

CPRND Stakeholder Meeting #3 Minutes

Project: 2nd Increment Stakeholder Process for Central Platte NRD Integrated Management Plan (IMP)

Subject: Stakeholder Meeting #3

Date: Tuesday, November 13, 2018 from 2:00 p.m. – 4:00 p.m.

Location: Holiday Inn Express, Kearney NE

I. Welcome

- a. Stephanie White, HDR, opened the meeting at 2:00 p.m. CT. She acknowledged the handout for the meeting which included the basin-wide plan draft. She briefly recapped the last meeting, and stated the previous meeting minutes and agendas are posted online. Stephanie asked the stakeholders to introduce themselves. The attendance sheet is included (Attachment A).

II. Administration

- a. Stephanie stated that a copy of the open meetings act was present in the room. She discussed safety and logistics in the event of an emergency. She summarized the last meeting topics including conjunctive management, municipal statute (2026 Offsets), and drought planning. Stephanie discussed the agenda of the meeting (Attachment B).
- b. Lyndon Vogt, CPNRD, recapped the municipal statute (2026 Offsets) discussion from the last CPNRD Stakeholder Meeting. Of the 21 communities in the Central Platte there are only five that are over 2,500 in population and those municipalities do a good job of tracking water use. The only municipalities that are gaining population are over 2,500, therefore, CPNRD is looking at tracking based on the size of municipalities. Won't require annual offsets for smaller communities, but will track and include changes to their water use in the 10 robust review. Stephanie noted the previous discussion is written in detail in the minutes from the last meeting and can be found online.
- c. Stephanie called for questions. There were no questions.

III. Robust Review results

- a. Jesse Bradley, Nebraska Department of Natural Resources (NeDNR), reviewed first increment goals and objectives of the CPNRD IMP, which focuses on addressing post 1997 depletions. The area in focus is from Elm Creek upstream, and was designated overappropriated (OA) by the legislature in 2004. That area is tied together with the Platte River Recovery and Implementation Program

(PRRIP). The Platte River Program area extends downstream to Chapman, NE, so the results will show breaks in terms of the information presented as impacts to the Platte River upstream of Elm Creek (OA designation) and impacts to the River between Elm Creek and Chapman.

Jesse reviewed the purpose of the robust review and stated that the analyses of post-1997 depletions was completed as outlined in the first increment IMPs. The new IMPs will use similar methods to assess progress made toward the requirement to address post 1997 depletions as those grow over time. These results can be a pretty significant driver in terms of discussions to determine how money is spent, what management actions are implemented, and discussions on controls that NRDs might adopt. The primary purpose of this analysis is to look at new uses that have come on after 1997 and the impacts of those uses on streamflows. The results are summarized in slides 6-24 in the presentation (Attachment C). He stated that all NRDs are engaged in a similar process and establishing their goals for the next increment. He asked the group for questions and acknowledged the NeDNR staff for putting together the information and modeling together. There were no questions.

IV. Basin-Wide Plan

- a.** Stephanie White, HDR, discussed an overview of the basin-wide plan thus far. She referred to the draft basin-wide plan handout, which includes track-changes (Attachment D). Stephanie and Lyndon, CPNRD, stated that the format of the CPNRD IMP will generally follow the format of the basin-wide plan.
- b.** Goal 1: Incrementally achieve and sustain a fully appropriated condition, while maintaining economic viability, social and environmental health, safety, and welfare of the basin.
 - i.** “Economic viability, social and environment health, safety, and welfare of the basin” is a new addition.
 - ii.** Objective 1.1 “Maintain previous increment mitigation progress” is a new addition.
 - iii.** Objective 1.4 “Conduct technical analyses to support and evaluate effectiveness of plan and adequacy in sustaining progress toward a fully appropriated level of water use” is what Jesse Bradley just discussed regarding best science practices to support and evaluate. It is ongoing and continuously updated.
 - iv.** Objective 1.3, “Make progress toward a fully appropriated condition” which is about making progress toward fully appropriated condition calls for drought management plan, discussed last meeting. 1.3.4 is new – continuing to dig into detail and information and how to mitigate these types of impacts. Most of this content is new.
- c.** Goal 2: Prevent or mitigate human-induced reductions in the flow of a river of stream that would cause non-compliance with an interstate compact or decree or other formal state contract or agreement.
 - i.** This is a goal from the first increment basin-wide plan. Only change is the addition of “human-induced.”

- d. Goal 3: Partner with municipalities and industries to maximize conservation and water use efficiency.
 - i. This goal was the bulk of the discussion at the last stakeholder meeting. Objectives 3.1, 3.2, and 3.3 are new in support of that discussion. To continue to collect data and include more inclusion of municipalities in water planning efforts.
- e. Goal 4: Work cooperatively to identify and investigate disputes between groundwater users and surface water appropriators and, if determined appropriate, implement management solutions to address such issues.
 - i. Does not include many changes.
- f. Goal 5: Keep the Upper Platte River Basin-Wide Plan current and keep stakeholders informed.
 - i. There is some new content here – primarily concerned with how we continue to keep stakeholders informed and engaged and involved in the planning process.
- g. Stephanie, HDR, asked if there is anything else the stakeholders think should be considered for incorporation into the IMP. She stated that at the meeting in January, there will be a draft IMP for this district, and this is the last time for an open dialogue with the stakeholders to help determine and decide new content that should be in the IMP.

Question: What is the latest on nitrate levels in the CPNRD?

CPNRD: In the majority of this district, the nitrate levels are stable or decreasing, with a few small areas seeing an increase.

Question: Is there any data about the conversion from gravity irrigation to pivot irrigation and its impact on water supplies?

NeDNR: Studies were conducted in the first increment looking at irrigation efficiencies and the impacts conservation practices. As a whole, impact to consumptive use due to irrigation equipment conversion is a minor component. Conservation practices, such as conversion from a maximum tillage practice to minimum, showed a more significant impact to the water supply. Going forward, one of our priorities is to get better data on the impact of conservation measures.

CPNRD: Pivot conversion has been driven by markets. For example, in 2013, there were around 300 or 400 pivots added without new irrigated acres.

Question: Will the stakeholder group get a draft copy of the IMP ahead of the January meeting?

Writing team: A draft IMP will be sent out about a week before the last meeting

Question: How far is the NRD on the progress toward second increment goals (17,000 acre feet)?

CPNRD: A lot of progress appears to have already been made, including benefits of conjunctive management projects.

Question: How quickly do the models reflect cropping changes and drought?"

CPNRD: These changes are reflected in the land-use dataset, that accounts for the change in the number of acres irrigated in a given year, and then the crop mix largely based on NASS (National Agricultural Statistics) is applied to that.

NeDNR: "The modeling team hopes that these updates will be made on an annual basis, going forward. The data in this presentation is lagging about five years, but going forward, we are working toward getting that lag down to a year or two.

- h. Stephanie, HDR, noted that stakeholders can email Lyndon, CPNRD, with ideas of what needs to be included in the IMP.

Jesse, NeDNR, reminded the group that as they look at the goals and objectives, remember that this is the process for us to gather input. This is how we get to hear what is important to the stakeholders and what we should be considering as we develop the various goals, objectives, and actions. This is the blueprint for what NeDNR and CPNRD will be doing for the next ten years, in terms of trying to manage for water quantity in the District.

Comment: The group needs to be cognizant of the impact of what we do on our communities and the economies of the area. Need to ensure that the IMP does not include anything that could harm the citizenry or the end users.

Stephanie: That intent is included in Objective 1.3, to gain a better understanding of the economic impact of water management decisions.

General comments by the group:

- When talking about water "allocations" or "over-appropriated" people tend to get nervous. Need to find ways to alleviate those fears. Public education is one way to do that and it should be included in the IMP.

V. **Public comment:** No public comment.

VI. **Meeting adjourned:** 2:55 p.m. CT

Next Meeting: ~~Tuesday, January 15, 2019~~ (The January meeting has since been rescheduled for Tuesday, February 26, 2019, at 1:00 p.m.)

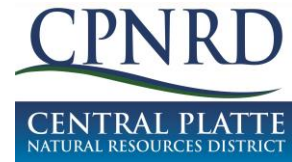
CPNRD IMP Meeting
November 13, 2018

Name	Representing
Isabella Peterson	HDR
Mike Drain	CNPPID
Tony Jelinek	City of Kearney
Ira H Klein	Buffalo Co Commissioners
Kari BURGERT	NEDNR
Margeaux Carter	NEDNR
MEUSA MOSICE	NEDNR
Brian Harmon	NEDNR

CPNRD IMP Meeting

November 13, 2018

Name	Representing
Jeff Shafer	NPPD
Randy Zach	NPPD
Luke Zikewski	CPNRD
NAY RICHESON	CPNRD
Jim Bendfeldt	CPNRD
J Buddenberg	30 Mile Con a/
Marcia Lee	CPNRD
Brandi Flyr	CPNRD
Lyndon Vogt	CPNRD
Dustin Wilcox	NARD
Kurt Kline	Lexington
Mark Haskins	Hall Co. Farm Bureau
Jesse Bradley	NeDNR



Agenda

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Subject: Stakeholder Meeting #3

Date: Tuesday, November 13, 2018 from 2:00 p.m. – 4:00 p.m.

Location: Holiday Inn Express, Kearney NE

Topics:

1. Welcome
2. Administration
3. Robust Review results
4. Basin-Wide Plan
5. Public comment

Next Meeting: Tuesday, January 15, 2019



CPNRD IMP

Meeting 3

TODAY'S AGENDA

- Welcome
- Administration
- Robust Review Results
- Basin-Wide Plan
- Public Comment

WELCOME

- Open meeting notice
- Safety & logistics



ADMINISTRATION

August Meeting Recap

Meeting #2 Recap

- 2nd Increment Topics
 - Conjunctive Management
 - Based on hydrological connection
 - Store excess when available for future times of shortage
 - Adaptive process that depends on cooperative partners
 - Municipal Statute – 2026 Offsets
 - Tracking based on size of municipality (2,500 pop.)
 - Simplify baseline calculations
 - Drought Planning
 - Stakeholder feedback
 - What problems do you face in drought?
 - What is a drought plan to you?
 - Would you be interested in participating in a drought workshop?



ROBUST REVIEW RESULTS



Robust Review Analysis

CPNRD Results

CPNRD IMP Stakeholder Meeting #3
November 13, 2018



Robust Review Goals

- **Complete monitoring activities outlined in the current IMP**
- **Assess progress on first increment goals and objectives**
- **Provide for more informed discussion of second increment objectives with the CPNRD IMP stakeholders**

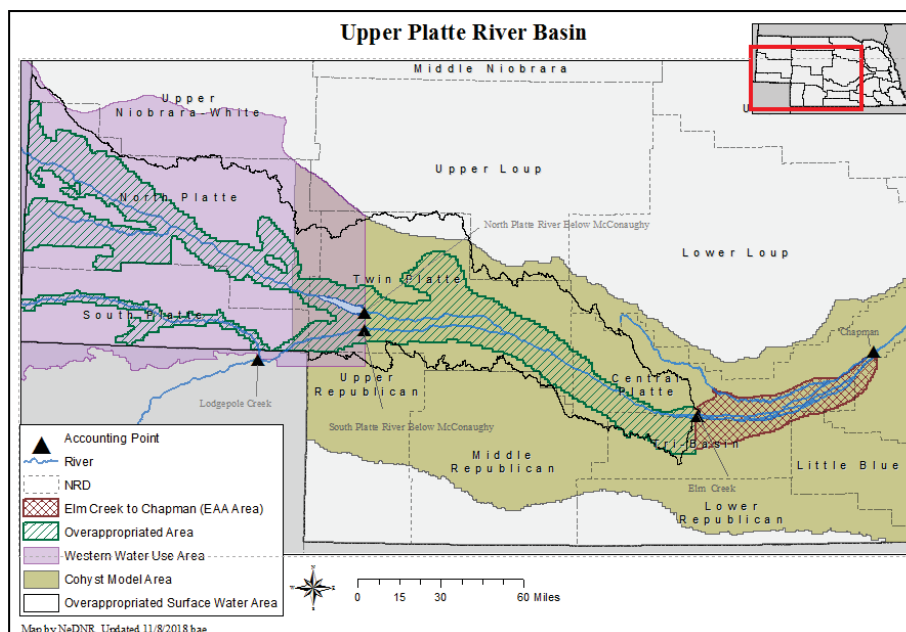


Robust Review Model Simulation Setup

COHYST Area Assumptions

- Used version 28 of the groundwater model and version 29 of the watershed model
- Models are simulated from 1950 – 2063
- Climate repeats 1989 – 2013 twice for 2014 – 2063
- Historical groundwater-irrigated acres and crops are used in the baseline simulation, and the 1997 level of groundwater-irrigated acres and crops are used in the “1997” simulation
- Surface water and commingled acres remain constant in the baseline and 1997 simulations to cancel out commingled effects
- Results are summarized for the areas of CPNRD upstream and downstream of Elm Creek

Model Areas



CPNRD - Inputs

Change in acres

Change in groundwater-only irrigated acres from 1997

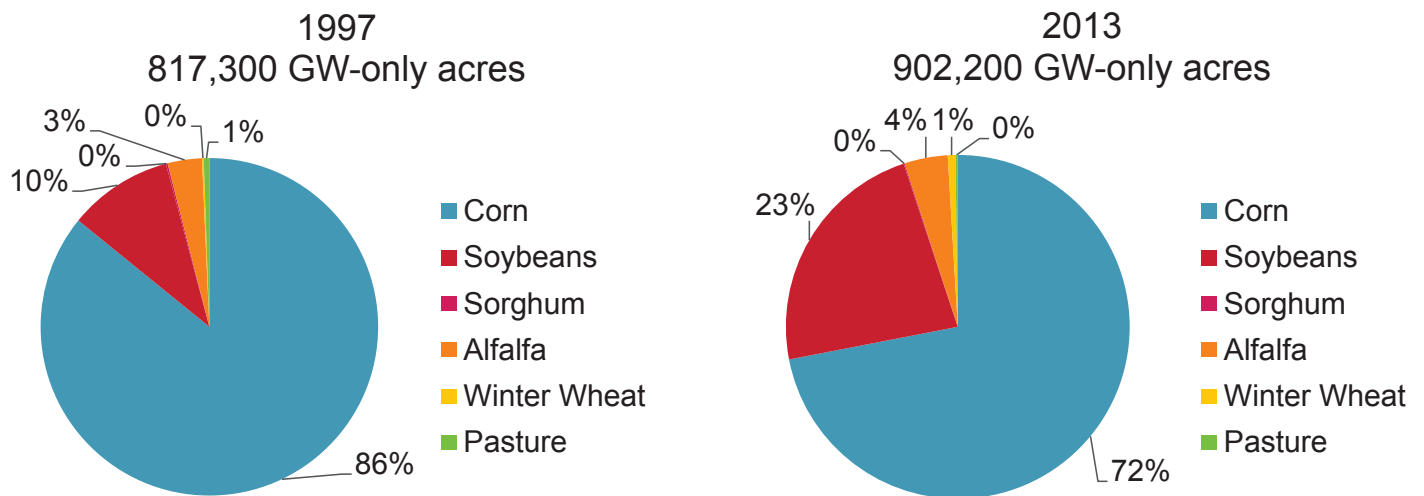
CPNRD	Total change (1997 to 2013)
District-Wide	84,900 acres
OA Area of CPNRD	12,600 acres

*OA acres included in District-Wide acres

CPNRD - Inputs

Change in crop type, District-wide

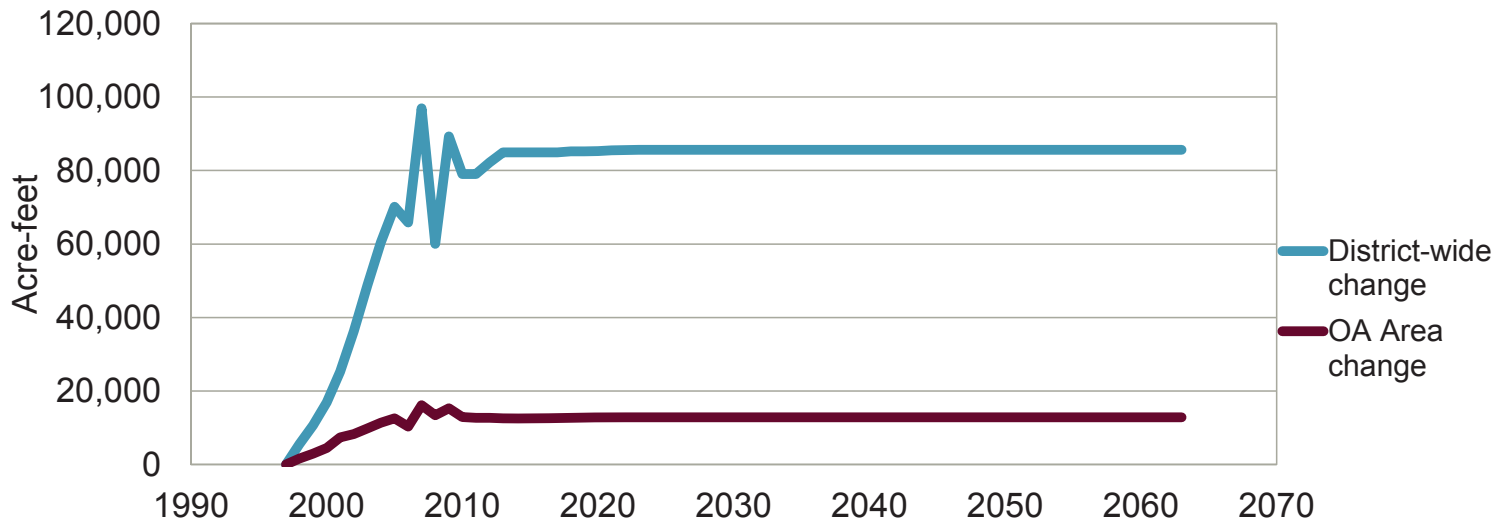
Change in groundwater-only irrigated acre crop types 1997-2013



*OA acres included in District-wide acres

CPNRD - Inputs

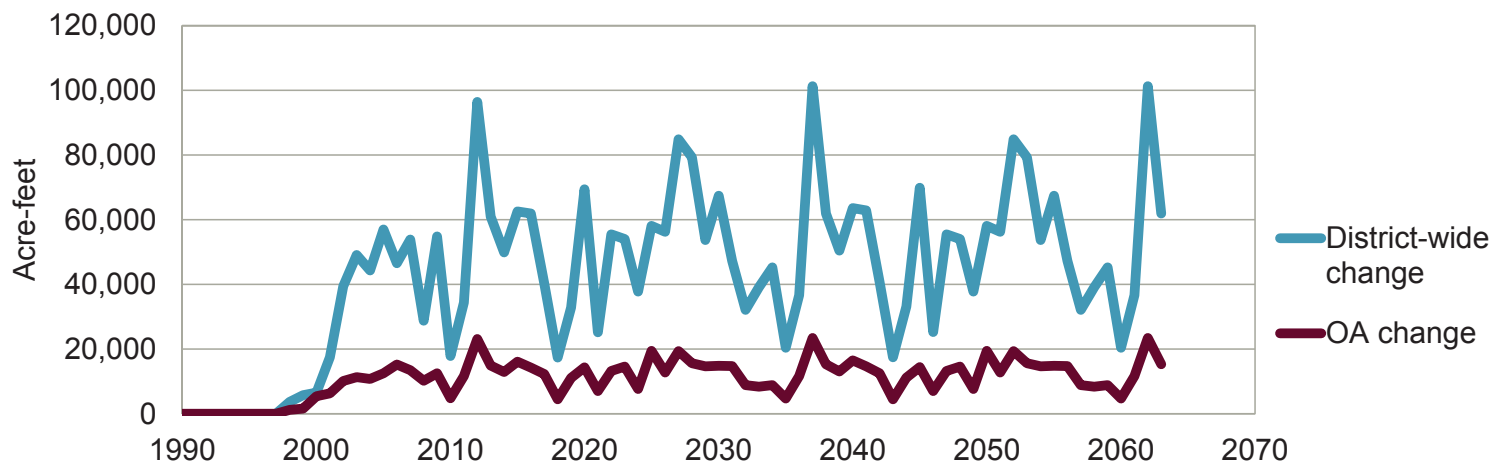
Change in groundwater-only irrigated acres from 1997



CPNRD - Inputs

*OA acres included in District-wide acres

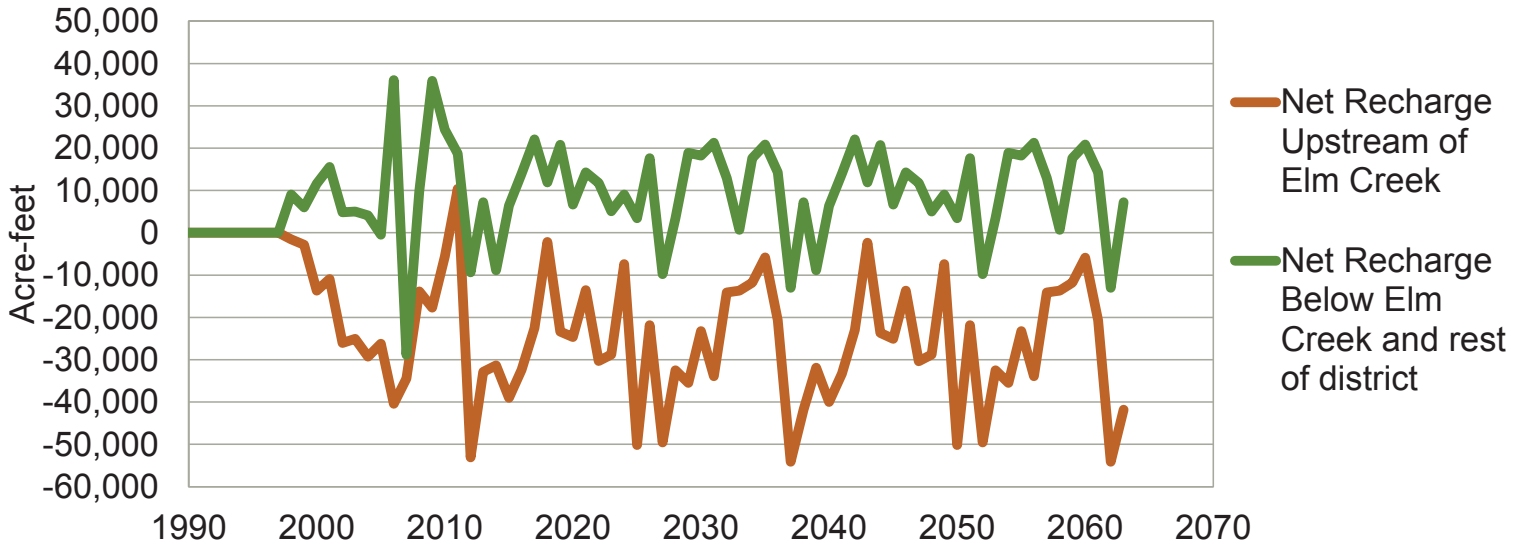
Pumping Changes, groundwater-only irrigation pumping



CPNRD - Inputs

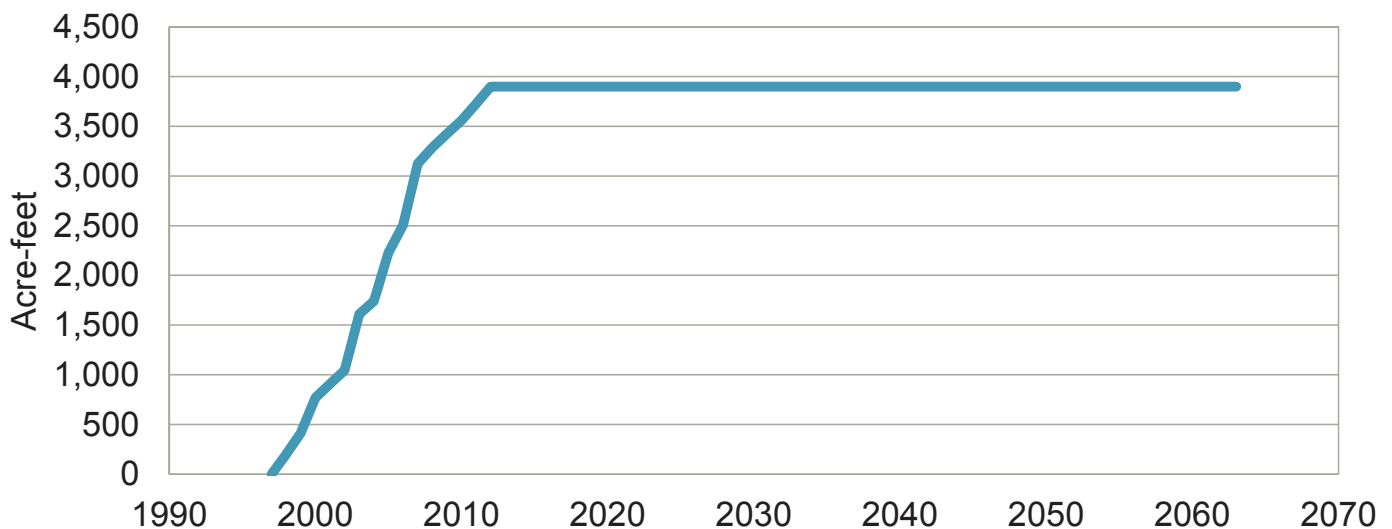
Change in net recharge from CPNRD management actions

- Positive values = accretions to the river
- Negative values = depletions to the river



CPNRD - Inputs

Change in municipal and industrial pumping from 1997, District-wide

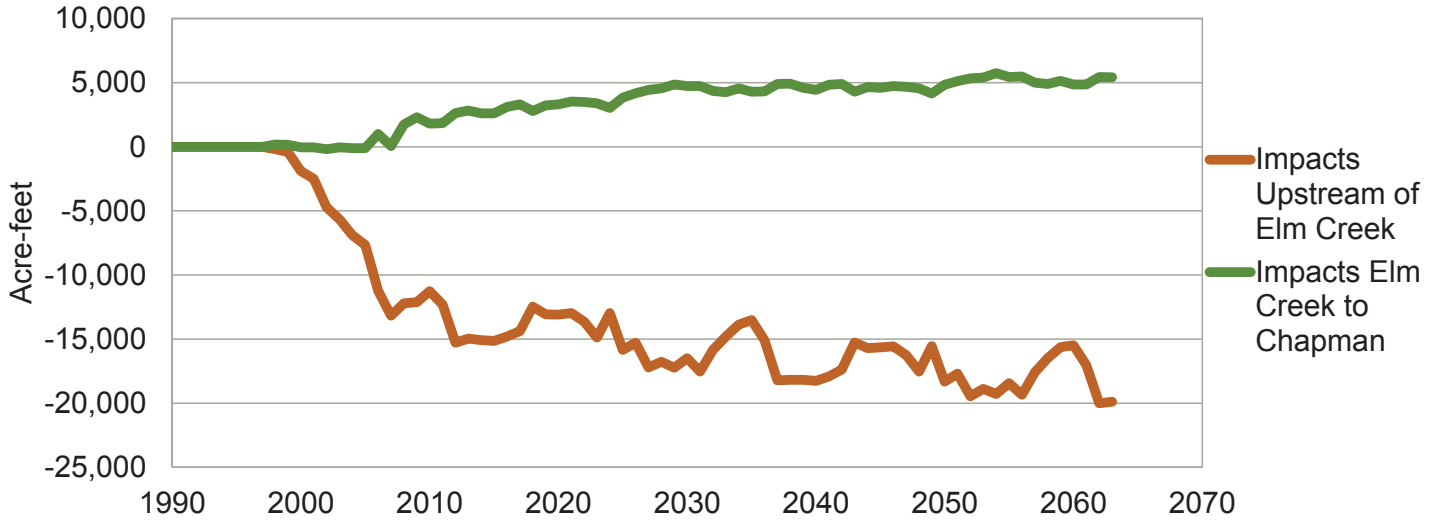


CPNRD - Results

- Positive values = accretions to the river
- Negative values = depletions to the river

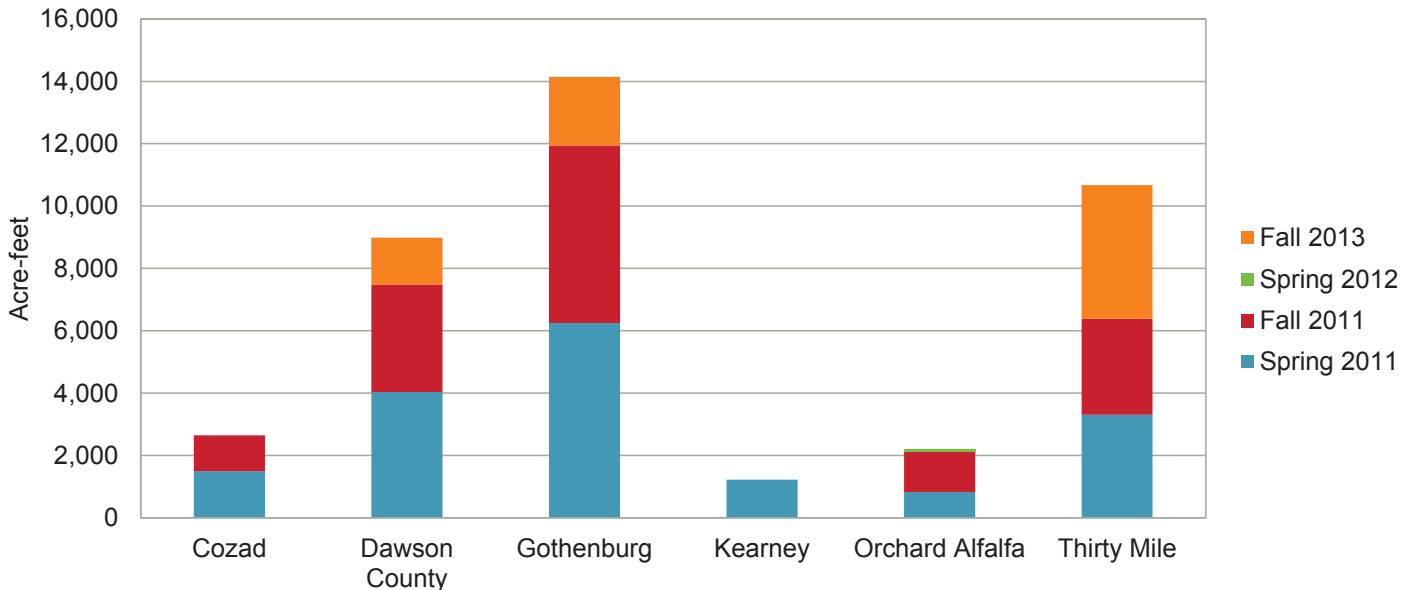
Impact to stream segments of the Platte River due to District-wide pumping

Groundwater-only irrigation pumping & municipal/industrial pumping



CPNRD - Inputs

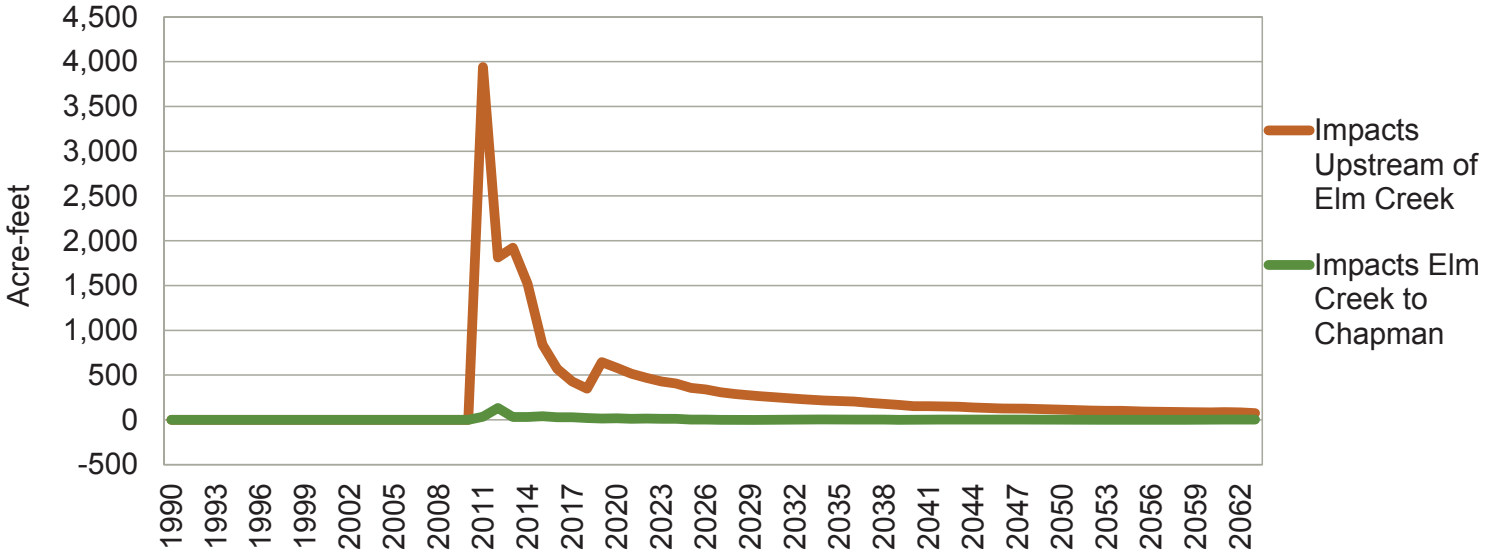
Recharge from excess flow projects



CPNRD - Results

Accretions from excess flow projects

CPNRD & NPPD canals

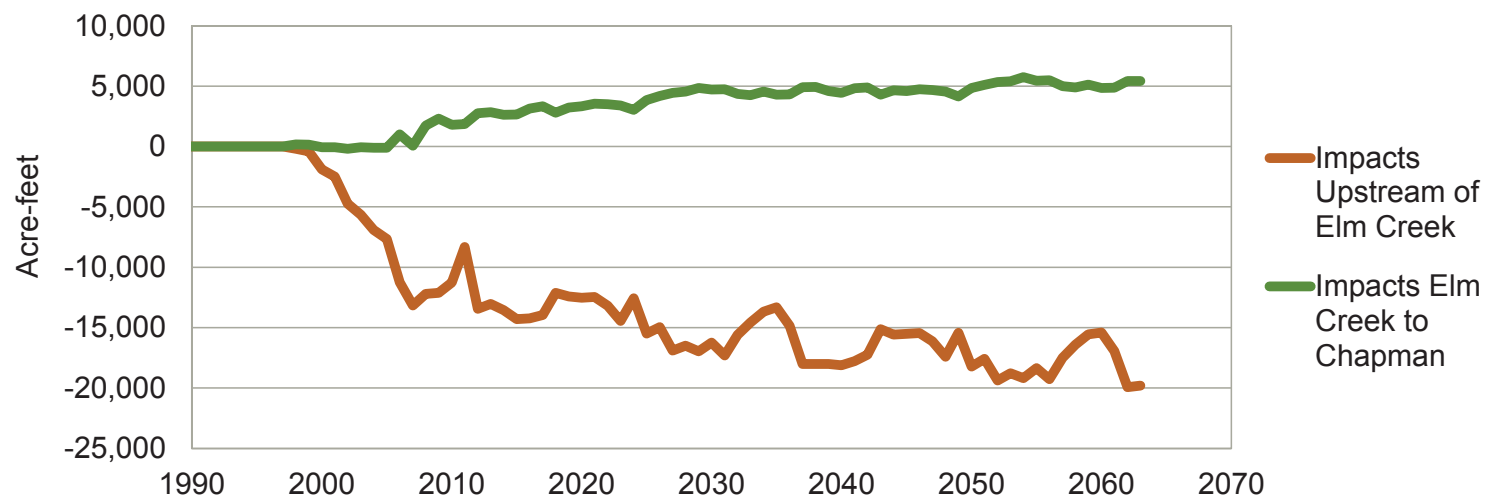


CPNRD - Results

- Positive values = accretions to the river
- Negative values = depletions to the river

Impact to stream segments of the Platte River due to total pumping and management actions

(Post-1997 gw-only irrigation + M&I) + (recharge projects - accretions sold to PRRIP)



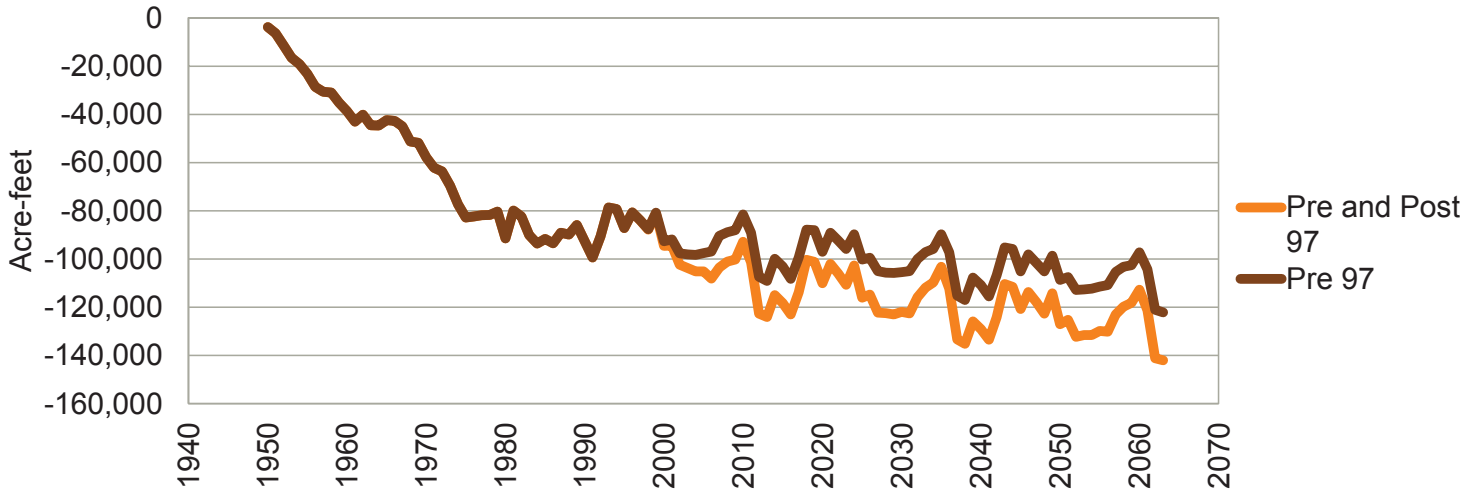
CPNRD - Results

- Positive values = accretions to the river
- Negative values = depletions to the river

Upstream of Elm Creek

Total impact to streamflow from pumping

Groundwater-only irrigated acres and municipal/industrial uses



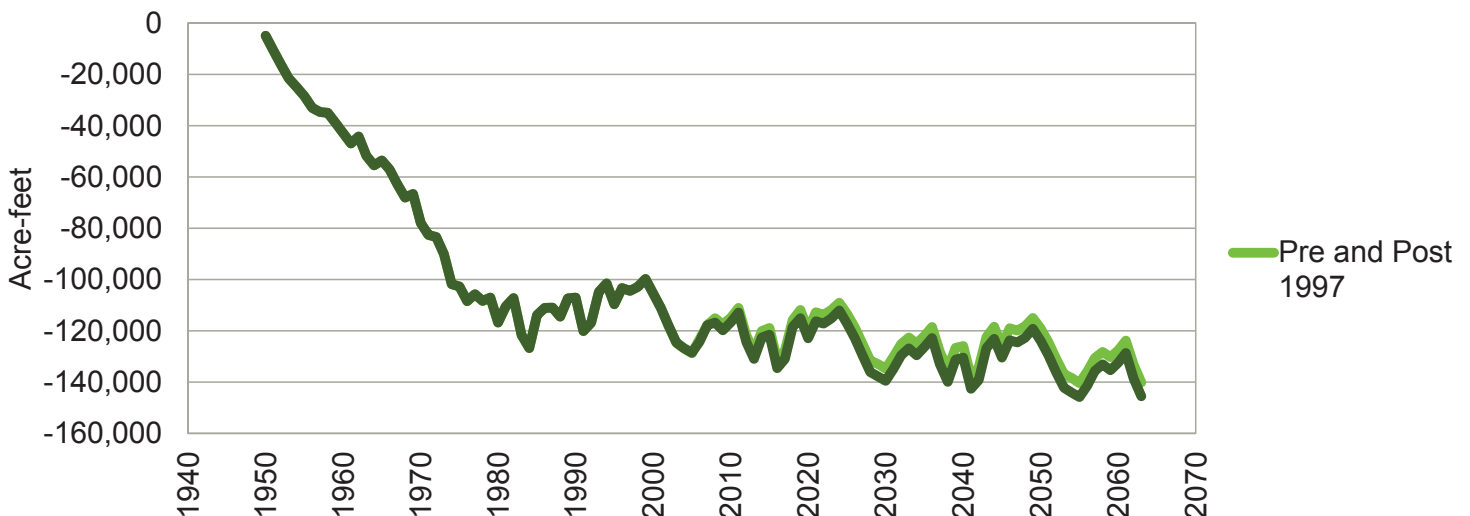
CPNRD - Results

- Positive values = accretions to the river
- Negative values = depletions to the river

Elm Creek to Chapman

Total impact to streamflow from pumping

Groundwater-only irrigated acres and municipal/industrial uses



CPNRD - Summary

Current estimate of depletions to the overappropriated Upper Platte Basin due to post-1997 activities (gw-only pumping, M&I pumping, and management activities/projects)

NRD	Activities in OA	Activities District-wide	Activities in OA	Activities District-wide
Year	2019	2019	2029	2029
North Platte	22,000	21,500	24,000	23,400
South Platte	5,800	5,300	5,700	5,100
Twin Platte	-20,000	-21,800	-22,500	-24,200
Central Platte	-6,900	-12,400	-9,900	-17,000
Tri-Basin	1,400	1,900	1,300	1,700
Total	2,400	-5,500	-1,400	-10,900

- All values in acre-feet/year



DEPT. OF NATURAL RESOURCES

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OVERVIEW BASIN-WIDE PLAN

Goals & Objectives

Basin-wide Plan Goals and Objectives (Draft)

Goals

1. Incrementally achieve and sustain a fully appropriated condition, while maintaining economic viability, social and environment health, safety, and welfare of the basin
2. Prevent or mitigate human-induced reductions in the flow of a river or stream that would cause non-compliance with an interstate compact or decree or other formal state contract or agreement
3. Partner with municipalities and industries to maximize conservation and water use efficiency
4. Work cooperatively to identify and investigate disputes between groundwater users and surface water appropriators and, if determined appropriate, implement management solutions to address such issues
5. Keep the Upper Platte River Basin-Wide Plan current and keep stakeholders informed

Goal 1: Incrementally achieve and sustain a fully appropriated condition, while maintaining economic viability, social and environment health, safety, and welfare of the basin

- 1.1 Maintain **previous increment mitigation** progress
- 1.2 **Offset impacts of streamflow depletion** to (A) surface water appropriations and (B) water wells constructed in aquifers dependent on recharge from streamflow **to the extent those depletions are due to water use initiated after July 1, 1997**
- 1.3 **Make progress toward a fully appropriated condition**
- 1.4 **Conduct technical analyses** to support and evaluate effectiveness of plan and adequacy in sustaining progress toward a fully appropriated level of water use
- 1.5 **Use available funds and actively pursue new funding opportunities** to cost effectively offset depletions, as well as to develop, maintain and update data and analytical tools needed to implement this plan
- 1.6 **Update and continue implementing IMPs** in each Platte River Basin NRD

Goal 1: Incrementally achieve and sustain a fully appropriated condition, while maintaining economic viability, social and environment health, safety, and welfare of the basin

- 1.3 **Make progress toward a fully appropriated condition**
 - 1.3.1: Understand the **economic impacts of supply variability** on water users
 - 1.3.2: Assess short- and long- term basin **water supply and demand**
 - 1.3.3: **Explore and implement potential measures to mitigate impacts** (hydrologic and economic) of basin supply variability **due to human-made depletions** on surface water and groundwater users
 - 1.3.4: Develop a basin **drought contingency plan** for management of supplies during times of shortage

Goal 2: **Prevent or mitigate human-induced reductions in the flow of a river or stream that would cause non-compliance with an interstate compact or decree or other formal state contract or agreement**

- 2.1 **Prevent human-induced streamflow depletions that would cause non-compliance** by Nebraska with the Nebraska New Depletion Plan included within the Platte River Recovery Implementation Program, for as long as the Program exists

Goal 3: **Partner with municipalities and industries to maximize conservation and water use efficiency**

- 3.1 Continue to **collect data on water use and existing conservation plans** of municipalities and industries within the basin
- 3.2 Invite municipalities and industries to the **annual meetings**
- 3.3 **Establish baseline water use levels** for each municipal and industrial user by **January 1, 2026**

Goal 4: Work cooperatively to **identify and investigate disputes between groundwater users and surface water appropriators** and, if determined appropriate, implement management solutions to address such issues

- 4.1 **Identify disputes** between groundwater users and surface water appropriators
- 4.2 **Investigate and address issues** between groundwater users and surface water appropriators, based on investigation results

Goal 5: **Keep the Upper Platte River Basin-Wide Plan current and keep stakeholders informed**

- 5.1 **Meet at least annually** to review progress toward achieving the goals and objectives of this Upper Platte River Basin-Wide Plan and those portions of the individual NRD IMPs that implement this plan
- 5.2 **Improve information sharing** with interested stakeholders
- 5.3 **Conduct planning for subsequent increments** of the plan, as necessary



NEXT STEPS

Anything Additional?

- Is there anything else you think should be considered for incorporation into the IMP?

Meeting Dates

- January 15, 2019



PUBLIC COMMENT

Thank you

1 **GOALS, OBJECTIVES, AND ACTION ITEMS**

2 The following excerpts from the *Nebraska Revised Statutes* provide context for the development of
3 goals, objectives, and action items for this plan.

4 **Integrated Management Plans**

5 *Neb. Rev. Stat. §46-715(2)*: “In developing an integrated management plan, the effects of existing and
6 potential new water uses on existing surface water appropriators and groundwater users shall be
7 considered. An integrated management plan shall include the following: (a) Clear goals and objectives
8 with a purpose of sustaining a balance between water uses and water supplies so that the economic
9 viability, social and environmental health, safety, and welfare of the river basin, subbasin, or reach can
10 be achieved and maintained for both the near term and the long term....”

11 *Neb. Rev. Stat. §46-715(3)*: “In order to provide a process for economic development opportunities
12 and economic sustainability within a river basin, subbasin, or reach, the integrated management plan
13 shall include clear and transparent procedures to track depletions and gains to streamflows resulting
14 from new, retired, or other changes to uses within the river basin, subbasin, or reach. The procedures
15 shall:

- 16 (a) Utilize generally accepted methodologies based on the best available information, data, and
17 science;
- 18 (b) Include a generally accepted methodology to be utilized to estimate depletions and gains to
19 streamflows, which methodology includes location, amount, and time regarding gains to
20 streamflows as offsets to new uses;
- 21 (c) Identify means to be utilized so that new uses will not have more than a de minimis effect upon
22 existing surface water users or ground water users;
- 23 (d) Identify procedures the natural resources district and the department will use to report, consult,
24 and otherwise share information on new uses, changes in uses, or other activities affecting water
25 use in the river basin, subbasin, or reach;
- 26 (e) Identify, to the extent feasible, potential water available to mitigate new uses, including, but not
27 limited to, water rights leases, interference agreements, augmentation projects, conjunctive use
28 management, and use retirement;
- 29 (f) Develop, to the extent feasible, an outline of plans after consultation with and an opportunity to
30 provide input from irrigation districts, public power and irrigation districts, reclamation districts,
31 municipalities, other political subdivisions, and other water users to make water available for offset
32 to enhance and encourage economic development opportunities and economic sustainability in
33 the river basin, subbasin, or reach; and
- 34 (g) Clearly identify procedures that applicants for new uses shall take to apply for approval of a new
35 water use and corresponding offset...”

36

1 **Fully Appropriated definition**

2 *Neb. Rev. Stat. §46-706(27):* "Overall difference between the current and fully appropriated levels
3 of development means the extent to which existing uses of hydrologically connected surface water
4 and ground water and conservation activities result in the water supply available for purposes
5 identified in subsection (3) of section 46-713 to be less than the water supply available if the river
6 basin, subbasin, or reach had been determined to be fully appropriated in accordance with
7 section 46-714."

8 *Neb. Rev. Stat. §46-713(3):* "A river basin, subbasin, or reach shall be deemed fully appropriated if
9 the department determines based upon its evaluation conducted pursuant to subsection (1) of this
10 section and information presented at the hearing pursuant to subsection (4) of section 46-714 that
11 then current uses of hydrologically connected surface water and ground water in the river basin,
12 subbasin, or reach cause or will in the reasonably foreseeable future cause (a) the surface water
13 supply to be insufficient to sustain over the long term the beneficial or useful purposes for which
14 existing natural-flow or storage appropriations were granted and the beneficial or useful purposes
15 for which, at the time of approval, any existing instream appropriation was granted, (b) the
16 streamflow to be insufficient to sustain over the long term the beneficial uses from wells
17 constructed in aquifers dependent on recharge from the river or stream involved, or (c) reduction
18 in the flow of a river or stream sufficient to cause noncompliance by Nebraska with an interstate
19 compact or decree, other formal state contract or agreement, or applicable state or federal laws."

20 **Essence of these statutes**

21 The excerpts of statute above provide the overall guidance for the goals, objectives, and action
22 items contained in this plan. Specifically, the statutes:

- 23 1. Define the difference between over and fully appropriated as the condition where existing
24 uses of surface water and groundwater result in the available water supply to be less than
25 the water supply needed to sustain: a) the beneficial or useful purpose for which existing
26 natural-flow or storage appropriations were granted, b) beneficial uses from wells
27 constructed in aquifers dependent on recharge from the river or stream, c) compliance by
28 Nebraska with an interstate agreement.
- 29 2. State that the integrated management plan (IMP) goals and objectives should strive for
30 sustaining a balance between uses and supplies so that the economic viability, social and
31 environmental health, safety, and welfare of the river basin, for both short-term and long-
32 term, is maintained.

33 The goals and objectives of this plan address the activities necessary to make progress from current
34 to fully appropriated conditions, while considering the economic viability, social and environmental
35 health, safety, and welfare of the basin.

36 **Water Supplies and Uses**

37 The Platte Basin water supply is variable. The primary source of water in the Upper Platte River
38 Basin is precipitation, which varies spatially and temporally across the region. In the mountains of

1 Wyoming and Colorado, much of the precipitation falls as snow, which serves as a seasonal, natural
2 reservoir, releasing water when snow melts in the late spring and summer. This natural, seasonal
3 reservoir is supplemented across the basin with human-made structures, such as Pathfinder
4 Reservoir and Lake McConaughy. In addition to surface water runoff, precipitation also infiltrates
5 and recharges the aquifers that provide baseflows to the Platte River. Aquifer recharge has also
6 been enhanced due to the development and use of surface water canals, where a portion of flows
7 conveyed through the canals seep into the aquifer. Through a combination of natural and human-
8 made influences, three distinct time scales exist for precipitation contributions to the Platte River.
9 Natural runoff from rainfall feeds river flows in a matter of hours to days. Runoff from snowfall and
10 storage/releases from human-made surface water reservoirs typically occur on a seasonal scale.
11 Finally, aquifer recharge and baseflow accretions to the Platte River occur over a period of months
12 to years.

13 These natural and human-made storage options have enabled development of large-scale surface
14 water agricultural irrigation during the otherwise dry later summer months in the western portions
15 of the Upper Platte River Basin. In spite of the substantial basin water storage capacity, during
16 extended drought periods water user needs can potentially exceed the ability of these storage
17 options to fully mitigate drought, as observed during the 2003-2006 extended drought period.

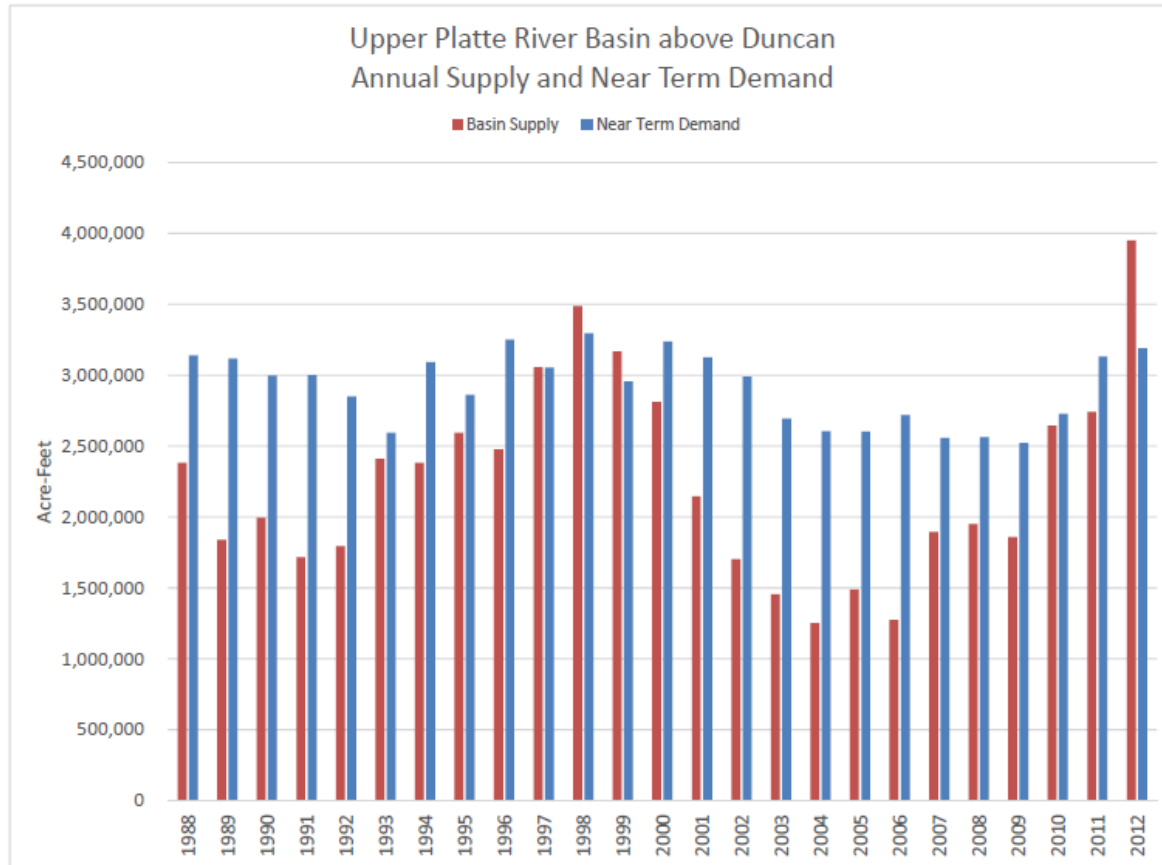
18 Water use is also variable. Irrigation demands consistently peak during July and August, but the
19 timing and amount of peak demand in one year can be substantially different from year to year at
20 any particular location. Storage water is also used for hydroelectric power generation and for
21 cooling steam-electric power plants. Both uses are dependent on regional power demands on any
22 given day. Likewise, demands for other uses such as municipal, industrial, and commercial uses
23 also varies day to day.

24 State statutes define a fully appropriated condition as one in which current uses will result in not
25 having the water necessary to meet the beneficial purposes of existing surface water and
26 groundwater uses in aquifers dependent upon recharge from the river or stream. Both the supply
27 side of the equation and the use side of the equation are variable spatially and temporally across
28 the basin, so on any given day, the basin could be in a fully appropriated condition with all the
29 beneficial uses being met, or in an overappropriated condition with the beneficial uses not being
30 met. The table and chart below summarize the results of the INSIGHT analysis conducted for the
31 basin above Duncan (for years 1988-2012) during the first increment and illustrate this variability
32 (see Appendix XXX). The INSIGHT analysis looks at the water supplies during a given year and
33 demands for water – both from surface water and hydrologically connected groundwater - in that
34 same year. The years 1988-2012 represent a statistically unbiased representation of hydrology in
35 the basin.
36

1 Table 1. Summary of Supplies and Demands for the Platte Basin above Duncan – 1988-2012¹

	Maximum Annual	Minimum Annual	Mean Annual
Supply	3.95M AF (2012)	1.25M AF (2004)	2.26M AF
Demand	3.30M AF (1998)	2.52M AF (2009)	2.91M AF

2
 3 Figure 1. Summary of Supplies and Demands for the Platte Basin above Duncan – 1988-2012



4
 5 Because of the variability of hydrologic conditions within this river system, spatially and temporally
 6 appropriate management actions must be developed, implemented, monitored, and regularly
 7 re-evaluated to ensure that existing beneficial uses are being protected, so that the economic viability,

¹ The Basin Supply term represents an estimate of total water supply without human-made depletions and can be summarized as: Basin Supply = Streamflow + SW Consumptive Use + GW Depletions. The Near Term Demand represents an estimate of total basin demands and can be summarized as: Near Term Demand = GW Depletions + SW Demand + Net SW Loss + Non-Consumptive Use Demand. The Non-Consumptive Use term of the total demand recognizes that these types of demands are not cumulative, therefore the maximum of the non-consumptive uses (instream flow demand, hydropower, and downstream demand) is used.

1 social and environmental health, safety, and welfare of the river basin can be maintained for both the
2 near-term and the long-term. The focus of the management actions are not on mitigating shortages
3 that may occur due to the natural variations in the hydrologic cycle. The prior appropriation doctrine
4 used in Nebraska for administering surface water has provided and will continue to provide a
5 mechanism for managing those shortages that can be expected due to variations in the hydrologic
6 cycle. Rather, the management actions, and this plan, are focused on mitigating human-made effects
7 on surface water supplies to maintain beneficial uses of appropriations and provide adequate recharge
8 to those aquifers dependent on stream flow during times of shortages in water supply.

9 Statute requires working towards a balance of water supply and water use, while considering impacts
10 on the near- and long-term economic viability, social and environmental health, safety, and welfare of
11 the river basin. Throughout the stakeholder process for the second increment, significant discussion
12 occurred on this topic. Stakeholders identified economic viability in a number of ways, including:

- 13 • a steady income,
- 14 • water needed to provide for the beneficial uses of appropriators including the generation of
15 hydropower,
- 16 • financial support to maintain benefits of surface water irrigation projects,
- 17 • cooling water for power generation,
- 18 • the sustainability of canal systems,
- 19 • resiliency to withstand drought,
- 20 • flexibility in the use of natural flow and stored water, and
- 21 • conjunctive management.

22 Stakeholders clearly believe that the most significant impact on the economic viability of users across
23 the basin occurs during times of drought. Therefore, the Second Increment Plan recognizes that a
24 focus on drought planning and mitigating the effect of depletions that amplify effects of drought
25 conditions, will be an important step toward consistently achieving a fully appropriated condition. In
26 addition, more data and analyses of water supply and demands as related to economic viability, social
27 and environmental health, safety, and welfare of the river basin, subbasin, or reach for both the short-
28 term and long-term are needed to develop a more targeted set of goals and objectives for achieving
29 a fully appropriated condition for the long term. Finally, much has been accomplished through
30 implementation of the first increment basin plan and individual IMPs of the district. Stakeholders
31 recognized these successes and generally felt those elements should be retained for the second
32 increment of the basin plan.

33 The goals, objectives, and action items contained in this plan were developed through extensive
34 collaboration with the stakeholders of the basin and define the activities to be accomplished in this
35 increment, to the extent possible based on staffing and resource constraints.

Goal 1: Incrementally achieve and sustain a fully appropriated condition while maintaining economic viability, social and environmental health, safety, and welfare of the basin.

Objective 1.1: Maintain previous increment mitigation progress.

During the development of the first increment of the basin wide plan, estimates of post-1997 use depletions requiring offset for each NRD were developed. Each of the NRDs met the identified depletion offset during implementation of the first increment plan. A summary of first increment activities is included in **Appendix XXX**.

Models, tools, and overall understanding of the basin hydrology were also improved during implementation of the first increment plan and applied in the first increment robust review (process described in Objective 1.4). Application of these tools and understanding has resulted in refined estimates of post-1997 depletions that are typically greater than the original estimates included in the first increment plan. The robust review also provided estimates of the first increment offsets achieved by each of the NRDs.

Table 1.1.1 summarizes the results of the first increment robust review by NRD. The first column is the estimated depletions from all groundwater uses. The second column is the portion of computed depletions due to those uses initiated before July 1, 1997, referred to as pre-1997. The third column is the portion of computed depletions from those uses initiated after July 1, 1997, referred to as post-1997. The last column is the offsets accomplished by each NRD during the first increment of the basin plan.

Table 1.1.1 First Increment Robust Review Results Summary

NRD	Total Depletion	Pre-1997 Use Depletion	Post-1997 Use Depletion	1 st Increment Offsets Achieved
NPNRD				
SPNRD				
TPNRD				
TBNRD				
CPNRD				

Table 1.1.2 summarizes by NRD total groundwater irrigated acres, as well as the portion of those acres that were add after July 1, 1997. In addition, annual total pumping volumes are provided with the portion of that pumping that is for irrigation and municipal and industrial uses.

Table 1.1.2 First Increment Robust Review Groundwater Irrigation and Pumping Summary

NRD	Total Groundwater Irrigated Acres	Post -1997 Groundwater Irrigated Acres	Total Annual Pumping	GW Irrigation Annual Pumping	M&I Annual Pumping
NPNRD					
SPNRD					
TPNRD					
TBNRD					
CPNRD					

Progress made during the first increment will be maintained in this increment and keep the basin moving toward achieving a long-term balance of water supplies and uses while maintaining economic viability, social and environmental health, safety, and welfare of the river basin.

Action Item 1.1.1: Keep policies, projects, and practices in place that provide offsets or supply equivalent offsets so that the current level of depletions is not exceeded.

Much progress toward reaching a fully appropriated condition was made in the first increment through implementation of various offsets and mitigation actions. This includes efforts to offset depletions from water uses initiated after July 1, 1997, and in some areas progress toward offsetting pre-1997 depletions. Many of these efforts capitalized on federally funded programs, like the Conservation Reserve Enhancement Program, and on state and local programs funded through NeDNR and the basin NRDs. Continued availability of these funding sources during the second increment of the plan is uncertain and may effect management activities during the second increment. NeDNR and the NRDs will continue implementation of cost effective policies, projects, and practices to maintain the progress made during the first increment in this increment toward achieving a long-term balance of water supplies and uses while maintaining economic viability, social and environmental health, safety, and welfare of the river basin.

Objective 1.2: Offset impacts of streamflow depletions to (A) surface water appropriations and (B) water wells constructed in aquifers dependent on recharge from streamflow to the extent those depletions are due to water use initiated after July 1, 1997.

1
2

In accordance with statutes, to reach a fully appropriated condition, depletions to streamflows from uses initiated after July 1, 1997, must be offset. Depletions associated with post-1997 uses are therefore the priority to be addressed by the plan. The action items under this objective outline the process and considerations for addressing these depletions during plan implementation. Depletions associated with post-1997 levels of development are to be fully offset by the end of the second increment. The timetable for addressing the post-1997 use depletions during implementation of this plan increment will be identified by the individual NRDs and included in the individual IMPs.

Neb. Rev. Stat. § 46-715 (3) provides guidance on facilitating new development within overappropriated areas. The statutes calls for procedures and processes to be identified in the individual IMPs for allowing news uses while ensuring that the mitigation measures sufficient to offset those new depletions are put in place.

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Action Item 1.2.1: The identification of pre- and post-1997 levels of development and associated depletions includes assessment of the following:

- changes in irrigated acres;
- changes in municipal and domestic uses of water;
- changes in livestock use of water;
- changes in industrial uses of water;
- changes in the amount of surface water and groundwater applied on commingled irrigated land; or
- any other relevant changes in water consumption that affect streamflows.

1 Estimates of pre- and post-1997 levels of development and associated depletions
2 have been determined for each NRD and are illustrated in Table 1.1.1. The first step
3 in this process involved using modeling tools to estimate depletions to streamflows
4 from water uses initiated prior to July 1, 1997. This establishes a pre-1997 level of
5 development condition. The second step in the process is to add the post-1997 uses
6 to the pre-1997 level of development condition and simulate these conditions using
7 the same modeling tools. Computed depletions from this simulation in excess of the
8 pre-1997 condition are then required to be offset.

9
10 **Appendix XX** contains a summary of estimated depletions and offsets requirements
11 for the second increment, specifically:

- 12 • Computed streamflow depletions from the pre-1997 level of development
- 13 • Computed depletions including those resulting from post-1997 uses within
14 each NRD and the Upper Platte River Basin as a whole.
- 15 • Current estimate of depletions within each NRD that must be offset.

16
17 As noted in **Appendix XX**, the robust review results recognize the temporal variability
18 in required depletion offsets – both from year to year, as well as seasonally within the
19 year. The results of the robust review can be used to determine seasonal and monthly
20 offset requirements. The seasonal variation is important as it illustrates the
21 opportunity for active vs. passive management to meet depletion offset requirements.
22 Examples of passive management projects are intentional recharge of excess flows
23 using canals or recharge pits, where water seeps into the aquifer and baseflow
24 accretions due to the additional recharge occur naturally throughout the year. Active
25 management includes targeted mitigation projects such as augmentation projects,
26 where water is pumped or released at a specific time to directly impact streamflows
27 during times of shortage. The information contained in **Appendix XX** can be used to
28 determine appropriate targets for passive or active management approaches.

29
30 The depletion estimates presented in **Appendix XX** are based on the most recent
31 modeling efforts in support of the first increment robust review, completed in 2018
32 during development of the Second Increment Plan. These depletions estimates will be
33 reviewed periodically using agreed upon modeling tools. Models, supporting data and
34 information, and the understanding of the Basin’s hydrology continue to evolve. As
35 new tools, information, and understanding is applied, it is anticipated that the values
36 for depletions presented in **Appendix XX** may change. As new depletion information is
37 developed and considered, the values presented in **Appendix XX** may be updated and
38 the basin-wide plan revised via a public hearing at the annual basin meeting. While
39 values for the level of allowable depletions and depletions requiring offsets may
40 change during this increment of the plan, Objective 1.1 calls for continuing, as
41 appropriate, first increment activities to offset depletions.

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Action Item 1.2.2: Identify, quantify, and proportion the source and quantity of water used on acres irrigated with both surface water and groundwater. Gather data on water use on such lands (both why and when irrigators use surface water or groundwater).

The impacts to water supply on lands with access to both surface water irrigation and groundwater irrigation, referred to as “commingled acres”, need to be investigated. Data on when surface water or groundwater is used on commingled acres is important to fully understand the impact of irrigation of these lands on stream flow. Surface water irrigation and groundwater irrigation typically have different delivery and application efficiencies which affect the amount of water withdrawn to meet crop demands, and ultimately the fate of that water (seepage, evaporation, returns, consumptive use, etc.). The timing of impacts on stream flow is also affected by the source of water used: surface water diversion is an immediate depletion to stream flow, while use of groundwater has a time-lagged effect on stream flow.

Further understanding the sources of water used on commingled acres allows better representation of water usage in modeling tools and evaluations. For modeling purposes and to determine post-1997 depletions, it is important to know historically when acres may have changed from irrigation by surface water alone to commingled or groundwater-only irrigation.

Action Item 1.2.3: Continue to identify and implement projects that may be used to enhance water supply. These projects shall be pursued on a basin-wide level, when such projects will help achieve sustainable levels of supply and use and address water shortages in one NRD that affect more than one NRD.

Options for offsetting the impacts of post-1997 depletions can be either direct reduction of consumptive use (Action Item 1.2.4), enhancing existing water supplies in other ways, or projects that improve management of existing supplies in such a way that depletions can be either reduced or directly offset. Projects to offset depletions that affect more than one NRD will be coordinated and pursued at a basin-wide level. Program Water Action Plan projects, if funded in part or wholly by the State or NRDs, can be used to meet post-1997 offset requirements or progress towards fully appropriated. If no State or NRD funding is used for a Water Action

1 Plan project, the benefits of the project - depending on the location, timing,
2 operation, etc. of the project - may accrue as progress towards fully appropriated.
3
4

Action Item 1.2.4: Continue to reduce consumptive water use through retirement of irrigated lands, water use allocation, and/or other management options.

5 One option for offsetting the impacts of post-1997 depletions is reduction of
6 consumptive water use. This can be accomplished through retirement of irrigated
7 acres, water use allocations, and/or other management options. The analyses
8 described in Action Items 1.4.2 and 1.4.3.1 are the basis for determining offsets
9 provided by management activities aimed at reducing consumptive use. Crop types
10 and producer practices may result in increases or decreases in consumptive use, so
11 tracking current crop types and practices will be important to determine future
12 estimates of consumptive use. Offsets that are accrued through consumptive use
13 reductions are credited to the NRD in which they occur, and ultimately the basin, in
14 meeting the post-1997 offset requirements.
15
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17

Action Item 1.2.5: Ensure that offsets of depletions occur at the appropriate time, amount, and location to mitigate the impact of the depletion. Allow for flexibility in providing offsets when appropriate.

18 The timing of the highest demand, and therefore potential impact of depletions, varies
19 spatially across the basin. It is important that depletion offsets identified in Action
20 Items 1.2.3 and 1.2.4 provide a volume of water to the stream sufficient to make up for
21 the associated depletions in the locations in which the depletions occur to effectively
22 offset depletions. Preferably monthly and at a minimum seasonally, offsets would
23 occur in the same time and within the same reach as the depletions they are
24 mitigating so as not to affect downstream users' access to water. The results of the
25 robust review contained in Appendix XX provide the timing, quantity, and location of
26 required depletion offsets.
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Action Item 1.2.6: Apply current methodologies, and continue to refine these methods of estimating depletions and accretions. Gather and evaluate data that could be used to estimate depletions and accretions to streamflow using tools as agreed on by NeDNR and the NRDs. Apply these methods for calculating depletions and offsets uniformly across the basin.

31
32

1 Whenever an analysis is performed to determine compliance with this Basin-Wide Plan
2 or any Integrated Management Plan subject to this Basin-Wide Plan, the methods
3 utilized will be conceptually consistent so that stream depletions estimated/calculated
4 in one area of the basin are an “apples to apples” comparison to stream depletions
5 estimated/calculated in another area of the basin.
6

7 Models, supporting data and information, and our understanding of basin hydrology
8 will continue to evolve during implementation of the plan. As this information
9 becomes available and is evaluated, NeDNR and the NRDs will refine the
10 methodologies and tools used to estimate depletions and accretions throughout the
11 basin. This information will be shared as part of the annual reporting for this plan
12 described in Objective 5.1. Methods, tools, and data used will be made available to
13 the stakeholders and the public. The process for incorporating new information and
14 results into this plan document and/or supporting appendices will include a public
15 hearing at the annual meeting.
16

17 The term ‘uniform’ in this action item (and elsewhere in the plan when referring to
18 consistency in analysis) is not intended to dictate that same methods be used
19 throughout the basin, as differences in available data, water supply and uses, climate,
20 etc. across the basin will require differences in the methodologies employed. Rather
21 the term ‘uniform’ is intended to indicate that the methodologies must be consistent
22 in concept to provide an apples-to-apples comparison across the basin.
23
24

Objective 1.3: Make progress toward a fully appropriated condition.

25
26
27 Objective 1.1 calls for maintaining first increment offset achievements and Objective 1.2
28 addresses post-1997 use depletions – a priority in progress towards a fully appropriated
29 condition. Objective 1.3 is aimed at actions to make progress towards fully appropriated
30 conditions while maintaining the economic viability, social and environmental health, safety,
31 and welfare of the basin. Throughout the planning process and stakeholder discussion, some
32 of these elements are believed to be largely addressed through other activities in the basin or
33 will be addressed through implementation of this plan and will not require specific actions to
34 address. Namely:

- 35 • Social and environmental health: Addressed through implementation of the Platte River
36 Recovery Implementation Program (See Objective 2.1) and continued protection of
37 instream flow appropriations.
- 38 • Safety: Addressed by not limiting access to emergency water supplies, as well as the
39 capture and conjunctive management of flood flows to reduce flooding.
- 40 • Welfare: Addressed through implementation of this plan.
41

1 Economic viability was identified as a critical element that warranted specific objectives to
2 fully address.
3

4 Based on examination of the water supplies and water demands in the basin (INSIGHT
5 analysis – see Appendix ZZZ) and extensive work done with the stakeholder group through
6 the planning process to determine conditions where water users are economically
7 vulnerable, cyclical supply variability due to both short and extended drought periods and
8 natural geographic variation in precipitation distribution are significant factors affecting
9 economic viability. Human-made depletions amplify dry periods of the cyclical supply
10 variability. This goal is focused on maintaining the basin’s economic viability in the face of
11 these variations in water supply and human-made depletion impacts.

12 The first three action items supporting this objective are organized in a logical progression—
13 first, understanding and developing tools for determining economic impacts of supply
14 variability (1.3.1), then approaches and protocols for assessing supplies, demands, and
15 potential shortages and excesses² (1.3.2), and finally, developing approaches and solutions
16 to maintain economic viability of water users in the basin (1.3.3). Each action item
17 determines the necessity and informs the action items of the subsequent objective. Action
18 Item 1.3.4 is a focused effort to address shortages to water users during periods of drought.
19 Many of the stakeholders identified droughts as the only time their water supply was
20 affected. Addressing human-made depletion impacts during these shortages will be a step
21 toward a fully appropriated condition.

Action Item 1.3.1: Understand the economic impacts of supply variability on
water users.

22
23 Through the planning process conducted for the second increment, extensive
24 discussion centered on vulnerabilities of stakeholders to the variable water supply.
25 The action items related to this objective are geared toward developing a
26 fundamental and quantitative understanding of the economic impacts on basin
27 water users from variability in water supply.

Action Item 1.3.1.1: Identify who is affected (hydrologically and
economically), and to what extent, by water supply variability.

28
29 Conduct a study that identifies water users that are affected during cyclical
30 variations in water supply. This hydrologic element analysis will be conducted
31 by NeDNR and the NRDs by evaluating data such as stream gage and
32 diversion records, and well hydrograph data. Focused surveys of, as well as

² The assessment of supplies and demands under Objection 1.3 are focused on current and future conditions.

1 meetings with basin water users can be used to build on stakeholder input
2 gathered throughout the planning process. Once impacted water users who
3 are hydrologically affected by water supply variability are identified,
4 economic impacts can be estimated as described in Action Items 1.3.1.2 and
5 1.3.1.3.

Action Item 1.3.1.2: Partner with impacted water users and other entities to gather data and study economic impacts of supply variability as well as regulatory and management actions.

6
7 NeDNR and the NRDs will collaborate with impacted water users and other
8 entities to gather relevant economic data. Potential partners include
9 economists and other subject matter experts familiar with the economic
10 drivers of the basin who can help identify data needs and formulate the tools
11 and methodologies for assessing economic impacts. The tools and
12 methodologies will be used to not only evaluate impacts of supply variability,
13 but also evaluate human-made depletion impacts, management actions,
14 regulatory actions, and potential projects or other activities considered
15 during implementation that may affect water availability.
16

Action Item 1.3.2: Assess short- and long-term basin water supply and demand.

17
18 This objective is focused on coordination and dissemination of information, not
19 developing new methods or predictive tools. Many entities within the basin currently
20 assess and predict upcoming water supplies (CNPPID, NPPD, surface water irrigation
21 districts, NRDs, etc.), with varying degrees of complexity in the methods used.
22 Likewise, forecasting of short- and long-term demands under variable hydrologic
23 conditions is also necessary. Basin water use and supply data, such as the INSIGHT
24 analysis results, can be used as a reference for forecasting future supply and
25 demands, Likewise modeling tools such as the CROPSIM model can be used to
26 forecast demands in the short and long term. Timely coordination and information
27 exchange amongst basin stakeholders can further understanding of hydrologic
28 conditions within the basin and inform management decisions. This objective is
29 targeted toward drought preparedness. Understanding potential surpluses is as
30 important as identifying potential droughts because management of surplus
31 supplies can build resiliency within the basin to better withstand drought conditions.

Action Item 1.3.2.1: Evaluate expected natural flows of the Basin and available storage water.

1 Anticipated supplies for the coming year will be assessed, including
2 consideration of factors such as mountain and plains snowpack, current
3 reservoir storage levels, and current aquifer levels and prevailing trends.
4 Communication and dissemination of this information provides a clear and
5 consistent understanding of current and expected hydrologic conditions
6 throughout the basin.

Action Item 1.3.2.2: Identify specific locations and flow targets critical
to water users in the basin.

7
8 The results of action items 1.3.1.1 through 1.3.1.3 provides the basis for
9 determining locations and flow thresholds critical to each water user in an
10 effort to maintain the economic vitality of the basin. The flow thresholds
11 should consider variable demands and provide a range of anticipated
12 demands based on variable hydrologic conditions. This information, coupled
13 with anticipated supplies from action item 1.3.2.1, will inform management
14 decisions.

Action Item 1.3.2.3: Forecast location and timing of shortage and
excess within the basin.

15
16 The anticipated supplies from action item 1.3.2.1, coupled with location and
17 flow targets from action item 1.3.2.2, will inform management decisions in
18 each year. In addition to seasonal or upcoming season forecasts of water
19 supply, the feasibility of developing long-term forecasts of water supply (3-
20 yr or 5-yr time frame) will be evaluated.

Action Item 1.3.2.4: Develop protocols for assessing and
communicating available excess flows

21
22 The ability to capture and use excess flows is dependent on advanced notice
23 of the availability of excess flows. NeDNR will develop a protocol for
24 assessing, predicting, and communicating 1) the potential of excess flows to
25 basin water users, and 2) notice of actual availability of excess flows.

Action Item 1.3.3: Explore and implement potential measures to mitigate
impacts (hydrologic and economic) of basin supply variability due to
human-made depletions on surface water and groundwater users.

26
27 This objective is focused on mitigating hydrologic and economic impacts of supply
28 variability due to human-made depletions on water users identified during
29 completion of Action Items 1.3.1 and 1.3.2. Discussions with the stakeholder group
30 through the planning process identified potential approaches (hydrologic, financial,

1 etc.) for mitigating impacts. Action items 1.3.3.1 through 1.3.3.5 are to further
2 evaluate these approaches for consideration.

3 **Action Item 1.3.3.1:** Evaluate options to maintain economic viability of
4 surface water and ground water infrastructure.

5 Potential strategies to mitigate economic impacts that may be considered
6 include:

- 7 • Compensation, which may include financial, for lost hydropower
8 production to the extent groundwater depletions may have impacted
9 hydropower production
- 10 • Funding for surface water irrigation district canal infrastructure
11 improvements (storage, efficiency, etc.)
- Funding for groundwater recharge projects

12 **Action Item 1.3.3.2:** Identify conjunctive management opportunities.

13 Potential conjunctive management strategies to mitigate hydrologic impacts
14 that may be considered include:

- 15 • Aquifer recharge enhancement to mitigate water level declines
- 16 • Offsetting depletions to groundwater aquifers due to groundwater use or
17 reduced surface water recharge to allow land to stay in production while
18 maintaining or increasing available water supply

19 **Action Item 1.3.3.3:** Study potential for developing markets and transfer
20 protocols for annual surface water and groundwater supplies.

21 A water market is an economic platform for temporary or permanent trades
22 of the rights to use water (both surface water and groundwater, subject to
23 NeDNR and NRD approval, respectively), where the price of water is
24 determined by variable economic and market conditions. Much is still
25 unknown about the logistics, framework, and interest of water users in such
26 a market. Some questions to be addressed include if there is potential for
27 market-driven water management approaches in the basin and what might
28 the physical, regulatory, and administrative framework of such a system look
29 like for the Basin. This action item is focused on addressing these questions
30 by working cooperatively with Basin water users in determining potential
31 applicability and potential framework for a basin-wide water market. NeDNR
32 and Central Platte NRD's pilot study in 2016 and 2017 developed an
33 algorithm and established a water market within CPNRD. Lessons learned
from this effort can inform efforts under this action item.

Action Item 1.3.3.4: Study management options of storage water (both surface water reservoirs and aquifer storage; and existing and potential new storage) to provide flexibility and increase resiliency of water supplies.

1
2 The importance of storage in the resiliency of basin water supply was a
3 consistent theme during the stakeholder process. The ability to capture and
4 store flow during times of excess, either in the aquifer or in surface water
5 reservoirs, was identified as an important approach to improve the basin's
6 resiliency under variable hydrologic conditions.

7 Many of the existing surface water storage facilities within the basin serve
8 multiple purposes (irrigation, aquifer recharge, hydropower, environmental,
9 recreation, etc.), increasing the complexity of operations. Within this context,
10 new storage management approaches will be evaluated that could
11 potentially improve the resiliency of the water supplies, while considering
12 impacts to the multiple purposes currently served. Potential new storage
13 opportunities, whether in new facilities or new storage allocations in existing
14 facilities, will also be evaluated.

15 Opportunities for enhancing aquifer storage will also be studied. In addition
16 to identifying supplies and recharge sites, effects on existing aquifer water
17 quality and aquifer levels require consideration.

Action Item 1.3.3.5: Support diversity in revenue streams of water users within the basin.

18 During the stakeholder process, diversification of revenue streams was
19 identified by many of the participants as a means for maintaining economic
20 viability. Examples included eco-tourism, crop diversification, changes in land
21 use, etc. While these types of activities are solely at the discretion of the
22 individual users, NeDNR and the NRDs can provide expertise and education
23 in support of constituent activities that support the goals and objectives of
24 this plan and the individual NRD IMPs.
25

Action Item 1.3.4: Develop a basin drought contingency plan for management of supplies during times of shortage.

26 The basin drought contingency plan is part of the continuing efforts to reach fully
27 appropriated conditions by addressing those shortages caused by short- and long-
28 term drought conditions. The contingency plan discussed herein is to be completed
29 within the first 3 to 5 years of this increment and address conditions under a basin-
30 wide or regional drought condition, not a local (county or NRD level) drought
31 condition.
32

1 The basin drought contingency plan will focus on vulnerabilities identified through
2 coordination with basin water users in Action Item 1.3.1, and developing a
3 monitoring and communication protocol for consistency across the basin. The basin
4 drought contingency plan will serve as a guide for plans developed by each
5 individual NRD. District-level mitigation measures and response actions
6 corresponding to the drought conditions will be identified and implemented at the
7 individual NRD level. Elements of a drought contingency plan include:

- 8 1. Vulnerabilities (Action Item 1.3.1)
- 9 2. Monitoring protocols (basin plan)
- 10 3. Triggers (individual NRD plans)
- 11 4. Mitigation actions (individual NRD plans – potentially basin-wide activities)
- 12 5. Response actions (individual NRD plans – potentially basin-wide activities)
- 13 6. Plan administration (individual NRD plans and basin plan)

14
15
Action Item 1.3.4.1: Develop a basin drought monitoring protocol for
defining and determining drought conditions.

16
17 This effort will focus on defining the severity of drought conditions (including
18 identifying trigger points that will be linked to response actions) and
19 determining the protocols for monitoring drought conditions at a basin level.
20 The focus is on providing consistency and communication of basin drought
21 conditions. The monitoring protocol will identify information and an
22 approach to determining basin drought severity. Current monitoring
23 activities and information utilized by basin water managers and other
24 agencies responsible for developing forecasts will be reviewed and
25 considered during the development of the monitoring protocols. Examples
26 of information that can be used include snowpack, stream flow, system
27 storage, soil moisture, National Drought Mitigation Center reports,
28 Standardized Precipitation Index reports, and aquifer levels.

29 The result of this effort is intended to be consistency in communicating
30 drought conditions to users across the basin.

Action Item 1.3.4.2: Identify potential basin-wide mitigation and
response actions to drought conditions and opportunities for
cooperation across the basin (for example, management of
storage water).

31
32 The individual NRD drought mitigation plans will contain mitigation and
33 response actions specific to each district. The responsibility for

1 implementation of those activities will, therefore, lie with each district. The
2 purpose of this action item is to identify potential mitigation and response
3 actions that are basin-wide or near basin-wide in scale, and/or involve
4 multiple entities within the basin (NeDNR, NRDs, irrigation districts, power
5 districts, etc.). Collaboration with basin water managers and water users
6 impacted by drought conditions is anticipated in the identification and
7 development of potential mitigation measures.

Action Item 1.3.4.3: Conduct a drought simulation workshop with NeDNR,
NRDs, and water users to assist in developing and testing of
protocols during a drought.

8
9 The workshop will test the proposed monitoring and communication
10 protocols, as well as potential mitigation and response actions through
11 simulation of conditions from a historic drought period.

Action Item 1.3.4.4: Identify roles for administering and implementing
basin drought contingency plan.

12 The administration of the basin drought contingency plan requires defining
13 specific roles and responsibilities for monitoring, communication, and
14 implementation activities at the basin level. In addition, protocols for updating
15 the plan need to be developed for inclusion in the plan administration.
16
17

Objective 1.4: Conduct technical analyses to support and evaluate effectiveness of
plan and adequacy in sustaining progress toward a fully appropriated level of
water use.

18
19 This objective focuses on the technical analyses of water supplies and uses to support plan
20 implementation and evaluation. Specific activities include:
21

- 22 • An annual review of any permitted new and expanded uses of surface water and
23 groundwater within the basin and associated mitigations (Action Item 1.4.1)
- 24 • An evaluation (robust review) of pre- and post-July 1, 1997 development (Action Item
25 1.4.2)
- 26 • An evaluation of current and fully appropriated conditions (Action Item 1.4.3)
- 27 • Development of necessary tools and technical analyses to support the robust review
28 (Action Item 1.4.4)
29

Action Item 1.4.1: NeDNR and the NRDs will continue to assemble and share
data annually on any permitted new and expanded uses of surface and
groundwater and any associated mitigations in the basin.

1
2 Statute describes both an annual review (*Neb. Rev. Stat. §46-715(5)(d)(ii)*) and a
3 second more robust review of new and expanded uses and associated mitigation
4 actions (*Neb. Rev. Stat. §46-715(5)(d)(iii)*) (Action Item 1.4.2). NeDNR and the NRDs
5 will annually share data on any permitted new and expanded uses of surface water
6 and groundwater and any associated mitigations in the basin. Data will be shared in
7 accordance with the requirements of state statutes, including meeting compliance
8 with the individual IMPs and the Nebraska New Depletion Plan. Data will be analyzed
9 to assess the collective amount, timing, and locations of the depletions to
10 streamflows resulting from new or expanded uses and the collective amount, timing,
11 and locations of all mitigations put in place. These analyses will be done using the
12 agreed upon methods and tools. The results of these analyses will be shared as part
13 of the annual reporting for this plan described in Objective 5.1. Methods and tools
14 used will be available to the stakeholders and the public. Basin-wide data collected
15 will then be trimmed to the relevant Platte River Recovery Implementation Program
16 area, analyzed, and used for required annual and periodic reporting for the Nebraska
17 New Depletion Plan, helping facilitate Nebraska's compliance with the Nebraska
18 New Depletion Plan (supporting Goal 2). Details of annual reporting requirements
19 can be found within the Monitoring and Studies Chapter of each district's IMP. The
20 most recent annual reports can be found on the Department's website. Recent
21 reports are included as **Appendix YYY**.
22

Action Item 1.4.2: An evaluation (robust review) of the impact of pre- and
post-July 1, 1997, development and progress towards plan's
goals/objectives/action items shall be conducted for each plan
increment.

23
24 The purpose of the robust review is two-fold: 1) Update estimates of depletions from
25 pre- and post-July 1, 1997 development; and 2) Evaluate management actions taken
26 and their overall effectiveness in making progress towards the goals and objectives
27 outlined in the plan. The latter purpose serves as the basis for determining the need
28 for further increments, and if so, to inform the planning process for the next
29 increment. The process for the evaluation is described in *Neb. Rev. Stat. §46-*
30 *715(5)(d)(iii)* and will identify the following information:

- 31 • A 50-year estimate of the streamflow depletions associated with pre- and post-
32 1997 levels of water use development within the hydrologically connected area
33 of the over-appropriated basin within each NRD and within the entirety of the
34 NRD.
- 35 • A 50-year estimate of streamflow accretions associated with management
36 actions implemented by each NRD and NeDNR within the hydrologically
37 connected area of the over-appropriated basin within each NRD and within the

1 entirety of the NRD.

- 2 • A summary of the net streamflow depletions within the over-appropriated basin
- 3 resulting from groundwater pumping within each NRD.

4
5 The net streamflow depletions estimated may need to be adjusted based on actual
6 hydrologic conditions to reflect the requirement to offset only those amounts
7 needed to prevent depletions to (A) surface water appropriations; (B) water wells
8 constructed in aquifers dependent on recharge from streamflow; and (C) ensure
9 compliance by Nebraska with the New Depletion Plan included in the Platte River
10 Recovery Implementation Program, for as long as the Program exists.

11
12 The data collected on an annual basis (Action Item 1.4.1) will be used to update
13 land use datasets for the accepted modeling tools. The models will be used to
14 assess impacts of the permitted activities as part of the robust review process. The
15 robust review will also evaluate the effects of other actions taken to reduce
16 consumptive use and enhance streamflows to meet the goals and objectives in the
17 plan.

18 During the first increment, the robust review and evaluation of depletions focused
19 on the impacts to stream baseflows. The groundwater modeling tools are used to
20 assess baseflow impacts. During the second increment of the plan, more focus will
21 be given to activities that may have broader impacts and the impacts to overall
22 streamflows may be evaluated, which would require the use of integrated modeling
23 tools that incorporate surface water. NeDNR and the NRDs will agree upon when
24 it may be appropriate to use integrated modeling tools, what methods should be
25 use, and how evaluations will be done.

26 The general method for conducting the robust review will be as follows:

- 27 i. The groundwater models used for this process will be calibrated to
- 28 streamflows/baseflows and groundwater levels in the area with the ability
- 29 to assess the impacts on a monthly basis. The groundwater models will be
- 30 updated periodically to simulate the management practices that have been
- 31 implemented to date. The evaluation period of these models will be 50
- 32 years into the future.
- 33 ii. The following groundwater model runs will be conducted to measure the
- 34 success toward reaching Objective 1.2:
 - 35 a. The 1997 Development Level Run. A model run that simulates
 - 36 holding the number of irrigated acres and crop types or mix in 1997
 - 37 constant through the current date and the fifty-year projection
 - 38 period. It will assume the full crop irrigation requirement for the
 - 39 crop types or mix. The run will be conducted using climate data

1 through the current date and will include a fifty-year projection
2 using an agreed to climate pattern.

3 b. The Historical Run. A model run that simulates the actual annual
4 changes of the irrigated acres, excess flow recharge events,
5 retirements, allocation effects, augmentation projects, and other
6 water management regulations or projects throughout the
7 evaluation period starting in 1997 through the current date and the
8 fifty-year projection period. The fifty-year projection period will
9 repeat an agreed to land use, regulation, or project dataset. The
10 model will use available flow meter data or, in the absence of flow
11 meter data, assume the full crop irrigation requirement was met at
12 all times. The run will be conducted using data through the current
13 date and will include a fifty-year projection using an agreed to
14 climate pattern.

15 c. Difference between the 1997 Development Level Run and the
16 Historical Run. The simulated output from each model run will be
17 compared to determine the difference in the baseflow that has
18 resulted from post-1997 development.

19 d. Surface Water Accretions and Other Uses not Covered by the
20 Models. If surface water acres are retired to offset streamflow
21 depletions due to new uses begun subsequent to July 1, 1997,
22 accretions resulting from those retirements will be determined
23 using agreed upon methodologies. This would include conjunctive
24 management activities that are not otherwise captured in the
25 models.

26 e. Evaluation Results. For Objective 1.2 to be considered achieved, the
27 results of combining the difference between the 1997 Development
28 Level Run and the Historical Run with the addition of surface water
29 accretions and other uses not covered by the models must be
30 greater than or equal to zero.

31
$$\text{(simulated streamflow/baseflow from the Historical Run)} - \text{(simulated}$$

32
$$\text{streamflow/baseflow from the 1997 Development Level Run)} + \text{(other Surface}$$

33
$$\text{Water Accretions)} = \text{Net Depletions}$$

34 (***)Note: In equation above, streamflow/baseflow is positive)

35
36 iii. An additional groundwater model run will be conducted to measure total
37 depletions. This will be the Pre-Development Run. The Pre-Development
38 Run will simulate no groundwater development. The run will be conducted
39 using climate data through the current date and will include a fifty-year

1 projection using the historical Run's agreed to climate pattern.

2 a. Total Depletions Evaluation.

3
$$\frac{(\text{simulated streamflow/baseflow from the Historical Run}) - (\text{simulated streamflow/baseflow from the Pre-Development Run})}{\text{Total Depletions}}$$

6 (***)Note: In equation above, streamflow/baseflow is positive)

- 7 iv. If integrated models are used to assess impacts to the total streamflow, the
8 methods to be used will be developed jointly between NeDNR and the
9 NRDs to properly design and constrain those analyses so that the results
10 can be used to assess progress toward the goals and objectives of the plan.

11
12 For Conjunctive Management Projects, or other management actions taken to meet
13 the objectives and goals of the Basin-Wide Plan, the conceptual basis for the analysis
14 will be to compare the new water balance effect of the management action to the
15 1997 level of development water balance effect of the management action.

16 Activities such as conjunctive management projects, land use changes, retirement
17 of irrigated acres, etc. can be represented in the modeling tools and compared to
18 the 1997 level of development model results to evaluate the effects on water
19 supply in the basin in relation to the 1997 level of development and the
20 effectiveness of those activities at offsetting post-1997 levels of depletions.

21 In other cases it may be necessary to compare the management activities to the
22 historical run to assess their impacts or to other model runs that may not be the
23 same as the historical run or 1997 development level run described above. This will
24 need to be assess on a case-by-case basis to determine the best approach to
25 appropriately evaluate the impacts and effectiveness.

26
Action Item 1.4.3: Continue to refine the methodology used to determine the
difference between the current and fully appropriated levels of
development in each NRD.

27
28 The evaluation of the difference between current and fully appropriated levels of
29 development is tied to Statute and the current rules of the NeDNR for declaring a
30 basin fully appropriated. Statute requires that this evaluation will:

- 31
- 32 • take into account cyclical supply, including drought;
 - 33 • identify the portion of the overall difference that is due to conservation
measures;
 - 34 • identify the portion of the overall difference that is due to water use initiated
35 prior to July 1, 1997; and
 - 36 • identify the portion of the overall difference that is due to water use initiated or

1 expanded on or after July 1, 1997.

2 The current NeDNR rules for determining fully appropriated status includes
3 evaluation of the most junior appropriator's access to water, adjustments for lag
4 effect of groundwater depletions and accretions on water supplies, and
5 consideration of instream flows, among other guidance for conducting the analysis.
6 The rules also provide flexibility for NeDNR to "...utilize a standard of interference
7 appropriate for the use, taking into account the purpose for which the appropriation
8 was granted..."³ for uses which are not defined in the rule. These include storage
9 and hydropower appropriations, which are significant appropriators in the Upper
10 Platte River Basin. NeDNR and the NRDs have and will continue to work with
11 impacted water users on the process for determining the difference between the
12 current and fully appropriated condition of the basin.

13 Prior to development of the First Increment Plan, as a preliminary step in developing
14 the overall difference between fully and over appropriated conditions,
15 Representatives of NeDNR, the Central Nebraska Public Power and Irrigation District
16 (CNPPID), Nebraska Public Power District (NPPD), and Central Platte Natural
17 Resources District performed a preliminary estimate of the changes in stream reach
18 gains and surface water demands affected by such reach gain changes, *Preliminary*
19 *Estimate of Historical Stream Flow Reductions in the Overappropriated Portion of the*
20 *Platte River in Nebraska* (see Appendix ZZZ).

Action Item 1.4.3.1: Continue to study the effects of conservation
measure effects on the overall difference between current and fully
appropriated conditions.

21
22
23 During implementation of the first increment plan, Phase I and Phase II of a
24 study of the effects of conservation measures on water supplies was
25 completed. Phase I (Appendix AAA) focused on an overall evaluation of a wide
26 spectrum of conservation measures across the basin. The results of this study
27 were used to inform and focus the evaluation of Phase II of the study. Phase II
28 (Appendix BBB) focused on two types of conservation measures: 1) the effects
29 of tillage practices and 2) irrigation efficiencies on available water supplies.
30 Tillage practices and irrigation efficiencies are driven by producer choices and
31 are considered part of the spectrum of producer practices. Current evaluation
32 of the study results indicates that changes in tillage practices and
33 irrigation efficiency changes over time have impacted available water
34 supplies in varying degrees across the basin.
35

³ Title 457, Chapter 24, Section 001.01B of the Nebraska Administrative Code, dated June 27, 2008.

1 Additional studies, building on the results of what was learned in Phases I and
2 II of the conservation measures study will be conducted during the second
3 increment to further evaluate the effects of conservation measures on the
4 overall difference between current and fully appropriated conditions, including
5 verification of appropriate representation of existing and proposed producer
6 practices in modeling tools.

7 In the current modeling tools, current levels of consumptive use are
8 established based on the current understanding of on-farm producer
9 practices, crop types, and current water management regulations. Changes
10 from the current level of consumptive water use due to changes in
11 production practices (on-farm practices, crop type, etc.) and current water
12 management regulations will be estimated and compared to the current
13 level of consumptive uses to determine and track offsets.

14
Action Item 1.4.3.2: As part of understanding the difference between the
current level of development and a fully appropriated level of
development, an evaluation of the balance of water supplies and
demands shall be conducted for each plan increment.

15
16 As part of understanding the difference between the current level of
17 development and a fully appropriated level of development, an evaluation
18 of the balance of water supplies and demands shall be conducted for each
19 10-yr plan increment.

20 An assessment of water supplies and water demands within the basin has
21 been conducted during implementation of the first increment. This
22 assessment generally followed the NeDNR INSIGHT methodology for
23 determining the quantity of available hydrologically connected water
24 supplies and the demands on those supplies. The analysis looks at supplies
25 over a representative climate period taking into account wet and dry phases
26 of the hydrologic cycle. Consumptive and non-consumptive surface water
27 demands are considered as well as groundwater depletions and
28 groundwater consumptive use. A description of the INSIGHT methodology
29 as applied to the Upper Platte Basin is included in **Appendix ZZZZ**. INSIGHT
30 methodologies will continue to be revised as necessary during this plan
31 increment and used to assess total supplies and total demands within the
32 basin and methodologies refined as necessary.

Action Item 1.4.4: The NRDs and NeDNR will continue to cooperate on the development of the necessary modeling tools or technical analyses that are aimed at providing updated or refined estimates for the robust review.

1 Throughout this plan document the terms “agreed upon tools/models/analysis”
2 are used. As this basin-wide plan and the IMPs are joint plans between NeDNR
3 and the NRDs, all tools, models, analyses used to evaluate the progress toward the
4 goals and objectives of this BWP or the related IMPs must be jointly developed
5 and agreed upon by NeDNR and the NRDs. Methods, tools, and data used will be
6 made available to the stakeholders and the public.
7

Objective 1.5: Use available funds and actively pursue new funding opportunities to cost effectively offset depletions as well as to develop, maintain and update data and analytical tools needed to implement this plan.

8
9
10 NeDNR and the NRDs will identify and pursue funding opportunities to support plan
11 implementation. Funding sources may include federal, state, and local partners in addition
12 to NeDNR and NRD contributions. Funding priorities identified in the action items include:

- 13 • Reductions in consumptive use
- 14 • Enhancement of water supplies
- 15 • Maintaining existing and implementing proposed projects to meet goals of this plan
- 16 • Data acquisition and maintenance, and model improvements for plan
17 implementation

Action Item 1.5.1: Cooperate with the federal government to use programs such as the Conservation Reserve Enhancement Program and others that promote reductions in consumptive use and enhance water supplies.

Action Item 1.5.2: Encourage Platte River Basin NRDs, agencies, and water users to participate in these programs.

Action Item 1.5.3: Work to secure necessary funding for existing and proposed projects that will advance the goals of this plan.

Action Item 1.5.4: Maintain, improve, or acquire data and modeling tools, as agreed by NeDNR and the Platte River Basin NRDs that will be useful for assessing progress and further implementing this plan.

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Objective 1.6: Update and continue implementing IMPs in each Platte River Basin NRD.

This objective provides guidance for each individual NRD Platte River Basin IMP and outlines its relation to this basin-wide plan.

Action Item 1.6.1: Update individual NRD IMPs to be consistent with this Upper Platte River Basin-Wide Plan.

Each of the NRDs currently has an IMP that will be updated for consistency with this basin-wide plan. In addition, each IMP will:

- Identify management options that will help to achieve the goals and objectives of this plan.
- Management actions should take into account the cyclical nature of water supplies as well as the impact of conservation measures.
- Management options available to be used in the IMPs to address the objectives of the second and any subsequent increments are those found in Nebraska Revised Statutes 46- 716 and 46-739. Other options that are not regulatory include, but are not limited to: augmentation and retiming projects; alternative management of canals; new storage reservoirs or underground storage; water banking; incentive programs for retiring irrigated acres or purchasing surface water; alternative management of existing reservoirs; PRRIP water action plan projects; and drought management plans. The Historical Run for the robust review described in Action Item 1.4.2 serves as the basis for evaluating management options and their effectiveness.
- Riparian and riverine vegetation control may be considered as a management option when a change in consumptive use can be scientifically estimated and there is a comprehensive assessment of changes in such vegetation over the development period.
- Ensure that depletions caused by new or expanded uses within each Platte River Basin NRD are offset.
- Describe how progress toward the depletion reduction objective for that Platte River Basin NRD is to be measured. Possible tools to use for such measurements include, but are not limited to the following:
 - tracking reductions in irrigated acres;
 - monitoring reductions in consumptive water uses; and
 - performing new model runs.
- Include actions that will offset depletive impacts of post- July 1, 1997, water uses outside the over-appropriated area, to the extent that those new uses deplete streamflows within the over-appropriated area.

- Allow for the transfer of certified acres within and across NRD boundaries, subject to NRD approval, while not increasing streamflow depletions to the Platte River.

Action Item 1.6.2: Monitor and amend individual IMPs as needed to keep the IMPs current.

During implementation of the IMPs, NeDNR and the NRDs will monitor IMP actions consistent with the analyses and methods contained in the basin-wide plan and amend the IMP if activities are determined by the parties to not be capable of meeting goals. If NeDNR and a Platte River Basin NRD determine that management actions have not provided the offsets required to meet the goals of the Upper Platte River Basin-Wide Plan, they will agree to increase offset activities to the extent possible and revise the individual district IMP if necessary. These revisions may include additional controls, if needed, to meet goals of the plan.

Action Item 1.6.3: As prescribed by Nebraska Revised Statute 46-715(5)(d)(iv), a consultative and collaborative process shall identify goals and objectives for subsequent increments, if necessary, of the Individual NRD IMPs.

NeDNR and the individual NRDs will engage stakeholders in a collaborative process in the development of goals and objectives for subsequent increments (beyond the second increment) of the individual IMPs if necessary. The need for subsequent increments will be determined through the robust review process completed at the end of the second increment and described in Action Item 1.4.2. Should a subsequent increment be necessary, the planning process will be initiated by NeDNR and each NRD developing a public participation plan that outlines the stakeholder engagement process for the NRD's IMP, including identification of participants/parties, definition of roles, decision making protocols, planning processes, and timelines. This public participation plan serves as a reference guide for participants as well as the general public throughout the planning process. This effort is analogous to the basin-wide collaborative process described in Objective 5.3, but focused on the individual NRD stakeholder collaboration. The public participation plan developed for the second increment basin-wide plan development is included in **Appendix PPP** for reference.

Goal 2: Prevent or mitigate human-induced reductions in the flow of a river or stream that would cause non-compliance with an interstate compact or decree or other formal state contract or agreement.

Maintaining compliance with Nebraska Revised Statutes 46-713(3), including commitments under

1 compacts, decrees, and other formal agreements is a fundamental goal that must be considered
2 throughout implementation of all goals, objectives, and action items identified in the plan. This
3 goal applies not only to those activities included in this plan, but also to activities of the individual
4 NRD IMPs.

Objective 2.1: Prevent human-induced streamflow depletions that would cause non-compliance by Nebraska with the Nebraska New Depletion Plan included within the Platte River Recovery Implementation Program, for as long as the Program exists.

5
6 Nebraska's New Depletion Plan (Attachment 5, Section 8 of the Program Document)
7 describes the actions Nebraska proposes to take to prevent or mitigate for new depletions
8 to current United States Fish and Wildlife Service target flows and state protected flows as
9 described in the Nebraska New Depletion Plan as part of the state's commitment to the
10 Platte River Recovery Implementation Program. New depletions are defined as those uses
11 started or expanded on or after July 1, 1997. The current United States Fish and Wildlife
12 Service target flows were developed for the first increment of the program and considered
13 the social and environmental health of the Platte River. The target flows are included in the
14 Program Document and will be reevaluated during the extension of the first increment of
15 the Program. Should the target flows change based on the reevaluation, the Nebraska New
16 Depletion Plan will be updated accordingly.

17 This objective specifies that activities within the basin during plan implementation must
18 maintain compliance with the Nebraska New Depletion Plan, that is, depletions to United
19 States Fish and Wildlife Service target flows and state protected flows, as described in the
20 Nebraska New Depletion Plan, must be prevented or mitigated. In doing so, this objective
21 addresses the requirements of 46-715(2) to maintain the social and environmental health
22 of the basin.

23 This objective recognizes that naturally occurring variations in the basin's hydrologic cycle
24 affects basin water supplies; therefore, the focus of this objective is explicitly on impacts of
25 human-induced depletions to water supplies.

Action Item 2.1.1: Ensure that the groundwater and surface water controls adopted in the individual NRD IMPs are sufficient to ensure that the state will remain in compliance with the Nebraska New Depletion Plan.

26
27 This action item specifies that during consideration and development of the controls
28 for inclusion in the individual NRD IMPs, NeDNR or the NRDs will evaluate the net
29 effects of the IMP controls to ensure they are adequate to prevent or mitigate
30 depletions to as identified in the Nebraska New Depletion Plan.

Action Item 2.1.2: Collectively, as defined in the Nebraska New Depletion Plan, offset the new depletions caused by new uses within the Platte River Basin NRDs.

In this context, the term offset is an action that either reduces water use or increases the water supply in an amount corresponding to the estimated volume of authorized new depletions. Depletive effects of new uses, as defined in the Nebraska New Depletion Plan, continue to accrue and must be offset to maintain compliance with the Nebraska New Depletion Plan. Statutory guidance regarding new depletions is provided in 46-715(3). Procedures for offsetting depletive effects of new uses are now and will continue to be identified and described in the individual NRD IMPs.

Action Item 2.1.3: Prepare reports to Governance Committee of the Platte River Recovery Implementation Program on status and activities related to Nebraska New Depletion Plan.

This action item is closely related to and coordinated with Objective 1.4 where technical analysis and reporting efforts for activities within the basin are outlined. As outlined in Action Item 1.4.1, the annual reporting and data exchange efforts of NeDNR and NRDs will include portions of the basin covered by the Platte River Recovery Implementation Program and will be used in preparing annual and other periodic reports to the Governance Committee as identified in the Nebraska New Depletion Plan.

Goal 3: Partner with municipalities and industries to maximize conservation and water use efficiency.

Municipal and industrial groundwater users are an important group of water users in the basin. The availability of water to these users directly affects the social and environmental health, safety, and welfare of the basin. Existing users must be protected while ensuring compliance with state laws and the Nebraska New Depletion Plan. Section 46-715 (3) provides guidance and procedures that enable new development to occur with appropriate offsets, facilitating future growth while protecting existing uses.

Conservation and efficiency are needed for local populations to sustain water supplies and provide opportunity to grow and attract new industries. This objective is not intended to dictate development of conservation plans, but rather foster an understanding of current water usage and identify potential conservation measures that would benefit overall water supplies. The first step is to understand how water is being used by municipalities and industries and to understand the challenges they face.

1 **Objective 3.1:** Continue to collect data on water use and existing conservation plans of municipalities and industries within the basin.

Action Item 3.1.1: To advance understanding of water usage by municipalities and industries, gather information on total pumping, consumptive use, and timing of any return flows and collect data on water use efficiency and conservation methods being employed.

Action Item 3.1.2: Uniformly assess consumptive use, impacts on streamflows, and requirements and responsibilities for offsets due to current and expanded municipal and industrial uses, using agreed upon modeling tools. Consistent methods for tracking municipal and industrial consumptive use will be specified in individual NRD IMPs.

Action Item 3.1.3: If any municipalities have formal conservation plans in place, review these for strategies that can be applied to other municipalities in the basin.

2
3
4 **Objective 3.2:** Invite municipalities and industries to the annual meetings.

Action Item 3.2.1: To improve communication among all entities in the basin regarding water uses and facilitate the sharing of data, all municipalities and industrial users in the basin will be invited to the annual basin-wide meetings.

Action Item 3.2.2: Solicit feedback from municipalities and industries on impacts of water regulations, restrictions, and conservation on their development, ability to attract new industries and accommodate economic growth.

Action Item 3.2.3: Communicate to municipalities and industries the changes that will occur when relevant statutes change in 2026, making sure expectations and requirements are clear, and work with them to develop strategies.

Action Item 3.2.4: Keep open conversations going about what is being done and what can be done to conserve water and what impacts conservation has on streamflows.

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Objective 3.3: Establish baseline water use levels for each municipal and industrial user by January 1, 2026.

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Through the course of the first increment NeDNR and the NRDs have developed a 1997 baseline for municipal and industrial uses that will continue to be used to determine whether or not there are increases or reductions in consumptive use relative to the 1997 baseline. This is separate from the baselines that may be used by each NRD to establish a municipal or industrial allocation under Nebraska Revised Statute 46-740. Nothing in objective 3.3 or its associated action items changes the obligation of the NRD and NeDNR to provide offsets for post-1997 increases in consumptive use. However, subsequent to January 1, 2026, baseline allocations may be set for each municipal or industrial user in accordance with 46-740. Should such allocations be established and the municipal or industrial user exceed those allocations the NRD may require the municipal or industrial user to provide offsets for the expanded use.

Action Item 3.3.1: Use data collected from the municipalities and industries to track increases or decreases in consumptive use relative to the 1997 baseline.

Action Item 3.3.2: For purposes of Nebraska Revised Statute 46-740, establish baselines that may be used to develop allocations, incorporating feedback and input received from the municipal and industrial users. In accordance with statute, the base amount of the allocation for a municipality shall be determined as the greater of either a) the amount of water authorized by a permit, or b) their greatest annual use of governmental, commercial, and industrial use prior to January 1, 2026, plus a per capita allowance. The base amount of the allocation for an industrial or commercial user is the greater of either a) the amount authorized by a permit, or b) the amount of water necessary to achieve the industrial or commercial use as long as the consumptive use is less than 25 million gallons annually. Further details and exceptions to developing baselines and setting allocations can be found in state statutes.

Action Item 3.3.3: In accordance with Nebraska Revised Statute 46-740, the NRDs will continue to offset any new depletions that occur as a result of municipal and industrial consumptive use exceeding 1997 levels up to any allocation that may be established for municipal or industrial users, with the exception of new or expanded municipal and industrial uses greater than 25 million gallons per year. Any reductions in consumptive use by municipalities or industrial users that result in accretions to streamflow may be used to offset depletions from other water uses in that NRD or by the municipal or industrial user, subject to the rules established by each NRD.

Action Item 3.3.4: For purposes of Nebraska Revised Statute 46-740, on and after January 1, 2026, after municipal and industrial baseline allocations have been established, the requirement to offset any new uses beyond the baseline allocation that cause depletions to streamflows may be addressed by municipal and industrial users. The specific requirements for municipal and industrial users will be established in the individual NRD IMPs and DNR rules and regulations.

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Goal 4: Work cooperatively to identify and investigate disputes between groundwater users and surface water appropriators and, if determined appropriate, implement management solutions to address such issues.

There is a hydrologic connection of surface water and groundwater resources and the potential exists for uses to affect one another. NeDNR and the NRDs will work cooperatively with basin water users to identify potential conflicts, evaluate those conflicts, and if appropriate, implement solutions to address conflicts.

Objective 4.1: Identify disputes between groundwater users and surface water appropriators.

The purpose of this objective is to identify potential conflicts between surface water and groundwater users, with Action Items 4.1.1 and 4.1.2 outlining the processes for identifying potential conflicts.

Action Item 4.1.1: Surface water appropriators or groundwater users may present data and other supporting information identifying the nature and scope of potential disputes at the annual meeting.

Any surface water or groundwater user in the basin with a potential conflict may submit data and supporting information to NeDNR and the NRDs for consideration. The submittal should include a concise description of the potential conflict, as well as relevant information for NeDNR and the NRDs to use in their evaluation.

Action Item 4.1.2: The Platte River Basin NRDs and NeDNR may present data and other supporting information identifying the nature and scope of potential disputes at the annual meeting.

This action item provides the opportunity for the NeDNR and the Platte River Basin NRDs to provide information to basin water users and the public on potential conflicts occurring within the basin at the annual meeting.

Objective 4.2: Investigate and address issues between groundwater users and surface water appropriators, based on investigation results.

Once potential conflicts have been identified, Action Items 4.2.1 through 4.2.5 outline the approach and roles of NeDNR, the basin NRDs, and affected users in evaluating and addressing conflicts.

Action Item 4.2.1: NeDNR and the Platte River Basin NRDs shall determine whether specific disputes identified via Goal 5, Objective 1, have a hydrologic impact.

Action Item 4.2.2: NeDNR and the Platte River Basin NRDs will investigate a given dispute to determine whether the issue should be addressed through modification of the Upper Platte River Basin-Wide Plan, individual NRD IMPs, or by other means.

Action Item 4.2.3: If it is determined, as a result of the investigation, that the issue is not a basin-wide issue, the issue will be turned over to the appropriate affected NRD(s) or NeDNR.

Action Item 4.2.4: NeDNR or the affected Platte River Basin NRD(s), as determined in Action Item 4.2.3, working with the affected water user(s), shall develop management solutions, as appropriate, to address the issue(s).

Action Item 4.2.5: NeDNR and the affected Platte River Basin NRD(s) shall update the Upper Platte River Basin-Wide Plan and/or individual IMP, as appropriate.

Goal 5: Keep the Upper Platte River Basin-Wide Plan current and keep stakeholders informed.

Objective 5.1: Meet at least annually to review progress toward achieving the goals and objectives of this Upper Platte River Basin-Wide Plan and those portions of individual NRD IMPs that implement this plan.

Annual meetings will be held in June or July each year, unless agreed to otherwise, at a location designated by NeDNR and the NRDs. Discussion shall include, but not be limited to the following:

1. revisions to this Plan;
2. revisions to IMPs;
3. new data and information, including items like consumptive use calculations for municipal, livestock and industrial uses;
4. disputes related to implementation of IMPs; and/or
5. any other topic which the DNR and the Platte Basin NRDs have mutually agreed to discuss.

A proposed agenda will be made available to the public, along with any available supporting documents, at least two weeks prior to the annual meeting. As a result of actions taken at the annual meeting, the Plan may be revised if necessary.

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2 Stakeholder and/or public feedback concerning the Basin-Wide Plan or individual IMPs will be
3 considered in the following process:

4 1. Basin-Wide Plan

- 5 a. Any ground water user, surface water appropriator, NRD, or DNR may, at least 30
6 days before the annual review meeting between the NRDs and DNR, send a written
7 request to DNR or a Platte Basin NRD for revision to the Basin-Wide Plan.
8 i. The affected Platte Basin NRD(s) and DNR will review the proposed
9 issues prior to the annual meeting.
10 ii. Opportunity for input regarding the proposed issues will be provided
11 to the party making the request during the annual meeting.
12 iii. Written requestors will receive a written response, regardless of whether the
13 NRDs and DNR agree to consider proposed Plan revisions.
14 b. If DNR and the Platte River Basin NRDs agree to consider potential revisions to
15 the Basin-Wide Plan, then the public will be notified of the potential revisions
16 to the Basin-Wide Plan, and input will be solicited at a minimum via a hearing.
17 i. An advisory or stakeholder group may be convened, if the affected NRD(s) and
18 DNR determine that the proposed changes warrant the formation of such a
19 group.
20 c. After receiving public comments, Basin-Wide Plan revisions will be
21 considered for adoption.
22 d. If the NRD(s) and DNR agree on revisions to the Basin-Wide Plan, then a hearing
23 will be held to solicit formal comment. Following the public hearing, the proposed
24 changes will be considered and may be adopted.

25 2. IMPs

- 26 a. If the overappropriated Basin-Wide Plan is revised, then revisions to the
27 overappropriated basin portion of individual Platte Basin IMPs will be made as
28 necessary, in accordance with Neb. Rev. Stat. § 46-715(4).
29 b. If the Platte River Basin NRD(s) and DNR agree on revisions to an IMP after the
30 annual meeting, then a hearing will be held to solicit formal comment. The
31 IMPs for each of the five Platte Basin NRDs shall be provided to all other NRDs
32 in the overappropriated basin for comment before revisions are approved.
33 c. DNR and any Platte Basin NRD may amend an IMP as more data and
34 information become available, as provided in Neb. Rev. Stat. § 46-715(4)(d)(ii).

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Action Item 5.1.1: Regular presentations are anticipated to include an annual forecast of basin water supply and demand, current understanding of economic impacts of supply variability on water users as well as impacts to social and environmental health, safety and welfare, and summary of conservation efforts of municipalities and industries.

Action Item 5.1.2: Present summary of conservation plans of municipalities and industries within the basin.

Objective 5.2: Improve information sharing with interested stakeholders.

Action Item 5.2.1: Maintain a database of interested stakeholders; it is the responsibility of interested parties to keep their contact information current by notifying NeDNR or their respective NRD of changes.

Action Item 5.2.2: Send notice of annual meeting to interested stakeholders, municipalities, and industries.

Action Item 5.2.3: Send electronic notice when new reports pertinent to this plan have been published to the internet.

Objective 5.3: Conduct planning for subsequent increments of the plan, as necessary.

Action Item 5.3.1: As prescribed by Statute, a consultative and collaborative process shall identify goals and objectives for subsequent increments, if necessary, of the basin plan.

NeDNR and the NRDs will engage stakeholders in a collaborative process in the development of goals and objectives for subsequent increments of the basin plan if necessary. The need for subsequent increments will be determined through the robust review process described in Action Item 1.4.2. Should a subsequent increment be necessary, the planning process will be initiated by NeDNR and the NRDs by developing a public participation plan that outlines the stakeholder engagement process, including identification of participants/parties, definition of roles, decision making protocols, planning processes, and timelines. This public participation plan serves as a reference guide for participants as well as the general public throughout

1 the planning process. The public participation plan developed for the second
2 increment basin-wide plan development is included in **Appendix PPP** for reference.
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