

# Voluntary Integrated Management Plan 2016 Annual Report

**July 2017**

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**Confluence of the Platte and Elkhorn Rivers**

**TABLE OF CONTENTS**

1.0 INTRODUCTION..... 1

**1.1 Background and Purpose** ..... 2

**1.2 Authority** ..... 3

2.0 2015 Data collection and Monitoring..... 4

**2.1 P-MRNRD Data collection and monitoring**..... 4

**2.2 NDNR Data collection and monitoring** ..... 6

3.0 GOALS AND OBJECTIVES ..... 7

**3.1 P-MRNRD accomplishments toward goals and objectives**..... 7

**3.2 NDNR accomplishments toward goals and objectives** ..... 7

4.0 information and education..... 7

5.0 INCENTIVE PROGRAMS ..... 8

6.0 MODIFICATIONS TO THE INTEGRATED MANAGEMENT PLAN ..... 8

7.0 priority action items for the following year..... 9

**LIST OF FIGURES**

- Figure 1 General Location Map of the Integrated Management Plan
- Figure 2 Detailed Location Map of the Groundwater and Surface Water Control Areas
- Figure 3 2016 Static Groundwater Level Map

**LIST OF APPENDICES**

- Appendix A Action Item Status List
- Appendix B 2017 Annual Review Meeting Summary

## 1.0 INTRODUCTION

The citizens of the Papio-Missouri River Natural Resources District (P-MRNRD) depend on abundant, clean water in their homes for domestic use, on their farms for agricultural production, and for their industries to maintain economic viability. Wildlife that live and migrate through the P-MRNRD depend on clean water for sustenance and habitat. Furthermore, human inhabitants of the District use water in rivers and lakes for recreation including fishing, hunting, boating, and swimming. Without available water, our ancestors would not likely have settled here on the prosperous lands adjacent to the Platte, Elkhorn and Missouri Rivers.

Both rural and urban inhabitants along the Lower Platte River from the Elkhorn to the Missouri River have relied on the abundant water resources of the area and over time their water use has increased. Following the drought of 2012, it was clear to leaders at the P-MRNRD and citizen stakeholders within this area that a water use plan needed to be developed to provide a framework for how to wisely manage water resources so that they are available now and in the future.



Confluence of the Platte and Missouri Rivers

For these reasons, water management planning was voluntarily initiated by the P-MRNRD in collaboration with the Nebraska Department of Natural Resource (NDNR). The plan, called an Integrated Management Plan (IMP), is a water planning document that provides a framework for how the P-MRNRD and the NDNR will work collaboratively to manage groundwater and surface water use across an area where the two are hydrologically connected. The IMP was initiated voluntarily by the P-MRNRD in part to avoid future determinations by NDNR that the area is fully appropriated.

Not only did the P-MRNRD volunteer to initiate a IMP, numerous local stakeholders volunteered to represent the wide array of water interests and provide invaluable input during the planning process. These stakeholders truly shared the insight and discussions necessary to not only develop a plan, but to carry it forward into the future. We are grateful for all their time and energy!

## 1.1 BACKGROUND AND PURPOSE

On January 9, 2004, Nebraska Legislative Bill (LB) 962 was passed, which requires the NDNR and the NRDs to collaborate on the management of groundwater and surface water as a single, integrated, resource. LB 962 requires the development of an IMP if a river basin, subbasin, or reach is determined to be fully appropriated by the NDNR. Each year, because of this legislation, NDNR produces a report called the "Annual Evaluation of Availability of Hydrologically Connected Water Supplies" (Annual Report). This Annual report provides the results of NDNR's evaluation of the



**Agricultural Irrigation**

expected long-term availability of hydrologically connected water supplies for both existing and new surface water uses and existing and new groundwater uses in each of the state's river basins.

On December 16, 2008, NDNR made a preliminary determination that the Lower Platte River Basin was fully appropriated. A basin is considered fully

appropriated when certain conditions for hydrologically connected surface water and groundwater are met under Neb. Rev. Stat. §46-713(3). The statute states that a basin is fully appropriated when current uses of hydrologically connected surface water and groundwater cause or will, in the reasonably foreseeable future, cause:

- the surface water supply to be insufficient to sustain over the long term the beneficial or useful purposes for which existing natural-flow or storage appropriations were granted and the beneficial or useful purposes for which, at the time of approval, any existing instream appropriation was granted;
- the streamflow to be insufficient to sustain over the long term the beneficial uses from wells constructed in aquifers dependent on recharge from the river or stream involved;
- reduction in the flow of a river or stream sufficient to cause noncompliance by Nebraska with an interstate compact or decree, other formal state contract or agreement, or applicable state or federal laws.

The preliminarily determined area included portions of the P-MRNRD, Lower Platte South, Lower Platte North, Lower Elkhorn NRDs and nearly the entire Upper Loup, Lower Loup and Upper Elkhorn NRDs. Prior to making a final determination, NDNR held a public hearing in early 2009.

Through this hearing, new information was made available that resulted in NDNR reversing the preliminary determination.

Although the fully appropriated status determination had been reversed, in May 2012, the Board of Directors of the P-MRNRD adopted a motion to inform NDNR that P-MRNRD intended to develop a voluntary IMP for a portion of the district and requested NDNR's participation. NDNR approved P-MRNRD's request the same month.

This IMP was developed jointly by the P-MRNRD and NDNR with the express purpose to manage the hydrologically connected portions of the P-MRNRD to achieve and sustain a balance between water uses and water supplies for the long term. The IMP provides the regulatory background as well as the detailed goals, objectives, and action items that were developed with stakeholder involvement. This IMP was developed with the understanding that the Lower Platte River Basin is not fully appropriated; should that designation change, the IMP would have to be reevaluated.

The P-MRNRD Voluntary IMP, dated August 2014, was adopted by P-MRNRD Board of Directors on July 10, 2014 and associated groundwater control rules and regulations were enacted on November 13, 2014. On August 1, 2014, the NDNR issued an order adopting the P-MRNRD IMP and associated surface water controls.

As this IMP is being entered into on a voluntary basis, the IMP area is not currently fully appropriated. The methodology utilized by NDNR to assess the available supplies and uses in the Annual Report will be used to track depletions and gains to streamflow from changes in availability and use. Current supplies are greater than the current level of use and therefore methods to identify water supplies to be used as offsets or for mitigation purposes or an identification de minimis effects are not included in this IMP. Additionally, the IMP area is not subject to any interstate compact or decree, or any other formal contract or agreement pertaining to surface water or groundwater use or supplies.

## **1.2 AUTHORITY**

This IMP was prepared for and adopted by the Board of Directors of the P-MRNRD and the NDNR in consultation with the P-MRNRD Stakeholder Advisory Committee. P-MRNRD Board Meeting minutes adopting the IMP and enacting groundwater control rules and regulations along with NDNR's letter of agreement and order of adoption are available at [www.papionrd.org](http://www.papionrd.org) or <https://dnr.nebraska.gov/water-planning/papio-missouri-river-nrd>. As stated in Neb. Rev. Stat. § 46-715(1)(b), a natural resources district encompassing a river basin, subbasin, or reach that has not been designated as overappropriated or has not been finally determined to be fully appropriated may, jointly with the department, develop an integrated management plan for such river basin, subbasin, or reach located within the district.

## 2.0 2016 DATA COLLECTION AND MONITORING

Section 6 (page 19) of the adopted IMP describes the annual monitoring plan to be followed in completing the following actions:

- Gather and evaluate data, information, and methodologies that could be used to accomplish the purpose of this IMP
- Increase understanding of the surface water and hydrologically connected groundwater system
- Test the validity of the conclusions and information upon which the IMP is based

## 2.1 P-MRNRD DATA COLLECTION AND MONITORING

The P-MRNRD is responsible for collecting, tracking, evaluating, and reporting the following activities within the IMP Area on an annual basis:

- Groundwater level measurements
- Municipal, commercial, and industrial annual water use
- Irrigation water use
- Well registrations approved, cancelled or denied (or well permitting if well permitting requirements are implemented)
- Variances granted , cancelled or denied
- Water transfer permits granted, cancelled, or denied
- Water banking transactions (if a water banking system is established)

### Groundwater Level Measurements

Groundwater level measurements were collected at 31 locations within the IMP area during the spring of 2016. Figure 3 displays the rise or decline as a percentage of saturated thickness for each groundwater level measurement location. Some sites have been measured since 1978. In general, groundwater level data for the IMP area shows a standard deviation between 0 and 2 feet. Additionally, this years Spring 2016 measurements were generally in line with that standard deviation experiencing changes from the average of -1 to +3 feet.

**Municipal, Commercial and Industrial Annual Water Use**

<b>Municipal Well Field</b>	<b>2016 Total Pumped (Ac-ft)</b>	<b>Notes</b>
Papillion	4,326.2	
Lincoln	20,451.2	Include only wells in P-MRNRD
MUD South	38,030.4	
MUD West	8,976.2	Includes only wells in P-MRNRD
Fremont	4,971.5	Includes only wells in P-MRNRD
Valley	334.4	
Springfield	170.8	
Gretna	1,052.0	
Arlington	217.4	
<b>TOTAL</b>	<b>83,501.6</b>	

**Irrigation Water Use**

No data was collected during 2016. The P-MRNRD is in the process of mapping and certifying irrigated acres in the IMP area. Upon completion, this information will be used with water use calculations from the previous P-MRNRD Water Balance Study to estimate irrigation water use for subsequent annual reports.

**Well Registrations**

All new registered wells during 2016 for the IMP area are available online through NDNR at <http://data.dnr.nebraska.gov/wells/Menu.aspx>. No well permits are currently issued by the P-MRNRD as part of their Groundwater Management Plan.

**Vaiances to Expand Irrigated Acres**

The P-MRNRD received and approved 2 variances to expand a total of 194 irrigated acres in the IMP area during 2016, reference Table 1.

**Table 1. 2015 Variances to Expand Irrigated Acres**

Application Number	Year	Acres	Status	Registered Well
V-0050	2016	124	Complete	G-169286
V-0051	2016	70	Complete	G-177878

### **Water Transfer Permits**

The P-MRNRD does not currently require any Water Transfer Permits.

### **Water Banking Transactions**

The P-MRNRD does not currently operate a Water Bank.

## **2.2 NDNR DATA COLLECTION AND MONITORING**

NDNR will be responsible for collecting, tracking, evaluating, and reporting the following activities within the IMP Area on an annual basis:

- NDNR stream gage measurements
- Surface water permits issued, cancelled or denied
- Irrigation water use data collected
- Annual water use by the Metropolitan Utilities District and Lincoln Water System

Annual data collection and monitoring completed by NDNR for 2014 is included as part of their report.

### 3.0 GOALS AND OBJECTIVES

Reference Section 3 (page 9) of the IMP for the the four goals and corresponding objectives developed by the P-MRNRD and NDNR, in consultation with the Stakeholder Advisory Committee.

#### 3.1 P-MRNRD ACCOMPLISHMENTS TOWARD GOALS AND OBJECTIVES

Objectives for each goal are supported by action items as documented in Section 4 (page 11) of the IMP. For 2016, the P-MRNRD required variances for any new irrigated acres to implement the groundwater control action item which established an annual limit on the expansion of groundwater-irrigated acres within the District to 2,500 acres.

A proposed schedule and status of the accomplishments toward other action items as part of the goals and objectives up to the end of 2016 is recorded in table format in Appendix A.

#### 3.2 NDNR ACCOMPLISHMENTS TOWARD GOALS AND OBJECTIVES

Accomplishments toward IMP Goals and Objectives completed by NDNR for 2016 is included as part of their report.

### 4.0 INFORMATION AND EDUCATION

Information and education about the efficient and effective use of water for both our rural and urban landscapes was very important to stakeholders during the development of the IMP and is encapsulated in the goals, objectives, and action items under Goal 3. District newsletters provide information regarding specific programs and projects as does our website at [www.papionrd.org](http://www.papionrd.org). Each year, the P-MRNRD office at Chalco Hills is host to the World O' Water public event in which 2,000 to 2,200 children and adults attend. Event planners and participants include the P-MRNRD, City of Omaha Stormwater Program, Keep Omaha Beautiful, Papillion Creek Watershed Partnership, Nebraska Game and Parks Commission, AWWA, Groundwater Foundation, MUD, USGS, U.S. Army Corps of Engineers, and Upper Big Blue NRD. Attendees hear and obtain information regarding local and Nebraska groundwater and surface water issues, there are also great hands-on activities. The P-MRNRD and NDNR had a booth at the 2016 World O' Water event focused on water conservation and efficiency relating to lawn and crop irrigation.

In May, P-MRNRD staff also coordinate an annual Water Works Festival for 900 to 1,000 5<sup>th</sup> and 6<sup>th</sup> grade students. Over the course of this reporting period, P-MRNRD information and education staff has completed over 250 school or public visits to provide water-based education to approximately 10,000 people each year.

## 5.0 INCENTIVE PROGRAMS

The P-MRNRD will evaluate the implementation of cost-share incentive programs that promote water conservation practices. For example, P-MRNRD will explore cost-share incentives for voluntary installation of soil moisture and ET sensors. Incentive programs may include any program authorized by state law or federal programs. Water users or landowners may be required to enter into and perform such agreements or covenants concerning the use of land or water as are necessary to produce the benefits for which the incentive program is established. Furthermore, the P-MRNRD will explore grant opportunities and NRCS programs to supplement the annual budgeting process for funding action items. Educational and training programs may be included with the cost-sharing and grant-funding sources.

## 6.0 MODIFICATIONS TO THE INTEGRATED MANAGEMENT PLAN

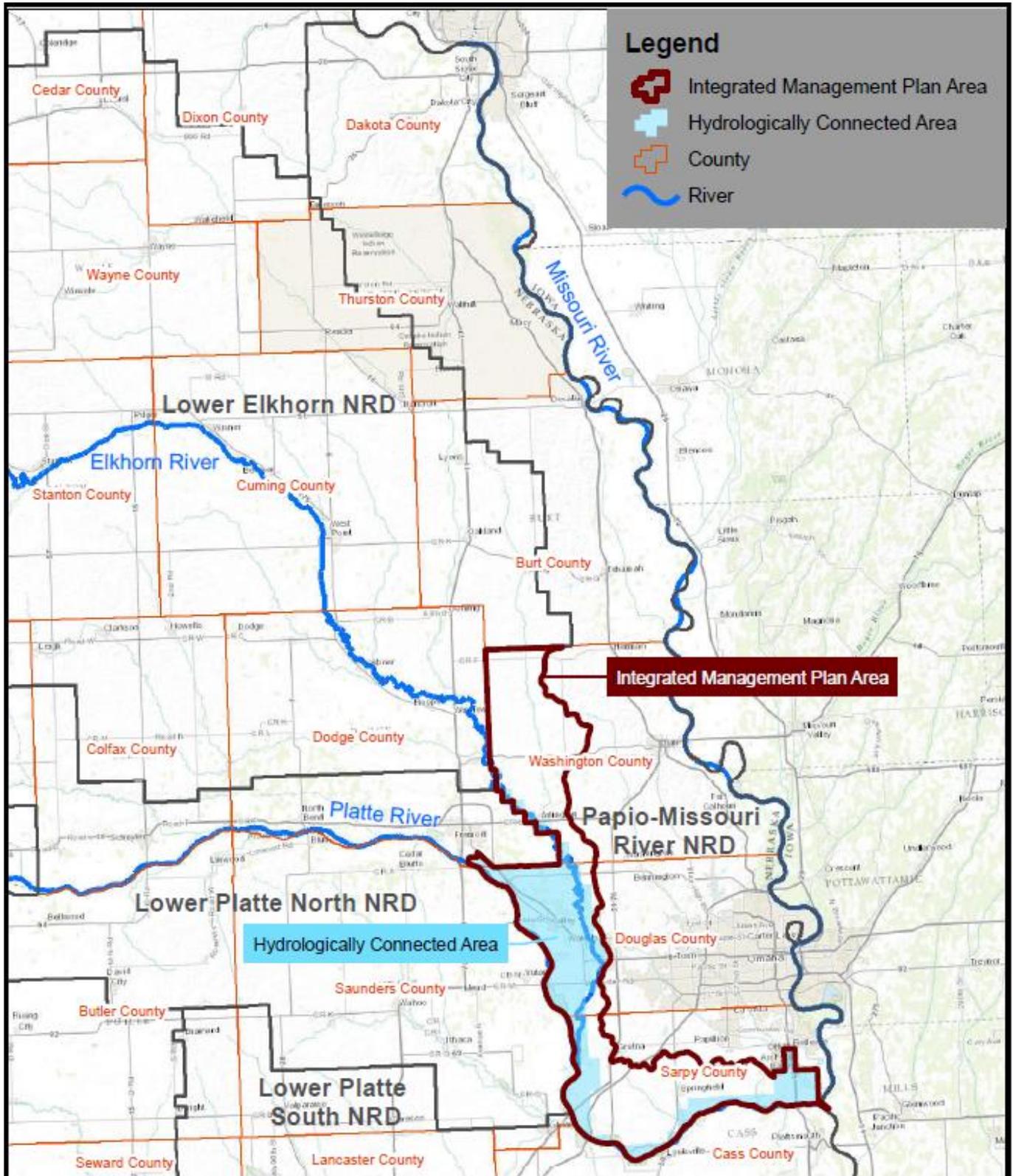
P-MRNRD and NDNR held an annual review meeting on May 25, 2017 to evaluate the results of the IMP for 2016. The action items undertaken by the P-MRNRD and NDNR seem to be fulfilling the goals and objectives of the IMP. Therefore, the NDNR and P-MRNRD have jointly determined that no amendments to the IMP are necessary at this time. If amendments to the IMP are necessary, the P-MRNRD and NDNR will hold a joint hearing and issue the pertinent orders to formally adopt the revised IMP.

## 7.0 JOINT ACTION FOR THE FOLLOWING TWO YEARS

The priority action items for the following two years were discussed at the Annual P-MRNRD and NDNR review meeting on May 25, 2017. Minutes from this meeting are enclosed in Appendix B. The following items are listed as priority actions for calendar years 2017 and 2018:

- The P-MRNRD will continue to work to adopt a revised GWMP and associated rules and regulations; NeDNR will continue to provide feedback on the content, consulting with additional agencies as necessary.
- Both parties will review data from the Platte and Elkhorn River Valley Integrated Water Monitoring study with USGS, as available.
- Both parties will participate at the World O' Water public outreach event to be held on September 10, 2017
- Both parties will coordinated on a potential municipal & industrial water use clearinghouse project
- NDNR will further develop INSIGHT, and will incorporate NRD data whenever possible.
- Both parties will continue to participate in basin-wide and regional planning efforts such as ENWRA, the Lower Platte River Consortium (drought planning), and Lower Platte River Basin Coalition (LPRBC).
- NDNR will coordinate with the LPRBC to further develop the stream depletion/accretion calculator and interface.

## FIGURES



0 2.5 5 10

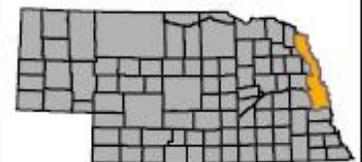


Miles



US Topographic Basemap

Figure 1 General Location Map of the Integrated Management Plan Area





# 2016 Static Groundwater Elevation Rise or Decline Percent of Saturated Thickness

0 3.5 7 14  
Miles

POR Average Depth minus Spring 2016 Depth (ft)

- -6.0 - -3.0 ft
- -3.0 - 0.0 ft
- 0.0 - 2.5 ft
- 2.5 - 5.0 ft
- 5.0 - 10.0 ft

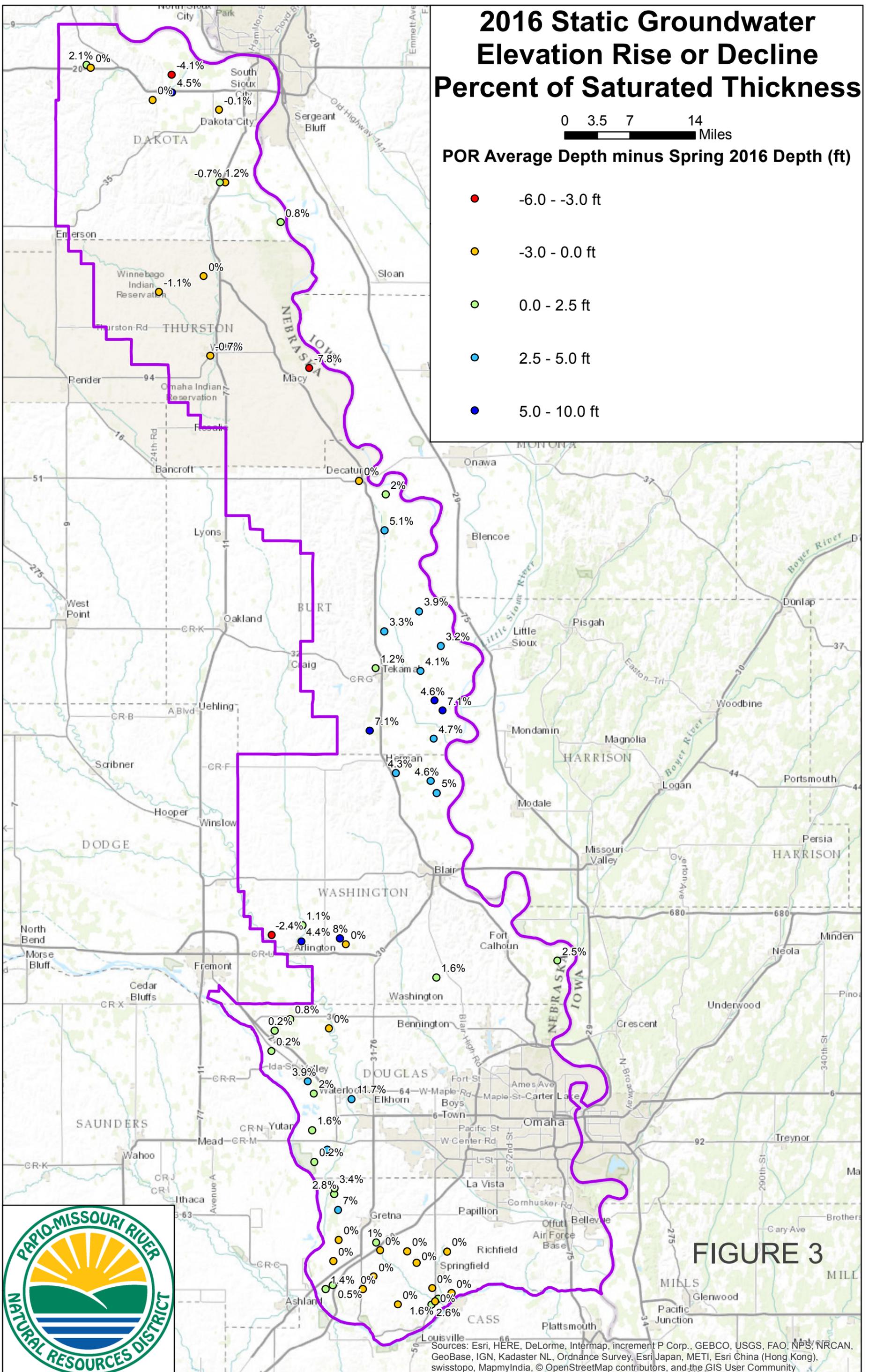


FIGURE 3

Sources: Esri, HERE, DeLorme, 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

**APPENDIX A**  
**P-MRNRD Accomplishments to IMP Goals and Objectives**

Action Item	P-MRNRD	NDNR	Proposed 2016 Schedule	EOY Implementation Status	Comment
Action Item 1.1.1 Review and evaluate the P-MRNRD's Groundwater Management Plan (GMP) relative to the goals and objectives of the IMP. (P-MRNRD)	X		July - Complete data acquisition and map production for GMP; July - Nov. - Complete stakeholder involvement; Jan. - March 2017 - Draft GMP and Annual Report Documentation	GMP draft has been completed and submitted to NDNR for review on March 31, 2017	Stakeholder meetings took place between July - Nov.
Action Item 1.1.2 Evaluate the need for a ranking system for new groundwater irrigation wells or expanded groundwater irrigated acres. (P-MRNRD)	X		Evaluate as part of 4.1.1	Lower Platte Basin Plan is still under development, but will determine appropriate annual development for P-MRNRD IMP area	
Action Item 1.1.3 Evaluate the need to require proposed new groundwater well field expansions and new large groundwater uses to perform an impact analysis. (P-MRNRD)	X		Complete as part of 1.1.1	GMP recommends that any wells pumping greater than 500 acre-feet per year perform an evaluation	Recommendation will have to be adopted and implemented as part of new rules and regulation in 2017
Action Item 1.1.4 Assess the need to further study the Lower Platte aquifer properties, extents, and connectivity to surface water. (Both)	X	X	June - Receive grants and install USGS monitoring for Platte to Elkhorn River Valley Integrated Management Project Oct. - Complete flights for new Sarpy County AEM survey; Jan. - March 2017 - Annual Report Documentation	USGS project is deployed and available at <a href="https://www.usgs.gov/centers/water-dashboard/ground?state=ne">https://www.usgs.gov/centers/water-dashboard/ground?state=ne</a> . New ENWRA report for Sarpy County complete, <a href="http://www.enwra.org/2016aem.html">http://www.enwra.org/2016aem.html</a>	P-MRNRD study with USGS to monitor GW elev b/w Leshara and Waterloo using IDEP and WSF Funding. AEM study completed using WSF funding.
Action Item 1.1.5 Assess the need for additional revenue sources to be used to fund programs and projects resulting from this IMP. (P-MRNRD)	X		July - Complete this review and if appropriate include in budget; Jan. - March 2017 - Annual Report Documentation	Funding opportunities review completed by OA June 2015. Applied for WSF and IDEP funding.	Received WSF and IDEP funding for two different projects in 2016.
Action Item 1.1.6 Identify and study opportunities for the development of transfers, variances, water banking, and other actions of water management to potentially be used in the IMP Area. (Both)	X	X	Oct - Document involvement of LP Basin Plan 4.1.1	Opportunities being evaluated as part of LPR Basin Plan	Draft LPR Basin Plan Report has been delayed
Action Item 1.2.1 Provide financial and administrative support to weed management activities in river channels. (P-MRNRD)	X		Jan. - March 2016 - Annual Report Documentation	Completed 2016 aerial and ground spraying with LPR Weed Mngt Area	New aerial spraying contractor and interlocal agreement amendment completed in 2016
Action Item 1.2.2 Encourage removal of invasive species to improve channel conveyance. (P-MRNRD)	X		Jan. - March 2016 - Annual Report Documentation	""	""
Action Item 1.3.1 Evaluate the potential for conjunctive management programs or project opportunities to protect existing users or mitigate new uses such as water rights leases, interference agreements, augmentation projects, conjunctive use management, or use retirement. (Both)	X		Complete as part of 4.1.1. Become involved with Lower Platte River Drought Mitigation Study. Jan. - March 2017 - Annual Report Documentation	Some conjunctive management opportunities being evaluated as part of LPR Basin Plan. P-MRNRD entered interlocal agreement for Drought Mitigation Study	Draft LPR Basin Plan Report has been delayed. Future study ongoing with LPSNRD, LPNDRD, MUD and LWS
Action Item 2.1.1 Identify important data components to monitor in order to ensure the best available datasets are used in the NDNR's annual evaluation. (Both)	X	X	Jan. - Sept. - Collect data; Jan. - March 2017 - Annual Report Documentation	Data collection examination completed by OA in June 2015.	Data sets are being compiled and mapped for GMP update (1.1.1). P-MRNRD study with USGS to monitor GW elev b/w Leshara and Waterloo.
Action Item 2.1.2 Estimate consumptive water use utilizing the best available data and analysis tools. (Both)	X	X	June - Complete evaluation; July - Oct - Refine; Jan. - March 2017 - Annual Report Documentation	Options and protocols report completed by OA in June 2015.	Need adequate land use assessment to baseline updated water balance calculations

Action Item	P-MRNRD	NDNR	Proposed 2016 Schedule	EOY Implementation Status	Comment
Action Item 2.1.3 Assess the need for additional monitoring and ensure information on land use changes are evaluated with respect to water use utilizing the best available data and tools. (Both)	X	X	Dec. - Refine, complete acre certification in GIS; Jan. - March 2017 - Annual Report Documentation	Irrigated acre certification layers updated, but waiting on GIS development to deploy and certify with landowners.	Continue certification with landowners. Need adequate land use assessment to baseline updated water balance calculations
Action Item 2.1.4 Continue to monitor changes in streamflow and groundwater levels. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Spring 2015 GW level maps completed (attached).	P-MRNRD study with USGS to monitor GW elev b/w Leshara and Waterloo.
Action Item 2.1.5 Continue to gather and analyze hydrogeologic data. (Both)	X	X	Jan. - March 2016 - Annual Report Documentation and ENWRA info	New ENWRA report for Sarpy County complete, <a href="http://www.enwra.org/2016aem.html">http://www.enwra.org/2016aem.html</a>	New testhole and network monitoring well planned for Valley, NE
Action Item 2.2.1 Develop or maintain a comprehensive spatial/tabular water inventory database that includes measurements or estimates of components of the water budget. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Data and database collected from Oct. 13, 2013 Water Balance report by B&C.	Need adequate land use assessment to baseline updated water balance calculations
Action Item 2.2.2 Develop or maintain science-based protocols for estimating unmeasured water uses. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Options and protocols report completed by OA in June 2015.	Need adequate land use assessment to baseline updated water balance calculations
Action Item 2.2.3 Establish a system to better monitor and evaluate changes in surface water and groundwater supplies and uses. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Options and protocols report completed by OA in June 2015.	Need adequate land use assessment to baseline updated water balance calculations
Action Item 2.2.4 Track variability in water use and supply by regularly evaluating data from existing surface water, groundwater, and weather monitoring networks. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Options and protocols report completed by OA in June 2015. Further data gaps are being assessed as part of GWMP update (1.1.1)	Need adequate land use assessment to baseline updated water balance calculations
Action Item 2.2.5 Recommend changes to the Groundwater Management Plan as necessary. (P-MRNRD)	X		Complete as part of 1.1.1 in 2016/2017	GMP draft has been completed and submitted to NDNR for review on <u>March 31, 2017</u>	Stakeholder meetings took place between July - Nov.
Action Item 2.3.1 Obtain short- and long-term water use projections from municipalities. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	No meeting held. Annual municipal water use for 2016 collected in February 2017.	
Action Item 2.3.2 Develop online water use form for reporting annual water use. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Not completed at this point. Still evaluating need as we complete GWMP update.	
Action Item 2.3.3 Investigate the need for metering for annual reporting of irrigation and other large water uses. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Update well inventory as part of irrigated acre certification. No evaluation of metering at this time.	
Action Item 2.3.4 Evaluate the need to expand existing or develop new rural water systems (Improvement Project Areas). (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	Further analysis on this will be completed as part of the GWMP update (1.1.1).	
Action Item 2.3.5 Develop estimates of water use from private, domestic, and other unmetered wells. (P-MRNRD)	X		See 2.2.2	Reviewed water use data from USGS as part of GWMP Update. Estimate total number of registered and unregistered domestic wells give population and housing data.	
Action Item 3.1.1 Continue to use existing and develop additional information and education programs that promote wise water use and conservation. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	No meeting held in 2016. Continued urban stormwater promotion.	Ideas to promote: lawn irrigation management, ag irrigation management (NRCS EQUIP), Test your well event, enhance soil conditions.

Action Item	P-MRNRD	NDNR	Proposed 2016 Schedule	EOY Implementation Status	Comment
Action Item 3.1.2 Evaluate the need for additional cost-share programs or projects to promote wise water use and conservation. (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	No update.	Work with LPNRRD and NRCS on irrigation efficiency, soil moisture equipment, reporting.
Action Item 3.1.3 Collaborate with schools and other agencies to develop curriculum on water supplies and water conservation measures for use in classrooms. (P-MRNRD)	X		Jan. - March 2016 - Annual Report Documentation	School presentations provided by P-MRNRD education staff. Participated in 2016 World O' Water event with NDNR staff.	
Action Item 3.2.1 Coordinate with public water systems to develop or expand educational materials and programs on water supplies, water quality, and best conservation practices. (P-MRNRD)	X		Jan. - March 2016 - Annual Report Documentation	MUD water conservation: <a href="http://www.mudomaha.com/water">http://www.mudomaha.com/water</a> .	Need to host meeting.
Action Item 3.2.2 Continue to coordinate with cities, counties, and others as they develop long-term planning activities. (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	Coordinated with Douglas County on update to their COMP plan regarding domestic wells and well spacing.	GWMP update stakeholder meetings will involve local gov planning
Action Item 3.2.3 Continue to coordinate with industries, cities, and agricultural producers to promote the use of best management practices for stormwater management. (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	No update.	GWMP update stakeholder meetings will discuss BMPs
Action Item 3.2.4 Continue to coordinate with cities, counties, and others to encourage water education and conservation. (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	P-MRNRD education programs offered. P-MRNRD and NDNR participated in World O' Water in Sept. 2016	Need to host meeting with stakeholders
Action Item 3.2.5 Evaluate the potential for programs or projects that support the use of best management practices related to agricultural crop water management. (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	Opportunities for NRD cost-share are being incorporated into the new GMP	Work with LPNRRD and NRCS on irrigation efficiency, soil moisture equipment, reporting.
Action Item 3.2.6 Evaluate implementing urban cost-share incentive programs to encourage indoor and outdoor water conserving technology or landscaping. (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	P-MRNRD has urban stormwater program.	Work with more cities and counties to best implement new development standards.
Action Item 3.3.1 Evaluate the positive and negative effects of capturing and using waste water. (P-MRNRD)	X		Work with Eric and Lori?	No update.	Need to host meeting with stakeholders
Action Item 3.3.2 Cooperate with public water systems to identify potential applications for reuse of treated waste water. (P-MRNRD)	X		Work with Eric and Lori?	No update.	Need to host meeting with stakeholders
Action Item 4.1.1 Cooperate on water management studies and planning with the Lower Platte River Basin Water Management Plan Coalition. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Participated in all meetings and workshops	Draft LPR Basin Plan Report has been delayed
Action Item 4.1.2 Continue to support the efforts and initiatives of the Eastern Nebraska Water Resources Assessment. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Provided cost-share. ENWRA report complete, <a href="http://enwra.org/aem%20data%20download.html">http://enwra.org/aem%20data%20download.html</a> .	
Action Item 4.2.1 Review and analyze existing studies of water storage opportunities in the Lower Platte River Basin and conduct additional multi-agency studies as appropriate. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Opportunities being evaluated as part of LPR Basin Plan and Lower Platte Drought Mitigation Study	Draft LPR Basin Plan Report has been delayed
Action Item 4.2.2 Evaluate the potential for conjunctive management programs or project opportunities to mitigate new uses such as water rights leases, interference agreements, augmentation projects, conjunctive use management, or reuse retirement. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Some conjunctive management opportunities being evaluated as part of LPR Basin Plan and Lower Platte Drought Mitigation Study	Draft LPR Basin Plan Report has been delayed. Future study with LPSNRD, LPNRRD, MUD and LWS
Action Item 4.2.3 Assess federal or statewide funding opportunities to further the goals and objectives of the IMP. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Opportunities being evaluated as part of LPR Basin Plan and Lower Platte Drought Mitigation Study	
Action Item 4.3.1 Coordinate with other entities to identify and study opportunities for the development of transfers, variances, water banking, and other actions of water management to potentially be used across the entire Platte River Basin. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	Opportunities being evaluated as part of LPR Basin Plan	Draft LPR Basin Plan Report has been delayed

<b>Action Item</b>	<b>P-MRNRD</b>	<b>NDNR</b>	<b>Proposed 2016 Schedule</b>	<b>EOY Implementation Status</b>	<b>Comment</b>
Action Item 4.4.1 Work with the Platte River Recovery and Implementation Program on water management planning activities, as necessary. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	No update.	
Action Item 4.5.1 Review and assess the benefits from instream flow protection. (Both)	X	X	Jan. - March 2017 - Annual Report Documentation	No update.	
GW Control - Establish a limit on the expansion of groundwater-irrigated acres. (P-MRNRD)	X		Jan. - March 2017 - Annual Report Documentation	Enacted as of November 11, 2014	
SW Control - Establish a limit on the expansion of surface water-irrigated acres. (NDNR)		X	Jan. - March 2017 - Annual Report Documentation	Enacted as of August 1, 2014	
Other - Monitoring and Reporting Annually (P-MRNRD)	X				

**APPENDIX B**  
**Annual IMP Review Meeting Summary**

## Papio-Missouri Tributaries NRD/NeDNR Joint V-IMP: Coordination meeting for 2016 Annual Review

Meeting notes from May 25, 2017

Attendees: Marlin Petermann, Paul Woodward, Jesse Bradley, Jennifer Schellpeper, Amy Zoller, Beth Eckles, Carrie Weise

1. Planning context (IMP, GWMP); How do the two plans sync?
  - a. IMP area, IMP actions would be above and beyond requirement in the GWMP. Therefore, IMP requirements can be modified without resulting in required changes to the GWMP.
  - b. GWMP applies everywhere; IMP is in addition to, for those areas.
  - c. Rules and Regs—breaks it out by GWMP, IMP, Quality
  - d. GWMP—suggestion to specify one control for each Phase, but can pick from list
  
2. Monitoring and management actions
  - a. Monitoring
    - i. NRD-194 new acres
    - ii. DNR—111.7 new acres
  - b. Regulatory
    - i. Both NRD and DNR developed less acres than set in control.
    - ii. How to split the excess in the 3 LP NRDs.
      1. Split 3 ways? Based on supply (area is driver)?
      2. Divide excess by demand instead of supply?
      3. M&I and instream flow are considerations
    - iii. How to write the IMP language? Keep the way it is (acres) and make changes to acres based on depletion in Rules and Regs?
  - c. Data and Studies
    - i. LPMTribs model (DNR)
      1. Projected completion end of summer, 2017. Create SDF from this over the next few months. HC area will look a lot different.
    - ii. ENWRA coordination (both)
      1. Report and data are available on ENWRA
      2. GeoCloud workshops
      3. How to prioritize the next area for flight?
        - a. DNR doing a study with LE to use AEM to delineate aquifers/connectivity.
    - iii. Development of municipal water use reporting tool (NRD)
      1. For right now, NRD calls entities and puts it into a spreadsheet. Summary table goes in to IMP annual report.
      2. DNR has grant application with USGS, should know about this July 1. Program is set up to support USGS Water Census, to create a clearinghouse for M&I data across the state.
    - iv. LPRBC Basin Planning
      1. Both will write about in respective annual reports.
    - v. Platte and Elkhorn Valley Integrated Water Monitoring Study (NRD)-
      1. Nothing new this year, possibly next year.

2. Study going well.
  - a. Stream bed conductance on Elkhorn. Thermal conductance will be included to evaluate GW flux.
  
- d. Information and education
  - i. World of Water—September
    1. 2K people/kids
    2. NRD is planning to do the same thing as last time, minus the soil-moisture activity☺
    3. DNR is planning to also do the same thing as last time, where we have our own booth. One person (Elise) did the whole thing last time.
  - ii. INSIGHT
    1. General updates by NeDNR
    2. Collaboration to improve input data (i.e. incorporate NRD data)
  - iii. State activities: Husker Harvest Days, State Fair, Women in Ag, etc.
  - iv. NRD education in >200 schools
  
3. Jointly identified actions for succeeding two years
  - a. Work together to determine best areas for future AEM surveys. New MODFLOW allows for sub-layers.
  - b. Coordination for potential municipal & industrial water use clearinghouse project
  - c. Further development of INSIGHT, incorporating NRD data wherever possible.
  - d. Both parties will participate in ENWRA, Consortium (drought planning), Coalition for Basin planning
  - e. Potential coordination with LPRBC to further develop the stream depletion/accretion calculator and interface
  - f. Update of consumptive use estimates by developing/incorporating 2014-2018 land cover/land use data.
  
4. 2016 Annual report public meeting
  - a. Date—
    - i. Will do this July 13, 7 pm as part of board meeting.
  - b. Power points—each works on our own. Will combine first week in July.
  - c. Noticing—will be part of Board notice for NRD; DNR will post on website (done).
  
5. Any amendments needed or upcoming
  - a. Potential upcoming
    - i. Geographic Area:
      1. Note: HC area will change with new model, but that doesn't necessarily mandate that the IMP area will change, the NeDNR and NRD would need to agree on it. An amendment would be to change any "10/50" area language to something else (e.g. "Plan area")
  
6. Set schedule for 2017 Annual Review
  - a. DNR/NRD coordination meeting in late March. Amy will send out some dates.
  - b. Report presented at May or June Board meeting.