

ArkDSS Memorandum Final

To: Bill Tyner and Kelley Thompson, Colorado Division of Water Resources
From: ParsonsWater Consulting
Subject: Task 2.1 – Lower Arkansas Valley Water Conservancy District
Date: April 2019

INTRODUCTION

One of the Task 2 objectives is to:

Develop and document an understanding of the operations of key water use facilities in the basin in order to facilitate consumptive use modeling and to support selected data needs for the ArkDSS effort. This understanding will be developed through interviews with DWR personnel, major water users, including operators of large canal and reservoir systems and representatives of federal facilities.

Types of key water use facilities include diversion structures, transmountain diversions, reservoirs, and reservoir systems. A number of components in the Lower Arkansas Valley Water Conservancy District's operations have been identified as key structures for the Arkansas River Decision Support System consumptive use and surface water modeling efforts. The purpose of this memorandum is to document physical, legal, and operational aspects of those key structures. The specific operations of the District may not be explicitly represented in the ArkDSS surface water model but operations and demands in the Arkansas River basin should be represented in sufficient detail to allow use of the model output for the District's planning purposes.

The information provided in this memorandum was developed from publicly accessible sources, discussions with Lower Arkansas Valley Water Conservancy District personnel, Division 2 personnel, and Southeastern Colorado Water Conservancy District personnel. Information in this memorandum is believed to be accurate. However, the information should not be relied upon in any legal proceeding.

SYSTEM OVERVIEW

The Lower Arkansas Valley Water Conservancy District (Lower Ark District) was formed in November and December of 2002 when voters in Pueblo, Otero, Crowley, Bent and Prowers counties approved an initiative creating the district. Following the transfer and removal of over 100,000 acre-feet of agricultural water in prior decades and enduring an historical drought, the Lower Ark District was formed to enact local measures to protect the valley's water resources and to ensure that water will stay in the Lower Arkansas Valley for the socio-economic benefits of the local people. It was also created to participate in water-related projects and to embody thoughtful

conservation techniques, responsible growth, and beneficial water usage within the Lower Arkansas Valley.

Since its inception in 2002, the Lower Ark District has purchased water rights on several ditches in the valley, as well as shares in Twin Lakes and the Larkspur Ditch in order to bring water into the valley. In addition, the Lower Ark District passed a resolution to form the Lower Arkansas Valley Water Conservancy Land Trust. As part of its mission, the land trust has accepted conservation easements within the Arkansas River watershed to protect agricultural ground, wildlife habitat, open space, and water rights. The Lower Ark District also established the Lower Arkansas Valley Water Activity Enterprise. The Water Activity Enterprise leases a few hundred acre-feet of water to users, but the primary focus is to serve as a mechanism to obtain and manage grants, purchase conservation easements, and manage the Catlin Pilot Project financials.

In a further effort to protect the interests of rural communities heavily dependent on irrigated agriculture, the Lower Ark District facilitated establishment of the Lower Arkansas Valley Super Ditch Company (Super Ditch). The Super Ditch was formed in 2008 by shareholders of seven mutual ditch companies to implement a Lease Fallow Program to preserve irrigated agricultural production in the Lower Arkansas Valley, while allowing municipal and other users to lease water to meet their needs by offering an alternative to the sale and permanent transfer of water rights.

Many of the municipal users rely on Pueblo Reservoir as a source of water supply; therefore, exchange of consumptive use water to Pueblo Reservoir is an integral part of the Super Ditch operations. The Lower Ark District and Super Ditch Company obtained a decree in Division 2 Water Court (Case No. 10CW04) claiming exchange rights from various ditches in the Lower Arkansas Valley up to Pueblo Reservoir and other off-channel storage reservoirs in the area.

In 2014, Lower Ark and Super Ditch started a 10-year Lease Fallow Pilot Project using shares in the Catlin Canal Company. Over the last four irrigation seasons, and in 2019, portions of six farms have been dried up and consumptive use credits associated with the ditch shares are run down the canal and delivered to the Arkansas River. So far the credits have been leased to the Town of Fowler to augment well depletions as part of its Rule 14 Plan (through the Colorado Water Protective & Development Association, CWPDA); and exchanged to Pueblo Reservoir from where the Towns of Fountain and Security have taken delivery of their leased water. Municipal deliveries in 2015 to 2017 were approximately 400 acre-feet total, per year, as summarized in Table 1. The Catlin Pilot Project also operates recharge ponds to provide replacements for historical lagged return flows associated with the shares used for the project.

An application for a larger Lease Fallow Pilot Project to provide water to Colorado Springs Utilities is under consideration by the Colorado Water Conservation Board in 2019.

Table 1: Lower Ark District Deliveries (ac-ft)

	Fowler	Fountain	Security	Total
March	3.7	2.3	2.3	8.2
April	2.6	9.3	9.3	21.3
May	10.6	11.1	11.1	32.8
June	15.1	33.1	33.1	81.3
July	16.3	39.4	39.4	95.2
August	6.9	37.4	37.4	81.6
September	11.0	21.2	21.2	53.5
October	8.1	6.3	6.3	20.8
November	3.3	2.8	2.8	9.0
Total	77.8	163.0	163.0	403.8

Key structures identified in the Lower Ark District are as follows:

- 1) Pueblo Reservoir
- 2) Bessemer Ditch
- 3) Catlin Canal
- 4) Fort Lyon Canal
- 5) Holbrook Canal
- 6) Otero Canal
- 7) Oxford Canal
- 8) Rocky Ford Highline Canal

The contact information for the Lower Arkansas Valley Water Conservancy District is:

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The boundaries of the Lower Ark District are shown in Figure 1. The major holdings of the District and the Super Ditch Company member ditches and exchanges claimed in Case No. 10CW04 are shown in **Figure 2**.

MODELING CONSIDERATIONS

The following descriptions provide a framework for how the water supplies will be prioritized and operated within the ArkDSS surface water allocation model.

The Lower Ark District supply system deliveries, summarized in Table 1, will be used to supply a portion of the demand modeled for the towns of Security and Fountain and part of the Town of Fowler's well augmentation demand (part of CWPDA). A portion of the Catlin Canal (1700552) water rights (1.43 percent, corresponding with 267 out of 18,660 total outstanding shares), will be

used to meet the total deliveries in Table 1. Those prorata diversions will be assigned the following average monthly return flow factors:

Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
9.3%	15.1%	33.1%	51.2%	52.5%	52.3%	40.7%	20.8%	17.4%

The consumptive use portion and twenty percent of the non-consumed portion (representing historical tailwater) will be released through the Catlin Canal Timpas Creek augmentation station (1700800) back to the Arkansas River. The consumptive use portion of the prorata headgate diversion is available to meet the delivery obligation summarized in Table 1. Credits in excess of the Table 1 values will be available for CWPDA replacement purposes. The remaining eighty percent of the non-consumed portion (representing lagged return flows) will be stored in one of the two recharge ponds under the Catlin Canal (Schweizer – 1704800 and Hanagan – 1704801) with accretions reaching the Arkansas River.

Where to find more information

- Additional information on ditch and reservoir operations in and around the Lower Arkansas Valley Water Conservancy District is presented in the ArkDSS Water District 14 Meeting memorandum and in the ArkDSS Water District 17 Meeting memorandum.
- Additional information on Pueblo Reservoir is presented in the ArkDSS Fryingpan-Arkansas Facilities and Related Operations memorandum.
- Additional information on Fort Lyon Canal Company operations is presented in the ArkDSS Fort Lyon Canal Operations memorandum.
- Additional information on Holbrook Canal Company operations is presented in the ArkDSS Holbrook Canal Operations memorandum.
- Additional information on the Colorado Water Protective & Development Association is presented in the ArkDSS Augmentation Supply and Demand Operations memorandum.

REFERENCES

- Communication with Jay Winner, LAVWCD General Manager. jwinner@gmail.com
- Communication with Jack Goble. LAVWCD District Engineer. jgoble@lowerark.com
- Communication with Chris Woodka. Southeastern Colorado Water Conservancy District. chris@secwcd.com
- Aqua Engineer, Inc. Super Ditch Rotational Fallowing – Water Leasing Program Report. Prepared for Lower Arkansas Valley Super Ditch Company as part of Task C of Colorado Water Conservation Board Water Supply Reserve Account Grant. December 30, 2010 (Revised).
- Decrees, engineering reports, and associated water court material available at <http://dwrweblink.state.co.us/>
- State of Colorado, Division of Water Resources, HydroBase database.

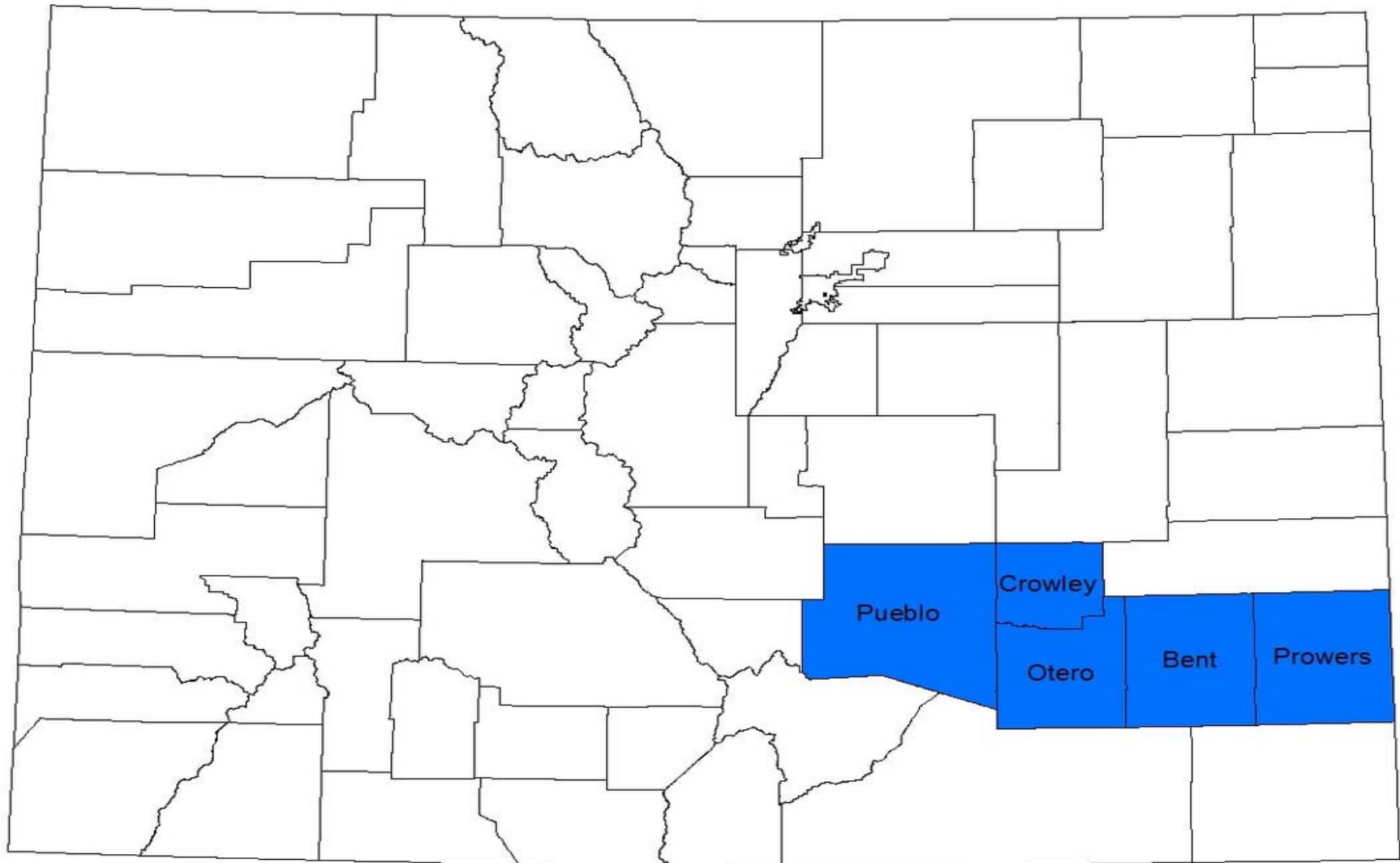


Figure 1: Lower Arkansas Valley Water Conservancy District Service Area

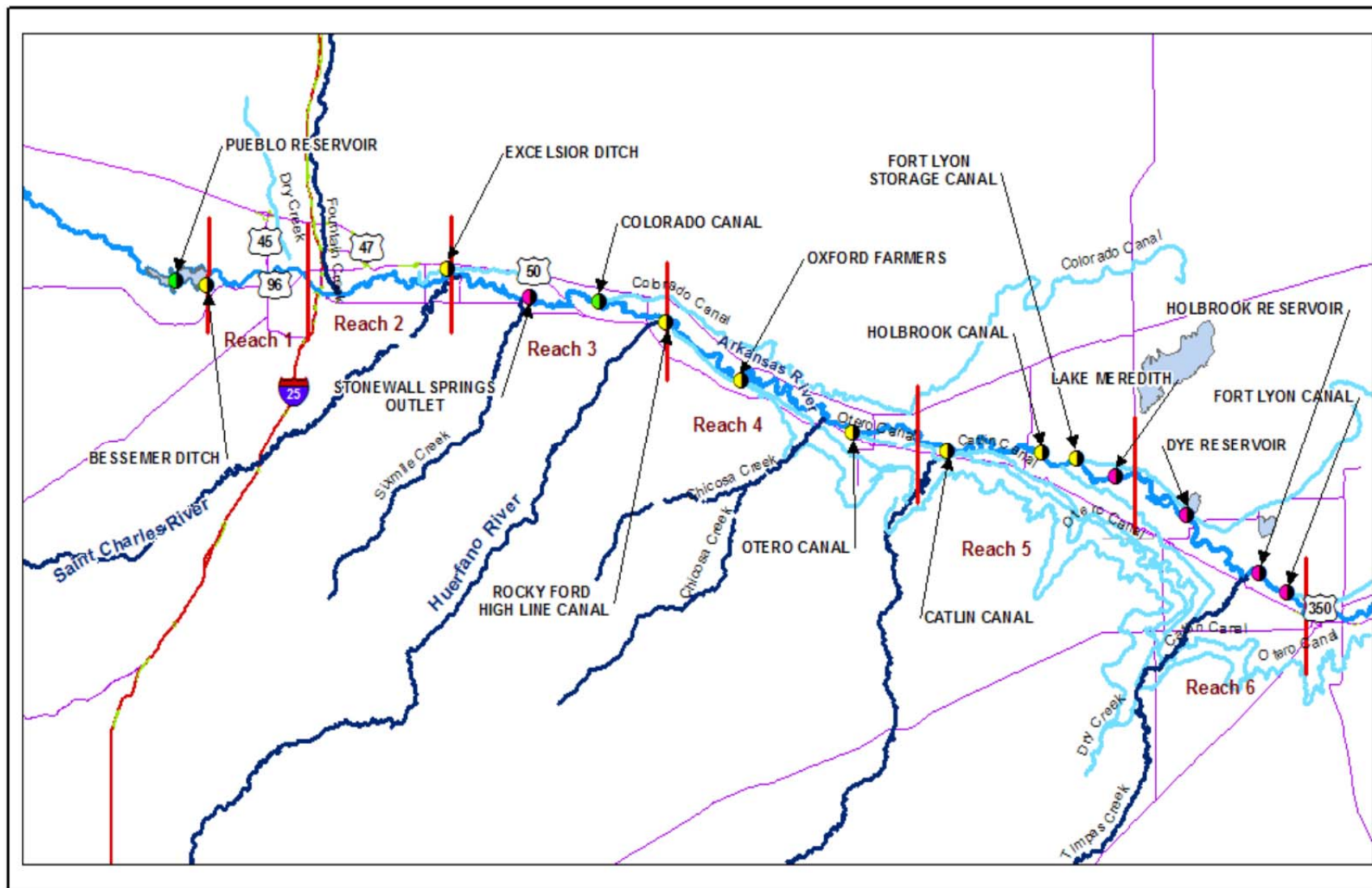


Figure 2: Super Ditch Company Exchange Map of Lower Valley Ditches