

# Water Plan Updates

**Seth M Turner, PE**  
**Platte River Recovery Implementation Program**  
**Governance Committee Meeting**  
**March 12, 2024**

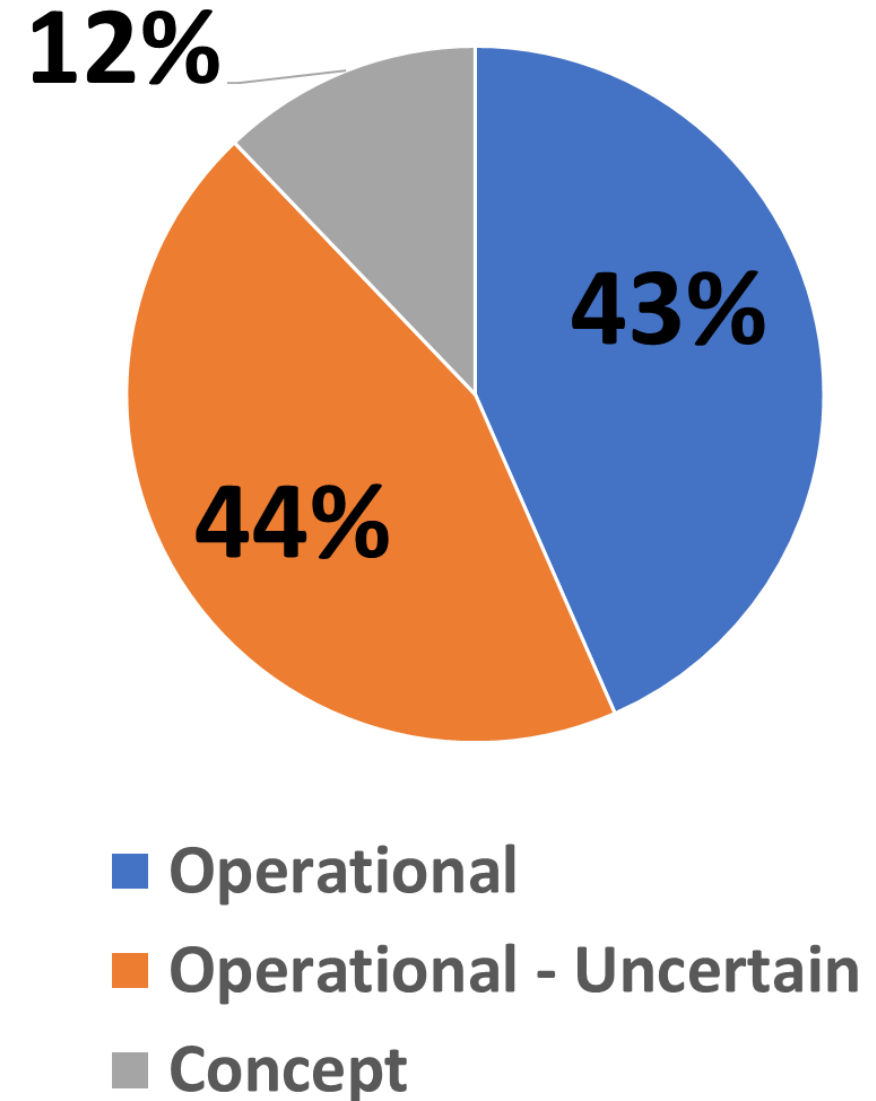
# Water Milestone Summary

# Extension Water Objective

- Reach 120,000 AFY deficit reductions at Grand Island ASAP
  - 80,000 AFY from 3 initial state water projects
  - 40,000 AFY from implementation of Water Action Plan (WAP) projects
- Shift in focus to controllable water supplies
  - Surface water leases/exchanges
  - Recapture wells to enhance recharge projects

# WAP Operational + Concept Scores

Project	Score (AFY)
<b>Approved Scores (12,980 AF)</b>	
Operational	12,270
Operational - Uncertain Future	710
<b>Estimated Scores (19,610 AF)</b>	
Operational	3,840
Operational - Uncertain Future	15,770
<b>Concept Scores</b>	
Expanded Recapture/Elwood Outlet	4,500
<b>Total =</b>	<b>37,090</b>





# Operational Water Action Plan Projects

**4 surface water leases**

**1 free water (314 AF)**

**4 groundwater recharge projects**

**1 recapture project (8 wells)**

# **“Certain” WAP Projects - Leasing**

- **No-Cost Net Controllable Conserved Water (NCCW)**
  - 314 AF/year
  - Contributed to Lake McConaughy EA since 2001
  - No cost to Program
  - Made available by USBR funding of CNPPID system improvements in 1990s
  - Approved score = 260 AF/year
- **Pathfinder Municipal Account Lease**
  - Began 2012 with completion of Pathfinder Modification Project
  - Water Leasing Agreement through 12/31/2032
  - \$65/AF
  - Range 0 AF (2021) to 9,600 AF (6 years)
  - If 4,800 AF available, Program obligated to take delivery of at least that much
  - Approved score = 6,350 AF/year

# “Certain” WAP Projects – Recharge

	Phelps	Elwood
<b>Origin</b>	Pilot-scale to MP 9.7 in 2011, expanded to MP 13.3 starting 2012	Began May 2015
<b>WSA</b>	Through 12/31/2032 (option +10 x 1 yrs)	
<b>Reserved Amount</b>	Minimum 75% of diversions to MP 13.3	Minimum 50% of diversions
<b>Pre-Paid Volume</b>	~50,000 AF	~135,000 AF
<b>Unit Cost</b>	\$35.92/AF	\$54.54/AF
<b>Remaining Credit</b>	~49,600 AF	~131,750 AF
<b>Approved Score</b>	2,700 AF	2,800 AF



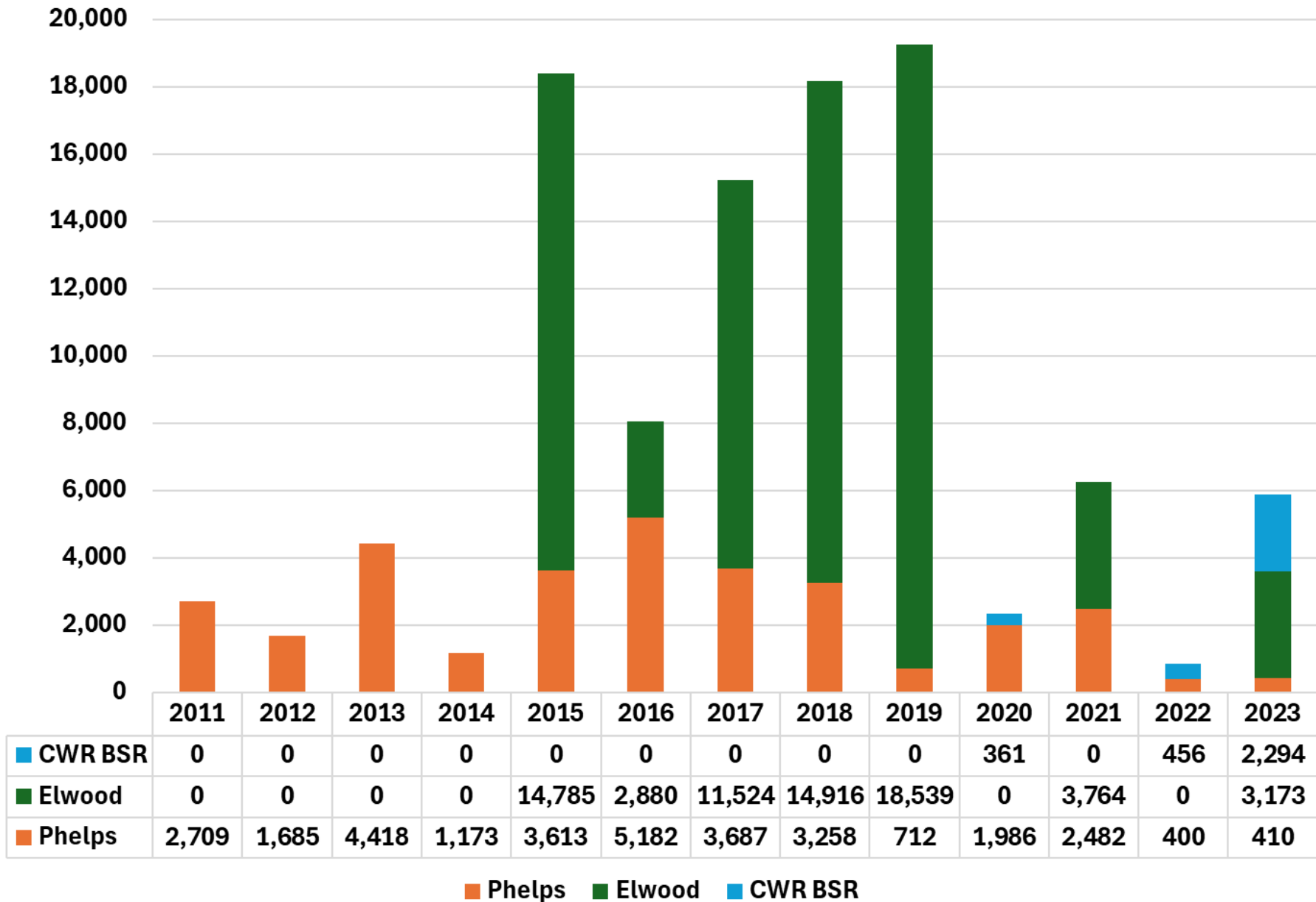


# **“Certain” WAP Projects – Recharge**

- **Cottonwood Ranch Broad-Scale Recharge**
  - 2019: Construction completed
  - 2020: Test fill operations
  - 2022-2023: First “real” recharge operations
- **Deliveries via pipeline from Phelps County Canal**
  - WSA with CNPPID through 12/31/2032 (extensions +36 yrs)
  - Program paid construction costs for pipeline
  - No water delivery charges until pipeline effectively repaid by CNPPID
  - 2024-2032 average unit cost = \$31.13/AF
  - Remaining credit ~28,700 AF
- **Estimated score = 2,700 AF/year**



## PRRIP Recharge Diversions in CNPPID System





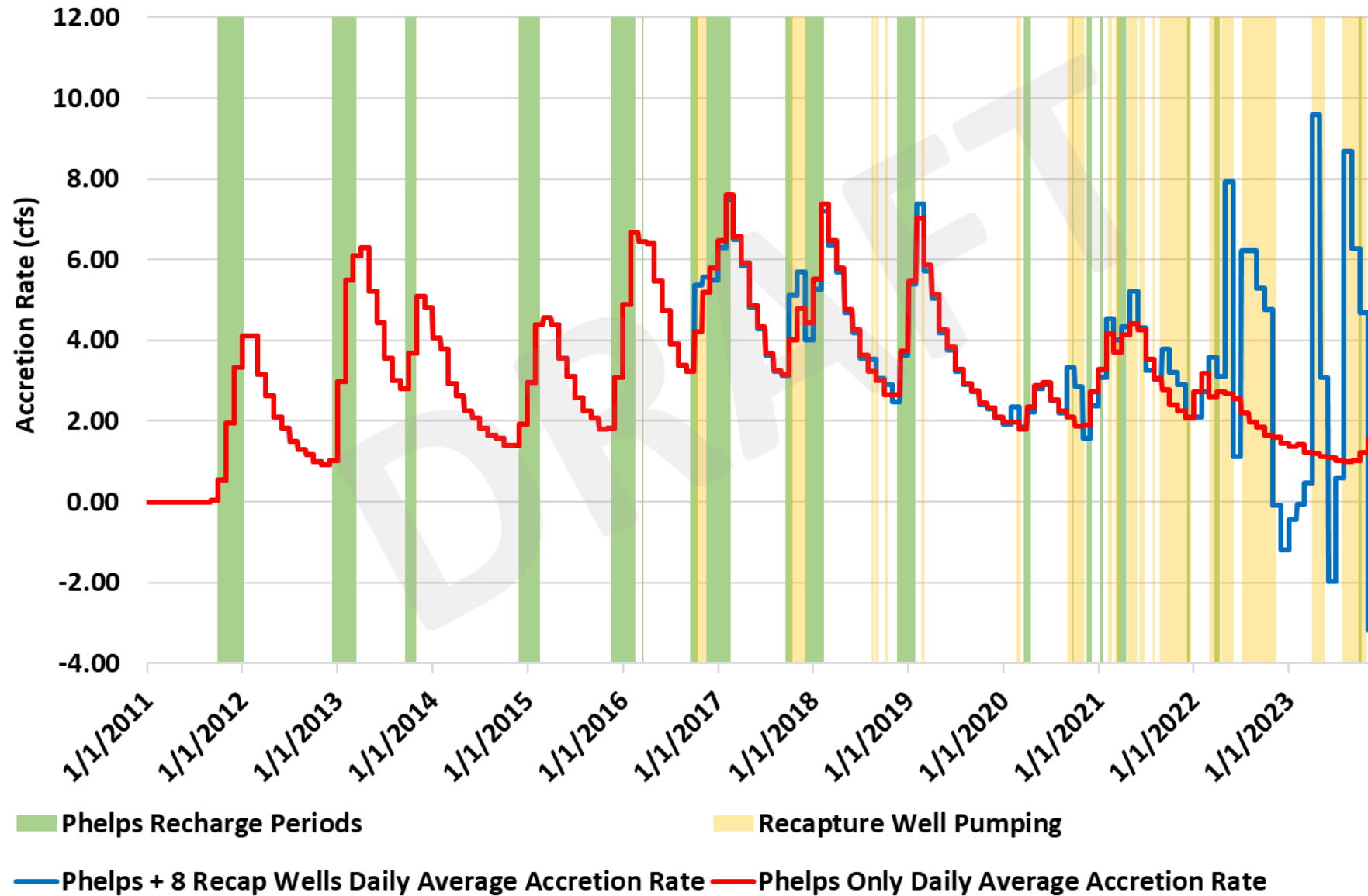
# **“Certain” WAP Projects – Recapture**

- **Water Augmentation Agreement with TBNRD through 12/31/2032 (may extend)**
- **Cook Well**
  - Installed 2016
  - Cumulative pumping 2016-2023 = 2,075 AF
  - Approved score = 160 AF/year
- **Pilot-scale recapture network**
  - 7 wells near Cottonwood Ranch
  - Constructed 2021-2023
  - Cumulative pumping 2022-2023 = 4,066 AF
  - Estimated score = 1,140 AF/year





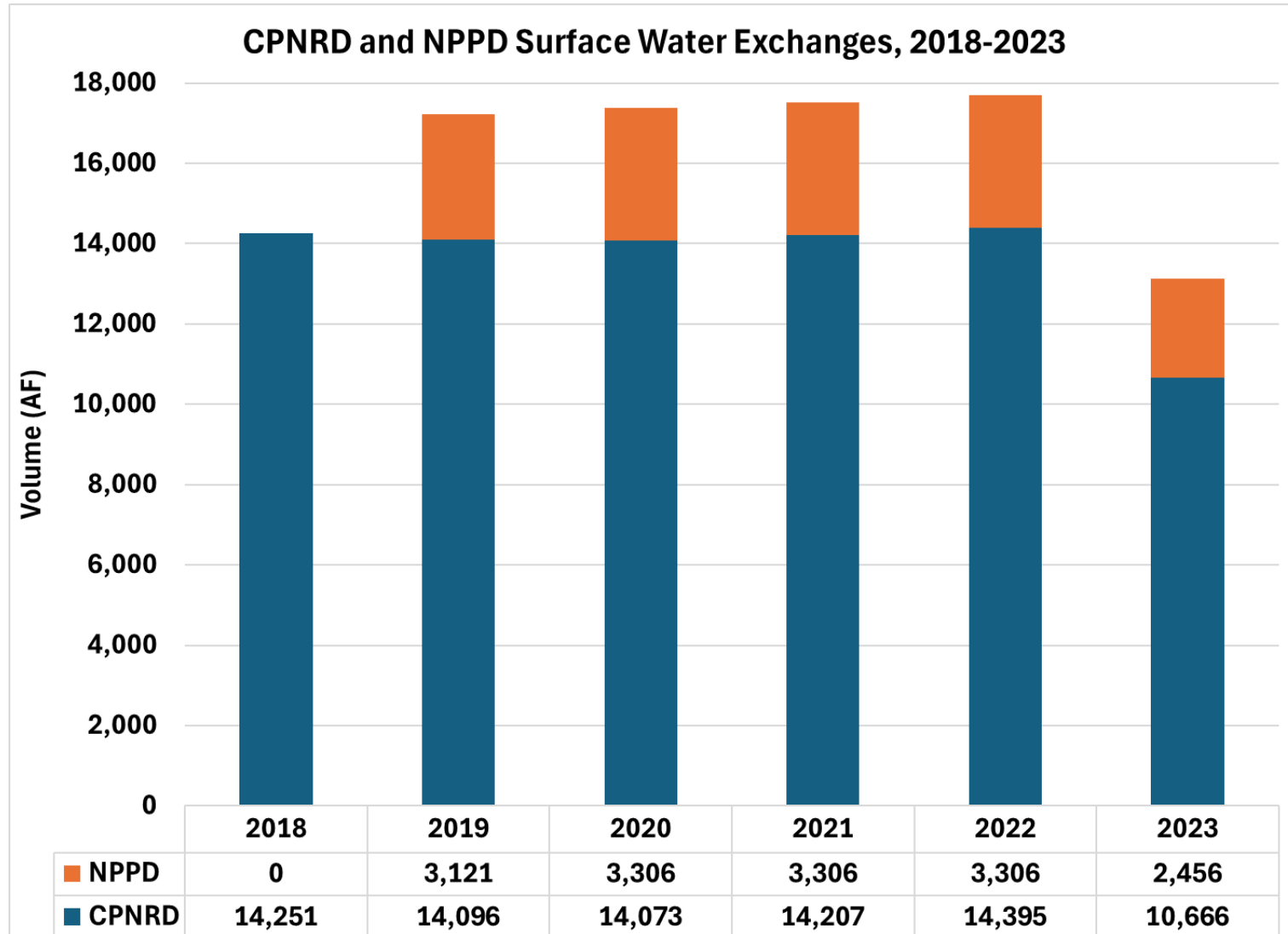
## Phelps Recharge + 8 Recapture Wells Pumping with Accretion Rates, 2011-2023





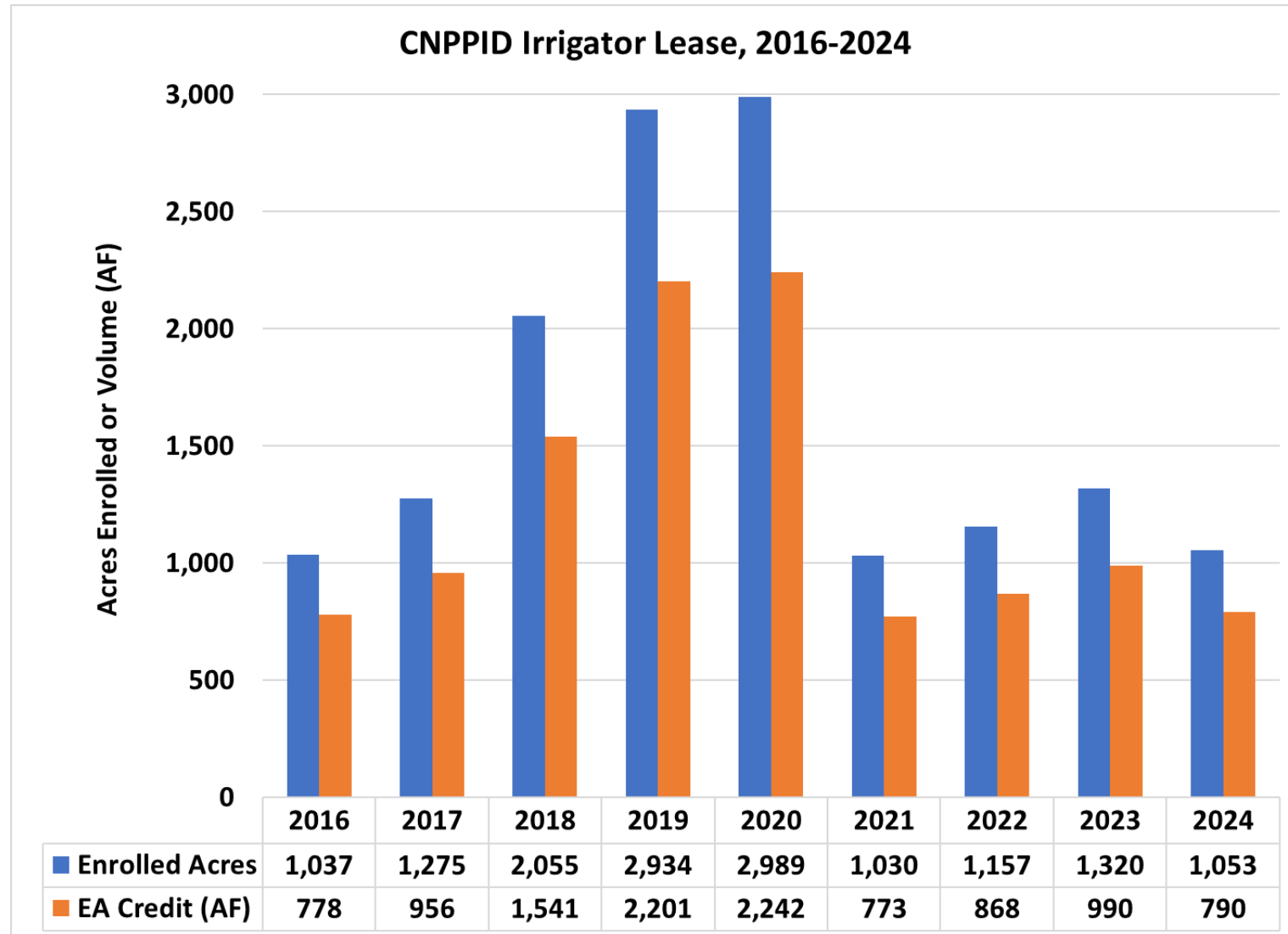
# “Uncertain” WAP Projects - Leasing

- **CPNRD and NPPD surface water exchanges**
  - Succussion of 1-year lease agreements since 2018-2019
  - \$90/AF
  - Without long-term agreements, have not scored
  - Estimated scores
    - CPNRD = 12,000 AF/year
    - NPPD = 2,870 AF/year



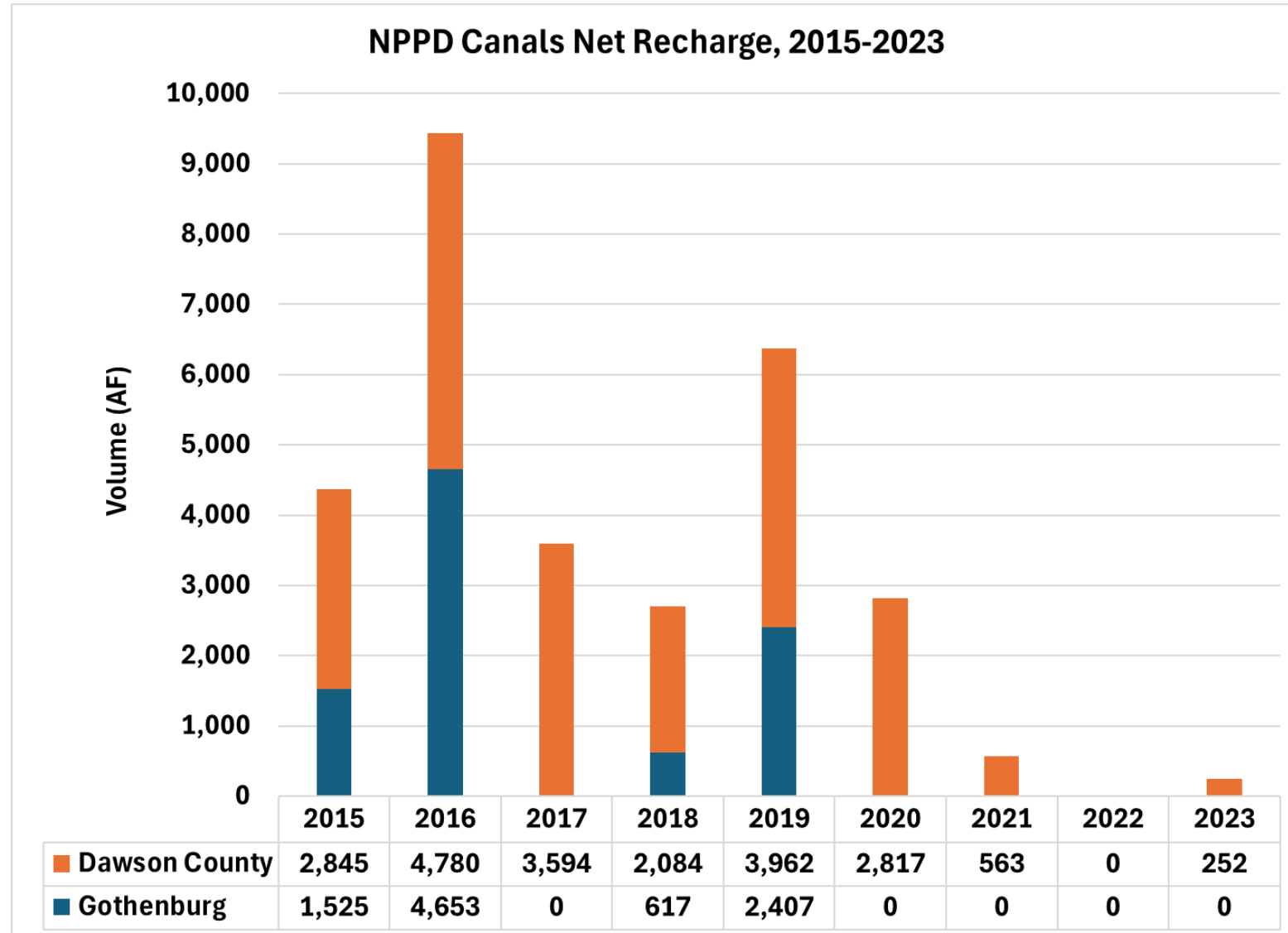
# “Uncertain” WAP Projects - Leasing

- **CNPPID irrigator lease**
  - Water Leasing Agreement extended 1 year through 12/31/2024
  - Significant drop in enrollment after price reduction
  - Still most expensive surface water (\$133/AF)
- **Approved score = 1,900 AF/year**  
(assume reduced to ~710 AF/year)
- **Oamek study update: anything besides paying more that would reliably increase enrollment?**



# “Uncertain” WAP Projects - Recharge

- **NPPD canals recharge**
  - **Gothenburg and Dawson County**
  - **WSA through 12/31/2025**
  - **\$37/AF in 2024**
  - **Estimated score = 900 AF/year**





# Expanded Recapture Reconnaissance Study

- Team of LRE Water, Inter-Fluve, and RJH
- Three main elements
  - Plum Creek conveyance capacity (~100 cfs above baseflow)
  - Elwood Reservoir gravity outlet to Plum Creek (pipeline or open channel)
  - Expand recapture well network (location, quantity)
- Tradeoff analysis to maximize reduction to target flow deficits
- Expect late summer completion

# North Platte Chokepoint Study

- **Team of Anderson Consulting Engineers, River Works, Dr. Peter Nelson (CSU), and ERO Resources**
- **Geomorphic assessment**
  - Channel evolution
  - Sediment sources
  - Sediment accumulation, i.e., extent of “sediment wedge” behind Tri-County Diversion
- **Alternatives analysis – Reviewed 2x by Chokepoint Planning Workgroup**
  - Bypass options
  - In-channel solutions, e.g., dredging, headcut, Tri-County Diversion modifications, etc.
- **Hydraulic and sediment transport modeling (1-D and 2-D)**
- **Expect late summer completion**

# Questions?

[turners@headwaterscorp.com](mailto:turners@headwaterscorp.com)