



Lower Platte River Basin Water Management Plan P-MRNRD Annual Report 2018

DRAFT – March 1, 2019

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Confluence of the Platte and Elkhorn Rivers

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1.0 INTRODUCTION

The Pappio-Missouri River Board of Directors adopted the Lower Platte River Basin Water Management Plan (LPBWMP), dated October of 2017, on December 14, 2017. As part of the Lower Platte River Basin Coalition, the six other NRDs and the Nebraska Department of Natural Resources also approved the LPBWMP and agreed to cooperatively implement the plan per Interlocal Agreement #2.

The Lower Platte River Basin Water Management Plan recommends numerical limits for allowable new water depletions during the first 5-year increment of the plan (January 1, 2017 through December 31, 2021). The allowable new depletions for the first 5-year increment were divided by subbasin and further by individual NRD as documented in Table 4.2.

The LPBWMP calls for the annual tracking of allowable new depletions beginning July 1, 2016. The first reporting period of the Basinwide Plan first increment, according to Table 5.1, is July 1, 2016 through December 31, 2017. All subsequent reporting years are required on a calendar year basis starting in 2018. This report provides the data collected during the 2018 reporting period for the plan area within the Pappio-Missouri River NRD in accordance with Table 5.2.

2.0 2018 DATA COLLECTION

Data collected and reported on water supplies and uses within the P-MRNRD include:

- Certified Irrigated Acres
- Co-mingled Groundwater and Surface Water Uses
- Municipal and Industrial Groundwater Uses
- New Groundwater consumptive uses
- Groundwater Use Transfers
- Water supply well permits granted
- Retirement of groundwater consumptive uses
- Water use flow meter date
- Water banking activities
- Stream flow accretion activities
- Groundwater elevation data
- Stream gage measurements on NRD maintained gages
- NRD regulations/management area activities
- New water depletions
- New data collected or model/study results

2.1 CERTIFIED IRRIGATED ACRES

The P-MRNRD has not completed certification of irrigated acres within its Integrated Management Plan (IMP) or LPBWMP area, which includes all areas tributary to the Platte and Elkhorn Rivers (herein after referred to as the “plan area”). This plan area covers approximately 228,000 acres in Sarpy, Douglas and Washington counties. It is estimated that irrigated cropland comprises approximately 11% of this land area or 25,000 acres.

The P-MRNRD is proposing to complete the initial certification of irrigated acres within the next year. Since 2009, approximately 4,000 new irrigated acres which received a variance from the District under the requirements of LB 483 have been certified.

2.2 CO-MINGLED GROUNDWATER AND SURFACE WATER USE

No data is collected on co-mingled groundwater and surface water use within the P-MRNRD.

2.3 MUNICIPAL AND INDUSTRIAL GROUNDWATER USES

The P-MRNRD has collected annual data on municipal uses within the plan area since 2015. This data is reported only for the municipal wells within our District and would not include Metropolitan Utilities District (MUD), Lincoln, or Fremont wells in adjacent counties. Data from commercial or industrial users who have their own individual water supply well is not collected at this time.

Municipal Annual Water Use

Municipal Well Field	2016 Total Pumped (Ac-ft)	2017 Total Pumped (Ac-ft)	2018 Total Pumped (Ac-ft)	Notes
Papillion	4,326.2	4,661.1	4,482.2	
Lincoln	20,451.2	22,115.1	11,866.5	Includes only wells in P-MRNRD
MUD South	38,030.4	27,217.2	31,104.3	
MUD West	8,976.2	12,225.1	10,741.7	Includes only wells in P-MRNRD
Fremont	4,971.5	4,987.4	5,395.3	Includes only wells in P-MRNRD
Valley	334.4	469.3	506.3	
Springfield	170.8	183.8	202.3	
Gretna	1,052.0	1,267.4	1,263.5	
Arlington	217.4	231.3	165.8	
TOTAL	83,501.6	73,357.7	65,727.9	

The net consumptive use of municipal water is not tracked or estimated at this time as return flows to the Platte River tributaries are not reported or estimated. Municipal water pumped by MUD and Papillion would be considered a total consumptive use as it ends up as return flow to the Missouri River.

2.4 NEW GROUNDWATER CONSUMPTIVE USES

The only new groundwater consumptive uses that are accounted for by the P-MRNRD is the new irrigated acres which received a variance from the District under the prior requirements of LB 483 and our current IMP. No new irrigated acres in the plan area were granted a variance in 2018. The depletions of these new irrigated acres are reported in Section 2.14.

2.5 GROUNDWATER USE TRANSFERS

The P-MRNRD does not review or approve groundwater use transfers at this time. Therefore, no data is available.

2.6 WATER SUPPLY WELL PERMITS GRANTED

The P-MRNRD adopted requirements for well permits for new high capacity wells effective March 1, 2018. Four new high capacity well permits were approved in the Platte River Basin (Plan Area) in 2018. None of these were approved for irrigation. Two well permits (with two 80 gpm wells at each site) were approved for chicken production barns in Washington County, one well was a replacement municipal well for MUD as part of their Platte West well field in Douglas County, and one is to supply a waterfowl hunting pond in Sarpy County. A copy of the data provided in the Excel spreadsheet is attached to this report for reference.

2.7 RETIREMENT OF GROUNDWATER CONSUMPTIVE USES

The P-MRNRD does not review or collected information on groundwater use retirements at this time. According to the NDNR Registered Well Database, two irrigation wells, without registration numbers, were decommissioned in 2018 in the P-MRNRD IMP Area. This indicates the retirement of groundwater consumptive uses would be negligible over this reporting period.

2.8 WATER USE FLOW METER DATA

The P-MRNRD does not require or collect data from flow meters at this time. Therefore, no data is currently available. Flow meters will be required on all active high capacity wells following March 1, 2023. Prior to that time, the NRD will collect flow meter data from wells that it provides cost-share funding to install the flow meter.

2.9 WATER BANKING ACTIVITIES

The P-MRNRD does not operate or maintain any available water banks at this time. Therefore, no data is available.

2.10 STREAMFLOW ACCRETION ACTIVITIES

There are no ongoing projects in the P-MRNRD to augment surface water flow or conjunctively manage groundwater and surface water. Ongoing studies relevant to conjunctive management of surface and groundwater between the Platte and Elkhorn Rivers is discussed in Section 2.15.

2.11 GROUNDWATER ELEVATION DATA

Groundwater level measurements were collected at 30 locations within the plan area during the spring of 2018. Some sites have been measured since 1978. In general, groundwater levels in late April through May 2018 were just above or below their period of record average. Figure 1 displays the depth to groundwater measured and the rise or decline from the running average for each groundwater level measurement location. This groundwater level data in the IMP area has a standard deviation between 0 and 2 feet.

2.12 STREAM GAGE MEASUREMENT ON NRD MAINTAINED GAGES

The P-MRNRD does not own or operate any stream gages within our IMP area that are independent of data collected by USGS or NDNR.

2.13 NRD REGULATIONS/MANAGEMENT AREA ACTIVITIES

Major updates to the P-MRNRD's Groundwater Management Plan (GMP) and Rules and Regulations were adopted during this reporting period. A Phase I Groundwater Quantity Management Area (GMAs) was designated for the entire P-MRNRD on March 1, 2018. New rules which will become effective March 1, 2018 under the new Phase I GMA designation include:

- Water Supply Well Permits are required for all new high capacity wells (>50 gpm) within the NRD.
- In addition to minimum state requirements, a 600 foot well spacing will be required between all new high capacity well and any other registered water supply well.
- Flow meters will be required within the hydrologically connected area of the IMP by March 1, 2023.

2.14 NEW WATER DEPLETIONS

The P-MRNRD requires the issuance of a variance to expand irrigated acres in the plan area. This data is input into the accounting method for estimating depletions as described on page 28 of the LPBWMP.

The P-MRNRD did not receive any variance applications to expand irrigated acres in the plan area during the reporting period (see Table 1). The registration of any new wells during this time period was used as a check to verify that any new uses actually received a variance. It was confirmed that no new wells were completed during 2018 that cause a new water depletion.

Therefore, the new annual depletion for 2018 in the P-MRNRD is:

0 AF

It is the P-MRNRD's understanding that increases of municipal use for municipalities with transfer permits, including MUD and Lincoln, were already accounted for before allowed depletions were calculated. Increases in use by other municipalities or industry will be researched by the Basin Coalition and accounted for after the first increment.

The balance of allowable new depletion for the P-MRNRD between January 1, 2018 and December 31, 2021 is still approximately 867 AF, down from 869 AF.

2.15 NEW DATA COLLECTED OR MODEL/STUDY RESULTS

The P-MRNRD is engaged in several ongoing studies with other NRDs and agencies within the Lower Platte Basin.

One such study effort is the Lower Platte River Consortium spearheaded by the Lower Platte South NRD in partnership with Lower Platte North NRD, P-MRNRD, City of Lincoln, MUD, and NDNR. The objective of the consortium is to develop a Drought Mitigation Plan for the Lower Platte River. See documentation available at: <https://www.lpsnrd.org/draft-drought-plan>

Another effort is an ongoing USGS study sponsored by the P-MRNRD and Lower Platte North NRD to monitor groundwater and surface water conditions in the combined Platte and Elkhorn River Valley. See available USGS data to date at: https://www.usgs.gov/centers/nw-water/science/groundwatersurface-water-interaction-near-confluence-elkhorn-and-lower?qt-science_center_objects=0#qt-science_center_objects.

3.0 REVISIONS TO THE PLAN

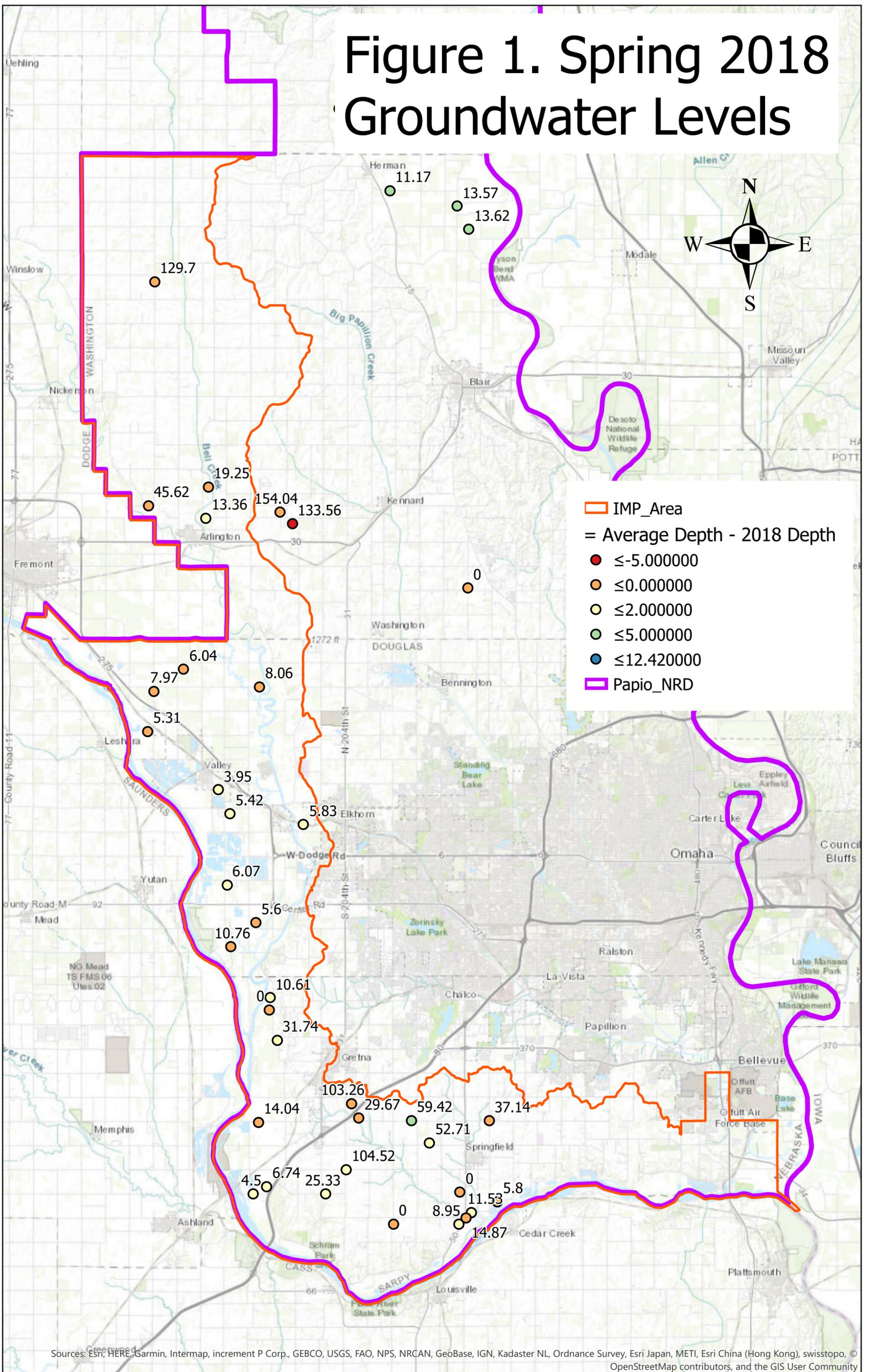
There are no anticipated revisions to the plan at this time. The P-MRNRD will need to document and prepare revisions to its Integrated Management Plan with NDNR in order to incorporate the allowable depletion values per the LPBWMP.

4.0 COALITION BUDGET AND MEMBER CONTRIBUTIONS

The P-MRNRD has \$20,000 budgeted for support of the coalition this fiscal year (before July 1, 2018)

FIGURES and APPENDICES

Figure 1. Spring 2018 Groundwater Levels



Well ID	NRD	NRD Permit ID	DNR Well Regi	DNR Well ID	County	x UTM zone 14	y UTM zone 14	Township	Range	Section	Use	Approval Date	Install Date	Status	Flow Meter ID	Flow meter install date	Pump capacity g	Replacement well	Notes
Papio-Misso		1018001	G-186658	256124	Washington	750757.29240400000	4566539.48535000000	14	12	1	Commercial/Industrial	4/2/2018, 12:00 PM	5/11/2018	Registered			200	No	
Papio-Misso		1018002			Dakota	706566.41189100000	4703027.67530000000	29	8	26	Irrigation	4/16/2018, 10:00 AM		Permit Approved			800	No	
Papio-Misso		1018003			Dakota	702971.87741300000	4703290.03833000000	29	8	28	Irrigation	4/16/2018, 10:30 AM		Permit Approved			800	No	
Papio-Misso		1018004			Dakota	713832.96486800000	4706739.08452000000	29	9	15	Other - Lake Supply, Fountain, Ge	4/27/2018, 12:00 AM		Permit Approved			300	No	
Papio-Misso		1018005			Washington	717985.21901900000	4608955.81360000000	19	9	23	Commercial/Industrial	4/26/2018, 12:00 AM		Permit Approved			80	No	
Papio-Misso		1018006	G-184994	252369	Burt	721847.02519500000	4641874.42324000000	22	10	8	Irrigation	5/10/2018, 12:00 AM	5/1/2018	Registered			800	No	
Papio-Misso		1018007			Washington	739562.14273000000	4569807.40209000000	15	11	26	Commercial/Industrial	6/8/2018, 12:00 AM		Permit Approved			200	No	
Papio-Misso		1018008			Washington	716096.18081200000	4598038.05088000000	18	9	28	Livestock	6/11/2018, 12:00 AM		Permit Approved			88	No	
Papio-Misso		1018009			Douglas	723402.01670200000	4566214.90627000000	14	10	6	Public Water Supply with Spacing	6/12/2018, 12:00 AM		Permit Approved			3100	Yes	Existing well G-075361
Papio-Misso		1018010			Washington	737927.41191800000	4617585.31092000000	20	11	26	Livestock	6/25/2018, 9:30 AM		Permit Approved			60	No	
Papio-Misso		1018011			Sarpy	725780.35866400000	4548494.57894000000	13	10	32	Other - Lake Supply, Fountain, Ge	8/30/2018, 12:00 AM		Permit Approved			450	No	
Papio-Misso		1018012	G-185820	253708	Dakota	697401.74935200000	4703267.98606000000	29	7	27	Commercial/Industrial	9/7/2018, 12:00 AM	7/25/2018	Registered			900	No	