

Central Platte Natural Resources District



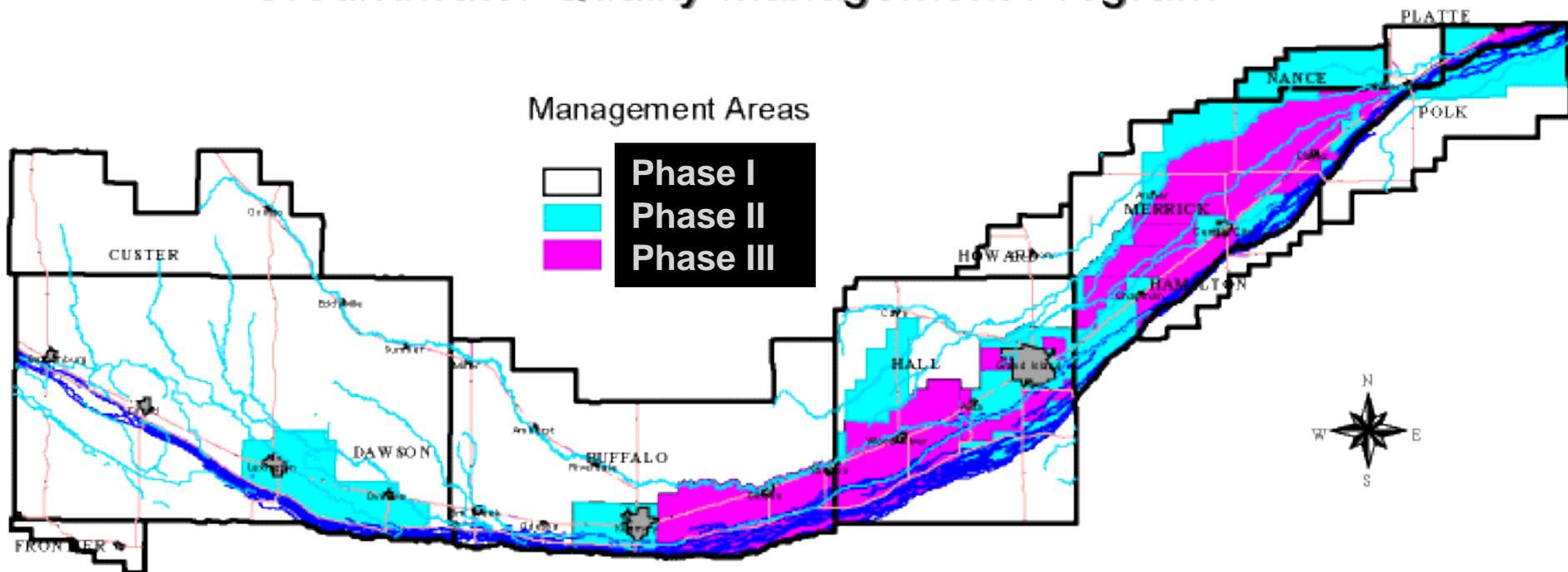
Protecting Lives, Protecting Property, Protecting the Future

MAIN ISSUES:

- Groundwater Quality and Quantity
- Fully & Over-Appropriated Designations
- Programs
- Flood Control

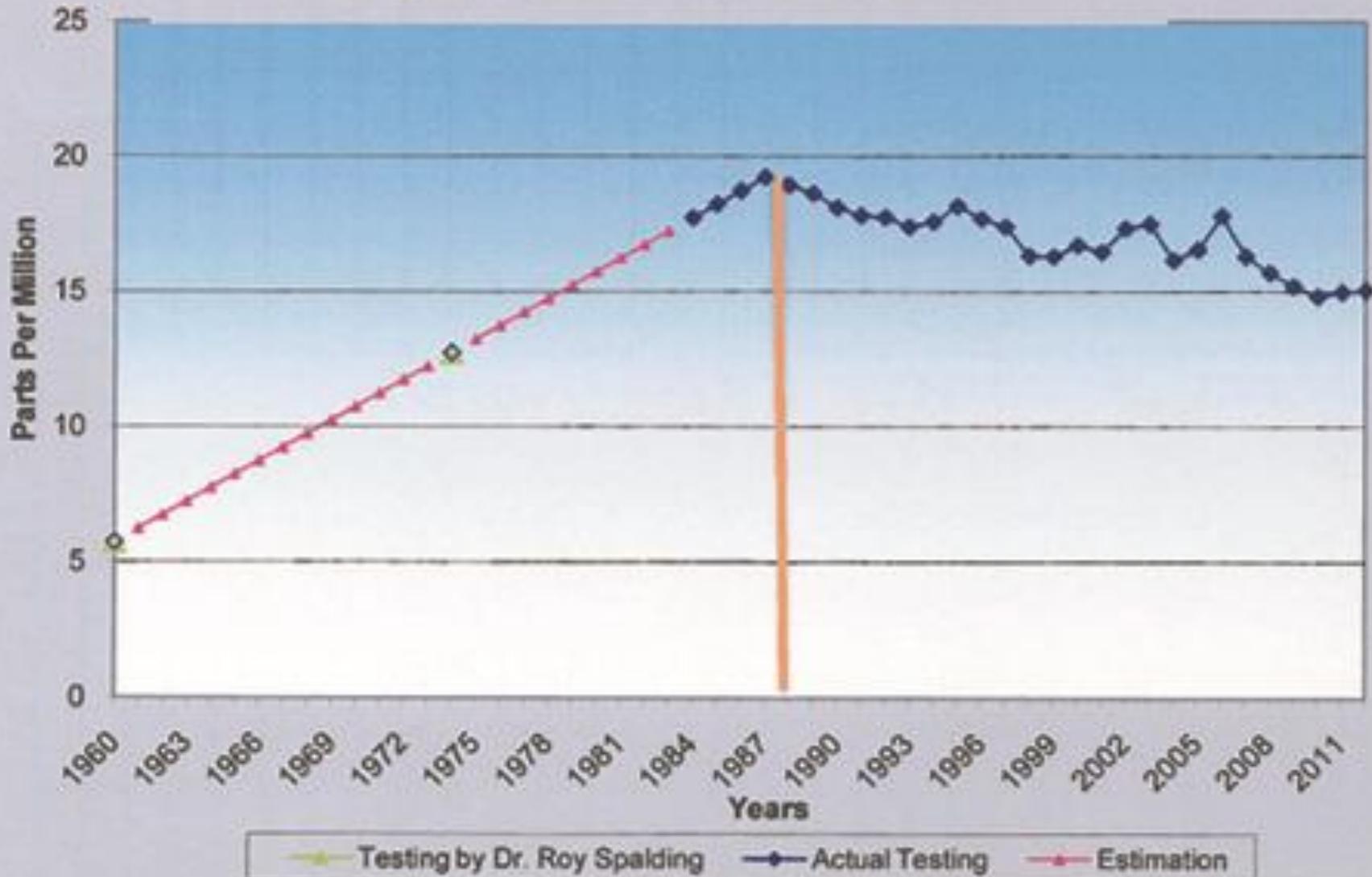
GROUNDWATER QUALITY:

Central Platte Natural Resources District Groundwater Quality Management Program



Central Platte Natural Resources District Average Nitrate Levels in High Nitrate Area

Groundwater Quality Management Program- Started in 1988

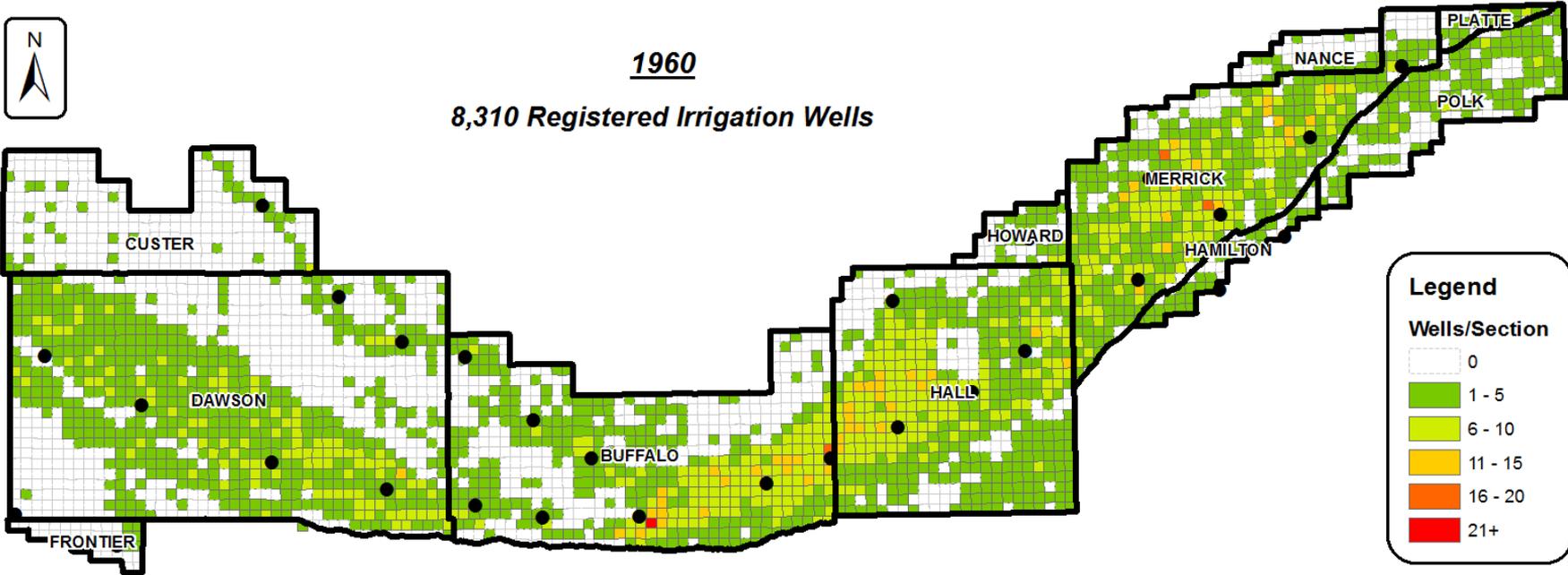


GROUNDWATER QUANTITY:

- Registered Irrigation Wells (Time lapse)
- Certified Acres
- Average Accumulated Change in Water Depth
- Fully and Over-Appropriated

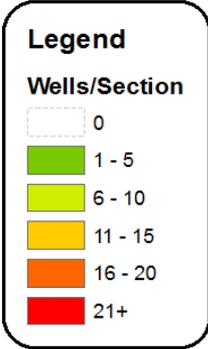
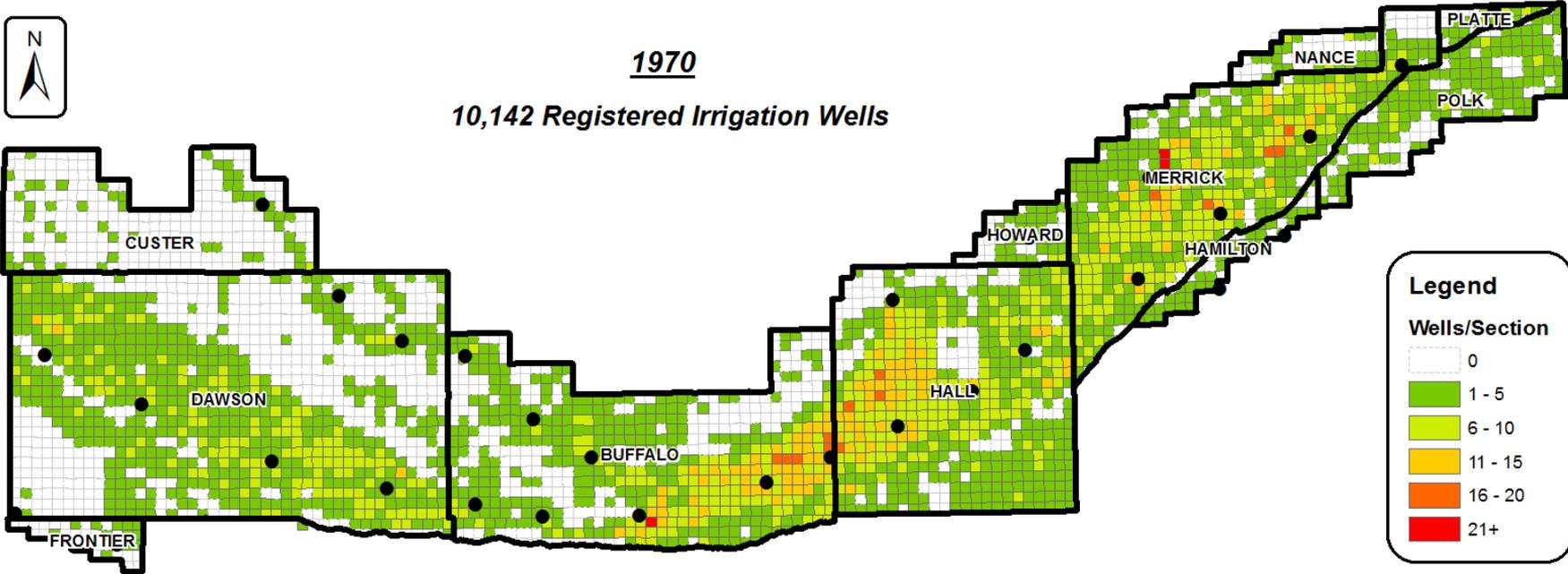
1960

8,310 Registered Irrigation Wells



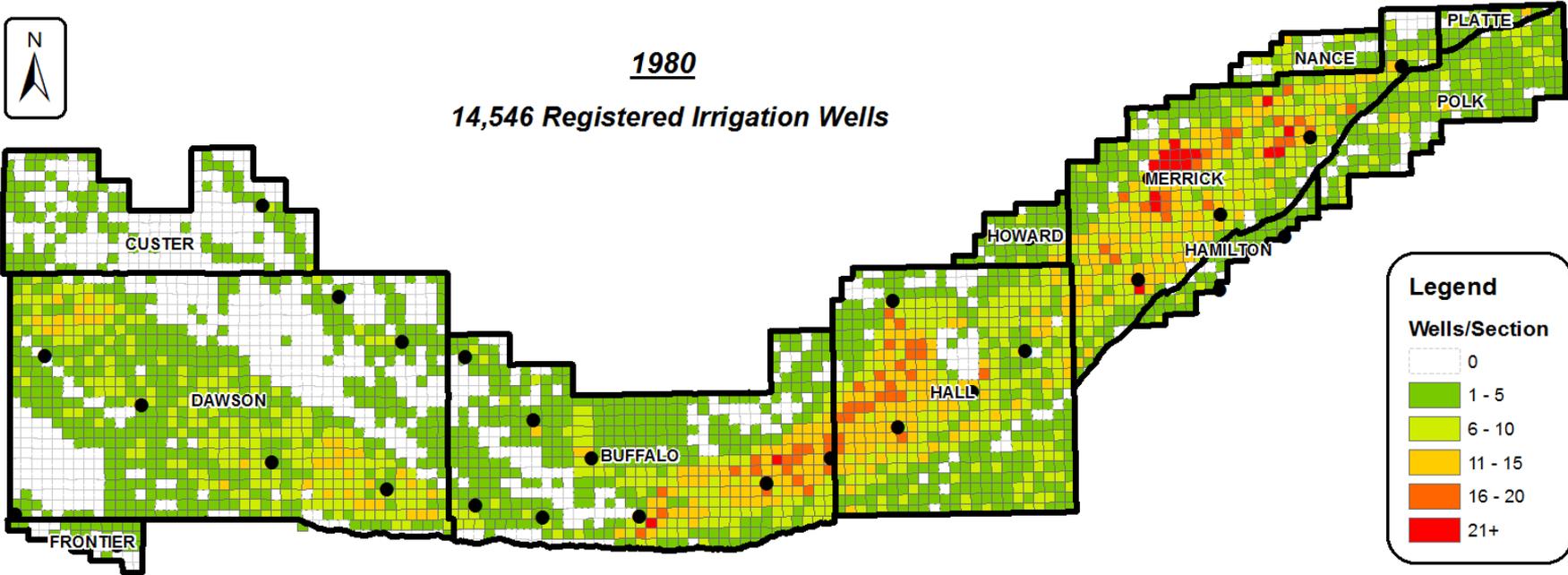
1970

10,142 Registered Irrigation Wells



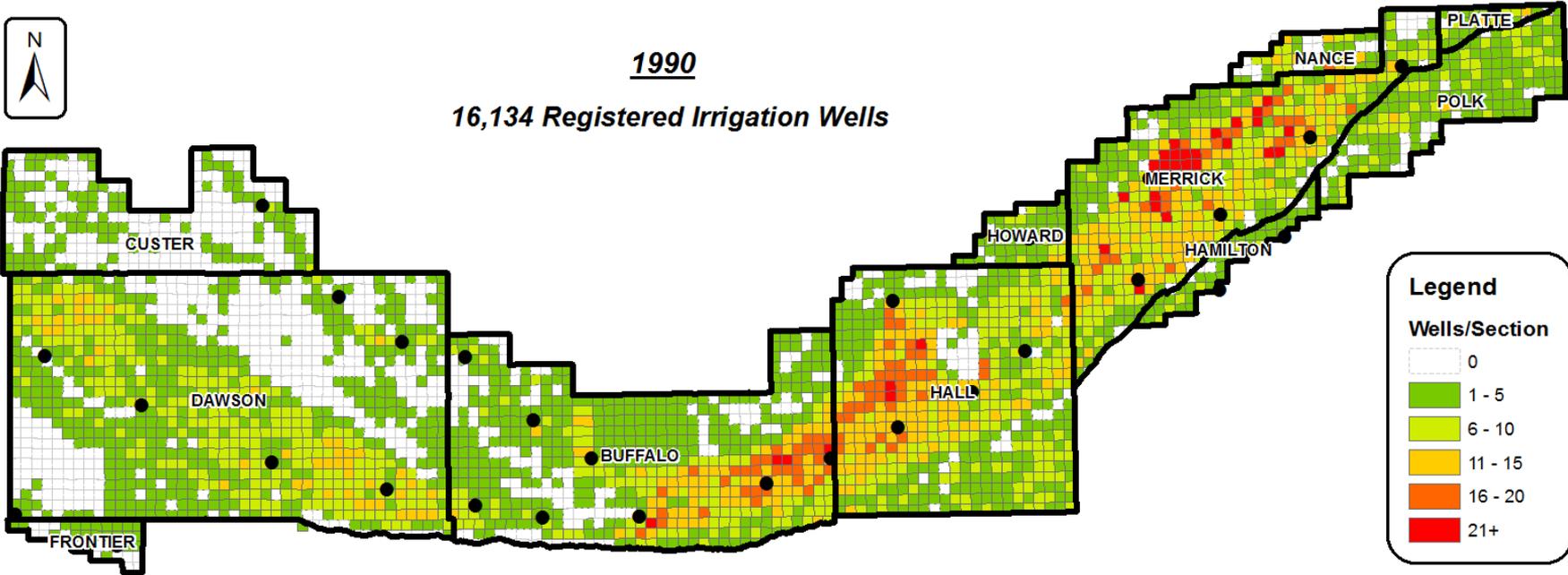
1980

14,546 Registered Irrigation Wells



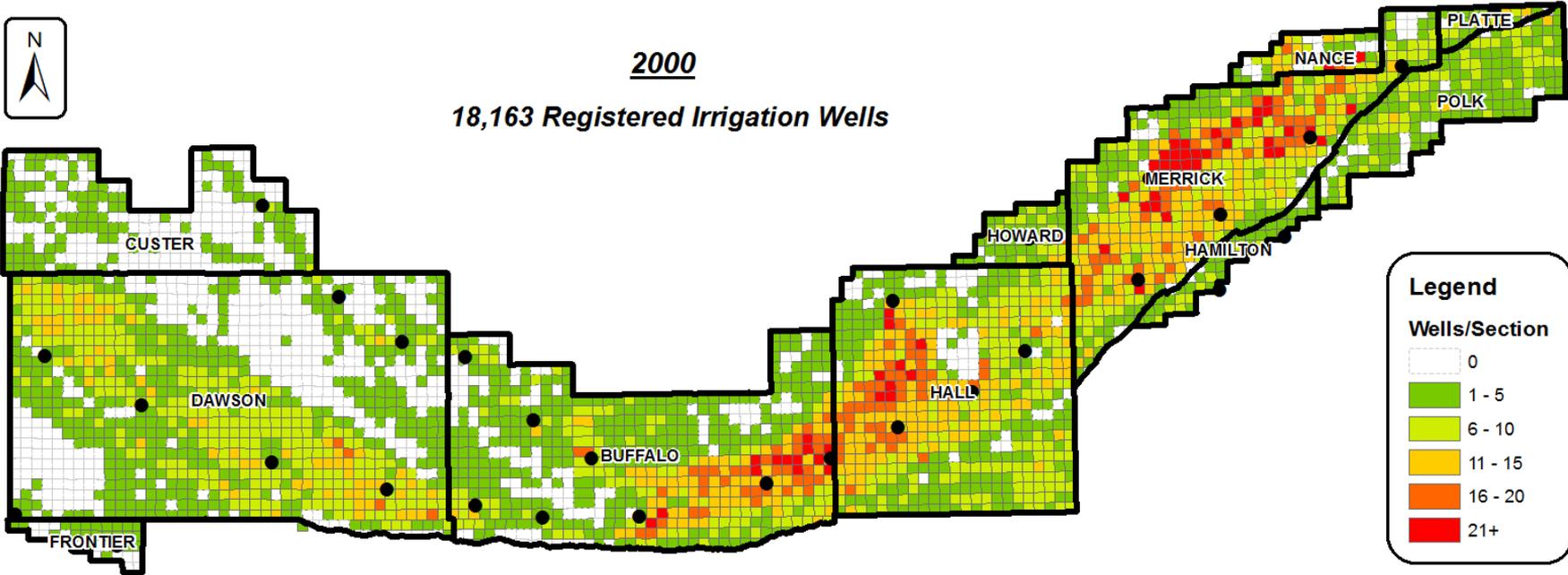
1990

16,134 Registered Irrigation Wells



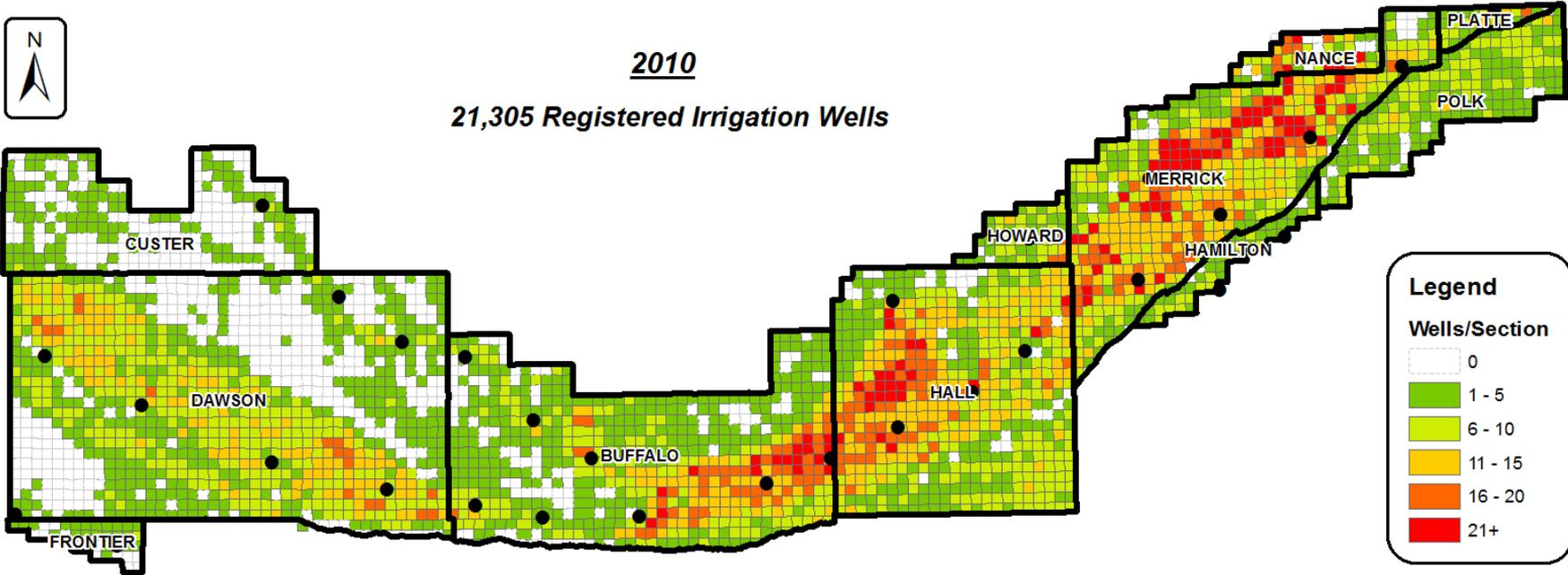
2000

18,163 Registered Irrigation Wells



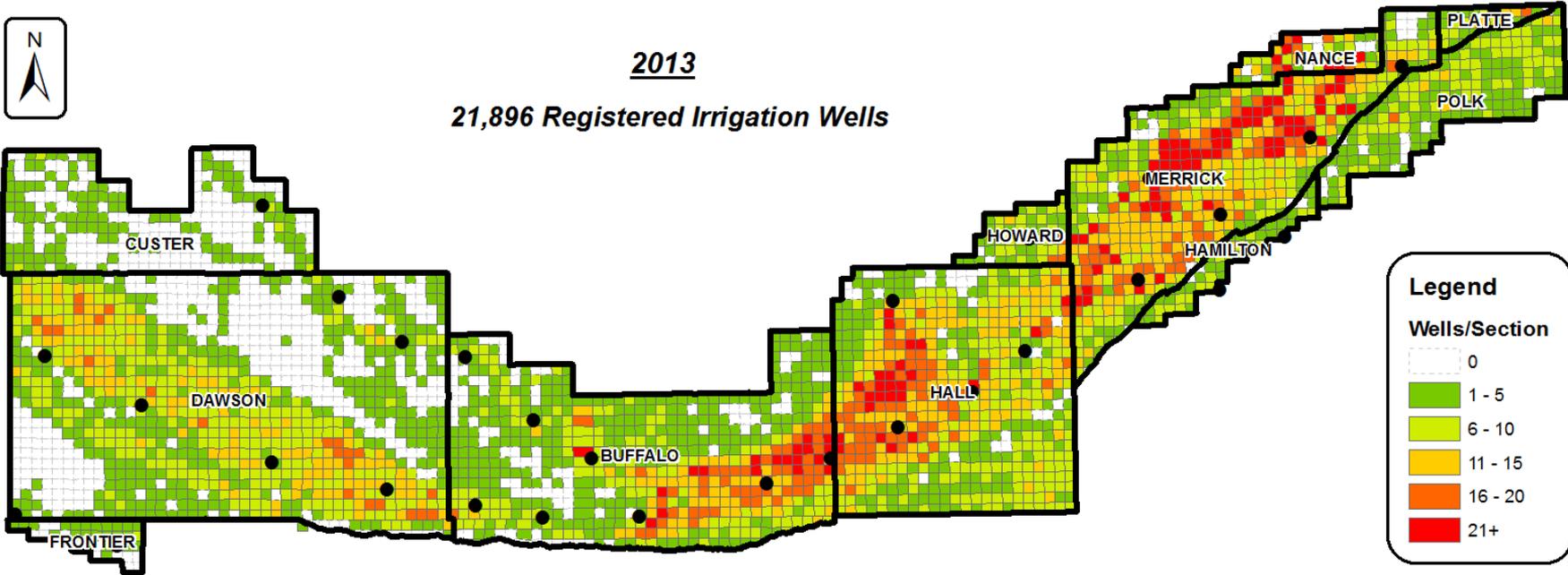
2010

21,305 Registered Irrigation Wells



2013

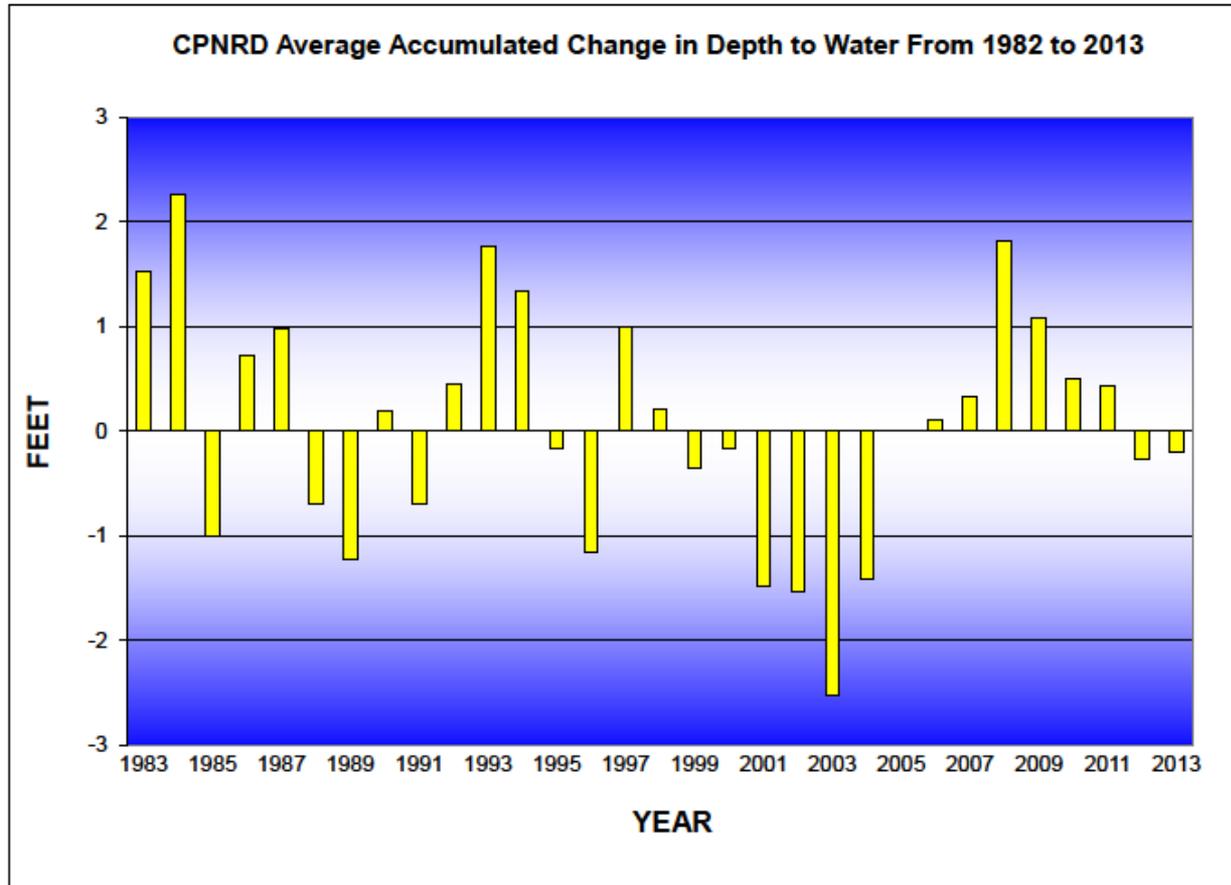
21,896 Registered Irrigation Wells



Certified Acres

YEAR	ACRES CERTIFIED	ACRES OF GROUNDWATER	ACRES OF SURFACE WATER	ACRES IN CO-MINGLED
2010	1,016,589	923,520	14,968	78,101
2011	1,016,668	923,904	14,658	78,106
2012	1,021,017	928,318	14,612	78,087
Difference 2010-2012	4,428	4,798	-356	-14

Average Accumulated Change in Depth to Water



FULLY & OVER-APPROPRIATED

PLATTE RIVER HABITAT PROGRAM

LB 962

	1 st Increment	1 st Increment
LAND	10,000 acres river land for habitat	N/A
WATER for depletions 1997-2006	Offset depletions from new uses down to Chapman, NE Water Plan in place before 2009	Offset depletions from new uses down to Elm Creek, NE. 10-year Implementation period.
WATER for wildlife	Increase flows for wildlife by 130,000-150,000 ac/ft. 3 State Projects- Water Action Plan	N/A
WATER for new development	No new depletions without offsets down to Chapman, NE	No new depletions without offsets down to Columbus, NE

FULLY & OVER-APPROPRIATED

PLATTE RIVER HABITAT PROGRAM

LB 962

	Subsequent Increment(s)	Subsequent Increment(s)
LAND	Unknown: 0-19,000 ac river land for habitat. May include existing conservation lands.	N/A
WATER for wildlife	Unknown: 0-267,000 ac/ft? Buying existing user's water.	N/A
WATER for depletions to balance supply/demand	N/A	Offset depletions to get back to balance supply/demand. Presently unknown amount.
WATER for new development	No new depletions without offsets down to Chapman, NE	No new depletions without offsets down to Columbus, NE.

PROGRAMS:

- COHYST
- PBHEP
- Platte Basin Coalition

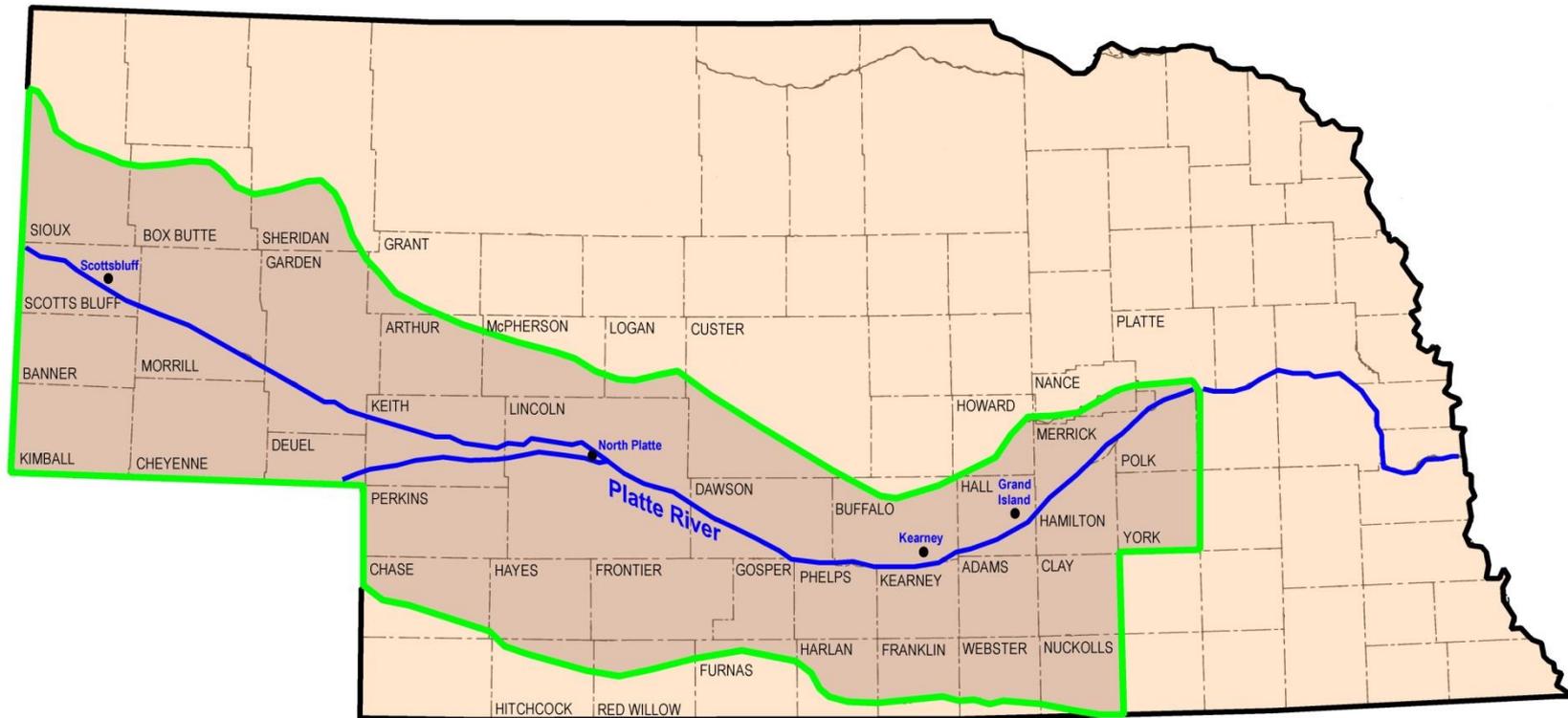
COHYST

Benefits:

- Helps analyze proposed activities of the **Platte River Program** and other programs in Nebraska.
- Assist Nebraska's NRDs along the Platte River in providing appropriate regulation and management.
- Provide Nebraskans with a basis to develop policy and procedures related to groundwater and surface water.

COHYST 2010 “What is it ?”

Process to develop databases and analytical tools to improve understanding of hydrologic and geologic conditions in the Platte River Basin.

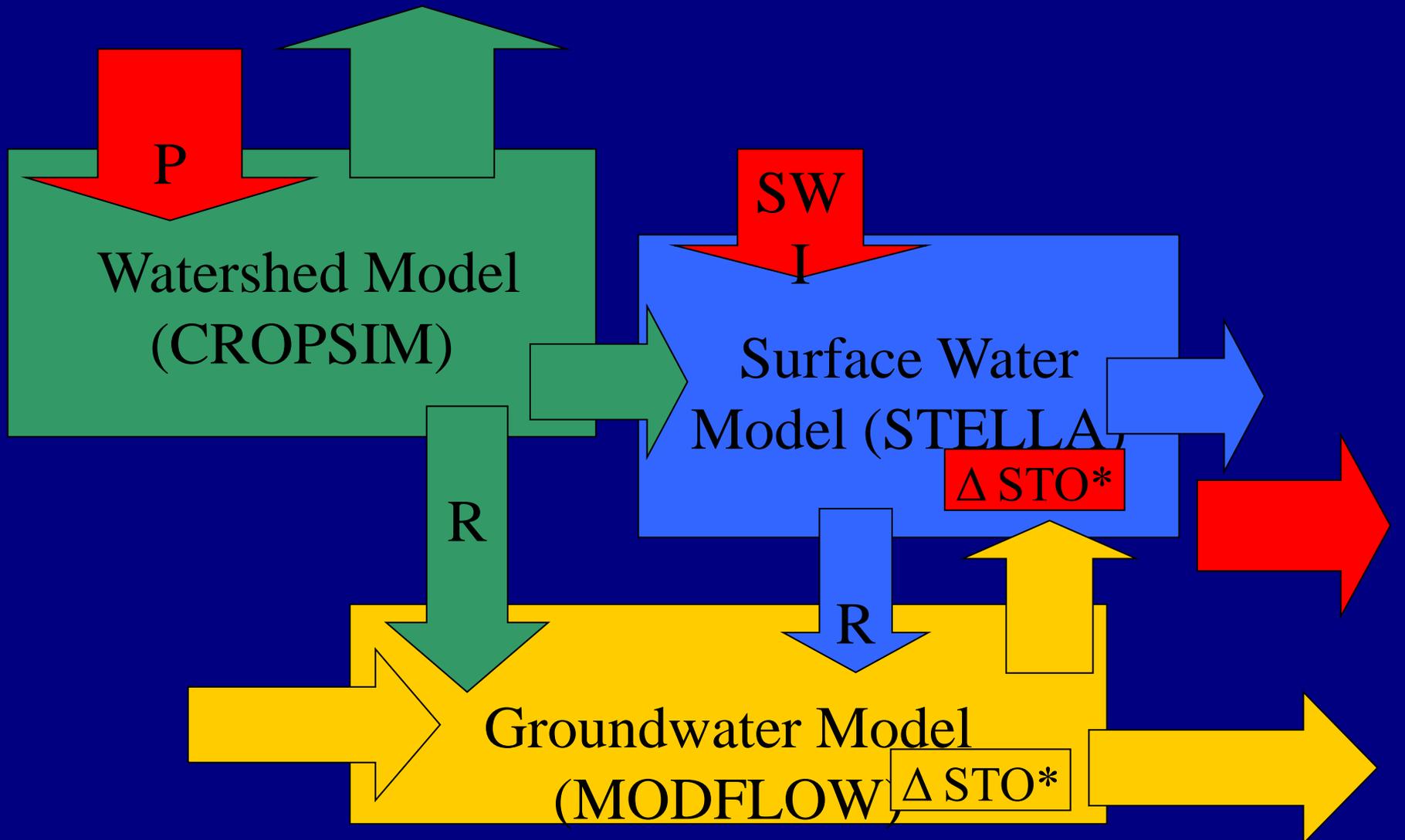


COHYST 2010 Operating Plan

September 2009

- Describes 8 past, present and future goals.
- Layout 5 Objectives including:
 1. Groundwater Model updates.
 2. Developing tracking & accounting analyses.
 3. Evaluate methods to incorporate Surface Water Streamflow.
 4. Perform alternative analyses of management and regulation alternatives.
 5. Maintain & update data sets.

COHYST 2010 Model Tools



COHYST 2010 Study

- The study was a 3-year effort by Sponsors:
 - Central Platte NRD, CNPPID, Twin Platte NRD, NPPD, Tri-Basin NRD, DNR & NGPC
 - Funding includes sponsor cash contributions and in-kind services plus NET grant funding.
 - The three year funding totals are:
 - NET \$616,800
 - Sponsor cash \$729,417
 - Sponsor In-Kind \$566,125
- Total \$1,912,342**

PBHEP

(Platte Basin Habitat Enhancement Program)

• Sponsors

- Nebraska Department of Natural Resources
- Central Platte NRD
- Twin Platte NRD
- Tri-Basin NRD
- South Platte NRD
- North Platte NRD
- Nebraska Game & Parks Commission



• Nebraska Environmental Trust

• Partners

- The Nature Conservancy, Farm Bureau, The Crane Trust

Project Objectives



- **Platte River Recovery Implementation Program-Nebraska New Depletions Plan**
- **Ground Water Management & Protection Act**
- **Water Acquisition approaches include:**
 - **Retire irrigation via conservation easements**
 - **Conjunctive water management projects – ground water/surface water**
 - **Water leasing**



PBHEP Funding

NDNR	\$ 6,000,000
NRDs	\$ 6,000,000
<u>NET</u>	<u>\$ 3,000,000</u>
Total	\$15,000,000



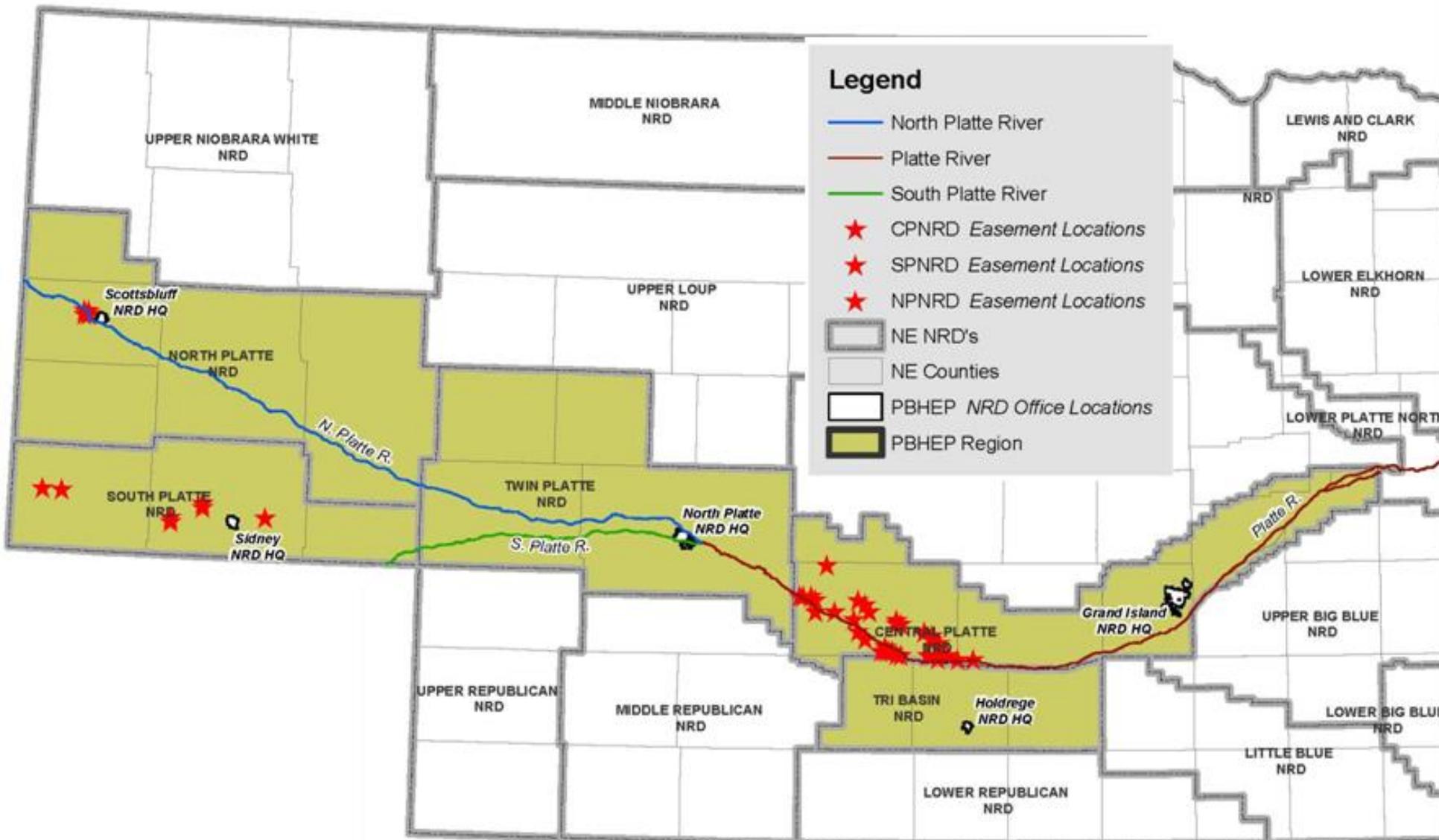
2:2:1 Ratio

NRD's : NDNR : NET

Progress to Date

- **41 Permanent Conservation Easements**
- **Cozad Canal Rehabilitation Project**
- **Thirty-Mile Canal Rehabilitation Project**
- **Department of Natural Resources Groundwater Recharge Demo Project**
- **North Dry Creek Project**
- **Re-Use Pit Groundwater Recharge Project**
- **Nebraska Cooperative Republican Platte Enhancement Project (N-CORPE)**
- **Water Leasing**

Conservation Easements



Conservation Easement Acres

- **41 Permanent Conservation Easements in 5 Counties – in the Over-Appropriated portion of the Platte Basin.**
- **Retired irrigation on over 3,250 acres.**
- **Saving 1938 ac/ft of water to the River.**

PBC

(Platte Basin Water Project Coalition)

- LB 229 passes in early 2011
- PBC Interlocal Cooperative Agreement finalized in July 2011
- NET application submitted in September
- Transfer to WRCF in April 2012

PBC Sponsors

(Platte Basin Water Project Coalition)

● Sponsors

- Nebraska Department of Natural Resources
- Central Platte NRD
- Twin Platte NRD
- Tri-Basin NRD
- South Platte NRD
- North Platte NRD
- Nebraska Environmental Trust

Project Objectives

(Platte Basin Water Project Coalition)

- **Platte River Recovery Implementation Program – Nebraska New Depletions Plan**
- **NE Ground Water Management & Protection Act**
- **Each NRD's Integrated Management Plan**
- **Joint Integrated Water Resources Management of Over-appropriated Portions of the Platte River Basin (Basin-Wide Plan)**

PBC Funding

(Platte Basin Water Project Coalition)

WRCF – General	\$ 6,600,000
WRCF – NET	\$ 9,900,000
NRD's	\$ 6,600,000
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Total	\$23,100,000

60:40 Ratio NDNR : NRD's

Projects to Date

(Platte Basin Water Projects Coalition)

- **J2 Regulating Reservoirs**
- **17 Permanent Conservation Easements**
- **Orchard-Alfalfa Canal Rehabilitation Project**
- **Department of Natural Resources
Groundwater Recharge Demo Project**
- **Phase 2 North Dry Creek Project**
- **Nebraska Cooperative Republican Platte
Enhancement Project (N-CORPE)**
- **North Platte NRD Water Lease/Recharge**

PBHEP/PBC

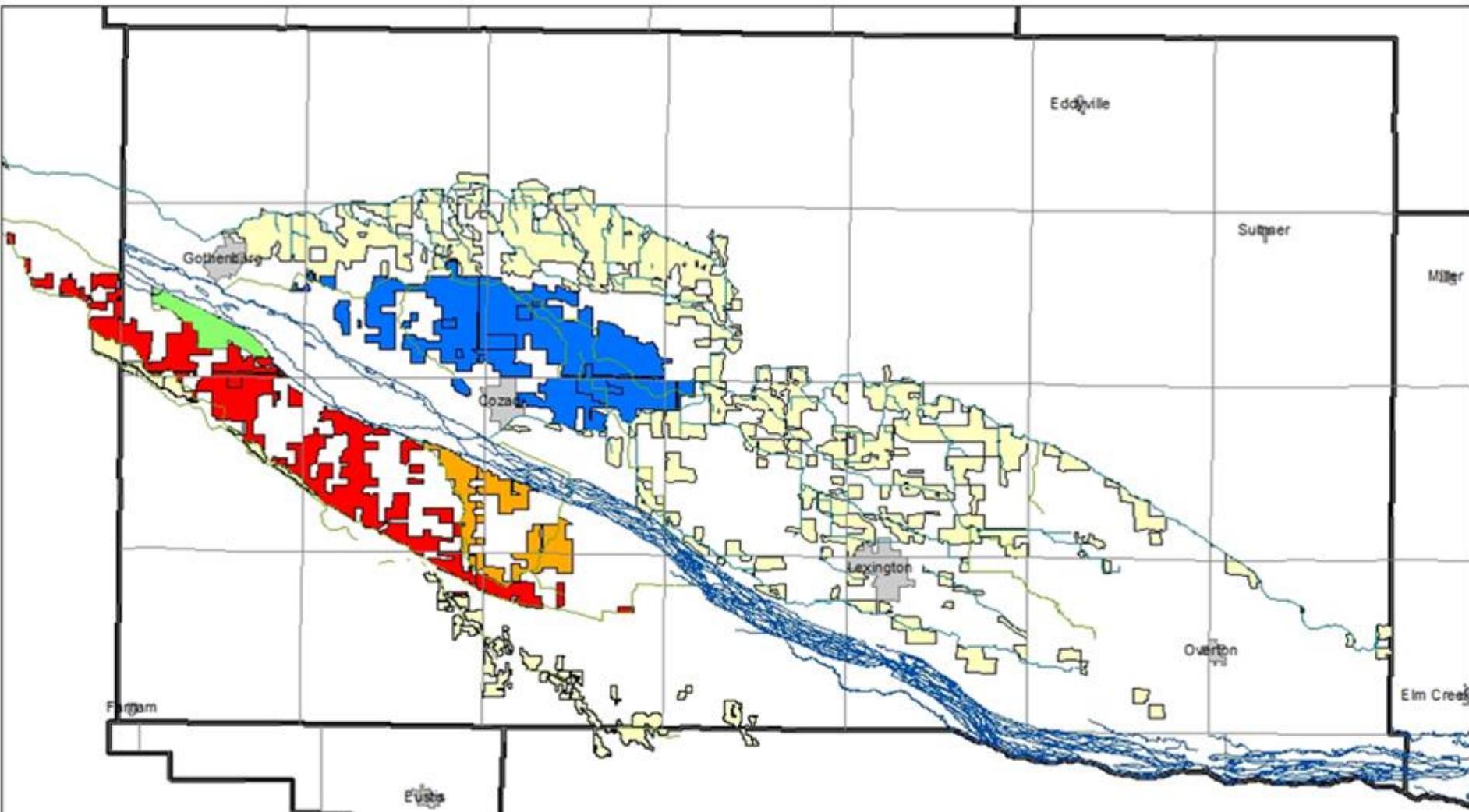
Calculated Water Enhancements

Average Annual Values

- J2 Reservoir (NE Share) 10,200 AF/Year
(CPNRD Share 2,040 AF/Year)
- CPNRD PBC Conservation Easement 1,016 AF/Year
- CPNRD PBHEP Cons Easements 1,387 AF/Year
- Orchard-Alfalfa Canal Rehab 1,000-8,000 AF/Year
- Cozad Canal Rehab 1,000-8,000 AF/Year
- Thirty-Mile Canal Rehab 1,000-8,000 AF/Year

PROJECTS

- Surface Water Canals
- J-2 Regulating Reservoirs
- Prairie/Silver/Moores
Flood Control Project



Legend

- Thirty Mile Canal
- Orchard Alfalfa Canal
- Cozad Canal
- 6 Mile Canal

Surface Water Canal Companies



Surface Water Canals

- **In 2010, CPNRD started working with surface water irrigation canals in Dawson County in an effort to:**
 - Increase Platte River flows.
 - Protect endangered species.
 - Aid effort to bring over-appropriated area back to fully appropriated status.
 - Make irrigation more efficient.

Surface Water Canals

- **Six Mile Canal**: first-ever buyout of surface water irrigation canal in Nebraska.
 - **BENEFITS**: Farmers converted to groundwater irrigation & increased flows to the Platte River.
- **Cozad Canal/Orchard Alfalfa**: NRD partnered to manage canals & lease surface water.
 - **BENEFITS**:
Rehab of canals to increase Platte River flows, protect endangered species, divert unused surface water flows back to Platte River.

Cozad Canal Before Improvements



Cozad Canal After Rehabilitation



Surface Water Canals

- Thirty Mile Canal
- **Purchase/Management lease agreement**
1/2 interest in irrigation system including:
- **1/2 water rights and 1/2 value of buildings and equipment.**
 - **BENEFITS:**
Rehab of canal to increase Platte River flows, protect endangered species, divert unused surface water flows back to Platte River.

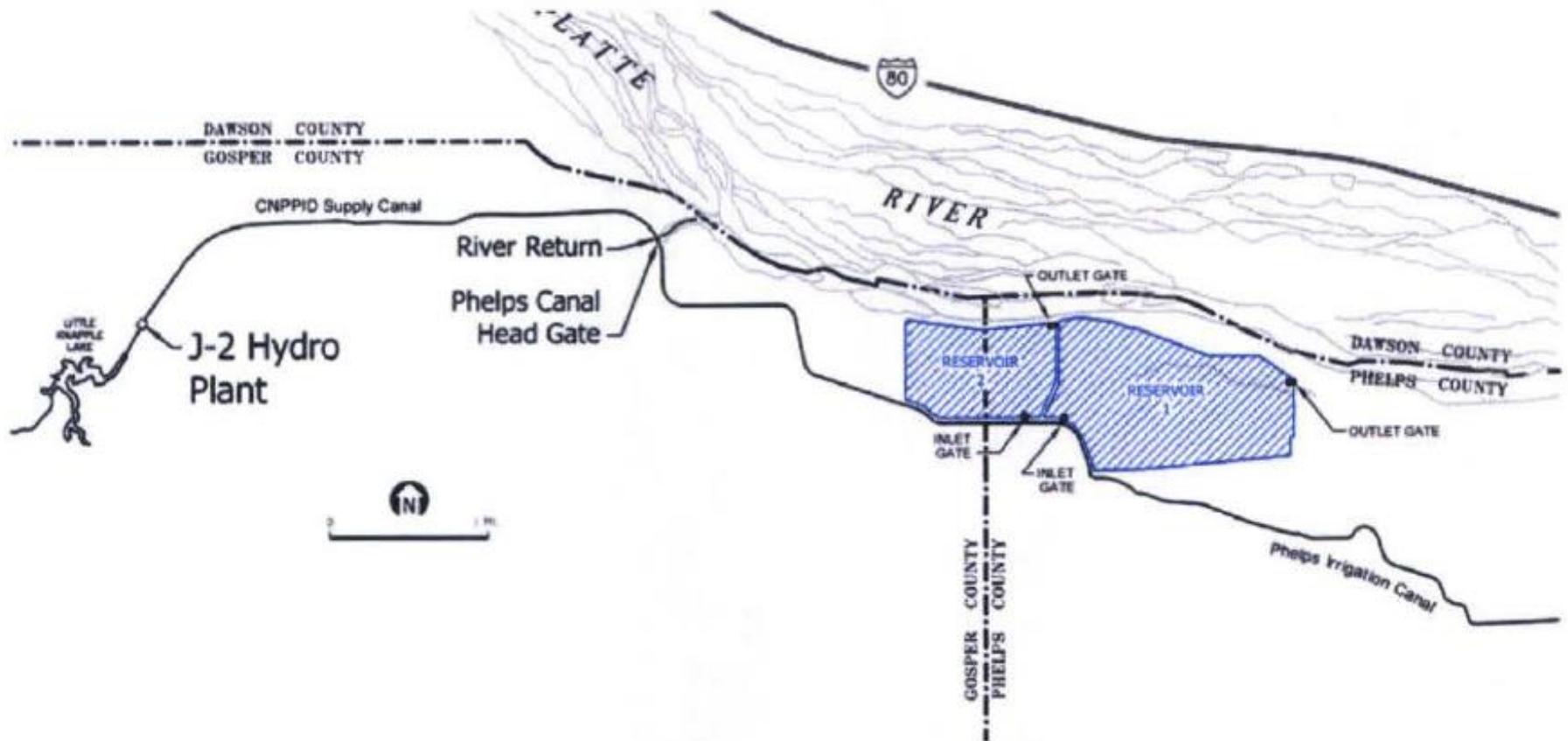
Surface Water Canals

Cozad Canal	\$7,739,800
Thirty-Mile Canal	\$4,149,342
Orchard/Alfalfa	\$4,163,946
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Total	\$16,053,088

J-2 Regulating Reservoirs

- Partners: PRRIP, Central NPP&ID, Nebraska-DNR
- Owner/Operator: Central Nebraska PP&ID
- Project Cost Estimate: \$75 million
- Location: SE of Lexington, downstream of J2 Return
- Surface Area: 1,000 acres
- Capacity: 15,000 AF
- Water Benefits: 40,800 AF/Year (Neb 10,200 AF/Yr)
- Term: 50 years (plus possible 20 year extension)
- Schedule: Permitting, Design, Land Acquisition –
Operational late 2015/early 2016

J-2 Regulating Reservoirs



J-2 REGULATING RESERVOIRS

THE CENTRAL NEBRASKA PUBLIC POWER AND IRRIGATION DISTRICT

FLOOD CONTROL-

Upper Prairie Silver Moores Flood Control Project

■ Project Goals

- Provide 100-year flood protection to properties in northwest Grand Island.
- Reduce flood damages to crops, properties and other infrastructures.
- Removal of properties from FEMA floodplain.

■ Project Benefits (2004)

- Eliminating \$59 Million in Damages during 100-year event.
- Protect 1,500 homes & 55 businesses from flood damages.
- Protect over 10,000 acres of cropland.

Project Components

- Lowland Detention Cells: 6 M Cubic Yards of Excavation
 - Upland Floodwater Retarding Sites: 5 - 8 Dry Dams
 - Levee Freeboard- Silver / Moores Basin Divide
-

Schedule:

- | | |
|---|---------------------------|
| ■ Design of Upland Dams | March 2012 to June 2013 |
| ■ Design of Benton & Still Rehab | Fall to Winter 2013 |
| ■ Design of Levee | Summer 2013 - Spring 2014 |
| ■ Construction of DCUL6 & PCUL4 | Completed |
| ■ Construction of PCUL1 & PCUL2 | March - August 2014 |
| ■ Construction of Benton & Still Rehab, | TBD |
| ■ Levee, Final Detention Cells | TBD |

Total Project Cost

Engineering	\$2,760,484
Construction	\$21,476,416
Easements	\$4,600,000
Feasibility Study	\$264,500
O&M Costs	<u>\$456,560</u>
TOTAL:	\$29,557,960

Total Project Cost

Nebraska Resources Development Fund @ 52.5%

Local Cosponsors (Share of balance)

CPNRD @ 46.25%

City of GI @ 46.25%

Hall County @ 5%

Merrick County @ 2.5%

Total Project Costs (as of 8/20/13)

Pre-feasibility Study	256,702.81
Engineering/Design	1,196,273.76
Land Rights	1,383,297.95
Construction	<u>9,937,558.29</u>
Total	12,773,832.81

NE Resources Development Funds Received	
Pre-feasibility Study	133,102.01
Eng/Land R/Const.	<u>6,549,342.51</u>
Total	\$6,682,444.52

Upper Prairie Silver Moores Creek Flood Control Project PCUL 4 08/05/2013



Questions?

Lyndon Vogt

Central Platte NRD