

WATER USE LEASE AGREEMENT

This Water Use Lease Agreement is made and entered into this 4th day of December, 2013, between the Central Platte Natural Resources District ("CPNRD"), a political subdivision of the State of Nebraska, and the Nebraska Community Foundation ("Foundation") representing all signatories to the Platte River Recovery Implementation Program ("Program"); collectively referred to as the "Parties".

RECITALS

WHEREAS, CPNRD is a political subdivision of the State of Nebraska, duly authorized to acquire, hold, dispose of and lease rights and appropriations to use the waters of the State of Nebraska;

WHEREAS, CPNRD desires to provide water to the Platte River to achieve state and local objectives;

WHEREAS, Foundation is a Nebraska non-profit corporation, duly authorized to enter into lease agreements for the use of water to enhance, increase, and augment the flows of the Platte River pursuant to the Platte River Recovery Implementation Program ("Program");

WHEREAS, Foundation desires to enter into a lease agreement with CPNRD for the use of water to enhance the flows of the Platte River pursuant to the Program;

NOW THEREFORE, the Parties mutually agree as follows:

1. Water. CPNRD agrees to annually provide water to the Platte River in amounts not to exceed 20,500 acre-feet. CPNRD shall provide the water between Gothenburg, Nebraska and Grand Island, Nebraska.

Quantification of Water. CPNRD shall cause water to be diverted to the Platte River from canals to which it holds an interest (Six Mile, Cozad, Thirty Mile and Orchard Alfalfa, hereinafter referred to as "Canals"). Water may be provided to the Foundation from a variety of water-related activities including but not limited to (a) natural flow associated with transferred surface water and (b) ground water recharge. All quantifications of water provided to the Foundation shall represent the monthly net effect of the water-related activity above Lexington NE, resulting in fully consumable water. CPNRD shall provide all monthly surface and ground water quantification information to the Foundation on or before November 15 of each calendar year, including the net effect to the Platte River from prior years' water-related activities and a projection of the upcoming year's activities. The natural flow water diverted into any of the Canals under an existing water right, for which the use has been transferred from agricultural to in-stream use, is considered surface water and described in Section (a) Transferred Surface Water, below. Natural flows diverted when excess to USFWS target flows into any of the Canals for the express purpose of ground water recharge under a newly permitted water

right are categorized as ground water and described in the subsequent Section (b) Ground Water Recharge, below.

- a. **Transferred Surface Water.** The Canals have existing water rights for diversion of natural flow for the purpose of irrigation. The water right use must be transferred from agriculture to instream use. Accomplishing this transfer is the responsibility of CPNRD as covered in Section 3 of this document. Lands previously irrigated by these now transferred surface water rights will instead be irrigated by ground water pumped from existing wells. All of the surface water returned to the Platte River via canal shall be quantified using a standard flow measuring device as commonly recognized by the United States Geological Survey, equipped with a continuous recorder. Data from the continuous flow measuring device will be reviewed for quality control and adjusted as necessary by CPNRD in accordance with standards commonly recognized by the United States Geological Survey. The net effect will be calculated as surface water returned to the Platte as measured by the flow measuring device reduced by the amount of depletions to the river resulting from the well pumping to irrigate the land previously irrigated by the relinquished surface water that accrue during the current calendar year. These depletions will consist of depletions resulting from the current year's pumping as well as depletions resulting from previous years' pumping that are impacting the river during the current calendar year.
- b. **Ground Water Recharge.** Ground water flowing from the Canals to the Platte River may come largely from either of these two sources: (1) ground water associated with canal seepage and deep percolation resulting from the diversion, conveyance, and application of water in accordance with the historical operation of the system, and (2) ground water associated with the recharge of excess flows intentionally diverted during the non-irrigation season and recharged for the purpose of increasing ground water accretions to the Platte River. The return flows of type (1) are associated with historical irrigation practices and therefore must be maintained and cannot be leased. To provide return flows of type (2), new permits for diversion of excess flow must be obtained. Accomplishing this permitting of new water rights is the responsibility of CPNRD as covered in Section 3. of this document. The return of excess flow water diverted for the purposes of ground water recharge cannot be included in the Relinquished Surface Water tally of Section a. above. Water provided to the Platte River by subsurface return flows (ground water discharge) from water not directly returned to the Platte River via canal shall be annually quantified by CPNRD using the ground water model referred to as the Cooperative Hydrology Study (COHYST), subject to confirmation by the Foundation also using COHYST.

- c. The calculation procedures to be used to arrive at the Transferred Surface Water and Ground Water Recharge amounts leased by the Foundation are illustrated by examples in Attachment A.

2. Appropriations. CPNRD agrees to obtain all appropriations from the State of Nebraska necessary to provide the desired water. This includes but may not be limited to transfer of use of existing water rights from agriculture to in-stream use and obtaining new water rights for diversion of excess flow for intentional ground water recharge during the non-irrigation season. Foundation assumes no responsibility for maintaining or administering the appropriations and holds no rights to the appropriations other than through this Agreement.

3. Amount of Water Offered. CPNRD shall provide a minimum of fifty percent of all available water returned to the Platte River for instream use to the Foundation. CPNRD does not guarantee any minimum amount of stream flow augmentation through Transferred Surface Water or Ground Water Recharge. The Foundation shall accept all water offered by CPNRD, subject to the limitation on annual acre-feet established in Section 1.

4. Price for Water. Foundation agrees to pay CPNRD \$35.00/acre-foot of the total yield of water provided to the Platte River as quantified in Paragraph “2” of this agreement. After the first calendar year of this Agreement, CPNRD may annually increase the acre-foot price of water provided to the Foundation upon written notice. Written notice of a price increase for the water provided in future years shall occur no later than January 1 of each year, and in no case shall CPNRD increase the annual acre-foot price by more than 7.5% of the price for the prior calendar year. CPNRD shall bill the Foundation annually for the water provided in the prior calendar year and the Foundation shall make full payment within 60 days of receiving the bill.

5. Availability of Funds. Each payment obligation of the Foundation is conditioned upon the continuation of the Platte River Recovery Implementation Program and the availability of appropriated funds for the Program. If funds are not allocated and available for the continuance of services provided in this Agreement, the Foundation may terminate the contract at the end of the period for which the funds are available.

6. Duration. This agreement shall expire on December 31, 2019. The Parties may mutually agree to extend this Agreement upon the terms and conditions set forth herein as desired. Either party may terminate this agreement by providing 60 days written notice.

7. Assignment. No assignment of this agreement shall be allowed.

8. Governing Law. Parties agree that this Agreement shall be governed, construed and enforced in accordance with the laws of the State of Nebraska.

9. Modification. None of the terms or conditions of this Agreement shall be modified without the written consent of the Parties, and this Agreement contains the entire agreement of the Parties.

IN WITNESS WHEREOF, the Parties hereto have signed this Agreement on the dates indicated.

Central Platte Natural Resources District
Lyndon Vogt

Date

Nebraska Community Foundation
Diane Wilson

Date

Attachment A
For Water Lease Agreement between
Central Platte NRD and the Platte River Recovery Implementation Program
Dated December 4th 2013

To illustrate the process CPNRD will use to compute the quantities of water provided to enhance flows in the Platte River for the Program, CPNRD developed two analysis spreadsheets for the Cozad Canal system. The one spreadsheet was for the retiming of excess Platte River flow and the other for Transfer of surface water irrigation water to instream use. These spreadsheets were provided to the Water Advisory Committee and reviewed with the committee at several meetings. These example spreadsheets along with a powerpoint presentation are available on the Program WAC internet site (AttachmentA112612.xls is the Excess Flow spreadsheet and AttachmentA2a043013.xls is the Transfer spreadsheet). The following discussion highlights the water accounting process and sample results.

The analysis for both Excess Flow retiming and Irrigation Water Transfer is done on a monthly time frame for a 50 year time period. So in each spreadsheet what you find are worksheets that sum daily surface water diversions and returns to monthly volumes and those volumes are accounted for over the next 600 months or 50 years.

Excess Flow retiming

The water accounting example for retiming of excess flows was done for the Cozad Canal System shown on the map in figure 1 below. It diverts from the Platte River near Gothenburg, NE and delivers irrigation water to 16,000 acres. The main canal is around 17 miles in length and has 12 laterals to deliver water from.

The plan is to divert Platte River flows when flows in the Lexington to Chapman reach are in excess of USFWS target flows. The diversion of natural flow is limited to 100 CFS based on the water right applied for. The excess flow diversions will be made during the non-irrigation season March, April, first half of May, last half of September, October, and November. The water diverted will seep from the canal and recharge into the groundwater. The water recharged will then return the Platte River as base flow over an extended period of time.

Using the plan as a guide an example accounting for excess flow diversion and return was developed in a spreadsheet as noted above. The spreadsheet contains 4 main worksheets to accomplish the accounting process and one that discusses what is in each worksheet along with what accounting it accomplishes.

There is an excess flow diversion worksheet for each year (in the example ExcessFlowDiv2011 and ExcessFlowDiv2013). In these worksheets daily diversions are converted to monthly volumes of recharge which are distributed for each mile of canal by month and then the monthly recharge from each mile of canal gets distributed as base flow return to the Platte River using a groundwater return flow function.

There is a worksheet (RtnFnc) that contains the percentage of canal seepage distributed in each mile of canal. This worksheet also contains the 600 month groundwater return flow functions for the 17 canal reaches. The canal seepage distribution was developed from information collected during the Cozad Canal seepage loss study in August 2008. The flow measuring locations are shown on figure 1 and the loss estimates for reaches of the canal are shown in table 1. The groundwater return flow functions for each 1 mile canal reach was develop from the COHYST Eastern Model unit runs made with the cycle well program. A cycle well run was made for model cell within the CPNRD and these runs have been used to establish depletion functions and groundwater return flow functions for the Platte River and it's tributaries. Figure 2 shows a map of the Cozad canal area overlaid with the COHYST model grid. An example groundwater return flow function for model cell 80-24 is shown in figure 3. Five functions were developed for this example analysis and assigned to the 17 miles of canal.

The Excess Return worksheet (ExcessRtn) totals the monthly return flow data in the yearly worksheets (ExcessFlowDiv2011) in this example. The Excess Return worksheet will be added for each year as excess flows are diverted and recharged. The net return flow to the Platte River by month and by year is the results from this worksheet and is shown in the first column.

The annual summary of the Net Return flow is computed in the Summary Return worksheet (SummaryRtn). In this example 323.4 Acre-feet return from Cozad Canal in 2011, 246.9 Acre-feet in 2012, and in 2013 145.9 acre-feet should return. The annual groundwater return flow to the Platte River is shown in figure 4 for this example.

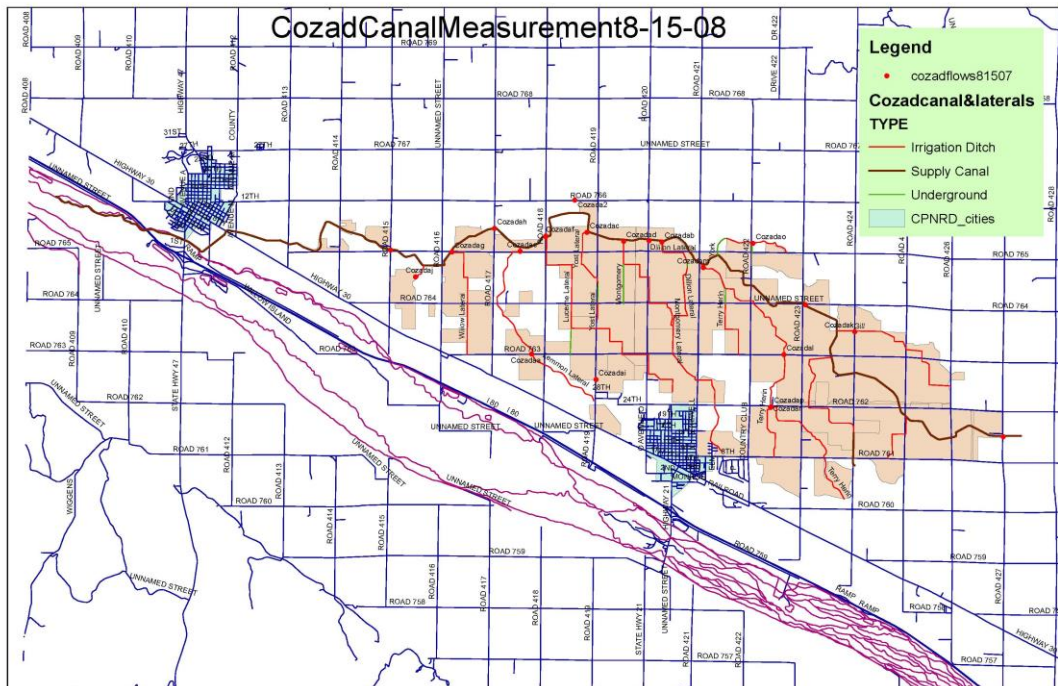


Figure 1 Cozad Canal system map showing discharge measurement locations

Measureme nt	Flow	Avg	Lateral or	Flow	Reach	Approx avg	Reach	Approx avg	Evaporativ e	Seepage	Unit Seep Loss
Point	(cfs)	Flow	Turnout	(cfs)	Loss (cfs)	top width (ft)	Length (ft)	wet perim (ft)	Loss (cfs)	Loss (cfs)	(cfs/10,000 sq ft)
Diversion	123										
		114			18.0	31.5	40,533	40.4	0.1	17.9	0.109
S-7	105										
			Cozadaj	2.67							
			Cozadag	4.54							
	87		Cozadah	1.60	20.8	25.5	19,540	33.2	0.1	20.8	0.320
			Cozadae	5.45							
			Cozadaf	0.00							
			sum out	14.26							
S-3	69.9										
			Cozada2	1.33							
			Cozadac	0.43							
	80		Cozadad	3.28	-22.0	18.3	14,481	26.5	0.0	-22.0	-0.573
			sum out	2.39							
S-1	89.5										
			Cozadab	6.57							
			Cozada	29.36							
	62		Cozadao	0.86	19.1	23.8	21,187	30.5	0.1	19.1	0.295
			sum out	36.78							
S-17	33.6										
		25	Cozadak	8.60	8.6	15.0	30,564	17.9	0.0	8.6	0.156
S-25	16.4										
Total or Avg					44.6	22.8	126,305	29.7		44.3	0.061

Table 1 Cozad Canal measurements and canal seepage loss estimates by reach.

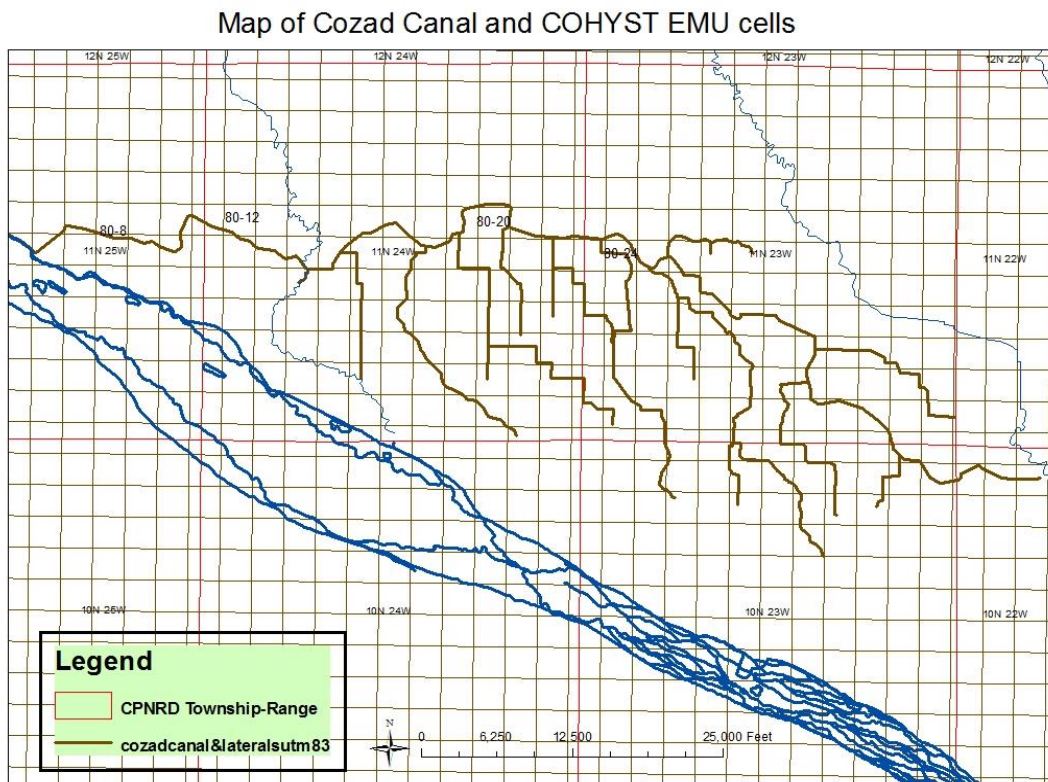


Figure 2 COHYST EMU grid and Cozad Canal

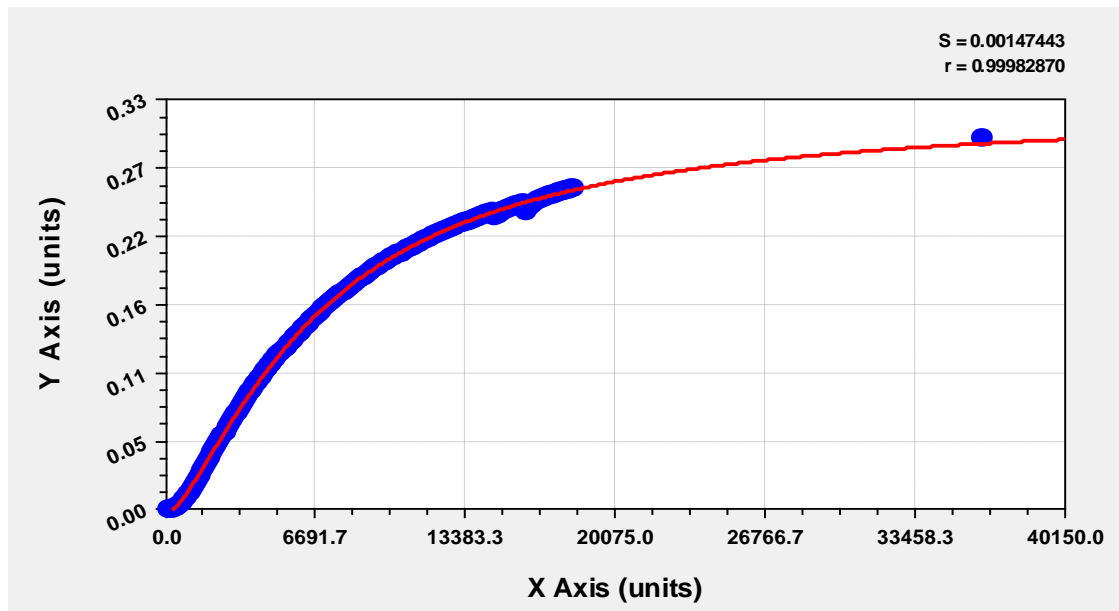


Figure 3 Return flow function for cell 80-24 COHYST EMU

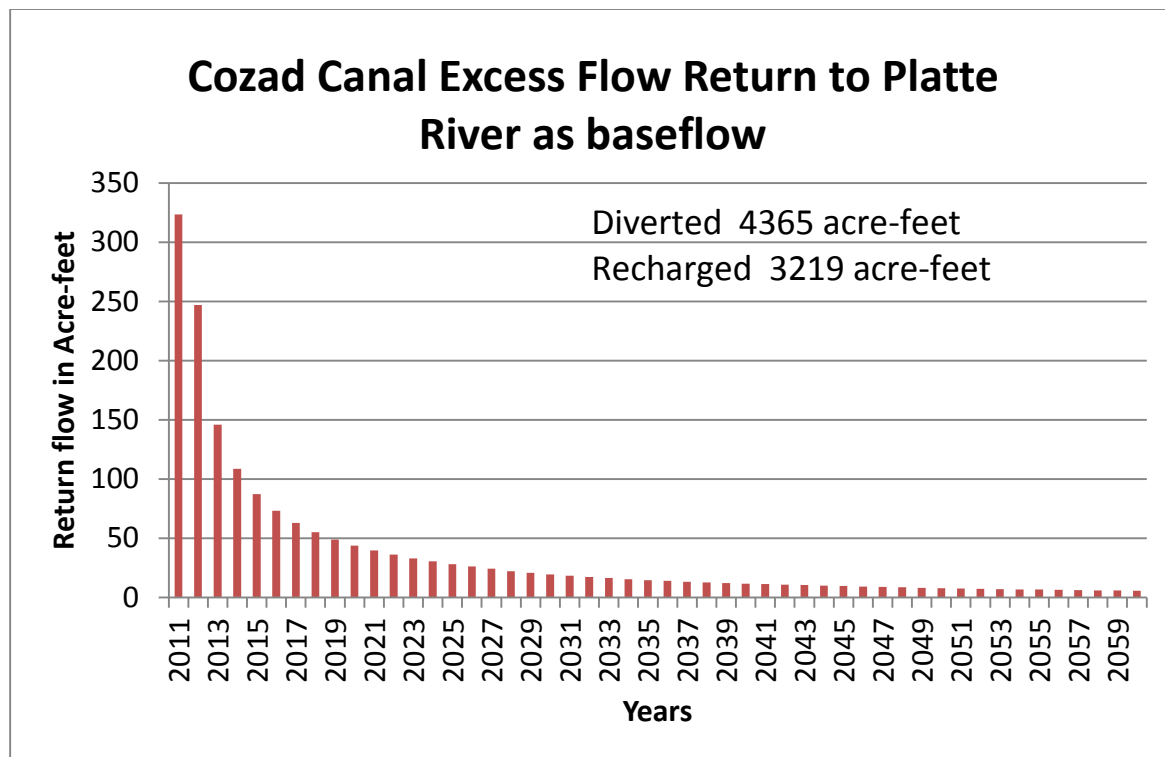


Figure 4 Cozad Canal Excess Flow retiming from 2011 diversions

Transfer of Surface Water irrigation to Instream Use

The water accounting example for transferring the consumptive use portion of surface water irrigation to in-stream use was also done for the Cozad Canal system. Figure 5 shows a map of the canal system water right lands by 40 acre tract. The Cozad canal has a 1894 water appropriation for 234.25 CFS to irrigate 16,069 acres.

The plan is to divert irrigation water into the canal system and then return a portion of that diversion through a constructed return channel to the Platte River for in-stream use. The diversion returned to the river will be based on the crop consumptive use of those acres that sign-up to transfer their natural flow water back to the river. The NRD is working with canal water right holders to sign-up acres for the temporary transfer. The temporary transfers are for 1 to 30 years and the map shown in figure 6 list potential transfer acre that are signed up and used in the example accounting process. The map also shows groundwater wells in the area that could be used to irrigate the transferred lands with groundwater. The plan is to account for the effect of this groundwater irrigation on depletion to the Platte River and compute a net effect on the River.

Using the plan as a guide an example accounting for transferred diversion and return to in-stream use was developed in a spreadsheet as noted above. The spreadsheet contains 5 main

worksheets to accomplish the accounting process and one that discusses what is in each worksheet along with what accounting it accomplishes.

The diversion and delivery worksheet is created for each year and contains the daily diversion records and daily delivery records for flows returned to the Platte River. In the example spreadsheet there are 3 worksheets for 2010, 2011, and 2012 (Div&Rtn2010, Div&Rtn2011, and Div&Rtn2012). The daily diversion of natural flow and measured return of irrigation water to the river is summed in these worksheets for each month.

There are 3 worksheets that contain the natural flow water right information by 40 acre tract. One is the base water right acres for 16,069 (WRbaseline CU2010). The second one is the acres that will continue to use surface and not transfer there irrigation water (SWCU2010). The third is the water rights acres that will be transferred (TransferCU201). This third worksheet are the acres that will pump groundwater so farm delivery values are computed for these acres and used in the groundwater depletion accounting process.

The depletion from groundwater pumping each month is handed in a worksheet for each year. In the example spreadsheet groundwater depletion worksheets were created for 5 years 2010, 11,12,13,14, and 2015 (PumpDp2010, PumpDp2011, etc). These worksheets distribute the annual groundwater pumped in a 40 tract by month and compute the monthly depletion values for 600 months into the future. The depletion function for each 40 tract was develop from COHYST EMU cycle well analysis. In this example analysis we used a average function for all tracts but for actual analysis model cell or section averaged functions will be utilized. These functions are found in the Pump%Depl worksheet.

The next computation is to combine each years pumping depletion by tract and month into a monthly summary over the 600 month period. This is done in worksheet (NetGWDepl) and the first column shows the net depletion from groundwater irrigation thru time.

The last worksheet in this example is the summary where monthly transfers back to the river and groundwater depletions are combine to show net river accretions and depletions. Figure 7 displays the example results of this analysis by month and table 2 show a annual summary of the results.

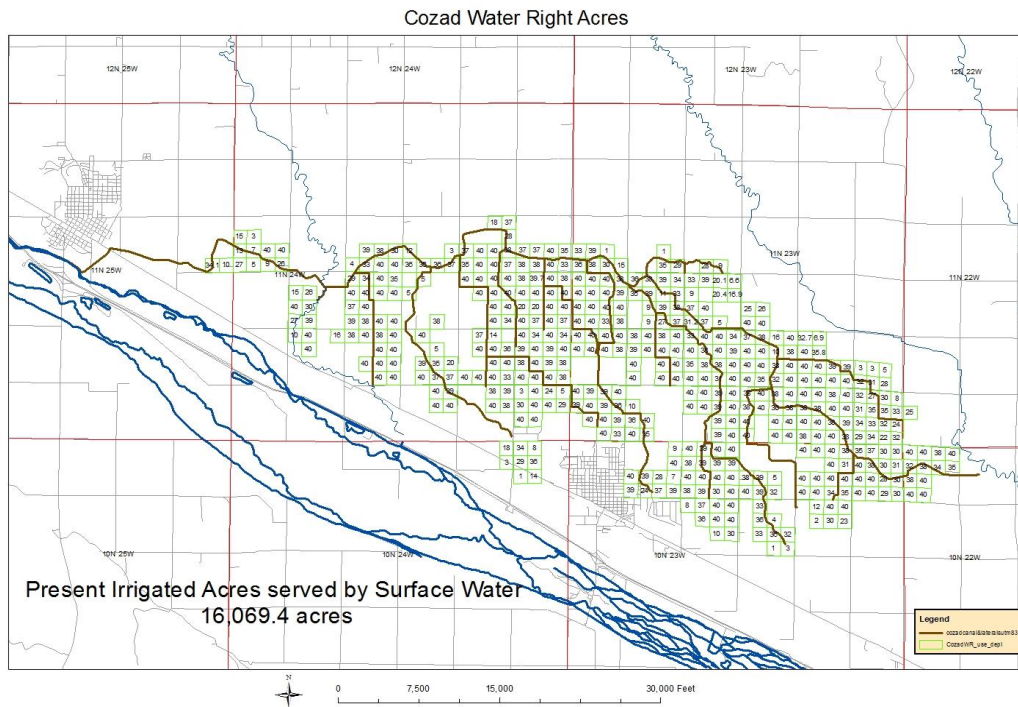


Figure 5 Cozad canal water right acres map.

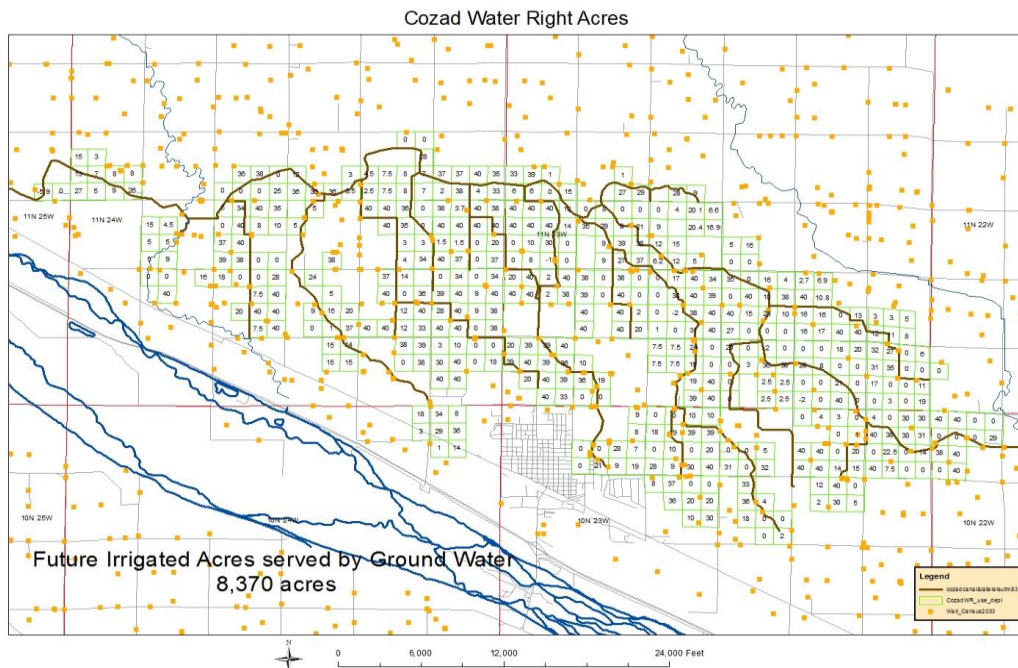


Figure 6 Cozad canal transfer acres and existing Groundwater wells.

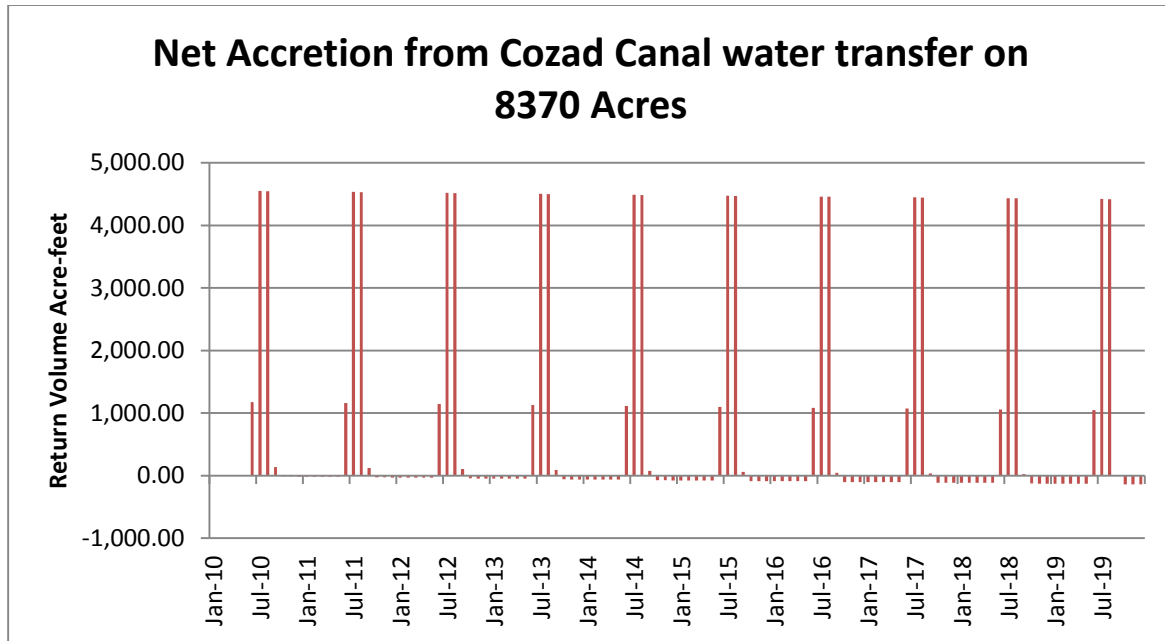


Figure 7 Monthly transfer results from example analysis

Table 2 Annual Summary of example analysis

Annual Calculations			
Year	SW Rtn	GW Depl	Accretion
2010	10,421.15	54.97	10,366.18
2011	10,421.15	236.23	10,184.93
2012	10,421.15	425.95	9,995.20
2013	10,421.15	612.84	9,808.31
2014	10,421.15	793.03	9,628.12
2015	10,421.15	964.94	9,456.22
2016	10,421.15	1,127.98	9,293.17
2017	10,421.15	1,282.10	9,139.05
2018	10,421.15	1,427.52	8,993.63
2019	10,421.15	1,564.59	8,856.56