

NPNRD Stakeholder Meeting #1 Minutes

Project: Stakeholder Advisory Committee Meeting to Jointly Develop 2nd Increment Integrated Management Plan (IMP) with North Platte NRD and Nebraska Department of Natural Resources

Subject: Stakeholder Meeting #1

Date: Thursday, June 21, 2018, from 2:00 p.m. – 5:00 p.m.

Location: North Platte Natural Resources District Office
100547 Airport Road, Scottsbluff, NE

I. Welcome to the Meeting

- a. Stephanie White, Facilitator, HDR, opened the meeting at 2:08 p.m. MDT by stating a copy of the open meetings act was in the room and notice of the meeting was published in the Scottsbluff, Star Herald (Attachment A).
- b. John Berge, Manager, North Platte NRD (NPNRD), welcomed the group and introduced Roger Erich, the Vice-Chairman of the NPNRD Board of Directors, and Chairman of the Water Resources Committee, and acknowledged the NPNRD staff present. John stated that this is a very important process, if lengthy. John's predecessors were very successful in putting together an IMP with robust regulatory and incentive measures. The regulations at first were very painful, but have borne out some good consequences that you will hear more about today and in future meetings. John acknowledged the time each stakeholder is taking from their busy schedules and he is very grateful for this very important commitment. He also acknowledged Stephanie White's talents in handling these meetings.
- c. Stephanie White went over the agenda (Attachment B), reiterated that this is a public meeting, noted that a copy of the Open Meetings Act was in the room, and stated that notice of the meeting was published in the Star Herald. Then she went over safety procedures.
- d. Barb Cross, NPNRD, reviewed the tabs and contents of the binders that were provided to the group. The table of contents of binders provided to stakeholder group is included (Attachment C).
- e. Copies of all presentations are included (Attachment D).
- f. Stephanie White asked the group to introduce themselves. Stakeholder attendees introduced themselves. The attendance sheet is included (Attachment E).

II. Why are we here?

- a. Stephanie White reviewed stakeholder roles and responsibilities. She pointed out the roles and responsibilities that are outlined in the Public Participation Plan, which is

included in the binders to provide clarity for the development of the second increment; it states that consensus is the preferred outcome.

- b. Jennifer Schellpeper presented a history of statutory requirements and how this relates to the NeDNR's determination of fully appropriated and overappropriated portions of basins. She explained that within these areas IMPs are required to be developed, and described where the hydrologically connected area is found and what that means. She detailed how goals and objectives should follow guidelines as described in statute, how interstate compacts affect this area, how it is relevant to the IMP process, and other statutory requirements for IMPs. Listing the differences between IMPs and basin-wide plans, she pointed out that there is a foundation of data and science which plan development and implementation are built upon. During plan implementation, the monitoring program provides for data collection which NeDNR and NRDs can use to evaluate progress made towards the goals and objectives, and, if needed, modify the plan to reach those goals and objectives.

III. How did we get here?

- a. Jennifer Schellpeper then covered the Upper Platte River Basin-Wide Plan, its planning process, how it relates to the overappropriated and fully appropriated areas, and the NPNRD's IMP. She reviewed the Platte River Recovery and Implementation Plan (PRRIP) and how it guides water management decisions that also work with the Upper Platte River Basin-Wide Plan's goals and objectives. The first increment of the UPBWP is winding down and Jennifer reviewed the goals and objectives that are part of the second increment Upper Platte River Basin-Wide Plan, which is currently in the process of development.

IV. What has been done?

- a. **North Platte NRD Current IMP:** John Berge walked through the NPNRD's current IMP (first increment) and gave background on the current plan. He directed the stakeholder group to the "Fully Appropriated" chapter. The objectives and management activities listed in this chapter are efforts NPNRD has taken to return to pre-1997 levels of depletions. John emphasized the extensive data collection efforts NPNRD has taken in order to monitor, track, and evaluate the successes of various management actions. He also provided an example where an analysis was conducted to evaluate the success of a water buy-out project before the project took place. He stated, "our current IMP contains the core of the NPNRD's water management strategy."

Question: It would be helpful to know as time has passed, what are some of the positives and negatives of the first plan (e.g., lessons learned, water projects, etc.)

Stephanie: We are going to spend time talking about what we know now that we didn't know then, John Berge will highlight lessons learned from his perspective and provide ideas to think about for the second increment IMP.

- b. **Stream Depletions:** Jennifer Schellpeper then presented a segment on "Stream Depletions 101." She outlined how water moves through the system. She also outlined how modeling can indicate past impacts or predict effects of new impacts to streamflow depletions due to several factors. She demonstrated variables that affect stream depletions.

- c. **Data sets and modeling:** Thad Kuntz, Adaptive Resources, spoke about his work for the NPNRD and NeDNR using the Western Water Use Model (WWUM). He explained that the WWUM uses three models and described two of them: (1) a water balance model that deals with crop consumptive use, pumping, and weather data, and (2) the groundwater model that simulates flow of water within the strata. In his presentation, he provided additional information about land use within the modeled areas and the geology and aquifer characteristics within the boundary of the NPNRD. Thad also provided information regarding average annual recharge, stream hydrographs, groundwater well hydrographs, and change in modeled groundwater levels over time. The model is updated about every few years, as new data is available, to understand positive effects to the river as a result of the management actions.

Question: Are these models using actual numbers?

Jennifer: The numbers the model is using are “calibrated” numbers, which are measured points, such as groundwater levels or streamflows, which calibrate the model for actual conditions. Then, the model is run again, without the changes, to compare the numbers to the first run, which has the actions; this is called a “change” analysis. The model is calibrated to the actual streamflow and groundwater levels.

Thad: So that's a modeled representation of that streamflow.

Jen: It's as close to real as we can get in a model run.

Question: The two wellfields directly west of town, Scottsbluff and Gering, have you seen any increased reductions as a result of those two wells?

Thad: The wells have changed locations, so the net effect of moving the wells may be seen between those two points and could cause havoc in the appropriations up and down stream of them. The net effect is the same amount of water, but pumping moved the point of depletion.

Question: Are you still trying to get to 7,000 acre-feet?

Thad: We are going to have the results of the robust review in the August meeting.

- d. **Lessons learned:** John Berge discussed the lessons learned from the NPNRD's perspective. He said both regulatory actions and incentive-based projects were used in order to meet the objectives. NPNRD also has a strong emphasis on outreach. Producer round-tables have been very successful in garnering attention and providing information to keep landowners informed, as well as facilitating producers in providing valuable feedback to NPNRD. John outlined the success of the various NPNRD incentive programs. All water management incentive programs are now aligned to meet the goals of the IMP, which were evaluated through a scoring system. The board and NeDNR think that having a balance of regulations and incentives is important, while making sure obligations are being met. We, the NPNRD, have some new ideas we would like to take a look at. We want to include our newly adopted drought plan.

Question: What is the cost per acre of the buy-outs?

John: Roughly \$3750/acre over 15 years.

Question: Pumpkin Creek doesn't have the same opportunity to retire acres.

John: Yes, the reason is two-fold, one, the distance to the Platte, meaning the impact to the stream is reduced, and two the geography of that area. We have heard you and are looking at solutions. Currently there is one opportunity, the EPIC program, which is a direct result from feedback from these folks, and the board is also looking at aquifer life, so there may be opportunities there as well.

Question: Was your drought plan a result of your IMP?

John: No, we independently moved forward with a drought plan. Our drought plan is very education and outreach-based.

Question: What are the advantages and disadvantages to the NPNRD having a drought plan?

John: It closely parallels or mimics the basin-wide plan and IMP goals. Precipitation is one thing we have no control over.

e. **Stephanie White asked each stakeholder to identify their gut reaction to the question, "What is the one thing they would like to see, or what they think needs to be addressed or talked about as a group for the second increment of the IMP?":**

- Population growth
- Water sustainability
 - Drought mitigation
 - Hydropower production
 - Market place? (industry level)
- Streamflows/ temperature
 - Movement from flood to pivot
- Cancel surface water
 - Return flows
- Retention and retime releases
- Center pivots
- Are diversions dropping?
 - Need flexibility to recharge
- Partnerships with power producers
- Drought planning
 - Criteria and triggers
- Equity (retiring a lot of acres in a small district)
- Reservoir maintenance
 - Add a new one?
- Opportunities to use surface water instead of pumping
- Mighty proud in western Nebraska
- Awareness of fiscal constraints
- Do not negatively impact the local economy
- Producers have done a lot
 - Changed practices
 - Selling acres
 - We can produce more with less: let's expand

- Keep track with the times
- Converting to flood irrigation
 - Funding to help
- Concerned about pivots and recharge
 - Made more efficient
- Silt in dams, are we losing capacity?
- Balance
 - Future supply
 - Cash flow
 - Equity in real estate
- Support economic development
- Meeting next steps with allocations might not be right
- Continue to look for ways to bring water into Nebraska
- Look forward to 2100 not back to 1997
- Does LB 962 still work?
- Water as a reusable resource
- Maintenance system for canals
- Tree control

f. **Public Comment:** No public comments were made.

g. **Meeting adjourned:** 5:12 p.m.

h. **Next Meeting:** August 16, 2018.

i. **Attachments:**

- a. Attachment A: Affidavit of publication
- b. Attachment B: Agenda
- c. Attachment C: Table of contents of binders provided to group
- d. Attachment D: Presentations
- e. Attachment E: Attendance and sign in sheets

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AFFIDAVIT OF PUBLICATION

Star Herald
PO Box 1709
Scottsbluff, NE 69363

State of Nebraska
County of Scotts Bluff } ss.

I, Conny Herolt do solemnly swear that I am the Accounts Receivable Bookkeeper of the Star-Herald, a legal newspaper of general circulation, published daily except Mondays, at Scottsbluff, Scotts Bluff County, Nebraska; that the notice hereto attached and which forms a part of this affidavit was Published in said paper one consecutive week (s) in the issues published, respectively June 12, 2018

that said notice was published in the regular and entire issues and every number of the paper on the days mentioned, the same being the corresponding day of each week during the period of time of publication and that said notice was published in the newspaper proper and not in the supplement.

Conny Herolt

SUBSCRIBED in my presence and sworn to before me on 6-12-18

Eric M. Hoffman
Notary Public

ERIC N. HOFFMAN
General Notary - State of Nebraska
My Commission Expires Dec 15, 2021

The publication fees amount to \$ 37.03
NORPAT- 54012141

NOTICE OF STAKEHOLDER MEETING RELATED TO THE NORTH PLATTE NATURAL RESOURCES DISTRICT AND THE NEBRASKA DEPARTMENT OF NATURAL RESOURCES' INTEGRATED MANAGEMENT PLAN

The Department of Natural Resources (Department) and North Platte Natural Resources fall of 2019, at which time a second increment IMP must be drafted and ready for adoption. According to Nebraska Revised Statute §46-215, 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 ground-water control and one surface plan; and a monitoring plan.

Individuals with disabilities may request auxiliary aids and services necessary for participation by contacting PLANNER at the Nebraska Department of Natural Resources by 5 p.m. Central Time, Thursday, June 14, 2018 at 402-471-0661 or by email beth.ackles@nebraska.gov at NPNRD: <http://www.npnrnd.org> or phone (308) 632-2749 100547 Airport Road, Scottsbluff, NE 69363

Department: <http://www.dnr.nebraska.gov> or phone (402) 471-2363 301 Centennial Mall South, 4th Floor, Lincoln, NE 68508

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Agenda

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

Subject: Stakeholder Meeting #1

Date: Thursday, June 21, 2018 from 2:00 p.m. – 4:00 p.m.

Location: North Platte Natural Resources District Office
100547 Airport Road, Scottsbluff, NE

Agenda:

1. Welcome
2. Why are we here?
3. How did we get here?
4. What has been done?
5. North Platte NRD IMP
 - a. Stream Depletions101
 - b. Western Water Use Model
 - c. IMP Implementation Status
 - d. Second Increment Considerations
 - e. Next Steps
6. Public Comment

Next Meeting: August 16, 2018

2nd Increment – Stakeholder Folder Outline 2018 Integrated Management Plan (IMP)

1. Stakeholders & Contacts
2. Schedule
3. Public Participation Plan for the 2nd Increment – developed in 2016
4. Stakeholder information (power points, etc.): Meeting 1
5. Stakeholder information (power points, etc.): Meeting 2
6. Stakeholder information (power points, etc.): Meeting 3
7. Stakeholder information (power points, etc.): Meeting 4
8. Current Basin-Wide Plan
9. Draft new Basin-Wide Plan
10. Current NPNRD IMP
11. Draft new NPNRD IMP
12. NPNRD Rules and Regulations
13. NPNRD Drought Plan
14. Relevant Statutes: 46-715 through 46-719 & surface water statutes
15. Helpful Links
 - a. Upper Platte Basin-Wide Meetings & Annual Reports
 - b. NeDNR Upper Platte Publications
 - c. NeDNR Upper Platte Presentations
 - d. Platte Basin Coalition
 - e. Conservation Study
 - f. Conjunctive Management Study
 - g. Excess Flows Study
 - h. Streamflow Reduction Study
 - i. COHYST Model Study
 - j. Interstate Agreements (including the Platte River Recovery Implementation Program; North Platte Decree; and South Platte Compact)
 - k. WWUM Modeling Documents: SPNRD Website
16. Water Supply Analyses
 - a. Preliminary Post-1997 Analysis
 - b. Robust Review Analysis
 - c. INSIGHT Analysis
17. Maps/Figures
18. Notes



NPNRD IMP

Meeting 1

TODAY'S AGENDA

- Welcome
- Why are we here?
- How did we get here?
- What has been done?
- North Platte NRD IMP
 - Stream depletions101
 - Western water use model
 - IMP implementation status
 - Second increment considerations
 - Next steps
- Public comment

WELCOME

- Open meeting notice
- Safety & logistics
- Introductions



WHY ARE WE HERE?

Process Summary

PROCESS SUMMARY

Upper Platte Basin-Wide Planning

Statutory Authority

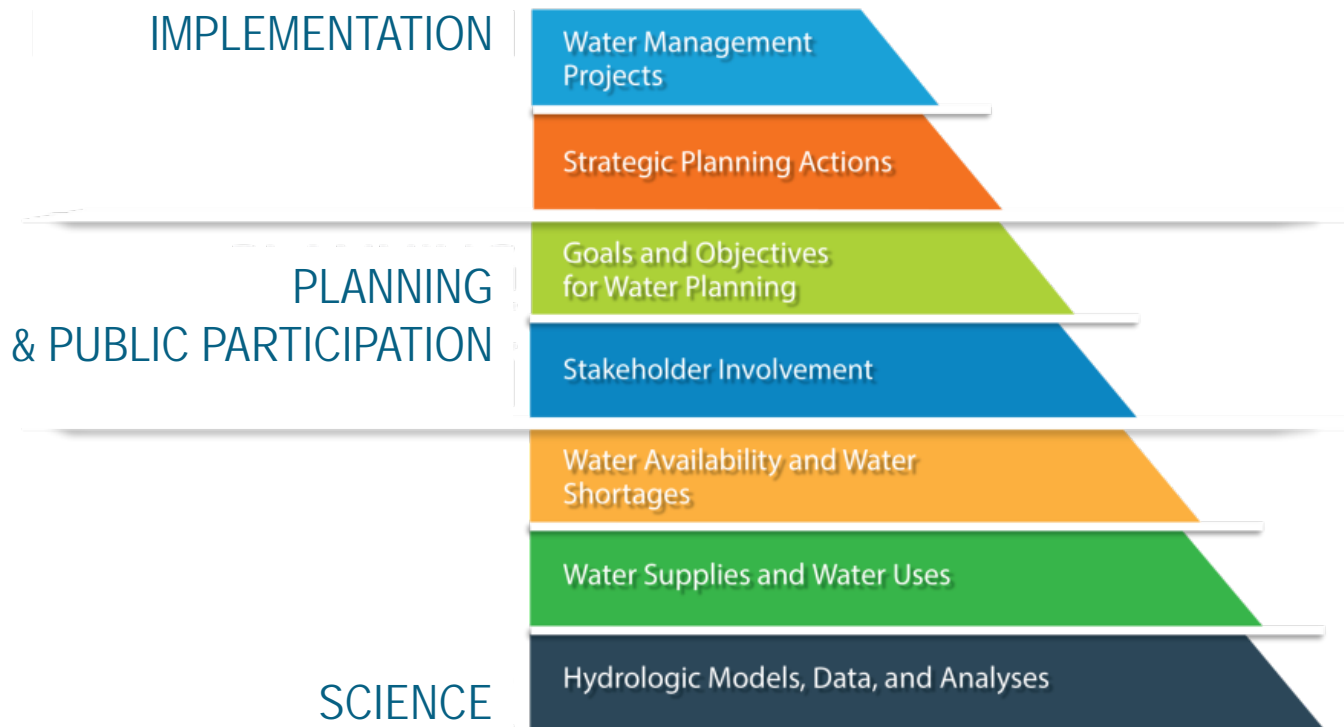
(How did we get here?)

Current Basin-Wide Plan

(What has been done?)

Basin-Wide Plan & IMPs

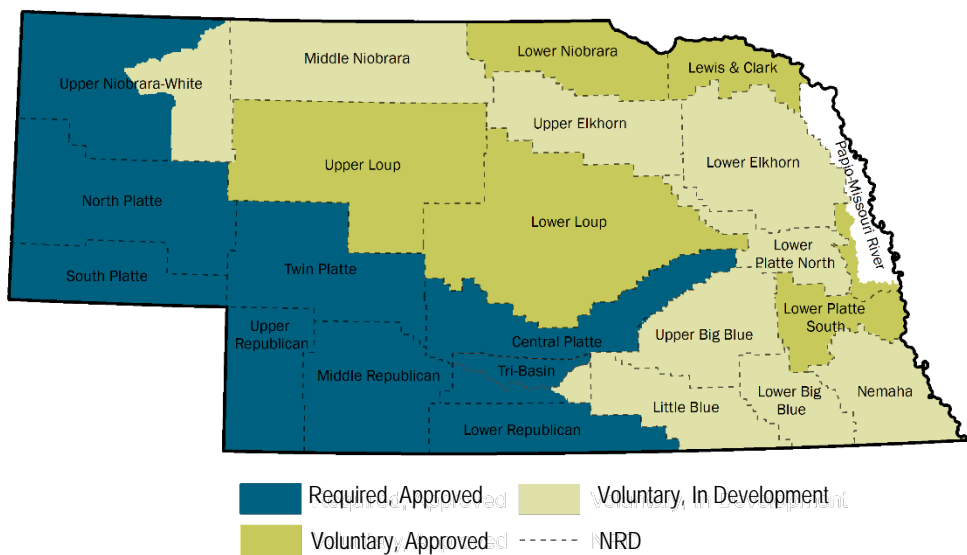
INTEGRATED WATER MANAGEMENT



INTEGRATED MANAGEMENT PLANNING IS A COLLABORATIVE PROCESS

- NeDNR + a Natural Resources District (NRD)
 - IMP development
 - Plan implementation

- Stakeholder collaboration (seeking agreement)



STAKEHOLDER ROLES

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



NRD & NeDNR ROLES

- Acquire/disseminate information/data needed for stakeholder process
- Help formulate goals and objectives with stakeholders
- Coordinate with each other, stakeholders, facilitators throughout IMP process
- Help determine/convey feasible actions for plan implementation
- Write the Integrated Water Management Plan





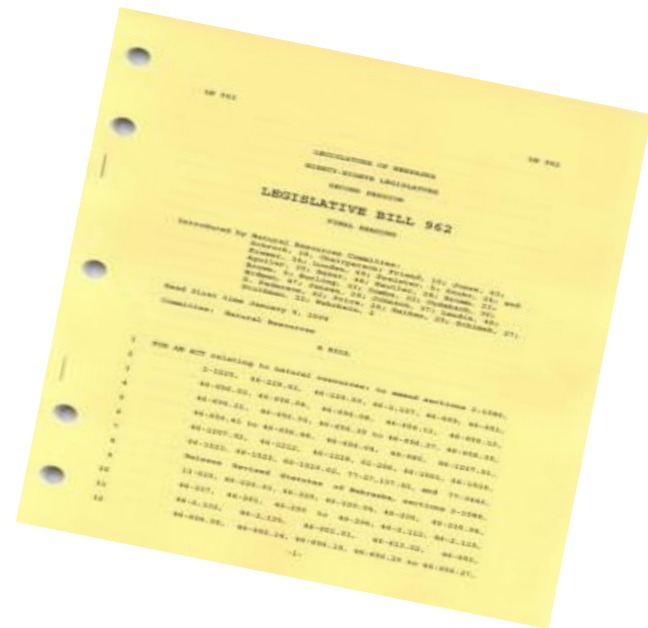
HOW DID WE GET HERE?

Statutory Authority

LB 962

Platte Overappropriated Area Basin-Wide Plan

- New Nebraska State Law
 - Legislative Bill 962 passed in 2004
- Groundwater Management and Protection Act



STATUTORY DEFINITION § 46-713(4)(a)

Platte Overappropriated Area Basin-Wide Plan

Why?

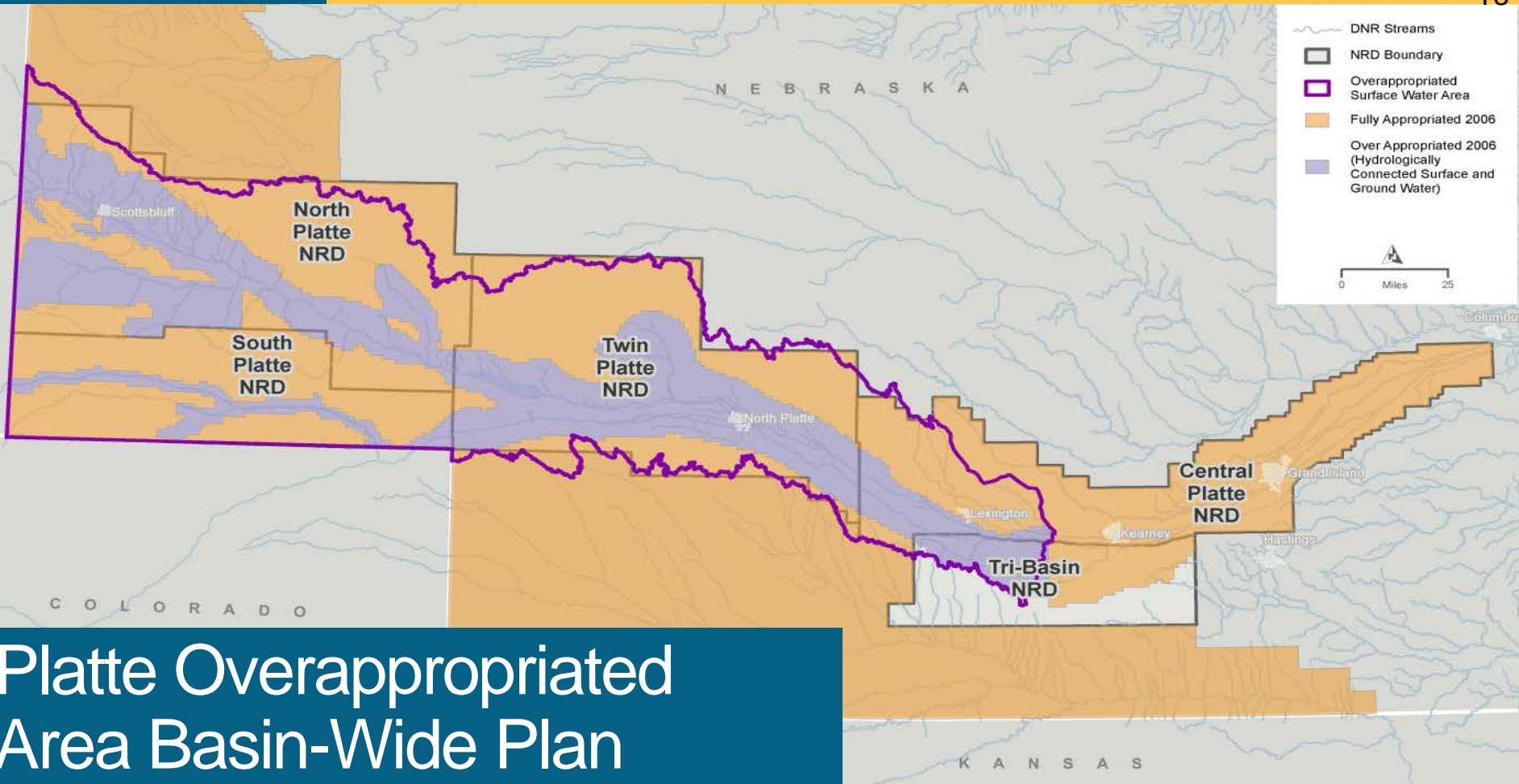
- Criteria for an overappropriated basin designation
 - Interstate agreement
 - Moratorium on surface water appropriations
 - Stays on well construction

When?

- Designated in September 2004

Where?

- Above Kearney Canal diversion



Platte Overappropriated Area Basin-Wide Plan

STATUTORY REQUIREMENTS § 46-715(2)(a)

The plan shall include **clear goals and objectives** with a purpose of sustaining a **balance** between water uses and water supplies so that the **economic** viability, **social** and **environmental** health, safety, and welfare of the basin can be achieved and maintained for both the **near term** and the **long term**.

STATUTORY REQUIREMENTS § 46-715(2)(b) – (e)

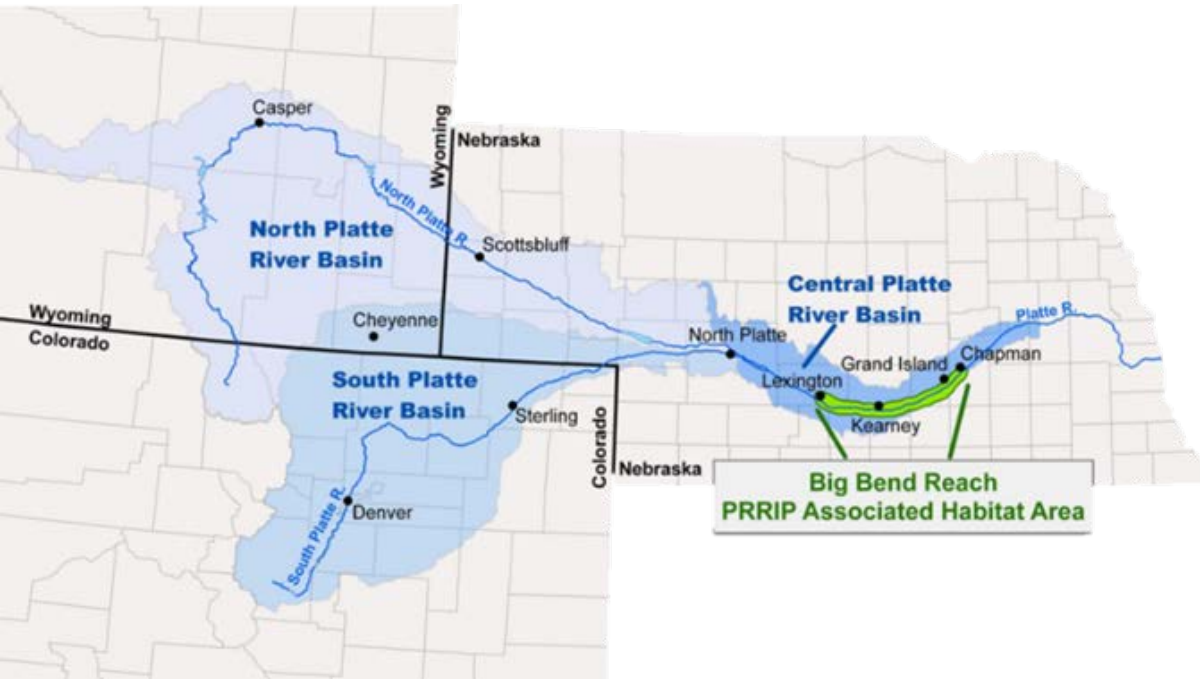
- A **map** of the area subject to the integrated management plan
- At least one **groundwater control** and at least one **surface water control**
- A **monitoring plan**
 - Plan to gather and evaluate data, information, and methodologies to increase understanding of the surface water and hydrologically connected groundwater system, and test the validity of the conclusions and information upon which the integrated management plan is based

STATUTORY REQUIREMENTS § 46-715(4)

- Groundwater and surface water controls shall
 - Be consistent with the goals and objectives of the plan
 - Ensure Nebraska compliance with interstate agreement
 - Protect existing users (groundwater and surface water) from new uses

INTERSTATE AGREEMENT – PRRIP

Platte River Recovery Implementation Program; § 46-715(4)(b)



- Began January 1, 2007
- Basin-wide effort by Department of Interior, Colorado, Wyoming, and Nebraska
- Implementation of PRRIP is incremental
 - The first increment is 13 years, through 2019

INTERSTATE AGREEMENT – PRRIP

Platte River Recovery Implementation Program; § 46-715(4)(b)

- Endangered species
 - Improve habitat for four threatened and endangered species
 - Whooping Crane
 - Piping Plover
 - Least Tern
 - Pallid Sturgeon
 - Provide ESA Section 7 and Section 9 coverage for all water users in the basin
 - Avoid use of alternative ESA enforcement measures

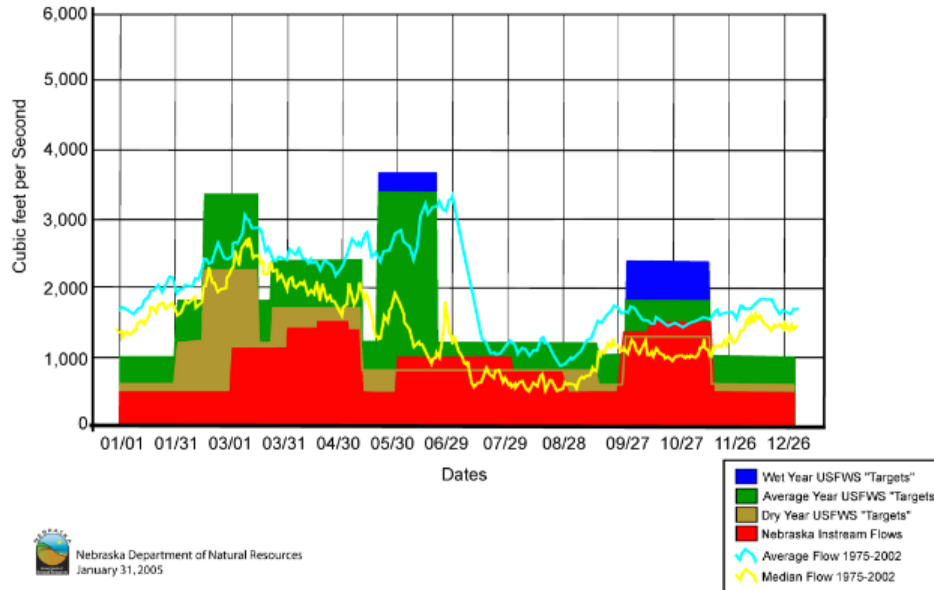


INTERSTATE AGREEMENT – PRRIP

Platte River Recovery Implementation Program; § 46-715(4)(b)

Comparison

USF&WS "Target Flows", Nebraska "Instream Flows",
Average and Median Flows/
Platte River at Grand Island



Nebraska Department of Natural Resources
January 31, 2005

NORTH PLATTE
Natural Resources District

- Target & state-protected flows
 - Reducing deficits to FWS Target Flows by average annual of 130,000 to 150,000 AFY
 - "Pulse" flows for adaptive management

INTERSTATE AGREEMENT – PRRIP

Platte River Recovery Implementation Program; § 46-715(4)(b)

➤ Offsets & moratoriums

- Depletions to USFWS “target flows” and to “state-protected flows” because of groundwater and surface water uses begun or expanded between **July 1, 1997, and December 31, 2005**...will be offset in quantity, time, and location...

INTERSTATE AGREEMENT – PRRIP

Platte River Recovery Implementation Program; § 46-715(4)(b)

➤ Offsets & moratoriums

- **Surface Water** (administered by NeDNR)
 - Moratorium (1993) on issuance of any new surface water appropriations upstream of the Loup River confluence
 - No new direct diversions of surface water allowed without offset (2006)

- **Groundwater** (administered by NRDs)
 - No new uses of groundwater within the 28/40 area will be allowed without offset (2006)
 - Stays on new wells

STATUTORY REQUIREMENTS § 46-715(3)

- Process for economic development opportunities and economic sustainability
- **Clear and transparent procedures** to track depletions and gains to streamflow utilizing the best available / generally accepted methods, information, data, and science
- Procedures the NRD / NeDNR use to report, consult, and otherwise **share information**
- Identify water available to mitigate new uses (i.e. water rights leases, interference agreements, augmentation projects, conjunctive use management, and use retirement)
- **Guidelines for consultation with other water users** to provide for economic development opportunities
- **Rules to allow transfers** from an old use to a new use, and offsets, **as necessary**, for new uses that adversely affect existing users. Water banking may also be used when appropriate

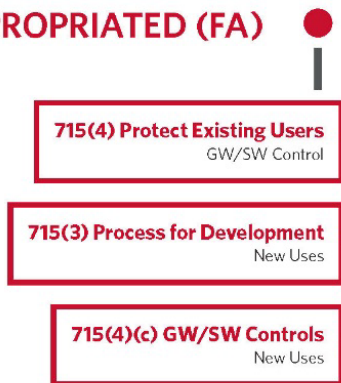
STATUTORY REQUIREMENTS § 46-715(5)(a)

➤ Basin-Wide Plan

- When the designated **overappropriated area** lies within **two or more natural resources districts**, the department and the affected natural resources districts shall **jointly develop** a basin-wide plan for the area designated as overappropriated
- Such plan shall be developed using the **consultation and collaboration** process
- Shall be developed **concurrently** with the development of the integrated management plan
- Shall be designed to achieve, in an **incremental manner** described the goals and objectives described in 46-715(2)
- The basin-wide plan shall be **adopted after hearings** by the department and the affected natural resources districts.

STATUTE § 46-715 INTERPRETATION

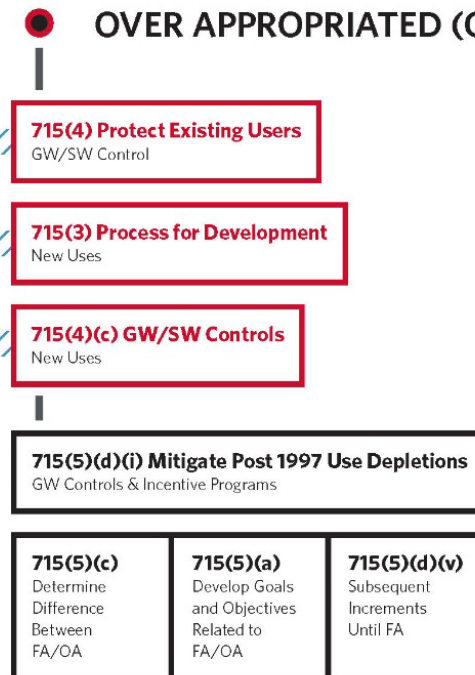
FULLY APPROPRIATED (FA)



NO ADDITIONAL
REQUIREMENTS



OVER APPROPRIATED (OA)



BASIN-WIDE PLAN VS. INTEGRATED MANAGEMENT PLAN

- Statute calls for a Basin-wide Plan (BWP) and individual Integrated Management Plans (IMP) in NRDs that have overappropriated area
- BWP is for the area designated as overappropriated
- IMP encompasses both overappropriated and fully appropriated areas
- Both BWP and IMPs must be adopted and take effect by September 2019

THEY ARE SIMILAR BUT DIFFERENT

Basin-Wide Plan

- All basin NRDs & NeDNR
- Overappropriated Area
- Goals & objectives
 - Focused on regional, cross-boundary issues and opportunities
 - Consistency and collaboration among basin NRDs
 - A broad framework

Integrated Management Plan

- 1 NRD & NeDNR
- Overappropriated and fully appropriated areas
- Goals, objectives, & controls
 - Specific to one NRD
 - Tailored to local issues and opportunities
 - Specific targets and actions that each NRD will use to meet the goals of the Basin-Wide Plan as well as individual Integrated Management Plan goals

INTEGRATED MANAGEMENT PLANNING - SUMMARY



- Surface water and groundwater management
- Jointly developed between NRD and NeDNR
- Protects existing users
- Adaptive management
- Suited to local conditions
- Proactive

STAKEHOLDER CHARGE | What are you willing to do?



First Increment

- Costs have ranged from \$10's to \$1,000's per AF

Second Increment

- Most excess flows have been committed to projects in the first increment
- Incentive programs are willing seller/buyer
- Cost to maintain the projects that are currently in place

Overall

- Costs likely to increase

§ 46-715(2)(a) - The plan shall include **clear goals and objectives** with a purpose of sustaining a **balance** between water uses and water supplies so that the **economic** viability, **social** and **environmental** health, safety, and welfare of the basin can be achieved and maintained for both the **near term** and the **long term**.



WHAT HAS BEEN DONE?

Current Plan

UPPER PLATTE BASIN-WIDE PLAN

➤ 1st increment basin-wide plan

- Current plan went into effect in September 2009

➤ 2nd increment basin-wide plan

- 2nd increment Basin-wide Plan process began in 2016 with Stakeholders
- Current process to incorporate stakeholder input into 2nd increment basin-wide plan
- Will present draft 2nd increment plan to stakeholders in September 2018
- 2nd increment plan will go effect in September 2019

Goals	1: Incrementally achieve and sustain a fully appropriated condition	2: Prevent or mitigate human-induced reductions in the flow of a river or stream that would cause noncompliance with an interstate compact or decree or other formal state contract or agreement	3: Keep the Plan current
Objectives	Offset impacts of streamflow depletions... to the extent those depletions are due to water use initiated after July 1, 1997	Prevent human-induced streamflow depletions that would cause noncompliance by Nebraska with the Nebraska New Depletions Plan (NDP) included within the Platte River Recovery Implementation Program (Program), for as long as the Program exists.	Meet at least annually to review progress toward achieving the goals and objectives of this Plan...
	Maintain first increment mitigation efforts		Gather and evaluate data and information to measure the effectiveness of controls, incentives and/or other programs...
	Conduct a technical analysis...to determine whether the controls are sufficient...		
	Continue to refine the methodology to determine the difference between the current and fully appropriated levels of development...		
	Use available funds and actively pursue new funding opportunities to...implement this Plan		
	Update and continue implementing IMPs in each Platte River Basin NRD		

Goals	4: Work cooperatively to identify and investigate disputes between groundwater users and surface water appropriators and, if determined appropriate, implement management solutions to address such issues	5: Partner with municipalities and industries to maximize conservation and water use efficiency	6: Work to maintain economic viability of the basin while implementing this plan
Objectives	Identify disputes between groundwater users and surface water appropriators	Continue to collect data on water use and existing conservation plans of municipalities and industries within the Basin	Support managers and users in the basin by better understanding the economic impacts of supply variability
	Investigate and address issues between groundwater users and surface water appropriators, based on investigation results	Invite municipalities and industries to the annual meetings	Management practices to improve sustainability/viability for surface water and groundwater uses
		Establish allocations for each municipal and industrial user by 2026 and the M&I will offset their new uses themselves rather than NRD	Drought Planning
			Discuss economic impacts and potential mitigation options at the annual meeting

INTEGRATED MANAGEMENT PLAN

- Map of the Areas
 - Overappropriated
 - Fully appropriated
 - Incentives
 - Retirements
 - Water banking
 - Monitoring
 - Studies
- Controls
 - Moratorium/certified acres
 - Transfer rules and restrictions
 - Municipal and industrial
 - Allocations
 - Post-1997 Depletion Target (7,594 af)
 - EQIP Retirements (3,761 af)

MANAGEMENT ACTIONS TAKEN

➤ Conjunctive Management

- Recharge of Excess Flows

- 2011 & 2016

- Includes Belmont, Castle Rock, Central, Chimney Rock, Enterprise, Farmers, Lisco, Minatare, Nine Mile, Pathfinder, and Winters Creek

- Total diversion ~92,100 acre-feet

- Total estimated recharge ~ **42,700** acre-feet

➤ Allocations

➤ Retirements



NORTH PLATTE NRD IMP

Stream Depletions 101
Western Water Use Model
Current IMP Implementation Status

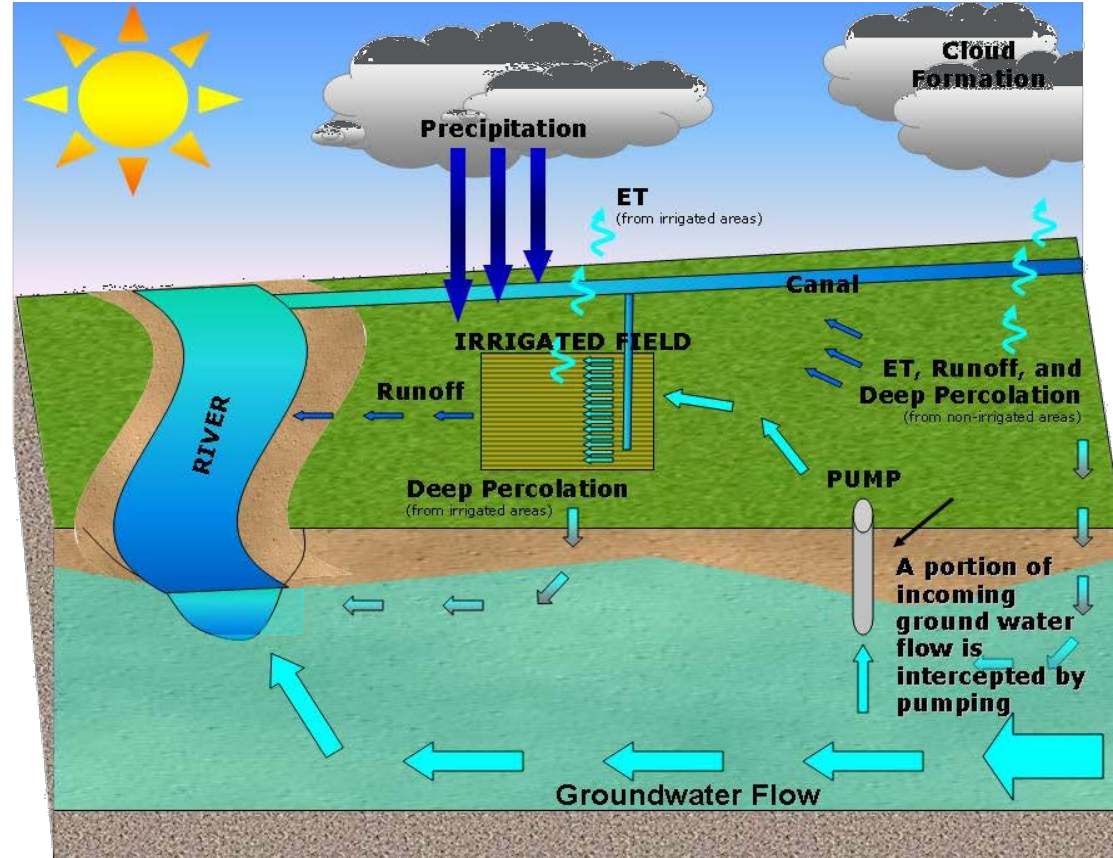
Second Increment Considerations
Next Steps



STREAM DEPLETIONS 101

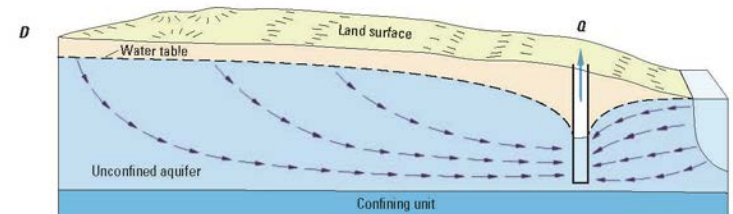
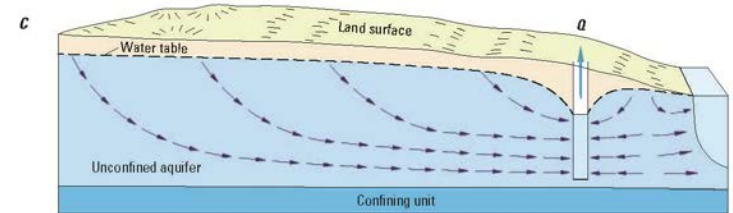
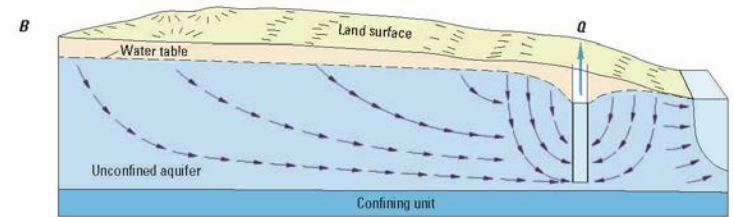
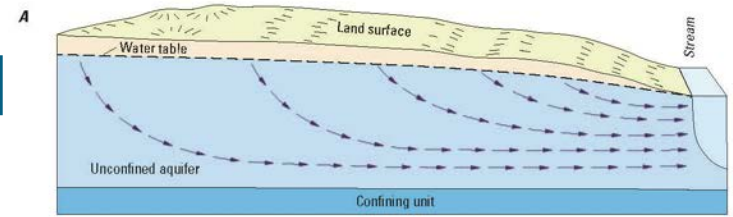
STREAM DEPLETIONS 101

- Typical elements of ground and surface water budgets

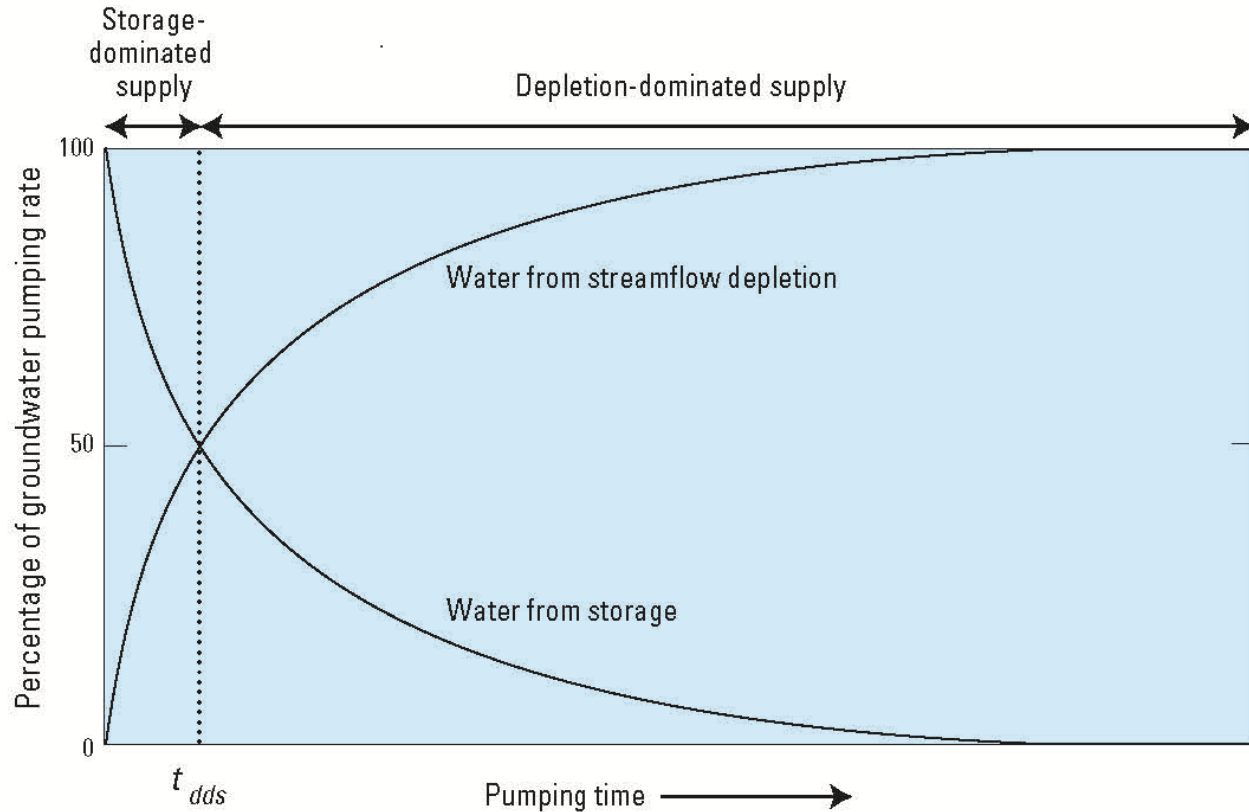


STREAM DEPLETIONS 101

- A. Pre-development conditions
- B. Pumping from aquifer storage
- C. Interception of groundwater baseflow
- D. Interception of groundwater baseflow and induced infiltration



STREAM DEPLETIONS 101

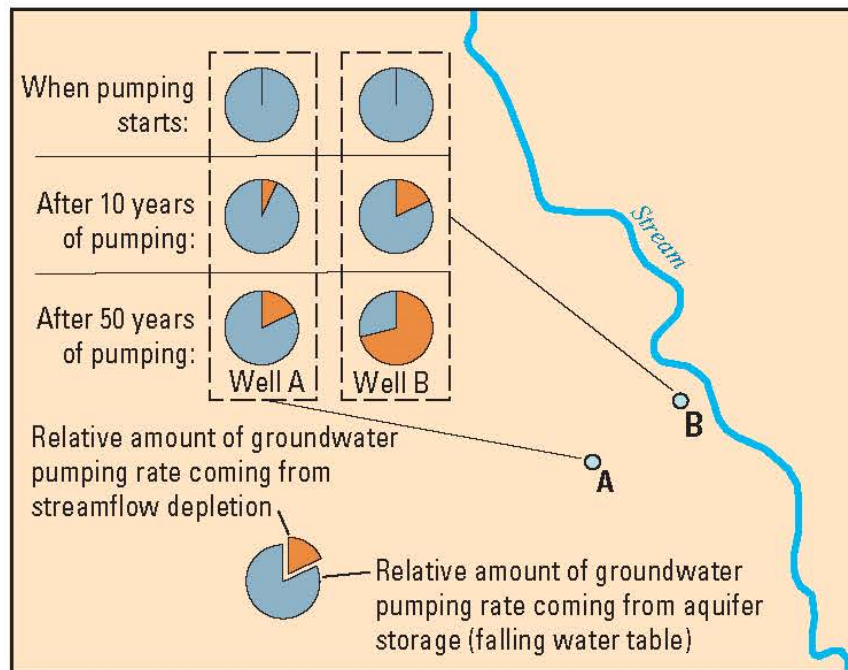


STREAM DEPLETIONS 101

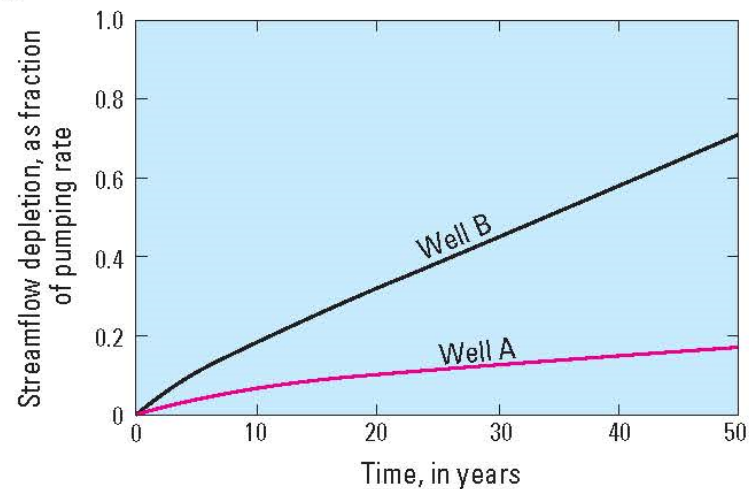
- Factors that affect timing, rates, and locations of streamflow depletion:
 - Geology and hydraulic properties of aquifer
 - Aquifer size/volume
 - Geometry of the surface water streams
 - Well location (vertical and horizontal distance from streams)
 - Pumping rates and operational characteristics

STREAM DEPLETIONS 101

A



B

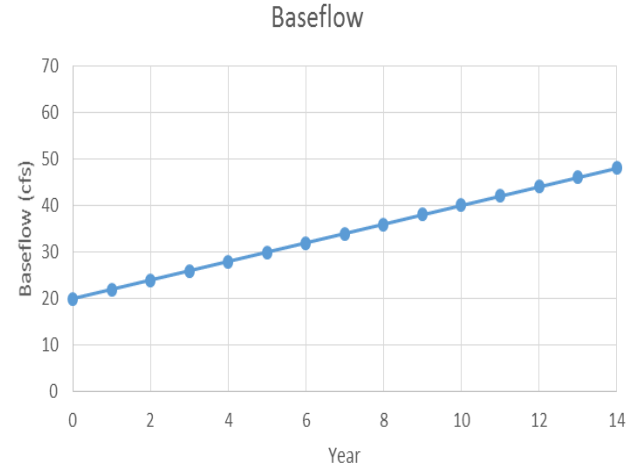
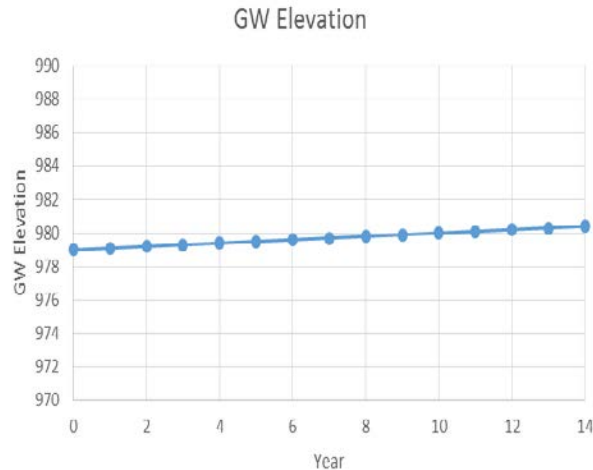


STREAM DEPLETIONS SUMMARY

- Variability in aquifer properties across basin
 - Degree of ground/surface water connection
 - Number/distribution/capacity of wells
 - Timing of well impacts on surface water/aquifer
- Physical characteristics are included and considered in water resources planning and management

PLUM CREEK EXAMPLE

- Example of Observed Groundwater Elevation and Baseflow Trends near Plum Creek, Nebraska



QUESTION: Are there depletions occurring due to groundwater pumping in this area?

ANSWER...

We don't know for sure.

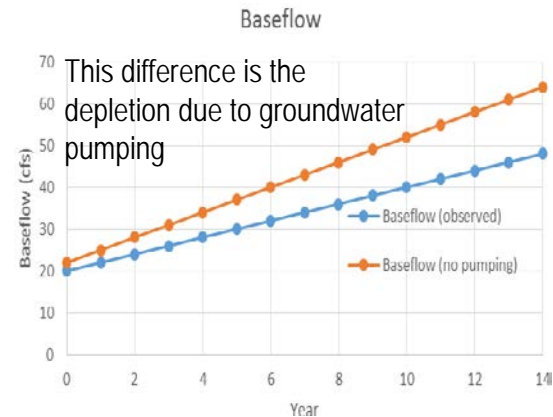
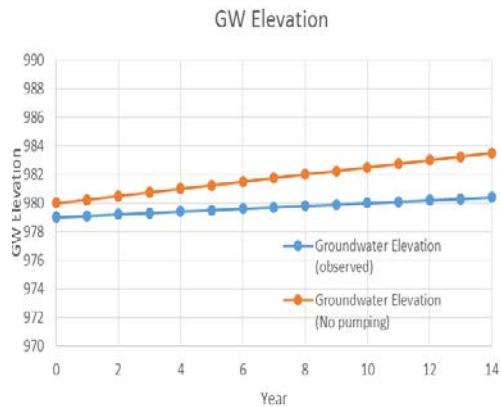
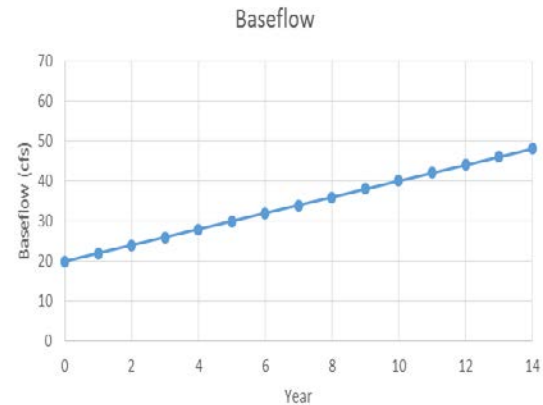
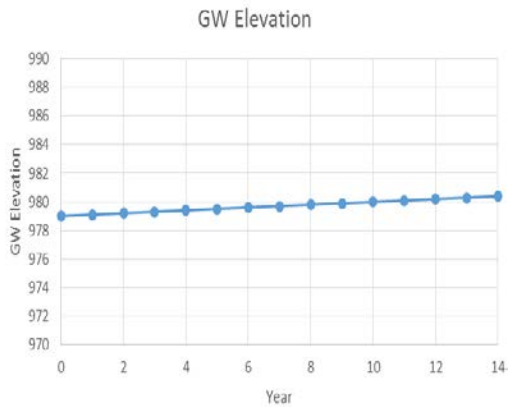
Why?

Because we don't know what conditions would have been without groundwater pumping occurring. *This is what we use modeling tools for!*

How?

To estimate conditions without the effects of pumping, a model is used to simulate two identical hydrologic scenarios – one with groundwater pumping occurring, one without.

THE ESTIMATED EFFECTS OF GROUNDWATER PUMPING CAN BE DETERMINED





WESTERN WATER USE MODEL

WESTERN WATER USE MANAGEMENT MODELING

- Modeling was commissioned by:
 - North Platte NRD
 - South Platte NRD
 - Nebraska DNR

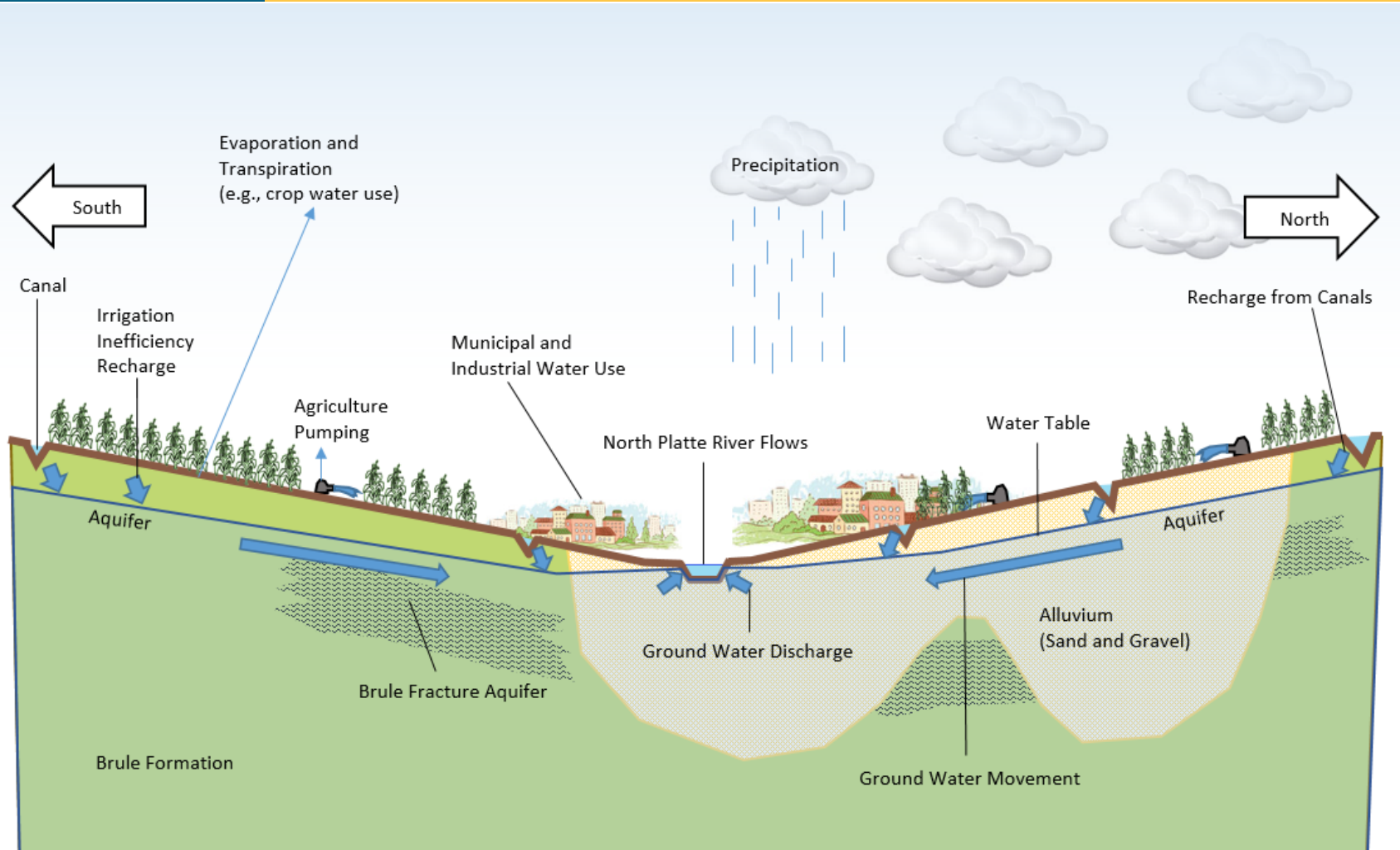
- Modeling started in 2009

WESTERN WATER USE MANAGEMENT MODELING

- **Purpose:** Data centered and decision support modeling package to aid the South Platte NRD and the Nebraska DNR in water management decisions.

- **Uses two models:**
 - Regionalized Soil Water Balance Model
 - Provides crop water use and other information

 - Groundwater Model (MODFLOW)
 - Timing and movement of water through the aquifer

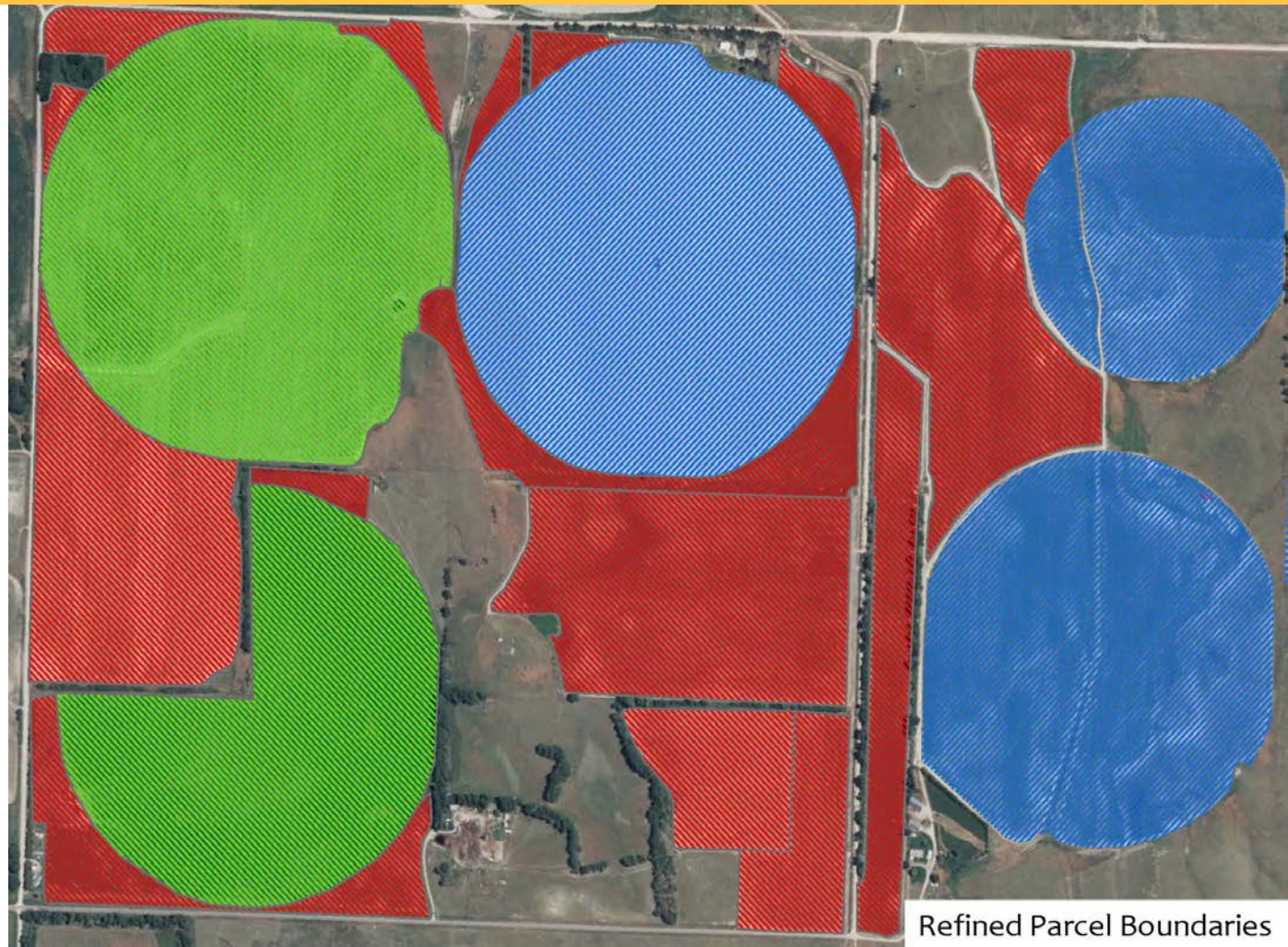


MODELING THROUGH 2013

- Land Use – Yearly from 1953 - 2013
 - Aerial photo snap shot years
 - 1950s, 1970s, 1980s, 1993, 1997, 2001, 2003, 2005, 2009, 2010, 2012
 - Drew circles and squares around each parcel for each snapshot
 - Attributed with:
 - Crop type information
 - Irrigation water source from NPNRD and SPNRD
 - Flood or sprinkler irrigation method
 - Metered pumping information from each NRD

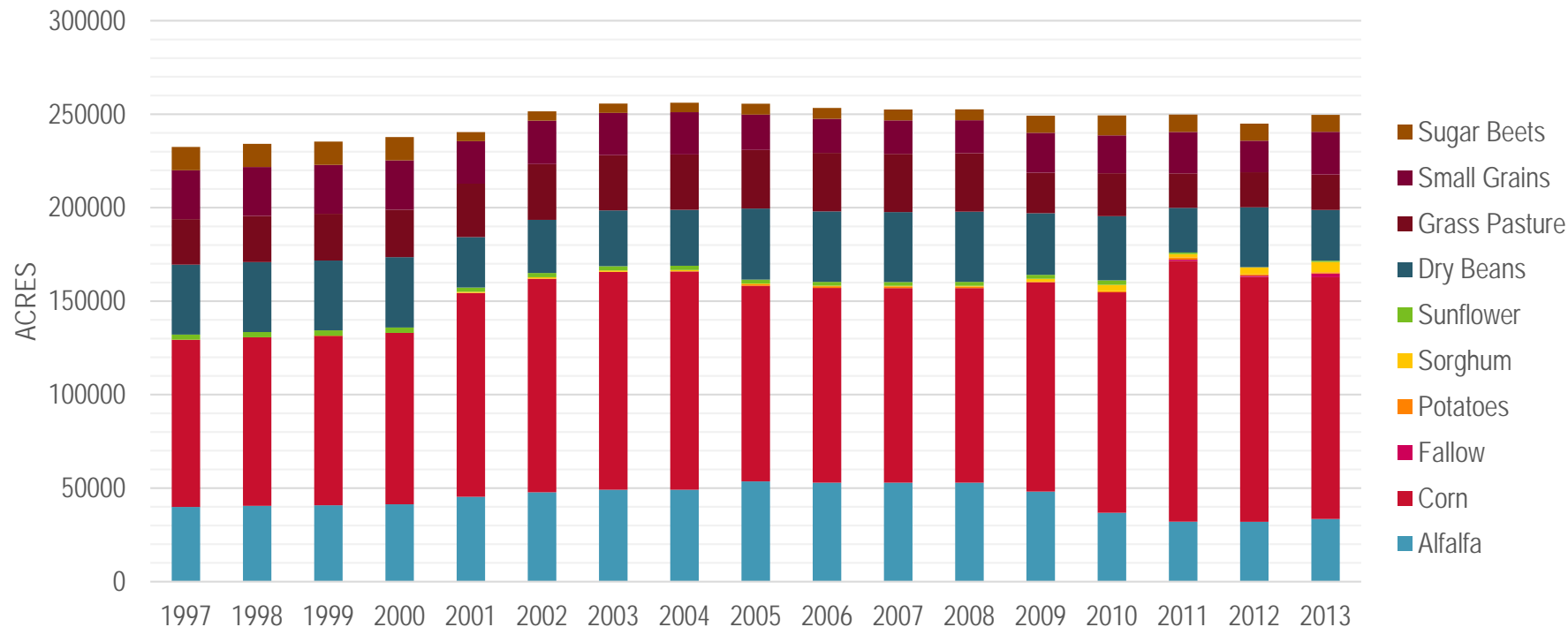
LAND USE DATASETS

1953 - 2013

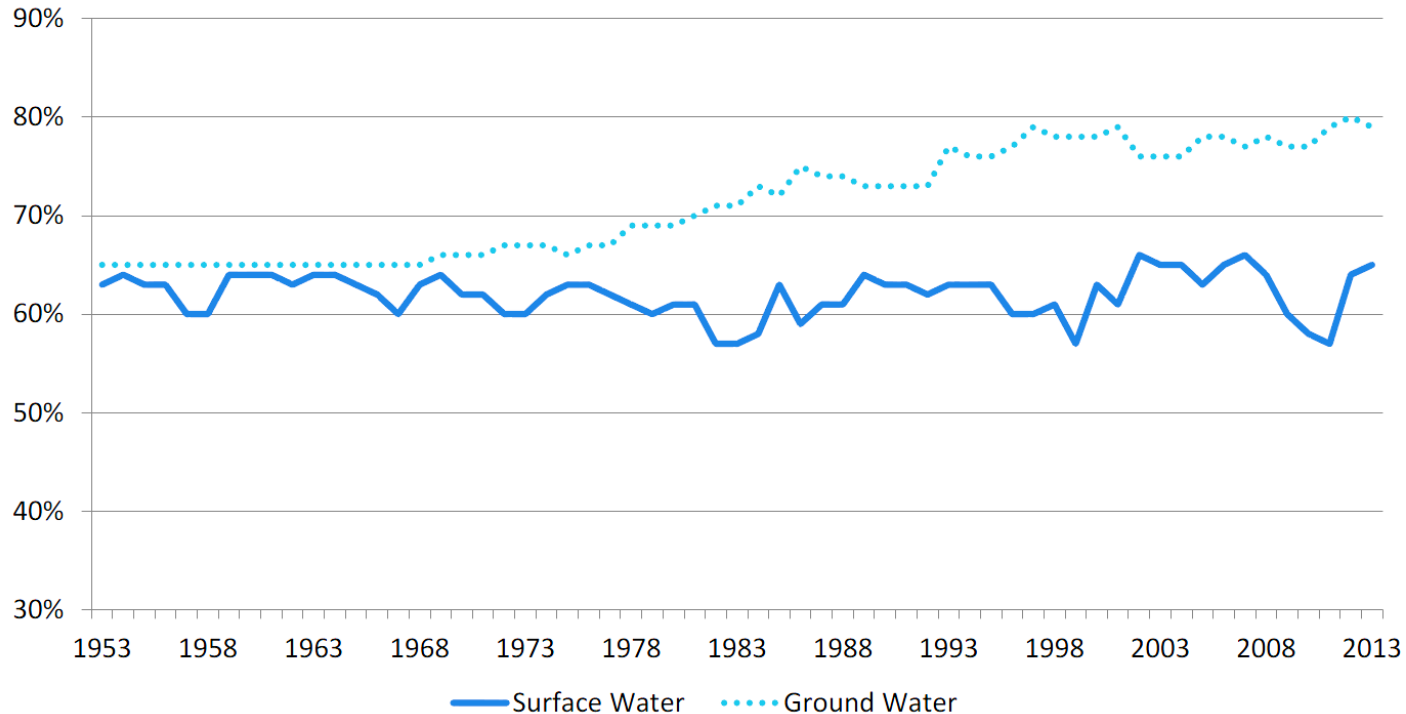


Refined Parcel Boundaries

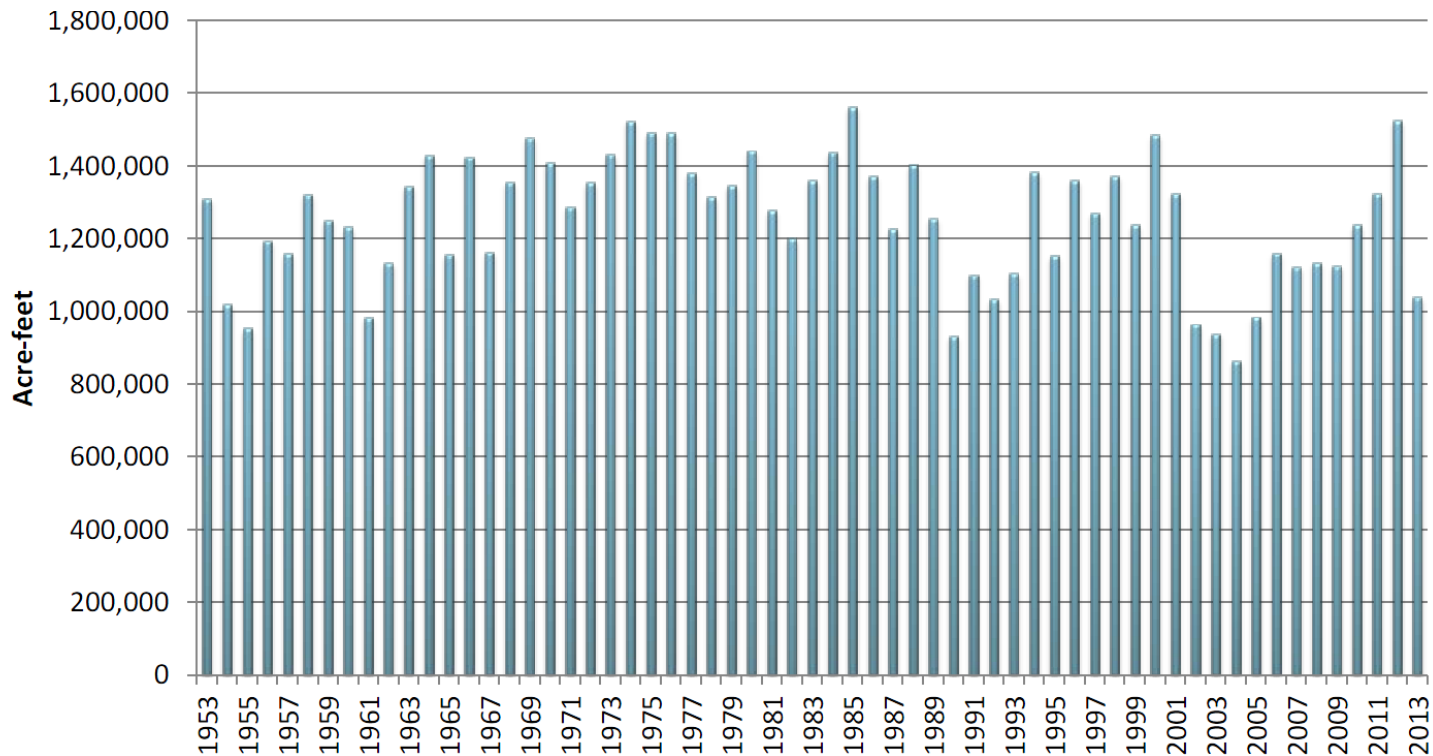
NPNRD ANNUAL CROP STATISTICS 1997 - 2013



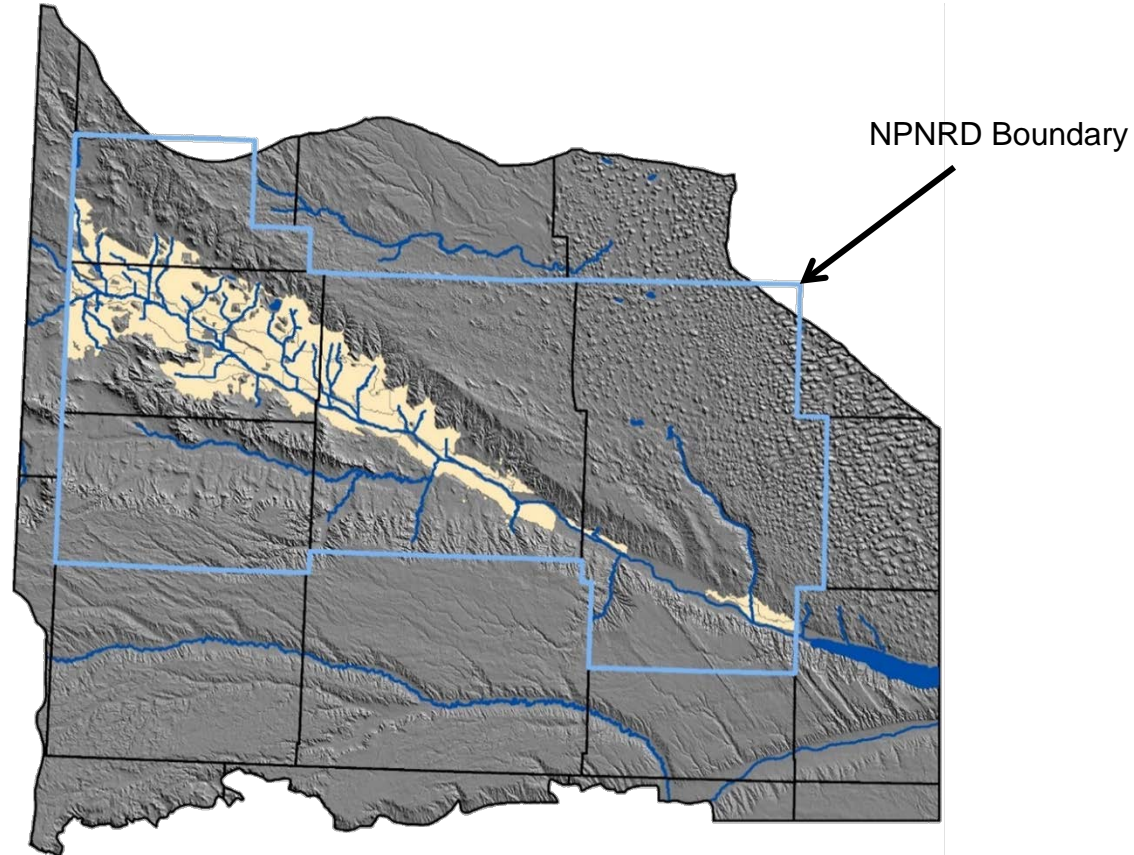
NPNRD IRRIGATION EFFICIENCY 1953 - 2013



HYDROLOGIC DATASETS 1953 - 2013



SURFACE WATER LANDS UNDER CANALS WITHIN NPNRD



NPNRD WATER RESOURCES ANALYSES

- Incentive Based Program Analyses
 - Groundwater certified acres retirements
 - Surface water and commingled leases
 - EPIC allocation buydowns

- Regulations Analyses
 - Groundwater transfers
 - Allocations analyses

ALLOCATION ANALYSIS

- Generalized concept
 - Determine the effectiveness of NPNRD's allocations of reducing consumptive use and depletions through deficit crop irrigation

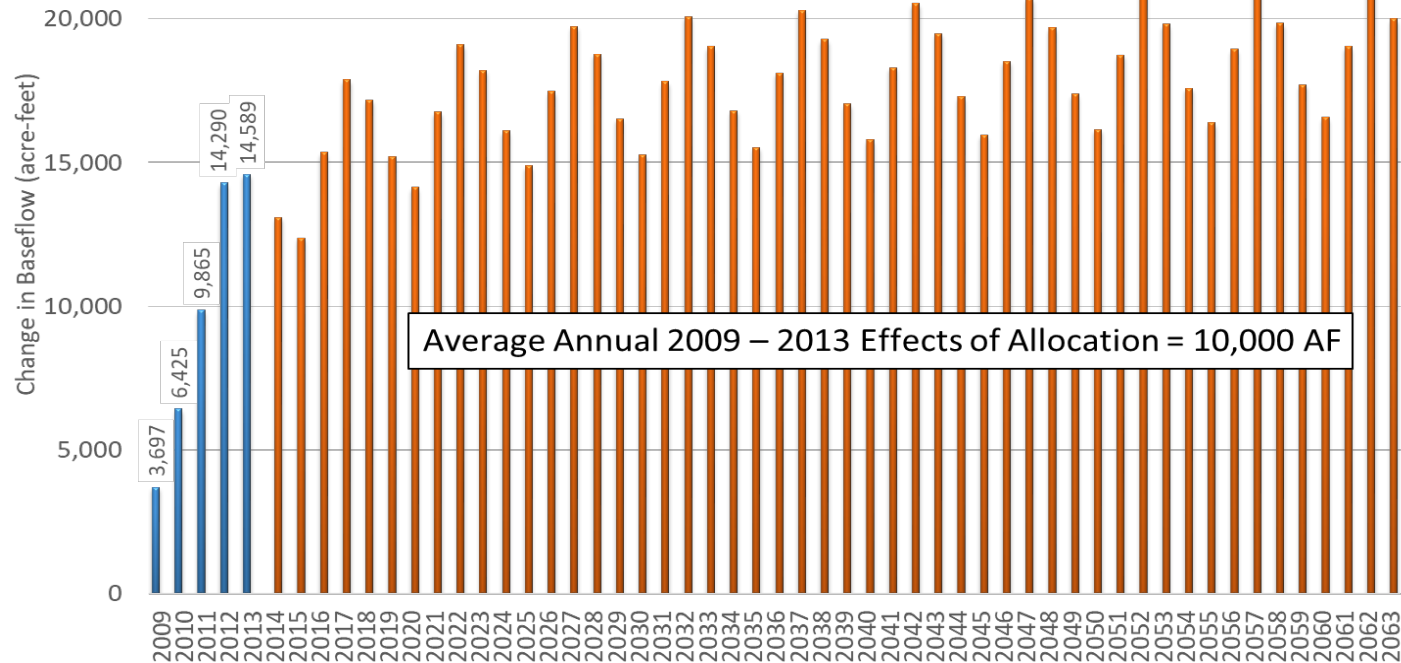
- Comparison of:
 - Metered pumping from NPNRD
 - ✓ Actual pumping on each field

 - Modeled Pumping created through WWUM Modeling
 - ✓ Pumping at the full consumptive use of the crops for the groundwater only lands
 - ✓ We assumed no benefit from allocations on commingled lands due to dual sources of water

 - Repeat recharge and pumping from 2009 through 2013 for 50 years into the future to provide planning information for the District

ALLOCATION ANALYSIS

North Platte River and All Tributaries Annual Change in Baseflow (acre-feet)



Note: This analyses was completed after the 2013 modeling update. An updated analysis will be conducted after the completion of the 2016 modeling update in calendar year 2019.



IMP IMPLEMENTATION STATUS

Components

Related Rules

Incentive Based Activities

REGULATIONS

- Moratorium on new wells and expansion of irrigated acres in the District (Ref: Neb Rev Statute §§ 46-739 or IMP - Chapter 5, II, C1)
- Flow meters on all regulated wells in the District
(NPNRD Rules & Regulations, Chapter 4)
- All groundwater acres must be certified
(NPNRD Rules and Regulations, Chapter 3 or IMP - Chapter 5, II, C2)
- OA appropriated portion is allocated (IMP – Chapter 6, II, B, 3a)
 - North Platte River Valley 70 acre-inches over five years
 - Pumpkin Creek 60 acre-inches over five years

FEDERAL/STATE PROGRAMS (IMP – Chapter 6, II,A,2a)

- 2005 – approximately 2,500 irrigated acres were permanently retired in Pumpkin Creek

- AWEF & EQIP acres
 - 3705 under contract right now – could add another 200 this year

- CREP acres
 - 5,617.03 GW/SW/Co-mingled

NPNRD OUTREACH PROGRAMS

- Producer roundtables take place every Jan. & Feb
- Presentations at various organizations within district, state, nationally and internationally about NPNRD programs/projects
- Participation in conferences, meetings, and other natural resources related gatherings

NPNRD OUTREACH PROGRAMS CONT.

- Presentations at social groups and other organizations with interest in natural resources (Rotary, Kiwanis, Chamber of Commerce, and others)
- Use of traditional media (press releases, radio, T.V., and press conferences)
- New media (Website, Facebook, Twitter, LinkedIn, and others)
- Visiting nearly 200 classrooms a year and more than 4,000 students

INFORMATION/EDUCATION IN THE IMP

- Identify education programs to help reduce consumptive use and meet management goals and objectives (*IMP - Chapter 5, I,C1*)
- Non-regulatory action items (*IMP - Chapter 5, II,B1*)
 - Development of education activities to help inform about the various management programs
 - Educational materials for outreach activities
- Outreach programs cover activities in the entire district

NRD PROGRAMS - CURRENT

- Surface water, groundwater, commingled retirements/leases
- 10/30 & EPIC (allocation buy-down) Programs
- Alternative Cropping
- Conservation cost-share changed to align with IMP obligation goals
- Credits from excess flow from NP River diverted through the canals (40,000 a/f in 2011, around 17,000 a/f in 2016)

(IMP – Chapter 6, II, A, 2 & 3)

NRD PROGRAMS - FUTURE

- On-farm efficiencies improvements including Variable Rate Irrigation, pivot dropdown nozzles replacement, soil moisture sensors, weather stations, and other water saving technologies
- Expand the allocation buy-down program, which the NPNRD has budgeted \$284,000 in FY2018, with \$200,000 coming from the WRCF, which could provide additional **14,200 acre-inches or 1,183.3 a/f back to the river**

NRD RETIREMENT/LEASE PROGRAMS

- 3,442.05 acres are enrolled in retirements/leases
- EPIC Program - purchased 6,401.5 acre-inches or 533.5 acre-feet from GW only users
- 2016-2018 – Money from the Water Sustainability Fund to permanently retire 1000 groundwater acres (*DNR Contract #934*)

NPRND EXPENDITURES ON WATER MGMT.

- NPNRD has spent more than \$10.8 million to help meet out IMP obligations
- An additional \$6.8 is obligated through 2032
- Since 2008
 - 91,822 in hours worked, which equals \$2.4 million in salaries and benefits
 - 519,238.7 miles driven at a cost of \$285,581.29
 - NPNRD has use an average of 0.9 (minimum .3 cent; maximum 2 cents) of the three-cent levy authority, which was allowed to sunset in 2018
- Since 2013, NRD has spent more than \$2 million on permanent/temporary groundwater retirements and surface water and surface water leases in advantageous zones of depletion

NPNRD ACHIEVEMENTS TO DATE

- Based upon a preliminary analysis, the NPNRD has met and exceeded their post-1997 depletions target identified in the first increment IMP



SECOND INCREMENT CONSIDERATIONS

ITEMS TO ADDRESS IN NEXT IMP

➤ IMP

- New efficiencies in the surface water system, which creates new depletions or takes away accretions from the river
- 25 million gallon rule and how it impacts municipalities, industry, and feedlots
(IMP – Chapter 5, II, C, 4C & 5 B & C)
- Initiate a study to determine the potential aquifer recharge from farms that are flood irrigated

➤ DNR

- Can we make the permitting process more efficient
- Bankable water
- Field inspection for every lease/retirement

DROUGHT PLAN

- How will the planning and mitigation for drought be integrated into the second increment of the IMP?
- NPNRD's Drought Plan *(Binder item 13) (IMP - Chapter 7, II, A & B)*



NEXT STEPS

MEETING DATES

- August 16
- November 15
- January 17, 2019



PUBLIC COMMENT

Thank You



**Nebraska's
Natural Resources
Districts** www.nrdnet.org

Protecting Lives • Protecting Property • Protecting the Future

Name	Org / Represent
David W Howell	Farmer
Muel Anderson Richard Anderson	Western Sugar Cooperative Central Irrigation District
Charles Cheney	Union Irrig Dist.
Linda Cheney	Union Irrig Dist.
Jim Mason Pat Heath	City of Gering
Will Copple	Groundwater producer
Roy Hyles	RANCHER
Leo Hoehn	Ground water
Jack Revell	Ground water
Annis Strawn	Fertigation Dist (Patterson)
Gary Spier	Minuteman Mutual Canal & Irr. Co.
Dave Fisher	5 years boat
Thad Kuntz	NPNRD
Bruce Rolls	Platte River Basin Env
Skyler Loeffler	Farmer
Trevor Schneider	Farmer
Alton Herwick	Farmer

NEBRASKA ASSOCIATION OF RESOURCES DISTRICTS

601 So. 12th Street, Suite 201 • Lincoln, NE 68508
(402) 471-7670 • Fax (402) 471-7677 • www.nrdnet.org



Name

Org/Represent

Eck Preston

Gering Ft Laramie Irr Dist

Bryan Barrett

Farm Credit Services of America

Roger Erich

NPNRD / Chimney Rock Irr

Robert Bush

G.L. Surface water

Deora Bundage

CNPP & ID

Randy Zach

NPPD

Beth Eckler

NeDNR

Dee Wild

NPNRD

Danielle Schaffer

NPNRD

Scott Schaneman

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Terry Jessen

FARMER

John Beyer

NPNRD

Roy Lyles

Steve Smith

NPNRD / NPNA

Bub Cross

NPNRD

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