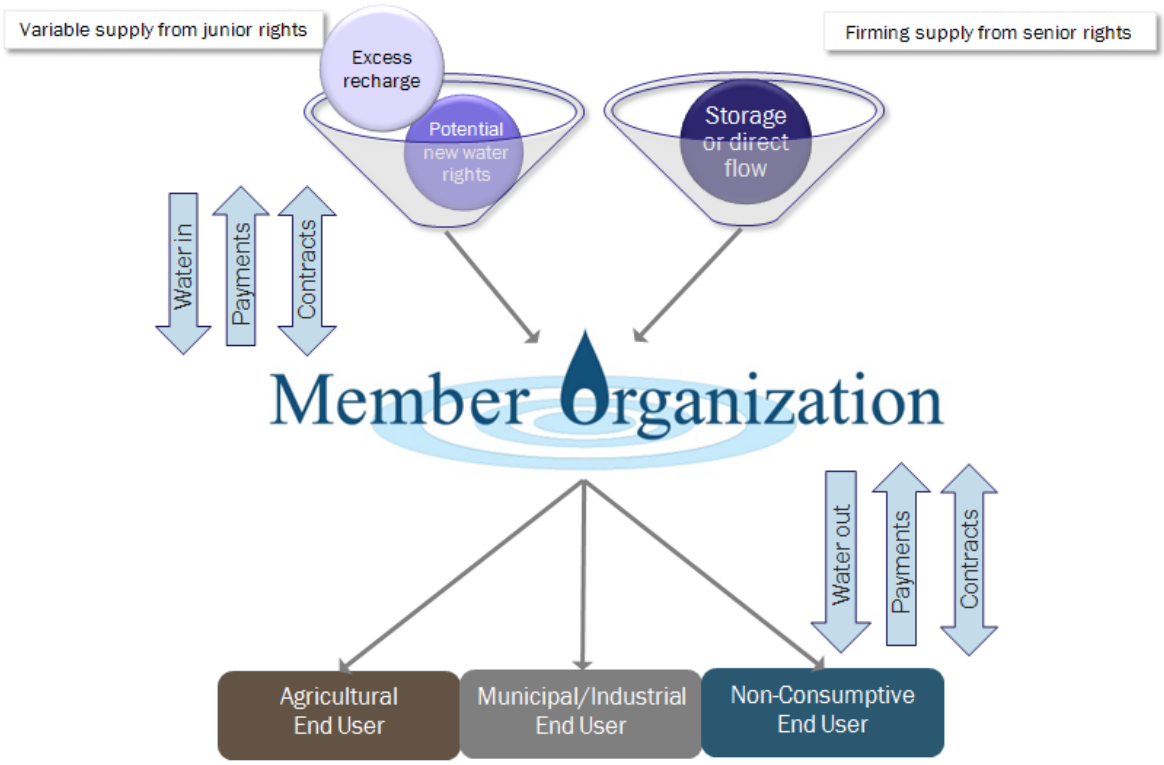
- Design the membership criteria to be balanced, fair, and accessible for local water users.
- Design an organization that will operate in a transparent manner so that water users can see how decisions are made.
- Design Board of Directors criteria to be representative of members yet functional and effective.

2.1.2 Conceptual Organizational Structure

The GRC collaborated on how the organization should be structured. Conceptual models were developed to illustrate organizational concepts that would need to be met with the chosen organizational structure. Two of the conceptual models are described below.



The above graphic illustrates a few key concepts. The organization encompasses the membership, and directors are elected from the membership. Directors are accountable to the members and make decisions on behalf of the members. Feedback loops between the membership and directors depict transparency and accountability.



This graphic illustrates how water and water payments could "flow through" the organization. Different types of supplies might pass through the organization to various end users. The organization could pool resources to increase the reliability of delivery. Contracts and payments for supplies would be between the supplier and the organization, and the organization would establish contracts with end users, who would pay the organization for water.

2.1.3 Best Fit Organizational Structure

After researching various organizations, talking with experts and members of other organizations, and obtaining input from stakeholders, the GRC determined that a cooperative was the organizational structure that best fit the criteria that had been developed.

Although the GRC looked at other business formats, such as limited liability companies and corporations, it was determined that the cooperative model would best suit the members' needs and goals for the organization. In non-cooperative businesses, the investors are generally the persons who reap the benefits of being involved with the company, usually based on how much they have invested in the company. However, a cooperative is designed so that member benefits are directly proportional to how much they use the cooperative. Any profits (called net margins in cooperatives) are distributed to the members based on each member's patronization of the cooperative, not based on how much was invested in the cooperative.

After reviewing various business models, the GRC concluded that equal voting rights were extremely important for this entity. Members in cooperatives have equal voting rights, unlike other for-profit entities where voting rights are dependent on dollars invested. The GRC decided that members who are farmers with individual augmentation plans should have the same rights as members that are large entities, such as ditch companies and water conservancy districts. By forming a cooperative, the GRC was able to ensure fairness in voting rights among members.

The GRC then hired an attorney specializing in cooperative law and operations to advise them on the steps needed and specific considerations in forming a cooperative.

2.2 Formation of the Organization

The GRC worked with a cooperative attorney (Ms. Linda Phillips, Of Counsel at McClure & Eggleston, LLC) to develop bylaws, articles of incorporation, etc., and to deal with issues such as qualifications for membership, defining "patronage" of the cooperative, tracking patronage, establishing minimum levels of patronage, etc. The GRC and cooperative attorney worked at length to answer the fundamental questions described above but also financial issues, conditions for leaving the cooperative, costs for membership, qualifications for the board of directors, size of the board of directors, types of membership, etc. After numerous meetings, work sessions, and interactions with stakeholders, the GRC, consultants, and cooperative attorney developed the organizational documents necessary to form the cooperative. The cooperative was officially incorporated on January 1, 2014 as the NECWC.

2.2.1 Organizational Documents and Description of the Organization

The following section provides a description of the organizational documents associated with the NECWC and the foundational features of the organization.

Articles of Incorporation

A cooperative may be a stock or membership cooperative, and the Articles of Incorporation provide the rights of the members. Those rights may include the right to vote, the right to be a member of the board of directors, and the right to distributions. A cooperative may also have multiple classes of membership with differing rights in different classes and there may be preferred stock with rights to dividends but no rights to vote. Often included in the Articles of Incorporation for cooperatives are specific provisions that comply with federal tax law for distributions of net margins on a cooperative basis, as well as specific limitations of liability for members in the cooperative.

In the case of NECWC, there was much discussion among GRC members about the voting rights of different classes of membership. This discussion led to more talk about the qualifications for membership in the cooperative, which in turn helped with the creation of the Bylaws of the cooperative (discussed below). NECWC's Articles of Incorporation provide for two classes of membership stock, one with voting rights (Class A) and one without voting rights (Class B). The cooperative also has the authority to issue preferred stock to investors (whether members or outside investors) on terms decided by the Board of Directors.

Bylaws

A cooperative's bylaws are used by the Board of Directors and management team as the operational structure for the cooperative. Cooperative bylaws are similar to both corporate bylaws as well as limited liability company operating agreements. They are the roadmap for decision-making and operational management. Several components of the NECWC bylaws are described below.

- **Membership qualifications** - This section of the bylaws is probably the most important for any cooperative as it spells out who can be a member of the cooperative. As opposed to a limited liability company that can accept any person or entity as a member of the company, a cooperative is often a "closed membership" organization where membership is limited to those persons who will use and benefit from the cooperative. This is an intended limitation that narrows the focus of the cooperative to the benefit of the members. In NECWC, there

are two classes of membership, voting and non-voting. The two main distinguishing characteristics for Class A voting members are as follows.

- Voting members must have a principal office or residence located in either Water District 1 or 64, as defined by the Colorado Division of Water Resources.
- Voting members must own a decreed or pending application for an augmentation plan that includes water rights or a water recharge facility authorized by decree from a recognized Colorado Water Court (not including persons who are individual shareholders, members or users of an entity with such a right, plan or facility).

The GRC spent a great deal of time deciding upon these specific qualifications. For example, would a pending application for an augmentation plan be acceptable, or must the member own a decreed plan? What is the definition of "principal office or residence"? What if an entity wanted to be a voting member but their main office was outside of Districts 1 and 64? The GRC had to decide how inclusive or exclusive the cooperative was going to be, remembering the purpose and overall goals of the cooperative to provide balanced, fair, and accessible services to persons in Districts 1 and 64.

The non-voting membership was slightly easier for the GRC as these would be persons or entities who did not fit into the qualifications for Class A membership or who for some other reason did not want to be voting members of the cooperative. Both classes of members require purchase of membership stock and participation in the cooperative (called "patronizing", in cooperative terminology).

Then the GRC spent some time deciding how much one share of voting membership stock and non-voting membership stock would cost. In other words, how much to join the cooperative? A preliminary pro forma balance sheet was generated that attempted to estimate the operational costs of the cooperative in its first few years of existence. Of course, with only a vague idea as to the amount of potential income, it was difficult to estimate revenues. Operational expenses were slightly easier to anticipate and an expense statement was created that provided for management expenses, telephone, corporate legal and accounting costs, membership communications, etc. Water court legal costs were not estimated, but were a part of the GRC's discussion. The GRC wanted as many members of the community to join as possible, so it determined that the price for one share of Class A voting stock would be $2,000.00 and one share of Class B non-voting stock would be priced at $1,000.00.

- **Board of Directors** - The next most important section of cooperative Bylaws includes the provisions for the Board of Directors. The GRC was asked to answer questions such as: What are the qualifications to be a director? Should there be specific director seats representing the two water districts? How many directors should the cooperative have? What should be the term of office? All of these questions were discussed and answered by the GRC. Nine of the original members of the GRC were named as the initial Board of Directors for the NECWC during the first year of operations, mostly to keep some continuity going with persons who were familiar with the past several years of efforts. In May of 2015, per the cooperative bylaws, the number of directors on the NECWC board was reduced to five persons, three directors with 2-year terms and two directors with 1-year terms. The staggered terms will allow for elections next year of standard 2-year terms for all on-going director elections as those seats that are currently for only 1 year will be up for election next year for a 2-year term. The officers of the Board of Directors include a Chairperson, Vice Chair, Secretary and Treasurer and they are appointed by directors at the first board meeting following the annual membership meeting each year.

- **Management** - According to the NECWC bylaws, management is to be conducted by a General Manager who has authority to operate the cooperative, hire and fire employees or vendors and generally manage the cooperative under the supervision of the Board of Directors. The Lower South Platte Water Conservancy District has been hired, per a written services agreement, to operate the NECWC for the foreseeable future. At some point in the future, it is anticipated that the NECWC will have sufficient cash flow to hire persons directly for operations.
- **Membership benefits** - The purpose of any cooperative business is to benefit the members of the cooperative, whether through services, purchasing power, for marketing and administrative services or, in the case of NECWC, for the efficient use of water owned by the members. A group of water conservancy districts, ditch companies and others who have augmentation plans have come together to create an organization that will enable them to better utilize the water resources of the community.

2.3 Water Law and Water Rights Considerations

The project team researched water law and water rights issues related to the goals of the organization to determine the best approach for achieving those goals and to evaluate items that might impact the organization and/or its members. The results of the research are described below.

A primary goal of the organization is to provide a framework for more efficiently using unused recharge credits from decreed recharge water rights and augmentation plans. Many South Platte River augmentation plans include provisions that allow the use of unused recharge credits under certain scenarios. Numerous augmentation plan decrees were reviewed, including those owned by potential NECWC members, to identify the provisions related to end uses of unused recharge credits that might be applicable to NECWC's cooperative operations. Common provisions are as follows:

- Many decrees adjudicating recharge water rights allow for the lease of unused recharge credits to other water users for either short-term or long-term periods, subject to certain approval requirements. Generally, the person or entity leasing unused recharge credits must have an approved SWSP or plan for augmentation.
- Many decrees adjudicating plans for augmentation allow for the plan owner to add additional replacement sources to the augmentation plan, subject to notice and comment requirements concerning the water source to be added.

NECWC and its consultants have and continue to evaluate the best approach for utilizing these provisions to accomplish the water use goals of its members, including the possible filing of one or more water court applications that will authorize its contemplated operations.

Several considerations have been identified with respect to future activities related to a water court filing as a result of research into water law and water rights issues and the provisions of the reviewed recharge water right and augmentation plan decrees.

- An area-wide augmentation plan may be developed to allow flexible use of unused recharge credits.
- Decreed exchanges may be used to move these credits to upstream facilities for better water management.
- New places of storage and recharge may be added to facilitate use of the unused recharge credits.
- Changes of water rights are also being evaluated as a possible means to include other water sources and water users into the NECWC operations.

Section 3

Conceptual Operational Analysis

The NECWC has approached operational planning from both short and long term perspectives. The NECWC recognizes that, once the NECWC is formed and operating, the need for particular services may change and will be determined by the members and the Board of Directors. The current, short and long term operational vision for the NECWC is described below.

Short term

As described earlier in this report, it is apparent that, due to the variability of groundwater recharge, numerous augmentation plans in Districts 1 and 64 have periodic amounts of both excess augmentation supplies and shortages of augmentation supplies, depending on annual, monthly and daily operating conditions. The NECWC plans to provide its members with several services in the short term to coordinate the lease, exchange and retiming of unused recharge credits from members who at times have available water to members who at times have shortages. Note that all of the unused recharge credits occur from the normal operating conditions of existing individual augmentation plans. These unused recharge credits occur as a result of the differences in timing of recharge accretions in comparison to well depletions and as a result of the uncertainty in future hydrology within the basin (see Section 1.5 for more information).

The NECWC plans to track and coordinate annual, monthly and daily unused recharge credits and shortages between its members, within existing decreed augmentation plans. The NECWC will coordinate its operations with member-supplied information to track unused recharge credits and augmentation plan shortages. The NECWC will also work with its members to develop real-time telemetry for wells and other infrastructure that have short term impacts on the stream, and will pursue financial assistance for such telemetry. The NECWC will use available information from its members and will coordinate with the Division of Water Resources to ensure that leases, administrative exchanges, and re-diversions occur in the proper time, location and amount to avoid injury to other water rights. In addition, the NECWC plans to coordinate and assist in meeting accounting and notice requirements set up by the existing terms and conditions within individual augmentation plans to allow for such use. Members will provide timely accounting information to the NECWC with respect to their individual augmentation plans.

It is anticipated that the short term goals of optimizing the use of existing unused recharge credits would occur within Districts 1 and 64 between members of the NECWC.

Long term

The NECWC plans to explore other ideas to further maximize water uses and supplies within Water Districts 1 and 64 and possibly within other parts of the South Platte River basin.

First, the NECWC plans to research and potentially coordinate various means to lease, exchange and re-divert the transferrable portion of historic consumptive use water from both senior direct flow and reservoir water rights, while maintaining water-user ownership of the agricultural water rights, and to find alternatives to the traditional “buy and dry” approach to changed uses of senior water rights. Leases of water rights would be coordinated and exchanged via the NECWC. Senior water rights exchanged and leased through the NECWC could be used to firm up long term water supply commitments to both members and non-members.

Second, the NECWC will investigate the need for utilizing existing infrastructure and building additional infrastructure to help improve water use efficiency by its members both for the short term and long term operations of the NECWC. The NECWC will research and analyze the costs and benefits of such infrastructure and the financing options for building feasible infrastructure. If NECWC members deem feasible infrastructure projects warrant construction and adequate financing is available, the NECWC and the members may pursue such construction. It is anticipated from initial planning and engineering that new and existing infrastructure such as pumping stations, pipelines, long-term recharge areas, storage reservoirs and other infrastructure could significantly improve the optimization of using unused recharge credits, changed direct flow and storage water rights, exchange potential, and development of unappropriated waters within Water Districts 1 and 64.

Finally, the NECWC plans to research the historical timing and amount of unappropriated waters in Water Districts 1 and 64 and to utilize existing and new infrastructure to strategically divert and beneficially use such water to meet unmet agricultural, municipal, industrial and non-consumptive shortages for both members and non-members. The NECWC would analyze the unmet demands or water shortages for both its members and non-members who contract with the NECWC for possible water supplies. Water allocations and deliveries of newly developed water supplies to and from the NECWC would be determined annually, monthly and daily by Board of Director policies and management execution of such policies.

It is anticipated that the long term operation scenarios outlined above would require court approved adjudication for such use. The NECWC anticipates that extensive legal and engineering work would need to be done to adjudicate any new water rights associated with the above operating scenarios. Financial estimates and financing options would be presented to NECWC members. Pursuit of newly adjudicated water rights would commence if needed and feasible.

3.1 Operational Analysis under the WSRA Grant

Work under the WSRA grant on the operational analysis involved work by both the engineering consultants and legal consultants. In this task, technical analyses were conducted to support the short and long term operational concepts described above. This report will describe technical analyses supporting shorter term needs (updating of exchange analysis, data collection necessary to properly track water transactions, and accounting needs) and longer term considerations (operational concepts to match available water supplies with potential demands, potential existing/new infrastructure or exchanges that may be needed to convey water between supplies and demands, etc.).

For the purposes of the WSRA grant, the longer term operations plan was developed at a conceptual level. As a part of work conducted by the NECWC and consultants in other grants, operational planning tools have been developed and the operational plan is being refined based on the membership of the NECWC and evolving future operational concepts. Additional and more detailed information on NECWC operations will be provided in future reports completed per the other grants.

3.2 Work in Support of Shorter Term Operational Concepts

3.2.1 Water Supplies – Unused Recharge Credits

Currently, the NECWC is focused on better utilization of unused recharge credits generated by its members. Assessments were conducted to obtain a rough estimate the amount of available unused recharge credits for an example set of years and to identify the locations and reliability of the sources. The results of these analyses are described below.

Most augmentation plans in Districts 1 and 64 rely on intentional recharge as a primary source of water supply to offset well pumping depletions. As described in Section 1, augmentation plans periodically have more recharge credit available than is needed to replace the out-of-priority well pumping depletions. Absent a means to utilize these recharge credits, they go unused.

As a part of the WSRA grant scope of work, the project team quantified unused recharge credits for most of the augmentation plans in Districts 1 and 64 using augmentation plan accounting data for 2009 and 2010 for this assessment. In addition the project team referenced data from a previous Colorado Corn Growers Association (CCGA) ATM project that quantified 2008 unused recharge credits in Districts 1 and 64 (CCGA, et al, 2011). The augmentation plans included in the assessment are shown in Table 3-1. The list of plans in Table 3-1 reflects most of the active augmentation plans in District 1 and 64 and not necessarily the specific membership of the NECWC. It should be noted that the quantification activities occurred prior to the formation of the NECWC.

Table 3-1. Augmentation Plans Considered for Unused Recharge Credit Assessments

District 1 Plans		District 64 Plans	
Lower Platte & Beaver	Jensen Teague	Lower South Platte Water Conservancy Dist.	Logan Well Users
Pioneer	Bijou	Sedgwick County Well Users	Pawnee Well Users
Wind	Groves Farms	Dinsdale	City of Sterling
Upper Platte & Beaver	OWW	Harmony	South Platte Ditch Well Users
English Feedlot	Goodrich	Condon	Vandemoer
Pinneo Feedlot	Hawkins	Lower Logan Well Users	Quint
City of Brush	Western Sugar	Harris	Valley View
Deuel & Snyder	Lorenzini	Hurst	FL Gill
T&M Livestock	Front Range	North Sterling	Accomasso Bros.
Riverside	Equus	Lowline	Svoboda
Fort Morgan Reservoir & Irrigation Company	National Hog		
Public Service Company	Weldon Valley		
City of Ft. Morgan	Sublette		
Morgan County Quality Water District	5 Rivers Monfort		
Ft. Morgan Farms			

Table 3-2 shows the total estimated amount of unused recharge credits in Districts 1 and 64 for 2008 through 2010.

Table 3-2. Estimated Amount of Unused Recharge Credit from 2008 through 2010 (acre-feet)

	2008	2009	2010
District 1	20,000	60,000	60,000
District 64	10,000	20,000	20,000
Total	30,000	80,000	80,000

The bullets below provide some observations on the data in Table 3-2:

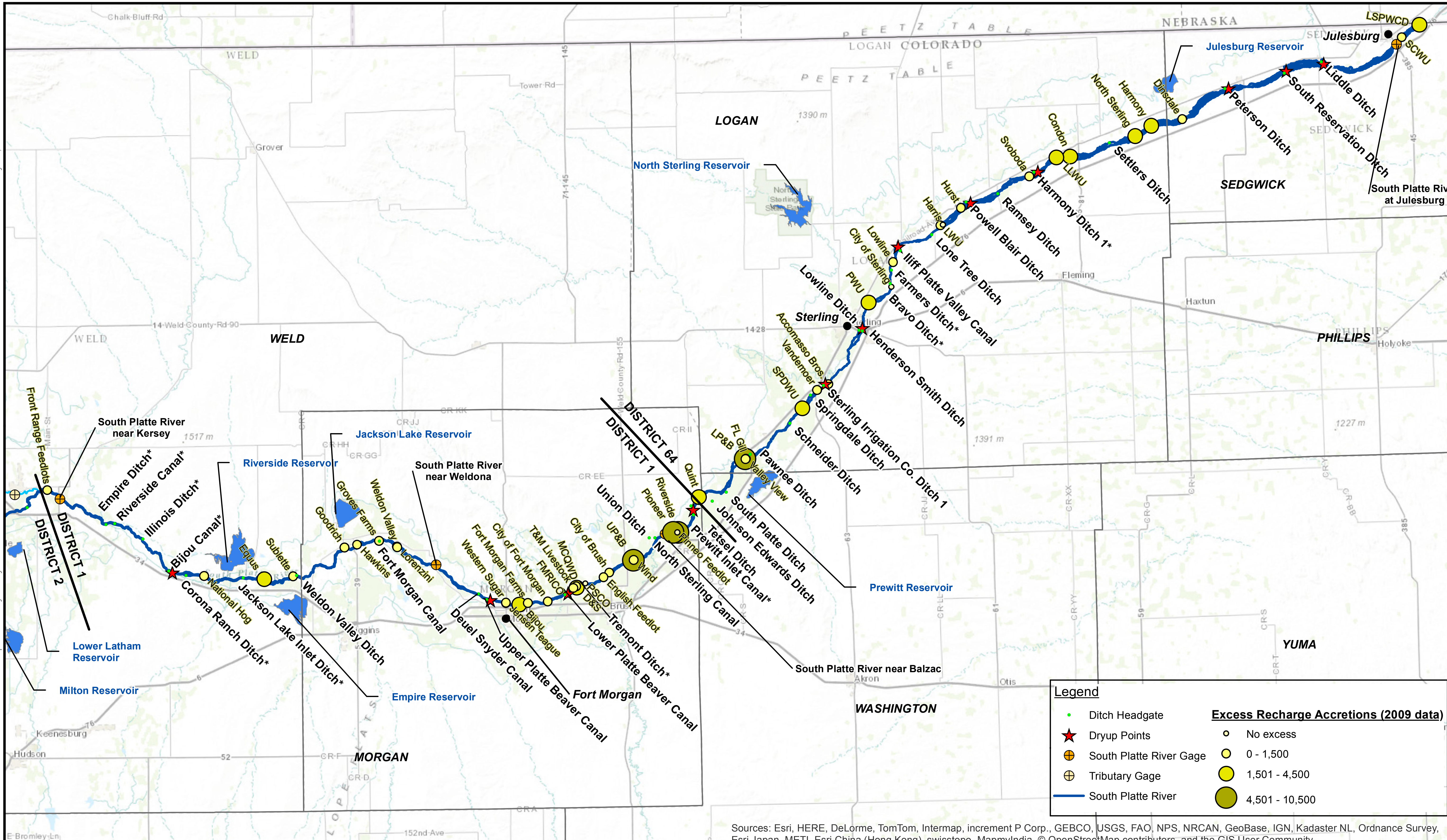
- Amounts of unused recharge credit vary for the years examined. Substantially more unused recharge credits occurred in 2009 and 2010 than in 2008.
- The amount of unused recharge credit appears to be less variable in District 64 based on the years examined. Annual amounts of unused recharge credits in District 64 varied from 10,000 to 20,000 acre-feet.
- Annual amounts of unused recharge credit appear to be more variable in District 1 than in District 64. Annual amounts of unused recharge credits varied from 20,000 acre-feet in 2008 up to 60,000 acre-feet in 2009 and 2010.
- 2008 through 2010 were good years for recharge. It is likely that, during drought, unused recharge credits will be much reduced, if not eliminated. The data shown in Table 3-2 are not necessarily indicative of any particular year or set of years in the future.
- The amount of unused recharge credits available to the NECWC will vary from the values shown in Table 3-2 depending on the specific members of the organization.

The locations where unused recharge credits occur for each augmentation plan were mapped using ArcGIS and are shown in Figure 3-1. The locations shown in Figure 3-1 were sited by identifying the most downstream location of either wells or recharge ponds in each augmentation plan. It should be noted that unused recharge credits could accrue in multiple locations in the various augmentation plans, but for the purpose of this mapping, the project team designated the most downstream feature of augmentation plans to be the mapped location of credit accrual to the stream. For the purposes of this report, unused recharge credits during the 2009 augmentation year are shown. Figure 3-1 indicates that much of District 1 unused recharge credit occurs near the bottom of District 1. In District 64, credits are more evenly distributed throughout the district.

3.2.2 Water Demands

The project team conducted meetings and interviews with a number of water providers and augmentation plans to assess potential permanent or temporary demands for water that could be made available through the cooperative. Water needs varied. A summary of the water needs expressed during meetings and interviews are described below.

- Most users expressed interest in water supplies during droughts. Some augmentation plans need water in the second year of a drought to maintain 100 percent pumping quota. In the first year of a drought, accretions from previous years' recharge activities are generally adequate to meet their needs. However, if their junior recharge rights are not in priority during the first year of drought, their available recharge credits dwindle in the second year.



Brown AND Caldwell

Date: June 2015

Lower South Platte WCD

Project: 140804

1 in = 8 miles

0 3 6 Miles

Notes

Projection: Universal Transverse Mercator, Zone 13 North, 1983 North American Datum (meters).

Locations of ditch headgates and stream gages from South Platte Decision Support System

Locations of dryup points from straighline diagrams

Figure 3-1
Locations and amounts of Excess Recharge Credits (acre-feet in 2009)

P:\Data\GEN\P:\Data\GEN\Lower South Platte WCD\Co-op Feasibility Study\GIS\MXDs\Overview South Platte River.mxd July 25, 2011 ilheritier

- Municipal providers generally have adequate supplies in most years, but may need water during drought conditions or for drought recovery.
- Some augmentation plans with quotas that are consistently less than 100% expressed a need for firm supplies to allow full pumping.
- Some augmentation plans handle a variety of supplies and demands in terms of amounts and locations. These plans may already have some degree of operational flexibility, but they expressed that an additional source of supply could enhance their flexibility.
- Several industrial and municipal water users were interviewed. Most of these entities stated that they either have adequate supplies or that they are currently developing supplies that will meet their needs. However, they also expressed interest in working with the NECWC in the future as a way to develop additional water supply options.

3.2.3 Exchange Capacity

The CCGA Study Team, in their 2011 ATM project completion report (CCGA, et al., 2011) describe a tool they developed to evaluate exchange capacity between various diversion points on the South Platte River from the Burlington Ditch headgate to the Colorado-Nebraska state line. The tool uses a daily point flow analysis and call information to determine when exchanges could have been run and how much water could have been exchanged through various points on the river during the historical study period of the tool. The tool used for the CCGA ATM project ran from October 1999 through September 2008. The reader is referred to the CCGA ATM project completion report for a full description of the tool, data inputs, and results of the analysis.

The exchange capacity tool was updated for the purposes of the LSPWCD WSRA grant project. Under this project, the input data sets were extended to include the years 2009 and 2010. It should be noted that, through efforts associated with the South Platte Basin Implementation Plan, the input data sets were extended through September 30, 2013.

The updated tool was used to update average annual exchange capacities during the direct flow season (April through October) and storage season (November through March). These calculations were originally conducted and documented in the CCGA ATM project completion report. The results of the updated analysis are shown in Figure 3-2. Exchange capacity during both the direct flow and storage seasons is higher in Districts 1 and 2 than in District 64. During the storage season, exchange capacity is limited between the Riverside and Jackson Lake inlet ditches and in District 64, because reservoir storage rights place calls on the river. The highest exchange capacity during both the storage and direct flow seasons is in the reach from Union Ditch to Empire Ditch.

Figure 3-2 indicates that there is generally more exchange capacity during the direct flow season, because flows are higher in spring and summer, and large diversions to storage are not occurring. The graph also shows that the exchange capacity upstream of the North Sterling Canal varied more during the direct flow season among wet/dry/average conditions than it did during the storage season. The general reason for this is that river flows varied more during the direct flow season than the storage season.

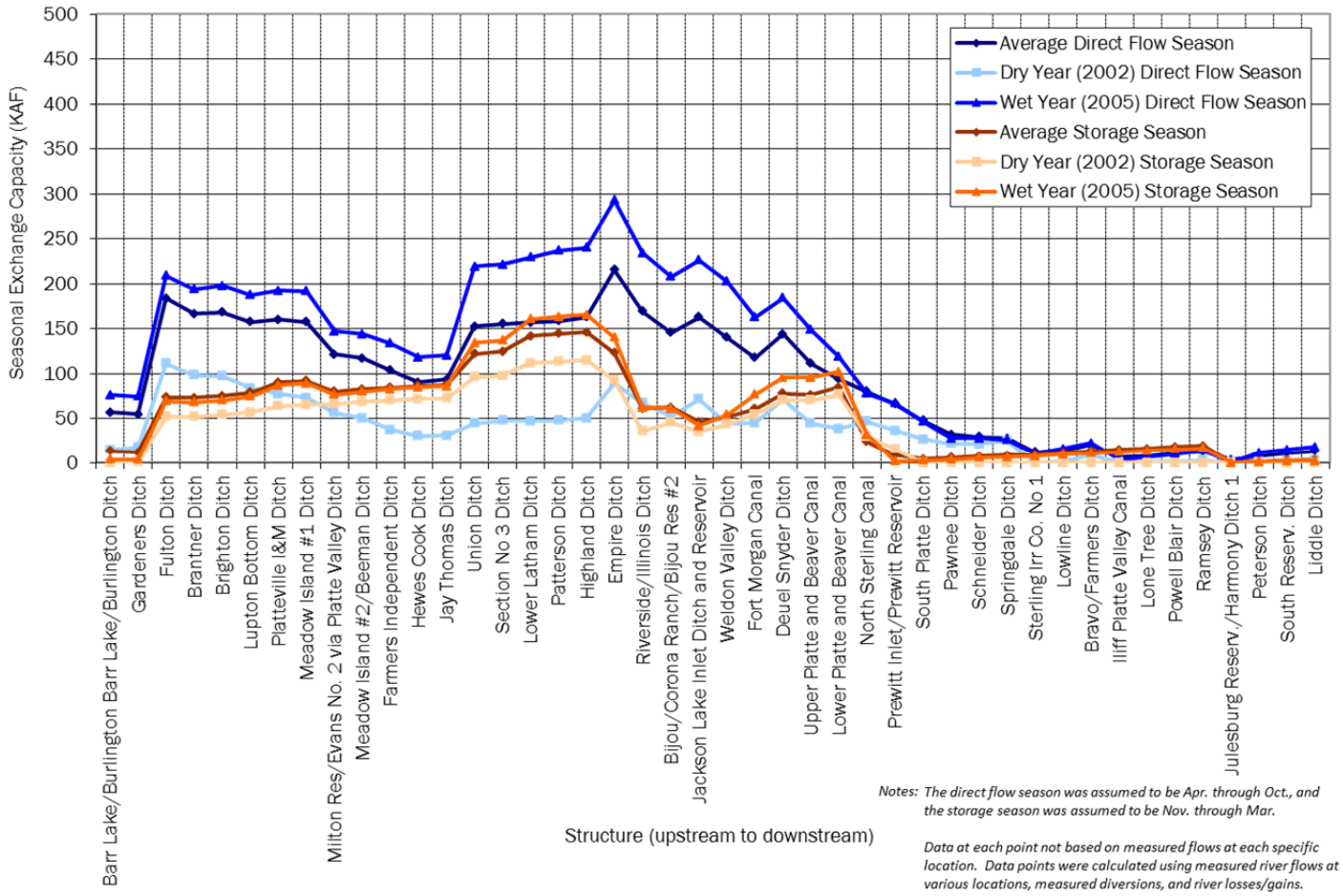


Figure 3-2. Seasonal variation in exchange capacity at various points along the South Platte River for water years 2002 through 2010.

The results of the exchange analysis were used in subsequent planning work for the NECWC conducted under the current ATM grants described in Section 1. For example, an operational planning tool for the NECWC was developed that evaluates delivery capabilities based on operational rules and constraints such as exchange capacity. The results of operational planning conducted using the tool will be described in future ATM project completion reports.

3.2.4 Data and Water Accounting Needs

Accurate water accounting will be a critical short and long term need of the NECWC. The GRC and consultants spent a considerable amount of time discussing data and accounting needs and developing an accounting tool.

Early discussions centered on the scope of data generation and accounting that the new organization could or should conduct. For example, the NECWC could potentially estimate unused recharge credits being generated from member augmentation plans on a real-time basis. NECWC accounting data and member accounting data would need to match, and discrepancies would need to be evaluated and corrected. The benefit of this approach is that the NECWC and member augmentation plan would be assured that consistent and transparent evaluations of unused recharge credits were being conducted and that information on unused recharge credits would be readily available if a member wanted to lease its credits on short notice. However, this level of data

sharing and accounting would require a high level of coordination and work. In addition, a member augmentation plan may not want to lease all of its unused recharge credits through the NECWC. Rather, these members might simply prefer to inform the NECWC of the amount of water they have available for lease and where it is located. After discussing the scope of water accounting that would need to be conducted, the GRC and consultants decided that NECWC accounting should likely focus solely on the water the NECWC is leasing and delivering.

Based on the scope of water accounting determined via early discussion, specific data and water accounting needs of the NECWC were developed by the GRC and consultants. The data and accounting needs are summarized below.

- **Call information:** The specific location and priority of calls will be important for evaluating the amount of unused recharge credit that is available and the ability to deliver water via exchange. For example, an augmentation plan may have unused recharge credits available for lease if a junior water right is calling, but if the call changes to a senior water right, some or all of the unused recharge credits may be needed to replace depletions upstream of the senior right. Also, changing call regimes may impact the ability to exchange water upstream. Real-time call information will be incorporated into the operations and water accounting conducted by the NECWC.
- **Locations of supplies and demands:** The specific locations of supplies and demands will be needed from both an operations and accounting perspective. The NECWC manager or operator will evaluate supplies and demands by location on a real-time basis so that proper delivery decisions can be made and implemented. In addition, location information will be important so that exchange or bypass conditions can be assessed, transit losses can be properly applied as deliveries are being made, etc.
- **Administrative information:** When leases are conducted and water is "brought into" the NECWC, information on the member plan (or lessor), the type of water being leased (unused recharge credits, water from senior irrigation rights, etc.), and other details will need to be provided and recorded. From a water perspective, it will be important that the NECWC's accounting of leases into the NECWC (amounts, location, timing, etc.) match the member's accounting of water leased from an augmentation plan to the NECWC.
- **Individual and collective information:** Information collected on individual leases will need to be aggregated for operational purposes. As described above, information on individual leases will need to be recorded on a member-by-member basis, but this information will also need to be summarized and aggregated so that the NECWC manager or accountant can evaluate the total amount and location of water available for lease from the NECWC.
- **Information on retimed or stored supplies:** If the NECWC leases water and retimes it by delivering water to a recharge facility, the accounting will need to keep track of the amounts delivered, evaporative losses, and the timing of when the resulting stream flow accretions will be available in the future. If water is delivered to a reservoir, the accounting will need to track delivery amounts, amounts remaining in storage, evaporative and seepage losses, etc.
- **Operational scenario planning:** The NECWC manager or accountant may need to evaluate various alternative delivery scenarios if NECWC is trying to manage multiple supplies and demands at a point in time.
- **Consumable, real-time data:** Real-time information on location and amount of water supplies, water demands, dry up points, etc. will be useful to the NECWC manager or accountant for making sound and rapid operational decisions. A "dashboard" of important, real-time information will provide the manager or accountant useful and consumable information to aid in decision-making. The dashboard should be integrated with the water accounting data.

Based on the above data and accounting needs, NECWC consultants have been developing a spreadsheet-based water accounting and operational tool that meets the above requirements. The development and refinement of the tool is ongoing.

3.3 Work in Support of Longer Term Operational Concepts

3.3.1 Water Supplies other than Unused Recharge Credits

As stated previously, the short term focus for the NECWC is to better utilize unused recharge credits generated through the normal operation of member augmentation plans. In the long term, the NECWC could potentially facilitate transactions of other kinds of water depending on the needs of members or non-members. Other kinds of water that could potentially be available to the NECWC in the future were evaluated and are described below.

3.3.1.1 New water rights

The NECWC could potentially apply for new storage or recharge rights to provide supplies for its members. For example, in the future the NECWC could construct recharge facilities that have long lag times for accretions. New recharge rights could be used to deliver water to these facilities during relatively wet hydrologic conditions. During times of extended drought (when individual member augmentation plans may not be able to support 100% well pumping quotas and no unused recharge credits are available), recharge credits from NECWC facilities could be a source of additional augmentation supply to members. Available analysis tools were used to conduct a reconnaissance-level assessment of the locations and amounts of water that could be diverted to new water rights.

A point flow and call analysis tool was developed during the CCGA ATM project to assess exchange capacity and the amount of water passing various headgates from the Burlington Ditch to the state line under free river conditions. The tool provides a means for assessing the availability of water for new water rights. The tool was updated under this project to include more recent flow and call data. The tool runs on a daily time-step from October 1, 1999 through September 30, 2010.

The tool suggests that availability of water for new water rights is highly variable on a temporal and locational basis, but in general, seems to peak near the confluence of the South Platte and Cache la Poudre Rivers. In some years during the analysis period of the tool, very little water was available for new water rights because senior calls were impacting the river for much or all of the year. In other years, 200,000 to over 500,000 acre-feet of water passed various diversion headgates during free river conditions. Not all of this water would be divertible (i.e. it may have occurred during flooding conditions), but it does suggest that new storage or recharge rights would be in priority periodically.

The irregularity of times when new water rights would be in priority could limit the usefulness of new storage if a goal is to establish firm yields from storage facilities. In these situations, high volumes of storage are generally needed to produce a firm yield. However, if the NECWC has a variety of water sources available to it, storage rights that yield water on an irregular basis could potentially be useful if they are incorporated into a larger portfolio of water sources.

New rights for recharge would be useful for the NECWC even though water may only be available periodically. Recharge facilities sited in locations that lag recharge credits over longer periods of time could be useful in combination with junior recharge rights. Water delivered to recharge facilities under junior rights and during wetter hydrologic cycles could produce recharge credits at the river years later when drought conditions are occurring and NECWC members need water.

3.3.1.2 Firming supplies using senior water rights

In the future, the NECWC could potentially facilitate leases of senior water rights via alternative transfer methods. Alternative transfers using senior water rights may be a useful way for the organization to increase reliability of water delivery to members given the variability of unused recharge credits. The amount of potential firming supply under alternative transfer scenarios was quantified using an assessment method similar to what was used in feasibility studies for the Super Ditch in the Arkansas River basin.

To assess amounts of water that could be available through alternative transfers, the project team used consumptive use modeling data from StateCU available from the South Platte Decision Support System. StateCU is a tool that calculates consumptive use and return flows based on soil and crop type, climatological factors, surface water diversions, irrigation efficiencies, etc. It is a useful tool for developing planning-level analyses and water use scenarios. In addition, StateCU is frequently used as an engineering analysis tool for water rights evaluations and can be customized to evaluate consumptive use and return flows on a farm-by-farm basis. The version of StateCU used for this analysis included input data for the 1950 through 2006 timeframe. An updated version of StateCU is currently being developed by the CWCB.

The analysis conducted for this study assumed that firming supplies could be made available through rotational fallowing programs under ditch systems in Districts 1 and 64. In addition, the analysis assumed that 65% of shareholders would be interested in participating in a rotational fallowing program (if the price is right for water) and that 25% of their land would be fallowed to generate transferrable consumptive use. Further, it was assumed that direct flow rights would be made available through rotational fallowing programs and that water supplies from storage, the Colorado-Big Thompson project, and groundwater would continue to be used for irrigation purposes and would not be incorporated into a rotational fallowing program.

Basinwide input data sets have previously been developed for StateCU, and these input data sets were used by StateCU to generate consumptive use output for the analysis conducted in this study. Using the assumptions described above and the results of the StateCU analysis, approximately 30,000 to 40,000 acre-feet per year was estimated to be available through rotational fallowing in Districts 1 and 64. However, the total could be substantially more or less depending on shareholder interest, the price for water, and the method of alternative transfer. For example, if a large number of irrigators participated in an interruptible supply program rather than a rotational fallowing program, it is possible that periodic amounts of supply could be temporarily transferred that exceed the estimates described above.

3.3.2 Longer Term Demands

It is anticipated that additional demands will emerge as time goes on. For example, it is possible that many or most of the individual NECWC members will have periodic demands given the opportunity to acquire water from another entity. In another example, a member augmentation plan could use augmentation wells or could bypass senior water rights to meet their augmentation needs, but the plan may choose instead to acquire unused recharge credits from the NECWC. In addition as the NECWC develops and demonstrates its viability, it is possible that other water users will seek to gain membership in the future.

3.3.3 Infrastructure

As described earlier in this report, the current focus of the NECWC is to facilitate exchanges among members, and the use of existing or new infrastructure is likely a longer term operational strategy of the NECWC. In the longer term, the NECWC could potentially benefit from infrastructure that retimes unused recharge credits or that helps to alleviate exchange bottlenecks. The specific type and

location of infrastructure needed will depend on the membership of the NECWC and locations and timing of supplies and demands. However, at the conceptual level, some general infrastructure needs have been identified.

3.3.3.1 Recharge facilities

During the process of quantifying unused recharge credits and interviewing representatives of augmentation plan groups, the project team determined that facilities capable of retiming unused recharge credits would be useful. For example, some augmentation plans own recharge facilities that return recharge credits back to the river more quickly than their pumping depletions impact stream flows. Location of recharge facilities and seasonal timing of water available to junior rights are the primary cause of the misalignment of recharge credit and depletion timing. As a result, some augmentation plans typically have unused recharge credits early in the irrigation season and a demand for recharge credits later in the year. Recharge facilities that could retime their early-season, unused credits and make them available later in the year would help these plans better optimize their operations.

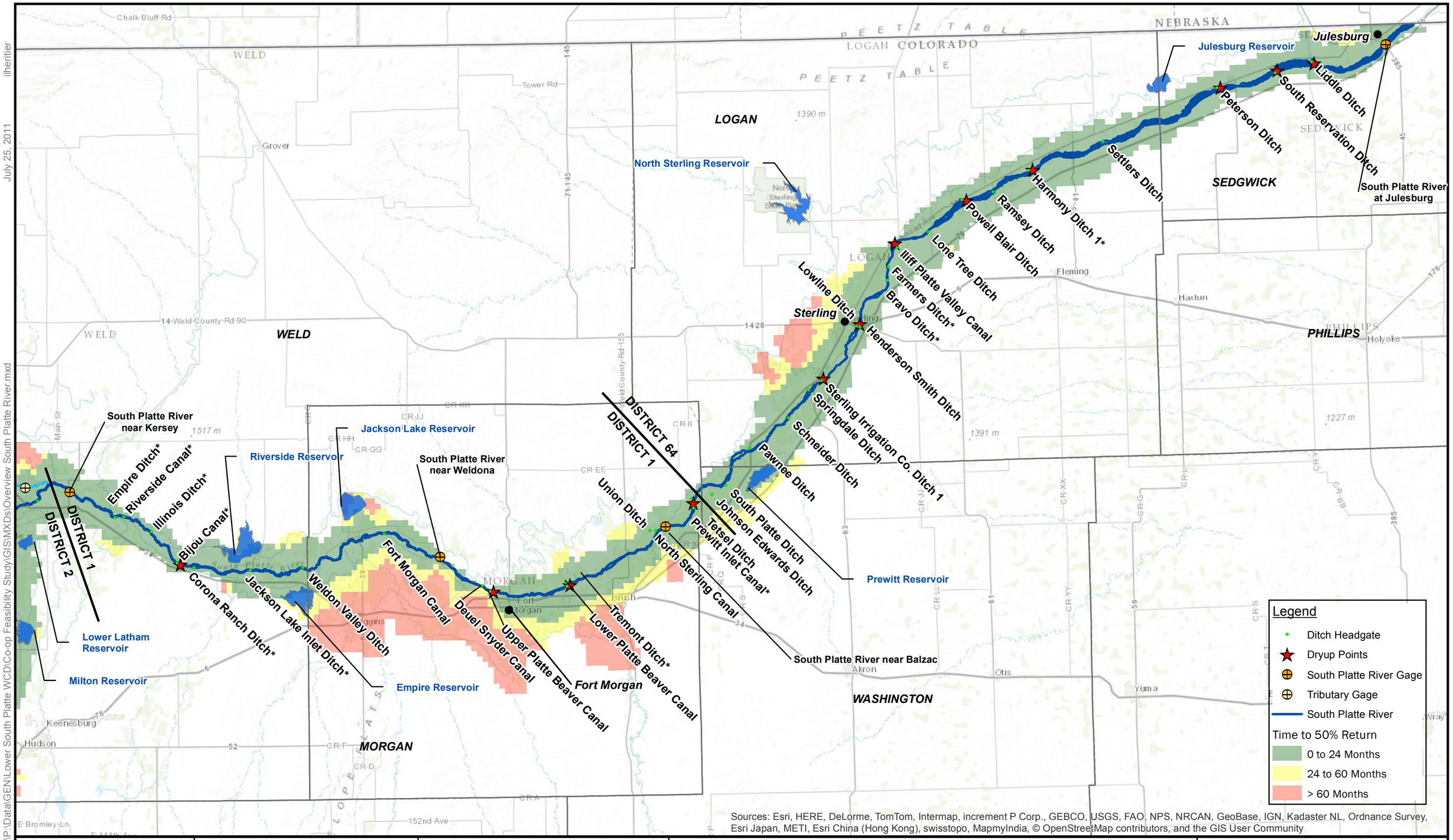
In general, during wetter hydrologic cycles, a number of augmentation plans may have unused recharge credits, and demand for recharge credits may be low. Recharge credits may go unused because the call regime favors junior rights or free river conditions exist, irrigation demand is lower, etc. Conversely, in drier hydrologic conditions, many augmentation plans may simultaneously have higher demands, and unused recharge credits may be unavailable. In these conditions, irrigation demands may be higher (and augmentation requirements may be higher), and the call regime may restrict junior diversions to recharge.

Recharge facilities that could retime unused credits for 3 to 5 years may be beneficial to mitigate the recharge credit availability issues described above. Mapping conducted for another WSRA-funded project for Ducks Unlimited (hereinafter, the Wetland DSS project) entitled *Development of Decision Support Model for Identifying and Ranking Waterfowl and Wildlife Related Recharge Projects along the South Platte River* (Ducks Unlimited, 2013) was used to identify general areas where recharge facilities with moderate lag times could be located. The mapping for the Wetland DSS project was developed based on the Glover methodology. The process used spatially distributed data describing aquifer characteristics, along with the Glover method, to develop a map of lagging patterns throughout the South Platte alluvial aquifer.

Figure 3-3 shows the results of this mapping in the focus area of the NECWC. Depending on location, the areas where recharge facilities would retime credits over a moderately-long time period (50% of retimed credits return to the river in 2 to 5 years) are generally 2 to 4 miles away from the South Platte River and are predominantly in District 1. This is potentially beneficial to the NECWC and its members, because many of the augmentation plans with periodic unused recharge credits are located in District 1, and many of the larger, potential water demands are in District 1. Fewer areas are available in District 64 where recharge facilities could be constructed with moderately-long lag times. However, benefits could also be derived from recharge facilities with shorter lag times if the goal of the facilities is to retime credits over seasonal or 1 to 2 year timeframes. Shorter retiming timeframes would potentially be useful for retiming unused recharge credits so that they are available for exchange during times of year when exchange capacity is more favorable.

3.3.3.2 Other infrastructure

Storage facilities, such as lined gravel pit reservoirs and pump stations /pipelines to alleviate exchange bottlenecks are types of infrastructure that could help the NECWC deliver water to its members. Analyses of these facilities are ongoing. As a part of the NECWC's ATM grants, an operational planning tool was developed that has been used to evaluate the potential benefits of



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Brown AND Caldwell

Date: June 2015

Lower South Platte WCD

Project: 140804

1 in = 8 miles

0 3 6 Miles

N W E S

Notes

Projection: Universal Transverse Mercator, Zone 13 North, 1983 North American Datum (meters).

Locations of ditch headgates and stream gages from South Platte Decision Support System

Locations of dryup points from straighline diagrams

Figure 3-3
Amount of Lag Time for 50% of Recharged Water to Reach Stream

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storage, recharge, and exchange enhancement in various parts of the river. The planning tool uses exchange capacity data for various hydrologic conditions and at various locations in the river, geographically-referenced supply and demand data, and operational rules to simulate NECWC water deliveries. This tool has been used to evaluate various scenarios of hydrology, levels of supply and demand, and the benefits of various types of infrastructure. As stated earlier, these analyses are ongoing. A detailed description of that tool and results will be provided in subsequent project reports associated with the ATM grant.

Storage facilities

Much of the unused recharge credits evaluated for this study occur in District 1, and as shown on Figure 3-1, the recharge credits tend to accrue towards the bottom of District 1. Also, much of the demand identified during the course of this project is in District 1.

Storage facilities have been discussed among consultants, GRC members, and others during the course of this project. The discussions and evaluations using the planning tool described above resulted in the following general strategies regarding the long-term need for storage facilities:

- Partnering with owners of existing storage facilities could be beneficial to both the owner and the NECWC. However, the feasibility of this may be limited given that many existing storage facilities may not have excess capacity that could be used by the NECWC.
- From an operational and permitting perspective, it is likely that smaller, off-channel, and more geographically dispersed storage facilities would be more feasible and beneficial to the NECWC than a larger facility. More geographic variability in the location of storage facilities will provide better flexibility for delivering water to storage given changing call scenarios, dry-up points on the river, and locations of supplies and demands.
- Storage facilities located in the upstream reaches of the NECWC's service area would potentially provide more operational flexibility. NECWC water delivered to upstream reservoirs through either direct diversion or exchange could be released to downstream users without potential impediments that can limit exchanges. However, dry-up points could be an issue if bypass structures do not exist at headgates that can dry the river.
- Storage facilities located in downstream reaches or in the mid-point of the NECWC's service area could be used to capture and store unused recharge credits when they cannot be exchanged upstream or are not needed to meet local demands. Upstream exchanges could take place during subsequent times when exchange capacity improves. Additionally, water could be released at later times to meet local demands when they occur.

Pump Stations/Pipelines

During the CCGA ATM project, enhancing exchange via pump stations and pipelines was explored. The concept involves pumping water from downstream of a calling right into the ditch owned by the calling right. The amount of additional water provided to the calling right could be diverted upstream in an exchange without injuring the calling right. In other words, an exchange through the calling right could potentially be conducted at a rate equivalent to the flow rate of additional water provided to the calling right. The concept was evaluated with respect to additional exchange capacity that could be achieved through the area near the North Sterling Canal and Prewitt Inlet. The water rights associated with these structures are typically the "calling rights" during parts of the year. The results of the analysis showed improvements in exchange capacity through this area with the addition of pumping stations of 5, 10, and 15 cfs. Structures such as this could provide benefits to the NECWC in the future depending on operational strategies that are currently being evaluated based on membership, demands, etc.

3.3.4 Conceptual Long Term Operational Plan

The GRC and consultants developed operational concepts that were shared with stakeholders to convey how the NECWC may function in the future. A high-level description of how NECWC operations might occur is shown in Figure 3-4. The figure depicts the concept that the NECWC may have a variety of supplies available to it, and it may deliver those supplies to upstream or downstream end users, storage facilities, or recharge facilities depending on demands and/or operational protocols.

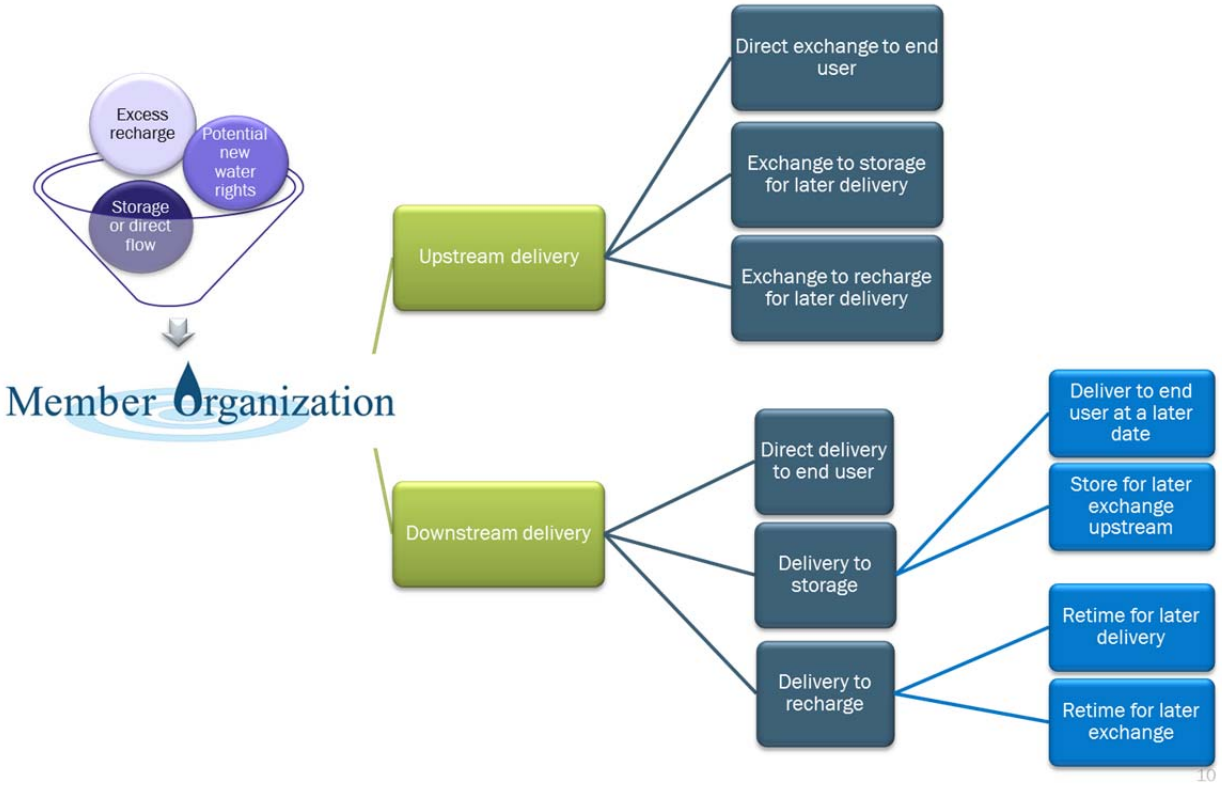

Figure 3-4. Conceptual illustration of NECWC operations

The GRC and consultants considered the types of daily and longer term operational decisions that would need to be made and operational protocols that would need to be developed. Much of this discussion contributed to the data and accounting needs described in Section 0. Operational decisions and protocols that may face the NECWC in the future are described below:

- Demands for water from specific end users may, in the longer term, be firm (or relatively constant) or more periodic in nature. For example, some of the potential end users interviewed during the course of this project indicated that they would have firm demands for water at particular locations. Other users suggested that they may have periodic needs based on hydrologic conditions and availability of their own recharge credits. Past experience has shown that unexpected and short term needs (a "spot market") exist as well. If the NECWC is required to meet these various types of needs in the future, it will need to prioritize which demands are met first.
- If storage and recharge facilities (existing or new) are available to the NECWC in the future, it will need to evaluate whether deliveries should be made to meet water demands or whether water

should be stored or retimed to meet future needs. Contractual obligations for water may require certain deliveries, but other deliveries may be more flexible and require decision making.

- If water is available for storage or retiming, decisions may be needed to determine the best location to store or retime supplies. In general, storage or retiming to upstream locations would likely result in the greatest amount of flexibility for future delivery of water to upstream and downstream users.

A decision tree was developed to summarize current strategies for prioritizing deliveries to end users, storage, recharge, etc. The decision tree is shown in Figure 3-5. The decision tree prioritizes and considers local demands and facilities (referred to as "in reach") and upstream/downstream demands and facilities. Depending on future contractual or decree requirements, available facilities, etc., the priorities and decision protocols suggested by the figure may change.

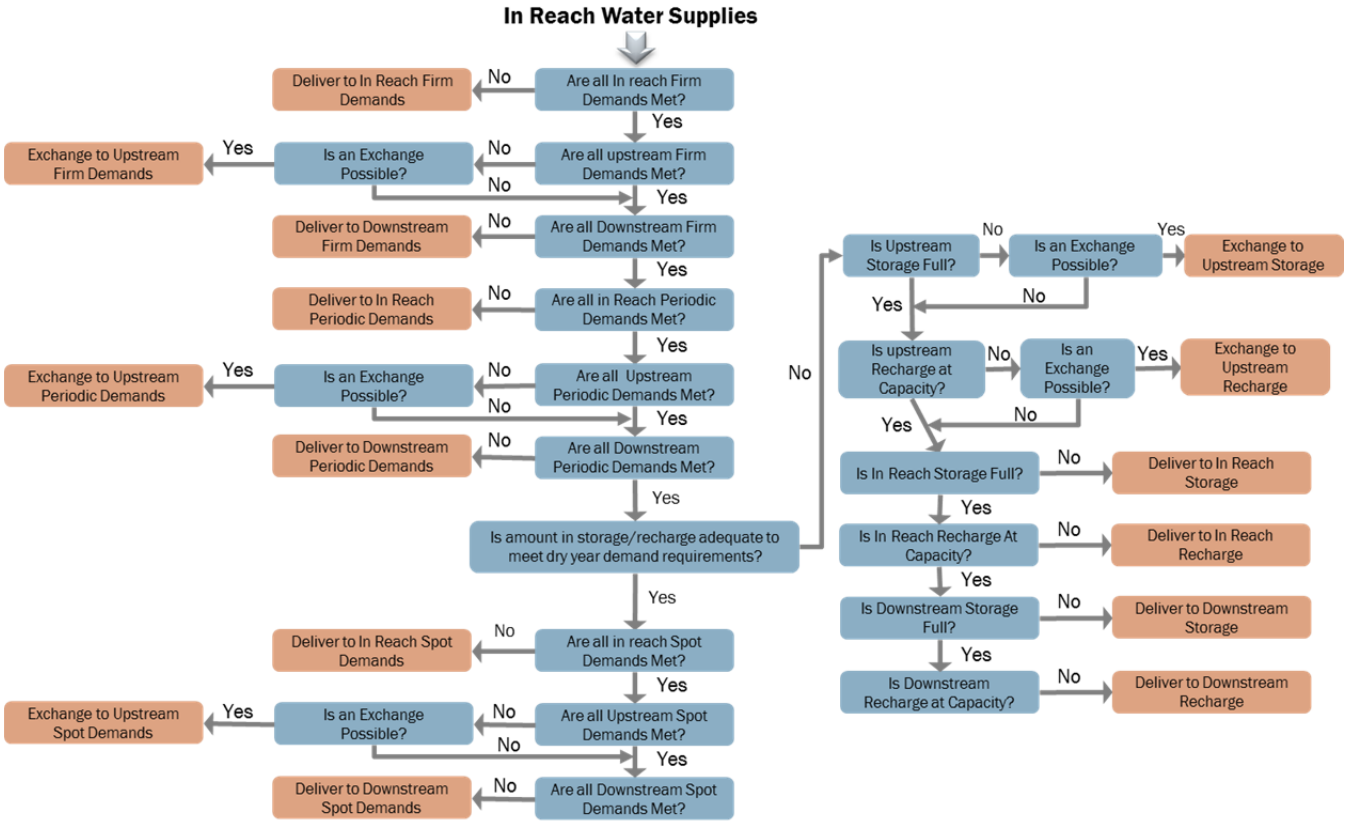

Figure 3-5. Conceptual decision tree for NECWC operations

The operational planning tool described in other sections of this report was developed using the above decision tree as the basis for simulating delivery priorities. As mentioned earlier, planning tool was developed using the NECWC's ATM grant funding and will be described in detail in a subsequent ATM grant completion report.

Section 4

Implementation and Other Ongoing Work

Once the NECWC was formed, the GRC was replaced by a nine-member Board of Directors. For continuity, the initial Board of Directors consisted of former GRC members. After the first year of operation, the Board of Directors was reduced to five directors consisting of individuals representing NECWC members.

As described in Section 1, the NECWC has obtained ATM grant funding from the CWCB to implement the NECWC. These funds, in combination with other grant funding, have been used to further develop and refine the water accounting tool, evaluate operational planning scenarios, provide continued legal services to assist with organizational startup activities, meet with stakeholders (now NECWC members), etc.

Upon initiation of the organization, members of the GRC reached out to stakeholders who previously expressed interest in the new organization and encouraged the stakeholders to buy stock in the NECWC and become members. This process took time, but eventually more than 20 members with augmentation plans and recharge water rights joined the NECWC.

The NECWC can currently facilitate water leases that do not require water court approval to transact. However, since the incorporation of the NECWC, the South Platte River basin has experienced relatively wet weather and high stream flows. Because of this, augmentation plans have generally had plenty of replacement supply, and leases have not been needed. The NECWC anticipates that requests for leases will materialize once the hydrologic cycle turns drier.

Section 5

Limitations

This document was prepared solely for the Lower South Platte Water Conservancy District, the Northeast Colorado Water Cooperative, and the Colorado Water Conservation Board in accordance with professional standards at the time the services were performed and in accordance with the contract between the Lower South Platte Water Conservancy District and Brown and Caldwell dated March 24, 2011. This document is governed by the specific scope of work authorized by the Lower South Platte Water Conservancy District; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by the Lower South Platte Water Conservancy District and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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Section 6

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