



# CPNRD IMP

Meeting 1

# TODAY'S AGENDA

- Welcome
- Why are we here?
- How did we get here?
- What has been done?
- Central Platte NRD IMP
  - Review of 1<sup>st</sup> Increment Plan
  - COHYST data and modeling
  - Lessons learned
  - Initial discussion of topics to address
- Public comment

# WELCOME

- Open meeting notice
- Safety & logistics
- Introductions



# WHY ARE WE HERE?

Process Summary

# PROCESS SUMMARY

## Upper Platte Basin-Wide Planning

**Statutory Authority**

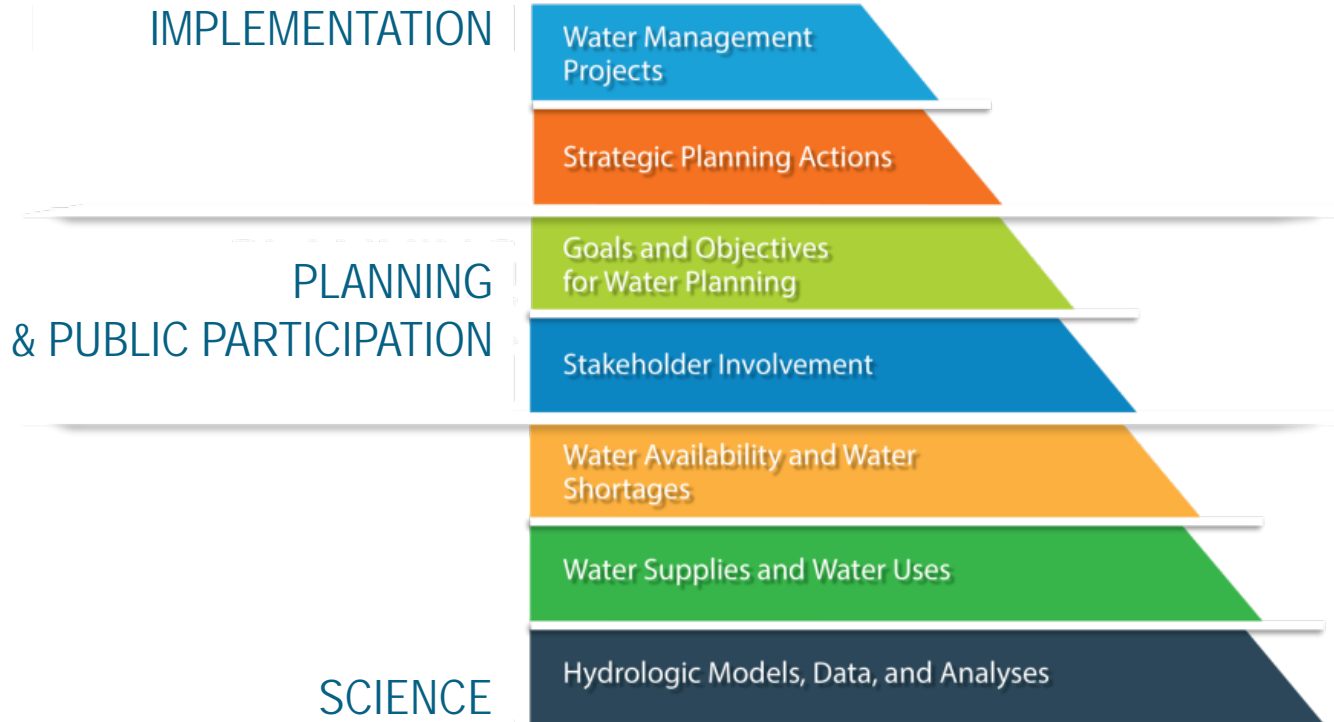
*(How did we get here?)*

**Current Basin-Wide Plan**

*(What has been done?)*

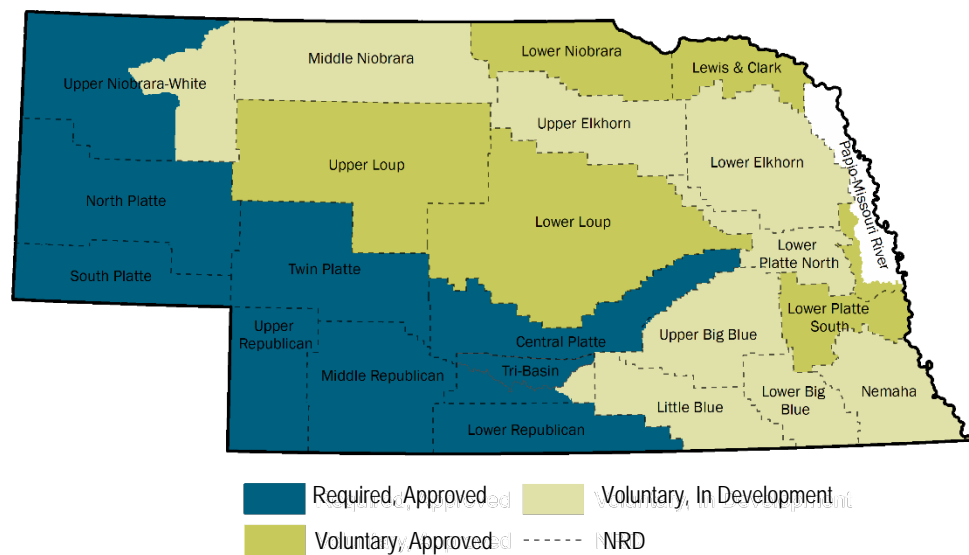
**Basin-Wide Plan & IMPs**

# 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





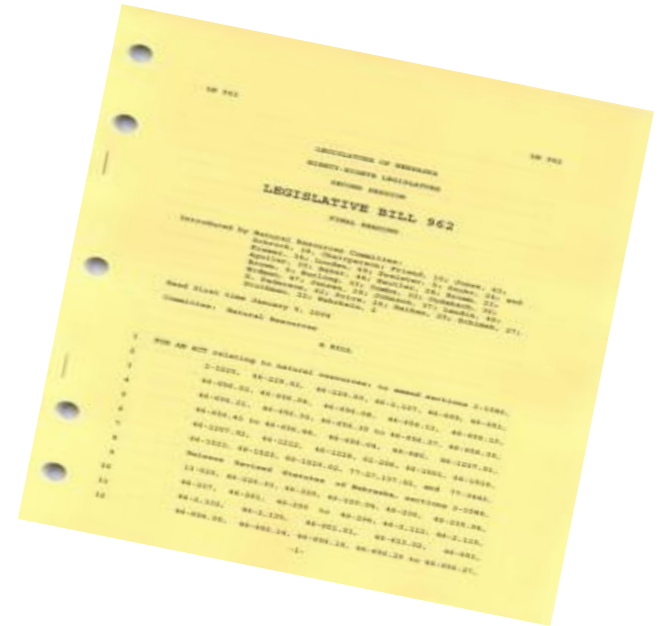
# HOW DID WE GET HERE?

*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?

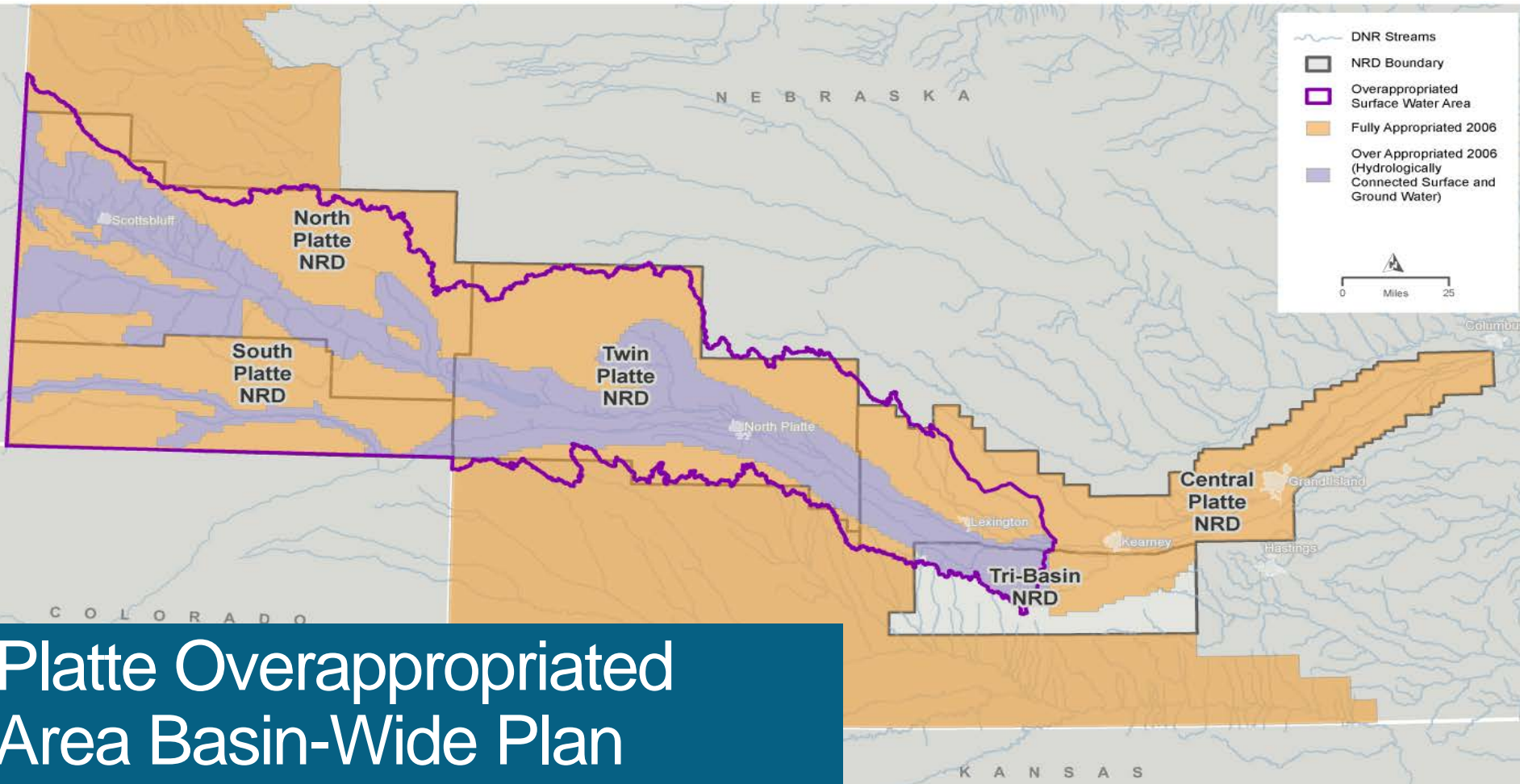
- Criteria for an overappropriated basin designation
  - Interstate agreement
  - Moratorium on surface water appropriations
  - Stays on well construction

## 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.

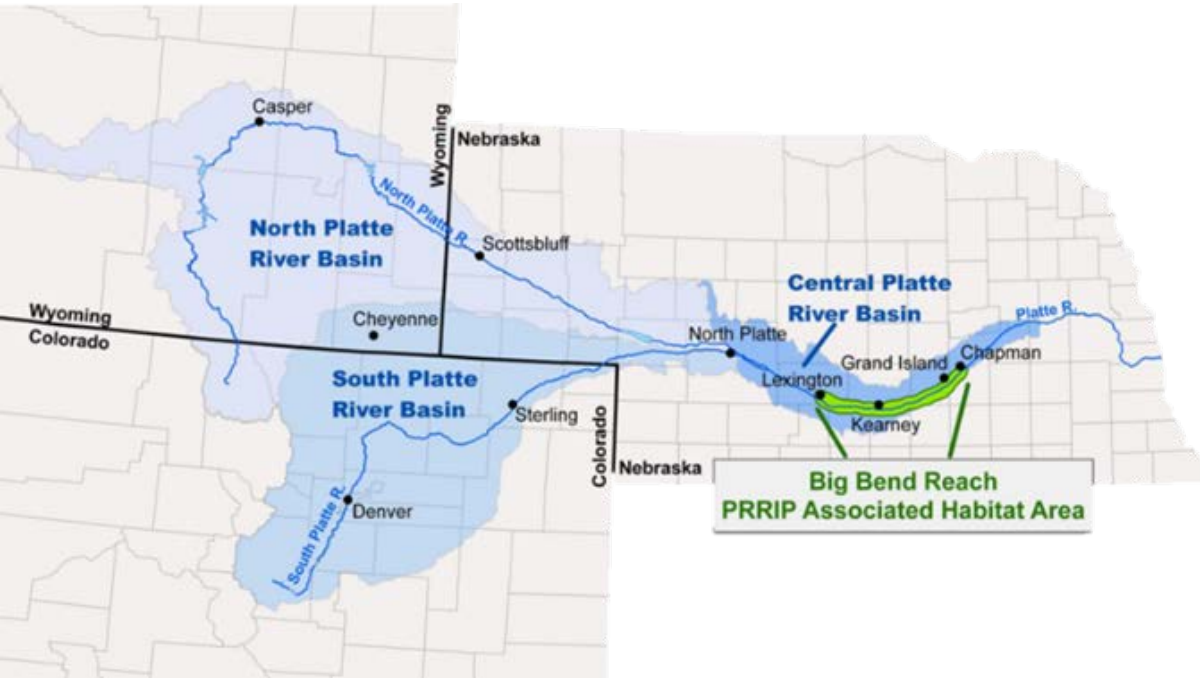
# STATUTORY REQUIREMENTS § 46-715(4)

- Groundwater and surface water controls shall
  - a. Be consistent with the goals and objectives of the plan
  - b. Ensure Nebraska compliance with interstate agreement
  - c. 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 (2007-2019), extension through 2032 is expected.

# 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

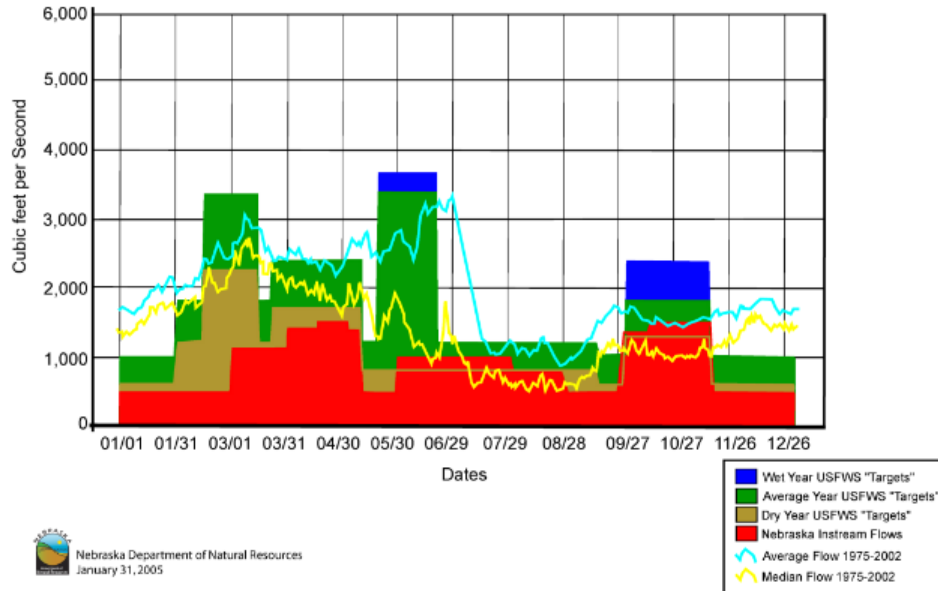


# INTERSTATE AGREEMENT – PRRIP

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



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

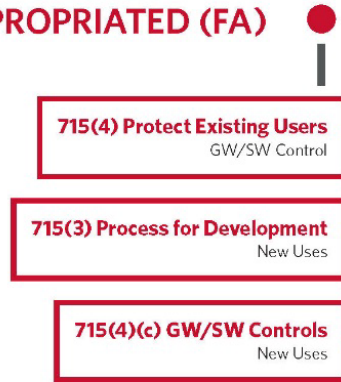
# STATUTORY REQUIREMENTS § 46-715(5)(a)

## ➤ 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

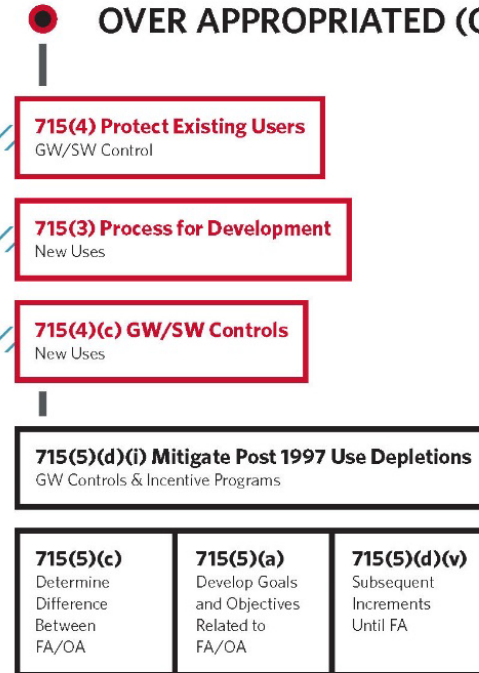
## FULLY APPROPRIATED (FA)



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
- 2nd increment Basin-wide Plan process began in 2016 with stakeholders

# THEY ARE SIMILAR BUT DIFFERENT

## Basin-Wide Plan

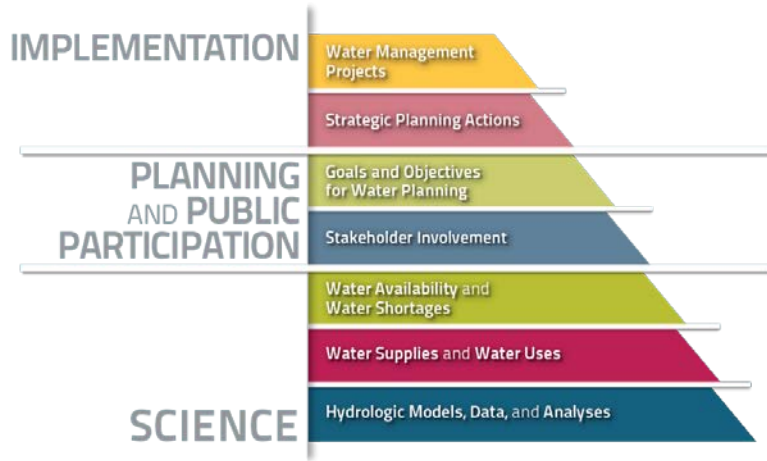
- All basin NRDs & NeDNR
- Overappropriated area
- Goals & objectives
  - Focused on regional, cross-boundary issues and opportunities
  - Consistency and collaboration among basin NRDs
  - A broad framework

## 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
- Proactive
- Protects existing users

- Adaptive management
- Jointly developed between NRD and NeDNR
- Suited to local conditions





# WHAT HAS BEEN DONE?

Current Upper Platte Basin-Wide Plan

# UPPER PLATTE BASIN-WIDE PLAN

## ➤ 1<sup>st</sup> Increment Basin-Wide Plan

- Current plan went into effect in September 2009

## ➤ 2<sup>nd</sup> Increment Basin-Wide Plan

- Current process to incorporate stakeholder input into 2<sup>nd</sup> increment basin-wide plan
- Will present draft 2<sup>nd</sup> increment plan to stakeholders in September 2018
- 2<sup>nd</sup> increment plan will go effect in September 2019

Goals	1: Incrementally achieve and sustain a fully appropriated condition	2: Work to maintain economic viability of the basin while implementing this plan	3: 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.
Objectives	Offset impacts of streamflow depletions... to the extent those depletions are due to water use initiated after July 1, 1997	Understand the economic impacts of supply variability on water users	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.
	Maintain first increment mitigation efforts	Assess short and long-term basin water supply and demand	
	Conduct a technical analysis...to determine whether the controls are sufficient...	Explore potential measures to mitigate impacts of basin supply variability on surface water and groundwater users	
	Use available funds and actively pursue new funding opportunities to...implement this Plan	Develop a basin drought contingency plan for management of supplies during times of shortage	
	Update and continue implementing IMPs in each Platte River Basin NRD		

<p><b>Goals</b></p>	<p>4: Partner with municipalities and industries to maximize conservation and water use efficiency</p>	<p>5: 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.</p>	<p>6: Keep the Upper Platte River Basin-Wide Plan current and keep stakeholders informed.</p>
<p><b>Objectives</b></p>	<p>Continue to collect data on water use and existing conservation plans of municipalities and industries within the Basin</p>	<p>Identify disputes between groundwater users and surface water appropriators.</p>	<p>Meet at least annually to review progress toward achieving the goals and objectives of this Upper Platte River Basin-Wide Plan and those portions of individual NRD IMPs that implement this plan.</p>
	<p>Invite municipalities and industries to the annual meetings</p>	<p>Investigate and address issues between groundwater users and surface water appropriators, based on investigation results.</p>	<p>Gather and evaluate data and information to measure the effectiveness of controls, incentives, and other programs in the individual NRD IMPs used to implement this Upper Platte River Basin-Wide Plan.</p>
	<p>Establish baseline water use levels and reasonable water use levels for each municipal and industrial user by January 1, 2026.</p>		<p>Improve information sharing with interested stakeholders</p>



# CENTRAL PLATTE NRD IMP

Review 1<sup>st</sup> Increment Plan

COHYST Data and Modeling

Lessons Learned

Initial Discussions

# CENTRAL PLATTE NRD IMP REVIEW 1ST INCREMENT PLAN

# INTEGRATED MANAGEMENT PLAN

## ➤ Map of the Areas

- Overappropriated
- Fully appropriated

## ➤ Incentives

## ➤ Water banking

## ➤ Monitoring

## ➤ Studies

## ➤ Controls

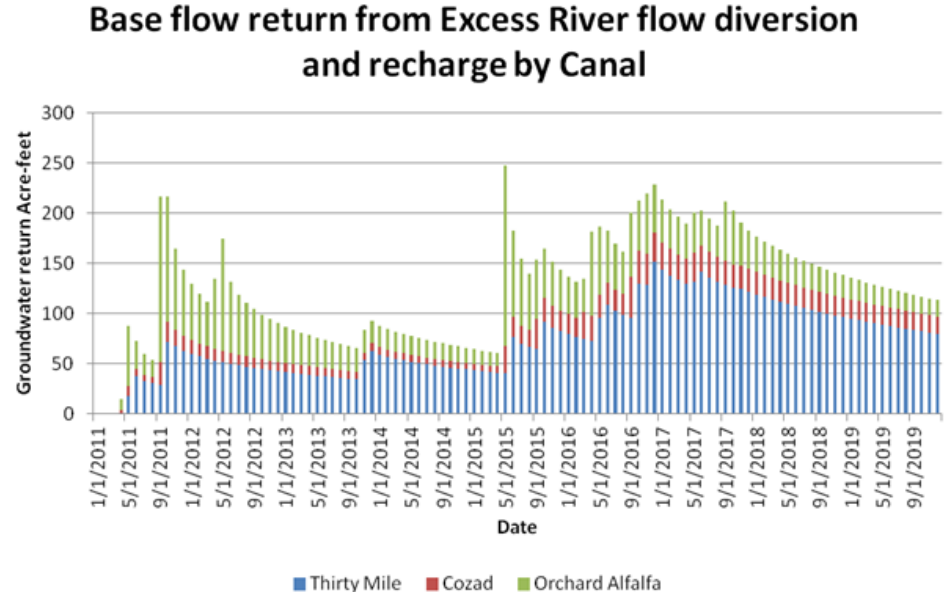
- Moratorium/certified acres
- Transfers
- Municipal and industrial

## ➤ Post-1997 Depletion Targets CPNRD (PR:1,900 af in OA)

- Accomplished through first increment by surface and groundwater retirements, Conjunctive Management of Dawson County Canals

# MANAGEMENT ACTIONS TAKEN

- Conjunctive Management - Recharge of excess flows in Dawson County Canals
  - 2011, 2013, 2015, 2016, and 2017
  - Total diversion ~ 57,312 acre-feet
  - Total estimated recharge ~ **34,891** acre-feet
- Surface Water Temporary Transfers
- Acre retirements





# MANAGEMENT ACTIONS TAKEN

- Surface water temporary transfers
  - Transfer flow return
    - 2015, 2016, & 2017
    - Total temporary transfer return = 45,254 acre-feet
    - Average of 15,000 acre-feet a year

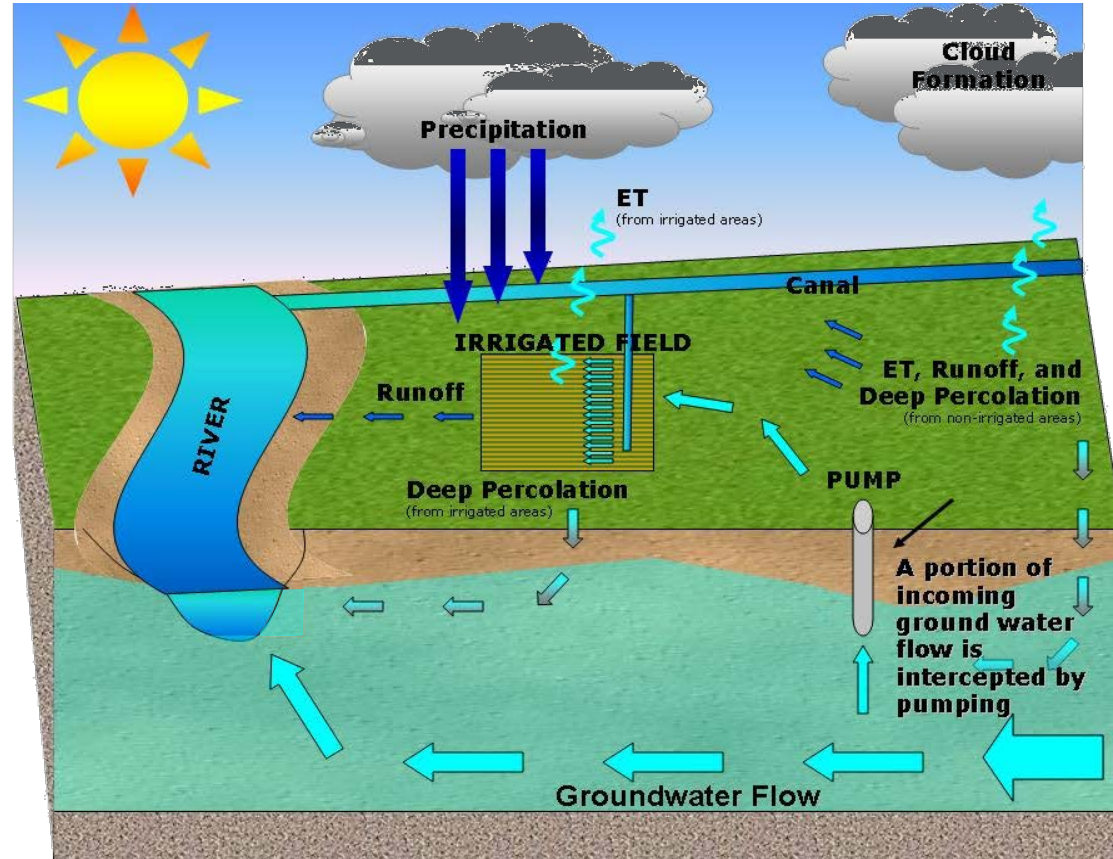
# MANAGEMENT ACTIONS TAKEN

- Retirement of irrigated acres
  - 2,447 acres of **surface water** were retired accounting for 1,833 acre feet of return to the Platte River by 2043
  - 2,595 acres of **ground water** were retired accounting for 861 acre feet of return to the Platte River by 2043

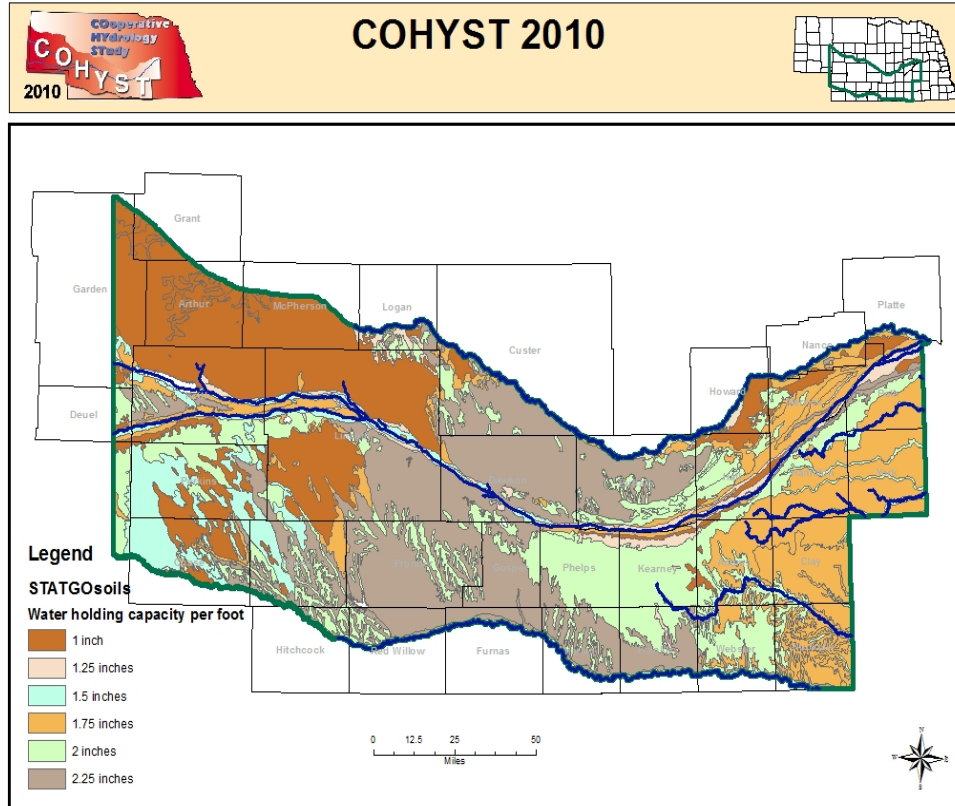
# CENTRAL PLATTE NRD IMP COHYST DATA AND MODELING

# STREAM DEPLETIONS 101

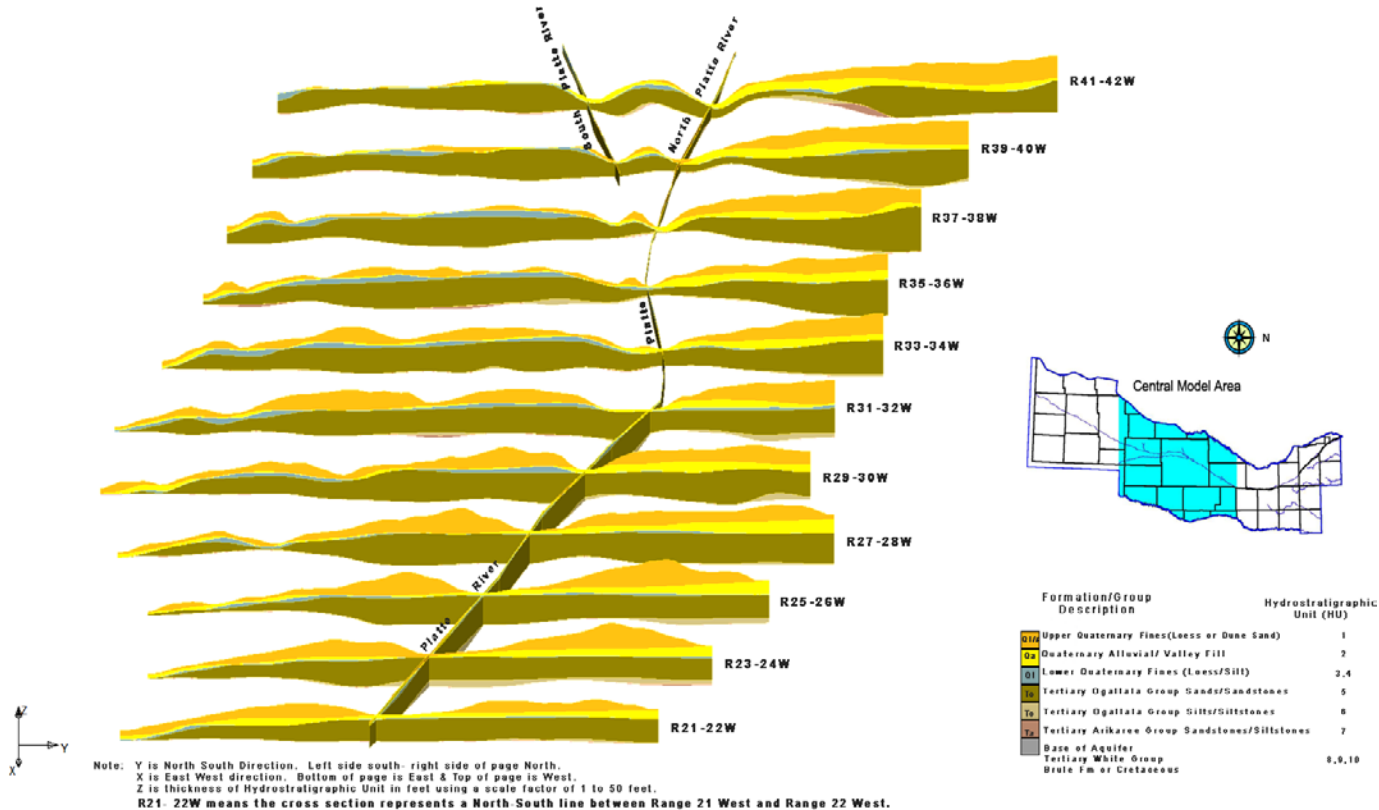
- Typical elements of ground and surface water budgets



# Hydrogeologic Inputs - Soils

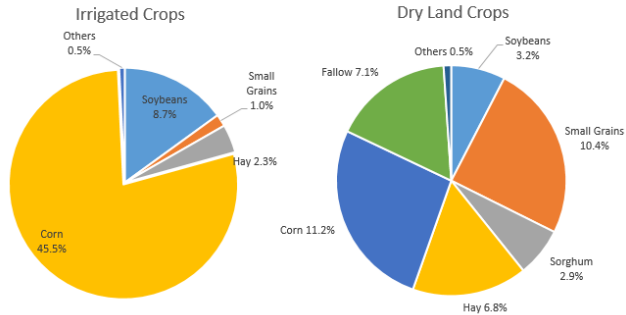
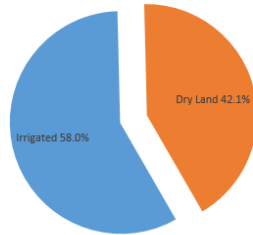


# Aquifer Variability - Lateral and Vertical

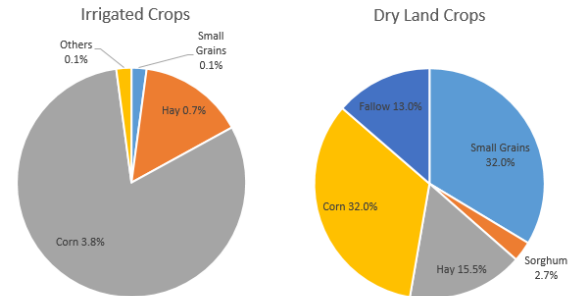
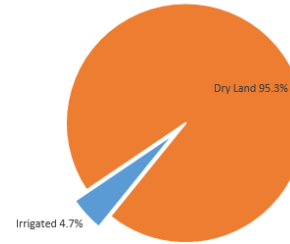


# Transient - Captures Changing Patterns

2007 Census Crop Distribution

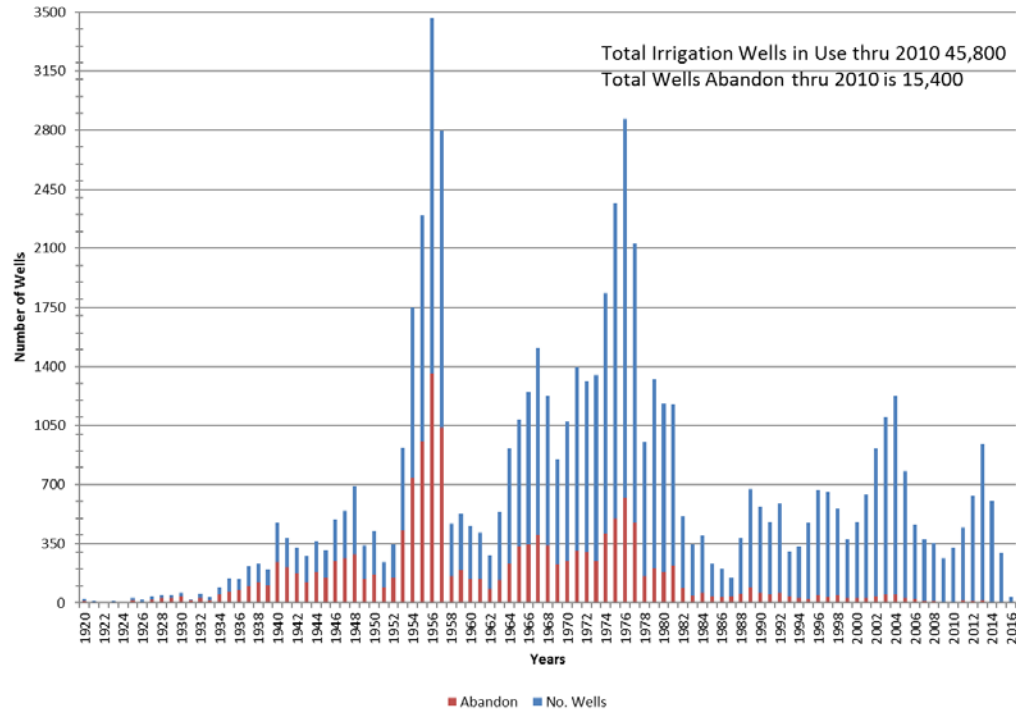


1950 Census Crop Distribution



# Groundwater Irrigation Development

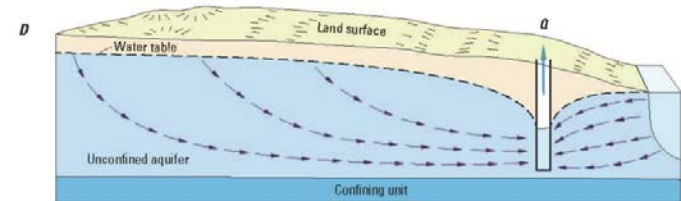
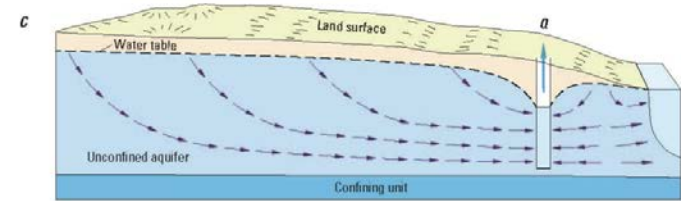
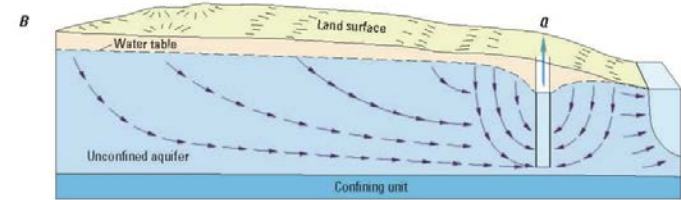
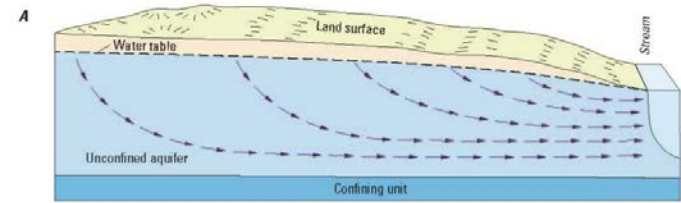
Irrigation Wells Developed and Abandoned each Year in COHYST Model Area

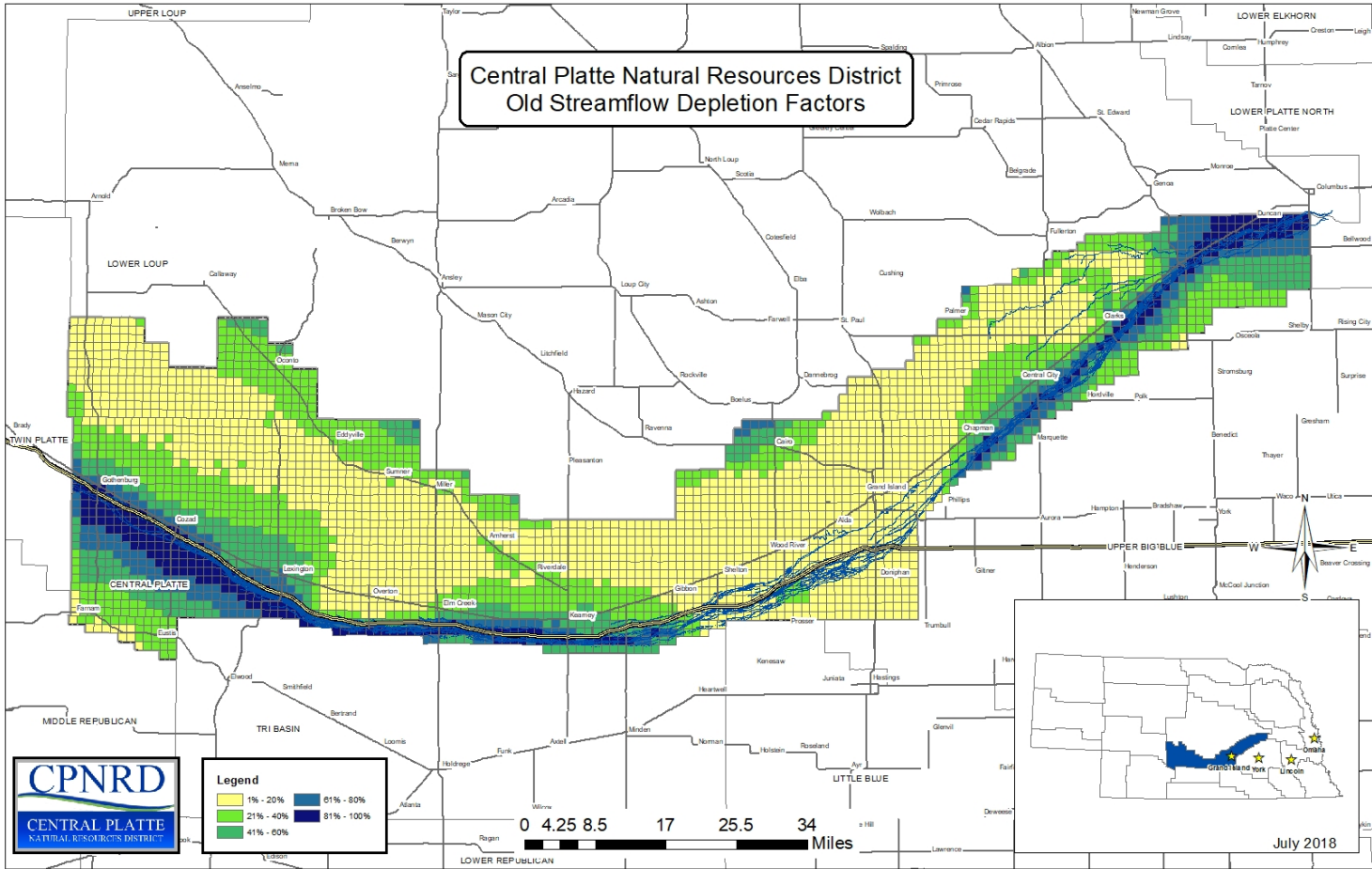


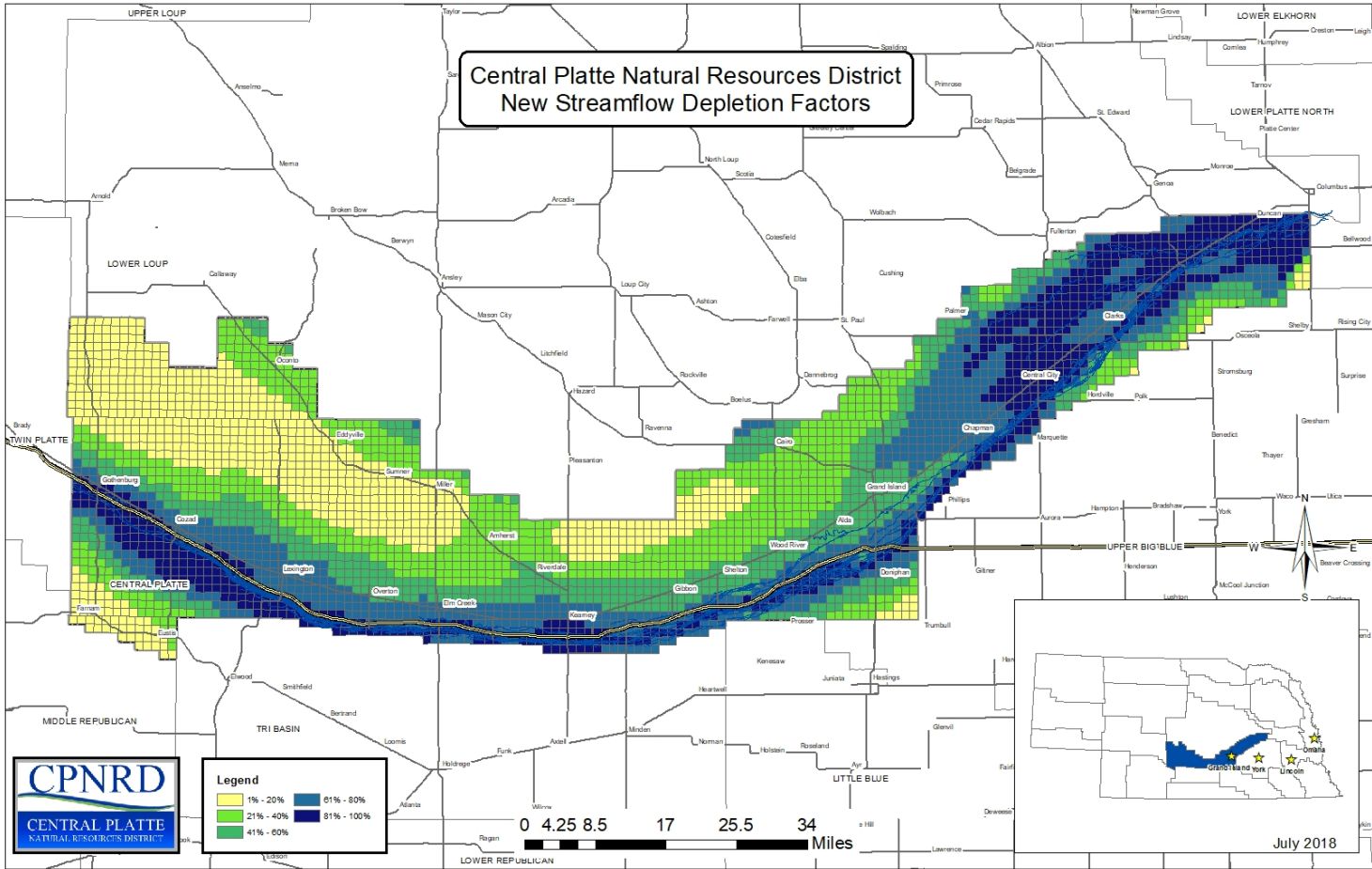


# STREAM DEPLETIONS 101

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







# CENTRAL PLATTE NRD IMP

## LESSONS LEARNED

FROM THE 1<sup>ST</sup> IMP

# Lessons Learned

- Water is expensive and not readily available
  - Sustainability of funding
- POAC – PBC – technical and financial management
- Shortage of water is a management problem
- Modeling process and technology updates
  - Need for better communication
  - Need to improve timeliness of analyses
- Education and outreach efforts need to improve
- Challenge in identifying fully appropriated (FA) and overappropriated (OA) distinction and defining fully appropriated
- Challenge in finding a water use and supply balance – defining possibility and sustainability

# Suggestions

- Current plan works
- Update 2<sup>nd</sup> increment streamflow requirements
- Updated 2<sup>nd</sup> increment goals & objectives to be consistent with the Basin-Wide Plan

# CENTRAL PLATTE NRD IMP INITIAL DISCUSSIONS

OF TOPICS TO ADDRESS



**NEXT STEPS**



# MEETING DATES

- September 18, 2018
- November 13, 2018
- January 15, 2019



# PUBLIC COMMENT

Thank you