



TPNRD Stakeholder Meeting #5 Minutes

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

Subject: Stakeholder Meeting #5

Date: Tuesday, February 26, 2019 from 7:00 p.m. – 9:00 p.m. CT

Location: Holiday Inn Express & Suites, North Platte, NE

I. Welcome

- a. Stephanie White, HDR, opened the meeting at 7:00 p.m. CT. and noted this is the last meeting for this district. She asked the Stakeholders to introduce themselves. The attendance sheet is attached (Attachment E). Stephanie White introduced herself as the facilitator and introduced Kent Miller, general manager of the Twin Platte NRD (TPNRD).
- b. Kent Miller thanked the Stakeholders for coming to the meeting. He discussed background on the planning process starting with LB 962 and how we got where we are today.

II. Administration

- a. Stephanie stated the meeting was noticed in the newspaper and that there is a copy of the open meetings act present in the room (Attachment D). She reviewed the agenda (Attachment A) and noted there will be public comment at the end of the meeting. She reminded the Stakeholders of their roles in this process. In June, the TPNRD board will take a vote in taking this IMP to a public hearing. In July, there will be a public hearing for the Basin-Wide Plan (BWP) and the TPNRD IMP. In August, the board will vote on final approval of both documents.
- b. Stephanie introduced Jennifer Schellpeper, NeDNR. Jennifer stated feedback received tonight will be taken and have conversations with the NRD about how comments will be incorporated in the plan. Once we have come to a final version with the TPNRD board by June 13th, we will move forward with public hearing, and also the plan would be posted again and we would notify everyone that the final draft plan was available so everyone





would have the opportunity to attend the hearing. There will be about a four-week time period of when you could have the final draft plan before the hearing.

c. Copies of all presentations are included (Attachment B).

III. November meeting recap

a. Stephanie discussed the meeting in November, which included triggers, second increment goals, and example projects for the second increment plan. She noted many ideas from the last meeting's conversation can be seen throughout the plan.

IV. Review Draft Integrated Management Plan (IMP)

- a. Jennifer Schellpeper, NeDNR, introduced Jessie Strom, NeDNR. She also reminded the group that all the pieces of the plan are connected and cannot be read alone.
- b. Jessie discussed the table of contents of the plan. The effective date will be finalized at a later date. Next is the authority section, the background, and a map of the FA and OA areas.

Stephanie: Noted the Stakeholders have in front of them a copy of the agenda, a copy of the slides, and a copy of the draft plan and advised them to go through the document as the meeting proceeds.

Stakeholder: Question regarding the map of the FA area and how it has not been updated with the new COHYST model.

Jessie: The plan applies to the entire district, not different controls or different things that apply in one area or another.

c. **Jessie**: Chapter 5 includes the vision statement or the intent of the plan: to maintain a balance of water uses and supplies while optimizing economic, social and environmental benefits and protecting existing users.

Chapter 6 is about funding and lists out the available sources of funding and explains what the priority of sources are.





Stakeholder: Question regarding the funding section and what the word "discussed" means here.

Jennifer: It depends on the context of what is going on at the time. We have triggers later on that we have discussed we are trying to reach. There are some things that are out of our control if we don't have the funding to do it, so it will be very contextually driven of what is happening at that time.

Stakeholder: So, if I understand this right, if funding becomes an issue, we still have the triggers and the indicators, that will still have to be met?

Jennifer: Yes.

Jessie: Chapter 7 is the science and methods. We are going to use the best science, data, and methods available when assessing the plan and when we've been developing the plan. There is a section on what we use and what we did in the first increment that includes information on the original COHYST model, COHYST 2010 and the Wester Water Use model. Section 7.2 is about how we are going to use the best science available going forward. There are nine different basin-wide tenants, which are concepts to help us make sure we are staying on top of the science and staying consistent across the basin. Section 7.3 talks about the information considered in developing the IMP.

Stakeholder: Voiced concern about not seeing the final reports before voting today.

Jessie: It is our intent that we get all of these documents out and available to the public with sufficient time before we go to the hearing with the IMP. We don't expect everyone to agree on every single word, but we are wanting to get consensus on the big concepts and the major points.

Stakeholder: Questioned if an issue comes up later, can the stakeholders do anything about that?

Stakeholder: If Stakeholders don't vote no, then by the statute, it becomes the plan. You've accepted the numbers.

Stephanie: Today? No.





Stakeholder: If we agree to the plan and then get all this other data and if we go to the hearing and we decide that the number we don't like it. That isn't something we saw as stakeholders, it doesn't matter? At that point the vote will be the vote?

Jennifer: You are voting again as stakeholders, so the vote would be today.

Stakeholder: So we have no other opportunity to change your vote after this point? Just to give comments at the hearing?

Jennifer: You're going to have all the data and results, but not the report write-up about it. We've presented the Robust Review results, there are results in here, so you have that. It's just not the full write-up is what he is talking about.

Stakeholder: Voiced concern about agreeing with numbers without seeing the report.

Stakeholder: Stated confusion regarding voting on something without seeing the facts.

Stephanie: Suggested going through the concepts of the document, discussing, reviewing documents and submitting any concerns. Jennifer, can you commit to having those documents available in time for this vote here?

Jennifer: Yes, we will need them for that.

Stephanie: Then there is the public hearing, and the board will vote again on it. This conversation is not over after today, but I would like to continue to discuss the concepts today – not the numbers or the science of it, but the policy element of the plan itself.

d. **Jessie**: Chapter 8 includes first increment accomplishments. Section 8.2 includes a summary of the management actions taken in the first increment. Section 8.3 is on the Robust Review, which was the assessment of the first increment. It includes a map that shows how the NRD is divided into three stream reaches to define depletion numbers better.

Stakeholder: Voiced concern with using entire reaches and suggested there may diversions within that reach that would better represent impacts to users. Suggested the diversion on the South Platte for the analysis for timing and location of depletions. The Keystone diversion below McConaughy or McConaughy itself would be another good spot. Also suggested greater attention to the timing of analyses.





Stakeholder: Voiced support for that idea. Seasonal data would be helpful instead of annual. Suggested a summer table and a winter table.

Stephanie: Noted request for greater detail on timing and location, a suggestion to make it seasonal, better representation of reaches, and a fine-tuning of data collection analyses and reporting in the second increment – more forward looking.

Stakeholder: Questioned if surface water activities are reflected correctly over time in the Robust Review.

Stakeholder: I assume if you got information on changes in the way surface water is being used over time that would be updated into the models.

Jennifer: But the change we're looking at is looking at is focused on groundwater-only irrigated land changes from '97 to present day, so everything else that's occurring and changing is the same in both our baseline run and our change run – that is not considered a change that needs to be provided an offset for.

Jesse Bradley, NeDNR: What we're focused on in this Robust Review is the effect of new post-1997 uses and those existing surface water permits are not part of the analysis because we had a moratorium on surface water use in '93. So, there weren't new permits issued after '97 and the new permits of focus in the Robust Review are the new groundwater-only irrigated acres that came in. That may not always be the case, but because we're targeting those post-97 depletions, that is the case for this Robust Review.

Stakeholder: I am trying to understand how that interaction with the use and how they're changing their operation of their system because they're not operating like they did ten years ago.

Jesse: There are activities where NRDs are intentionally partnering up with canals to operate them differently as a management action. In those instances, they will be reflected in future Robust Reviews – that they are trying to intentionally operate them differently as an outcome.

e. **Jessie**: This is where we look at changes in groundwater-irrigated acres, lost and gained since 1997 and the effects of transfers to land-use changes, changes in municipal and industrial uses, conjunctive management projects, any other permitted changes. Figure 4





shows the results for the South Platte River starting in 2014. There is a downward trend in streamflow depletions and this chart is confusing, but we've got the big chart and the little chart is just zoomed in at a smaller scale. We wanted at first to show all the different reaches on the same scale – these charts came directly out of the draft Robust Review Report, with all five NRD's data. The blue dotted lines are the modeled depletion numbers, the light dotted line is the trend line of those modeled impacts, the gray and is the variability range within the data. These charts are what we use to generate the target numbers that are in the goals and objectives.

Next is the assessment of the FA condition. Here is a discussion of the total depletions. There is not anything in there, just a placeholder. The chart that is going to be there is shown on the PowerPoint.

f. Jessie: The next part is the INSIGHT analysis, including an overview of the methodologies. Here is a graphic that shows in a slider bar where we are with total supply and when you add in different pieces of the demand. The red side is where all demands are considered. The chart on the PowerPoint is different than what is in the plan – same numbers, just flipped to make easier to understand.

Question: So this doesn't mean a million acre feet needs made up in the basin?

Jennifer: It does not.

Stakeholder: Questioned the purpose of the graphic.

Jennifer: Acknowledged there may be a better graphical way to represent what we are trying to say, which is when you look at the demand you look at the supply that we have, how does that compare in general over that 25-year period. Some years we have extra and some we're short.

Stakeholder: Suggested to focus on a better explanation of the graphic. People will look at it and think you're trying to overcome all of that shortage.

g. Jessie: The final piece of chapter 8 is about basin-wide coordination in the first increment, where we discuss our interlocal cooperative agreement that the five NRDs and NeDNR have called the Platte Basin Coalition, where we oversee the implementation of the IMPs and the BWP. Protocols to evaluate projects, funding, and technical working group.





Chapter 9 includes our goals and objectives:

Goal 1: To reach and maintain a FA condition. "To incrementally achieve and sustain a fully appropriated condition while maintaining economic viability, social and environmental health, safety, and welfare of the basin."

Question: Goal 1 and objectives of Goal 1 significantly reflect BWP requirements, right?

Jessie: Correct.

Objective 1.1: To offset post-97 depletions. Those values are in this table on the PowerPoint – from Robust Review. These depletions need to be offset by the end of the second increment. The total is about 25,000 acre-feet to be offset by 2029. We recognize and expect these numbers can change with updates, so we will do another Robust Review in 2023. The large table is short-term goals – need to meet each year. The other table is long-term goals – looking out 50 years; took average of last five-year period.

Objective 1.2: To maintain previous increment progress. Applies to districts that have already offset their post-97 depletions. Or if we get there, we need to maintain the progress made.

Objective 1.3: We will make progress toward a FA condition.

Objective 1.4: To review the IMP to make sure it is adequate to sustain progress toward the FA condition.

Objective 1.5: When we reach FA, we will maintain that through the implementation of the IMP.

Goal 2: Interstate Compliance – complying with PRRIP and the NNDP. Ensuring that no act or omission of the NRD or the Department would cause noncompliance. NNDP requires offsets for all new uses and requires that post '97 new or expanded uses, including irrigation, municipal, industrial, and rural domestic uses be offset for compliance. In the plan we reference chapter 9.10 – should be 10.7.3 where we outline what the Robust Review is.

Goal 3: Consistency and updates to the plan. We need to keep the IMP current, maintain consistency with the BWP, and keep water users informed. We will amend the IMP as needed if the BWP is updated, participate in BWP activities, improve information sharing with interested parties, conduct planning for subsequent increments if necessary, and follow the dispute resolution process if necessary.





Chapter 10 includes our action items including non-regulatory action items – things we can do to help with the implementation of the plan, but not controls or rules. This includes information and education programs, incentive programs, water banking, and conjunctive management projects. This has new content.10.5 is about the drought plan, which is part of the requirements for the BWP.

Stakeholder: Suggested to allow for a stakeholder group to be formed when creating the drought plan.

Jessie: Noted that part of the BWP does require the NRDs and NeDNR to communicate and get information from water users about how they are being impacted economically and what their drought issues are.

Stakeholder: Asked if mitigation agreement with NPPD around Gentleman Station with their well field needs to be involved in this conversation.

Jennifer: Noted it should be assessed and we will decide where it fits in.

h. **Jessie**: 10.6 includes the controls for the current increment. We have the groundwater regulatory actions including two new controls that the NRD has added. The other new item is in terms of municipal and industrial accounting and offsetting, the statute changes in 2026, those changes will be addressed in the NRDs rules and regulations.

Section 10.6.2 is about our triggers – how we will be checking in and measuring progress toward reaching targets for the goals and objectives. Annually we will check in to make sure we're moving in the right direction. In 2023 we will do another Robust Review. The numbers here came from looking at where we are at the end of the first increment, where we need to get by the end, how can we make progress toward the incremental.

Stakeholder: Questioned the numbers in Table 1.

Jessie: There was such a different in the first increment numbers and the revised – we can't make that jump in one year.

Stakeholder: So that was just a negotiated number? 4,200 versus 7,200?

Jessie: More or less. We looked at a trend line between the number in the first increment and the number at the end of the second increment, and picked a point that was about a





third of the way in. The same with the numbers we have on the flowchart figure for 2027 as well.

Stakeholder: I was confused why the short-term number were greater than the long-term numbers.

Jessie: For the long-term, we are only going to shoot for having 70% of those numbers from the table in the goals and objectives chapter, achieved. We recognize that we're going to keep working toward that.

i. **Jessie**: Figure 9 shows detail on what will be happening on a timeline. The numbers are updated based on triggers and targets.

10.6.2.1 is about groundwater controls in response to triggers. If we aren't meeting goals or making progress that triggers say we need to be making, these are additional controls the NRD can put on after consulting with the department. Then we list the surface water controls – the same as the first increment. The next section talks about the process the applications, variances and transfer applications go through with some examples.

Jennifer: I realized one of the things we talked about internally regarding mandatory data collection. We didn't have anything in the surface water for additional data collection. I wanted to get the thoughts on that concept today to go along with the groundwater control.

Stakeholders: Agreed.

Jennifer: That is currently not written in here – need additional language for that.

Jessie: It is listed in statute as one of the controls – increased monitoring.

j. Jessie: 10.7 is the monitoring section of the plan which includes information on data collection and tracking of water use – same as current IMP (we will exchange data annually on new permits that are issued, any new well permits, transfers, flowmeter data collected on wells, information on any offset activities, conjunctive management). Other things will be tracked on a periodic basis as things change (livestock use, population data, sandpits and small reservoirs, any offsets needed for those uses). 10.7.2 is about reporting, which includes our annual report. Those will be available before the Basin-Wide meeting and presented at the Basin-Wide annual meeting. 10.7.3 is about evaluation and





measuring the success of meeting the goals and objectives of the IMP. 10.7.3.2 is about measuring the success of reaching a FA condition.10.7.3.3 is about measuring the success of maintaining a FA condition. 10.7.3.4 is about evaluating the need for a subsequent increment.

10.8 is about the studies to be completed in this increment. 10.8.2 is about priority studies – things that are called for from the BWP or from statute that are required. 10.8.3 is about potential studies we will do in the current increment. Section 10.9 is about review and modification of the IMP, the process if revisions are needed, how basin-wide disputes will be addressed, and evaluating the need for additional ten-year increment.

Stakeholder: Expressed concern in section 10.9 if funding issues would arise and suggested the option to form a stakeholder group if IMP changes need to be made.

Stakeholder: Noted the formation of a stakeholder group might be a little arbitrary.

Stakeholder: Suggested wording similar to be able to form a stakeholder group to amend the IMP as the plan states for BWP amendments.

k. Stephanie called for Stakeholder comments:

- Gray area on things we've been asked to vote on and lots of questions raised that should be taken care of before a vote
- It is very important to be clear on what we are being asked to vote on because everything is dependent on what we see in the Robust Review Report – cannot know this today because we don't have it
- I am being asked to vote on the concept, but that doesn't mean I agree to the numbers or the specifics of the data
- In my mind, we are either voting on having offsets or allocations. The fine-tuned stuff goes to NeDNR and NRDs.
 - This is an intent to do other things before allocation if we've tried to do everything else, allocations is the fallback, but this does not jump right to allocations
- I hope we're not setting ourselves up for allocations. Are these goals achievable with what we've discussed without using allocation?
- **TPNRD**: The model gives us the numbers that we have to shoot for those are our moving targets. Do we think there are projects out there that can get us there incrementally? Yes. Is every project going to work? You don't know how the projects will turn out. If you get too many that don't work, then maybe you





should've done allocations. You just don't know until you attempt to do these things.

- Kent: You're not going to have any better answers two months from now about if we're going to hit those targets. That's why the plan says 2023 is the trigger points, but if we have projects in place you can have basically another year. You won't know until you get into that four year increment. We think there is a possibility that we can get through this and stay out of regulations, but our fist plan had trigger points for regulation, like this one, and there was an unknown ten years ago.
- No need to worry about if what you vote on tonight are the facts and figures, but the concept on how we get to that. Don't make it too complicated.
- Does this give you guys (the TPNRD) direction that we can turn it over to you and we have faith in you to come up with the numbers and plans to work with the NeDNR to get to these goals?
 - o **TPNRD**: Yes.
- The idea is to have consensus and those that don't agree are allowed to have a written document to express exactly what you're not comfortable with. This is the end of the Stakeholders, if you have objections, you can express yourself through a document.
- Wants to be more informed on what actions you will take to reach these goals
- After the first Stakeholders group you gave three concepts: First, the reduction of irrigated acres – you could reduce to make up excess water; second, allocations to go to deficit irrigation – Irrigate less to save water; third, was for NRD to find offset water. It was clear that you did not want to go into allocations and not reduce acres, but wanted NRD to find water. That's what we've done, so this same process we'll move forward.
 - Jennifer: Results were presented previously and those numbers are not changing. Pointed out the voting process is a consultation and collaboration process laid out in statute. If there is consensus tonight, these concepts will be adopted and if not, it goes back to the NeDNR and the NRDs alone to decide.
- Good with the concept overall. Stated groundwater users should provide better data which would benefit everyone in the long term.
- I understand where lack of data or changing data is concerning, but the goal encapsulates what we went through with BWP, so I'm ready to vote
- Clarification on the concepts is what we're here for, as long as we try all other options first and allocations come last if all else fails, I'm okay
- Regarding the items Stephanie wrote today, what happens to this feedback?





- Jennifer: We will review items discussed today, put them into the plan that will go to the board for voting, that will go to hearing. That additional information would be in the hearing version of the plan. As soon as we have a draft that is ready we will share it.
- Stakeholder: Is it possible to put it on the website?
- o Jennifer: We will have minutes from this meeting, yes.
- Jessie: That is one of the objectives in the plan (keep people more involved) – specific to this district – really important to this group of Stakeholders; and the call for more data collection
- I think meeting the same conditions as the BWP as far as, letting others know and surface irrigation monitoring those are what stood out to me
- I can wrap my mind around the concept and I can agree with that and I'm comfortable with our directors to administer this plan
- Kent: Noted each stakeholder will be mailed a draft plan that has been approved by the board that will be presented at the public hearing. Stakeholders will also be notified of the hearing date.
- Don't want to set the board up for failure hopes the concepts are achievable without going to allocation
- Learned a lot throughout this process feels comfortable with the discussion today
- Good points brought up on the data as far as the right people doing that
- I think lot of the success will be determined by hopefully how good the models are and the monitoring
- I. Stephanie's notes:
 - A desire to have final reports in advance (sooner the better) of the hearing and the board meetings Robust Review, INSIGHT Report, and BWP
 - Draft IMP will go out after June 13th board meeting, but before hearing.
 INSIGHT, Robust Review, and BWP will be available sooner
 - Greater detail on timing and location related to triggers seasonality of timing and location, better representation of reaches, request to fine-tune data in terms of collection analysis and reporting moving forward
 - NeDNR has the data, but it's a different question on whether that means changing triggers
 - Slider graph/ INSIGHT graphic may not be the best way to convey information (section 8.4)
 - o Will be addressed





- Suggestion to include Stakeholders in the drought planning process (10.5) call to take an assessment of what exists
 - Not this exact group of stakeholders, and not a formal process
- Suggestion to add data collection section for surface water users similar to section for groundwater users
 - o Will be added
- Suggestion to re-engage Stakeholders in second 'B' in 10.9.1
 - o Yes, will be added
- Keep people more informed
 - o There is an entire objective related to that
- m. Stephanie took a stakeholder vote (thumbs up: yes; to the side: I'm comfortable with the plan, but there are some things I need to see; thumbs down: no)
 - o Thumbs up: 11
 - Thumbs to the side: 5
 - o Thumbs down: 0

Stephanie asked 'maybe' votes to explain why they voted that way.

- Timing and location
- Timing and location
- Lack of being able to see the reports that were relied on (Robust Review, depletions data, BWP, etc.) concepts are okay though
- Lack of data seen
- Missed meetings not familiar with everything

Stephanie asked the stakeholders if they would like to meet again when they had all the information

Stakeholder: Not sure if that fits into your schedules, but I would like to meet. Voiced opinion that he wished we were not being asked to vote until after seeing the missing items, but wants to see progress made – so didn't vote 'no.'

Stephanie: Can the schedule accommodate another meeting?

Jennifer: We can get more done, but can't commit to getting seasonal data within that timeframe.

Stakeholder: Objected to having another meeting.





Stephanie: Asked TPNRD if five 'maybe' votes is enough to feel that consensus is reached and to move forward.

TPNRD and NeDNR: Yes.

Stephanie: Noted the stakeholders have moved the concepts forward and made seven requests – all but one will be accomplished within the plan itself. The other will be addressed in a matter of time.

V. Public Comment:

- a. Voiced concern with how farmers will be required to report activities with meters etc. Stated some farmers don't have crop insurance and hope that this process moves forward like it should.
 - Ann, TPNRD: Acknowledged that not everybody does FSA programs, so we will have to find a way to find those that don't report that way possible by recent year crop data. This year is not mandatory, but we are going to see what we get back along with the feedback received.
 - Kent: We're doing everything we can to find ways to get the data without meters. We have a different way to work with those who don't have power records.
 - Ann: We will want to verify pumping records versus metered records so we might send out a call asking for that.
- b. Asked about the previous meetings being downloadable from the website.
 - Ann: I don't have the meeting minutes up there yet, but I can get those to you. It is also on NeDNR's website.
- c. Questioned the date that the board will get the plan for review.
 - Jennifer: I think there are internal deadlines, but I don't remember off the top of my head, but usually the boards like to get them seven days ahead of time.
 - Kent: It will be available for the board to see at our main board meeting, but the draft will be before our board at the March board meeting.
- d. You talked about using the power records. Is there any more information?
 - Stakeholder: Hope to get more information soon.
- e. Is that data (power records) going to be used to see if we're OA or FA or what?





- **Stakeholder**: That is how they would look at real-time usage. With more and better data, the goal is to insert this data to improve what they model says we're doing.
- Kent: This data will go into the second Robust Review and the better data we can put in, the better the Robust Review will be.
- **Stakeholder**: So what is that going to show? That we're under appropriated or overappropriated or fully appropriated?
 - **Stakeholder**: I don't think it gets to the heart of that, but it may show some efficiency and improvements that we have that are built into the model now.

Kent: One of the requirements discussed in the second increment is 25,000 acre-feet annually. If we have better data that goes into the model and better pumping records, then there is a possibility that the offset requirement may change or become lower.

- f. Asked about the average pumping that goes into the model.
 - Kent: Stated it depends on location, rainfall amount, and land use.
- g. **Stakeholder**: Commended this stakeholder group for showing up and engaging in every meeting throughout this process.
- VI. Meeting adjourned: 9:25 p.m. CT

VII. Attachments:

- Attachment A Agenda
- Attachment B Copies of all presentations
- Attachment C Draft IMP
- Attachment D Affidavit of Publication of Notice of Meeting
- Attachment E Copy of attendance sheet

Agenda

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

Subject: Stakeholder Meeting #5

Date: Tuesday, February 26, 2019 from 7:00 p.m. – 9:00 p.m.

Location: Holiday Inn Express & Suites, North Platte, NE

Agenda:

- I. Welcome
- II. Administration
 - a. November meeting recap
- III. Review Draft Integrated Management Plan (IMP)
- IV. Public Comment

Attachment B - Presentations



TPNRD IMP

Meeting 4 February 26, 2019

TODAY'S AGENDA

- 1. Welcome
- 2. Administration
 - a. November Meeting Recap
- 3. Review of Draft Integrated Management Plan (IMP)
- 4. Public Comment

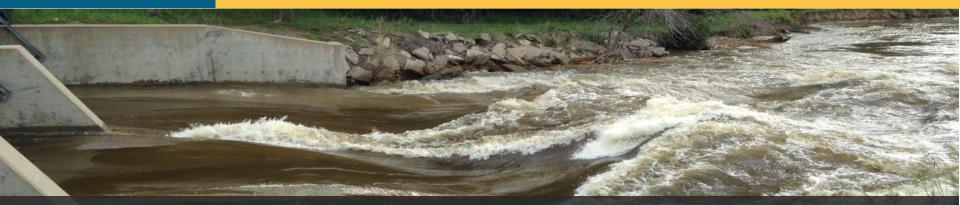
WELCOME

- Open Meeting Notice
- Safety & Logistics
- Previous meeting recap

Stakeholder Roles

- Convey local water issues/concerns
- Guide development of goals and objectives
- Disseminate information to local groups about IMP
- > Attend meetings

Attachment B - Presentations



ADMINISTRATION

November Meeting Recap



November Meeting Recap

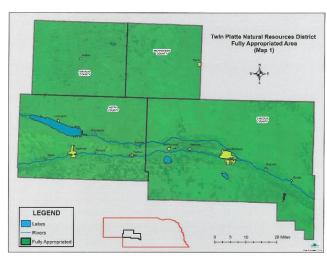
- Triggers and 2nd Increment Goals
 - Increment goals for projects and allocations
 - > Annual funds available
 - State matching funds (WRCF)
- Example Projects for 2nd Increment
 - Other NRDs allocations, annual mandatory reporting, cost-share incentive programs, water banking, etc.
 - Other States incentive based tools and agency-based tools

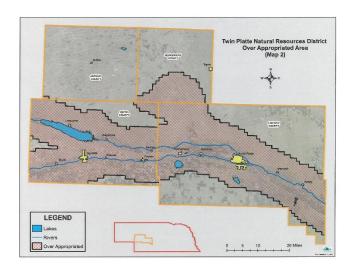
Attachment B - Presentations



REVIEW OF DRAFT IMP

- 1. EFFECTIVE DATE
- 2. AUTHORITY
- 3. BACKGROUND
- 4. MAPS AND MANAGEMENT AREA BOUNDARIES





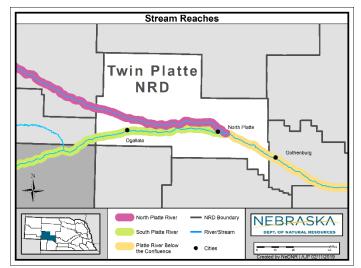
5. VISION

The overall vision of this IMP is to jointly manage the water resources within the TPNRD to balance water uses and water supplies, while optimizing economic, social, and environmental benefits for the near and long term. To do this, TPNRD and NeDNR will protect existing users, local economy, environmental health, and recreational uses, to the extent possible. TPNRD and NeDNR will manage the total water supply to achieve sustainable supplies and potential growth, will distribute streamflow depletion mitigation responsibilities appropriately, will provide educational programs related to this IMP, will allow for water banking and transfers, and will explore new sources of water in the future.

- 6. FUNDING
- 7. SCIENCE AND METHODS
 - 7.1 Best Available Science, Methods, Data, and Tools to be Used in the First Increment
 - 7.2 Ongoing Increments (Best Available Science, Methods, Data, and Tools)
 - 7.3 Information Considered in Developing this IMP

8. FIRST INCREMENT ACCOMPLISHMENTS

- 8.1 Studies Conducted and Information Obtained in First Increment
- 8.2 Summary of Management Actions Taken in the First Increment
- 8.3 Assessment of First Increment (Robust Review)



Linear Trend and Interannual Variability of Modeled Impacts TPNRD to South Platte River

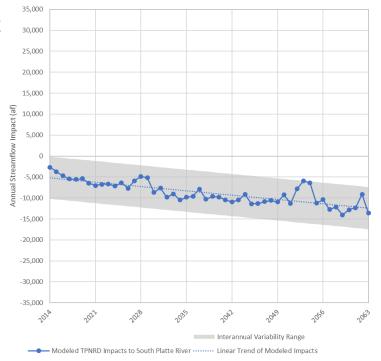
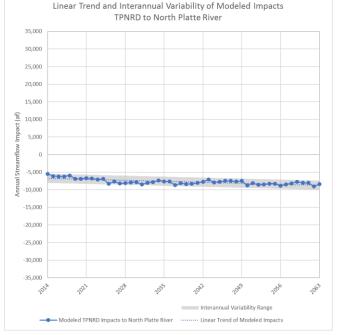




Figure 4

8. FIRST INCREMENT ACCOMPLISHMENTS (continued)

8.3 Assessment of First Increment (Robust Review)



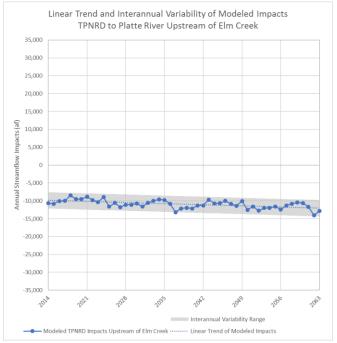


Figure 5

Figure 6

8. FIRST INCREMENT ACCOMPLISHMENTS

8.4 Assessme

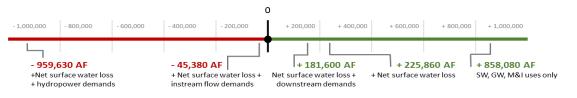


Figure 7

8.5 Basin-Wide Coordination in the First Increment

9. Goal 1: Reach and Maintain a Fully Appropriated Condition

1.1 Within this increment of this IMP, implement measures to address impacts of streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent upon recharge from streamflow to the extent those depletions are due to water use initiated after July 1, 1997.

	PNRD Short Term Mo	TPNRD Long Term Modeled Post-1997 Depletions (af)					
	South Platte River	North Platte River	Below Confluence				
2019	-5,900	-6,900	-10,100		South Platte River	North Platte River	Below Confluence
2020	-6,000	-7,000	-10,100		TRIVEI		
2021	-6,200	-7,000	-10,200	2059-2063	-12,100	-8,600	-12,000
2022	-6,300	-7,100	-10,200	average			
2023	-6,500	-7,100	-10,300				
2024	-6,600	-7,100	-10,300				
2025	-6,800	-7,200	-10,400				
2026	-6,900	-7,200	-10,400				
2027	-7,100	-7,300	-10,400				
2028	-7,200	-7,300	-10,500				
2029	-7,400	-7,300	-10,500				

- 9. Goal 1: Reach and Maintain a Fully Appropriated Condition
 - 1.2 Maintain previous increment mitigation progress.
 - 1.3 Make progress toward a fully appropriated condition.
 - 1.4 Review the implementation of this IMP to ensure that the IMP provisions are adequate to sustain progress toward and/or maintain a fully appropriated condition.
 - 1.5 Once a fully appropriated condition is achieved, maintain such condition through the implementation of the IMP.

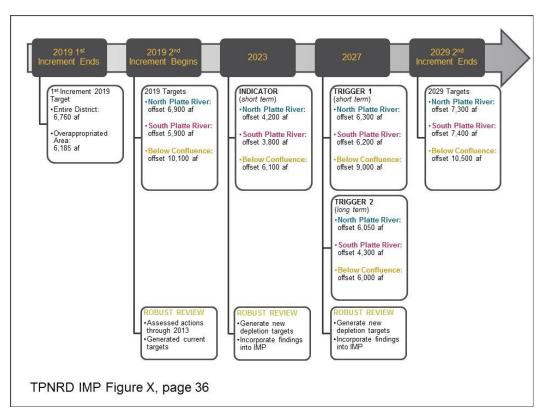
9. Goal 2: Interstate Compliance

- 2.1 Ensure that no act or omission of the TPNRD would cause noncompliance by Nebraska with the NNDP included within PRRIP, for as long as PRRIP exists.
- 2.2 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 NNDP.
- 2.3 Collectively, as defined in the NNDP, offset the new depletions caused by new uses within the Platte River Basin NRDs.
- 2.4 Ensure that for post-1997 new or expanded uses, including irrigation, municipal, industrial, rural domestic and other new water related activities are assessed and offset for compliance with the NNDP. This assessment will be part of the Robust Review, explained in chapter 9.10.

- 9. Goal 3: Consistency and Updates
 - 3.1 Amend this IMP as needed to remain consistent with the Basin-Wide Plan.
 - 3.2 Participate in Basin-Wide planning activities.
 - 3.3 Improve information sharing with interested parties.
 - 3.4 Conduct planning for subsequent increments of the plan, as necessary.
 - 3.5 If appropriate and necessary, follow the dispute resolution process in the Basin-Wide Plan.

10. ACTION ITEMS

- 10.1 Information and Education Programs
- 10.2 Incentive Programs
- 10.3 Water Banking
- 10.4 Conjunctive Management
- 10.5 Drought Plan
- 10.6 Controls for Current Increment10.6.1 Ground Water Regulatory Action Items10.6.2 Triggers



10. ACTION ITEMS (continued)

10.7 Monitoring

10.8 Studies to be Completed in the Current Increment

10.9 Review of and Modifications to the IMP

End of First Increment (Sept. 15, 2019)				End of Second Increment (Sept. 15, 202
Sept. 15, 2019		— — — Sept. 15, 2023 — — — — — — — — —	— — — Sept. 15, 2027 — — — — — —	— — — Sept. 15, 2029
MP Triggers for Further Controls Current Trigger 6,760 AF		IMP Triggers for Further Controls New Trigger 14 KAF	IMP Triggers for Further Controls Projected Trigger 22 KAF	IMP Triggers for Further Controls Projected Trigger 25 KAF
TPNRD needs to mitigate 6,760 AF of depletions N-CORPE (6,600 AF annually for second increment) Excess flow recharge, CREP, and Cody-Dillion transfer	Implement an additional 18- 19 KAF of mitigation in the 2nd increment 7,000 AF of mitigation in first three years of the IMP (Total of 14 KAF)	*Incorporate new robust review findings ↓ (post-1997 depletions) analyses into IMP+ → *Implement new triggers *Outline additional robust review refinements ↓	*Incorporate new robust review findings (post-1997 depletions) analyses- → → into IMP *Implement new triggers *Outline additional robust review refinements	*Incorporate new robust review findings (post-193 depietions) analyses into 3rd increment IMP *Implement new triggers *Outline additional robust review refinements
obust Review Findings		Updated Robust Review Findings	Updated Robust Review Findings	Updated Robust Review Findings
Post-1997 depletions increase 3-fold *Conservation practices study indicates potential for 10-20% reduction in pumping when converting to full minimum tillage *Land use changes may need to consider runoff impacts *Model coefficient zones may require further validation *Commingled pumping impacts will need to be analyzed *Land use updates will need to be incorporated (arces/arc		Generate new post-1997 depletion targets † I I	Generate new post-1997 depletion targets	Generate new post-1997 depletion targets

Attachment B - Presentations



NEXT STEPS

Draft Timeline

- > April 18, 2019 Public meeting for Basin-Wide Plan
- > May 9, 2019 TPNRD board vote on taking IMP to public hearing
- > July 16, 2019 Public hearing for Basin-Wide Plan and TPNRD IMP
- > August 8, 2019 TPNRD board vote on final approval of Basin-Wide Plan and IMP

Attachment B - Presentations



PUBLIC COMMENT

Thank you

Attachment C – Draft IMP

DRAFT INTEGRATED MANAGEMENT PLAN

Cooperatively Developed by the Twin Platte Natural Resources District and the Nebraska Department of Natural Resources







DEPT. OF NATURAL RESOURCES

301 Centennial Mall South Lincoln, NE 68509 402-471-2363 dnr.nebraska.gov

Attachment C – Draft IMP

DRAFT INTEGRATED MANAGEMENT PLAN Jointly Developed by the Twin Platte Natural Resources District and the Nebraska Department of Natural Resources

Table of Contents

1:	EFFECTIVE DATE	3		
2:	AUTHORITY	3		
3:	BACKGROUND			
4:	MAP AND MANAGEMENT AREA BOUNDARIES5			
5:	VISION			
6:	FUNDING			
7:	SCIENCE AND METHODS			
	7.1 Best Available Science, Methods, Data, and Tools Used in th	ne First		
	Increment			
	7.2 Ongoing Increments (Best Available Science, Methods, Data			
	Tools)			
	7.3 Information Considered in Developing this IMP			
8.0				
	8.1 Studies Conducted and Information Obtained in the First Inc			
	8.2 Summary of Management Actions in the First Increment			
	8.3 Assessment of First Increment (Robust Review)			
	8.4 Assessment of Fully Appropriated			
	8.5 Basin-Wide Coordination in the First Increment			
9.0				
	Goal 1 Reach and Maintain Fully Appropriated			
	Goal 2 Interstate Compliance			
	Goal 3 Consistency and Updates			
10.0	0.0: ACTION ITEMS	26		
	10.1 Information and Education Programs			
	10.2 Incentive Programs			
	10.3 Water Banking			
	10.4 Conjunctive Management			
	10.5 Drought Plan			
	10.6 Controls for Current Increment			
	10.7 Monitoring	41		
	10.8 Studies to be Completed in the Current Increment	49		
	10.9 REVIEW OF AND MODIFICATIONS TO THE IMP			

Page 1 of 54

Attachment C – Draft IMP

List of Figures

Figure 1. TPNRD fully appropriated area	5
Figure 2. TPNRD overappropriated area	6
Figure 3. Stream reaches for Robust Review analysis	16
Figure 4. Modeled TPNRD post-1997 impacts to the South Platte River	17
Figure 5. Modeled TPNRD post-1997 impacts to the North Platte River.	18
Figure 6. Modeled TPNRD post-1997 impacts to the Platte River upstream of Elm	
Creek.	19
Figure 7. Average balance of water supplies in the basin compared to various levels	of
demand	20
Figure 8Error! Bookmark not defi	ined.

List of Tables

Table 1. Corresponds to figures 4-7
Table 2. Long term post-1997 modeled depletions (2059-2063 average)24

List of Appendices

APPENDIX A –	Glossary of Terms
APPENDIX B –	Exchange Letters Between TPNRD and Department
APPENDIX C –	Stakeholder Advisory Committee Process, Members, and
	Meeting Dates
APPENDIX D -	Order of Final Determination of River Basins, Subbasins, or
	Reaches as Fully Appropriated, and Describing Hydrologically
	Connected Geographic Area
APPENDIX E –	Order Designating Overappropriated River Basins, Subbasins,
	or Reaches, and Describing Hydrologically Connected
	Geographic Area

Page 2 of 54

Attachment C – Draft IMP

DRAFT 2/19/2019

INTEGRATED MANAGEMENT PLAN Jointly Developed by the Twin Platte Natural Resources District and the Nebraska Department of Natural Resources

1: EFFECTIVE DATE

The second increment Integrated Management Plan (IMP) was adopted by the Twin Platte Natural Resources District (TPNRD) on August 8, 2019, and by the Nebraska Department of Natural Resources (Department) on August XX, 2019. The IMP became effective on September 3, 2019.

2: AUTHORITY

This IMP was prepared by the Board of Directors of the TPNRD and the Department in consultation and collaboration with the TPNRD Stakeholders Group in accordance with <u>Neb. Rev. Stat. §§ 46-715 through 46-720</u>.

3: BACKGROUND

In 1993, the Department (then the Department of Water Resources) imposed a moratorium on the issuance of new surface water appropriations in the Platte River Basin upstream of Columbus, Nebraska. An additional automatic stay on the issuance of new surface water appropriations and on the use of existing appropriations to increase irrigated acres took effect in accordance with <u>Neb.</u> *Rev. Stat.* § 46-714 on September 30, 2004.

Prior to the enactment of LB 962 in 2004, the TPNRD had realized the need to regulate the use of ground water. In December of 2003, the TPNRD requested the Department to conduct studies and to hold a hearing on the preparation of a joint action plan for the integrated management of hydrologically connected ground water and surface water within the District. On February 12, 2004, the TPNRD adopted Rules and Regulations for the "Temporary Suspension of Drilling New Wells" within a specifically defined portion of the District. That "Temporary Suspension," which took effect on July 1, 2004, applied to those lands within the then defined stream depletion factor line representing a cumulative depletion to stream baseflow of 28% of a hypothetical pumping volume in a 40-year period (the "28/40 area").

On July 16, 2004, when LB 962 took effect, and pursuant to *Neb. Rev. Stat.* § 46-720, the Department issued a notice of preliminary determination that the TPNRD was fully appropriated. That determination continued the stay on the drilling of new ground water wells in that part of the TPNRD previously subject to the "Temporary Suspension," and added a stay on new irrigated acres. On September 15, 2004, the director of the Department designated the Platte River Basin above the Kearney Canal diversion as "overappropriated," and identified the area in which the surface water and ground water are considered to be

Page 3 of 54

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Attachment C – Draft IMP

"hydrologically connected" for purposes of the overappropriated designation. That area coincided with the 28/40 area. As a result of that designation, additional land area within the TPNRD became subject to stays on new wells and stays on increases in irrigated acres.

On September 30, 2004, the director of the Department designated the entire TPNRD as "fully appropriated." As required by *Neb. Rev. Stat.* § 46-720 (3)(b), stays on new wells and stays on increases in irrigated acres were limited to that area within the District that was specifically designated as overappropriated.

In January 2006, the board of the TPNRD approved a Ground Water Management Area for the entire District, which approval became effective on February 24, 2006. The Ground Water Management Area imposed a stay on the issuance of high capacity water well construction permits for the entire TPNRD. On May 17, 2007, the board of the TPNRD adopted a district-wide stay on the use of an existing water well to increase the number of acres historically irrigated, which stay became effective on June 18, 2007.

On March 29, 2005, the TPNRD formed a TPNRD Stakeholders Group, which met monthly to assist in developing the first increment IMP.

The first increment IMP was adopted by the TPNRD on August 13, 2009, and by the Department on August 13, 2009. The first increment IMP became effective on September 15, 2009.

The first increment IMP was revised to allow for the addition of language that would allow an occupation tax to be assessed on all irrigated lands in the TPNRD. That revised first increment IMP was adopted on February 14, 2013, and became effective on March14, 2013.

With the end of the first increment nearing, the TPNRD formed a stakeholders Group to assist in the development of the second increment IMP. This stakeholders group was created using the same categories as the first increment IMP stakeholders and included a few of the stakeholders who participated in the first increment IMP. This group met five times from June 2018 thru February 2019 to assist in the development of the TPNRD second increment IMP.

Page 4 of 54

4: MAP AND MANAGEMENT AREA BOUNDARIES

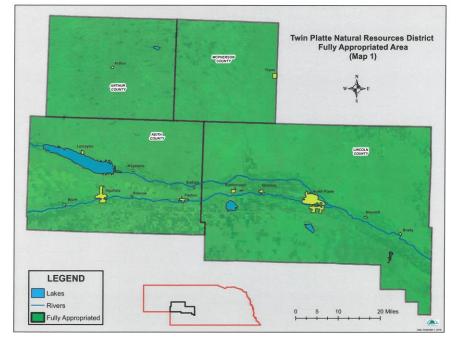


Figure 1. TPNRD fully appropriated area

Attachment C – Draft IMP

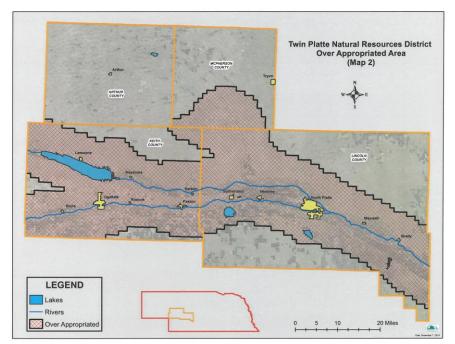


Figure 2. TPNRD overappropriated area

The area subject to this IMP is the entire geographic area of the TPNRD, including the area within the boundaries of the TPNRD determined to be fully appropriated (map 1) and the area designated as overappropriated (map 2). The stratigraphic boundaries subject to this IMP include all sediments from ground level downward through all aquifer units.

The goals, objectives, and action items described in this plan pertain to the entire District.

5: VISION

The overall vision of this IMP is to jointly manage the water resources within the TPNRD to balance water uses and water supplies, while optimizing economic, social, and environmental benefits for the near and long term. To do this, TPNRD and NeDNR will protect existing users, local economy, environmental health, and recreational uses, to the extent possible. TPNRD and NeDNR will manage the total water supply to achieve sustainable supplies and potential growth, will distribute streamflow depletion mitigation responsibilities appropriately, will provide educational programs related to this IMP, will allow for water banking and transfers, and will explore new sources of water in the future.

Page 6 of 54

6: FUNDING

NeDNR and TPNRD will 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. Funding sources may include federal, state, and local partners in addition to NeDNR and NRD contributions. The Platte Basin Coalition, described in more detail below, is another mechanism for funding projects and studies in the NRD/basin. Additionally, NRDs have various taxing authorities they may use to fund projects and studies, including the occupation tax provided in *Neb. Rev. Stat.* §2-3226.05, funds granted to the District by the State or Federal government, or the levy authority authorized by *Neb. Rev. Stat.* §2-3225.

Funding priorities identified in the action items include:

- Reductions in consumptive use
- Enhancement of water supplies
- Maintenance of existing projects and implementation of proposed projects to meet goals of this plan
- Data acquisition and maintenance, and model improvements for plan implementation

The ability of NeDNR and TPNRD to implement the goals, objectives, and action items for this IMP, including their ability to meet the implementation timeline and intermediate deadlines set forth herein, may be limited by the availability of resources, including (but not limited to) funding or staff resources.

If limited resources prohibit completion or initiation of a specific management action, or if they delay the ability of NeDNR or TPNRD to complete a task by an established deadline, such limitations and delays will be discussed by NeDNR and the NRDs. If such a delay results in the need for revisions to this Plan, the necessary revisions will be made following the procedures set forth in Chapter 9.9.

Funding for regulatory and non-regulatory activities described in this plan will derive from several sources. The Department receives funds appropriated by the Nebraska Legislature for water resources management and administration. The primary funding source for Natural Resources Districts is property taxes. Both entities also seek out and utilize grants from various federal, state, local and private entities. The Nebraska Environmental Trust has been a supporter of water management activities in the Platte Basin.

The TPNRD also intends to utilize qualified projects described in *Neb. Rev. Stat.* §2-3226.04 to provide river-flow enhancement to achieve the goals and objectives of the TPNRD and to achieve the goals and objectives of the State

Page 7 of 54

Attachment C – Draft IMP

under the Platte River Recovery Implementation Program (PRRIP) and the requirements of the Ground Water Management and Protection Act. The TPNRD may pay for such projects by issuing river-flow enhancement bonds, which would be repaid using one or more of the revenue sources (property tax levies or an occupation tax) authorized by *Neb. Rev. Stat.* 2-3226.01 et seq., funds granted to the TPNRD by the State or Federal government, or the levy authority authorized by *Neb. Rev. Stat.* §2-3225.

7: SCIENCE AND METHODS

NeDNR and the Central Platte NRD, North Platte NRD, South Platte NRD, Tri-Basin NRD and Twin Platte NRD (Upper Platte Basin NRDs) will utilize the best readily available science, data, and methods when implementing and reviewing the Upper Platte Basin second increment IMPs. This maintains consistency with state statute and the first increment processes and methodologies. Consistency in the science, data, and methods used to evaluate water management actions across the basin is paramount to provide a consistent basis for comparison of the effectiveness of various water management actions, regardless of location. Statutes and prudent scientific practices call for clear and transparent procedures to track depletions and accretions. The Department and Upper Platte Basin NRDs will jointly develop and agree to all of the data, science, and methods utilized for the implementation, review, and evaluation of this IMP. The methodologies may be revised upon review of any new information, data, and science by the Department and NRDs. The action items in Chapter 10 reference actions outlined within this Chapter that are instrumental to the implementation and review of the IMP. This Chapter briefly overviews the first increment data, science, and methods with a comparison of how these aspects pertain to the current increment of the Nebraska New Depletion Plan (NNDP)¹ within the PRRIP.

7.1 Best Available Science, Methods, Data, and Tools Used in the First Increment

The first increment and associated implementation of the NNDP utilized the Cooperative Hydrology Study (COHYST)² model as the best available tool to determine both groundwater depletions and set mitigation targets for each NRD. The analysis used to determine the targets for the first increment is described in the 2008 COHYST report³. This analysis set the basis for the procedures for the Upper Platte NRDs and NeDNR to perform consistent, ongoing analysis

¹The Nebrasaka New Depletion Plan can be accessed here: <u>https://dnr.nebraska.gov/water-planning/platte-river-recovery-implementation-program</u>

² More information on the COHYST model is available at <u>https://cohyst.nebraska.gov/</u>

³ Luckey, R. R. (2008). *Estimated Stream Baseflow Depletion by Natural Resources District in the Nebraska Platte Basin due to Gained and Lost Groundwater Irrigated Land after July 1, 1997* [referred to in this IMP as 2008 COHYST report]. Aurora, CO: High Plains Hydrology, LLC. Retrieved from <u>https://dnr.nebraska.gov/water-planning/upper-platte-river-publications</u>

Attachment C – Draft IMP

throughout the first increment. Consistency in evaluation is crucial in order to compare the results from the analysis used to determine targets with the results of the analysis to determine how particular management actions meet those targets.

The Upper Platte NRDs and the NeDNR developed an annual protocol to evaluate IMP progress⁴ toward the targets using analytical methods coupled with COHYST model data to assess annual changes in permit activity regarding changes in consumptive use and streamflow depletions. The annual protocol methods are consistent with the 2008 IMP targets to provide a valid comparison. The annual process was utilized each year and results of those analyses can be found on the NeDNR website⁵.

Evaluation of the initial COHYST model led to two major areas of scientific understanding. First, the massive expanse of the COHYST model area would be best modelled as two separate areas, the Western Water Use Management Modeling (WWUMM) area and the COHYST 2010 area, due to distinct and significant differences in geology, climate, land use, and water management that require a difference in the approach to modelling in the two areas. Second, splitting the COHYST model area required a reconstruction and recalibration of the groundwater models. This fundamental reorganization and rebuilding of the models means that neither model is currently consistent with the original 2008 COHYST report modeling analysis and results. Therefore, these models are not an appropriate tool to use as a direct comparison with the targets as described within the first increment IMP. Modifications to the original 2008 COHYST report analysis are necessary to redefine the targets for a true comparison.

7.1.1 COHYST 2010

The COHYST 2010 Model includes a portion of the Platte River Basin, extending westward from Chapman to the upstream end of Lake McConaughy. This model is used for the CPNRD, TPNRD, and TBNRD. The goal of COHYST 2010 is to support water management to maintain the region's extensive irrigation economy and protect river habitats used by endangered species. This goal is accomplished through reasonable and replicable model analysis to determine depletions and accretions that result from various water management actions.

The revised models improve the overall understanding of basin hydrology during implementation of the first increment plan. The first increment robust review utilized this updated understanding and science for all aspects of the

⁴ The protocol document, *Basin-wide Technical Committee Guidance Document – Procedures for Annual Accounting Review and Robust Review to Assist Integrated Management Planning and Facilitate Reporting to the Platte River Recovery Implementation Program*, can be found at <u>https://dnr.nebraska.gov/water-planning/other-upper-platte-river-documents</u>

⁵ Annual reports for the Upper Platte River Basin can be found at <u>https://dnr.nebraska.gov/water-planning/upper-platte-basin-wide-meetings-and-annual-reports</u>

analysis. Application of these tools and understanding 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. A description of the Robust Review can be found in Chapter 7 of this IMP.

7.2 Ongoing Increments (Best Available Science, Methods, Data, and Tools)

There are several basin-wide tenets regarding best available science, data, and methods that the NRD and the Department will follow while implementing this IMP:

- 1) Maintain, improve, or acquire data and modeling tools, such as the COHYST 2010 model, WWUM model, land-use, climate data, and other programs and projects needed to implement and assess the progress of this IMP.
- 2) Use the models or data and tools derived from the COHYST 2010 and WWUM models to analyze potential management actions, conduct an annual review of progress of the IMP, perform the next robust review, and carry out any relevant studies identified in this IMP or the BWP uniformly across the basin.
- 3) Maintain and expand model applications through collaboration of model user groups.
- 4) Substantial changes to the model, for example changes to the hydrologic properties or refinements of model grids, will be agreed to by the Department and NRDs before using those changes to evaluate the IMP and management actions.
- 5) All Basin-Wide Plan or IMP compliance-based analysis must utilize conceptually consistent methods such that stream depletion estimates or calculations performed in one area of the basin are comparable to stream depletion estimates or calculations in another area of the basin.
- 6) Any analysis that evaluates progress towards achieving IMP targets will be consistent with the original analysis or tools used to develop the targets. If necessary, new tools will be used to re-evaluate targets as well as progress toward those targets; in either case both the targets and the values estimating progress will be developed in a conceptually consistent manner so that they can be compared.
- 7) Continue to evaluate and refine stream depletion and accretion analysis methods by gathering and evaluating data for potential incorporation into these analyses upon agreement by NeDNR and NRDs. As new tools, information, and understanding is applied, it is anticipated that the values for depletions and accretions from the Robust Review (shown in Goal 1 in Chapter 9) may change.

Page 10 of 54

Attachment C – Draft IMP

- 8) As updates to data, models, analysis tools, or hydrologic understanding occur, NeDNR, and the NRDs will share these advances with the public. Methods, tools, and data used will be made available to the stakeholders and the public, as described in the basin wide plan. The process for incorporating new information and results into this plan document and/or supporting appendices will include a public hearing at the annual meeting.
- 9) The depletion and accretion estimates will be reviewed periodically using agreed upon modeling tools as the models, supporting data, information, and the understanding of the Basin's hydrology continue to evolve.

The term 'uniform' in this plan when referring to consistency in analysis is not intended to dictate that same methods be used throughout the basin, as differences in available data, water supply and uses, climate, etc. across the basin will require differences in the methodologies employed. Rather the term 'uniform' is intended to indicate that the methodologies must be scientificallybased and proven as conceptually consistent equivalents through either the scientific literature or independent evaluation of NeDNR and the NRDs.

7.3 Information Considered in Developing this IMP

Information used in the preparation of this IMP and to be used in the subsequent implementation of this IMP can be found in the list below. These materials can be obtained by contacting the TPNRD or the NeDNR.

- The Order of Final Determination of River Basins, Subbasins, or Reaches as Fully Appropriated, and Describing Hydrologically Connected Geographic Area in the Matter of the Portion of the Platte River Basin Upstream of the Loup River Confluence, the North Platte River Basin, and the South Platte River Basin within the South Platte Natural Resources District, the Twin Platte Natural Resources District, and the Twin Platte Natural Resources District (Appendix D)
- The Order Designating Overappropriated River Basins, Subbasins, or Reaches, and Describing Hydrologically Connected Geographic Area in the Matter of the Platte River Basin upstream of the Kearney Canal Diversion, the North Platte River Basin, and the South Platte River Basin (Appendix E)
- TPNRD's Ground Water Management Plan
- TPNRD's Ground Water Management Plan Rules and Regulations
- COHYST, COHYST 2010, and WWUM Models
- The TPNRD First Increment IMP
- The Upper Platte First Increment Basin-Wide Plan
- The Nebraska New Depletion Plan
- Applicable Nebraska Revised Statutes

Page 11 of 54

- Department of Natural Resources Rules for Groundwater, Title 456, Neb. Admin. Code;
- Department of Natural Resources Rules for Surface Water, Title 457, Neb. Admin. Code
- The Robust Review analysis
- The Upper Platte INSIGHT analysis
- The Upper Platte Second Increment Basin-Wide Plan
- Additional data on file with the TPNRD and the NeDNR.

8.0 FIRST INCREMENT ACCOOMPLISHMENTS

8.1 Studies Conducted and Information Obtained in the First Increment

The Upper Platte Basin NRDs and NeDNR conducted several studies in the first increment, which were specifically identified by the IMPs Large amounts of information and data were collected and used in these studies and other analyses. The purpose was to help evaluate the potential effectiveness of various strategies in achieving the goals and objectives of that IMP and to help gage progress during the first increment.

8.1.1 Assessing Available Water

A) Surface Water

A study of unappropriated surface water, its availability in time and location, was conducted during the first increment; see reports by HDR and The Flatwater Group, Inc. (2010⁶, 2013⁷). A list of existing surface water appropriations within the basin was compiled as part of the study of unappropriated surface water (HDR and The Flatwater Group, Inc. 2010). It was determined that there are times when unappropriated surface water is available in the basin for relocation or retiming projects. Specifically, the Department determined that between 1954 and 2008 there were excess flows available in some years. Most excess flow events occurred in May and June, and some events were in excess of 30,000 AF. A planning tool was developed to estimate amount, duration, and frequency of excess flow by reach.

⁶ HDR and The Flatwater Group, Inc. (2010). *Evaluation of Historic Platte River Streamflow in Excess of State Protected Flows and Target Flows*. Retrieved from <u>https://dnr.nebraska.gov/water-planning/upper-platte-</u> river-publications

river-publications ⁷ HDR and The Flatwater Group, Inc. (2013). Evaluation of Historic Platte River Streamflow in Excess of State Protected Flows and Target Flows, Technical Memorandum. Retrieved from <u>https://dnr.nebraska.gov/water-planning/upper-platte-river-publications</u>

B) Groundwater

To assist in assessing available groundwater the TPNRD certified all groundwater irrigated acres and other uses of groundwater. This database continues to be maintained in a GIS database of the certified acres which tracks transfers, retirements and other changes to certified acres.

8.1.2 Conservation Study Phases I and II

The Flatwater Group, Inc. completed Phase I of a conservation study in 2013 and provided the results in a Final Technical Memorandum⁸. The purpose of the Phase I study was to assess which conservation measures⁹ the Platte Basin Coalition should consider implementing and also to assess potential methods for developing basin-wide estimates of impacts to streamflow of the conservation measures in the fully and overappropriated areas of the basin.

Phase I provided a Matrix which assessed the assumed magnitude of impact to streamflow of varying intensity for each conservation measure, as well as the required resources and cost of each method. The Matrix also provided information on the effect to overland runoff, recharge, and net effect on evapotranspiration (ET) of each conservation measure of varying intensity. Conservation measures assessed included structural (e.g., terraces, dams, canals, etc.) and non-structural (e.g., tillage, irrigation management and efficiency, crop rotation, soil monitoring, buffers, etc.) measures.

Phase II, which is a technical assessment of impacts from changes in tillage practices and irrigation efficiencies, is in progress.

8.1.3 Conjunctive Management Study

In 2011, HDR and The Flatwater Group, Inc. published the Conjunctive Management Study¹⁰. The objectives of this study were to identify general elements, potential approaches, and constraints necessary in the planning and evaluation of conjunctive management projects, and to evaluate several hypothetical conjunctive management strategies involving the Western Canal to illustrate the application of these concepts.

Briefly, conjunctive management¹¹ involves managing surface and groundwater together to maximize storage, timing, and use of the resource.

⁸ The Flatwater Group, Inc. (2013). *Final Technical Memorandum of Conservation Study*. Retrieved from https://dnr.nebraska.gov/water-planning/upper-platte-river-publications ⁹ The Final Technical Memorandum defines conservation measures as "practices designed to control or "technical Memorandum" of the second sec

^a The Final Technical Memorandum defines conservation measures as "practices designed to control or prevent soil erosion, enhance the beneficial use of precipitation and irrigation water, or reduce non-beneficial water consumption."

 ¹⁰ HDR and The Flatwater Group, Inc. (2011). Conceptual Design of a Conjunctive Management Project. Retrieved from <u>https://dnr.nebraska.gov/water-planning/upper-platte-river-publications</u>

¹¹ The Conjunctive Management Study defines conjunctive management as "the coordinated and planned use and management of both surface water and groundwater resources to maximize the availability and reliability of water supplies in a region to meet various water needs."

Attachment C – Draft IMP

For successful conjunctive management projects, surface water and groundwater supplies and uses need to be identified. Projects generally include three components, 1) diversion of surface water, 2) recharge facilities, and 3) use of the water. Project impacts (e.g., water yield, water quality, economics, the environment, etc.) and alternatives must be considered, as well as legal constraints. A monitoring plan should also be developed to assess project performance. All of these components were then used in a case study to evaluate several hypothetical projects on the Western Canal, a 20-mile canal which diverts South Platte River flows downstream of the Julesburg gage through farmland toward Ogallala, NE.

8.1.4 Study of Sandpits and Small Reservoirs

As part of Nebraska's commitment to PRRIP, the Department has been charged with estimating the cumulative impacts of new or expanded, unregulated surface water activities. Therefore, in 2013, the Department conducted an inventory and analysis of sandpits and reservoirs with capacity below 15 acre-feet throughout Upper Platte River Basin¹². This analysis used multi-temporal aerial imagery from 2005 and 2010, and implemented remote sensing techniques to delineate and compare the number, size, and distribution of these water bodies. Baseline data generated from 2005 imagery were compared to 2010 imagery in order to identify changes in the overall surface areas of these unregulated water bodies within the basin. Once these new or expanded water bodies were identified, the Natural Resources Conservation Service (NRCS) Evapo-Transpiration (ET) calculator was used to estimate the resulting change in consumptive use due to ET.

The inventory component of the study was extremely labor intensive and required approximately 2,500 labor hours to identify, measure, and categorize over 13,000 remotely sensed features. After comparing data from both years, the study found 94 new or expanded sandpits and 9 new reservoirs. New and expanded sand pits represented a cumulative increase in open water surface area of 728 acres and new reservoirs were responsible for a cumulative increase of 19 acres for a total of 747 new acres of unregulated surface water throughout the basin from 2005 to 2010.

Once the change in open water acreage attributed to unregulated surface water was determined, the NRCS calculator was used to estimate the resulting change in consumptive use due to ET. The results of the NRCS analysis found a pronounced decrease in consumptive use due to ET during the growing season with a modest increase in consumptive use during the non-growing season. Additionally, the NRCS analysis identified a very slight increase in consumptive use due to new reservoirs, which was consistently

¹² Zoller, A. (2014). 2005 – 2010 Consumptive Use of Small Man-made Water Bodies in the Platte Surface Water Basin Above Columbus [PowerPoint Presentation]. Retrieved from <u>https://dnr.nebraska.gov/water-planning/upper-platte-river-publications</u>

Attachment C – Draft IMP

distributed across all months. Ultimately, the NRCS analysis estimated that the increase in unregulated surface water acreage from 2005 to 2010 resulted in a net decrease in consumptive use of 678 acre-feet per year throughout the basin. The results of this study were presented to the PRRIP's Water Advisory Committee on May 6, 2014.

8.2 Summary of Management Actions in the First Increment

The TPNRD and NeDNR conducted several conjunctive management projects in cooperation with Irrigation Districts. Excess streamflows were diverted into irrigation canals, pits, and reservoirs for intentional recharge to retime and augment baseflows.

The TPNRD worked with NRDs in the Republican Basin to develop the NCOPRE streamflow augmentation project.

The TPNRD assisted groundwater users in signing up for incentive programs.

The Department continued the formal moratorium on all new surface water appropriations for the North Platte River Basin including the South Platte NRD.

Additionally, the first increment IMP called for several administrative actions regarding groundwater. These actions were carried out by the TPNRD:

- 1) The Moratorium on new uses of groundwater was maintained with variances offered when a new use could supply an offset.
- 2) Rules on the transfer of groundwater have been implemented by the TPNRD to assist with retiming or relocation of groundwater uses to provide net accretions to the river at the necessary time and in the right location, the TPNRD rules and regulations encourage transfers that move certified irrigated acres away from near the river to a distance farther away from the river, which allows for the re-timing of depletions to the river.

8.3 Assessment of First Increment (Robust Review)

As required by statute, NeDNR and the Upper Platte Basin NRDs conducted a Robust Review of the progress being made toward achieving the goals, objectives, and targets of the first increment. The previous IMP outlined the process for the Robust Review in order to compare the results of that analysis with the 2008 COHYST report (Section 7.1). This Robust Review was an update of that study. The evaluation used data and information from the annual reports and updates developed in support of BWP and NNDP implementation.

This evaluation provides summarized estimates of the streamflow impacts resulting from gained and lost irrigated land, controls (allocations and transfers), expansion and contraction of municipal and industrial uses, managed recharge, stream augmentation, and permitted uses. The report is a synthesis of all of

Page 15 of 54

Attachment C – Draft IMP

these efforts and provides summarized updates of new targets that will be used to guide second increment planning goals and objectives.

The DOCUMENT TITLE (Robust Review Report) outlines the methods, limitations, and results of the most recent robust review and represents the best available science to support second increment planning. The general method for conducting the Robust Review can be found in Section 10.7.3.1.B. Figures AAA below illustrate the results for the TPNRD for the period of 2019-2029 (second increment). Positive values for stream flow impacts indicate accretions to and negative values indicate depletions. Figure BBB illustrates the geographic extent of the stream reaches that are impacted by actions within the NRD. The data in the figures correspond to these reaches.

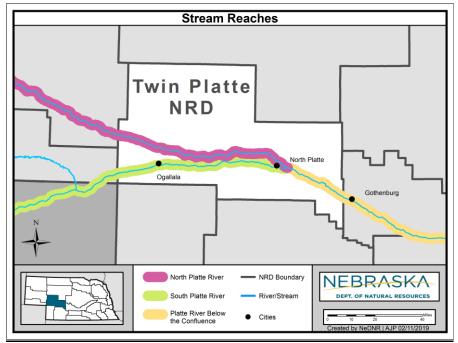
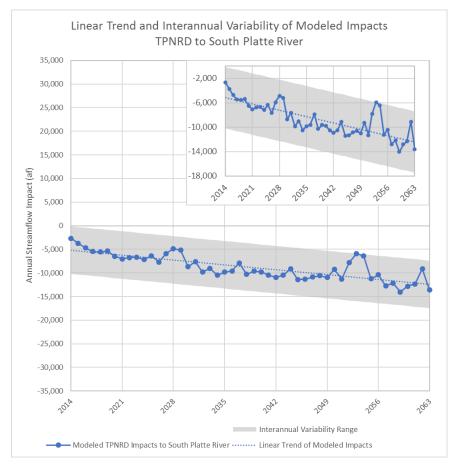


Figure 3. Stream reaches for Robust Review analysis.

Figure 4 displays the same modeled post-1997 impacts of TPNRD to the South Platte River (including groundwater only irrigation, municipal and industrial development, groundwater irrigated acres retirements, and recharge projects on Western Canal), with the addition of the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend. The inset in figure 4 is the same data at a smaller scale.

Page 16 of 54



*Figure 4.*Modeled TPNRD post-1997 impacts to the South Platte River, the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend.

Figure 5 displays the same modeled post-1997 impacts of TPNRD to the North Platte River (including groundwater-only irrigation, municipal and industrial development, groundwater irrigated acres retirements, and recharge projects on Keith Lincoln Canal, North Platte Canal, Paxton Hershey Canal, and Suburban canal), with the addition of the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend. The inset in figure 5 shows the same data at a smaller scale.

Page 17 of 54

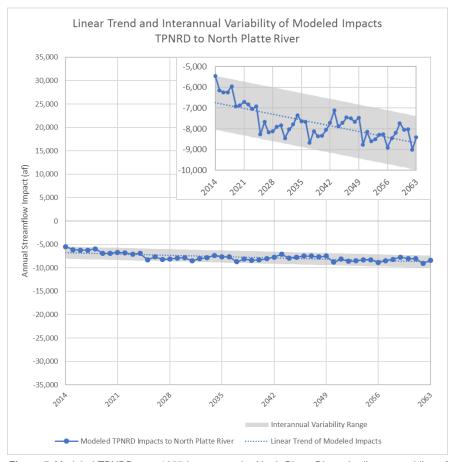


Figure 5. Modeled TPNRD post-1997 impacts to the North Platte River, the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend.

Figure 6 displays the same modeled post-1997 impacts of TPNRD to the Platte River upstream of Elm Creek (including groundwater only irrigation, municipal and industrial development, and groundwater irrigated acres retirements), with the addition of the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend. The inset in Figure 6 shows the same data at a smaller scale.

Page 18 of 54

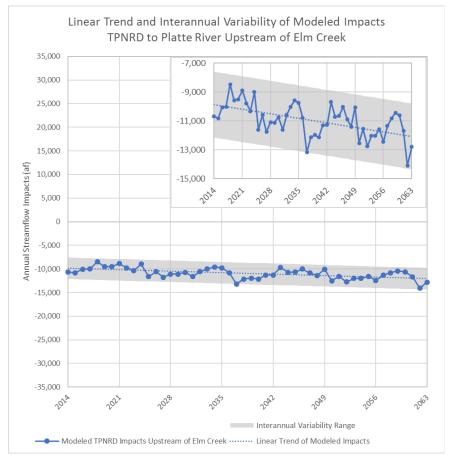


Figure 6. Modeled TPNRD post-1997 impacts to the Platte River upstream of Elm Creek, the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend.

The charts show the range of uncertainty around the trend line of the modeled data. Potential future offsets are impacted by the variability in climate, therefore a trendline is shown to smooth out the potential future effects of climate variability. Values are the result of the most recent robust review conducted by NeDNR. Details on the analysis are (in the Robust Review report).

It is recognized that while they were not analyzed during this robust review, several canal diversions for recharge occurred after 2013 in the first increment which would also provide accretions to the stream. Other projects, such as NCORPE and J2, were planned and pursued in the first increment, which counted as credit toward achieving the first increment IMP offsets even though they were not actually operated and no water was put into the stream as a result

Page 19 of 54

Attachment C – Draft IMP

of those projects. The NCORPE project will be available to the NRD in the second increment as a source of offset water. The NRD and NeDNR will also continue to purse conjunctive management projects to provide accretions to the stream.

8.4 Assessment of Fully Appropriated

There are several potential approaches to assessing the difference between the current level of development in the Upper Platte Basin and a fully appropriated condition. Identifying this difference is critical in making progress toward a fully appropriated condition in the basin.

8.4.1 Total Depletions

(Waiting on write-up)

8.4.2 INSIGHT

The INSIGHT methodology is an approach to assessing the balance between water supplies and water demands within a basin. INSIGHT consolidates data from several sources, including NeDNR, the United States Geological Survey, the United States Bureau of Reclamation, and local NRDs. That hydrologic data is used to conduct an analysis of the following items at the basin- and subbasin-level: 1) streamflow water supplies available for use, 2) the current amount of demand on these supplies, 3) the long-term demand on these water supplies due to current uses, 4) the projected long-term demand on these water supplies due to five percent growth in total use, and 5) the balance between these water supplies and demands.

If a basin's near-term demand and/or the long-term demand of hydrologically connected groundwater and surface water exceeds the basin water supplies, then supplies may not be sufficient to sustain the demands over the long term

The figure shows the average balance of water supplies in the basin compared to the various levels of demands. When all demands in the basin are considered, the demands outweigh the supplies by approximately 960,000 acre-feet. This means that there may be years when the supplies are not adequate to meet all the demands.

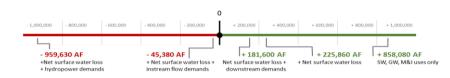


Figure 7. Shows the average balance of water supplies in the basin compared to the various levels of demand. When all demands in the basin are considered, the demand for water

Page 20 of 54

outweighs the supply by approximately 960,000 acre-feet. This means that there may be years when supplies are not adequate to meet demand.

8.5 Basin-Wide Coordination in the First Increment

The first increment IMP called for the development of a list of criteria to evaluate the potential to use available surface water and groundwater supplies as management projects to meet the goals and objectives of the IMP. In order to create a unified approach across the basin the Department and the NRDs established an interlocal cooperative agreement.

8.5.1 Interlocal Cooperative Agreement (Platte Basin Coalition)

The Platte Basin NRDs and the Department have established an interlocal cooperative agreement (ILCA), the Platte Basin Coalition (PBC or Coalition), which can provide funding for incentive programs aimed at reducing consumptive use within the overappropriated portion of the Platte River Basin.

8.5.1.1 Protocols

The NRDs and NeDNR have developed, through the Coalition, a protocol that will be followed to evaluate potential projects including the retirement of water uses and the implementation of other offset projects. This protocol will be used to evaluate potential projects to assess the appropriate amount of funding that will be allocated toward that project from the Coalition. Projects with a greater or quicker impact on the stream are given preference over those which do not have as much an impact. Project costs, benefits, permitting and regulatory constraints are also considered.

8.5.1.2 Funding

The ILCA is partially financed by the Water Resources Cash Fund. This fund receives monies from both the general fund and the Nebraska Environmental Trust (NET). Under statute, the WRCF may be used for the reduction of consumptive uses or the enhancement of streamflows or groundwater recharge. These funds may be used in overappropriated or fully appropriated areas for projects to study, develop, and implement management actions taken to reduce consumptive uses or water or to enhance streamflows or groundwater recharge. Funding of projects through the PBC is shared between the NRDs and the Department. Expenditures are approved by all members of the Coalition.

Additional sources of funding are sought by the Department and the NRDs, through federal program such as CREP. EQIP, etc. Other outside sources of funding will continue to be sought to increase the leveraging ability of the local dollars spent on projects.

8.5.1.3 Technical Work

Page 21 of 54

Attachment C – Draft IMP

The Five Upper Platte NRDs and NeDNR have a technical working group to address technical issues and statutory aspects of the BWP and IMPs. NRD managers and NeDNR will agree to technical analyses prior to beginning any work, and the PBC will approve any reimbursed expenditures for technical work.

The technical working group evaluates all aspects of analysis, including the conceptual design, data evaluation, analysis, and evaluation of the results. It is then the responsibility of the technical group to translate the results of any analyses to the administrators for either incorporation into this plan or evaluation towards meeting plan goals.

During this increment, the technical group will evaluate various aspects of data and models that may include the effects of conservation measures on depletion results, more efficient methods to track changes regarding irrigated lands, or areas where analyses may be simplified. The technical group will follow the basin-wide tenets outlined in Section 6.2 while carrying out any work necessary for the implementation of this IMP.

9.0 GOALS AND OBJECTIVES

The Department and the five Upper Platte Basin NRDs conducted a Robust Review as part of the actions required in the first increment. This Analysis provided each NRD with the information necessary to assess their progress in meeting the goals and objectives of their individual IMPs as well as the progress for the Upper Platte Basin. The outcome of the Robust Review showed that the TPNRD met their IMP targets as defined in the first increment. The Robust Review also indicated that the current increment is necessary to continue to meet the goals and objectives. The Robust Review results have provided IMP targets for this second increment.

Actions to support the successful implementation of the Goals and Objectives in this Chapter can be found in the Chapter 10: Actions.

Goal 1 Reach and Maintain Fully Appropriated

To incrementally achieve and sustain a fully appropriated condition while maintaining economic viability, social and environmental health, safety, and welfare of the basin.

Refer to figure x in section 8.3 for a map of stream reaches.

Objective 1.1: Within this increment of this IMP, implement measures to address impacts of streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent upon recharge from streamflow to the extent those depletions are due to water use initiated after July 1, 1997.

Page 22 of 54

Attachment C – Draft IMP

- A) Post-97 depletions must be offset in incremental pieces by the end of the second increment.
- B) A summary of offset actions taken during the first increment can be found in chapter 7.2 of this plan. Many successful programs and projects were implemented. These offset actions were analyzed as part of the Robust Review to determine their impacts on streamflows and meeting post-1997 targets.

The results of the Robust Review indicate that additional incremental management actions will be required by the TPNRD. Based on the current robust review results the TPNRD is projected to need to implement post-1997 mitigation measures of up to 25,000 acre-feet by 2029. However, based on preliminary results of the evaluation of post-1997 changes in conservation measures (DOCUMENT TITLE), it is expected that incorporation of data representing post-1997 tillage practice changes and other efficiency improvements will reduce the total post-1997 mitigation measures that will be required in the second increment. The inclusion of mitigation actions after 2013 will also change the results. In addition, to incorporating the impact of conservation measures into modeling updates other modeling limitations identified in the Robust Review Report will be evaluated and incorporated into updated post-1997 mitigation targets prior to September 2023. Therefore, the NeDNR and TPNRD have agreed to implement an incremental approach in addressing the necessary mitigation measures throughout the second increment as described in Chapter 9 (Figure X).

The first increment goal of implementing approximately 7,000 acre-feet of post-1997 mitigation measures will be increased to 11,500 – 12,000 acre-feet for implementation prior to September 2023. Additionally, to support efforts to address key model limitations prior to the next robust review update, the TPNRD will implement mandatory water use reporting requirements for all groundwater users in the district.

a. Short term (target annual values from 2020-2029)

Table 1 shows the trend in modeled depletions and accretions to the Platte River from the 2019 Robust Review analysis of groundwater only irrigation development after 1997, expansion of municipal and industrial uses after 1997, and management activities

through 2013 in TPNRD. The depletion amounts shown in table 1 are subject to change based upon the best scientific data and information available. The methods used to develop the post-1997 targets for the TPNRD are described in the Robust Review Document/Section 8.3. Figure 4 (in Section 8.3) depicts the Robust Review results for TPNRD upstream of Elm Creek Triggers for the implementation of regulatory controls based upon these targets can be found in the Action Items Chapter 10.

	South Platte River	North Platte River	Below Confluence
2019	-5,900	-6,900	-10,100
2020	-6,000	-7,000	-10,100
2021	-6,200	-7,000	-10,200
2022	-6,300	-7,100	-10,200
2023	-6,500	-7,100	-10,300
2024	-6,600	-7,100	-10,300
2025	-6,800	-7,200	-10,400
2026	-6,900	-7,200	-10,400
2027	-7,100	-7,300	-10,400
2028	-7,200	-7,300	-10,500
2029	-7,400	-7,300	-10,500

TPNRD Short Term Modeled Post-1997 Depletions (af)

Table 1. Corresponds to figures 4-7

b. Long term (taking permanent actions to ensure we are reaching the 50-year estimate of post-1997 depletions)

Long-term planning target - within the first ten (10) year increment to offset an average annual depletion rate shown in table 2. These are the 5-year average values for 2059-2063. This rate is the current best estimate and is subject to change based upon new data and information.

TPNRD Long Term Modeled Post-1997 Depletions (af)					
	South Platte River	North Platte River	Below Confluence		
2059-2063 average	-12,100	-8,600	-12,000		

Table 2. Long term post-1997 modeled depletions (2059-2063 average)

Attachment C – Draft IMP

- c. If post-97 depletions are offset before the end of this increment, that progress must be maintained throughout this increment. This falls under objective 1.2.
- **Objective 1.2:** Maintain previous increment mitigation progress.

Since TPNRD has not offset the post-97 depletions, the focus of this increment will be Objective 1.1.

It is recognized that some actions undertaken in the first increment are temporary projects, which may come to an end during the second increment.

- A) NeDNR and the NRD will keep policies, projects, and practices in place, as appropriate, that provide offsets or supply equivalent offsets so that the current level of depletions is not exceeded.
- B) If Post-97 are offset before the end of the this increment, that progress will be maintained. Any progress beyond offsetting post-97 will also be maintained
- **Objective1.3:** Make progress toward a fully appropriated condition. Impacts of streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent upon recharge from streamflow to the extent those depletions are due to water use initiated prior to July 1, 1997, may be addressed prior to a subsequent increment with the intent of achieving a fully appropriated condition.

During the first increment, two analysis were performed to estimate the balance of water supplies and demands within the Upper Platte Basin. This included an estimate of all groundwater depletions to streamflow (Total Depletions) and the INSIGHT analysis. Both are described in Chapter 8.

- Continue to evaluate total depletions
- Continue to evaluate water supplies and demands and
- Continue to develop an estimate for a fully appropriated condition
- **Objective 1.4:** Review the implementation of this IMP to ensure that the IMP provisions are adequate to sustain progress toward and/or maintain a fully appropriated condition.
- **Objective 1.5:** Once a fully appropriated condition is achieved, maintain such condition through the implementation of the IMP.

Page 25 of 54

Goal 2 Interstate Compliance

To ensure that no act or omission of the TPNRD would cause noncompliance by Nebraska with any interstate decree, compact, or other formal state contract or agreement.

- **Objective 2.1:** Ensure that no act or omission of the TPNRD would cause noncompliance by Nebraska with the NNDP included within PRRIP, for as long as PRRIP exists.
- **Objective 2.2:** 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 NNDP.
- **Objective 2.3:** Collectively, as defined in the NNDP, offset the new depletions caused by new uses within the Platte River Basin NRDs.
- **Objective 2.4:** Ensure that for post-1997 new or expanded uses, including irrigation, municipal, industrial, rural domestic and other new water related activities are assessed and offset for compliance with the NNDP. This assessment will be part of the robust review, explained in chapter 9.10 of this plan.

Goal 3 Consistency and Updates

Keep the IMP current, maintain consistency with the Basin-Wide Plan, and keep water users informed.

- **Objective 3.1:** Amend this IMP as needed to remain consistent with the Basin-Wide Plan.
- **Objective 3.2:** Participate in basin-wide planning activities
- **Objective 3.3:** Improve information sharing with interested parties.
- **Objective 3.4:** Conduct planning for subsequent increments of the plan, as necessary.
- **Objective 3.5:** If appropriate and necessary, follow the dispute resolution process in the Basin-Wide Plan.

10.0: ACTION ITEMS

Chapter 10 contains the action items that will be carried out to accomplish the goals and objectives of the IMP. These actions range from ongoing non-regulatory actions such as information and education efforts, to maintenance of current regulatory actions, and the potential for future increased controls if certain

Page 26 of 54

Attachment C – Draft IMP

triggers cannot be achieved through the other actions taken by the NRDs or DNR. As described within this Chapter, more details on the statutes or rules followed by the NRDs or DNR can be found at the offices of each respective agency. For purposes of transparency/simplicity, the full length of those documents are not repeated herein, so the reader is directed to each agency to read the full details on how any particular action item may be carried out.

10.1 Information and Education Programs

The TPNRD and the Department will provide educational materials to the public and/or carry out educational activities that may include, but not be limited to, the following:

- The fully appropriated determination;
- The overappropriated designation;
- The IMP;
- The Nebraska New Depletion Plan (NNDP);
- The Platte River Recovery Implementation Program (PRRIP);
- Hydrologically connected ground water and surface water;
- Invasive species management;
- Conversion of irrigated acres to dryland agriculture or wildlife habitat;
- Limited irrigation cropping systems;
- Soil residue and tillage management;
- Alternative crops;
- Water use measurement techniques;
- Eco-tourism, crop diversification, changes in land use, to support diversity in revenue streams of water users within the basin, as a means of maintaining economic viability;
- Educational programs to support the implementation of Incentive Programs; and
- Funding sources for programs that enhance water supply.

These educational materials and/or activities may include, but not be limited to, joint public meetings, pamphlets, and website information.

10.2 Incentive Programs

The Department and/or the TPNRD intend to establish, implement, and/or continue financial or other incentive programs to reduce consumptive use of water within the TPNRD to meet the goals and objectives of this IMP.

Page 27 of 54

Attachment C – Draft IMP

- Incentive programs include any program authorized by state law and/or federal programs such as the Conservation Reserve Enhancement Program (CREP) and the Environmental Quality Incentive Program (EQIP).
- 2) Other State or NRD Programs

The TPNRD and the Department may investigate opportunities to reduce the consumptive use of water in order to enhance water supply as well as other water supply improvement projects. The TPNRD and the Department may develop an incentive-based program if such an opportunity exists.

- a) All projects and programs will:
 - Use the best science readily available. This will follow the basin-wide tenets outlined in section 7.2. These will be consistently evaluated according to the protocol developed by the PBC. Benefits will be assessed using the agreed upon methods and tools.
 - ii) Enhance ground water quantity, ground water quality, and recognition of the value of return flows.
 - iii) Remain in compliance with any state or federal laws, contracts, interstate compacts, or decrees that govern the water use of the irrigation districts
- b) The general process will be:
 - For existing surface water appropriations, contact the appropriators to determine willingness to cooperate, lease and/or sell those appropriations. If willing, develop and execute contract(s) with appropriator(s).
 - (1) Working with irrigation districts, not just individual landowners served by the irrigation district, when potential projects affect the operation of the irrigation district.
 - (2) Retirement of surface water rights (permanent or temporary). Retired surface water rights are still viable rights under statute. While typically a surface water right which has not been used for more than five years may be cancelled due to nonuse, under *Neb. Rev. Stat.* § 46-229.04, if the appropriation is not being used because it is part of a acreage reserve program, or other state or federal program, there is sufficient cause for nonuse and the right is still valid. If the land is no longer under a program, this applies for up to 15 years as long as there are not more than 5 consecutive years of nonuse while the land is not under a program.
 - ii) For existing ground water uses, contact the landowner(s) to determine willingness to cooperate with the proposed project(s). If willing, develop and execute contract(s) with such landowner(s).
 - iii) Submit the required permit application(s).

Page 28 of 54

iv) Implement the approved projects.

3) Other identified potential programs

At this time, the specific other programs that have been identified are:

- a) Potential purchase or lease of surface water irrigation district appropriations in order to transfer those appropriations to intentional recharge appropriations
- b) Exploration of water supply opportunities on the South Platte River

10.3 Water Banking

- The TPNRD will establish a water bank. The TPNRD will purchase or otherwise acquire certified ground water irrigated acres or other ground water uses or surface water use appropriations. The TPNRD will hold the water in its water bank for the purposes of:
 - offsetting new or expanded consumptive uses;
 - saving water to meet statutory requirements or interstate agreement obligations;
 - saving water to meet future incremental targets toward achieving a fully appropriated condition; or
 - future sales to individuals as offsets for development of new consumptive uses of ground water within the TPNRD.
- 2) The TPNRD and the Department will follow the basic tenants from Chapter 6 Section 2 while implementing the water bank.
- 3) The TPNRD will contact the Department prior to purchasing or acquiring surface water appropriations for deposit in the water bank. The Department will conduct a field investigation of the surface water appropriation and notify the TPNRD of the results of that investigation within 90 days. The TPNRD will work collaboratively with the Department in performing the analysis to evaluate the bankable volume of water resulting from the retirement of the surface water appropriation. The TPNRD will follow the appropriate statutes and rules and regulations of the Department for approval if the surface water appropriation is to be transferred to another use.
- 4) The TPNRD will obtain and maintain permanent easements, lease agreements or other agreements on all property from which surface water or ground water uses have been retired for purposes of the water bank.
- The TPNRD shall annually report all water banking deposits, withdrawals, and other activities according to the specifications described in Section I.A.1 of Chapter 7 of this IMP.
- 6) When carrying out any water banking activity, the TPNRD shall follow the procedures for any ground water regulatory action (e.g. transfers, certification,

Page 29 of 54

Attachment C – Draft IMP

or municipal and non-municipal industrial accounting) applicable to such activity. When carrying out any surface water related water banking activity, the TPRND shall follow the appropriate state statute and Department rules and regulations.

10.4 Conjunctive Management

Conjunctive management generally means to manage surface water and groundwater as one to make the most of the supply. Conjunctive management projects¹³ allow for the optimum use of hydrologically connected surface water and ground water supplies, so that the variability seen in surface water supplies can be smoothed out over time, allowing water users to wisely store water during periods of surplus and, in a managed fashion, withdraw that stored water in times of shortage, overall increasing the available supply through time. Conjunctive management projects can also create benefits such as, mitigating groundwater level declines and offsetting depletions. The Department and the NRD will identify conjunctive management opportunities and implement such projects with the purpose of meeting the goals and objectives of this IMP.

Conjunctive Management may include, but is not limited to, the following: (1) transfer existing surface water appropriations or apply for new appropriations for groundwater recharge or intentional recharge, and recovery when appropriate, in existing canals during the irrigation or non-irrigation season; temporary permits can be issued for the diversion of flows in excess of existing appropriations, which would occur outside of the irrigation season; (2) develop new infrastructure (e.g. dams or canals) that may include groundwater recharge or intentional recharge projects, and recovery when appropriate; (3) temporarily transfer existing surface water appropriations, or an instream use¹⁴; (4) develop other ground water projects for the purpose of providing net accretions to the river; (5) facilitate contractual agreements between water users and (6) reduce consumptive use by permanently or temporarily retiring irrigated land.

The NRDs and NeDNR will develop mutually agreed upon procedures for conducting conjunctive management projects. This will include procedures for determining when and where projects can be carried out (for example determining and communicating when and where excess flows are available),

¹³ See Chapter 7.1.3 Conjunctive Management Study for more information and a definition of "conjunctive management."

¹⁴ *Neb. Rev. Stat.* § 46-290(5) states that "For any transfer or change approved [to augment flow in a specific stream reach for any instream use,] the Department shall be provided with a report at least every five years [...] to indicate whether the beneficial instream use for which the flow is maintained or augmented continues to exist". Title 457 of the Department Rules for Surface Water Chapter 9 Section 002.01 states "For purposes of 46-290(5) R.R.S. 1943, as amended, beneficial use for instream uses shall include a. Water Quality Maintenance b. Water necessary for compliance with compacts, decrees or other state contracts."

Attachment C – Draft IMP

procedures for carrying out projects (permitting, contracting, and payment procedures), tracking projects and maintaining data records, sharing data, cooperating with other entities wishing to utilize excess flows, and methods for determining benefits from projects (annually for IMP/BWP/PRRIP reporting and for Robust Review purposes). Techniques which can be actively managed and returned to the stream do have benefits over those that are passive (timing and volume of return is uncontrolled, unmanaged, unknown).

The ability to capture and use excess flows is dependent on advanced notice of the availability of excess flows. NeDNR will develop a protocol for assessing, predicting, and communicating 1) the potential of excess flows to basin water users, and 2) notice of actual availability of excess flows. The TPNRD and NeDNR will work collaboratively to record the excess flows diverted, the excess flows diverted into recharge sites, and the amount of water returning to the river at canal return flow structures. Additionally, TPNRD and NeDNR will collaboratively review and analyze the data from the excess flow diversions to determine the amount of recharge that occurred during the event within the canal and recharge pits. Data on canal recharge and conjunctive management projects will be shared as part of the annual reporting process, described in 10.7.2. The recharge will be analyzed in future Robust Review or other analyses.

In order to optimize the implementation of various conjunctive management projects where diversions of excess streamflow will occur, operational plans for each project should be developed. These operational plans should include enhanced monitoring and flow of information and data to effectively manage and utilize any available water. These operational plans will provide the Department with objective criteria by which various projects may be prioritized in order to most effectively utilize available excess flows. The public interest will be best served when the most effective projects are selected for diversion during excess flow periods. In addition, such plans and operational attributes will be useful in establishing good cause and passing public interest tests when petitions and applications are filed with the Department.

10.5 Drought Plan

The basin drought contingency plan will serve as a guide for plans developed by each individual NRD. District-level mitigation measures and response actions corresponding to the drought conditions will be identified and implemented at the individual NRD level. Elements of the NRD plan include:

- Vulnerabilities
- Monitoring protocols (basin plan)
- Triggers (individual NRD plans)
- Mitigation actions (individual NRD plans potentially basin-wide activities)
- Response actions (individual NRD plans potentially basin-wide activities)

Page 31 of 54

Attachment C – Draft IMP

• Plan administration (individual NRD plans and basin plan)

The basin-wide drought plan is to be completed within the first three to five years of the increment. It is anticipated that the NRD drought plan would be completed after the basin-wide drought plan, as the basin-wide drought plan is to provide guidance on the NRD drought plan.

10.6 Controls for Current Increment

10.6.1 Groundwater Regulatory Actions (Controls)

The TPNRD will periodically review the controls being implemented to carry out the goals and objectives of this IMP. The TPNRD may adjust, modify, expand, or add controls, based on the annual review of the progress being made toward achieving the goals of this IMP, and pursuant to 46-715(5)(d)(ii). No controls may be removed, however, unless and until the TPNRD and the Department amend this IMP. The controls may not be modified in such a manner as to conflict with the goals and objectives of this IMP.

The TPNRD will consider the timing, location and amount of the depletion for all actions in order to prevent adverse impacts on existing ground water and surface water users. Actions include, but are not limited to, these controls: moratorium variances, certified acre modifications, transfers, large user permits, municipal and industrial permits, and other variances. The evaluation criteria for a control or other action include, but are not limited to, the following:

- Impact to existing ground water or surface water users;
- Increase in depletions to the river;
- Increase in consumptive use;
- The amount, location and timing of any changes in depletions or accretions to the river;
- Any adverse effects on the state's ability to comply with PRRIP;
- Consistency with the purpose of the IMP; and
- Protection of the public interest and public welfare.

The Department and the TPNRD will coordinate with the Central Platte NRD, Tri-Basin NRD, South Platte NRD and North Platte NRD to continue applying a consistent method of calculating depletions or accretions to the stream, following the basin-wide tenets outlined in Chapter 6 Section 2, when such calculations are necessary to implement ground water regulatory actions. Any actions taken by the TPNRD will be documented and shared with the Department pursuant to Subsection I.1.b of Chapter 7. The TPNRD will work with the well owner to update the water well registration to reflect the permitted actions to reflect the new or additional use.

Page 32 of 54

The TPNRD is currently implementing the following controls throughout their District, as authorized by <u>Neb. Rev. Stat.</u> § 46-739, and will continue to do so in the future. The specifics of the all of the processes for all of these controls, including the evaluation criteria, can be found in the TPNRD's Ground Water Management Area Rules and Regulations.

A) Moratorium

The TPNRD has implemented a moratorium on the issuance of water well construction permits and on new or expanded ground water uses. The TPNRD may grant a variance from the moratorium if there is an offset for any new or expanded use, or if there will be no increase in consumptive use due to the new or expanded use.

B) Certification of Irrigation Uses

All ground water irrigation uses have been certified by the TPNRD. The TPNRD may grant modifications to certified acres.

C) Large User Permits

A Large User Permit will be required for a public water supplier, with the exception of municipalities, who desires to modify or expand their consumptive use of water.

D) Variances

The TPNRD may grant a variance for good cause shown for any of the controls in this IMP or within the NRDs rules and regulation.

E) Mandatory Education

The TPNRD already has an existing water quality education requirement. In addition, the TPNRD will also implement a water quantity education requirement with the intent of informing producers on current best methods of reducing consumptive use of crops and increasing water use efficiency.

F) Mandatory Data Collection

The TPNRD will implement and require a water use data collection program, the intent of which is for the Robust Review analysis. The TPNRD will put the water use data collection program into place as soon as possible in order to incorporate data into the analyses in a timely fashion.

G) Transfers

The purpose of a ground water transfer is to allow for the consumptive use of ground water to be changed either in location or purpose. A transfer permit from the TPNRD shall be required before any transfer as identified in (1) through (7) below may be allowed. The TPNRD may permit, regulate, or take action on the following types of ground water transfers:

Page 33 of 54

- 1. physical transfer of ground water off of the overlying land;
- 2. transfer of the type of use or addition of use;
- 3. transfer of certified irrigated acres;
- 4. physical transfer of ground water and transfer of certified irrigated acres between the TPNRD and an adjoining NRD;
- 5. municipal transfer permit (if the applicant does not have a municipal transfer permit from the Department);
- 6. industrial transfer permit (if the applicant does not have an industrial municipal transfer permit from the Department); and
- 7. transfers out of state.

The following types of ground water transfers involve coordination communication between the Department and the TPNRD when issuing a permit.

- Municipal Transfer Permits Transfers without a municipal and rural domestic transfer permit from the Department will require a transfer permit from the TPNRD;
- ii. Industrial Transfer Permits Transfers without an industrial transfer permit from the Department will require a transfer permit from the TPNRD;
- iii. Transfer Out of State The Department will consult with the TPNRD when considering applications filed to transfer ground water out of state, pursuant to <u>Neb. Rev. Stat.</u> § 46-613.01. The District will take action to approve or deny the transfer request based on the same criteria that the Department uses prior to issuing a transfer permit; and (2) a water well construction permit shall not be issued unless and until the board of the TPNRD has granted a variance to the moratorium on the issuance of water well construction permits and has approved the transfer permit.
- H) Municipal and Industrial Accounting Required for the Calculations of Baselines and the Determination of Allocations

As described within Goal 2, objective D of this plan, for purposes of compliance with the NNDP the TPNRD will be responsible for offsetting all increases in consumptive use that result in streamflow depletions due to changes in municipal and industrial consumptive use after 1997, unless some portion of the increase is greater than an allocation of the municipality or industry that was set in accordance with *Nebraska Revised Statute* § 46-740, then the NRD may require the municipality or industry to provide offsets for that portion.

Page 34 of 54

Attachment C – Draft IMP

The TPNRD Rules and Regulations provide the necessary guidance on Municipal and Industrial Accounting. There are specifically designated sections for municipal use and industrial use prior to January 1, 2026 and how to handle those offsets after January 1, 2026.

10.6.2 Triggers

In order to determine whether additional ground water regulatory actions are needed to meet the streamflow targets for the North Platte, South Platte, and Platte River below the confluence, the annual stream depletion amounts shown in table 1 under Goal 1 Objective 1 will be compared to the stream accretions resulting from the actions taken by the TPNRD and any new depletions resulting from new uses and increased depletions resulting from existing uses. The values within the table are determined from the trendline of the model results. As long as the annual net sum of the accretions resulting from the actions taken by the TPNRD and the annual depletions (shown in table 2) are greater than or equal to zero, regulatory actions will not be required (assumes accretions are a positive number and depletions are negative). Based on the information shown in table 1, the stream accretions from existing management actions, projects, or programs analyzed in the current Robust Review have not been great enough to obtain a net sum of accretions and depletions of less than or equal to zero in the next increment. Therefore, further action must be taken to offset the currently identified post-1997 depletions.

The Department and the TPNRD recognize the potential for the implementation of voluntary programs, incentive measures, or other projects to provide stream accretions that will help bring the post-1997 depletions and accretions to a net sum of greater than or equal to zero in the next increment, and will work diligently to implement measures to provide stream accretions in a timely manner. The Department and the TPNRD also recognize that the current Robust Review results have limitations which will be addressed throughout the plan increment and that as Robust Review results are updated to address those limitations that the target values described within the plan sections below may need to be updated. Regular progress toward meeting the goal of a net sum of accretions and depletions of greater than or equal to zero must be demonstrated. Annual progress will be measured using a checkbook accounting of new accretions and depletions as compared to the values in the table X. Regular progress will be determined by the following indicator and triggers.

A) To determine if progress toward a net sum of accretions and depletions to the river equal to or exceeding zero has been achieved and to determine progress meeting the goals and objectives of this IMP, the Department and the District will jointly perform a new Robust

Page 35 of 54

Attachment C – Draft IMP

Review analysis in 2023 and 2027 to evaluate the overall affects to streamflow. The New Robust Review analyses may change the values found in table 1 under Goal 1 Objective 1 and therefore may change the target values the indicator and triggers.

- Indicator: If, by the end of 2023, an accretion to the river equal to or exceeding 4,200 acre-feet to the North Platte River, 3,800 acre-feet to the South Platte River, and 6,100 acre-feet to the Platte River below the confluence annually and every year thereafter throughout the first ten (10) year increment has not been met, the Department and the TPNRD will jointly determine what steps need to be taken to ensure that the agreed upon regulatory actions will be in place by the beginning of the 2025 irrigation season.
 - i. If the indicator has not been met by the end of 2023, but programs and/or projects that have been or will be implemented for the purpose of meeting this indicator will provide sufficient accretions to the river annually and every year thereafter throughout the current ten (10) year increment by the end of 2024, the Department and the TPNRD will jointly determine that steps to implement regulatory actions will not be required
- 2. Trigger 1: If, by the end of 2027, an accretion to the river equal to or exceeding the annual values resulting from the most recent robust review that year every year thereafter throughout the current ten (10) year increment has not been met, the Department and the TPNRD will jointly determine what steps need to be taken to ensure that the agreed upon regulatory actions will be in place by the beginning of the 2028 irrigation season.
- 3. Trigger 2: By the end of 2027, measures will be in place to achieve an accretion to the river equal to or exceeding an annual rate of seventy percent (70%) of the required for the 50-year long-term planning target as determined by the most recent Robust Review. If this trigger has not been met, the Department and the TPNRD will jointly determine what steps need to be taken to ensure that the agreed upon regulatory actions will be in place by the beginning of the 2028 irrigation season.

Chapter 10.7 describes how progress toward achieving the indicator and triggers will be measured.

10.6.2.1 Groundwater Controls in Response to Triggers

At this time, the Department and the TPNRD have identified the following ground water controls as potential regulatory actions that may be implemented in response to triggers:

Prior to implementation of any of the ground water controls listed below, the TPNRD and the Department will agree to the method of

Page 36 of 54

implementation and the methods used to measure the success of the control(s) in reaching the goals and objectives of Chapter 9 of this IMP.

In order to reach these goals and objectives, a limit on the amount of consumptive use on certified irrigated acres within the boundaries of the NRD may be implemented. The methods by which a limit on the amount of consumptive use would be implemented include, but are not limited to, the following:

A) Alternative Crop Mixes Neb. Rev. Stat. § 46-739(b)

Alternative crop mix would mean planting a mix of crops over a specified period of years for the certified irrigated acres within the overappropriated area for which there would be an upper limit on the consumptive use allowed. The amount of consumptive use allowed would be determined by the TPRND after consultation with the Department.

B) Reduction of Certified Irrigated Acres

A reduction of certified irrigated acres would mean a set percentage reduction in certified irrigated acres within the overappropriated area. The amount of the reduction would be determined by the TPRND after consultation with the Department.

C) Allocation

An allocation would mean a uniform allotment of the withdrawal of ground water to be applied to certified irrigated acres during a specified period within the overappropriated area. The amount of the allocation would be determined by the TPNRD after consultation with the Department.

10.6.3 Surface Water Regulatory Actions

10.6.3.1 Summary of Surface Water Conrtrols

The following surface water controls as authorized by Neb. Rev. Stat. § 46-716 will be implemented and/or continued by the Department:

- A) The Department will continue the moratorium on new surface water appropriations in the portion of the Platte River Basin within the boundaries of the TPNRD, unless a variance is granted by the Department according to its rules.
- B) Transfers of surface water appropriations will be in accordance with statutes and Department rules.
- C) The Department shall continue to administer surface water appropriations according to the provisions of the permit, statute, Department rules and regulations, and any applicable interstate compact decree or agreement.

Page 37 of 54

- D) The Department shall continue to monitor the use of surface water to prevent unauthorized uses.
- E) For conjunctive management projects as described in Chapter 10 Section 4, the Department may, via the permit approval process, require additional monitoring, measurements, and reporting of diversions, returns, seepage, and/or evaporation.
- F) Except as provided in (1) below, the Department will not require surface water appropriators to apply or use conservation measures.
 - If, at some point in the future, the Department requires surface water appropriators to apply or use conservation measures, in accordance with <u>Neb. Rev. Stat.</u> § 46-716(2), the surface water appropriators will be allowed a reasonable amount of time, not to exceed one hundred eighty (180) days unless extended by the Department, to identify conservation measures to be applied or used and to develop a schedule for such application and use.
- G) Except as provided in (1) and (2) below, the Department will not require any other reasonable restrictions on surface water use.
 - 1. If, at some point in the future, the Department requires other reasonable restrictions on surface water use, such restrictions must be consistent with the intent of *Neb. Rev. Stat.* § 46-715 and the requirements of *Neb. Rev. Stat.* § 46-231.
 - 2. If, at some point in the future, the Department requires other reasonable restrictions on surface water use, in accordance with Neb. Rev. Stat. § 46-716(2), the surface water appropriators will be allowed a reasonable amount of time, not to exceed one hundred eighty (180) days unless extended by the Department, to comment on the proposed restrictions.

10.6.3.2 Summary of Variance, Application, and Transfer Process Considerations

The goals and objectives of this plan must be considered when vetting petitions and applications for diversion of excess flows for plan purposes. In addition to showing good cause in support of the goals and objectives, the effectiveness of each project must be considered. Operational plans that show effective use of water along with measuring and monitoring will be required for such applications. In assessing the public interest and whether a project should receive an appropriation, the Department must consider reasonable conditions that may be imposed upon prospective appropriations to ensure that the best use is made of available water. The public interest will be best served when the most effective projects are selected for diversion during excess flow periods. Administering appropriations that are issued for the purpose of achieving these goals and objectives will require more scrutiny than assessing when the

application was filed. Ranking projects according to performance and benefits will be required.

- A) Variance Process for new surface water appropriations
 - 1. Department Rules for Surface Water, Title 457, Neb. Admin. Code, Chapter 23, provides a process in which a person may request permission to file an application for a new surface water right in a moratorium area.
 - 2. Prior to filing an application in a moratorium area, a person must first petition the Department for leave (request permission) to file an application in a moratorium area. These petitions are called a "variance," or a "variance petition."
 - 3. Because the Platte River Basin is currently undergoing integrated management for the purposes of reducing depletions to streamflow, any new consumptive use must be examined for its potential effects on extant surface and groundwater users and upon all matters of significant public interest and concern. This includes assessing both positive and negative impacts on the State's ability to comply with interstate agreements, programs, decrees and compacts, including PRRIP. Thus, any proposed project must be scrutinized to prevent conflict with (a) the goals and actions necessary to implement the IMPs adopted by the Platte River Basin NRDs and the Department and (b) the water needs of Water Action Plan projects that will be implemented under PRRIP. Applications for potential beneficial uses that are not clearly non consumptive will be presumed to be at least partially consumptive.
 - 4. Therefore, an analysis of the effects of a proposed new diversion on existing uses and responsibilities is required in order to determine whether sufficient good cause exists to grant a variance to apply for a new use.
 - 5. Within the process for granting a variance the Department shall review the information provided with the petition and shall make a determination as to whether it is sufficient to indicate good cause for allowing further consideration of the application.¹⁵
 - i. Nebraska Revised Statute § 46-706 (23) defines "good cause shown" as, "a reasonable justification for granting a variance for a consumptive use of water that would otherwise be prohibited by rule or regulation and which the granting agency, district, or organization reasonably and in good faith believes will provide an economic, environmental, social, or public health and safety benefit that is equal to or greater than the benefit resulting from the rule or regulation from which a variance is sought;"

Page 39 of 54

¹⁵ NAC Title 457, Chapter 23

Attachment C – Draft IMP

(a) If the Department grants the variance petition, the petitioner may then file the application for the project. The decision to grant the petition shall not bind the Director to approve any application to which it relates, or in any way be used as evidence of prejudice for the Director's future decisions concerning the specific approval requirements of such an application. The Department's review of the application for a new surface water right is subject to all relevant statutes.

B) Application Review Process

 The Department's application review process is driven by Nebraska statutes, including but not limited to *Neb. Rev. Stat.* § 46-235(1) which stipulates "if there is unappropriated water in the source of supply named in the application, if such application and appropriation when perfected are not otherwise detrimental to the public welfare, and if denial of the application is not demanded by the public interest, the department shall approve the application..."

C) Transfer Review Process

- Pursuant to Neb. Rev. Stat. § 46-294, the Director shall review an application for a transfer proposing a change in the location of use; type of appropriation; and or purpose of use, including but not limited to the following:
 - i. The proposed use of water after the transfer or change will be a beneficial use of water;
 - ii. A request to transfer the location of use is within the same river basin;
 - iii. The change will not diminish the supply of water available or otherwise adversely affect any other water appropriator;
 - iv. The quantity of water that is transferred for diversion or other use at the new location will not exceed the historic consumptive use;
 - v. The appropriation is not subject to termination or cancellation;
 - vi. If the transfer is to be permanent the preference category may not change;
 - vii. If the transfer is to be temporary, it will be for no less than one year;
 - viii. The transfer or change will not be inconsistent with any applicable state or federal law and will not jeopardize the state's compliance with any applicable interstate water compact or decree or cause difficulty in fulfilling the provisions of any other formal state contract or agreement.

Page 40 of 54

- ix. The transfer will be in the public interest.
 - (a) Consistent with Neb. Rev. Stat. § 46-294 (1)(I), the director's considerations relative to the public interest shall include, but not be limited to, (1) the economic, social, and environmental impacts of the proposed transfer or change and (2) whether and under what conditions other sources of water are available for the uses to be made of the appropriation after the proposed transfer or change.
 - (b) Transfers subject to Department Rules for Surface Water, Title 457, Neb. Admin. Code, Chapter 9, § 002, are required to be determined to be in the public interest, "... the Director shall determine whether the benefits of the proposed transfer outweigh any adverse impacts that might occur giving consideration to the economic, social and environmental impacts and whether and under what conditions other sources of water are available for the uses to be made of the appropriation after the proposed transfer or change

10.7 Monitoring

The overarching purpose of the monitoring and studies section is to ensure that the TPNRD reach and/or maintain a fully appropriated condition. The objective of the monitoring and studies section of this IMP is to gather and evaluate data, information, and methodologies to increase understanding of the surface water and hydrologically connected ground water system; to test the validity of the conclusions and information upon which this IMP is based; and to assist decision makers in properly managing the water resources within the TPNRD. The described monitoring and studies actions are also important in ensuring the state remains in compliance with the NNDP and in keeping the IMP current.

Various methods will be employed to monitor the implementation and progress of this IMP. Sections 10.7.1 and 10.7.2 describe the tracking and reporting of water use activities within the District by the TPNRD and the Department. Section 10.7.3 describes the analyses that will evaluate the progress that has been made toward: addressing streamflow depletions due to new uses begun subsequent to July 1, 1997 (Section 10.7.3.1); reaching a fully appropriated condition (Section 10.7.3.2); maintaining a fully appropriated condition (Section 10.7.3.3); and evaluating whether a subsequent increment is necessary to meet the goals and objectives of this IMP (Section 10.7.3.4). Statute describes both an annual review (*Neb. Rev. Stat.* § 46-715(5)(d)(ii)) and a second more robust review of new and expanded uses and associated mitigation actions (*Neb. Rev. Stat.* § 46-715(5)(d)(iii)), covered in Section 10.7.3.1.

10.7.1 Data and Tracking of Water Use Activities

Data from the five NRDs will be reported in a consistent format across the basin and from year to year to simplify the process of compiling data for the

Page 41 of 54

annual review and the robust review. A database will be developed to house this data. This database will facilitate the updating of model datasets.

Occasionally, actions for which permits are issued may not actually be implemented. For example, a well permit may be issued but the well not actually drilled. Because of this, in order to maintain accurate records of actual land use, annual permit and land use data should be updated within the database at the end of the next calendar year to reflect which actions did and did not take place. This includes Department sharing information on any surface water permits cancelled in the calendar year (including temporary permits that expired one year after they are issued). This will help in creating yearly land use datasets when it is time to conduct the robust review. Ideally, the permit data should reflect an annual snapshot of changes in land use for that year. This will help update annual land use datasets for the models which will be used for the robust review.

A) NRD Tracking

The DISTRICT will be responsible for annually tracking the following activities within the District:

- 1. Certification of ground water uses and any changes to these certifications;
- Approved transfers, including all of the information provided with the application and used in the approval of the transfer, the location of the land area or well that is being transferred, and the location of the land area or well that will replace the original;
- 3. Relevant flow meter data collected;
- 4. Any water well construction permits issued;
- 5. Any other permits issued by the DISTRICT;
- 6. Any conditions associated with any permits issued;
- 7. Information gathered through the municipal and non-municipal industrial accounting process;
- 8. Any variances issued, including the purpose, the location, any required offset, the length of time for which the variance is applicable, and the reasoning behind approval of the variance;
- 9. Any retirements of irrigated acres or other activities by the DISTRICT for the purpose of returning to a fully appropriated condition;
- 10. Information related to any water banking transactions;

Page 42 of 54

- 11. Offsets provided for depletions resulting from increased consumptive use related to the above listed items;
 - i. This includes reporting on offsets and mitigation activities for the purpose of addressing post-1997 depletions and for the purpose of sustaining previous increment progress and reaching a fully appropriated condition. Such activities to be reported include canal diversions for the purpose of groundwater recharge, operation of stream augmentation projects, and irrigated acre retirements.
- 12. Summary of available conservation plans of municipalities and industries within the basin including strategies that could be applied to other municipalities in the basin (at annual meeting).
- B) Department Tracking

The Department will be responsible for annually tracking the following activities within the District:

- 1. Any surface water permits issued;
- 2. Any dam safety permits issued;
- 3. Any ground water permits issued; and
- 4. The associated offsets for any new permits issued.
- 5. Any retirements of irrigated acres or other activities by the Department for the purpose of returning to a fully appropriated condition.

As new data would show a need for further analysis and to the extent that District meter data or other methods of estimation are not available to determine the consumptive use of water due to livestock, human water use, sandpits and reservoirs less than fifteen (15) acre-feet, the Department will be responsible for tracking and reporting on the following activities within the District in the current increment:

- 1. National Agricultural Statistics Service livestock data;
- 2. US Census Bureau population data;
- 3. Inventory of sandpits;
- 4. Inventory of reservoirs of less than fifteen (15) acre-feet;
- 5. Offsets provided for depletions resulting from increased consumptive use related to the above listed items.

10.7.2 Reporting

An annual review of the progress being made toward achieving the goals and objectives of the ten (10) year increment will include annual reporting by the

Page 43 of 54

Attachment C – Draft IMP

Department and the TPNRD of the information being tracked as described above.

Data will be analyzed to assess the collective amount, timing, and locations of the depletions to streamflows resulting from new or expanded uses and the collective amount, timing, and locations of all mitigations put in place. This will involve a simple analysis of impacts to streamflows resulting from permitted changes, which will not require model runs. These analyses will be done using the agreed upon methods and tools. Methods and tools used will be available to the stakeholders and the public. This information will be shared between the TPNRD and the Department, presented at the basin-wide annual meeting. The data collected will then be trimmed to the relevant Platte River Recovery Implementation Program area, analyzed, and used for required annual and periodic reporting for the Nebraska New Depletion Plan, helping facilitate Nebraska's compliance with the Nebraska New Depletion Plan.

The reports from the TPNRD and the Department should include information on the location, amount and timing of the depletions caused by each permitted new or expanded water use, as well as the associated offset and the location, amount and timing of the offset's accretions to the river. The depletions and/or the accretions should be reported for each year throughout the ten (10) year increment.

These reports should be made available at least four (4) weeks prior to each basin-wide annual meeting. The format of the reports will be standardized as agreed to by the Department and the Platte Basin NRDs.

The reported information will be used as appropriate in the evaluation process as described below. Data from the Department and TPNRD annual reports will be used to prepare reports to the GC of the PRRIP on status and activities related to the NNDP. The Department will generate these reports and will coordinate with the TPNRD to ensure the accuracy of data within any final report.

10.7.3 Evaluation: Measuring the Success of Meeting the Goals and Objectives of this IMP.

10.7.3.1 Measuring the success of this IMP in addressing streamflow depletions due to new uses begun subsequent to July 1, 1997 (Goal 1 from Chapter 8).

A) Annual Reporting and Review:

In order to meet the requirements of *Neb. Rev. Stat.* § 46-715(5)(d)(ii), the data contained in the annual reports submitted by the TPNRD and the Department will be reviewed and analyzed annually to assess the progress being made toward achieving the goals and objectives of Chapter 6 of this IMP for the first ten (10) year increment. The annual review will consider both the near-term and long-term effects of any

Page 44 of 54

permitted new consumptive uses. A 50-year stream depletion curve, based on the COHYST 2010 stream depletion analysis, may be used to assess the impacts of any new uses contained within the annual reports to show the long-term potential impacts of annual changes. The results of the Annual Review will be shared at the Annual Basin-Wide Meeting.

B) Robust Review:

In addition to the annual review, a more robust review of the progress being made toward achieving the goals and objectives of Chapter 6 of this IMP for the first ten (10) year increment will be carried out periodically. This study will be developed to meet the requirements of reporting for the NNDP as well as Neb. Rev. Stat § 46-715(5)(d)(iii) to determine whether the measures adopted in this IMP are sufficient to offset depletions due to post-July 1, 1997, water uses and sustain progress toward a fully appropriated level of water use (Robust Review). The process for this review is described below. The previous robust review will also serve as guidance for conducting the next one. The general method for conducting the robust review will be as follows:

- The groundwater models used for this process will be calibrated to streamflows/baseflows and groundwater levels in the area with the ability to assess the impacts on a monthly basis. The groundwater models will be updated periodically to simulate the management practices that have been implemented to date. The evaluation period of these models will be 50 years into the future.
- 2. The following groundwater model runs will be conducted to measure the success toward reaching Objective 1.2:
 - i. The 1997 Development Level Run A model run that simulates holding the number of irrigated acres and crop types or mix in 1997 constant through the current date and the fiftyyear projection period. Unless better data is available, to estimate 1997 levels of consumptive use, it will assume the full crop irrigation requirement for the crop types or mix. The run will be conducted using climate data through the current date and will include a fifty-year projection using an agreed to climate pattern.
 - ii. The Historical Run A model run that simulates the actual annual changes of the irrigated acres, excess flow recharge events, retirements, allocation effects, augmentation projects, and other water management regulations or projects throughout the evaluation period starting in 1997 through the current date and the fifty-year projection period. The fifty-year projection period will repeat an agreed to land use, regulation, or project dataset. The model will use available flow meter data or, in the absence of flow meter data, assume the full crop irrigation

Page 45 of 54

requirement was met at all times. The run will be conducted using data through the current date and will include a fifty-year projection using an agreed to climate pattern.

- iii. Difference Between the 1997 Development Level Run and the Historical Run - The simulated output from each model run will be compared to determine the difference in the baseflow that has resulted from post-1997 development. Effects on streamflows from allocations and landuse changes are reflected in this comparison because both meter data and landuse changes are used to determine groundwater pumping for the two Runs
- iv. Other Management Actions Analyses Not Covered by the Models - If other management actions are taken to offset streamflow depletions due to new uses begun subsequent to July 1, 1997, accretions resulting from those retirements will be determined using agreed upon methodologies. This would include conjunctive management activities that are not otherwise captured in the models.
- v. **Evaluation Results** For Objective 1.2 to be considered achieved, the results of combining the difference between the 1997 Development Level Run and the Historical Run with the addition of management action accretions not covered by the models must be greater than or equal to zero.

$$(F_h - F_d) + (S_a) = D_{net}$$

Where:

- F_h =Simulated streamflow/baseflow from the Historical Run
- F_d =Simulated streamflow/baseflow from the 1997 Development Level Run
- S_a =Other Surface Water Accretions

D_{net} =Net Depletions

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

3. An additional groundwater model run will be conducted to measure total depletions. This will be the Pre-Development Run. The Pre-Development Run will compare the Historical Model Run with a simulation of no groundwater development to determine the total depletions associated with all ground water only land use development. The run will be conducted using climate data through the current date and will include a fifty-year projection using the Historical Run's agreed-to climate pattern.

Page 46 of 54

i. Total Depletions Evaluation.

 $(F_h - F_p) = D_t$

Where:

- F_h =Simulated streamflow/baseflow from the Historical Run
- F_p =Simulated streamflow/baseflow from the
 - 1997Development Level Run
- D_t =Total Depletions

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

- 4. If integrated models are used to assess impacts to the total streamflow, the methods to be used will be developed jointly between NeDNR and the NRDs to properly design and constrain those analyses so that the results can be used to assess progress toward the goals and objectives of the plan.
- 5. Municipal, Industrial, Domestic and Livestock use will be evaluated as part of the Robust Review
 - i. Data will continue to be collected on the water use of municipalities and industries within the basin.
 - (a) 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.

10.7.3.2 Measure the success of reaching a fully appropriated condition.

A technical analysis to support and evaluate effectiveness of plan and adequacy in sustaining progress toward a fully appropriated level of water use must be conducted.

Because a fully appropriated condition is not currently determined, the Department and the TPNRD will work on outlining the process that will measure the success of reaching the fully appropriated condition once that condition has been determined. The Department and TPNRD will continue to refine the methodology used to determine the difference between the current and fully appropriated levels of development in each NRD.

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

- A) Take into account cyclical supply, including drought;
- B) Identify the portion of the overall difference that is due to conservation measures;

Page 47 of 54

Attachment C – Draft IMP

- C) Identify the portion of the overall difference that is due to water use initiated prior to July 1, 1997; and
- D) Identify the portion of the overall difference that is due to water use initiated or expanded on or after July 1, 1997.

The current NeDNR rules for determining fully appropriated status includes evaluation of the most junior appropriator's access to water, adjustments for lag effect of groundwater depletions and accretions on water supplies, and consideration of instream flows, among other guidance for conducting the analysis. The rules also provide flexibility for NeDNR to "....utilize a standard of interference appropriate for the use, taking into account the purpose for which the appropriation was granted...."¹⁶ for uses which are not defined in the rule. These include storage and hydropower appropriations, which are significant appropriators in the Upper Platte River Basin. NeDNR and the NRDs have and will continue to work with impacted water users on the process for determining the difference between the current and fully appropriated condition of the basin.

The assessment of total depletions is one approach to assist in identifying what a fully appropriated condition may be. The INSIGHT analysis of supplies and demands is another possible approach to help identify this.

10.7.3.3 Measure the success of maintaining a fully appropriated condition.

- A) Current Fully Appropriated Area Monitor and analyze uses in the fully appropriated area to determine the change in stream depletions due to such uses.
- B) Current Overappropriated Area Because a fully appropriated condition is not currently determined, the Department and the TPNRD will work on outlining the process that will measure the success of maintaining a fully appropriated condition once that condition has been determined.

10.7.3.4 Evaluating the Need for a Subsequent Increment

A) The Department and the TPNRD will carry out the studies and the technical analysis as specified in Neb. Rev. Stat. § 46-715(4)(d)(iii) to determine whether or not a subsequent ten (10) year increment is necessary. This will include a process to test the validity of the

Page 48 of 54

¹⁶ Title 457, Chapter 24, Section 001.01B of the Nebraska Administrative Code, dated June 27, 2008.

conclusions and information upon which this IMP is based, as required by *Neb. Rev. Stat.* § 46-715(2)(e).

- B) Within the first ten (10) year increment, the Department and the TPNRD will continue to refine the estimation methodology used to calculate the difference between the current and fully appropriated levels of development in accordance with Neb. Rev. Stat. §46-715(4)(c). Fully appropriated levels of development will be determined through the following process:
 - 1. Determine the changes in recharge from surface water diversions and the impacts of those changes on streamflow using readily available data.
 - 2. Determine the changes in ground water irrigation, municipal, industrial, domestic, livestock and other uses and the streamflow depletions caused by those changes using readily available data.
 - 3. Determine the effects of conservation measures on streamflows.
 - 4. Determine the timing and location of the net changes in streamflow.
 - 5. Determine when streamflow changes impact existing users, taking into account the effects of cyclical supply (e.g. drought).
 - 6. If significant changes in either the timing or location of streamflow have impacted existing users, the TPNRD and the Department will work collaboratively with affected parties to determine subsequent ten (10) year increment goals. These goals will include consideration of the socioeconomic benefits derived from the various uses impacted by such changes in streamflow.
 - 7. The Department and the TPNRD will review other data and/or methodologies relevant or significant to the process.
- C) The process described above in subsection I.A.3.b of Chapter 7 will focus on uses initiated prior to July 1, 1997, and their impacts on hydrologically connected streamflows. All uses initiated subsequent to July 1, 1997, will be evaluated using the process described in Section I.A.2 of Chapter 7.

10.8 Studies to be Completed in the Current Increment

10.8.2 Current Increment Priority studies

The Basin-Wide Plan calls for several studies and collection of information within the basin. Those studies and information are also critical to the successful implementation of this IMP. The studies include:

A) Collect data on commingled acres to 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

Page 49 of 54

lands (both why and when irrigators use surface water or groundwater).

- B) Conduct a study that identifies water users that are affected during cyclical variations in water supply. This hydrologic element analysis will be conducted by NeDNR and the NRDs by evaluating data such as stream gage and diversion records, and well hydrograph data. Focused surveys of, as well as meetings with basin water users can be used to build on stakeholder input gathered throughout the planning process. Once impacted water users who are hydrologically affected by water supply variability are identified, economic impacts can be estimated.
- C) NeDNR and the NRDs will collaborate with impacted water users and other entities to gather relevant economic data. Potential partners include economists and other subject matter experts familiar with the economic drivers of the basin who can help identify data needs and formulate the tools and methodologies for assessing economic impacts. The tools and methodologies will be used to not only evaluate impacts of supply variability, but also evaluate human-made depletion impacts, management actions, regulatory actions, and potential projects or other activities considered during implementation that may affect water availability.
- D) Study economic impacts of drought, which will be a component of the drought plan
- E) Study potential for developing markets and transfer protocols for annual surface water and groundwater supplies.
- F) 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.

10.8.3 Current Increment Potential Studies

There are many other factors that have the ability to impact streamflows. It is important to investigate these things to assess their potential effectiveness in achieving the goals and objectives of this IMP and identify new potential management actions. Pursuit of these studies will be contingent upon budget and staff resources.

The following potential studies have been identified by the Department and the TPNRD:

- Crop rotation
- Vegetation management
- Irrigation scheduling

Page 50 of 54

- Survey of the type and location of irrigation systems throughout the TPNRD
- Tillage practices
- Other best management practices
- Conjunctive management continue to investigate effects of projects within the NRD and look for new opportunities
- Water budget analysis
- Invasive species
- Conservation measures continue to investigate the effects of the implementation of these measures and their level of use within the NRD

10.9 REVIEW OF AND MODIFICATIONS TO THE IMP

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.

10.9.1 IMP Revisions

The TPNRD and the Department will jointly determine whether amendments need to be made to this IMP as necessary. Any proposed modifications will be discussed at the annual basin-wide meeting. Situations that may prompt revision or modification of this IMP are described below.

- A) The TPNRD and the Department may amend this IMP after the annual review of progress being made toward achieving the goals and objectives of Chapter 8 of this IMP
- B) If published results of the Robust Review or other model(s) or tool(s) developed as part of the monitoring effort indicate annual depletion values different than those in table 1, the Department and the TPNRD how this IMP may need to be revised.
- C) DNR and any Platte Basin NRD may amend an IMP as more data and information become available, as provided in <u>Neb. Rev. Stat.</u> § 46-715(4)(d)(ii).

As new depletion information is developed and considered, the values presented in Chapter 9 may be updated and the basin-wide plan revised via a public hearing at the annual basin meeting.

Page 51 of 54

- A) If the Basin-Wide Plan is revised and results in the need for this IMP to be revised to be consistent with the Basin-Wide Plan, this IMP will be revised accordingly, in accordance with <u>Neb. Rev. Stat.</u>§ 46-715(4).
- B) The above items will be discussed at the annual basin-wide meeting and it will be decided if modification is needed. An advisory or stakeholder group may be convened, if the affected NRD(s) and DNR determine that the proposed changes warrant the formation of such a group. If the Platte River Basin NRD(s) and DNR agree on revisions to an IMP after the annual meeting, then a hearing will be held to solicit formal comment. The IMPs for each of the five Platte Basin NRDs shall be provided to all other NRDs in the overappropriated basin for comment before revisions are approved.

10.9.2 Basin-Wide Plan Disputes

- A) If a dispute is presented at the annual meeting as described in the Basin Wide Plan, the Platte Basin NRDs and the Department will make a determination of whether or not the dispute has hydrologic impact. If it is determined that the dispute does have hydrologic impact, then the Platte Basin NRDs and the Department will determine whether the dispute pertains to all of the Platte Basin NRDs or just to individual NRD(s).
- B) If the dispute pertains to all of the Platte Basin NRDs, an investigation will be conducted by the Platte Basin NRDs and the Department to determine what management actions will address the dispute(s) in the Basin-Wide Plan and/or the IMPs. If the management action pertains to this IMP it will be revised accordingly.
- C) If the dispute is not a basin-wide issue, but pertains to the TPNRD, the Department, the TPNRD and any other affected Platte River Basin NRD(s), working with the affected water user(s), shall develop management solutions as appropriate to address the issue(s).
- D) Disputes related to the implementation of the IMP will also be discussed

10.9.3 Additional Ten (10) Year Increment

Based on the results of the technical analyses described in 10.7.3, the TPNRD and the Department will evaluate the need for a subsequent increment. This includes determining whether post-July 1, 1997 depletions have been offset and the progress made toward achieving a fully appropriated condition or maintaining such a condition.

If it is determined from this technical analysis that a subsequent ten (10) year increment is needed to meet the goals and objectives of this IMP, then

Page 52 of 54

Attachment C – Draft IMP

pursuant to *Neb. Rev. Stat.* § 46-715(5)(d)(iv), the goals and objectives for the subsequent ten (10) year increment will be developed using the consultative and collaborative process described in *Neb. Rev. Stat.* § 46-715(4)(b). The subsequent ten (10) year increment shall be completed, adopted and take effect not more than ten (10) years after adoption of this IMP.

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 the basinwide plan, 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.

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LEGAL NOTICE NOTICE OF STAKEHOLDER MEETING

MEETING RELATED TO THE TWIN PLATTE NATURAL RESOURCES DISTRICT AND THE NEBRASKA DEPARTMENT OF NATURAL RESOURCES INTEGRATED MANAGEMENT PLAN

The Department of Natural Resources (Department) and Twin Platte Natural Resources District (TPNRD), are preparing an update to the Integrated Management Plan (IMP) for TPNRD.

Notice is hereby provided that a public meeting of the IMP Stakeholder Advisory Committee will be held on Tuesday, February 26, 2019, at the Holiday Inn Express, 300 Holiday Frontage Rd. North Platte, NE. An agenda for the meeting will be available for public inspection during normal business hours at the offices of the TPNRD and the Department, and at the following website: www.dnr. nebraska.gov. Please refer to the websites and phone numbers listed below for further information.

This stakeholder meeting will begin at 7:00 pm CT. A public comment period will be

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The current IMP for the TPNRD was developed following the determination in 2004 by the Department that the entire District was fully appropriated and a portion of the District was over appropriated. TPNRD's initial first increment IMP was adopted in 2009 and is effective through fall of 2019, at which time a second increment IMP must be drafted and ready for adoption. According to Nebraska Revised Statute §46-715, the IMP will be developed in consultation and collaboration with District stakeholders and include: clear goals and objectives with a purpose of sustaining a balance between water uses and supplies; a map of the area subject to the IMP; at least one groundwater control and one surface water control; and a monitoring plan.

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Individuals with disabilities may request auxiliary aids and services necessary for participation by contacting the Department by Friday, February 22, 5:00 pm CT, at (402) 471-2363 or by email at beth.eckles@nebraska.gov.

TPNRD:

http://www.tpnrd.org or

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Published in the North Platte Telegraph North Platte, Nebraska February 12, 2019

Proof of Publication

State of Nebraska.

County of Lincoln } ss.

Shelly Greeley

being by me first duly sworn on oath says that she/he is employed by the North Platte Telegraph, a newspaper published in North Platte, Nebraska, and personally knows that said newspaper is a legal daily, except Monday, newspaper under the statutes of the state of Nebraska, having a bonafide circulation of over three hundred copies, has been published in said county for more than fifty-two successive weeks prior to the first publication of the attached notice and is printed in an office maintained in the city of North Platte, in said county, which said city is the place of its publication; that the notice hereto attached was published in said newspaper in the regular issues thereof.

February 12, 2019

Dated this <u>12th</u> day of

February 2019

Subscribed and sworn to before me

dated this 12th day of

February 2019



Notary Public

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GENERAL NOTARY - State of Nebraska LINDA L. SEDLACEK My Comm. Exp. June 13, 2021

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TPNRD IMP MEETING

		February 26, 2019
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	Sarah Nevison	NZDNR
	Philip Paitz	NEDNR
	Andy Pedley	NEDNR
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	MERGA Masish	NEONE
	Mike 1/168/60C	SARgent Jellightion
	Jahn Salar	Darlala City
	Jim MEISMEN	TANKA
	Pervis Schih	TPNRD
	Jessie Strom	NEDUE
	Jer Swatcher	TPNRS
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	Mark R Spurgin	Farmer
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	Dave Steffer	
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	Roric Paulman	
	Lane Anderson	
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TPNRD IMP MEETING

February 26, 2019

NAME	REPRESENTING
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